Analytical Resources, LLC
Analytical Chemists and Consultants

29 March 2023

Ali Judkins
Anchor QEA, LLC
1201 3rd Ave, Suite 2600
Seattle, WA 98101

RE: AOC4 UR Phase 3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23B0494	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2023.03.29 15:36:41 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

23B0494

 2160244

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Archive

№ 3973

Project/Client Name: Duwamish AOC4
Project Number: 180067-02.02
Contact Name: Amara Vandervoort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunnihoo
Shipper: Courier
Form filled out by: Nicolas Eckhardt

Shipping Date: 7/16/21
Airbill Number: —
Turnaround requested: STD

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required): Archive							Comments / Instructions [Jar tag number(s)]
7/15/2021	1530	LDW21-IT655A	4	Sediment	X							
↓	↓ NE	LDW21-IT655B	4	↓	X							
	~~1530~~ 1621	LDW21-IT655C	4		X							
↓	↓ NE	LDW21-SC538 ~~B~~ A (NE)	3 ~~4~~ (NE)	↓	X							
7/15/2021	~~1530~~ 1621	LDW21-SC538 ~~C~~ D (NE)	3 ~~4~~ (NE)	Sediment	X							
7/15/2021	~~1530~~ 1621	LDW21-SC538F	3	Sediment	X							
7/16/21	8:16 NE	LDW21-IT582A	3	↓	X							
↓	8:16	LDW21-IT582D	3		X							
	8:16	LDW21-IT582F	3		X							
	11:23	LDW21-IT579A	3		X							
↓	11:23	LDW21-IT579C	3	↓	X							
7/16/21	11:23	LDW21-IT579D	3	Sediment								
		Total Number of Containers	21 ~~24~~ (NE)	Purchase Order / Statement of Work # CLF-052021-ARI								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Brandi Quinlisk	[signature]	Print name:	
Signature: [signature]	Company: ARI	Signature:	Company:
Company: Windward		Company:	
Date/Time: 7/16/21 17:39	Date/Time: 7/16/21 1739	Date/Time:	Date/Time:

* Distribution: White copies accompany shipment; yellow retained by consignor.

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

Wind Ward environmental LLC
200 1st Ave W, Suite 500
Seattle, WA 98119
206.378.1364

23B0494

 2160244

CHAIN-OF-CUSTODY/TEST REQUEST FORM

ARCHIVE

№ 3974

Project/Client Name: Duwamish Arch
Project Number: 180067-02.02
Contact Name: Amara Vandervort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunnihoo
Shipper: courier
Form filled out by: Brandi Quinlisk
Shipping Date: 7/16/21
Airbill Number: —
Turnaround requested: STD

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required): Archive								Comments / Instructions [Jar tag number(s)]
7/16/21	11:23	LDW21-IT579E	3	Sediment	X								
↓	11:23	LDW21-IT579F	3	↓	X								
	11:23	LDW21-IT579GS1	1		X								
	12:56	LDW21-IT635A	4		X								
	↓	LDW21-IT635B	4		X								
		LDW21-IT635C	4		X								
		LDW21-IT635D	4		X								
		LDW21-IT635E	4		X								
		LDW21-IT635F	4		X								
		LDW21-IT635G	4		X								
↓	12:56	LDW21-IT635GS1	1	↓	X								
7/16/2021	14:07	LDW21-IT597A	3	Sediment	X								
		Total Number of Containers	39	Purchase Order / Statement of Work # CLF-052021-ARI									

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Brandi Quinlisk	[signature]	Print name:	
Signature: Brandi Quinlisk	Company: ARI	Signature:	Company:
Company: Windward		Company:	
Date/Time: 7/16/21 17:39	Date/Time: 7/16/21 1739	Date/Time:	Date/Time:

* Distribution: White copies accompany shipment; yellow retained by consignor.

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

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206.378.1364

23B0494

ARCHIVE

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CHAIN-OF-CUSTODY/TEST REQUEST FORM

№ 3874

Project/Client Name: Duwamish Arch
Project Number: 180067-02.02
Contact Name: Tamara Vandenora
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunihoo
Shipper: Courier
Form filled out by: Brandi Quinlisk

Shipping Date: 7/16/2021
Airbill Number: —
Turnaround requested: STD

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required) Archive							Comments / Instructions [Jar tag number(s)]
7/16/21	14:07	LDW21-175977D	3	Sediment	X							
"	14:07	LDW21-175977E	3	"	X							
7/16/21	15:45	LDW21-SC5391D	3	Sediment	X							
"	"	LDW21-SC5391E	3	"	X							
7/16/21	15:45	LDW21-SC5391652	1	Sediment	X							
		Total Number of Containers	13		Purchase Order / Statement of Work #			CLF-052021-ARI				

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Brandi Quinlisk		Print name:	
Signature: Brandi Quinlisk	Company: ARI	Signature:	Company:
Company: Windward		Company:	
Date/Time: 7/16/21 17:39	Date/Time: 7/16/21 1739	Date/Time:	Date/Time:

* Distribution: White copies accompany shipment; yellow retained by consignor.

Wind Ward environmental LLC

200 1st Ave W, Suite 500
Seattle, WA 98119

206.378.1364

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

23B0494
~~2260247~~

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Tier 2

№ 3254

Project/Client Name: AOCY UR Phase 3
Project Number: 180067-02.04
Contact Name: Amara Vandervort
Sampled By: Windward

Ship to: ARL
Attn: Sue Dunnihoo
Shipper: Courier
Form filled out by: AV/BQ
Shipping Date: 12/8/2022
Airbill Number: —
Turnaround requested: Std

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required): Archive							Comments / Instructions [Jar tag number(s)]
12/7/2022	1414	LDW22-SC762K	3	Sediment	X							
12/7/2022	1414	LDW22-SC762L	3	↓	X							
12/7/2022	1414	LDW22-SC762M	3	↓	X							
12/8/2022	0920	LDW22-IT790A	3	↓	X							
↓	↓	LDW22-IT790B	3	↓	X							
↓	↓	LDW22-IT790C	3	↓	X							
↓	↓	LDW22-IT790D	3	↓	X							
↓	↓	LDW22-IT790E	3	↓	X							
↓	↓	LDW22-IT790F	3	↓	X							
↓	↓	LDW22-IT790G	3	↓	X							
↓	0920	LDW22-IT790H	3	↓	X							
12/8/2022	1039	LDW22-SC802L	3	Sediment	X							
		Total Number of Containers	36	Purchase Order / Statement of Work # APJ-110222-AOCY-ARL								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Amara Vandervort	YARED	Print name: YARED	[signature]
Signature: [signature]	Company: YA YA SAFETY	Signature: [signature]	Company: ARL
Company: Windward		Company: YA YA SAFETY	
Date/Time: 12/8/2022 1638	Date/Time: 12/8/22 4:38	Date/Time: 12/8/22 5:18 PM	Date/Time: 12/8/22 1718

* Distribution: White copies accompany shipment; yellow retained by consignor.

To be completed by Laboratory upon sample receipt:

Date of receipt:	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

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Seattle, WA 98119
206.378.1364

23B0494

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CHAIN-OF-CUSTODY/TEST REQUEST FORM

Tier 2

No 3239

Project/Client Name: Ano LR Phase 3
Project Number: 1EC067-02.04
Contact Name: Amara Vanderwort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunniveo
Shipper: Courier
Form filled out by: AV / BQ

Shipping Date: 12/8/2022
Airbill Number: —
Turnaround requested: Std

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required) Archive							Comments / Instructions [Jar tag number(s)]
12/8/22	0817	LDW22-IT769A	3	Sediment	X							
		LDW22-IT769B	3		X							
		LDW22-IT769C	3		X							
		LDW22-IT769D	3		X							
		LDW22-IT769E	3		X							
	↓	LDW22-IT769M	3		X							
	0817	LDW22-IT769N	3		X							
	1127	LDW22-SC767M	3	↓	X							
12/8/22	1347	LDW22-SC761M	3	Sediment	X							
		Total Number of Containers	27	Purchase Order / Statement of Work # APJ-110222-ARC4-ARL								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Amara Vanderwort	YARED	YARED	
Signature:			
Company: Windward	YA YA SAFETY	YA YA SAFETY	ARI
Date/Time: 12/8/2022 1635	12/8/22 4:38	12/8/22 5:18PM	12/9/22 1717

* Distribution. White copies accompany shipment; yellow retained by consignor.

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

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200 1st Ave W, Suite 500
Seattle, WA 98119
206.378.1364

23B0494

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CHAIN-OF-CUSTODY/TEST REQUEST FORM

Tier 2

№ 3259

Project/Client Name: AOC 4 UR Phase 3
Project Number: 180067 - 02.04
Contact Name: Amara Vandervort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunnihoo
Shipper: Courier
Form filled out by: AV 1/32

Shipping Date:
Airbill Number: —
Turnaround requested: std

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required)							Comments / Instructions [Jar tag number(s)]
					Archive							
12/8/22	1429	LDW22-SC75BA	3	Sediment	X							
12/8/22	1429	LDW22-SC75BL	3		X							
12/8/22	1429	LDW22-SC75BM	3		X							
		Total Number of Containers		Purchase Order / Statement of Work # APT-110222-AOC4-ARL								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Amara Vandervort	YARED	YARED	
Signature:			
Company: Windward	YA YA SAFETY	YA YA SAFETY	ARI
Date/Time: 12/8/22 1635	12/08/22 4:38	12/08/22 5:18 PM	12/8/22 1718

* Distribution: White copies accompany shipment; yellow retained by consignor.

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

Wind Ward environmental LLC
200 1st Ave W, Suite 500
Seattle, WA 98119
206.378.1364

Fw: Additional LDW AOC4 samples 23B0494

Sue Dunnihoo <limsadm@arilabs.com>
Thu 2/23/2023 3:35 PM
To: **Sample Receiving <sample-receiving@arilabs.com>**
More freezer diving, please.

Log rush (one week, please) knowing we probably won't make it.

See below.

Sue

I will be out of the office the morning of February 28.

*** NOTE - TATs are running 3 to 6 weeks depending on analysis ****

Susan D. Dunnihoo
She/her/hers

Analytical Resources, LLC

(206) 695-6207 office
sue.dunnihoo@arilabs.com

www.arilabs.com

From: Susan McGroddy <SusanM@windwardenv.com>
Sent: Thursday, February 23, 2023 3:30 PM
To: Sue Dunnihoo <limsadm@arilabs.com>
Cc: Amara Vandervort <amarav@windwardenv.com>; Kim Goffman <KimG@windwardenv.com>; Brandi Quinlisk <brandiq@windwardenv.com>; Anastasia Barr <anastasiab@windwardenv.com>; Ali Judkins <ajudkins@anchorqea.com>
Subject: Additional LDW AOC4 samples

Sue,

We need to pull some samples from archive for LDW AOC4. The samples and the analyses are below. This work should be charged to LDW AOC4 contract. Please let me know if you have any questions or concerns. The two samples for metals analysis should be analyzed for arsenic only. would be good to get these samples going because we need the data to keep the design work on schedule. We have another two samples for PCBs that are being debated this week. We will let you know ASAP if those samples are approved.

Thanks.
Susie

23B0494

Sample ID	ARI Login WO ID	PCBs	Dioxins/ Furans	TOC/Percent Solids	Metals
LDW21-IT635A	21G0244-16	x	x	x	-
LDW21-IT635B	21G0244-17	x	x	x	-
LDW21-IT635C	21G0244-18	x	-	x	-
LDW21-IT635D	21G0244-19	x	-	x	-
LDW22-IT789M	22L0247-18	-	-	x	As
LDW22-IT789N	22L0247-19	-	-	x	As

Susan McGroddy Ph D
Partner
Windward Environmental LLC
200 First Avenue West, Suite 500
Seattle WA 98119

206.251.2129
susanm@windwardenv.com

23B0494

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Windward

COC No(s): _____ NA

Assigned ARI Job No: 22L0347

Project Name: AOC4 UR Phase 3

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1718 | 2.1 | 3.0 | 1.8 | 4.9 | 4.8 | 5.1 |

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID# 9702

Cooler Accepted by: _____ Date: 12/08/22 Time: 1718

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?			YES NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		_____

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JS Date: 12/14/22 Time: 1142 Labels checked by: JS

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

23B0494

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Windward / Anchor Project Name: Duwamish NOC4

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 23B0494 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1857 5.9 4.5 2.5 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00526

Cooler Accepted by: SC Date: 7/16/21 Time: 1739

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	(Individually)	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)	_____	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SC Date: 7/21/21 Time: 1356 Labels checked by: SC

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Anchor QEA, LLC	Project: AOC4 UR Phase 3	
1201 3rd Ave, Suite 2600	Project Number: 180067-02.04	**Reported:**
Seattle, WA 98101	Project Manager: Ali Judkins	03/29/2023 15:16

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
23B0494-01	LDW21-IT635A	Solid	07/16/21 12:56	02/24/23 08:41
23B0494-02	LDW21-IT635B	Solid	07/16/21 12:56	02/24/23 08:41
23B0494-03	LDW21-IT635C	Solid	07/16/21 12:56	02/24/23 08:41
23B0494-04	LDW21-IT635D	Solid	07/16/21 12:56	02/24/23 08:41
23B0494-05	LDW22-IT789M	Solid	12/08/22 08:17	02/24/23 08:41
23B0494-06	LDW22-IT789N	Solid	12/08/22 08:17	02/24/23 08:41

Anchor QEA, LLC	Project: AOC4 UR Phase 3	
1201 3rd Ave, Suite 2600	Project Number: 180067-02.04	**Reported:**
Seattle WA, 98101	Project Manager: Ali Judkins	29-Mar-2023 15:16

Case Narrative

Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Work Order: 23B0494

Sample receipt

Samples as listed on the preceding page(s) were pulled from frozen archive and logged under ARI work order 23B0494. For details regarding sample receipt, please refer to the original Cooler Receipt Forms.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed outside the recommended holding times for frozen samples and have been "H"-flagged noting the excursion.

Calibrations failed high for aroclor 1260 on the ZB5 column, and all associated data is reported using the ZB35 column as the primary.

Hexabromobiphenyl failed low on the ZB5 column, attributed to continued issues with the matrix. All data has been reported with the ZB35 column as the primary.

The recovery for tetrachloro-m-xylene was low of limits for LDW21-IT635. As this surrogate is used as an indicator of blow-down issues and not required by the method, the outlier is flagged and no further action taken.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries for aroclor 1260 were low of advisory control limits and the relative percent difference (RPD) were within advisory control limits.

The analyst noted a number of extracts in this sequence had miscellaneous peaks through-out the chromatogram, possibly inflating results.

Total Metals - EPA Method 6020B (Arsenic)

The sample(s) were digested and analyzed within the recommended holding times for samples stored frozen.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BLC0184 matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits for arsenic, reported under work order 23A0087.

Wet Chemistry (Total Organic Carbon and Total Solids)

The sample(s) were prepared and analyzed outside the recommended holding times for frozen samples and have been "H"-flagged noting the excursion.

Anchor QEA, LLC	Project: AOC4 UR Phase 3	
1201 3rd Ave, Suite 2600	Project Number: 180067-02.04	**Reported:**
Seattle WA, 98101	Project Manager: Ali Judkins	29-Mar-2023 15:16

Case Narrative

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The reference material (SRM) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Dioxin/Furans - EPA Method 1613

The sample(s) were extracted and analyzed outside the recommended holding times for frozen samples and have been "H"-flagged noting the excursion.

Analysis was performed using an application specific column developed by Restek. The RTX-DIoxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits.

The cleanup surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits, with response or EMPC response below the reporting limit. Associated positive results have been "B"-flagged.

The OPR (Ongoing Precision and Recovery) standard percent recoveries were low of control limits for 1,2,3,6,7,8-HxCDF and 1,2,3,4,6,7,8-HpCDF. As the SRM had recovery in limits, outliers are flagged, and no further action was taken for this sample set. Recoveries for these analytes has been trending lower, so the spike solution was remade.

The reference material (SRM) percent recoveries were within control limits.

The duplicate (DUP) relative percent difference (RPD) were outside advisory control limits for 1,2,3,7,8,9-HxCDD and 1,2,3,4,7,8,9-HpCDF.

QUALIFIERS AND NOTES

Qualifier	Definition
X	Indicates possible CDPE interference.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
J	Estimated concentration value detected below the reporting limit.
H	Hold time violation - Hold time was exceeded.
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D	The reported value is from a dilution
B	This analyte was detected in the method blank.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LDW21-IT635A

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Solid	Laboratory ID:	23B0494-01 A	File ID:	03022373ECD7.D
Sampled:	07/16/21 12:56	Prepared:	02/28/23 13:15	Analyzed:	03/03/23 18:16
% Solids:	59.06	Preparation:	EPA 3546 (Microwave)	Initial/Final:	21.19 g Wet / 2.5 mL
Batch:	BLB0718	Sequence:	SLC0051	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	10	40.0	15.6	40.0	H, U
11104-28-2	Aroclor 1221	1	10	40.0	15.6	40.0	H, U
11141-16-5	Aroclor 1232	1	10	40.0	15.6	40.0	H, U
53469-21-9	Aroclor 1242	1	10	40.0	15.6	40.0	H, U
12672-29-6	Aroclor 1248	2	10	704	15.6	40.0	H, D
11097-69-1	Aroclor 1254	2	10	792	15.6	40.0	H, D
11096-82-5	Aroclor 1260	2	10	283	5.9	40.0	H, D

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9905*	*8.29*	*104*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9905*	*6.14*	*76.9*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9905*	*7.16*	*89.6*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9905*	*5.94*	*74.3*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022373ECD7.D
Data file 2: /230302.b/230302.b/03022373ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23B0494-01RE1
Client ID:
Injection Date: 03-MAR-2023 18:16
Report Date: 03/06/2023 11:08
Matrix: NONE
Dilution Factor: 10.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.001	17584	5.684	-0.002	14161	3.1	3.0	3.4	Tetrachloro-m-xylene
13.887	-0.005	20958	14.114	-0.003	23767	4.2	3.6	14.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	382925	-43.2
Hexabromobiphenyl	1429847	512494	-64.2 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	324773	3.0
Hexabromobiphenyl	513946	435512	-15.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1248	1	8.399	-0.006	56455	302.2	1	8.301	-0.007	78557	506.6
Aroclor-1248	2	8.569	-0.011	42469	178.8	2	8.707	-0.007	51652	322.2
Aroclor-1248	3	8.987	-0.011	133608	298.2	3	9.146	-0.021	42205	228.7
Aroclor-1248	4	9.288	-0.005	127858	560.6	4	9.534	-0.058	50423	~~227~~ 352.5
		Total Col1Ave (4 peaks):			334.9		Total Col2Ave (4 peaks):			321.3 RPD = 4
		Corrected Ave (3 peaks):			259.7		Corrected Ave (3 peaks):			259.5 RPD = 0
Aroclor-1254	1	9.288	-0.009	127858	332.5	1	9.441	-0.010	85041	344.5
Aroclor-1254	2	9.365	-0.012	57980	335.3	2	9.960	-0.011	69314	349.0
Aroclor-1254	3	9.656	-0.012	91612	370.6	3	10.110	-0.014	200046	465.6
Aroclor-1254	4	9.792	-0.016	214596	446.4	4	10.357	-0.015	188902	451.0
Aroclor-1254	5	10.139	-0.036	107462	356.7	5	10.558	-0.011	94989	372.5
		Total Col1Ave (5 peaks):			368.3		Total Col2Ave (5 peaks):			396.5 RPD = 7
		Corrected Ave (4 peaks):			348.8		Corrected Ave (4 peaks):			379.3 RPD = 8
Aroclor-1260	1	11.036	-0.009	28054	152.2	1	11.647	-0.004	64963	253.7
Aroclor-1260	2	11.352	-0.008	24171	125.5	2	11.908	-0.009	68216	104.4
Aroclor-1260	3	11.723	-0.010	59622	116.7	3	12.428	-0.007	17237	99.4
Aroclor-1260	4	12.125	-0.013	40917	159.0	4	12.492	-0.009	48306	109.7
Aroclor-1260	5	12.237	-0.007	11511	103.9	NS	---			----
		Total Col1Ave (5 peaks):			131.5		Total Col2Ave (4 peaks):			141.8 RPD = 8
		Corrected Ave (4 peaks):			124.6		Corrected Ave (3 peaks):			104.5 RPD = 18
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			

Total PCB Area Col1 (5.906 - 13.793) = 2589862 Col1 Total PCB = 0.6 ppm*

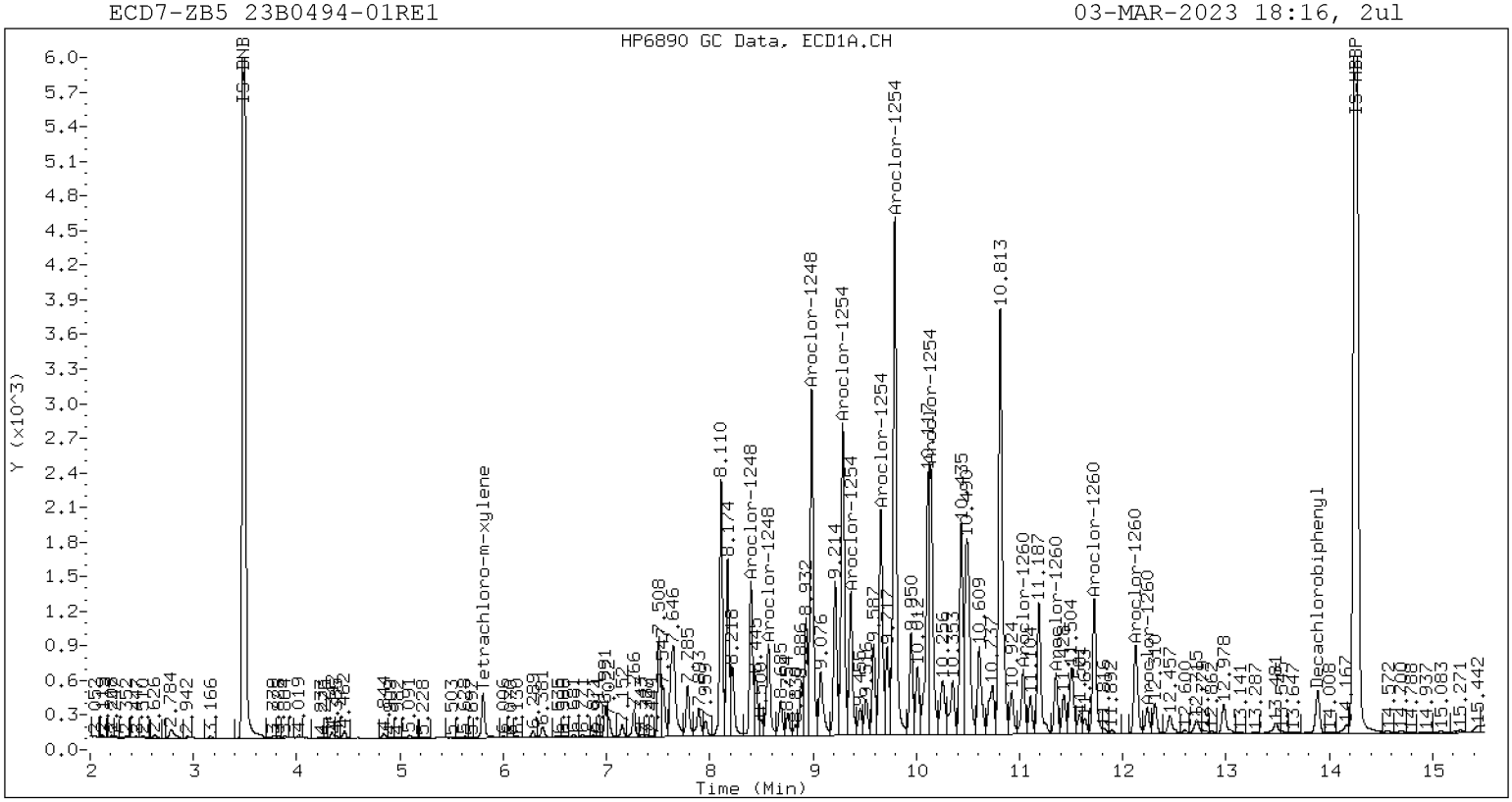
Total PCB Area Col2 (5.786 - 14.017) = 2331726 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

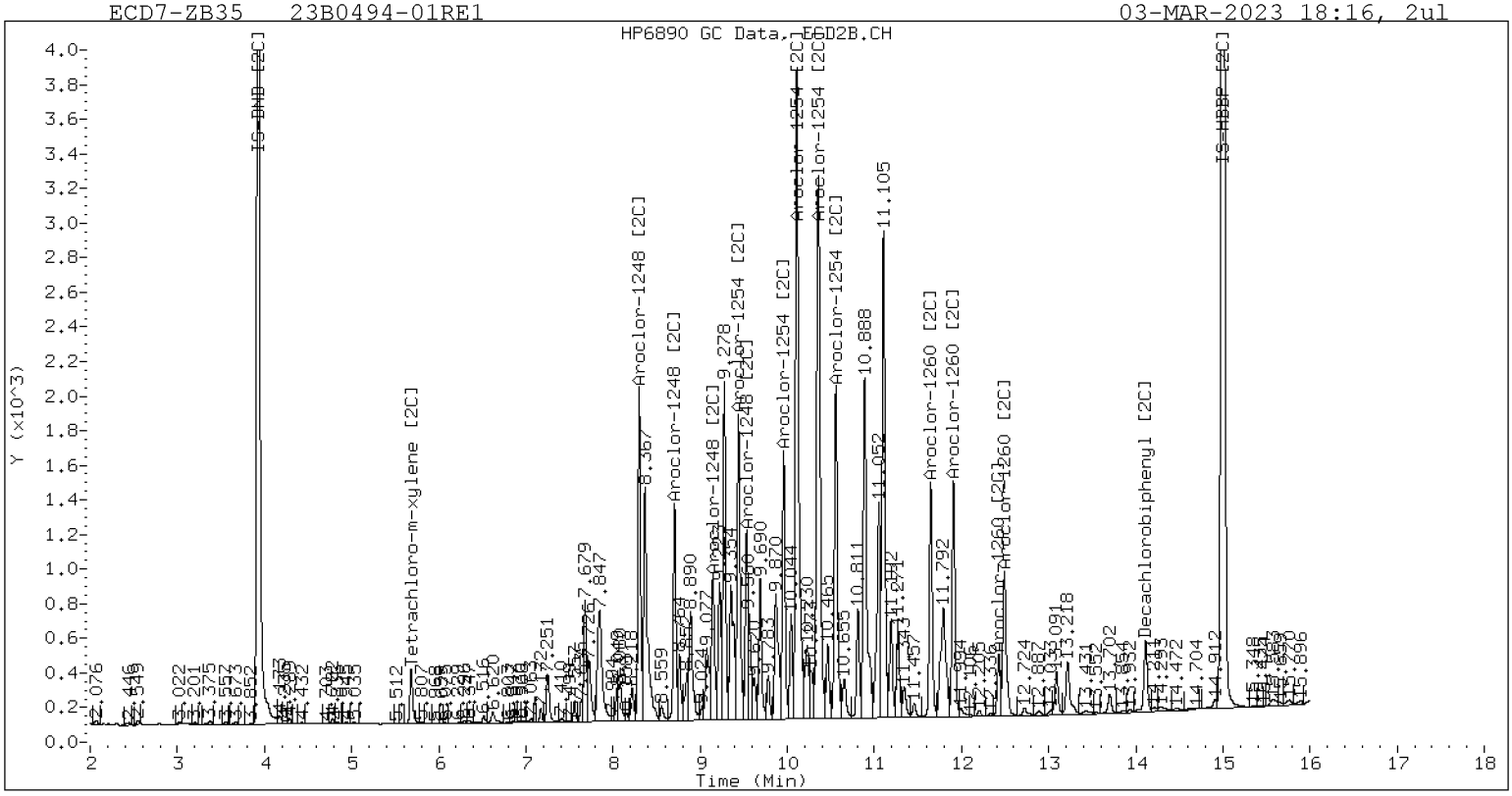
PCB Dual Column Chromatograms

ECD7-ZB5 23B0494-01RE1 03-MAR-2023 18:16, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23B0494-01RE1 03-MAR-2023 18:16, 2ul

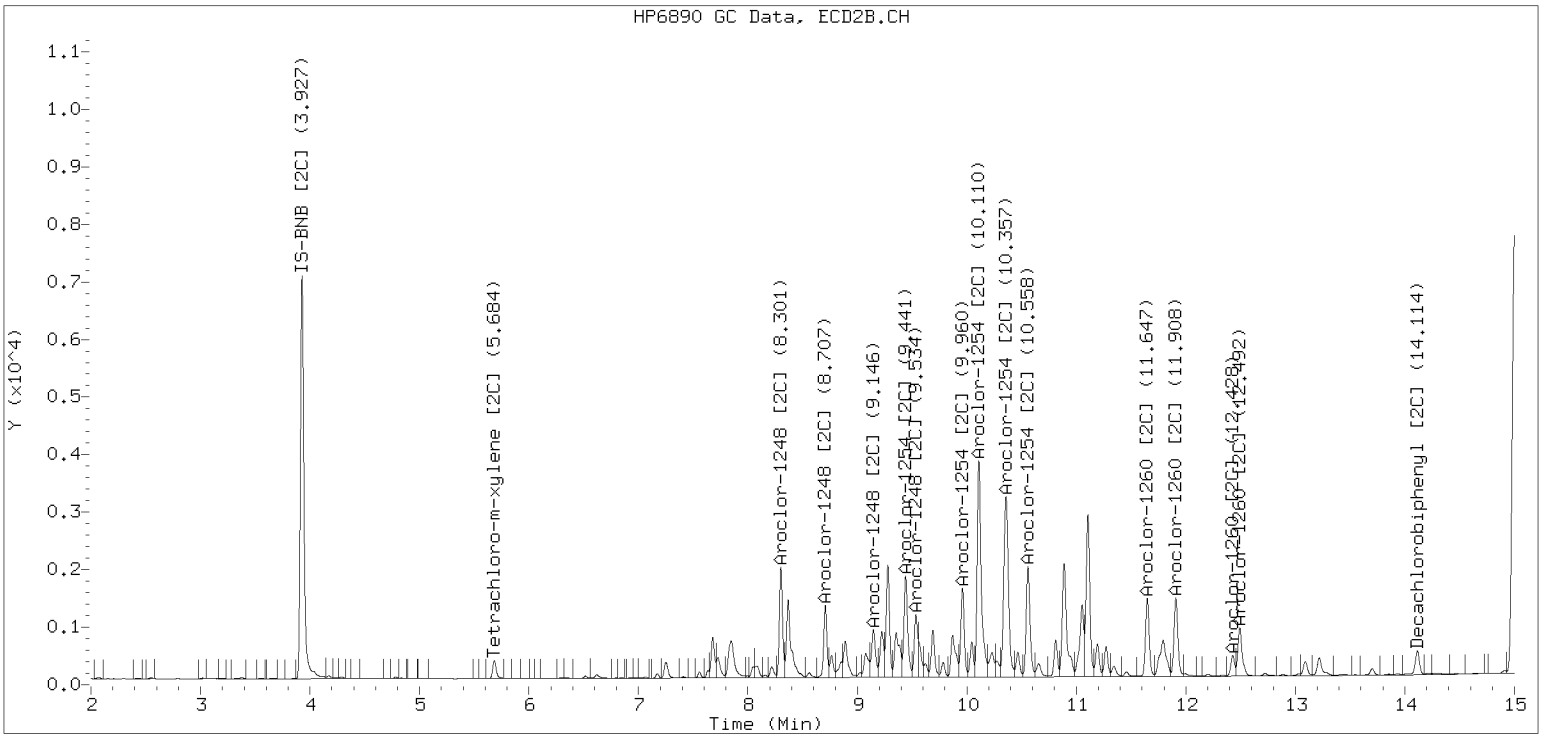


ZB-35 Manual Integration: YES

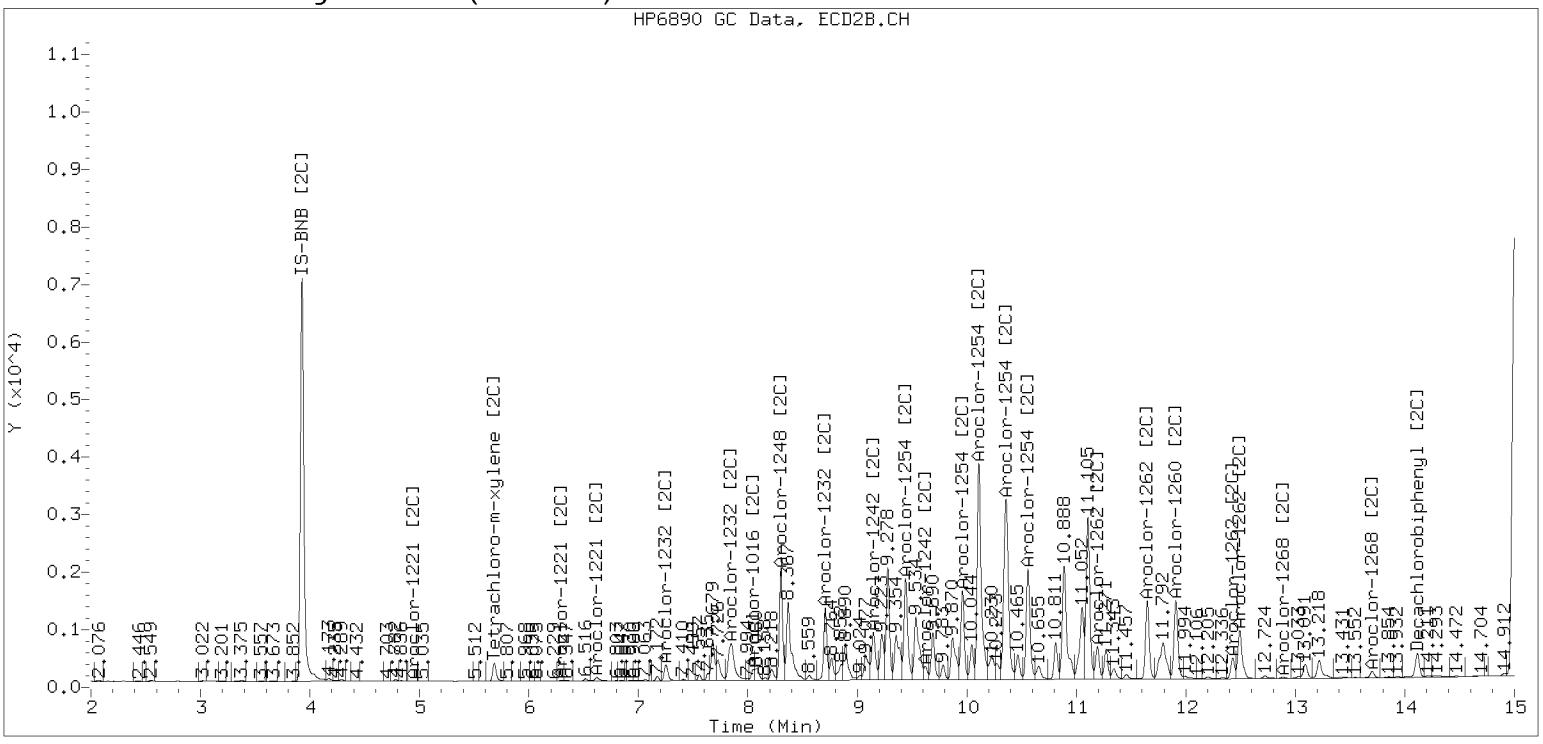
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230302.b/230302.b/03022373ECD7.D Injection Date: 03-MAR-2023

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LDW21-IT635B

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Solid	Laboratory ID:	23B0494-02 A	File ID:	03022374ECD7.D
Sampled:	07/16/21 12:56	Prepared:	02/28/23 13:15	Analyzed:	03/03/23 18:37
% Solids:	66.79	Preparation:	EPA 3546 (Microwave)	Initial/Final:	18.72 g Wet / 2.5 mL
Batch:	BLB0718	Sequence:	SLC0051	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	5	20.0	7.8	20.0	H, U
11104-28-2	Aroclor 1221	1	5	20.0	7.8	20.0	H, U
11141-16-5	Aroclor 1232	1	5	20.0	7.8	20.0	H, U
53469-21-9	Aroclor 1242	1	5	20.0	7.8	20.0	H, U
12672-29-6	Aroclor 1248	1	5	105	7.8	20.0	H, D
11097-69-1	Aroclor 1254	2	5	209	7.8	20.0	H, D
11096-82-5	Aroclor 1260	2	5	212	2.9	20.0	H, D

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9980*	*7.37*	*92.1*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9980*	*4.64*	*58.0*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9980*	*6.24*	*78.0*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9980*	*5.18*	*64.8*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022374ECD7.D
Data file 2: /230302.b/230302.b/03022374ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23B0494-02RE1
Client ID:
Injection Date: 03-MAR-2023 18:37
Report Date: 03/06/2023 11:08
Matrix: NONE
Dilution Factor: 5.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.001	26937	5.683	-0.003	24304	4.6	5.2	11.1	Tetrachloro-m-xylene
13.887	-0.005	35542	14.114	-0.003	40701	7.4	6.2	16.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	389028	-42.3
Hexabromobiphenyl	1429847	489803	-65.7 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319756	1.4
Hexabromobiphenyl	513946	428427	-16.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	8.397	-0.008	11545	60.8	1	8.299	-0.009	21524	141.0
Aroclor-1248	2	8.567	-0.013	5300	22.0	2	8.705	-0.009	11376	72.1
Aroclor-1248	3	8.985	-0.013	43101	94.7	3	9.141	-0.026	11645	64.1
Aroclor-1248	4	9.287	-0.006	56504	243.8	4	9.531	-0.060	26044	11~~9.~~4
	Total Col1Ave (4 peaks):				105.3	Total Col2Ave (4 peaks):				99.1 RPD = 6
	Corrected Ave (3 peaks):				59.2	Corrected Ave (3 peaks):				85.2 RPD = 36
										92.4
Aroclor-1254	1	9.287	-0.010	56504	144.6	1	9.438	-0.012	43052	177.1
Aroclor-1254	2	9.363	-0.015	25918	147.5	2	9.957	-0.013	23291	119.1
Aroclor-1254	3	9.656	-0.012	36158	144.0	3	10.107	-0.017	88983	210.3
Aroclor-1254	4	9.789	-0.019	86598	177.3	4	10.356	-0.017	101077	245.1
Aroclor-1254	5	10.121	-0.054	55326	1~~80.~~8	5	10.555	-0.014	73359	292.2
	Total Col1Ave (5 peaks):				~~158~~.8	Total Col2Ave (5 peaks):				208.8 RPD = 27
	Corrected Ave (4 peaks):				153.4	Corrected Ave (4 peaks):				187.9 RPD = 20
Aroclor-1260	1	11.036	-0.009	45679	259.2	1	11.645	-0.007	55037	218.5
Aroclor-1260	2	11.350	-0.010	34886	189.5	2	11.906	-0.012	119865	186.4
Aroclor-1260	3	11.722	-0.011	113370	232.2	3	12.425	-0.009	42320	248.0
Aroclor-1260	4	12.123	-0.015	53367	217.0	4	12.491	-0.011	84469	194.9
Aroclor-1260	5	12.236	-0.008	31659	299.1	NS	---			----
	Total Col1Ave (5 peaks):				239.4	Total Col2Ave (4 peaks):				212.0 RPD = 12
	Corrected Ave (4 peaks):				224.5	Corrected Ave (3 peaks):				199.9 RPD = 12
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.906 - 13.793) = 1474461 Col1 Total PCB = 0.3 ppm*

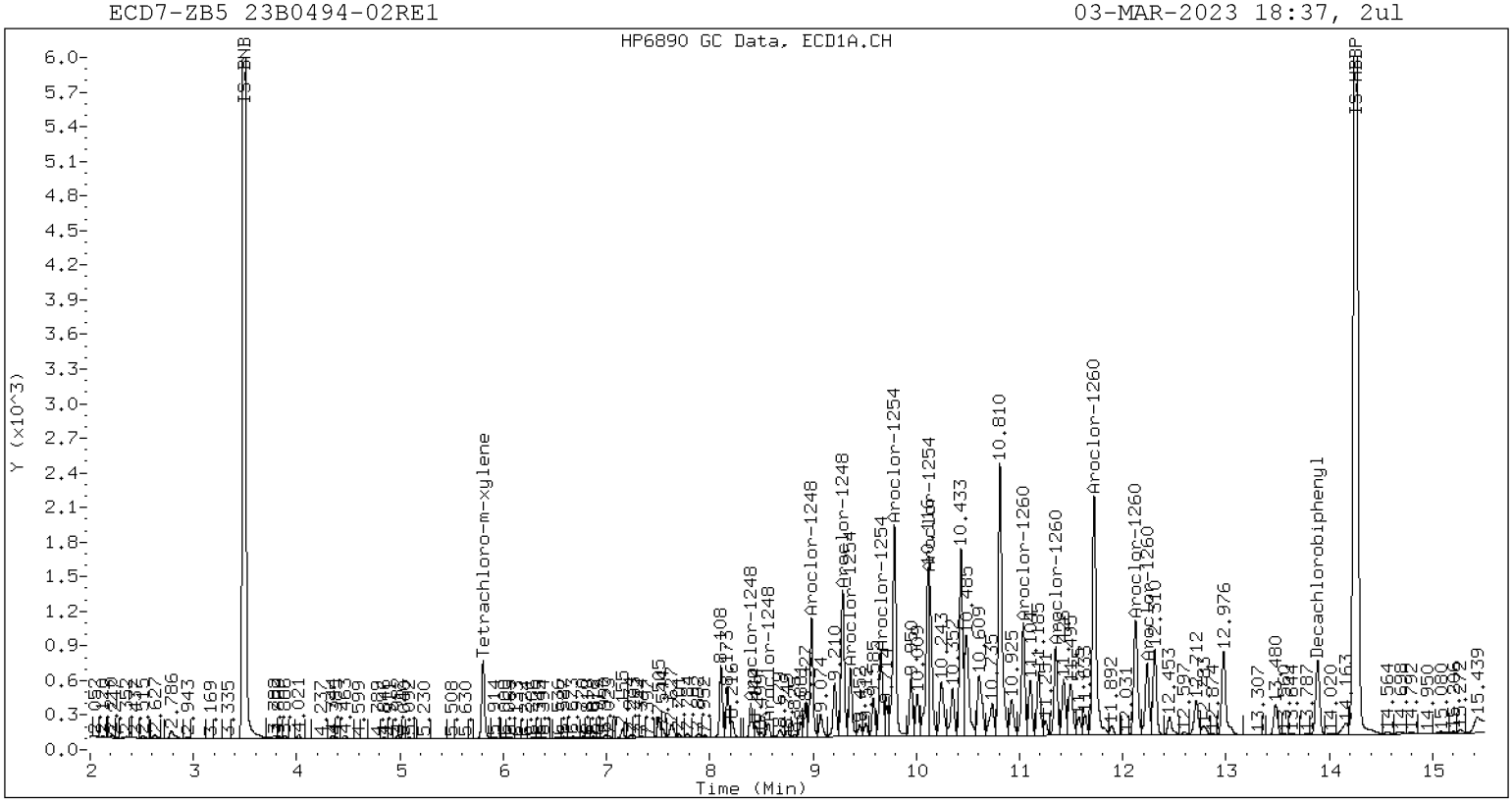
Total PCB Area Col2 (5.786 - 14.017) = 1427639 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

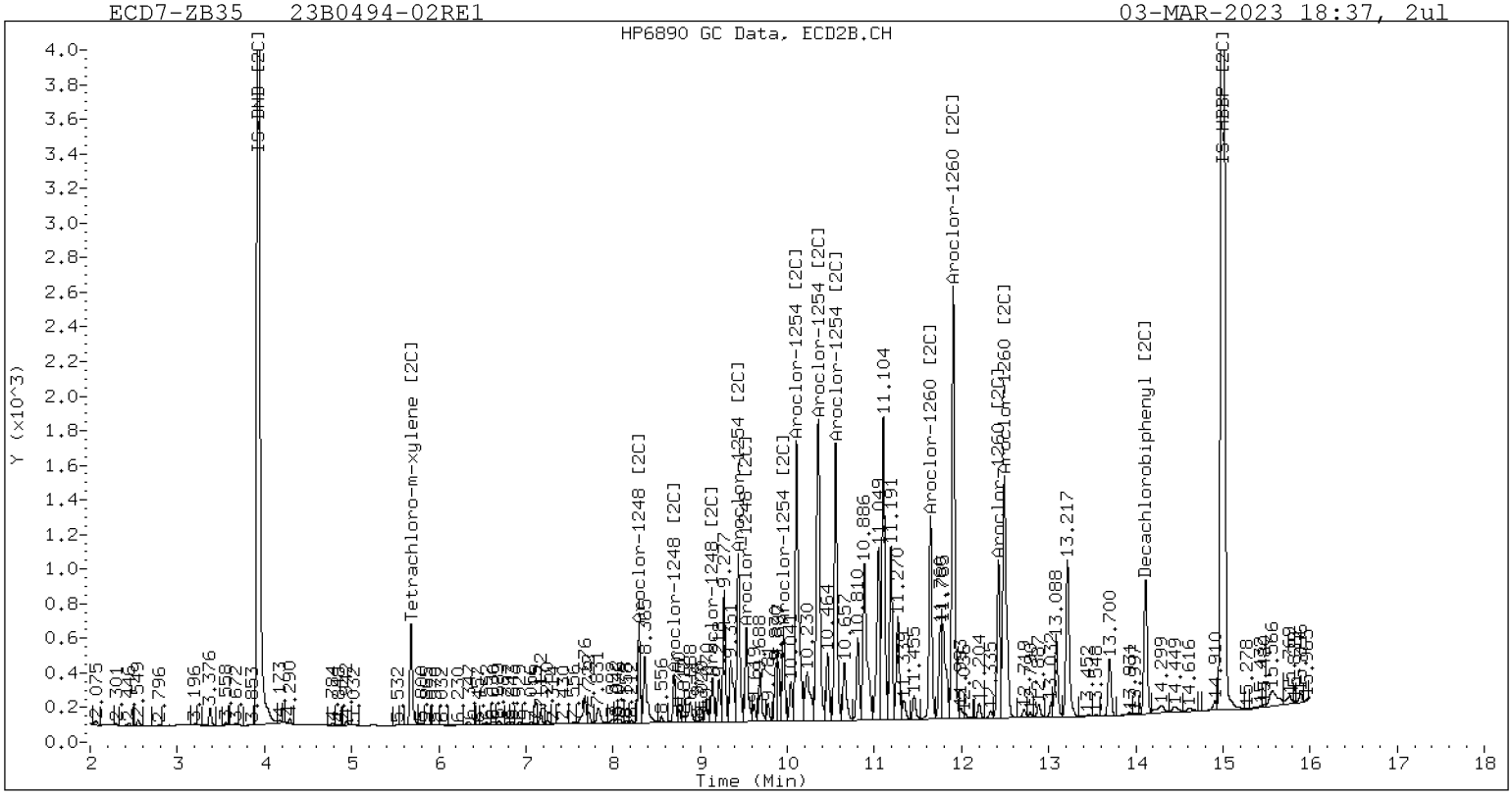
PCB Dual Column Chromatograms

ECD7-ZB5 23B0494-02RE1 03-MAR-2023 18:37, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 23B0494-02RE1 03-MAR-2023 18:37, 2ul

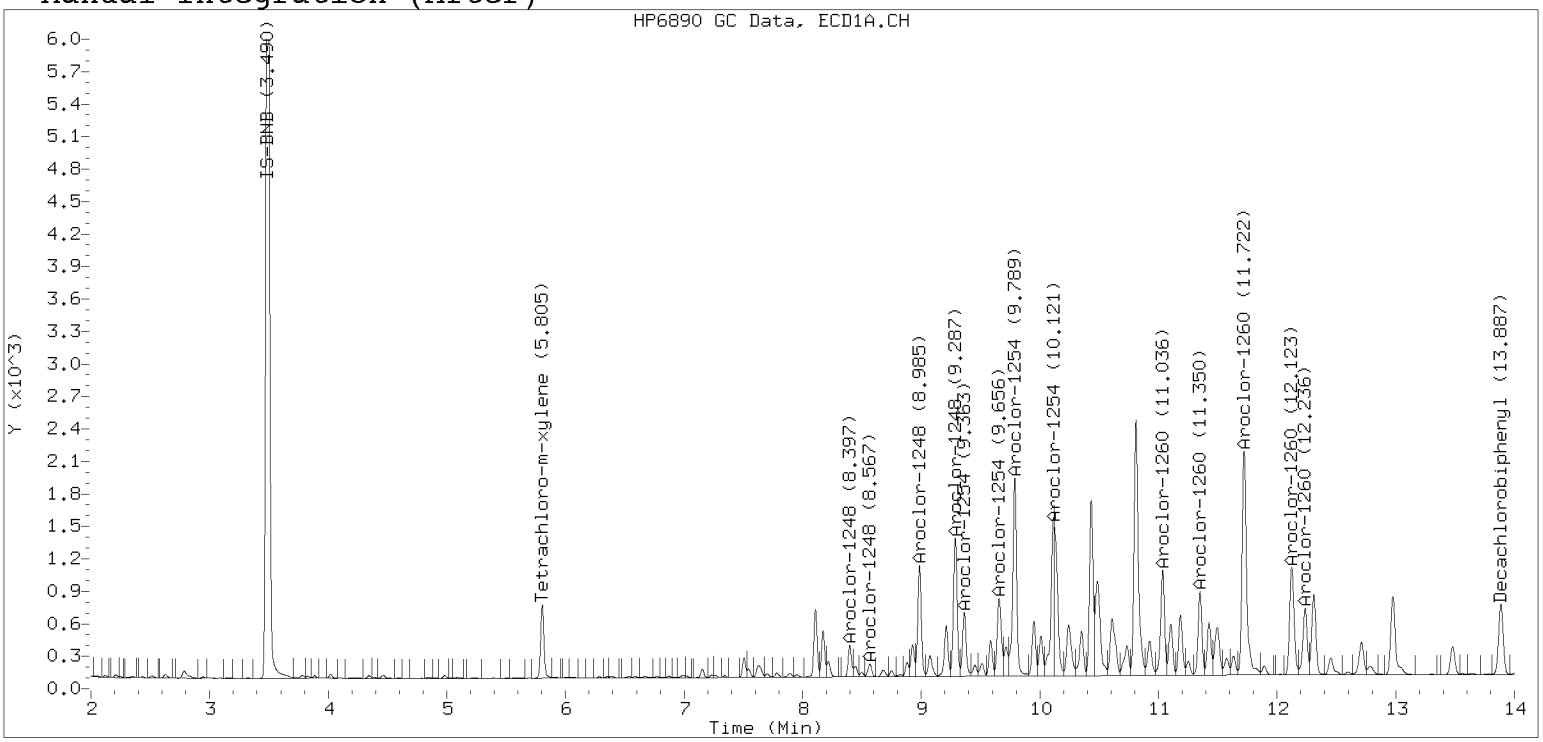


ZB-35 Manual Integration: YES

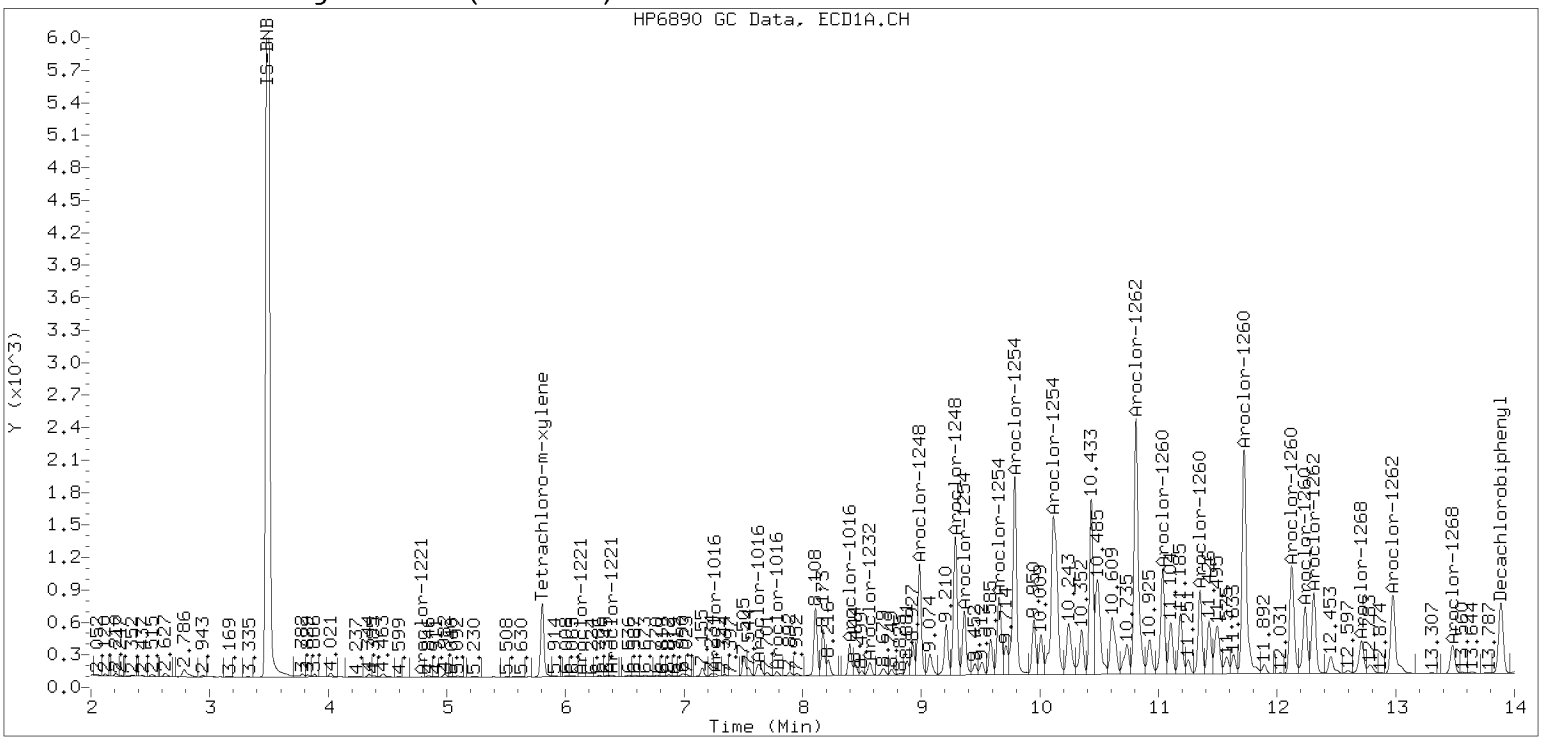
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230302.b/03022374ECD7.D Injection Date: 03-MAR-2023 18:37

Manual Integration (After)



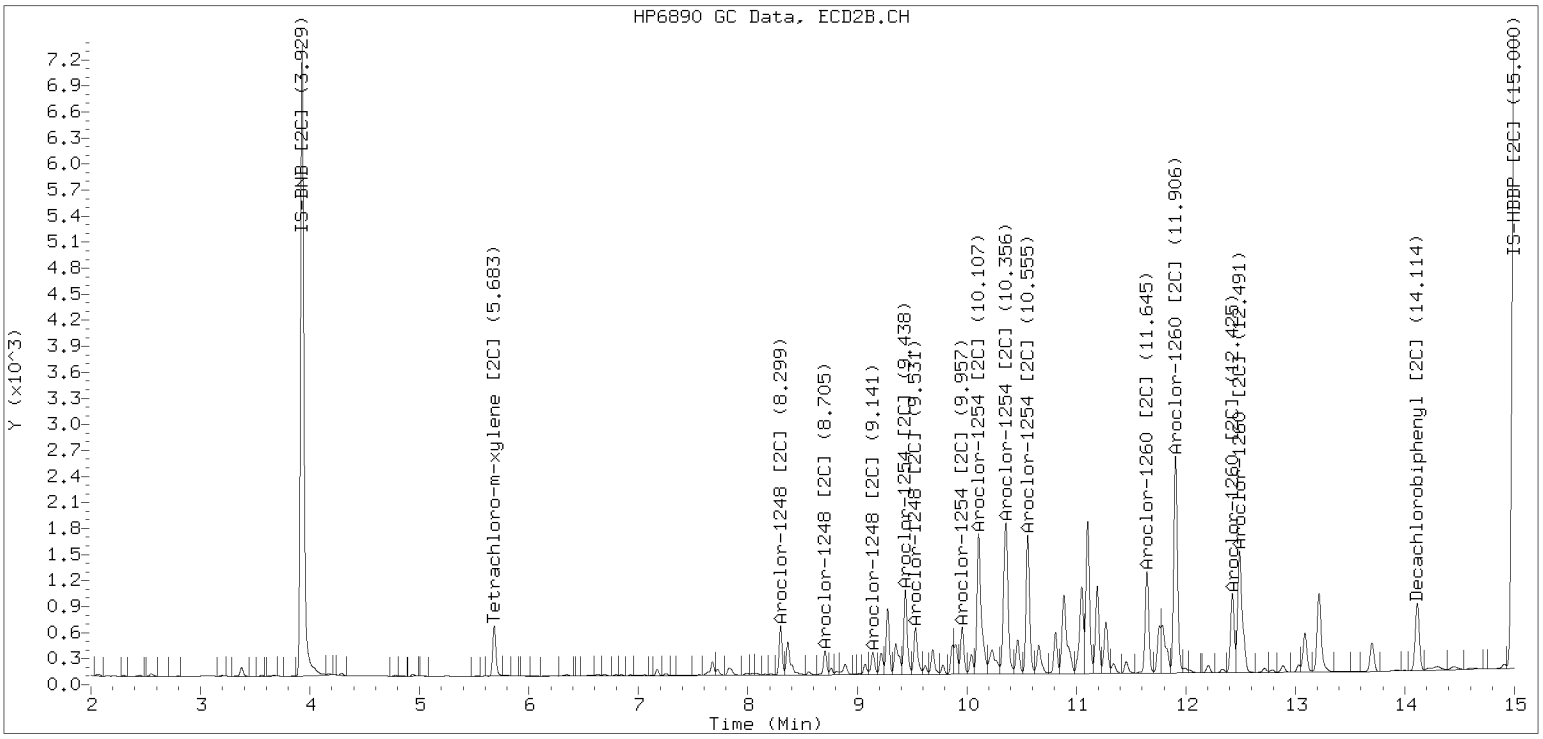
Processed Integration (Before)



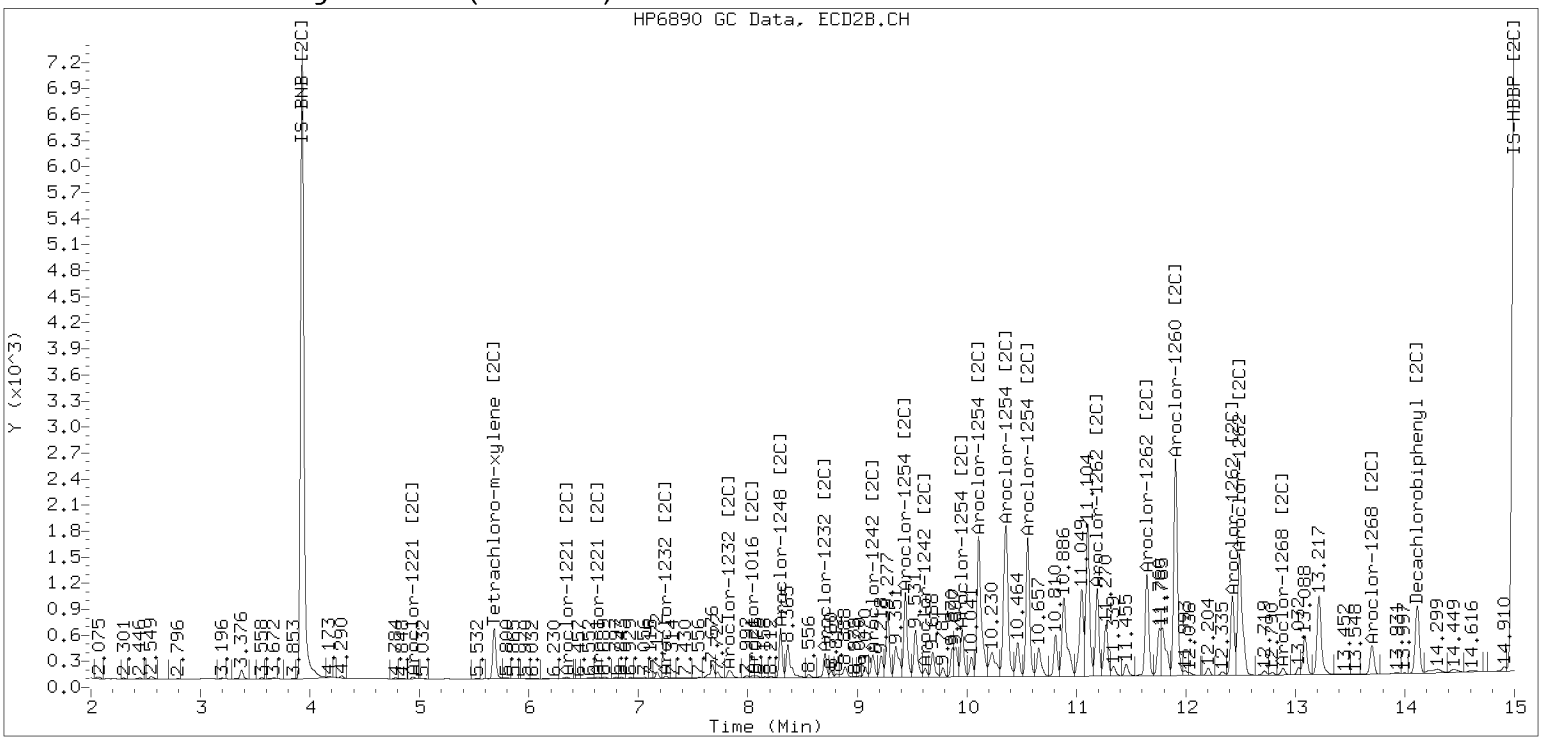
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230302.b/230302.b/03022374ECD7.D Injection Date: 03-MAR-2023

Manual Integration (After)



Processed Integration (Before)



Dual Column

LDW21-IT635C

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Solid	Laboratory ID:	23B0494-03 A	File ID:	03022375ECD7.D
Sampled:	07/16/21 12:56	Prepared:	02/28/23 13:15	Analyzed:	03/03/23 18:58
% Solids:	62.30	Preparation:	EPA 3546 (Microwave)	Initial/Final:	20.09 g Wet / 2.5 mL
Batch:	BLB0718	Sequence:	SLC0051	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	5	20.0	7.8	20.0	H, U
11104-28-2	Aroclor 1221	1	5	20.0	7.8	20.0	H, U
11141-16-5	Aroclor 1232	1	5	20.0	7.8	20.0	H, U
53469-21-9	Aroclor 1242	1	5	20.0	7.8	20.0	H, U
12672-29-6	Aroclor 1248	1	5	20.0	7.8	20.0	H, U
11097-69-1	Aroclor 1254	1	5	20.0	7.8	20.0	H, U
11096-82-5	Aroclor 1260	2	5	222	2.9	20.0	H, D

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9897*	*5.71*	*71.5*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9897*	*3.47*	*43.4*	*44 - 120*	*
Decachlorobiphenyl	*2*	*7.9897*	*4.47*	*55.9*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9897*	*3.68*	*46.0*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022375ECD7.D
Data file 2: /230302.b/230302.b/03022375ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23B0494-03RE1
Client ID:
Injection Date: 03-MAR-2023 18:58
Report Date: 03/06/2023 11:08
Matrix: NONE
Dilution Factor: 5.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.001	20895	5.684	-0.002	18082	3.5	3.7	5.9	Tetrachloro-m-xylene
13.886	-0.006	26282	14.113	-0.004	28367	5.7	4.5	24.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	403222	-40.2
Hexabromobiphenyl	1429847	466738	-67.4 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	334831	6.2
Hexabromobiphenyl	513946	416564	-18.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	11.034	-0.010	52543	312.9	1	11.644	-0.008	39224	160.1
Aroclor-1260	2	11.348	-0.012	33219	189.4	2	11.905	-0.012	110851	177.3
Aroclor-1260	3	11.721	-0.012	113253	243.4	3	12.423	-0.012	58911	355.1
Aroclor-1260	4	12.122	-0.016	40994	175.0	4	12.491	-0.011	82360	195.5
Aroclor-1260	5	12.235	-0.009	36642	363.3	NS	---			----
	Total Col1Ave (5 peaks):				256.8	Total Col2Ave (4 peaks):				222.0 RPD = 15
	Corrected Ave (4 peaks):				230.2	Corrected Ave (3 peaks):				177.6 RPD = 26
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.906 - 13.793) = 805462 Col1 Total PCB = 0.2 ppm*

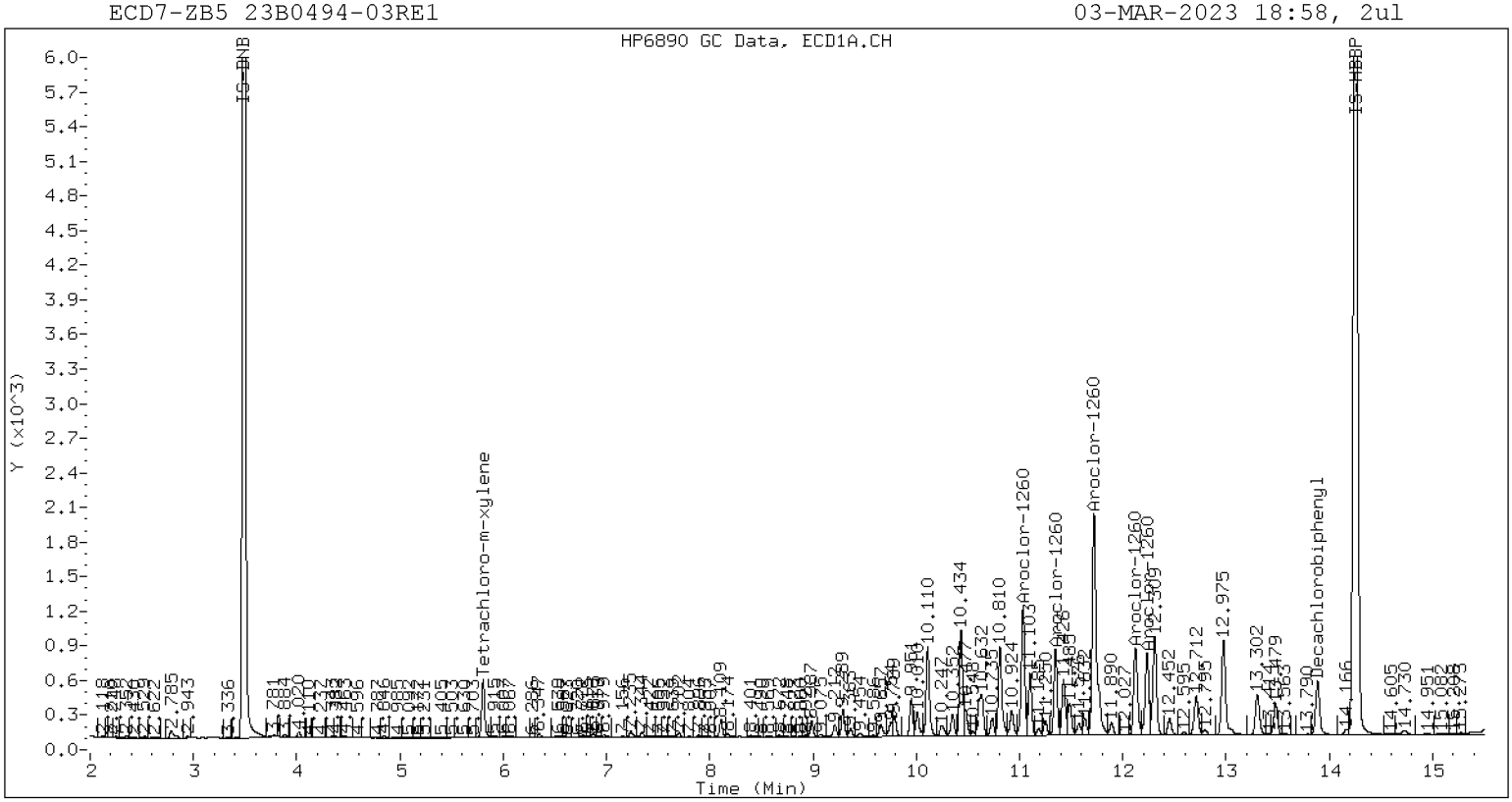
Total PCB Area Col2 (5.786 - 14.017) = 804184 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

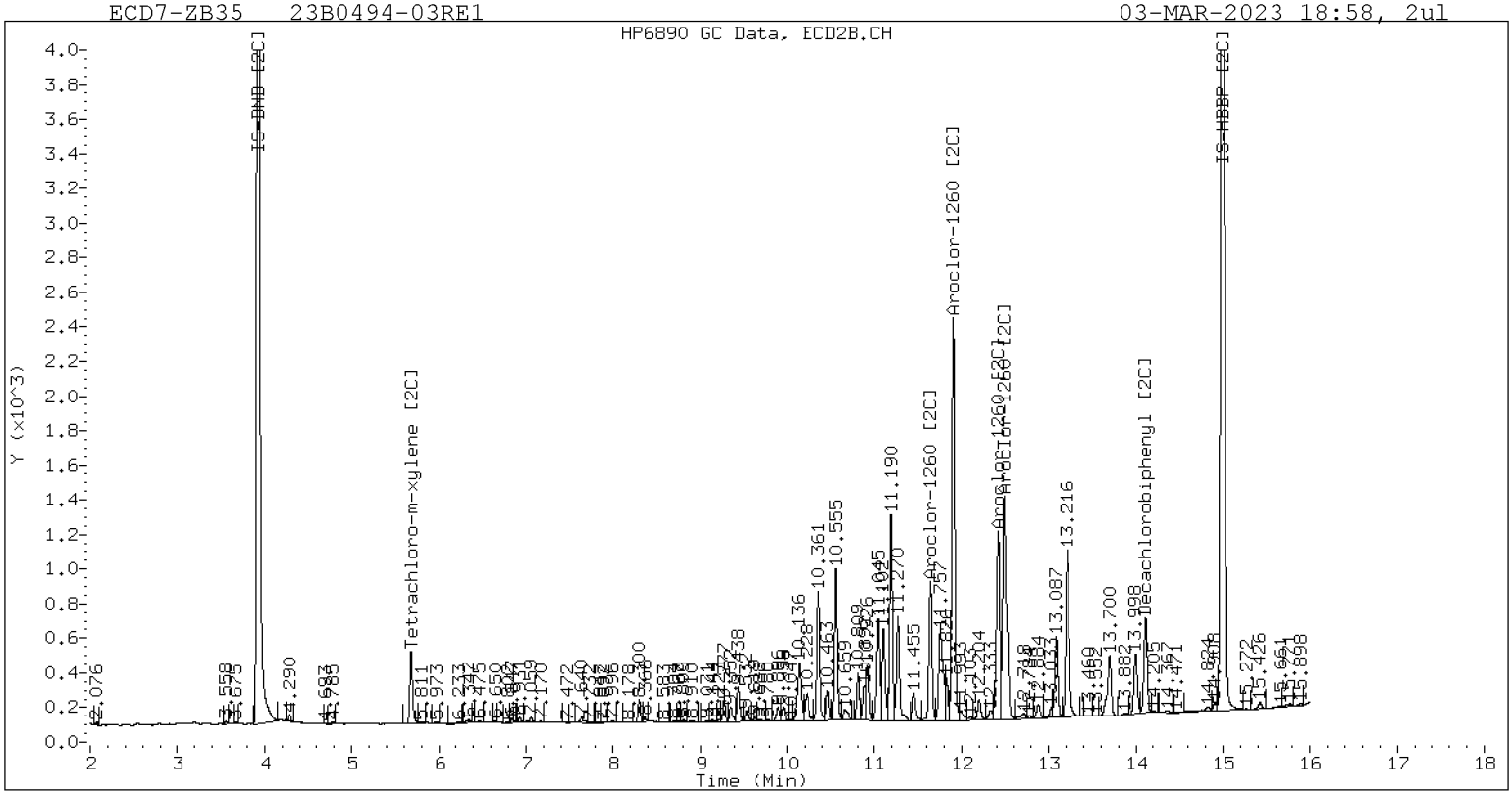
PCB Dual Column Chromatograms

ECD7-ZB5 23B0494-03RE1 03-MAR-2023 18:58, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23B0494-03RE1 03-MAR-2023 18:58, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LDW21-IT635D

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Solid	Laboratory ID:	23B0494-04 A	File ID:	03022313ECD7.D
Sampled:	07/16/21 12:56	Prepared:	02/28/23 13:15	Analyzed:	03/02/23 21:15
% Solids:	56.47	Preparation:	EPA 3546 (Microwave)	Initial/Final:	22.15 g Wet / 2.5 mL
Batch:	BLB0718	Sequence:	SLC0051	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	H, U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	H, U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	H, U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	H, U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	H, U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	H, U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	H, U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9948*	*6.29*	*78.7*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9948*	*4.35*	*54.4*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022313ECD7.D
Data file 2: /230302.b/230302.b/03022313ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23B0494-04
Client ID:
Injection Date: 02-MAR-2023 21:15
Report Date: 03/03/2023 15:57
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.803	-0.005	131808	5.681	-0.008	120287	21.7	25.1	14.5	Tetrachloro-m-xylene
13.886	-0.009	120592	14.112	-0.006	164003	31.5	28.7	9.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	406047	-39.7
Hexabromobiphenyl	1429847	388982	-72.8 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	326216	3.5
Hexabromobiphenyl	513946	374996	-27.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	ZB5 Col Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.795) = 362130 Col1 Total PCB = 0.1 ppm*

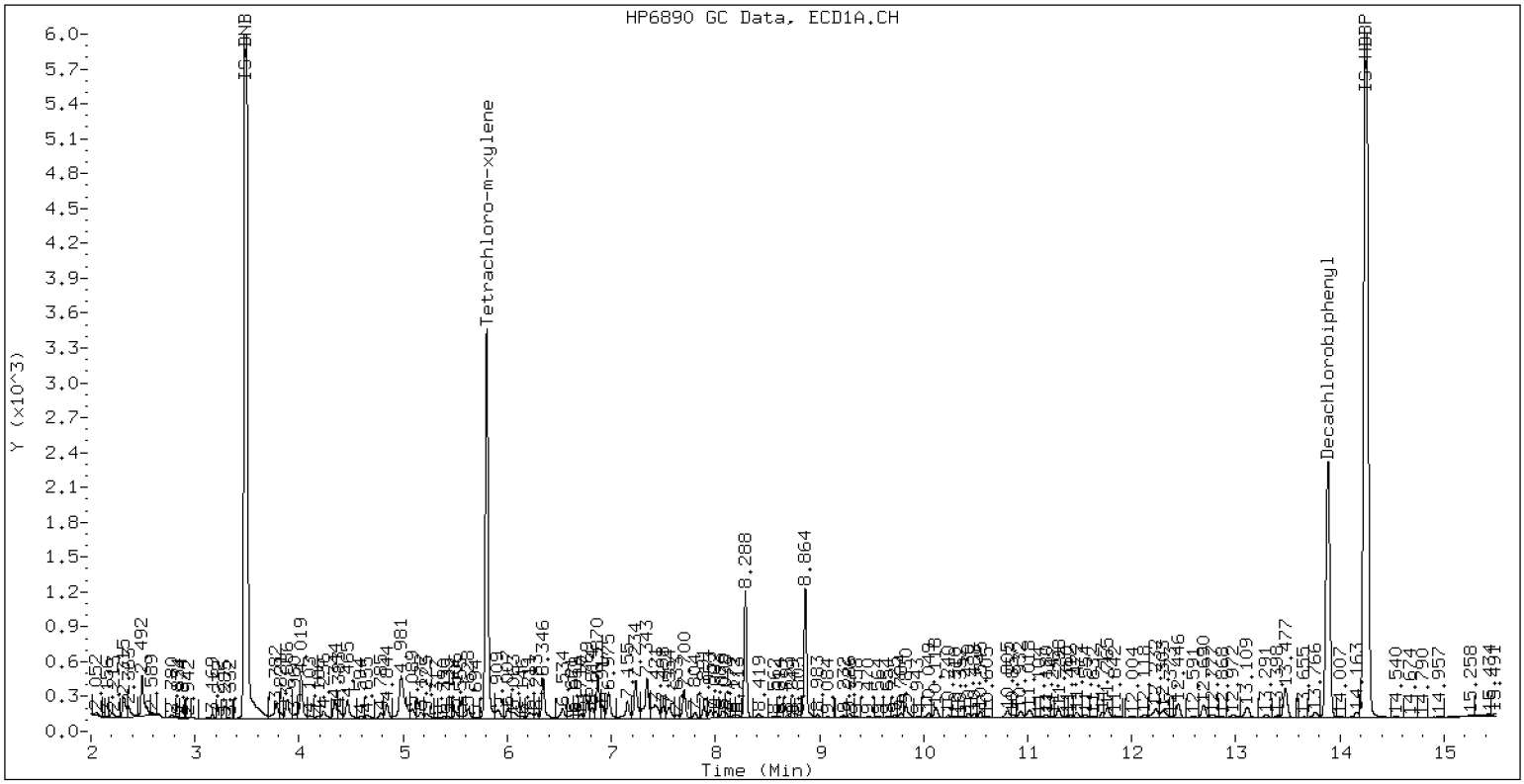
Total PCB Area Col2 (5.788 - 14.018) = 380987 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

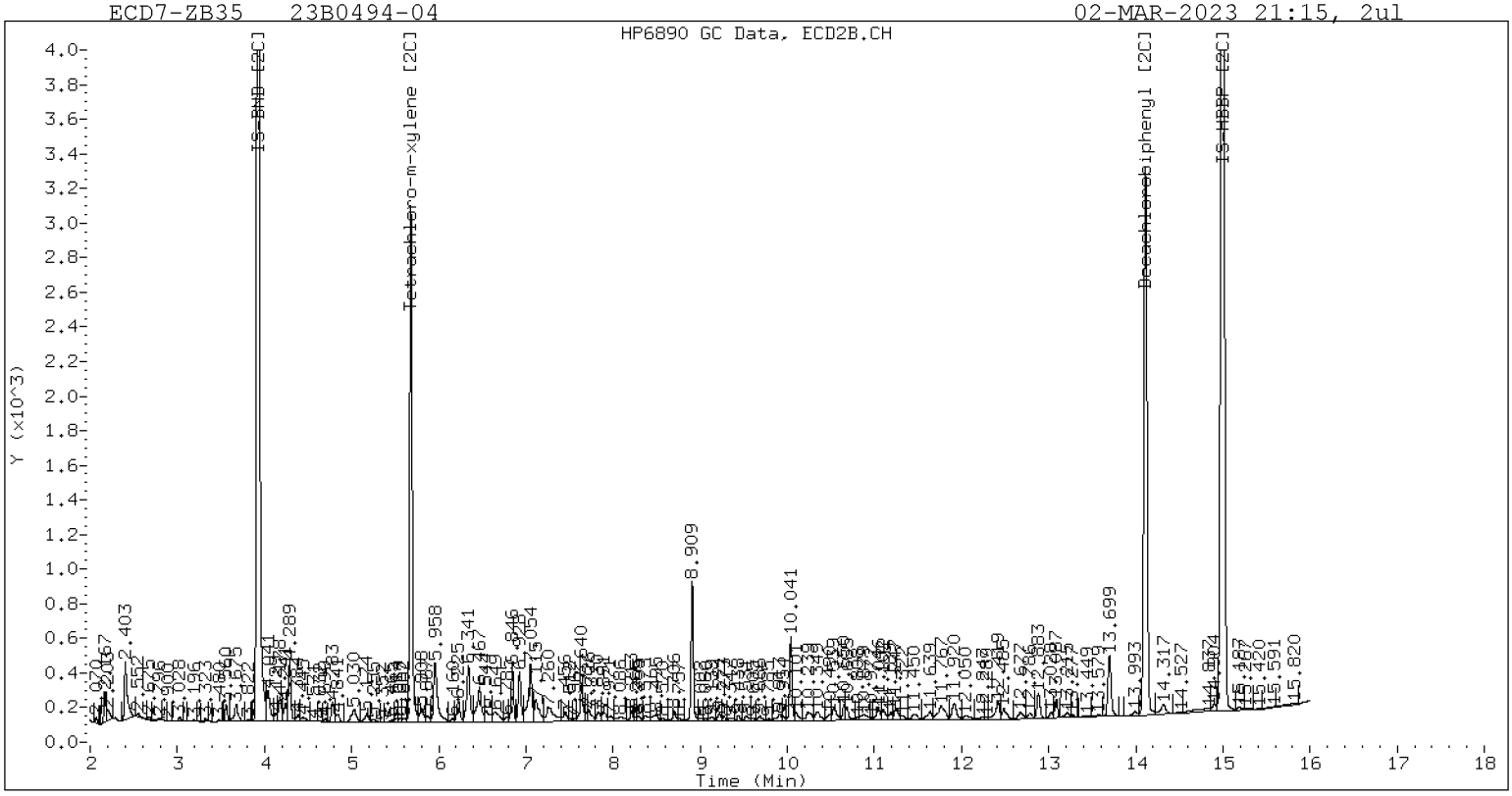
PCB Dual Column Chromatograms

ECD7-ZB5 23B0494-04 02-MAR-2023 21:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23B0494-04 02-MAR-2023 21:15, 2ul



ZB-35 Manual Integration: NO

PREPARATION BATCH SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Batch: BLB0718 Batch Matrix: Solid
Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT635A	23B0494-01	03022373ECD7.D	02/28/23 13:15	
LDW21-IT635B	23B0494-02	03022374ECD7.D	02/28/23 13:15	
LDW21-IT635C	23B0494-03	03022375ECD7.D	02/28/23 13:15	
LDW21-IT635D	23B0494-04	03022313ECD7.D	02/28/23 13:15	
Blank	BLB0718-BLK1	03022304ECD7.D	02/28/23 13:15	
LCS	BLB0718-BS1	03022305ECD7.D	02/28/23 13:15	
LCS Dup	BLB0718-BSD1	03022306ECD7.D	02/28/23 13:15	
LDW21-IT635B	BLB0718-MS1	03022310ECD7.D	02/28/23 13:15	
LDW21-IT635B	BLB0718-MSD1	03022311ECD7.D	02/28/23 13:15	
Reference	BLB0718-SRM1	03022307ECD7.D	02/28/23 13:15	

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0718

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid (Version:7 Aroclors)

Matrix: Solid **Date Prepared:** 02/28/23 **Balance ID:** B1464626l4 **Set Up By:** CRD 2/28/23

WO Comments

23B0494: <C>BPR SRM, MS, DUP </C> <M>BPR PS, MS/MSD </M> <E>BPR 8270E RM K000591, SIM PAH RM I009127 PCB RM J006840-43, 7935-36,K011477-79, MS/MSD </E>
<H>BPR J006840-43, 7935-36, K011477-79, Dup </H> Store in freezer (except GS)

The following standards may be missing from this batch!

Designator	Description
QLS 5	QLS Spike

Analysis: 8082A PCB Solid 4

Lab Number & Container	% Solids	Initial (g) Target Dry: 12.5 (Wet) Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
23B0494-01 A	59.1	(21.17) 21.19	5mL	5mL	2mL	2.5	1.0	
23B0494-02 A	66.8	(18.72) 18.72	5mL	5mL	2mL	2.5	1.0	
23B0494-03 A	62.3	(20.06) 20.09	5mL	5mL	2mL	2.5	1.0	
23B0494-04 A	56.5	(22.14) 22.15	5mL	5mL	2mL	2.5	1.0	

Batch QC

Lab Number	% Solids	Initial (g) Target Dry: 12.5 (Wet) Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BLB0718-BLK1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLB0718-BS1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLB0718-BSD1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLB0718-MS1	66.8	(18.72) 18.72	5mL	5mL	2mL	2.5	1.0	Use 23B0494-02
BLB0718-MSD1	66.8	(18.72) 18.72	5mL	5mL	2mL	2.5	1.0	Use 23B0494-02
BLB0718-SRM1	100.0	~~(12.50)~~ (2.50) 2.50 +1g DI WATER	5mL	5mL	2mL	2.5	1.0	Use K003527

NJ 02/28/23
Client ID Verified By Date

LJ 3/1/23
Preparation Reviewed By Date

02/28/23 13:15
Extraction Date and Time

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0718

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid (Version:7 Aroclors)

WO Comments

23B0494: <C>BPR SRM, MS, DUP </C> <M>BPR PS, MS/MSD </M> <E>BPR 8270E RM K000591, SIM PAH RM I009127 PCB RM J006840-43, 7935-36,K011477-79, MS/MSD </E>
<H>BPR J006840-43, 7935-36, K011477-79, Dup </H> Store in freezer (except GS)

Prep Steps

Microwave
1 (2) 3
CT 2/28/23
Analyst/Date

KD
100°C
Hexane Exchange
(2 X 20 mL)
1 2 3 4 (5) 6
AK LO 3-1-23
Analyst/Date

TurboVap
Pre Cleanups
1 2 3 (4) 5
LJ 3/1/23
Analyst/Date

TurboVap
Post Cleanups
1 2 (3) 4 5
LJ 3/1/23
Analyst/Date

Vialing
LJ 3/1/23
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: CT/NJ Date: 02/28/23	
Neutral Glass Wool	L001474
1:1 Hexane/Acetone	L001751
Hexane	L000889
Anhydrous Sodium Sulfate	L001235
KD Analyst: AK/LO Date: 3-1-23	
Anhydrous Sodium Sulfate	
Hexane	~~L000889~~
Vialing Analyst: LJ Date: 3/1/23	
Hexane	L000889
Concentrated Sulfuric Acid	L001053
Silica Gel (SPE) Darts	L001084, L002256
Sodium Sulfite	K001363
Tetrabutylammonium hydrogensulfate (TBAS)	L001601

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 2µg/mL	N L000773 (V) Exp Date: 7/21/2023	50µL	CT	NJ
Spike 20µg/mL	1 L001587 (V) Exp Date: 8/13/2023	63µL	CT	NJ

MANUALLY ENTER EXPIRATION DATES!

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0718

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid (Version:7 Aroclors)

WO Comments

23B0494: <C>BPR SRM, MS, DUP </C> <M>BPR PS, MS/MSD </M> <E>BPR 8270E RM K000591, SIM PAH RM I009127 PCB RM J006840-43, 7935-36,K011477-79, MS/MSD </E>
<H>BPR J006840-43, 7935-36, K011477-79, Dup </H> Store in freezer (except GS)

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh soil/sed into beakers-lightly dry with sodium sulfate. 2. Transfer to microwave vessel(s). Note: (do not fill vessels more than 2/3rd full. Some samples may require two vessels). 3. Add 1:1 Hexane/Acetone until the solvent layer is 3 inches above the soil layer after homogenization. 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-Re-homogenize while hot then cool vessels in R-05 15 minutes. Re-homogenize while cool. 7. Decant 1:1 Hex/Ace into Erlenmeyer flask with sodium sulfate in bottom and funnel with neutral glasswool plug. 8. Re-homogenize and rinse with 1:1 Hexane/Acetone. 9. Let cool and decant solvent then empty the soil into the funnel and rinse with Hexane. 10. KD on 100° bath. 11. Exchange (2 X with 20mL) Hexane. 12. TurboVap. 13. Clean-ups. 14. TurboVap. 15. Vial with Hexane. A. Need Total Solids Y (N) B. Archive/Freeze (Y)/ N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: PLS Extraction Batch: BLB0714

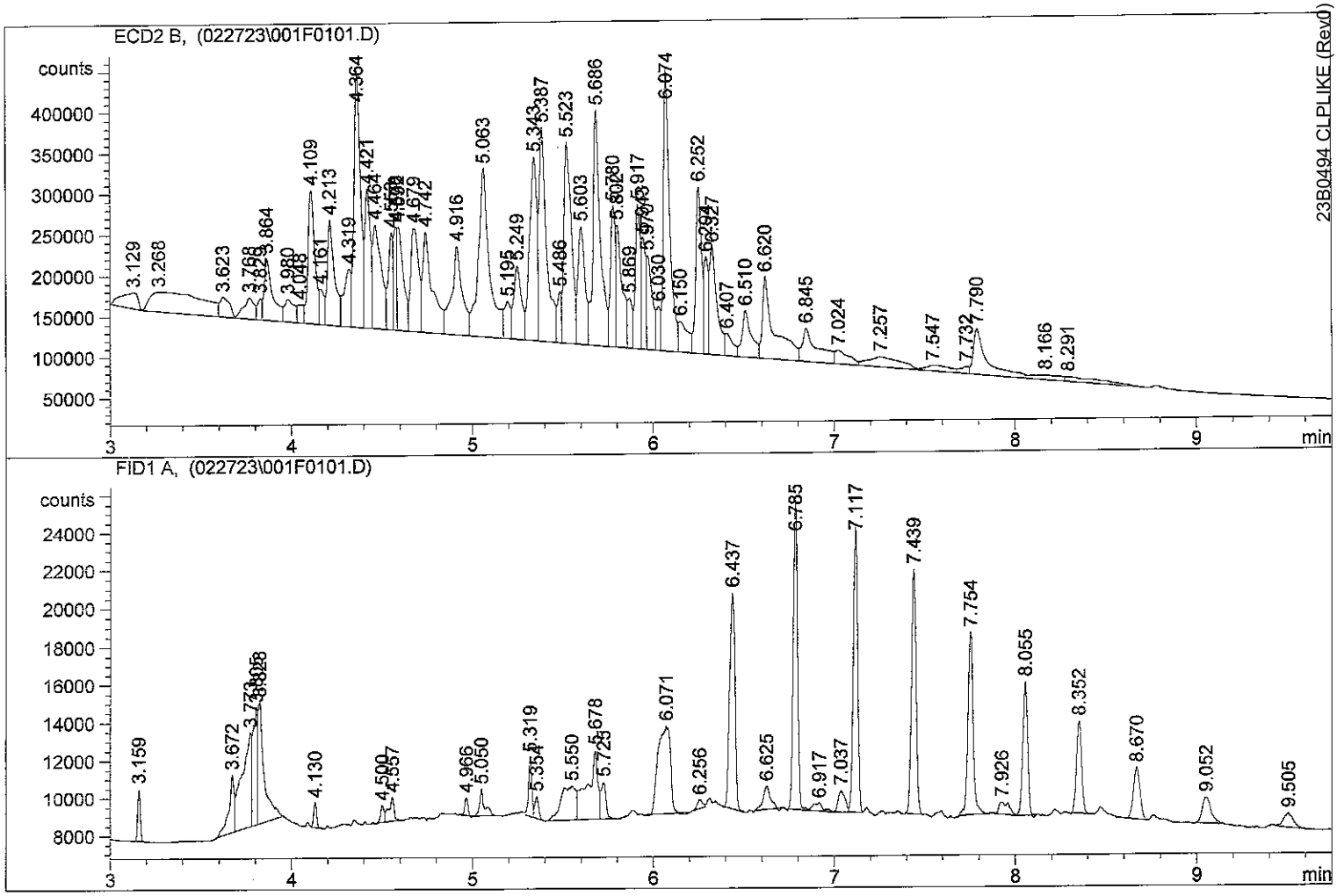
Total Solids Batch: BLB0636 Work Order(s): 23B0494

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= Φ3, Φ4.	VJ Φ2/27/23
☒ Standing Water Decanted (Not shared)= Φ1.	VJ Φ2/27/23
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= Sulfur = Φ1. fuel odor = Φ2.	VJ Φ2/27/23
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions).	
Rilan plunger out of syringe before preping BSI for clean ups, lost about 0.5 mL	LJ 3/1/23
☒ Share Samples Y / N	VJ Φ2/27/23
☐ Multiple Jars Y / N	VJ Φ2/27/23
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Data File C:\HPCHEM\1\DATA\022723\001F0101.D Sample Name: DCM RINSE

Injection Date : 2/27/2023 3:52:09 PM Seq. Line : 1
Sample Name : DCM RINSE Location : Vial 1
Acq. Operator : YL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\022723.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

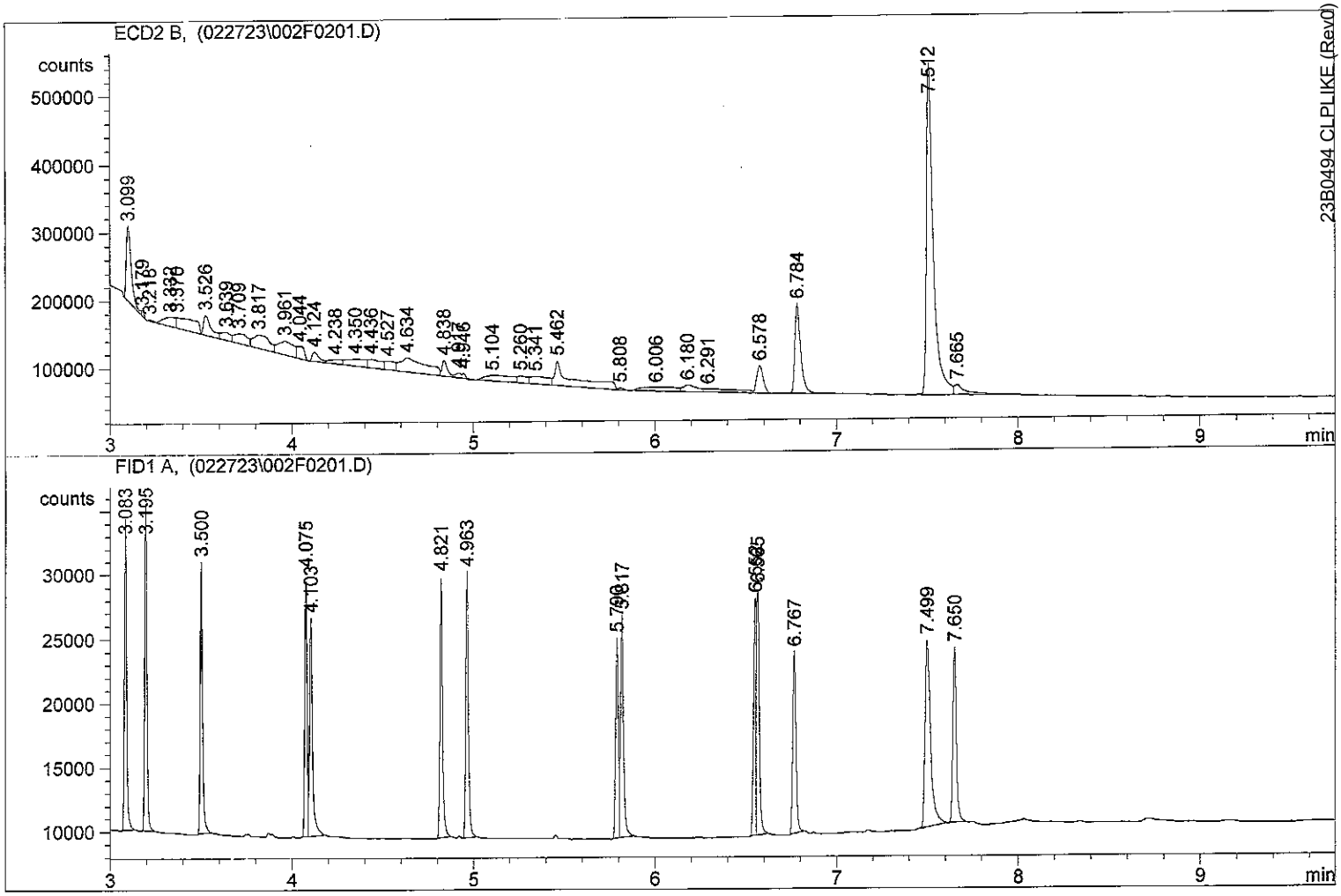


*** End of Report ***

Injection Date : 2/27/2023 4:06:16 PM
Sample Name : PNA STD 10PPM
Acq. Operator : YL

Seq. Line : 2
Location : Vial 2
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\022723.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

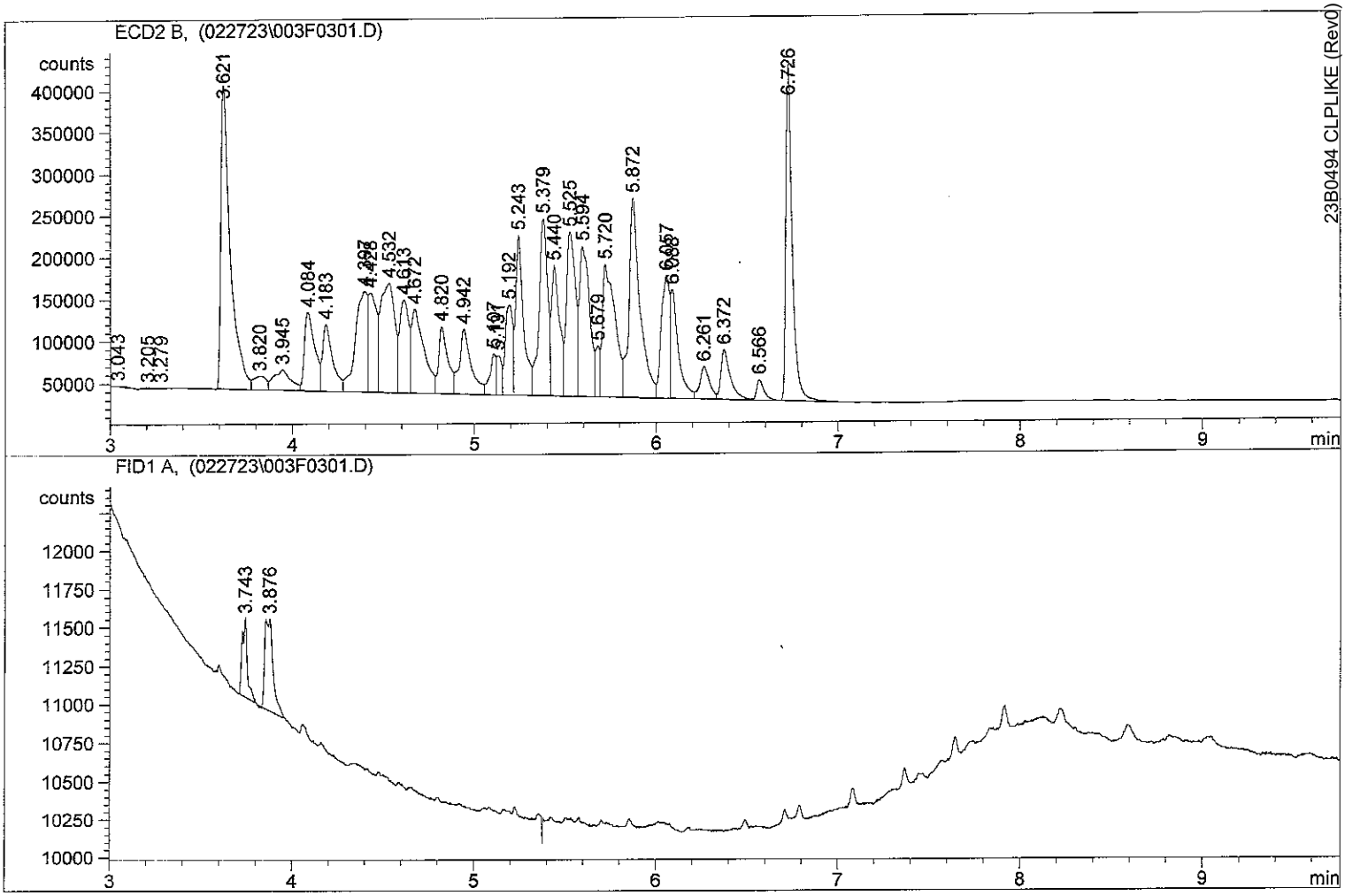


*** End of Report ***

Injection Date : 2/27/2023 4:20:36 PM
Sample Name : AR1660 1PPM
Acq. Operator : YL

Seq. Line : 3
Location : Vial 3
Inj : 1
Inj Volume : 1 µl

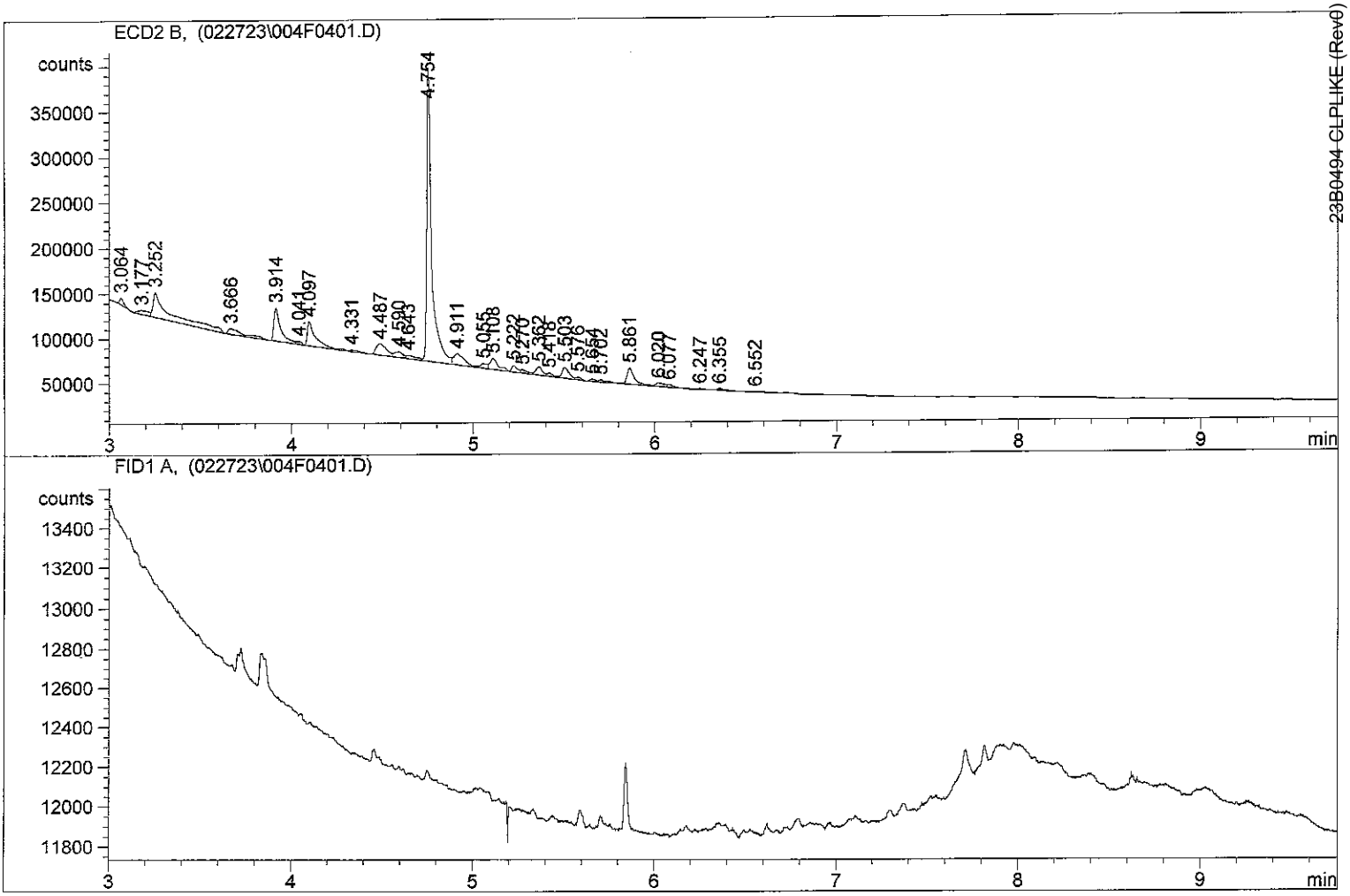
Sequence File : C:\HPCHEM\1\SEQUENCE\022723.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



*** End of Report ***

Injection Date	: 2/27/2023 4:35:37 PM	Seq. Line	: 4
Sample Name	: 23B0494 01	Location	: Vial 4
Acq. Operator	: YL	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\022723.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		

SCREEN METHOD

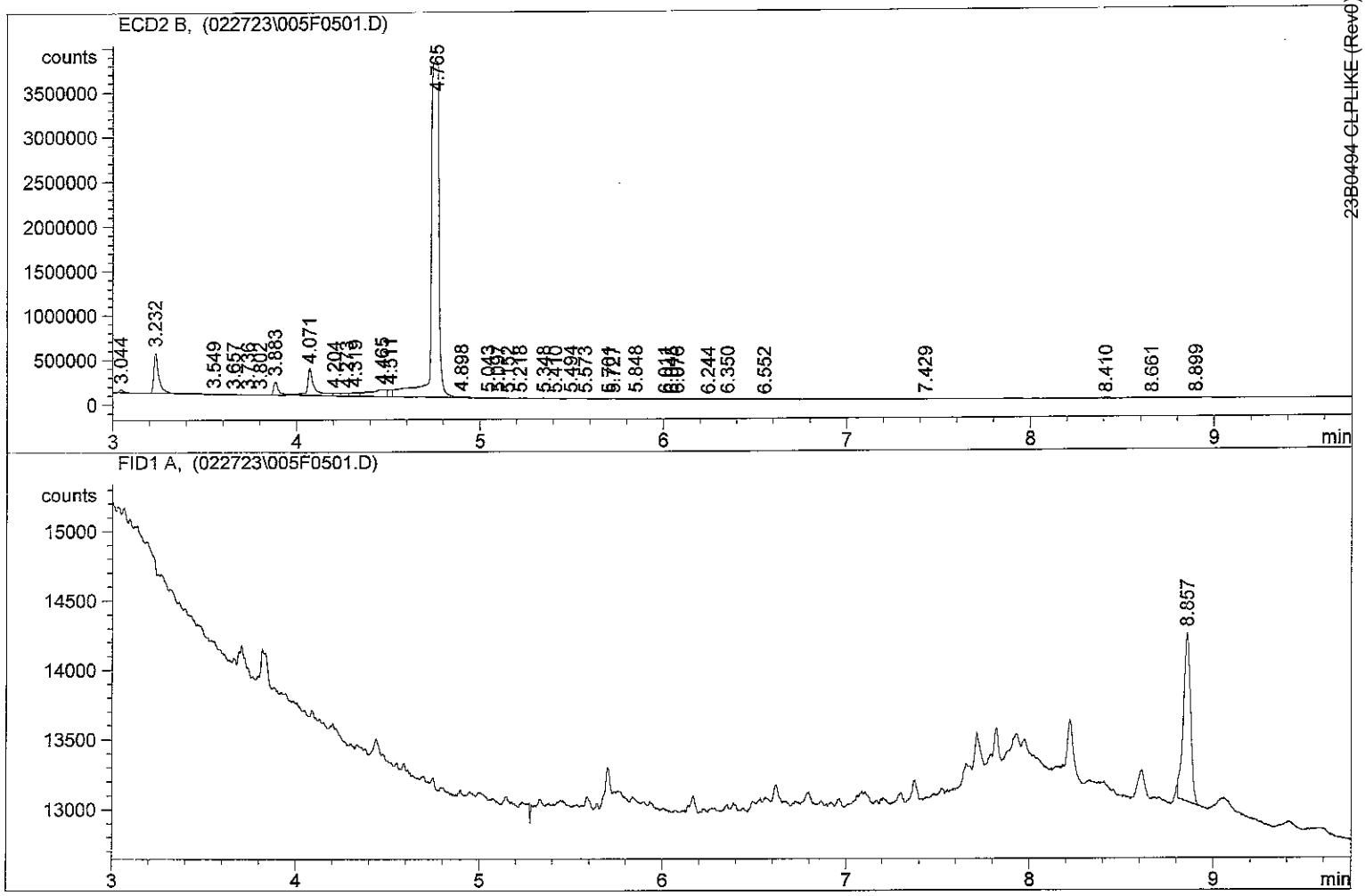


*** End of Report ***

Injection Date : 2/27/2023 4:50:39 PM
Sample Name : 23B0494 02
Acq. Operator : YL

Seq. Line : 5
Location : Vial 5
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\022723.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

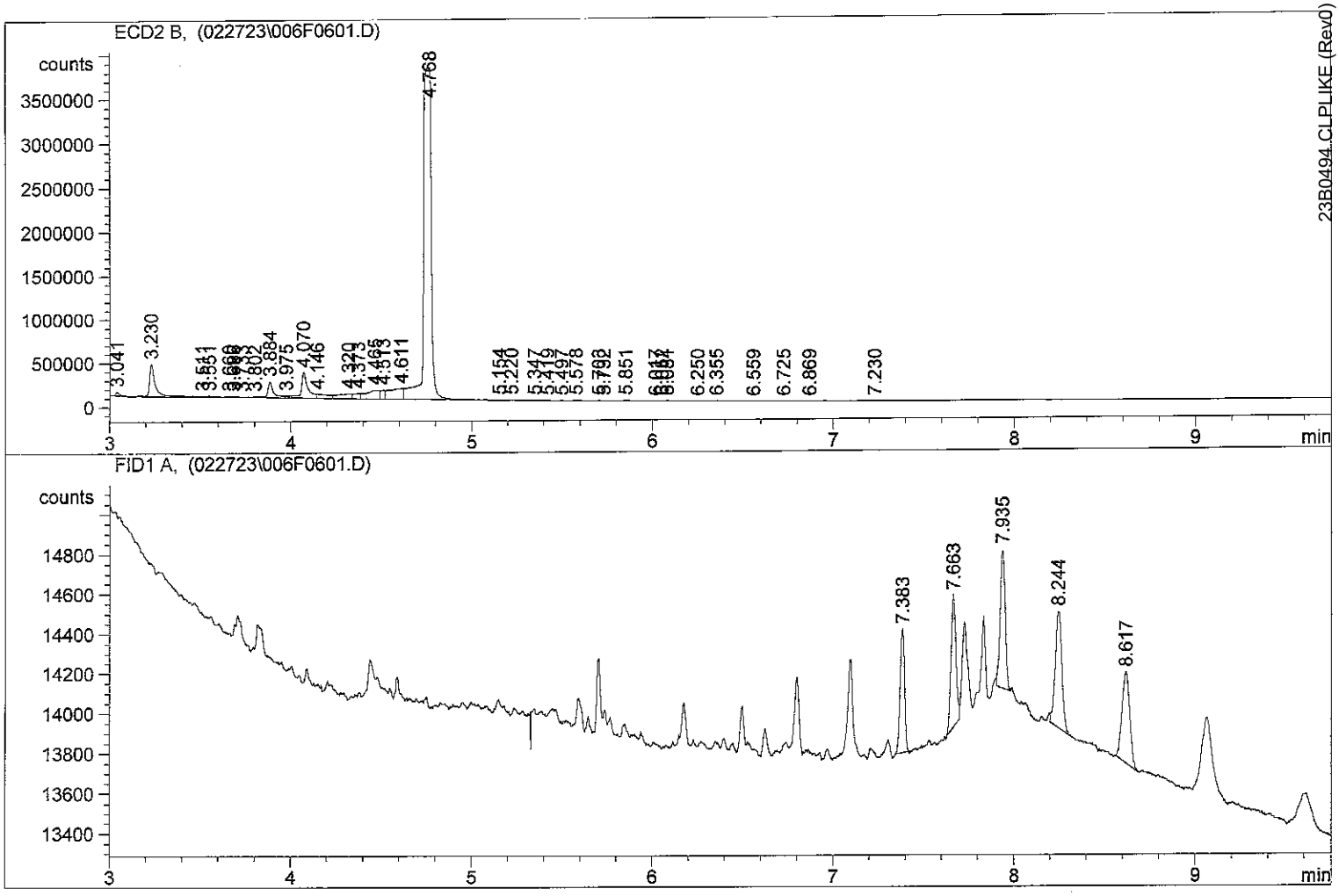


*** End of Report ***

Injection Date : 2/27/2023 5:05:44 PM
Sample Name : 23B0494 03
Acq. Operator : YL

Seq. Line : 6
Location : Vial 6
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\022723.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

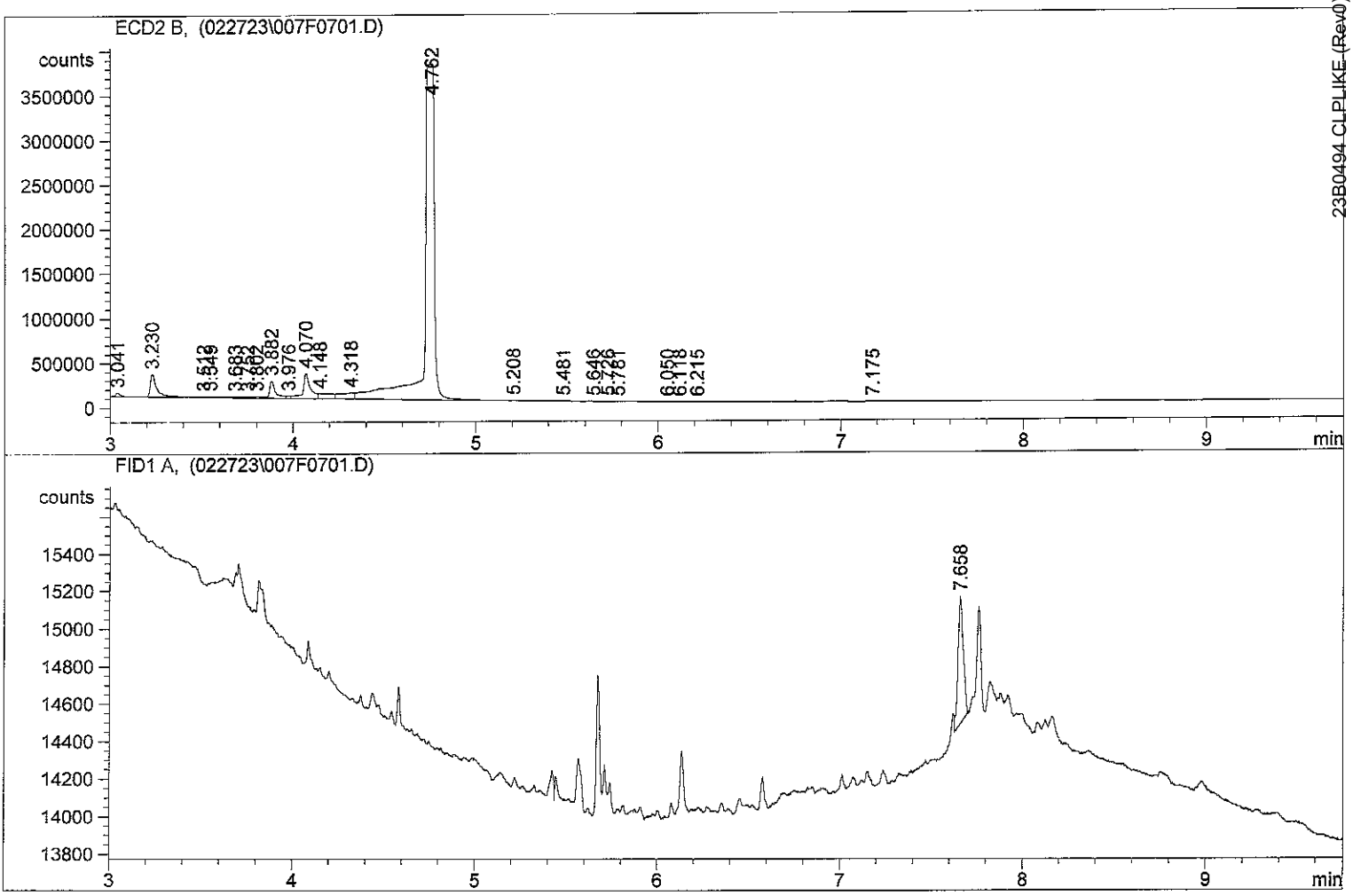


*** End of Report ***

Injection Date : 2/27/2023 5:19:32 PM
Sample Name : 23B0494 04
Acq. Operator : YL

Seq. Line : 7
Location : Vial 7
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\022723.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



*** End of Report ***

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Cleanup Batch:	CLC0008	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Matrix Spike Dup	BLB0718-MSD1	03022311ECD7.D	03/01/2023	
LDW21-IT635A	23B0494-01	03022373ECD7.D	03/01/2023	
Matrix Spike	BLB0718-MS1	03022310ECD7.D	03/01/2023	
LCS Dup	BLB0718-BSD1	03022306ECD7.D	03/01/2023	
LCS	BLB0718-BS1	03022305ECD7.D	03/01/2023	
Blank	BLB0718-BLK1	03022304ECD7.D	03/01/2023	
LDW21-IT635D	23B0494-04	03022313ECD7.D	03/01/2023	
LDW21-IT635C	23B0494-03	03022375ECD7.D	03/01/2023	
LDW21-IT635B	23B0494-02	03022374ECD7.D	03/01/2023	
Reference	BLB0718-SRM1	03022307ECD7.D	03/01/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0008

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 3/1/2023 2:29:44PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23B0494-01	A	LDW21-IT635A	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-02	A	LDW21-IT635B	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-03	A	LDW21-IT635C	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-04	A	LDW21-IT635D	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
BLB0718-BLK1	-	Blank	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-BS1	-	LCS	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-BSD1	-	LCS Dup	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-MS1	-	Matrix Spike	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-SRM1	-	Reference	-	2.5	2.5	-	3/1/2023	LMJ	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Cleanup Batch:	CLC0009	Cleanup Type:	Sulfur
Cleanup Method:	EPA 3660B Sulfur Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Reference	BLB0718-SRM1	03022307ECD7.D	03/01/2023	
Matrix Spike Dup	BLB0718-MSD1	03022311ECD7.D	03/01/2023	
Matrix Spike	BLB0718-MS1	03022310ECD7.D	03/01/2023	
LCS Dup	BLB0718-BSD1	03022306ECD7.D	03/01/2023	
LDW21-IT635A	23B0494-01	03022373ECD7.D	03/01/2023	
LDW21-IT635B	23B0494-02	03022374ECD7.D	03/01/2023	
LDW21-IT635C	23B0494-03	03022375ECD7.D	03/01/2023	
LDW21-IT635D	23B0494-04	03022313ECD7.D	03/01/2023	
Blank	BLB0718-BLK1	03022304ECD7.D	03/01/2023	
LCS	BLB0718-BS1	03022305ECD7.D	03/01/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0009

Matrix: Solid **Cleanup using: Organics - EPA 3660B Sulfur Cleanup - uL** **Printed: 3/1/2023 2:31:27PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23B0494-01	A	LDW21-IT635A	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-02	A	LDW21-IT635B	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-03	A	LDW21-IT635C	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-04	A	LDW21-IT635D	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
BLB0718-BLK1	-	Blank	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-BS1	-	LCS	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-BSD1	-	LCS Dup	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-MS1	-	Matrix Spike	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-SRM1	-	Reference	-	2.5	2.5	-	3/1/2023	LMJ	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Cleanup Batch:	CLC0010	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Blank	BLB0718-BLK1	03022304ECD7.D	03/01/2023	
LCS	BLB0718-BS1	03022305ECD7.D	03/01/2023	
LCS Dup	BLB0718-BSD1	03022306ECD7.D	03/01/2023	
LDW21-IT635D	23B0494-04	03022313ECD7.D	03/01/2023	
Matrix Spike	BLB0718-MS1	03022310ECD7.D	03/01/2023	
Reference	BLB0718-SRM1	03022307ECD7.D	03/01/2023	
LDW21-IT635A	23B0494-01	03022373ECD7.D	03/01/2023	
LDW21-IT635B	23B0494-02	03022374ECD7.D	03/01/2023	
LDW21-IT635C	23B0494-03	03022375ECD7.D	03/01/2023	
Matrix Spike Dup	BLB0718-MSD1	03022311ECD7.D	03/01/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0010

Matrix: Solid **Cleanup using: Organics - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 3/1/2023 2:31:51PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23B0494-01	A	LDW21-IT635A	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-02	A	LDW21-IT635B	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-03	A	LDW21-IT635C	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
23B0494-04	A	LDW21-IT635D	A 01	2.5	2.5	8082A PCB Solid 4	3/1/2023	LMJ	
BLB0718-BLK1	-	Blank	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-BS1	-	LCS	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-BSD1	-	LCS Dup	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-MS1	-	Matrix Spike	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	3/1/2023	LMJ	
BLB0718-SRM1	-	Reference	-	2.5	2.5	-	3/1/2023	LMJ	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I

METHOD BLANK DATA SHEET

EPA 8082A

Blank

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Solid	Laboratory ID:	BLB0718-BLK1	File ID:	03022304ECD7.D
Sampled:	N/A	Prepared:	02/28/23 13:15	Analyzed:	03/02/23 18:06
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	12.5 g / 2.5 mL
Batch:	BLB0718	Sequence:	SLC0051	Calibration:	GB00069
Instrument:	ECD7	Column:	ZB5	Cleanups:	Silica Gel, Sulfur, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
12674-11-2	Aroclor 1016	1	4.0	U	1.6	4.0
11104-28-2	Aroclor 1221	1	4.0	U	1.6	4.0
11141-16-5	Aroclor 1232	1	4.0	U	1.6	4.0
53469-21-9	Aroclor 1242	1	4.0	U	1.6	4.0
12672-29-6	Aroclor 1248	1	4.0	U	1.6	4.0
11097-69-1	Aroclor 1254	1	4.0	U	1.6	4.0
11096-82-5	Aroclor 1260	1	4.0	U	0.6	4.0

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
Decachlorobiphenyl	8.0000	6.47	80.9	40 - 126	
Tetrachlorometaxylene	8.0000	5.49	68.7	44 - 120	
Decachlorobiphenyl [2C]	8.0000	6.64	83.0	40 - 126	
Tetrachlorometaxylene [2C]	8.0000	5.32	66.5	44 - 120	

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022304ECD7.D
Data file 2: /230302.b/230302.b/03022304ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0718-BLK1
Client ID:
Injection Date: 02-MAR-2023 18:06
Report Date: 03/03/2023 15:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	185978	5.687	-0.002	153015	27.5	26.6	3.2	Tetrachloro-m-xylene
13.893	-0.001	245106	14.118	0.000	288337	32.4	33.2	2.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	453592	-32.7
Hexabromobiphenyl	1429847	769295	-46.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	392094	24.4
Hexabromobiphenyl	513946	570475	11.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			

Total PCB Area Col1 (5.908 - 13.795) = 24233 Col1 Total PCB = 0.0 ppm*

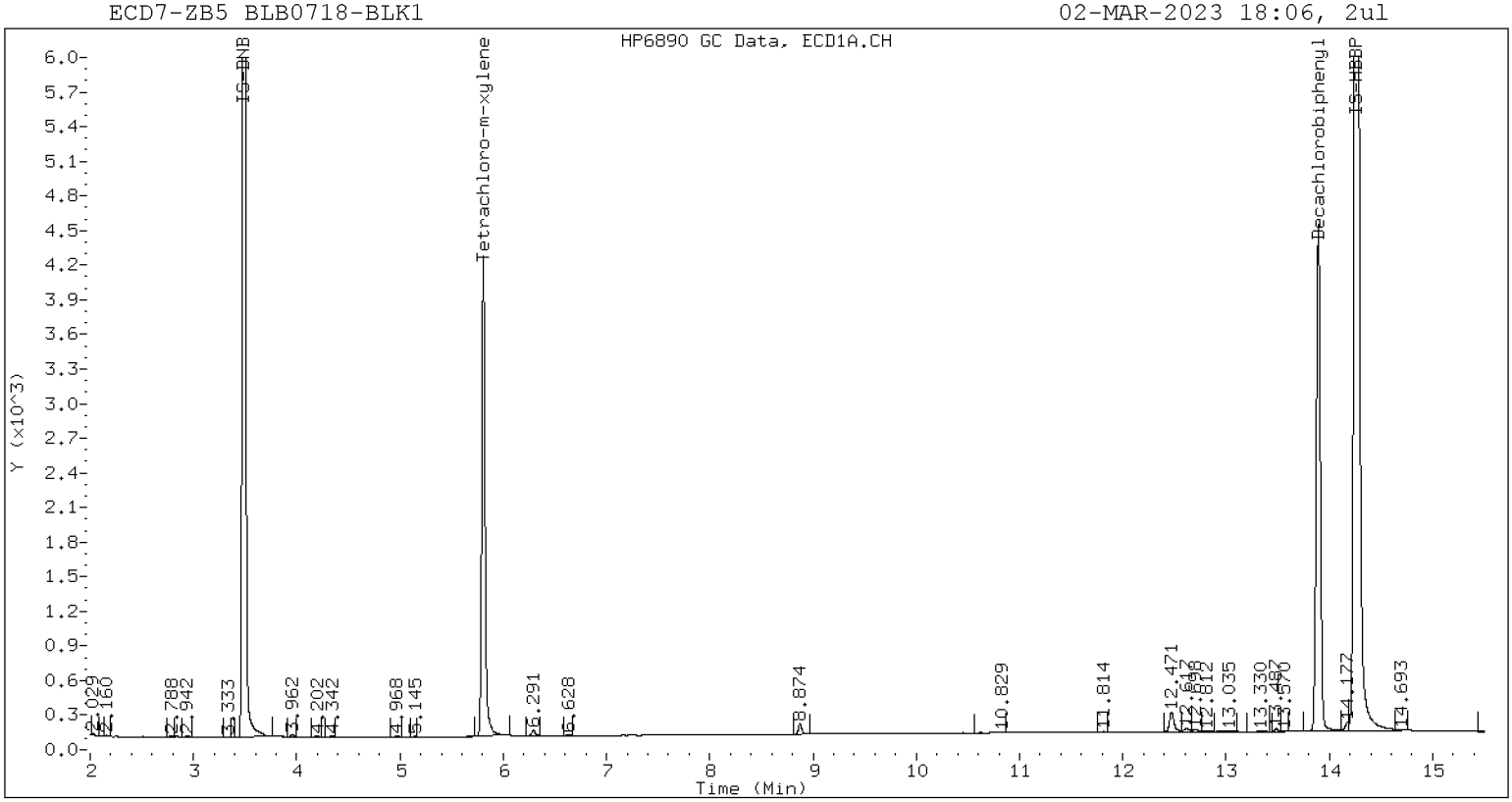
Total PCB Area Col2 (5.788 - 14.018) = 20407 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

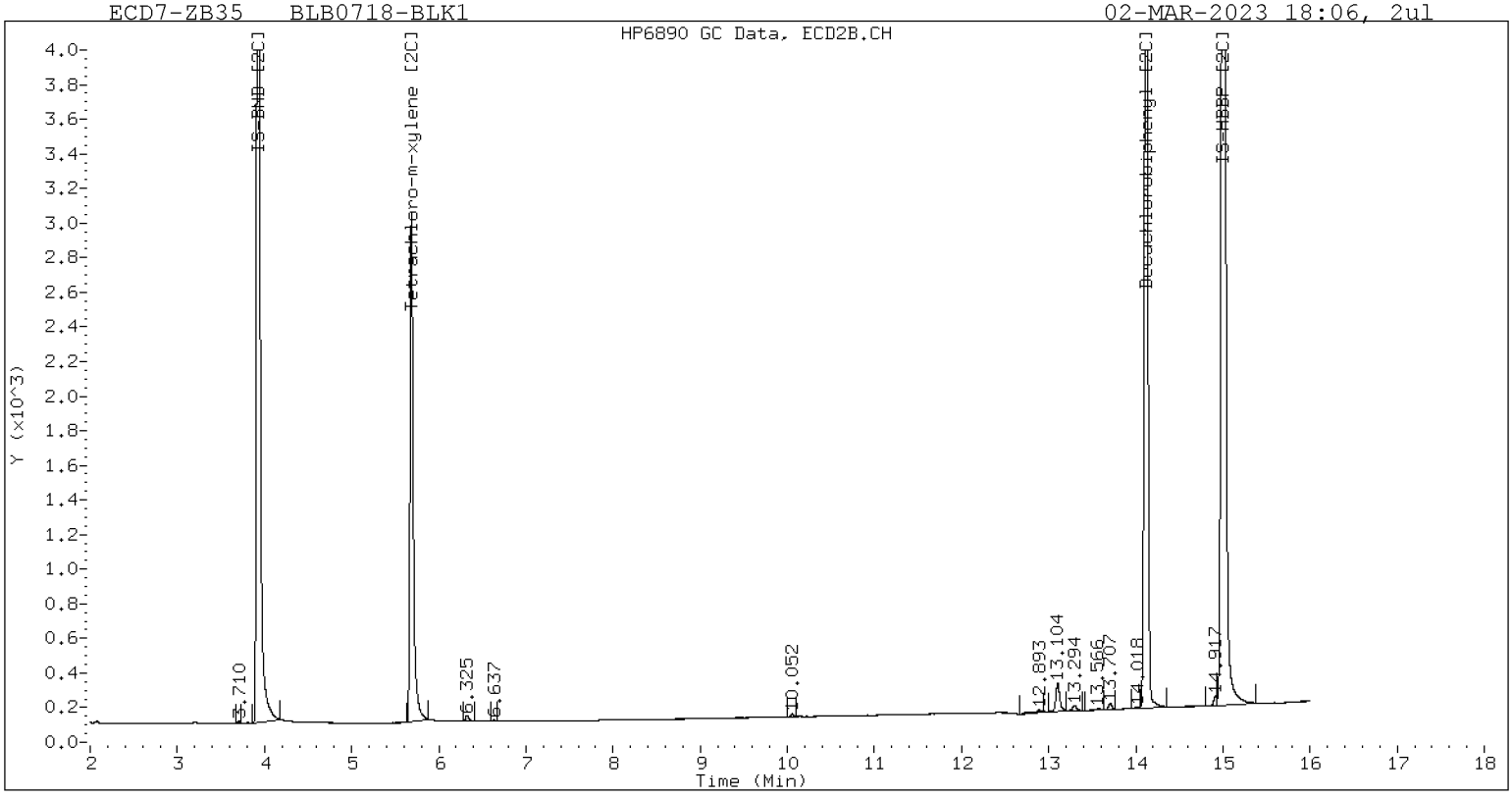
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0718-BLK1 02-MAR-2023 18:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0718-BLK1 02-MAR-2023 18:06, 2ul



ZB-35 Manual Integration: NO

LCS / LCS DUPLICATE RECOVERY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Matrix:	Solid	Analyzed:	03/02/23 18:27
Batch:	BLB0718	Laboratory ID:	BLB0718-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	12.5 g / 2.5 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Aroclor 1016 [2C]	101	62.3		61.8	56 - 120
Aroclor 1260	101	83.9		83.3	58 - 120

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/kg wet)	LCSD CONCENTRATION (ug/kg wet)	Q	LCSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Aroclor 1016	101	73.1		72.6	16.2	30	56 - 120
Aroclor 1260	101	94.4		93.6	11.7	30	58 - 120

* Indicates values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022305ECD7.D
Data file 2: /230302.b/230302.b/03022305ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0718-BS1
Client ID:
Injection Date: 02-MAR-2023 18:27
Report Date: 03/03/2023 15:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	190818	5.687	-0.001	152493	27.7	26.1	5.7	Tetrachloro-m-xylene
13.893	-0.002	252735	14.118	0.000	301622	32.1	34.1	5.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	461582	-31.5
Hexabromobiphenyl	1429847	798229	-44.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	397482	26.1
Hexabromobiphenyl	513946	581394	13.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.268	-0.002	53678	306.2	1	7.253	-0.001	69289	297.8
Aroclor-1016	2	7.652	-0.002	175450	328.3	2	7.856	-0.004	157461	333.7
Aroclor-1016	3	7.790	0.000	76096	291.7	3	8.054	-0.003	66153	310.4
Aroclor-1016	4	8.404	-0.001	53497	317.2	4	8.306	-0.002	50959	304.8
Total Col1Ave (4 peaks):					310.8	Total Col2Ave (4 peaks):				311.7 RPD = 0
Corrected Ave (3 peaks):					305.0	Corrected Ave (3 peaks):				304.3 RPD = 0
Aroclor-1221	1	4.734	0.003	282	6.8	1	---			0.0
Aroclor-1221	2	6.130	-0.002	7017	94.9	2	6.298	0.001	6902	96.9
Aroclor-1221	3	6.382	-0.000	34871	203.2	3	6.622	-0.000	30776	265.5
Total Col1Ave (3 peaks):					101.6	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.734	0.003	282	11.4	1	---			0.0
Aroclor-1232	2	6.130	-0.001	7017	143.1	2	7.253	-0.000	69289	685.6
Aroclor-1232	3	7.652	-0.004	175450	790.3	3	7.856	-0.005	157461	779.2
Aroclor-1232	4	8.577	-0.004	68253	723.4	4	8.713	-0.002	48735	838.0
Total Col1Ave (4 peaks):					417.0	Total Col2Ave (3 peaks):				767.6 RPD = 59*
Corrected Ave (3 peaks):					292.6	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.268	-0.003	53678	375.3	1	7.253	-0.001	69289	375.2
Aroclor-1242	2	7.652	-0.004	175450	403.9	2	7.856	-0.002	157461	405.6
Aroclor-1242	3	8.404	-0.002	53497	395.8	3	9.159	-0.010	9297	77.0
Aroclor-1242	4	8.577	-0.002	68253	341.6	4	9.586	-0.009	3848	26.1
Total Col1Ave (4 peaks):					379.1	Total Col2Ave (4 peaks):				221.0 RPD = 53*
Corrected Ave (3 peaks):					370.9	Corrected Ave (3 peaks):				159.4 RPD = 80*
Aroclor-1248	1	8.404	-0.003	53497	237.5	1	8.306	-0.002	50959	268.5
Aroclor-1248	2	8.577	-0.005	68253	238.4	2	8.713	-0.001	48735	248.4
Aroclor-1248	3	8.993	-0.006	69621	128.9	3	9.159	-0.008	9297	41.2
Aroclor-1248	4	9.299	0.003	59158	215.2	4	9.586	-0.006	3848	14.2
Total Col1Ave (4 peaks):					205.0	Total Col2Ave (4 peaks):				143.1 RPD = 36
Corrected Ave (3 peaks):					193.9	Corrected Ave (3 peaks):				101.2 RPD = 63*
Aroclor-1254	1	9.299	0.000	59158	127.6	1	9.449	-0.002	45601	150.9
Aroclor-1254	2	---			0.0	2	9.970	-0.000	9469	39.0
Aroclor-1254	3	9.666	-0.002	11428	38.4	3	10.145	0.021	98114	186.6
Aroclor-1254	4	9.805	-0.003	33055	57.0	4	10.370	-0.003	125977	245.7
Aroclor-1254	5	10.119	-0.058	153449	422.5	5	10.567	-0.003	170673	546.8
Total Col1Ave (4 peaks):					161.4	Total Col2Ave (5 peaks):				233.8 RPD = 37
Corrected Ave (3 peaks):					74.3	Corrected Ave (4 peaks):				155.6 RPD = 71*
Aroclor-1260	1	11.043	-0.001	124009	431.9	1	11.652	-0.000	130188	380.8
Aroclor-1260	2	11.359	-0.002	127824	426.0	2	11.917	-0.001	333321	382.0
Aroclor-1260	3	11.733	-0.001	327155	411.1	3	12.436	0.001	87276	376.9
Aroclor-1260	4	12.138	-0.001	169840	423.8	4	12.500	-0.001	212484	361.3
Aroclor-1260	5	12.244	0.000	69878	405.1	NS	---			----
Total Col1Ave (5 peaks):					419.6	Total Col2Ave (4 peaks):				375.3 RPD = 11
Corrected Ave (4 peaks):					416.5	Corrected Ave (3 peaks):				373.0 RPD = 11
Aroclor-1262	1	10.825	-0.004	241822	987.6	1	11.198	-0.002	122481	246.7
Aroclor-1262	2	12.244	0.000	69878	175.4	2	11.652	0.000	130188	307.9
Aroclor-1262	3	12.318	-0.000	84471	197.2	3	12.436	0.002	87276	181.9
Aroclor-1262	4	12.986	-0.001	75848	193.8	4	12.500	-0.002	212484	282.7
Total Col1Ave (4 peaks):					388.5	Total Col2Ave (4 peaks):				254.8 RPD = 42*
Corrected Ave (3 peaks):					188.8	Corrected Ave (3 peaks):				237.1 RPD = 23
Aroclor-1268	1	12.244	-0.002	69878	68.3	1	12.436	0.004	87276	74.5
Aroclor-1268	2	12.318	0.001	84471	83.4	2	12.500	-0.000	212484	168.8
Aroclor-1268	3	12.724	0.025	38116	44.0	3	12.891	-0.000	6343	5.9
Aroclor-1268	4	13.488	-0.002	20618	7.2	4	13.708	-0.001	26185	7.6
Total Col1Ave (4 peaks):					50.7	Total Col2Ave (4 peaks):				64.2 RPD = 23
Corrected Ave (3 peaks):					39.8	Corrected Ave (3 peaks):				29.4 RPD = 30

Total PCB Area Col1 (5.908 - 13.795) = 3433807 Col1 Total PCB = 0.6 ppm*

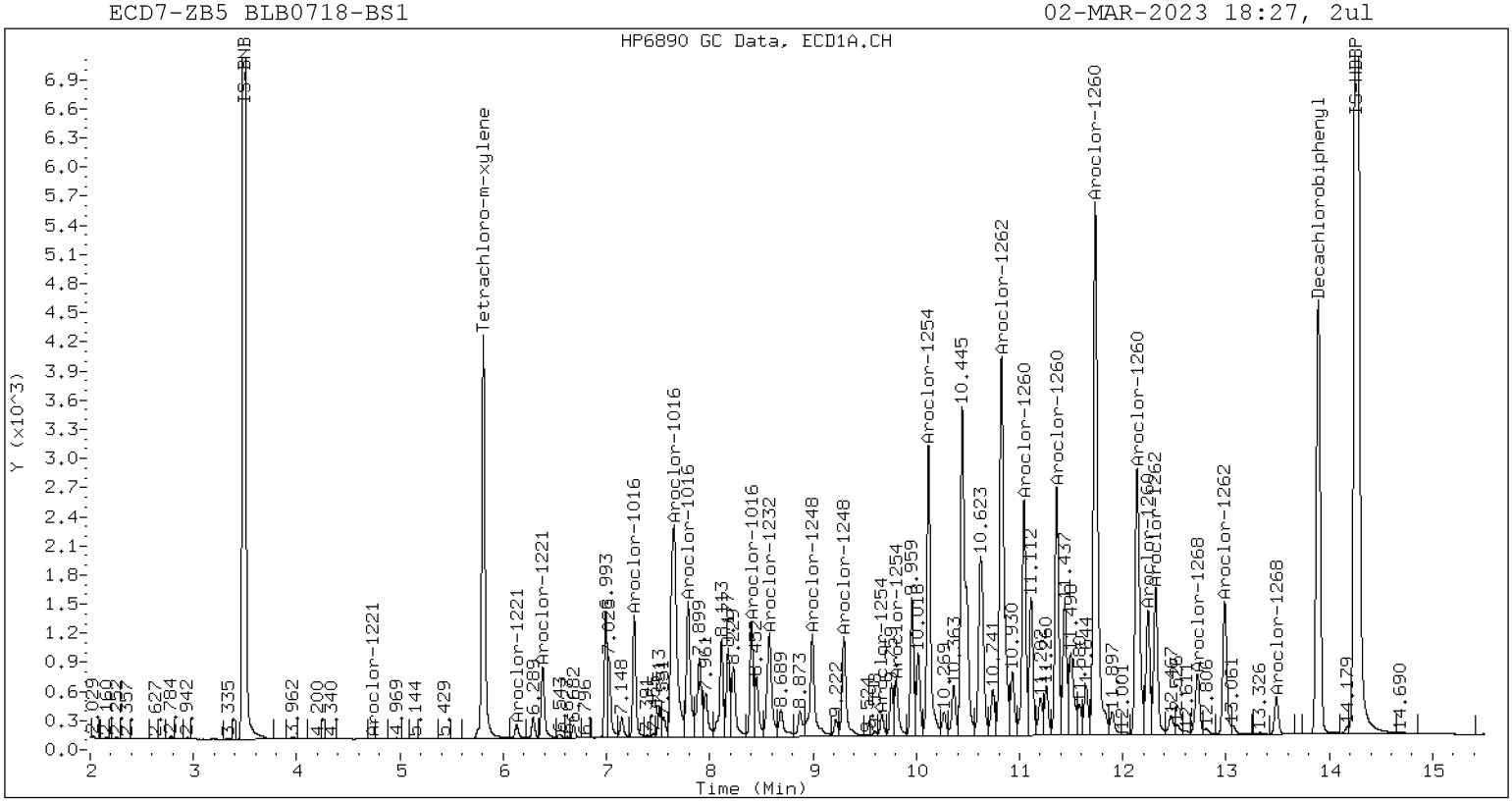
Total PCB Area Col2 (5.788 - 14.018) = 3064914 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

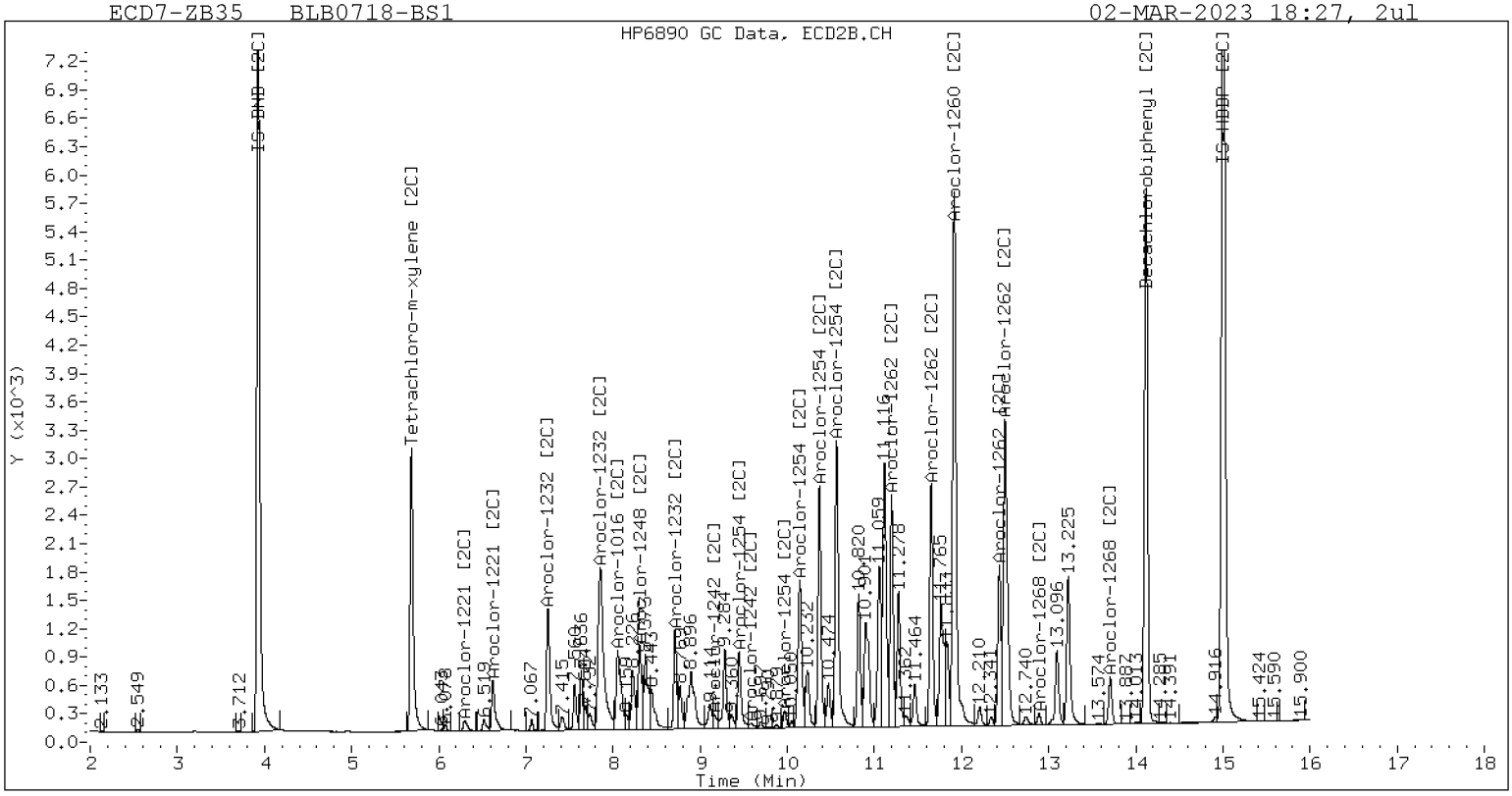
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0718-BS1 02-MAR-2023 18:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0718-BS1 02-MAR-2023 18:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022306ECD7.D
Data file 2: /230302.b/230302.b/03022306ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0718-BSD1
Client ID:
Injection Date: 02-MAR-2023 18:48
Report Date: 03/03/2023 15:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	184462	5.687	-0.002	146612	28.0	26.3	6.4	Tetrachloro-m-xylene
13.892	-0.002	232571	14.118	-0.000	284977	30.3	32.4	6.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	441491	-34.5
Hexabromobiphenyl	1429847	778597	-45.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	380545	20.7
Hexabromobiphenyl	513946	577155	12.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.002	61263	365.3	1	7.253	-0.002	76168	341.9
Aroclor-1016	2	7.653	-0.001	196665	384.7	2	7.855	-0.004	172079	380.9
Aroclor-1016	3	7.790	-0.000	84804	339.8	3	8.054	-0.003	71371	349.8
Aroclor-1016	4	8.404	-0.001	60150	372.9	4	8.306	-0.002	54859	342.7
Total Col1Ave (4 peaks):					365.7	Total Col2Ave (4 peaks):				353.8 RPD = 3
Corrected Ave (3 peaks):					359.4	Corrected Ave (3 peaks):				344.8 RPD = 4
Aroclor-1221	1	4.732	0.001	345	8.7	1	---			0.0
Aroclor-1221	2	6.130	-0.002	7872	111.3	2	6.298	0.002	7504	110.1
Aroclor-1221	3	6.382	-0.000	39339	239.6	3	6.622	0.000	34025	306.6
Total Col1Ave (3 peaks):					119.9	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.732	0.001	345	14.6	1	---			0.0
Aroclor-1232	2	6.130	-0.001	7872	167.8	2	7.253	-0.001	76168	787.2
Aroclor-1232	3	7.653	-0.003	196665	926.2	3	7.855	-0.005	172079	889.5
Aroclor-1232	4	8.578	-0.003	76934	852.5	4	8.713	-0.002	52959	951.2
Total Col1Ave (4 peaks):					490.3	Total Col2Ave (3 peaks):				876.0 RPD = 56*
Corrected Ave (3 peaks):					345.0	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	-0.002	61263	447.8	1	7.253	-0.001	76168	430.8
Aroclor-1242	2	7.653	-0.003	196665	473.3	2	7.855	-0.003	172079	463.0
Aroclor-1242	3	8.404	-0.001	60150	465.3	3	9.162	-0.007	9673	83.6
Aroclor-1242	4	8.578	-0.001	76934	402.6	4	9.584	-0.010	3746	26.6
Total Col1Ave (4 peaks):					447.2	Total Col2Ave (4 peaks):				251.0 RPD = 56*
Corrected Ave (3 peaks):					438.5	Corrected Ave (3 peaks):				180.3 RPD = 83*
Aroclor-1248	1	8.404	-0.003	60150	279.2	1	8.306	-0.002	54859	301.9
Aroclor-1248	2	8.578	-0.004	76934	281.0	2	8.713	-0.001	52959	281.9
Aroclor-1248	3	8.992	-0.006	80938	156.7	3	9.162	-0.005	9673	44.7
Aroclor-1248	4	9.299	0.003	65994	251.0	4	9.584	-0.007	3746	14.4
Total Col1Ave (4 peaks):					242.0	Total Col2Ave (4 peaks):				160.8 RPD = 40*
Corrected Ave (3 peaks):					229.0	Corrected Ave (3 peaks):				113.7 RPD = 67*
Aroclor-1254	1	9.299	-0.000	65994	148.9	1	9.449	-0.002	49475	171.1
Aroclor-1254	2	---			0.0	2	9.970	-0.001	10551	45.3
Aroclor-1254	3	9.666	-0.002	12781	44.8	3	10.144	0.020	107657	213.8
Aroclor-1254	4	9.805	-0.002	36518	65.9	4	10.369	-0.004	138520	282.2
Aroclor-1254	5	10.118	-0.058	168381	484.8	5	10.566	-0.003	187129	626.2
Total Col1Ave (4 peaks):					186.1	Total Col2Ave (5 peaks):				267.7 RPD = 36
Corrected Ave (3 peaks):					86.5	Corrected Ave (4 peaks):				178.1 RPD = 69*
Aroclor-1260	1	11.043	-0.002	136641	487.9	1	11.651	-0.001	142537	420.0
Aroclor-1260	2	11.359	-0.002	140188	479.0	2	11.917	-0.001	366468	423.1
Aroclor-1260	3	11.733	-0.001	358311	461.6	3	12.434	-0.001	96563	420.1
Aroclor-1260	4	12.137	-0.002	186066	476.0	4	12.500	-0.001	235047	402.6
Aroclor-1260	5	12.243	-0.001	76442	454.4	NS	---			----
Total Col1Ave (5 peaks):					471.8	Total Col2Ave (4 peaks):				416.5 RPD = 12
Corrected Ave (4 peaks):					467.8	Corrected Ave (3 peaks):				414.2 RPD = 12
Aroclor-1262	1	10.824	-0.005	265657	1112.2	1	11.198	-0.002	134348	272.6
Aroclor-1262	2	12.243	-0.001	76442	196.7	2	11.651	-0.000	142537	339.6
Aroclor-1262	3	12.318	-0.001	92204	220.7	3	12.434	0.001	96563	202.8
Aroclor-1262	4	12.987	0.000	82937	217.2	4	12.500	-0.002	235047	315.1
Total Col1Ave (4 peaks):					436.7	Total Col2Ave (4 peaks):				282.5 RPD = 43*
Corrected Ave (3 peaks):					211.5	Corrected Ave (3 peaks):				263.5 RPD = 22
Aroclor-1268	1	12.243	-0.003	76442	76.6	1	12.434	0.002	96563	83.1
Aroclor-1268	2	12.318	0.001	92204	93.3	2	12.500	-0.000	235047	188.1
Aroclor-1268	3	12.723	0.024	41531	49.1	3	12.890	-0.001	7019	6.6
Aroclor-1268	4	13.487	-0.003	22752	8.2	4	13.706	-0.003	28686	8.4
Total Col1Ave (4 peaks):					56.8	Total Col2Ave (4 peaks):				71.6 RPD = 23
Corrected Ave (3 peaks):					44.6	Corrected Ave (3 peaks):				32.7 RPD = 31

Total PCB Area Col1 (5.908 - 13.795) = 3791202 Col1 Total PCB = 0.7 ppm*

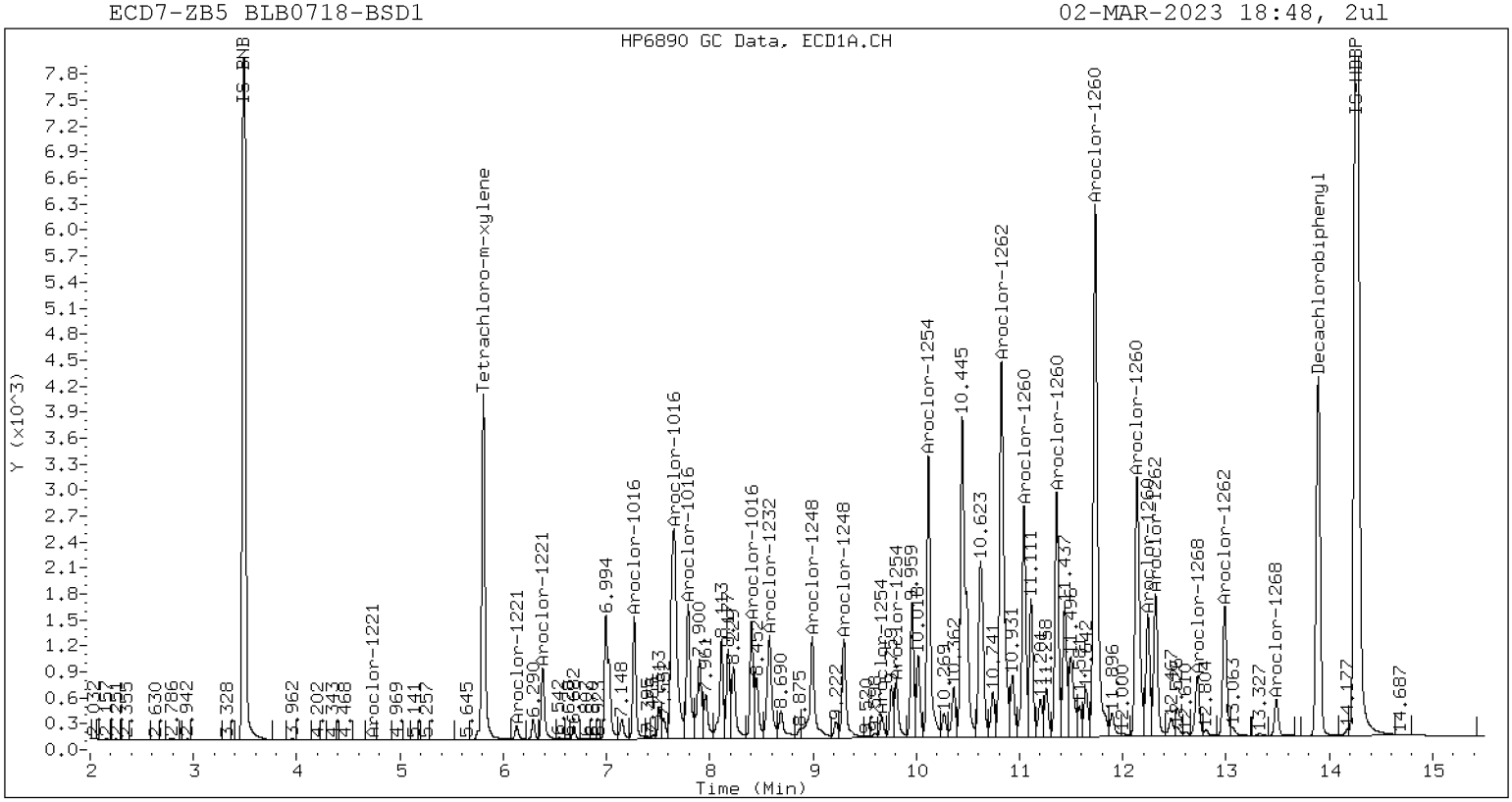
Total PCB Area Col2 (5.788 - 14.018) = 3342533 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

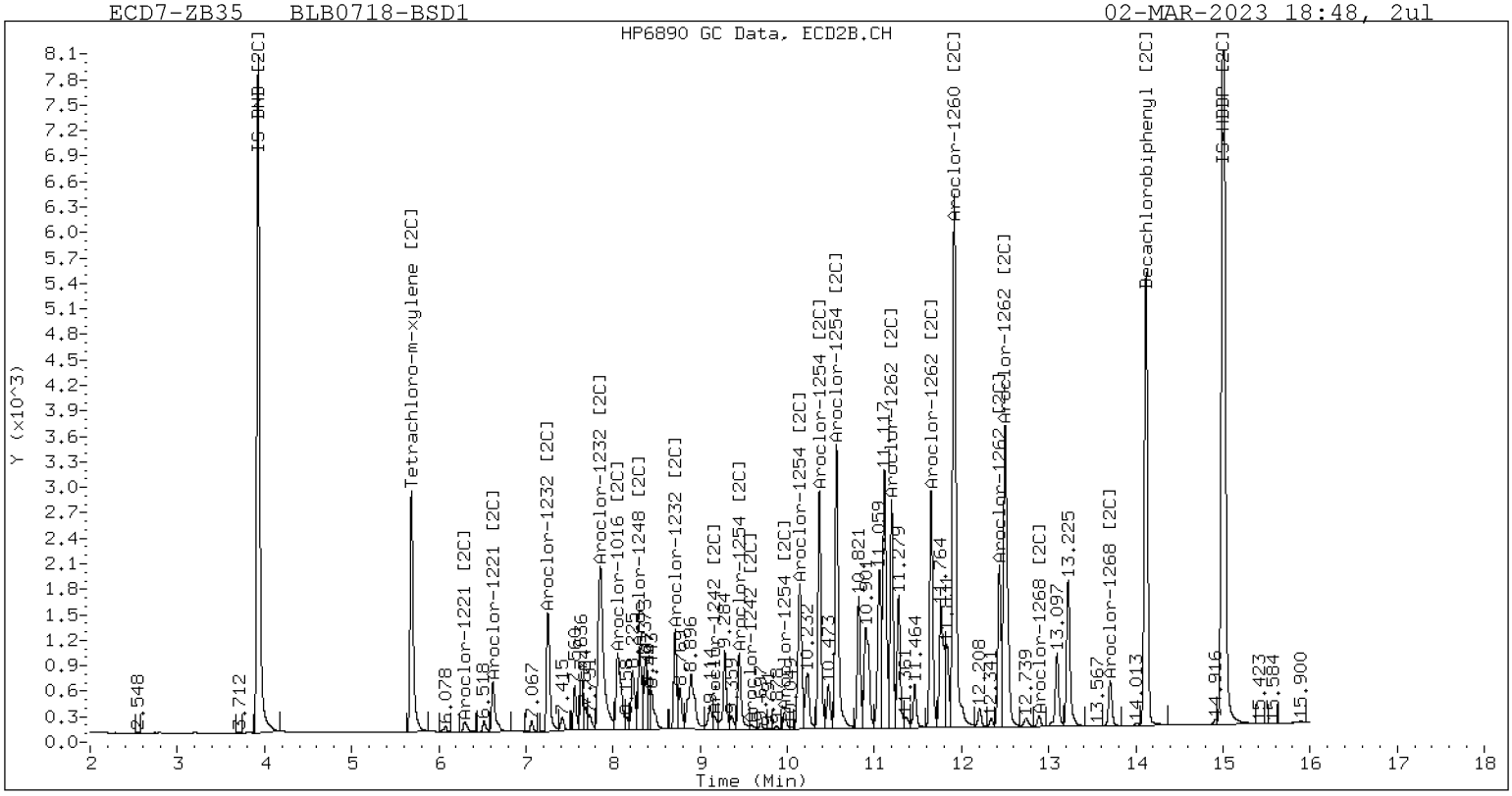
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0718-BSD1 02-MAR-2023 18:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0718-BSD1 02-MAR-2023 18:48, 2ul



ZB-35 Manual Integration: NO

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Matrix:	Solid	Analyzed:	03/02/23 20:12
Batch:	BLB0718	Laboratory ID:	BLB0718-MS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike
Initial/Final:	18.72 g / 2.5 mL	Source Sample:	LDW21-IT635B

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Aroclor 1016	101	ND	H, U	61.9		61.4	56 - 120
Aroclor 1260 [2C]	101	212	H, D	245	*, E	32.5 *	58 - 120

* Values outside of QC limits

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Matrix:	Solid	Analyzed:	03/02/23 20:33
Batch:	BLB0718	Laboratory ID:	BLB0718-MSD1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike Dup
Initial/Final:	18.72 g / 2.5 mL	Source Sample:	LDW21-IT635B

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016	101	64.4		63.9	3.92	30	56 - 120
Aroclor 1260 [2C]	101	247	*, E	34.7 *	0.890	30	58 - 120

* Values outside of QC limits

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022310ECD7.D
Data file 2: /230302.b/230302.b/03022310ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0718-MS1
Client ID:
Injection Date: 02-MAR-2023 20:12
Report Date: 03/03/2023 15:57
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.803	-0.005	113255	5.680	-0.009	98651	19.5	21.8	11.4	Tetrachloro-m-xylene
13.885	-0.010	118912	14.111	-0.007	165118	31.2	30.3	2.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	389834	-42.1
Hexabromobiphenyl	1429847	387176	-72.9 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	308406	-2.2
Hexabromobiphenyl	513946	357716	-30.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.263	-0.007	39593	267.4	1	7.248	-0.007	52042	288.3
Aroclor-1016	2	7.639	-0.016	125799	278.7	2	7.837	-0.023	115751	316.2
Aroclor-1016	3	7.778	-0.012	45223	205.2	3	8.039	-0.019	45201	273.4
Aroclor-1016	4	8.395	-0.010	69297	486.5	4	8.296	-0.011	101590	783.1
Total Col1Ave (4 peaks):					309.5	Total Col2Ave (4 peaks):				415.2 RPD = 29
Corrected Ave (3 peaks):					250.4	Corrected Ave (3 peaks):				292.6 RPD = 16
Aroclor-1221	1	4.731	-0.000	254	7.3	1	4.937	-0.019	4454	152.6
Aroclor-1221	2	6.126	-0.006	4556	73.0	2	6.291	-0.006	4697	85.0
Aroclor-1221	3	6.376	-0.006	25817	178.1	3	6.613	-0.009	22925	254.9
Total Col1Ave (3 peaks):					86.1	Total Col2Ave (3 peaks):				164.1 RPD = 62*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.731	0.000	254	12.2	1	4.937	-0.019	4454	282.3
Aroclor-1232	2	6.126	-0.005	4556	110.0	2	7.248	-0.006	52042	663.7
Aroclor-1232	3	7.639	-0.017	125799	670.9	3	7.837	-0.024	115751	738.3
Aroclor-1232	4	8.564	-0.017	50281	631.0	4	8.703	-0.012	70299	1557.9
Total Col1Ave (4 peaks):					356.0	Total Col2Ave (4 peaks):				810.5 RPD = 78*
Corrected Ave (3 peaks):					251.0	Corrected Ave (3 peaks):				561.4 RPD = 76*
Aroclor-1242	1	7.263	-0.007	39593	327.7	1	7.248	-0.006	52042	363.2
Aroclor-1242	2	7.639	-0.017	125799	342.9	2	7.837	-0.022	115751	384.3
Aroclor-1242	3	8.395	-0.010	69297	607.1	3	9.136	-0.034	51000	544.1
Aroclor-1242	4	8.564	-0.015	50281	298.0	4	9.616	0.021	14823	129.8
Total Col1Ave (4 peaks):					393.9	Total Col2Ave (4 peaks):				355.4 RPD = 10
Corrected Ave (3 peaks):					322.9	Corrected Ave (3 peaks):				292.4 RPD = 10
Aroclor-1248	1	8.395	-0.012	69297	364.3	1	8.296	-0.012	101590	689.9
Aroclor-1248	2	8.564	-0.018	50281	208.0	2	8.703	-0.012	70299	461.7
Aroclor-1248	3	8.983	-0.016	176624	387.2	3	9.136	-0.032	51000	291.1
Aroclor-1248	4	9.285	-0.010	224868	968.4	4	9.616	0.024	14823	70.5
Total Col1Ave (4 peaks):					482.0	Total Col2Ave (4 peaks):				378.3 RPD = 24
Corrected Ave (3 peaks):					319.8	Corrected Ave (3 peaks):				274.4 RPD = 15
Aroclor-1254	1	9.285	-0.014	224868	574.4	1	9.435	-0.015	173945	742.1
Aroclor-1254	2	9.360	-0.017	90228	512.5	2	9.954	-0.016	88511	469.4
Aroclor-1254	3	9.653	-0.015	138834	551.6	3	10.103	-0.021	370833	908.9
Aroclor-1254	4	9.785	-0.023	329810	674.0	4	10.355	-0.017	428020	1076.1
Aroclor-1254	5	10.237	0.060	120216	392.0	5	10.552	-0.017	344915	1424.3
Total Col1Ave (5 peaks):					540.9	Total Col2Ave (5 peaks):				924.1 RPD = 52*
Corrected Ave (4 peaks):					507.6	Corrected Ave (4 peaks):				799.1 RPD = 45*
Aroclor-1260	1	11.033	-0.011	206233	1480.7	1	11.641	-0.011	253718	1206.2
Aroclor-1260	2	11.348	-0.013	171189	1176.4	2	11.904	-0.013	609830	1136.0
Aroclor-1260	3	11.718	-0.016	517026	1339.5	3	12.423	-0.012	202699	1422.9
Aroclor-1260	4	12.120	-0.019	257073	1322.7	4	12.488	-0.013	408835	1129.9
Aroclor-1260	5	12.234	-0.010	134775	1611.0	NS	---			----
Total Col1Ave (5 peaks):					1386.0	Total Col2Ave (4 peaks):				1223.8 RPD = 12
Corrected Ave (4 peaks):					1329.8	Corrected Ave (3 peaks):				1157.4 RPD = 14
Aroclor-1262	1	10.806	-0.023	536943	4520.8	1	11.189	-0.012	215059	704.1
Aroclor-1262	2	12.234	-0.010	134775	697.4	2	11.641	-0.010	253718	975.3
Aroclor-1262	3	12.307	-0.012	155767	749.7	3	12.423	-0.011	202699	686.7
Aroclor-1262	4	12.973	-0.014	182195	959.5	4	12.488	-0.014	408835	884.2
Total Col1Ave (4 peaks):					1731.8	Total Col2Ave (4 peaks):				812.6 RPD = 72*
Corrected Ave (3 peaks):					802.2	Corrected Ave (3 peaks):				758.3 RPD = 6
Aroclor-1268	1	12.234	-0.013	134775	271.7	1	12.423	-0.009	202699	281.4
Aroclor-1268	2	12.307	-0.010	155767	317.1	2	12.488	-0.012	408835	528.0
Aroclor-1268	3	12.708	0.009	75028	178.5	3	12.884	-0.007	18090	27.4
Aroclor-1268	4	13.477	-0.013	59837	43.2	4	13.699	-0.010	75771	35.9
Total Col1Ave (4 peaks):					202.6	Total Col2Ave (4 peaks):				218.1 RPD = 7

Corrected Ave (3 peaks): 164.5 Corrected Ave (3 peaks): 114.9 RPD = 36

Total PCB Area Col1 (5.908 - 13.795) = 6717008 Col1 Total PCB = 1.4 ppm*

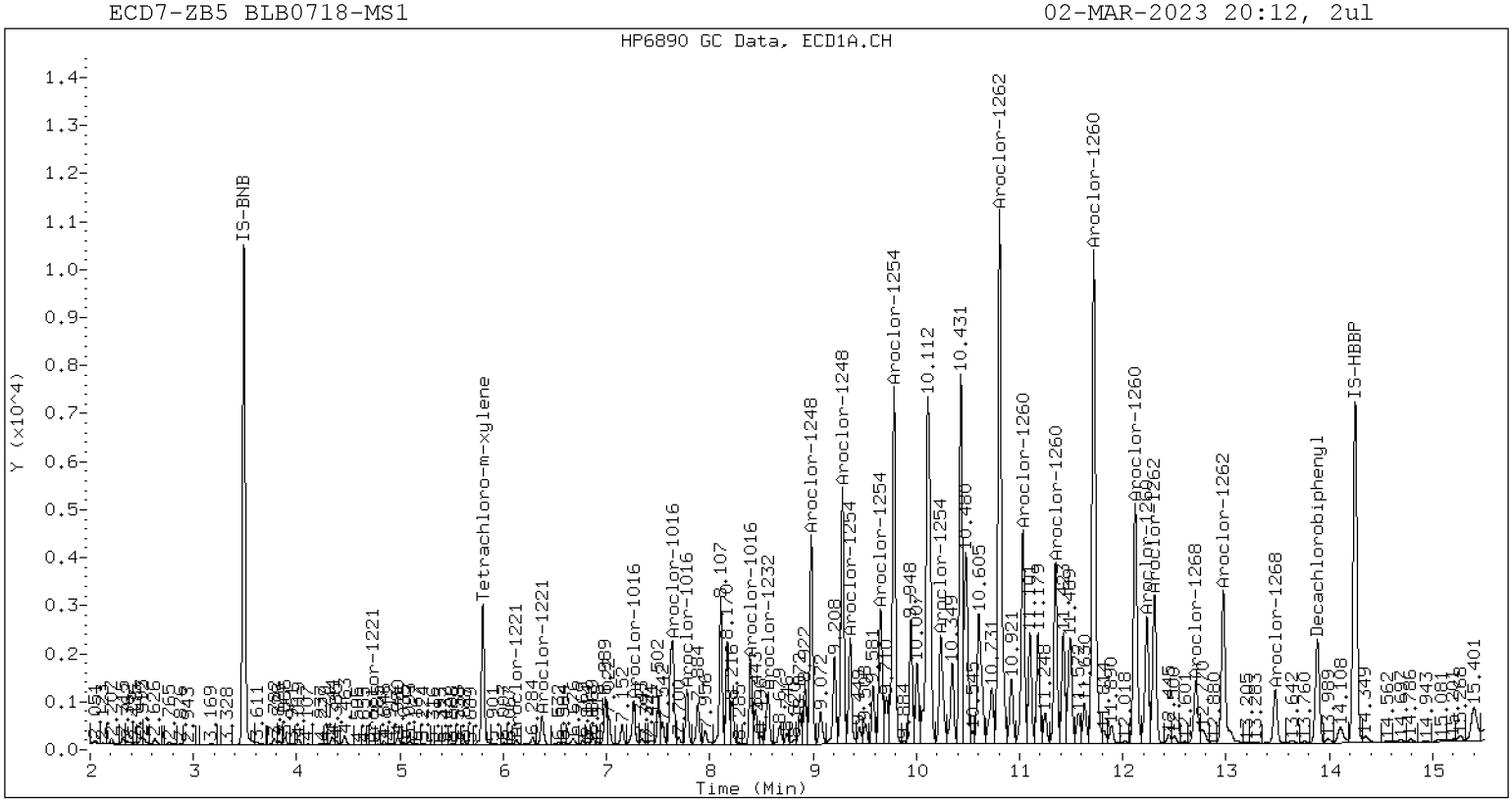
Total PCB Area Col2 (5.788 - 14.018) = 6712022 Col2 Total PCB = 1.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

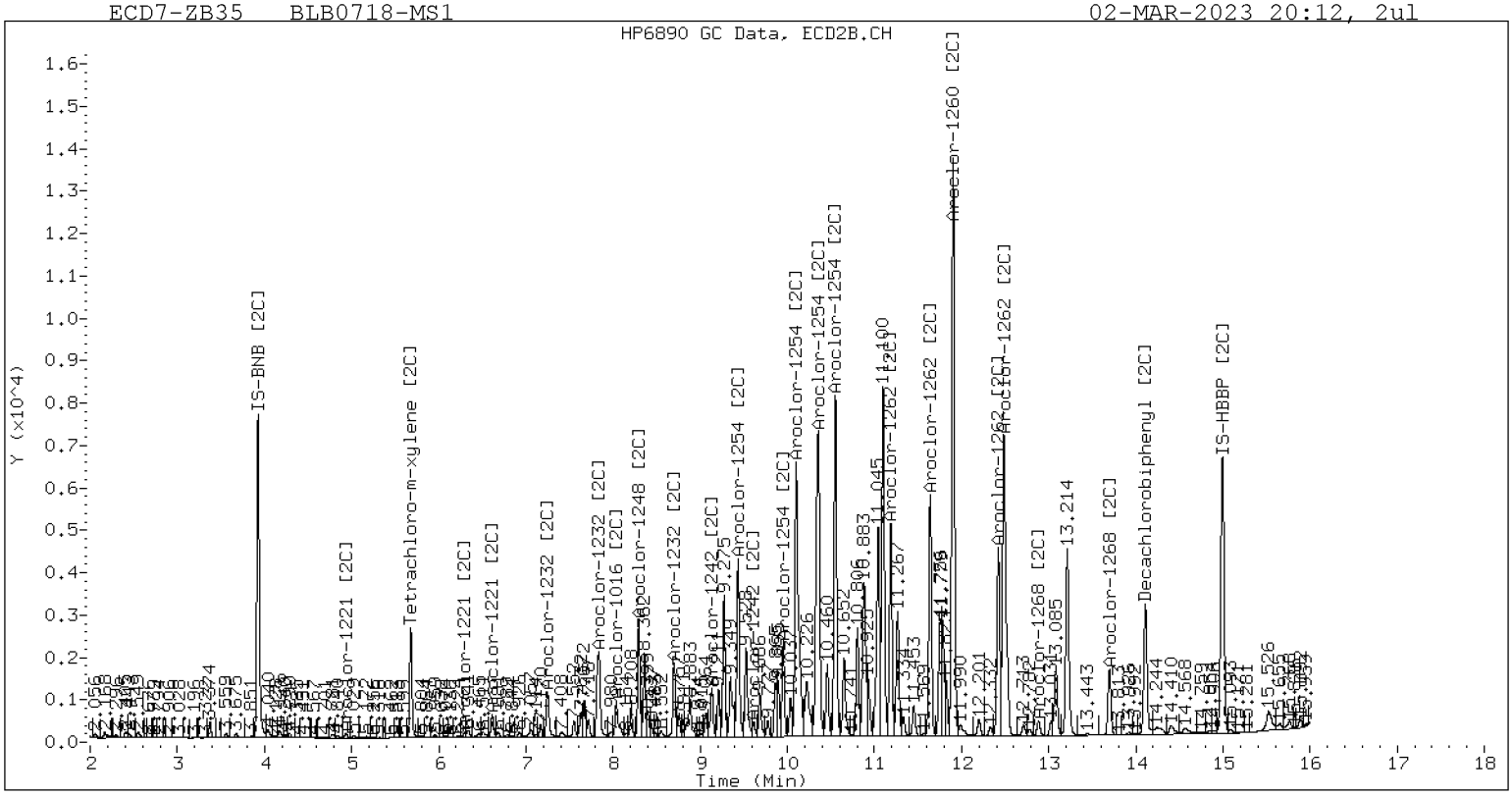
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0718-MS1 02-MAR-2023 20:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0718-MS1 02-MAR-2023 20:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022311ECD7.D
Data file 2: /230302.b/230302.b/03022311ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0718-MSD1
Client ID:
Injection Date: 02-MAR-2023 20:33
Report Date: 03/03/2023 15:57
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.802	-0.006	126032	5.679	-0.010	106927	20.6	22.9	10.6	Tetrachloro-m-xylene
13.886	-0.009	126038	14.112	-0.006	175684	33.3	32.4	2.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	409271	-39.3
Hexabromobiphenyl	1429847	384628	-73.1 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317947	0.9
Hexabromobiphenyl	513946	356486	-30.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.262	-0.008	43847	282.1	1	7.247	-0.008	57225	307.5
Aroclor-1016	2	7.637	-0.017	138040	291.3	2	7.835	-0.024	126320	334.7
Aroclor-1016	3	7.777	-0.013	49583	214.3	3	8.037	-0.020	49077	287.9
Aroclor-1016	4	8.395	-0.010	74719	499.7	4	8.296	-0.012	108333	810.0
Total Col1Ave (4 peaks):		321.8				Total Col2Ave (4 peaks):		435.0	RPD = 30	
Corrected Ave (3 peaks):		262.6				Corrected Ave (3 peaks):		310.0	RPD = 17	
Aroclor-1221	1	4.731	0.001	719	19.6	1	4.938	-0.019	4992	165.9
Aroclor-1221	2	6.126	-0.006	4864	74.2	2	6.291	-0.006	5333	93.6
Aroclor-1221	3	6.376	-0.007	28270	185.8	3	6.613	-0.009	26396	284.6
Total Col1Ave (3 peaks):		93.2				Total Col2Ave (3 peaks):		181.4	RPD = 64*	
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.731	0.001	719	32.8	1	4.938	-0.019	4992	306.9
Aroclor-1232	2	6.126	-0.005	4864	111.9	2	7.247	-0.007	57225	707.9
Aroclor-1232	3	7.637	-0.019	138040	701.3	3	7.835	-0.025	126320	781.5
Aroclor-1232	4	8.563	-0.018	54580	652.4	4	8.701	-0.013	76116	1636.2
Total Col1Ave (4 peaks):		374.6				Total Col2Ave (4 peaks):		858.1	RPD = 78*	
Corrected Ave (3 peaks):		265.7				Corrected Ave (3 peaks):		598.7	RPD = 77*	
Aroclor-1242	1	7.262	-0.008	43847	345.7	1	7.247	-0.007	57225	387.4
Aroclor-1242	2	7.637	-0.019	138040	358.4	2	7.835	-0.023	126320	406.8
Aroclor-1242	3	8.395	-0.011	74719	623.5	3	9.135	-0.035	54189	560.8
Aroclor-1242	4	8.563	-0.017	54580	308.1	4	9.614	0.020	15166	128.8
Total Col1Ave (4 peaks):		408.9				Total Col2Ave (4 peaks):		371.0	RPD = 10	
Corrected Ave (3 peaks):		337.4				Corrected Ave (3 peaks):		307.7	RPD = 9	
Aroclor-1248	1	8.395	-0.012	74719	374.2	1	8.296	-0.012	108333	713.6
Aroclor-1248	2	8.563	-0.019	54580	215.0	2	8.701	-0.013	76116	484.9
Aroclor-1248	3	8.982	-0.017	185415	387.2	3	9.135	-0.033	54189	300.0
Aroclor-1248	4	9.285	-0.010	233398	957.4	4	9.614	0.023	15166	69.9
Total Col1Ave (4 peaks):		483.5				Total Col2Ave (4 peaks):		392.1	RPD = 21	
Corrected Ave (3 peaks):		325.5				Corrected Ave (3 peaks):		285.0	RPD = 13	
Aroclor-1254	1	9.285	-0.014	233398	567.9	1	9.435	-0.016	181129	749.5
Aroclor-1254	2	9.359	-0.018	93406	505.3	2	9.954	-0.017	90241	464.2
Aroclor-1254	3	9.653	-0.015	142295	538.5	3	10.102	-0.021	383868	912.6
Aroclor-1254	4	9.784	-0.023	342676	667.0	4	10.354	-0.019	442857	1080.0
Aroclor-1254	5	10.236	0.059	136284	423.2	5	10.551	-0.018	354957	1421.7
Total Col1Ave (5 peaks):		540.4				Total Col2Ave (5 peaks):		925.6	RPD = 53*	
Corrected Ave (4 peaks):		508.8				Corrected Ave (4 peaks):		801.6	RPD = 45*	
Aroclor-1260	1	11.033	-0.012	206020	1489.0	1	11.641	-0.011	257698	1229.4
Aroclor-1260	2	11.348	-0.014	173687	1201.4	2	11.903	-0.014	616900	1153.2
Aroclor-1260	3	11.719	-0.015	521290	1359.5	3	12.423	-0.012	200998	1415.8
Aroclor-1260	4	12.119	-0.020	261046	1352.0	4	12.486	-0.015	411237	1140.4
Aroclor-1260	5	12.234	-0.010	133615	1607.7	NS	---			----
Total Col1Ave (5 peaks):		1401.9				Total Col2Ave (4 peaks):		1234.7	RPD = 13	
Corrected Ave (4 peaks):		1350.5				Corrected Ave (3 peaks):		1174.3	RPD = 14	
Aroclor-1262	1	10.806	-0.023	552726	4684.5	1	11.187	-0.013	214937	706.1
Aroclor-1262	2	12.234	-0.010	133615	695.9	2	11.641	-0.011	257698	994.0
Aroclor-1262	3	12.307	-0.011	154595	749.0	3	12.423	-0.011	200998	683.3
Aroclor-1262	4	12.973	-0.015	180949	959.3	4	12.486	-0.016	411237	892.4
Total Col1Ave (4 peaks):		1772.2				Total Col2Ave (4 peaks):		819.0	RPD = 74*	
Corrected Ave (3 peaks):		801.4				Corrected Ave (3 peaks):		760.6	RPD = 5	
Aroclor-1268	1	12.234	-0.013	133615	271.1	1	12.423	-0.009	200998	280.0
Aroclor-1268	2	12.307	-0.009	154595	316.8	2	12.486	-0.014	411237	532.9
Aroclor-1268	3	12.709	0.010	74220	177.7	3	12.885	-0.007	18019	27.3
Aroclor-1268	4	13.477	-0.012	59357	43.2	4	13.697	-0.012	74514	35.4
Total Col1Ave (4 peaks):		202.2				Total Col2Ave (4 peaks):		218.9	RPD = 8	

Corrected Ave (3 peaks): 164.0 Corrected Ave (3 peaks): 114.2 RPD = 36

Total PCB Area Col1 (5.908 - 13.795) = 6946697 Col1 Total PCB = 1.4 ppm*

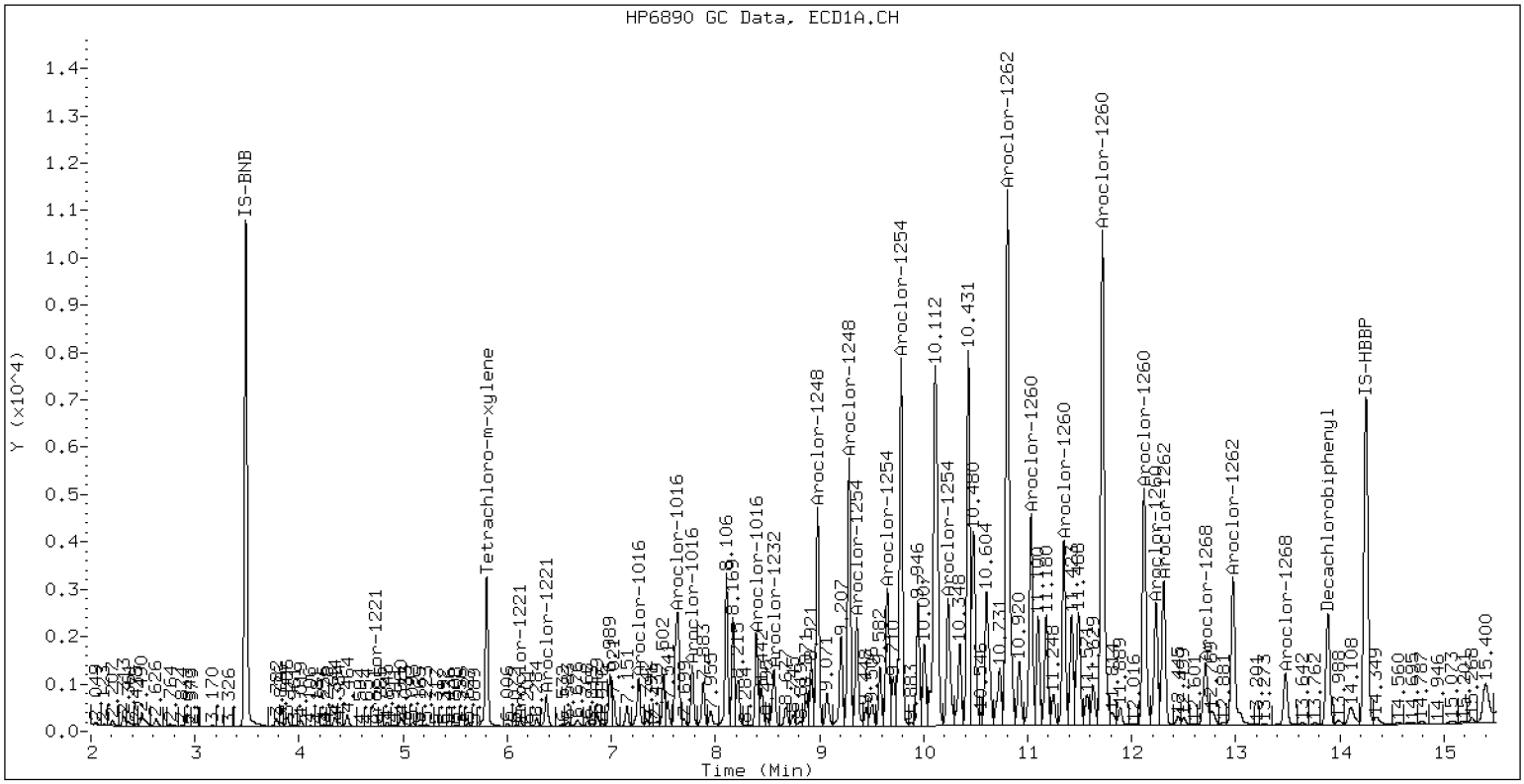
Total PCB Area Col2 (5.788 - 14.018) = 6925196 Col2 Total PCB = 1.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

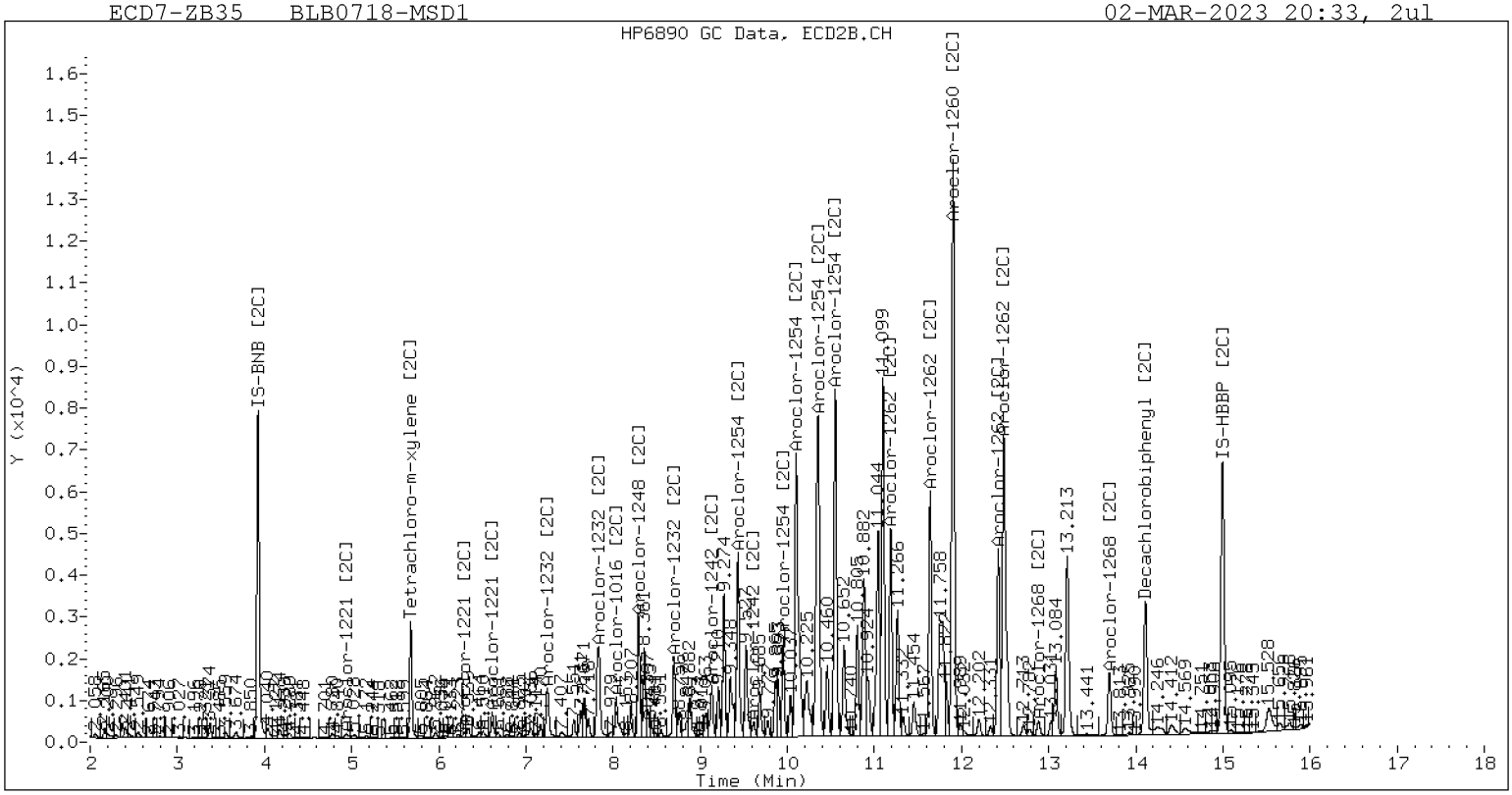
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0718-MSD1 02-MAR-2023 20:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0718-MSD1 02-MAR-2023 20:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Laboratory ID: BLB0718-SRM1
Batch: BLB0718
Initial/Final: 2.5 g / 2.5 mL
Preparation: EPA 3546 (Microwave)
Analyzed: 03/02/2023 19:09
Standard ID: K003527
Expires: 04/12/2023
Standard Lot#: PSRM0150
Description: Puget Sound reference-SRM

ANALYTE	TRUE (ug/kg wet)	FOUND (ug/kg wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
Aroclor 1260	108.00	114	2.9	20.0		105	38 - 167
Aroclor 1260 [2C]	108.00	105	2.9	20.0		97.6	38 - 167

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022307ECD7.D
Data file 2: /230302.b/230302.b/03022307ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0718-SRM1
Client ID:
Injection Date: 02-MAR-2023 19:09
Report Date: 03/03/2023 15:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	188894	5.685	-0.003	157162	28.1	28.5	1.3	Tetrachloro-m-xylene
13.888	-0.007	206185	14.115	-0.003	251641	32.4	31.1	4.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	450115	-33.2
Hexabromobiphenyl	1429847	645354	-54.9 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	376216	19.3
Hexabromobiphenyl	513946	531580	3.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.237	-0.033	11102	64.9	1	7.264	0.009	11343	51.5
Aroclor-1016	2	7.648	-0.006	6683	12.8	2	7.850	-0.010	6677	15.0
Aroclor-1016	3	7.800	0.010	3988	15.7	3	8.048	-0.009	1956	9.7
Aroclor-1016	4	8.401	-0.004	5643	34.3	4	8.302	-0.006	7242	45.8
Total Col1Ave (4 peaks):		31.9				Total Col2Ave (4 peaks):			30.5	RPD = 5
Corrected Ave (3 peaks):		20.9				Corrected Ave (3 peaks):			23.5	RPD = 11
Aroclor-1221	1	4.783	0.052	197	4.9	1	4.941	-0.015	1044	29.3
Aroclor-1221	2	6.068	-0.064	4297	59.6	2	6.347	0.051	15817	234.7
Aroclor-1221	3	6.395	0.013	1599	9.6	3	6.637	0.016	5941	54.1
Total Col1Ave (3 peaks):		24.7				Total Col2Ave (3 peaks):			106.0	RPD = 124*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.783	0.052	197	8.2	1	4.941	-0.015	1044	54.2
Aroclor-1232	2	6.068	-0.063	4297	89.9	2	7.264	0.010	11343	118.6
Aroclor-1232	3	7.648	-0.008	6683	30.9	3	7.850	-0.011	6677	34.9
Aroclor-1232	4	8.572	-0.009	5054	54.9	4	8.708	-0.007	5521	100.3
Total Col1Ave (4 peaks):		46.0				Total Col2Ave (4 peaks):			77.0	RPD = 51*
Corrected Ave (3 peaks):		31.3				Corrected Ave (3 peaks):			63.1	RPD = 67*
Aroclor-1242	1	7.237	-0.034	11102	79.6	1	7.264	0.010	11343	64.9
Aroclor-1242	2	7.648	-0.008	6683	15.8	2	7.850	-0.009	6677	18.2
Aroclor-1242	3	8.401	-0.004	5643	42.8	3	9.148	-0.021	6878	60.2
Aroclor-1242	4	8.572	-0.008	5054	25.9	4	9.569	-0.026	5735	41.2
Total Col1Ave (4 peaks):		41.0				Total Col2Ave (4 peaks):			46.1	RPD = 12
Corrected Ave (3 peaks):		28.2				Corrected Ave (3 peaks):			39.8	RPD = 34
Aroclor-1248	1	8.401	-0.006	5643	25.7	1	8.302	-0.006	7242	40.3
Aroclor-1248	2	8.572	-0.010	5054	18.1	2	8.708	-0.006	5521	29.7
Aroclor-1248	3	8.988	-0.011	17247	32.7	3	9.148	-0.019	6878	32.2
Aroclor-1248	4	9.290	-0.005	23419	87.3	4	9.569	-0.023	5735	22.3
Total Col1Ave (4 peaks):		41.0				Total Col2Ave (4 peaks):			31.1	RPD = 27
Corrected Ave (3 peaks):		25.5				Corrected Ave (3 peaks):			28.1	RPD = 10
Aroclor-1254	1	9.290	-0.008	23419	51.8	1	9.442	-0.008	19358	67.7
Aroclor-1254	2	9.367	-0.011	8626	42.4	2	9.960	-0.010	9580	41.6
Aroclor-1254	3	9.662	-0.006	14241	49.0	3	10.115	-0.009	38143	76.6
Aroclor-1254	4	9.793	-0.015	31968	56.6	4	10.362	-0.011	47715	98.3
Aroclor-1254	5	10.114	-0.063	51088	144.3	5	10.558	-0.012	48701	164.9
Total Col1Ave (5 peaks):		68.8				Total Col2Ave (5 peaks):			89.8	RPD = 26
Corrected Ave (4 peaks):		50.0				Corrected Ave (4 peaks):			71.1	RPD = 35
Aroclor-1260	1	11.037	-0.007	29605	127.5	1	11.646	-0.006	35161	112.5
Aroclor-1260	2	11.351	-0.010	23890	98.5	2	11.908	-0.010	77167	96.7
Aroclor-1260	3	11.723	-0.010	74943	116.5	3	12.427	-0.009	25468	120.3
Aroclor-1260	4	12.127	-0.013	38364	118.4	4	12.492	-0.009	49467	92.0
Aroclor-1260	5	12.237	-0.007	14903	106.9	NS	---			----
Total Col1Ave (5 peaks):		113.6				Total Col2Ave (4 peaks):			105.4	RPD = 7
Corrected Ave (4 peaks):		110.1				Corrected Ave (3 peaks):			100.4	RPD = 9
Aroclor-1262	1	10.814	-0.015	67009	338.5	1	11.192	-0.008	30516	67.2
Aroclor-1262	2	12.237	-0.007	14903	46.3	2	11.646	-0.006	35161	91.0
Aroclor-1262	3	12.311	-0.007	18526	53.5	3	12.427	-0.007	25468	58.1
Aroclor-1262	4	12.978	-0.009	20133	63.6	4	12.492	-0.010	49467	72.0
Total Col1Ave (4 peaks):		125.5				Total Col2Ave (4 peaks):			72.1	RPD = 54*
Corrected Ave (3 peaks):		54.5				Corrected Ave (3 peaks):			65.8	RPD = 19
Aroclor-1268	1	12.237	-0.010	14903	18.0	1	12.427	-0.006	25468	23.8
Aroclor-1268	2	12.311	-0.006	18526	22.6	2	12.492	-0.008	49467	43.0
Aroclor-1268	3	12.715	0.015	9829	14.0	3	12.888	-0.003	2497	2.5
Aroclor-1268	4	13.480	-0.010	4653	2.0	4	13.701	-0.008	8889	2.8
Total Col1Ave (4 peaks):		14.2				Total Col2Ave (4 peaks):			18.0	RPD = 24

Corrected Ave (3 peaks): 11.4 Corrected Ave (3 peaks): 9.7 RPD = 16

Total PCB Area Col1 (5.908 - 13.795) = 909248 Col1 Total PCB = 0.2 ppm*

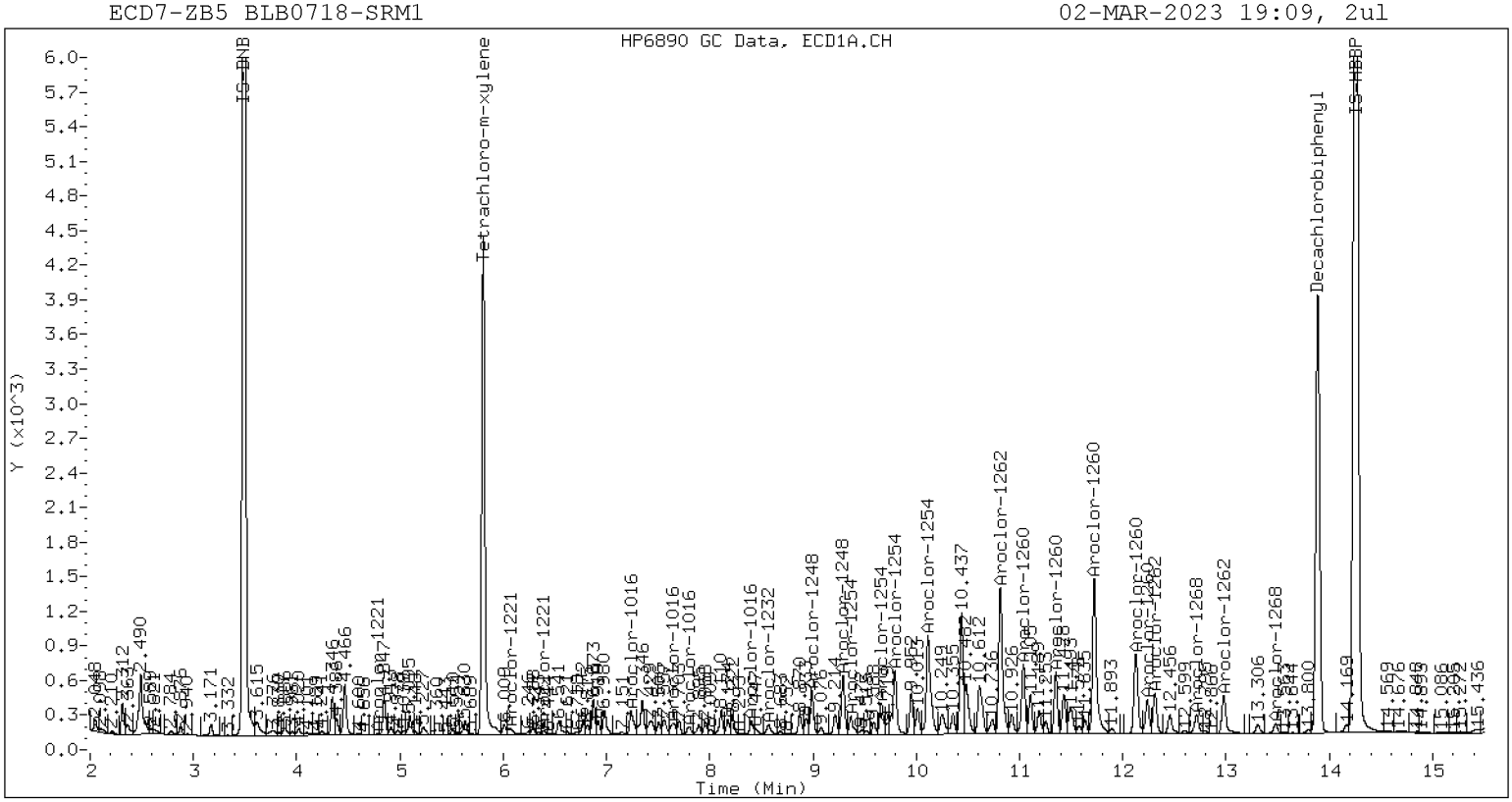
Total PCB Area Col2 (5.788 - 14.018) = 928463 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

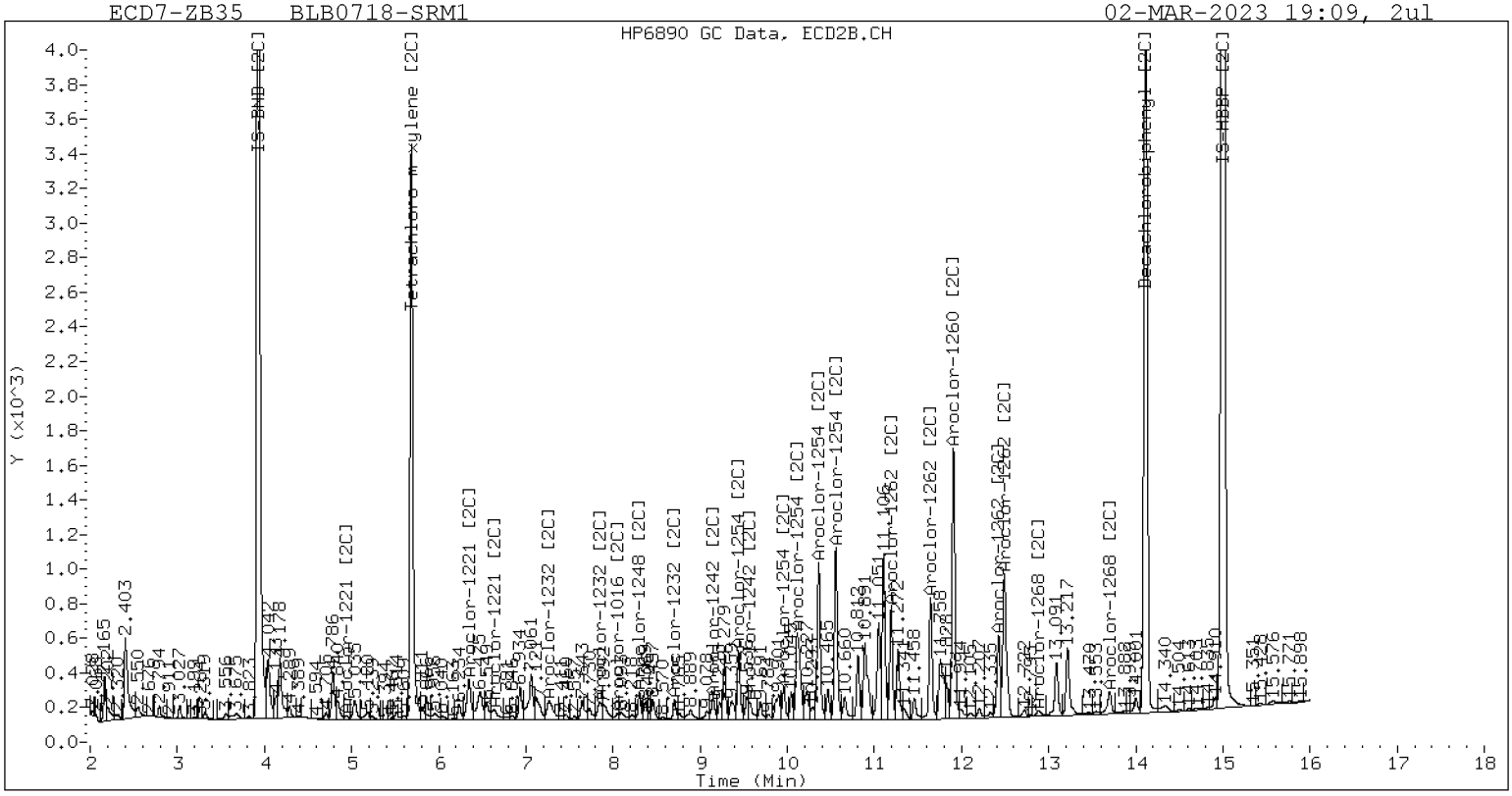
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0718-SRM1 02-MAR-2023 19:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0718-SRM1 02-MAR-2023 19:09, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016	250	0.0511017	20	0.0514466	50	5.107478E-02	1000	4.502727E-02	100	5.036259E-02	500	0.0471841
Aroclor-1016 (1)	250	0.031405	20	3.172321E-02	50	3.253176E-02	1000	2.667138E-02	100	3.141686E-02	500	2.856283E-02
Aroclor-1016 (2)	250	9.848704E-02	20	9.239415E-02	50	9.245774E-02	1000	8.848657E-02	100	9.221759E-02	500	0.0917416
Aroclor-1016 (3)	250	4.393471E-02	20	5.165382E-02	50	5.037363E-02	1000	3.720718E-02	100	4.822959E-02	500	3.990906E-02
Aroclor-1016 (4)	250	3.058004E-02	20	3.001523E-02	50	2.893599E-02	1000	2.774395E-02	100	2.958631E-02	500	2.852291E-02
Aroclor 1260	250	4.264611E-02	20	3.933745E-02	50	3.914748E-02	1000	0.0377098	100	3.888069E-02	500	3.753326E-02
Aroclor-1260 (1)	250	3.096387E-02	20	2.926415E-02	50	2.920486E-02	1000	2.746159E-02	100	2.841034E-02	500	2.736642E-02
Aroclor-1260 (2)	250	3.291004E-02	20	2.966791E-02	50	3.006192E-02	1000	2.856573E-02	100	3.010757E-02	500	2.910054E-02
Aroclor-1260 (3)	250	8.575373E-02	20	8.087657E-02	50	8.045158E-02	1000	7.674417E-02	100	7.953737E-02	500	7.514663E-02
Aroclor-1260 (4)	250	4.484933E-02	20	3.904963E-02	50	3.886754E-02	1000	3.922291E-02	100	3.955346E-02	500	3.941669E-02
Aroclor-1260 (5)	250	1.875356E-02	20	1.782901E-02	50	1.715148E-02	1000	1.655457E-02	100	1.679471E-02	500	1.663603E-02
Decachlorobiphenyl	40	0.7880759	3.2	0.8290115	8	0.8055828	160	0.797423	16	0.7758675	80	0.7312517
Tetrachlorometaxylene	40	1.205085	3.2	1.168271	8	1.244015	160	1.241136	16	1.185465	80	1.122954

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221							250	1.657582E-02				
Aroclor-1221 (1)							250	7.164712E-03				
Aroclor-1221 (2)							250	0.0128135				
Aroclor-1221 (3)							250	2.974924E-02				
Aroclor 1232									250	1.690391E-02		
Aroclor-1232 (1)									250	4.285984E-03		
Aroclor-1232 (2)									250	8.499602E-03		
Aroclor-1232 (3)									250	3.847671E-02		
Aroclor-1232 (4)									250	1.635336E-02		
Aroclor 1242	250	3.953397E-02										
Aroclor-1242 (1)	250	2.479209E-02										
Aroclor-1242 (2)	250	7.528986E-02										
Aroclor-1242 (3)	250	2.342574E-02										
Aroclor-1242 (4)	250	3.462819E-02										
Aroclor 1248			250	5.747549E-02								
Aroclor-1248 (1)			250	3.903293E-02								
Aroclor-1248 (2)			250	0.0496149								
Aroclor-1248 (3)			250	9.360202E-02								
Aroclor-1248 (4)			250	4.765213E-02								
Aroclor 1254					250	6.629494E-02						
Aroclor-1254 (1)					250	8.033306E-02						
Aroclor-1254 (2)					250	0.0361302						
Aroclor-1254 (3)					250	5.164705E-02						
Aroclor-1254 (4)					250	0.100423						
Aroclor-1254 (5)					250	6.294139E-02						
Aroclor 1262							250	3.665955E-02				
Aroclor-1262 (1)							250	2.454122E-02				
Aroclor-1262 (2)							250	3.993338E-02				

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3)							250	4.292945E-02				
Aroclor-1262 (4)							250	3.923413E-02				
Aroclor 1268									250	0.1442124		
Aroclor-1268 (1)									250	0.102504		
Aroclor-1268 (2)									250	0.1015072		
Aroclor-1268 (3)									250	8.685666E-02		
Aroclor-1268 (4)									250	0.2859818		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016	4.936617E-02	5.3			RSD (20)	
Aroclor-1016 (1)	3.038517E-02	7.4			RSD (20)	
Aroclor-1016 (2)	9.263078E-02	3.5			RSD (20)	
Aroclor-1016 (3)	0.045218	12.9			RSD (20)	
Aroclor-1016 (4)	2.923074E-02	3.5			RSD (20)	
Aroclor 1221		0.0			RSD (20)	
Aroclor-1221 (1)		0.0			RSD (20)	
Aroclor-1221 (2)		0.0			RSD (20)	
Aroclor-1221 (3)		0.0			RSD (20)	
Aroclor 1232		0.0			RSD (20)	
Aroclor-1232 (1)		0.0			RSD (20)	
Aroclor-1232 (2)		0.0			RSD (20)	
Aroclor-1232 (3)		0.0			RSD (20)	
Aroclor-1232 (4)		0.0			RSD (20)	
Aroclor 1242		0.0			RSD (20)	
Aroclor-1242 (1)		0.0			RSD (20)	
Aroclor-1242 (2)		0.0			RSD (20)	
Aroclor-1242 (3)		0.0			RSD (20)	
Aroclor-1242 (4)		0.0			RSD (20)	
Aroclor 1248		0.0			RSD (20)	
Aroclor-1248 (1)		0.0			RSD (20)	
Aroclor-1248 (2)		0.0			RSD (20)	
Aroclor-1248 (3)		0.0			RSD (20)	
Aroclor-1248 (4)		0.0			RSD (20)	
Aroclor 1254		0.0			RSD (20)	
Aroclor-1254 (1)		0.0			RSD (20)	
Aroclor-1254 (2)		0.0			RSD (20)	
Aroclor-1254 (3)		0.0			RSD (20)	
Aroclor-1254 (4)		0.0			RSD (20)	
Aroclor-1254 (5)		0.0			RSD (20)	
Aroclor 1260	3.920913E-02	4.7			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1)	2.877854E-02	4.7			RSD (20)	
Aroclor-1260 (2)	3.006895E-02	5.0			RSD (20)	
Aroclor-1260 (3)	7.975167E-02	4.6			RSD (20)	
Aroclor-1260 (4)	4.015993E-02	5.8			RSD (20)	
Aroclor-1260 (5)	1.728656E-02	5.0			RSD (20)	
Aroclor 1262		0.0			RSD (20)	
Aroclor-1262 (1)		0.0			RSD (20)	
Aroclor-1262 (2)		0.0			RSD (20)	
Aroclor-1262 (3)		0.0			RSD (20)	
Aroclor-1262 (4)		0.0			RSD (20)	
Aroclor 1268		0.0			RSD (20)	
Aroclor-1268 (1)		0.0			RSD (20)	
Aroclor-1268 (2)		0.0			RSD (20)	
Aroclor-1268 (3)		0.0			RSD (20)	
Aroclor-1268 (4)		0.0			RSD (20)	
Decachlorobiphenyl	0.7878687	4.2			RSD (20)	
Tetrachlorometaxylene	1.194488	3.9			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016 [2C]	250	0.0571297	20	5.099991E-02	50	0.0573721	1000	5.075893E-02	100	5.836783E-02	500	5.288542E-02
Aroclor-1016 (1) [2C]	250	4.732763E-02	20	5.070692E-02	50	5.021603E-02	1000	4.080107E-02	100	4.868029E-02	500	4.325569E-02
Aroclor-1016 (2) [2C]	250	0.1025919	20	8.142537E-02	50	9.407053E-02	1000	9.361548E-02	100	0.1015897	500	9.651233E-02
Aroclor-1016 (3) [2C]	250	4.410181E-02	20	4.005508E-02	50	4.718351E-02	1000	3.925581E-02	100	4.613223E-02	500	4.062487E-02
Aroclor-1016 (4) [2C]	250	3.449742E-02	20	3.181228E-02	50	3.801833E-02	1000	0.0293633	100	0.0370691	500	3.114879E-02
Aroclor 1260 [2C]	250	7.266587E-02	20	0.0760446	50	7.181489E-02	1000	0.0636872	100	6.942709E-02	500	6.617305E-02
Aroclor-1260 (1) [2C]	250	4.801376E-02	20	5.286013E-02	50	4.911343E-02	1000	4.201242E-02	100	4.695569E-02	500	4.328842E-02
Aroclor-1260 (2) [2C]	250	0.1266443	20	0.1297611	50	0.1243096	1000	0.1054494	100	0.1209452	500	0.1132043
Aroclor-1260 (3) [2C]	250	3.207621E-02	20	3.524009E-02	50	3.146502E-02	1000	0.0319805	100	2.936945E-02	500	3.102287E-02
Aroclor-1260 (4) [2C]	250	8.392913E-02	20	8.631709E-02	50	8.237154E-02	1000	7.530648E-02	100	0.080438	500	7.717658E-02
Decachlorobiphenyl [2C]	40	1.310398	3.2	1.170661	8	1.20406	160	1.207975	16	1.205489	80	1.211045
Tetrachlorometaxylene [2C]	40	1.219073	3.2	1.21526	8	1.195453	160	1.111394	16	1.175548	80	1.125598

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221 [2C]							250	1.507982E-02				
Aroclor-1221 (1) [2C]							250	7.573277E-03				
Aroclor-1221 (2) [2C]							250	0.0143332				
Aroclor-1221 (3) [2C]							250	2.333296E-02				
Aroclor 1232 [2C]									250	1.920227E-02		
Aroclor-1232 (1) [2C]									250	4.09321E-03		
Aroclor-1232 (2) [2C]									250	2.034072E-02		
Aroclor-1232 (3) [2C]									250	4.067023E-02		
Aroclor-1232 (4) [2C]									250	1.170493E-02		
Aroclor 1242 [2C]	250	4.230924E-02										
Aroclor-1242 (1) [2C]	250	3.716893E-02										
Aroclor-1242 (2) [2C]	250	7.813249E-02										
Aroclor-1242 (3) [2C]	250	2.431205E-02										
Aroclor-1242 (4) [2C]	250	0.0296235										
Aroclor 1248 [2C]			250	4.442703E-02								
Aroclor-1248 (1) [2C]			250	3.819713E-02								
Aroclor-1248 (2) [2C]			250	3.949349E-02								
Aroclor-1248 (3) [2C]			250	4.544987E-02								
Aroclor-1248 (4) [2C]			250	5.456762E-02								
Aroclor 1254 [2C]					250	0.0763106						
Aroclor-1254 (1) [2C]					250	6.080523E-02						
Aroclor-1254 (2) [2C]					250	4.891616E-02						
Aroclor-1254 (3) [2C]					250	0.1058376						
Aroclor-1254 (4) [2C]					250	0.103175						
Aroclor-1254 (5) [2C]					250	6.281905E-02						
Aroclor 1262 [2C]							250	7.397596E-02				
Aroclor-1262 (1) [2C]							250	6.830764E-02				
Aroclor-1262 (2) [2C]							250	5.817803E-02				

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3) [2C]							250	6.600951E-02				
Aroclor-1262 (4) [2C]							250	0.1034087				
Aroclor 1268 [2C]									250	0.2386862		
Aroclor-1268 (1) [2C]									250	0.1610947		
Aroclor-1268 (2) [2C]									250	0.1731794		
Aroclor-1268 (3) [2C]									250	0.1478672		
Aroclor-1268 (4) [2C]									250	0.4726034		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016 [2C]	5.458565E-02	6.3			RSD (20)	
Aroclor-1016 (1) [2C]	4.683127E-02	8.5			RSD (20)	
Aroclor-1016 (2) [2C]	9.496755E-02	8.0			RSD (20)	
Aroclor-1016 (3) [2C]	4.289222E-02	7.9			RSD (20)	
Aroclor-1016 (4) [2C]	3.365154E-02	10.3			RSD (20)	
Aroclor 1221 [2C]		0.0			RSD (20)	
Aroclor-1221 (1) [2C]		0.0			RSD (20)	
Aroclor-1221 (2) [2C]		0.0			RSD (20)	
Aroclor-1221 (3) [2C]		0.0			RSD (20)	
Aroclor 1232 [2C]		0.0			RSD (20)	
Aroclor-1232 (1) [2C]		0.0			RSD (20)	
Aroclor-1232 (2) [2C]		0.0			RSD (20)	
Aroclor-1232 (3) [2C]		0.0			RSD (20)	
Aroclor-1232 (4) [2C]		0.0			RSD (20)	
Aroclor 1242 [2C]		0.0			RSD (20)	
Aroclor-1242 (1) [2C]		0.0			RSD (20)	
Aroclor-1242 (2) [2C]		0.0			RSD (20)	
Aroclor-1242 (3) [2C]		0.0			RSD (20)	
Aroclor-1242 (4) [2C]		0.0			RSD (20)	
Aroclor 1248 [2C]		0.0			RSD (20)	
Aroclor-1248 (1) [2C]		0.0			RSD (20)	
Aroclor-1248 (2) [2C]		0.0			RSD (20)	
Aroclor-1248 (3) [2C]		0.0			RSD (20)	
Aroclor-1248 (4) [2C]		0.0			RSD (20)	
Aroclor 1254 [2C]		0.0			RSD (20)	
Aroclor-1254 (1) [2C]		0.0			RSD (20)	
Aroclor-1254 (2) [2C]		0.0			RSD (20)	
Aroclor-1254 (3) [2C]		0.0			RSD (20)	
Aroclor-1254 (4) [2C]		0.0			RSD (20)	
Aroclor-1254 (5) [2C]		0.0			RSD (20)	
Aroclor 1260 [2C]	6.996878E-02	6.4			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1) [2C]	4.704064E-02	8.4			RSD (20)	
Aroclor-1260 (2) [2C]	0.1200523	7.6			RSD (20)	
Aroclor-1260 (3) [2C]	3.185902E-02	6.0			RSD (20)	
Aroclor-1260 (4) [2C]	8.092314E-02	5.1			RSD (20)	
Aroclor 1262 [2C]		0.0			RSD (20)	
Aroclor-1262 (1) [2C]		0.0			RSD (20)	
Aroclor-1262 (2) [2C]		0.0			RSD (20)	
Aroclor-1262 (3) [2C]		0.0			RSD (20)	
Aroclor-1262 (4) [2C]		0.0			RSD (20)	
Aroclor 1268 [2C]		0.0			RSD (20)	
Aroclor-1268 (1) [2C]		0.0			RSD (20)	
Aroclor-1268 (2) [2C]		0.0			RSD (20)	
Aroclor-1268 (3) [2C]		0.0			RSD (20)	
Aroclor-1268 (4) [2C]		0.0			RSD (20)	
Decachlorobiphenyl [2C]	1.218271	3.9			RSD (20)	
Tetrachlorometaxylene [2C]	1.173721	3.9			RSD (20)	

ANALYSIS SEQUENCE

SLB0342

Instrument: ECD7
Calibration ID: GB00069

Printed: 2/28/2023 9:54:44AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0342-CAL1	QC		1		L000856	L000844		
SLB0342-CAL2	QC		2		L000859	L000844		
SLB0342-CAL3	QC		3		L000858	L000844		
SLB0342-CAL4	QC		4		L000731	L000844		
SLB0342-CAL5	QC		5		L000857	L000844		
SLB0342-CAL6	QC		6		L000855	L000844		
SLB0342-CAL7	QC		7		L000860	L000844		
SLB0342-CAL8	QC		8		L000861	L000844		
SLB0342-CAL9	QC		9		L000862	L000844		
SLB0342-CALA	QC		10		L000863	L000844		
SLB0342-CALB	QC		11		L000864	L000844		
SLB0342-SCV1	QC		12		L002065	L000844		
SLB0342-SCV2	QC		13		K007656	L000844		
SLB0342-SCV3	QC		14		L002066	L000844		
SLB0342-SCV4	QC		15		L002067	L000844		
SLB0342-SCV5	QC		16		L002068	L000844		
SLB0342-SCV6	QC		17		L002069	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	24-FEB-2023 10:51	02242301ECD7.D	1	IB	
2	24-FEB-2023 11:12	02242302ECD7.D	1	0.25PPMAR1660	
3	24-FEB-2023 11:33	02242303ECD7.D	1	0.02PPMAR1660	
4	24-FEB-2023 11:54	02242304ECD7.D	1	0.05PPMAR1660	
5	24-FEB-2023 12:15	02242305ECD7.D	1	1.0PPMAR1660	
6	24-FEB-2023 12:36	02242306ECD7.D	1	0.1PPMAR1660	
7	24-FEB-2023 12:57	02242307ECD7.D	1	0.5PPMAR1660	
8	24-FEB-2023 13:18	02242308ECD7.D	1	0.25PPMAR1242	
9	24-FEB-2023 13:39	02242309ECD7.D	1	0.25PPMAR1248	
10	24-FEB-2023 14:00	02242310ECD7.D	1	0.25PPMAR1254	
11	24-FEB-2023 14:21	02242311ECD7.D	1	0.25PPMAR2162	
12	24-FEB-2023 14:42	02242312ECD7.D	1	0.25PPMAR3268	
13	24-FEB-2023 15:03	02242313ECD7.D	1	AR1660SCV	
14	24-FEB-2023 15:24	02242314ECD7.D	1	AR1242SCV	
15	24-FEB-2023 15:45	02242315ECD7.D	1	AR1248SCV	
16	24-FEB-2023 16:06	02242316ECD7.D	1	AR1254SCV	
17	24-FEB-2023 16:27	02242317ECD7.D	1	AR2162SCV	
18	24-FEB-2023 16:48	02242318ECD7.D	1	AR3268SCV	
19	24-FEB-2023 17:09	02242319ECD7.D	1	DDTS	
20	24-FEB-2023 17:30	02242320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 24-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2039	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	Aroclor-1016 [2C],
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2038	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 28-Feb-2023 09:27

02242301ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242302ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242303ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242304ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242305ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242306ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
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02242309ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242310ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242311ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242312ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242313ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242314ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242315ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242316ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242317ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242318ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242319ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242320ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\02242312ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00716	0.00716	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01281	0.01281	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02975	0.02975	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02479	0.02479	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.07529	0.07529	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02343	0.02343	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03463	0.03463	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00429	0.00429	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****			
	0.00850							0.00850	0.000
(3)	*****	*****	*****	*****	*****	*****			
	0.03848							0.03848	0.000
(4)	*****	*****	*****	*****	*****	*****			
	0.01635							0.01635	0.000
7 Aroclor-1016(1)	0.03172	0.03253	0.03142	0.03141	0.02856	0.02667			
	*****							0.03039	7.449
(2)	0.09239	0.09246	0.09222	0.09849	0.09174	0.08849			
	*****							0.09263	3.499
(3)	0.05165	0.05037	0.04823	0.04393	0.03991	0.03721			
	*****							0.04522	12.936
(4)	0.03002	0.02894	0.02959	0.03058	0.02852	0.02774			
	*****							0.02923	3.542
6 Aroclor-1248(1)	*****	*****	*****	*****	*****	*****			
	0.03903							0.03903	0.000
(2)	*****	*****	*****	*****	*****	*****			
	0.04961							0.04961	0.000
(3)	*****	*****	*****	*****	*****	*****			
	0.09360							0.09360	0.000
(4)	*****	*****	*****	*****	*****	*****			
	0.04765							0.04765	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254(1)	*****	*****	*****	*****	*****	*****	0.08033	0.08033	0.000
(2)	*****	*****	*****	*****	*****	*****	0.03613	0.03613	0.000
(3)	*****	*****	*****	*****	*****	*****	0.05165	0.05165	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10042	0.10042	0.000
(5)	*****	*****	*****	*****	*****	*****	0.06294	0.06294	0.000
9 Aroclor-1260(1)	0.02926	0.02920	0.02841	0.03096	0.02737	0.02746	*****	0.02878	4.677
(2)	0.02967	0.03006	0.03011	0.03291	0.02910	0.02857	*****	0.03007	5.029
(3)	0.08088	0.08045	0.07954	0.08575	0.07515	0.07674	*****	0.07975	4.627
(4)	0.03905	0.03887	0.03955	0.04485	0.03942	0.03922	*****	0.04016	5.753
(5)	0.01783	0.01715	0.01679	0.01875	0.01664	0.01655	*****	0.01729	4.953
10 Aroclor-1262(1)	*****	*****	*****	*****	*****	*****	0.02454	0.02454	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.03993	0.03993	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04293	0.04293	0.000
(4)	*****	*****	*****	*****	*****	*****	0.03923	0.03923	0.000
11 Aroclor-1268(1)	*****	*****	*****	*****	*****	*****	0.10250	0.10250	0.000
(2)	*****	*****	*****	*****	*****	*****	0.10151	0.10151	0.000
(3)	*****	*****	*****	*****	*****	*****	0.08686	0.08686	0.000
(4)	*****	*****	*****	*****	*****	*****	0.28598	0.28598	0.000
42 2,4-DDE	*****	*****	*****	*****	*****	*****	*****	*****	*****
43 2,4-DDD	*****	*****	*****	*****	*****	*****	*****	*****	*****
44 2,4-DDT	*****	*****	*****	*****	*****	*****	*****	*****	*****
46 4,4-DDE	*****	*****	*****	*****	*****	*****	*****	*****	*****

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.16827	1.24402	1.18546	1.20509	1.12295	1.24114	+++++	1.19449	3.860
$ 13 Decachlorobiphenyl	0.82901	0.80558	0.77587	0.78808	0.73125	0.79742	+++++	0.78787	4.189

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242312ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	RRF	% RSD
1 Aroclor-1221 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00757	0.00757	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01433	0.01433	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02333	0.02333	0.000
4 Aroclor-1232 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00409	0.00409	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.02034	0.02034	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04067	0.04067	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01170	0.01170	0.000
3 Aroclor-1242 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03717	0.03717	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.07813	0.07813	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02431	0.02431	0.000
(4)	*****	*****	*****	*****	*****	*****	0.02962	0.02962	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****	0.03820	0.03820	0.000
(2)	*****	*****	*****	*****	*****	*****	0.03949	0.03949	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04545	0.04545	0.000
(4)	*****	*****	*****	*****	*****	*****	0.05457	0.05457	0.000
7 Aroclor-1016 [2C](1)	0.05071	0.05022	0.04868	0.04733	0.04326	0.04080	*****	0.04683	8.503
(2)	0.08143	0.09407	0.10159	0.10259	0.09651	0.09362	*****	0.09497	8.025
(3)	0.04006	0.04718	0.04613	0.04410	0.04062	0.03926	*****	0.04289	7.857
(4)	0.03181	0.03802	0.03707	0.03450	0.03115	0.02936	*****	0.03365	10.251

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	*****	*****	*****	*****	*****	*****	0.06081	0.06081	0.000
(2)	*****	*****	*****	*****	*****	*****	0.04892	0.04892	0.000
(3)	*****	*****	*****	*****	*****	*****	0.10584	0.10584	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10317	0.10317	0.000
(5)	*****	*****	*****	*****	*****	*****	0.06282	0.06282	0.000
10 Aroclor-1262 [2C](1)	*****	*****	*****	*****	*****	*****	0.06831	0.06831	0.000
(2)	*****	*****	*****	*****	*****	*****	0.05818	0.05818	0.000
(3)	*****	*****	*****	*****	*****	*****	0.06601	0.06601	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10341	0.10341	0.000
9 Aroclor-1260 [2C](1)	0.05286	0.04911	0.04696	0.04801	0.04329	0.04201	*****	0.04704	8.422
(2)	0.12976	0.12431	0.12095	0.12664	0.11320	0.10545	*****	0.12005	7.605

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(3)	0.03524	0.03147	0.02937	0.03208	0.03102	0.03198	#####	0.03186	6.045
(4)	0.08632	0.08237	0.08044	0.08393	0.07718	0.07531	#####	0.08092	5.126
11 Aroclor-1268 [2C](1)	#####	#####	#####	#####	#####	#####	0.16109	0.16109	0.000
(2)	#####	#####	#####	#####	#####	#####	0.17318	0.17318	0.000
(3)	#####	#####	#####	#####	#####	#####	0.14787	0.14787	0.000
(4)	#####	#####	#####	#####	#####	#####	0.47260	0.47260	0.000
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
46 4,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.21526 +++++	1.19545	1.17555	1.21907	1.12560	1.11139		1.17372	3.897
$ 13 Decachlorobiphenyl [2C]	1.17066 +++++	1.20406	1.20549	1.31040	1.21104	1.20797		1.21827	3.898

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.493	3.492	3.492	3.492	3.491	3.491	3.493	3.393-3.593	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.811	5.809	5.809	5.813	5.809	5.810	5.811	5.711-5.911	5.810	0.002
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.272	7.272	7.272	7.270	7.271	7.270	7.272	7.172-7.372	7.271	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.046	11.047	11.046	11.044	11.045	11.044	11.046	10.946-11.146	11.045	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.897	13.893	13.893	13.899	13.892	13.898	13.897	13.797-13.997	13.895	0.003
* 12 IS-HBBP	14.269	14.268	14.268	14.267	14.268	14.268	14.269	14.169-14.369	14.268	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.260	9.210-9.310	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.801	9.751-9.851	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.293	10.243-10.343	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.683	9.583-9.783	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.254	10.154-10.354	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.754	10.654-10.854	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.929	3.929	3.928	3.929	3.928	3.828-4.028	3.929	0.000
$ 2 Tetrachloro-m-xylene [	5.687	5.688	5.688	5.688	5.688	5.688	5.687	5.587-5.787	5.688	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.255	7.256	7.256	7.254	7.255	7.256	7.255	7.155-7.355	7.255	0.001
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.653	11.656	11.655	11.652	11.655	11.653	11.653	11.553-11.753	11.654	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.120	14.120	14.119	14.122	14.119	14.120	14.120	14.020-14.220	14.120	0.001
* 12 IS-HBBP [2C]	15.008	15.008	15.008	15.008	15.007	15.008	15.008	14.908-15.108	15.008	0.000
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.911	9.861-9.961	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.536	9.486-9.586	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.209	10.109-10.309	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.667	10.567-10.767	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.092	10.992-11.192	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242301ECD7.D
Data file 2: /230224.b/230224.b/02242301ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 24-FEB-2023 10:51
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.826	0.019	382217	5.683	-0.002	180378	33.8	36.5	7.7	Tetrachloro-m-xylene
13.904	0.011	534110	14.120	0.001	295605	35.3	37.2	5.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	756896	12.3
Hexabromobiphenyl	1429847	1534275	7.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	336543	6.8
Hexabromobiphenyl	513946	521508	1.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.321	0.025	1873	31.1
Aroclor-1221	3	---			0.0	3	6.633	0.012	314	3.2
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	7.698	0.043	2193	6.0	3	---			0.0
Aroclor-1232	4	8.505	-0.076	11525	74.5	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	7.698	0.042	2193	3.1	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	8.505	-0.074	11525	35.2	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	9.596	-0.072	31424	64.3	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	10.167	-0.010	18361	30.8	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	11.098	0.054	6994	12.7	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	11.706	-0.027	7806	5.1	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	10.824	-0.005	16873	35.8	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	13.040	0.053	14031	18.6	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.709	0.009	6037	3.6	3	12.891	-0.001	659	0.7
Aroclor-1268	4	13.499	0.010	12396	2.3	4	13.710	0.001	1848	0.6
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.906 - 13.793) = 260205 Col1 Total PCB = 0.0 ppm*

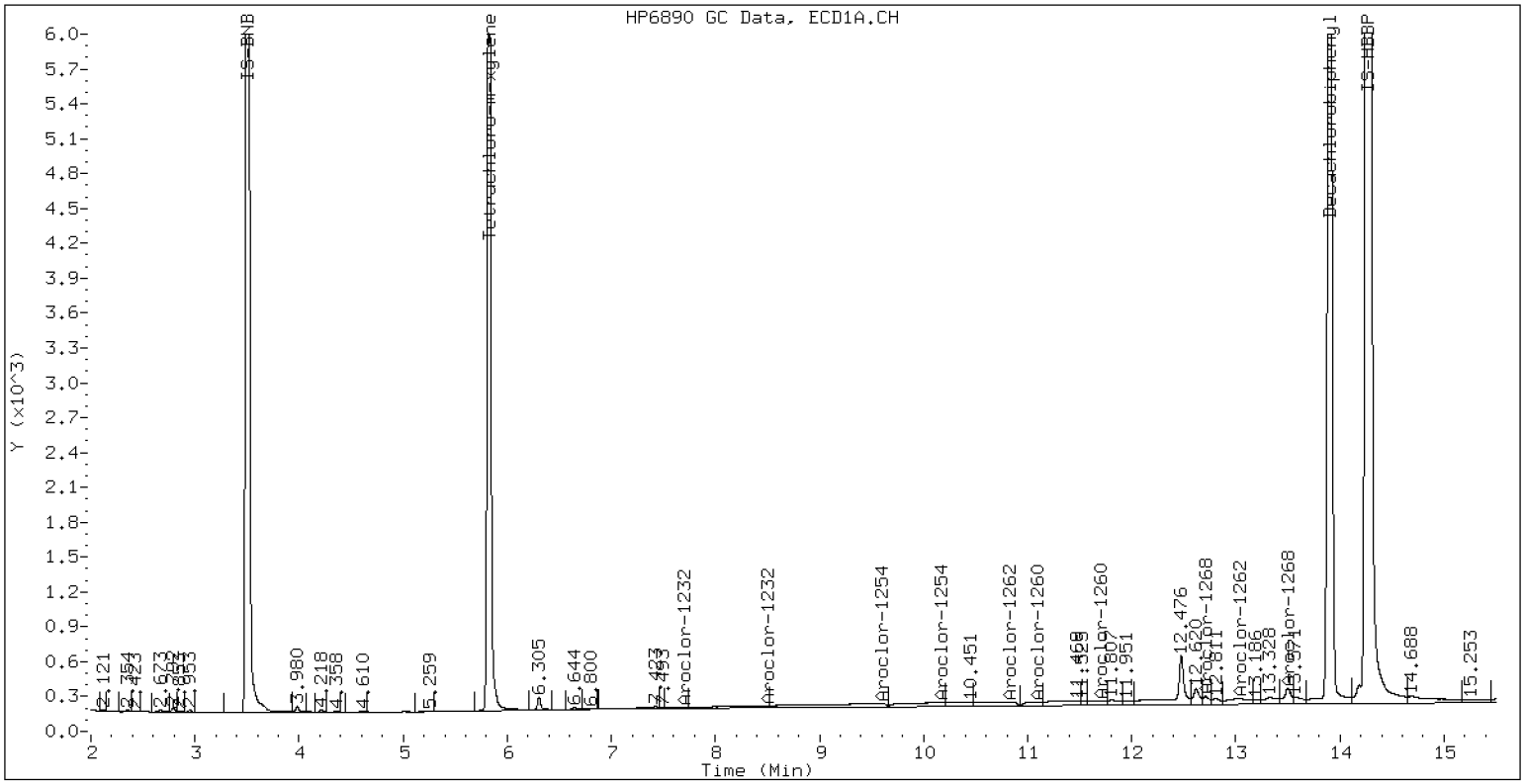
Total PCB Area Col2 (5.785 - 14.019) = 18252 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

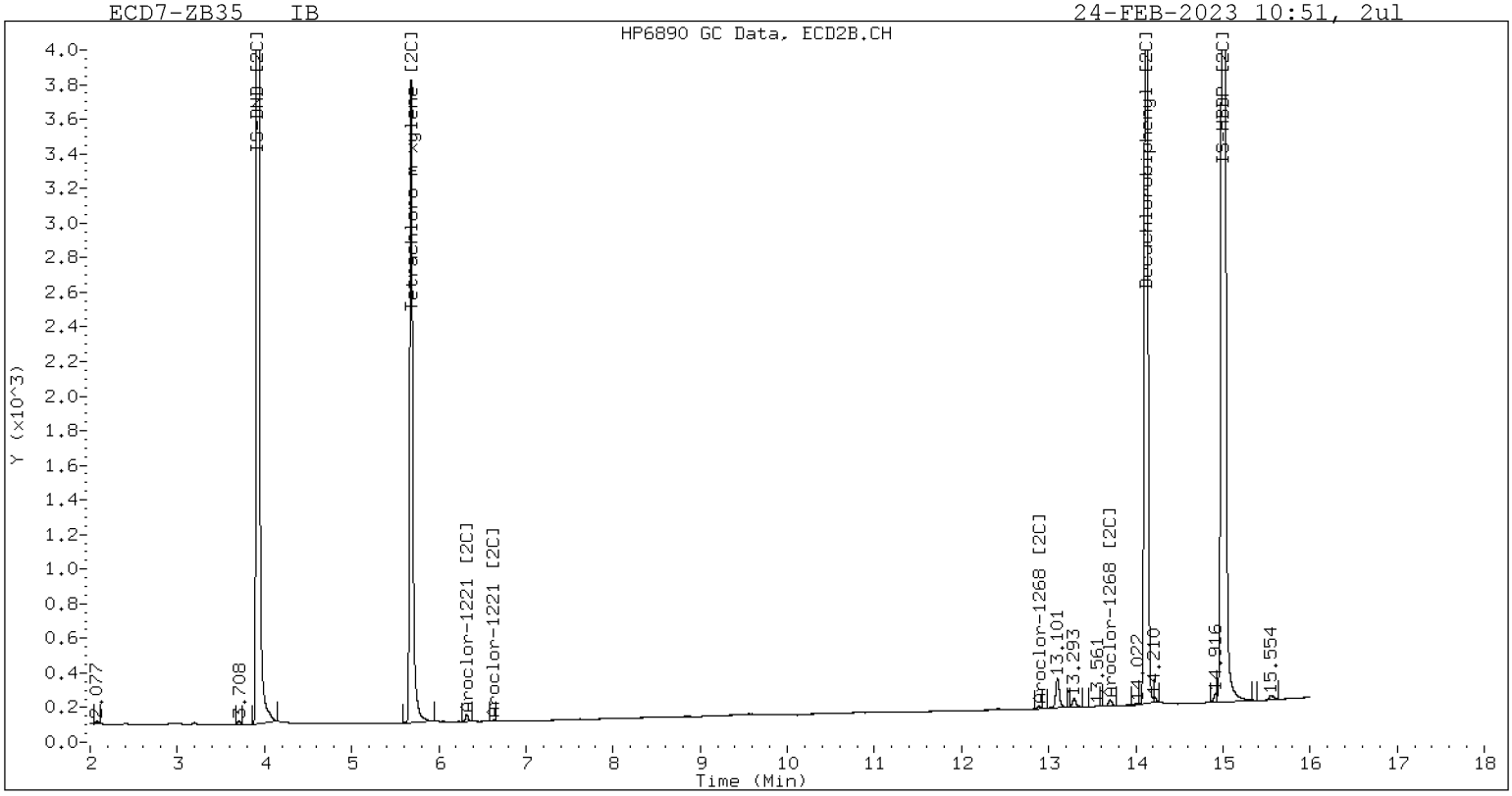
PCB Dual Column Chromatograms

ECD7-ZB5 IB 24-FEB-2023 10:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 24-FEB-2023 10:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242302ECD7.D
Data file 2: /230224.b/230224.b/02242302ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:12
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.005	405980	5.687	0.002	192160	40.4	41.5	2.9	Tetrachloro-m-xylene
13.897	0.004	563414	14.120	0.001	336737	40.0	43.0	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	673778	0.0
Hexabromobiphenyl	1429847	1429847	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	315256	0.0
Hexabromobiphenyl	513946	513946	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.272	0.001	66125	258.4	1	7.255	-0.001	46626	252.6
Aroclor-1016	2	7.654	-0.000	207370	265.8	2	7.855	-0.001	101071	270.1
Aroclor-1016	3	7.792	0.002	92507	242.9	3	8.055	0.001	43448	257.1
Aroclor-1016	4	8.406	0.001	64388	261.5	4	8.306	-0.000	33986	256.3
	Total Col1Ave (4 peaks):				257.2	Total Col2Ave (4 peaks):				259.0 RPD = 1
	Corrected Ave (3 peaks):				254.3	Corrected Ave (3 peaks):				255.3 RPD = 0
			CalAmt %D:		2.9			CalAmt %D:		3.6
Aroclor-1260	1	11.046	0.001	138355	269.0	1	11.653	0.001	77114	255.2
Aroclor-1260	2	11.363	0.002	147051	273.6	2	11.918	0.001	203401	263.7
Aroclor-1260	3	11.736	0.003	383171	268.8	3	12.435	-0.000	51517	251.7
Aroclor-1260	4	12.141	0.002	200399	279.2	4	12.502	0.001	134797	259.3
Aroclor-1260	5	12.247	0.003	83796	271.2	NS	---			----
	Total Col1Ave (5 peaks):				272.4	Total Col2Ave (4 peaks):				257.5 RPD = 6
	Corrected Ave (4 peaks):				270.7	Corrected Ave (3 peaks):				255.4 RPD = 6
			CalAmt %D:		8.9			CalAmt %D:		3.0

Total PCB Area Col1 (5.906 - 13.793) = 4024419 Col1 Total PCB = 0.5 ppm*

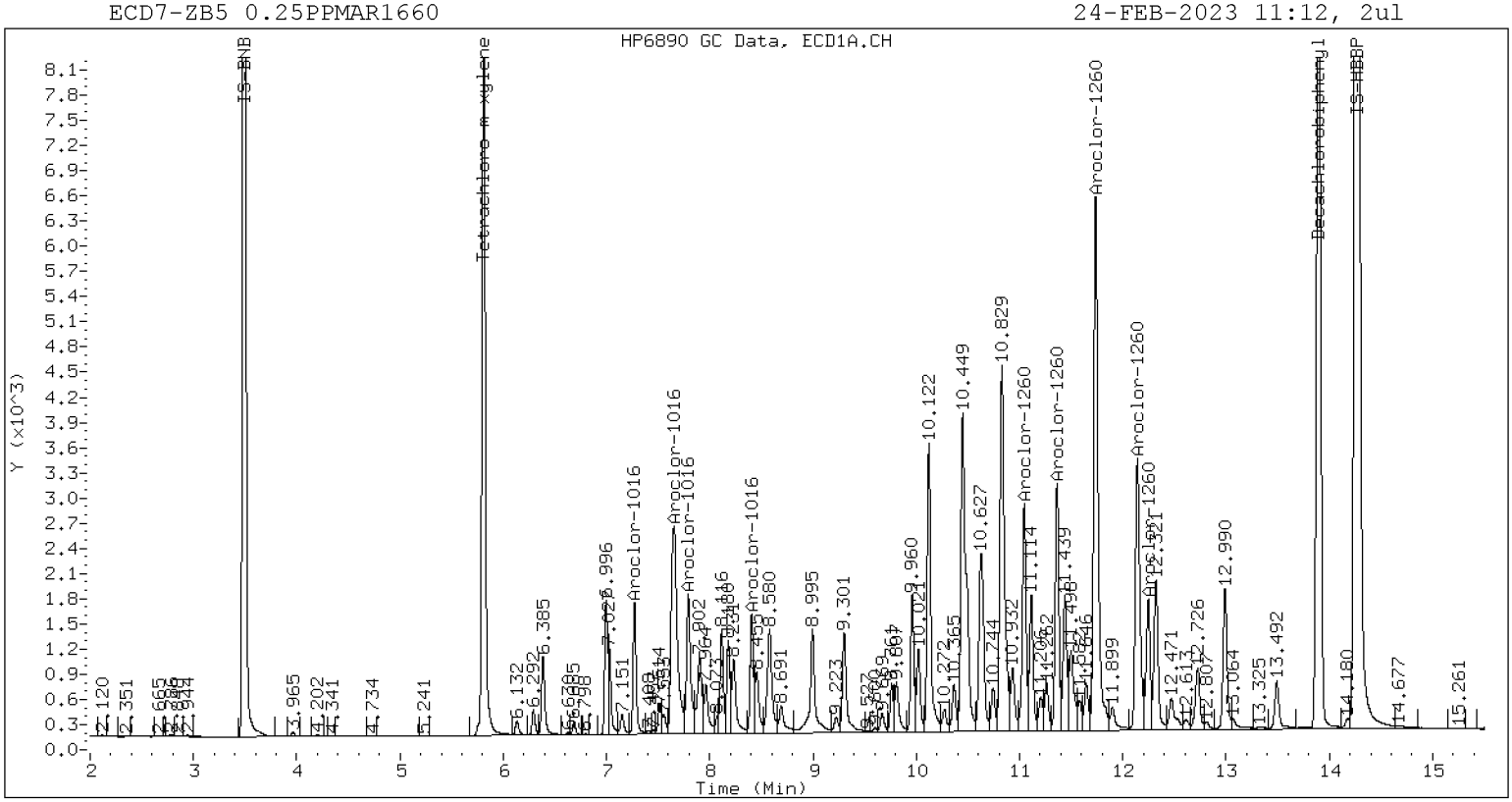
Total PCB Area Col2 (5.785 - 14.019) = 1889311 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

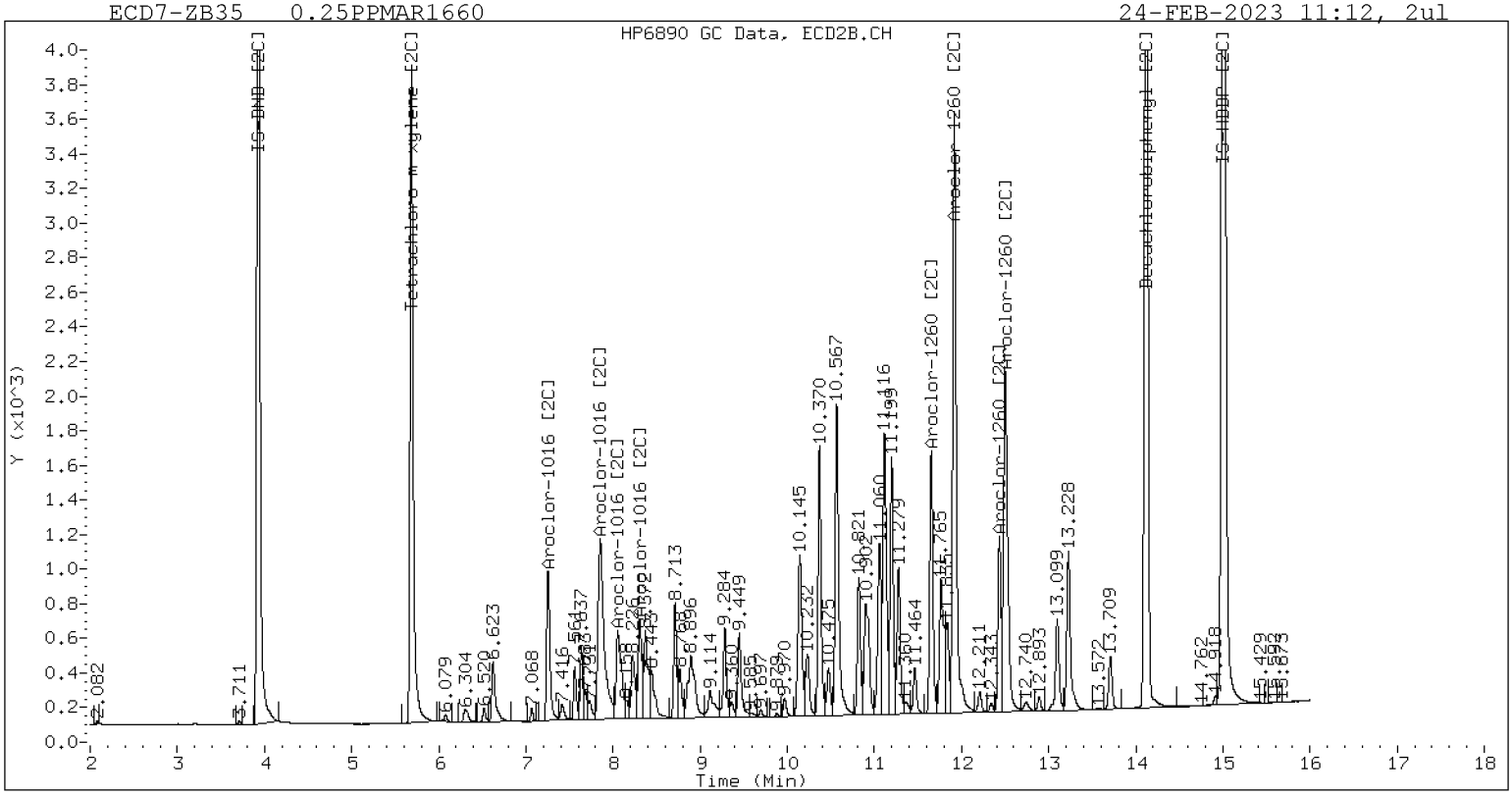
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242303ECD7.D
Data file 2: /230224.b/230224.b/02242303ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:33
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	29768	5.688	0.003	14932	3.1	3.3	5.7	Tetrachloro-m-xylene
13.893	0.000	45992	14.120	0.000	23950	3.4	3.1	9.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	637010	-5.5
Hexabromobiphenyl	1429847	1386953	-3.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307177	-2.6
Hexabromobiphenyl	513946	511463	-0.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1016	1	7.272	0.001	5052	20.9	1	7.256	0.000	3894	21.7
Aroclor-1016	2	7.659	0.005	14714	19.9	2	7.864	0.008	6253	17.1
Aroclor-1016	3	7.795	0.005	8226	22.8	3	8.060	0.006	3076	18.7
Aroclor-1016	4	8.407	0.002	4780	20.5	4	8.309	0.002	2443	18.9
Total Col1Ave (4 peaks):					21.1	Total Col2Ave (4 peaks):				19.1 RPD = 10
Corrected Ave (3 peaks):					20.5	Corrected Ave (3 peaks):				18.2 RPD = 11
CalAmt %D:					5.3	CalAmt %D:				-4.5
Aroclor-1260	1	11.047	0.003	10147	20.3	1	11.656	0.003	6759	22.5
Aroclor-1260	2	11.364	0.003	10287	19.7	2	11.922	0.005	16592	21.6
Aroclor-1260	3	11.740	0.006	28043	20.3	3	12.438	0.002	4506	22.1
Aroclor-1260	4	12.145	0.006	13540	19.4	4	12.505	0.004	11037	21.3
Aroclor-1260	5	12.246	0.002	6182	20.6	NS	---			----
Total Col1Ave (5 peaks):					20.1	Total Col2Ave (4 peaks):				21.9 RPD = 9
Corrected Ave (4 peaks):					19.9	Corrected Ave (3 peaks):				21.7 RPD = 8
CalAmt %D:					0.4	CalAmt %D:				9.4

Total PCB Area Col1 (5.906 - 13.793) = 324832 Col1 Total PCB = 0.0 ppm*

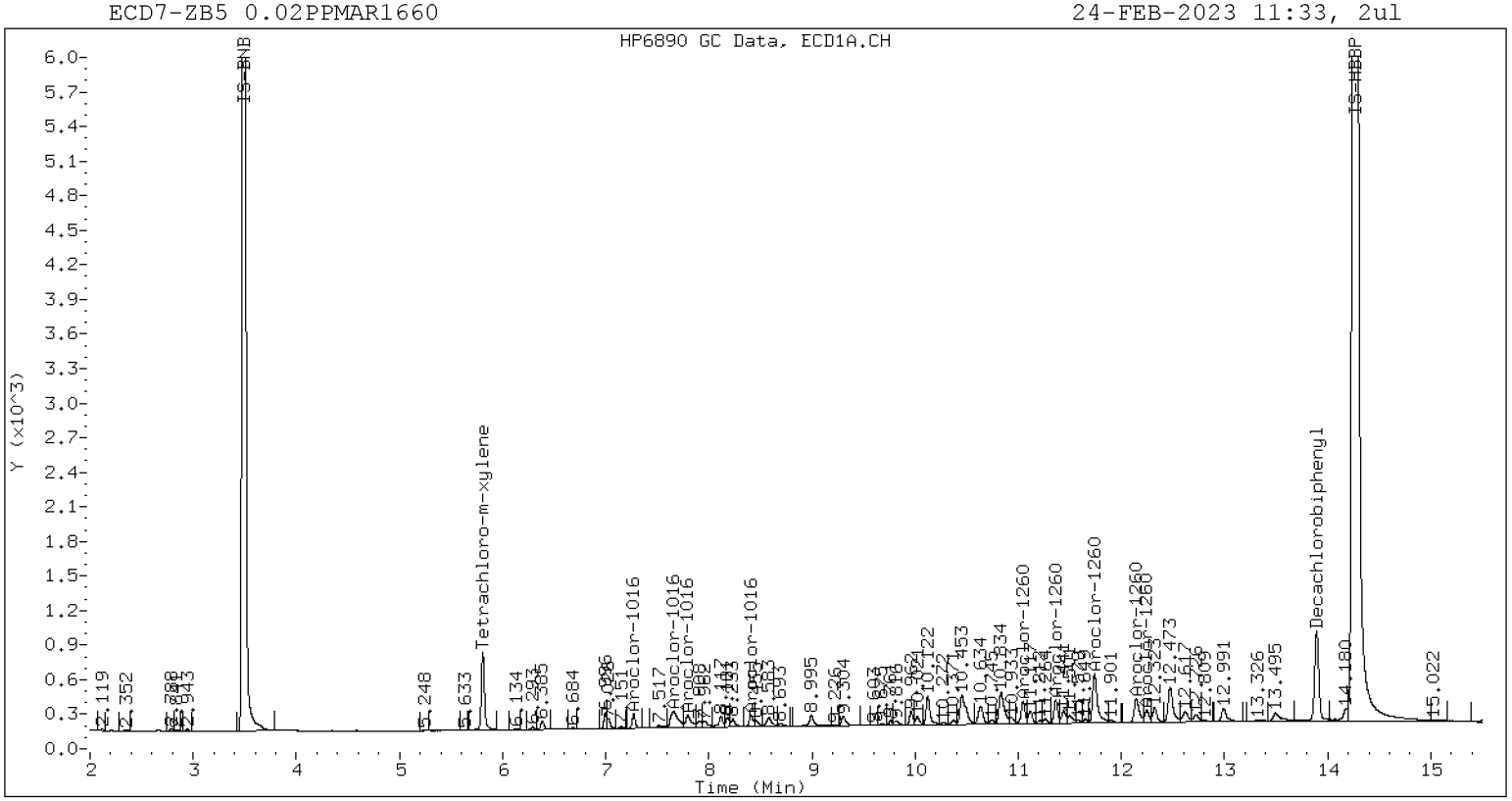
Total PCB Area Col2 (5.785 - 14.019) = 157149 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

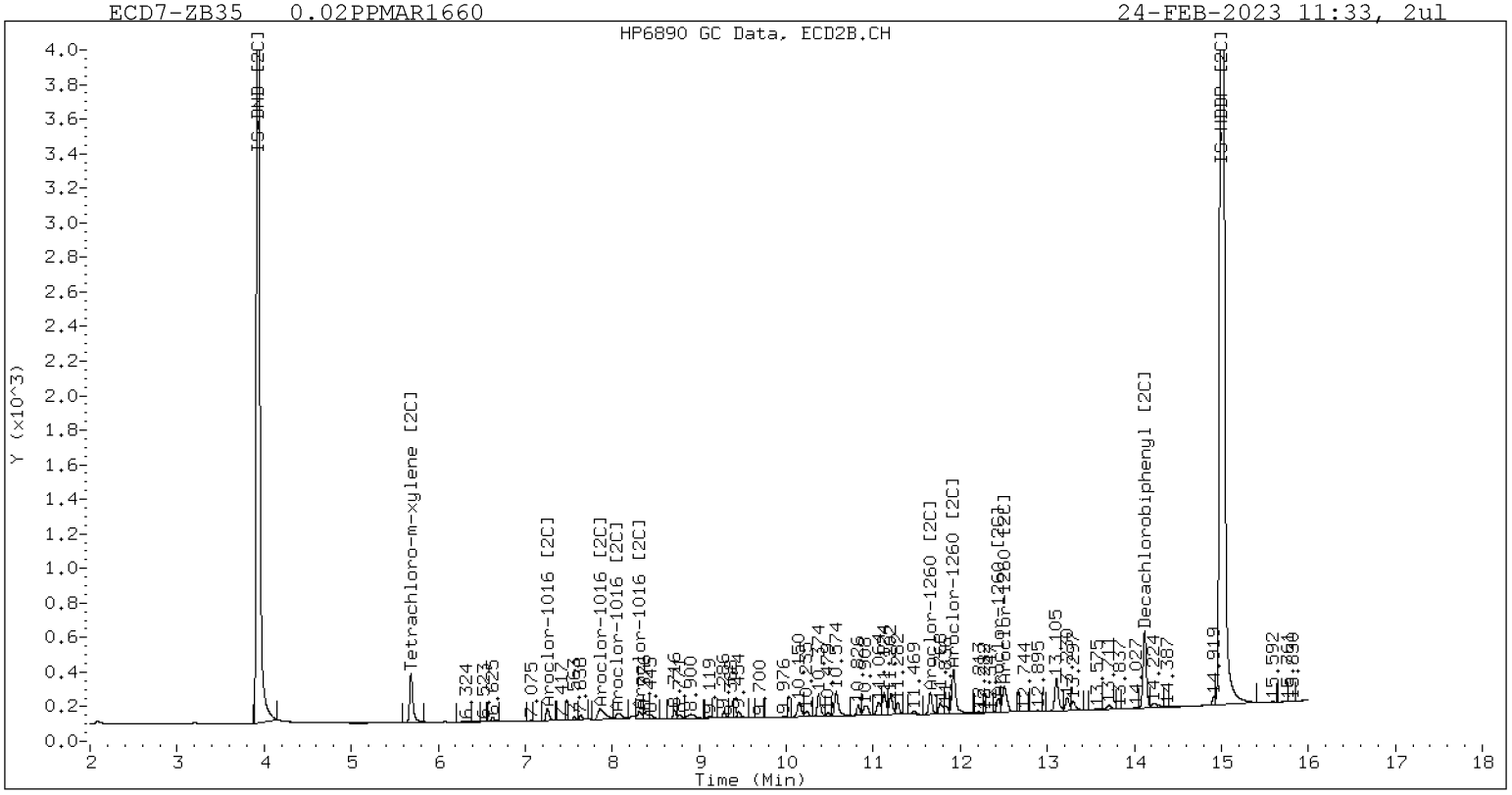
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 24-FEB-2023 11:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 24-FEB-2023 11:33, 2ul

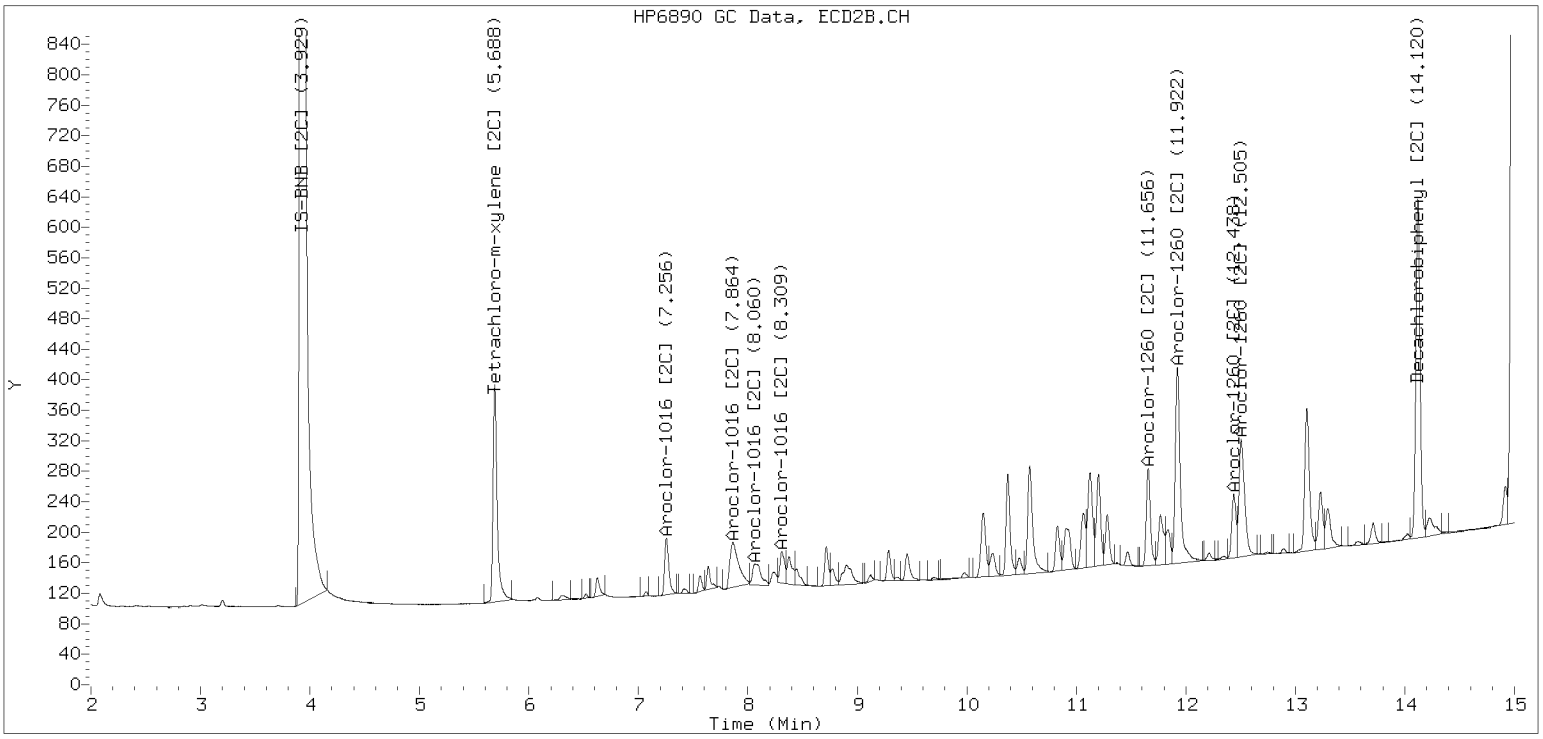


ZB-35 Manual Integration: YES

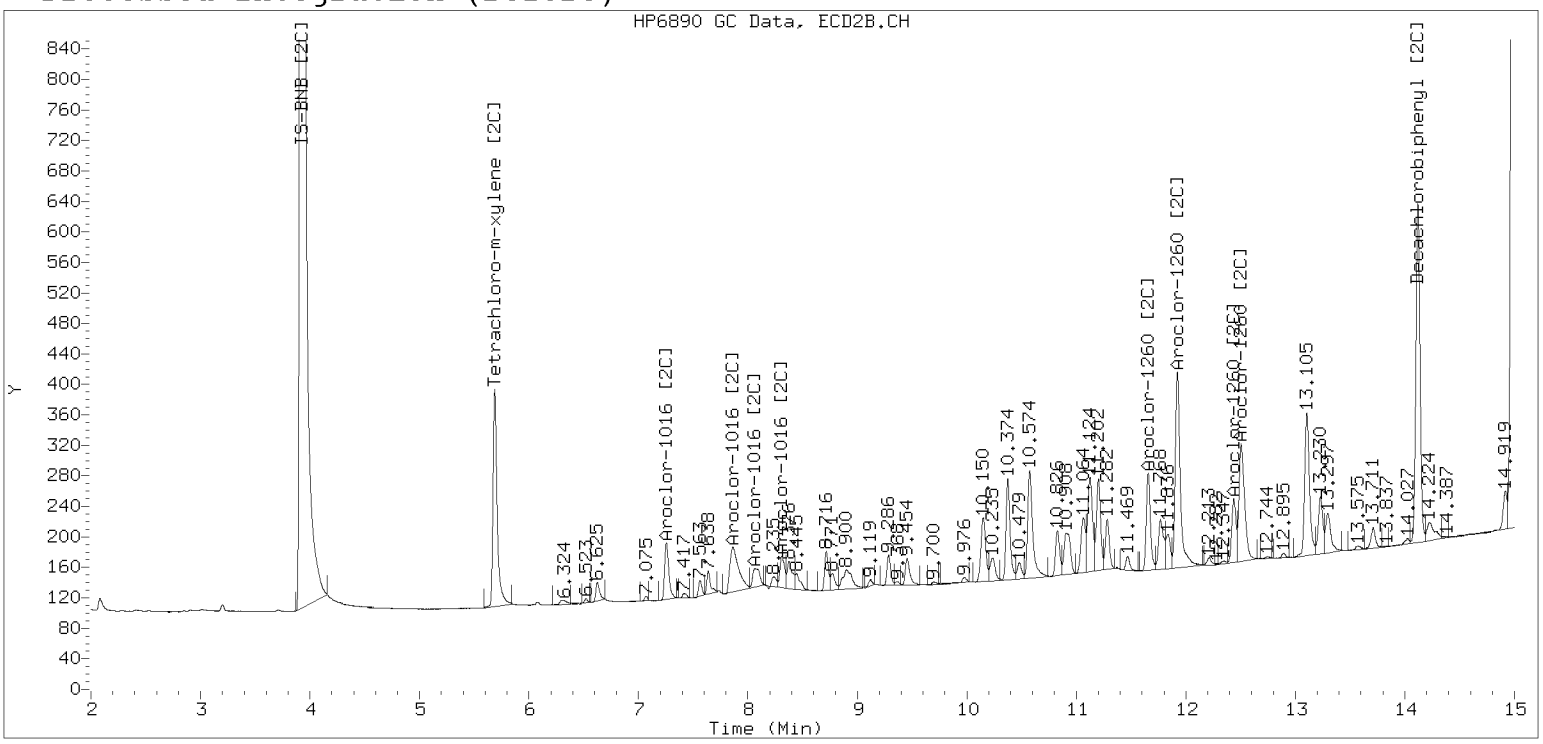
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230224.b/230224.b/02242303ECD7.D Injection Date: 24-FEB-2023

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242304ECD7.D
Data file 2: /230224.b/230224.b/02242304ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:54
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	78493	5.688	0.003	36772	8.3	8.1	2.2	Tetrachloro-m-xylene
13.893	-0.000	113544	14.119	-0.000	62745	8.2	7.9	3.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	630965	-6.4
Hexabromobiphenyl	1429847	1409464	-1.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307599	-2.4
Hexabromobiphenyl	513946	521112	1.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1016	1	7.272	0.002	12829	53.5	1	7.256	0.000	9654	53.6
Aroclor-1016	2	7.660	0.006	36461	49.9	2	7.864	0.008	18085	49.5
Aroclor-1016	3	7.795	0.005	19865	55.7	3	8.063	0.008	9071	55.0
Aroclor-1016	4	8.408	0.003	11411	49.5	4	8.310	0.003	7309	56.5
Total Col1Ave (4 peaks):					52.2	Total Col2Ave (4 peaks):				53.7 RPD = 3
Corrected Ave (3 peaks):					51.0	Corrected Ave (3 peaks):				52.7 RPD = 3
CalAmt %D:					4.3	CalAmt %D:				7.3
Aroclor-1260	1	11.046	0.002	25727	50.7	1	11.655	0.002	15996	52.2
Aroclor-1260	2	11.363	0.002	26482	50.0	2	11.922	0.004	40487	51.8
Aroclor-1260	3	11.739	0.005	70871	50.4	3	12.437	0.002	10248	49.4
Aroclor-1260	4	12.143	0.004	34239	48.4	4	12.506	0.004	26828	50.9
Aroclor-1260	5	12.246	0.002	15109	49.6	NS	---			----
Total Col1Ave (5 peaks):					49.8	Total Col2Ave (4 peaks):				51.1 RPD = 2
Corrected Ave (4 peaks):					49.6	Corrected Ave (3 peaks):				50.7 RPD = 2
CalAmt %D:					-0.3	CalAmt %D:				2.1

Total PCB Area Col1 (5.906 - 13.793) = 758292 Col1 Total PCB = 0.1 ppm*

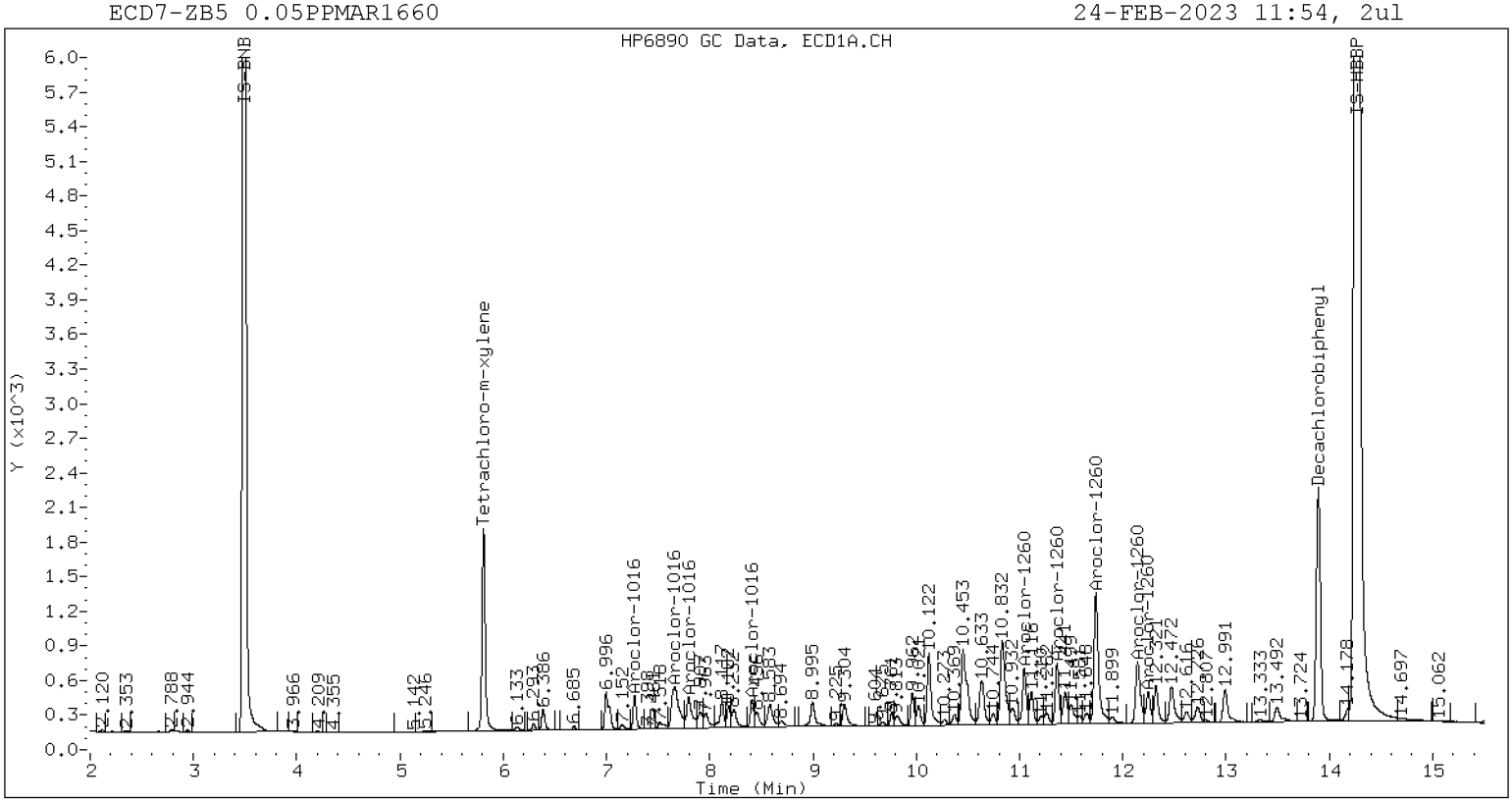
Total PCB Area Col2 (5.785 - 14.019) = 386383 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

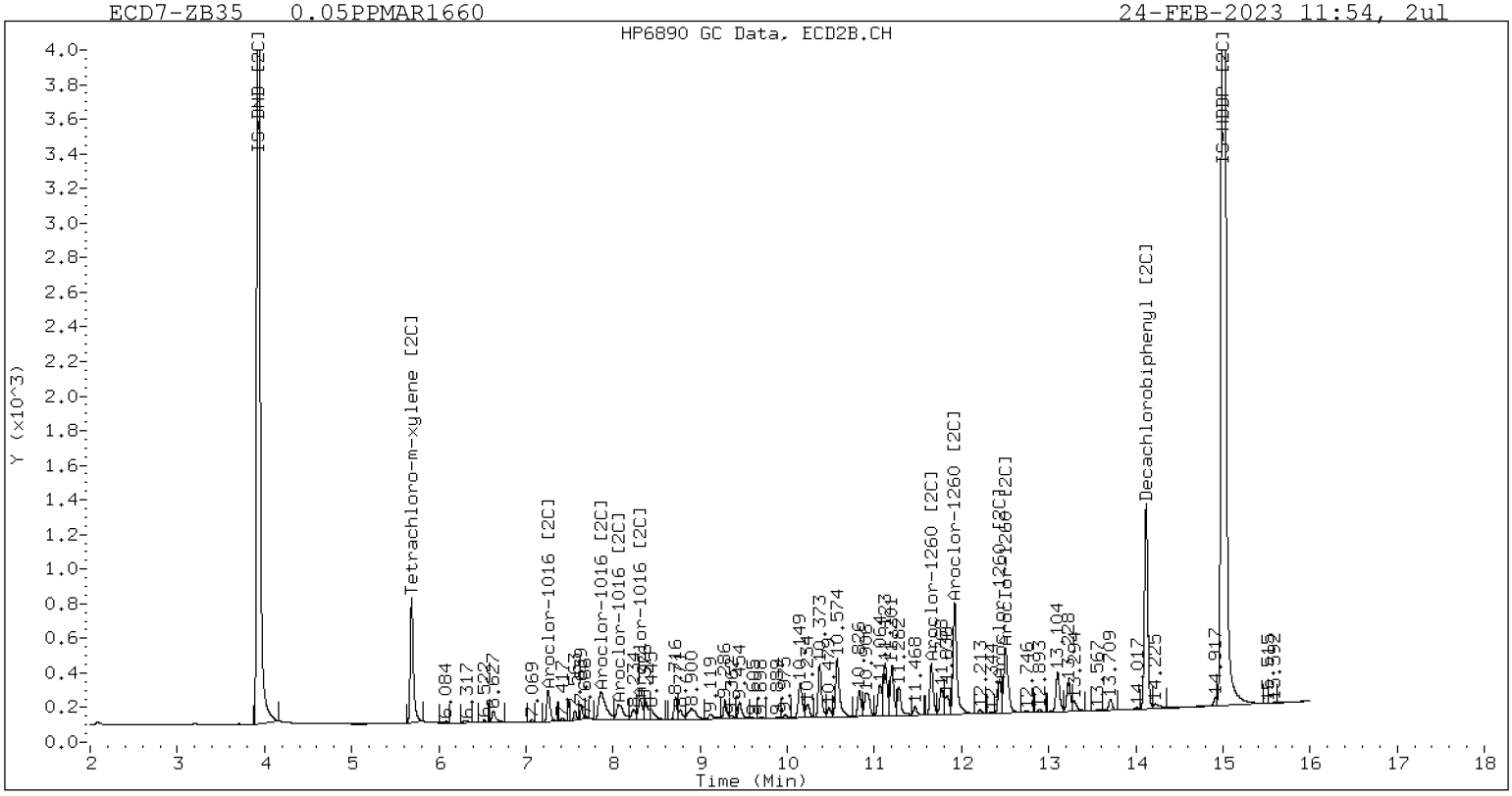
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242305ECD7.D
Data file 2: /230224.b/230224.b/02242305ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:15
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.813	0.006	1641874	5.688	0.003	709674	166.2	151.5	9.3	Tetrachloro-m-xylene
13.899	0.006	2344583	14.122	0.002	1300114	161.9	158.6	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661440	-1.8
Hexabromobiphenyl	1429847	1470100	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319272	1.3
Hexabromobiphenyl	513946	538138	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	-0.000	220519	877.8	1	7.254	-0.001	162833	871.2
Aroclor-1016	2	7.652	-0.002	731607	955.3	2	7.852	-0.004	373610	985.8
Aroclor-1016	3	7.789	-0.001	307629	822.8	3	8.051	-0.003	156666	915.2
Aroclor-1016	4	8.404	-0.001	229387	949.1	4	8.305	-0.002	117186	872.6
	Total Col1Ave (4 peaks):				901.3	Total Col2Ave (4 peaks):				911.2 RPD = 1
	Corrected Ave (3 peaks):				883.3	Corrected Ave (3 peaks):				886.3 RPD = 0
	CalAmt %D:				-9.9	CalAmt %D:				-8.9
Aroclor-1260	1	11.044	-0.000	504641	954.2	1	11.652	-0.000	282606	893.1
Aroclor-1260	2	11.360	-0.001	524931	950.0	2	11.917	-0.000	709329	878.4
Aroclor-1260	3	11.734	-0.000	1410270	962.3	3	12.434	-0.001	215124	1003.8
Aroclor-1260	4	12.137	-0.002	720770	976.7	4	12.501	-0.001	506566	930.6
Aroclor-1260	5	12.243	-0.001	304211	957.7	NS	---			----
	Total Col1Ave (5 peaks):				960.2	Total Col2Ave (4 peaks):				926.5 RPD = 4
	Corrected Ave (4 peaks):				956.0	Corrected Ave (3 peaks):				900.7 RPD = 6
	CalAmt %D:				-4.0	CalAmt %D:				-7.4

Total PCB Area Col1 (5.906 - 13.793) = 14454279 Col1 Total PCB = 1.8 ppm*

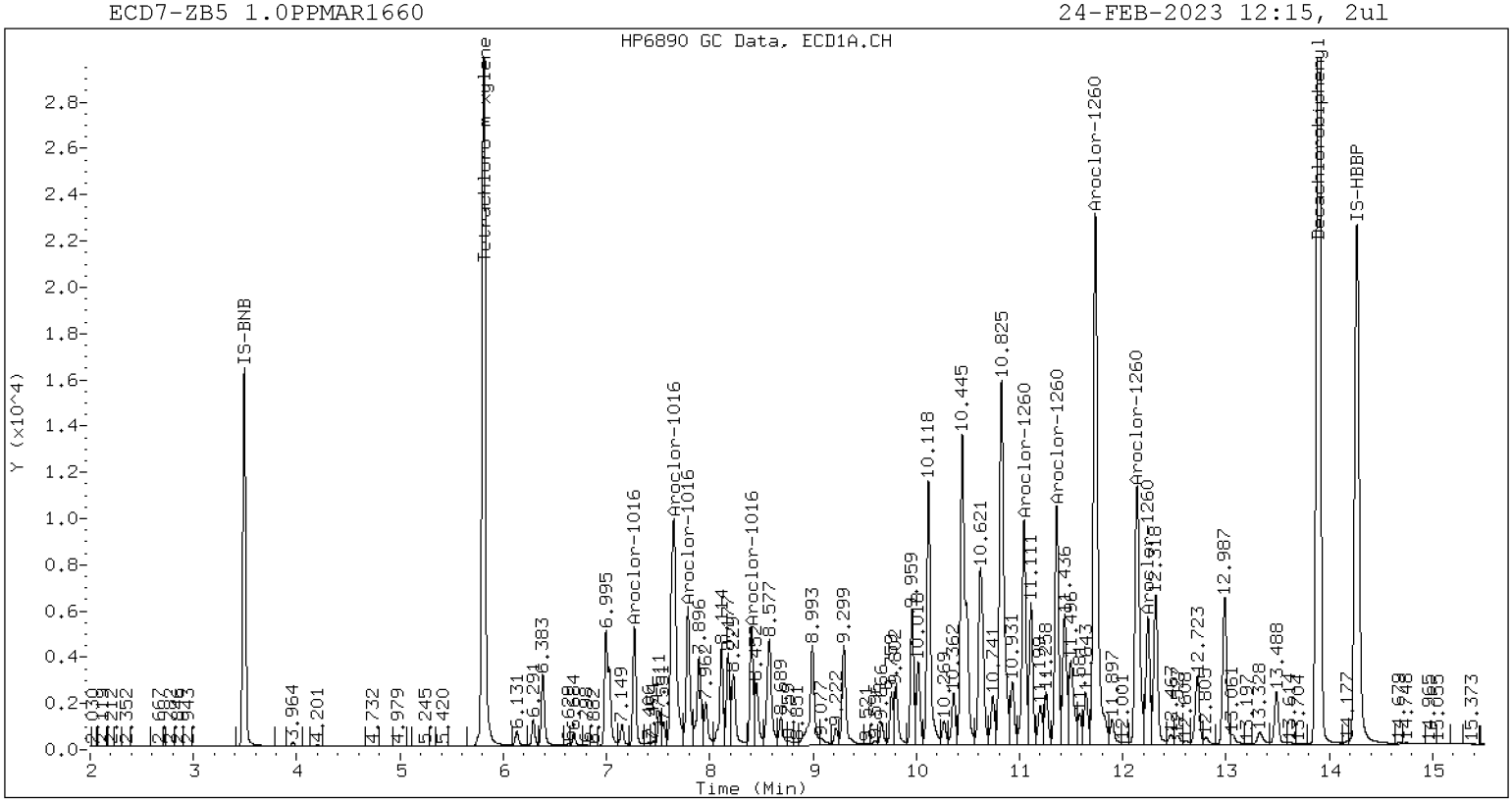
Total PCB Area Col2 (5.785 - 14.019) = 7029563 Col2 Total PCB = 1.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

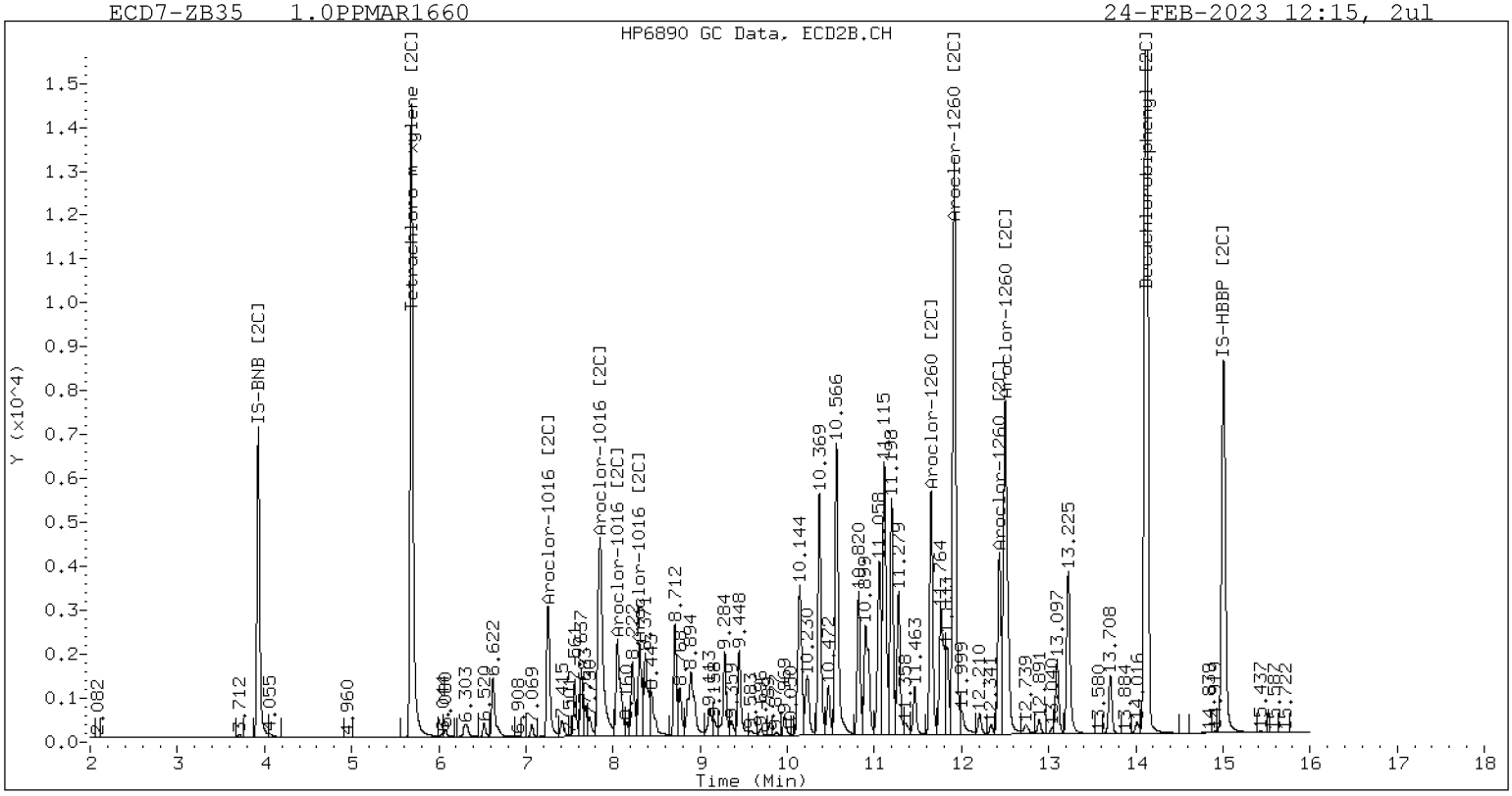
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242306ECD7.D
Data file 2: /230224.b/230224.b/02242306ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:36
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	155528	5.688	0.003	74628	15.9	16.0	0.9	Tetrachloro-m-xylene
13.892	-0.001	227253	14.119	-0.000	128496	15.8	15.8	0.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	655979	-2.6
Hexabromobiphenyl	1429847	1464509	2.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317418	0.7
Hexabromobiphenyl	513946	532962	3.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1016	1	7.271	0.000	25761	103.4	1	7.255	-0.000	19315	103.9
Aroclor-1016	2	7.657	0.003	75616	99.6	2	7.863	0.007	40308	107.0
Aroclor-1016	3	7.794	0.004	39547	106.7	3	8.059	0.005	18304	107.6
Aroclor-1016	4	8.406	0.001	24260	101.2	4	8.309	0.002	14708	110.2
Total Col1Ave (4 peaks):					102.7	Total Col2Ave (4 peaks):				107.2 RPD = 4
Corrected Ave (3 peaks):					101.4	Corrected Ave (3 peaks):				106.2 RPD = 5
CalAmt %D:					2.7	CalAmt %D:				7.2
Aroclor-1260	1	11.045	0.000	52009	98.7	1	11.655	0.002	31282	99.8
Aroclor-1260	2	11.362	0.001	55116	100.1	2	11.920	0.003	80574	100.7
Aroclor-1260	3	11.738	0.004	145604	99.7	3	12.437	0.002	19566	92.2
Aroclor-1260	4	12.141	0.002	72408	98.5	4	12.503	0.001	53588	99.4
Aroclor-1260	5	12.245	0.001	30745	97.2	NS	---			----
Total Col1Ave (5 peaks):					98.8	Total Col2Ave (4 peaks):				98.0 RPD = 1
Corrected Ave (4 peaks):					98.5	Corrected Ave (3 peaks):				97.1 RPD = 1
CalAmt %D:					-1.2	CalAmt %D:				-2.0

Total PCB Area Col1 (5.906 - 13.793) = 1555762 Col1 Total PCB = 0.2 ppm*

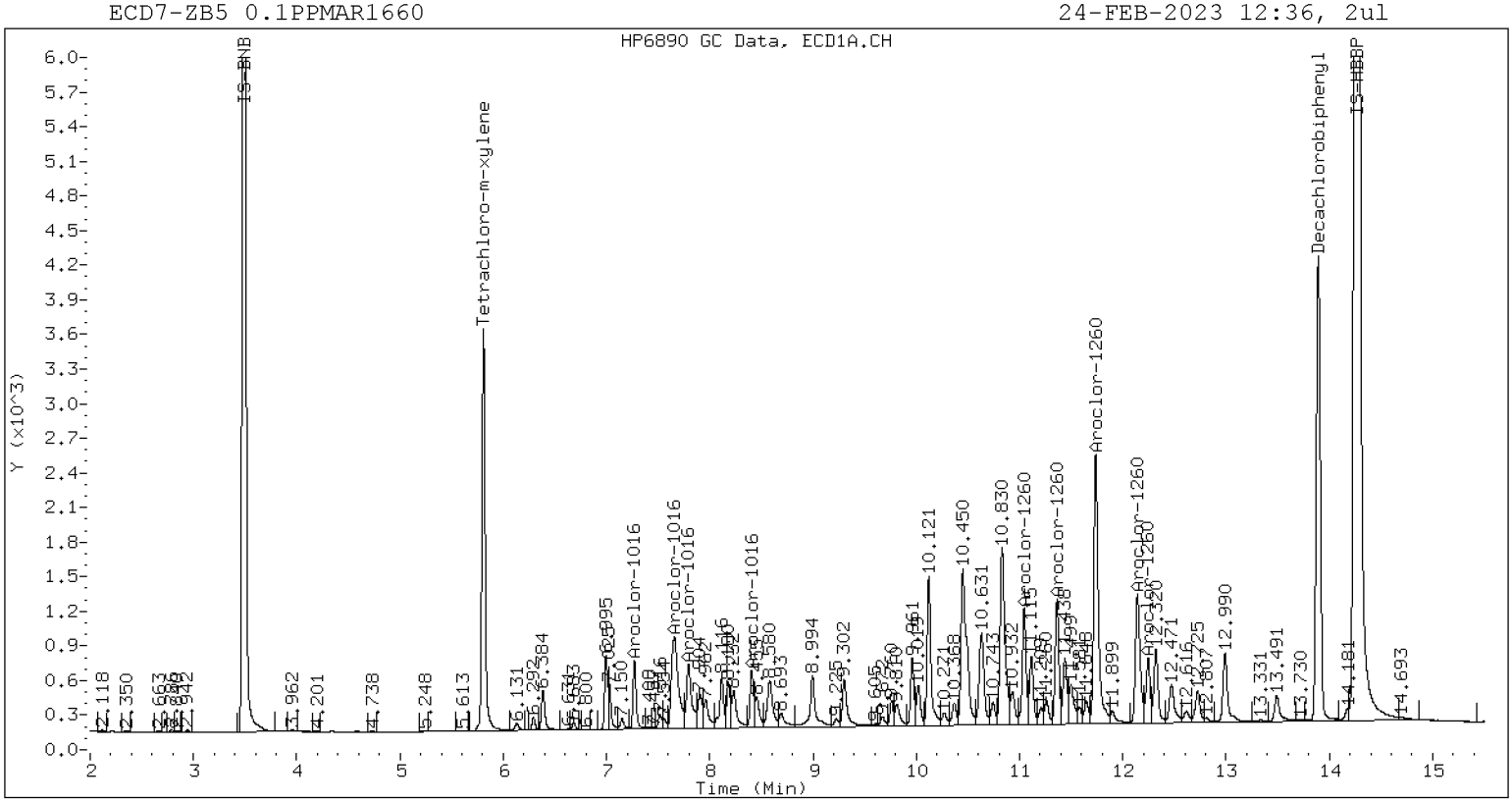
Total PCB Area Col2 (5.785 - 14.019) = 764924 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

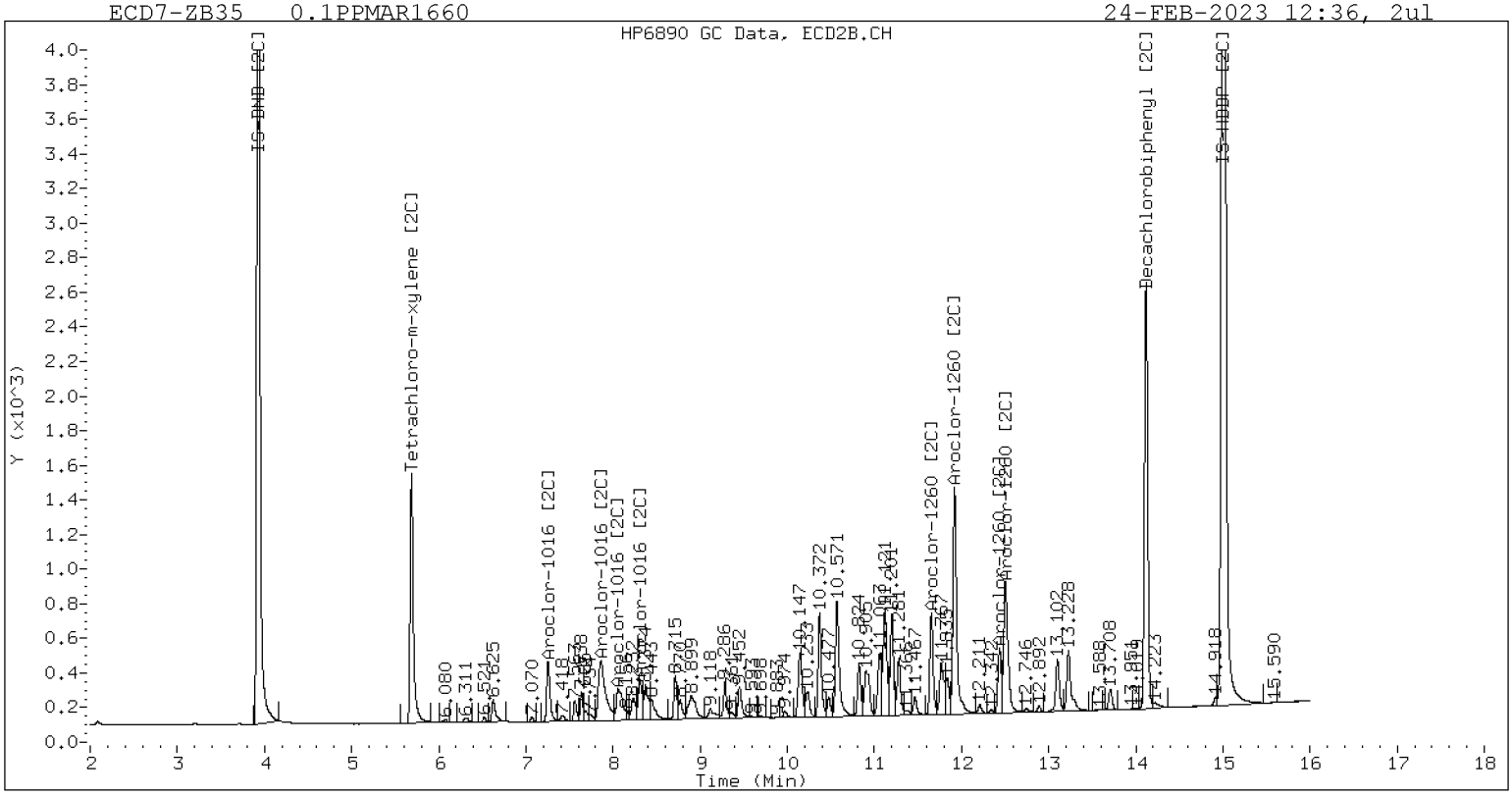
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242307ECD7.D
Data file 2: /230224.b/230224.b/02242307ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:57
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.004	724614	5.688	0.003	359257	75.2	76.7	2.0	Tetrachloro-m-xylene
13.898	0.005	1056911	14.120	0.000	650153	74.3	79.5	6.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645275	-4.2
Hexabromobiphenyl	1429847	1445345	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319170	1.2
Hexabromobiphenyl	513946	536853	4.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	115193	470.0	1	7.256	0.000	86287	461.8
Aroclor-1016	2	7.654	0.000	369991	495.2	2	7.856	0.000	192524	508.1
Aroclor-1016	3	7.790	0.000	160952	441.3	3	8.055	0.000	81039	473.6
Aroclor-1016	4	8.405	0.000	115032	487.9	4	8.307	0.000	62136	462.8
Total Col1Ave (4 peaks):					473.6	Total Col2Ave (4 peaks):				476.6 RPD = 1
Corrected Ave (3 peaks):					466.4	Corrected Ave (3 peaks):				466.1 RPD = 0
CalAmt %D:					-5.3	CalAmt %D:				-4.7
Aroclor-1260	1	11.044	0.000	247212	475.5	1	11.653	0.000	145247	460.1
Aroclor-1260	2	11.361	0.000	262877	483.9	2	11.918	0.000	379838	471.5
Aroclor-1260	3	11.734	0.000	678830	471.1	3	12.436	0.000	104092	486.9
Aroclor-1260	4	12.139	0.000	356067	490.7	4	12.502	0.000	258953	476.9
Aroclor-1260	5	12.244	0.000	150280	481.2	NS	---			----
Total Col1Ave (5 peaks):					480.5	Total Col2Ave (4 peaks):				473.8 RPD = 1
Corrected Ave (4 peaks):					477.9	Corrected Ave (3 peaks):				469.5 RPD = 2
CalAmt %D:					-3.9	CalAmt %D:				-5.2

Total PCB Area Col1 (5.906 - 13.793) = 7134169 Col1 Total PCB = 0.9 ppm*

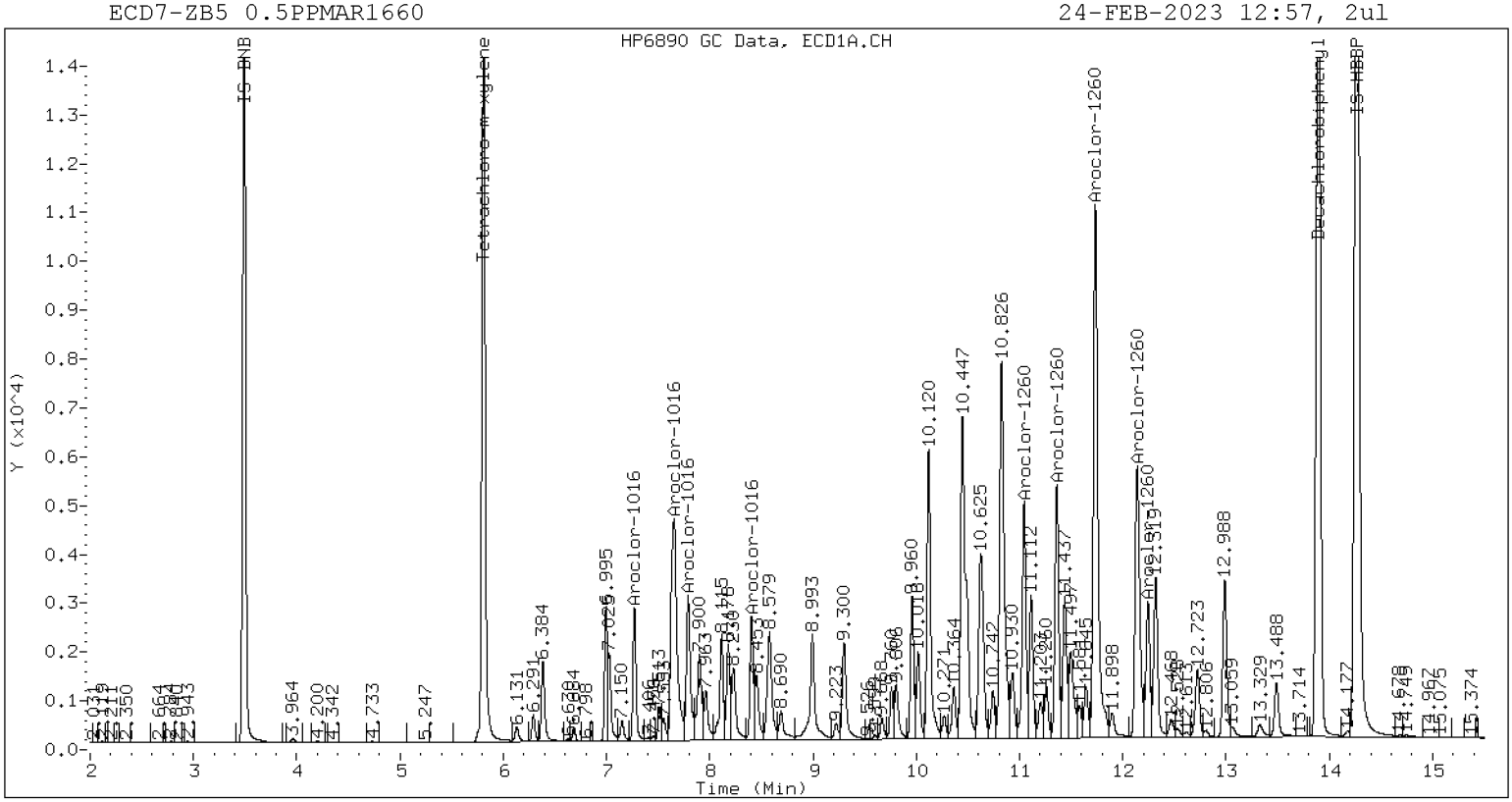
Total PCB Area Col2 (5.785 - 14.019) = 3589735 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

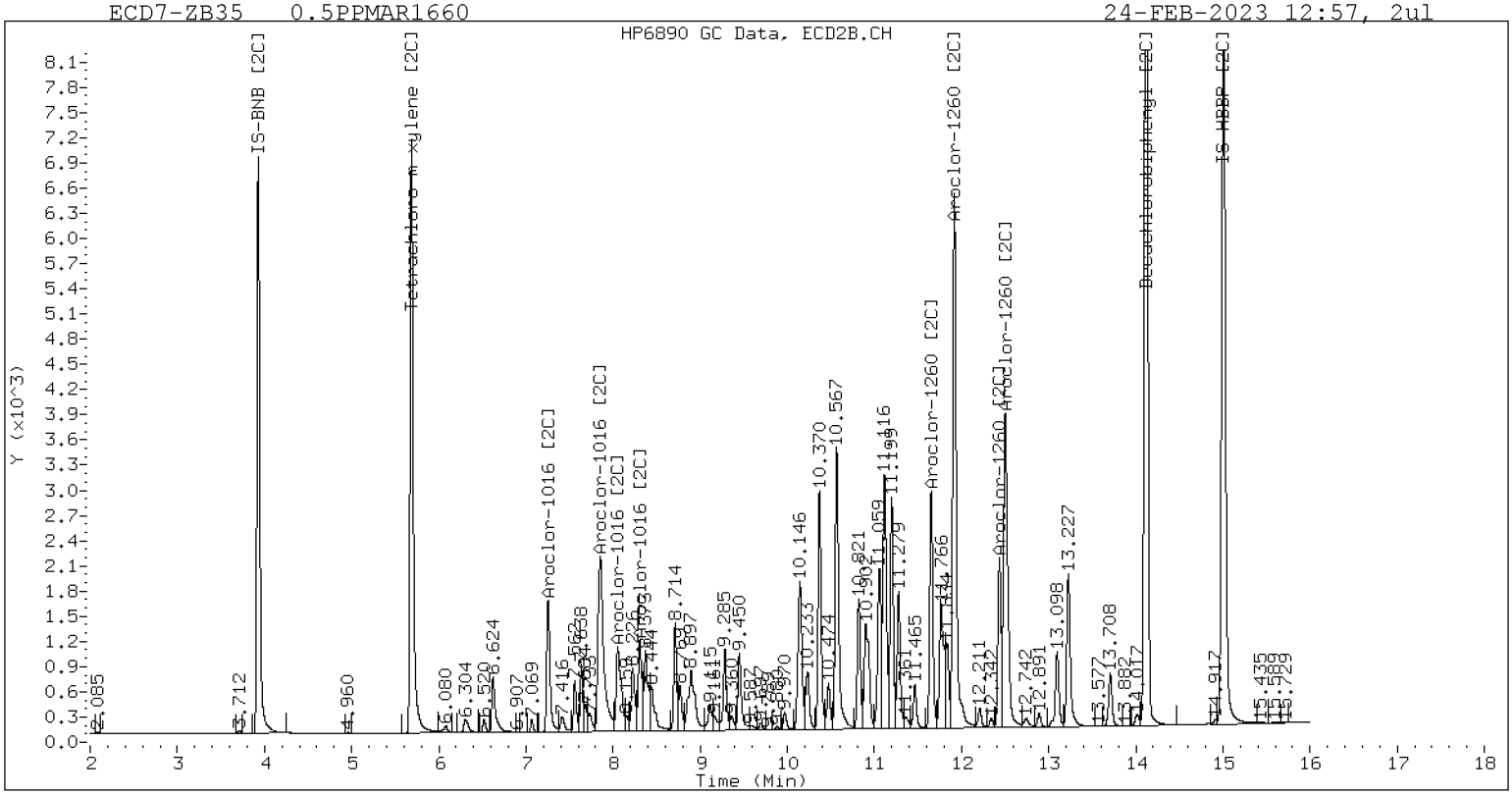
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242308ECD7.D
Data file 2: /230224.b/230224.b/02242308ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 24-FEB-2023 13:18
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	434187	5.688	0.003	214306	46.0	46.5	1.1	Tetrachloro-m-xylene
13.894	0.000	515867	14.119	-0.001	312943	35.6	38.5	7.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632576	-6.1
Hexabromobiphenyl	1429847	1469715	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314129	-0.4
Hexabromobiphenyl	513946	534294	4.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.271	0.000	49009	250.0	1	7.255	0.000	36487	250.0
Aroclor-1242	2	7.656	0.000	148833	250.0	2	7.858	0.000	76699	250.0
Aroclor-1242	3	8.405	0.000	46308	250.0	3	9.167	0.000	23866	250.0
Aroclor-1242	4	8.579	0.000	68453	250.0	4	9.597	0.000	29080	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1221467 Col1 Total PCB = 0.2 ppm*

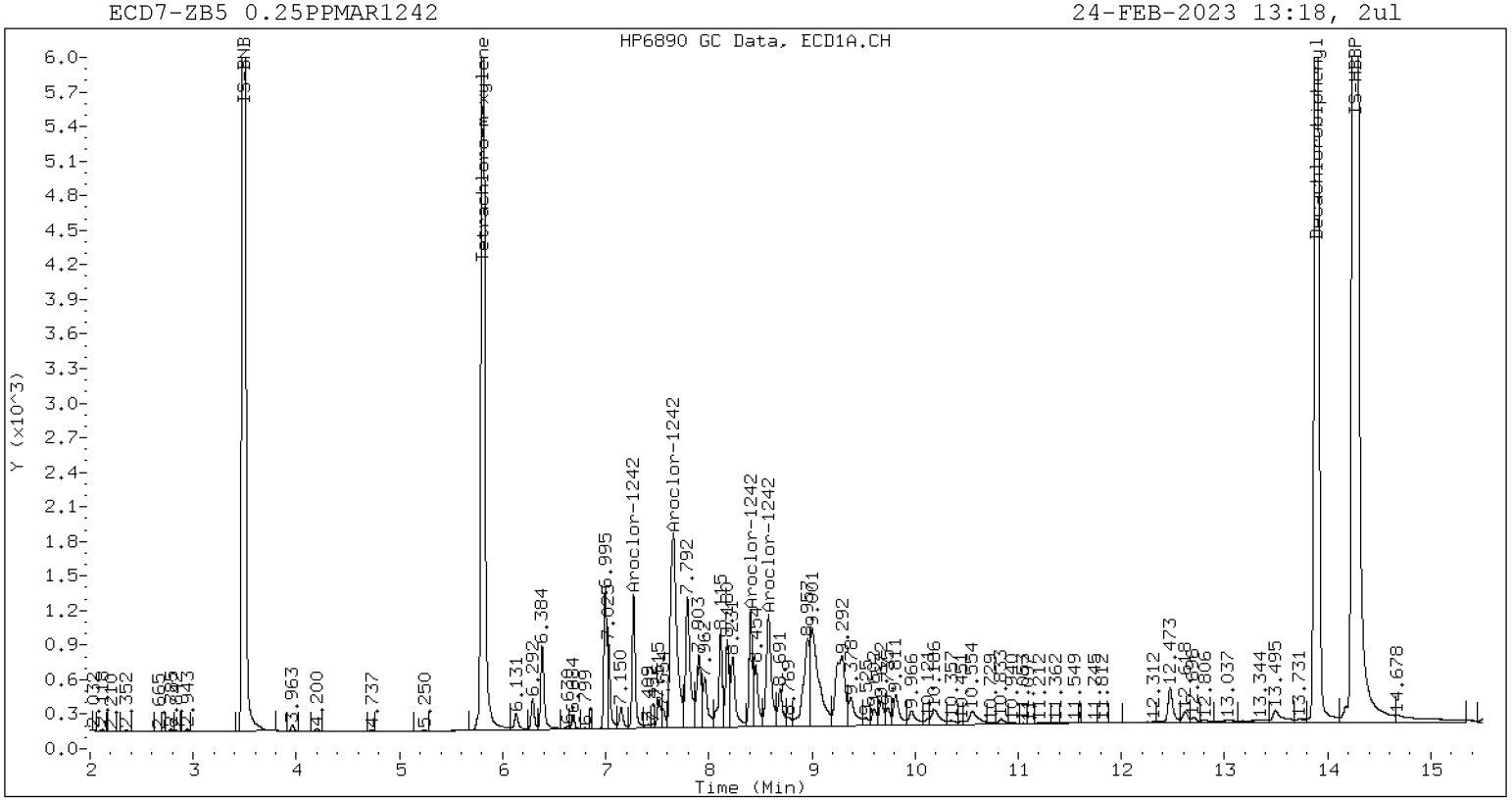
Total PCB Area Col2 (5.785 - 14.019) = 572067 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

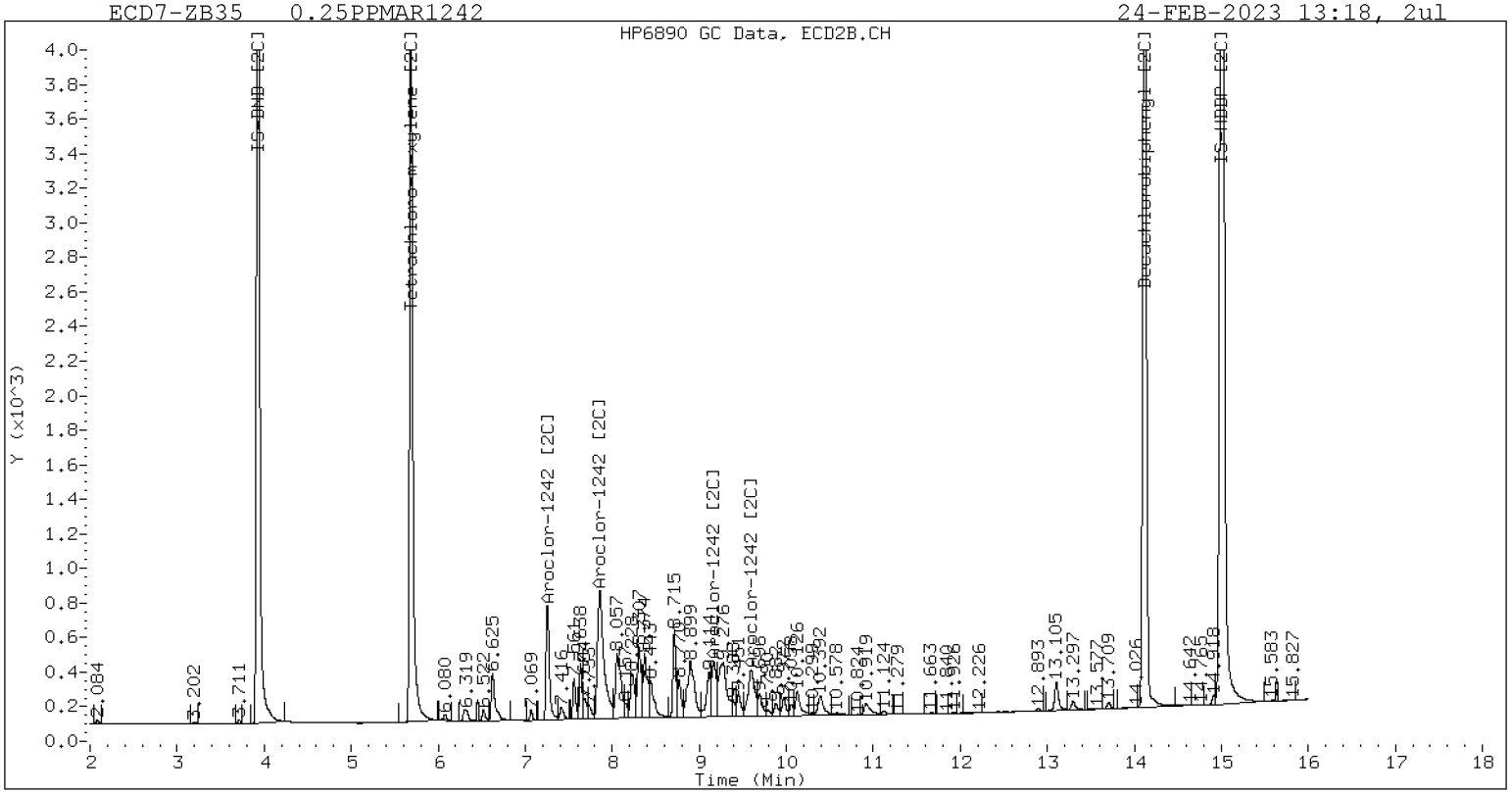
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242309ECD7.D
Data file 2: /230224.b/230224.b/02242309ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 24-FEB-2023 13:39
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	349513	5.688	0.003	176615	36.6	37.9	3.4	Tetrachloro-m-xylene
13.894	0.001	523008	14.121	0.001	322054	36.4	39.3	7.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	639911	-5.0
Hexabromobiphenyl	1429847	1458696	2.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317938	0.9
Hexabromobiphenyl	513946	538760	4.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.405	0.000	78055	250.0	1	8.308	0.000	37951	250.0
Aroclor-1248	2	8.580	0.000	99216	250.0	2	8.714	0.000	39239	250.0
Aroclor-1248	3	8.999	0.000	187178	250.0	3	9.166	0.000	45157	250.0
Aroclor-1248	4	9.295	0.000	95291	250.0	4	9.590	0.000	54216	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1565180 Col1 Total PCB = 0.2 ppm*

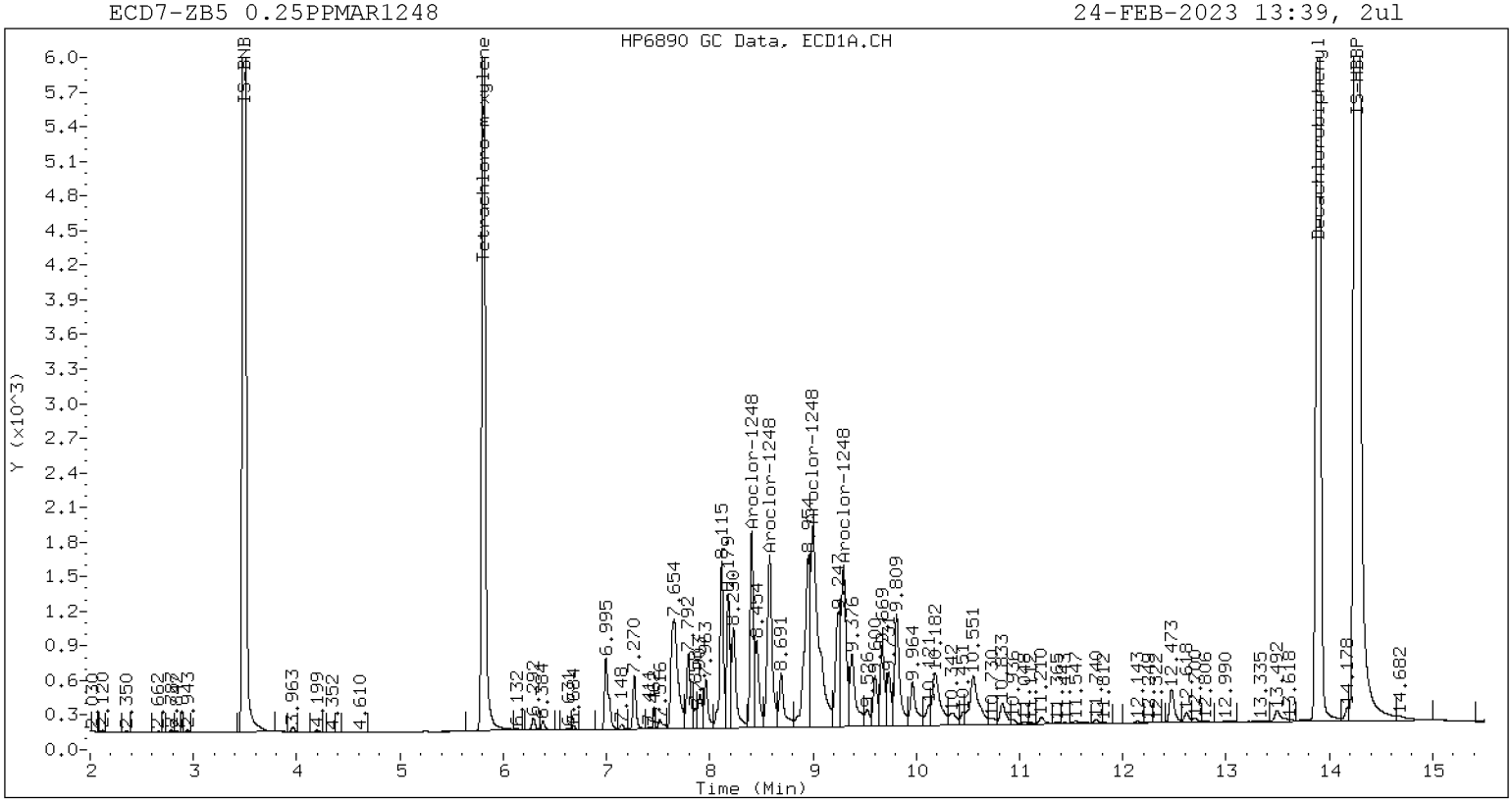
Total PCB Area Col2 (5.785 - 14.019) = 754991 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

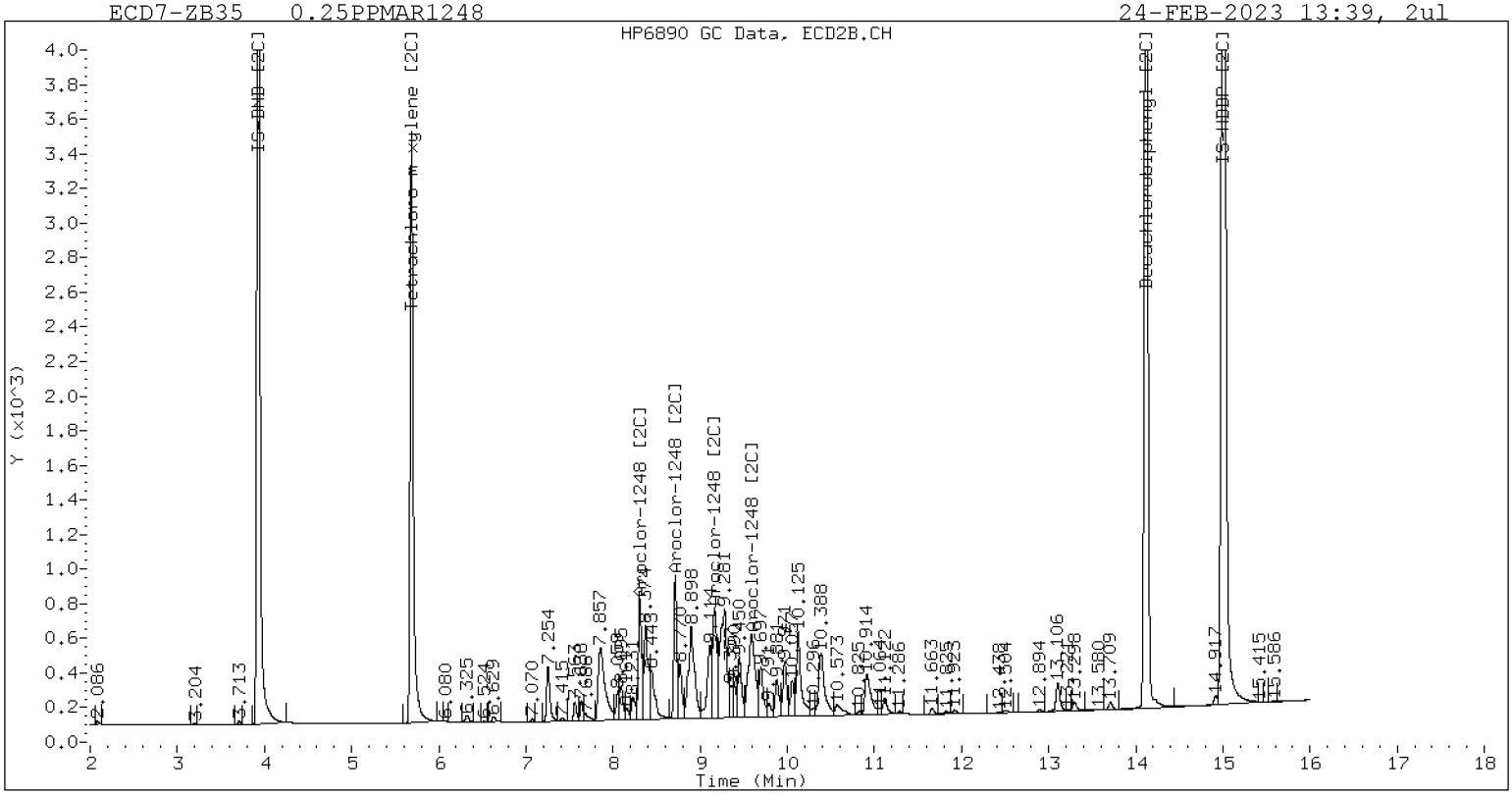
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242310ECD7.D
Data file 2: /230224.b/230224.b/02242310ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 24-FEB-2023 14:00
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	352587	5.687	0.002	177502	37.3	38.6	3.4	Tetrachloro-m-xylene
13.895	0.002	532500	14.119	0.000	325903	37.0	40.2	8.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	633407	-6.0
Hexabromobiphenyl	1429847	1460265	2.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	313673	-0.5
Hexabromobiphenyl	513946	532442	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.299	0.000	159011	250.0	1	9.449	0.000	59603	250.0
Aroclor-1254	2	9.377	0.000	71516	250.0	2	9.970	0.000	47949	250.0
Aroclor-1254	3	9.668	0.000	102230	250.0	3	10.124	0.000	103745	250.0
Aroclor-1254	4	9.807	0.000	198777	250.0	4	10.373	0.000	101135	250.0
Aroclor-1254	5	10.176	0.000	124586	250.0	5	10.569	0.000	61577	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 2179224 Col1 Total PCB = 0.3 ppm*

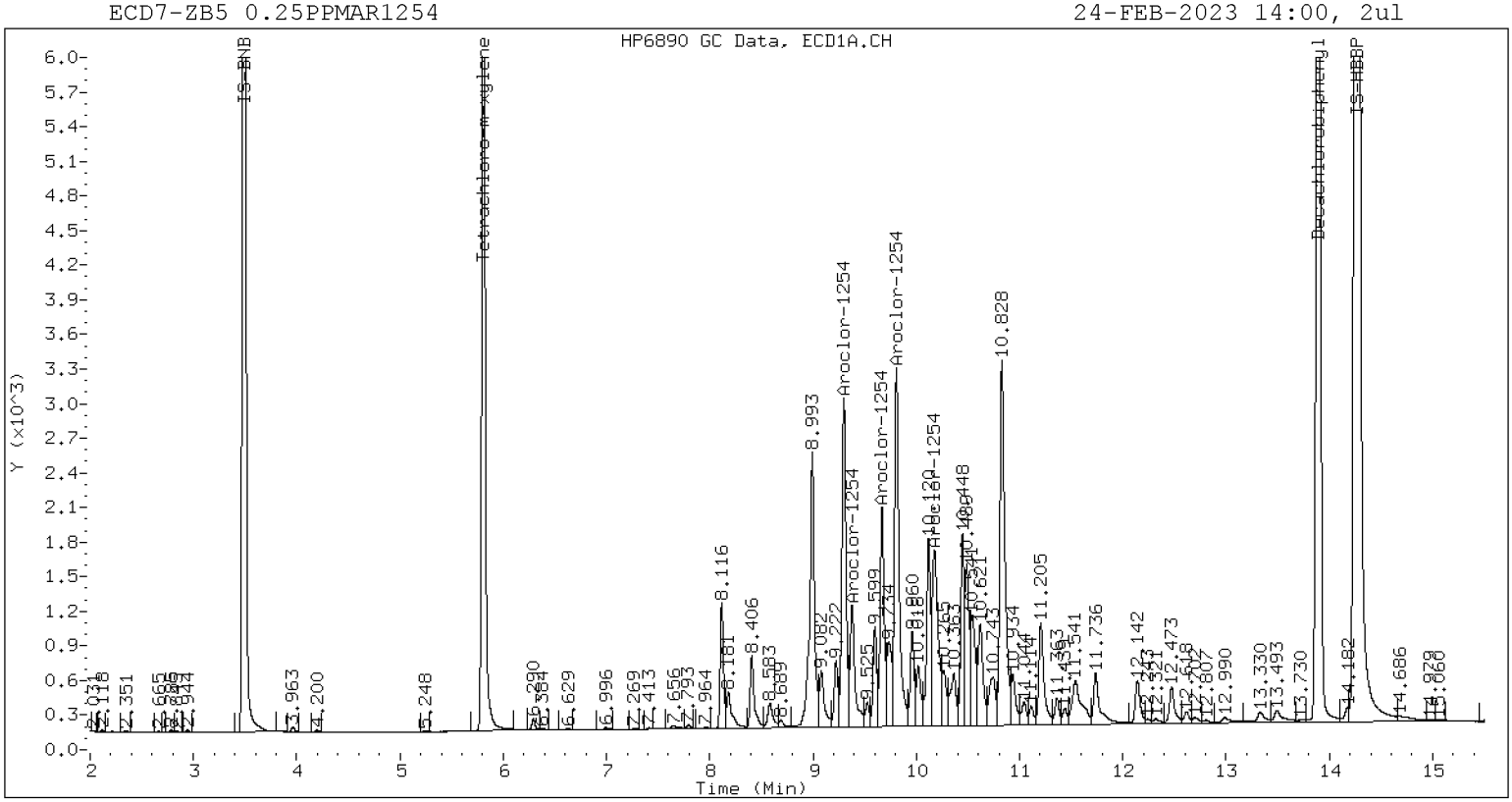
Total PCB Area Col2 (5.785 - 14.019) = 1022156 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

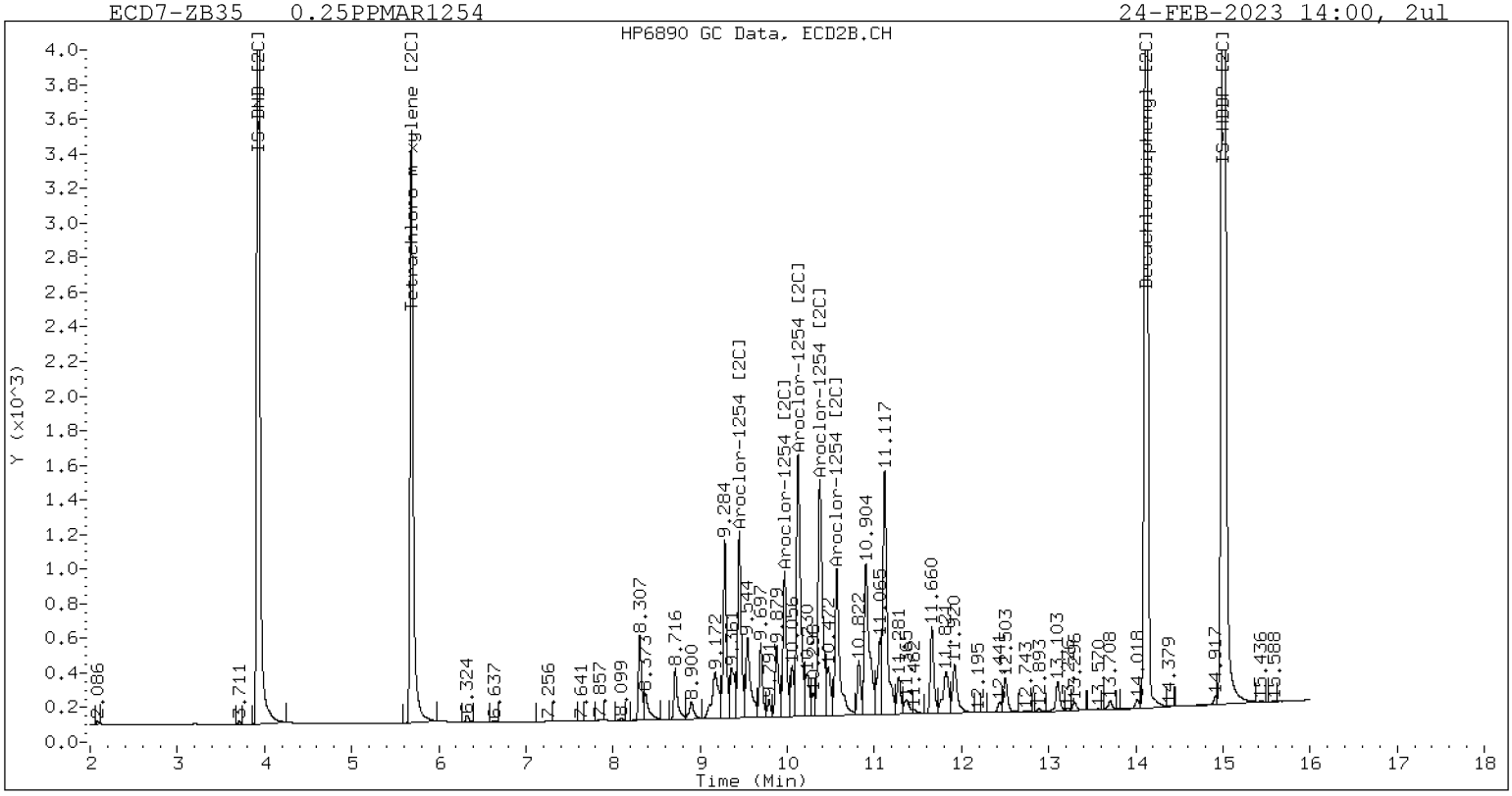
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242311ECD7.D
Data file 2: /230224.b/230224.b/02242311ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2162
Client ID:
Injection Date: 24-FEB-2023 14:21
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	362236	5.686	0.000	177349	38.4	39.2	2.1	Tetrachloro-m-xylene
13.894	0.001	523254	14.119	-0.000	321034	36.0	39.2	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632433	-6.1
Hexabromobiphenyl	1429847	1474039	3.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	308453	-2.2
Hexabromobiphenyl	513946	538177	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1221	1	4.731	0.000	14160	250.0	1	4.956	0.000	7300	250.0
Aroclor-1221	2	6.132	0.000	25324	250.0	2	6.296	0.000	13816	250.0
Aroclor-1221	3	6.382	0.000	58795	250.0	3	6.622	0.000	22491	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.829	0.000	113046	250.0	1	11.200	0.000	114880	250.0
Aroclor-1262	2	12.244	0.000	183948	250.0	2	11.652	0.000	97844	250.0
Aroclor-1262	3	12.319	0.000	197749	250.0	3	12.434	0.000	111015	250.0
Aroclor-1262	4	12.987	0.000	180727	250.0	4	12.502	0.000	173913	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3105316 Col1 Total PCB = 0.4 ppm*

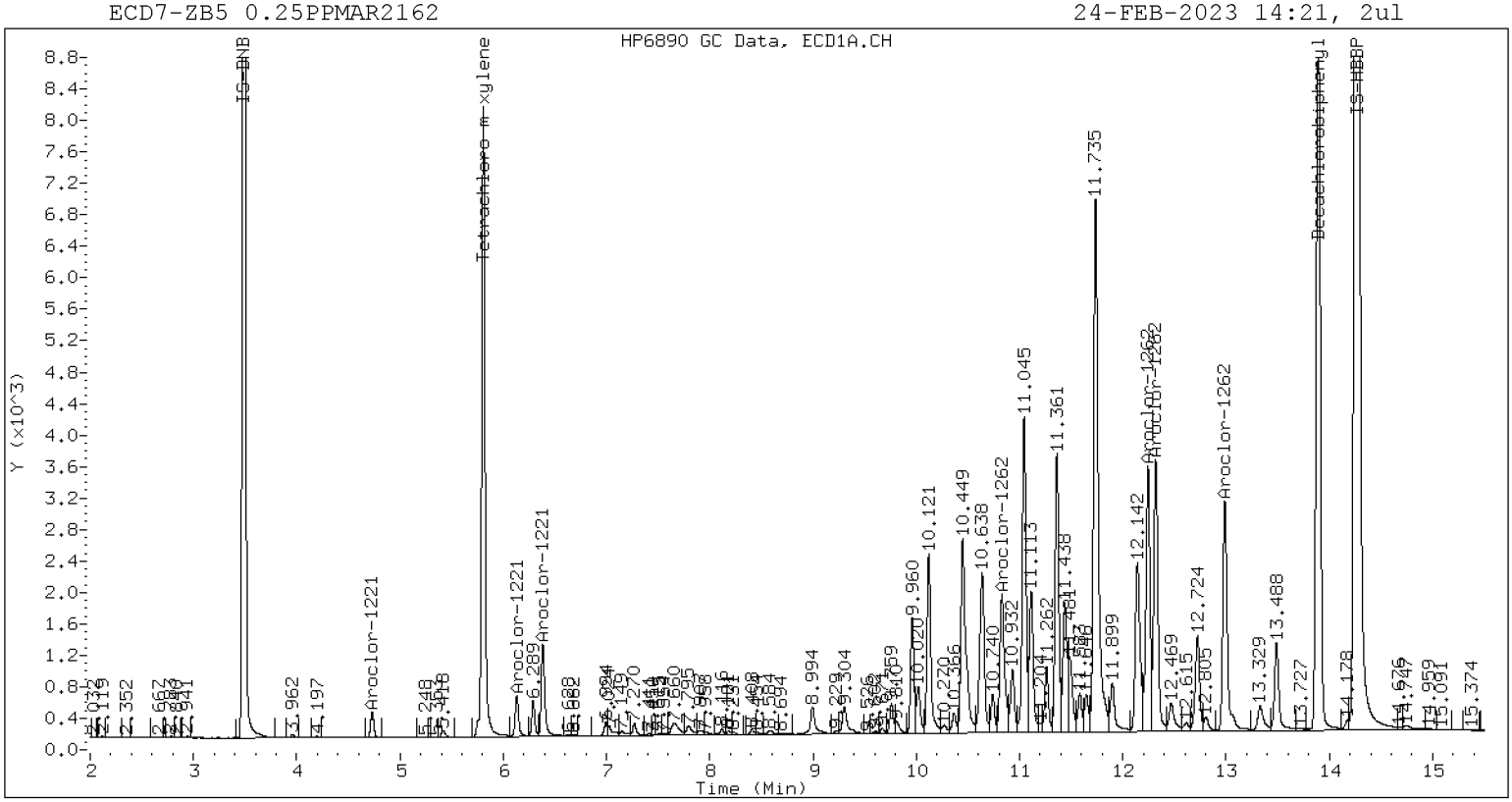
Total PCB Area Col2 (5.785 - 14.019) = 1573107 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

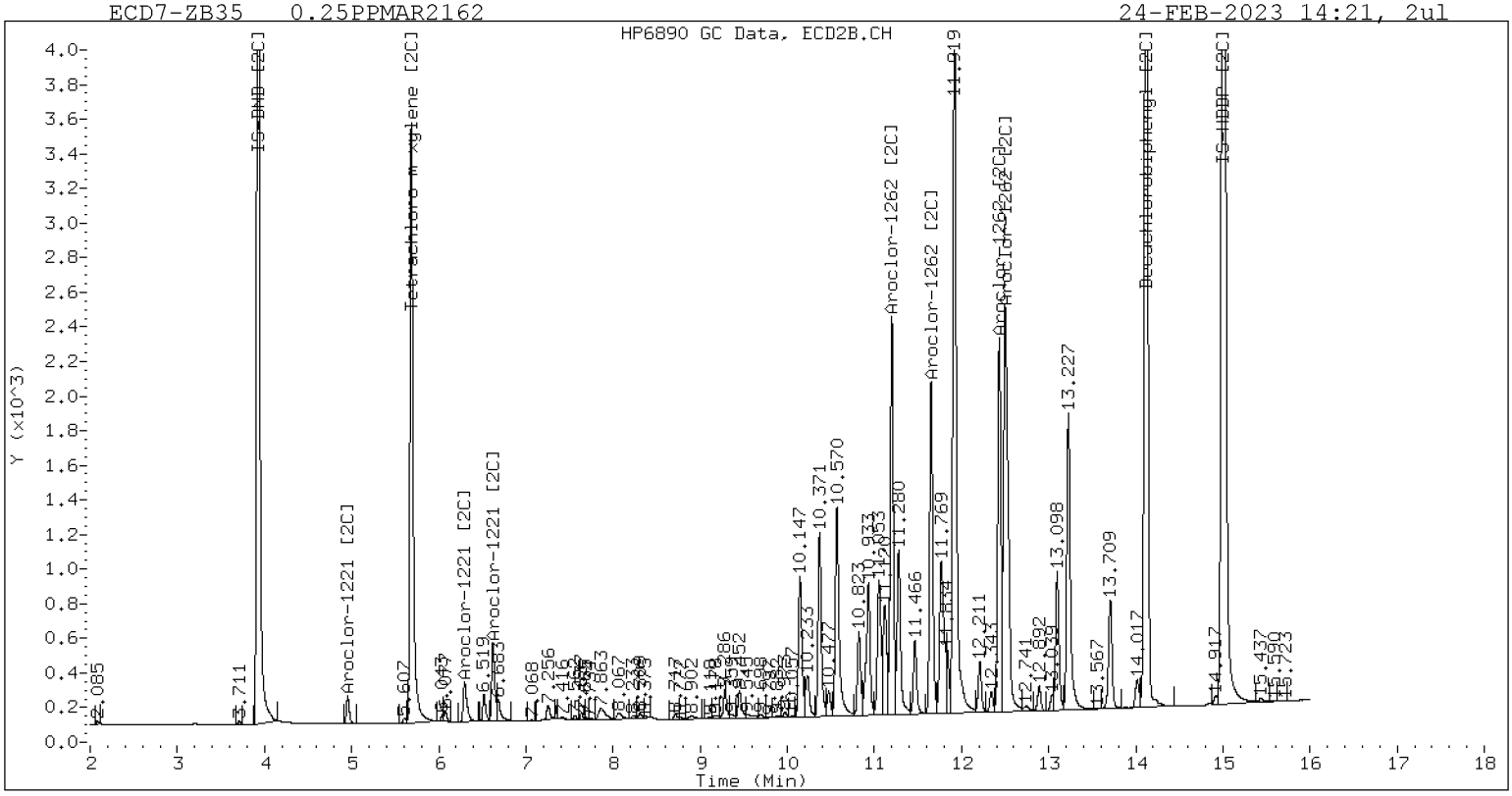
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242312ECD7.D
Data file 2: /230224.b/230224.b/02242312ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 24-FEB-2023 14:42
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	366416	5.685	0.000	179450	38.0	38.9	2.4	Tetrachloro-m-xylene
13.893	0.000	778191	14.119	0.000	477889	53.0	57.5	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645602	-4.2
Hexabromobiphenyl	1429847	1492154	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314042	-0.4
Hexabromobiphenyl	513946	545458	6.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1232	1	4.730	0.000	8647	250.0	1	4.956	0.000	4017	250.0
Aroclor-1232	2	6.131	0.000	17148	250.0	2	7.254	0.000	19962	250.0
Aroclor-1232	3	7.656	0.000	77627	250.0	3	7.861	0.000	39913	250.0
Aroclor-1232	4	8.581	0.000	32993	250.0	4	8.715	0.000	11487	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.247	0.000	477974	250.0	1	12.432	0.000	274595	250.0
Aroclor-1268	2	12.317	0.000	473326	250.0	2	12.500	0.000	295194	250.0
Aroclor-1268	3	12.699	0.000	405011	250.0	3	12.892	0.000	252048	250.0
Aroclor-1268	4	13.490	0.000	1333528	250.0	4	13.709	0.000	805579	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3998414 Col1 Total PCB = 0.5 ppm*

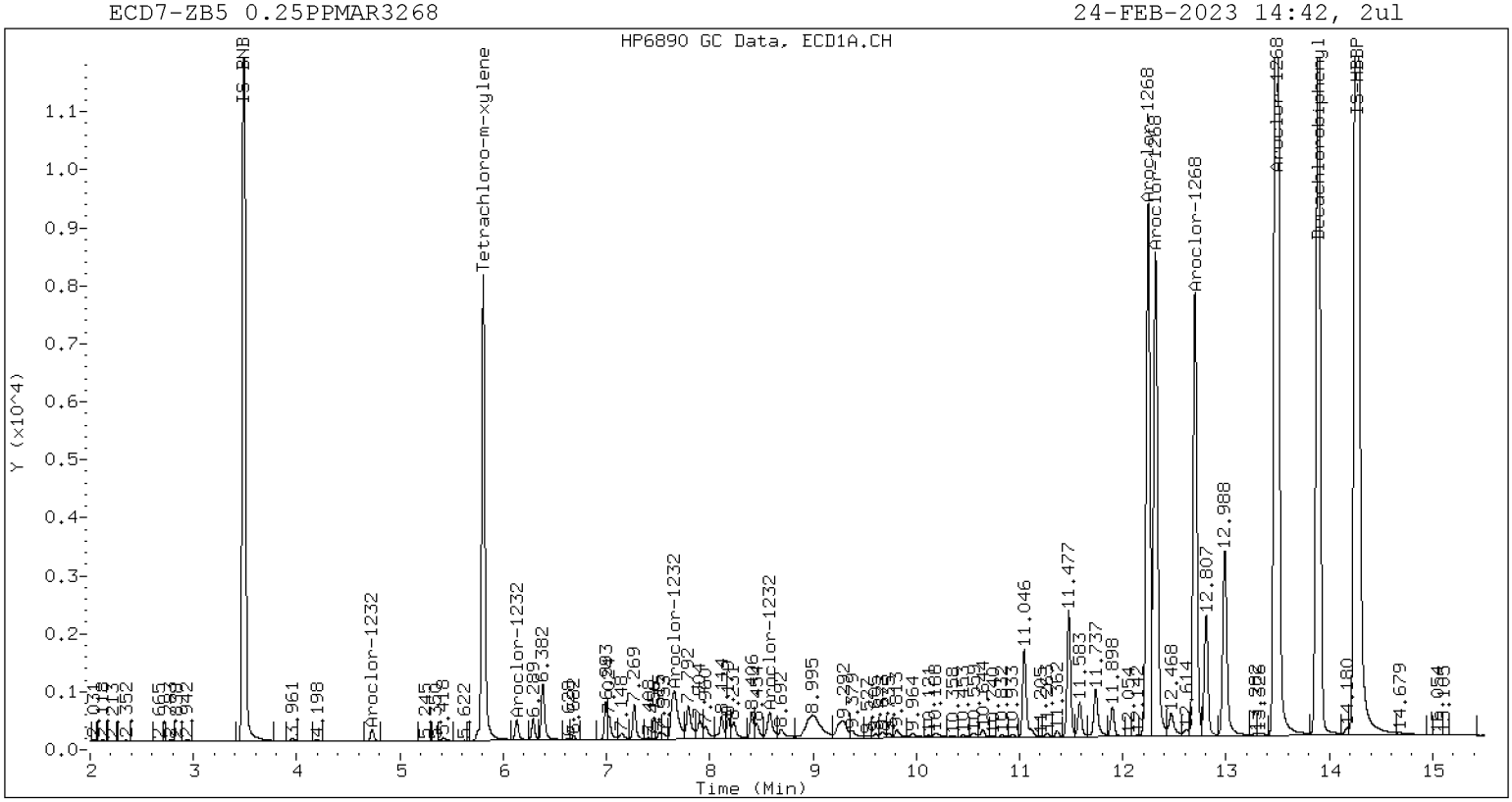
Total PCB Area Col2 (5.785 - 14.019) = 2300029 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

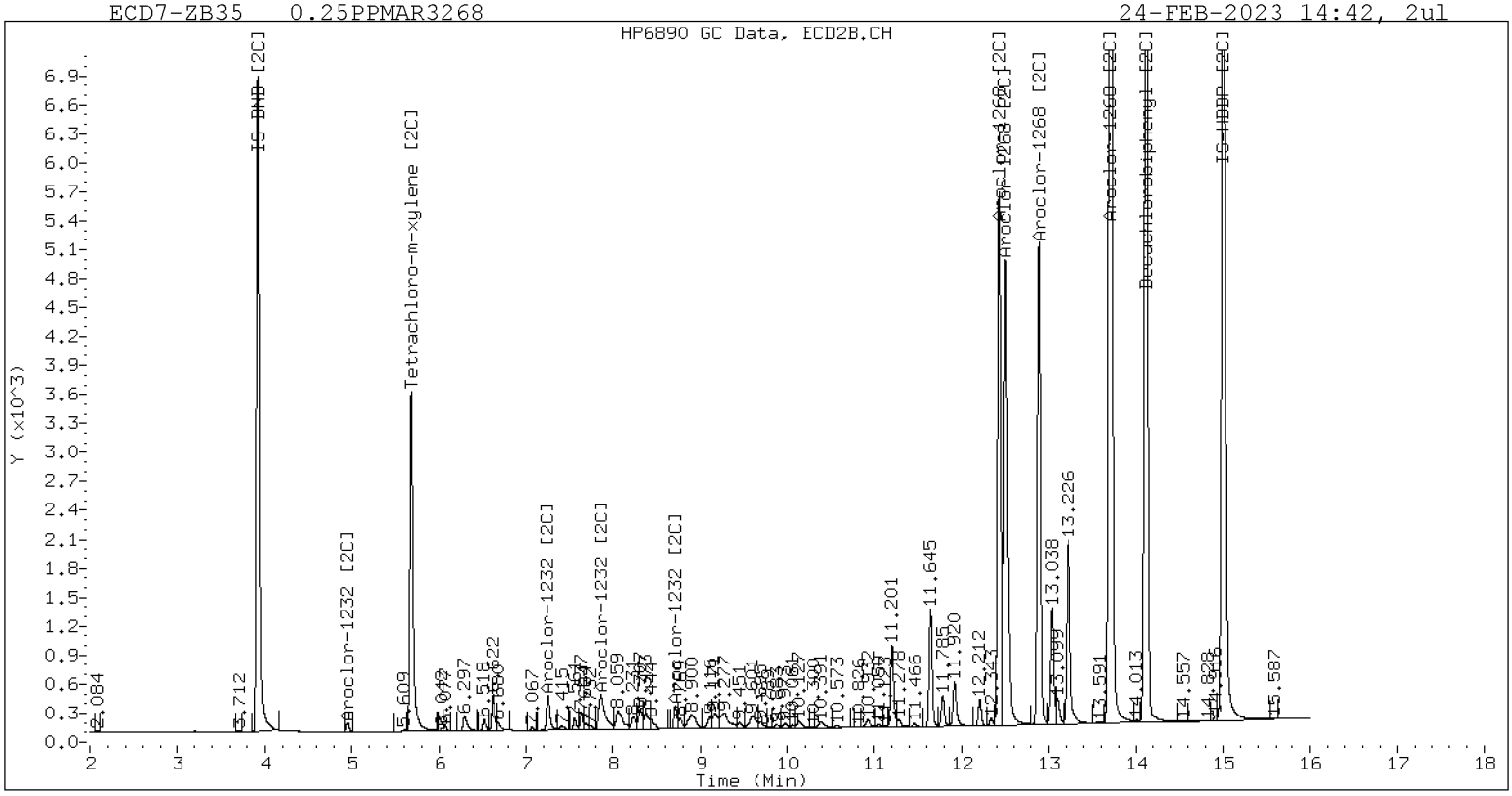
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242313ECD7.D
Data file 2: /230224.b/230224.b/02242313ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 24-FEB-2023 15:03
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	337070	5.686	0.001	165848	34.9	35.8	2.3	Tetrachloro-m-xylene
13.895	0.002	515407	14.119	-0.000	316730	34.3	37.3	8.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645975	-4.1
Hexabromobiphenyl	1429847	1524245	6.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316115	0.3
Hexabromobiphenyl	513946	556950	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.002	59491	242.5	1	7.254	-0.002	44576	240.9
Aroclor-1016	2	7.655	0.001	181090	242.1	2	7.857	0.002	95386	254.2
Aroclor-1016	3	7.790	0.000	88470	242.3	3	8.056	0.002	42160	248.8
Aroclor-1016	4	8.404	-0.001	57980	245.6	4	8.307	0.000	32197	242.1
Total Col1Ave (4 peaks):					243.1	Total Col2Ave (4 peaks):				246.5 RPD = 1
Corrected Ave (3 peaks):					242.3	Corrected Ave (3 peaks):				243.9 RPD = 1
Aroclor-1221	1	4.731	0.000	464	8.0	1	---			0.0
Aroclor-1221	2	6.130	-0.002	9233	89.2	2	6.300	0.004	5379	95.0
Aroclor-1221	3	6.382	-0.001	42570	177.2	3	6.623	0.001	20952	227.2
Total Col1Ave (3 peaks):					91.5	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.731	0.001	464	13.4	1	---			0.0
Aroclor-1232	2	6.130	-0.001	9233	134.5	2	7.254	-0.000	44576	554.6
Aroclor-1232	3	7.655	-0.001	181090	582.9	3	7.857	-0.003	95386	593.5
Aroclor-1232	4	8.580	-0.001	79916	605.2	4	8.713	-0.002	29795	644.2
Total Col1Ave (4 peaks):					334.0	Total Col2Ave (3 peaks):				597.4 RPD = 57*
Corrected Ave (3 peaks):					243.6	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	-0.002	59491	297.2	1	7.254	-0.002	44576	303.5
Aroclor-1242	2	7.655	-0.001	181090	297.9	2	7.857	-0.000	95386	309.0
Aroclor-1242	3	8.404	-0.001	57980	306.5	3	9.115	-0.052	18754	195.2
Aroclor-1242	4	8.580	0.000	79916	285.8	4	9.697	0.100	1355	11.6
Total Col1Ave (4 peaks):					296.8	Total Col2Ave (4 peaks):				204.8 RPD = 37
Corrected Ave (3 peaks):					293.6	Corrected Ave (3 peaks):				170.1 RPD = 53*
Aroclor-1248	1	8.404	-0.001	57980	184.0	1	8.307	-0.001	32197	213.3
Aroclor-1248	2	8.580	-0.001	79916	199.5	2	8.713	-0.001	29795	190.9
Aroclor-1248	3	8.993	-0.006	71805	95.0	3	9.115	-0.050	18754	104.4
Aroclor-1248	4	9.300	0.006	47348	123.1	4	---			0.0
Total Col1Ave (4 peaks):					150.4	Total Col2Ave (3 peaks):				169.6 RPD = 12
Corrected Ave (3 peaks):					134.0	Corrected Ave: < 3 Peaks				
Aroclor-1254	1	9.300	0.002	47348	73.0	1	9.451	0.001	22438	93.4
Aroclor-1254	2	---			0.0	2	9.972	0.001	2694	13.9
Aroclor-1254	3	9.670	0.002	5461	13.1	3	10.147	0.024	52914	126.5
Aroclor-1254	4	9.807	-0.000	18944	23.4	4	10.370	-0.003	70430	172.8
Aroclor-1254	5	10.121	-0.056	154170	303.3	5	10.568	-0.000	98525	396.9
Total Col1Ave (4 peaks):					103.2	Total Col2Ave (5 peaks):				160.7 RPD = 44*
Corrected Ave (3 peaks):					36.5	Corrected Ave (4 peaks):				101.7 RPD = 94*
Aroclor-1260	1	11.044	0.000	149195	272.1	1	11.653	0.000	82210	251.0
Aroclor-1260	2	11.361	-0.000	153832	268.5	2	11.919	0.001	222226	265.9
Aroclor-1260	3	11.736	0.002	396660	261.0	3	12.435	-0.000	59148	266.7
Aroclor-1260	4	12.140	0.001	190448	248.9	4	12.504	0.002	147180	261.2
Aroclor-1260	5	12.244	-0.000	91385	277.5	NS	---			----
Total Col1Ave (5 peaks):					265.6	Total Col2Ave (4 peaks):				261.2 RPD = 2
Corrected Ave (4 peaks):					262.6	Corrected Ave (3 peaks):				259.4 RPD = 1
Aroclor-1262	1	10.827	-0.002	220238	471.0	1	11.199	-0.001	84479	177.6
Aroclor-1262	2	12.244	0.000	91385	120.1	2	11.653	0.002	82210	203.0
Aroclor-1262	3	12.320	0.001	113066	138.2	3	12.435	0.002	59148	128.7
Aroclor-1262	4	12.988	0.001	102156	136.7	4	12.504	0.002	147180	204.4
Total Col1Ave (4 peaks):					216.5	Total Col2Ave (4 peaks):				178.4 RPD = 19
Corrected Ave (3 peaks):					131.7	Corrected Ave (3 peaks):				169.8 RPD = 25
Aroclor-1268	1	12.244	-0.003	91385	46.8	1	12.435	0.003	59148	52.7
Aroclor-1268	2	12.320	0.003	113066	58.5	2	12.504	0.004	147180	122.1
Aroclor-1268	3	12.726	0.027	46633	28.2	3	12.893	0.001	2874	2.8
Aroclor-1268	4	13.489	-0.000	25567	4.7	4	13.709	-0.000	13041	4.0
Total Col1Ave (4 peaks):					34.5	Total Col2Ave (4 peaks):				45.4 RPD = 27
Corrected Ave (3 peaks):					26.6	Corrected Ave (3 peaks):				19.8 RPD = 29

Total PCB Area Col1 (5.906 - 13.793) = 3743076 Col1 Total PCB = 0.5 ppm*

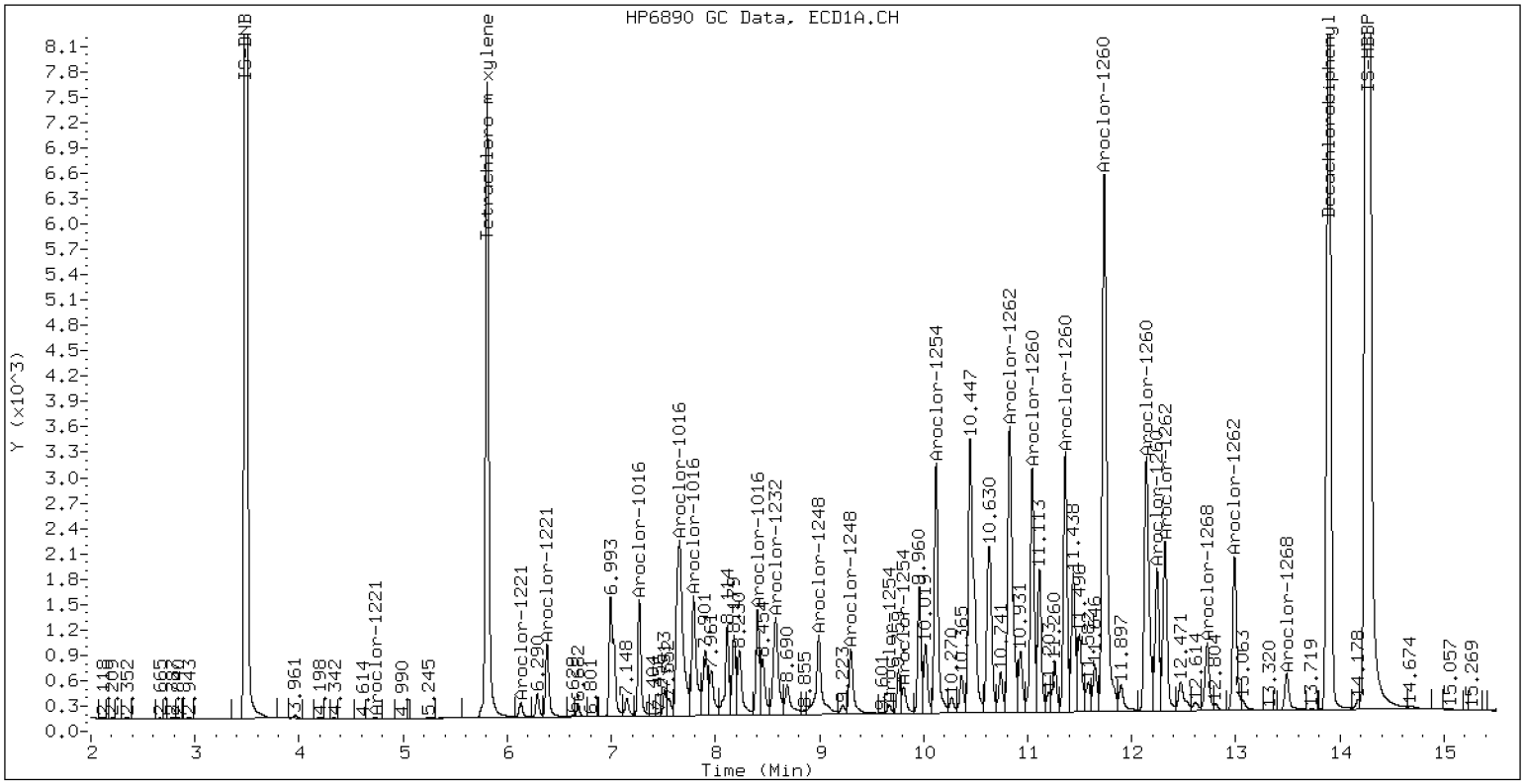
Total PCB Area Col2 (5.785 - 14.019) = 1897008 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

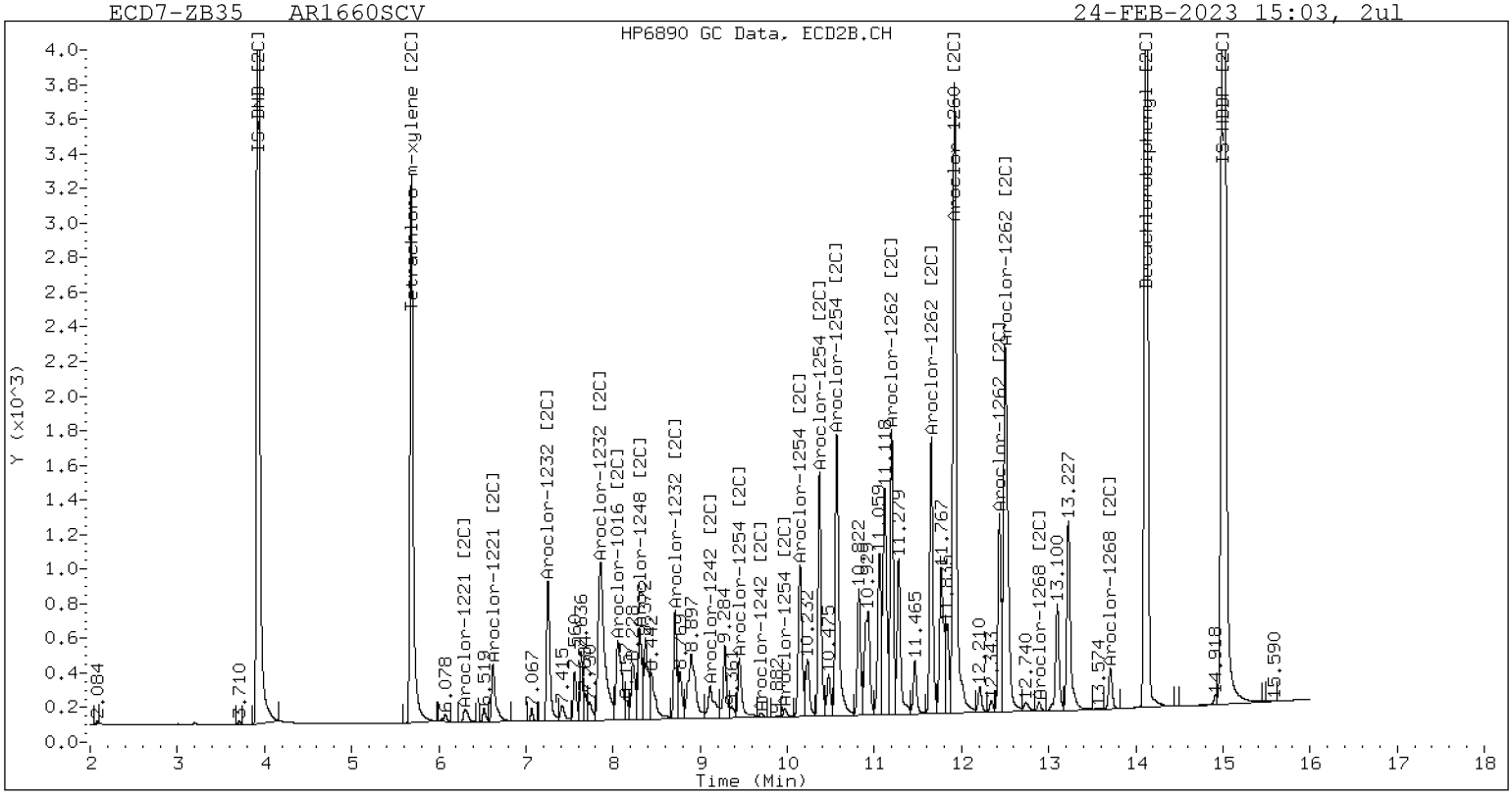
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242314ECD7.D
Data file 2: /230224.b/230224.b/02242314ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 24-FEB-2023 15:24
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	354283	5.686	0.001	172455	33.6	34.5	2.6	Tetrachloro-m-xylene
13.895	0.002	567088	14.120	0.001	347430	37.0	40.3	8.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	705650	4.7
Hexabromobiphenyl	1429847	1555683	8.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	340433	8.0
Hexabromobiphenyl	513946	565609	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.000	39927	149.0	1	7.256	0.000	32417	162.7
Aroclor-1016	2	7.653	-0.001	132339	162.0	2	7.856	0.001	69235	171.3
Aroclor-1016	3	7.791	0.001	59310	148.7	3	8.055	0.000	29473	161.5
Aroclor-1016	4	8.405	0.000	42537	165.0	4	8.307	-0.000	22792	159.2
Total Col1Ave (4 peaks): 156.2						Total Col2Ave (4 peaks): 163.7			RPD = 5	
Corrected Ave (3 peaks): 153.2						Corrected Ave (3 peaks): 161.1			RPD = 5	
Aroclor-1221	1	4.733	0.002	319	5.0	1	---			0.0
Aroclor-1221	2	6.131	-0.001	6534	57.8	2	6.319	0.022	4365	71.6
Aroclor-1221	3	6.384	0.001	29664	113.0	3	6.624	0.002	14916	150.2
Total Col1Ave (3 peaks): 58.6						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.733	0.003	319	8.4	1	---			0.0
Aroclor-1232	2	6.131	0.000	6534	87.2	2	7.256	0.002	32417	374.5
Aroclor-1232	3	7.653	-0.003	132339	389.9	3	7.856	-0.004	69235	400.0
Aroclor-1232	4	8.579	-0.002	69445	481.4	4	8.714	-0.001	22167	445.0
Total Col1Ave (4 peaks): 241.7						Total Col2Ave (3 peaks): 406.5			RPD = 51*	
Corrected Ave (3 peaks): 161.8						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.270	-0.001	39927	182.6	1	7.256	0.000	32417	205.0
Aroclor-1242	2	7.653	-0.003	132339	199.3	2	7.856	-0.002	69235	208.2
Aroclor-1242	3	8.405	-0.000	42537	205.9	3	9.164	-0.004	23068	223.0
Aroclor-1242	4	8.579	-0.000	69445	227.4	4	9.587	-0.010	31021	246.1
Total Col1Ave (4 peaks): 203.8						Total Col2Ave (4 peaks): 220.6			RPD = 8	
Corrected Ave (3 peaks): 195.9						Corrected Ave (3 peaks): 212.1			RPD = 8	
Aroclor-1248	1	8.405	0.000	42537	123.5	1	8.307	-0.001	22792	140.2
Aroclor-1248	2	8.579	-0.001	69445	158.7	2	8.714	-0.000	22167	131.9
Aroclor-1248	3	9.001	0.003	91942	111.4	3	9.164	-0.002	23068	119.3
Aroclor-1248	4	9.294	-0.000	38711	92.1	4	9.587	-0.003	31021	133.6
Total Col1Ave (4 peaks): 121.4						Total Col2Ave (4 peaks): 131.2			RPD = 8	
Corrected Ave (3 peaks): 109.0						Corrected Ave (3 peaks): 128.3			RPD = 16	
Aroclor-1254	1	9.294	-0.005	38711	54.6	1	9.450	0.001	13131	50.7
Aroclor-1254	2	9.377	-0.000	17371	54.5	2	9.970	0.000	8340	40.1
Aroclor-1254	3	9.668	-0.000	16373	35.9	3	10.123	-0.000	16364	36.3
Aroclor-1254	4	9.807	-0.001	27490	31.0	4	10.382	0.009	16062	36.6
Aroclor-1254	5	10.175	-0.001	20494	36.9	5	10.572	0.004	4818	18.0
Total Col1Ave (5 peaks): 42.6						Total Col2Ave (5 peaks): 36.4			RPD = 16	
Corrected Ave (4 peaks): 39.6						Corrected Ave (4 peaks): 32.8			RPD = 19	
Aroclor-1260	1	11.048	0.003	794	1.4	1	11.665	0.012	1652	5.0
Aroclor-1260	2	11.366	0.005	814	1.4	2	11.926	0.008	842	1.0
Aroclor-1260	3	11.739	0.006	1848	1.2	3	12.438	0.002	483	2.1
Aroclor-1260	4	12.145	0.006	1372	1.8	4	12.506	0.004	790	1.4
Aroclor-1260	5	---			0.0	NS	---			----
Total Col1Ave (4 peaks): 1.4						Total Col2Ave (4 peaks): 2.4			RPD = 49*	
Corrected Ave (3 peaks): 1.3						Corrected Ave (3 peaks): 1.5			RPD = 12	
Aroclor-1262	1	10.832	0.003	13157	27.6	1	11.121	-0.079	6113	12.7
Aroclor-1262	2	12.145	-0.098	1372	1.8	2	11.665	0.013	1652	4.0
Aroclor-1262	3	---			0.0	3	12.438	0.004	483	1.0
Aroclor-1262	4	13.038	0.051	842	1.1	4	12.506	0.004	790	1.1
Total Col1Ave (3 peaks): 10.1						Total Col2Ave (4 peaks): 4.7			RPD = 73*	
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 2.0				
Aroclor-1268	1	---			0.0	1	12.438	0.006	483	0.4
Aroclor-1268	2	---			0.0	2	12.506	0.006	790	0.6
Aroclor-1268	3	12.617	-0.082	5851	3.5	3	12.899	0.007	491	0.5
Aroclor-1268	4	13.500	0.010	1745	0.3	4	13.714	0.005	379	0.1
Col1Ave: <3 Quant Peaks						Col2Ave: 0.4				

Total PCB Area Col1 (5.906 - 13.793) = 1149784 Col1 Total PCB = 0.1 ppm*

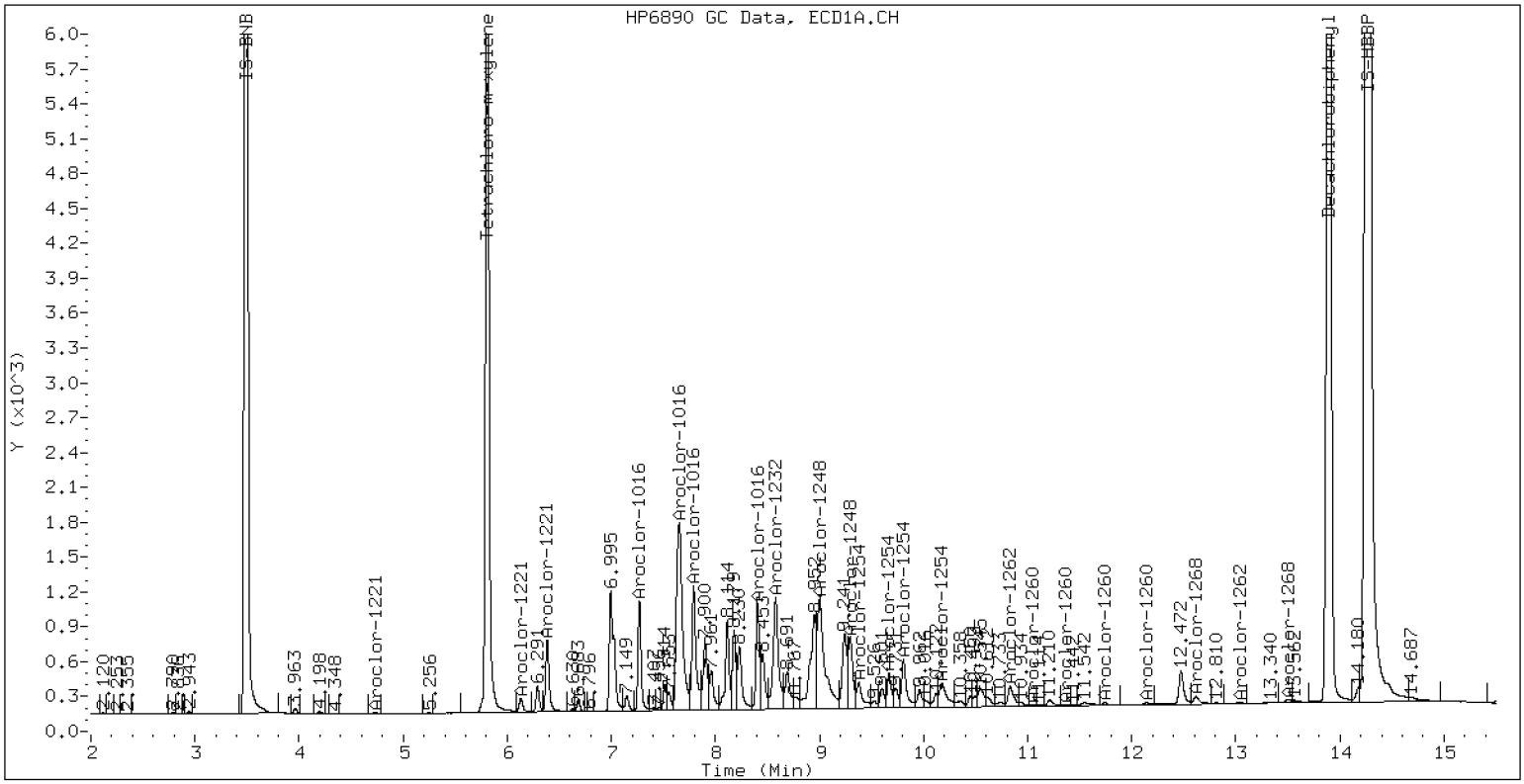
Total PCB Area Col2 (5.785 - 14.019) = 572210 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

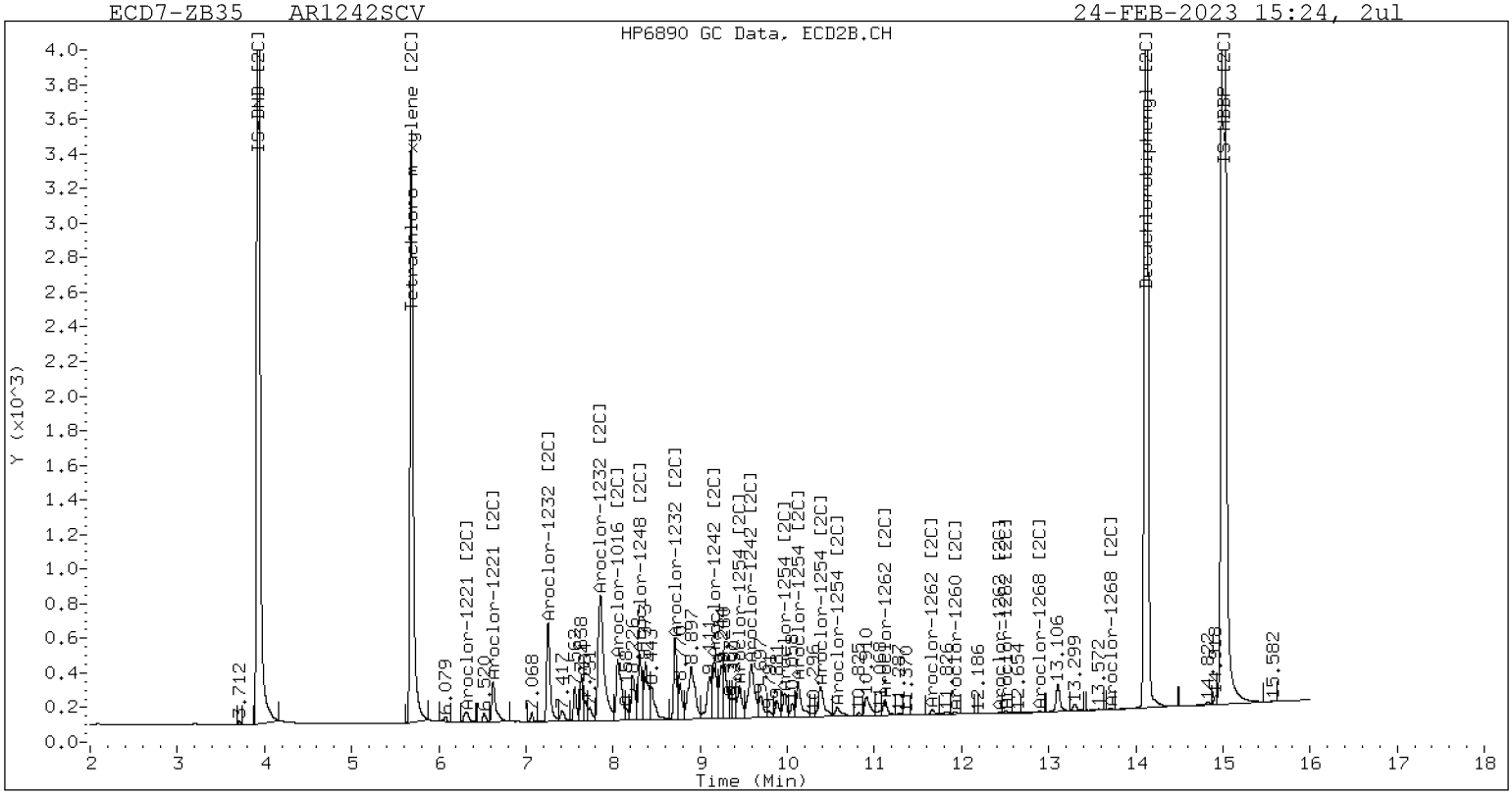
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242315ECD7.D
Data file 2: /230224.b/230224.b/02242315ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 24-FEB-2023 15:45
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	336655	5.687	0.002	168719	34.9	36.4	4.2	Tetrachloro-m-xylene
13.894	0.001	499162	14.118	-0.001	308317	33.1	36.3	9.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	646554	-4.0
Hexabromobiphenyl	1429847	1529451	7.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316066	0.3
Hexabromobiphenyl	513946	557213	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.000	19773	80.5	1	7.254	-0.002	16926	91.5
Aroclor-1016	2	7.653	-0.001	88099	117.7	2	7.857	0.001	45733	121.9
Aroclor-1016	3	7.794	0.003	35915	98.3	3	8.060	0.005	8078	47.7
Aroclor-1016	4	8.406	0.001	77842	329.5	4	8.307	0.000	37348	280.9
	Total Col1Ave (4 peaks):				156.5	Total Col2Ave (4 peaks):				135.5 RPD = 14
	Corrected Ave (3 peaks):				98.8	Corrected Ave (3 peaks):				87.0 RPD = 13
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	6.133	0.001	680	6.6	2	6.326	0.030	1966	34.7
Aroclor-1221	3	6.384	0.002	3390	14.1	3	6.631	0.009	1571	17.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	6.133	0.002	680	9.9	2	7.254	-0.000	16926	210.6
Aroclor-1232	3	7.653	-0.002	88099	283.3	3	7.857	-0.004	45733	284.6
Aroclor-1232	4	8.581	-0.000	99572	753.4	4	8.714	-0.001	38224	826.6
	Total Col1Ave (3 peaks):				348.9	Total Col2Ave (3 peaks):				440.6 RPD = 23
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.271	-0.000	19773	98.7	1	7.254	-0.002	16926	115.3
Aroclor-1242	2	7.653	-0.003	88099	144.8	2	7.857	-0.001	45733	148.2
Aroclor-1242	3	8.406	0.000	77842	411.2	3	9.165	-0.002	45021	468.7
Aroclor-1242	4	8.581	0.001	99572	355.8	4	9.590	-0.008	53613	458.1
	Total Col1Ave (4 peaks):				252.6	Total Col2Ave (4 peaks):				297.6 RPD = 16
	Corrected Ave (3 peaks):				199.8	Corrected Ave (3 peaks):				240.5 RPD = 19
Aroclor-1248	1	8.406	0.000	77842	246.8	1	8.307	-0.001	37348	247.5
Aroclor-1248	2	8.581	0.000	99572	248.3	2	8.714	-0.000	38224	245.0
Aroclor-1248	3	8.998	-0.000	186857	247.0	3	9.165	-0.000	45021	250.7
Aroclor-1248	4	9.294	-0.000	98398	255.5	4	9.590	-0.001	53613	248.7
	Total Col1Ave (4 peaks):				249.4	Total Col2Ave (4 peaks):				248.0 RPD = 1
	Corrected Ave (3 peaks):				247.4	Corrected Ave (3 peaks):				247.0 RPD = 0
Aroclor-1254	1	9.294	-0.004	98398	151.6	1	9.450	0.001	21823	90.8
Aroclor-1254	2	9.377	-0.001	49616	169.9	2	9.971	0.001	19450	100.6
Aroclor-1254	3	9.669	0.001	40230	96.4	3	10.124	0.000	36574	87.5
Aroclor-1254	4	9.808	0.001	68500	84.4	4	10.389	0.016	35100	86.1
Aroclor-1254	5	10.183	0.007	47365	93.1	5	10.573	0.004	5676	22.9
	Total Col1Ave (5 peaks):				119.1	Total Col2Ave (5 peaks):				77.6 RPD = 42*
	Corrected Ave (4 peaks):				106.4	Corrected Ave (4 peaks):				71.8 RPD = 39
Aroclor-1260	1	11.047	0.003	1670	3.0	1	11.662	0.009	2055	6.3
Aroclor-1260	2	11.362	0.001	1111	1.9	2	11.924	0.007	1466	1.8
Aroclor-1260	3	11.739	0.005	2107	1.4	3	12.434	-0.002	573	2.6
Aroclor-1260	4	12.144	0.005	1379	1.8	4	12.505	0.003	1003	1.8
Aroclor-1260	5	12.251	0.006	698	2.1	NS	---			----
	Total Col1Ave (5 peaks):				2.1	Total Col2Ave (4 peaks):				3.1 RPD = 41*
	Corrected Ave (4 peaks):				1.8	Corrected Ave (3 peaks):				2.0 RPD = 12
Aroclor-1262	1	10.833	0.005	15355	32.7	1	11.122	-0.079	7225	15.2
Aroclor-1262	2	12.251	0.007	698	0.9	2	11.662	0.011	2055	5.1
Aroclor-1262	3	12.321	0.002	836	1.0	3	12.434	0.000	573	1.2
Aroclor-1262	4	12.991	0.004	1043	1.4	4	12.505	0.003	1003	1.4
	Total Col1Ave (4 peaks):				9.0	Total Col2Ave (4 peaks):				5.7 RPD = 45*
	Corrected Ave (3 peaks):				1.1	Corrected Ave (3 peaks):				2.6 RPD = 80*
Aroclor-1268	1	12.251	0.004	698	0.4	1	12.434	0.002	573	0.5
Aroclor-1268	2	12.321	0.004	836	0.4	2	12.505	0.005	1003	0.8
Aroclor-1268	3	12.700	0.001	2449	1.5	3	12.892	0.001	721	0.7
Aroclor-1268	4	13.493	0.003	7547	1.4	4	13.708	-0.001	2265	0.7
	Total Col1Ave (4 peaks):				0.9	Total Col2Ave (4 peaks):				0.7 RPD = 29
	Corrected Ave (3 peaks):				0.7	Corrected Ave (3 peaks):				0.6 RPD = 13

Total PCB Area Col1 (5.906 - 13.793) = 1574335 Col1 Total PCB = 0.2 ppm*

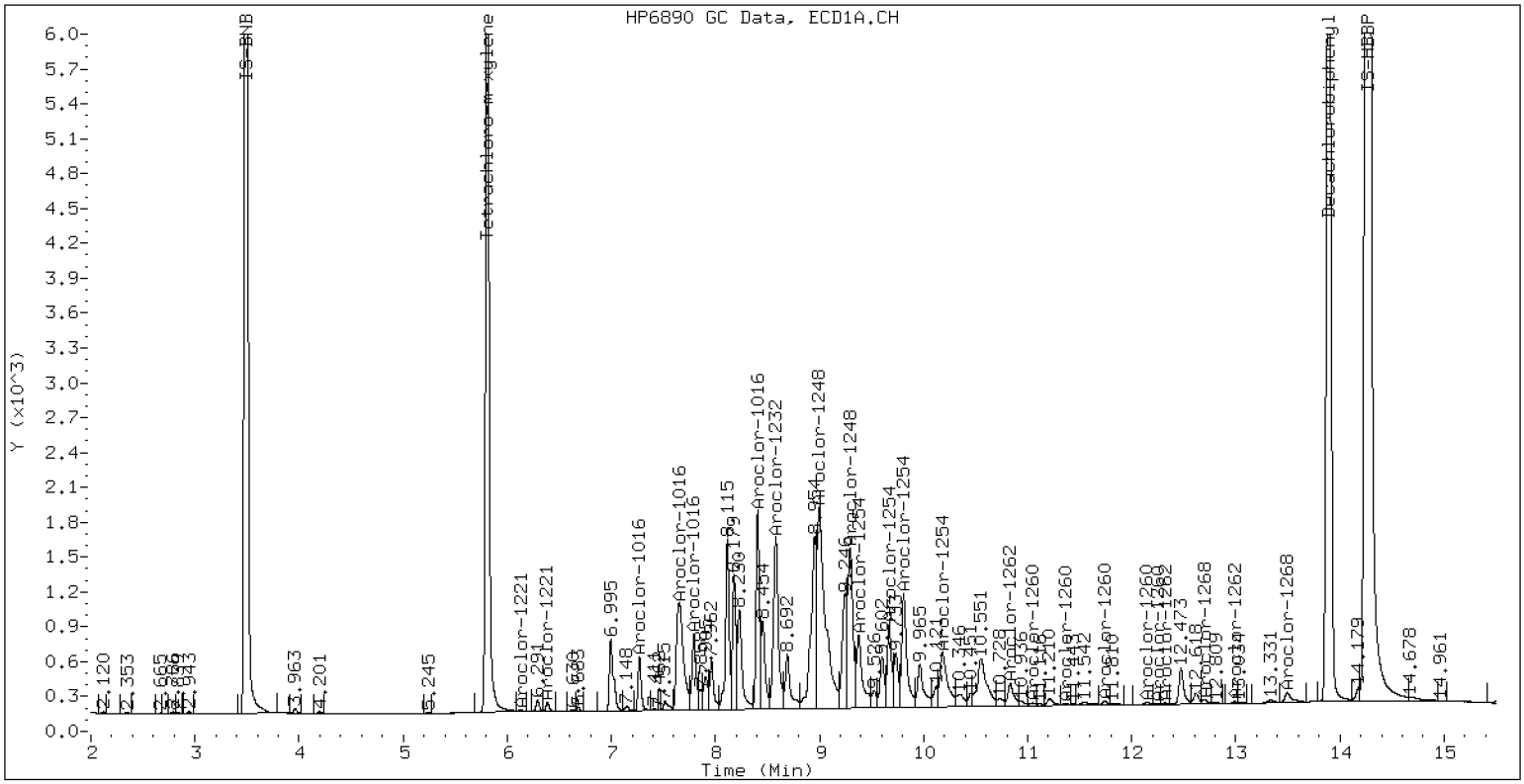
Total PCB Area Col2 (5.785 - 14.019) = 746330 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

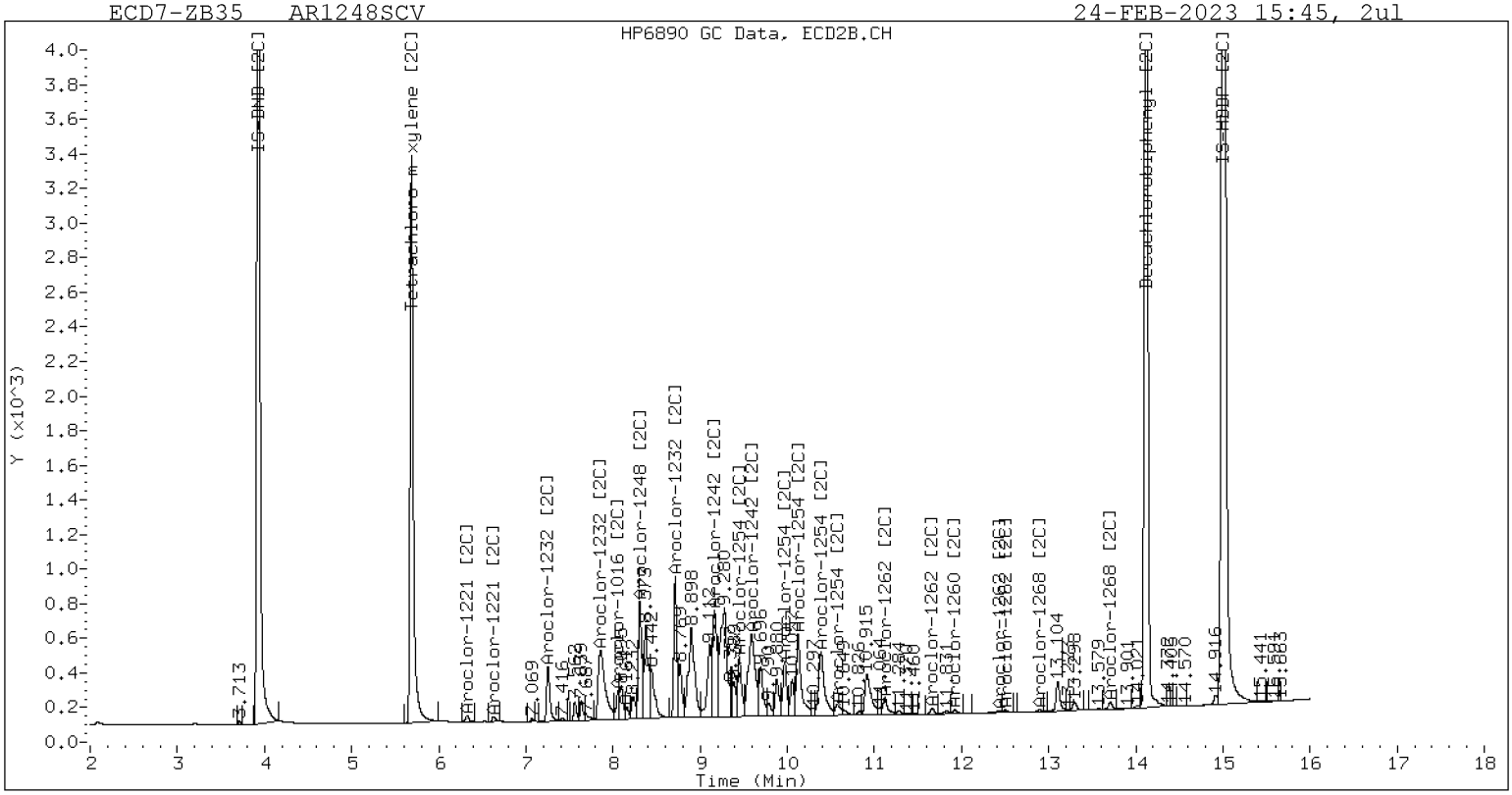
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242316ECD7.D
Data file 2: /230224.b/230224.b/02242316ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 24-FEB-2023 16:06
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.000	354312	5.686	0.001	174604	36.1	37.1	2.6	Tetrachloro-m-xylene
13.895	0.002	540961	14.119	-0.000	329134	34.6	37.9	9.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656887	-2.5
Hexabromobiphenyl	1429847	1585505	10.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	320936	1.8
Hexabromobiphenyl	513946	570006	10.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	565	2.3	1	7.255	-0.001	387	2.1
Aroclor-1016	2	7.656	0.002	1875	2.5	2	7.854	-0.002	860	2.3
Aroclor-1016	3	7.792	0.002	1106	3.0	3	8.098	0.043	578	3.4
Aroclor-1016	4	8.405	0.000	29924	124.7	4	8.307	0.000	21985	162.9
	Total Col1Ave (4 peaks):				33.1	Total Col2Ave (4 peaks):				42.6 RPD = 25
	Corrected Ave (3 peaks):				2.6	Corrected Ave (3 peaks):				2.6 RPD = 0
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.325	0.028	1947	33.9
Aroclor-1221	3	---			0.0	3	6.637	0.015	368	3.9
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.255	0.001	387	4.7
Aroclor-1232	3	7.656	0.000	1875	5.9	3	7.854	-0.007	860	5.3
Aroclor-1232	4	8.583	0.002	12327	91.8	4	8.715	0.000	15013	319.7
	Col1Ave: <3 Quant Peaks					Col2Ave: 109.9				
Aroclor-1242	1	7.270	-0.000	565	2.8	1	7.255	-0.001	387	2.6
Aroclor-1242	2	7.656	0.000	1875	3.0	2	7.854	-0.004	860	2.7
Aroclor-1242	3	8.405	-0.000	29924	155.6	3	9.169	0.002	21933	224.9
Aroclor-1242	4	8.583	0.003	12327	43.4	4	9.545	-0.053	34065	286.6
	Total Col1Ave (4 peaks):				51.2	Total Col2Ave (4 peaks):				129.2 RPD = 87*
	Corrected Ave (3 peaks):				16.4	Corrected Ave (3 peaks):				76.7 RPD = 130*
Aroclor-1248	1	8.405	0.000	29924	93.4	1	8.307	-0.001	21985	143.5
Aroclor-1248	2	8.583	0.002	12327	30.3	2	8.715	0.001	15013	94.8
Aroclor-1248	3	8.992	-0.007	145580	189.4	3	9.169	0.004	21933	120.3
Aroclor-1248	4	9.298	0.003	155450	397.3	4	9.545	-0.046	34065	155.6
	Total Col1Ave (4 peaks):				177.6	Total Col2Ave (4 peaks):				128.5 RPD = 32
	Corrected Ave (3 peaks):				104.3	Corrected Ave (3 peaks):				119.5 RPD = 14
Aroclor-1254	1	9.298	-0.001	155450	235.7	1	9.450	0.001	58639	240.4
Aroclor-1254	2	9.377	-0.001	69801	235.3	2	9.971	0.000	47008	239.5
Aroclor-1254	3	9.668	-0.000	100839	237.8	3	10.124	0.000	100062	235.7
Aroclor-1254	4	9.807	0.000	190544	231.1	4	10.373	0.000	99535	240.5
Aroclor-1254	5	10.176	-0.000	122321	236.7	5	10.570	0.001	61549	244.2
	Total Col1Ave (5 peaks):				235.3	Total Col2Ave (5 peaks):				240.1 RPD = 2
	Corrected Ave (4 peaks):				234.7	Corrected Ave (4 peaks):				239.0 RPD = 2
Aroclor-1260	1	11.043	-0.002	12288	21.5	1	11.661	0.008	29062	86.7
Aroclor-1260	2	11.361	-0.001	13660	22.9	2	11.921	0.003	22238	26.0
Aroclor-1260	3	11.736	0.002	37632	23.8	3	12.441	0.005	3555	15.7
Aroclor-1260	4	12.141	0.002	27105	34.1	4	12.503	0.001	13126	22.8
Aroclor-1260	5	12.320	0.076	2381	6.9	NS	---			----
	Total Col1Ave (5 peaks):				21.9	Total Col2Ave (4 peaks):				37.8 RPD = 53*
	Corrected Ave (4 peaks):				18.8	Corrected Ave (3 peaks):				21.5 RPD = 13
Aroclor-1262	1	10.827	-0.002	220626	453.6	1	11.281	0.081	13562	27.9
Aroclor-1262	2	12.320	0.076	2381	3.0	2	11.661	0.009	29062	70.1
Aroclor-1262	3	---			0.0	3	12.441	0.007	3555	7.6
Aroclor-1262	4	12.989	0.002	3225	4.1	4	12.503	0.001	13126	17.8
	Total Col1Ave (3 peaks):				153.6	Total Col2Ave (4 peaks):				30.8 RPD = 133*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				17.7
Aroclor-1268	1	12.320	0.074	2381	1.2	1	12.441	0.009	3555	3.1
Aroclor-1268	2	---			0.0	2	12.503	0.003	13126	10.6
Aroclor-1268	3	12.701	0.002	2939	1.7	3	12.892	0.000	772	0.7
Aroclor-1268	4	13.493	0.003	9164	1.6	4	13.707	-0.002	2801	0.8
	Total Col1Ave (3 peaks):				1.5	Total Col2Ave (4 peaks):				3.8 RPD = 87*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				1.6

Total PCB Area Col1 (5.906 - 13.793) = 2118645 Col1 Total PCB = 0.3 ppm*

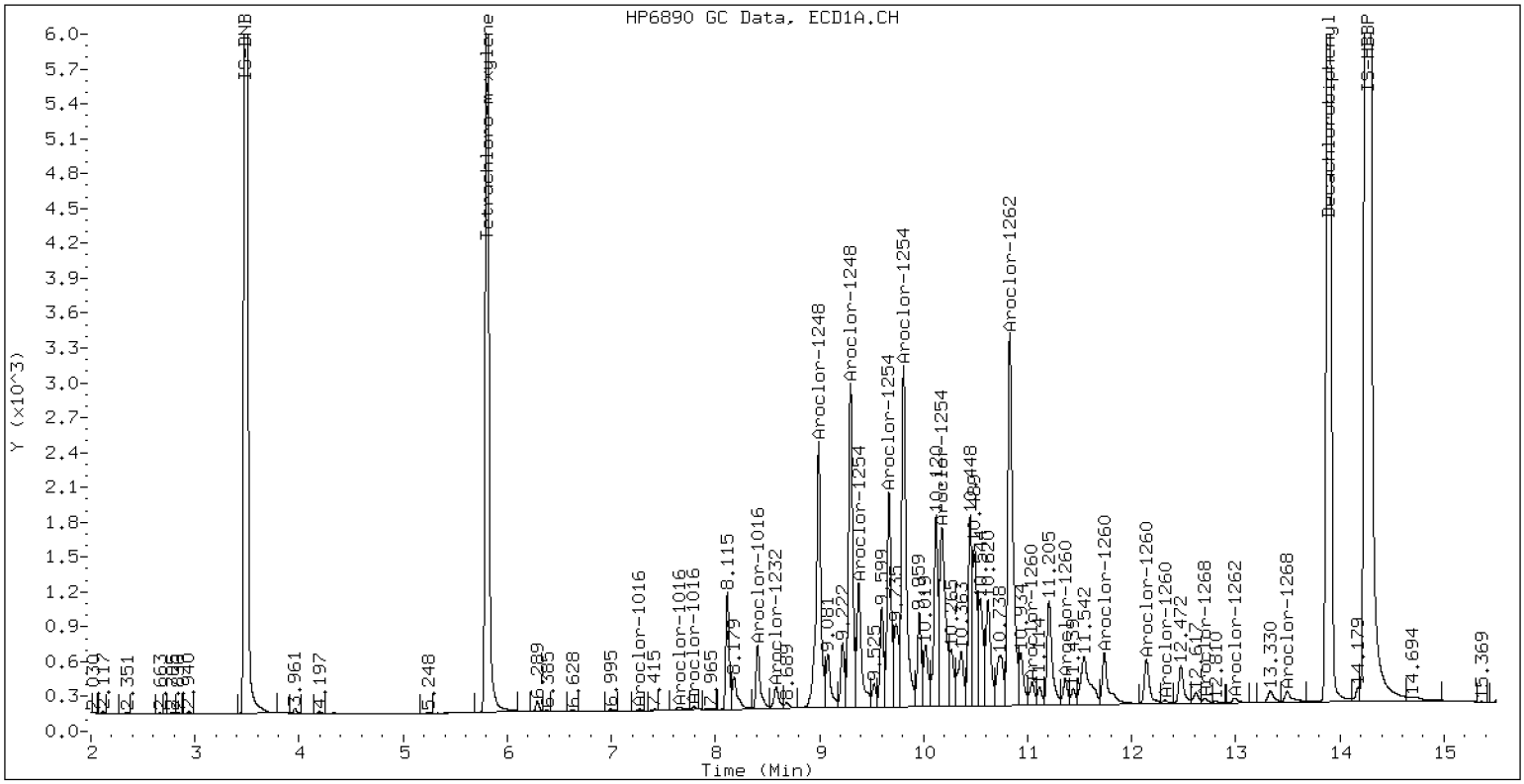
Total PCB Area Col2 (5.785 - 14.019) = 1007601 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

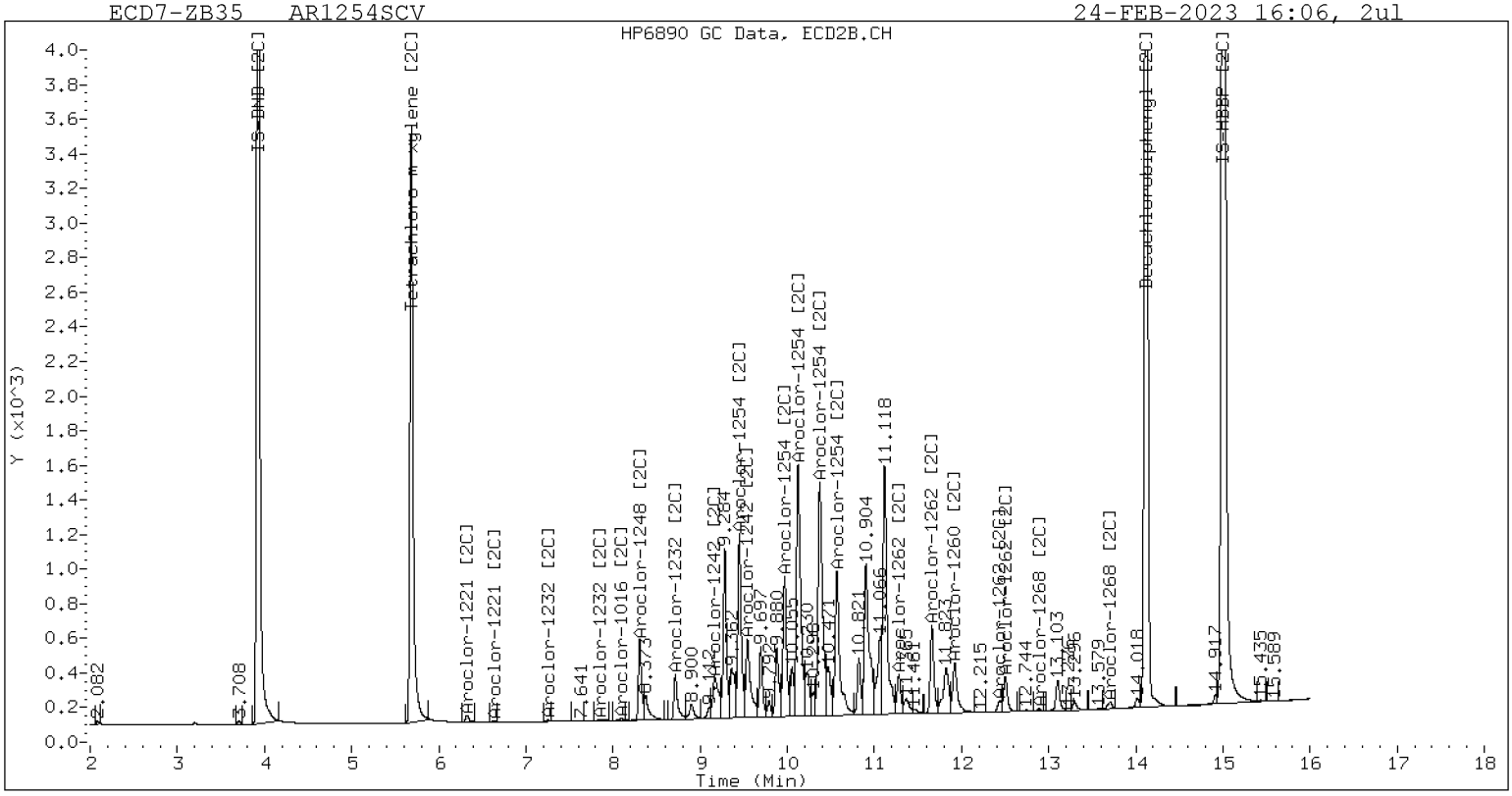
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242317ECD7.D
Data file 2: /230224.b/230224.b/02242317ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 24-FEB-2023 16:27
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	356001	5.685	0.000	170882	36.0	36.6	1.7	Tetrachloro-m-xylene
13.895	0.002	533971	14.119	0.000	326235	34.4	37.9	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661953	-1.8
Hexabromobiphenyl	1429847	1574993	10.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317807	0.8
Hexabromobiphenyl	513946	565951	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.001	7175	28.5	1	7.256	0.000	3727	20.0
Aroclor-1016	2	7.659	0.005	12893	16.8	2	7.863	0.007	5834	15.5
Aroclor-1016	3	7.794	0.004	6936	18.5	3	8.063	0.009	2963	17.4
Aroclor-1016	4	8.408	0.003	3610	14.9	4	8.308	0.002	2045	15.3
Total Col1Ave (4 peaks):					19.7	Total Col2Ave (4 peaks):				17.0 RPD = 14
Corrected Ave (3 peaks):					16.8	Corrected Ave (3 peaks):				16.1 RPD = 4
Aroclor-1221	1	4.730	-0.000	15803	266.6	1	4.955	-0.001	7909	262.9
Aroclor-1221	2	6.131	-0.001	26946	254.1	2	6.296	-0.000	14303	251.2
Aroclor-1221	3	6.382	-0.000	62477	253.8	3	6.622	0.000	23612	254.7
Total Col1Ave (3 peaks):					258.2	Total Col2Ave (3 peaks):				256.3 RPD = 1
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.730	0.000	15803	445.6	1	4.955	-0.001	7909	486.4
Aroclor-1232	2	6.131	0.000	26946	383.1	2	7.256	0.002	3727	46.1
Aroclor-1232	3	7.659	0.003	12893	40.5	3	7.863	0.002	5834	36.1
Aroclor-1232	4	8.583	0.003	2684	19.8	4	8.716	0.002	1189	25.6
Total Col1Ave (4 peaks):					222.3	Total Col2Ave (4 peaks):				148.5 RPD = 40
Corrected Ave (3 peaks):					147.8	Corrected Ave (3 peaks):				35.9 RPD = 122*
Aroclor-1242	1	7.269	-0.001	7175	35.0	1	7.256	0.000	3727	25.2
Aroclor-1242	2	7.659	0.003	12893	20.7	2	7.863	0.005	5834	18.8
Aroclor-1242	3	8.408	0.002	3610	18.6	3	9.175	0.008	1082	11.2
Aroclor-1242	4	8.583	0.004	2684	9.4	4	9.543	-0.054	1390	11.8
Total Col1Ave (4 peaks):					20.9	Total Col2Ave (4 peaks):				16.8 RPD = 22
Corrected Ave (3 peaks):					16.2	Corrected Ave (3 peaks):				13.9 RPD = 15
Aroclor-1248	1	8.408	0.002	3610	11.2	1	8.308	0.001	2045	13.5
Aroclor-1248	2	8.583	0.003	2684	6.5	2	8.716	0.002	1189	7.6
Aroclor-1248	3	8.994	-0.005	24440	31.6	3	9.175	0.009	1082	6.0
Aroclor-1248	4	9.302	0.008	26328	66.8	4	9.543	-0.048	1390	6.4
Total Col1Ave (4 peaks):					29.0	Total Col2Ave (4 peaks):				8.4 RPD = 110*
Corrected Ave (3 peaks):					16.4	Corrected Ave (3 peaks):				6.7 RPD = 85*
Aroclor-1254	1	9.302	0.004	26328	39.6	1	9.452	0.003	9571	39.6
Aroclor-1254	2	---			0.0	2	9.972	0.002	1733	8.9
Aroclor-1254	3	9.670	0.002	3721	8.7	3	10.147	0.023	49218	117.1
Aroclor-1254	4	9.808	0.000	9653	11.6	4	10.370	-0.002	59603	145.4
Aroclor-1254	5	10.120	-0.056	131179	251.9	5	10.569	0.001	79533	318.7
Total Col1Ave (4 peaks):					78.0	Total Col2Ave (5 peaks):				125.9 RPD = 47*
Corrected Ave (3 peaks):					20.0	Corrected Ave (4 peaks):				77.8 RPD = 118*
Aroclor-1260	1	11.044	-0.000	223208	394.0	1	11.652	-0.001	104071	312.7
Aroclor-1260	2	11.361	-0.001	190166	321.2	2	11.919	0.002	251579	296.2
Aroclor-1260	3	11.737	0.003	458281	291.9	3	12.435	-0.001	113645	504.2
Aroclor-1260	4	12.141	0.002	149720	189.4	4	12.501	-0.001	182951	319.6
Aroclor-1260	5	12.244	0.000	196033	576.0	NS	---			----
Total Col1Ave (5 peaks):					354.5	Total Col2Ave (4 peaks):				358.2 RPD = 1
Corrected Ave (4 peaks):					299.1	Corrected Ave (3 peaks):				309.5 RPD = 3
Aroclor-1262	1	10.828	-0.001	121431	251.3	1	11.201	0.000	121335	251.1
Aroclor-1262	2	12.244	0.000	196033	249.3	2	11.652	0.000	104071	252.9
Aroclor-1262	3	12.319	0.001	211092	249.8	3	12.435	0.001	113645	243.4
Aroclor-1262	4	12.988	0.001	183455	237.5	4	12.501	-0.001	182951	250.1
Total Col1Ave (4 peaks):					247.0	Total Col2Ave (4 peaks):				249.3 RPD = 1
Corrected Ave (3 peaks):					245.5	Corrected Ave (3 peaks):				248.2 RPD = 1
Aroclor-1268	1	12.244	-0.002	196033	97.1	1	12.435	0.003	113645	99.7
Aroclor-1268	2	12.319	0.002	211092	105.6	2	12.501	0.001	182951	149.3
Aroclor-1268	3	12.723	0.024	77240	45.2	3	12.891	-0.000	7755	7.4
Aroclor-1268	4	13.488	-0.002	65479	11.6	4	13.709	0.000	35146	10.5
Total Col1Ave (4 peaks):					64.9	Total Col2Ave (4 peaks):				66.7 RPD = 3

Corrected Ave (3 peaks): 51.3 Corrected Ave (3 peaks): 39.2 RPD = 27

Total PCB Area Col1 (5.906 - 13.793) = 3239932 Col1 Total PCB = 0.4 ppm*

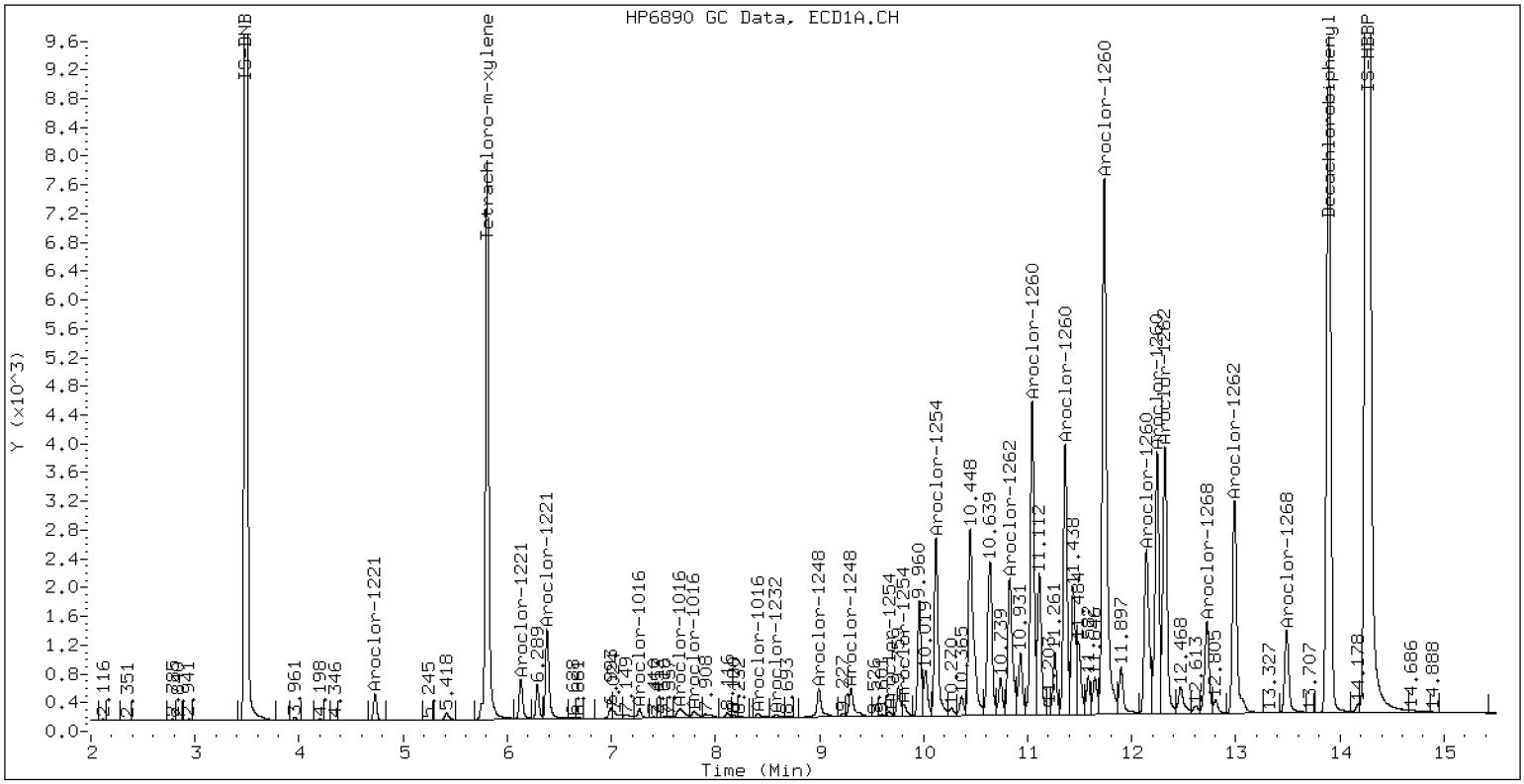
Total PCB Area Col2 (5.785 - 14.019) = 1655522 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

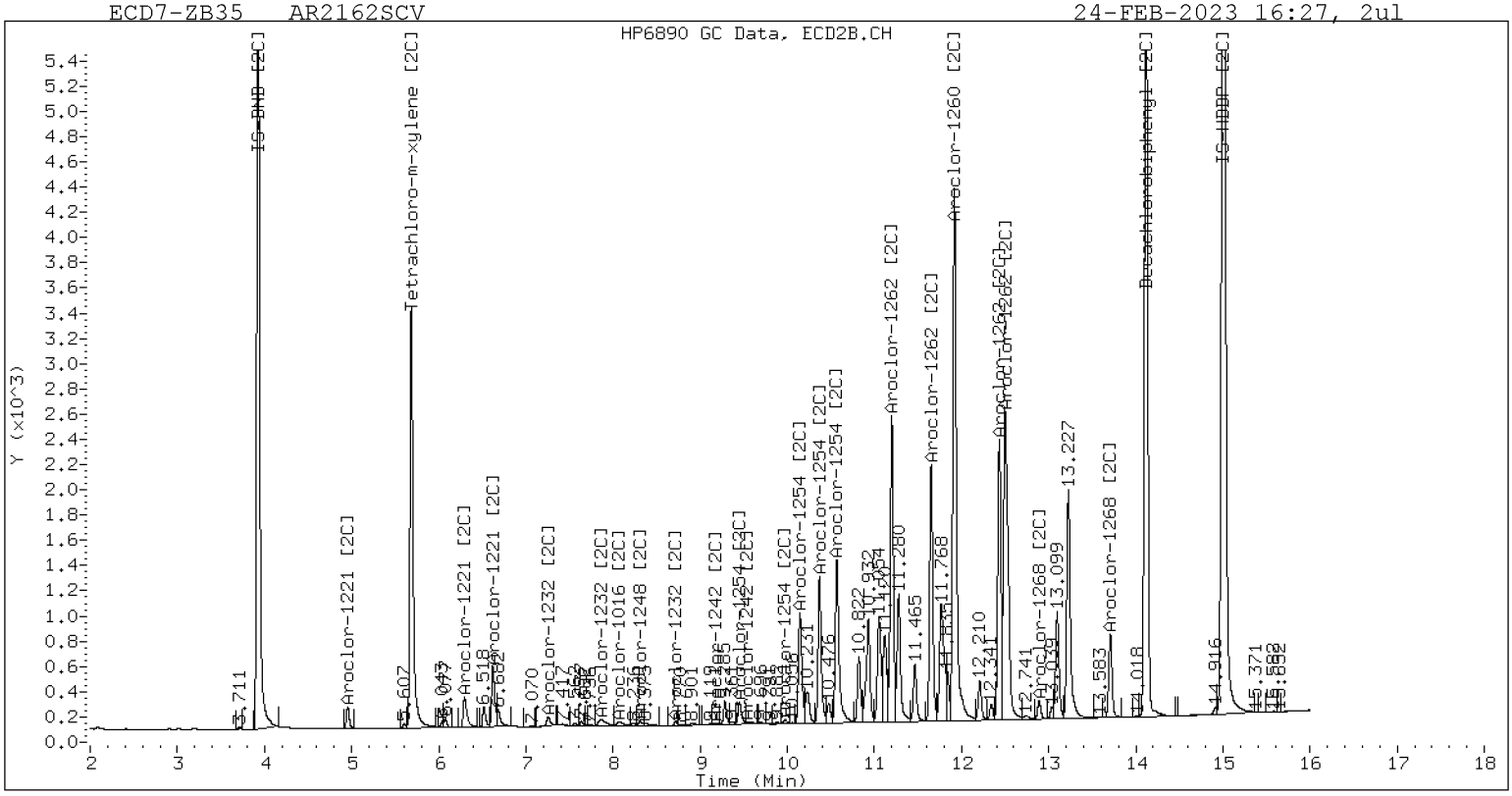
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242318ECD7.D
Data file 2: /230224.b/230224.b/02242318ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 24-FEB-2023 16:48
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	363331	5.685	0.000	176204	37.1	38.2	2.9	Tetrachloro-m-xylene
13.894	0.001	800845	14.118	-0.001	488290	51.3	56.4	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656592	-2.6
Hexabromobiphenyl	1429847	1584453	10.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314741	-0.2
Hexabromobiphenyl	513946	568346	10.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.001	28327	113.6	1	7.254	-0.001	20651	112.1
Aroclor-1016	2	7.657	0.003	80668	106.1	2	7.861	0.005	41326	110.6
Aroclor-1016	3	7.793	0.003	40661	109.6	3	8.060	0.005	20446	121.2
Aroclor-1016	4	8.407	0.002	24680	102.9	4	8.308	0.001	13576	102.5
Total Col1Ave (4 peaks):					108.0	Total Col2Ave (4 peaks):				111.6 RPD = 3
Corrected Ave (3 peaks):					106.2	Corrected Ave (3 peaks):				108.4 RPD = 2
Aroclor-1221	1	4.729	-0.001	8535	145.1	1	4.956	-0.000	3965	133.1
Aroclor-1221	2	6.132	-0.000	15523	147.6	2	6.297	0.001	8689	154.1
Aroclor-1221	3	6.382	-0.000	45872	187.9	3	6.622	0.001	22272	242.6
Total Col1Ave (3 peaks):					160.2	Total Col2Ave (3 peaks):				176.6 RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.729	-0.001	8535	242.6	1	4.956	0.000	3965	246.2
Aroclor-1232	2	6.132	0.001	15523	222.5	2	7.254	0.000	20651	258.1
Aroclor-1232	3	7.657	0.001	80668	255.4	3	7.861	0.001	41326	258.3
Aroclor-1232	4	8.582	0.001	34784	259.2	4	8.714	-0.001	12504	271.5
Total Col1Ave (4 peaks):					244.9	Total Col2Ave (4 peaks):				258.5 RPD = 5
Corrected Ave (3 peaks):					240.2	Corrected Ave (3 peaks):				254.2 RPD = 6
Aroclor-1242	1	7.270	-0.001	28327	139.2	1	7.254	-0.001	20651	141.2
Aroclor-1242	2	7.657	0.001	80668	130.5	2	7.861	0.003	41326	134.4
Aroclor-1242	3	8.407	0.001	24680	128.4	3	9.170	0.003	12830	134.1
Aroclor-1242	4	8.582	0.003	34784	122.4	4	9.600	0.003	14836	127.3
Total Col1Ave (4 peaks):					130.1	Total Col2Ave (4 peaks):				134.3 RPD = 3
Corrected Ave (3 peaks):					127.1	Corrected Ave (3 peaks):				132.0 RPD = 4
Aroclor-1248	1	8.407	0.001	24680	77.0	1	8.308	0.000	13576	90.3
Aroclor-1248	2	8.582	0.001	34784	85.4	2	8.714	-0.000	12504	80.5
Aroclor-1248	3	8.996	-0.003	83592	108.8	3	9.170	0.004	12830	71.8
Aroclor-1248	4	9.292	-0.003	39603	101.3	4	9.600	0.010	14836	69.1
Total Col1Ave (4 peaks):					93.1	Total Col2Ave (4 peaks):				77.9 RPD = 18
Corrected Ave (3 peaks):					87.9	Corrected Ave (3 peaks):				73.8 RPD = 17
Aroclor-1254	1	9.292	-0.007	39603	60.1	1	9.452	0.003	4590	19.2
Aroclor-1254	2	9.377	-0.000	11450	38.6	2	9.973	0.003	2892	15.0
Aroclor-1254	3	9.674	0.005	6387	15.1	3	10.131	0.007	6052	14.5
Aroclor-1254	4	9.813	0.006	10162	12.3	4	10.390	0.017	5324	13.1
Aroclor-1254	5	10.189	0.012	6862	13.3	5	10.572	0.004	1891	7.7
Total Col1Ave (5 peaks):					27.9	Total Col2Ave (5 peaks):				13.9 RPD = 67*
Corrected Ave (4 peaks):					19.8	Corrected Ave (4 peaks):				12.6 RPD = 45*
Aroclor-1260	1	11.046	0.002	87033	152.7	1	11.645	-0.008	62543	187.1
Aroclor-1260	2	11.362	0.001	6300	10.6	2	11.920	0.003	28552	33.5
Aroclor-1260	3	11.738	0.004	54524	34.5	3	12.432	-0.004	285450	1261.2
Aroclor-1260	4	12.144	0.005	1727	2.2	4	12.499	-0.002	306992	534.0
Aroclor-1260	5	12.246	0.002	502931	1469.0	NS	---			----
Total Col1Ave (5 peaks):					333.8	Total Col2Ave (4 peaks):				503.9 RPD = 41*
Corrected Ave (4 peaks):					50.0	Corrected Ave (3 peaks):				251.5 RPD = 134*
Aroclor-1262	1	10.832	0.004	3395	7.0	1	11.201	0.001	44255	91.2
Aroclor-1262	2	12.246	0.002	502931	635.9	2	11.645	-0.007	62543	151.3
Aroclor-1262	3	12.318	-0.000	497006	584.5	3	12.432	-0.002	285450	608.7
Aroclor-1262	4	12.987	-0.000	202197	260.2	4	12.499	-0.003	306992	417.9
Total Col1Ave (4 peaks):					371.9	Total Col2Ave (4 peaks):				317.3 RPD = 16
Corrected Ave (3 peaks):					283.9	Corrected Ave (3 peaks):				220.1 RPD = 25
Aroclor-1268	1	12.246	-0.001	502931	247.7	1	12.432	-0.000	285450	249.4
Aroclor-1268	2	12.318	0.002	497006	247.2	2	12.499	-0.001	306992	249.5
Aroclor-1268	3	12.699	-0.000	422793	245.8	3	12.892	0.000	260893	248.4
Aroclor-1268	4	13.490	0.000	1386953	244.9	4	13.709	-0.000	829733	247.1
Total Col1Ave (4 peaks):					246.4	Total Col2Ave (4 peaks):				248.6 RPD = 1

Corrected Ave (3 peaks): 246.0 Corrected Ave (3 peaks): 248.3 RPD = 1

Total PCB Area Col1 (5.906 - 13.793) = 4180607 Col1 Total PCB = 0.5 ppm*

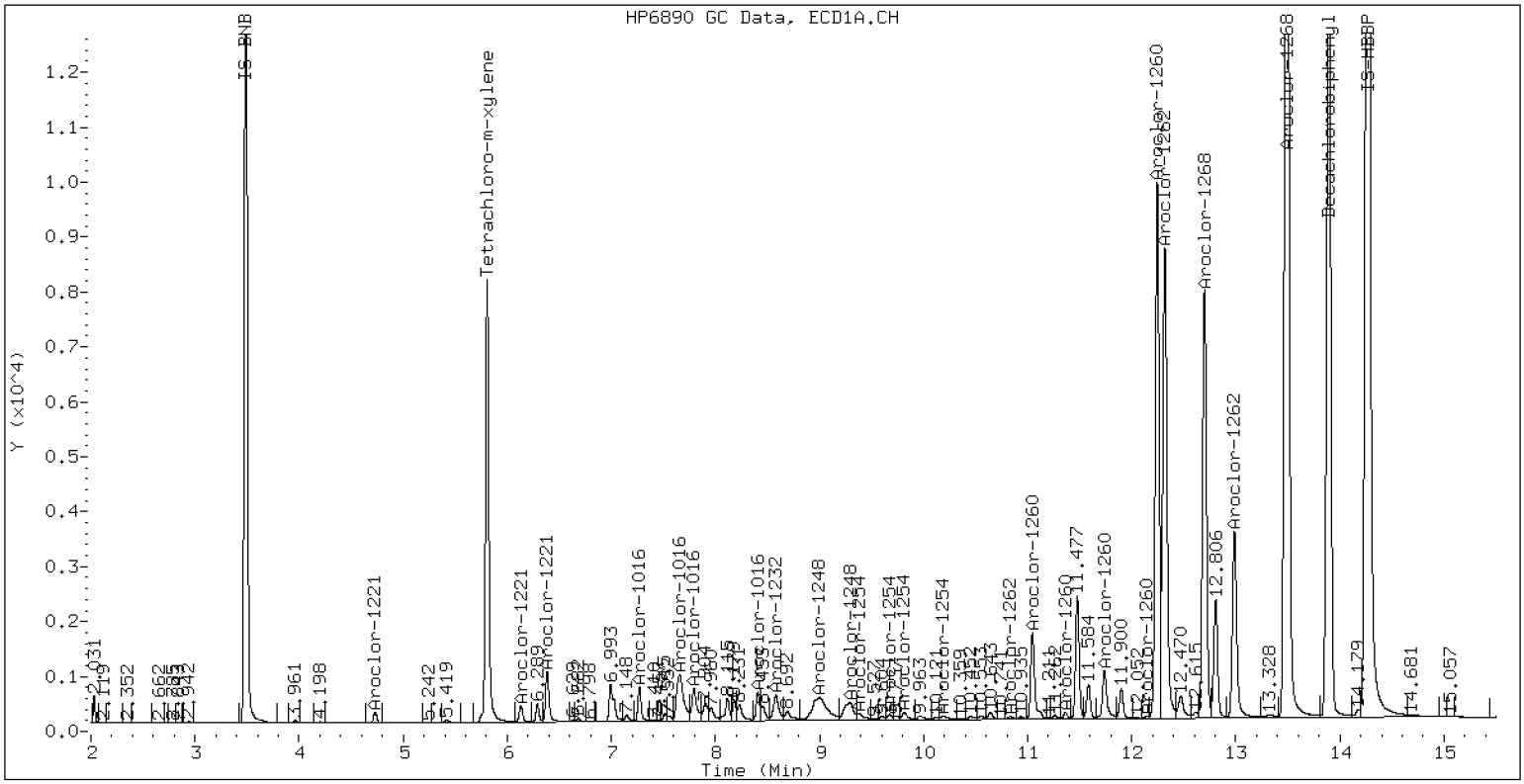
Total PCB Area Col2 (5.785 - 14.019) = 2376912 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

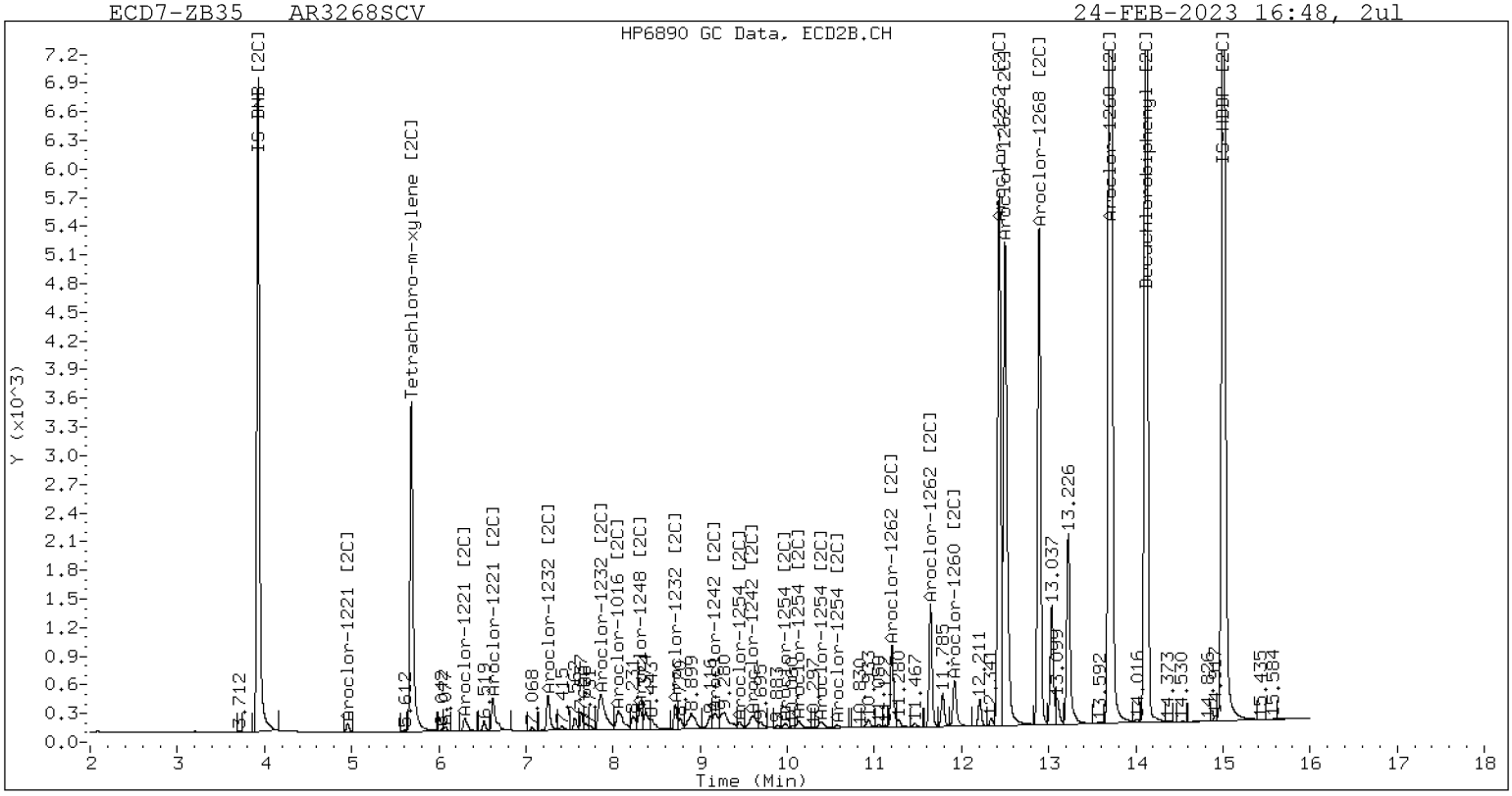
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.261	0.000	694353	9.912	0.000	580269	0.100	0.100	0.0	2,4-DDE
0.000	-10.293	0	10.672	0.000	673479	0.000	0.200#	----	2,4-DDT
9.686	0.000	1191406	10.212	0.000	433373	0.100	0.100	0.0	4,4-DDE
10.259	0.000	1721760	10.672	0.000	673479	0.100	0.200#	66.7*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.285	0.023	4923	9.921	0.009	9972	0.001	0.002	84.3*	2,4-DDE
0.000	-10.293	0	10.677	0.004	249094	0.000	0.074#	----	2,4-DDT
9.692	0.006	12128	10.221	0.009	528	0.001	0.000	156.7*	4,4-DDE
10.265	0.006	410017	10.677	0.004	249094	0.023	0.074#	103.6*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0342

Instrument: ECD7
Calibration ID: GB00069

Printed: 2/28/2023 9:54:44AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0342-CAL1	QC		1		L000856	L000844		
SLB0342-CAL2	QC		2		L000859	L000844		
SLB0342-CAL3	QC		3		L000858	L000844		
SLB0342-CAL4	QC		4		L000731	L000844		
SLB0342-CAL5	QC		5		L000857	L000844		
SLB0342-CAL6	QC		6		L000855	L000844		
SLB0342-CAL7	QC		7		L000860	L000844		
SLB0342-CAL8	QC		8		L000861	L000844		
SLB0342-CAL9	QC		9		L000862	L000844		
SLB0342-CALA	QC		10		L000863	L000844		
SLB0342-CALB	QC		11		L000864	L000844		
SLB0342-SCV1	QC		12		L002065	L000844		
SLB0342-SCV2	QC		13		K007656	L000844		
SLB0342-SCV3	QC		14		L002066	L000844		
SLB0342-SCV4	QC		15		L002067	L000844		
SLB0342-SCV5	QC		16		L002068	L000844		
SLB0342-SCV6	QC		17		L002069	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	24-FEB-2023 10:51	02242301ECD7.D	1	IB	
2	24-FEB-2023 11:12	02242302ECD7.D	1	0.25PPMAR1660	
3	24-FEB-2023 11:33	02242303ECD7.D	1	0.02PPMAR1660	
4	24-FEB-2023 11:54	02242304ECD7.D	1	0.05PPMAR1660	
5	24-FEB-2023 12:15	02242305ECD7.D	1	1.0PPMAR1660	
6	24-FEB-2023 12:36	02242306ECD7.D	1	0.1PPMAR1660	
7	24-FEB-2023 12:57	02242307ECD7.D	1	0.5PPMAR1660	
8	24-FEB-2023 13:18	02242308ECD7.D	1	0.25PPMAR1242	
9	24-FEB-2023 13:39	02242309ECD7.D	1	0.25PPMAR1248	
10	24-FEB-2023 14:00	02242310ECD7.D	1	0.25PPMAR1254	
11	24-FEB-2023 14:21	02242311ECD7.D	1	0.25PPMAR2162	
12	24-FEB-2023 14:42	02242312ECD7.D	1	0.25PPMAR3268	
13	24-FEB-2023 15:03	02242313ECD7.D	1	AR1660SCV	
14	24-FEB-2023 15:24	02242314ECD7.D	1	AR1242SCV	
15	24-FEB-2023 15:45	02242315ECD7.D	1	AR1248SCV	
16	24-FEB-2023 16:06	02242316ECD7.D	1	AR1254SCV	
17	24-FEB-2023 16:27	02242317ECD7.D	1	AR2162SCV	
18	24-FEB-2023 16:48	02242318ECD7.D	1	AR3268SCV	
19	24-FEB-2023 17:09	02242319ECD7.D	1	DDTS	
20	24-FEB-2023 17:30	02242320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 24-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2039	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	Aroclor-1016 [2C],
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2038	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 28-Feb-2023 10:53

02242301ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242302ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242303ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242304ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242305ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242306ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242307ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242308ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242309ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242310ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242311ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242312ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242313ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242314ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242315ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242316ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242317ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242318ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242319ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242320ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\02242312ECD7.D

Compound	20.000 Level 1 / 250.000 Level 7	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
2 Aroclor-1221(1)	+++++ / 0.00716	+++++	+++++	+++++	+++++	+++++	0.00716	0.000
(2)	+++++ / 0.01281	+++++	+++++	+++++	+++++	+++++	0.01281	0.000
(3)	+++++ / 0.02975	+++++	+++++	+++++	+++++	+++++	0.02975	0.000
3 Aroclor-1242(1)	+++++ / 0.02479	+++++	+++++	+++++	+++++	+++++	0.02479	0.000
(2)	+++++ / 0.07529	+++++	+++++	+++++	+++++	+++++	0.07529	0.000
(3)	+++++ / 0.02343	+++++	+++++	+++++	+++++	+++++	0.02343	0.000
(4)	+++++ / 0.03463	+++++	+++++	+++++	+++++	+++++	0.03463	0.000
4 Aroclor-1232(1)	+++++ / 0.00429	+++++	+++++	+++++	+++++	+++++	0.00429	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1 / 250.000 Level 7	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
(2)	+++++ / 0.00850	+++++	+++++	+++++	+++++	+++++	0.00850	0.000
(3)	+++++ / 0.03848	+++++	+++++	+++++	+++++	+++++	0.03848	0.000
(4)	+++++ / 0.01635	+++++	+++++	+++++	+++++	+++++	0.01635	0.000
7 Aroclor-1016(1)	0.03172 / +++++	0.03253	0.03142	0.03141	0.02856	0.02667	0.03039	7.449
(2)	0.09239 / +++++	0.09246	0.09222	0.09849	0.09174	0.08849	0.09263	3.499
(3)	0.05165 / +++++	0.05037	0.04823	0.04393	0.03991	0.03721	0.04522	12.936
(4)	0.03002 / +++++	0.02894	0.02959	0.03058	0.02852	0.02774	0.02923	3.542
6 Aroclor-1248(1)	+++++ / 0.03903	+++++	+++++	+++++	+++++	+++++	0.03903	0.000
(2)	+++++ / 0.04961	+++++	+++++	+++++	+++++	+++++	0.04961	0.000
(3)	+++++ / 0.09360	+++++	+++++	+++++	+++++	+++++	0.09360	0.000
(4)	+++++ / 0.04765	+++++	+++++	+++++	+++++	+++++	0.04765	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254(1)	*****	*****	*****	*****	*****	*****	0.08033	0.08033	0.000
(2)	*****	*****	*****	*****	*****	*****	0.03613	0.03613	0.000
(3)	*****	*****	*****	*****	*****	*****	0.05165	0.05165	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10042	0.10042	0.000
(5)	*****	*****	*****	*****	*****	*****	0.06294	0.06294	0.000
9 Aroclor-1260(1)	0.02926	0.02920	0.02841	0.03096	0.02737	0.02746	*****	0.02878	4.677
(2)	0.02967	0.03006	0.03011	0.03291	0.02910	0.02857	*****	0.03007	5.029
(3)	0.08088	0.08045	0.07954	0.08575	0.07515	0.07674	*****	0.07975	4.627
(4)	0.03905	0.03887	0.03955	0.04485	0.03942	0.03922	*****	0.04016	5.753
(5)	0.01783	0.01715	0.01679	0.01875	0.01664	0.01655	*****	0.01729	4.953
10 Aroclor-1262(1)	*****	*****	*****	*****	*****	*****	0.02454	0.02454	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1 / 250.000 Level 7	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
(2)	+++++ / 0.03993	+++++	+++++	+++++	+++++	+++++	0.03993	0.000
(3)	+++++ / 0.04293	+++++	+++++	+++++	+++++	+++++	0.04293	0.000
(4)	+++++ / 0.03923	+++++	+++++	+++++	+++++	+++++	0.03923	0.000
11 Aroclor-1268(1)	+++++ / 0.10250	+++++	+++++	+++++	+++++	+++++	0.10250	0.000
(2)	+++++ / 0.10151	+++++	+++++	+++++	+++++	+++++	0.10151	0.000
(3)	+++++ / 0.08686	+++++	+++++	+++++	+++++	+++++	0.08686	0.000
(4)	+++++ / 0.28598	+++++	+++++	+++++	+++++	+++++	0.28598	0.000
42 2,4-DDE	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
43 2,4-DDD	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
44 2,4-DDT	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
46 4,4-DDE	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.16827	1.24402	1.18546	1.20509	1.12295	1.24114	+++++	1.19449	3.860
$ 13 Decachlorobiphenyl	0.82901	0.80558	0.77587	0.78808	0.73125	0.79742	+++++	0.78787	4.189

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242312ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	RRF	% RSD
1 Aroclor-1221 [2C](1)	*****	*****	*****	*****	*****	*****	0.00757	0.00757	0.000
(2)	*****	*****	*****	*****	*****	*****	0.01433	0.01433	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02333	0.02333	0.000
4 Aroclor-1232 [2C](1)	*****	*****	*****	*****	*****	*****	0.00409	0.00409	0.000
(2)	*****	*****	*****	*****	*****	*****	0.02034	0.02034	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04067	0.04067	0.000
(4)	*****	*****	*****	*****	*****	*****	0.01170	0.01170	0.000
3 Aroclor-1242 [2C](1)	*****	*****	*****	*****	*****	*****	0.03717	0.03717	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.07813	0.07813	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02431	0.02431	0.000
(4)	*****	*****	*****	*****	*****	*****	0.02962	0.02962	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****	0.03820	0.03820	0.000
(2)	*****	*****	*****	*****	*****	*****	0.03949	0.03949	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04545	0.04545	0.000
(4)	*****	*****	*****	*****	*****	*****	0.05457	0.05457	0.000
7 Aroclor-1016 [2C](1)	0.05071	0.05022	0.04868	0.04733	0.04326	0.04080	*****	0.04683	8.503
(2)	0.08143	0.09407	0.10159	0.10259	0.09651	0.09362	*****	0.09497	8.025
(3)	0.04006	0.04718	0.04613	0.04410	0.04062	0.03926	*****	0.04289	7.857
(4)	0.03181	0.03802	0.03707	0.03450	0.03115	0.02936	*****	0.03365	10.251

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	*****	*****	*****	*****	*****	*****	0.06081	0.06081	0.000
(2)	*****	*****	*****	*****	*****	*****	0.04892	0.04892	0.000
(3)	*****	*****	*****	*****	*****	*****	0.10584	0.10584	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10317	0.10317	0.000
(5)	*****	*****	*****	*****	*****	*****	0.06282	0.06282	0.000
10 Aroclor-1262 [2C](1)	*****	*****	*****	*****	*****	*****	0.06831	0.06831	0.000
(2)	*****	*****	*****	*****	*****	*****	0.05818	0.05818	0.000
(3)	*****	*****	*****	*****	*****	*****	0.06601	0.06601	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10341	0.10341	0.000
9 Aroclor-1260 [2C](1)	0.05286	0.04911	0.04696	0.04801	0.04329	0.04201	*****	0.04704	8.422
(2)	0.12976	0.12431	0.12095	0.12664	0.11320	0.10545	*****	0.12005	7.605

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1 / 250.000 Level 7	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	___ RRF	% RSD
(3)	0.03524 / +++++	0.03147	0.02937	0.03208	0.03102	0.03198	0.03186	6.045
(4)	0.08632 / +++++	0.08237	0.08044	0.08393	0.07718	0.07531	0.08092	5.126
11 Aroclor-1268 [2C](1)	+++++ / 0.16109	+++++	+++++	+++++	+++++	+++++	0.16109	0.000
(2)	+++++ / 0.17318	+++++	+++++	+++++	+++++	+++++	0.17318	0.000
(3)	+++++ / 0.14787	+++++	+++++	+++++	+++++	+++++	0.14787	0.000
(4)	+++++ / 0.47260	+++++	+++++	+++++	+++++	+++++	0.47260	0.000
41 2,4-DDE [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
42 2,4-DDD [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
44 4,4-DDE [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
46 4,4-DDT [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.21526	1.19545	1.17555	1.21907	1.12560	1.11139	+++++	1.17372	3.897
$ 13 Decachlorobiphenyl [2C]	1.17066	1.20406	1.20549	1.31040	1.21104	1.20797	+++++	1.21827	3.898

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.493	3.492	3.492	3.492	3.491	3.491	3.493	3.393-3.593	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.811	5.809	5.809	5.813	5.809	5.810	5.811	5.711-5.911	5.810	0.002
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.272	7.272	7.272	7.270	7.271	7.270	7.272	7.172-7.372	7.271	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.046	11.047	11.046	11.044	11.045	11.044	11.046	10.946-11.146	11.045	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.897	13.893	13.893	13.899	13.892	13.898	13.897	13.797-13.997	13.895	0.003
* 12 IS-HBBP	14.269	14.268	14.268	14.267	14.268	14.268	14.269	14.169-14.369	14.268	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.260	9.210-9.310	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.801	9.751-9.851	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.293	10.243-10.343	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.683	9.583-9.783	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.254	10.154-10.354	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.754	10.654-10.854	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.929	3.929	3.928	3.929	3.928	3.828-4.028	3.929	0.000
$ 2 Tetrachloro-m-xylene [	5.687	5.688	5.688	5.688	5.688	5.688	5.687	5.587-5.787	5.688	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.255	7.256	7.256	7.254	7.255	7.256	7.255	7.155-7.355	7.255	0.001
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.653	11.656	11.655	11.652	11.655	11.653	11.653	11.553-11.753	11.654	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.120	14.120	14.119	14.122	14.119	14.120	14.120	14.020-14.220	14.120	0.001
* 12 IS-HBBP [2C]	15.008	15.008	15.008	15.008	15.007	15.008	15.008	14.908-15.108	15.008	0.000
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.911	9.861-9.961	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.536	9.486-9.586	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.209	10.109-10.309	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.667	10.567-10.767	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.092	10.992-11.192	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242301ECD7.D
Data file 2: /230224.b/230224.b/02242301ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 24-FEB-2023 10:51
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.826	0.019	382217	5.683	-0.002	180378	33.8	36.5	7.7	Tetrachloro-m-xylene
13.904	0.011	534110	14.120	0.001	295605	35.3	37.2	5.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	756896	12.3
Hexabromobiphenyl	1429847	1534275	7.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	336543	6.8
Hexabromobiphenyl	513946	521508	1.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.321	0.025	1873	31.1
Aroclor-1221	3	---			0.0	3	6.633	0.012	314	3.2
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	7.698	0.043	2193	6.0	3	---			0.0
Aroclor-1232	4	8.505	-0.076	11525	74.5	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	7.698	0.042	2193	3.1	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	8.505	-0.074	11525	35.2	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	9.596	-0.072	31424	64.3	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	10.167	-0.010	18361	30.8	5	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1260	1	11.098	0.054	6994	12.7	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	11.706	-0.027	7806	5.1	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1262	1	10.824	-0.005	16873	35.8	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	13.040	0.053	14031	18.6	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.709	0.009	6037	3.6	3	12.891	-0.001	659	0.7
Aroclor-1268	4	13.499	0.010	12396	2.3	4	13.710	0.001	1848	0.6
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			

Total PCB Area Col1 (5.906 - 13.793) = 260205 Col1 Total PCB = 0.0 ppm*

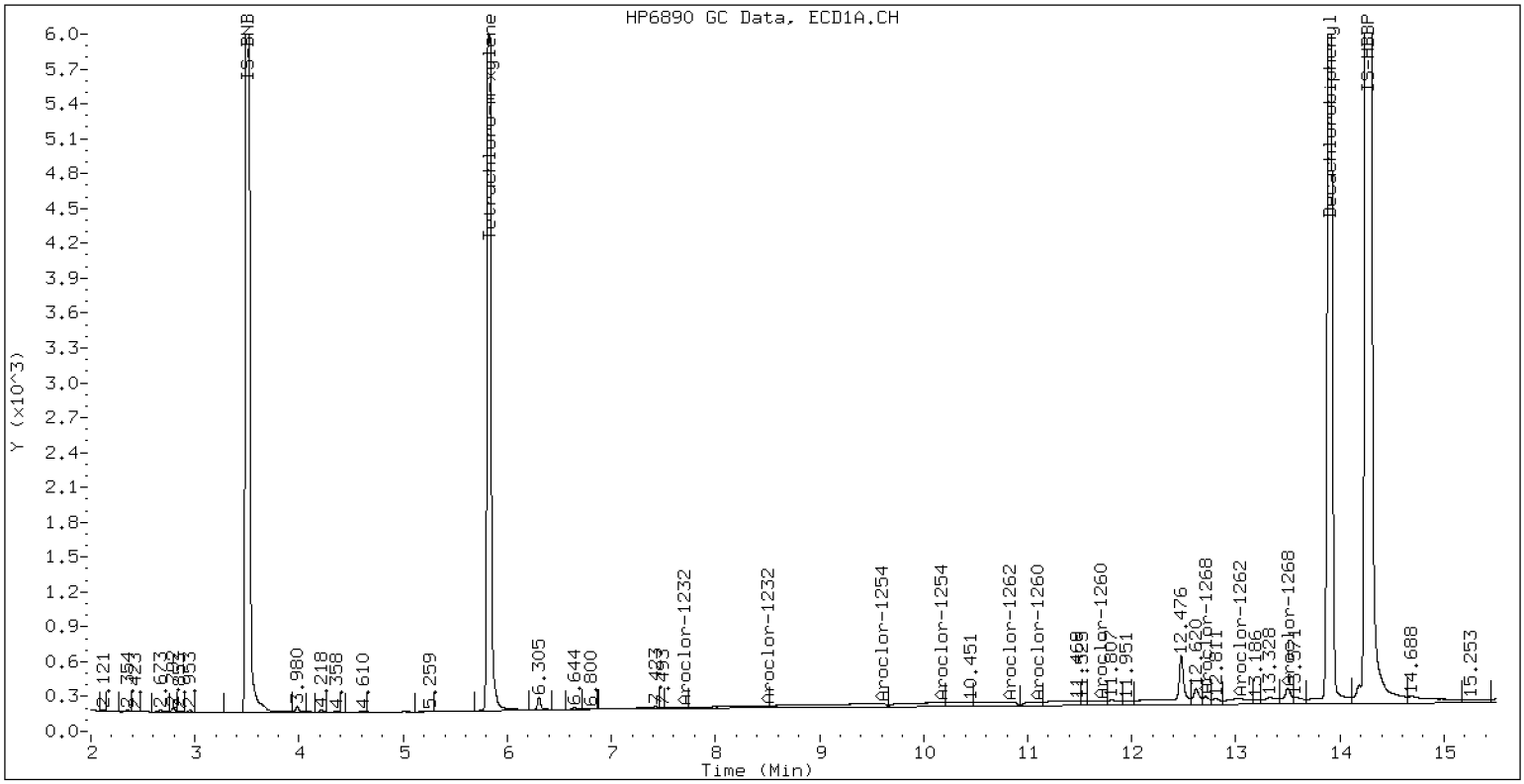
Total PCB Area Col2 (5.785 - 14.019) = 18252 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

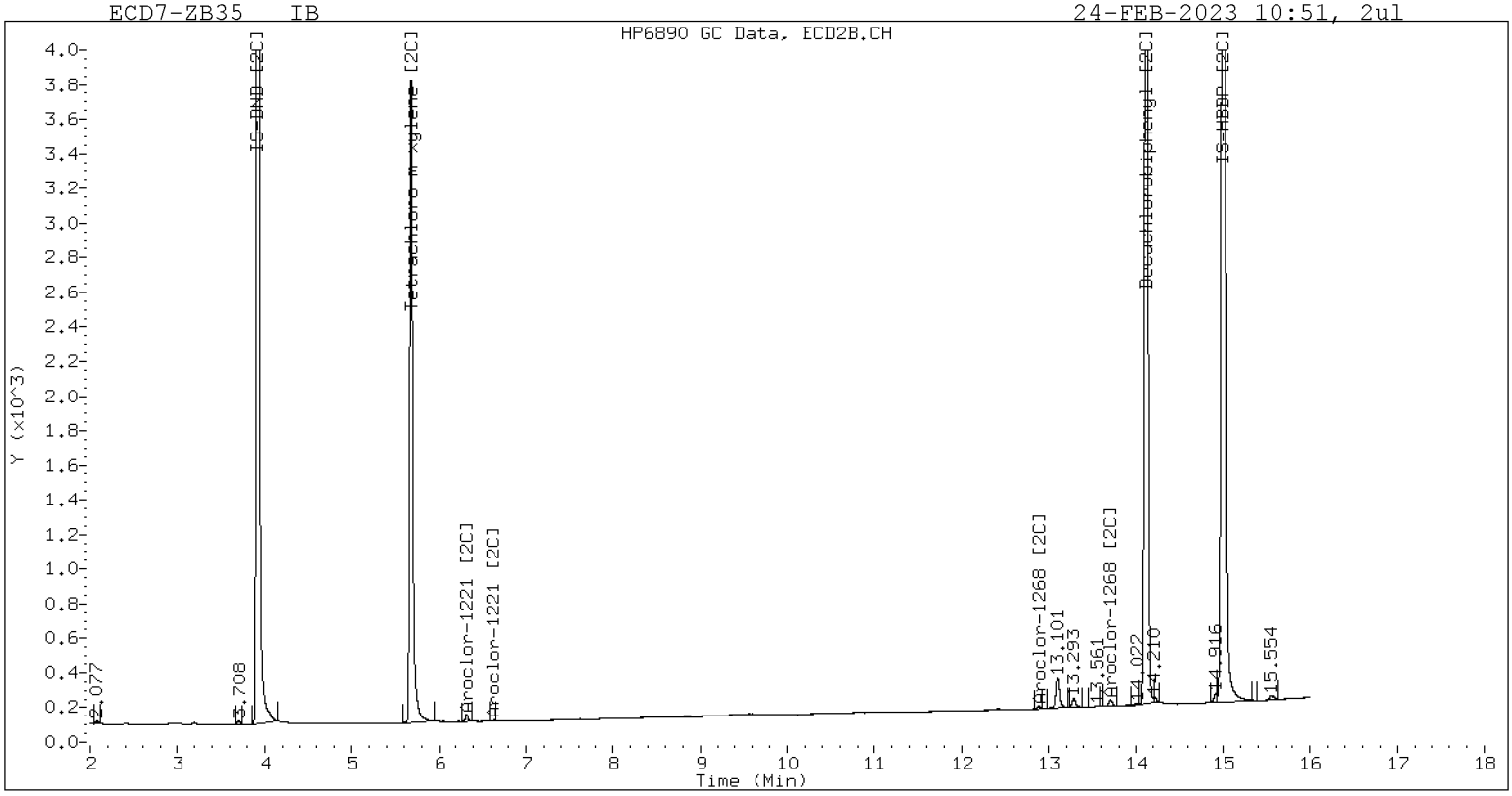
PCB Dual Column Chromatograms

ECD7-ZB5 IB 24-FEB-2023 10:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 24-FEB-2023 10:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242302ECD7.D
Data file 2: /230224.b/230224.b/02242302ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:12
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.005	405980	5.687	0.002	192160	40.4	41.5	2.9	Tetrachloro-m-xylene
13.897	0.004	563414	14.120	0.001	336737	40.0	43.0	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	673778	0.0
Hexabromobiphenyl	1429847	1429847	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	315256	0.0
Hexabromobiphenyl	513946	513946	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.272	0.001	66125	258.4	1	7.255	-0.001	46626	252.6
Aroclor-1016	2	7.654	-0.000	207370	265.8	2	7.855	-0.001	101071	270.1
Aroclor-1016	3	7.792	0.002	92507	242.9	3	8.055	0.001	43448	257.1
Aroclor-1016	4	8.406	0.001	64388	261.5	4	8.306	-0.000	33986	256.3
	Total Col1Ave (4 peaks):				257.2	Total Col2Ave (4 peaks):				259.0 RPD = 1
	Corrected Ave (3 peaks):				254.3	Corrected Ave (3 peaks):				255.3 RPD = 0
			CalAmt %D:		2.9			CalAmt %D:		3.6
Aroclor-1260	1	11.046	0.001	138355	269.0	1	11.653	0.001	77114	255.2
Aroclor-1260	2	11.363	0.002	147051	273.6	2	11.918	0.001	203401	263.7
Aroclor-1260	3	11.736	0.003	383171	268.8	3	12.435	-0.000	51517	251.7
Aroclor-1260	4	12.141	0.002	200399	279.2	4	12.502	0.001	134797	259.3
Aroclor-1260	5	12.247	0.003	83796	271.2	NS	---			----
	Total Col1Ave (5 peaks):				272.4	Total Col2Ave (4 peaks):				257.5 RPD = 6
	Corrected Ave (4 peaks):				270.7	Corrected Ave (3 peaks):				255.4 RPD = 6
			CalAmt %D:		8.9			CalAmt %D:		3.0

Total PCB Area Col1 (5.906 - 13.793) = 4024419 Col1 Total PCB = 0.5 ppm*

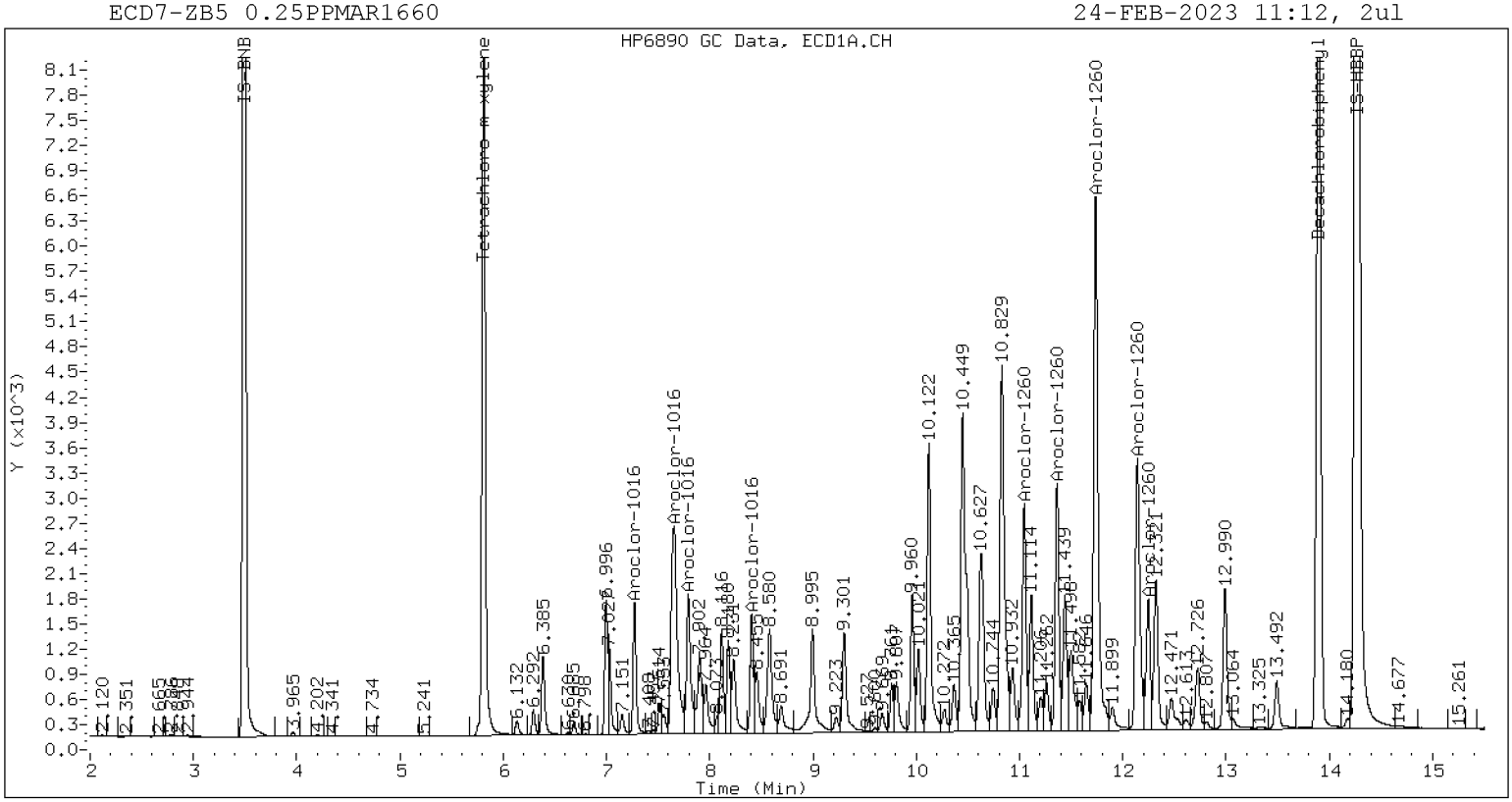
Total PCB Area Col2 (5.785 - 14.019) = 1889311 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

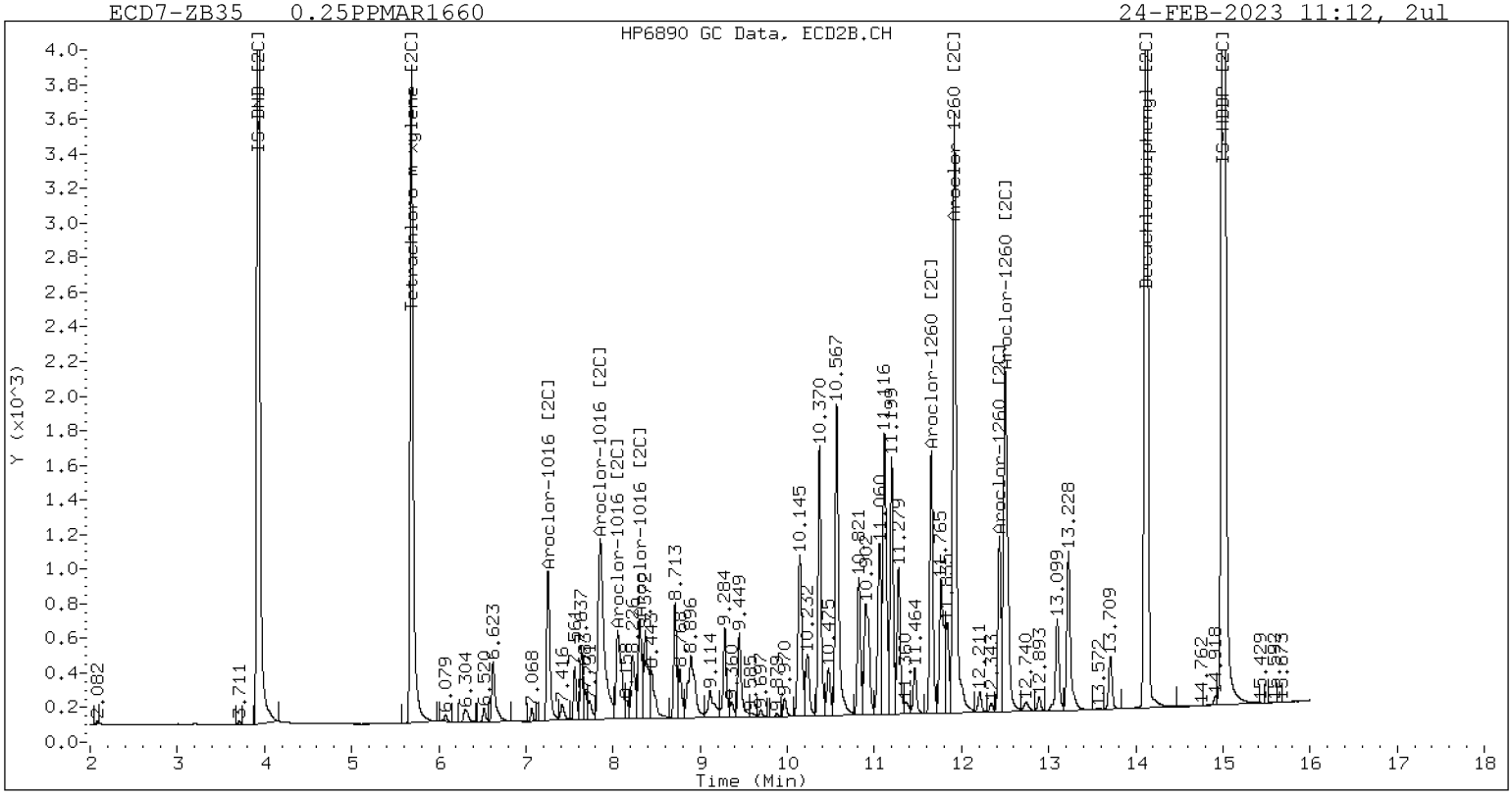
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242303ECD7.D
Data file 2: /230224.b/230224.b/02242303ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:33
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	29768	5.688	0.003	14932	3.1	3.3	5.7	Tetrachloro-m-xylene
13.893	0.000	45992	14.120	0.000	23950	3.4	3.1	9.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	637010	-5.5
Hexabromobiphenyl	1429847	1386953	-3.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307177	-2.6
Hexabromobiphenyl	513946	511463	-0.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.272	0.001	5052	20.9	1	7.256	0.000	3894	21.7
Aroclor-1016	2	7.659	0.005	14714	19.9	2	7.864	0.008	6253	17.1
Aroclor-1016	3	7.795	0.005	8226	22.8	3	8.060	0.006	3076	18.7
Aroclor-1016	4	8.407	0.002	4780	20.5	4	8.309	0.002	2443	18.9
	Total Col1Ave (4 peaks):				21.1	Total Col2Ave (4 peaks):				19.1 RPD = 10
	Corrected Ave (3 peaks):				20.5	Corrected Ave (3 peaks):				18.2 RPD = 11
			CalAmt %D:		5.3			CalAmt %D:		-4.5
Aroclor-1260	1	11.047	0.003	10147	20.3	1	11.656	0.003	6759	22.5
Aroclor-1260	2	11.364	0.003	10287	19.7	2	11.922	0.005	16592	21.6
Aroclor-1260	3	11.740	0.006	28043	20.3	3	12.438	0.002	4506	22.1
Aroclor-1260	4	12.145	0.006	13540	19.4	4	12.505	0.004	11037	21.3
Aroclor-1260	5	12.246	0.002	6182	20.6	NS	---			----
	Total Col1Ave (5 peaks):				20.1	Total Col2Ave (4 peaks):				21.9 RPD = 9
	Corrected Ave (4 peaks):				19.9	Corrected Ave (3 peaks):				21.7 RPD = 8
			CalAmt %D:		0.4			CalAmt %D:		9.4

Total PCB Area Col1 (5.906 - 13.793) = 324832 Col1 Total PCB = 0.0 ppm*

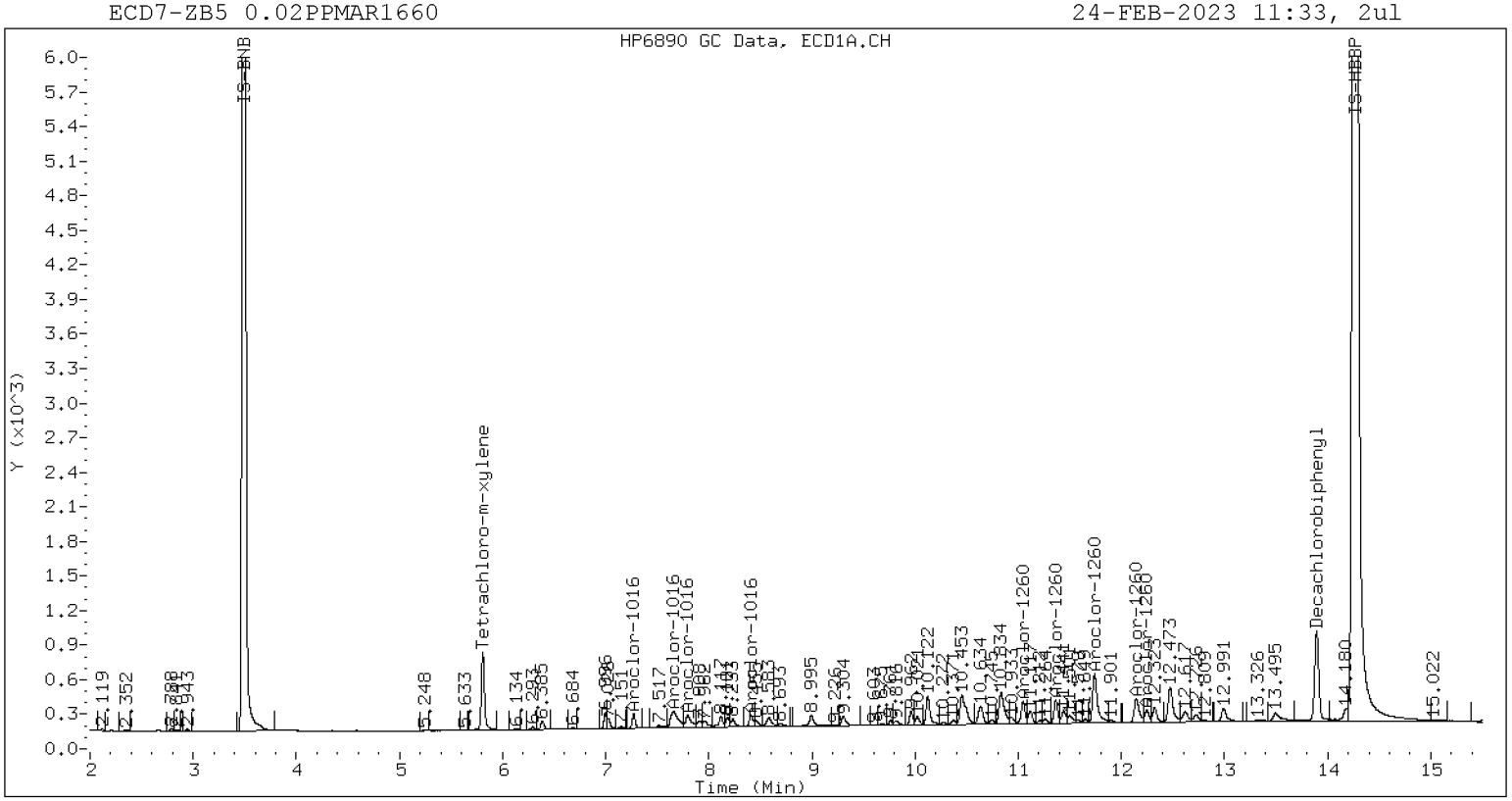
Total PCB Area Col2 (5.785 - 14.019) = 157149 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

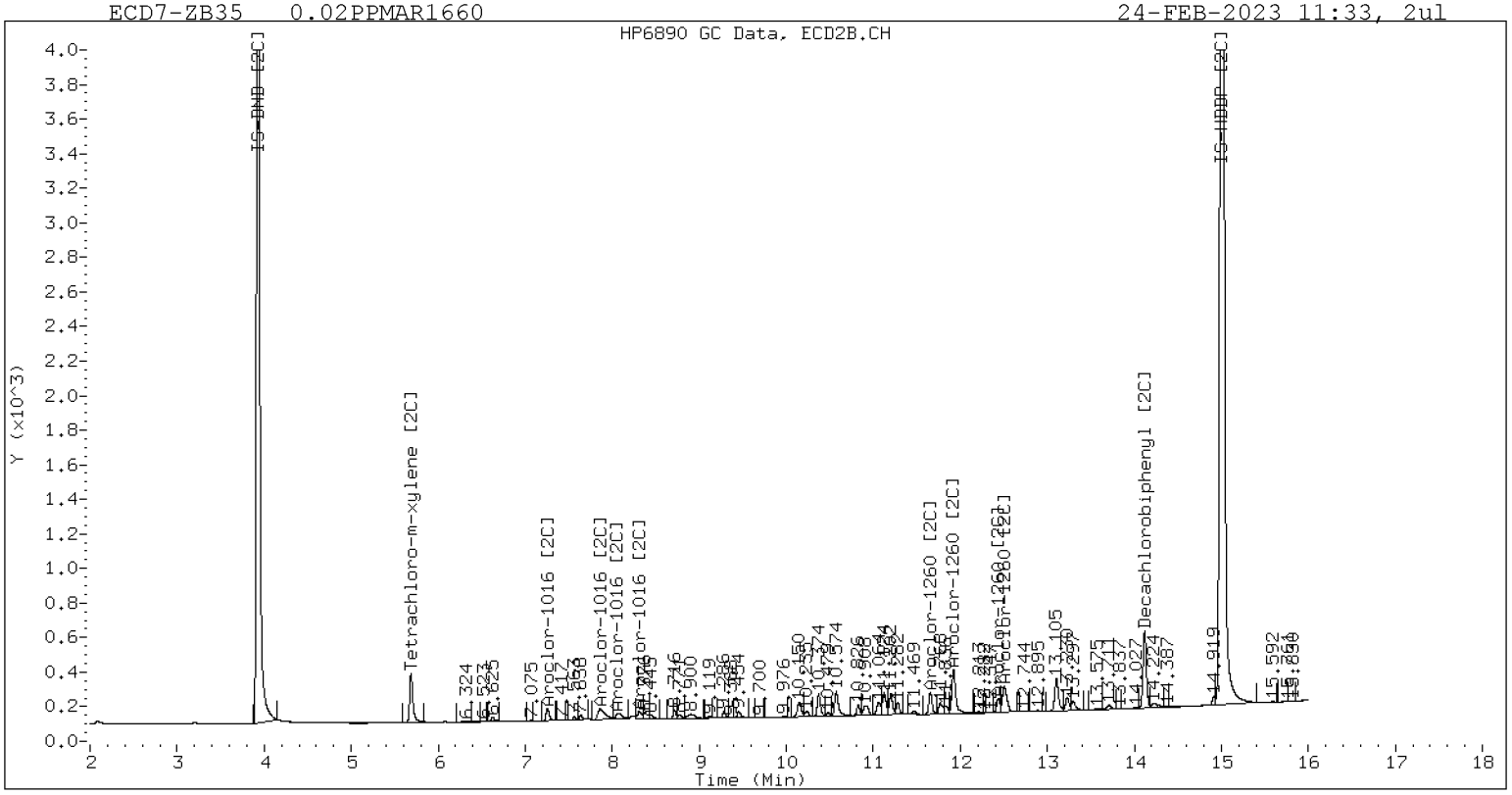
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 24-FEB-2023 11:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 24-FEB-2023 11:33, 2ul

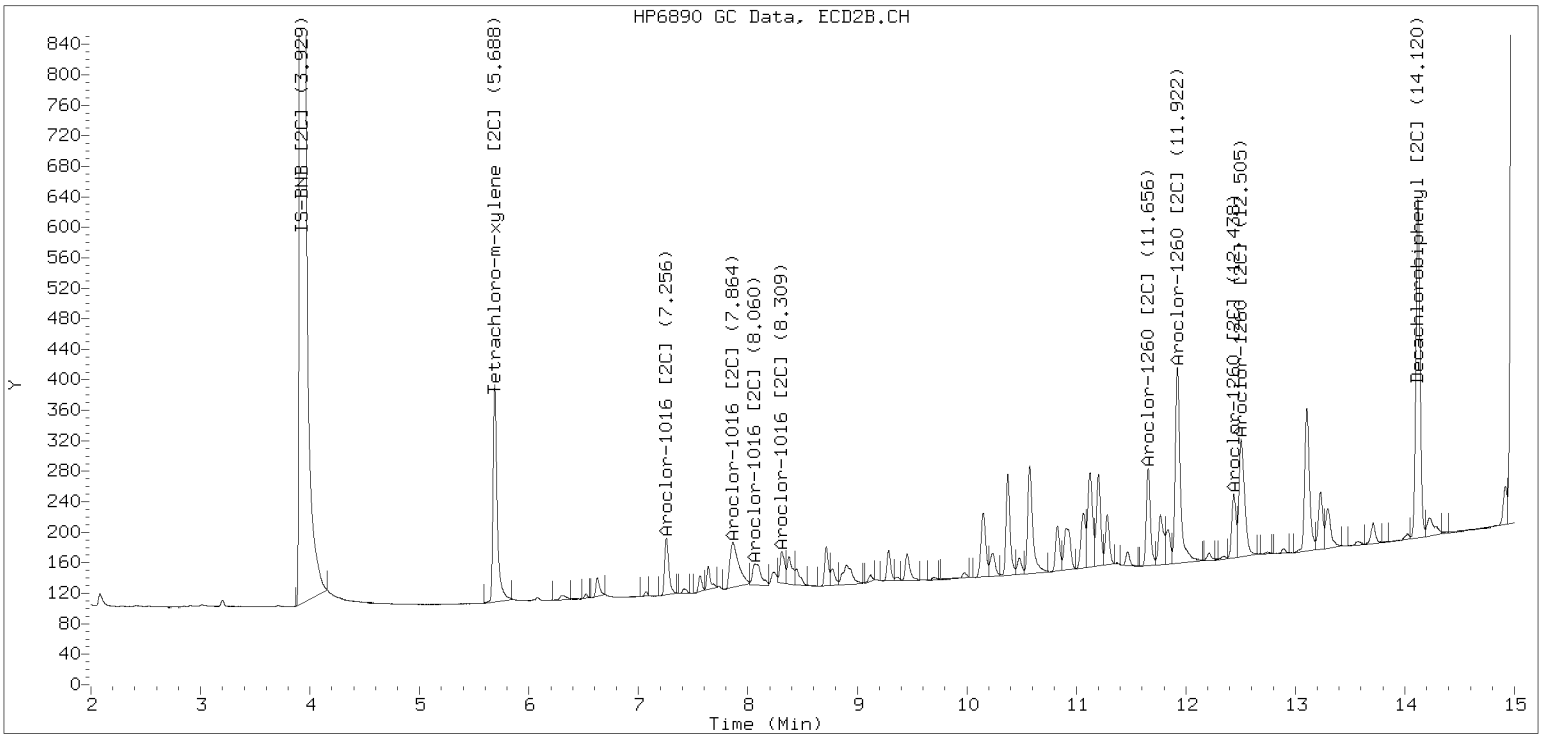


ZB-35 Manual Integration: YES

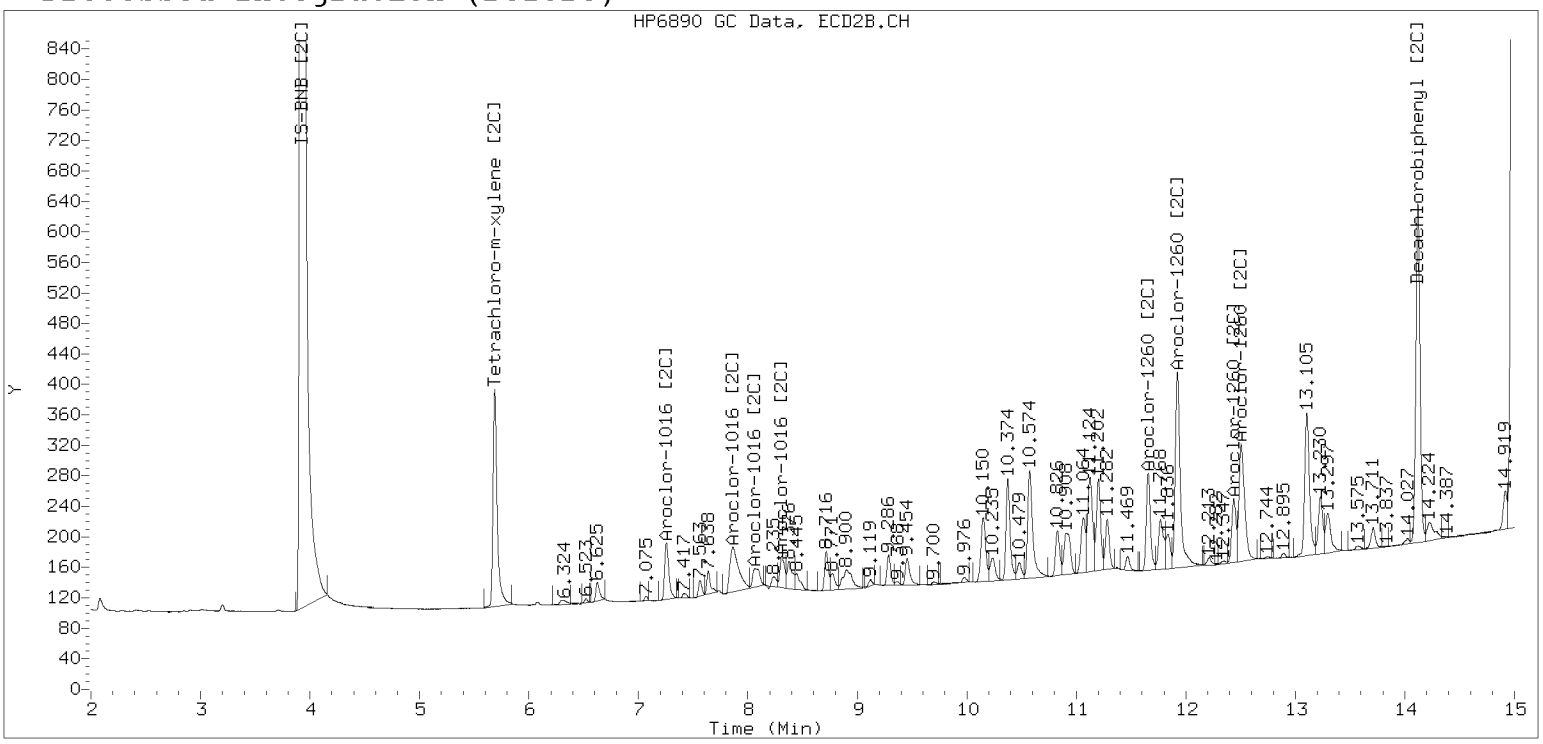
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230224.b/230224.b/02242303ECD7.D Injection Date: 24-FEB-2023

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242304ECD7.D
Data file 2: /230224.b/230224.b/02242304ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:54
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	78493	5.688	0.003	36772	8.3	8.1	2.2	Tetrachloro-m-xylene
13.893	-0.000	113544	14.119	-0.000	62745	8.2	7.9	3.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	630965	-6.4
Hexabromobiphenyl	1429847	1409464	-1.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307599	-2.4
Hexabromobiphenyl	513946	521112	1.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.272	0.002	12829	53.5	1	7.256	0.000	9654	53.6
Aroclor-1016	2	7.660	0.006	36461	49.9	2	7.864	0.008	18085	49.5
Aroclor-1016	3	7.795	0.005	19865	55.7	3	8.063	0.008	9071	55.0
Aroclor-1016	4	8.408	0.003	11411	49.5	4	8.310	0.003	7309	56.5
	Total Col1Ave (4 peaks):				52.2	Total Col2Ave (4 peaks):				53.7 RPD = 3
	Corrected Ave (3 peaks):				51.0	Corrected Ave (3 peaks):				52.7 RPD = 3
			CalAmt %D:		4.3			CalAmt %D:		7.3
Aroclor-1260	1	11.046	0.002	25727	50.7	1	11.655	0.002	15996	52.2
Aroclor-1260	2	11.363	0.002	26482	50.0	2	11.922	0.004	40487	51.8
Aroclor-1260	3	11.739	0.005	70871	50.4	3	12.437	0.002	10248	49.4
Aroclor-1260	4	12.143	0.004	34239	48.4	4	12.506	0.004	26828	50.9
Aroclor-1260	5	12.246	0.002	15109	49.6	NS	---			----
	Total Col1Ave (5 peaks):				49.8	Total Col2Ave (4 peaks):				51.1 RPD = 2
	Corrected Ave (4 peaks):				49.6	Corrected Ave (3 peaks):				50.7 RPD = 2
			CalAmt %D:		-0.3			CalAmt %D:		2.1

Total PCB Area Col1 (5.906 - 13.793) = 758292 Col1 Total PCB = 0.1 ppm*

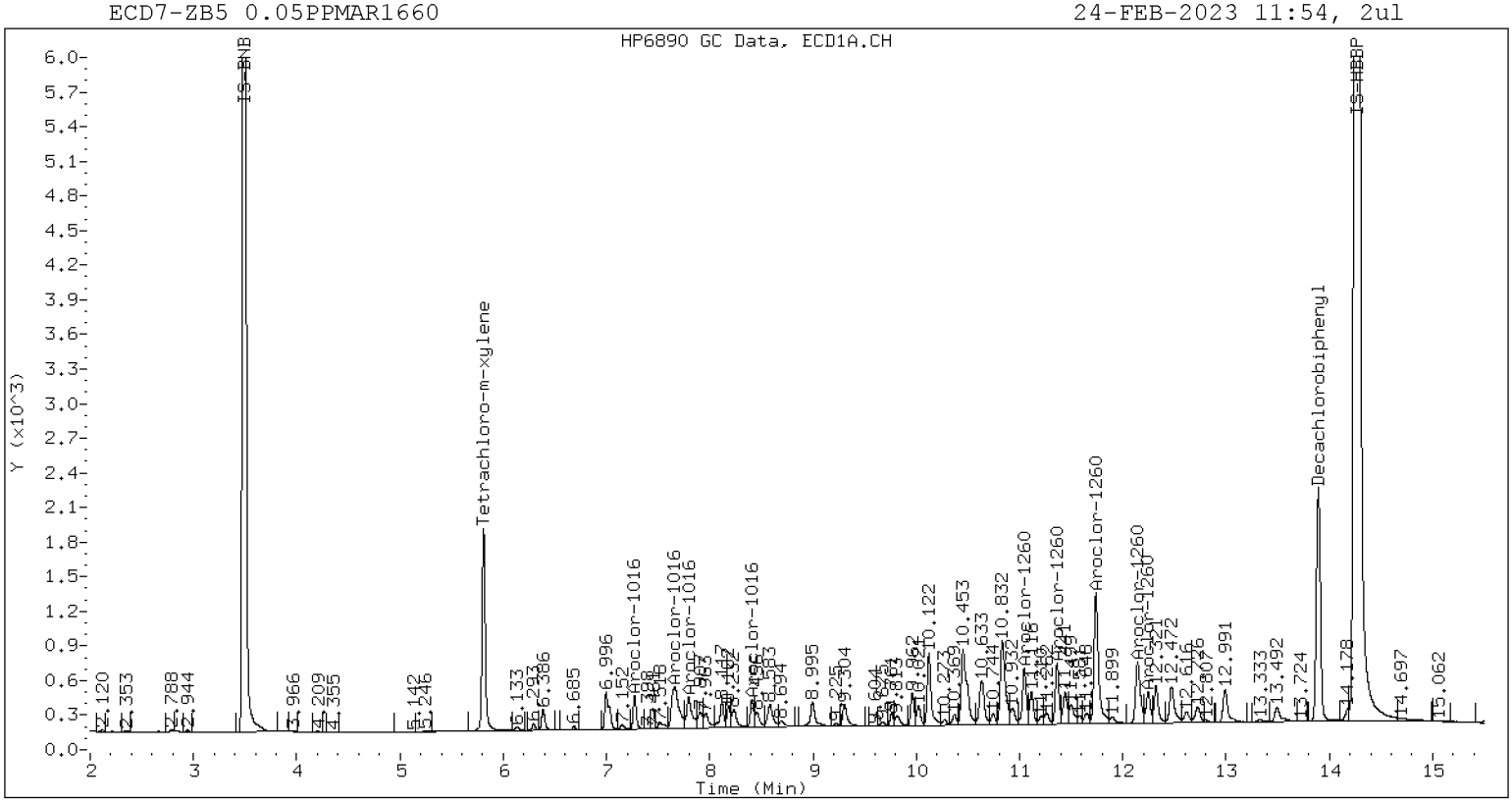
Total PCB Area Col2 (5.785 - 14.019) = 386383 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

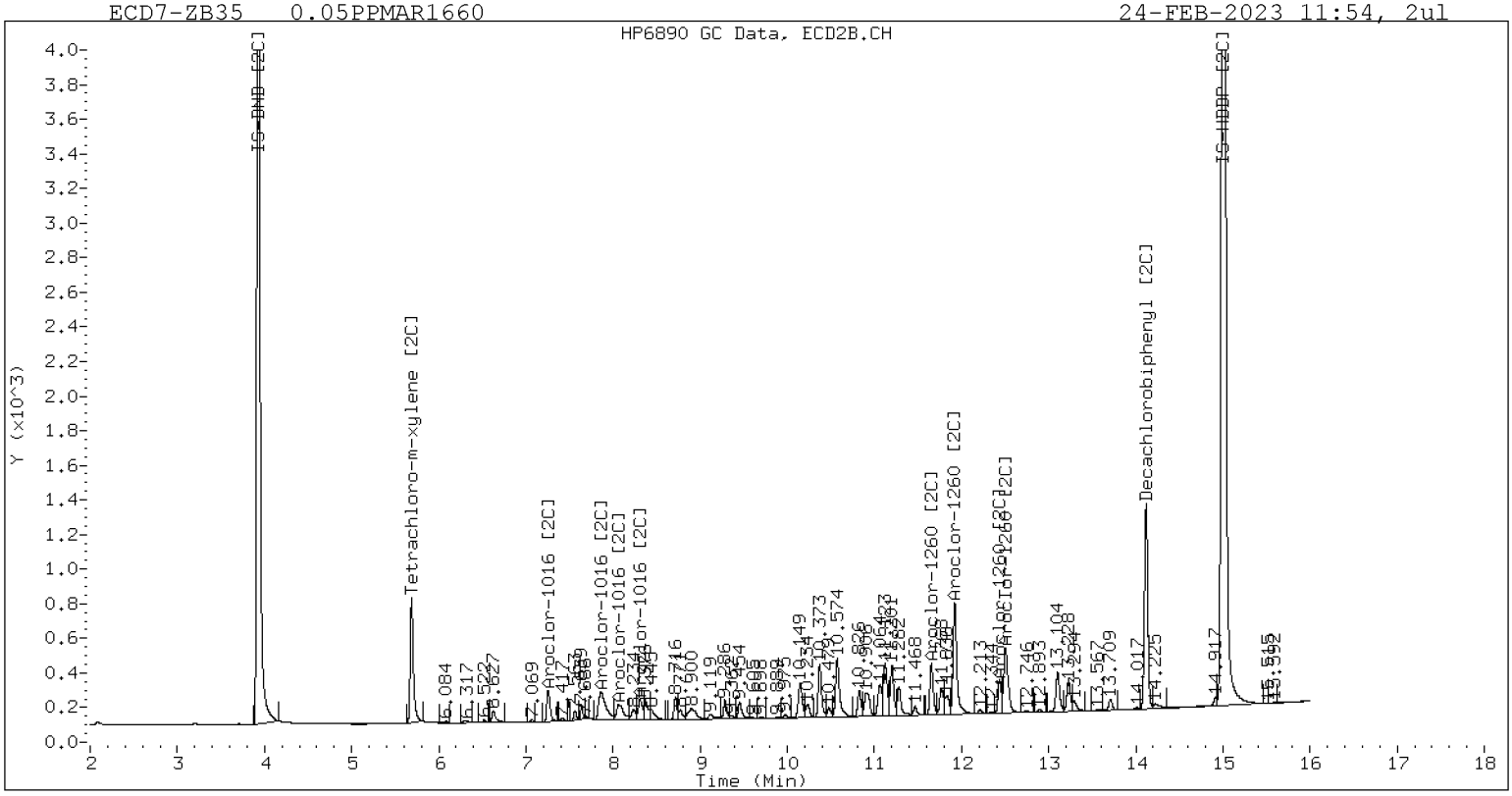
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242305ECD7.D
Data file 2: /230224.b/230224.b/02242305ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:15
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.813	0.006	1641874	5.688	0.003	709674	166.2	151.5	9.3	Tetrachloro-m-xylene
13.899	0.006	2344583	14.122	0.002	1300114	161.9	158.6	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661440	-1.8
Hexabromobiphenyl	1429847	1470100	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319272	1.3
Hexabromobiphenyl	513946	538138	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	-0.000	220519	877.8	1	7.254	-0.001	162833	871.2
Aroclor-1016	2	7.652	-0.002	731607	955.3	2	7.852	-0.004	373610	985.8
Aroclor-1016	3	7.789	-0.001	307629	822.8	3	8.051	-0.003	156666	915.2
Aroclor-1016	4	8.404	-0.001	229387	949.1	4	8.305	-0.002	117186	872.6
	Total Col1Ave (4 peaks):				901.3	Total Col2Ave (4 peaks):				911.2 RPD = 1
	Corrected Ave (3 peaks):				883.3	Corrected Ave (3 peaks):				886.3 RPD = 0
	CalAmt %D:				-9.9	CalAmt %D:				-8.9
Aroclor-1260	1	11.044	-0.000	504641	954.2	1	11.652	-0.000	282606	893.1
Aroclor-1260	2	11.360	-0.001	524931	950.0	2	11.917	-0.000	709329	878.4
Aroclor-1260	3	11.734	-0.000	1410270	962.3	3	12.434	-0.001	215124	1003.8
Aroclor-1260	4	12.137	-0.002	720770	976.7	4	12.501	-0.001	506566	930.6
Aroclor-1260	5	12.243	-0.001	304211	957.7	NS	---			----
	Total Col1Ave (5 peaks):				960.2	Total Col2Ave (4 peaks):				926.5 RPD = 4
	Corrected Ave (4 peaks):				956.0	Corrected Ave (3 peaks):				900.7 RPD = 6
	CalAmt %D:				-4.0	CalAmt %D:				-7.4

Total PCB Area Col1 (5.906 - 13.793) = 14454279 Col1 Total PCB = 1.8 ppm*

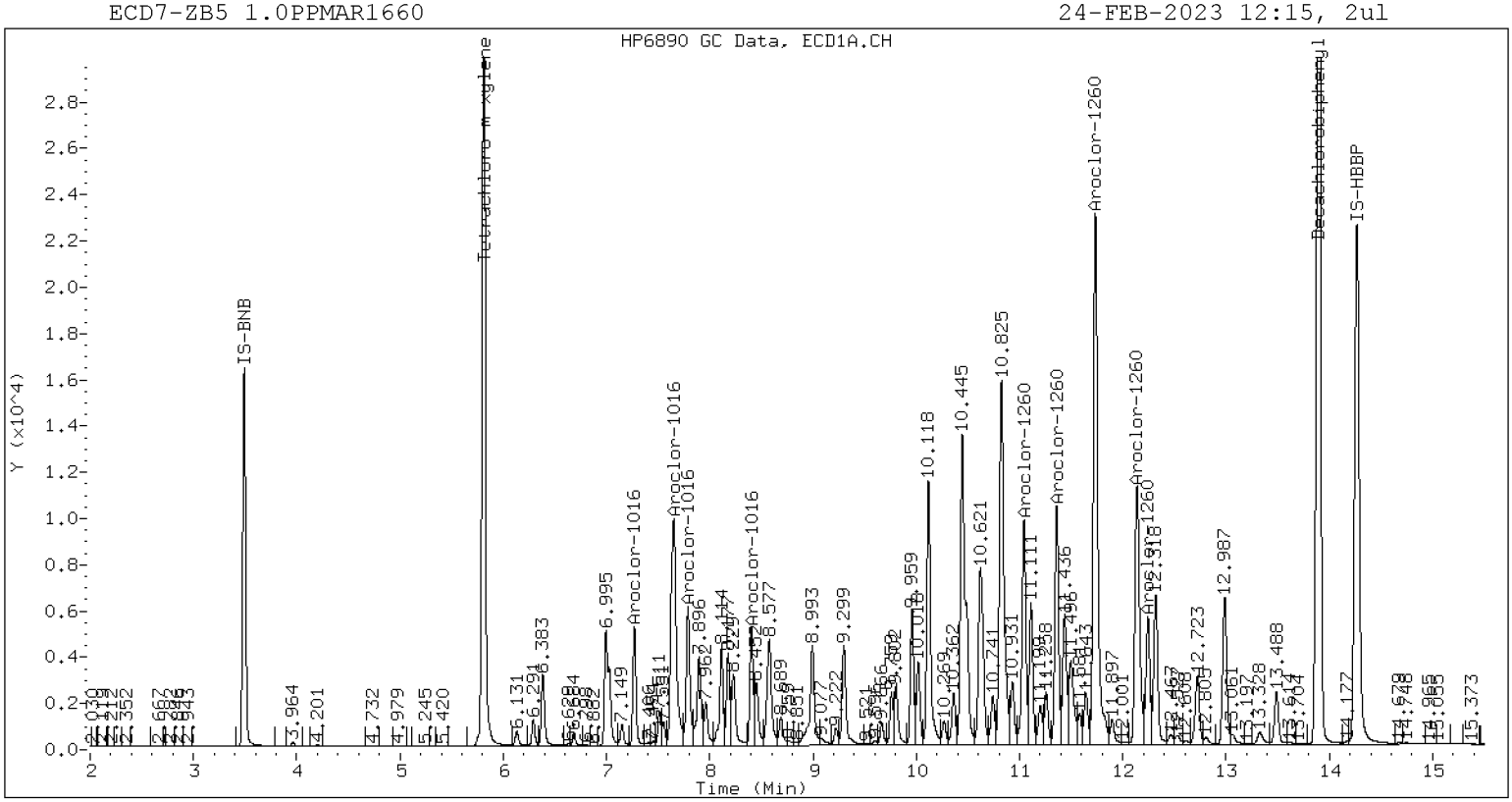
Total PCB Area Col2 (5.785 - 14.019) = 7029563 Col2 Total PCB = 1.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

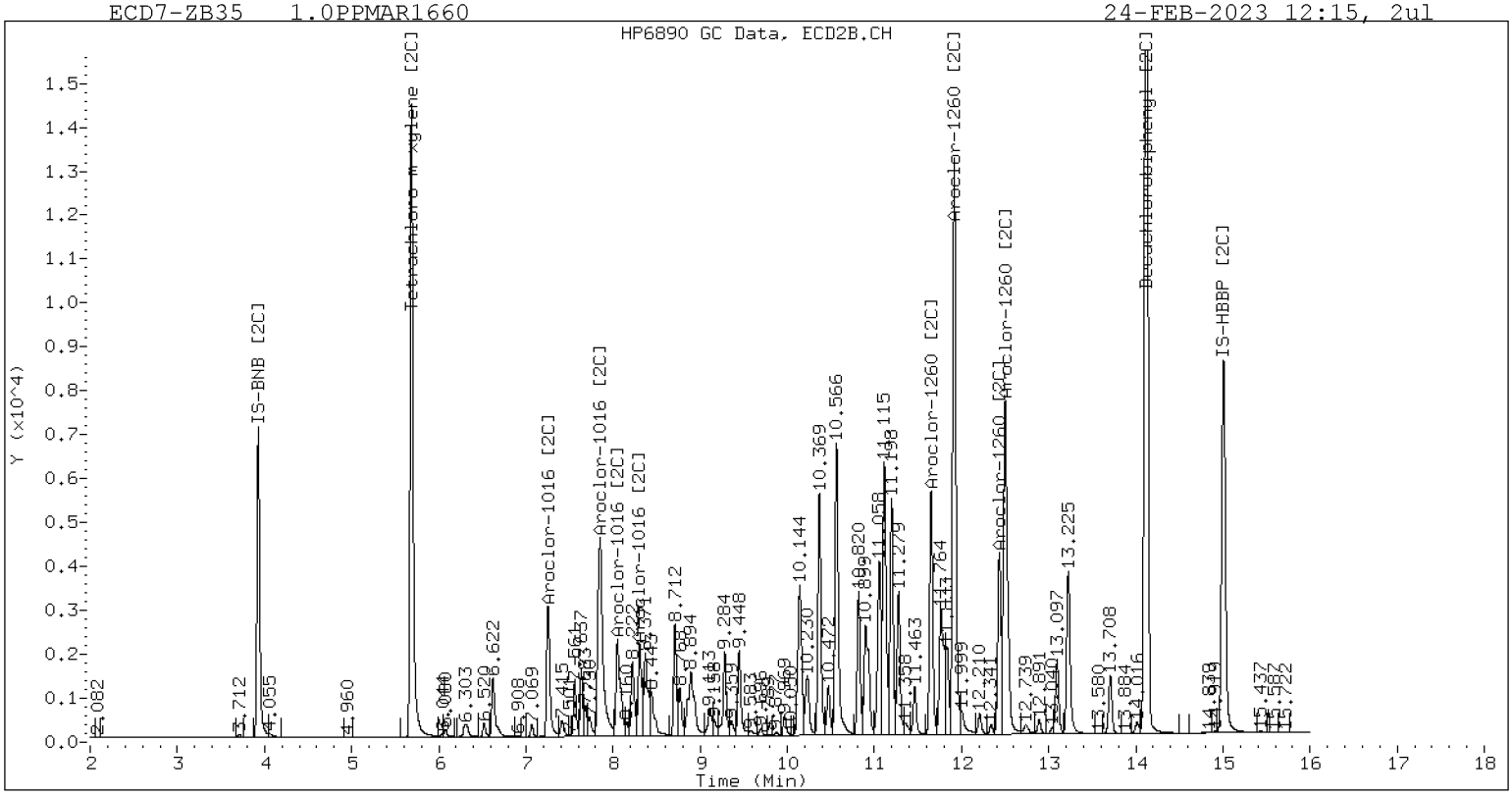
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242306ECD7.D
Data file 2: /230224.b/230224.b/02242306ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:36
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	155528	5.688	0.003	74628	15.9	16.0	0.9	Tetrachloro-m-xylene
13.892	-0.001	227253	14.119	-0.000	128496	15.8	15.8	0.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	655979	-2.6
Hexabromobiphenyl	1429847	1464509	2.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317418	0.7
Hexabromobiphenyl	513946	532962	3.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.000	25761	103.4	1	7.255	-0.000	19315	103.9
Aroclor-1016	2	7.657	0.003	75616	99.6	2	7.863	0.007	40308	107.0
Aroclor-1016	3	7.794	0.004	39547	106.7	3	8.059	0.005	18304	107.6
Aroclor-1016	4	8.406	0.001	24260	101.2	4	8.309	0.002	14708	110.2
Total Col1Ave (4 peaks):					102.7	Total Col2Ave (4 peaks):				107.2 RPD = 4
Corrected Ave (3 peaks):					101.4	Corrected Ave (3 peaks):				106.2 RPD = 5
CalAmt %D:					2.7	CalAmt %D:				7.2
Aroclor-1260	1	11.045	0.000	52009	98.7	1	11.655	0.002	31282	99.8
Aroclor-1260	2	11.362	0.001	55116	100.1	2	11.920	0.003	80574	100.7
Aroclor-1260	3	11.738	0.004	145604	99.7	3	12.437	0.002	19566	92.2
Aroclor-1260	4	12.141	0.002	72408	98.5	4	12.503	0.001	53588	99.4
Aroclor-1260	5	12.245	0.001	30745	97.2	NS	---			----
Total Col1Ave (5 peaks):					98.8	Total Col2Ave (4 peaks):				98.0 RPD = 1
Corrected Ave (4 peaks):					98.5	Corrected Ave (3 peaks):				97.1 RPD = 1
CalAmt %D:					-1.2	CalAmt %D:				-2.0

Total PCB Area Col1 (5.906 - 13.793) = 1555762 Col1 Total PCB = 0.2 ppm*

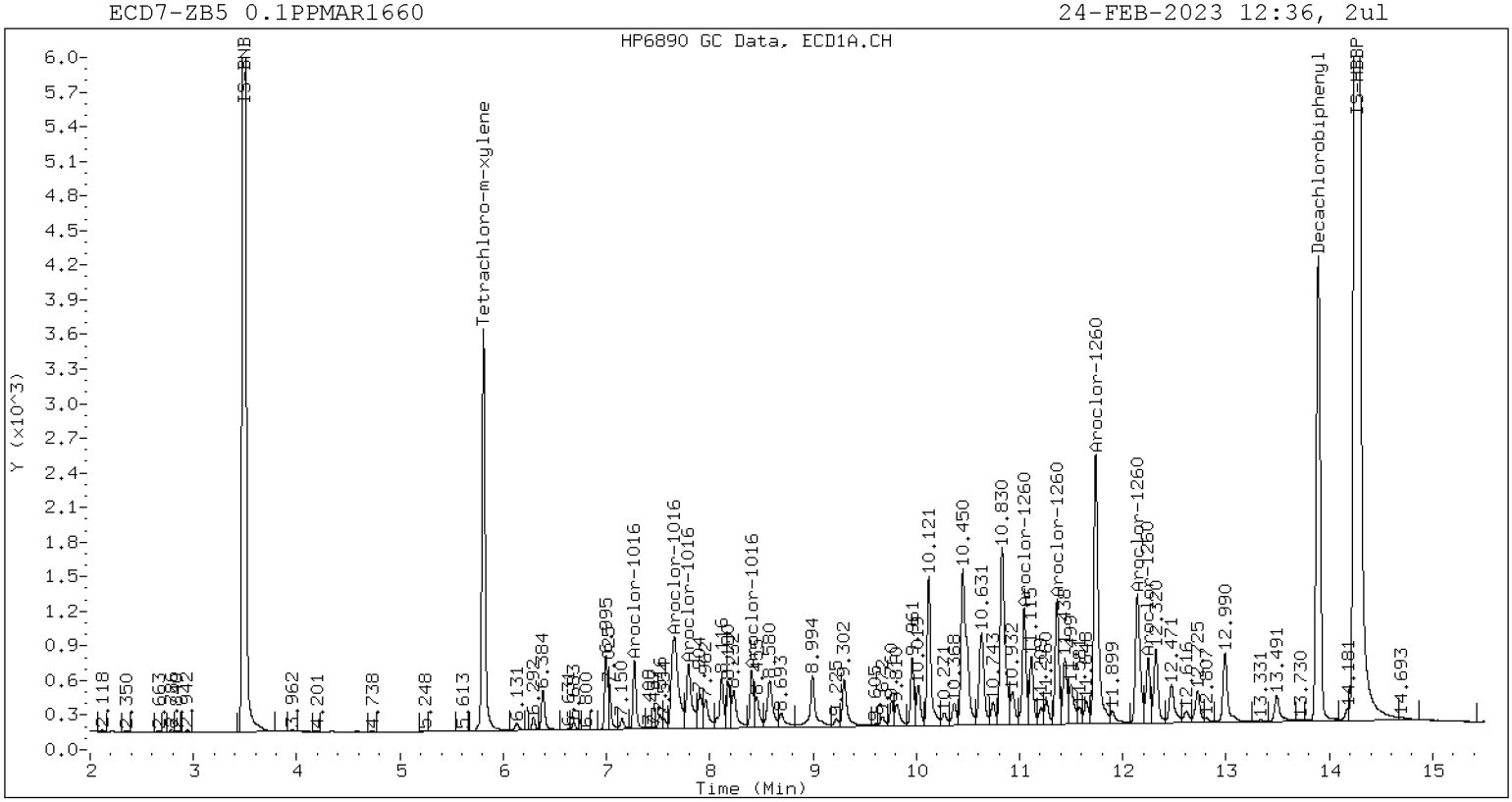
Total PCB Area Col2 (5.785 - 14.019) = 764924 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

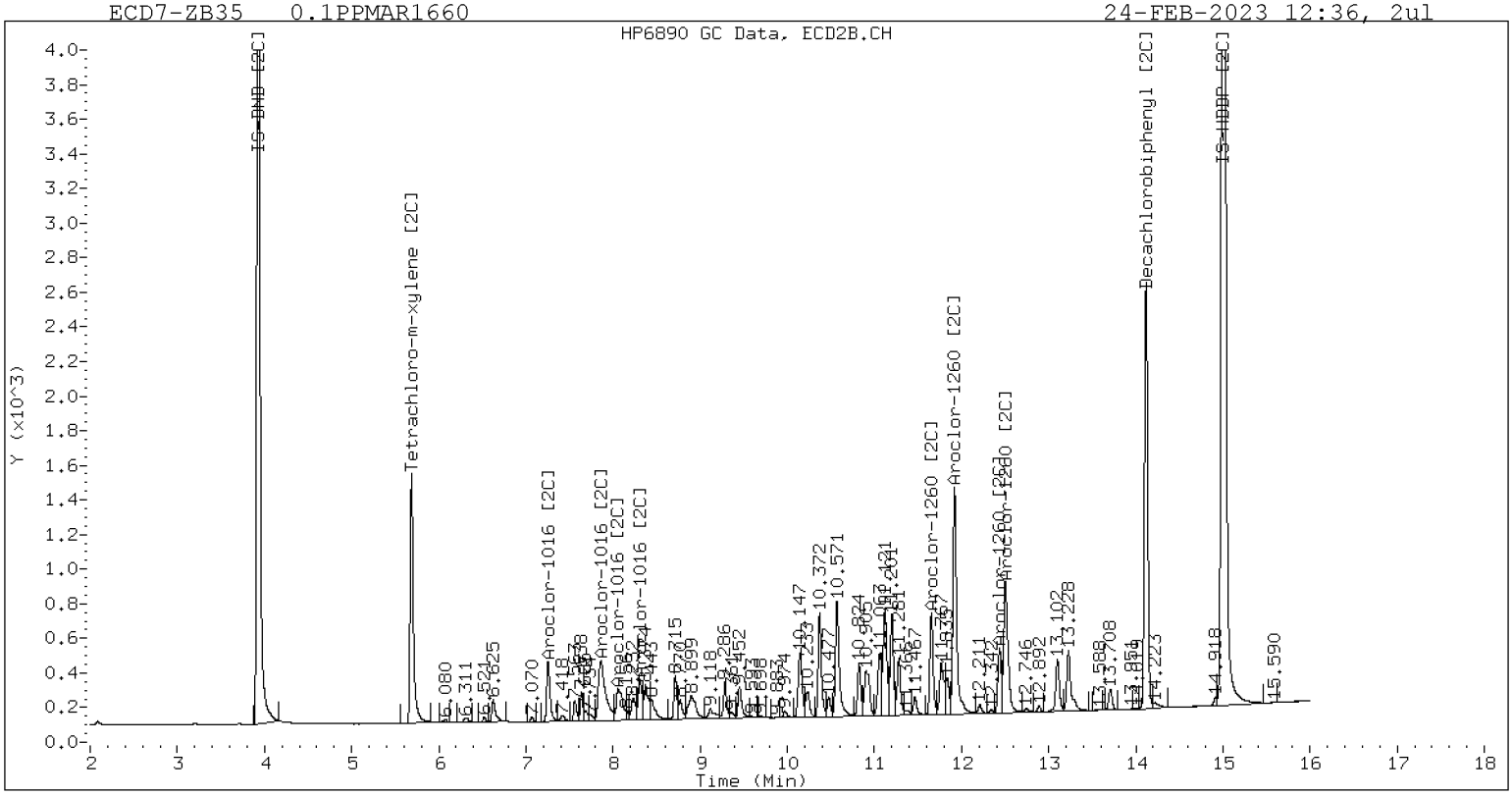
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242307ECD7.D
Data file 2: /230224.b/230224.b/02242307ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:57
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.004	724614	5.688	0.003	359257	75.2	76.7	2.0	Tetrachloro-m-xylene
13.898	0.005	1056911	14.120	0.000	650153	74.3	79.5	6.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645275	-4.2
Hexabromobiphenyl	1429847	1445345	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319170	1.2
Hexabromobiphenyl	513946	536853	4.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	115193	470.0	1	7.256	0.000	86287	461.8
Aroclor-1016	2	7.654	0.000	369991	495.2	2	7.856	0.000	192524	508.1
Aroclor-1016	3	7.790	0.000	160952	441.3	3	8.055	0.000	81039	473.6
Aroclor-1016	4	8.405	0.000	115032	487.9	4	8.307	0.000	62136	462.8
Total Col1Ave (4 peaks):					473.6	Total Col2Ave (4 peaks):				476.6 RPD = 1
Corrected Ave (3 peaks):					466.4	Corrected Ave (3 peaks):				466.1 RPD = 0
CalAmt %D:					-5.3	CalAmt %D:				-4.7
Aroclor-1260	1	11.044	0.000	247212	475.5	1	11.653	0.000	145247	460.1
Aroclor-1260	2	11.361	0.000	262877	483.9	2	11.918	0.000	379838	471.5
Aroclor-1260	3	11.734	0.000	678830	471.1	3	12.436	0.000	104092	486.9
Aroclor-1260	4	12.139	0.000	356067	490.7	4	12.502	0.000	258953	476.9
Aroclor-1260	5	12.244	0.000	150280	481.2	NS	---			----
Total Col1Ave (5 peaks):					480.5	Total Col2Ave (4 peaks):				473.8 RPD = 1
Corrected Ave (4 peaks):					477.9	Corrected Ave (3 peaks):				469.5 RPD = 2
CalAmt %D:					-3.9	CalAmt %D:				-5.2

Total PCB Area Col1 (5.906 - 13.793) = 7134169 Col1 Total PCB = 0.9 ppm*

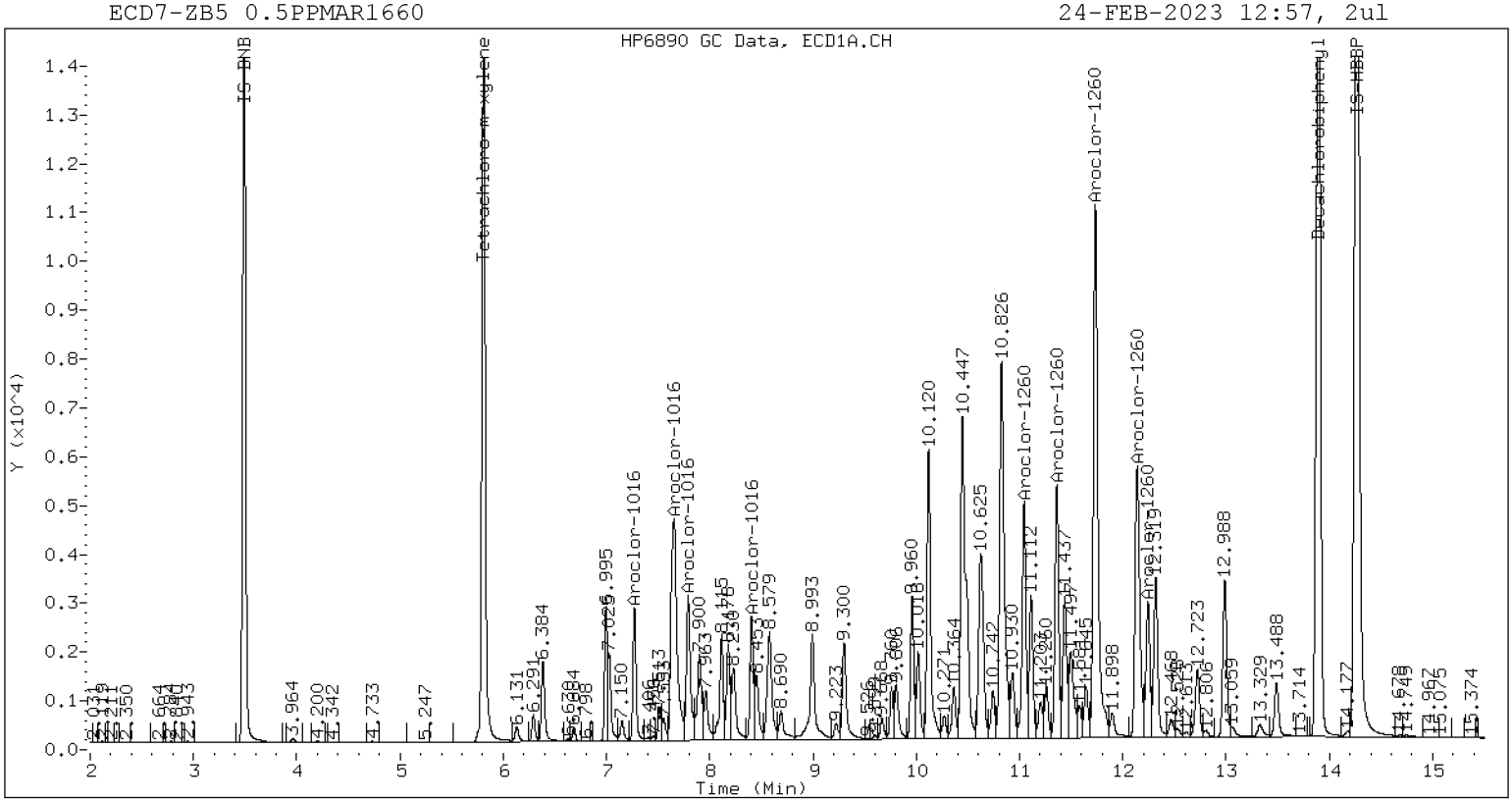
Total PCB Area Col2 (5.785 - 14.019) = 3589735 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

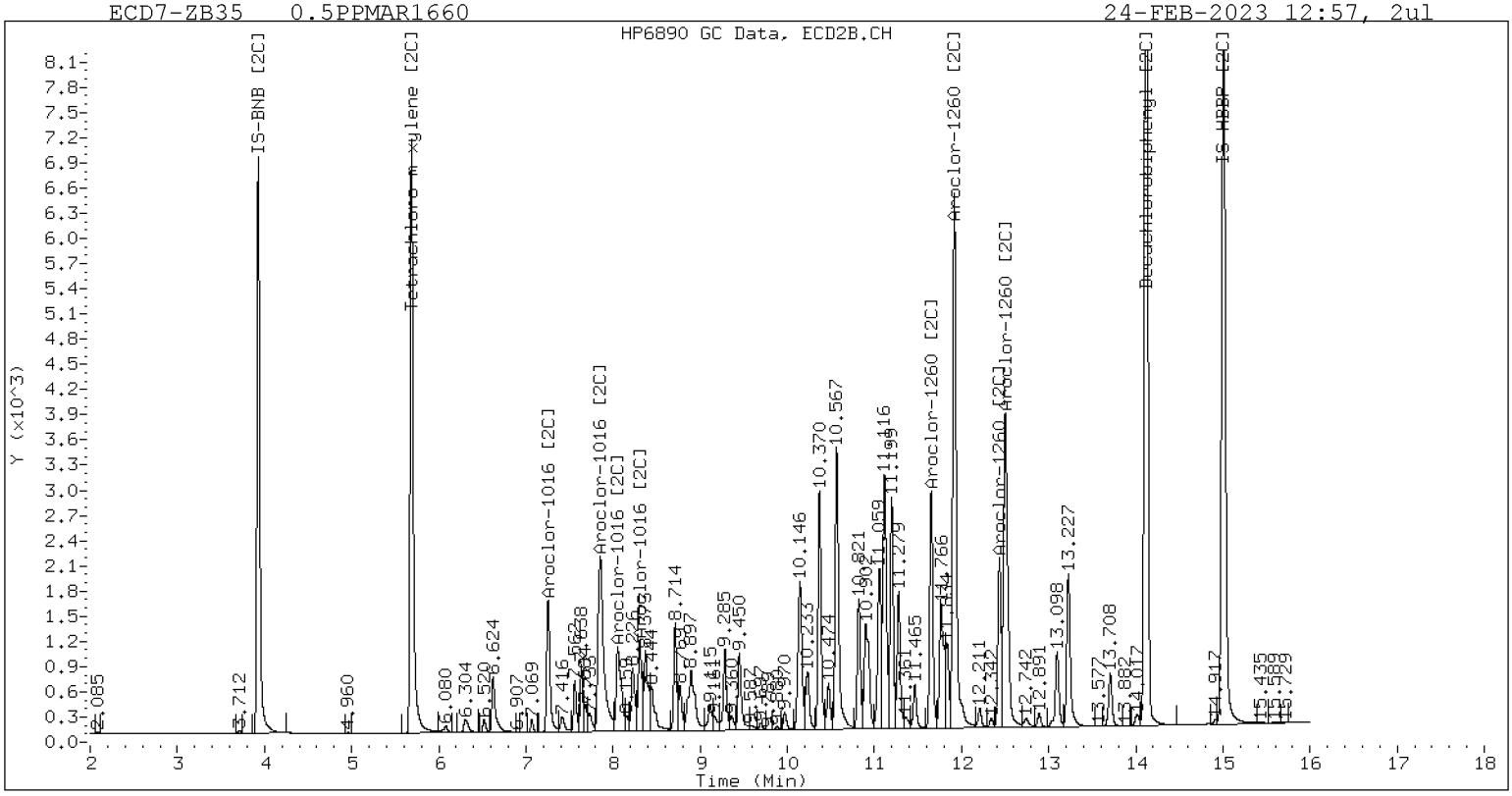
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242308ECD7.D
Data file 2: /230224.b/230224.b/02242308ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 24-FEB-2023 13:18
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	434187	5.688	0.003	214306	46.0	46.5	1.1	Tetrachloro-m-xylene
13.894	0.000	515867	14.119	-0.001	312943	35.6	38.5	7.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632576	-6.1
Hexabromobiphenyl	1429847	1469715	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314129	-0.4
Hexabromobiphenyl	513946	534294	4.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.271	0.000	49009	250.0	1	7.255	0.000	36487	250.0
Aroclor-1242	2	7.656	0.000	148833	250.0	2	7.858	0.000	76699	250.0
Aroclor-1242	3	8.405	0.000	46308	250.0	3	9.167	0.000	23866	250.0
Aroclor-1242	4	8.579	0.000	68453	250.0	4	9.597	0.000	29080	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1221467 Col1 Total PCB = 0.2 ppm*

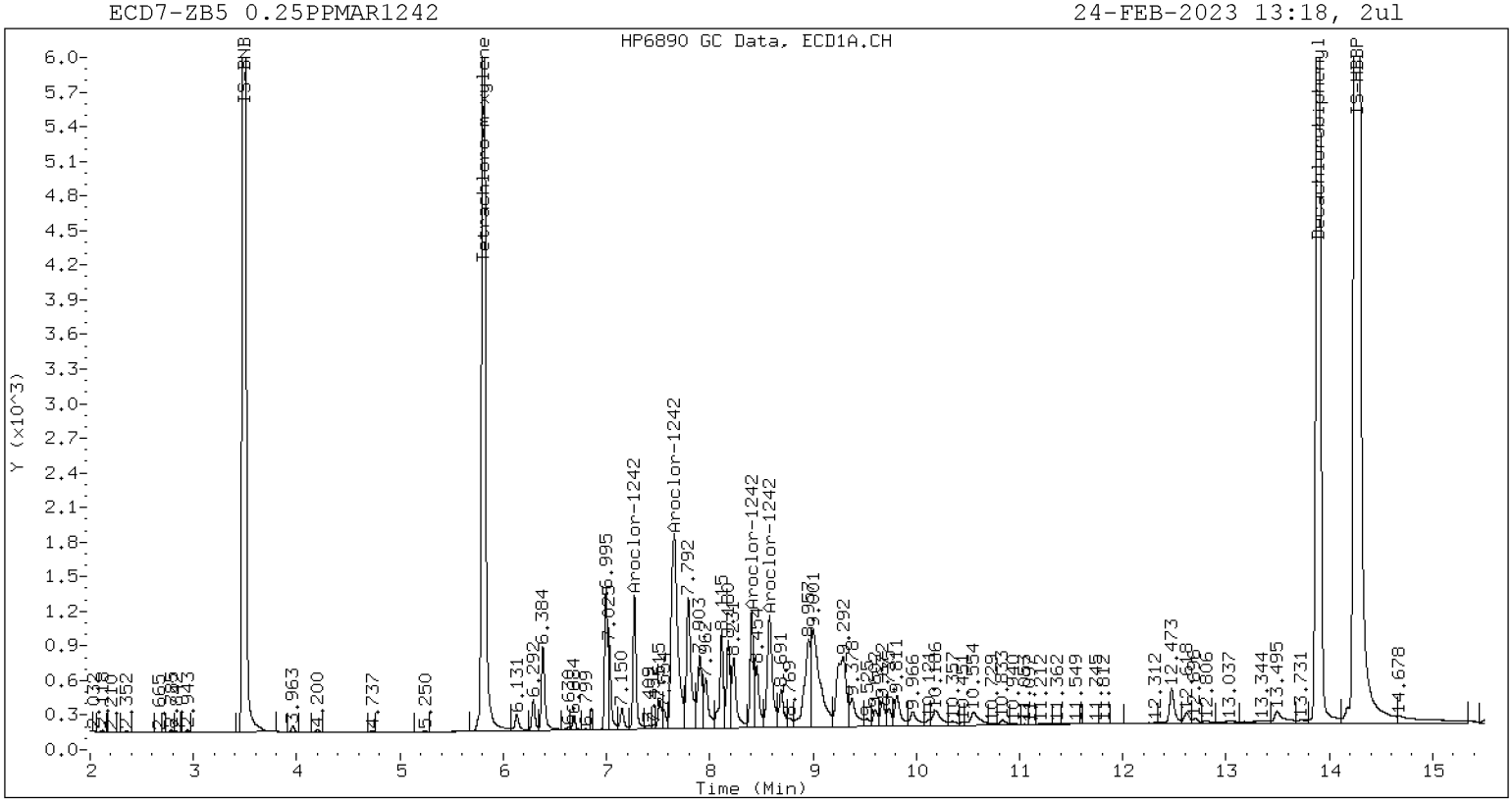
Total PCB Area Col2 (5.785 - 14.019) = 572067 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

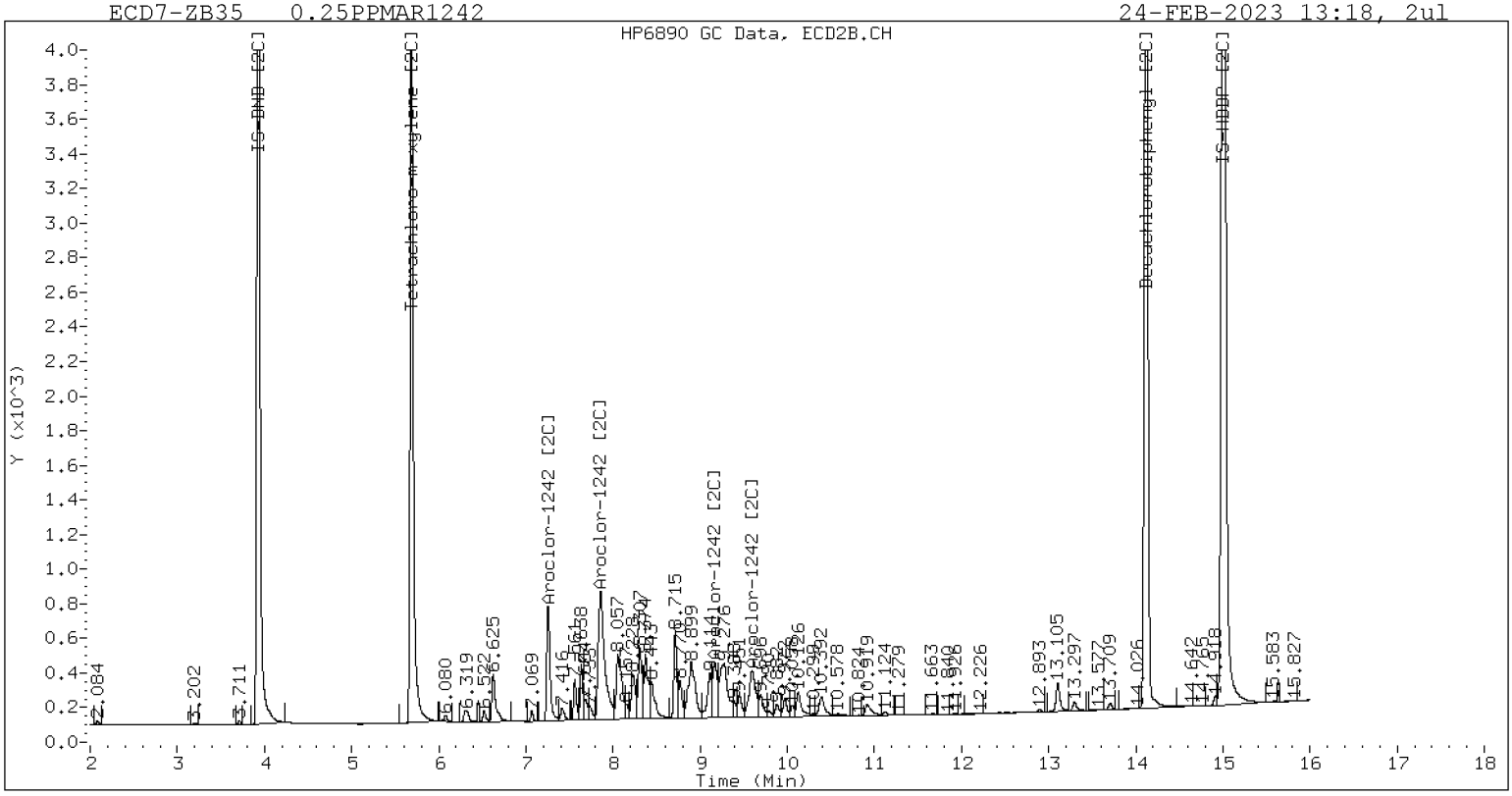
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242309ECD7.D
Data file 2: /230224.b/230224.b/02242309ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 24-FEB-2023 13:39
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	349513	5.688	0.003	176615	36.6	37.9	3.4	Tetrachloro-m-xylene
13.894	0.001	523008	14.121	0.001	322054	36.4	39.3	7.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	639911	-5.0
Hexabromobiphenyl	1429847	1458696	2.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317938	0.9
Hexabromobiphenyl	513946	538760	4.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.405	0.000	78055	250.0	1	8.308	0.000	37951	250.0
Aroclor-1248	2	8.580	0.000	99216	250.0	2	8.714	0.000	39239	250.0
Aroclor-1248	3	8.999	0.000	187178	250.0	3	9.166	0.000	45157	250.0
Aroclor-1248	4	9.295	0.000	95291	250.0	4	9.590	0.000	54216	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1565180 Col1 Total PCB = 0.2 ppm*

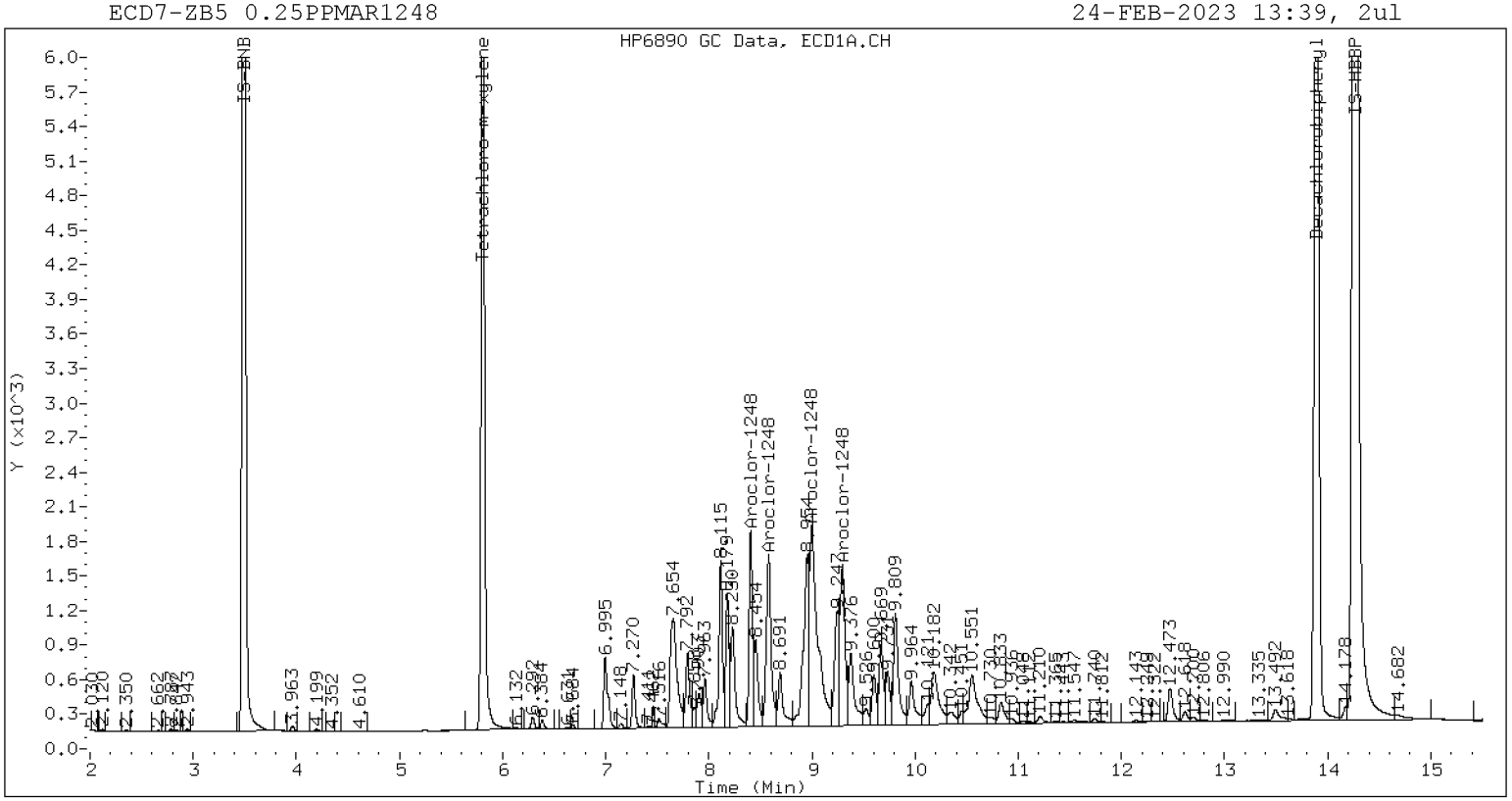
Total PCB Area Col2 (5.785 - 14.019) = 754991 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

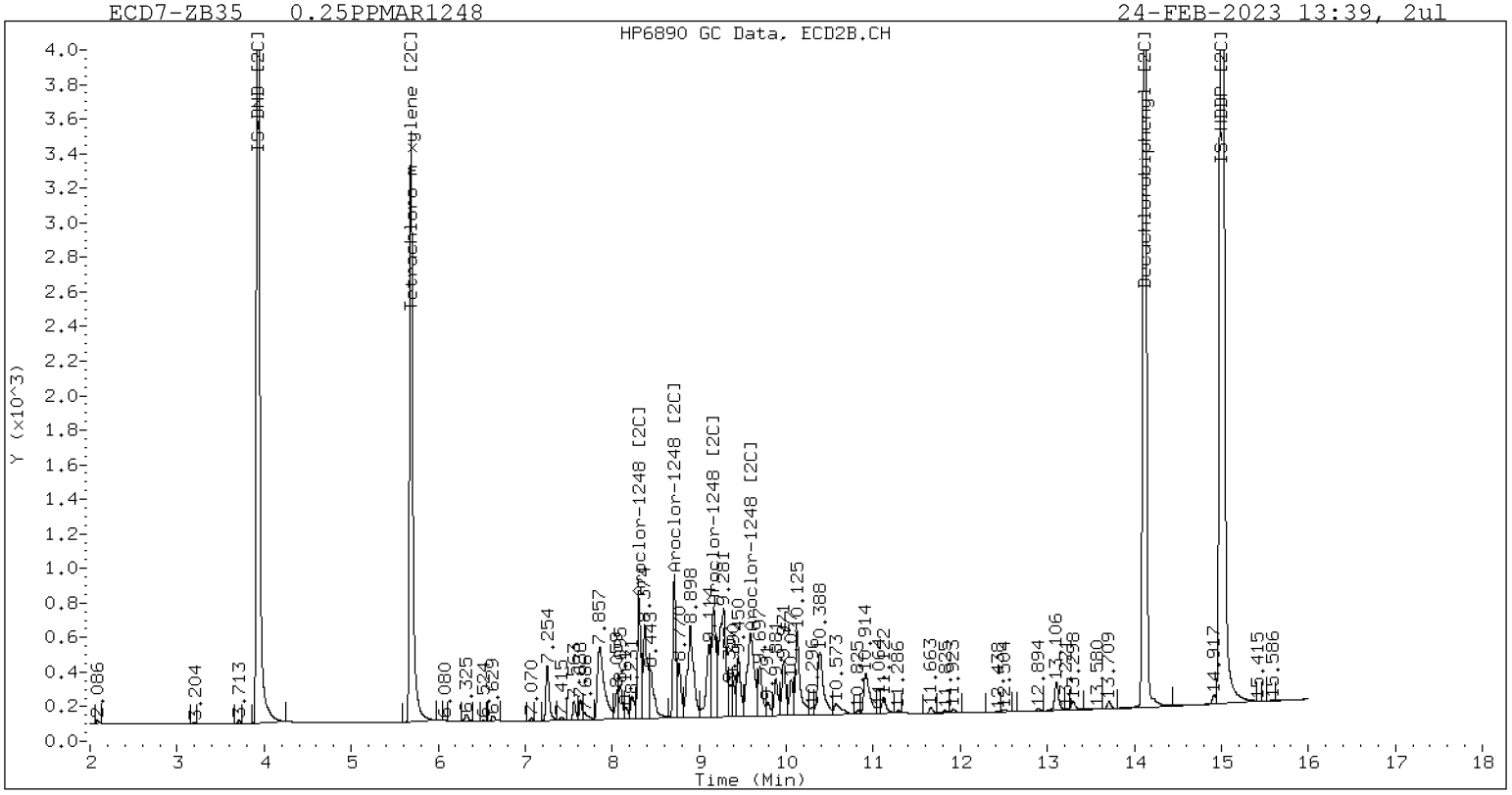
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242310ECD7.D
Data file 2: /230224.b/230224.b/02242310ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 24-FEB-2023 14:00
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	352587	5.687	0.002	177502	37.3	38.6	3.4	Tetrachloro-m-xylene
13.895	0.002	532500	14.119	0.000	325903	37.0	40.2	8.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	633407	-6.0
Hexabromobiphenyl	1429847	1460265	2.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	313673	-0.5
Hexabromobiphenyl	513946	532442	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1254	1	9.299	0.000	159011	250.0	1	9.449	0.000	59603	250.0
Aroclor-1254	2	9.377	0.000	71516	250.0	2	9.970	0.000	47949	250.0
Aroclor-1254	3	9.668	0.000	102230	250.0	3	10.124	0.000	103745	250.0
Aroclor-1254	4	9.807	0.000	198777	250.0	4	10.373	0.000	101135	250.0
Aroclor-1254	5	10.176	0.000	124586	250.0	5	10.569	0.000	61577	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 2179224 Col1 Total PCB = 0.3 ppm*

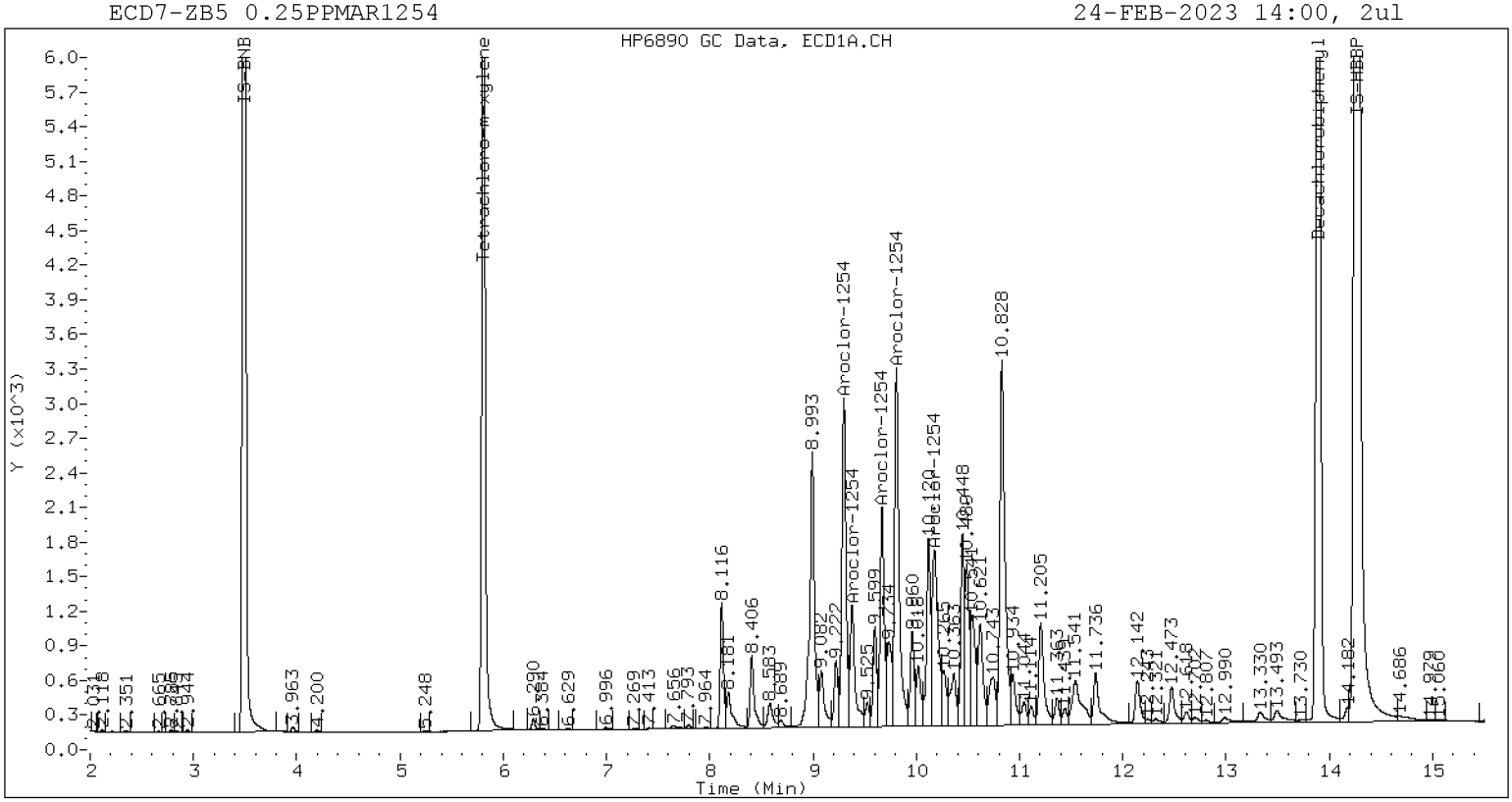
Total PCB Area Col2 (5.785 - 14.019) = 1022156 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

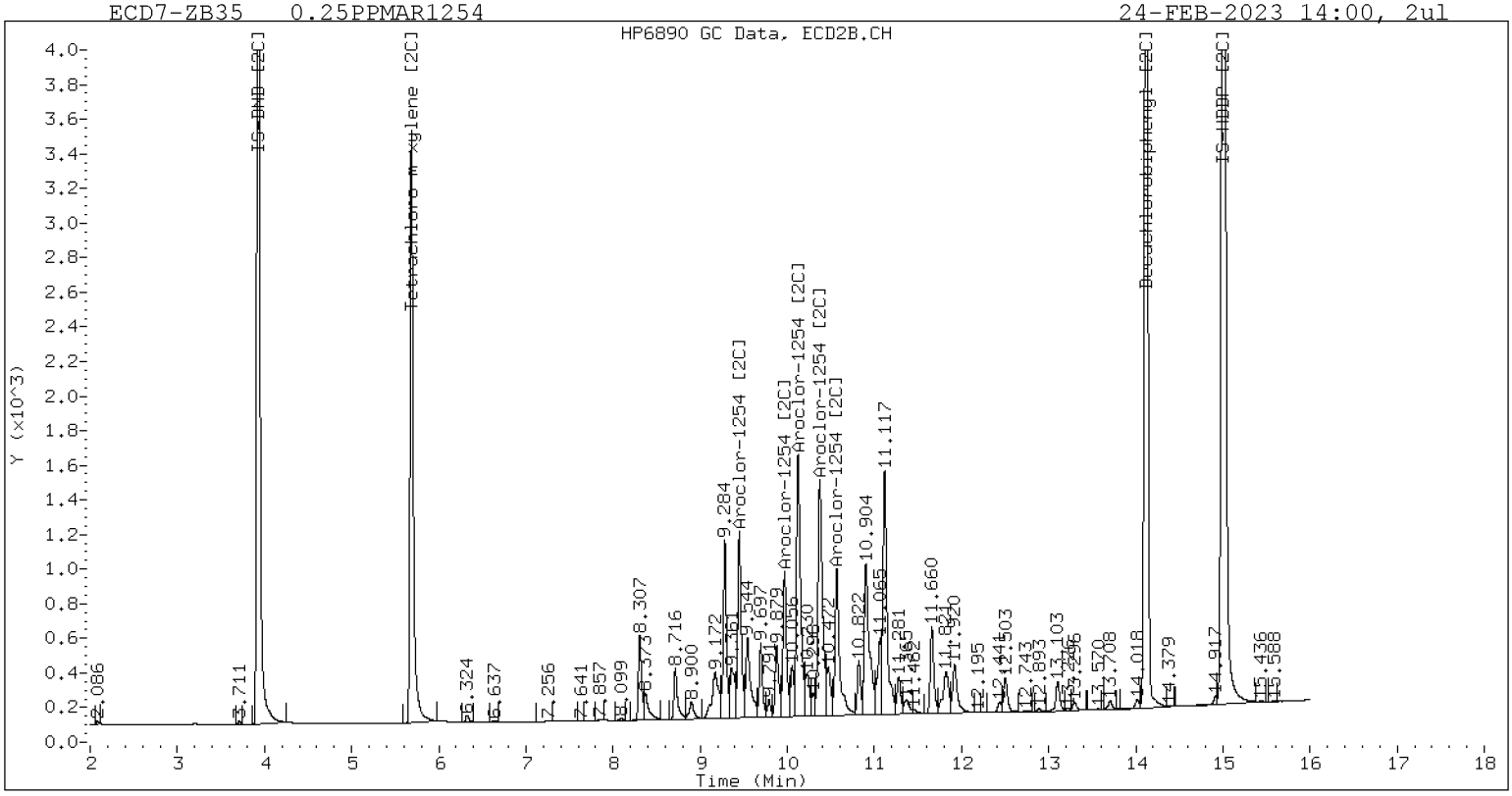
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242311ECD7.D
Data file 2: /230224.b/230224.b/02242311ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2162
Client ID:
Injection Date: 24-FEB-2023 14:21
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	362236	5.686	0.000	177349	38.4	39.2	2.1	Tetrachloro-m-xylene
13.894	0.001	523254	14.119	-0.000	321034	36.0	39.2	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632433	-6.1
Hexabromobiphenyl	1429847	1474039	3.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	308453	-2.2
Hexabromobiphenyl	513946	538177	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1221	1	4.731	0.000	14160	250.0	1	4.956	0.000	7300	250.0
Aroclor-1221	2	6.132	0.000	25324	250.0	2	6.296	0.000	13816	250.0
Aroclor-1221	3	6.382	0.000	58795	250.0	3	6.622	0.000	22491	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.829	0.000	113046	250.0	1	11.200	0.000	114880	250.0
Aroclor-1262	2	12.244	0.000	183948	250.0	2	11.652	0.000	97844	250.0
Aroclor-1262	3	12.319	0.000	197749	250.0	3	12.434	0.000	111015	250.0
Aroclor-1262	4	12.987	0.000	180727	250.0	4	12.502	0.000	173913	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3105316 Col1 Total PCB = 0.4 ppm*

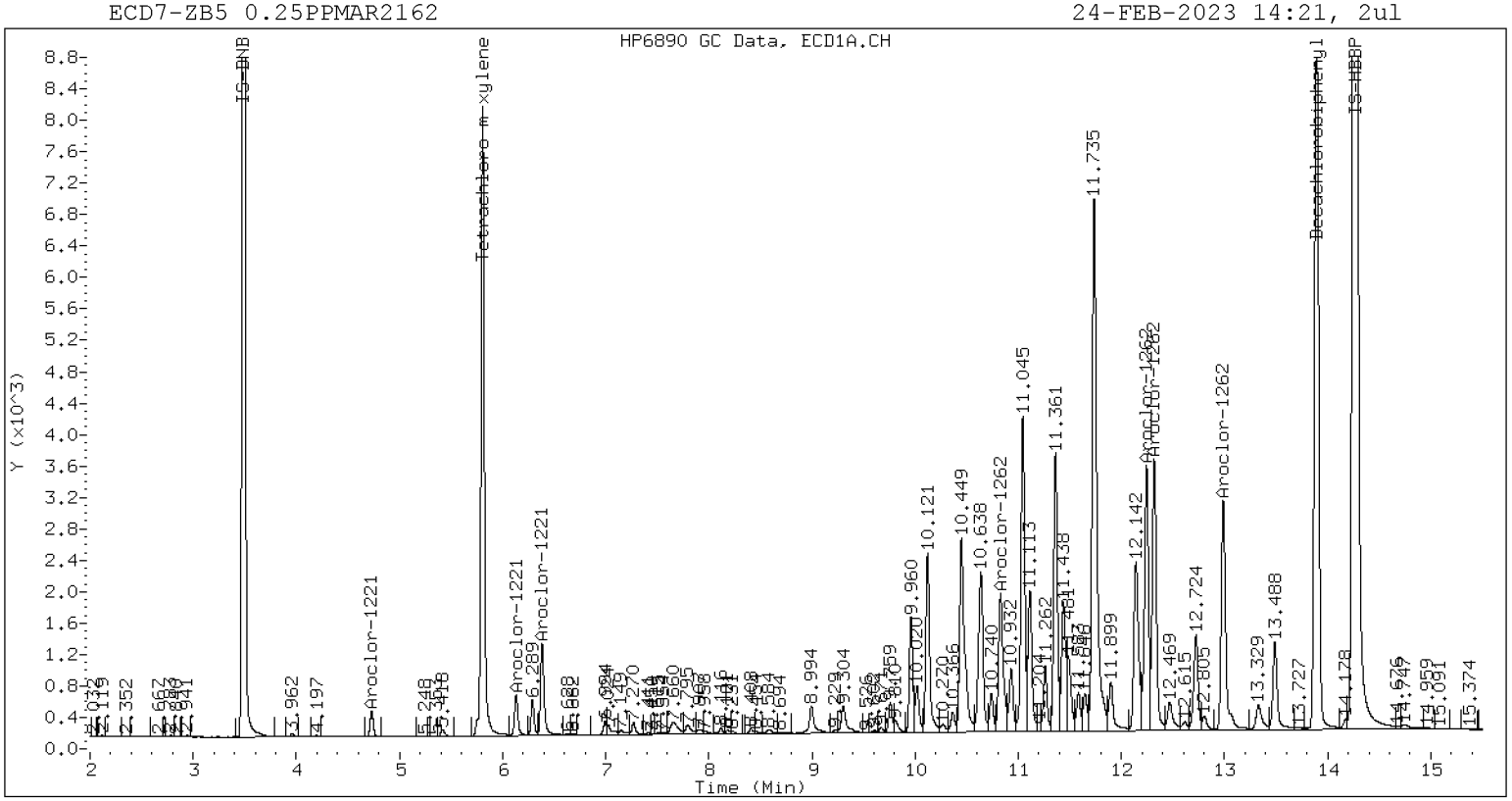
Total PCB Area Col2 (5.785 - 14.019) = 1573107 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

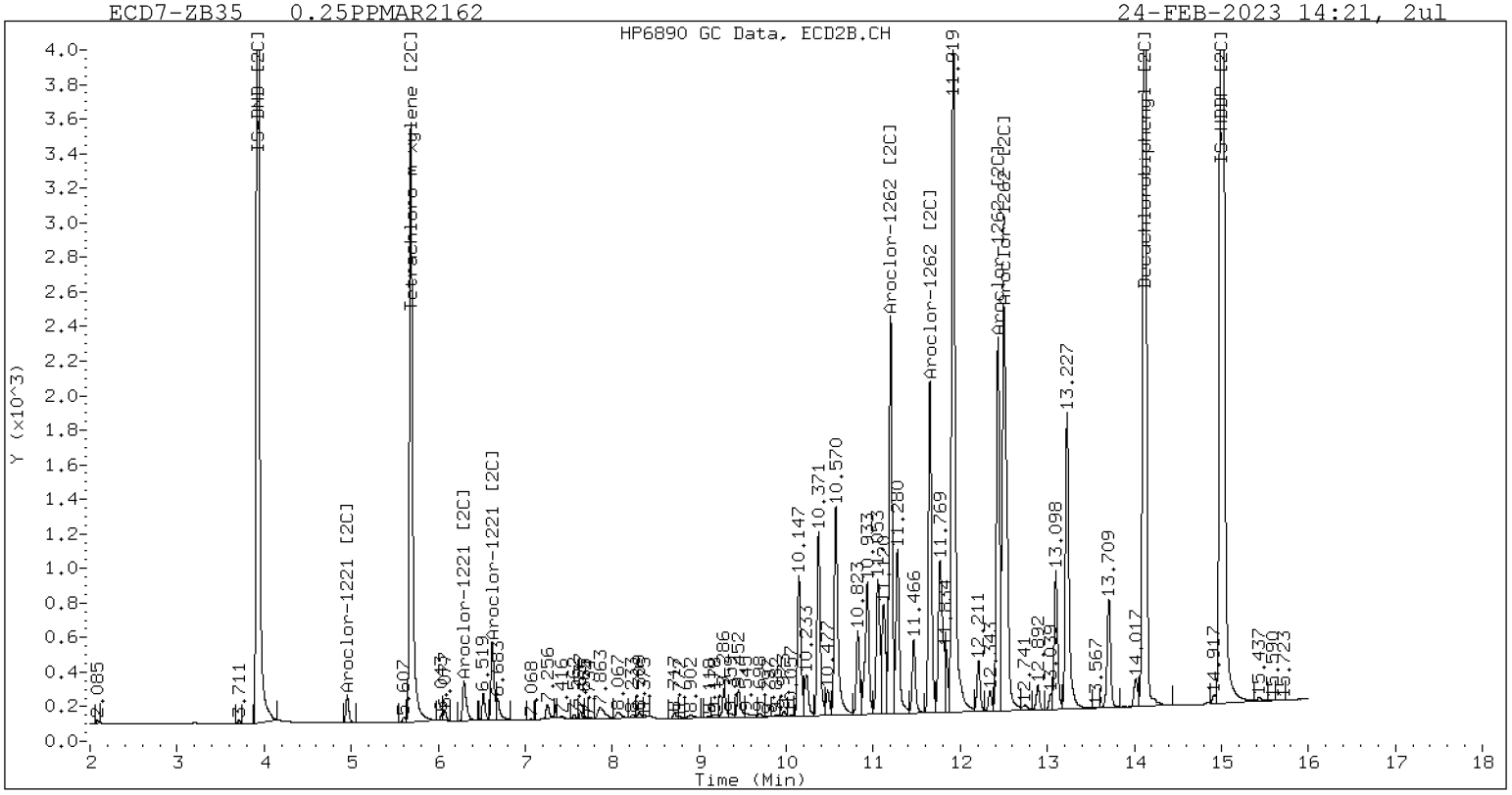
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242312ECD7.D
Data file 2: /230224.b/230224.b/02242312ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 24-FEB-2023 14:42
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	366416	5.685	0.000	179450	38.0	38.9	2.4	Tetrachloro-m-xylene
13.893	0.000	778191	14.119	0.000	477889	53.0	57.5	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645602	-4.2
Hexabromobiphenyl	1429847	1492154	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314042	-0.4
Hexabromobiphenyl	513946	545458	6.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1232	1	4.730	0.000	8647	250.0	1	4.956	0.000	4017	250.0
Aroclor-1232	2	6.131	0.000	17148	250.0	2	7.254	0.000	19962	250.0
Aroclor-1232	3	7.656	0.000	77627	250.0	3	7.861	0.000	39913	250.0
Aroclor-1232	4	8.581	0.000	32993	250.0	4	8.715	0.000	11487	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.247	0.000	477974	250.0	1	12.432	0.000	274595	250.0
Aroclor-1268	2	12.317	0.000	473326	250.0	2	12.500	0.000	295194	250.0
Aroclor-1268	3	12.699	0.000	405011	250.0	3	12.892	0.000	252048	250.0
Aroclor-1268	4	13.490	0.000	1333528	250.0	4	13.709	0.000	805579	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3998414 Col1 Total PCB = 0.5 ppm*

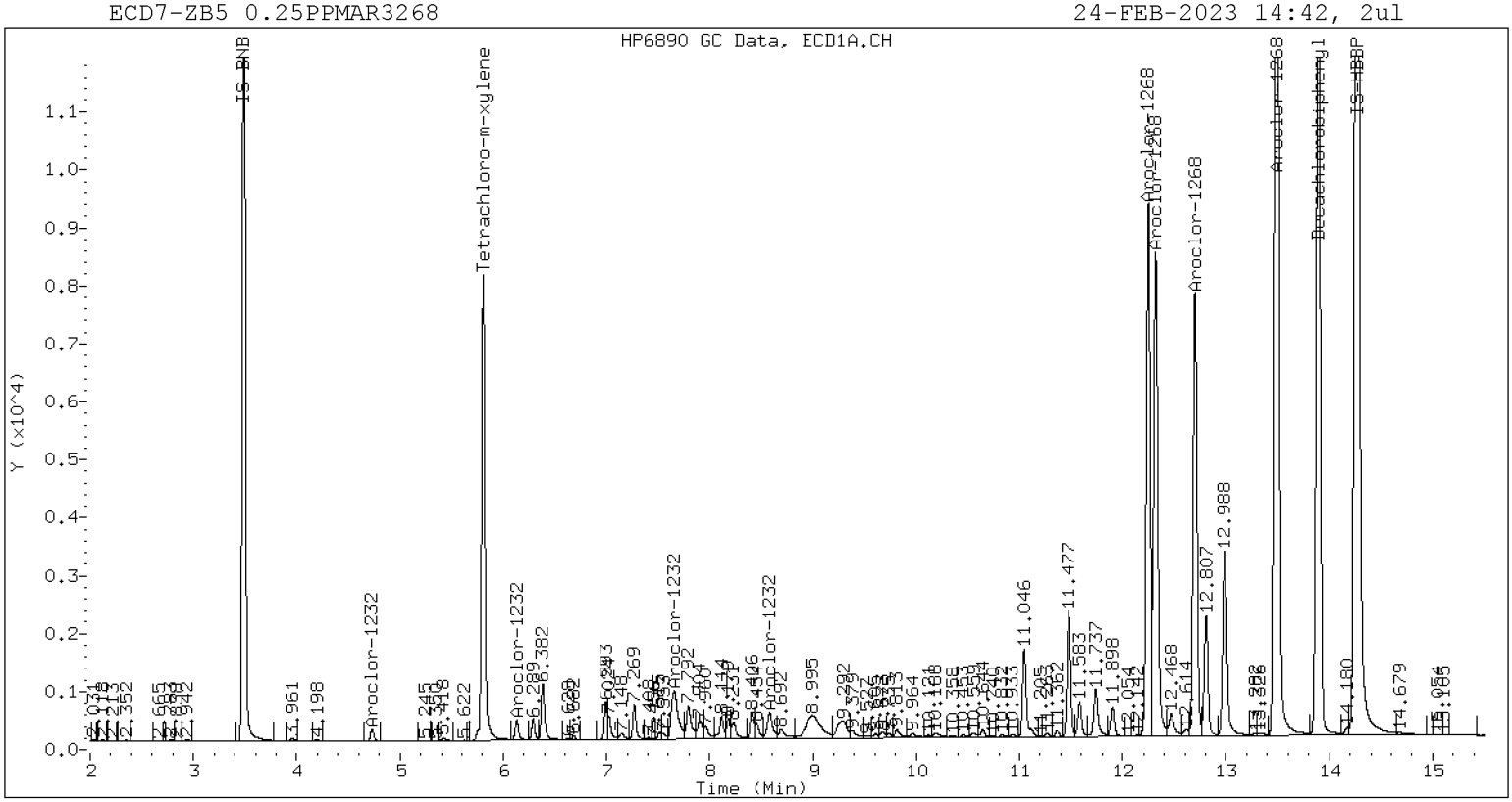
Total PCB Area Col2 (5.785 - 14.019) = 2300029 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

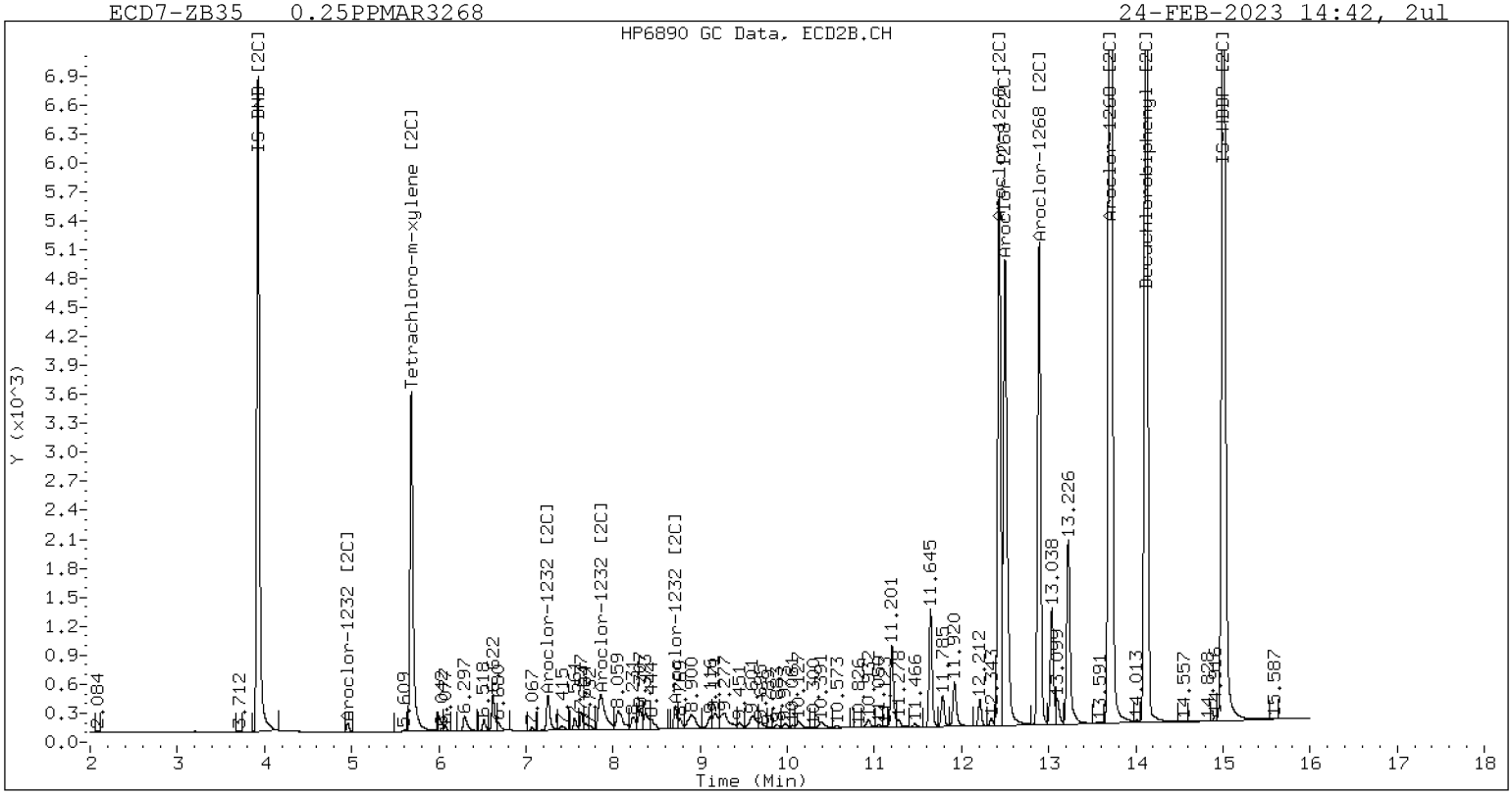
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242313ECD7.D
Data file 2: /230224.b/230224.b/02242313ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 24-FEB-2023 15:03
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	337070	5.686	0.001	165848	34.9	35.8	2.3	Tetrachloro-m-xylene
13.895	0.002	515407	14.119	-0.000	316730	34.3	37.3	8.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645975	-4.1
Hexabromobiphenyl	1429847	1524245	6.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316115	0.3
Hexabromobiphenyl	513946	556950	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.002	59491	242.5	1	7.254	-0.002	44576	240.9
Aroclor-1016	2	7.655	0.001	181090	242.1	2	7.857	0.002	95386	254.2
Aroclor-1016	3	7.790	0.000	88470	242.3	3	8.056	0.002	42160	248.8
Aroclor-1016	4	8.404	-0.001	57980	245.6	4	8.307	0.000	32197	242.1
Total Col1Ave (4 peaks):					243.1	Total Col2Ave (4 peaks):				246.5 RPD = 1
Corrected Ave (3 peaks):					242.3	Corrected Ave (3 peaks):				243.9 RPD = 1
Aroclor-1221	1	4.731	0.000	464	8.0	1	---			0.0
Aroclor-1221	2	6.130	-0.002	9233	89.2	2	6.300	0.004	5379	95.0
Aroclor-1221	3	6.382	-0.001	42570	177.2	3	6.623	0.001	20952	227.2
Total Col1Ave (3 peaks):					91.5	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.731	0.001	464	13.4	1	---			0.0
Aroclor-1232	2	6.130	-0.001	9233	134.5	2	7.254	-0.000	44576	554.6
Aroclor-1232	3	7.655	-0.001	181090	582.9	3	7.857	-0.003	95386	593.5
Aroclor-1232	4	8.580	-0.001	79916	605.2	4	8.713	-0.002	29795	644.2
Total Col1Ave (4 peaks):					334.0	Total Col2Ave (3 peaks):				597.4 RPD = 57*
Corrected Ave (3 peaks):					243.6	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	-0.002	59491	297.2	1	7.254	-0.002	44576	303.5
Aroclor-1242	2	7.655	-0.001	181090	297.9	2	7.857	-0.000	95386	309.0
Aroclor-1242	3	8.404	-0.001	57980	306.5	3	9.115	-0.052	18754	195.2
Aroclor-1242	4	8.580	0.000	79916	285.8	4	9.697	0.100	1355	11.6
Total Col1Ave (4 peaks):					296.8	Total Col2Ave (4 peaks):				204.8 RPD = 37
Corrected Ave (3 peaks):					293.6	Corrected Ave (3 peaks):				170.1 RPD = 53*
Aroclor-1248	1	8.404	-0.001	57980	184.0	1	8.307	-0.001	32197	213.3
Aroclor-1248	2	8.580	-0.001	79916	199.5	2	8.713	-0.001	29795	190.9
Aroclor-1248	3	8.993	-0.006	71805	95.0	3	9.115	-0.050	18754	104.4
Aroclor-1248	4	9.300	0.006	47348	123.1	4	---			0.0
Total Col1Ave (4 peaks):					150.4	Total Col2Ave (3 peaks):				169.6 RPD = 12
Corrected Ave (3 peaks):					134.0	Corrected Ave: < 3 Peaks				
Aroclor-1254	1	9.300	0.002	47348	73.0	1	9.451	0.001	22438	93.4
Aroclor-1254	2	---			0.0	2	9.972	0.001	2694	13.9
Aroclor-1254	3	9.670	0.002	5461	13.1	3	10.147	0.024	52914	126.5
Aroclor-1254	4	9.807	-0.000	18944	23.4	4	10.370	-0.003	70430	172.8
Aroclor-1254	5	10.121	-0.056	154170	303.3	5	10.568	-0.000	98525	396.9
Total Col1Ave (4 peaks):					103.2	Total Col2Ave (5 peaks):				160.7 RPD = 44*
Corrected Ave (3 peaks):					36.5	Corrected Ave (4 peaks):				101.7 RPD = 94*
Aroclor-1260	1	11.044	0.000	149195	272.1	1	11.653	0.000	82210	251.0
Aroclor-1260	2	11.361	-0.000	153832	268.5	2	11.919	0.001	222226	265.9
Aroclor-1260	3	11.736	0.002	396660	261.0	3	12.435	-0.000	59148	266.7
Aroclor-1260	4	12.140	0.001	190448	248.9	4	12.504	0.002	147180	261.2
Aroclor-1260	5	12.244	-0.000	91385	277.5	NS	---			----
Total Col1Ave (5 peaks):					265.6	Total Col2Ave (4 peaks):				261.2 RPD = 2
Corrected Ave (4 peaks):					262.6	Corrected Ave (3 peaks):				259.4 RPD = 1
Aroclor-1262	1	10.827	-0.002	220238	471.0	1	11.199	-0.001	84479	177.6
Aroclor-1262	2	12.244	0.000	91385	120.1	2	11.653	0.002	82210	203.0
Aroclor-1262	3	12.320	0.001	113066	138.2	3	12.435	0.002	59148	128.7
Aroclor-1262	4	12.988	0.001	102156	136.7	4	12.504	0.002	147180	204.4
Total Col1Ave (4 peaks):					216.5	Total Col2Ave (4 peaks):				178.4 RPD = 19
Corrected Ave (3 peaks):					131.7	Corrected Ave (3 peaks):				169.8 RPD = 25
Aroclor-1268	1	12.244	-0.003	91385	46.8	1	12.435	0.003	59148	52.7
Aroclor-1268	2	12.320	0.003	113066	58.5	2	12.504	0.004	147180	122.1
Aroclor-1268	3	12.726	0.027	46633	28.2	3	12.893	0.001	2874	2.8
Aroclor-1268	4	13.489	-0.000	25567	4.7	4	13.709	-0.000	13041	4.0
Total Col1Ave (4 peaks):					34.5	Total Col2Ave (4 peaks):				45.4 RPD = 27
Corrected Ave (3 peaks):					26.6	Corrected Ave (3 peaks):				19.8 RPD = 29

Total PCB Area Col1 (5.906 - 13.793) = 3743076 Col1 Total PCB = 0.5 ppm*

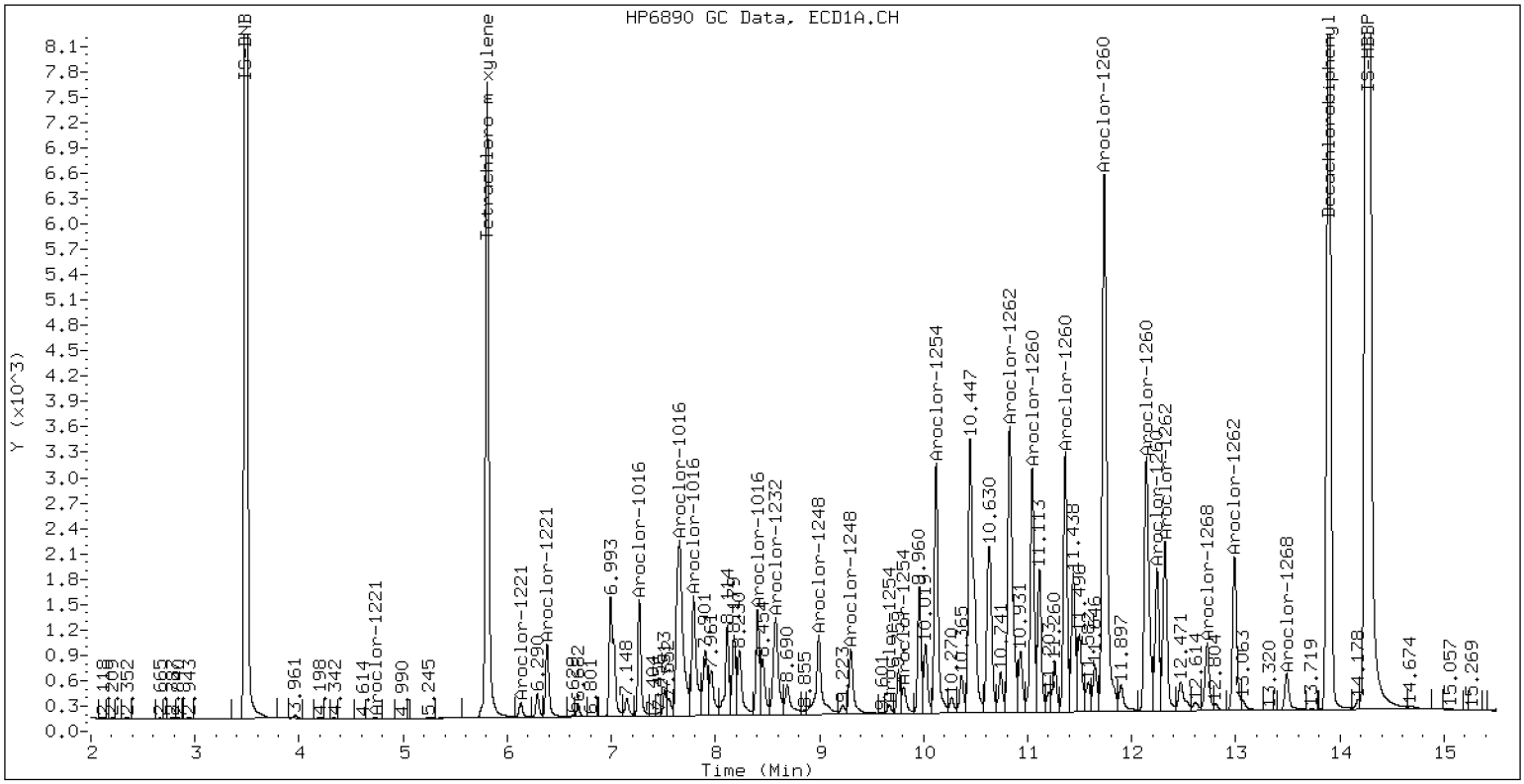
Total PCB Area Col2 (5.785 - 14.019) = 1897008 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

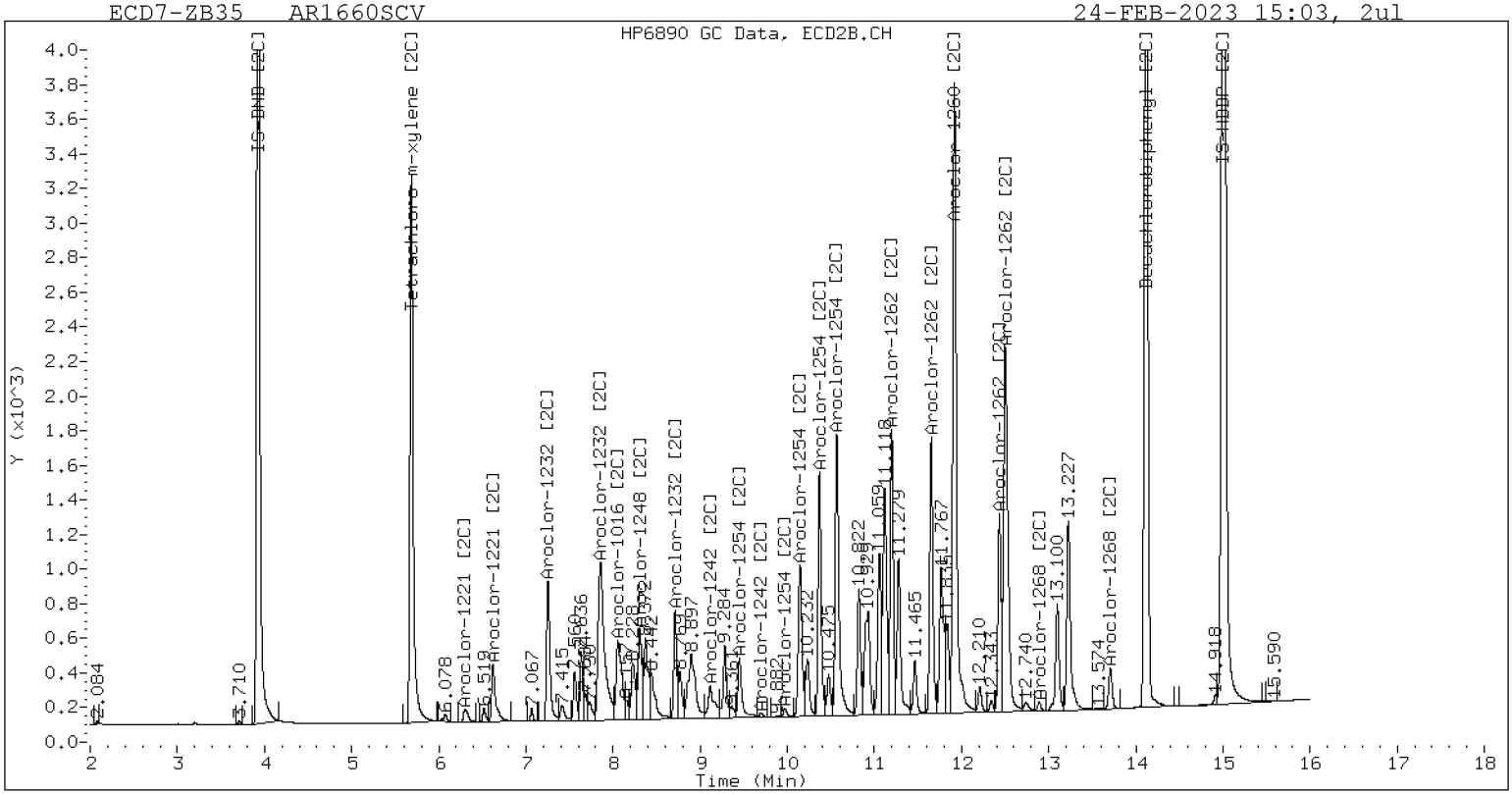
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242314ECD7.D
Data file 2: /230224.b/230224.b/02242314ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 24-FEB-2023 15:24
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	354283	5.686	0.001	172455	33.6	34.5	2.6	Tetrachloro-m-xylene
13.895	0.002	567088	14.120	0.001	347430	37.0	40.3	8.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	705650	4.7
Hexabromobiphenyl	1429847	1555683	8.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	340433	8.0
Hexabromobiphenyl	513946	565609	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.000	39927	149.0	1	7.256	0.000	32417	162.7
Aroclor-1016	2	7.653	-0.001	132339	162.0	2	7.856	0.001	69235	171.3
Aroclor-1016	3	7.791	0.001	59310	148.7	3	8.055	0.000	29473	161.5
Aroclor-1016	4	8.405	0.000	42537	165.0	4	8.307	-0.000	22792	159.2
Total Col1Ave (4 peaks):					156.2	Total Col2Ave (4 peaks):				163.7 RPD = 5
Corrected Ave (3 peaks):					153.2	Corrected Ave (3 peaks):				161.1 RPD = 5
Aroclor-1221	1	4.733	0.002	319	5.0	1	---			0.0
Aroclor-1221	2	6.131	-0.001	6534	57.8	2	6.319	0.022	4365	71.6
Aroclor-1221	3	6.384	0.001	29664	113.0	3	6.624	0.002	14916	150.2
Total Col1Ave (3 peaks):					58.6	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.733	0.003	319	8.4	1	---			0.0
Aroclor-1232	2	6.131	0.000	6534	87.2	2	7.256	0.002	32417	374.5
Aroclor-1232	3	7.653	-0.003	132339	389.9	3	7.856	-0.004	69235	400.0
Aroclor-1232	4	8.579	-0.002	69445	481.4	4	8.714	-0.001	22167	445.0
Total Col1Ave (4 peaks):					241.7	Total Col2Ave (3 peaks):				406.5 RPD = 51*
Corrected Ave (3 peaks):					161.8	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.270	-0.001	39927	182.6	1	7.256	0.000	32417	205.0
Aroclor-1242	2	7.653	-0.003	132339	199.3	2	7.856	-0.002	69235	208.2
Aroclor-1242	3	8.405	-0.000	42537	205.9	3	9.164	-0.004	23068	223.0
Aroclor-1242	4	8.579	-0.000	69445	227.4	4	9.587	-0.010	31021	246.1
Total Col1Ave (4 peaks):					203.8	Total Col2Ave (4 peaks):				220.6 RPD = 8
Corrected Ave (3 peaks):					195.9	Corrected Ave (3 peaks):				212.1 RPD = 8
Aroclor-1248	1	8.405	0.000	42537	123.5	1	8.307	-0.001	22792	140.2
Aroclor-1248	2	8.579	-0.001	69445	158.7	2	8.714	-0.000	22167	131.9
Aroclor-1248	3	9.001	0.003	91942	111.4	3	9.164	-0.002	23068	119.3
Aroclor-1248	4	9.294	-0.000	38711	92.1	4	9.587	-0.003	31021	133.6
Total Col1Ave (4 peaks):					121.4	Total Col2Ave (4 peaks):				131.2 RPD = 8
Corrected Ave (3 peaks):					109.0	Corrected Ave (3 peaks):				128.3 RPD = 16
Aroclor-1254	1	9.294	-0.005	38711	54.6	1	9.450	0.001	13131	50.7
Aroclor-1254	2	9.377	-0.000	17371	54.5	2	9.970	0.000	8340	40.1
Aroclor-1254	3	9.668	-0.000	16373	35.9	3	10.123	-0.000	16364	36.3
Aroclor-1254	4	9.807	-0.001	27490	31.0	4	10.382	0.009	16062	36.6
Aroclor-1254	5	10.175	-0.001	20494	36.9	5	10.572	0.004	4818	18.0
Total Col1Ave (5 peaks):					42.6	Total Col2Ave (5 peaks):				36.4 RPD = 16
Corrected Ave (4 peaks):					39.6	Corrected Ave (4 peaks):				32.8 RPD = 19
Aroclor-1260	1	11.048	0.003	794	1.4	1	11.665	0.012	1652	5.0
Aroclor-1260	2	11.366	0.005	814	1.4	2	11.926	0.008	842	1.0
Aroclor-1260	3	11.739	0.006	1848	1.2	3	12.438	0.002	483	2.1
Aroclor-1260	4	12.145	0.006	1372	1.8	4	12.506	0.004	790	1.4
Aroclor-1260	5	---			0.0	NS	---			----
Total Col1Ave (4 peaks):					1.4	Total Col2Ave (4 peaks):				2.4 RPD = 49*
Corrected Ave (3 peaks):					1.3	Corrected Ave (3 peaks):				1.5 RPD = 12
Aroclor-1262	1	10.832	0.003	13157	27.6	1	11.121	-0.079	6113	12.7
Aroclor-1262	2	12.145	-0.098	1372	1.8	2	11.665	0.013	1652	4.0
Aroclor-1262	3	---			0.0	3	12.438	0.004	483	1.0
Aroclor-1262	4	13.038	0.051	842	1.1	4	12.506	0.004	790	1.1
Total Col1Ave (3 peaks):					10.1	Total Col2Ave (4 peaks):				4.7 RPD = 73*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				2.0
Aroclor-1268	1	---			0.0	1	12.438	0.006	483	0.4
Aroclor-1268	2	---			0.0	2	12.506	0.006	790	0.6
Aroclor-1268	3	12.617	-0.082	5851	3.5	3	12.899	0.007	491	0.5
Aroclor-1268	4	13.500	0.010	1745	0.3	4	13.714	0.005	379	0.1
Col1Ave: <3 Quant Peaks						Col2Ave: 0.4				

Total PCB Area Col1 (5.906 - 13.793) = 1149784 Col1 Total PCB = 0.1 ppm*

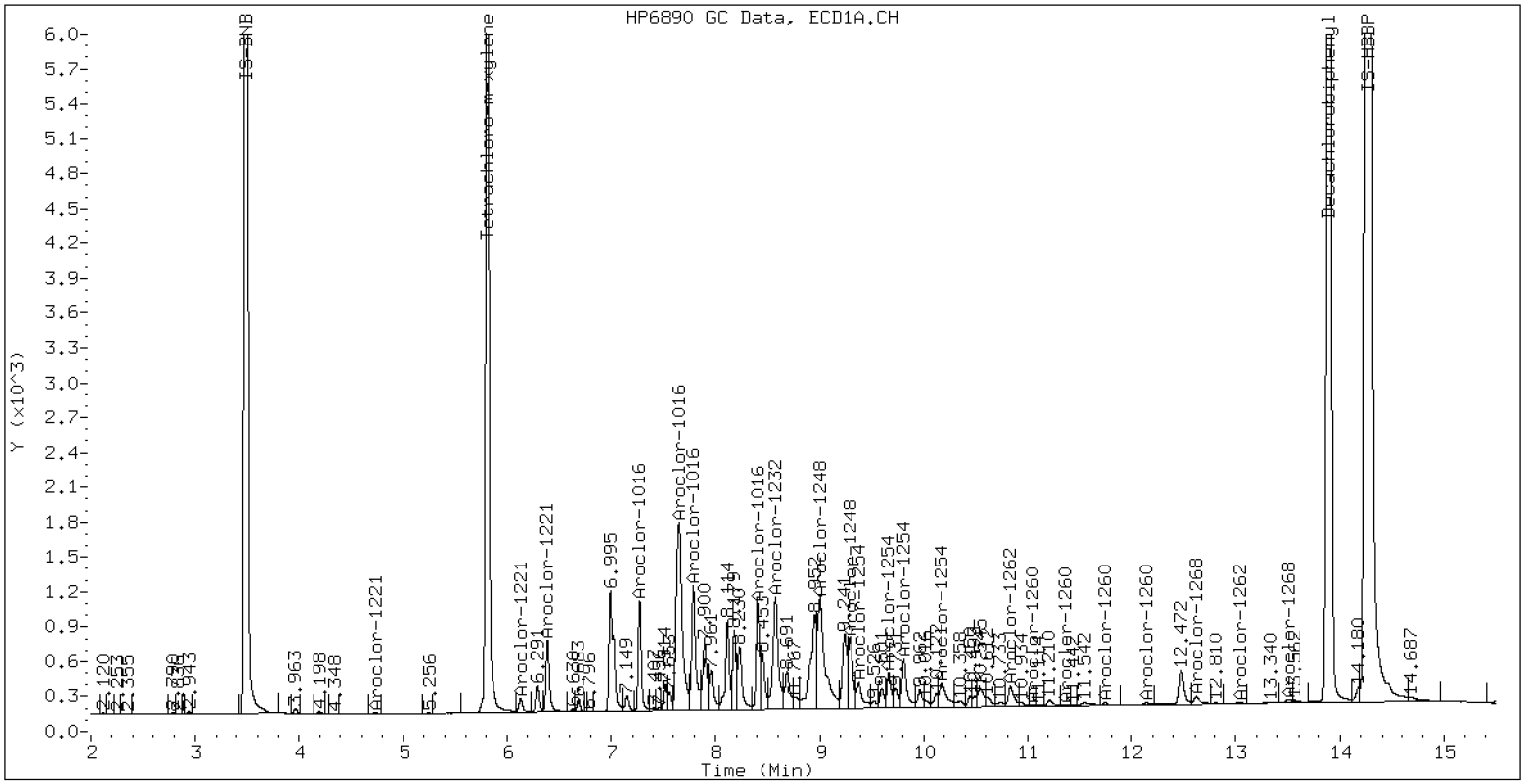
Total PCB Area Col2 (5.785 - 14.019) = 572210 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

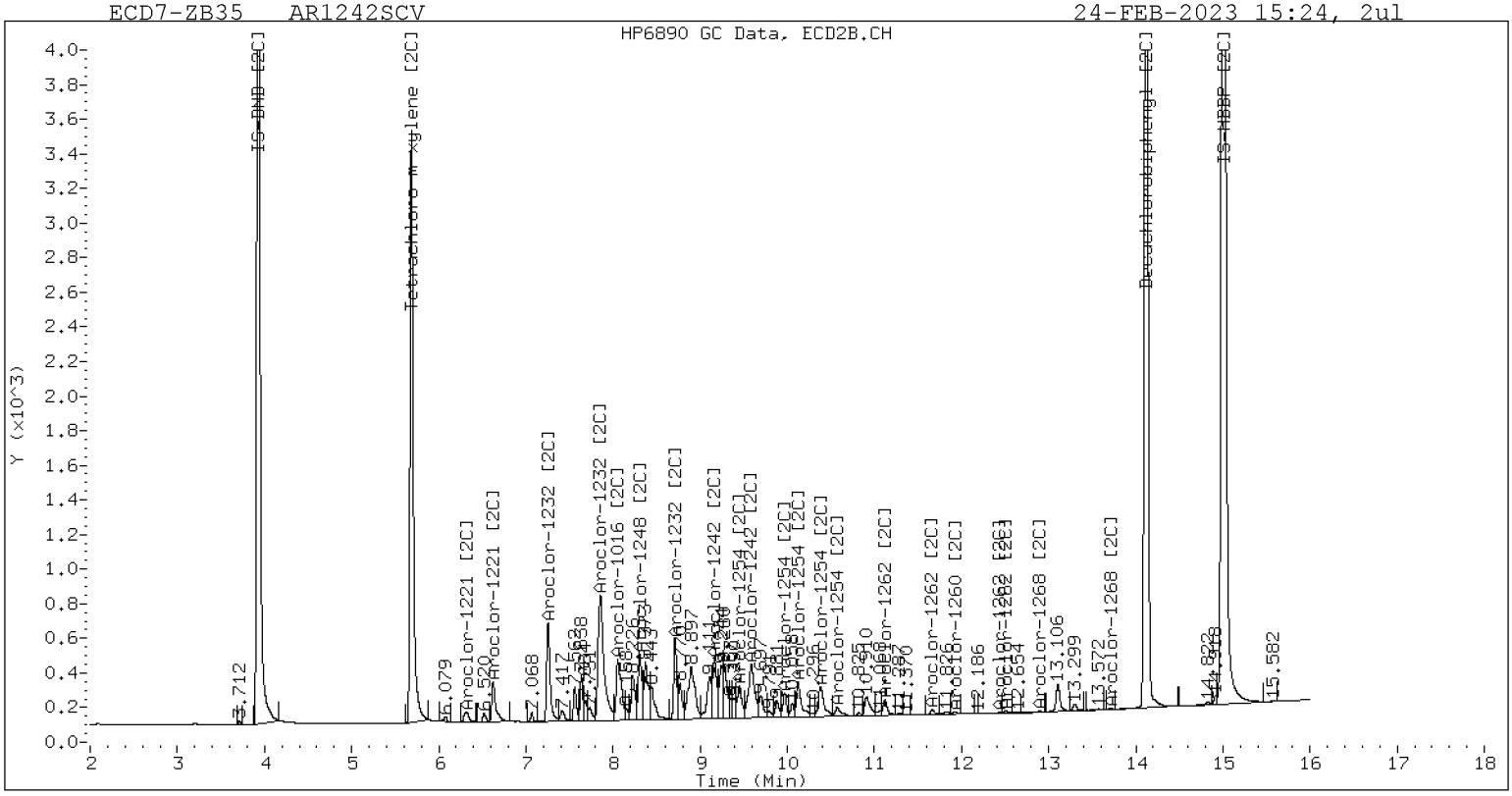
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242315ECD7.D
Data file 2: /230224.b/230224.b/02242315ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 24-FEB-2023 15:45
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	336655	5.687	0.002	168719	34.9	36.4	4.2	Tetrachloro-m-xylene
13.894	0.001	499162	14.118	-0.001	308317	33.1	36.3	9.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	646554	-4.0
Hexabromobiphenyl	1429847	1529451	7.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316066	0.3
Hexabromobiphenyl	513946	557213	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.000	19773	80.5	1	7.254	-0.002	16926	91.5
Aroclor-1016	2	7.653	-0.001	88099	117.7	2	7.857	0.001	45733	121.9
Aroclor-1016	3	7.794	0.003	35915	98.3	3	8.060	0.005	8078	47.7
Aroclor-1016	4	8.406	0.001	77842	329.5	4	8.307	0.000	37348	280.9
	Total Col1Ave (4 peaks):				156.5	Total Col2Ave (4 peaks):				135.5 RPD = 14
	Corrected Ave (3 peaks):				98.8	Corrected Ave (3 peaks):				87.0 RPD = 13
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	6.133	0.001	680	6.6	2	6.326	0.030	1966	34.7
Aroclor-1221	3	6.384	0.002	3390	14.1	3	6.631	0.009	1571	17.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	6.133	0.002	680	9.9	2	7.254	-0.000	16926	210.6
Aroclor-1232	3	7.653	-0.002	88099	283.3	3	7.857	-0.004	45733	284.6
Aroclor-1232	4	8.581	-0.000	99572	753.4	4	8.714	-0.001	38224	826.6
	Total Col1Ave (3 peaks):				348.9	Total Col2Ave (3 peaks):				440.6 RPD = 23
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.271	-0.000	19773	98.7	1	7.254	-0.002	16926	115.3
Aroclor-1242	2	7.653	-0.003	88099	144.8	2	7.857	-0.001	45733	148.2
Aroclor-1242	3	8.406	0.000	77842	411.2	3	9.165	-0.002	45021	468.7
Aroclor-1242	4	8.581	0.001	99572	355.8	4	9.590	-0.008	53613	458.1
	Total Col1Ave (4 peaks):				252.6	Total Col2Ave (4 peaks):				297.6 RPD = 16
	Corrected Ave (3 peaks):				199.8	Corrected Ave (3 peaks):				240.5 RPD = 19
Aroclor-1248	1	8.406	0.000	77842	246.8	1	8.307	-0.001	37348	247.5
Aroclor-1248	2	8.581	0.000	99572	248.3	2	8.714	-0.000	38224	245.0
Aroclor-1248	3	8.998	-0.000	186857	247.0	3	9.165	-0.000	45021	250.7
Aroclor-1248	4	9.294	-0.000	98398	255.5	4	9.590	-0.001	53613	248.7
	Total Col1Ave (4 peaks):				249.4	Total Col2Ave (4 peaks):				248.0 RPD = 1
	Corrected Ave (3 peaks):				247.4	Corrected Ave (3 peaks):				247.0 RPD = 0
Aroclor-1254	1	9.294	-0.004	98398	151.6	1	9.450	0.001	21823	90.8
Aroclor-1254	2	9.377	-0.001	49616	169.9	2	9.971	0.001	19450	100.6
Aroclor-1254	3	9.669	0.001	40230	96.4	3	10.124	0.000	36574	87.5
Aroclor-1254	4	9.808	0.001	68500	84.4	4	10.389	0.016	35100	86.1
Aroclor-1254	5	10.183	0.007	47365	93.1	5	10.573	0.004	5676	22.9
	Total Col1Ave (5 peaks):				119.1	Total Col2Ave (5 peaks):				77.6 RPD = 42*
	Corrected Ave (4 peaks):				106.4	Corrected Ave (4 peaks):				71.8 RPD = 39
Aroclor-1260	1	11.047	0.003	1670	3.0	1	11.662	0.009	2055	6.3
Aroclor-1260	2	11.362	0.001	1111	1.9	2	11.924	0.007	1466	1.8
Aroclor-1260	3	11.739	0.005	2107	1.4	3	12.434	-0.002	573	2.6
Aroclor-1260	4	12.144	0.005	1379	1.8	4	12.505	0.003	1003	1.8
Aroclor-1260	5	12.251	0.006	698	2.1	NS	---			----
	Total Col1Ave (5 peaks):				2.1	Total Col2Ave (4 peaks):				3.1 RPD = 41*
	Corrected Ave (4 peaks):				1.8	Corrected Ave (3 peaks):				2.0 RPD = 12
Aroclor-1262	1	10.833	0.005	15355	32.7	1	11.122	-0.079	7225	15.2
Aroclor-1262	2	12.251	0.007	698	0.9	2	11.662	0.011	2055	5.1
Aroclor-1262	3	12.321	0.002	836	1.0	3	12.434	0.000	573	1.2
Aroclor-1262	4	12.991	0.004	1043	1.4	4	12.505	0.003	1003	1.4
	Total Col1Ave (4 peaks):				9.0	Total Col2Ave (4 peaks):				5.7 RPD = 45*
	Corrected Ave (3 peaks):				1.1	Corrected Ave (3 peaks):				2.6 RPD = 80*
Aroclor-1268	1	12.251	0.004	698	0.4	1	12.434	0.002	573	0.5
Aroclor-1268	2	12.321	0.004	836	0.4	2	12.505	0.005	1003	0.8
Aroclor-1268	3	12.700	0.001	2449	1.5	3	12.892	0.001	721	0.7
Aroclor-1268	4	13.493	0.003	7547	1.4	4	13.708	-0.001	2265	0.7
	Total Col1Ave (4 peaks):				0.9	Total Col2Ave (4 peaks):				0.7 RPD = 29
	Corrected Ave (3 peaks):				0.7	Corrected Ave (3 peaks):				0.6 RPD = 13

Total PCB Area Col1 (5.906 - 13.793) = 1574335 Col1 Total PCB = 0.2 ppm*

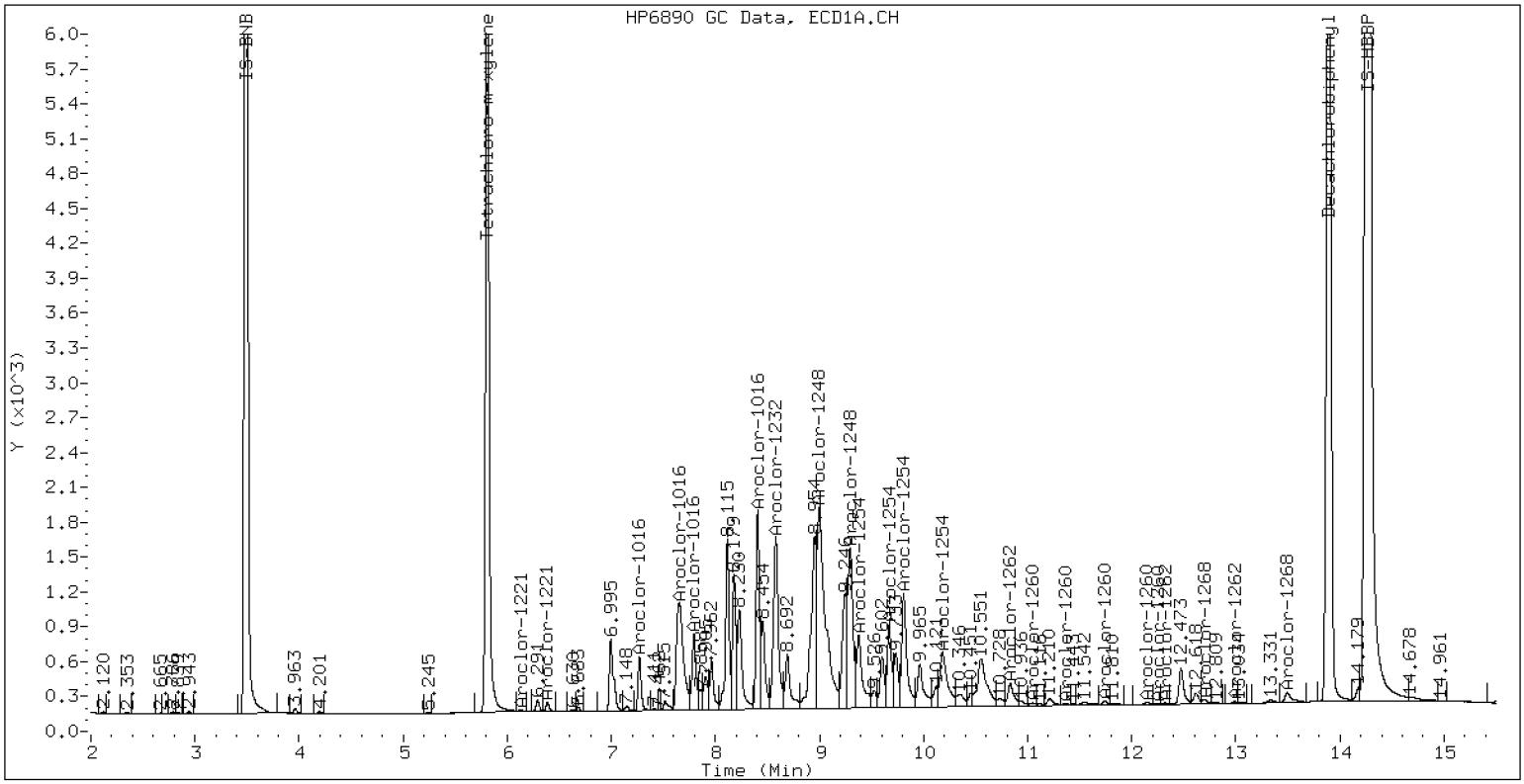
Total PCB Area Col2 (5.785 - 14.019) = 746330 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

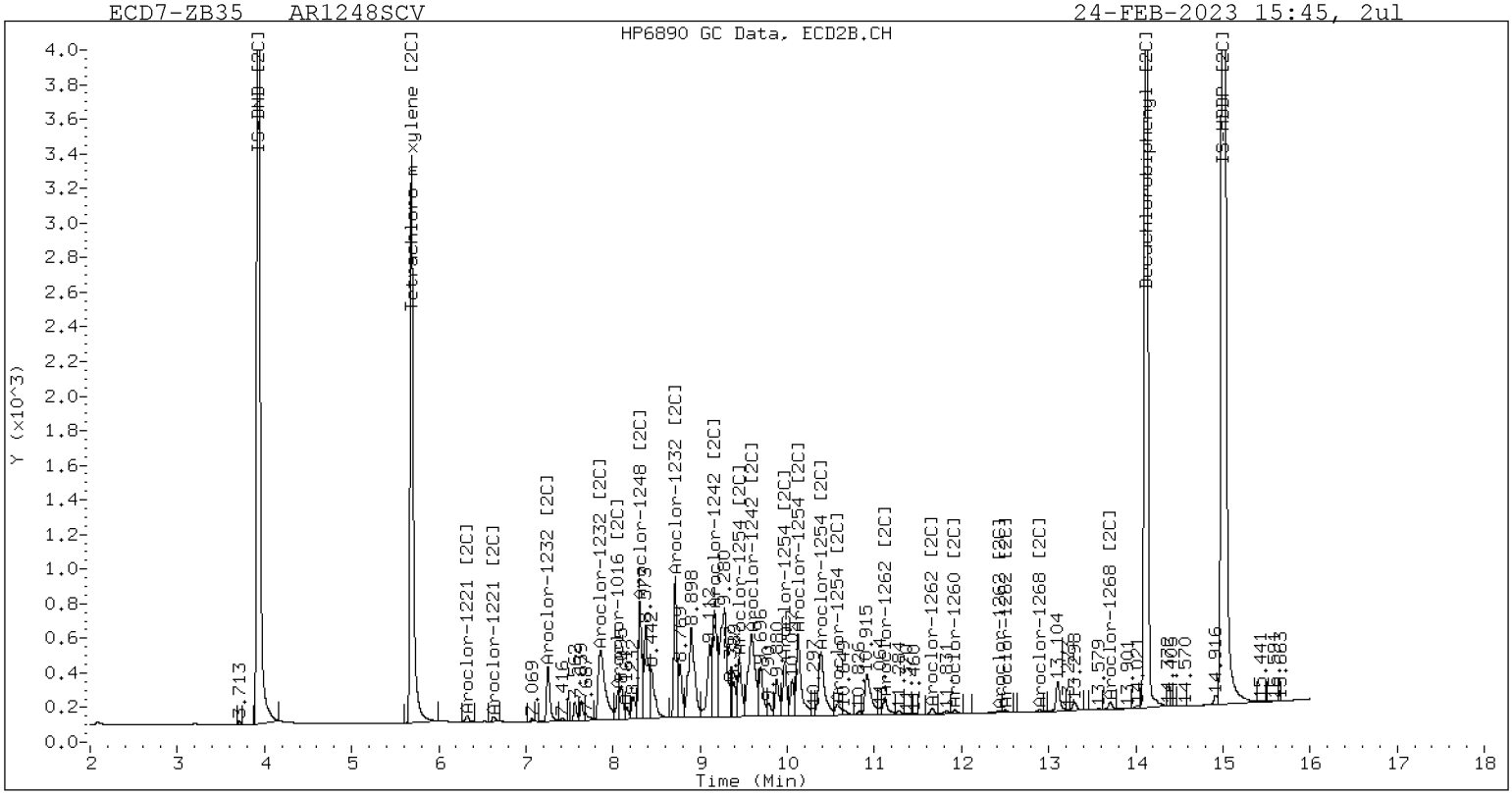
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242316ECD7.D
Data file 2: /230224.b/230224.b/02242316ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 24-FEB-2023 16:06
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.000	354312	5.686	0.001	174604	36.1	37.1	2.6	Tetrachloro-m-xylene
13.895	0.002	540961	14.119	-0.000	329134	34.6	37.9	9.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656887	-2.5
Hexabromobiphenyl	1429847	1585505	10.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	320936	1.8
Hexabromobiphenyl	513946	570006	10.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	0.000	565	2.3	1	7.255	-0.001	387	2.1
Aroclor-1016	2	7.656	0.002	1875	2.5	2	7.854	-0.002	860	2.3
Aroclor-1016	3	7.792	0.002	1106	3.0	3	8.098	0.043	578	3.4
Aroclor-1016	4	8.405	0.000	29924	124.7	4	8.307	0.000	21985	162.9
	Total Col1Ave (4 peaks):				33.1	Total Col2Ave (4 peaks):				42.6 RPD = 25
	Corrected Ave (3 peaks):				2.6	Corrected Ave (3 peaks):				2.6 RPD = 0
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.325	0.028	1947	33.9
Aroclor-1221	3	---			0.0	3	6.637	0.015	368	3.9
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.255	0.001	387	4.7
Aroclor-1232	3	7.656	0.000	1875	5.9	3	7.854	-0.007	860	5.3
Aroclor-1232	4	8.583	0.002	12327	91.8	4	8.715	0.000	15013	319.7
	Col1Ave: <3 Quant Peaks					Col2Ave: 109.9				
Aroclor-1242	1	7.270	-0.000	565	2.8	1	7.255	-0.001	387	2.6
Aroclor-1242	2	7.656	0.000	1875	3.0	2	7.854	-0.004	860	2.7
Aroclor-1242	3	8.405	-0.000	29924	155.6	3	9.169	0.002	21933	224.9
Aroclor-1242	4	8.583	0.003	12327	43.4	4	9.545	-0.053	34065	286.6
	Total Col1Ave (4 peaks):				51.2	Total Col2Ave (4 peaks):				129.2 RPD = 87*
	Corrected Ave (3 peaks):				16.4	Corrected Ave (3 peaks):				76.7 RPD = 130*
Aroclor-1248	1	8.405	0.000	29924	93.4	1	8.307	-0.001	21985	143.5
Aroclor-1248	2	8.583	0.002	12327	30.3	2	8.715	0.001	15013	94.8
Aroclor-1248	3	8.992	-0.007	145580	189.4	3	9.169	0.004	21933	120.3
Aroclor-1248	4	9.298	0.003	155450	397.3	4	9.545	-0.046	34065	155.6
	Total Col1Ave (4 peaks):				177.6	Total Col2Ave (4 peaks):				128.5 RPD = 32
	Corrected Ave (3 peaks):				104.3	Corrected Ave (3 peaks):				119.5 RPD = 14
Aroclor-1254	1	9.298	-0.001	155450	235.7	1	9.450	0.001	58639	240.4
Aroclor-1254	2	9.377	-0.001	69801	235.3	2	9.971	0.000	47008	239.5
Aroclor-1254	3	9.668	-0.000	100839	237.8	3	10.124	0.000	100062	235.7
Aroclor-1254	4	9.807	0.000	190544	231.1	4	10.373	0.000	99535	240.5
Aroclor-1254	5	10.176	-0.000	122321	236.7	5	10.570	0.001	61549	244.2
	Total Col1Ave (5 peaks):				235.3	Total Col2Ave (5 peaks):				240.1 RPD = 2
	Corrected Ave (4 peaks):				234.7	Corrected Ave (4 peaks):				239.0 RPD = 2
Aroclor-1260	1	11.043	-0.002	12288	21.5	1	11.661	0.008	29062	86.7
Aroclor-1260	2	11.361	-0.001	13660	22.9	2	11.921	0.003	22238	26.0
Aroclor-1260	3	11.736	0.002	37632	23.8	3	12.441	0.005	3555	15.7
Aroclor-1260	4	12.141	0.002	27105	34.1	4	12.503	0.001	13126	22.8
Aroclor-1260	5	12.320	0.076	2381	6.9	NS	---			----
	Total Col1Ave (5 peaks):				21.9	Total Col2Ave (4 peaks):				37.8 RPD = 53*
	Corrected Ave (4 peaks):				18.8	Corrected Ave (3 peaks):				21.5 RPD = 13
Aroclor-1262	1	10.827	-0.002	220626	453.6	1	11.281	0.081	13562	27.9
Aroclor-1262	2	12.320	0.076	2381	3.0	2	11.661	0.009	29062	70.1
Aroclor-1262	3	---			0.0	3	12.441	0.007	3555	7.6
Aroclor-1262	4	12.989	0.002	3225	4.1	4	12.503	0.001	13126	17.8
	Total Col1Ave (3 peaks):				153.6	Total Col2Ave (4 peaks):				30.8 RPD = 133*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				17.7
Aroclor-1268	1	12.320	0.074	2381	1.2	1	12.441	0.009	3555	3.1
Aroclor-1268	2	---			0.0	2	12.503	0.003	13126	10.6
Aroclor-1268	3	12.701	0.002	2939	1.7	3	12.892	0.000	772	0.7
Aroclor-1268	4	13.493	0.003	9164	1.6	4	13.707	-0.002	2801	0.8
	Total Col1Ave (3 peaks):				1.5	Total Col2Ave (4 peaks):				3.8 RPD = 87*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				1.6

Total PCB Area Col1 (5.906 - 13.793) = 2118645 Col1 Total PCB = 0.3 ppm*

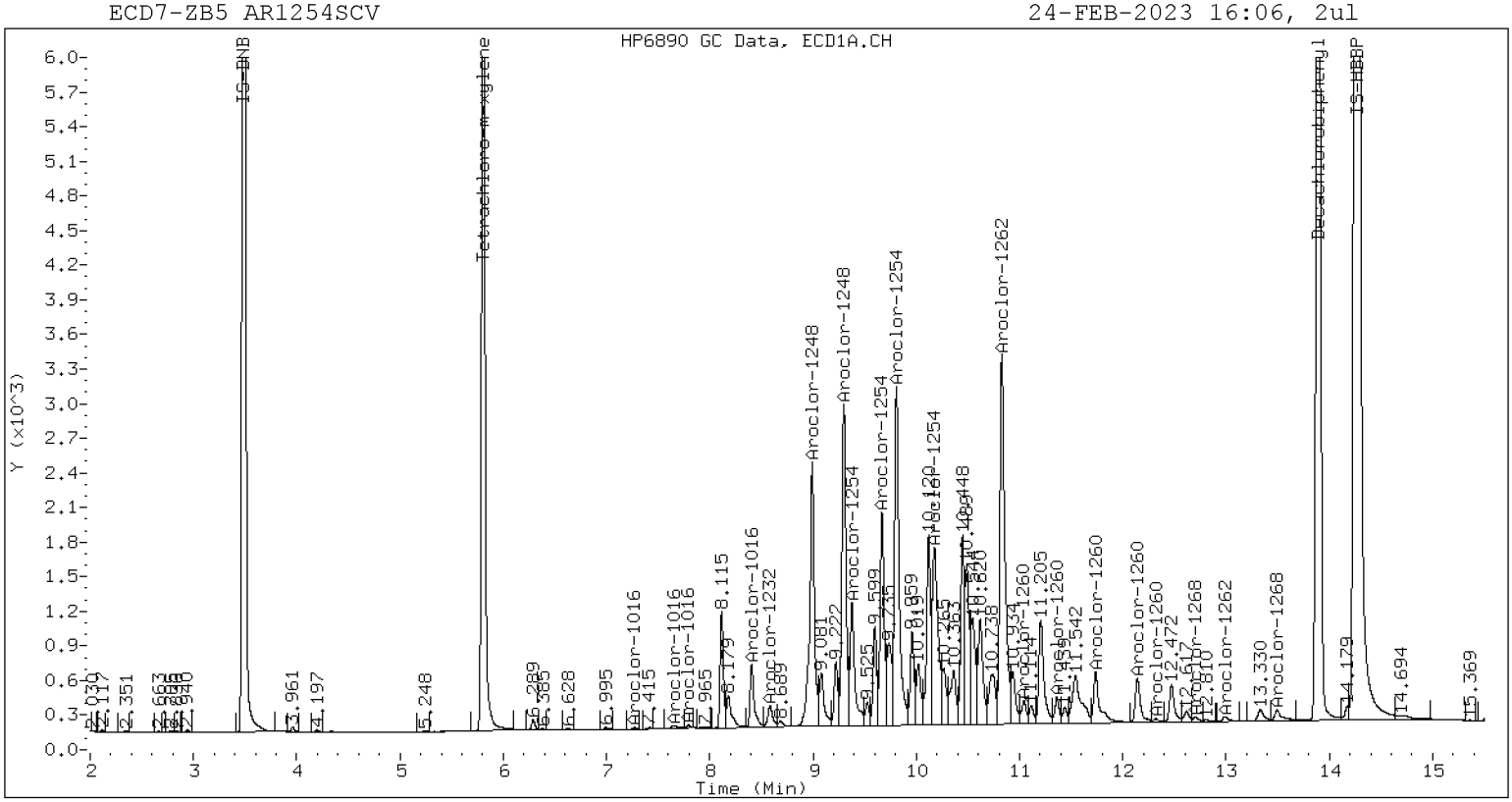
Total PCB Area Col2 (5.785 - 14.019) = 1007601 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

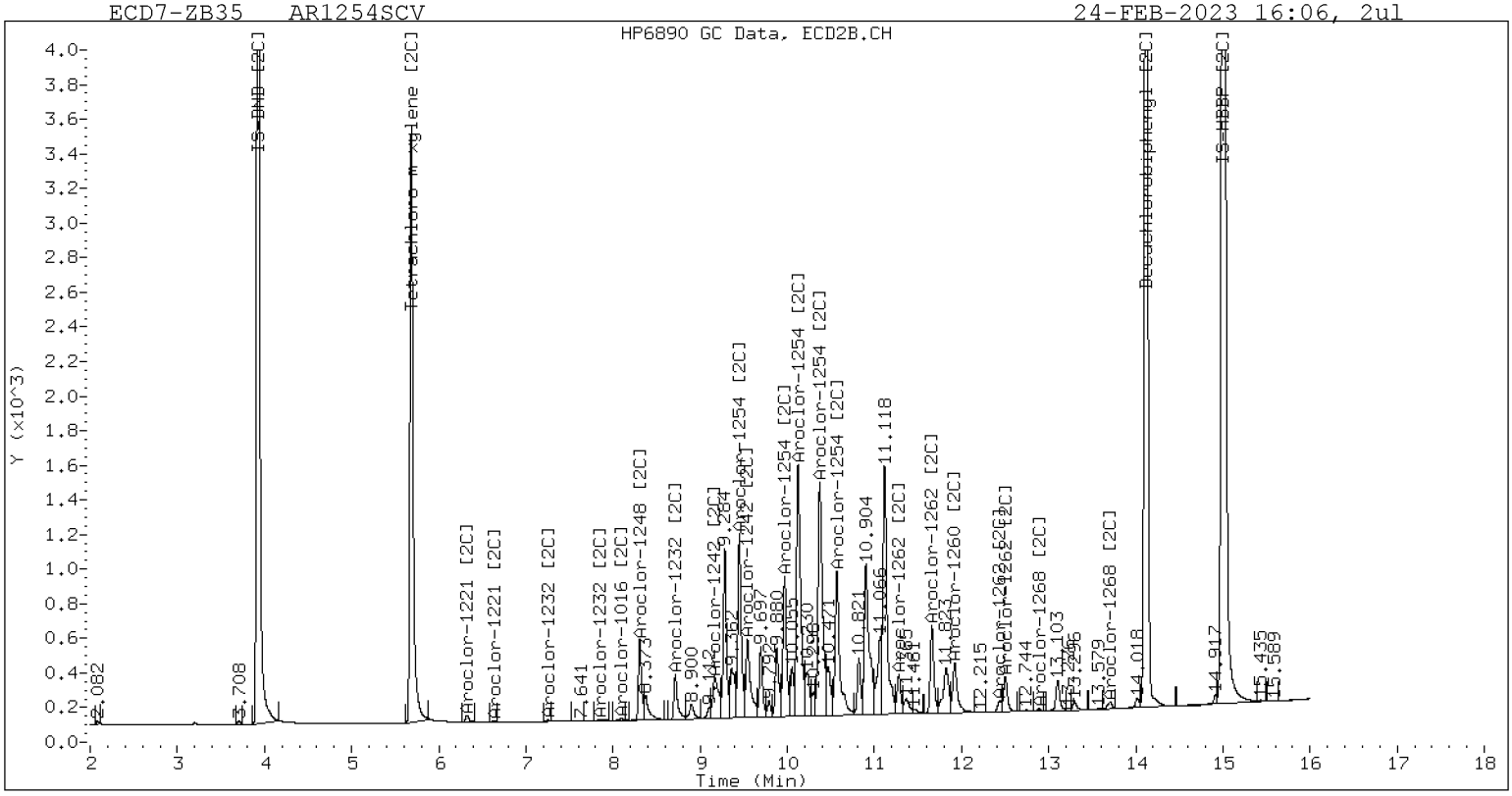
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242317ECD7.D
Data file 2: /230224.b/230224.b/02242317ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 24-FEB-2023 16:27
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	356001	5.685	0.000	170882	36.0	36.6	1.7	Tetrachloro-m-xylene
13.895	0.002	533971	14.119	0.000	326235	34.4	37.9	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661953	-1.8
Hexabromobiphenyl	1429847	1574993	10.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317807	0.8
Hexabromobiphenyl	513946	565951	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.001	7175	28.5	1	7.256	0.000	3727	20.0
Aroclor-1016	2	7.659	0.005	12893	16.8	2	7.863	0.007	5834	15.5
Aroclor-1016	3	7.794	0.004	6936	18.5	3	8.063	0.009	2963	17.4
Aroclor-1016	4	8.408	0.003	3610	14.9	4	8.308	0.002	2045	15.3
Total Col1Ave (4 peaks):					19.7	Total Col2Ave (4 peaks):				17.0 RPD = 14
Corrected Ave (3 peaks):					16.8	Corrected Ave (3 peaks):				16.1 RPD = 4
Aroclor-1221	1	4.730	-0.000	15803	266.6	1	4.955	-0.001	7909	262.9
Aroclor-1221	2	6.131	-0.001	26946	254.1	2	6.296	-0.000	14303	251.2
Aroclor-1221	3	6.382	-0.000	62477	253.8	3	6.622	0.000	23612	254.7
Total Col1Ave (3 peaks):					258.2	Total Col2Ave (3 peaks):				256.3 RPD = 1
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.730	0.000	15803	445.6	1	4.955	-0.001	7909	486.4
Aroclor-1232	2	6.131	0.000	26946	383.1	2	7.256	0.002	3727	46.1
Aroclor-1232	3	7.659	0.003	12893	40.5	3	7.863	0.002	5834	36.1
Aroclor-1232	4	8.583	0.003	2684	19.8	4	8.716	0.002	1189	25.6
Total Col1Ave (4 peaks):					222.3	Total Col2Ave (4 peaks):				148.5 RPD = 40
Corrected Ave (3 peaks):					147.8	Corrected Ave (3 peaks):				35.9 RPD = 122*
Aroclor-1242	1	7.269	-0.001	7175	35.0	1	7.256	0.000	3727	25.2
Aroclor-1242	2	7.659	0.003	12893	20.7	2	7.863	0.005	5834	18.8
Aroclor-1242	3	8.408	0.002	3610	18.6	3	9.175	0.008	1082	11.2
Aroclor-1242	4	8.583	0.004	2684	9.4	4	9.543	-0.054	1390	11.8
Total Col1Ave (4 peaks):					20.9	Total Col2Ave (4 peaks):				16.8 RPD = 22
Corrected Ave (3 peaks):					16.2	Corrected Ave (3 peaks):				13.9 RPD = 15
Aroclor-1248	1	8.408	0.002	3610	11.2	1	8.308	0.001	2045	13.5
Aroclor-1248	2	8.583	0.003	2684	6.5	2	8.716	0.002	1189	7.6
Aroclor-1248	3	8.994	-0.005	24440	31.6	3	9.175	0.009	1082	6.0
Aroclor-1248	4	9.302	0.008	26328	66.8	4	9.543	-0.048	1390	6.4
Total Col1Ave (4 peaks):					29.0	Total Col2Ave (4 peaks):				8.4 RPD = 110*
Corrected Ave (3 peaks):					16.4	Corrected Ave (3 peaks):				6.7 RPD = 85*
Aroclor-1254	1	9.302	0.004	26328	39.6	1	9.452	0.003	9571	39.6
Aroclor-1254	2	---			0.0	2	9.972	0.002	1733	8.9
Aroclor-1254	3	9.670	0.002	3721	8.7	3	10.147	0.023	49218	117.1
Aroclor-1254	4	9.808	0.000	9653	11.6	4	10.370	-0.002	59603	145.4
Aroclor-1254	5	10.120	-0.056	131179	251.9	5	10.569	0.001	79533	318.7
Total Col1Ave (4 peaks):					78.0	Total Col2Ave (5 peaks):				125.9 RPD = 47*
Corrected Ave (3 peaks):					20.0	Corrected Ave (4 peaks):				77.8 RPD = 118*
Aroclor-1260	1	11.044	-0.000	223208	394.0	1	11.652	-0.001	104071	312.7
Aroclor-1260	2	11.361	-0.001	190166	321.2	2	11.919	0.002	251579	296.2
Aroclor-1260	3	11.737	0.003	458281	291.9	3	12.435	-0.001	113645	504.2
Aroclor-1260	4	12.141	0.002	149720	189.4	4	12.501	-0.001	182951	319.6
Aroclor-1260	5	12.244	0.000	196033	576.0	NS	---			----
Total Col1Ave (5 peaks):					354.5	Total Col2Ave (4 peaks):				358.2 RPD = 1
Corrected Ave (4 peaks):					299.1	Corrected Ave (3 peaks):				309.5 RPD = 3
Aroclor-1262	1	10.828	-0.001	121431	251.3	1	11.201	0.000	121335	251.1
Aroclor-1262	2	12.244	0.000	196033	249.3	2	11.652	0.000	104071	252.9
Aroclor-1262	3	12.319	0.001	211092	249.8	3	12.435	0.001	113645	243.4
Aroclor-1262	4	12.988	0.001	183455	237.5	4	12.501	-0.001	182951	250.1
Total Col1Ave (4 peaks):					247.0	Total Col2Ave (4 peaks):				249.3 RPD = 1
Corrected Ave (3 peaks):					245.5	Corrected Ave (3 peaks):				248.2 RPD = 1
Aroclor-1268	1	12.244	-0.002	196033	97.1	1	12.435	0.003	113645	99.7
Aroclor-1268	2	12.319	0.002	211092	105.6	2	12.501	0.001	182951	149.3
Aroclor-1268	3	12.723	0.024	77240	45.2	3	12.891	-0.000	7755	7.4
Aroclor-1268	4	13.488	-0.002	65479	11.6	4	13.709	0.000	35146	10.5
Total Col1Ave (4 peaks):					64.9	Total Col2Ave (4 peaks):				66.7 RPD = 3

Corrected Ave (3 peaks): 51.3 Corrected Ave (3 peaks): 39.2 RPD = 27

Total PCB Area Col1 (5.906 - 13.793) = 3239932 Col1 Total PCB = 0.4 ppm*

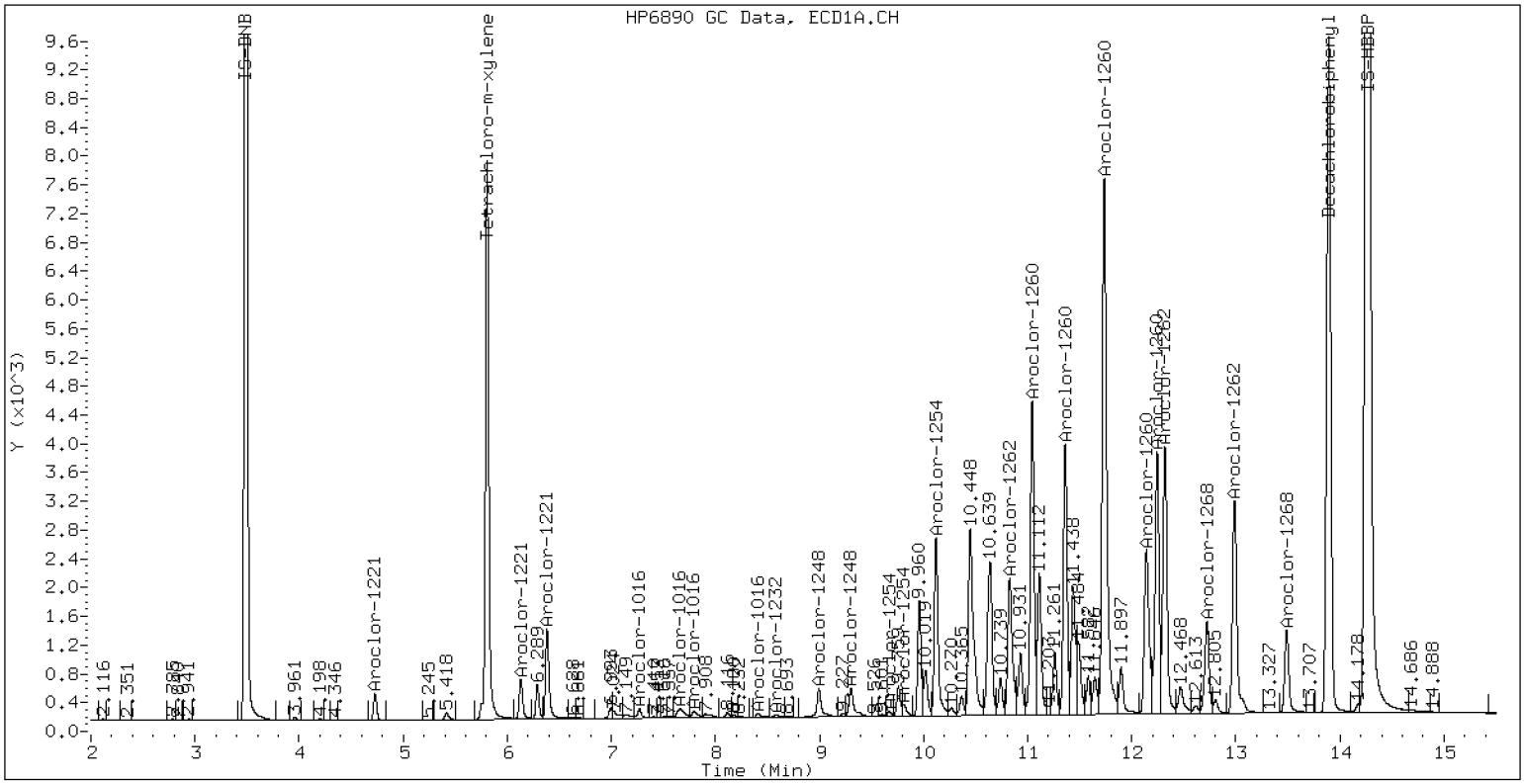
Total PCB Area Col2 (5.785 - 14.019) = 1655522 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

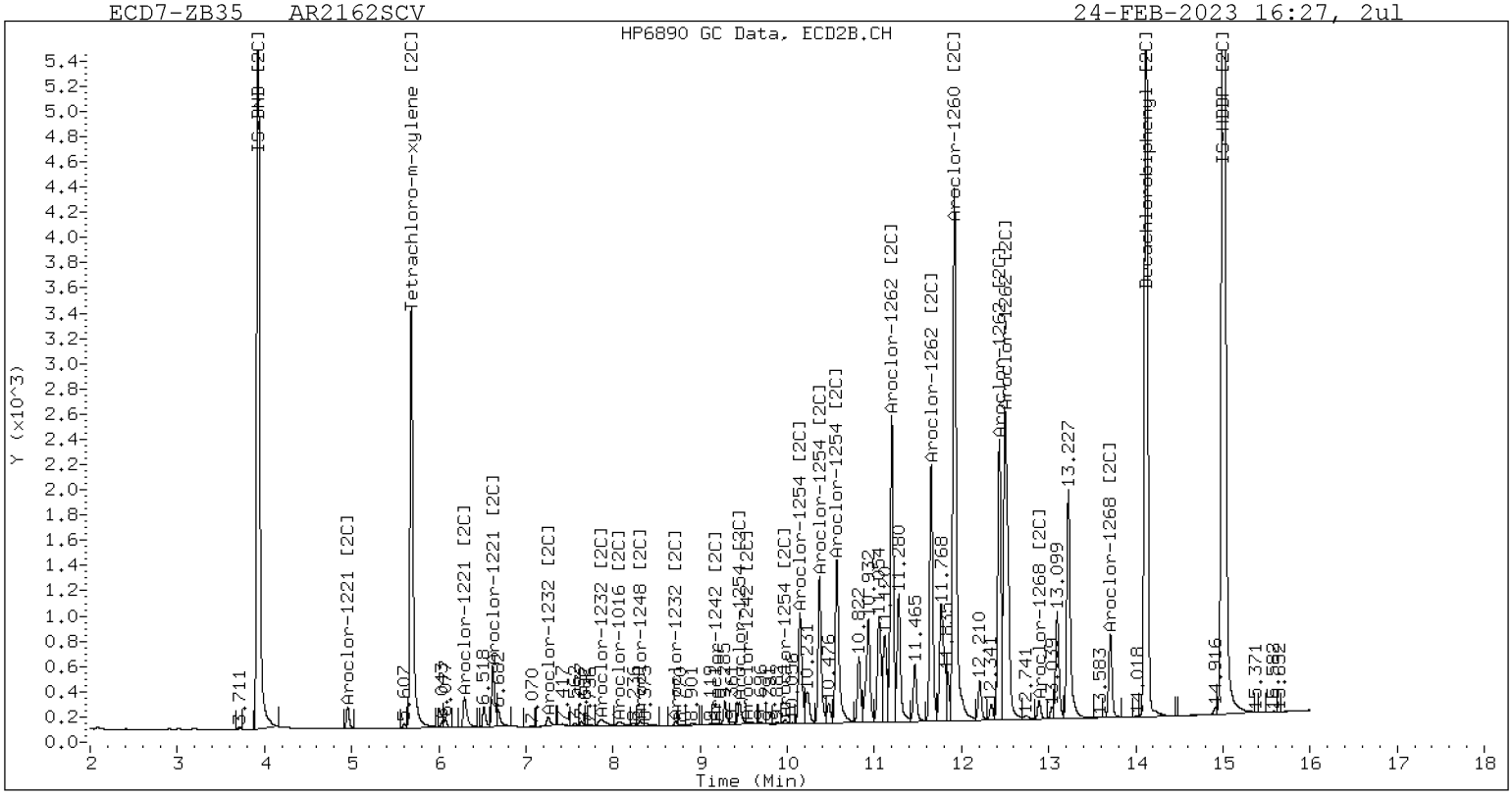
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242318ECD7.D
Data file 2: /230224.b/230224.b/02242318ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 24-FEB-2023 16:48
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	363331	5.685	0.000	176204	37.1	38.2	2.9	Tetrachloro-m-xylene
13.894	0.001	800845	14.118	-0.001	488290	51.3	56.4	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656592	-2.6
Hexabromobiphenyl	1429847	1584453	10.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314741	-0.2
Hexabromobiphenyl	513946	568346	10.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.001	28327	113.6	1	7.254	-0.001	20651	112.1
Aroclor-1016	2	7.657	0.003	80668	106.1	2	7.861	0.005	41326	110.6
Aroclor-1016	3	7.793	0.003	40661	109.6	3	8.060	0.005	20446	121.2
Aroclor-1016	4	8.407	0.002	24680	102.9	4	8.308	0.001	13576	102.5
Total Col1Ave (4 peaks):					108.0	Total Col2Ave (4 peaks):				111.6 RPD = 3
Corrected Ave (3 peaks):					106.2	Corrected Ave (3 peaks):				108.4 RPD = 2
Aroclor-1221	1	4.729	-0.001	8535	145.1	1	4.956	-0.000	3965	133.1
Aroclor-1221	2	6.132	-0.000	15523	147.6	2	6.297	0.001	8689	154.1
Aroclor-1221	3	6.382	-0.000	45872	187.9	3	6.622	0.001	22272	242.6
Total Col1Ave (3 peaks):					160.2	Total Col2Ave (3 peaks):				176.6 RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.729	-0.001	8535	242.6	1	4.956	0.000	3965	246.2
Aroclor-1232	2	6.132	0.001	15523	222.5	2	7.254	0.000	20651	258.1
Aroclor-1232	3	7.657	0.001	80668	255.4	3	7.861	0.001	41326	258.3
Aroclor-1232	4	8.582	0.001	34784	259.2	4	8.714	-0.001	12504	271.5
Total Col1Ave (4 peaks):					244.9	Total Col2Ave (4 peaks):				258.5 RPD = 5
Corrected Ave (3 peaks):					240.2	Corrected Ave (3 peaks):				254.2 RPD = 6
Aroclor-1242	1	7.270	-0.001	28327	139.2	1	7.254	-0.001	20651	141.2
Aroclor-1242	2	7.657	0.001	80668	130.5	2	7.861	0.003	41326	134.4
Aroclor-1242	3	8.407	0.001	24680	128.4	3	9.170	0.003	12830	134.1
Aroclor-1242	4	8.582	0.003	34784	122.4	4	9.600	0.003	14836	127.3
Total Col1Ave (4 peaks):					130.1	Total Col2Ave (4 peaks):				134.3 RPD = 3
Corrected Ave (3 peaks):					127.1	Corrected Ave (3 peaks):				132.0 RPD = 4
Aroclor-1248	1	8.407	0.001	24680	77.0	1	8.308	0.000	13576	90.3
Aroclor-1248	2	8.582	0.001	34784	85.4	2	8.714	-0.000	12504	80.5
Aroclor-1248	3	8.996	-0.003	83592	108.8	3	9.170	0.004	12830	71.8
Aroclor-1248	4	9.292	-0.003	39603	101.3	4	9.600	0.010	14836	69.1
Total Col1Ave (4 peaks):					93.1	Total Col2Ave (4 peaks):				77.9 RPD = 18
Corrected Ave (3 peaks):					87.9	Corrected Ave (3 peaks):				73.8 RPD = 17
Aroclor-1254	1	9.292	-0.007	39603	60.1	1	9.452	0.003	4590	19.2
Aroclor-1254	2	9.377	-0.000	11450	38.6	2	9.973	0.003	2892	15.0
Aroclor-1254	3	9.674	0.005	6387	15.1	3	10.131	0.007	6052	14.5
Aroclor-1254	4	9.813	0.006	10162	12.3	4	10.390	0.017	5324	13.1
Aroclor-1254	5	10.189	0.012	6862	13.3	5	10.572	0.004	1891	7.7
Total Col1Ave (5 peaks):					27.9	Total Col2Ave (5 peaks):				13.9 RPD = 67*
Corrected Ave (4 peaks):					19.8	Corrected Ave (4 peaks):				12.6 RPD = 45*
Aroclor-1260	1	11.046	0.002	87033	152.7	1	11.645	-0.008	62543	187.1
Aroclor-1260	2	11.362	0.001	6300	10.6	2	11.920	0.003	28552	33.5
Aroclor-1260	3	11.738	0.004	54524	34.5	3	12.432	-0.004	285450	1261.2
Aroclor-1260	4	12.144	0.005	1727	2.2	4	12.499	-0.002	306992	534.0
Aroclor-1260	5	12.246	0.002	502931	1469.0	NS	---			----
Total Col1Ave (5 peaks):					333.8	Total Col2Ave (4 peaks):				503.9 RPD = 41*
Corrected Ave (4 peaks):					50.0	Corrected Ave (3 peaks):				251.5 RPD = 134*
Aroclor-1262	1	10.832	0.004	3395	7.0	1	11.201	0.001	44255	91.2
Aroclor-1262	2	12.246	0.002	502931	635.9	2	11.645	-0.007	62543	151.3
Aroclor-1262	3	12.318	-0.000	497006	584.5	3	12.432	-0.002	285450	608.7
Aroclor-1262	4	12.987	-0.000	202197	260.2	4	12.499	-0.003	306992	417.9
Total Col1Ave (4 peaks):					371.9	Total Col2Ave (4 peaks):				317.3 RPD = 16
Corrected Ave (3 peaks):					283.9	Corrected Ave (3 peaks):				220.1 RPD = 25
Aroclor-1268	1	12.246	-0.001	502931	247.7	1	12.432	-0.000	285450	249.4
Aroclor-1268	2	12.318	0.002	497006	247.2	2	12.499	-0.001	306992	249.5
Aroclor-1268	3	12.699	-0.000	422793	245.8	3	12.892	0.000	260893	248.4
Aroclor-1268	4	13.490	0.000	1386953	244.9	4	13.709	-0.000	829733	247.1
Total Col1Ave (4 peaks):					246.4	Total Col2Ave (4 peaks):				248.6 RPD = 1

Corrected Ave (3 peaks): 246.0 Corrected Ave (3 peaks): 248.3 RPD = 1

Total PCB Area Col1 (5.906 - 13.793) = 4180607 Col1 Total PCB = 0.5 ppm*

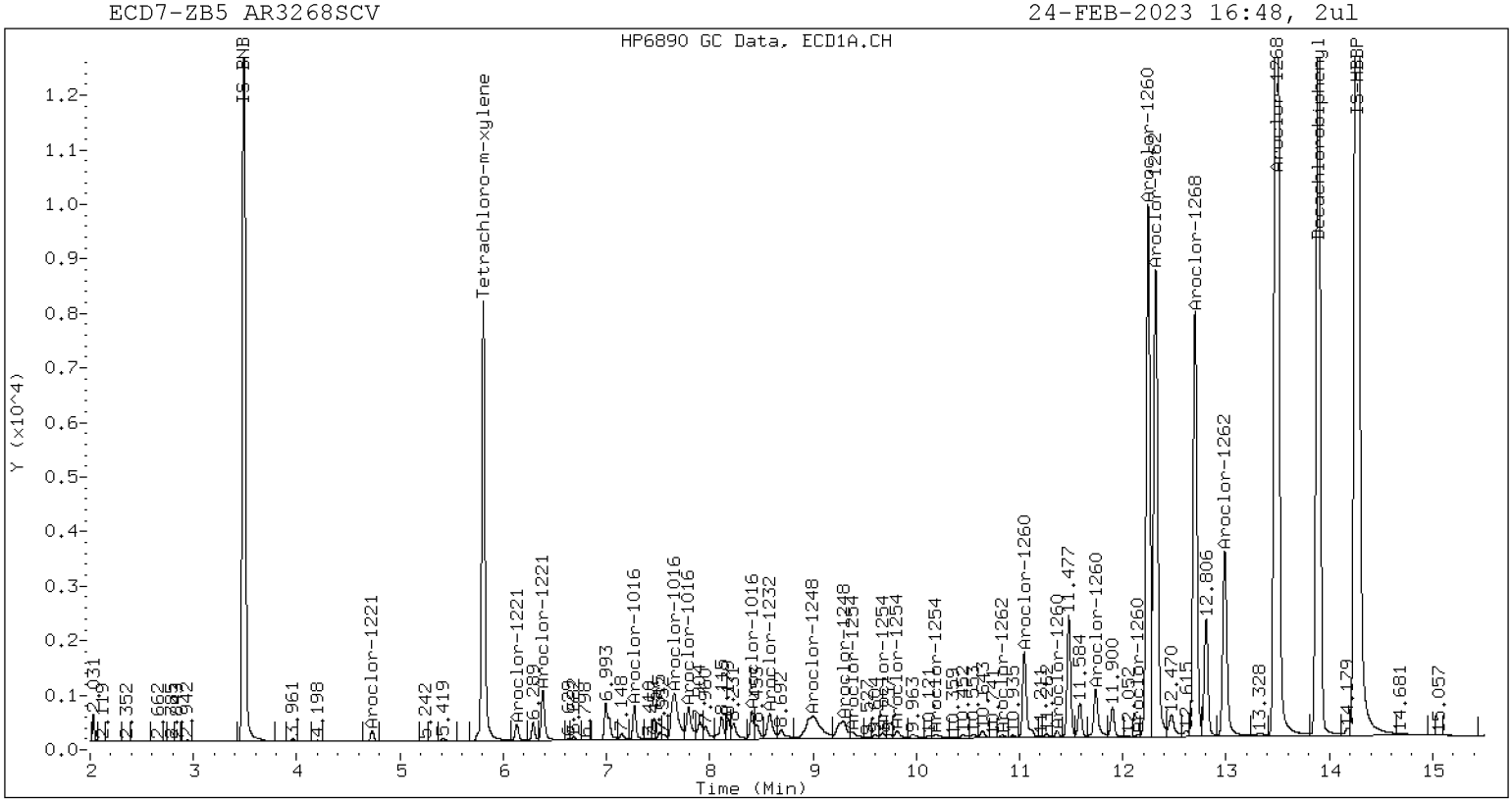
Total PCB Area Col2 (5.785 - 14.019) = 2376912 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

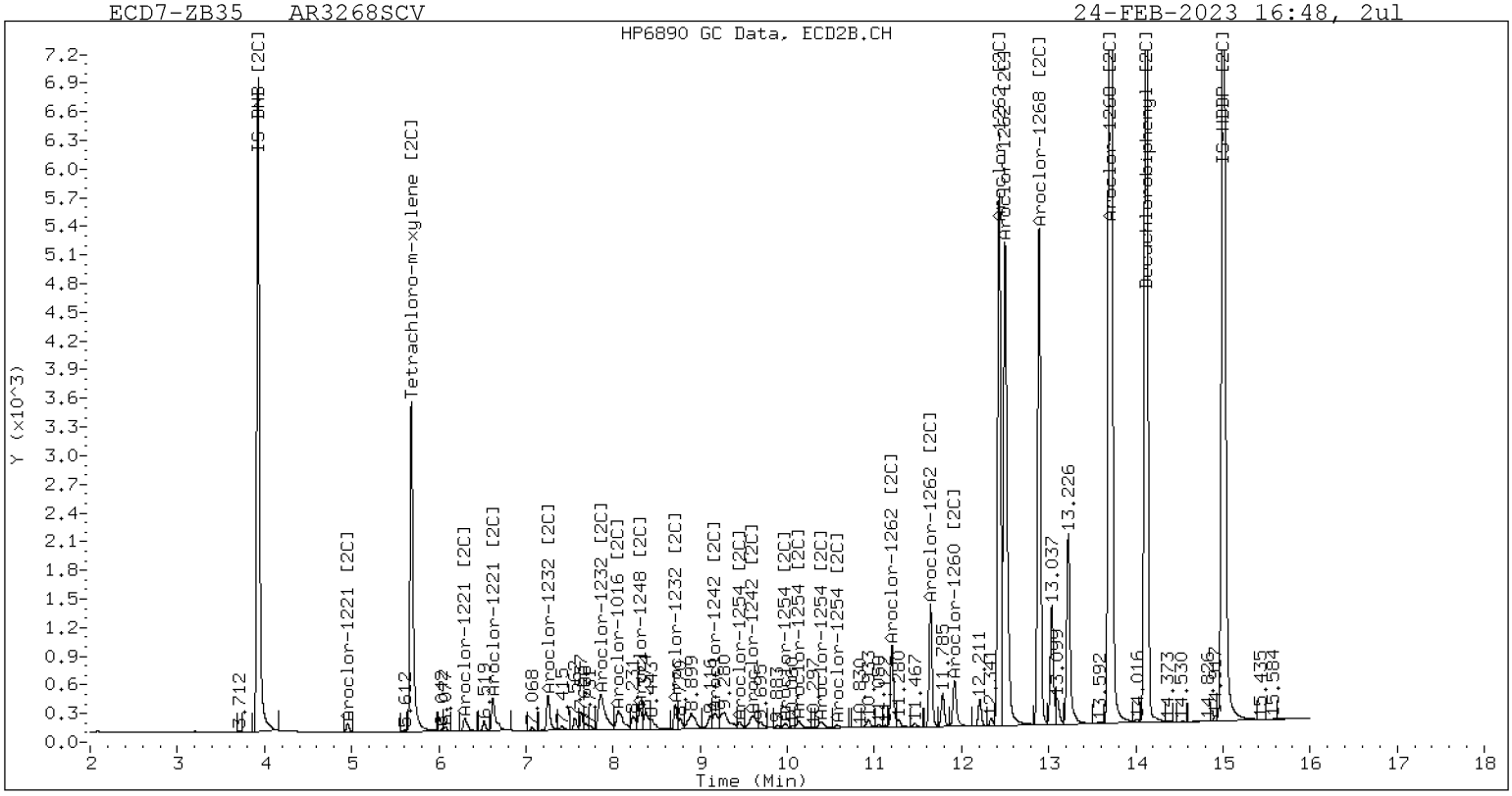
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.261	0.000	694353	9.912	0.000	580269	0.100	0.100	0.0	2,4-DDE
0.000	-10.293	0	10.672	0.000	673479	0.000	0.200#	----	2,4-DDT
9.686	0.000	1191406	10.212	0.000	433373	0.100	0.100	0.0	4,4-DDE
10.259	0.000	1721760	10.672	0.000	673479	0.100	0.200#	66.7*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.285	0.023	4923	9.921	0.009	9972	0.001	0.002	84.3*	2,4-DDE
0.000	-10.293	0	10.677	0.004	249094	0.000	0.074#	----	2,4-DDT
9.692	0.006	12128	10.221	0.009	528	0.001	0.000	156.7*	4,4-DDE
10.265	0.006	410017	10.677	0.004	249094	0.023	0.074#	103.6*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GB00069
Laboratory ID: SLB0342-SCV1
Sequence: SLB0342
Sequence Name: AR1660SCV1
Standard ID: L002065

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1016	250.00	243	-2.7	20.00
Aroclor 1016 [2C]	250.00	246	-1.4	20.00
Aroclor 1260	250.00	266	6.2	20.00
Aroclor 1260 [2C]	250.00	261	4.5	20.00
Decachlorobiphenyl	40.000	34.3	-14.2	20.00
Tetrachlorometaxylene	40.000	34.9	-12.6	20.00
Decachlorobiphenyl [2C]	40.000	37.3	-6.6	20.00
Tetrachlorometaxylene [2C]	40.000	35.8	-10.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GB00069
Laboratory ID: SLB0342-SCV2
Sequence: SLB0342
Sequence Name: AR1242SCV2
Standard ID: K007656

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1242	250.00	204	-18.5	20.00
Aroclor 1242 [2C]	250.00	221	-11.8	20.00
Decachlorobiphenyl	40.000	37.0	-7.5	20.00
Tetrachlorometaxylene	40.000	33.6	-15.9	20.00
Decachlorobiphenyl [2C]	40.000	40.3	0.8	20.00
Tetrachlorometaxylene [2C]	40.000	34.5	-13.7	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GB00069
Laboratory ID: SLB0342-SCV3
Sequence: SLB0342
Sequence Name: AR1248SCV3
Standard ID: L002066

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1248	250.00	249	-0.2	20.00
Aroclor 1248 [2C]	250.00	248	-0.8	20.00
Decachlorobiphenyl	40.000	33.1	-17.2	20.00
Tetrachlorometaxylene	40.000	34.9	-12.8	20.00
Decachlorobiphenyl [2C]	40.000	36.3	-9.2	20.00
Tetrachlorometaxylene [2C]	40.000	36.4	-9.0	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GB00069
Laboratory ID: SLB0342-SCV4
Sequence: SLB0342
Sequence Name: AR1254SCV4
Standard ID: L002067

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1254	250.00	235	-5.9	20.00
Aroclor 1254 [2C]	250.00	240	-4.0	20.00
Decachlorobiphenyl	40.000	34.6	-13.4	20.00
Tetrachlorometaxylene	40.000	36.1	-9.7	20.00
Decachlorobiphenyl [2C]	40.000	37.9	-5.2	20.00
Tetrachlorometaxylene [2C]	40.000	37.1	-7.3	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GB00069
Laboratory ID: SLB0342-SCV5
Sequence: SLB0342
Sequence Name: AR2162SCV5
Standard ID: L002068

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1221	250.00	258	3.3	20.00
Aroclor 1221 [2C]	250.00	256	2.5	20.00
Aroclor 1262	250.00	247	-1.2	20.00
Aroclor 1262 [2C]	250.00	249	-0.3	20.00
Decachlorobiphenyl	40.000	34.4	-13.9	20.00
Tetrachlorometaxylene	40.000	36.0	-10.0	20.00
Decachlorobiphenyl [2C]	40.000	37.9	-5.4	20.00
Tetrachlorometaxylene [2C]	40.000	36.6	-8.4	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GB00069
Laboratory ID: SLB0342-SCV6
Sequence: SLB0342
Sequence Name: AR3268SCV6
Standard ID: L002069

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1232	250.00	245	-2.0	20.00
Aroclor 1232 [2C]	250.00	259	3.4	20.00
Aroclor 1268	250.00	246	-1.4	20.00
Aroclor 1268 [2C]	250.00	249	-0.6	20.00
Decachlorobiphenyl	40.000	51.3	28.3	20.00
Tetrachlorometaxylene	40.000	37.1	-7.3	20.00
Decachlorobiphenyl [2C]	40.000	56.4	41.0	20.00
Tetrachlorometaxylene [2C]	40.000	38.2	-4.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022302ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/02/23
Lab Sample ID:	SLC0051-ICV1	Injection Time:	17:24
Sequence Name:	AR1254ICV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1254	A	250.00	247	0.0662949	0.0650716		-1.3	+/-20
Aroclor-1254 (1)	A	250.00	243	0.0803331	0.0782063			
Aroclor-1254 (2)	A	250.00	254	0.0361302	0.0367226			
Aroclor-1254 (3)	A	250.00	247	0.0516471	0.0510031			
Aroclor-1254 (4)	A	250.00	240	0.1004230	0.0963753			
Aroclor-1254 (5)	A	250.00	250	0.0629414	0.0630507			
Aroclor 1254 [2C]	A	250.00	251	0.0763106	0.0765880		0.6	+/-20
Aroclor-1254 (1) [2C]	A	250.00	254	0.0608052	0.0616743			
Aroclor-1254 (2) [2C]	A	250.00	254	0.0489162	0.0498013			
Aroclor-1254 (3) [2C]	A	250.00	255	0.1058376	0.1078895			
Aroclor-1254 (4) [2C]	A	250.00	244	0.1031750	0.1007531			
Aroclor-1254 (5) [2C]	A	250.00	250	0.0628191	0.0628218			
Decachlorobiphenyl	A	40.000	41.1	0.7878687	0.8103973		2.8	+/-20
Tetrachlorometaxylene	A	40.000	39.1	1.1944880	1.1669900		-2.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.8	1.2182710	1.2748900		4.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.4	1.1737210	1.1562850		-1.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022302ECD7.D
Data file 2: /230302.b/230302.b/03022302ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254ICV1
Client ID:
Injection Date: 02-MAR-2023 17:24
Report Date: 03/03/2023 15:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	215504	5.687	-0.001	181546	39.1	39.4	0.8	Tetrachloro-m-xylene
13.895	0.001	264974	14.119	0.001	297335	41.1	41.9	1.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	369333	-45.2
Hexabromobiphenyl	1429847	653936	-54.3 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314016	-0.4
Hexabromobiphenyl	513946	466448	-9.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.301	0.002	90263	243.4	1	9.452	0.001	60521	253.6
Aroclor-1254	2	9.380	0.003	42384	254.1	2	9.972	0.002	48870	254.5
Aroclor-1254	3	9.672	0.004	58866	246.9	3	10.127	0.003	105872	254.8
Aroclor-1254	4	9.811	0.004	111233	239.9	4	10.376	0.003	98869	244.1
Aroclor-1254	5	10.180	0.003	72771	250.4	5	10.572	0.003	61647	250.0

Total Col1Ave (5 peaks): 246.9 Total Col2Ave (5 peaks): 251.4 RPD = 2

Corrected Ave (4 peaks): 245.2 Corrected Ave (4 peaks): 250.6 RPD = 2

CalAmt %D: -1.2 CalAmt %D: 0.6

Total PCB Area Col1 (5.908 - 13.795) = 1247773 Col1 Total PCB = 0.3 ppm*

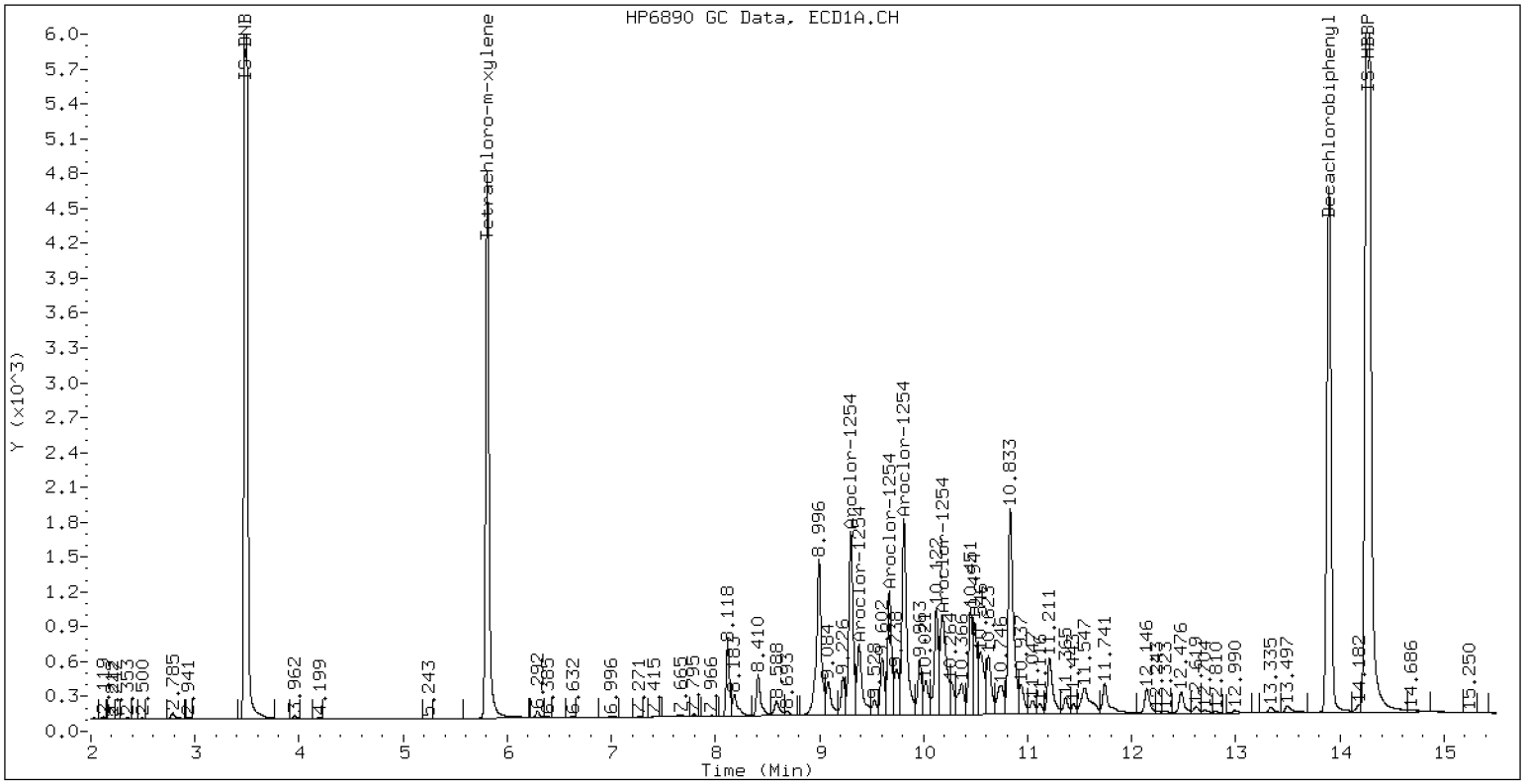
Total PCB Area Col2 (5.788 - 14.018) = 1022769 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

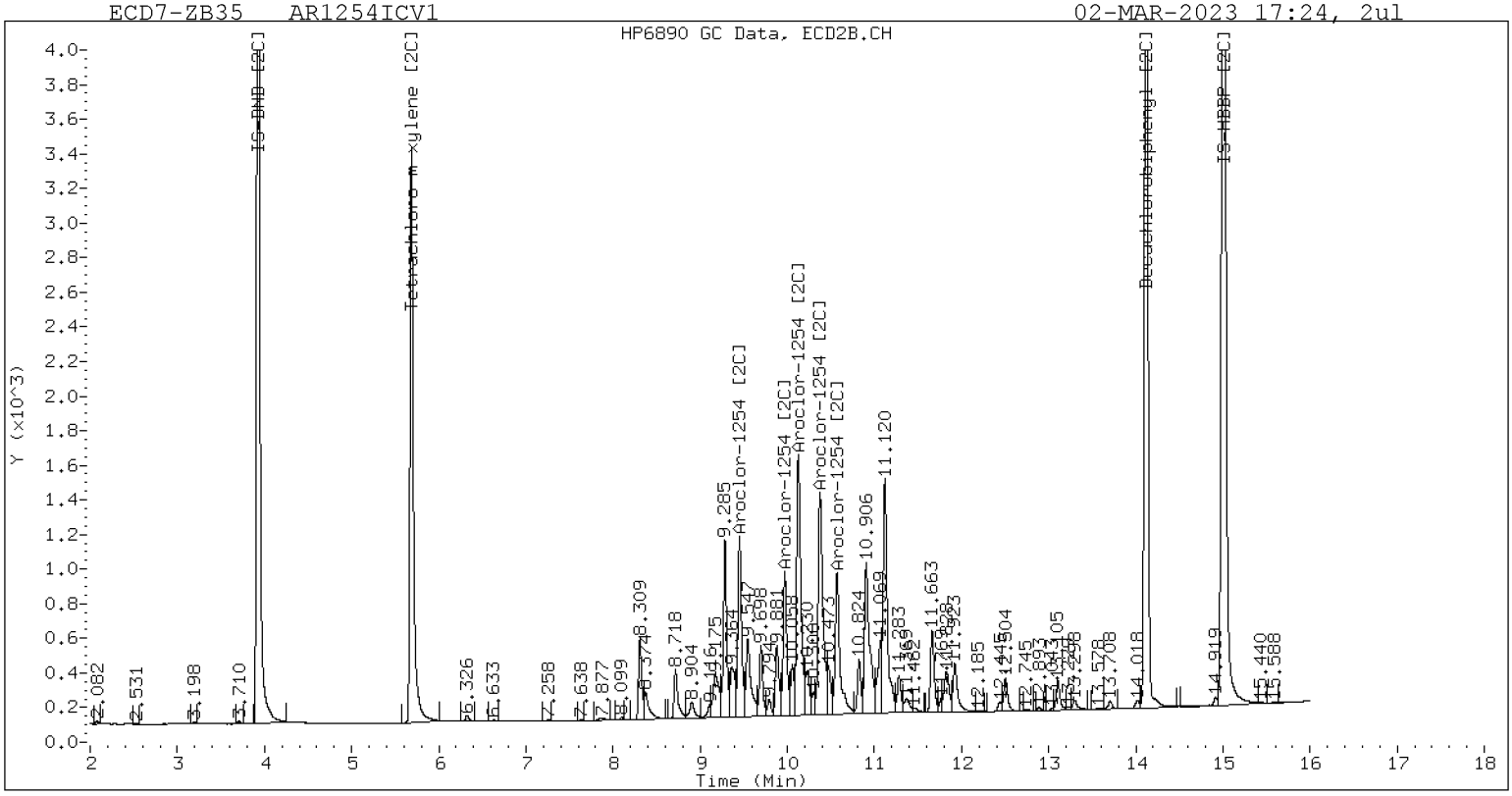
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254ICV1 02-MAR-2023 17:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254ICV1 02-MAR-2023 17:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022303ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/02/23
Lab Sample ID:	SLC0051-ICV2	Injection Time:	17:45
Sequence Name:	AR1660ICV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
Aroclor 1016	A	250.00	272	0.0493662	0.0535323		8.6	+/-20	
Aroclor-1016 (1)	A	250.00	270	0.0303852	0.0328172		8.0		
Aroclor-1016 (2)	A	250.00	269	0.0926308	0.0997152		7.6		
Aroclor-1016 (3)	A	250.00	277	0.0452180	0.0500851		10.8		
Aroclor-1016 (4)	A	250.00	270	0.0292307	0.0315117		8.0		
Aroclor 1016 [2C]	A	250.00	263	0.0545857	0.0579999		5.0	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	252	0.0468313	0.0472032		0.8		
Aroclor-1016 (2) [2C]	A	250.00	277	0.0949676	0.1053074		10.8		
Aroclor-1016 (3) [2C]	A	250.00	253	0.0428922	0.0433690		1.2		
Aroclor-1016 (4) [2C]	A	250.00	268	0.0336515	0.0361199		7.2		
Aroclor 1260	A	250.00	316	0.0392091	0.0496707		26.5	+/-20	*
Aroclor-1260 (1)	A	250.00	310	0.0287785	0.0357140		24.0		
Aroclor-1260 (2)	A	250.00	329	0.0300690	0.0396229		31.6		
Aroclor-1260 (3)	A	250.00	316	0.0797517	0.1006890		26.4		
Aroclor-1260 (4)	A	250.00	316	0.0401599	0.0508571		26.4		
Aroclor-1260 (5)	A	250.00	310	0.0172866	0.0214706		24.0		
Aroclor 1260 [2C]	A	250.00	242	0.0699688	0.0694037		-3.3	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	227	0.0470406	0.0427286		-9.2		
Aroclor-1260 (2) [2C]	A	250.00	261	0.1200523	0.1253491		4.4		
Aroclor-1260 (3) [2C]	A	250.00	232	0.0318590	0.0295720		-7.2		
Aroclor-1260 (4) [2C]	A	250.00	247	0.0809231	0.0799652		-1.2		
Decachlorobiphenyl	A	40.000	44.0	0.7878687	0.8661676		10.0	+/-20	
Tetrachlorometaxylene	A	40.000	41.3	1.1944880	1.2341040		3.3	+/-20	
Decachlorobiphenyl [2C]	A	40.000	40.1	1.2182710	1.2202880		0.3	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	42.4	1.1737210	1.2428790		6.0	+/-20	

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022303ECD7.D
Data file 2: /230302.b/230302.b/03022303ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660ICV2
Client ID:
Injection Date: 02-MAR-2023 17:45
Report Date: 03/03/2023 15:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	211294	5.687	-0.001	178777	41.3	42.4	2.5	Tetrachloro-m-xylene
13.894	-0.001	258357	14.119	0.001	259778	44.0	40.1	9.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	342425	-49.2
Hexabromobiphenyl	1429847	596552	-58.3 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	287682	-8.7
Hexabromobiphenyl	513946	425765	-17.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.001	35117	270.0	1	7.255	0.000	42436	252.0
Aroclor-1016	2	7.659	0.004	106703	269.1	2	7.863	0.003	94672	277.2
Aroclor-1016	3	7.793	0.002	53595	276.9	3	8.059	0.002	38989	252.8
Aroclor-1016	4	8.407	0.002	33720	269.5	4	8.309	0.001	32472	268.3
Total Col1Ave (4 peaks):					271.4	Total Col2Ave (4 peaks):				262.6 RPD = 3
Corrected Ave (3 peaks):					269.5	Corrected Ave (3 peaks):				257.7 RPD = 4
CalAmt %D:					8.6	CalAmt %D:				5.0
Aroclor-1260	1	11.046	0.002	66579	310.2	1	11.653	0.001	56851	227.1
Aroclor-1260	2	11.362	0.001	73866	329.4	2	11.919	0.002	166779	261.0
Aroclor-1260	3	11.735	0.001	187707	315.6	3	12.436	0.001	39346	232.1
Aroclor-1260	4	12.140	0.001	94809	316.6	4	12.502	0.001	106395	247.0
Aroclor-1260	5	12.245	0.001	40026	310.5	NS	---			----
Total Col1Ave (5 peaks):					316.5	Total Col2Ave (4 peaks):				241.8 RPD = 27
Corrected Ave (4 peaks):					313.2	Corrected Ave (3 peaks):				235.4 RPD = 28
CalAmt %D:					26.6	CalAmt %D:				-3.3

Total PCB Area Col1 (5.908 - 13.795) = 2085078 Col1 Total PCB = 0.5 ppm*

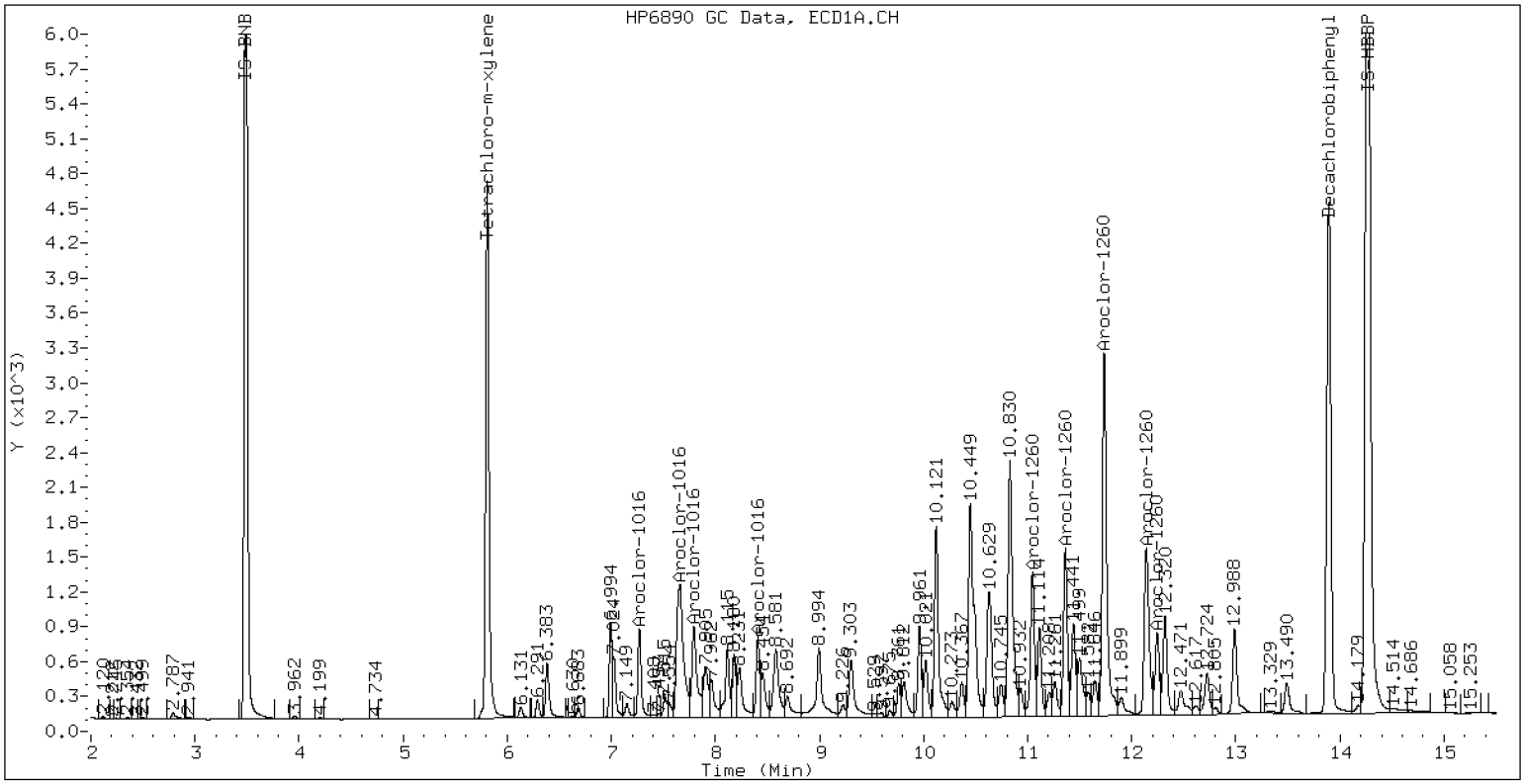
Total PCB Area Col2 (5.788 - 14.018) = 1586702 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

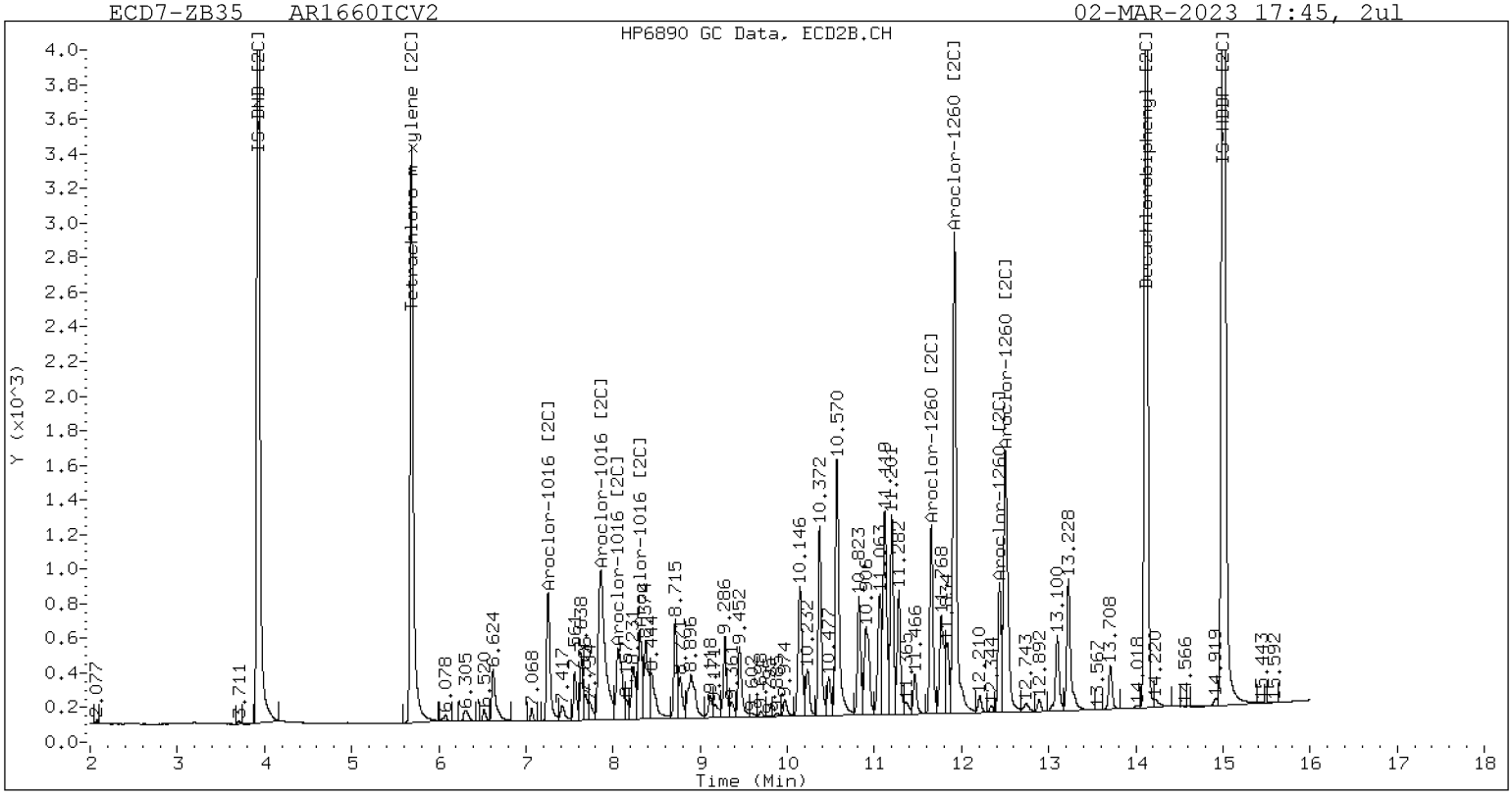
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660ICV2 02-MAR-2023 17:45, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660ICV2 02-MAR-2023 17:45, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242313ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV1	Injection Time:	15:03
Sequence Name:	AR1660SCV1		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	243	0.0493662	0.0479314		-2.7	+/-20
Aroclor 1016 [2C]	A	250.00	246	0.0545857	0.0542382		-1.4	+/-20
Aroclor 1260	A	250.00	266	0.0392091	0.0412121		6.2	+/-20
Aroclor 1260 [2C]	A	250.00	261	0.0699688	0.0733659		4.5	+/-20
Decachlorobiphenyl	A	40.000	34.3	0.7878687	0.6762784		-14.2	+/-20
Tetrachlorometaxylene	A	40.000	34.9	1.1944880	1.0436010		-12.6	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.3	1.2182710	1.1373730		-6.6	+/-20
Tetrachlorometaxylene [2C]	A	40.000	35.8	1.1737210	1.0492890		-10.6	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242314ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV2	Injection Time:	15:24
Sequence Name:	AR1242SCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	204	0.0395340	0.0322254		-18.5	+/-20
Aroclor 1242 [2C]	A	250.00	221	0.0423092	0.0365983		-11.8	+/-20
Decachlorobiphenyl	A	40.000	37.0	0.7878687	0.7290534		-7.5	+/-20
Tetrachlorometaxylene	A	40.000	33.6	1.1944880	1.0041320		-15.9	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.3	1.2182710	1.2285170		0.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	34.5	1.1737210	1.0131510		-13.7	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242315ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV3	Injection Time:	15:45
Sequence Name:	AR1248SCV3		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	249	0.0574755	0.0572474		-0.2	+/-20
Aroclor 1248 [2C]	A	250.00	248	0.0444270	0.0440936		-0.8	+/-20
Decachlorobiphenyl	A	40.000	33.1	0.7878687	0.6527336		-17.2	+/-20
Tetrachlorometaxylene	A	40.000	34.9	1.1944880	1.0413820		-12.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	36.3	1.2182710	1.1066400		-9.2	+/-20
Tetrachlorometaxylene [2C]	A	40.000	36.4	1.1737210	1.0676190		-9.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242316ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV4	Injection Time:	16:06
Sequence Name:	AR1254SCV4		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	235	0.0662949	0.0622529		-5.9	+/-20
Aroclor 1254 [2C]	A	250.00	240	0.0763106	0.0731447		-4.0	+/-20
Decachlorobiphenyl	A	40.000	34.6	0.7878687	0.6823832		-13.4	+/-20
Tetrachlorometaxylene	A	40.000	36.1	1.1944880	1.0787610		-9.7	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.9	1.2182710	1.1548440		-5.2	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.1	1.1737210	1.0880920		-7.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242317ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV5	Injection Time:	16:27
Sequence Name:	AR2162SCV5		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1221	A	250.00	258	0.0165758	0.0169561		3.3	+/-20
Aroclor 1221 [2C]	A	250.00	256	0.0150798	0.0153801		2.5	+/-20
Aroclor 1262	A	250.00	247	0.0366596	0.0361658		-1.2	+/-20
Aroclor 1262 [2C]	A	250.00	249	0.0739760	0.0737876		-0.3	+/-20
Decachlorobiphenyl	A	40.000	34.4	0.7878687	0.6780614		-13.9	+/-20
Tetrachlorometaxylene	A	40.000	36.0	1.1944880	1.0756080		-10.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.9	1.2182710	1.1528740		-5.4	+/-20
Tetrachlorometaxylene [2C]	A	40.000	36.6	1.1737210	1.0753820		-8.4	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242318ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV6	Injection Time:	16:48
Sequence Name:	AR3268SCV6		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1232	A	250.00	245	0.0169039	0.0169981		-2.0	+/-20
Aroclor 1232 [2C]	A	250.00	259	0.0192023	0.0199392		3.4	+/-20
Aroclor 1268	A	250.00	246	0.1442124	0.1418626		-1.4	+/-20
Aroclor 1268 [2C]	A	250.00	249	0.2386862	0.2369075		-0.6	+/-20
Decachlorobiphenyl	A	40.000	51.3	0.7878687	1.0108790		28.3	+/-20
Tetrachlorometaxylene	A	40.000	37.1	1.1944880	1.1067180		-7.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	56.4	1.2182710	1.7182840		41.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	38.2	1.1737210	1.1196760		-4.6	+/-20

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022319ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/02/23
Lab Sample ID:	SLC0051-CCV1	Injection Time:	23:21
Sequence Name:	AR1248CCV1		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	262	0.0574755	0.0606653		4.7	+/-20
Aroclor-1248 (1)	A	250.00	256		0.0400418			
Aroclor-1248 (2)	A	250.00	260		0.0516057			
Aroclor-1248 (3)	A	250.00	270		0.1012015			
Aroclor-1248 (4)	A	250.00	261		0.0498121			
Aroclor 1248 [2C]	A	250.00	259	0.0444270	0.0458918		3.5	+/-20
Aroclor-1248 (1) [2C]	A	250.00	260		0.0396674			
Aroclor-1248 (2) [2C]	A	250.00	260		0.0410612			
Aroclor-1248 (3) [2C]	A	250.00	261		0.0473873			
Aroclor-1248 (4) [2C]	A	250.00	254		0.0554512			
Decachlorobiphenyl	A	40.000	40.4	0.7878687	0.7967681		1.0	+/-20
Tetrachlorometaxylene	A	40.000	39.2	1.1944880	1.1721320		-2.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.6	1.2182710	1.2058980		-1.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.2	1.1737210	1.1495930		-2.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022319ECD7.D
Data file 2: /230302.b/230302.b/03022319ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV1
Client ID:
Injection Date: 02-MAR-2023 23:21
Report Date: 03/03/2023 15:57
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	221990	5.688	-0.000	184485	39.3	39.2	0.2	Tetrachloro-m-xylene
13.895	0.000	264086	14.120	0.002	309452	40.5	39.6	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	378780	-43.8
Hexabromobiphenyl	1429847	662893	-53.6 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	320957	1.8
Hexabromobiphenyl	513946	513231	-0.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.407	0.000	47397	256.5	1	8.309	0.001	39786	259.6
Aroclor-1248	2	8.582	0.000	61085	260.0	2	8.716	0.002	41184	259.9
Aroclor-1248	3	8.999	0.000	119791	270.3	3	9.171	0.003	47529	260.7
Aroclor-1248	4	9.295	0.000	58962	261.3	4	9.596	0.004	55617	254.0
Total Col1Ave (4 peaks):					262.0	Total Col2Ave (4 peaks):				258.6 RPD = 1
Corrected Ave (3 peaks):					259.3	Corrected Ave (3 peaks):				257.9 RPD = 1
CalAmt %D:					4.8	CalAmt %D:				3.4

Total PCB Area Col1 (5.908 - 13.795) = 961219 Col1 Total PCB = 0.2 ppm*

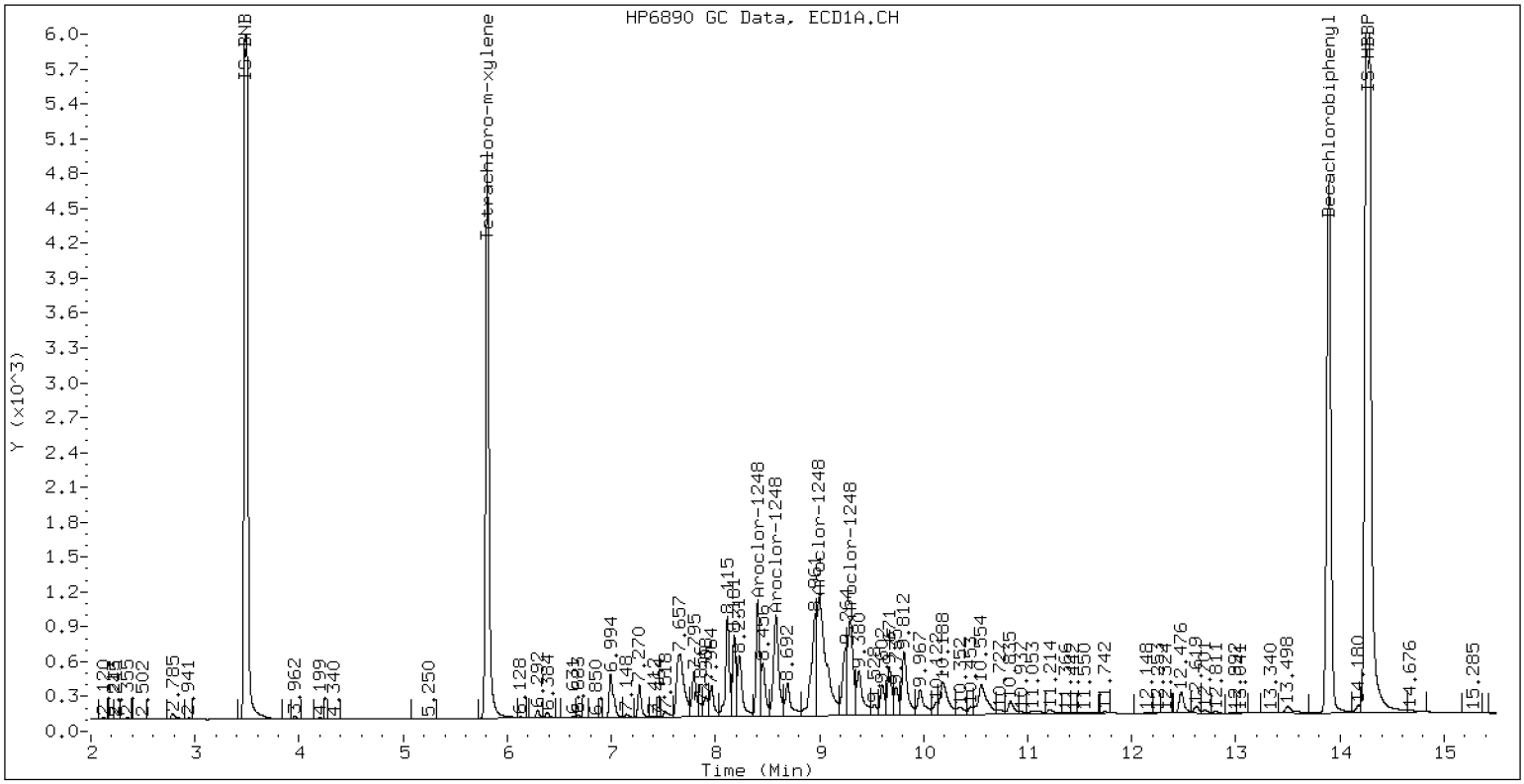
Total PCB Area Col2 (5.788 - 14.018) = 788416 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

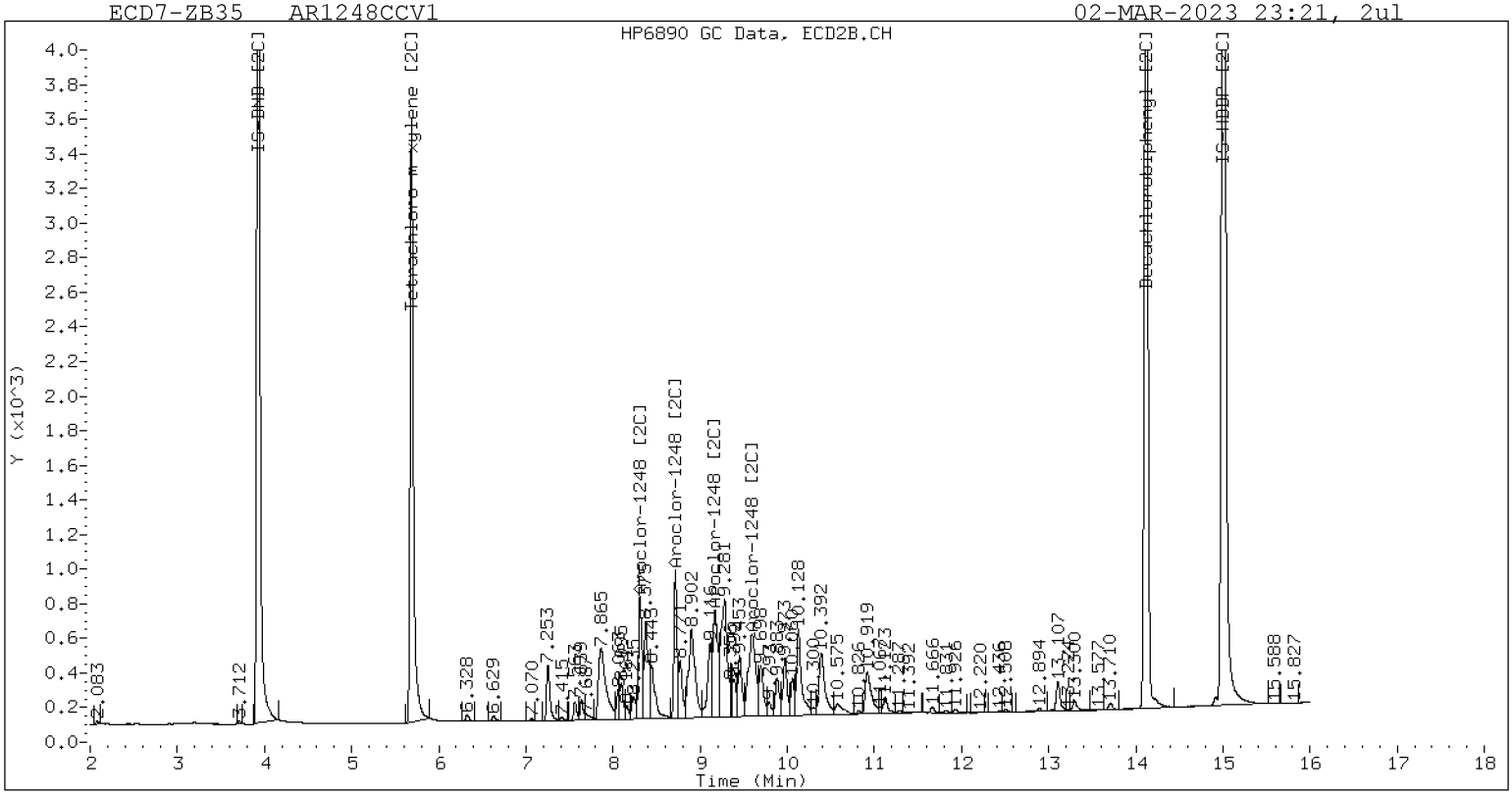
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV1 02-MAR-2023 23:21, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248CCV1 02-MAR-2023 23:21, 2ul

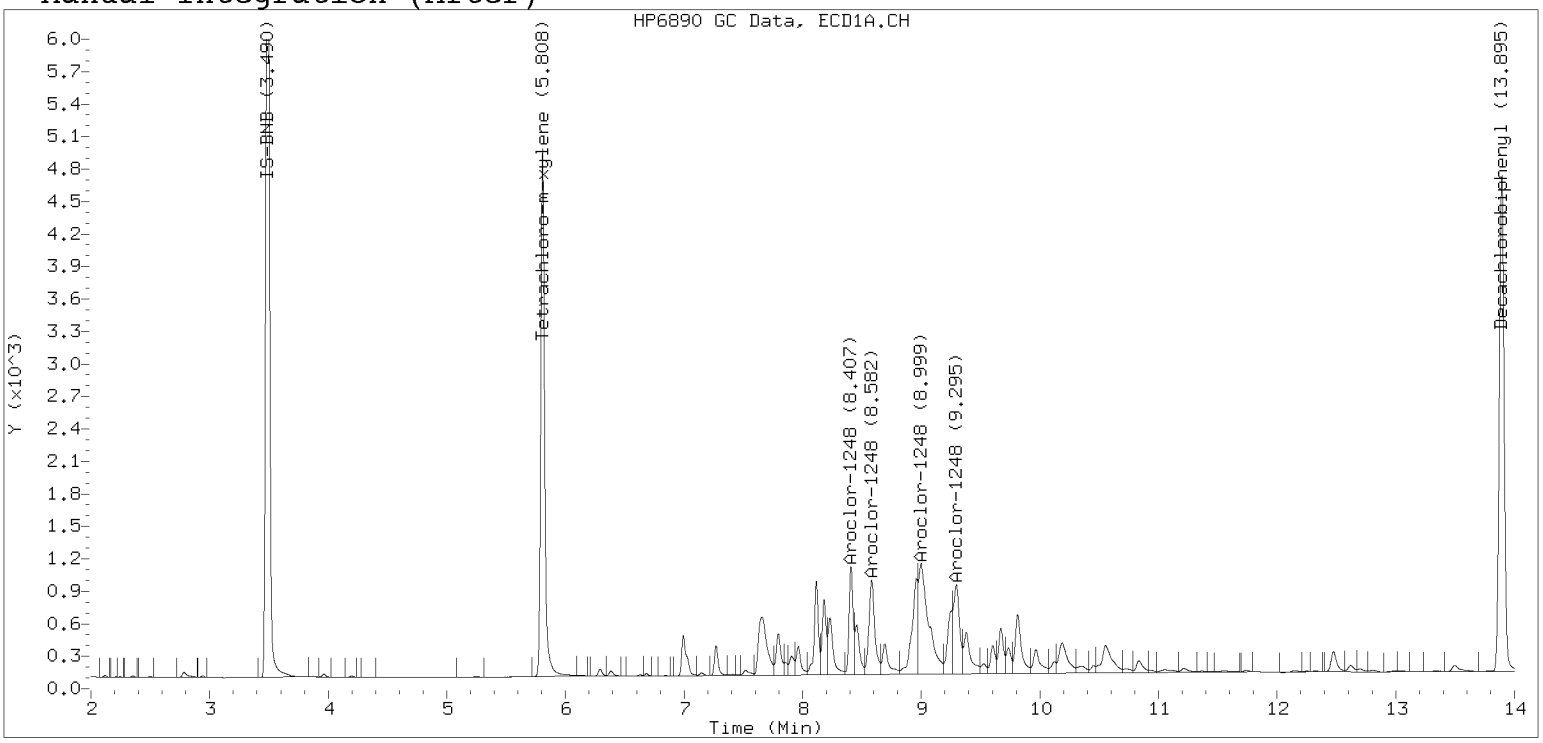


ZB-35 Manual Integration: NO

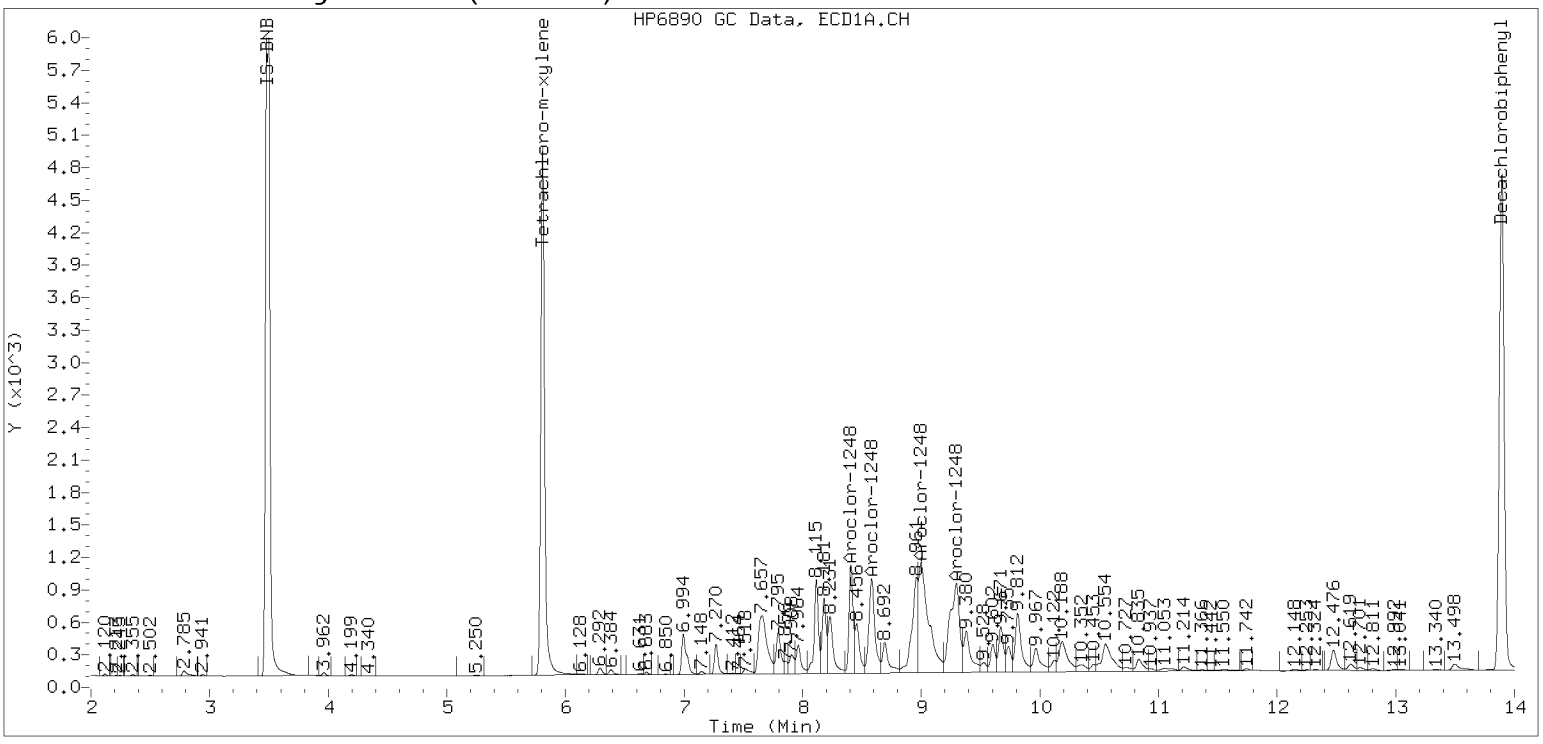
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230302.b/03022319ECD7.D Injection Date: 02-MAR-2023 23:21

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022320ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/02/23
Lab Sample ID:	SLC0051-CCV2	Injection Time:	23:42
Sequence Name:	AR1660CCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	274	0.0493662	0.0540562		9.4	+/-20	
Aroclor-1016 (1)	A	250.00	271	0.0303852	0.0329837		8.4		
Aroclor-1016 (2)	A	250.00	272	0.0926308	0.1009697		8.8		
Aroclor-1016 (3)	A	250.00	279	0.0452180	0.0504871		11.6		
Aroclor-1016 (4)	A	250.00	272	0.0292307	0.0317845		8.8		
Aroclor 1016 [2C]	A	250.00	258	0.0545857	0.0572942		3.3	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	250	0.0468313	0.0468712		0.0		
Aroclor-1016 (2) [2C]	A	250.00	276	0.0949676	0.1050336		10.4		
Aroclor-1016 (3) [2C]	A	250.00	245	0.0428922	0.0420286		-2.0		
Aroclor-1016 (4) [2C]	A	250.00	262	0.0336515	0.0352432		4.8		
Aroclor 1260	A	250.00	325	0.0392091	0.0508572		30.0	+/-20	*
Aroclor-1260 (1)	A	250.00	316	0.0287785	0.0364146		26.4		
Aroclor-1260 (2)	A	250.00	333	0.0300690	0.0400068		33.2		
Aroclor-1260 (3)	A	250.00	321	0.0797517	0.1025346		28.4		
Aroclor-1260 (4)	A	250.00	328	0.0401599	0.0527198		31.2		
Aroclor-1260 (5)	A	250.00	327	0.0172866	0.0226104		30.8		
Aroclor 1260 [2C]	A	250.00	231	0.0699688	0.0660448		-7.7	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	219	0.0470406	0.0411606		-12.4		
Aroclor-1260 (2) [2C]	A	250.00	246	0.1200523	0.1184070		-1.6		
Aroclor-1260 (3) [2C]	A	250.00	222	0.0318590	0.0283214		-11.2		
Aroclor-1260 (4) [2C]	A	250.00	236	0.0809231	0.0762900		-5.6		
Decachlorobiphenyl	A	40.000	44.3	0.7878687	0.8734208		10.8	+/-20	
Tetrachlorometaxylene	A	40.000	42.1	1.1944880	1.2574730		5.3	+/-20	
Decachlorobiphenyl [2C]	A	40.000	38.8	1.2182710	1.1832940		-3.0	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	41.9	1.1737210	1.2302010		4.8	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022320ECD7.D
Data file 2: /230302.b/230302.b/03022320ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV2
Client ID:
Injection Date: 02-MAR-2023 23:42
Report Date: 03/03/2023 15:57
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	223468	5.687	-0.001	184086	42.1	41.9	0.4	Tetrachloro-m-xylene
13.893	-0.002	270491	14.118	-0.000	273200	44.3	38.9	13.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	355424	-47.2
Hexabromobiphenyl	1429847	619383	-56.7 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	299278	-5.1
Hexabromobiphenyl	513946	461762	-10.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.001	36635	271.4	1	7.254	-0.001	43836	250.2
Aroclor-1016	2	7.657	0.002	112147	272.5	2	7.861	0.002	98232	276.5
Aroclor-1016	3	7.793	0.003	56076	279.1	3	8.060	0.002	39307	245.0
Aroclor-1016	4	8.406	0.001	35303	271.8	4	8.309	0.001	32961	261.8
Total Col1Ave (4 peaks):					273.7	Total Col2Ave (4 peaks):				258.4 RPD = 6
Corrected Ave (3 peaks):					271.9	Corrected Ave (3 peaks):				252.3 RPD = 7
CalAmt %D:					9.5	CalAmt %D:				3.4
Aroclor-1260	1	11.046	0.001	70483	316.3	1	11.654	0.002	59395	218.8
Aroclor-1260	2	11.361	-0.000	77436	332.6	2	11.918	0.001	170862	246.6
Aroclor-1260	3	11.735	0.002	198463	321.4	3	12.437	0.001	40868	222.2
Aroclor-1260	4	12.140	0.001	102043	328.2	4	12.502	0.000	110087	235.7
Aroclor-1260	5	12.245	0.001	43764	327.0	NS	---			----
Total Col1Ave (5 peaks):					325.1	Total Col2Ave (4 peaks):				230.8 RPD = 34
Corrected Ave (4 peaks):					323.2	Corrected Ave (3 peaks):				225.6 RPD = 36
CalAmt %D:					30.0	CalAmt %D:				-7.7

Total PCB Area Col1 (5.908 - 13.795) = 2224518 Col1 Total PCB = 0.5 ppm*

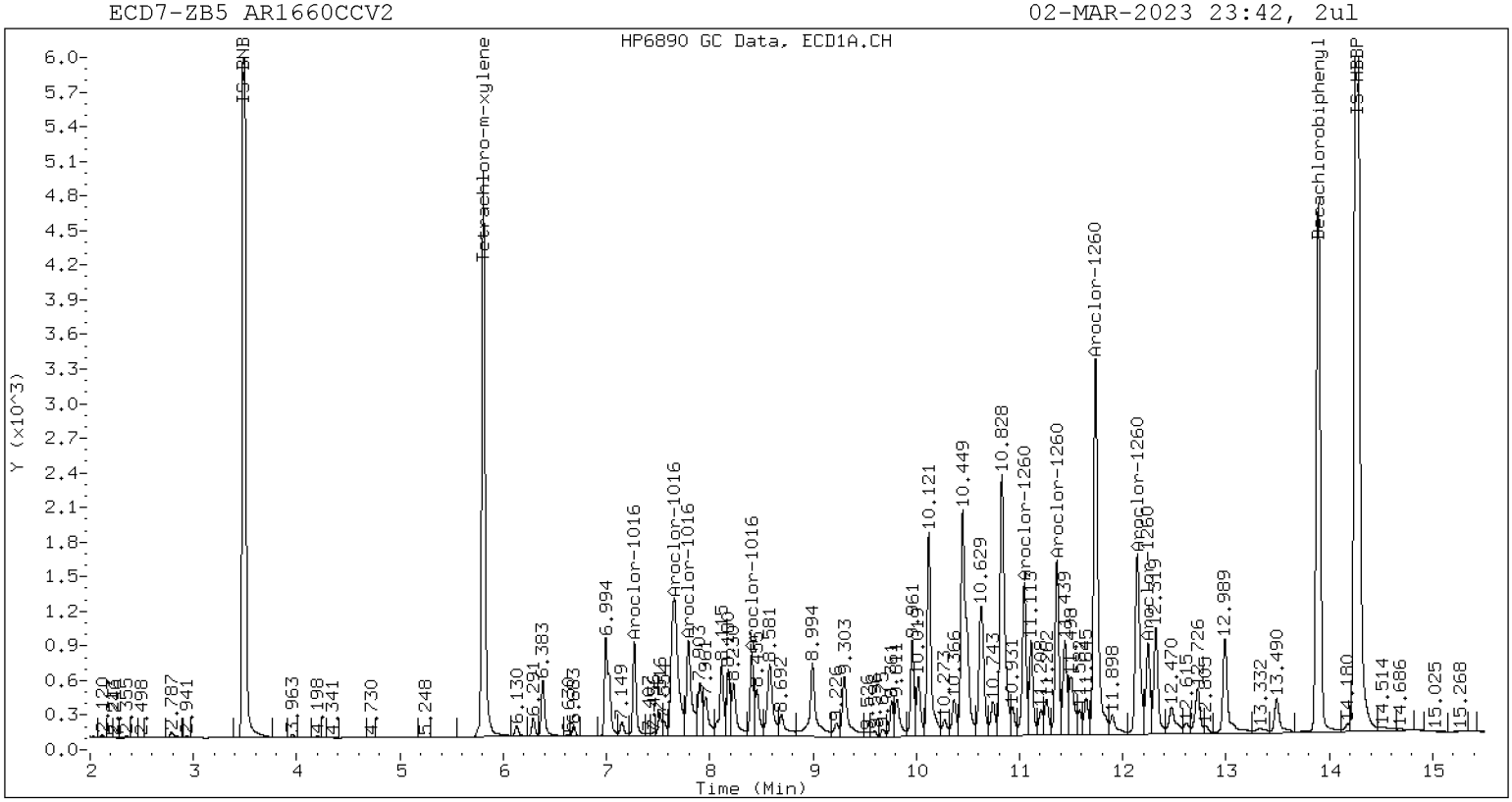
Total PCB Area Col2 (5.788 - 14.018) = 1627422 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

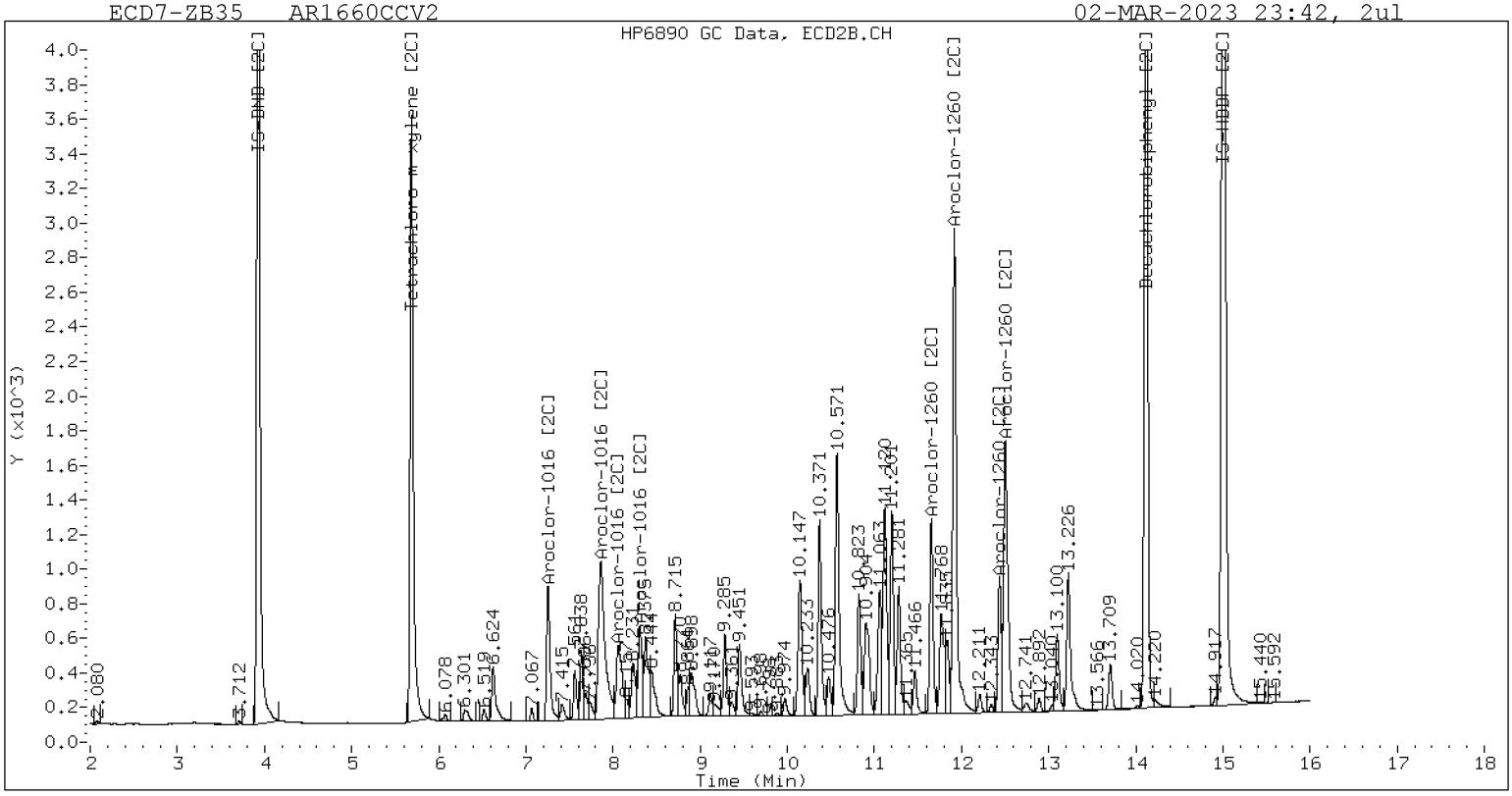
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV2 02-MAR-2023 23:42, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV2 02-MAR-2023 23:42, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022335ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCV3	Injection Time:	04:57
Sequence Name:	AR1242CCV3		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1242	A	250.00	250	0.0395340	0.0398707		0.1	+/-20	
Aroclor-1242 (1)	A	250.00	259		0.0256712				
Aroclor-1242 (2)	A	250.00	257		0.0774395				
Aroclor-1242 (3)	A	250.00	243		0.0227702				
Aroclor-1242 (4)	A	250.00	242		0.0336021				
Aroclor 1242 [2C]	A	250.00	243	0.0423092	0.0418346		-2.9	+/-20	
Aroclor-1242 (1) [2C]	A	250.00	254		0.0377139				
Aroclor-1242 (2) [2C]	A	250.00	255		0.0798263				
Aroclor-1242 (3) [2C]	A	250.00	232		0.0225708				
Aroclor-1242 (4) [2C]	A	250.00	230		0.0272274				
Decachlorobiphenyl	A	40.000	40.8	0.7878687	0.8033480		2.0	+/-20	
Tetrachlorometaxylene	A	40.000	48.1	1.1944880	1.4364130		20.3	+/-20	
Decachlorobiphenyl [2C]	A	40.000	44.0	1.2182710	1.3397810		10.0	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	48.7	1.1737210	1.4303070		21.8	+/-20	*

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022335ECD7.D
Data file 2: /230302.b/230302.b/03022335ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242CCV3
Client ID:
Injection Date: 03-MAR-2023 04:57
Report Date: 03/03/2023 15:57
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	263818	5.686	-0.002	225282	48.1	48.7	1.3	Tetrachloro-m-xylene
13.893	-0.002	148145	14.119	0.000	202049	40.8	44.0	7.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	367329	-45.5
Hexabromobiphenyl	1429847	368819	-74.2 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	315012	-0.1
Hexabromobiphenyl	513946	301615	-41.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.270	-0.001	29468	258.9	1	7.254	0.000	37126	253.7
Aroclor-1242	2	7.657	0.001	88893	257.1	2	7.858	0.000	78582	255.4
Aroclor-1242	3	8.406	0.000	26138	243.0	3	9.169	0.000	22219	232.1
Aroclor-1242	4	8.581	0.001	38572	242.6	4	9.595	0.000	26803	229.8
Total Col1Ave (4 peaks):					250.4	Total Col2Ave (4 peaks):				242.7 RPD = 3
Corrected Ave (3 peaks):					247.6	Corrected Ave (3 peaks):				238.5 RPD = 4
CalAmt %D:					0.2	CalAmt %D:				-2.9

Total PCB Area Col1 (5.908 - 13.795) = 671207 Col1 Total PCB = 0.2 ppm*

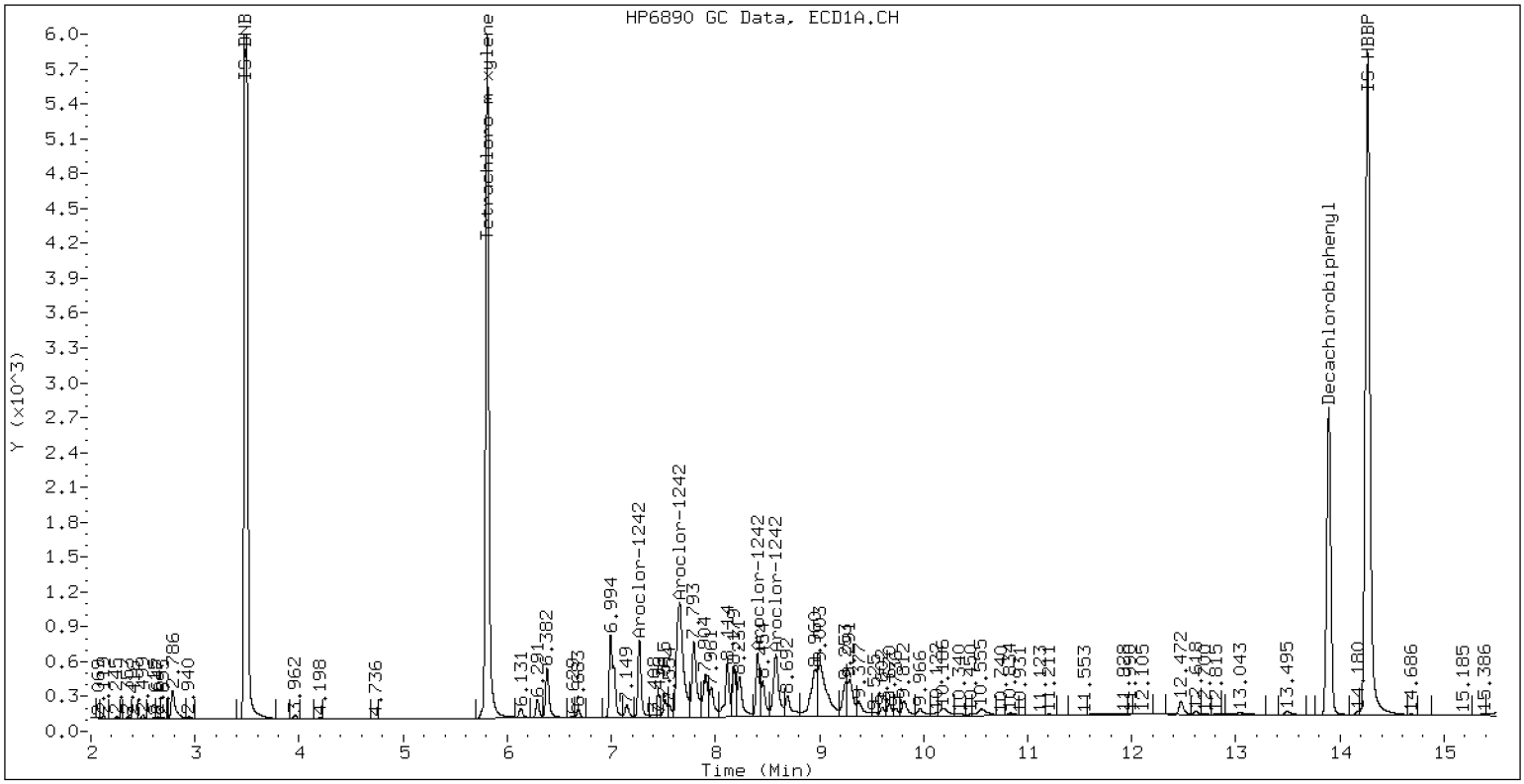
Total PCB Area Col2 (5.788 - 14.018) = 548138 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

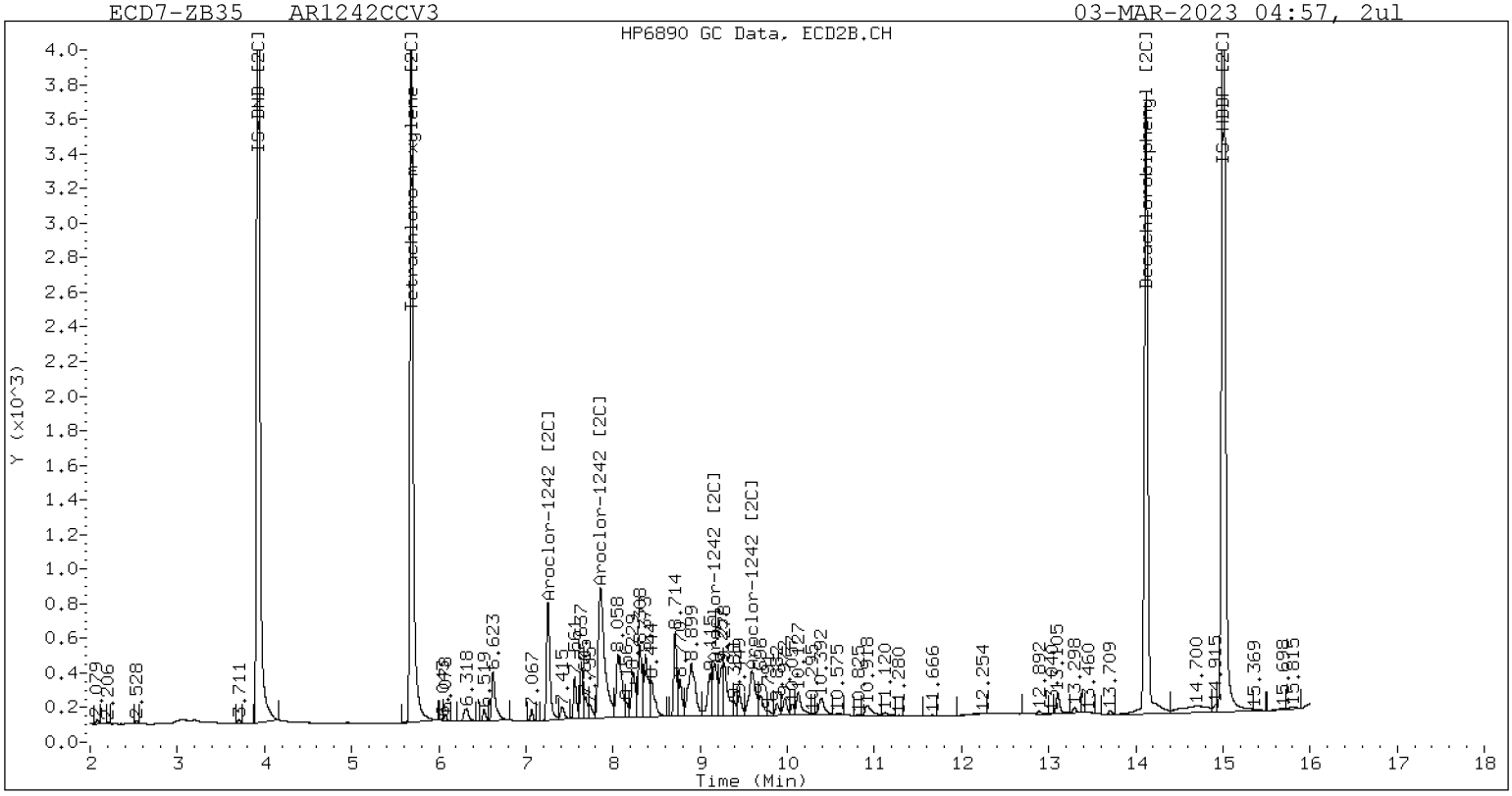
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242CCV3 03-MAR-2023 04:57, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242CCV3 03-MAR-2023 04:57, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022336ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCV4	Injection Time:	05:18
Sequence Name:	AR1660CCV4		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	272	0.0493662	0.0539375		8.8	+/-20	
Aroclor-1016 (1)	A	250.00	270	0.0303852	0.0327771		8.0		
Aroclor-1016 (2)	A	250.00	276	0.0926308	0.1021793		10.4		
Aroclor-1016 (3)	A	250.00	272	0.0452180	0.0492459		8.8		
Aroclor-1016 (4)	A	250.00	270	0.0292307	0.0315479		8.0		
Aroclor 1016 [2C]	A	250.00	264	0.0545857	0.0585065		5.5	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	254	0.0468313	0.0474980		1.6		
Aroclor-1016 (2) [2C]	A	250.00	283	0.0949676	0.1074580		13.2		
Aroclor-1016 (3) [2C]	A	250.00	251	0.0428922	0.0430981		0.4		
Aroclor-1016 (4) [2C]	A	250.00	267	0.0336515	0.0359718		6.8		
Aroclor 1260	A	250.00	410	0.0392091	0.0640173		64.0	+/-20	*
Aroclor-1260 (1)	A	250.00	431	0.0287785	0.0495944		72.4		
Aroclor-1260 (2)	A	250.00	446	0.0300690	0.0536712		78.4		
Aroclor-1260 (3)	A	250.00	400	0.0797517	0.1275197		60.0		
Aroclor-1260 (4)	A	250.00	391	0.0401599	0.0628704		56.4		
Aroclor-1260 (5)	A	250.00	382	0.0172866	0.0264308		52.8		
Aroclor 1260 [2C]	A	250.00	282	0.0699688	0.0792604		12.6	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	284	0.0470406	0.0533444		13.6		
Aroclor-1260 (2) [2C]	A	250.00	288	0.1200523	0.1384044		15.2		
Aroclor-1260 (3) [2C]	A	250.00	275	0.0318590	0.0349949		10.0		
Aroclor-1260 (4) [2C]	A	250.00	279	0.0809231	0.0902980		11.6		
Decachlorobiphenyl	A	40.000	46.1	0.7878687	0.9072998		15.3	+/-20	
Tetrachlorometaxylene	A	40.000	42.7	1.1944880	1.2744940		6.8	+/-20	
Decachlorobiphenyl [2C]	A	40.000	41.1	1.2182710	1.2520290		2.8	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	42.7	1.1737210	1.2521020		6.8	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022336ECD7.D
Data file 2: /230302.b/230302.b/03022336ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV4
Client ID:
Injection Date: 03-MAR-2023 05:18
Report Date: 03/03/2023 15:57
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	228773	5.687	-0.002	192234	42.7	42.7	0.0	Tetrachloro-m-xylene
13.893	-0.002	184665	14.119	0.001	202197	46.1	41.1	11.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	359002	-46.7
Hexabromobiphenyl	1429847	407065	-71.5 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307058	-2.6
Hexabromobiphenyl	513946	322991	-37.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.001	36772	269.7	1	7.254	-0.001	45577	253.6
Aroclor-1016	2	7.656	0.002	114633	275.8	2	7.858	-0.002	103112	282.9
Aroclor-1016	3	7.792	0.002	55248	272.3	3	8.057	-0.000	41355	251.2
Aroclor-1016	4	8.405	-0.000	35393	269.8	4	8.307	-0.000	34517	267.2
Total Col1Ave (4 peaks):					271.9	Total Col2Ave (4 peaks):				263.7 RPD = 3
Corrected Ave (3 peaks):					270.6	Corrected Ave (3 peaks):				257.3 RPD = 5
CalAmt %D:					8.8	CalAmt %D:				5.5
Aroclor-1260	1	11.044	-0.000	63088	430.8	1	11.652	0.000	53843	283.5
Aroclor-1260	2	11.361	-0.001	68274	446.2	2	11.917	-0.000	139698	288.2
Aroclor-1260	3	11.734	0.000	162215	399.7	3	12.435	-0.000	35322	274.6
Aroclor-1260	4	12.139	0.000	79976	391.4	4	12.501	-0.000	91142	279.0
Aroclor-1260	5	12.244	0.000	33622	382.2	NS	---			----
Total Col1Ave (5 peaks):					410.1	Total Col2Ave (4 peaks):				281.3 RPD = 37
Corrected Ave (4 peaks):					401.0	Corrected Ave (3 peaks):				279.0 RPD = 36
CalAmt %D:					64.0	CalAmt %D:				12.5

Total PCB Area Col1 (5.908 - 13.795) = 1974592 Col1 Total PCB = 0.5 ppm*

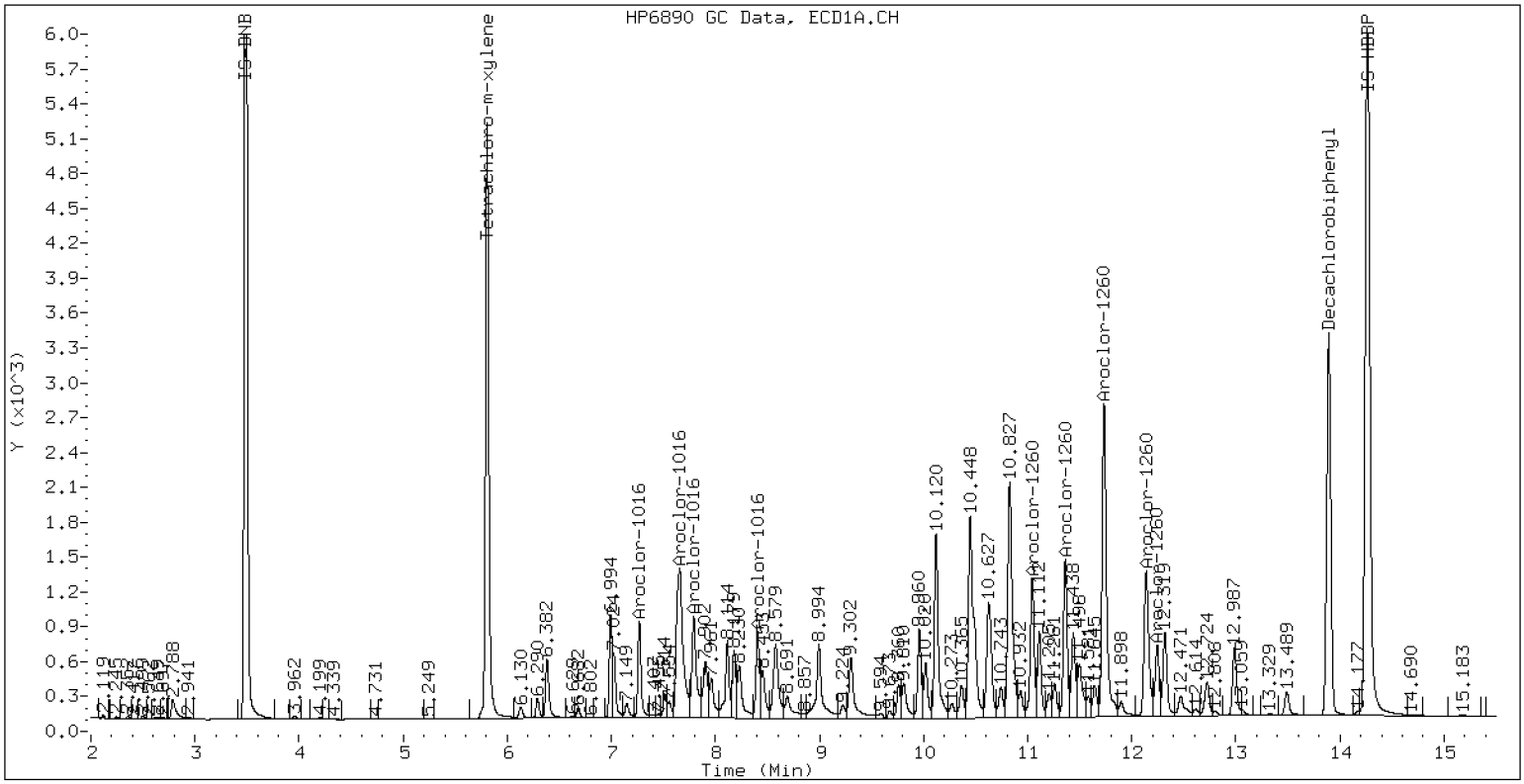
Total PCB Area Col2 (5.788 - 14.018) = 1570266 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

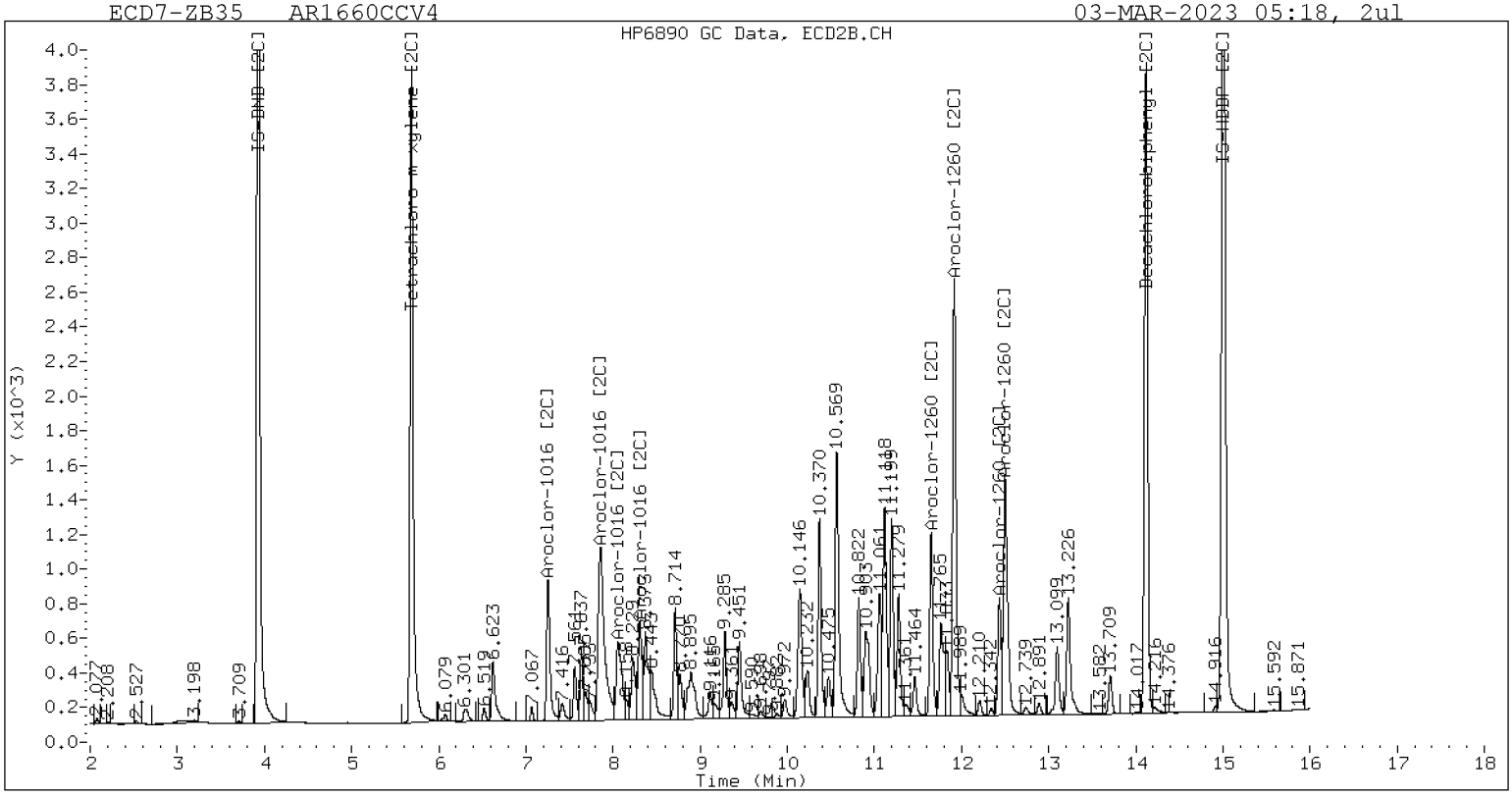
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV4 03-MAR-2023 05:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV4 03-MAR-2023 05:18, 2ul

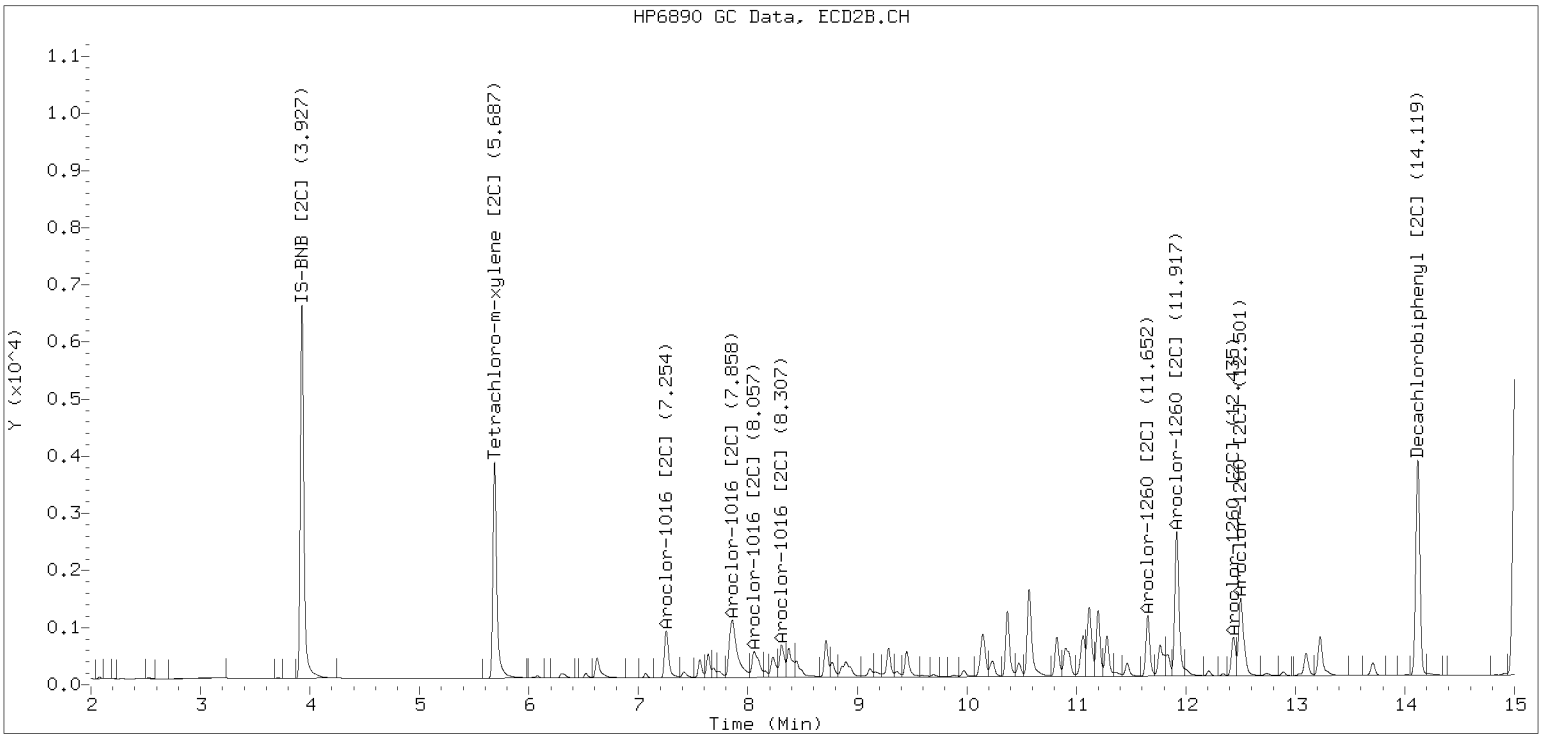


ZB-35 Manual Integration: YES

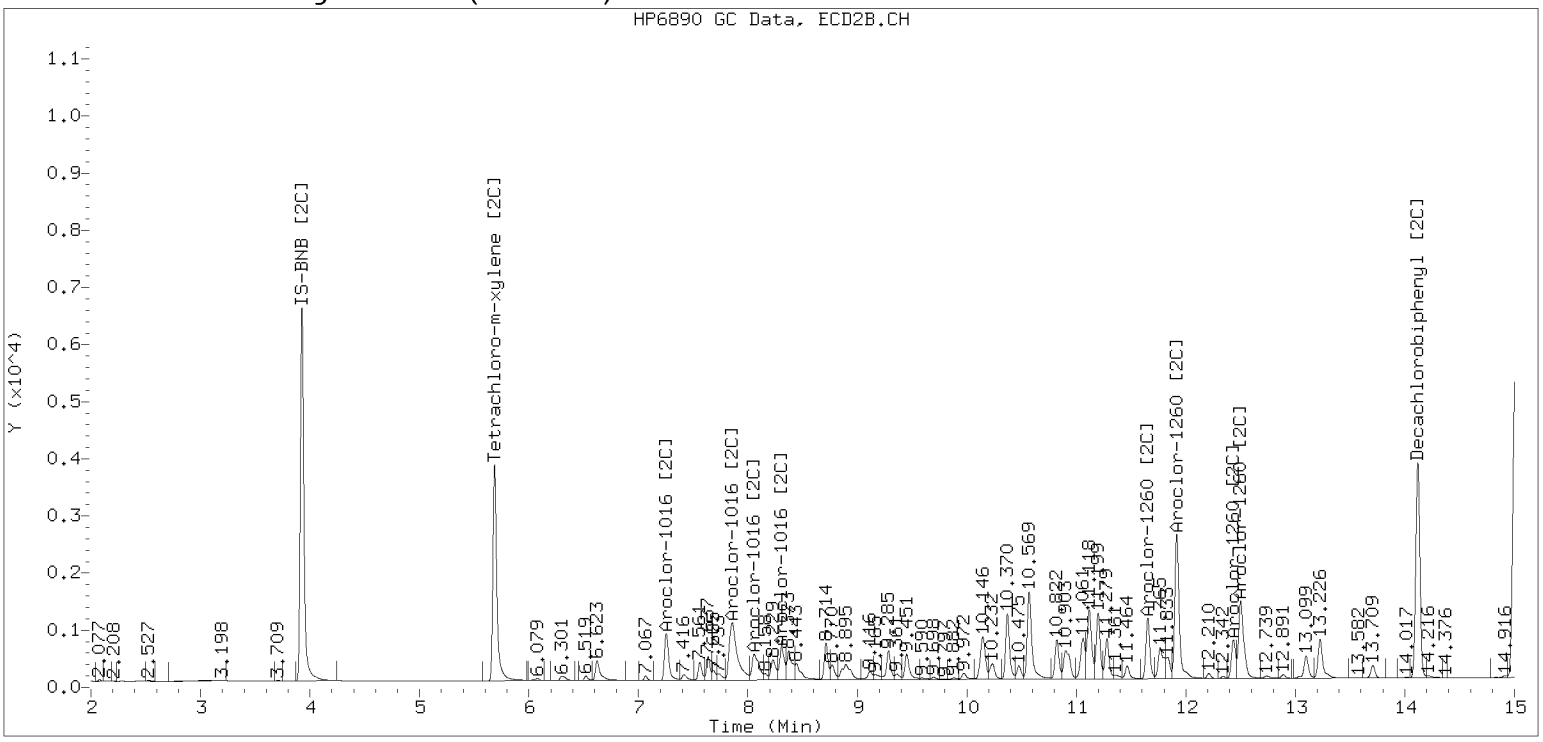
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230302.b/230302.b/03022336ECD7.D Injection Date: 03-MAR-2023

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022347ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCV5	Injection Time:	09:09
Sequence Name:	AR1254CCV5		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	233	0.0662949	0.0614415		-6.7	+/-20
Aroclor-1254 (1)	A	250.00	237		0.0762189			
Aroclor-1254 (2)	A	250.00	240		0.0346491			
Aroclor-1254 (3)	A	250.00	234		0.0483076			
Aroclor-1254 (4)	A	250.00	225		0.0902255			
Aroclor-1254 (5)	A	250.00	230		0.0578062			
Aroclor 1254 [2C]	A	250.00	253	0.0763106	0.0768016		1.0	+/-20
Aroclor-1254 (1) [2C]	A	250.00	257		0.0624155			
Aroclor-1254 (2) [2C]	A	250.00	257		0.0502332			
Aroclor-1254 (3) [2C]	A	250.00	255		0.1079861			
Aroclor-1254 (4) [2C]	A	250.00	243		0.1003944			
Aroclor-1254 (5) [2C]	A	250.00	251		0.0629788			
Decachlorobiphenyl	A	40.000	43.9	0.7878687	0.8639933		9.8	+/-20
Tetrachlorometaxylene	A	40.000	39.4	1.1944880	1.1780220		-1.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	42.7	1.2182710	1.3014910		6.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.0	1.1737210	1.1730150		0.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022347ECD7.D
Data file 2: /230302.b/230302.b/03022347ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254CCV5
Client ID:
Injection Date: 03-MAR-2023 09:09
Report Date: 03/03/2023 15:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	225778	5.686	-0.002	192931	39.4	40.0	1.3	Tetrachloro-m-xylene
13.894	-0.001	187563	14.118	-0.000	217416	43.9	42.7	2.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	383317	-43.1
Hexabromobiphenyl	1429847	434177	-69.6 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	328949	4.3
Hexabromobiphenyl	513946	334103	-35.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.298	-0.001	91300	237.2	1	9.450	0.000	64161	256.6
Aroclor-1254	2	9.378	0.000	41505	239.8	2	9.970	0.000	51638	256.7
Aroclor-1254	3	9.668	-0.000	57866	233.8	3	10.124	0.000	111006	255.1
Aroclor-1254	4	9.807	0.000	108078	224.6	4	10.373	0.000	103202	243.3
Aroclor-1254	5	10.175	-0.001	69244	229.6	5	10.569	0.000	64740	250.6

Total Col1Ave (5 peaks): 233.0 Total Col2Ave (5 peaks): 252.5 RPD = 8

Corrected Ave (4 peaks): 231.3 Corrected Ave (4 peaks): 251.4 RPD = 8

CalAmt %D: -6.8 CalAmt %D: 1.0

Total PCB Area Col1 (5.908 - 13.795) = 1188867 Col1 Total PCB = 0.3 ppm*

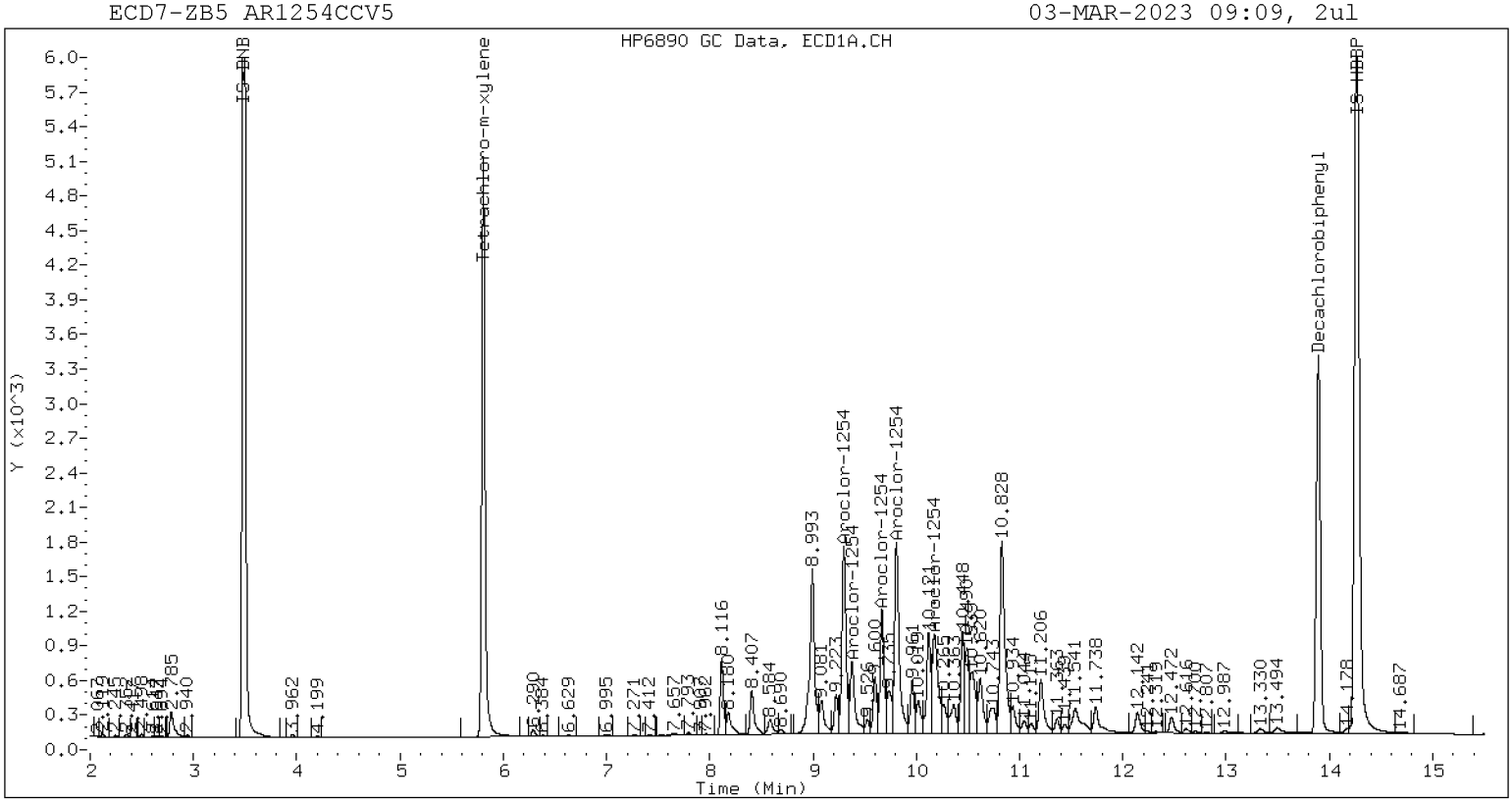
Total PCB Area Col2 (5.788 - 14.018) = 1061350 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

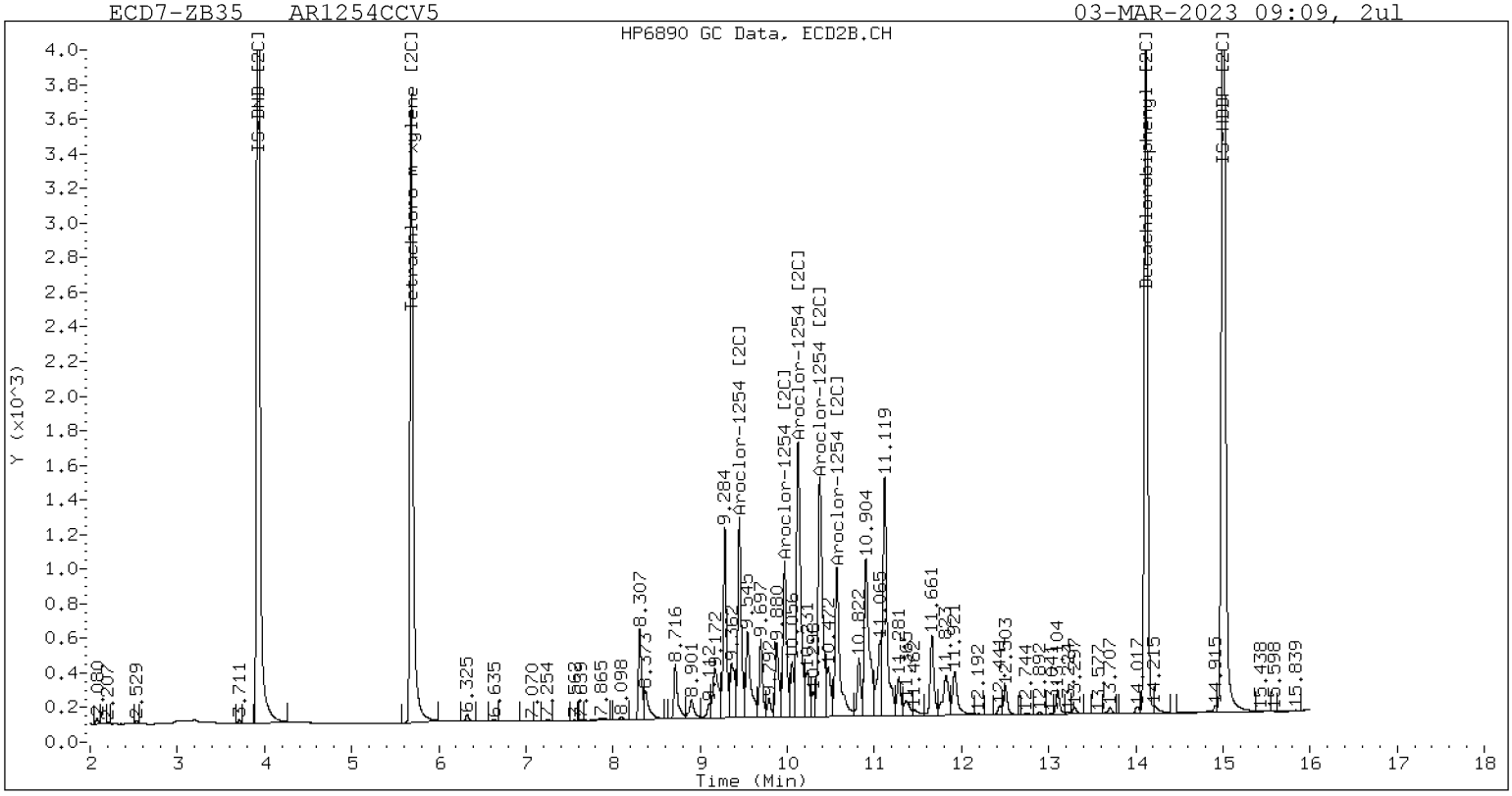
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254CCV5 03-MAR-2023 09:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254CCV5 03-MAR-2023 09:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022348ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCV6	Injection Time:	09:30
Sequence Name:	AR1660CCV6		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	274	0.0493662	0.0542699		9.5	+/-20	
Aroclor-1016 (1)	A	250.00	270	0.0303852	0.0328226		8.0		
Aroclor-1016 (2)	A	250.00	276	0.0926308	0.1024607		10.4		
Aroclor-1016 (3)	A	250.00	276	0.0452180	0.0498667		10.4		
Aroclor-1016 (4)	A	250.00	273	0.0292307	0.0319297		9.2		
Aroclor 1016 [2C]	A	250.00	264	0.0545857	0.0586551		5.7	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	252	0.0468313	0.0472386		0.8		
Aroclor-1016 (2) [2C]	A	250.00	284	0.0949676	0.1080260		13.6		
Aroclor-1016 (3) [2C]	A	250.00	251	0.0428922	0.0430618		0.4		
Aroclor-1016 (4) [2C]	A	250.00	270	0.0336515	0.0362939		8.0		
Aroclor 1260	A	250.00	401	0.0392091	0.0630215		60.3	+/-20	*
Aroclor-1260 (1)	A	250.00	408	0.0287785	0.0470257		63.2		
Aroclor-1260 (2)	A	250.00	428	0.0300690	0.0515238		71.2		
Aroclor-1260 (3)	A	250.00	400	0.0797517	0.1275977		60.0		
Aroclor-1260 (4)	A	250.00	391	0.0401599	0.0628704		56.4		
Aroclor-1260 (5)	A	250.00	377	0.0172866	0.0260896		50.8		
Aroclor 1260 [2C]	A	250.00	290	0.0699688	0.0820735		16.0	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	288	0.0470406	0.0541983		15.2		
Aroclor-1260 (2) [2C]	A	250.00	302	0.1200523	0.1447994		20.8		
Aroclor-1260 (3) [2C]	A	250.00	282	0.0318590	0.0359937		12.8		
Aroclor-1260 (4) [2C]	A	250.00	288	0.0809231	0.0933024		15.2		
Decachlorobiphenyl	A	40.000	46.2	0.7878687	0.9106867		15.5	+/-20	
Tetrachlorometaxylene	A	40.000	42.4	1.1944880	1.2652050		6.0	+/-20	
Decachlorobiphenyl [2C]	A	40.000	42.5	1.2182710	1.2938270		6.3	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	42.8	1.1737210	1.2555650		7.0	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022348ECD7.D
Data file 2: /230302.b/230302.b/03022348ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV6
Client ID:
Injection Date: 03-MAR-2023 09:30
Report Date: 03/03/2023 15:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	237374	5.686	-0.002	199557	42.4	42.8	1.0	Tetrachloro-m-xylene
13.893	-0.001	208973	14.117	-0.001	224688	46.2	42.5	8.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	375234	-44.3
Hexabromobiphenyl	1429847	458935	-67.9 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317876	0.8
Hexabromobiphenyl	513946	347323	-32.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.001	38488	270.1	1	7.254	-0.001	46925	252.2
Aroclor-1016	2	7.656	0.002	120146	276.5	2	7.858	-0.002	107309	284.4
Aroclor-1016	3	7.792	0.002	58474	275.7	3	8.057	-0.001	42776	251.0
Aroclor-1016	4	8.405	0.000	37441	273.1	4	8.307	-0.000	36053	269.6
Total Col1Ave (4 peaks):					273.8	Total Col2Ave (4 peaks):				264.3 RPD = 4
Corrected Ave (3 peaks):					272.9	Corrected Ave (3 peaks):				257.6 RPD = 6
CalAmt %D:					9.5	CalAmt %D:				5.7
Aroclor-1260	1	11.044	0.000	67443	408.5	1	11.652	-0.000	58826	288.0
Aroclor-1260	2	11.360	-0.001	73894	428.4	2	11.917	-0.001	157163	301.5
Aroclor-1260	3	11.734	-0.000	182997	400.0	3	12.436	0.000	39067	282.4
Aroclor-1260	4	12.138	-0.001	90167	391.4	4	12.501	-0.000	101269	288.2
Aroclor-1260	5	12.244	0.000	37417	377.3	NS	---			----
Total Col1Ave (5 peaks):					401.1	Total Col2Ave (4 peaks):				290.1 RPD = 32
Corrected Ave (4 peaks):					394.3	Corrected Ave (3 peaks):				286.2 RPD = 32
CalAmt %D:					60.4	CalAmt %D:				16.0

Total PCB Area Col1 (5.908 - 13.795) = 2166551 Col1 Total PCB = 0.5 ppm*

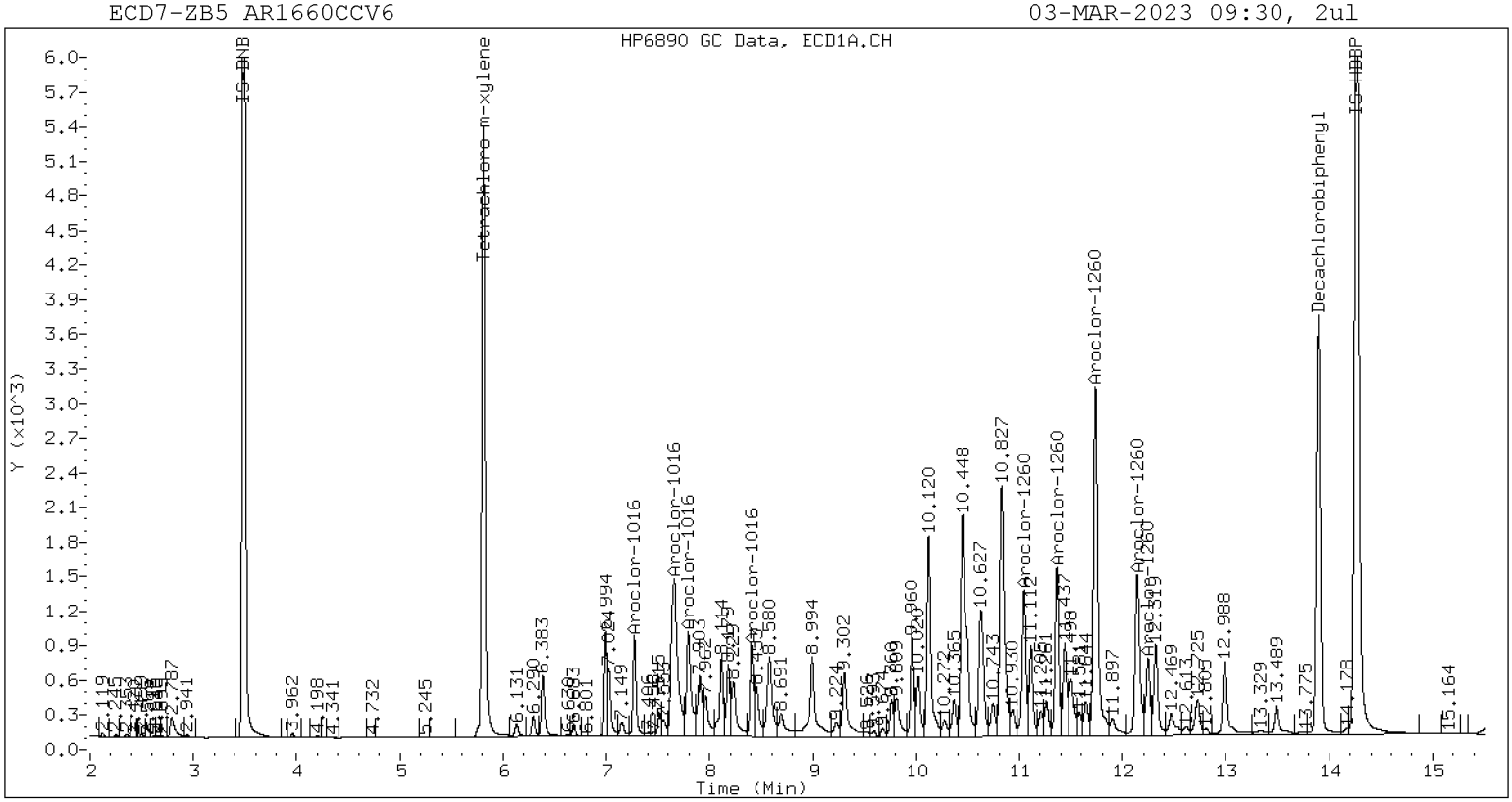
Total PCB Area Col2 (5.788 - 14.018) = 1688947 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

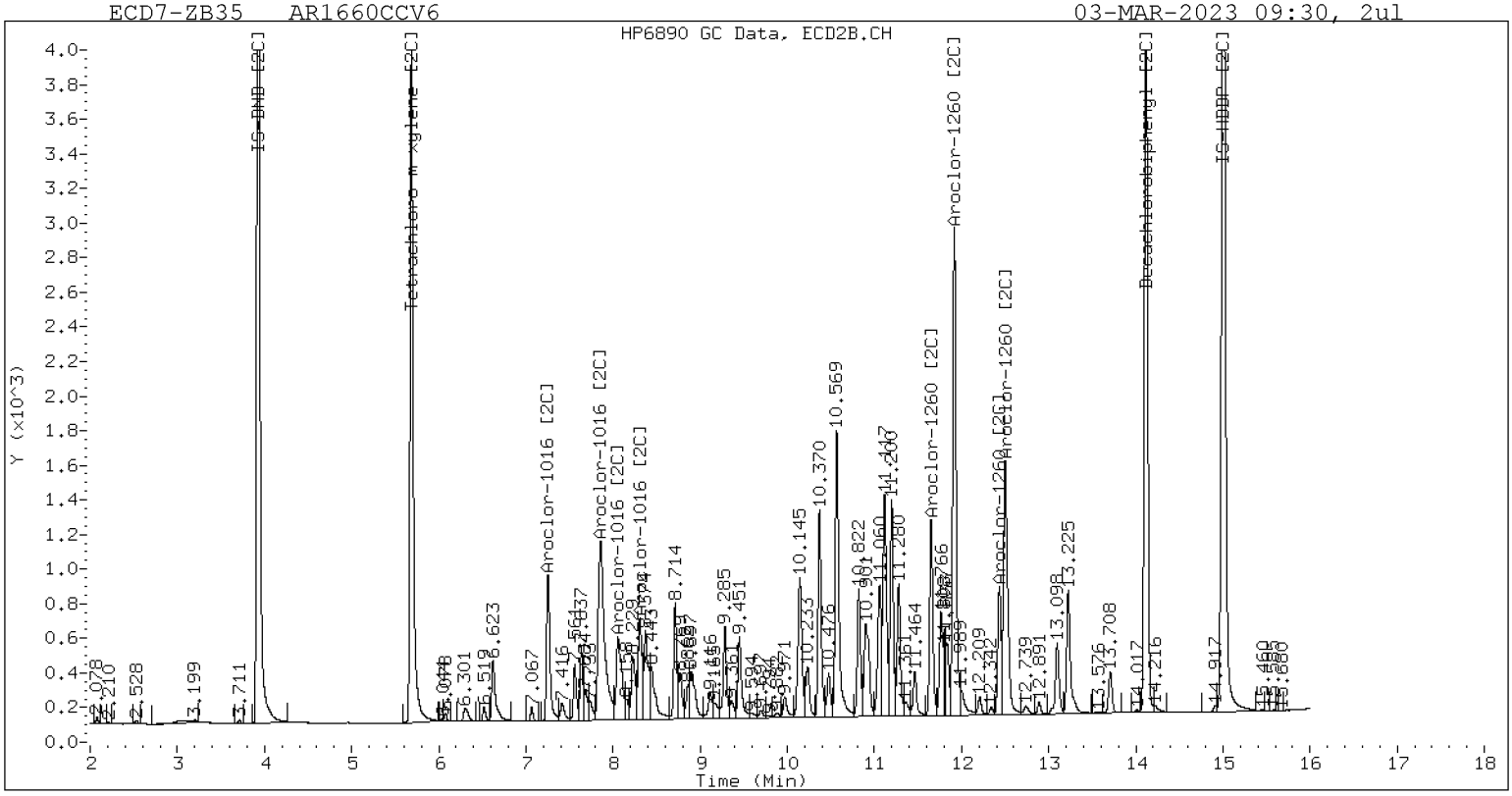
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV6 03-MAR-2023 09:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV6 03-MAR-2023 09:30, 2ul

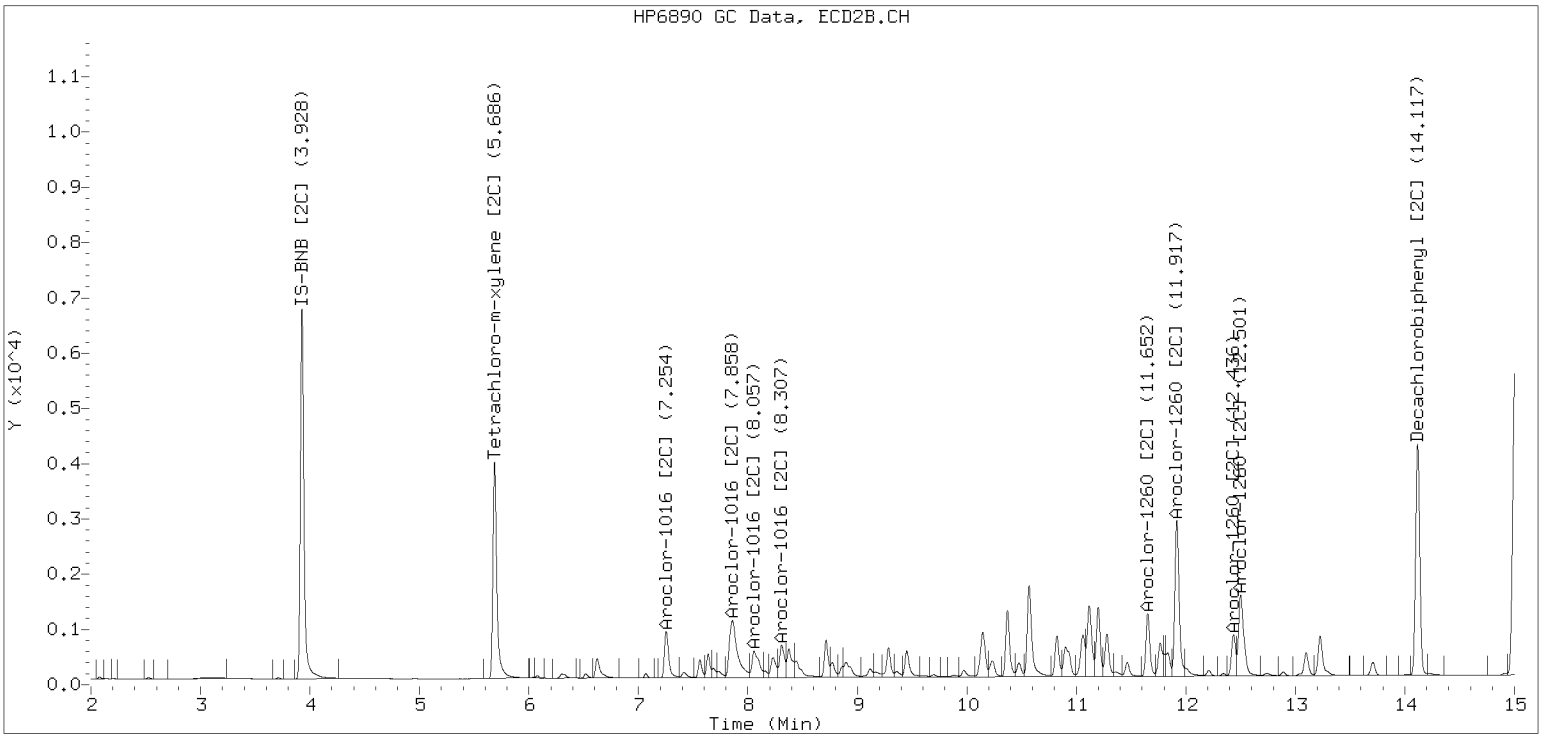


ZB-35 Manual Integration: YES

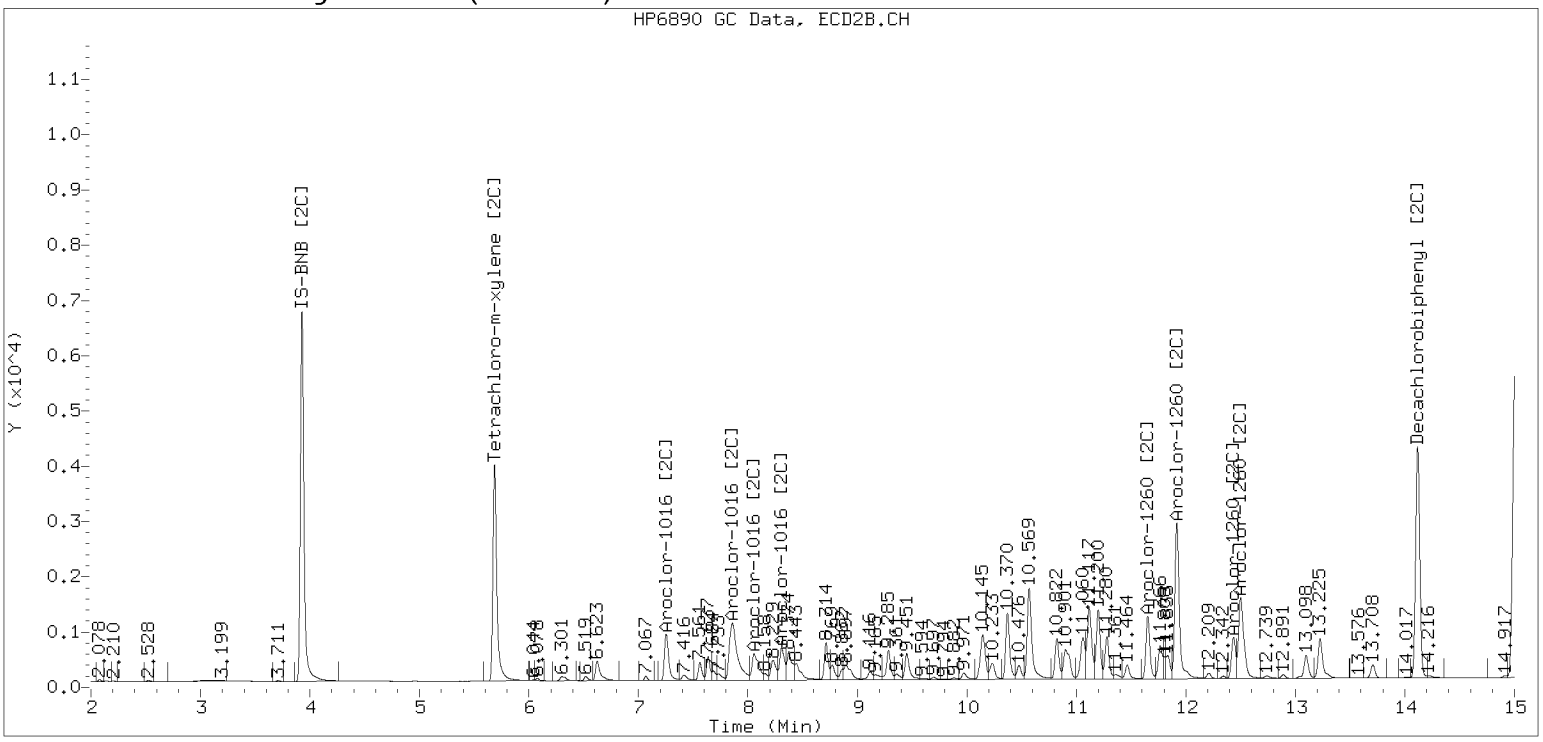
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230302.b/230302.b/03022348ECD7.D Injection Date: 03-MAR-2023

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022364ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCV7	Injection Time:	15:07
Sequence Name:	AR1248CCV7		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	252	0.0574755	0.0582181		0.8	+/-20
Aroclor-1248 (1)	A	250.00	251		0.0392526			
Aroclor-1248 (2)	A	250.00	254		0.0503312			
Aroclor-1248 (3)	A	250.00	259		0.0968305			
Aroclor-1248 (4)	A	250.00	244		0.0464581			
Aroclor 1248 [2C]	A	250.00	254	0.0444270	0.0450606		1.7	+/-20
Aroclor-1248 (1) [2C]	A	250.00	256		0.0390478			
Aroclor-1248 (2) [2C]	A	250.00	256		0.0403991			
Aroclor-1248 (3) [2C]	A	250.00	257		0.0467470			
Aroclor-1248 (4) [2C]	A	250.00	248		0.0540487			
Decachlorobiphenyl	A	40.000	40.6	0.7878687	0.8003708		1.5	+/-20
Tetrachlorometaxylene	A	40.000	39.0	1.1944880	1.1643150		-2.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	42.0	1.2182710	1.2778830		5.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.7	1.1737210	1.1662310		-0.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022364ECD7.D
Data file 2: /230302.b/230302.b/03022364ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV7
Client ID:
Injection Date: 03-MAR-2023 15:07
Report Date: 03/06/2023 11:07
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	230202	5.688	0.002	197594	39.0	39.7	1.9	Tetrachloro-m-xylene
13.894	0.001	192993	14.118	0.001	244528	40.6	42.0	3.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	395429	-41.3
Hexabromobiphenyl	1429847	482259	-66.3 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	338859	7.5
Hexabromobiphenyl	513946	382708	-25.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.405	0.000	48505	251.4	1	8.308	0.000	41349	255.6
Aroclor-1248	2	8.580	0.000	62195	253.6	2	8.714	0.000	42780	255.7
Aroclor-1248	3	8.998	0.000	119655	258.6	3	9.167	0.000	49502	257.1
Aroclor-1248	4	9.293	0.000	57409	243.7	4	9.591	0.000	57234	247.6
Total Col1Ave (4 peaks):					251.8	Total Col2Ave (4 peaks):				254.0 RPD = 1
Corrected Ave (3 peaks):					249.6	Corrected Ave (3 peaks):				253.0 RPD = 1
CalAmt %D:					0.7	CalAmt %D:				1.6

Total PCB Area Col1 (5.906 - 13.793) = 950611 Col1 Total PCB = 0.2 ppm*

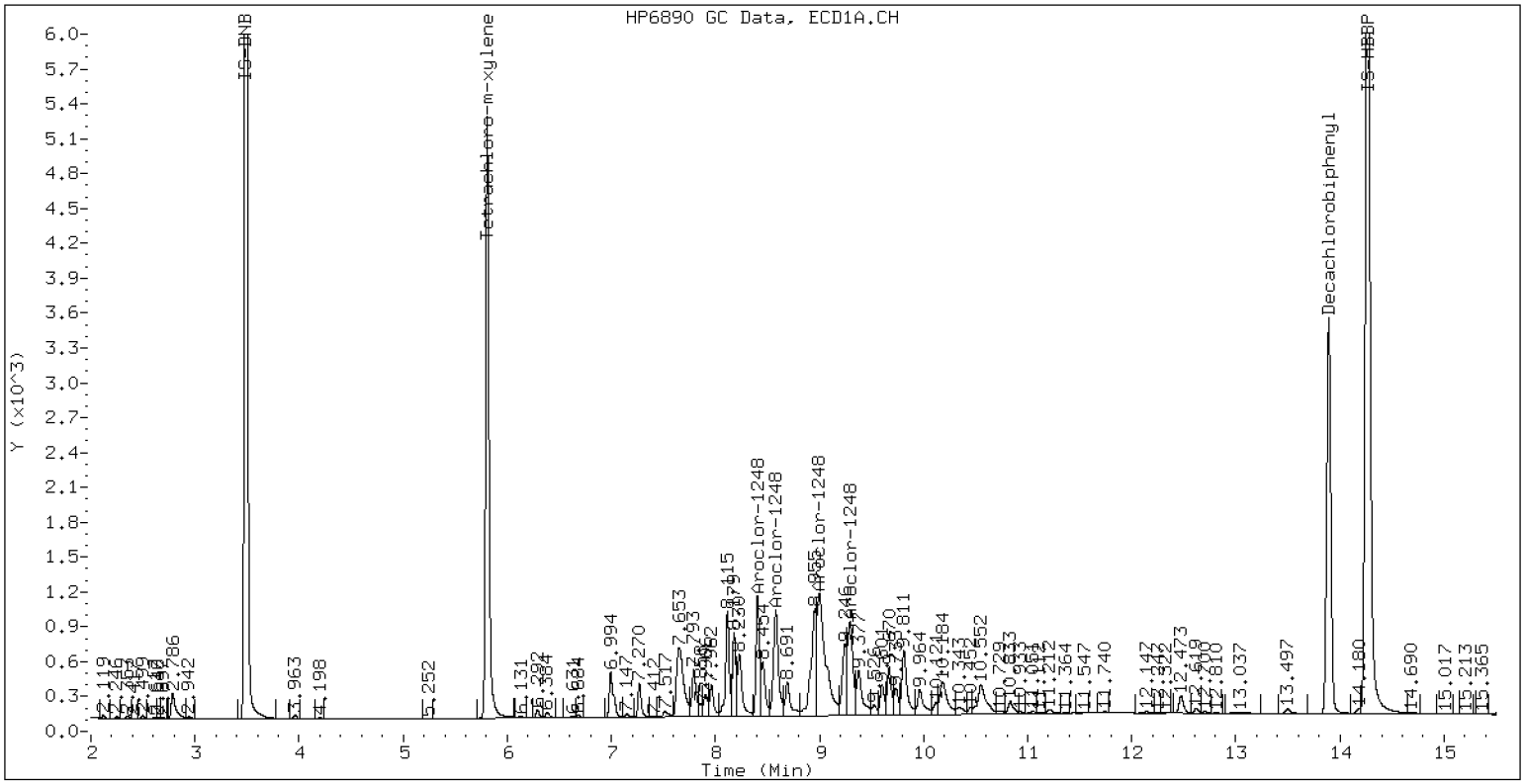
Total PCB Area Col2 (5.786 - 14.017) = 804795 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

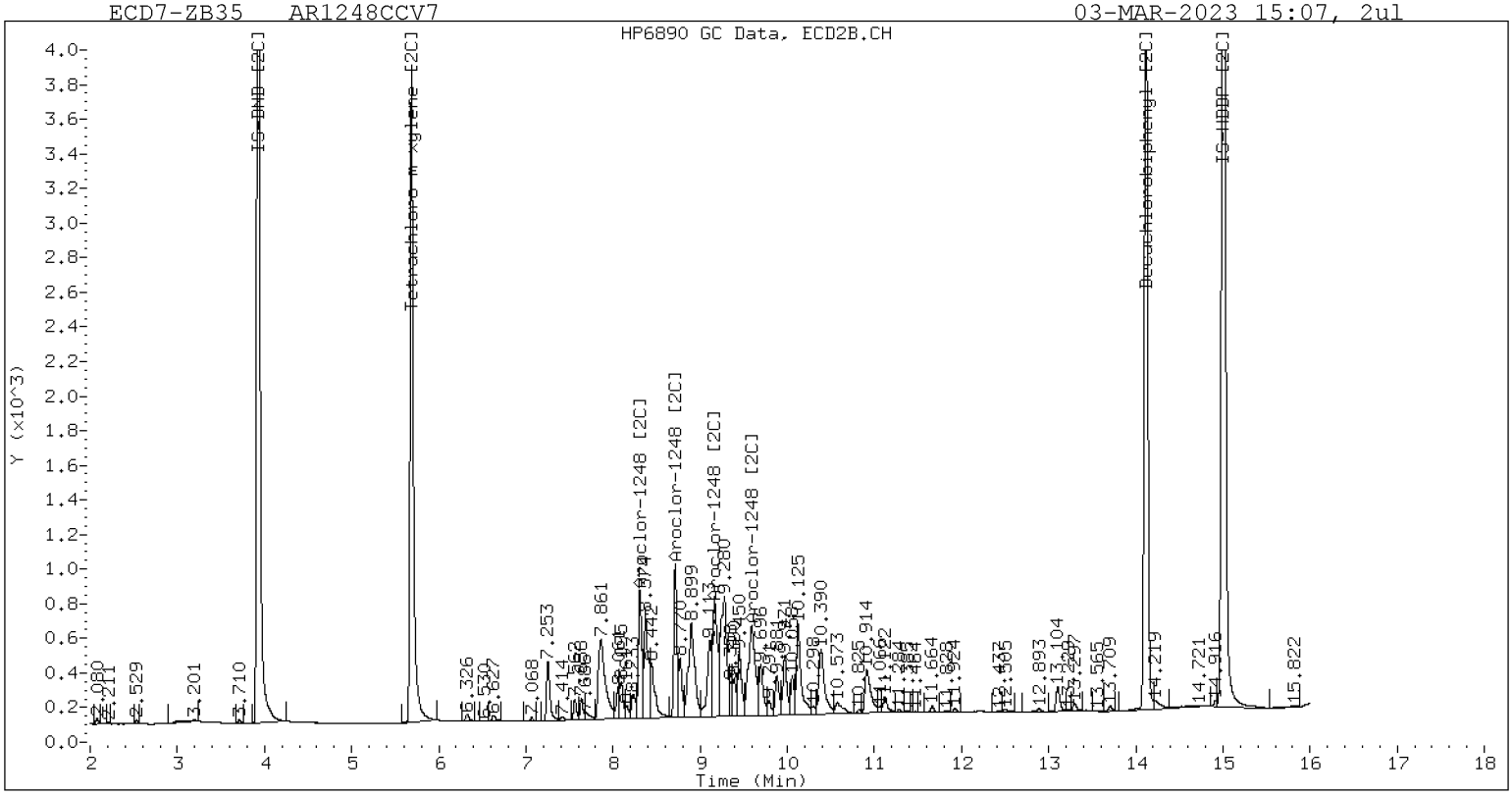
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV7 03-MAR-2023 15:07, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248CCV7 03-MAR-2023 15:07, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022365ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCV8	Injection Time:	15:28
Sequence Name:	AR1660CCV8		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	277	0.0493662	0.0548275		10.7	+/-20	
Aroclor-1016 (1)	A	250.00	272	0.0303852	0.0331060		8.8		
Aroclor-1016 (2)	A	250.00	279	0.0926308	0.1035040		11.6		
Aroclor-1016 (3)	A	250.00	278	0.0452180	0.0502041		11.2		
Aroclor-1016 (4)	A	250.00	278	0.0292307	0.0324958		11.2		
Aroclor 1016 [2C]	A	250.00	264	0.0545857	0.0587281		5.7	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	252	0.0468313	0.0472811		0.8		
Aroclor-1016 (2) [2C]	A	250.00	286	0.0949676	0.1085076		14.4		
Aroclor-1016 (3) [2C]	A	250.00	249	0.0428922	0.0428029		-0.4		
Aroclor-1016 (4) [2C]	A	250.00	270	0.0336515	0.0363210		8.0		
Aroclor 1260	A	250.00	391	0.0392091	0.0613203		56.4	+/-20	*
Aroclor-1260 (1)	A	250.00	395	0.0287785	0.0454486		58.0		
Aroclor-1260 (2)	A	250.00	412	0.0300690	0.0494939		64.8		
Aroclor-1260 (3)	A	250.00	388	0.0797517	0.1239042		55.2		
Aroclor-1260 (4)	A	250.00	384	0.0401599	0.0617162		53.6		
Aroclor-1260 (5)	A	250.00	376	0.0172866	0.0260385		50.4		
Aroclor 1260 [2C]	A	250.00	276	0.0699688	0.0790206		10.3	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	260	0.0470406	0.0489347		4.0		
Aroclor-1260 (2) [2C]	A	250.00	299	0.1200523	0.1434354		19.6		
Aroclor-1260 (3) [2C]	A	250.00	267	0.0318590	0.0339954		6.8		
Aroclor-1260 (4) [2C]	A	250.00	277	0.0809231	0.0897170		10.8		
Decachlorobiphenyl	A	40.000	44.0	0.7878687	0.8663303		10.0	+/-20	
Tetrachlorometaxylene	A	40.000	42.7	1.1944880	1.2748920		6.8	+/-20	
Decachlorobiphenyl [2C]	A	40.000	41.3	1.2182710	1.2568840		3.3	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	43.3	1.1737210	1.2697190		8.3	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022365ECD7.D
Data file 2: /230302.b/230302.b/03022365ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV8
Client ID:
Injection Date: 03-MAR-2023 15:28
Report Date: 03/06/2023 11:08
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	246035	5.688	0.002	207361	42.7	43.3	1.3	Tetrachloro-m-xylene
13.892	-0.001	226457	14.118	0.001	253286	44.0	41.3	6.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	385970	-42.7
Hexabromobiphenyl	1429847	522796	-63.4 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	326625	3.6
Hexabromobiphenyl	513946	403038	-21.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	39931	272.4	1	7.255	0.002	48260	252.4
Aroclor-1016	2	7.657	0.002	124842	279.3	2	7.860	0.000	110754	285.6
Aroclor-1016	3	7.793	0.002	60554	277.6	3	8.057	0.000	43689	249.5
Aroclor-1016	4	8.406	0.001	39195	277.9	4	8.308	0.002	37073	269.8
Total Col1Ave (4 peaks):					276.8	Total Col2Ave (4 peaks):				264.3 RPD = 5
Corrected Ave (3 peaks):					276.0	Corrected Ave (3 peaks):				257.2 RPD = 7
CalAmt %D:					10.7	CalAmt %D:				5.7
Aroclor-1260	1	11.045	0.001	74251	394.8	1	11.652	0.001	61633	260.1
Aroclor-1260	2	11.361	0.000	80860	411.5	2	11.918	0.000	180656	298.7
Aroclor-1260	3	11.734	0.001	202427	388.4	3	12.435	0.001	42817	266.8
Aroclor-1260	4	12.139	0.001	100828	384.2	4	12.501	-0.000	112998	277.2
Aroclor-1260	5	12.243	-0.001	42540	376.6	NS	---			----
Total Col1Ave (5 peaks):					391.1	Total Col2Ave (4 peaks):				275.7 RPD = 35
Corrected Ave (4 peaks):					386.0	Corrected Ave (3 peaks):				268.0 RPD = 36
CalAmt %D:					56.4	CalAmt %D:				10.3

Total PCB Area Col1 (5.906 - 13.793) = 2326090 Col1 Total PCB = 0.5 ppm*

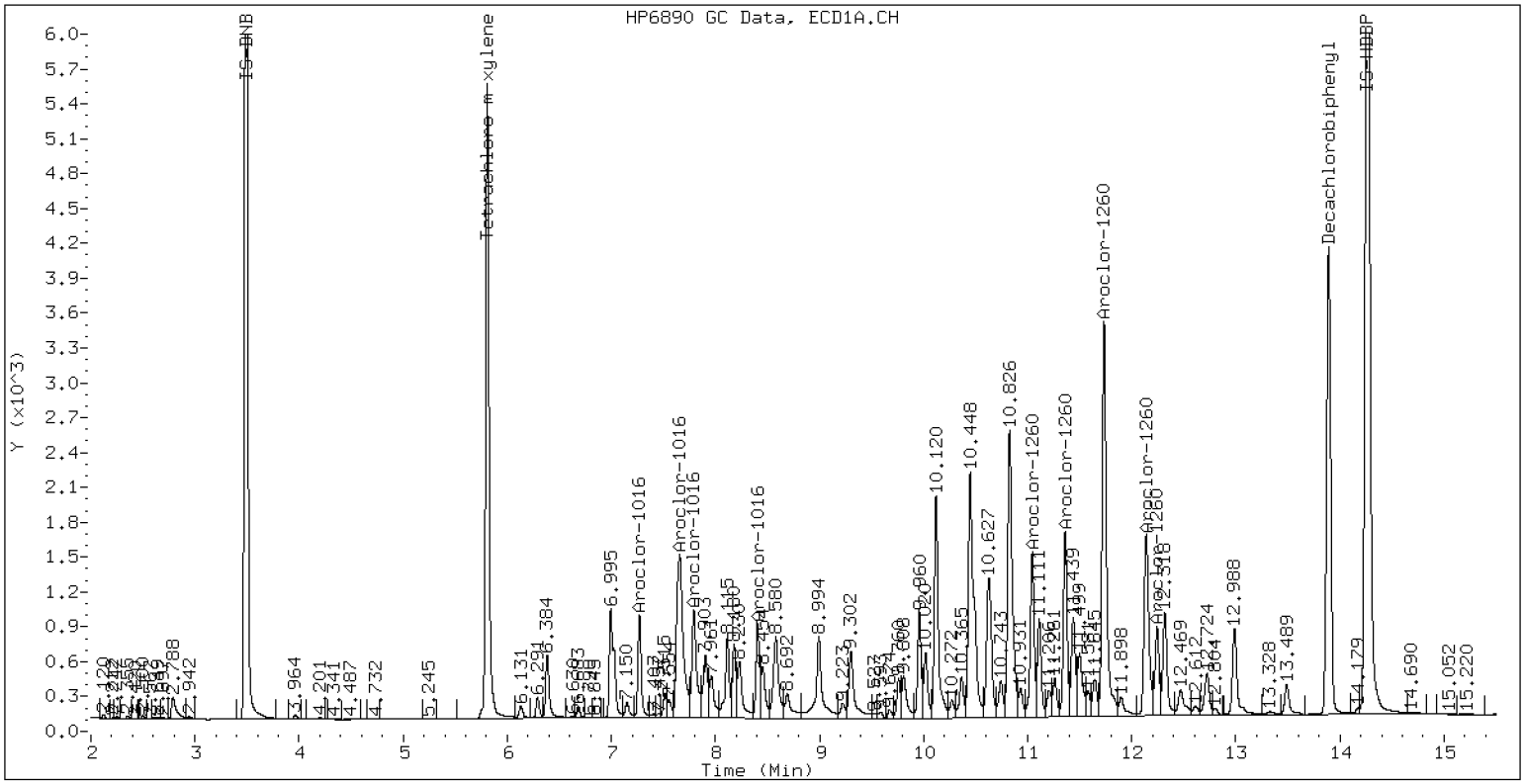
Total PCB Area Col2 (5.786 - 14.017) = 1760009 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

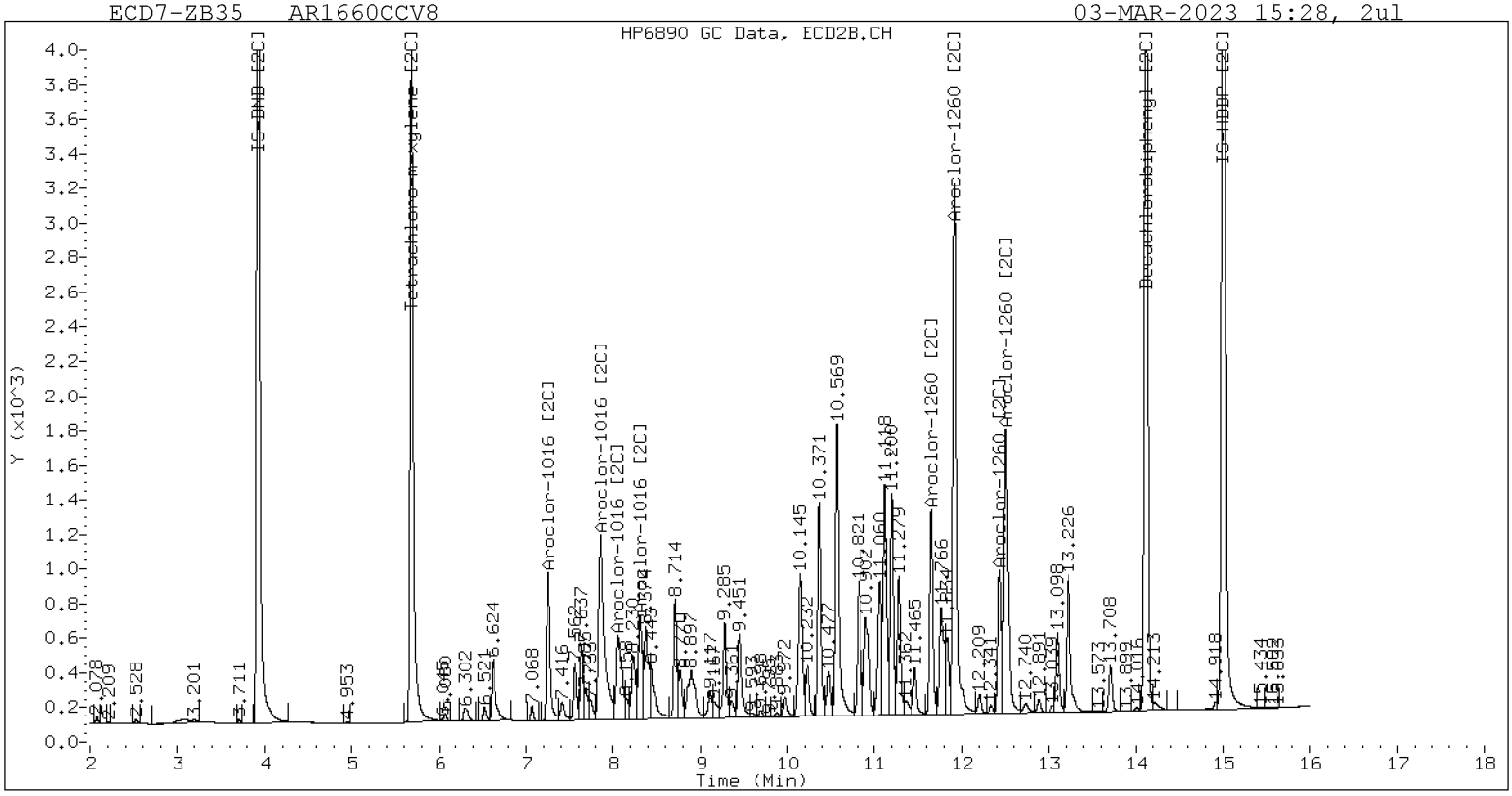
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV8 03-MAR-2023 15:28, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV8 03-MAR-2023 15:28, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022379ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCV9	Injection Time:	20:22
Sequence Name:	AR1242CCV9		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	249	0.0395340	0.0394088		-0.5	+/-20
Aroclor-1242 (1)	A	250.00	251		0.0248635			
Aroclor-1242 (2)	A	250.00	250		0.0752969			
Aroclor-1242 (3)	A	250.00	245		0.0229758			
Aroclor-1242 (4)	A	250.00	249		0.0344988			
Aroclor 1242 [2C]	A	250.00	254	0.0423092	0.0433225		1.7	+/-20
Aroclor-1242 (1) [2C]	A	250.00	254		0.0377032			
Aroclor-1242 (2) [2C]	A	250.00	261		0.0814711			
Aroclor-1242 (3) [2C]	A	250.00	252		0.0245410			
Aroclor-1242 (4) [2C]	A	250.00	250		0.0295749			
Decachlorobiphenyl	A	40.000	40.3	0.7878687	0.7933842		0.8	+/-20
Tetrachlorometaxylene	A	40.000	46.9	1.1944880	1.4016620		17.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.4	1.2182710	1.2318270		1.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	46.8	1.1737210	1.3730560		17.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022379ECD7.D
Data file 2: /230302.b/230302.b/03022379ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242CCV9
Client ID:
Injection Date: 03-MAR-2023 20:22
Report Date: 03/06/2023 11:08
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	287382	5.686	0.000	236143	46.9	46.8	0.3	Tetrachloro-m-xylene
13.893	0.001	264429	14.117	0.000	306662	40.3	40.4	0.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	410059	-39.1
Hexabromobiphenyl	1429847	666585	-53.4 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	343967	9.1
Hexabromobiphenyl	513946	497898	-3.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.270	0.000	31861	250.7	1	7.254	0.000	40527	253.6
Aroclor-1242	2	7.657	0.000	96488	250.0	2	7.861	0.000	87573	260.7
Aroclor-1242	3	8.405	0.000	29442	245.2	3	9.172	0.000	26379	252.4
Aroclor-1242	4	8.580	0.000	44208	249.1	4	9.598	0.000	31790	249.6
Total Col1Ave (4 peaks):					248.8	Total Col2Ave (4 peaks):				254.1 RPD = 2
Corrected Ave (3 peaks):					248.1	Corrected Ave (3 peaks):				251.8 RPD = 2
CalAmt %D:					-0.5	CalAmt %D:				1.6

Total PCB Area Col1 (5.906 - 13.793) = 769107 Col1 Total PCB = 0.2 ppm*

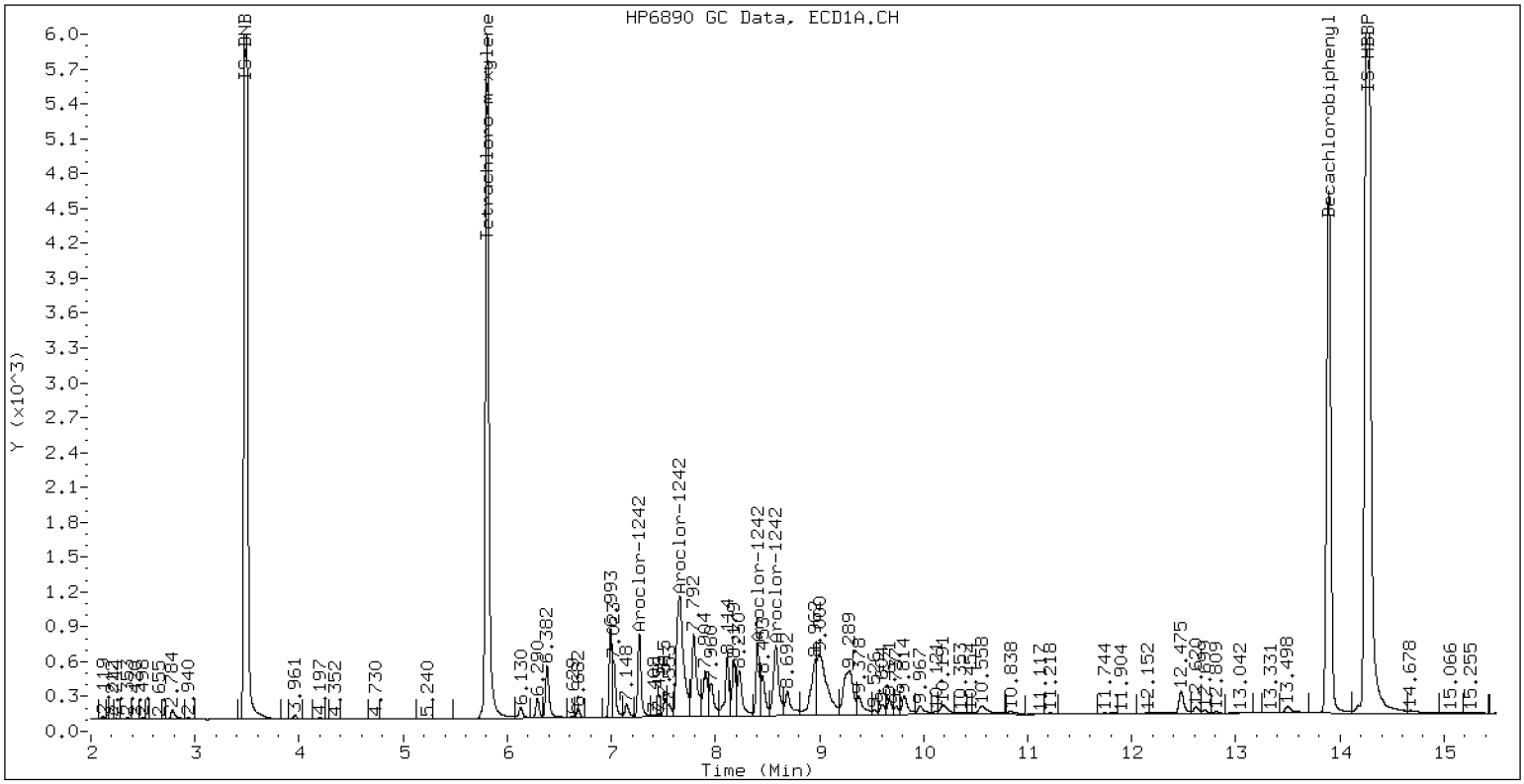
Total PCB Area Col2 (5.786 - 14.017) = 635351 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

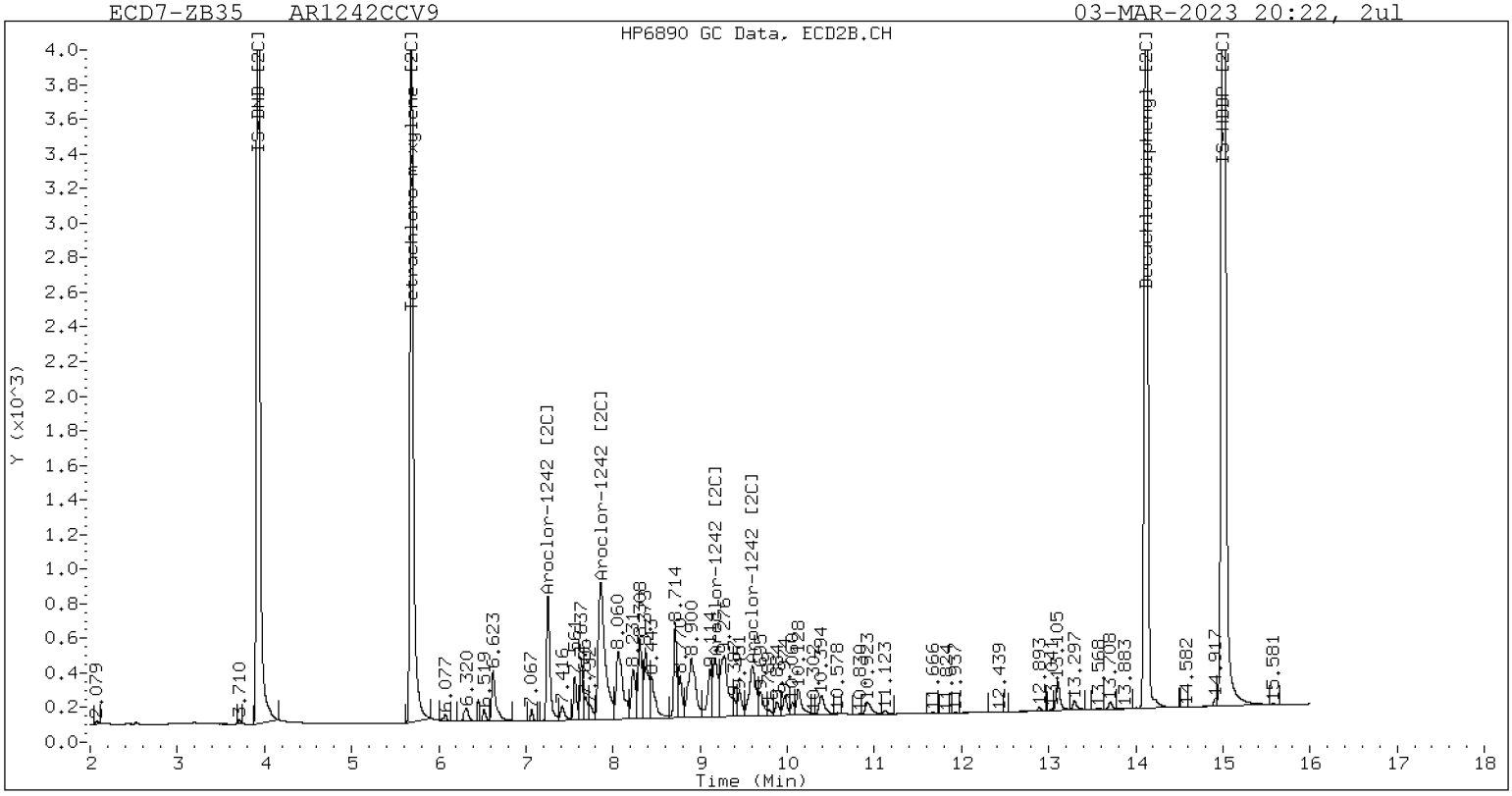
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242CCV9 03-MAR-2023 20:22, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242CCV9 03-MAR-2023 20:22, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03022380ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0051	Injection Date:	03/03/23
Lab Sample ID:	SLC0051-CCVA	Injection Time:	20:43
Sequence Name:	AR1660CCVA		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	270	0.0493662	0.0535448		7.9	+/-20	
Aroclor-1016 (1)	A	250.00	266	0.0303852	0.0323833		6.4		
Aroclor-1016 (2)	A	250.00	273	0.0926308	0.1012203		9.2		
Aroclor-1016 (3)	A	250.00	271	0.0452180	0.0490841		8.4		
Aroclor-1016 (4)	A	250.00	269	0.0292307	0.0314916		7.6		
Aroclor 1016 [2C]	A	250.00	253	0.0545857	0.0562544		1.1	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	242	0.0468313	0.0453645		-3.2		
Aroclor-1016 (2) [2C]	A	250.00	274	0.0949676	0.1042404		9.6		
Aroclor-1016 (3) [2C]	A	250.00	236	0.0428922	0.0405664		-5.6		
Aroclor-1016 (4) [2C]	A	250.00	259	0.0336515	0.0348462		3.6		
Aroclor 1260	A	250.00	351	0.0392091	0.0551351		40.6	+/-20	*
Aroclor-1260 (1)	A	250.00	338	0.0287785	0.0389511		35.2		
Aroclor-1260 (2)	A	250.00	364	0.0300690	0.0438451		45.6		
Aroclor-1260 (3)	A	250.00	351	0.0797517	0.1119406		40.4		
Aroclor-1260 (4)	A	250.00	353	0.0401599	0.0566941		41.2		
Aroclor-1260 (5)	A	250.00	351	0.0172866	0.0242448		40.4		
Aroclor 1260 [2C]	A	250.00	243	0.0699688	0.0697313		-2.8	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	227	0.0470406	0.0427688		-9.2		
Aroclor-1260 (2) [2C]	A	250.00	262	0.1200523	0.1259767		4.8		
Aroclor-1260 (3) [2C]	A	250.00	235	0.0318590	0.0299780		-6.0		
Aroclor-1260 (4) [2C]	A	250.00	248	0.0809231	0.0802015		-0.8		
Decachlorobiphenyl	A	40.000	45.3	0.7878687	0.8925842		13.3	+/-20	
Tetrachlorometaxylene	A	40.000	41.5	1.1944880	1.2395580		3.8	+/-20	
Decachlorobiphenyl [2C]	A	40.000	40.1	1.2182710	1.2201580		0.3	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	41.6	1.1737210	1.2217220		4.0	+/-20	

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230302.b/03022380ECD7.D
Data file 2: /230302.b/230302.b/03022380ECD7.D
Method: \\target\share\chem4\ecd7.i\230302.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCVA
Client ID:
Injection Date: 03-MAR-2023 20:43
Report Date: 03/06/2023 11:08
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	261556	5.686	0.000	214334	41.5	41.6	0.3	Tetrachloro-m-xylene
13.893	0.000	305121	14.117	0.000	303258	45.3	40.1	12.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	422015	-37.4
Hexabromobiphenyl	1429847	683680	-52.2 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	350872	11.3
Hexabromobiphenyl	513946	497080	-3.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	42707	266.4	1	7.253	0.000	49741	242.2
Aroclor-1016	2	7.655	0.000	133489	273.2	2	7.859	0.000	114297	274.4
Aroclor-1016	3	7.791	0.000	64732	271.4	3	8.057	0.000	44480	236.4
Aroclor-1016	4	8.405	0.000	41531	269.3	4	8.306	0.000	38208	258.9
Total Col1Ave (4 peaks):					270.1	Total Col2Ave (4 peaks):				253.0 RPD = 7
Corrected Ave (3 peaks):					269.1	Corrected Ave (3 peaks):				245.8 RPD = 9
CalAmt %D:					8.0	CalAmt %D:				1.2
Aroclor-1260	1	11.044	0.000	83219	338.4	1	11.652	0.000	66436	227.3
Aroclor-1260	2	11.360	0.000	93675	364.5	2	11.918	0.000	195689	262.3
Aroclor-1260	3	11.733	0.000	239161	350.9	3	12.435	0.000	46567	235.2
Aroclor-1260	4	12.138	0.000	121127	352.9	4	12.502	0.000	124583	247.8
Aroclor-1260	5	12.244	0.000	51799	350.6	NS	---			----
Total Col1Ave (5 peaks):					351.5	Total Col2Ave (4 peaks):				243.2 RPD = 36
Corrected Ave (4 peaks):					348.2	Corrected Ave (3 peaks):				236.8 RPD = 38
CalAmt %D:					40.6	CalAmt %D:				-2.7

Total PCB Area Col1 (5.906 - 13.793) = 2627329 Col1 Total PCB = 0.5 ppm*

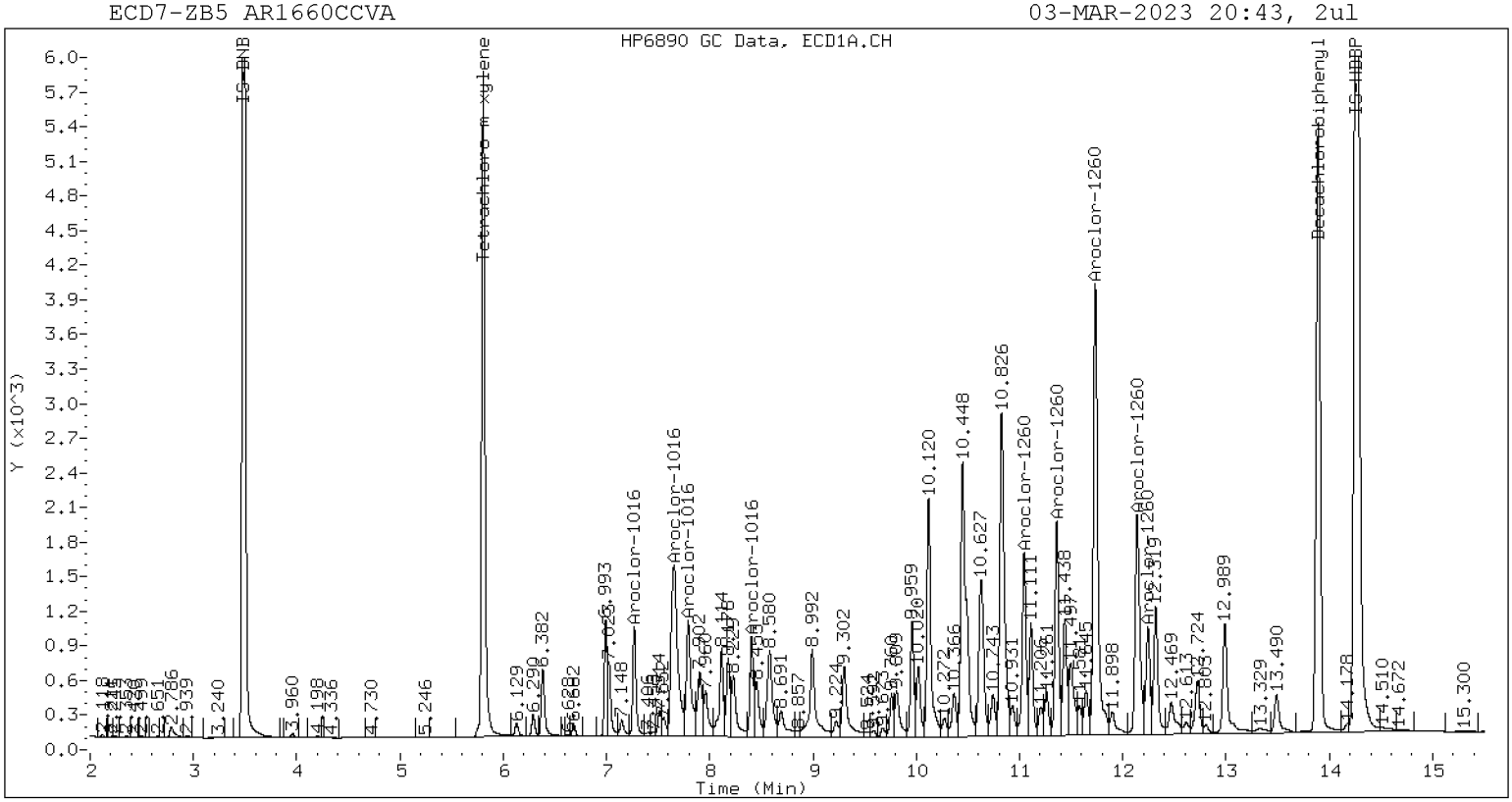
Total PCB Area Col2 (5.786 - 14.017) = 1862935 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

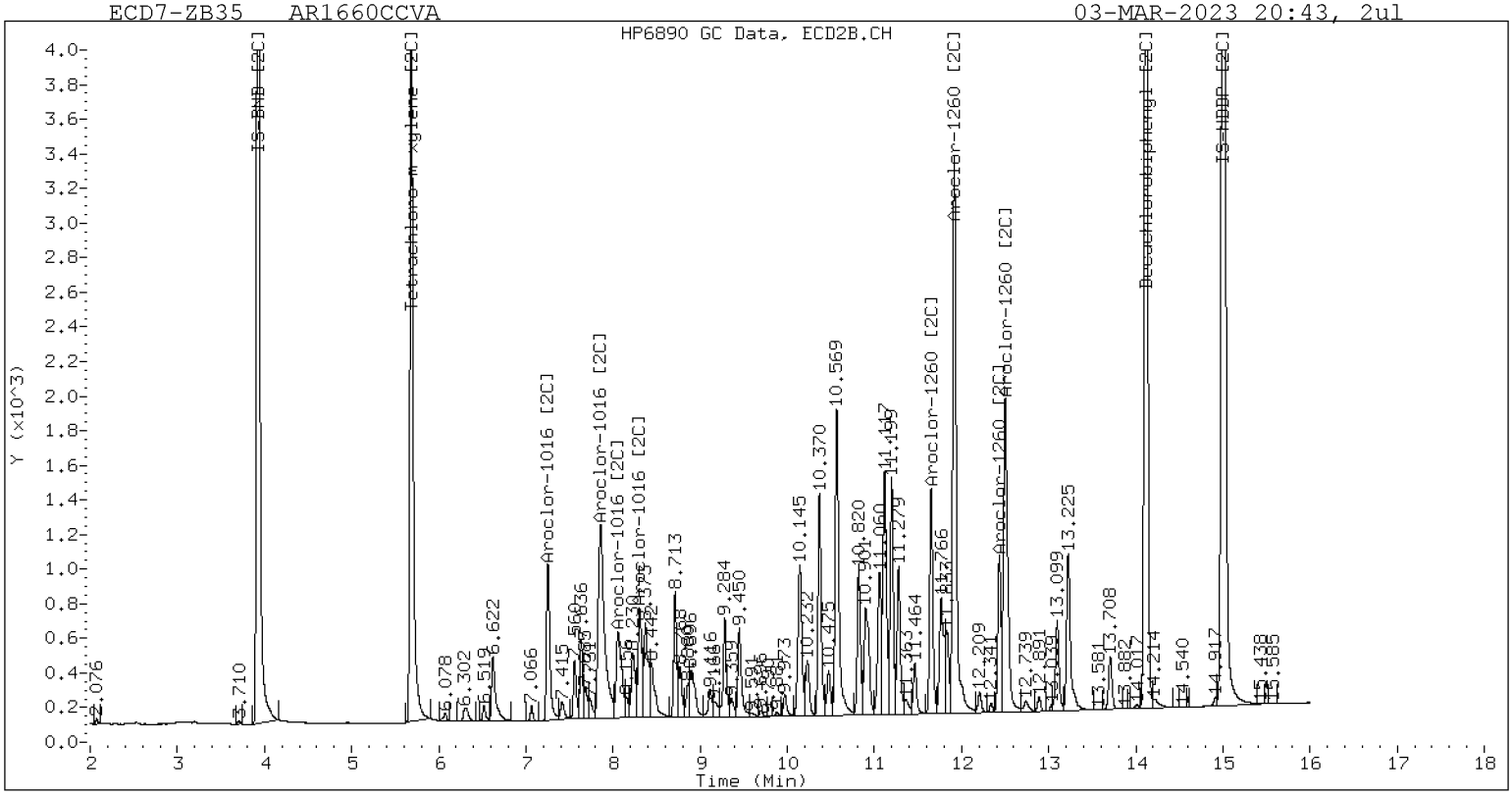
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCVA 03-MAR-2023 20:43, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCVA 03-MAR-2023 20:43, 2ul



ZB-35 Manual Integration: NO

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLB0342
Instrument: ECD7
Calibration: GB00069

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Cal Standard	SLB0342-CAL1	02242302ECD7.D	02242302ECD7.D	NA	02/24/23 11:12
Cal Standard	SLB0342-CAL2	02242303ECD7.D	02242303ECD7.D	NA	02/24/23 11:33
Cal Standard	SLB0342-CAL3	02242304ECD7.D	02242304ECD7.D	NA	02/24/23 11:54
Cal Standard	SLB0342-CAL4	02242305ECD7.D	02242305ECD7.D	NA	02/24/23 12:15
Cal Standard	SLB0342-CAL5	02242306ECD7.D	02242306ECD7.D	NA	02/24/23 12:36
Cal Standard	SLB0342-CAL6	02242307ECD7.D	02242307ECD7.D	NA	02/24/23 12:57
Cal Standard	SLB0342-CAL7	02242308ECD7.D	02242308ECD7.D	NA	02/24/23 13:18
Cal Standard	SLB0342-CAL8	02242309ECD7.D	02242309ECD7.D	NA	02/24/23 13:39
Cal Standard	SLB0342-CAL9	02242310ECD7.D	02242310ECD7.D	NA	02/24/23 14:00
Cal Standard	SLB0342-CALA	02242311ECD7.D	02242311ECD7.D	NA	02/24/23 14:21
Cal Standard	SLB0342-CALB	02242312ECD7.D	02242312ECD7.D	NA	02/24/23 14:42
Secondary Cal Check	SLB0342-SCV1	02242313ECD7.D	02242313ECD7.D	NA	02/24/23 15:03
Secondary Cal Check	SLB0342-SCV2	02242314ECD7.D	02242314ECD7.D	NA	02/24/23 15:24
Secondary Cal Check	SLB0342-SCV3	02242315ECD7.D	02242315ECD7.D	NA	02/24/23 15:45
Secondary Cal Check	SLB0342-SCV4	02242316ECD7.D	02242316ECD7.D	NA	02/24/23 16:06
Secondary Cal Check	SLB0342-SCV5	02242317ECD7.D	02242317ECD7.D	NA	02/24/23 16:27
Secondary Cal Check	SLB0342-SCV6	02242318ECD7.D	02242318ECD7.D	NA	02/24/23 16:48

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0051	Instrument:	ECD7
		Calibration:	GB00069

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Initial Cal Check	SLC0051-ICV1	03022302ECD7.D	03022302ECD7.D	NA	03/02/23 17:24
Initial Cal Check	SLC0051-ICV2	03022303ECD7.D	03022303ECD7.D	NA	03/02/23 17:45
Blank	BLB0718-BLK1	03022304ECD7.D	03022304ECD7.D	Solid	03/02/23 18:06
LCS	BLB0718-BS1	03022305ECD7.D	03022305ECD7.D	Solid	03/02/23 18:27
LCS Dup	BLB0718-BSD1	03022306ECD7.D	03022306ECD7.D	Solid	03/02/23 18:48
Reference	BLB0718-SRM1	03022307ECD7.D	03022307ECD7.D	Solid	03/02/23 19:09
LDW21-IT635B	BLB0718-MS1	03022310ECD7.D	03022310ECD7.D	Solid	03/02/23 20:12
LDW21-IT635B	BLB0718-MSD1	03022311ECD7.D	03022311ECD7.D	Solid	03/02/23 20:33
LDW21-IT635D	23B0494-04	03022313ECD7.D	03022313ECD7.D	Solid	03/02/23 21:15
Calibration Check	SLC0051-CCV1	03022319ECD7.D	03022319ECD7.D	NA	03/02/23 23:21
Calibration Check	SLC0051-CCV2	03022320ECD7.D	03022320ECD7.D	NA	03/02/23 23:42
Calibration Check	SLC0051-CCV3	03022335ECD7.D	03022335ECD7.D	NA	03/03/23 04:57
Calibration Check	SLC0051-CCV4	03022336ECD7.D	03022336ECD7.D	NA	03/03/23 05:18
Calibration Check	SLC0051-CCV5	03022347ECD7.D	03022347ECD7.D	NA	03/03/23 09:09
Calibration Check	SLC0051-CCV6	03022348ECD7.D	03022348ECD7.D	NA	03/03/23 09:30
Calibration Check	SLC0051-CCV7	03022364ECD7.D	03022364ECD7.D	NA	03/03/23 15:07
Calibration Check	SLC0051-CCV8	03022365ECD7.D	03022365ECD7.D	NA	03/03/23 15:28
LDW21-IT635A	23B0494-01	03022373ECD7.D	03022373ECD7.D	Solid	03/03/23 18:16
LDW21-IT635B	23B0494-02	03022374ECD7.D	03022374ECD7.D	Solid	03/03/23 18:37
LDW21-IT635C	23B0494-03	03022375ECD7.D	03022375ECD7.D	Solid	03/03/23 18:58
Calibration Check	SLC0051-CCV9	03022379ECD7.D	03022379ECD7.D	NA	03/03/23 20:22
Calibration Check	SLC0051-CCVA	03022380ECD7.D	03022380ECD7.D	NA	03/03/23 20:43

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLC0051

Instrument: ECD7
Calibration ID: GB00069

Printed: 3/3/2023 3:36:23PM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLC0051-ICV1	QC		1		L000862	L000844		
SLC0051-ICV2	QC		2		L000856	L000844		
BLB0718-BLK1	QC		3			L000844		
BLB0718-BS1	QC		4			L000844		
BLB0718-BSD1	QC		5			L000844		
BLB0718-SRM1	QC		6			L000844		
BLB0718-MS1	QC		7			L000844		
BLB0718-MSD1	QC		8			L000844		
23B0494-04	8082A PCB Solid 4	A 01	9			L000844	Anchor QEA, LLC	
BLB0401-BLK1	QC		10			L000844		
BLB0401-BS1	QC		11			L000844		
BLB0401-BSD1	QC		12			L000844		
23B0217-01	PCB (20 ug/kg) or (MTCA 0.	A 01	13			L000844	Nisqually Environmental	Use for waters
23B0293-01	PCB (20 ug/kg) or (MTCA 0.	A 01	14			L000844	The Boeing Company [NBF - Central Puget S	
SLC0051-CCV1	QC		15		L000861	L000844		
SLC0051-CCV2	QC		16		L000856	L000844		
BLB0499-BLK1	QC		17			L000844		
BLB0499-BS1	QC		18			L000844		
BLB0499-BSD1	QC		19			L000844		
BLB0499-SRM1	QC		20			L000844		
23A0455-01	8082A PCB Solid 4	A 03	21			L000844	Anchor QEA, LLC	

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

SLC0051

Instrument: ECD7
Calibration ID: GB00069

Printed: 3/3/2023 3:36:23PM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
23A0455-02	8082A PCB Solid 4	A 03	22			L000844	Anchor QEA, LLC	
23A0455-03	8082A PCB Solid 4	A 03	23			L000844	Anchor QEA, LLC	
23A0455-04	8082A PCB Solid 4	A 03	24			L000844	Anchor QEA, LLC	
23A0455-05	8082A PCB Solid 4	A 03	25			L000844	Anchor QEA, LLC	
23A0455-06	8082A PCB Solid 4	A 03	26			L000844	Anchor QEA, LLC	
23A0455-07	8082A PCB Solid 4	A 03	27			L000844	Anchor QEA, LLC	
23A0455-08	8082A PCB Solid 4	A 03	28			L000844	Anchor QEA, LLC	
23A0455-09	8082A PCB Solid 4	A 03	29			L000844	Anchor QEA, LLC	
23A0455-10	8082A PCB Solid 4	A 03	30			L000844	Anchor QEA, LLC	
SLC0051-CCV3	QC		31		L000860	L000844		
SLC0051-CCV4	QC		32		L000856	L000844		
23A0455-11	8082A PCB Solid 4	A 03	33			L000844	Anchor QEA, LLC	
23A0455-12	8082A PCB Solid 4	A 03	34			L000844	Anchor QEA, LLC	
23A0455-13	8082A PCB Solid 4	A 03	35			L000844	Anchor QEA, LLC	
23A0455-14	8082A PCB Solid 4	A 03	36			L000844	Anchor QEA, LLC	
23A0455-15	8082A PCB Solid 4	A 03	37			L000844	Anchor QEA, LLC	
23A0455-16	8082A PCB Solid 4	A 03	38			L000844	Anchor QEA, LLC	
23A0455-17	8082A PCB Solid 4	A 03	39			L000844	Anchor QEA, LLC	
23A0455-18	8082A PCB Solid 4	A 03	40			L000844	Anchor QEA, LLC	
BLB0499-MS1	QC		41			L000844		
BLB0499-MSD1	QC		42			L000844		

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

SLC0051

Instrument: ECD7
Calibration ID: GB00069

Printed: 3/3/2023 3:36:23PM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLC0051-CCV5	QC		43		L000862	L000844		
SLC0051-CCV6	QC		44		L000856	L000844		
BLB0580-BLK1	QC		45			L000844		
BLB0580-BS1	QC		46			L000844		
BLB0580-BSD1	QC		47			L000844		
BLB0580-SRM1	QC		48			L000844		
23A0467-01	8082A PCB Solid 4	A 03	49			L000844	Anchor QEA, LLC	
23A0467-02	8082A PCB Solid 4	A 03	50			L000844	Anchor QEA, LLC	
23A0467-03	8082A PCB Solid 4	A 03	51			L000844	Anchor QEA, LLC	
23A0467-04	8082A PCB Solid 4	A 03	52			L000844	Anchor QEA, LLC	
23A0467-05	8082A PCB Solid 4	A 03	53			L000844	Anchor QEA, LLC	
23A0467-06	8082A PCB Solid 4	A 03	54			L000844	Anchor QEA, LLC	
23A0467-07	8082A PCB Solid 4	A 03	55			L000844	Anchor QEA, LLC	
23A0467-08	8082A PCB Solid 4	A 03	56			L000844	Anchor QEA, LLC	
23A0467-09	8082A PCB Solid 4	A 03	57			L000844	Anchor QEA, LLC	
BLB0580-MS1	QC		58			L000844		
BLB0580-MSD1	QC		59			L000844		
SLC0051-CCV7	QC		60		L000861	L000844		
SLC0051-CCV8	QC		61		L000856	L000844		
BLB0599-BLK1	QC		62			L000844		
BLB0599-BS1	QC		63			L000844		

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

SLC0051

Instrument: ECD7
Calibration ID: GB00069

Printed: 3/3/2023 3:36:23PM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
BLB0599-BSD1	QC		64			L000844		
23B0314-01	PCB (20 ug/kg) or (MTCA 0.	A 01	65			L000844	Integral Consulting, Inc.	Use this one
BLB0599-MS1	QC		66			L000844		
BLB0599-MSD1	QC		67			L000844		
23B0314-02	PCB (20 ug/kg) or (MTCA 0.	A 01	68			L000844	Integral Consulting, Inc.	Use this one
23B0494-01	8082A PCB Solid 4	A 01	69			L000844	Anchor QEA, LLC	
23B0494-02	8082A PCB Solid 4	A 01	70			L000844	Anchor QEA, LLC	
23B0494-03	8082A PCB Solid 4	A 01	71			L000844	Anchor QEA, LLC	
BLC0033-BLK1	QC		72			L000844		
BLC0033-BS1	QC		73			L000844		
23B0579-01	8082A PCB Water 0.01	A 01	74			L000844	The Boeing Company [North Boeing Field]	
SLC0051-CCV9	QC		75		L000860	L000844		
SLC0051-CCVA	QC		76		L000856	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	02-MAR-2023 17:03	03022301ECD7.D	1	DDTS	
2	02-MAR-2023 17:24	03022302ECD7.D	1	AR1254ICV1	
3	02-MAR-2023 17:45	03022303ECD7.D	1	AR1660ICV2	
4	02-MAR-2023 18:06	03022304ECD7.D	1	BLB0718-BLK1	
5	02-MAR-2023 18:27	03022305ECD7.D	1	BLB0718-BS1	
6	02-MAR-2023 18:48	03022306ECD7.D	1	BLB0718-BSD1	
7	02-MAR-2023 19:09	03022307ECD7.D	1	BLB0718-SRM1	
8	02-MAR-2023 19:30	03022308ECD7.D	1	23B0494-01	
9	02-MAR-2023 19:51	03022309ECD7.D	1	23B0494-02	
10	02-MAR-2023 20:12	03022310ECD7.D	1	BLB0718-MS1	
11	02-MAR-2023 20:33	03022311ECD7.D	1	BLB0718-MSD1	
12	02-MAR-2023 20:54	03022312ECD7.D	1	23B0494-03	
13	02-MAR-2023 21:15	03022313ECD7.D	1	23B0494-04	
14	02-MAR-2023 21:36	03022314ECD7.D	1	BLB0401-BLK1	
15	02-MAR-2023 21:57	03022315ECD7.D	1	BLB0401-BS1	
16	02-MAR-2023 22:18	03022316ECD7.D	1	BLB0401-BSD1	
17	02-MAR-2023 22:39	03022317ECD7.D	1	23B0217-01	
18	02-MAR-2023 23:00	03022318ECD7.D	1	23B0293-01	
19	02-MAR-2023 23:21	03022319ECD7.D	1	AR1248CCV1	
20	02-MAR-2023 23:42	03022320ECD7.D	1	AR1660CCV2	
21	03-MAR-2023 00:03	03022321ECD7.D	1	BLB0499-BLK1	
22	03-MAR-2023 00:24	03022322ECD7.D	1	BLB0499-BS1	
23	03-MAR-2023 00:45	03022323ECD7.D	1	BLB0499-BSD1	
24	03-MAR-2023 01:06	03022324ECD7.D	1	BLB0499-SRM1	
25	03-MAR-2023 01:27	03022325ECD7.D	1	23S0455-01	
26	03-MAR-2023 01:48	03022326ECD7.D	1	23S0455-02	
27	03-MAR-2023 02:09	03022327ECD7.D	1	23S0455-03	
28	03-MAR-2023 02:30	03022328ECD7.D	1	23S0455-04	
29	03-MAR-2023 02:51	03022329ECD7.D	1	23S0455-05	
30	03-MAR-2023 03:12	03022330ECD7.D	1	23S0455-06	
31	03-MAR-2023 03:33	03022331ECD7.D	1	23S0455-07	
32	03-MAR-2023 03:54	03022332ECD7.D	1	23S0455-08	
33	03-MAR-2023 04:15	03022333ECD7.D	1	23S0455-09	
34	03-MAR-2023 04:36	03022334ECD7.D	1	23S0455-10	
35	03-MAR-2023 04:57	03022335ECD7.D	1	AR1242CCV3	
36	03-MAR-2023 05:18	03022336ECD7.D	1	AR1660CCV4	
37	03-MAR-2023 05:39	03022337ECD7.D	1	23S0455-11	
38	03-MAR-2023 06:00	03022338ECD7.D	1	23S0455-12	
39	03-MAR-2023 06:21	03022339ECD7.D	1	23S0455-13	
40	03-MAR-2023 06:42	03022340ECD7.D	1	23S0455-14	
41	03-MAR-2023 07:03	03022341ECD7.D	1	23S0455-15	
42	03-MAR-2023 07:24	03022342ECD7.D	1	23S0455-16	
43	03-MAR-2023 07:45	03022343ECD7.D	1	23S0455-17	
44	03-MAR-2023 08:06	03022344ECD7.D	1	23S0455-18	
45	03-MAR-2023 08:27	03022345ECD7.D	1	BLB0499-MS1	
46	03-MAR-2023 08:48	03022346ECD7.D	1	BLB0499-MSD1	
47	03-MAR-2023 09:09	03022347ECD7.D	1	AR1254CCV5	
48	03-MAR-2023 09:30	03022348ECD7.D	1	AR1660CCV6	
49	03-MAR-2023 09:51	03022349ECD7.D	1	BLB0580-BLK	
50	03-MAR-2023 10:12	03022350ECD7.D	1	BLB0580-BS1	

	Inject Date/Time	Filename	DF	LabID	ClientID
51	03-MAR-2023 10:33	03022351ECD7.D	1	BLB0580-BSD1	
52	03-MAR-2023 10:54	03022352ECD7.D	1	BLB0580-SRM1	
53	03-MAR-2023 11:15	03022353ECD7.D	1	23A0467-01	
54	03-MAR-2023 11:36	03022354ECD7.D	1	23A0467-02	
55	03-MAR-2023 11:57	03022355ECD7.D	1	23A0467-03	
56	03-MAR-2023 12:18	03022356ECD7.D	1	23A0467-04	
57	03-MAR-2023 12:40	03022357ECD7.D	1	23A0467-05	
58	03-MAR-2023 13:01	03022358ECD7.D	1	23A0467-06	
59	03-MAR-2023 13:22	03022359ECD7.D	1	23A0467-07	
60	03-MAR-2023 13:43	03022360ECD7.D	1	23A0467-08	
61	03-MAR-2023 14:04	03022361ECD7.D	1	23A0467-09	
62	03-MAR-2023 14:25	03022362ECD7.D	1	BLB0580-MS1	
63	03-MAR-2023 14:46	03022363ECD7.D	1	BLB0580-MSD1	
64	03-MAR-2023 15:07	03022364ECD7.D	1	AR1248CCV7	
65	03-MAR-2023 15:28	03022365ECD7.D	1	AR1660CCV8	
66	03-MAR-2023 15:49	03022366ECD7.D	1	BLB0599-BLK1	
67	03-MAR-2023 16:10	03022367ECD7.D	1	BLB0599-BS1	
68	03-MAR-2023 16:31	03022368ECD7.D	1	BLB0599-BSD1	
69	03-MAR-2023 16:52	03022369ECD7.D	1	23B0314-01	
70	03-MAR-2023 17:13	03022370ECD7.D	1	BLB0599-MS1	
71	03-MAR-2023 17:34	03022371ECD7.D	1	BLB0599-MSD1	
72	03-MAR-2023 17:55	03022372ECD7.D	1	23B0314-02	
73	03-MAR-2023 18:16	03022373ECD7.D	10	23B0494-01RE1	
74	03-MAR-2023 18:37	03022374ECD7.D	5	23B0494-02RE1	
75	03-MAR-2023 18:58	03022375ECD7.D	5	23B0494-03RE1	
76	03-MAR-2023 19:19	03022376ECD7.D	1	BLC0033-BLK1	
77	03-MAR-2023 19:40	03022377ECD7.D	1	BLC0033-BS1	
78	03-MAR-2023 20:01	03022378ECD7.D	1	23B0579-01	
79	03-MAR-2023 20:22	03022379ECD7.D	1	AR1242CCV9	
80	03-MAR-2023 20:43	03022380ECD7.D	1	AR1660CCVA	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b

ARI Job No.: DDTS Method: PCB.m Instrument: ecd7.i Date: 02-MAR-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1703	03022301ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1724	03022302ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1745	03022303ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1806	03022304ECD7.D	BLB0718-BLK1		1	NO MANUAL INTEGRATION
1827	03022305ECD7.D	BLB0718-BS1		1	NO MANUAL INTEGRATION
1848	03022306ECD7.D	BLB0718-BSD1		1	NO MANUAL INTEGRATION
1909	03022307ECD7.D	BLB0718-SRM1		1	NO MANUAL INTEGRATION
1930	03022308ECD7.D	23B0494-01		1	NO MANUAL INTEGRATION
1951	03022309ECD7.D	23B0494-02		1	NO MANUAL INTEGRATION
2012	03022310ECD7.D	BLB0718-MS1		1	NO MANUAL INTEGRATION
2033	03022311ECD7.D	BLB0718-MSD1		1	NO MANUAL INTEGRATION
2054	03022312ECD7.D	23B0494-03		1	NO MANUAL INTEGRATION
2115	03022313ECD7.D	23B0494-04		1	NO MANUAL INTEGRATION
2136	03022314ECD7.D	BLB0401-BLK1		1	NO MANUAL INTEGRATION
2157	03022315ECD7.D	BLB0401-BS1		1	NO MANUAL INTEGRATION
2218	03022316ECD7.D	BLB0401-BSD1		1	NO MANUAL INTEGRATION
2239	03022317ECD7.D	23B0217-01		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2300	03022318ECD7.D	23B0293-01		1	NO MANUAL INTEGRATION
2321	03022319ECD7.D	AR1248CCV1		1	Aroclor-1248,
2342	03022320ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
0003	03022321ECD7.D	BLB0499-BLK1		1	NO MANUAL INTEGRATION
0024	03022322ECD7.D	BLB0499-BS1		1	NO MANUAL INTEGRATION
0045	03022323ECD7.D	BLB0499-BSD1		1	NO MANUAL INTEGRATION
0106	03022324ECD7.D	BLB0499-SRM1		1	NO MANUAL INTEGRATION
0127	03022325ECD7.D	23S0455-01		1	Aroclor-1254,
0148	03022326ECD7.D	23S0455-02		1	Aroclor-1254,
0209	03022327ECD7.D	23S0455-03		1	Aroclor-1254,
0230	03022328ECD7.D	23S0455-04		1	Aroclor-1254,
0251	03022329ECD7.D	23S0455-05		1	NO MANUAL INTEGRATION
0312	03022330ECD7.D	23S0455-06		1	Aroclor-1254,
0333	03022331ECD7.D	23S0455-07		1	Aroclor-1254,
0354	03022332ECD7.D	23S0455-08		1	Aroclor-1254,
0415	03022333ECD7.D	23S0455-09		1	NO MANUAL INTEGRATION
0436	03022334ECD7.D	23S0455-10		1	NO MANUAL INTEGRATION
0457	03022335ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0518	03022336ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION
0539	03022337ECD7.D	23S0455-11		1	Aroclor-1254,
0600	03022338ECD7.D	23S0455-12		1	Aroclor-1254,
0621	03022339ECD7.D	23S0455-13		1	Aroclor-1254,
0642	03022340ECD7.D	23S0455-14		1	Aroclor-1254,
0703	03022341ECD7.D	23S0455-15		1	Aroclor-1254,
0724	03022342ECD7.D	23S0455-16		1	Aroclor-1254,
0745	03022343ECD7.D	23S0455-17		1	NO MANUAL INTEGRATION
0806	03022344ECD7.D	23S0455-18		1	Aroclor-1254,
0827	03022345ECD7.D	BLB0499-MS1		1	NO MANUAL INTEGRATION
0848	03022346ECD7.D	BLB0499-MSD1		1	NO MANUAL INTEGRATION
0909	03022347ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
0930	03022348ECD7.D	AR1660CCV6		1	NO MANUAL INTEGRATION
0951	03022349ECD7.D	BLB0580-BLK		1	NO MANUAL INTEGRATION
1012	03022350ECD7.D	BLB0580-BS1		1	NO MANUAL INTEGRATION
1033	03022351ECD7.D	BLB0580-BSD1		1	NO MANUAL INTEGRATION
1054	03022352ECD7.D	BLB0580-SRM1		1	NO MANUAL INTEGRATION
1115	03022353ECD7.D	23A0467-01		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1136	03022354ECD7.D	23A0467-02		1	Aroclor-1254,
1157	03022355ECD7.D	23A0467-03		1	Aroclor-1254,
1218	03022356ECD7.D	23A0467-04		1	Aroclor-1254,
1240	03022357ECD7.D	23A0467-05		1	Aroclor-1254,
1301	03022358ECD7.D	23A0467-06		1	NO MANUAL INTEGRATION
1322	03022359ECD7.D	23A0467-07		1	Aroclor-1254,
1343	03022360ECD7.D	23A0467-08		1	Aroclor-1254,
1404	03022361ECD7.D	23A0467-09		1	Aroclor-1254,
1425	03022362ECD7.D	BLB0580-MS1		1	NO MANUAL INTEGRATION
1446	03022363ECD7.D	BLB0580-MSD1		1	NO MANUAL INTEGRATION
1507	03022364ECD7.D	AR1248CCV7		1	NO MANUAL INTEGRATION
1528	03022365ECD7.D	AR1660CCV8		1	NO MANUAL INTEGRATION
1549	03022366ECD7.D	BLB0599-BLK1		1	NO MANUAL INTEGRATION
1610	03022367ECD7.D	BLB0599-BS1		1	NO MANUAL INTEGRATION
1631	03022368ECD7.D	BLB0599-BSD1		1	NO MANUAL INTEGRATION
1652	03022369ECD7.D	23B0314-01		1	NO MANUAL INTEGRATION
1713	03022370ECD7.D	BLB0599-MS1		1	NO MANUAL INTEGRATION
1734	03022371ECD7.D	BLB0599-MSD1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1755	03022372ECD7.D	23B0314-02		1	NO MANUAL INTEGRATION
1816	03022373ECD7.D	23B0494-01RE1		10	NO MANUAL INTEGRATION
1837	03022374ECD7.D	23B0494-02RE1		5	Aroclor-1254,
1858	03022375ECD7.D	23B0494-03RE1		5	NO MANUAL INTEGRATION
1919	03022376ECD7.D	BLC0033-BLK1		1	NO MANUAL INTEGRATION
1940	03022377ECD7.D	BLC0033-BS1		1	NO MANUAL INTEGRATION
2001	03022378ECD7.D	23B0579-01		1	NO MANUAL INTEGRATION
2022	03022379ECD7.D	AR1242CCV9		1	NO MANUAL INTEGRATION
2043	03022380ECD7.D	AR1660CCVA		1	NO MANUAL INTEGRATION
1703	03022301ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1724	03022302ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1745	03022303ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1806	03022304ECD7.D	BLB0718-BLK1		1	NO MANUAL INTEGRATION
1827	03022305ECD7.D	BLB0718-BS1		1	NO MANUAL INTEGRATION
1848	03022306ECD7.D	BLB0718-BSD1		1	NO MANUAL INTEGRATION
1909	03022307ECD7.D	BLB0718-SRM1		1	NO MANUAL INTEGRATION
1930	03022308ECD7.D	23B0494-01		1	NO MANUAL INTEGRATION
1951	03022309ECD7.D	23B0494-02		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2012	03022310ECD7.D	BLB0718-MS1		1	NO MANUAL INTEGRATION
2033	03022311ECD7.D	BLB0718-MSD1		1	NO MANUAL INTEGRATION
2054	03022312ECD7.D	23B0494-03		1	NO MANUAL INTEGRATION
2115	03022313ECD7.D	23B0494-04		1	NO MANUAL INTEGRATION
2136	03022314ECD7.D	BLB0401-BLK1		1	NO MANUAL INTEGRATION
2157	03022315ECD7.D	BLB0401-BS1		1	NO MANUAL INTEGRATION
2218	03022316ECD7.D	BLB0401-BSD1		1	NO MANUAL INTEGRATION
2239	03022317ECD7.D	23B0217-01		1	NO MANUAL INTEGRATION
2300	03022318ECD7.D	23B0293-01		1	NO MANUAL INTEGRATION
2321	03022319ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2342	03022320ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
0003	03022321ECD7.D	BLB0499-BLK1		1	NO MANUAL INTEGRATION
0024	03022322ECD7.D	BLB0499-BS1		1	NO MANUAL INTEGRATION
0045	03022323ECD7.D	BLB0499-BSD1		1	NO MANUAL INTEGRATION
0106	03022324ECD7.D	BLB0499-SRM1		1	NO MANUAL INTEGRATION
0127	03022325ECD7.D	23S0455-01		1	Aroclor-1248 [2C],
0148	03022326ECD7.D	23S0455-02		1	Aroclor-1248 [2C],
0209	03022327ECD7.D	23S0455-03		1	Aroclor-1248 [2C],

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0230	03022328ECD7.D	23S0455-04		1	Aroclor-1248 [2C],
0251	03022329ECD7.D	23S0455-05		1	Aroclor-1248 [2C],
0312	03022330ECD7.D	23S0455-06		1	Aroclor-1248 [2C],
0333	03022331ECD7.D	23S0455-07		1	Aroclor-1248 [2C],
0354	03022332ECD7.D	23S0455-08		1	Aroclor-1248 [2C],
0415	03022333ECD7.D	23S0455-09		1	Aroclor-1248 [2C],
0436	03022334ECD7.D	23S0455-10		1	Aroclor-1248 [2C],
0457	03022335ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
0518	03022336ECD7.D	AR1660CCV4		1	Aroclor-1260 [2C],
0539	03022337ECD7.D	23S0455-11		1	Aroclor-1248 [2C],
0600	03022338ECD7.D	23S0455-12		1	Aroclor-1248 [2C],
0621	03022339ECD7.D	23S0455-13		1	Aroclor-1248 [2C],
0642	03022340ECD7.D	23S0455-14		1	Aroclor-1248 [2C],
0703	03022341ECD7.D	23S0455-15		1	NO MANUAL INTEGRATION
0724	03022342ECD7.D	23S0455-16		1	Aroclor-1248 [2C],
0745	03022343ECD7.D	23S0455-17		1	NO MANUAL INTEGRATION
0806	03022344ECD7.D	23S0455-18		1	NO MANUAL INTEGRATION
0827	03022345ECD7.D	BLB0499-MS1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0848	03022346ECD7.D	BLB0499-MSD1		1	NO MANUAL INTEGRATION
0909	03022347ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
0930	03022348ECD7.D	AR1660CCV6		1	Aroclor-1260 [2C],
0951	03022349ECD7.D	BLB0580-BLK		1	NO MANUAL INTEGRATION
1012	03022350ECD7.D	BLB0580-BS1		1	NO MANUAL INTEGRATION
1033	03022351ECD7.D	BLB0580-BSD1		1	NO MANUAL INTEGRATION
1054	03022352ECD7.D	BLB0580-SRM1		1	NO MANUAL INTEGRATION
1115	03022353ECD7.D	23A0467-01		1	Aroclor-1248 [2C],
1136	03022354ECD7.D	23A0467-02		1	Aroclor-1248 [2C],
1157	03022355ECD7.D	23A0467-03		1	Aroclor-1248 [2C],
1218	03022356ECD7.D	23A0467-04		1	Aroclor-1248 [2C],
1240	03022357ECD7.D	23A0467-05		1	Aroclor-1248 [2C],
1301	03022358ECD7.D	23A0467-06		1	Aroclor-1248 [2C],
1322	03022359ECD7.D	23A0467-07		1	Aroclor-1248 [2C],
1343	03022360ECD7.D	23A0467-08		1	Aroclor-1248 [2C],
1404	03022361ECD7.D	23A0467-09		1	Aroclor-1248 [2C],
1425	03022362ECD7.D	BLB0580-MS1		1	NO MANUAL INTEGRATION
1446	03022363ECD7.D	BLB0580-MSD1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230302.b\230302.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1507	03022364ECD7.D	AR1248CCV7		1	NO MANUAL INTEGRATION
1528	03022365ECD7.D	AR1660CCV8		1	NO MANUAL INTEGRATION
1549	03022366ECD7.D	BLB0599-BLK1		1	NO MANUAL INTEGRATION
1610	03022367ECD7.D	BLB0599-BS1		1	NO MANUAL INTEGRATION
1631	03022368ECD7.D	BLB0599-BSD1		1	NO MANUAL INTEGRATION
1652	03022369ECD7.D	23B0314-01		1	NO MANUAL INTEGRATION
1713	03022370ECD7.D	BLB0599-MS1		1	NO MANUAL INTEGRATION
1734	03022371ECD7.D	BLB0599-MSD1		1	NO MANUAL INTEGRATION
1755	03022372ECD7.D	23B0314-02		1	NO MANUAL INTEGRATION
1816	03022373ECD7.D	23B0494-01RE1		10	Aroclor-1248 [2C],
1837	03022374ECD7.D	23B0494-02RE1		5	Aroclor-1248 [2C],
1858	03022375ECD7.D	23B0494-03RE1		5	NO MANUAL INTEGRATION
1919	03022376ECD7.D	BLC0033-BLK1		1	NO MANUAL INTEGRATION
1940	03022377ECD7.D	BLC0033-BS1		1	NO MANUAL INTEGRATION
2001	03022378ECD7.D	23B0579-01		1	NO MANUAL INTEGRATION
2022	03022379ECD7.D	AR1242CCV9		1	NO MANUAL INTEGRATION
2043	03022380ECD7.D	AR1660CCVA		1	NO MANUAL INTEGRATION

Security Status Report

Date: 06-Mar-2023 10:30

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03022379ECD7.D	Data Locked	richardl, 06-Mar-2023 10:30
03022380ECD7.D	Data Locked	richardl, 06-Mar-2023 10:30

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLB0342
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLB0342-SCV1 (Water)			Lab File ID: 02242313ECD7.D			Analyzed: 02/24/23 15:03		
Decachlorobiphenyl	40.000	85.8	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	87.4	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	93.4	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	89.4	80 - 120	5.685	5.687167	-0.0022	N/A	
SLB0342-SCV2 (Water)			Lab File ID: 02242314ECD7.D			Analyzed: 02/24/23 15:24		
Decachlorobiphenyl	40.000	92.5	80 - 120	13.895	13.89483	0.0002	N/A	
Tetrachlorometaxylene	40.000	84.1	80 - 120	5.808	5.8095	-0.0015	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	14.12	14.11917	0.0008	N/A	
Tetrachlorometaxylene [2C]	40.000	86.3	80 - 120	5.686	5.687167	-0.0012	N/A	
SLB0342-SCV3 (Water)			Lab File ID: 02242315ECD7.D			Analyzed: 02/24/23 15:45		
Decachlorobiphenyl	40.000	82.8	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	87.2	80 - 120	5.808	5.8095	-0.0015	N/A	
Decachlorobiphenyl [2C]	40.000	90.8	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	91.0	80 - 120	5.687	5.687167	-0.0002	N/A	
SLB0342-SCV4 (Water)			Lab File ID: 02242316ECD7.D			Analyzed: 02/24/23 16:06		
Decachlorobiphenyl	40.000	86.6	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	90.3	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	94.8	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	92.7	80 - 120	5.685	5.687167	-0.0022	N/A	
SLB0342-SCV5 (Water)			Lab File ID: 02242317ECD7.D			Analyzed: 02/24/23 16:27		
Decachlorobiphenyl	40.000	86.1	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	90.0	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	94.6	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	91.6	80 - 120	5.685	5.687167	-0.0022	N/A	
SLB0342-SCV6 (Water)			Lab File ID: 02242318ECD7.D			Analyzed: 02/24/23 16:48		
Decachlorobiphenyl	40.000	128	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	92.7	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	141	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	95.4	80 - 120	5.685	5.687167	-0.0022	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLC0051
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLC0051-ICV1 (Solid)			Lab File ID: 03022302ECD7.D			Analyzed: 03/02/23 17:24		
Decachlorobiphenyl	40.000	103	80 - 120	13.895	13.89483	0.0002	N/A	
Tetrachlorometaxylene	40.000	97.8	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	105	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	98.5	80 - 120	5.686	5.687167	-0.0012	N/A	
SLC0051-ICV2 (Solid)			Lab File ID: 03022303ECD7.D			Analyzed: 03/02/23 17:45		
Decachlorobiphenyl	40.000	110	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	103	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	100	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	106	80 - 120	5.687	5.687167	-0.0002	N/A	
BLB0718-BLK1 (Solid)			Lab File ID: 03022304ECD7.D			Analyzed: 03/02/23 18:06		
Decachlorobiphenyl	8.0000	80.9	40 - 126	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	8.0000	68.7	44 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	8.0000	83.0	40 - 126	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	8.0000	66.5	44 - 120	5.686	5.687167	-0.0012	N/A	
BLB0718-BS1 (Solid)			Lab File ID: 03022305ECD7.D			Analyzed: 03/02/23 18:27		
Decachlorobiphenyl	8.0000	80.4	40 - 126	13.892	13.89483	-0.0028	N/A	
Tetrachlorometaxylene	8.0000	69.2	44 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	8.0000	85.2	40 - 126	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	8.0000	65.4	44 - 120	5.686	5.687167	-0.0012	N/A	
BLB0718-BSD1 (Solid)			Lab File ID: 03022306ECD7.D			Analyzed: 03/02/23 18:48		
Decachlorobiphenyl	8.0000	75.8	40 - 126	13.892	13.89483	-0.0028	N/A	
Tetrachlorometaxylene	8.0000	70.0	44 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	8.0000	81.1	40 - 126	14.117	14.11917	-0.0022	N/A	
Tetrachlorometaxylene [2C]	8.0000	65.6	44 - 120	5.686	5.687167	-0.0012	N/A	
BLB0718-SRM1 (Solid)			Lab File ID: 03022307ECD7.D			Analyzed: 03/02/23 19:09		
Decachlorobiphenyl	40.000	81.1	40 - 126	13.887	13.89483	-0.0078	N/A	
Tetrachlorometaxylene	40.000	70.3	44 - 120	5.805	5.8095	-0.0045	N/A	
Decachlorobiphenyl [2C]	40.000	77.7	40 - 126	14.114	14.11917	-0.0052	N/A	
Tetrachlorometaxylene [2C]	40.000	71.2	44 - 120	5.685	5.687167	-0.0022	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLC0051
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BLB0718-MS1 (Solid)			Lab File ID: 03022310ECD7.D			Analyzed: 03/02/23 20:12		
Decachlorobiphenyl	7.9980	78.0	40 - 126	13.884	13.89483	-0.0108	N/A	
Tetrachlorometaxylene	7.9980	48.6	44 - 120	5.802	5.8095	-0.0075	N/A	
Decachlorobiphenyl [2C]	7.9980	75.8	40 - 126	14.11	14.11917	-0.0092	N/A	
Tetrachlorometaxylene [2C]	7.9980	54.5	44 - 120	5.679	5.687167	-0.0082	N/A	
BLB0718-MSD1 (Solid)			Lab File ID: 03022311ECD7.D			Analyzed: 03/02/23 20:33		
Decachlorobiphenyl	7.9980	83.2	40 - 126	13.886	13.89483	-0.0088	N/A	
Tetrachlorometaxylene	7.9980	51.6	44 - 120	5.802	5.8095	-0.0075	N/A	
Decachlorobiphenyl [2C]	7.9980	80.9	40 - 126	14.111	14.11917	-0.0082	N/A	
Tetrachlorometaxylene [2C]	7.9980	57.3	44 - 120	5.678	5.687167	-0.0092	N/A	
23B0494-04 (Solid)			Lab File ID: 03022313ECD7.D			Analyzed: 03/02/23 21:15		
Decachlorobiphenyl	7.9948	78.7	40 - 126	13.886	13.89483	-0.0088	N/A	
Tetrachlorometaxylene	7.9948	54.4	44 - 120	5.802	5.8095	-0.0075	N/A	
Decachlorobiphenyl [2C]	7.9948	71.8	40 - 126	14.111	14.11917	-0.0082	N/A	
Tetrachlorometaxylene [2C]	7.9948	62.8	44 - 120	5.68	5.687167	-0.0072	N/A	
SLC0051-CCV1 (Solid)			Lab File ID: 03022319ECD7.D			Analyzed: 03/02/23 23:21		
Decachlorobiphenyl	40.000	101	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	98.0	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	99.0	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	98.0	80 - 120	5.687	5.687167	-0.0002	N/A	
SLC0051-CCV2 (Solid)			Lab File ID: 03022320ECD7.D			Analyzed: 03/02/23 23:42		
Decachlorobiphenyl	40.000	111	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	105	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	97.0	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	105	80 - 120	5.687	5.687167	-0.0002	N/A	
SLC0051-CCV3 (Solid)			Lab File ID: 03022335ECD7.D			Analyzed: 03/03/23 04:57		
Decachlorobiphenyl	40.000	102	80 - 120	13.892	13.89483	-0.0028	N/A	
Tetrachlorometaxylene	40.000	120	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	110	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	122	80 - 120	5.686	5.687167	-0.0012	N/A	*

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLC0051
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLC0051-CCV4 (Solid)			Lab File ID: 03022336ECD7.D			Analyzed: 03/03/23 05:18		
Decachlorobiphenyl	40.000	115	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	107	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	107	80 - 120	5.686	5.687167	-0.0012	N/A	
SLC0051-CCV5 (Solid)			Lab File ID: 03022347ECD7.D			Analyzed: 03/03/23 09:09		
Decachlorobiphenyl	40.000	110	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	98.5	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	107	80 - 120	14.117	14.11917	-0.0022	N/A	
Tetrachlorometaxylene [2C]	40.000	100	80 - 120	5.686	5.687167	-0.0012	N/A	
SLC0051-CCV6 (Solid)			Lab File ID: 03022348ECD7.D			Analyzed: 03/03/23 09:30		
Decachlorobiphenyl	40.000	116	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	106	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	106	80 - 120	14.116	14.11917	-0.0032	N/A	
Tetrachlorometaxylene [2C]	40.000	107	80 - 120	5.686	5.687167	-0.0012	N/A	
SLC0051-CCV7 (Solid)			Lab File ID: 03022364ECD7.D			Analyzed: 03/03/23 15:07		
Decachlorobiphenyl	40.000	102	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	97.5	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	105	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	99.3	80 - 120	5.687	5.687167	-0.0002	N/A	
SLC0051-CCV8 (Solid)			Lab File ID: 03022365ECD7.D			Analyzed: 03/03/23 15:28		
Decachlorobiphenyl	40.000	110	80 - 120	13.891	13.89483	-0.0038	N/A	
Tetrachlorometaxylene	40.000	107	80 - 120	5.808	5.8095	-0.0015	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	108	80 - 120	5.688	5.687167	0.0008	N/A	
23B0494-01 (Solid)			Lab File ID: 03022373ECD7.D			Analyzed: 03/03/23 18:16		
Decachlorobiphenyl	7.9905	104	40 - 126	13.887	13.89483	-0.0078	N/A	
Tetrachlorometaxylene	7.9905	76.9	44 - 120	5.804	5.8095	-0.0055	N/A	
Decachlorobiphenyl [2C]	7.9905	89.6	40 - 126	14.114	14.11917	-0.0052	N/A	
Tetrachlorometaxylene [2C]	7.9905	74.3	44 - 120	5.683	5.687167	-0.0042	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG/WO:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0051	Instrument:	ECD7
Calibration:	GB00069	Calibration Date:	02/24/2023

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
23B0494-02 (Solid)			Lab File ID: 03022374ECD7.D			Analyzed: 03/03/23 18:37		
Decachlorobiphenyl	7.9980	92.1	40 - 126	13.887	13.89483	-0.0078	N/A	
Tetrachlorometaxylene	7.9980	58.0	44 - 120	5.804	5.8095	-0.0055	N/A	
Decachlorobiphenyl [2C]	7.9980	78.0	40 - 126	14.113	14.11917	-0.0062	N/A	
Tetrachlorometaxylene [2C]	7.9980	64.8	44 - 120	5.682	5.687167	-0.0052	N/A	
23B0494-03 (Solid)			Lab File ID: 03022375ECD7.D			Analyzed: 03/03/23 18:58		
Decachlorobiphenyl	7.9897	71.5	40 - 126	13.886	13.89483	-0.0088	N/A	
Tetrachlorometaxylene	7.9897	43.4	44 - 120	5.805	5.8095	-0.0045	N/A	*
Decachlorobiphenyl [2C]	7.9897	55.9	40 - 126	14.112	14.11917	-0.0072	N/A	
Tetrachlorometaxylene [2C]	7.9897	46.0	44 - 120	5.683	5.687167	-0.0042	N/A	
SLC0051-CCV9 (Solid)			Lab File ID: 03022379ECD7.D			Analyzed: 03/03/23 20:22		
Decachlorobiphenyl	40.000	101	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	117	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	14.117	14.11917	-0.0022	N/A	
Tetrachlorometaxylene [2C]	40.000	117	80 - 120	5.685	5.687167	-0.0022	N/A	
SLC0051-CCVA (Solid)			Lab File ID: 03022380ECD7.D			Analyzed: 03/03/23 20:43		
Decachlorobiphenyl	40.000	113	80 - 120	13.892	13.89483	-0.0028	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	100	80 - 120	14.117	14.11917	-0.0022	N/A	
Tetrachlorometaxylene [2C]	40.000	104	80 - 120	5.685	5.687167	-0.0022	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLB0342	Instrument:	ECD7
		Calibration:	GB00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SLB0342-SCV1)		(Water)	Lab File ID: 02242313ECD7.D				Analyzed: 02/24/23 15:03		
1-Bromo-2-Nitrobenzene	645975	3.489	673778	3.493	96	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	1524245	14.268	1429847	14.268	107	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	316115	3.927	315256	3.928	100	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	556950	15.007	513946	15.008	108	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0342-SCV2)		(Water)	Lab File ID: 02242314ECD7.D				Analyzed: 02/24/23 15:24		
1-Bromo-2-Nitrobenzene	705650	3.493	673778	3.493	105	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	1555683	14.267	1429847	14.268	109	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	340433	3.929	315256	3.928	108	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	565609	15.008	513946	15.008	110	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SLB0342-SCV3)		(Water)	Lab File ID: 02242315ECD7.D				Analyzed: 02/24/23 15:45		
1-Bromo-2-Nitrobenzene	646554	3.49	673778	3.493	96	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl	1529451	14.268	1429847	14.268	107	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	316066	3.928	315256	3.928	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	557213	15.008	513946	15.008	108	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SLB0342-SCV4)		(Water)	Lab File ID: 02242316ECD7.D				Analyzed: 02/24/23 16:06		
1-Bromo-2-Nitrobenzene	656887	3.488	673778	3.493	97	50 - 200	-0.005	+/-0.50	
Hexabromobiphenyl	1585505	14.267	1429847	14.268	111	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	320936	3.925	315256	3.928	102	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl [2C]	570006	15.007	513946	15.008	111	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0342-SCV5)		(Water)	Lab File ID: 02242317ECD7.D				Analyzed: 02/24/23 16:27		
1-Bromo-2-Nitrobenzene	661953	3.489	673778	3.493	98	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	1574993	14.268	1429847	14.268	110	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	317807	3.926	315256	3.928	101	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	565951	15.007	513946	15.008	110	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0342-SCV6)		(Water)	Lab File ID: 02242318ECD7.D				Analyzed: 02/24/23 16:48		
1-Bromo-2-Nitrobenzene	656592	3.489	673778	3.493	97	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	1584453	14.268	1429847	14.268	111	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	314741	3.926	315256	3.928	100	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	568346	15.007	513946	15.008	111	50 - 200	-0.001	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLC0051
Instrument: ECD7
Calibration: GB00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SLC0051-ICV1)		(Solid)	Lab File ID: 03022302ECD7.D				Analyzed: 03/02/23 17:24		
1-Bromo-2-Nitrobenzene	369333	3.489	342425	3.488	108	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	653936	14.268	596552	14.268	110	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	314016	3.926	287682	3.928	109	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	466448	15.009	425765	15.007	110	50 - 200	0.002	+/-0.50	
Initial Cal Check (SLC0051-ICV2)		(Solid)	Lab File ID: 03022303ECD7.D				Analyzed: 03/02/23 17:45		
1-Bromo-2-Nitrobenzene	342425	3.488	342425	3.488	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	596552	14.268	596552	14.268	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	287682	3.928	287682	3.928	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	425765	15.007	425765	15.007	100	50 - 200	0.000	+/-0.50	
Blank (BLB0718-BLK1)		(Solid)	Lab File ID: 03022304ECD7.D				Analyzed: 03/02/23 18:06		
1-Bromo-2-Nitrobenzene	453592	3.489	342425	3.488	132	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	769295	14.265	596552	14.268	129	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	392094	3.927	287682	3.928	136	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	570475	15.007	425765	15.007	134	50 - 200	0.000	+/-0.50	
LCS (BLB0718-BS1)		(Solid)	Lab File ID: 03022305ECD7.D				Analyzed: 03/02/23 18:27		
1-Bromo-2-Nitrobenzene	461582	3.489	342425	3.488	135	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	798229	14.265	596552	14.268	134	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	397482	3.928	287682	3.928	138	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	581394	15.006	425765	15.007	137	50 - 200	-0.001	+/-0.50	
LCS Dup (BLB0718-BSD1)		(Solid)	Lab File ID: 03022306ECD7.D				Analyzed: 03/02/23 18:48		
1-Bromo-2-Nitrobenzene	441491	3.489	342425	3.488	129	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	778597	14.264	596552	14.268	131	50 - 200	-0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	380545	3.927	287682	3.928	132	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	577155	15.007	425765	15.007	136	50 - 200	0.000	+/-0.50	
Reference (BLB0718-SRM1)		(Solid)	Lab File ID: 03022307ECD7.D				Analyzed: 03/02/23 19:09		
1-Bromo-2-Nitrobenzene	450115	3.489	342425	3.488	131	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	645354	14.255	596552	14.268	108	50 - 200	-0.013	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	376216	3.927	287682	3.928	131	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	531580	15.001	425765	15.007	125	50 - 200	-0.006	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0051	Instrument:	ECD7
		Calibration:	GB00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (BLB0718-MS1)		(Solid)	Lab File ID: 03022310ECD7.D				Analyzed: 03/02/23 20:12		
1-Bromo-2-Nitrobenzene	389834	3.488	342425	3.488	114	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	387176	14.25	596552	14.268	65	50 - 200	-0.018	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	308406	3.926	287682	3.928	107	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	357716	14.995	425765	15.007	84	50 - 200	-0.012	+/-0.50	
Matrix Spike Dup (BLB0718-MSD1)		(Solid)	Lab File ID: 03022311ECD7.D				Analyzed: 03/02/23 20:33		
1-Bromo-2-Nitrobenzene	409271	3.488	342425	3.488	120	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	384628	14.251	596552	14.268	64	50 - 200	-0.017	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	317947	3.926	287682	3.928	111	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	356486	14.996	425765	15.007	84	50 - 200	-0.011	+/-0.50	
LDW21-IT635D (23B0494-04)		(Solid)	Lab File ID: 03022313ECD7.D				Analyzed: 03/02/23 21:15		
1-Bromo-2-Nitrobenzene	406047	3.487	342425	3.488	119	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	388982	14.249	596552	14.268	65	50 - 200	-0.019	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	326216	3.926	287682	3.928	113	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	374996	14.995	425765	15.007	88	50 - 200	-0.012	+/-0.50	
LDW21-IT635A (23B0494-01)		(Solid)	Lab File ID: 03022373ECD7.D				Analyzed: 03/03/23 18:16		
1-Bromo-2-Nitrobenzene	382925	3.489	342425	3.488	112	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	512494	14.256	596552	14.268	86	50 - 200	-0.012	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	324773	3.927	287682	3.928	113	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	435512	15.001	425765	15.007	102	50 - 200	-0.006	+/-0.50	
LDW21-IT635B (23B0494-02)		(Solid)	Lab File ID: 03022374ECD7.D				Analyzed: 03/03/23 18:37		
1-Bromo-2-Nitrobenzene	389028	3.49	342425	3.488	114	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl	489803	14.254	596552	14.268	82	50 - 200	-0.014	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	319756	3.928	287682	3.928	111	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	428427	15	425765	15.007	101	50 - 200	-0.007	+/-0.50	
LDW21-IT635C (23B0494-03)		(Solid)	Lab File ID: 03022375ECD7.D				Analyzed: 03/03/23 18:58		
1-Bromo-2-Nitrobenzene	403222	3.489	342425	3.488	118	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	466738	14.253	596552	14.268	78	50 - 200	-0.015	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	334831	3.928	287682	3.928	116	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	416564	14.998	425765	15.007	98	50 - 200	-0.009	+/-0.50	

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Sediment	Laboratory ID:	23B0494-01	File ID:	03022373ECD7.D
Sampled:	07/16/21 12:56	Prepared:	02/28/23 13:15	Analyzed:	03/03/23 18:16
Solids:	59.06	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BLB0718	Sequence:	SLC0051		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	1	8.398	8.405	0.007	90097.5	669	5.1
	* 2	8.301	8.307	0.006	55709.25	704	
Aroclor 1254	1	9.288	9.298	0.01	119901.6	736	7.3
	* 2	9.44	9.449	0.009	127658.4	792	
Aroclor 1260	1	11.035	11.04467	0.00967	32855	263	7.3
	* 2	11.647	11.6535	0.0065	49680.5	283	

* Column used for quantitation

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Sediment	Laboratory ID:	23B0494-02	File ID:	03022374ECD7.D
Sampled:	07/16/21 12:56	Prepared:	02/28/23 13:15	Analyzed:	03/03/23 18:37
Solids:	66.79	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BLB0718	Sequence:	SLC0051		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	* 1	8.397	8.405	0.008	29112.5	105	12.8
	2	8.298	8.307	0.009	17647.25	92.4	
Aroclor 1254	1	9.287	9.298	0.011	52100.8	153	30.9
	* 2	9.438	9.449	0.011	65952.4	209	
Aroclor 1260	1	11.035	11.04467	0.00967	55792.2	239	12.
	* 2	11.644	11.6535	0.0095	75422.75	212	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Sediment	Laboratory ID:	23B0494-03	File ID:	03022375ECD7.D
Sampled:	07/16/21 12:56	Prepared:	02/28/23 13:15	Analyzed:	03/03/23 18:58
Solids:	62.30	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BLB0718	Sequence:	SLC0051		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1260	1	11.034	11.04467	0.0107	55330.2	256	14.2
	* 2	11.643	11.6535	0.0105	72836.5	222	

* Column used for quantitation

HOLDING TIME SUMMARY

Analysis: EPA 8082A

Laboratory: Analytical Resources, LLC SDG: 23B0494

Client: Anchor QEA, LLC Project: AOC4 UR Phase 3

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LDW21-IT635A 23B0494-01	07/16/21 12:56	02/24/23 08:41	02/28/23 13:15	592	365	03/03/23 18:16	3	40	*
LDW21-IT635B 23B0494-02	07/16/21 12:56	02/24/23 08:41	02/28/23 13:15	592	365	03/03/23 18:37	3	40	*
LDW21-IT635C 23B0494-03	07/16/21 12:56	02/24/23 08:41	02/28/23 13:15	592	365	03/03/23 18:58	3	40	*
LDW21-IT635D 23B0494-04	07/16/21 12:56	02/24/23 08:41	02/28/23 13:15	592	365	03/02/23 21:15	2	40	*
Matrix Spike BLB0718-MS1	07/16/21 12:56	02/24/23 08:41	02/28/23 13:15	592	365	03/02/23 20:12	2	40	*
Matrix Spike Dup BLB0718-MSD1	07/16/21 12:56	02/24/23 08:41	02/28/23 13:15	592	365	03/02/23 20:33	2	40	*

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	1.6	4.0	ug/kg
Aroclor 1016 [2C]	1.6	4.0	ug/kg
Aroclor 1221	1.6	4.0	ug/kg
Aroclor 1221 [2C]	1.6	4.0	ug/kg
Aroclor 1232	1.6	4.0	ug/kg
Aroclor 1232 [2C]	1.6	4.0	ug/kg
Aroclor 1242	1.6	4.0	ug/kg
Aroclor 1242 [2C]	1.6	4.0	ug/kg
Aroclor 1248	1.6	4.0	ug/kg
Aroclor 1248 [2C]	1.6	4.0	ug/kg
Aroclor 1254	1.6	4.0	ug/kg
Aroclor 1254 [2C]	1.6	4.0	ug/kg
Aroclor 1260	0.6	4.0	ug/kg
Aroclor 1260 [2C]	0.6	4.0	ug/kg

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New Haven, CT 06513
USA

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Fax (203)786-5287
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CERTIFICATE OF ANALYSIS

Catalog No: S-279N
Description: Tetrachloro-m-xylene
Lot: 0052481B-1
Solvent: N/A
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Jul 28, 2005
Expiration: Jul 28, 2015
Sample Size: 100 mg
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

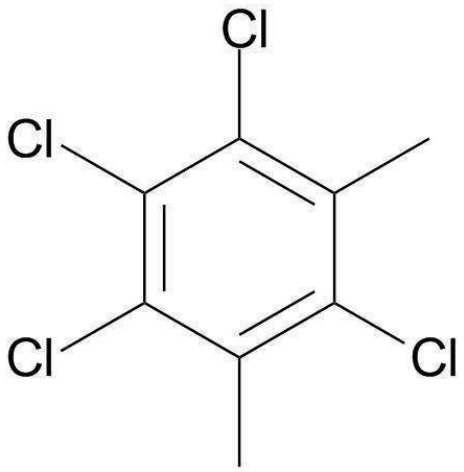
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/FID)	Prepared Concentration	Certified Analyte Concentration[1]
Tetrachloro-meta-xylene	877-09-8	96.0	N/A	N/A

Identification:

Molecular formula: C8H6Cl4
Molecular weight: 243.94



C000147
tetrachlormetaxylene
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[1] The Uncertainty calculated for this product is ±2.4%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Metrological traceability is established through in-house validated methods.

Purity, if stated, is equal to 100% minus found impurity components. Impurity components have not been identified.

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: C-209N
DESCRIPTION: 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
LOT #: 990521LB-AC
SOLVENT: N/A

EXPIRATION: Jul 28, 2015

This product is guaranteed accurate to ±0.5% of the Certified Analyte concentration through the Expiration Date on the Label.

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[1]	Certified Analyte Concentration[2]
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	100	N/A	N/A

C000148
decachlorbiphenyl
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

* I1768A

Certified by: R. Cooper

1. All weights are traceable through National Institute of Standards & Technology, Test No. 822/254480
2. Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty calculated for this product is ±4% which is the Combined Uncertainty uc(y). It represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The Expanded Uncertainty is U which is Uc(y) *K where K is the coverage factor at the 95% confidence level (K=2).
3. A product with a suffix (-1A, -2B, etc.) on its lot# has had its expiration date extended and is identical to the same lot# without the suffix.

Please note: AccuStandard follows the U.S. conventions in reporting numerical values, on both certificates and labels.

A comma (,) is used to separate units of one-thousand or greater.
A period (.) is used as a decimal place marker.

This product was manufactured in accordance to quality system requirements of ISO 9001:2000 and ISO 17025

* Recertified 2 4-6-09 JS

Analytical Standard Record

Standard ID: C000148 **Printed: 4/23/2015 11:54:44AM**

Description:	decachlorbiphenyl	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	na/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:03 by JGR
Vendor:	Accustandard	Lot #:	990521lb-ac
Vendor Catalog #:			

Comments

see i1768a
SOM calibrations added 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Decachlorobiphenyl [2C]	2051-24-3	1000000	ug/mL
Decachlorobiphenyl	2051-24-3	1000000	ug/mL
DCB 1660 [2C]	2051-24-3	1000000	ug/mL
DCB 1660	2051-24-3	1000000	ug/mL
DCB [2C]	2051-24-3	1000000	ug/mL
DCB (A) [2C]	2051-24-3	1000000	ug/mL
DCB (A)	2051-24-3	1000000	ug/mL
DCB	2051-24-3	1000000	ug/mL

Reviewed By Date

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101461
Description: Aroclor 1254
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL13053
Certification Date: November 29, 2018
Expiration Date: November 30, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1254	11097-69-1	1000	± 0.246%

I09808
Recd. JP
02/24/20

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ilac-MRA ACCREDITED
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IL11110613_us

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101468
Description: Aroclor 1221
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14017
Certification Date: August 20, 2019
Expiration Date: August 31, 2027

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1221	11104-28-2	1000	± 0.553%

J004466
Rec'd
06/18/21

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101469
Description: Aroclor 1232
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14914
Certification Date: January 31, 2020
Expiration Date: January 31, 2028

Andrea L Gill
Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1232	11141-16-5	1000	± 0.738%

J006467 JR
read
06/18/21

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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

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Certified Reference Material

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Catalog No.:	AL0-101470	**Lot Number:**	CL14018
Description:	Aroclor 1242	**Certification Date:**	August 20, 2019
Storage:	4 °C	**Expiration Date:**	August 31, 2027
Provided As:	1 mL in 2 mL Ampoule in Isooctane		

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1242	53469-21-9	1000	± 0.553%

J006468
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06/18/21

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5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.:	AL0-101471	**Lot Number:**	CL15384
Description:	Aroclor 1248	**Certification Date:**	June 19, 2020
Storage:	4 °C	**Expiration Date:**	June 30, 2028
Provided As:	1 mL in 2 mL Ampoule in Isooctane		

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1248	12672-29-6	1000	± 0.520%

JJ06469
Reed, JR
06/18/21

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Reference Material Producer
Certicate No. 2427.02

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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101474
Description: Aroclor 1262
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL11330
Certification Date: May 15, 2015
Expiration Date: April 30, 2023
Revision Date: April 2, 2018

Andrea L Gill
Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1262	37324-23-5	1000	± 0.516%

J 00647
Rec'd JK
06/18/21

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials
Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL111110613_us

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel: 310-212-0555 ▪ Fax: 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

Certificate of Analysis

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Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101475	**Lot Number:**	CL11331
Description:	Aroclor 1268	**Certification Date:**	May 15, 2015
Storage:	4 °C	**Expiration Date:**	April 30, 2023
Provided As:	1 mL in 2 mL Ampoule in Isooctane	**Revision Date:**	April 2, 2018

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1268	11100-14-4	1000	± 0.516%

J006472
Rec'd
06/18/21

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

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Manufactured by Phenova, Inc.

Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL11110613_us

Certificate of Analysis

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Access your MSDS and digital C of A at www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

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Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

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Chemical Testing Laboratory
Certificate No. 2427.03

Certificate of Analysis

Agilent

Aroclor 1016 Solution

Product Number: PP-282 **Page:** 1 of 1

Lot Number: CR-0761 **Lot Issue Date:** 28-Feb-2017 **Expiration Date:** 31-Mar-2025

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1016	012674-11-2	NT01016	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1254 Reed 02/05/22 JR

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

Agilent

Certificate of Analysis

Product Name: Aroclor 1260 Standard

Product Number: PP-362-1 **Lot Issue Date:** 20-Jan-2021

Lot Number: 0006582048 **Expiration Date:** 28-Feb-2025

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1260	011096-82-5	NT01023	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K 1255

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ISO 17034 Cert
No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

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ISO 17025 Cert
No. AT-1937

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Agilent

Certificate of Analysis
ISO Guide 34

Aroclor 1242 Solution

Product Number: PP-312 **Page:** 1 of 1

Lot Number: CS-6293 **Lot Issue Date:** 04-Jan-2019 **Expiration Date:** 31-Jan-2023

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1242	053469-21-9	NT01020	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1256

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No.
AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026
registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No.
AT-1937

ISO 17034

Agilent
Trusted Answers

Reference Material Certificate

Product Name:	Aroclor 1248 Standard	**Lot Number:**	0006626997
Product Number:	PP-342-1	**Lot Issue Date:**	17-Aug-2021
Storage Conditions:	Store at Room Temperature (15° to 30°C).	**Expiration Date:**	30-Sep-2025

	CERTIFIED VALUES				
Component Name	Concentration		Expanded Uncertainty	CAS#	Analyte Lot
Aroclor 1248	100.3	±	0.5 µg/mL	012672-29-6	NT01582

Matrix: isooctane (2,2,4-trimethylpentane)

K1257

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

Certificate of Analysis

Agilent

Aroclor 1254 Solution

Product Number: PP-352 **Page:** 1 of 1

Lot Number: CS-2321 **Lot Issue Date:** 04-May-2018 **Expiration Date:** 31-May-2026

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1254	011097-69-1	RM00922	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1258

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
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TUV USA, Inc.

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Certificate of Analysis

Product Name: Aroclor 1221 Standard

Product Number: PP-292-1 **Lot Issue Date:** 28-Apr-2020

Lot Number: 0006535333 **Expiration Date:** 31-May-2024

Description:

This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system, and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1221	011104-28-2	RM04278	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1259

Traceability:

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:

This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:

This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:

Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:

The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

MBourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 17025 Cert No. AT-1937

250 Smith Street North Kingstown, Rhode Island 02852 www.agilent.com/quality

Agilent

Certificate of Analysis
ISO 17034

Aroclor 1262 Standard

Product Number: PP-372-1 **Page:** 1 of 1

Lot Number: 0006499800 **Lot Issue Date:** 04-Nov-2019 **Expiration Date:** 30-Nov-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent Technologies ISO 9001 registered quality system. A review of the gravimetric preparation data by our ISO 17025 accredited laboratory serves to verify the concentration of each analyte. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1262	037324-23-5	RM14263	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1260

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert No. AT-1937

Agilent

Certificate of Analysis
ISO 17034

Aroclor 1232 Standard

Product Number: PP-302-1 **Page:** 1 of 1

Lot Number: CF-2197A **Lot Issue Date:** 05-Jul-2016 **Expiration Date:** 31-Aug-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1232	011141-16-5	NT01717	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1261

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

Agilent

Certificate of Analysis

Product Name: Aroclor 1268 Standard

Product Number: PP-382-1 **Lot Issue Date:** 09-Feb-2021

Lot Number: 0006587800 **Expiration Date:** 31-Mar-2029

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1268	011100-14-4	RM00937	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1262

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026
Page: 1 of 1
www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert No. AT-1937

Recipient Copy

CHAIN-OF-CUSTODY RECORD

COC No. 15350

Order Number: CB014765

Date Shipped: 4/11/2022

AirBill No(s): 519204140444

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. B
LAS VEGAS, NV 89120
PHONE: 1-702-895-8712

To: Kelly Bottem
Analytical Resources, Inc.
4611 S. 134th Place SUITE 100
Tukwila WA 98168
206-695-6211

K003525
K003528

Sample ID	Qty	Description/Remarks	→ Catalogue Number
PSRM0148	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0149	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0150	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0151	1	PUGET SOUND SEDIMENT RM	PS-SRM

4/11/2022

BOEING PLANT 2

Please use the enclosed Sample Preparation Instructions. If catalogue number(s) are listed at the top of the Sample Preparation Instructions use the Sample Preparation Instructions with catalogue number(s) matching the catalogue number(s) of each of the samples listed above.

Relinquished by: (Signature)	Date/Time 1400 4/11/2022	Received by: (Signature)	Date/Time 0955 04/12/22
Custody Seal(s): Present/Absent PRESENT	Remarks:		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

PUGET SOUND SEDIMENT REFERENCE MATERIAL
QATS LABORATORY INSTRUCTIONS FOR
HRGC/HRMS CDD/CDF/CB CONGENER AND GC/ECD AROCLOR ANALYSIS

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocols or your contract, disregard these instructions.

APPLICATION: For the analysis of CDD/CDF and CB Congener analytes using project-specified HRGC/HRMS methods, and Aroclors using project-specified GC/ECD methods.

CAUTION: Read instructions carefully before opening bottles and proceeding with the analyses.

Contains CDD/CDF, CB Congener, and/or Aroclors
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a Puget Sound (Washington State) Sediment Reference Material (SRM) set for chlorinated dibenzo-p-dioxins/chlorinated dibenzofurans (CDD/CDF), and/or chlorinated biphenyl (CB) congener analysis using project-specified high resolution gas chromatography/ high resolution mass spectrometry (HRGC/HRMS) methods. This SRM is also suitable for Aroclors analysis using project-specified gas chromatography/electron capture detection (GC/ECD) methods. This set consists of one (1) or more bottles, each with approximately 30 grams of Puget Sound SRM containing CDD/CDF, CB Congener, and/or Aroclor analytes. Check the chain-of-custody record to determine the number of bottles provided for CDD/CDF, CB Congener, and/or Aroclor analysis. None of the bottles are to be opened until SRM preparation/analysis is to occur.

CAUTION: The SRM could contain compounds that are light sensitive and should be protected from light during storage. Store the SRM at ≤ 6° C, preferably at < 0° C, until SRM preparation and analysis is to occur. Allow the bottle(s) to reach ambient temperature before opening.

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Refer to the enclosed chain-of-custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS REQUIREMENTS*

The SRM is to be analyzed as described in the project-specified methods employed for the analysis of CDD/CDF and/or CB Congener analytes using HRGC/HRMS instrumentation and/or Aroclors using GC/ECD instrumentation. These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the project-specified methods, or your contract, disregard these instructions.

(D) *SAMPLE ANALYSIS*

General Instructions

The SRM contains CDD/CDF, CB Congener, and Aroclor analytes which are known or suspected to have severe health effects. Employing appropriate safety precautions, this SRM is to be handled, prepared, and analyzed exactly as you would process samples received from a known or suspected hazardous waste site. The SRM should be handled only by trained and experienced analysts in facilities expressly designed to handle such materials. When calculating the concentrations of analytes, use 0% as the soil moisture content.

Allow the bottle(s) to reach ambient temperature before opening and removing gravimetric amounts for sample preparation. To begin the extraction and analysis procedure, break the seal and open the bottle carefully. Weigh out the appropriate aliquot for extraction and analysis as prescribed in the project-specified methods (typically 10 grams for HRGC/HRMS methods and 30 grams for GC/ECD methods), or in accordance with your contract.

Proceed immediately with the extraction and analysis as described in the project-specified methods or your contract.

(E) *REPORTING*

Report the results for the prepared SRM as received.

Report the analytical results for the SRM to EPA or other appropriate Agency, using the format and other instructions for submission of data packages as specified in your contract.

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel: 310-212-0555 ▪ Fax: 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101467
Description: Aroclor 1016
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL12975
Certification Date: November 19, 2018
Expiration Date: October 31, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1016	12674-11-2	1000	± 0.553%

K5829

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL11110613_us

Certificate of Analysis

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Access your MSDS and digital C of A at www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL111106I3_US

Certificate of Analysis

phenova Certified Reference Materials | A Phenomenex Company

Produced by Phenova
6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101462
Description: Aroclor 1260
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL18021
Certification Date: February 14, 2022
Expiration Date: February 28, 2030

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1260	11096-82-5	1000	± 0.553%

K005830

ACCREDITED
Reference Material Producer
Certicate No. 2427.02

phenova Certified Reference Materials | A Phenomenex Company

Phenova is an accredited ISO/IEC 17034 Reference Material Producer and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ACCREDITED
Chemical Testing Laboratory
Certicate No. 2427.03

IL6493018_us

Certificate of Analysis

Produced by Phenova
6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

Analytical Resources, LLC
Analytical Chemists and Consultants

LDW21-IT635A

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-01 B	File ID:	23032112
Sampled:	07/16/21 12:56	Prepared:	02/28/23 06:55	Analyzed:	03/21/23 19:19
% Solids:	56.50	Preparation:	EPA 8290	Initial/Final:	17.72 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLC0322	Calibration:	GC00015
Batch:	BLB0709	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.715	0.655-0.886	0.355	0.999	1.96	ng/kg	H
1746-01-6	2,3,7,8-TCDD	1	0.445	0.655-0.886	0.207	0.999	0.670	ng/kg	EMPC, H, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.550	1.318-1.783	0.369	0.999	1.54	ng/kg	H
57117-31-4	2,3,4,7,8-PeCDF	1	1.586	1.318-1.783	0.336	0.999	3.46	ng/kg	H
40321-76-4	1,2,3,7,8-PeCDD	1	1.668	1.318-1.783	0.450	0.999	2.31	ng/kg	H
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.251	1.054-1.426	0.215	0.999	18.1	ng/kg	H
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.082	1.054-1.426	0.222	0.999	4.90	ng/kg	H
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.162	1.054-1.426	0.220	0.999	6.34	ng/kg	H
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.274	1.054-1.426	0.251	0.999	3.62	ng/kg	H
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.022	1.054-1.426	0.254	0.999	2.02	ng/kg	EMPC, H
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.235	1.054-1.426	0.257	0.999	10.8	ng/kg	H
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.326	1.054-1.426	0.281	0.999	5.84	ng/kg	H
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.995	0.893-1.208	0.443	0.999	104	ng/kg	H
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.065	0.893-1.208	0.665	0.999	14.8	ng/kg	H
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.030	0.893-1.208	0.769	2.50	340	ng/kg	H, B
39001-02-0	OCDF	1	0.861	0.757-1.024	0.903	2.50	403	ng/kg	H
3268-87-9	OCDD	1	0.875	0.757-1.024	0.901	9.99	3090	ng/kg	H, B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	23.3	ng/kg
41903-57-5	Total TCDD	1	0.000			0.999	3.16	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.999	50.3	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.999	8.74	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.999	141	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.999	89.8	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.999	452	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.999	719	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 15.06
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 15.06

LDW21-IT635A

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Sediment	Laboratory ID:	23B0494-01	File ID:	23032112
Sampled:	07/16/21 12:56	Prepared:	02/28/23 06:55	Analyzed:	03/21/23 19:19
Solids Wt%:	56.50	Preparation:	EPA 8290	Initial/Final:	17.72 g / 20 uL
Result Basis:	Dry	Sequence:	SLC0322	Calibration:	GC00015
Batch:	BLB0709	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.778	0.655-0.886	0.070	44.1	24 - 169 %	
13C12-2,3,7,8-TCDD		0.771	0.655-0.886	0.085	50.7	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.510	1.318-1.783	0.092	48.7	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.527	1.318-1.783	0.102	50.6	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.590	1.318-1.783	0.084	48.0	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.510	0.434-0.587	0.077	46.3	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.496	0.434-0.587	0.065	41.6	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.508	0.434-0.587	0.080	46.8	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.513	0.434-0.587	0.097	48.4	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.277	1.054-1.426	0.109	51.6	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.286	1.054-1.426	0.094	48.0	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.440	0.374-0.506	0.095	42.9	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.442	0.374-0.506	0.111	41.0	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.019	0.893-1.208	0.072	39.8	23 - 140 %	
13C12-OCDD		0.892	0.757-1.024	0.116	39.9	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.084	70.6	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:49:12 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23B0494-01, Name: 23032112, Date: 21-Mar-2023, Time: 19:19:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.718	1.000	9.003e2	1.258e3	0.702	0.715	0.770	931	1066	1.34e4	1.86e4	14.4	17.4	NO	dd	bd	0.983
12378-PeCDF	29.868	1.000	8.425e2	5.436e2	0.679	1.550	1.550	729	956	1.59e4	9.09e3	21.8	9.5	NO	bb	bb	0.770
23478-PeCDF	31.216	1.001	2.069e3	1.305e3	0.786	1.586	1.550	729	956	3.58e4	1.94e4	49.1	20.2	NO	dd	db	1.730
123478-HxCDF	34.826	1.000	1.535e4	1.227e4	1.166	1.251	1.240	920	793	2.32e5	1.89e5	251.9	238.7	NO	dd	dd	9.050
234678-HxCDF	35.796	0.999	4.980e3	4.287e3	1.140	1.162	1.240	920	793	6.59e4	5.32e4	71.6	67.1	NO	bb	bb	3.176
123678-HxCDF	34.971	1.001	3.882e3	3.586e3	1.091	1.082	1.240	920	793	5.73e4	5.23e4	62.3	65.9	NO	db	MM	2.451
123789-HxCDF	36.832	1.000	2.523e3	1.980e3	1.137	1.274	1.240	920	793	4.06e4	3.10e4	44.1	39.1	NO	bb	bb	1.812
1234678-HpCDF	38.703	1.001	4.835e4	4.858e4	1.003	0.995	1.050	906	1413	8.20e5	8.18e5	905.4	578.7	NO	bb	bb	51.926
1234789-HpCDF	40.932	1.000	5.568e3	5.227e3	0.953	1.065	1.050	906	1413	7.91e4	7.11e4	87.3	50.3	NO	bb	bb	7.416
OCDF	45.139	1.006	1.079e5	1.252e5	0.778	0.861	0.890	940	1174	1.30e6	1.50e6	1381.0	1274.3	NO	bb	bb	201.870
2378-TCDD	26.368	1.001	3.038e2	6.828e2	1.149	0.445	0.770	817	735	5.49e3	8.22e3	6.7	11.2	YES	bb	bd	0.336
12378-PeCDD	31.462	1.000	1.292e3	7.750e2	1.022	1.668	1.550	860	1169	1.74e4	1.19e4	20.2	10.2	NO	bb	bb	1.159
123478-HxCDD	35.951	1.000	1.264e3	1.237e3	0.996	1.022	1.240	949	796	2.25e4	2.35e4	23.7	29.5	YES	bd	bd	1.010
123678-HxCDD	36.063	1.000	8.049e3	6.520e3	1.001	1.235	1.240	949	796	1.33e5	1.07e5	139.7	134.5	NO	dd	dd	5.413
123789-HxCDD	36.453	1.011	3.909e3	2.949e3	0.907	1.326	1.240	949	796	6.61e4	4.86e4	69.6	61.1	NO	bd	bb	2.921
1234678-HpCDD	40.196	1.001	1.451e5	1.409e5	1.039	1.030	1.050	1821	1455	2.23e6	2.14e6	1223.0	1467.3	NO	bb	bb	169.985
OCDD	44.901	1.000	9.855e5	1.126e6	0.920	0.875	0.890	1449	1046	1.21e7	1.39e7	8342.4	13330.0	NO	bb	bb	1545.969
13C-2378-TCDF	25.704	1.007	1.371e5	1.761e5	1.620	0.778	0.770	1558	1123	2.10e6	2.71e6	1349.4	2417.2	NO	bd	bb	44.066
13C-12378-PeCDF	29.857	1.169	1.595e5	1.056e5	1.240	1.510	1.550	1440	1239	2.42e6	1.58e6	1683.1	1277.8	NO	bb	bb	48.725
13C-23478-PeCDF	31.194	1.222	1.499e5	9.818e4	1.118	1.527	1.550	1440	1239	2.31e6	1.51e6	1605.2	1220.2	NO	bb	bb	50.608
13C-123478-HxCDF	34.815	0.956	8.833e4	1.734e5	1.168	0.510	0.510	999	1326	1.38e6	2.74e6	1383.8	2063.9	NO	bd	bd	46.259
13C-123678-HxCDF	34.949	0.959	9.258e4	1.867e5	1.386	0.496	0.510	999	1326	1.41e6	2.82e6	1408.9	2125.5	NO	db	dd	41.604
13C-234678-HxCDF	35.818	0.983	8.622e4	1.698e5	1.129	0.508	0.510	999	1326	1.38e6	2.68e6	1380.8	2019.5	NO	bb	bb	46.817
13C-123789-HxCDF	36.843	1.011	7.409e4	1.444e5	0.932	0.513	0.510	999	1326	1.22e6	2.35e6	1221.8	1776.0	NO	bb	bb	48.432
13C-1234678-HpCDF	38.681	1.062	5.689e4	1.292e5	0.895	0.440	0.440	884	1318	9.57e5	2.15e6	1081.7	1629.6	NO	bb	bb	42.932
13C-1234789-HpCDF	40.910	1.123	4.681e4	1.059e5	0.770	0.442	0.440	884	1318	6.72e5	1.53e6	759.5	1159.1	NO	bb	bb	40.971
13C-1234-TCDD	25.534	0.000	1.940e5	2.446e5	1.000	0.793	0.770	1396	919	3.13e6	3.97e6	2238.7	4318.4	NO	bb	bb	100.000
13C-2378-TCDD	26.339	1.031	1.115e5	1.445e5	1.152	0.771	0.770	1396	919	1.70e6	2.23e6	1218.9	2431.3	NO	bb	bb	50.653
13C-12378-PeCDD	31.450	1.232	1.072e5	6.741e4	0.829	1.590	1.550	956	681	1.62e6	1.01e6	1698.3	1480.5	NO	bb	bb	48.033
13C-123478-HxCDD	35.940	0.987	1.395e5	1.092e5	0.995	1.277	1.240	1125	1673	2.32e6	1.79e6	2064.8	1070.1	NO	bd	bd	51.610
13C-123678-HxCDD	36.052	0.990	1.513e5	1.176e5	1.157	1.286	1.240	1125	1673	2.28e6	1.84e6	2030.0	1097.6	NO	db	dd	48.010
13C-1234678-HpCDD	40.174	1.103	8.172e4	8.020e4	0.840	1.019	1.050	866	700	1.24e6	1.18e6	1432.8	1684.5	NO	bb	bd	39.800
13C-OCDD	44.882	1.232	1.400e5	1.569e5	0.767	0.892	0.890	1178	1113	1.70e6	1.94e6	1443.7	1739.6	NO	bb	bb	79.888
13C-123789-HxCDD	36.431	0.000	2.705e5	2.137e5	1.000	1.265	1.240	1125	1673	4.33e6	3.43e6	3844.2	2050.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.368	1.033	1.596e5		1.288			1272		2.39e6		1882.7			bb		28.250

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:49:12 Pacific Daylight Time

ID: 23B0494-01, Name: 23032112, Date: 21-Mar-2023, Time: 19:19:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.229	0.865	3.305e2	6.577e2	0.802	0.503	0.770	931	1066	6.34e3	1.04e4	6.8	9.8	YES	bb	bb	0.394
1289-TCDF					0.678		0.770	931	1066								
13468-PECDF					1.246		1.550	618	1028								
12389-PECDF					0.496		1.550	729	956								
123468-HXCDF	33.166	0.953	6.745e3	5.613e3	1.169	1.202	1.240	920	793	1.06e5	8.94e4	115.3	112.7	NO	bb	bb	4.039
1368-TCDD	23.500	0.892	1.007e3	1.262e3	1.015	0.798	0.770	817	735	1.63e4	2.10e4	19.9	28.5	NO	bb	bb	0.873
1289-TCDD					0.909		0.770	817	735								
12479-PECDD	28.754	0.914	3.622e3	2.687e3	2.301	1.348	1.550	860	1169	3.36e4	2.82e4	39.1	24.1	NO	bb	bb	1.570
12389-PECDD					1.184		1.550	860	1169								
124679-HXCDD	33.946	0.945	2.733e4	2.275e4	1.115	1.201	1.240	949	796	4.23e5	3.58e5	445.3	449.7	NO	bb	bb	18.055
1234679-HPCDD	39.149	0.975	1.766e5	1.734e5	1.137	1.018	1.050	1821	1455	2.98e6	2.88e6	1635.4	1979.1	NO	bb	bb	190.147
Total-tetrafurans			1.108e4		0.727			931		1.68e5							11.673
Total-penta1			1.465e4					618		2.22e5							9.834
Total-pentafurans			1.649e4		0.654			729		2.27e5							15.367
Total-hexafurans			1.129e5		1.141			920		1.70e6							70.632
Total-heptafurans			1.923e5		0.978			906		3.16e6							226.043
Total-Furans			4.552e5		0.922			931		6.77e6							535.420
Total-tetradioxins			1.839e3		1.024			817		2.84e4							1.582
Total-pentadioxins			7.496e3		1.502			860		9.43e4							4.373
Total-hexadioxins			6.607e4		1.005			949		9.16e5							44.973
Total-heptadioxins			3.217e5		1.088			1821		5.20e6							360.133
Total-Dioxins			1.383e6		1.130			817		1.83e7							1957.029
Total-TEQ			1.838e6					817		2.51e7							2492.449
FUNCTION1 PFK			1.352e7					490195		4.26e7							
FUNCTION2 PFK			2.137e4					258038		1.20e1							0.000
FUNCTION3 PFK			0.000e0					430470		0.00e0							
FUNCTION4 PFK			7.231e6					219797		2.48e6							
FUNCTION5 PFK			6.438e6					140358		2.23e7							
FUNCTION1 HXCD...			1.126e3					655		1.89e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.488e1					663		1.27e3							0.000
FUNCTION3 OCDPE			2.461e2					544		3.84e3							0.000
FUNCTION4 NCDPE			1.096e3					649		1.97e4							0.000
FUNCTION5 DCDPE			0.000e0					504		0.00e0							

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23B0494-01, Name: 23032112, Date: 21-Mar-2023, Time: 19:19:19, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.49	6.127e2	9.195e2	0.727	0.67	0.77	8.8	YES	NO	dd	dd	0.673
2	Total-tetrafurans	24.39	1.018e3	1.270e3	0.727	0.80	0.77	15.4	YES	NO	bd	bd	1.005
3	Total-tetrafurans	23.73	1.255e3	1.889e3	0.727	0.66	0.77	20.4	YES	NO	dd	bd	1.381
4	Total-tetrafurans	23.57	3.353e2	4.127e2	0.727	0.81	0.77	6.8	YES	NO	dd	db	0.329
5	Total-tetrafurans	23.06	1.519e3	2.184e3	0.727	0.70	0.77	27.6	YES	NO	bd	bb	1.627
6	Total-tetrafurans	22.48	1.054e3	1.485e3	0.727	0.71	0.77	18.4	YES	NO	bb	bb	1.116
7	Total-tetrafurans	25.94	1.609e3	2.207e3	0.727	0.73	0.77	23.9	YES	NO	db	db	1.676
8	Total-tetrafurans	25.84	6.304e2	9.306e2	0.727	0.68	0.77	9.0	YES	NO	dd	dd	0.686
9	2378-TCDF	25.72	9.003e2	1.258e3	0.702	0.72	0.77	14.4	YES	NO	dd	bd	0.983
10	Total-tetrafurans	25.04	5.375e2	7.275e2	0.727	0.74	0.77	10.3	YES	NO	bd	bb	0.556
11	Total-tetrafurans	24.63	1.607e3	2.133e3	0.727	0.75	0.77	26.0	YES	NO	dd	db	1.643

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.14	1.465e4	9.259e3		1.58	1.55	358.3	YES	NO	bb	bb	9.834

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	30.08	1.480e3	1.019e3	0.654	1.45	1.55	32.2	YES	NO	bb	bb	1.489
2	12378-PeCDF	29.87	8.425e2	5.436e2	0.679	1.55	1.55	21.8	YES	NO	bb	bb	0.770
3	Total-pentafurans	28.80	9.735e3	5.577e3	0.654	1.75	1.55	158.8	YES	NO	dd	bb	9.126
4	23478-PeCDF	31.22	2.069e3	1.305e3	0.786	1.59	1.55	49.1	YES	NO	dd	db	1.730
5	Total-pentafurans	31.06	1.804e3	1.043e3	0.654	1.73	1.55	37.0	YES	NO	dd	dd	1.697
6	Total-pentafurans	30.95	5.577e2	3.732e2	0.654	1.49	1.55	13.3	YES	NO	bd	bd	0.555

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.83	2.523e3	1.980e3	1.137	1.27	1.24	44.1	YES	NO	bb	bb	1.812
2	234678-HxCDF	35.80	4.980e3	4.287e3	1.140	1.16	1.24	71.6	YES	NO	bb	bb	3.176
3	123678-HxCDF	34.97	3.882e3	3.586e3	1.091	1.08	1.24	62.3	YES	NO	db	MM	2.451
4	123478-HxCDF	34.83	1.535e4	1.227e4	1.166	1.25	1.24	251.9	YES	NO	dd	dd	9.050
5	Total-hexafurans	34.67	1.376e3	1.136e3	1.141	1.21	1.24	22.5	YES	NO	bd	bd	0.868
6	Total-hexafurans	34.21	5.290e4	4.360e4	1.141	1.21	1.24	880.0	YES	NO	bb	bb	33.322
7	Total-hexafurans	33.38	2.516e4	2.092e4	1.141	1.20	1.24	400.0	YES	NO	bd	bb	15.914
8	123468-HXCDF	33.17	6.745e3	5.613e3	1.169	1.20	1.24	115.3	YES	NO	bb	bb	4.039

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.93	5.568e3	5.227e3	0.953	1.07	1.05	87.3	YES	NO	bb	bb	7.416
2	Total-heptafurans	39.36	1.374e5	1.370e5	0.978	1.00	1.05	2473.2	YES	NO	bb	bb	165.636
3	Total-heptafurans	39.12	9.241e2	8.407e2	0.978	1.10	1.05	18.1	YES	NO	bb	bb	1.065
4	1234678-HpCDF	38.70	4.835e4	4.858e4	1.003	1.00	1.05	905.4	YES	NO	bb	bb	51.926

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.49	6.127e2	9.195e2	0.727	0.67	0.77	8.8	YES	NO	dd	dd	0.673
2	Total-tetrafurans	24.39	1.018e3	1.270e3	0.727	0.80	0.77	15.4	YES	NO	bd	bd	1.005
3	Total-tetrafurans	23.73	1.255e3	1.889e3	0.727	0.66	0.77	20.4	YES	NO	dd	bd	1.381
4	Total-tetrafurans	23.57	3.353e2	4.127e2	0.727	0.81	0.77	6.8	YES	NO	dd	db	0.329
5	Total-tetrafurans	23.06	1.519e3	2.184e3	0.727	0.70	0.77	27.6	YES	NO	bd	bb	1.627
6	Total-tetrafurans	22.48	1.054e3	1.485e3	0.727	0.71	0.77	18.4	YES	NO	bb	bb	1.116
7	Total-tetrafurans	25.94	1.609e3	2.207e3	0.727	0.73	0.77	23.9	YES	NO	db	db	1.676
8	Total-tetrafurans	25.84	6.304e2	9.306e2	0.727	0.68	0.77	9.0	YES	NO	dd	dd	0.686
9	2378-TCDF	25.72	9.003e2	1.258e3	0.702	0.72	0.77	14.4	YES	NO	dd	bd	0.983
10	Total-tetrafurans	25.04	5.375e2	7.275e2	0.727	0.74	0.77	10.3	YES	NO	bd	bb	0.556
11	Total-tetrafurans	24.63	1.607e3	2.133e3	0.727	0.75	0.77	26.0	YES	NO	dd	db	1.643
12	Total-pentafurans	30.08	1.480e3	1.019e3	0.654	1.45	1.55	32.2	YES	NO	bb	bb	1.489
13	12378-PeCDF	29.87	8.425e2	5.436e2	0.679	1.55	1.55	21.8	YES	NO	bb	bb	0.770
14	Total-pentafurans	28.80	9.735e3	5.577e3	0.654	1.75	1.55	158.8	YES	NO	dd	bb	9.126
15	23478-PeCDF	31.22	2.069e3	1.305e3	0.786	1.59	1.55	49.1	YES	NO	dd	db	1.730
16	Total-pentafurans	31.06	1.804e3	1.043e3	0.654	1.73	1.55	37.0	YES	NO	dd	dd	1.697
17	Total-pentafurans	30.95	5.577e2	3.732e2	0.654	1.49	1.55	13.3	YES	NO	bd	bd	0.555
18	123789-HxCDF	36.83	2.523e3	1.980e3	1.137	1.27	1.24	44.1	YES	NO	bb	bb	1.812
19	234678-HxCDF	35.80	4.980e3	4.287e3	1.140	1.16	1.24	71.6	YES	NO	bb	bb	3.176
20	123678-HxCDF	34.97	3.882e3	3.586e3	1.091	1.08	1.24	62.3	YES	NO	db	MM	2.451
21	123478-HxCDF	34.83	1.535e4	1.227e4	1.166	1.25	1.24	251.9	YES	NO	dd	dd	9.050
22	Total-hexafurans	34.67	1.376e3	1.136e3	1.141	1.21	1.24	22.5	YES	NO	bd	bd	0.868
23	Total-hexafurans	34.21	5.290e4	4.360e4	1.141	1.21	1.24	880.0	YES	NO	bb	bb	33.322
24	Total-hexafurans	33.38	2.516e4	2.092e4	1.141	1.20	1.24	400.0	YES	NO	bd	bb	15.914
25	123468-HXCDF	33.17	6.745e3	5.613e3	1.169	1.20	1.24	115.3	YES	NO	bb	bb	4.039
26	1234789-HpCDF	40.93	5.568e3	5.227e3	0.953	1.07	1.05	87.3	YES	NO	bb	bb	7.416
27	Total-heptafurans	39.36	1.374e5	1.370e5	0.978	1.00	1.05	2473.2	YES	NO	bb	bb	165.636
28	Total-heptafurans	39.12	9.241e2	8.407e2	0.978	1.10	1.05	18.1	YES	NO	bb	bb	1.065
29	1234678-HpCDF	38.70	4.835e4	4.858e4	1.003	1.00	1.05	905.4	YES	NO	bb	bb	51.926
30	OCDF	45.14	1.079e5	1.252e5	0.778	0.86	0.89	1381.0	YES	NO	bb	bb	201.870
31	Total-penta1	27.14	1.465e4	9.259e3		1.58	1.55	358.3	YES	NO	bb	bb	9.834

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.98	5.559e2	6.797e2	1.024	0.82	0.77	10.4	YES	NO	bb	bb	0.471
2	Total-tetradioxins	23.98	2.766e2	3.480e2	1.024	0.79	0.77	4.4	YES	NO	db	bb	0.238
3	1368-TCDD	23.50	1.007e3	1.262e3	1.015	0.80	0.77	19.9	YES	NO	bb	bb	0.873

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.46	1.292e3	7.750e2	1.022	1.67	1.55	20.2	YES	NO	bb	bb	1.159
2	Total-pentadioxins	30.78	3.152e2	2.036e2	1.502	1.55	1.55	6.1	NO	NO	bb	bb	0.198
3	Total-pentadioxins	30.09	1.116e3	8.032e2	1.502	1.39	1.55	22.3	YES	NO	bd	bd	0.732
4	Total-pentadioxins	29.87	1.150e3	7.244e2	1.502	1.59	1.55	22.0	YES	NO	bb	bb	0.715
5	12479-PECDD	28.75	3.622e3	2.687e3	2.301	1.35	1.55	39.1	YES	NO	bb	bb	1.570

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.45	3.909e3	2.949e3	0.907	1.33	1.24	69.6	YES	NO	bd	bb	2.921
2	123678-HxCDD	36.06	8.049e3	6.520e3	1.001	1.23	1.24	139.7	YES	NO	dd	dd	5.413
3	Total-hexadioxins	35.08	2.330e4	1.868e4	1.005	1.25	1.24	254.6	YES	NO	bd	bd	16.145
4	Total-hexadioxins	34.71	3.473e3	2.872e3	1.005	1.21	1.24	56.1	YES	NO	bb	bb	2.440
5	124679-HXCDD	33.95	2.733e4	2.275e4	1.115	1.20	1.24	445.3	YES	NO	bb	bb	18.055

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.20	1.451e5	1.409e5	1.039	1.03	1.05	1223.0	YES	NO	bb	bb	169.985
2	1234679-HPCDD	39.15	1.766e5	1.734e5	1.137	1.02	1.05	1635.4	YES	NO	bb	bb	190.147

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.98	5.559e2	6.797e2	1.024	0.82	0.77	10.4	YES	NO	bb	bb	0.471
2	Total-tetradioxins	23.98	2.766e2	3.480e2	1.024	0.79	0.77	4.4	YES	NO	db	bb	0.238
3	1368-TCDD	23.50	1.007e3	1.262e3	1.015	0.80	0.77	19.9	YES	NO	bb	bb	0.873
4	12378-PeCDD	31.46	1.292e3	7.750e2	1.022	1.67	1.55	20.2	YES	NO	bb	bb	1.159
5	Total-pentadioxins	30.78	3.152e2	2.036e2	1.502	1.55	1.55	6.1	NO	NO	bb	bb	0.198
6	Total-pentadioxins	30.09	1.116e3	8.032e2	1.502	1.39	1.55	22.3	YES	NO	bd	bd	0.732
7	Total-pentadioxins	29.87	1.150e3	7.244e2	1.502	1.59	1.55	22.0	YES	NO	bb	bb	0.715
8	12479-PECDD	28.75	3.622e3	2.687e3	2.301	1.35	1.55	39.1	YES	NO	bb	bb	1.570
9	123789-HxCDD	36.45	3.909e3	2.949e3	0.907	1.33	1.24	69.6	YES	NO	bd	bb	2.921
10	123678-HxCDD	36.06	8.049e3	6.520e3	1.001	1.23	1.24	139.7	YES	NO	dd	dd	5.413
11	Total-hexadioxins	35.08	2.330e4	1.868e4	1.005	1.25	1.24	254.6	YES	NO	bd	bd	16.145
12	Total-hexadioxins	34.71	3.473e3	2.872e3	1.005	1.21	1.24	56.1	YES	NO	bb	bb	2.440
13	124679-HXCDD	33.95	2.733e4	2.275e4	1.115	1.20	1.24	445.3	YES	NO	bb	bb	18.055
14	1234678-HpCDD	40.20	1.451e5	1.409e5	1.039	1.03	1.05	1223.0	YES	NO	bb	bb	169.985
15	1234679-HPCDD	39.15	1.766e5	1.734e5	1.137	1.02	1.05	1635.4	YES	NO	bb	bb	190.147
16	OCDD	44.90	9.855e5	1.126e6	0.920	0.88	0.89	8342.4	YES	NO	bb	bb	1545.9...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.49	6.127e2	9.195e2	0.727	0.67	0.77	8.8	YES	NO	dd	dd	0.673
2	Total-tetrafurans	24.39	1.018e3	1.270e3	0.727	0.80	0.77	15.4	YES	NO	bd	bd	1.005
3	Total-tetrafurans	23.73	1.255e3	1.889e3	0.727	0.66	0.77	20.4	YES	NO	dd	bd	1.381
4	Total-tetrafurans	23.57	3.353e2	4.127e2	0.727	0.81	0.77	6.8	YES	NO	dd	db	0.329
5	Total-tetrafurans	23.06	1.519e3	2.184e3	0.727	0.70	0.77	27.6	YES	NO	bd	bb	1.627
6	Total-tetrafurans	22.48	1.054e3	1.485e3	0.727	0.71	0.77	18.4	YES	NO	bb	bb	1.116
7	Total-tetrafurans	25.94	1.609e3	2.207e3	0.727	0.73	0.77	23.9	YES	NO	db	db	1.676
8	Total-tetrafurans	25.84	6.304e2	9.306e2	0.727	0.68	0.77	9.0	YES	NO	dd	dd	0.686
9	2378-TCDF	25.72	9.003e2	1.258e3	0.702	0.72	0.77	14.4	YES	NO	dd	bd	0.983
10	Total-tetrafurans	25.04	5.375e2	7.275e2	0.727	0.74	0.77	10.3	YES	NO	bd	bb	0.556
11	Total-tetrafurans	24.63	1.607e3	2.133e3	0.727	0.75	0.77	26.0	YES	NO	dd	db	1.643
12	Total-pentafurans	30.08	1.480e3	1.019e3	0.654	1.45	1.55	32.2	YES	NO	bb	bb	1.489
13	12378-PeCDF	29.87	8.425e2	5.436e2	0.679	1.55	1.55	21.8	YES	NO	bb	bb	0.770
14	Total-pentafurans	28.80	9.735e3	5.577e3	0.654	1.75	1.55	158.8	YES	NO	dd	bb	9.126
15	23478-PeCDF	31.22	2.069e3	1.305e3	0.786	1.59	1.55	49.1	YES	NO	dd	db	1.730
16	Total-pentafurans	31.06	1.804e3	1.043e3	0.654	1.73	1.55	37.0	YES	NO	dd	dd	1.697
17	Total-pentafurans	30.95	5.577e2	3.732e2	0.654	1.49	1.55	13.3	YES	NO	bd	bd	0.555
18	123789-HxCDF	36.83	2.523e3	1.980e3	1.137	1.27	1.24	44.1	YES	NO	bb	bb	1.812
19	234678-HxCDF	35.80	4.980e3	4.287e3	1.140	1.16	1.24	71.6	YES	NO	bb	bb	3.176
20	123678-HxCDF	34.97	3.882e3	3.586e3	1.091	1.08	1.24	62.3	YES	NO	db	MM	2.451
21	123478-HxCDF	34.83	1.535e4	1.227e4	1.166	1.25	1.24	251.9	YES	NO	dd	dd	9.050
22	Total-hexafurans	34.67	1.376e3	1.136e3	1.141	1.21	1.24	22.5	YES	NO	bd	bd	0.868
23	Total-hexafurans	34.21	5.290e4	4.360e4	1.141	1.21	1.24	880.0	YES	NO	bb	bb	33.322
24	Total-hexafurans	33.38	2.516e4	2.092e4	1.141	1.20	1.24	400.0	YES	NO	bd	bb	15.914
25	123468-HXCDF	33.17	6.745e3	5.613e3	1.169	1.20	1.24	115.3	YES	NO	bb	bb	4.039
26	1234789-HpCDF	40.93	5.568e3	5.227e3	0.953	1.07	1.05	87.3	YES	NO	bb	bb	7.416
27	Total-heptafurans	39.36	1.374e5	1.370e5	0.978	1.00	1.05	2473.2	YES	NO	bb	bb	165.636
28	Total-heptafurans	39.12	9.241e2	8.407e2	0.978	1.10	1.05	18.1	YES	NO	bb	bb	1.065
29	1234678-HpCDF	38.70	4.835e4	4.858e4	1.003	1.00	1.05	905.4	YES	NO	bb	bb	51.926
30	OCDF	45.14	1.079e5	1.252e5	0.778	0.86	0.89	1381.0	YES	NO	bb	bb	201.870
31	Total-penta1	27.14	1.465e4	9.259e3		1.58	1.55	358.3	YES	NO	bb	bb	9.834
32	Total-tetradioxins	24.98	5.559e2	6.797e2	1.024	0.82	0.77	10.4	YES	NO	bb	bb	0.471
33	Total-tetradioxins	23.98	2.766e2	3.480e2	1.024	0.79	0.77	4.4	YES	NO	db	bb	0.238
34	1368-TCDD	23.50	1.007e3	1.262e3	1.015	0.80	0.77	19.9	YES	NO	bb	bb	0.873
35	12378-PeCDD	31.46	1.292e3	7.750e2	1.022	1.67	1.55	20.2	YES	NO	bb	bb	1.159
36	Total-pentadioxins	30.78	3.152e2	2.036e2	1.502	1.55	1.55	6.1	NO	NO	bb	bb	0.198
37	Total-pentadioxins	30.09	1.116e3	8.032e2	1.502	1.39	1.55	22.3	YES	NO	bd	bd	0.732

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentadioxins	29.87	1.150e3	7.244e2	1.502	1.59	1.55	22.0	YES	NO	bb	bb	0.715
39	12479-PECDD	28.75	3.622e3	2.687e3	2.301	1.35	1.55	39.1	YES	NO	bb	bb	1.570
40	123789-HxCDD	36.45	3.909e3	2.949e3	0.907	1.33	1.24	69.6	YES	NO	bd	bb	2.921
41	123678-HxCDD	36.06	8.049e3	6.520e3	1.001	1.23	1.24	139.7	YES	NO	dd	dd	5.413
42	Total-hexadioxins	35.08	2.330e4	1.868e4	1.005	1.25	1.24	254.6	YES	NO	bd	bd	16.145
43	Total-hexadioxins	34.71	3.473e3	2.872e3	1.005	1.21	1.24	56.1	YES	NO	bb	bb	2.440
44	124679-HXCDD	33.95	2.733e4	2.275e4	1.115	1.20	1.24	445.3	YES	NO	bb	bb	18.055
45	1234678-HpCDD	40.20	1.451e5	1.409e5	1.039	1.03	1.05	1223.0	YES	NO	bb	bb	169.985
46	1234679-HPCDD	39.15	1.766e5	1.734e5	1.137	1.02	1.05	1635.4	YES	NO	bb	bb	190.147
47	OCDD	44.90	9.855e5	1.126e6	0.920	0.88	0.89	8342.4	YES	NO	bb	bb	1545.9...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.92	4.526e6					3.2	YES		bb		
2	FUNCTION1 PFK	23.13	4.605e5					15.8	YES		db		
3	FUNCTION1 PFK	22.99	1.620e6					24.0	YES		dd		
4	FUNCTION1 PFK	22.88	3.022e6					20.7	YES		bd		
5	FUNCTION1 PFK	21.99	3.336e5					6.8	YES		db		
6	FUNCTION1 PFK	21.81	2.893e6					9.1	YES		bd		
7	FUNCTION1 PFK	21.17	6.679e5					7.3	YES		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.37	2.137e4					0.0	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.90	7.231e6					11.3	YES		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.62	8.118e2					0.6	NO		bb		
2	FUNCTION5 PFK	44.88	8.636e2					0.7	NO		bb		
3	FUNCTION5 PFK	44.80	6.653e3					1.7	NO		db		
4	FUNCTION5 PFK	44.75	1.076e3					0.6	NO		bd		
5	FUNCTION5 PFK	44.71	3.874e3					1.1	NO		bb		
6	FUNCTION5 PFK	44.43	7.368e3					1.9	NO		bb		
7	FUNCTION5 PFK	43.73	6.938e3					2.6	NO		db		
8	FUNCTION5 PFK	43.56	2.007e5					13.7	YES		dd		
9	FUNCTION5 PFK	43.34	1.577e6					26.6	YES		dd		
10	FUNCTION5 PFK	43.07	3.249e6					42.1	YES		dd		
11	FUNCTION5 PFK	42.61	1.384e6					67.5	YES		bd		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.67	8.982e1					1.8	NO		bb		0.000
2	FUNCTION1 HXCD...	23.74	1.991e2					5.5	YES		bb		0.000
3	FUNCTION1 HXCD...	22.29	2.325e2					6.1	YES		bb		0.000
4	FUNCTION1 HXCD...	22.10	2.517e2					5.5	YES		bb		0.000
5	FUNCTION1 HXCD...	27.64	1.667e2					4.4	YES		bb		0.000
6	FUNCTION1 HXCD...	25.52	9.540e1					1.6	NO		bb		0.000
7	FUNCTION1 HXCD...	25.10	9.138e1					4.0	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.13	7.488e1					1.9	NO		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.44	9.149e1					2.6	NO		bb		0.000
2	FUNCTION3 OCDPE	35.94	7.171e1					2.0	NO		bb		0.000
3	FUNCTION3 OCDPE	33.07	8.290e1					2.4	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.36	1.096e3					30.3	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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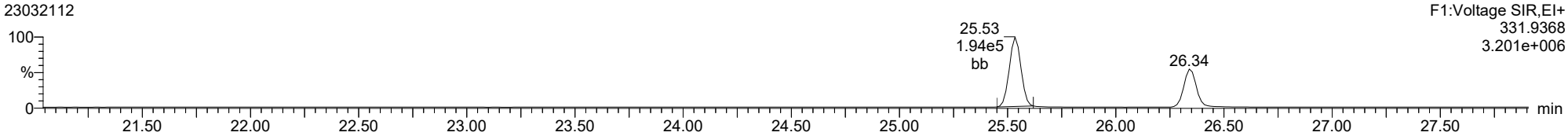
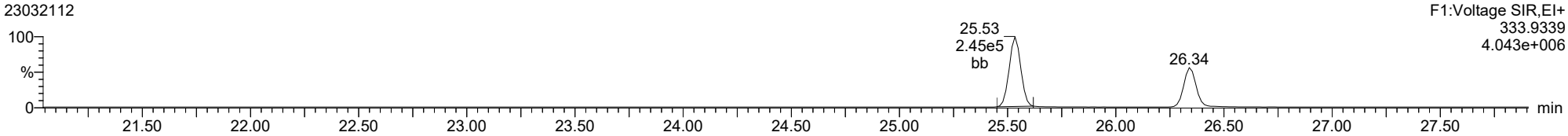
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23B0494-01, Name: 23032112, Date: 21-Mar-2023, Time: 19:19:19, Conditions: AUTOSPEC01, User: pk

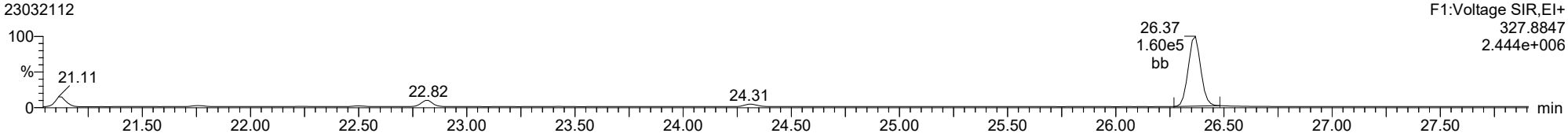
13C-1234-TCDD



13C-1234-TCDD



37CL-2378-TCDD



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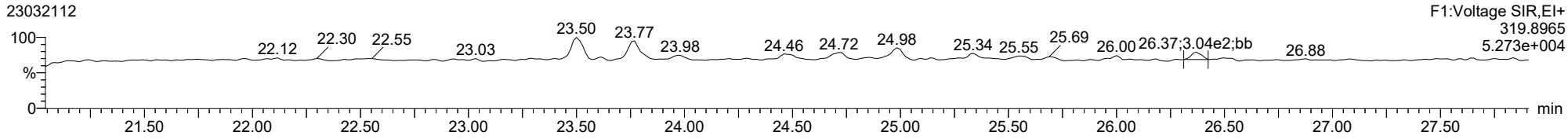
2378-TCDD



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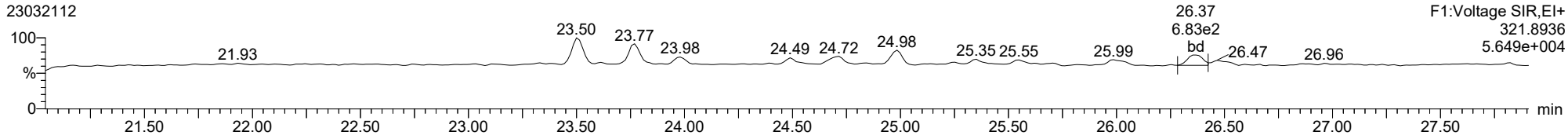

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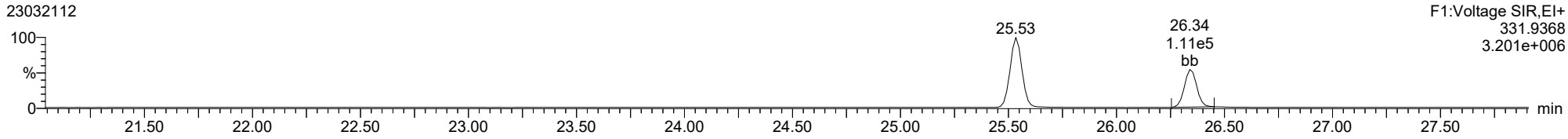

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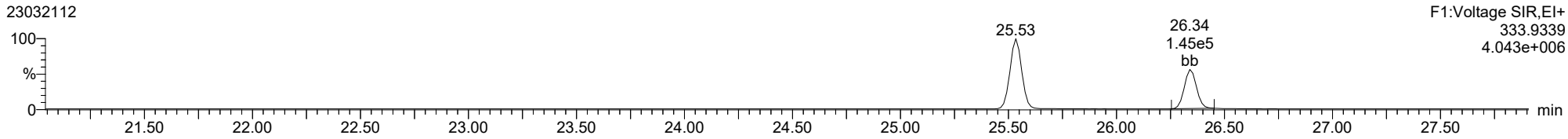
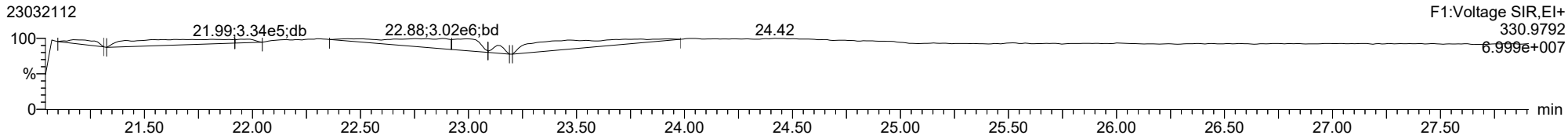
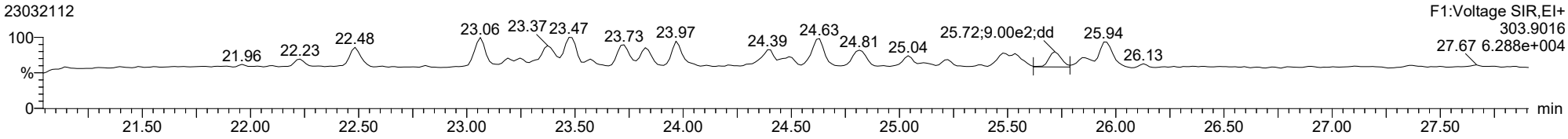


FUNCTION1 PFK



ID: 23B0494-01, Name: 23032112, Date: 21-Mar-2023, Time: 19:19:19, Conditions: AUTOSPEC01, User: pk

2378-TCDF



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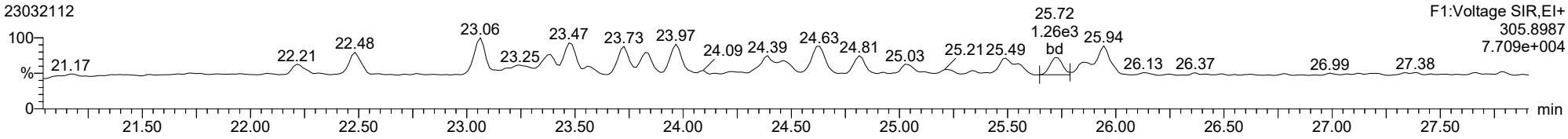

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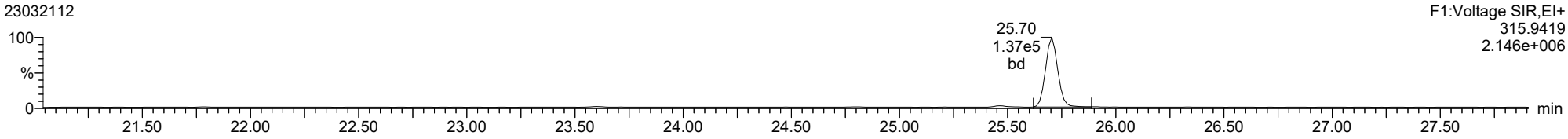

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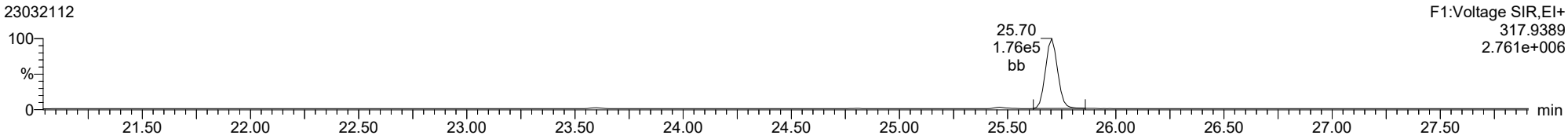
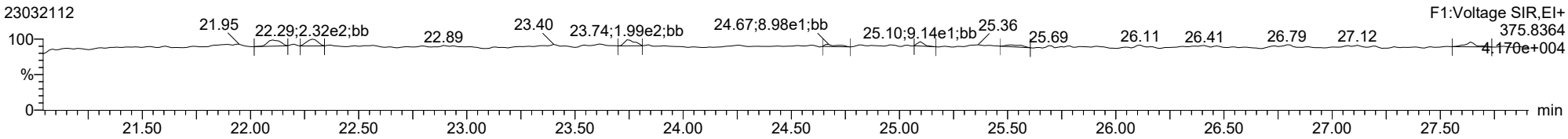
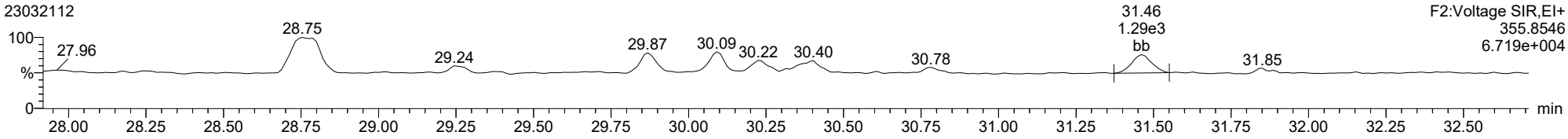


FUNCTION1 HXCDPE



ID: 23B0494-01, Name: 23032112, Date: 21-Mar-2023, Time: 19:19:19, Conditions: AUTOSPEC01, User: pk

12378-PeCDD



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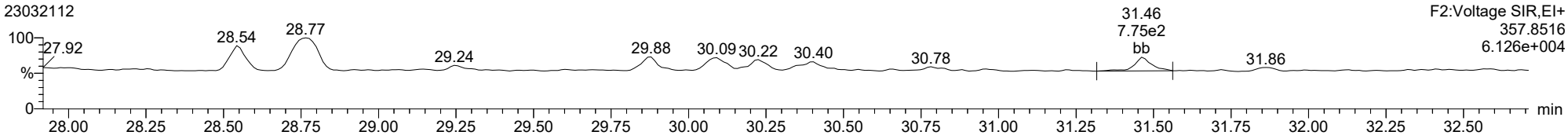

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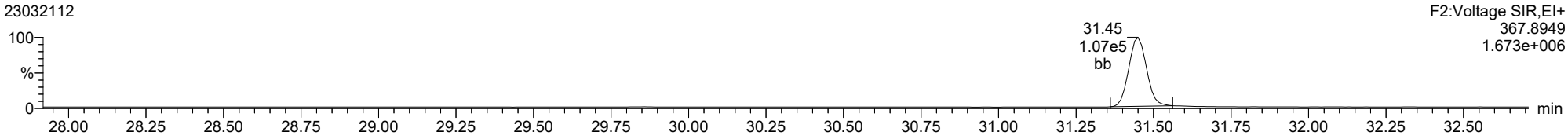

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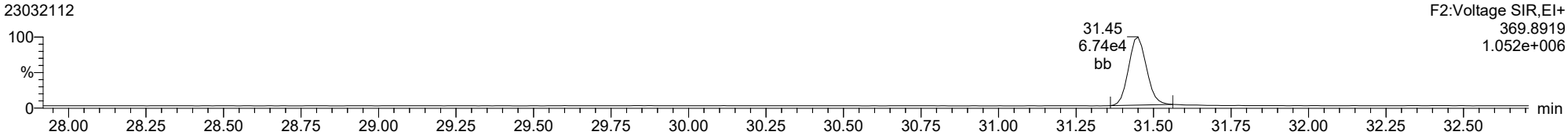
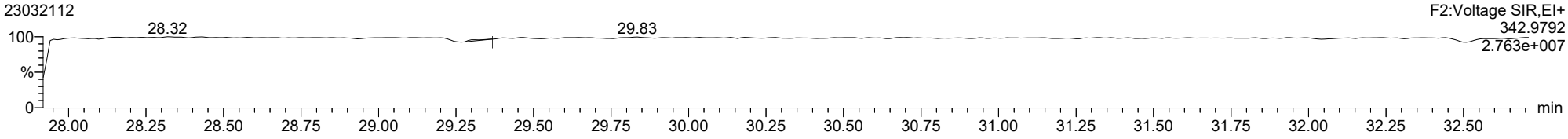
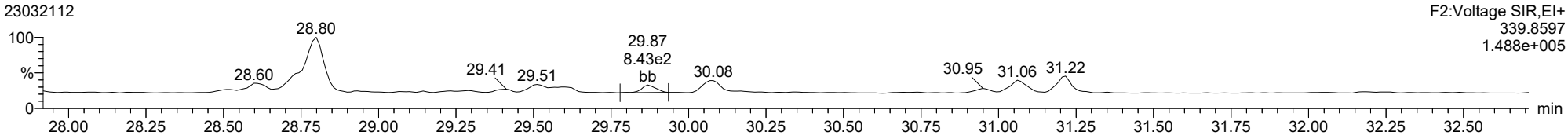


FUNCTION2 PFK

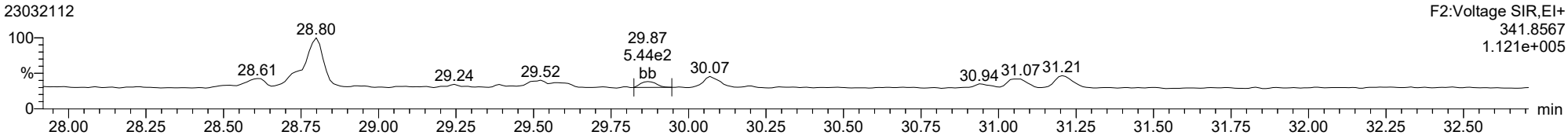


ID: 23B0494-01, Name: 23032112, Date: 21-Mar-2023, Time: 19:19:19, Conditions: AUTOSPEC01, User: pk

12378-PeCDF



12378-PeCDF



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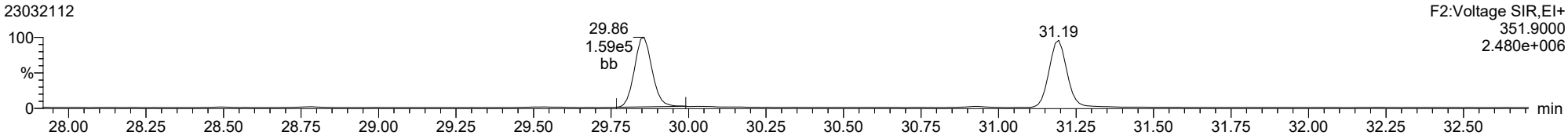
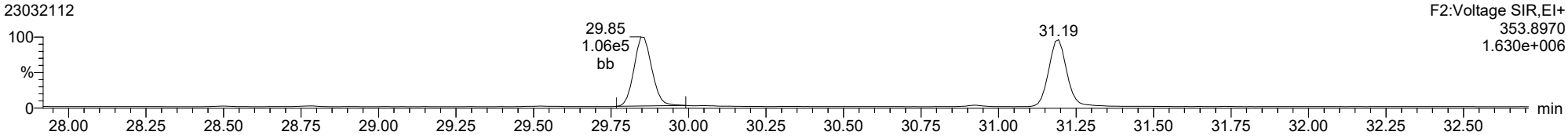
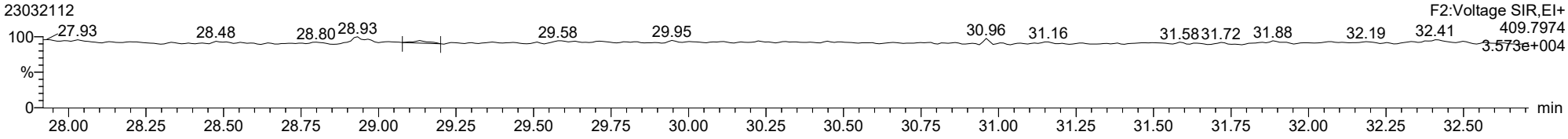


13C-12378-PeCDF



FUNCTION2 HPCDPE



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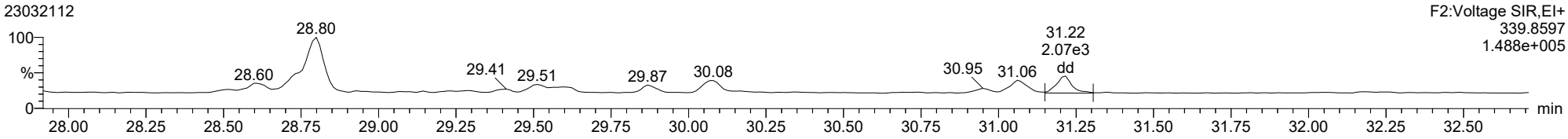
23478-PeCDF



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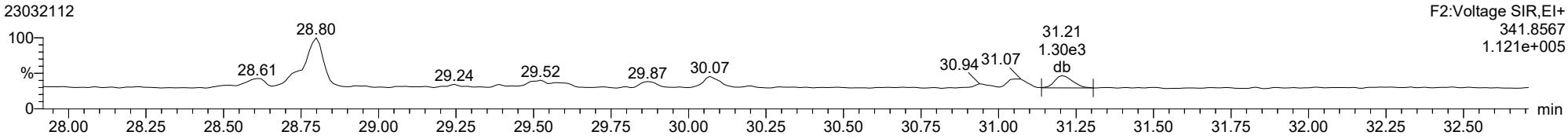
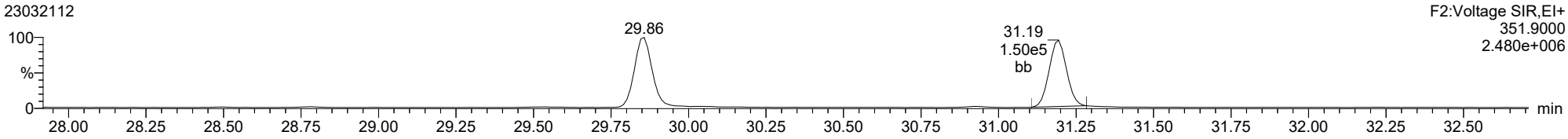


13C-23478-PeCDF



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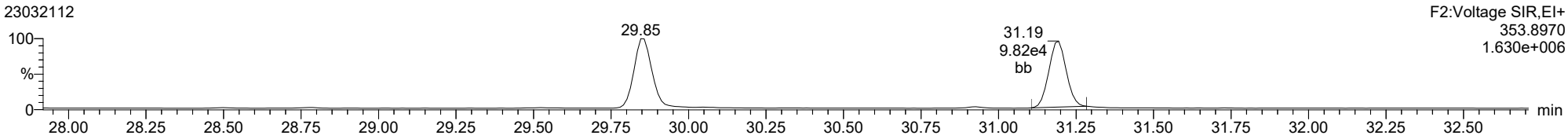

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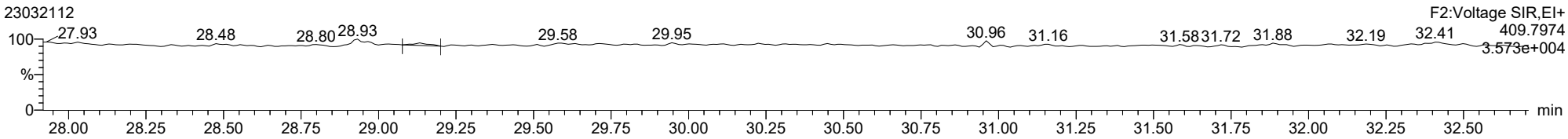

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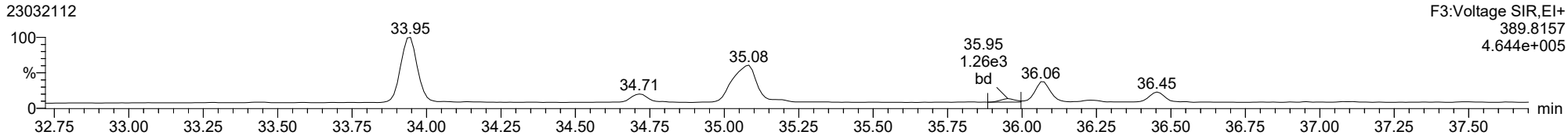
123478-HxCDD



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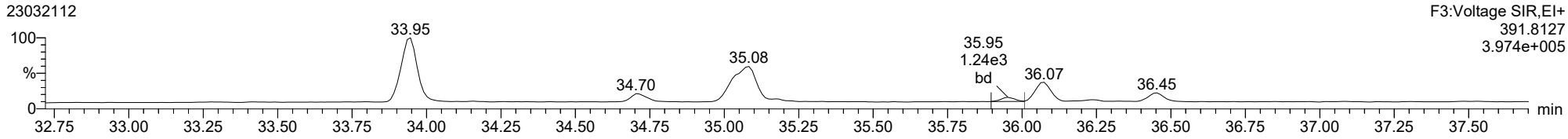

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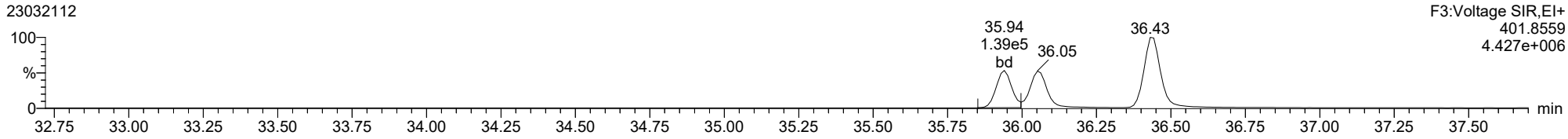

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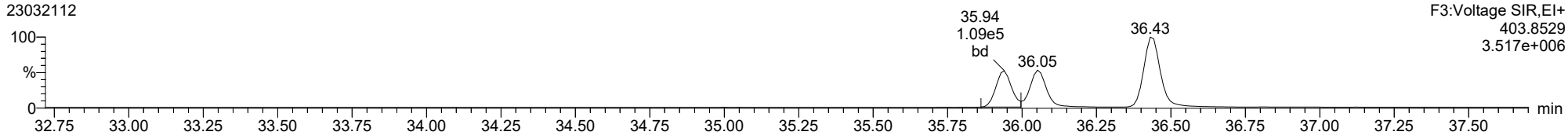

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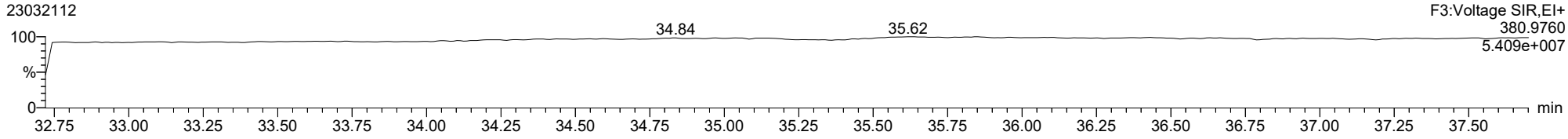

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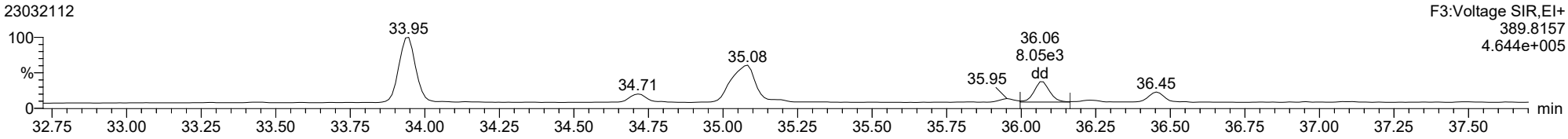

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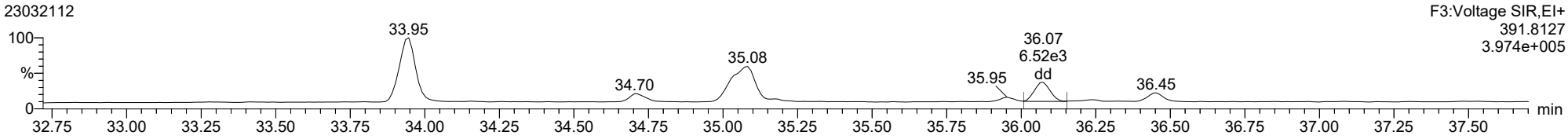

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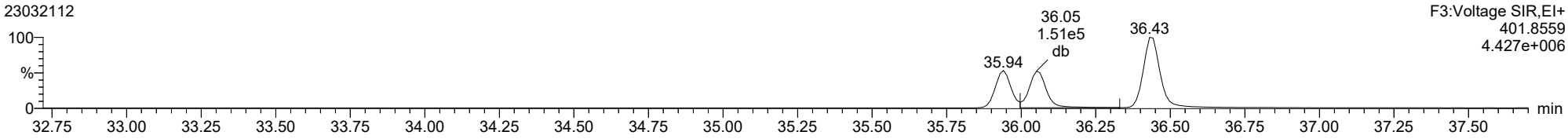

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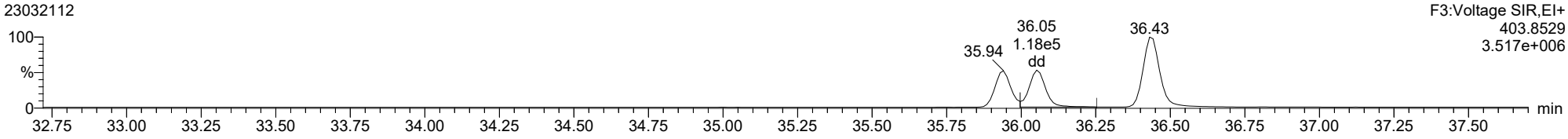

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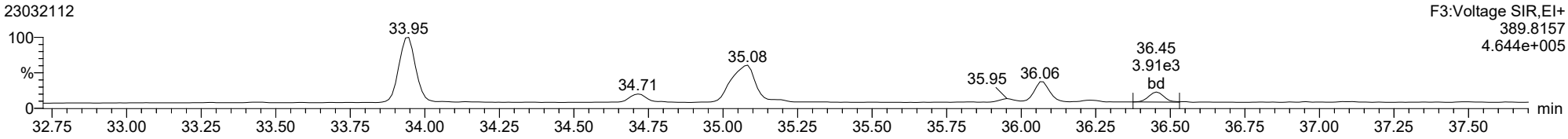

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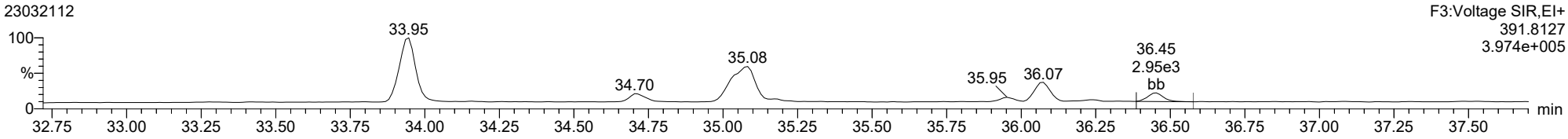

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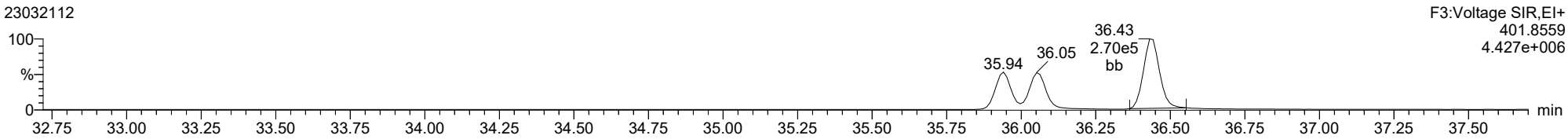

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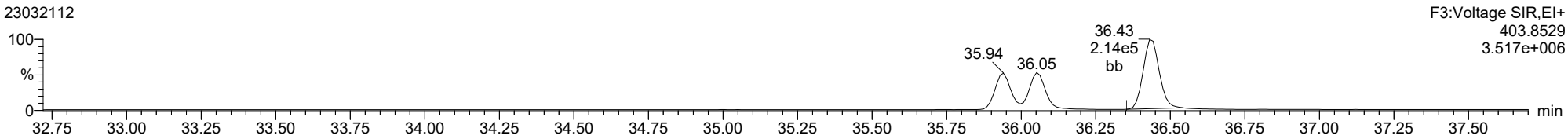

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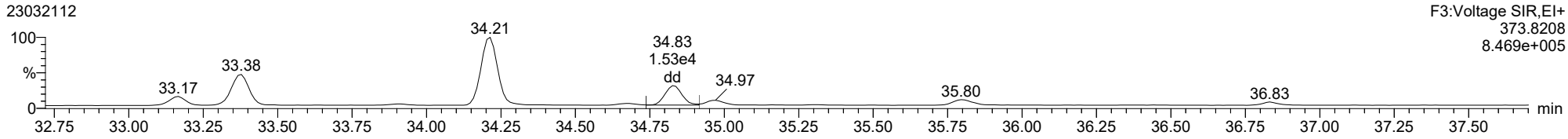

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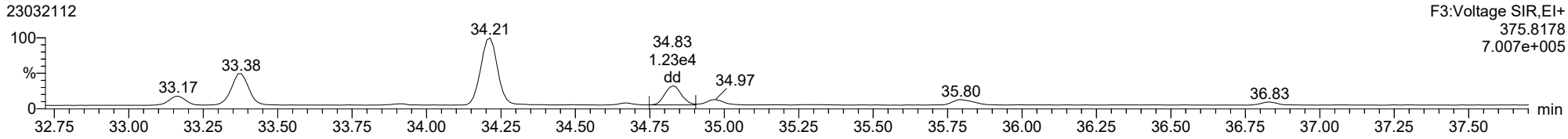

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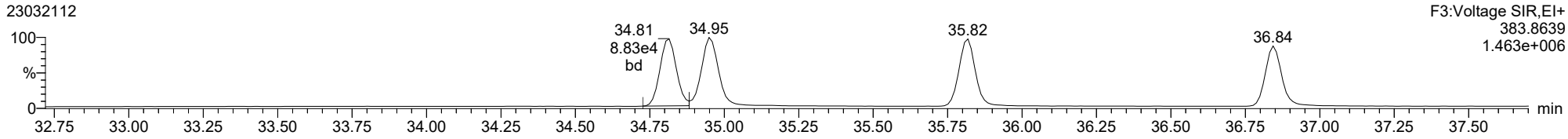

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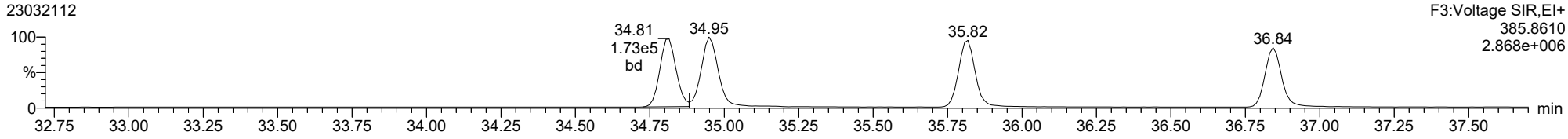
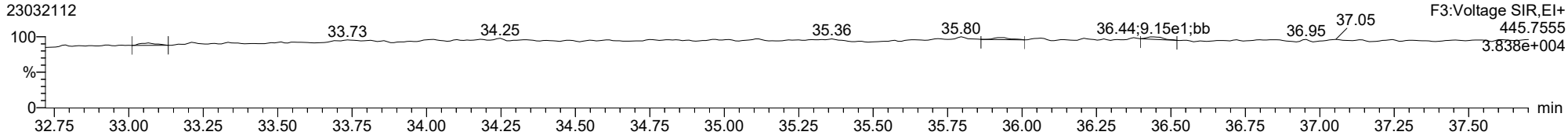


FUNCTION3 OCDPE



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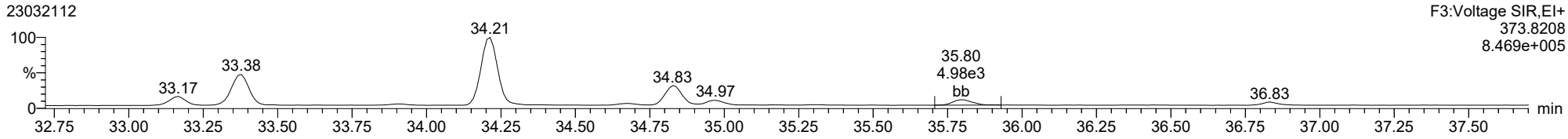
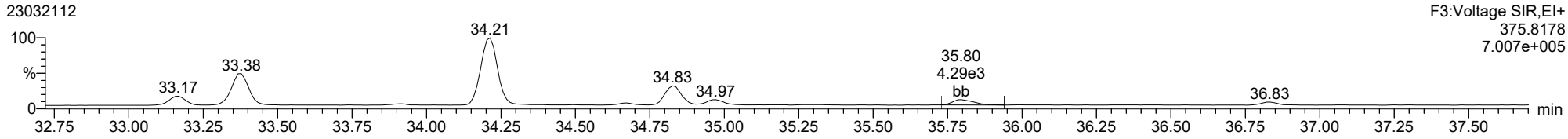
234678-HxCDF



234678-HxCDF



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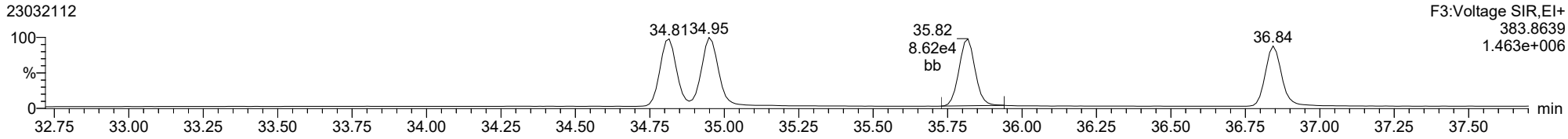

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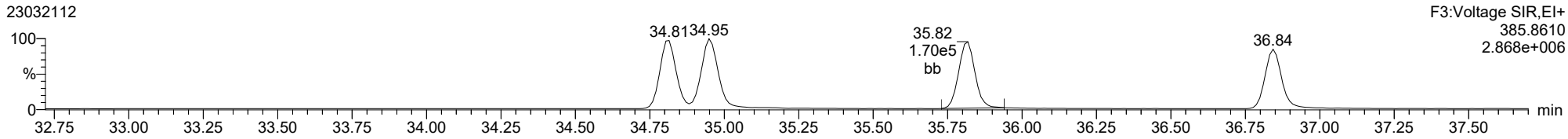
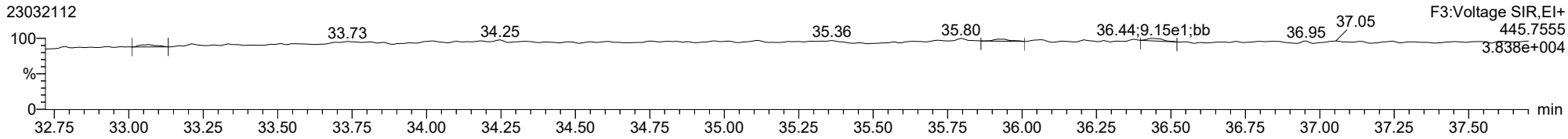


FUNCTION3 OCDPE



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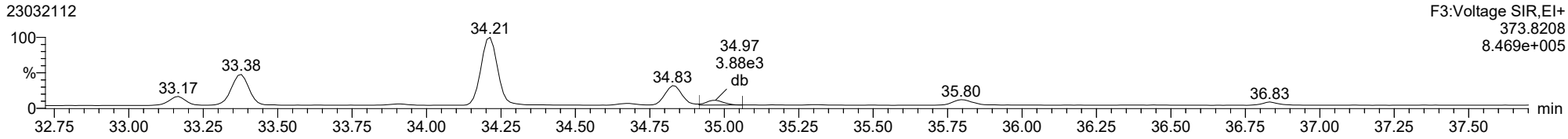

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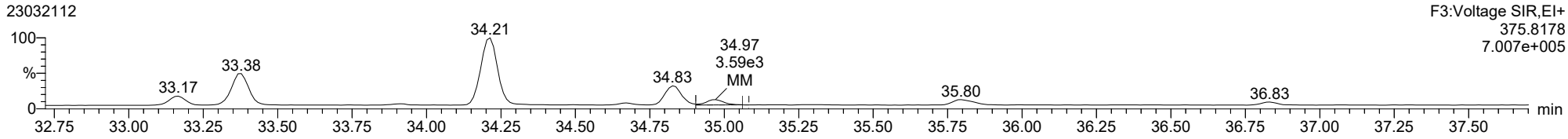

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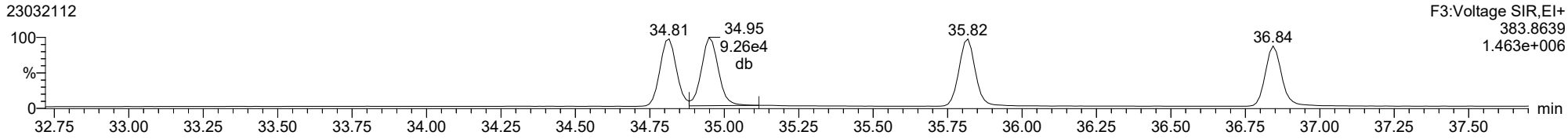

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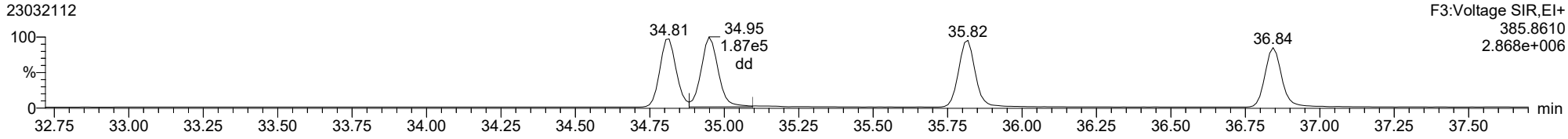
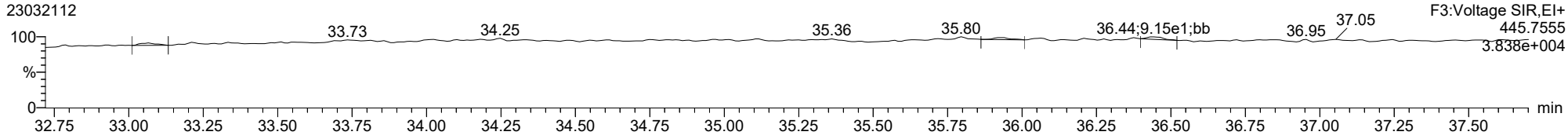


FUNCTION3 OCDPE



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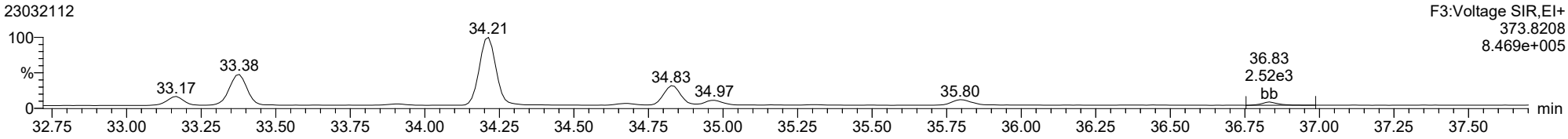
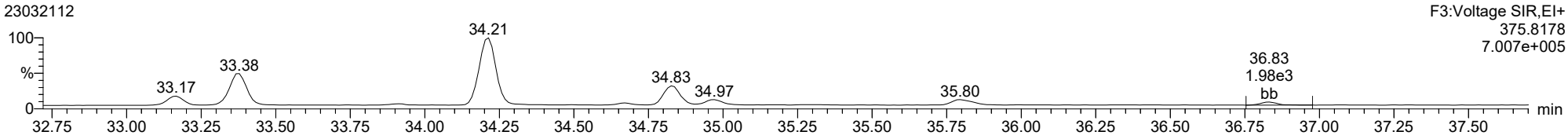
123789-HxCDF



123789-HxCDF



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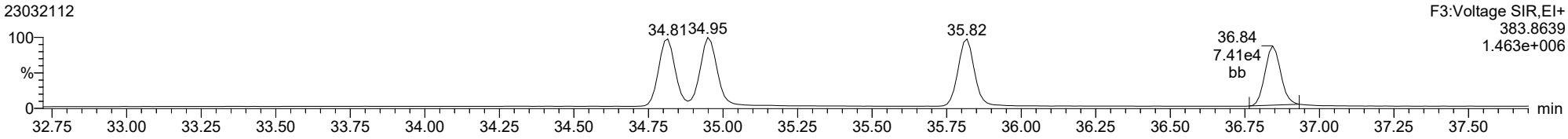

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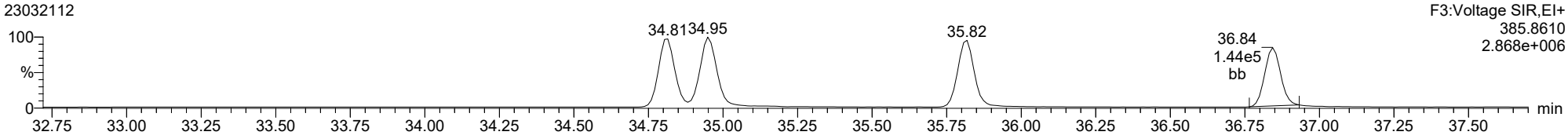
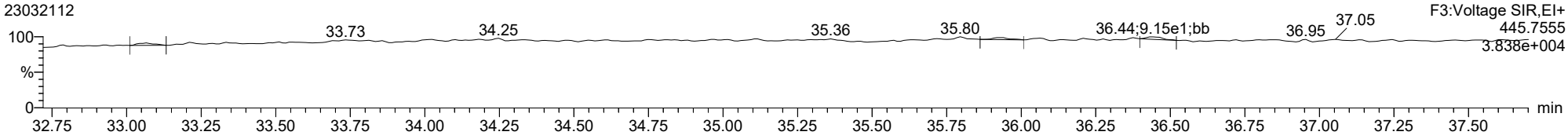


FUNCTION3 OCDPE



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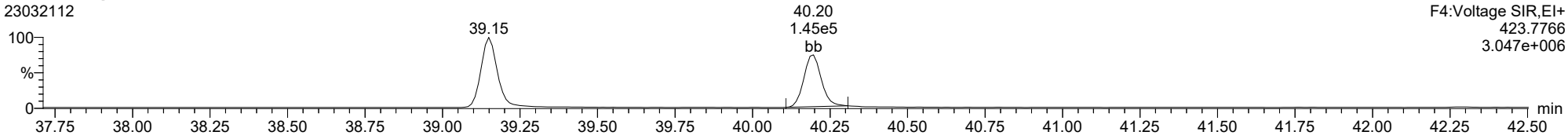
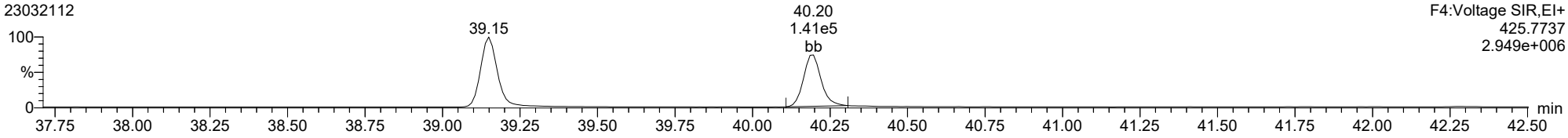
1234678-HpCDD



1234678-HpCDD



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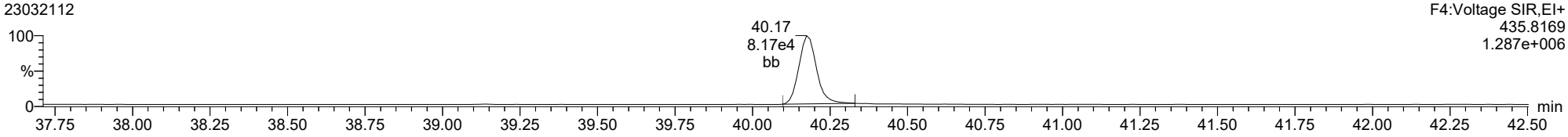

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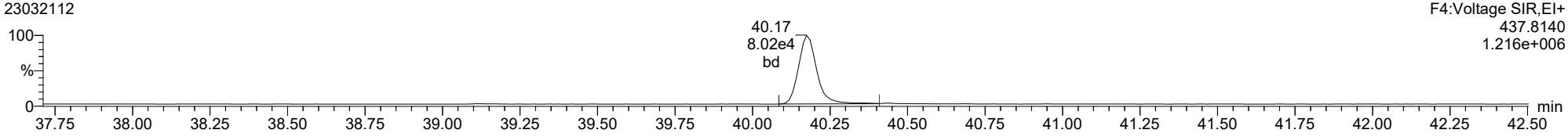
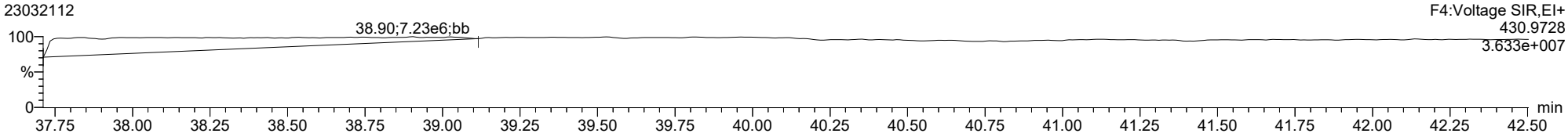


FUNCTION4 PFK



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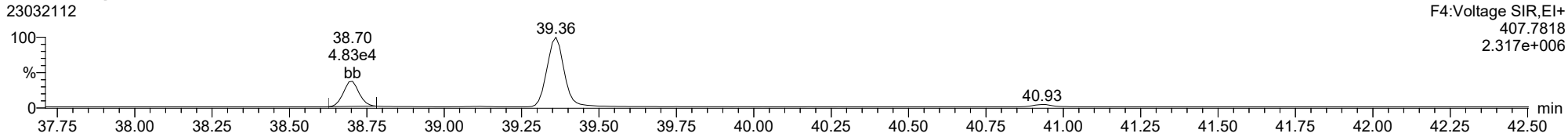
1234678-HpCDF



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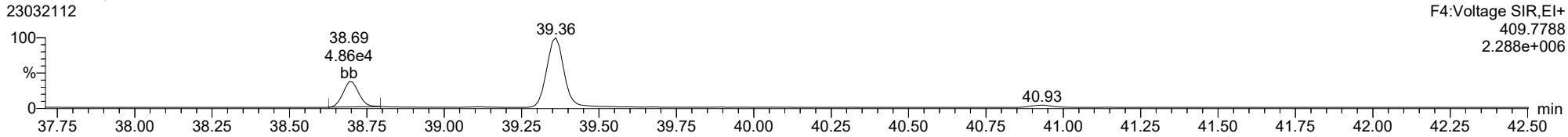

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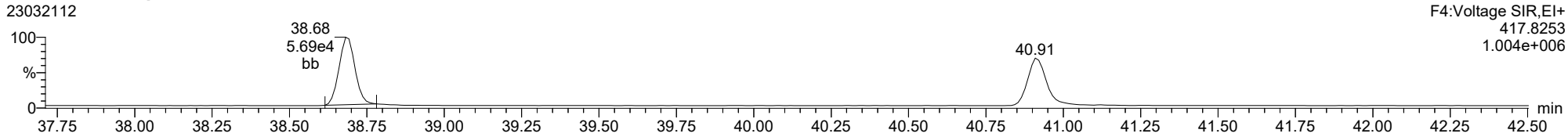

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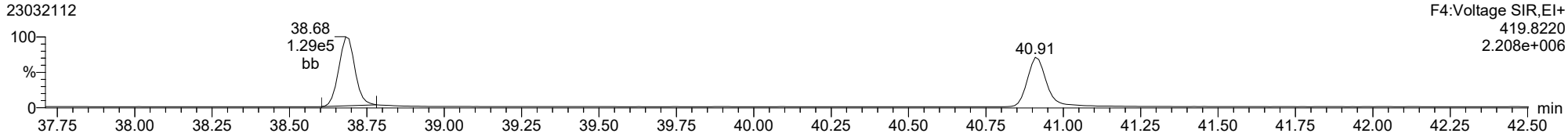
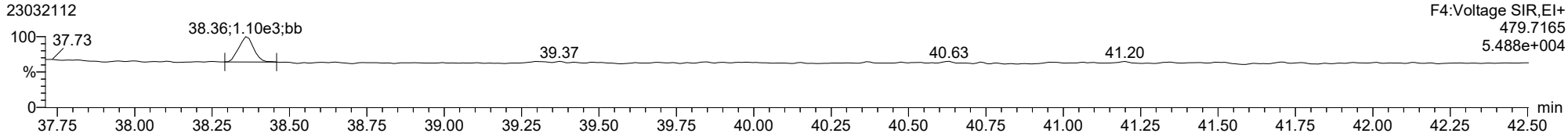


FUNCTION4 NCDPE



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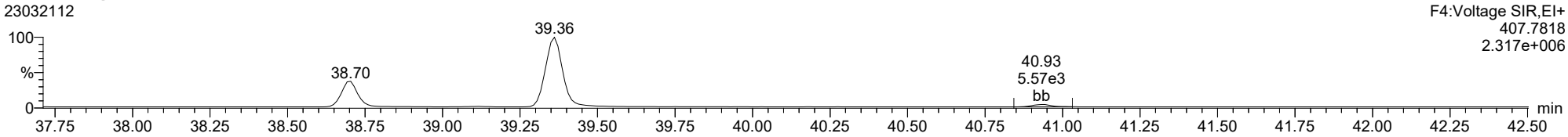
1234789-HpCDF



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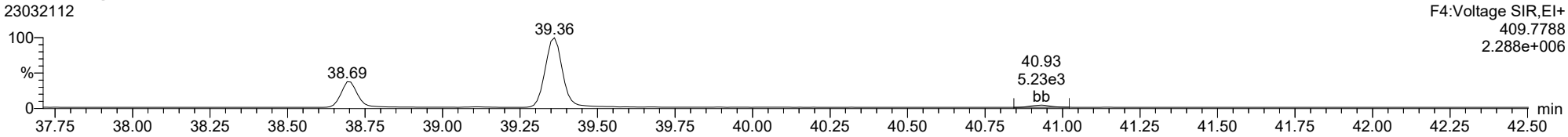

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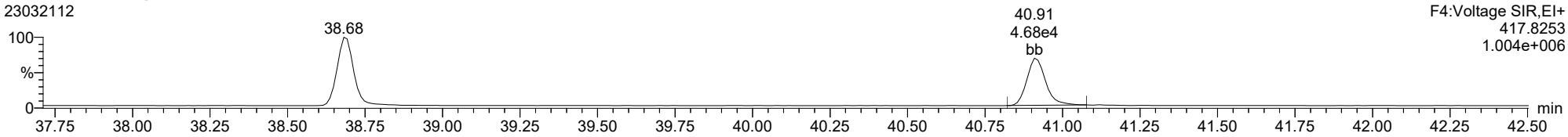

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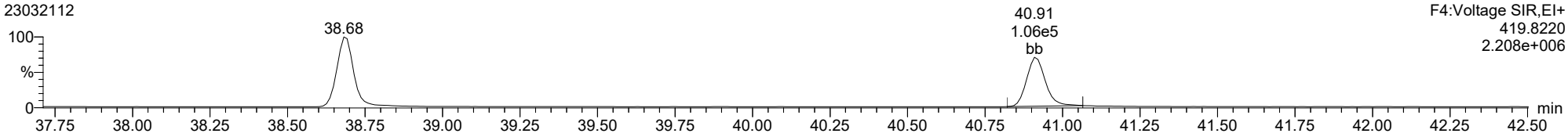
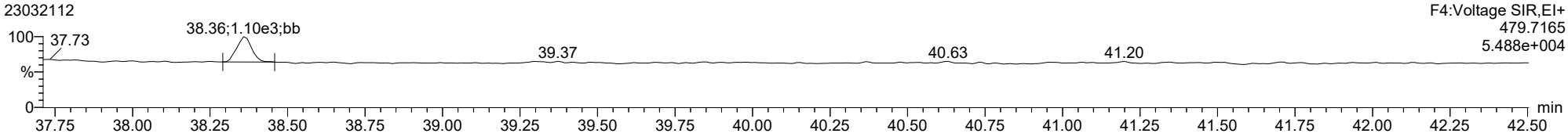


FUNCTION4 NCDPE



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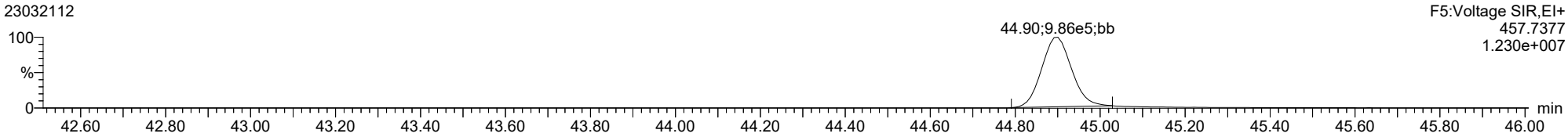
OCDD



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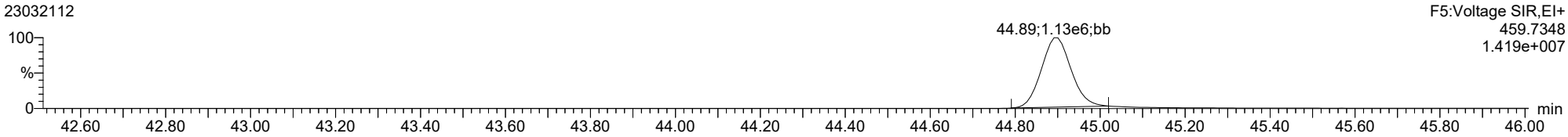
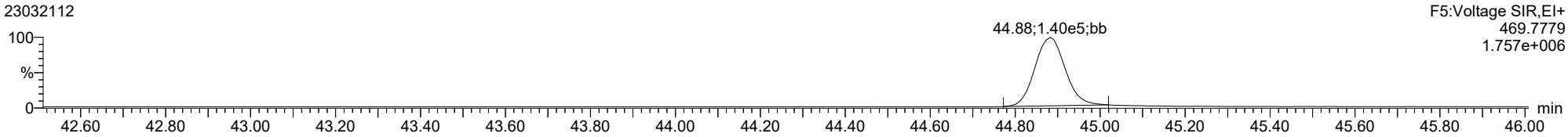


13C-OCDD



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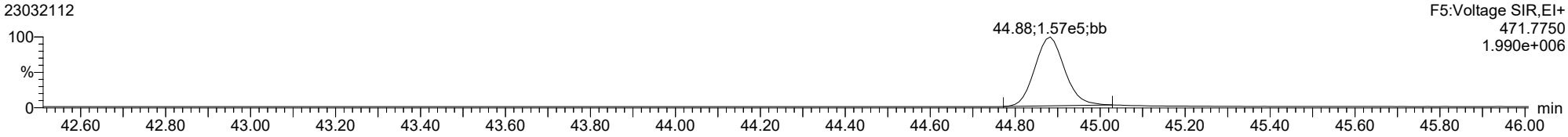
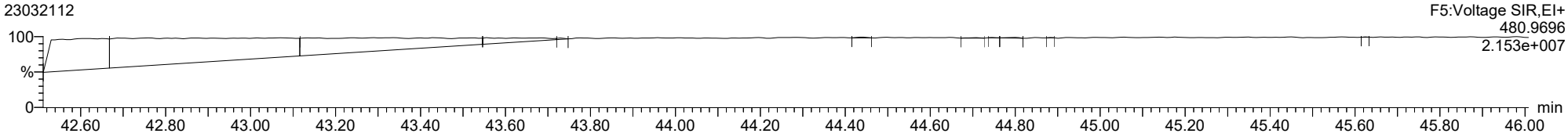


FUNCTION5 PFK



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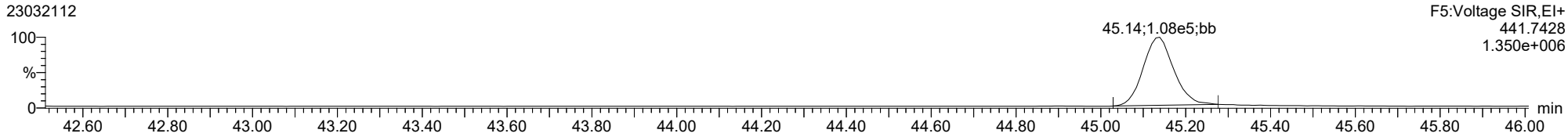
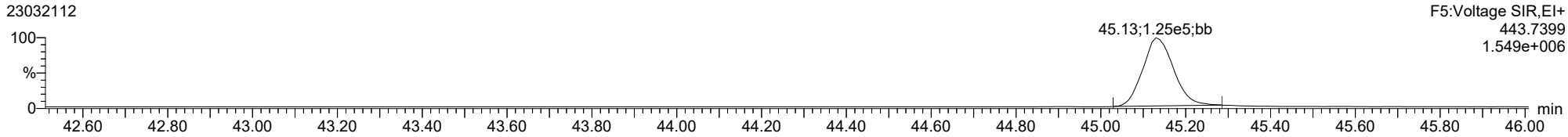
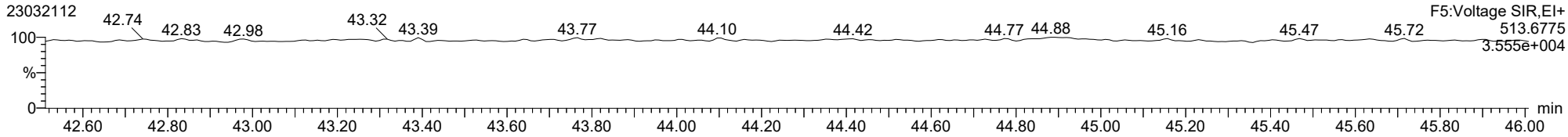
OCDF



OCDF



FUNCTION5 DCDPE



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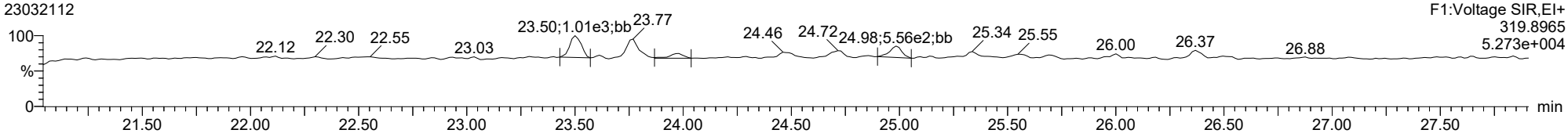
Total-tetradioxins



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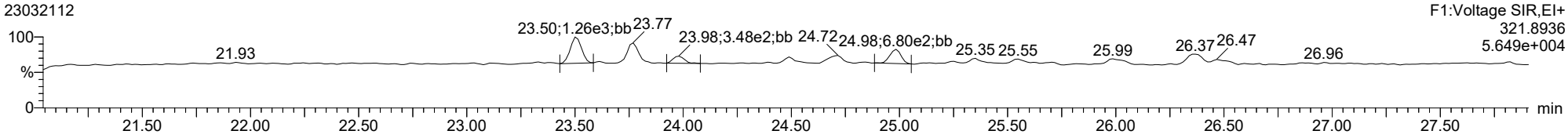

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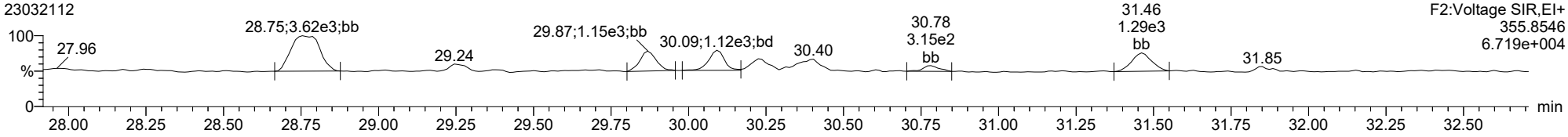
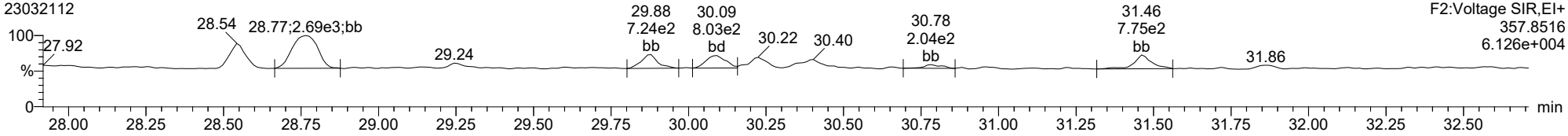


Total-pentadioxins



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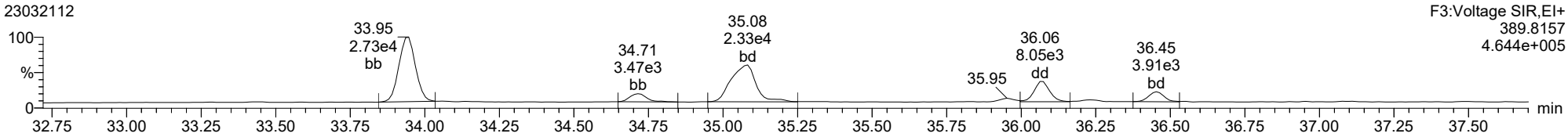
Total-hexadioxins



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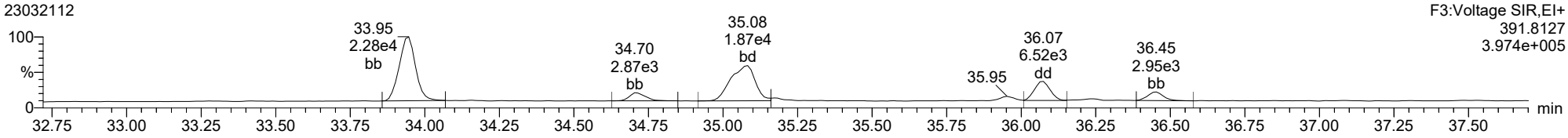

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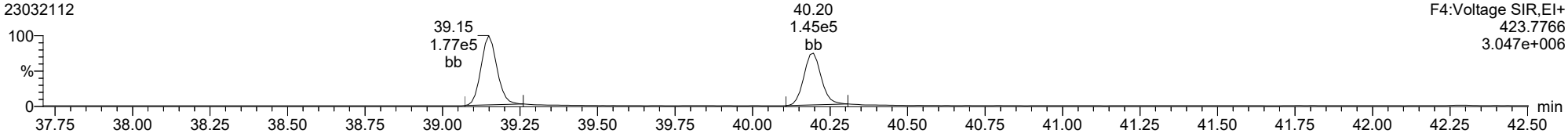

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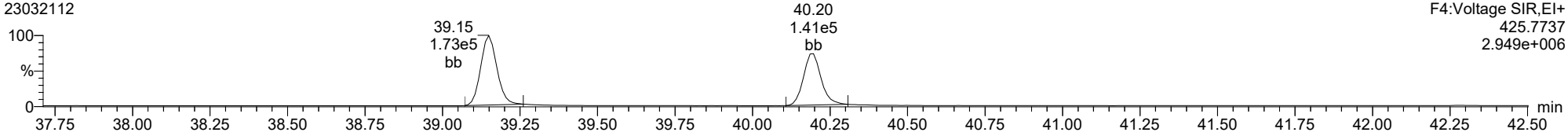

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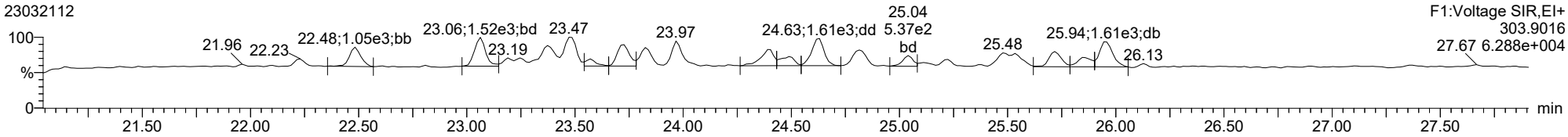
Total-tetrafurans



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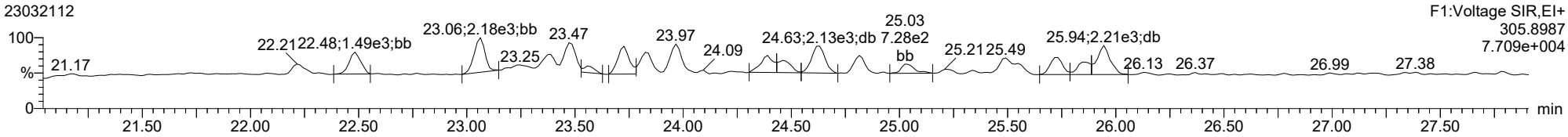

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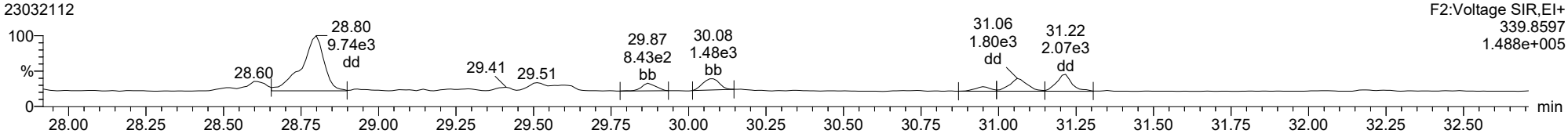

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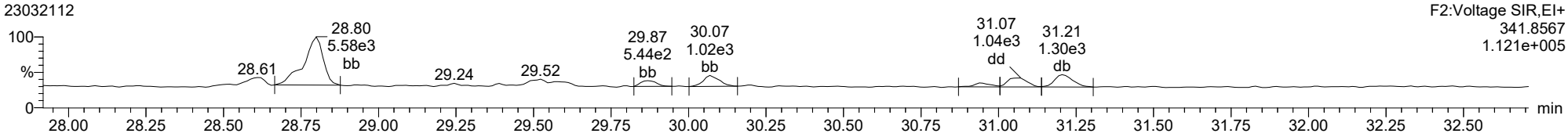

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Printed: Wednesday, March 22, 2023 11:49:12 Pacific Daylight Time

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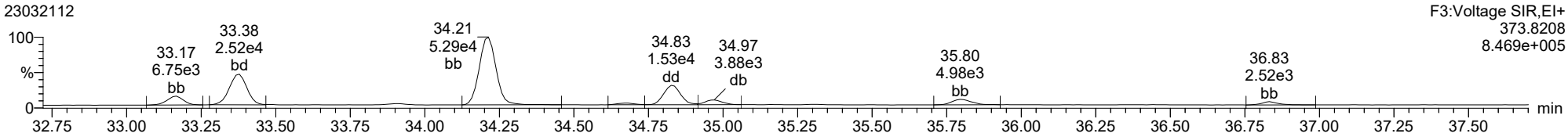
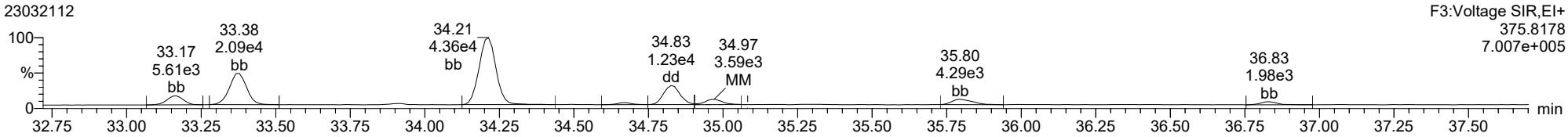
Total-hexafurans



Total-hexafurans



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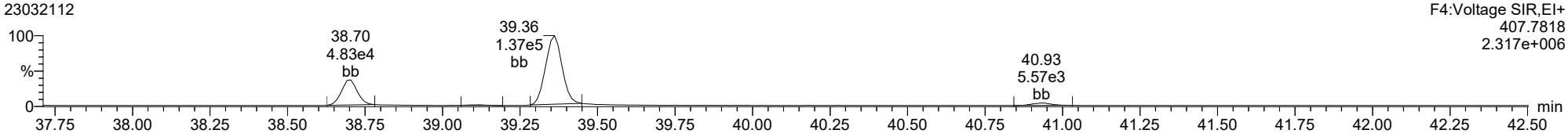

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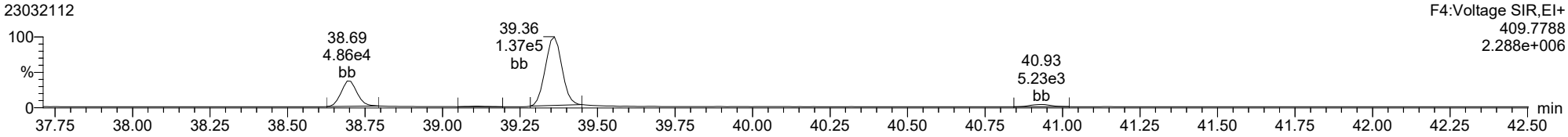

Analytical Resources, LLC
Analytical Chemists and Consultants

LDW21-IT635B

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-02 B	File ID:	23032113
Sampled:	07/16/21 12:56	Prepared:	02/28/23 06:55	Analyzed:	03/21/23 20:08
% Solids:	66.86	Preparation:	EPA 8290	Initial/Final:	14.97 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLC0322	Calibration:	GC00015
Batch:	BLB0709	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.711	0.655-0.886	0.169	0.999	3.33	ng/kg	H, X
1746-01-6	2,3,7,8-TCDD	1	0.513	0.655-0.886	0.095	0.999	0.320	ng/kg	EMPC, H, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.451	1.318-1.783	0.414	0.999	3.98	ng/kg	H
57117-31-4	2,3,4,7,8-PeCDF	1	1.376	1.318-1.783	0.363	0.999	8.35	ng/kg	H
40321-76-4	1,2,3,7,8-PeCDD	1	1.506	1.318-1.783	0.167	0.999	2.07	ng/kg	H
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.227	1.054-1.426	0.208	0.999	87.3	ng/kg	H
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.292	1.054-1.426	0.213	0.999	16.1	ng/kg	H
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.238	1.054-1.426	0.219	0.999	24.3	ng/kg	H
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.235	1.054-1.426	0.239	0.999	14.0	ng/kg	H
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.185	1.054-1.426	0.225	0.999	2.44	ng/kg	H
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.171	1.054-1.426	0.225	0.999	20.1	ng/kg	H
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.301	1.054-1.426	0.248	0.999	6.04	ng/kg	H
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.996	0.893-1.208	0.429	0.999	300	ng/kg	H
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.008	0.893-1.208	0.599	0.999	56.7	ng/kg	H
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.041	0.893-1.208	0.821	2.50	565	ng/kg	H, B
39001-02-0	OCDF	1	0.854	0.757-1.024	0.422	2.50	718	ng/kg	H
3268-87-9	OCDD	1	0.863	0.757-1.024	0.576	9.99	4610	ng/kg	E, H, B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	46.9	ng/kg
41903-57-5	Total TCDD	1	0.000			0.999	8.09	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.999	150	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.999	12.3	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.999	544	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.999	118	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.999	1200	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.999	1050	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 33.19

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 33.19

LDW21-IT635B

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Sediment	Laboratory ID:	23B0494-02	File ID:	23032113
Sampled:	07/16/21 12:56	Prepared:	02/28/23 06:55	Analyzed:	03/21/23 20:08
Solids Wt%:	66.86	Preparation:	EPA 8290	Initial/Final:	14.97 g / 20 uL
Result Basis:	Dry	Sequence:	SLC0322	Calibration:	GC00015
Batch:	BLB0709	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.770	0.655-0.886	0.064	91.4	24 - 169 %	
13C12-2,3,7,8-TCDD		0.776	0.655-0.886	0.076	102	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.516	1.318-1.783	0.101	103	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.543	1.318-1.783	0.112	112	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.606	1.318-1.783	0.080	107	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.508	0.434-0.587	0.064	87.0	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.500	0.434-0.587	0.054	81.9	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.514	0.434-0.587	0.066	87.3	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.502	0.434-0.587	0.080	93.3	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.289	1.054-1.426	0.069	92.2	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.266	1.054-1.426	0.059	90.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.441	0.374-0.506	0.092	73.0	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.441	0.374-0.506	0.107	79.3	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.076	0.893-1.208	0.090	70.3	23 - 140 %	
13C12-OCDD		0.905	0.757-1.024	0.090	77.3	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.060	83.0	35 - 197 %	

* Values outside of QC limits

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23B0494-02, Name: 23032113, Date: 21-Mar-2023, Time: 20:08:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.774	1.002	3.678e3	5.176e3	0.702	0.711	0.770	1184	1093	4.03e4	5.64e4	34.0	51.6	NO	dd	dd	1.667
12378-PeCDF	29.902	1.001	5.214e3	3.593e3	0.679	1.451	1.550	3207	1437	7.55e4	5.35e4	23.5	37.2	NO	bd	bd	1.990
23478-PeCDF	31.239	1.001	1.222e4	8.885e3	0.786	1.376	1.550	3207	1437	1.75e5	1.31e5	54.5	91.4	NO	db	db	4.177
123478-HxCDF	34.848	1.000	1.794e5	1.462e5	1.166	1.227	1.240	2387	1626	2.66e6	2.23e6	1115.3	1371.3	NO	dd	dd	43.692
234678-HxCDF	35.818	0.999	4.760e4	3.845e4	1.140	1.238	1.240	2387	1626	6.25e5	4.95e5	261.8	304.3	NO	bd	bb	12.167
123678-HxCDF	34.993	1.001	3.529e4	2.731e4	1.091	1.292	1.240	2387	1626	4.78e5	3.78e5	200.4	232.3	NO	dd	db	8.034
123789-HxCDF	36.854	1.000	2.416e4	1.956e4	1.137	1.235	1.240	2387	1626	3.73e5	2.93e5	156.5	180.1	NO	bb	bb	7.031
1234678-HpCDF	38.725	1.001	3.086e5	3.098e5	1.003	0.996	1.050	2321	2485	5.22e6	5.16e6	2247.9	2078.4	NO	bb	bb	149.934
1234789-HpCDF	40.954	1.000	5.219e4	5.179e4	0.953	1.008	1.050	2321	2485	7.68e5	7.55e5	330.8	303.9	NO	bb	bb	28.399
OCDF	45.166	1.005	4.802e5	5.626e5	0.778	0.854	0.890	1286	1217	5.75e6	6.66e6	4468.4	5476.6	NO	bb	bb	359.207
2378-TCDD	26.382	1.000	3.748e2	7.311e2	1.149	0.513	0.770	1007	664	5.58e3	1.10e4	5.5	16.6	YES	bd	bd	0.160
12378-PeCDD	31.484	1.000	2.876e3	1.909e3	1.022	1.506	1.550	872	1054	4.18e4	2.36e4	47.9	22.4	NO	bb	bb	1.037
123478-HxCDD	35.974	1.000	3.805e3	3.211e3	0.996	1.185	1.240	1709	1798	6.52e4	5.40e4	38.1	30.0	NO	bd	bd	1.221
123678-HxCDD	36.096	1.000	3.555e4	3.035e4	1.001	1.171	1.240	1709	1798	5.64e5	4.79e5	330.2	266.3	NO	dd	dd	10.034
123789-HxCDD	36.475	1.011	9.564e3	7.350e3	0.907	1.301	1.240	1709	1798	1.47e5	1.20e5	86.1	66.6	NO	bb	bb	3.024
1234678-HpCDD	40.218	1.001	5.570e5	5.353e5	1.039	1.041	1.050	4284	3426	8.44e6	8.12e6	1971.2	2371.3	NO	bb	bb	282.833
OCDD	44.928	1.000	3.670e6	4.252e6	0.920	0.863	0.890	1850	2190	4.63e7	5.34e7	25033.6	24385.8	NO	bb	bb	2307.372
13C-2378-TCDF	25.732	1.007	3.294e5	4.276e5	1.620	0.770	0.770	1606	1193	5.00e6	6.46e6	3112.0	5413.7	NO	bb	bb	91.418
13C-12378-PeCDF	29.879	1.169	3.926e5	2.589e5	1.240	1.516	1.550	1755	1625	5.97e6	3.94e6	3399.5	2422.7	NO	bb	bb	102.755
13C-23478-PeCDF	31.216	1.221	3.900e5	2.527e5	1.118	1.543	1.550	1755	1625	5.92e6	3.85e6	3374.7	2370.6	NO	bb	bb	112.494
13C-123478-HxCDF	34.837	0.955	2.155e5	4.237e5	1.168	0.508	0.510	1140	1293	3.35e6	6.57e6	2934.5	5081.1	NO	bd	bd	86.965
13C-123678-HxCDF	34.971	0.959	2.380e5	4.764e5	1.386	0.500	0.510	1140	1293	3.44e6	6.84e6	3021.5	5294.0	NO	dd	db	81.907
13C-234678-HxCDF	35.840	0.983	2.106e5	4.099e5	1.129	0.514	0.510	1140	1293	3.27e6	6.33e6	2866.7	4893.4	NO	bb	bb	87.348
13C-123789-HxCDF	36.865	1.011	1.827e5	3.641e5	0.932	0.502	0.510	1140	1293	2.96e6	5.91e6	2597.8	4572.2	NO	bb	bb	93.285
13C-1234678-HpCDF	38.703	1.061	1.259e5	2.853e5	0.895	0.441	0.440	1180	1486	2.05e6	4.63e6	1735.6	3116.2	NO	bb	bb	73.013
13C-1234789-HpCDF	40.943	1.123	1.176e5	2.666e5	0.770	0.441	0.440	1180	1486	1.54e6	3.56e6	1308.9	2394.3	NO	bd	bd	79.330
13C-1234-TCDD	25.562	0.000	2.248e5	2.863e5	1.000	0.785	0.770	1213	1145	3.56e6	4.51e6	2936.7	3941.5	NO	bb	bb	100.000
13C-2378-TCDD	26.368	1.031	2.626e5	3.386e5	1.152	0.776	0.770	1213	1145	4.03e6	5.26e6	3321.2	4593.5	NO	bb	bb	102.072
13C-12378-PeCDD	31.472	1.231	2.782e5	1.732e5	0.829	1.606	1.550	865	925	4.18e6	2.62e6	4826.7	2830.5	NO	bb	bb	106.570
13C-123478-HxCDD	35.963	0.986	3.249e5	2.522e5	0.995	1.289	1.240	1178	1049	5.28e6	4.09e6	4479.2	3895.1	NO	bd	bd	92.186
13C-123678-HxCDD	36.085	0.990	3.666e5	2.895e5	1.157	1.266	1.240	1178	1049	5.21e6	4.14e6	4417.9	3945.1	NO	db	db	90.168
13C-1234678-HpCDD	40.196	1.102	1.926e5	1.791e5	0.840	1.076	1.050	1273	1180	2.81e6	2.63e6	2204.7	2231.6	NO	bb	bb	70.330
13C-OCDD	44.918	1.232	3.546e5	3.919e5	0.767	0.905	0.890	962	1275	4.34e6	4.77e6	4515.3	3740.6	NO	bb	bb	154.601
13C-123789-HxCDD	36.464	0.000	3.520e5	2.771e5	1.000	1.270	1.240	1178	1049	5.45e6	4.25e6	4622.5	4054.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.382	1.032	2.186e5		1.288			1038		3.23e6		3112.5			bb		33.217

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Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:49:26 Pacific Daylight Time

ID: 23B0494-02, Name: 23032113, Date: 21-Mar-2023, Time: 20:08:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.257	0.865	1.542e3	2.174e3	0.802	0.709	0.770	1184	1093	2.44e4	3.15e4	20.6	28.8	NO	bb	bb	0.612
1289-TCDF	27.187	1.056	7.155e2	8.327e2	0.678	0.859	0.770	1184	1093	6.53e3	9.50e3	5.5	8.7	NO	bb	bd	0.302
13468-PECDF					1.246		1.550	733	925								
12389-PECDF	32.219	1.078	1.651e3	7.101e2	0.496	2.325	1.550	3207	1437	1.88e4	1.34e4	5.9	9.3	YES	bb	bd	0.730
123468-HXCDF	33.188	0.953	5.369e4	4.406e4	1.169	1.219	1.240	2387	1626	8.22e5	6.73e5	344.5	413.7	NO	bb	bd	13.082
1368-TCDD	23.528	0.892	4.008e3	5.021e3	1.015	0.798	0.770	1007	664	6.47e4	7.98e4	64.2	120.1	NO	bb	bb	1.479
1289-TCDD					0.909		0.770	1007	664								
12479-PECDD	28.799	0.915	1.019e4	7.339e3	2.301	1.389	1.550	872	1054	1.05e5	7.48e4	120.4	71.0	NO	bb	bb	1.687
12389-PECDD	31.896	1.013	7.833e2	4.932e2	1.184	1.588	1.550	872	1054	1.29e4	8.89e3	14.8	8.4	NO	bb	bb	0.239
124679-HXCDD	33.968	0.945	7.360e4	6.111e4	1.115	1.204	1.240	1709	1798	1.16e6	9.49e5	678.2	527.9	NO	bb	bb	20.928
1234679-HPCDD	39.171	0.975	5.206e5	5.095e5	1.137	1.022	1.050	4284	3426	8.49e6	8.21e6	1982.9	2395.6	NO	bb	bb	243.746
Total-tetrafurans			5.535e4		0.727			1184		7.90e5							23.494
Total-penta1			9.864e4					733		1.49e6							27.256
Total-pentafurans			1.203e5		0.654			3207		1.68e6							47.946
Total-hexafurans			1.087e6		1.141			2387		1.65e7							272.081
Total-heptafurans			1.181e6		0.978			2321		1.96e7							600.913
Total-Furans			3.022e6		0.922			1184		4.57e7							1330.896
Total-tetradioxins			1.097e4		1.024			1007		1.66e5							4.051
Total-pentadioxins			2.687e4		1.502			872		3.60e5							6.157
Total-hexadioxins			2.039e5		1.005			1709		2.92e6							59.106
Total-heptadioxins			1.078e6		1.088			4284		1.69e7							526.579
Total-Dioxins			4.990e6		1.130			1007		6.67e7							2903.264
Total-TEQ			8.011e6					1007		1.12e8							4234.160
FUNCTION1 PFK			1.187e7					410897		4.61e7							
FUNCTION2 PFK			4.056e5					183419		1.94e6							0.000
FUNCTION3 PFK			5.882e7					308590		4.44e7							0.000
FUNCTION4 PFK			0.000e0					248213		0.00e0							
FUNCTION5 PFK			5.814e3					168753		2.98e5							
FUNCTION1 HXCD...			7.924e3					696		1.26e5							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.951e3					677		6.43e4							0.000
FUNCTION3 OCDPE			1.571e3					510		2.37e4							0.000
FUNCTION4 NCDPE			2.766e3					679		4.75e4							0.000
FUNCTION5 DCDPE			8.307e2					571		7.70e3							0.000

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.66	6.355e3	8.787e3	0.727	0.72	0.77	86.4	YES	NO	db	db	2.751
2	Total-tetrafurans	24.42	1.623e3	2.404e3	0.727	0.68	0.77	16.9	YES	NO	bd	bd	0.732
3	Total-tetrafurans	23.99	2.024e3	2.740e3	0.727	0.74	0.77	29.3	YES	NO	db	db	0.866
4	Total-tetrafurans	23.75	8.707e3	1.029e4	0.727	0.85	0.77	80.1	YES	NO	dd	dd	3.453
5	Total-tetrafurans	23.58	7.591e2	1.030e3	0.727	0.74	0.77	14.3	YES	NO	dd	dd	0.325
6	Total-tetrafurans	23.50	5.586e3	7.145e3	0.727	0.78	0.77	71.8	YES	NO	dd	dd	2.313
7	Total-tetrafurans	23.40	1.886e3	2.598e3	0.727	0.73	0.77	23.6	YES	NO	dd	dd	0.815
8	Total-tetrafurans	23.27	2.188e3	2.544e3	0.727	0.86	0.77	22.6	YES	NO	dd	dd	0.860
9	Total-tetrafurans	23.09	9.720e3	1.414e4	0.727	0.69	0.77	125.9	YES	NO	bd	bd	4.335
10	Total-tetrafurans	22.51	2.451e3	3.245e3	0.727	0.76	0.77	35.0	YES	NO	bb	bb	1.035
11	1368-TCDF	22.26	1.542e3	2.174e3	0.802	0.71	0.77	20.6	YES	NO	bb	bb	0.612
12	1289-TCDF	27.19	7.155e2	8.327e2	0.678	0.86	0.77	5.5	YES	NO	bb	bd	0.302
13	Total-tetrafurans	26.16	1.245e3	1.692e3	0.727	0.74	0.77	17.3	YES	NO	db	db	0.534
14	Total-tetrafurans	25.97	2.480e3	3.217e3	0.727	0.77	0.77	26.3	YES	NO	dd	dd	1.035
15	Total-tetrafurans	25.89	7.321e2	1.028e3	0.727	0.71	0.77	10.8	YES	NO	dd	dd	0.320
16	2378-TCDF	25.77	3.678e3	5.176e3	0.702	0.71	0.77	34.0	YES	NO	dd	dd	1.667
17	Total-tetrafurans	25.08	1.140e3	1.470e3	0.727	0.78	0.77	11.4	YES	NO	bb	bd	0.474
18	Total-tetrafurans	24.84	2.519e3	3.352e3	0.727	0.75	0.77	34.9	YES	NO	bb	bb	1.067

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.17	9.864e4	6.419e4		1.54	1.55	2039.7	YES	NO	bb	bb	27.256

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PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.82	6.412e4	4.690e4	0.654	1.37	1.55	269.4	YES	NO	db	dd	26.235
2	23478-PeCDF	31.24	1.222e4	8.885e3	0.786	1.38	1.55	54.5	YES	NO	db	db	4.177
3	Total-pentafurans	31.08	1.496e4	1.052e4	0.654	1.42	1.55	69.5	YES	NO	dd	dd	6.022
4	Total-pentafurans	30.96	1.455e3	9.100e2	0.654	1.60	1.55	6.8	YES	NO	bd	bd	0.559
5	Total-pentafurans	30.09	8.539e3	5.933e3	0.654	1.44	1.55	37.1	YES	NO	dd	dd	3.420
6	12378-PeCDF	29.90	5.214e3	3.593e3	0.679	1.45	1.55	23.5	YES	NO	bd	bd	1.990
7	Total-pentafurans	29.60	4.446e3	2.964e3	0.654	1.50	1.55	19.1	YES	NO	db	db	1.751
8	Total-pentafurans	29.53	5.537e3	3.932e3	0.654	1.41	1.55	26.2	YES	NO	dd	dd	2.238
9	Total-pentafurans	29.42	2.386e3	1.765e3	0.654	1.35	1.55	11.6	YES	NO	dd	dd	0.981
10	Total-pentafurans	29.26	1.386e3	1.034e3	0.654	1.34	1.55	4.6	YES	NO	bd	dd	0.572

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.82	4.760e4	3.845e4	1.140	1.24	1.24	261.8	YES	NO	bd	bb	12.167
2	123678-HxCDF	34.99	3.529e4	2.731e4	1.091	1.29	1.24	200.4	YES	NO	dd	db	8.034
3	123478-HxCDF	34.85	1.794e5	1.462e5	1.166	1.23	1.24	1115.3	YES	NO	dd	dd	43.692
4	Total-hexafurans	34.70	1.130e4	8.686e3	1.141	1.30	1.24	72.9	YES	NO	bd	bd	2.780
5	Total-hexafurans	34.24	5.152e5	4.158e5	1.141	1.24	1.24	3365.3	YES	NO	bb	bb	129.519
6	Total-hexafurans	33.93	6.670e3	5.263e3	1.141	1.27	1.24	43.4	YES	NO	bb	bb	1.660
7	Total-hexafurans	33.40	2.134e5	1.756e5	1.141	1.22	1.24	1342.5	YES	NO	bb	db	54.117
8	123468-HXCDF	33.19	5.369e4	4.406e4	1.169	1.22	1.24	344.5	YES	NO	bb	bd	13.082
9	123789-HxCDF	36.85	2.416e4	1.956e4	1.137	1.23	1.24	156.5	YES	NO	bb	bb	7.031

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.95	5.219e4	5.179e4	0.953	1.01	1.05	330.8	YES	NO	bb	bb	28.399
2	Total-heptafurans	39.38	8.144e5	8.184e5	0.978	1.00	1.05	5814.5	YES	NO	bb	bb	419.799
3	Total-heptafurans	39.14	5.385e3	5.433e3	0.978	0.99	1.05	34.3	YES	NO	bb	bb	2.781
4	1234678-HpCDF	38.73	3.086e5	3.098e5	1.003	1.00	1.05	2247.9	YES	NO	bb	bb	149.934

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.66	6.355e3	8.787e3	0.727	0.72	0.77	86.4	YES	NO	db	db	2.751
2	Total-tetrafurans	24.42	1.623e3	2.404e3	0.727	0.68	0.77	16.9	YES	NO	bd	bd	0.732
3	Total-tetrafurans	23.99	2.024e3	2.740e3	0.727	0.74	0.77	29.3	YES	NO	db	db	0.866
4	Total-tetrafurans	23.75	8.707e3	1.029e4	0.727	0.85	0.77	80.1	YES	NO	dd	dd	3.453
5	Total-tetrafurans	23.58	7.591e2	1.030e3	0.727	0.74	0.77	14.3	YES	NO	dd	dd	0.325
6	Total-tetrafurans	23.50	5.586e3	7.145e3	0.727	0.78	0.77	71.8	YES	NO	dd	dd	2.313
7	Total-tetrafurans	23.40	1.886e3	2.598e3	0.727	0.73	0.77	23.6	YES	NO	dd	dd	0.815
8	Total-tetrafurans	23.27	2.188e3	2.544e3	0.727	0.86	0.77	22.6	YES	NO	dd	dd	0.860
9	Total-tetrafurans	23.09	9.720e3	1.414e4	0.727	0.69	0.77	125.9	YES	NO	bd	bd	4.335
10	Total-tetrafurans	22.51	2.451e3	3.245e3	0.727	0.76	0.77	35.0	YES	NO	bb	bb	1.035
11	1368-TCDF	22.26	1.542e3	2.174e3	0.802	0.71	0.77	20.6	YES	NO	bb	bb	0.612
12	1289-TCDF	27.19	7.155e2	8.327e2	0.678	0.86	0.77	5.5	YES	NO	bb	bd	0.302
13	Total-tetrafurans	26.16	1.245e3	1.692e3	0.727	0.74	0.77	17.3	YES	NO	db	db	0.534
14	Total-tetrafurans	25.97	2.480e3	3.217e3	0.727	0.77	0.77	26.3	YES	NO	dd	dd	1.035
15	Total-tetrafurans	25.89	7.321e2	1.028e3	0.727	0.71	0.77	10.8	YES	NO	dd	dd	0.320
16	2378-TCDF	25.77	3.678e3	5.176e3	0.702	0.71	0.77	34.0	YES	NO	dd	dd	1.667
17	Total-tetrafurans	25.08	1.140e3	1.470e3	0.727	0.78	0.77	11.4	YES	NO	bb	bd	0.474
18	Total-tetrafurans	24.84	2.519e3	3.352e3	0.727	0.75	0.77	34.9	YES	NO	bb	bb	1.067
19	Total-pentafurans	28.82	6.412e4	4.690e4	0.654	1.37	1.55	269.4	YES	NO	db	dd	26.235
20	23478-PeCDF	31.24	1.222e4	8.885e3	0.786	1.38	1.55	54.5	YES	NO	db	db	4.177
21	Total-pentafurans	31.08	1.496e4	1.052e4	0.654	1.42	1.55	69.5	YES	NO	dd	dd	6.022
22	Total-pentafurans	30.96	1.455e3	9.100e2	0.654	1.60	1.55	6.8	YES	NO	bd	bd	0.559
23	Total-pentafurans	30.09	8.539e3	5.933e3	0.654	1.44	1.55	37.1	YES	NO	dd	dd	3.420
24	12378-PeCDF	29.90	5.214e3	3.593e3	0.679	1.45	1.55	23.5	YES	NO	bd	bd	1.990
25	Total-pentafurans	29.60	4.446e3	2.964e3	0.654	1.50	1.55	19.1	YES	NO	db	db	1.751
26	Total-pentafurans	29.53	5.537e3	3.932e3	0.654	1.41	1.55	26.2	YES	NO	dd	dd	2.238
27	Total-pentafurans	29.42	2.386e3	1.765e3	0.654	1.35	1.55	11.6	YES	NO	dd	dd	0.981
28	Total-pentafurans	29.26	1.386e3	1.034e3	0.654	1.34	1.55	4.6	YES	NO	bd	dd	0.572
29	234678-HxCDF	35.82	4.760e4	3.845e4	1.140	1.24	1.24	261.8	YES	NO	bd	bb	12.167
30	123678-HxCDF	34.99	3.529e4	2.731e4	1.091	1.29	1.24	200.4	YES	NO	dd	db	8.034
31	123478-HxCDF	34.85	1.794e5	1.462e5	1.166	1.23	1.24	1115.3	YES	NO	dd	dd	43.692
32	Total-hexafurans	34.70	1.130e4	8.686e3	1.141	1.30	1.24	72.9	YES	NO	bd	bd	2.780
33	Total-hexafurans	34.24	5.152e5	4.158e5	1.141	1.24	1.24	3365.3	YES	NO	bb	bb	129.519
34	Total-hexafurans	33.93	6.670e3	5.263e3	1.141	1.27	1.24	43.4	YES	NO	bb	bb	1.660
35	Total-hexafurans	33.40	2.134e5	1.756e5	1.141	1.22	1.24	1342.5	YES	NO	bb	db	54.117
36	123468-HXCDF	33.19	5.369e4	4.406e4	1.169	1.22	1.24	344.5	YES	NO	bb	bd	13.082
37	123789-HxCDF	36.85	2.416e4	1.956e4	1.137	1.23	1.24	156.5	YES	NO	bb	bb	7.031

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234789-HpCDF	40.95	5.219e4	5.179e4	0.953	1.01	1.05	330.8	YES	NO	bb	bb	28.399
39	Total-heptafurans	39.38	8.144e5	8.184e5	0.978	1.00	1.05	5814.5	YES	NO	bb	bb	419.799
40	Total-heptafurans	39.14	5.385e3	5.433e3	0.978	0.99	1.05	34.3	YES	NO	bb	bb	2.781
41	1234678-HpCDF	38.73	3.086e5	3.098e5	1.003	1.00	1.05	2247.9	YES	NO	bb	bb	149.934
42	OCDF	45.17	4.802e5	5.626e5	0.778	0.85	0.89	4468.4	YES	NO	bb	bb	359.207
43	Total-penta1	27.17	9.864e4	6.419e4		1.54	1.55	2039.7	YES	NO	bb	bb	27.256

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.00	1.644e3	2.100e3	1.024	0.78	0.77	22.7	YES	NO	bb	bb	0.608
2	Total-tetradioxins	24.73	1.172e3	1.544e3	1.024	0.76	0.77	15.4	YES	NO	bb	db	0.441
3	Total-tetradioxins	24.52	7.971e2	1.009e3	1.024	0.79	0.77	11.6	YES	NO	bb	bd	0.293
4	Total-tetradioxins	23.80	2.952e3	3.664e3	1.024	0.81	0.77	46.2	YES	NO	bb	bd	1.074
5	1368-TCDD	23.53	4.008e3	5.021e3	1.015	0.80	0.77	64.2	YES	NO	bb	bb	1.479
6	Total-tetradioxins	26.52	4.002e2	5.546e2	1.024	0.72	0.77	5.1	YES	NO	db	db	0.155

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.90	7.833e2	4.932e2	1.184	1.59	1.55	14.8	YES	NO	bb	bb	0.239
2	12378-PeCDD	31.48	2.876e3	1.909e3	1.022	1.51	1.55	47.9	YES	NO	bb	bb	1.037
3	Total-pentadioxins	30.80	1.346e3	1.008e3	1.502	1.34	1.55	21.1	YES	NO	bb	bb	0.347
4	Total-pentadioxins	30.25	3.138e3	2.179e3	1.502	1.44	1.55	56.6	YES	NO	dd	dd	0.784
5	Total-pentadioxins	30.11	2.464e3	1.714e3	1.502	1.44	1.55	45.4	YES	NO	bd	bd	0.616
6	Total-pentadioxins	29.89	4.769e3	2.922e3	1.502	1.63	1.55	84.4	YES	NO	bb	bb	1.134
7	Total-pentadioxins	29.28	1.299e3	8.220e2	1.502	1.58	1.55	21.8	YES	NO	bb	bb	0.313
8	12479-PECDD	28.80	1.019e4	7.339e3	2.301	1.39	1.55	120.4	YES	NO	bb	bb	1.687

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	34.74	1.201e4	9.915e3	1.005	1.21	1.24	106.8	YES	NO	bd	bb	3.539
2	124679-HXCDD	33.97	7.360e4	6.111e4	1.115	1.20	1.24	678.2	YES	NO	bb	bb	20.928
3	123789-HxCDD	36.47	9.564e3	7.350e3	0.907	1.30	1.24	86.1	YES	NO	bb	bb	3.024
4	123678-HxCDD	36.10	3.555e4	3.035e4	1.001	1.17	1.24	330.2	YES	NO	dd	dd	10.034
5	123478-HxCDD	35.97	3.805e3	3.211e3	0.996	1.19	1.24	38.1	YES	NO	bd	bd	1.221
6	Total-hexadioxins	35.10	6.938e4	5.676e4	1.005	1.22	1.24	466.3	YES	NO	bb	bb	20.359

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.22	5.570e5	5.353e5	1.039	1.04	1.05	1971.2	YES	NO	bb	bb	282.833
2	1234679-HPCDD	39.17	5.206e5	5.095e5	1.137	1.02	1.05	1982.9	YES	NO	bb	bb	243.746

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.00	1.644e3	2.100e3	1.024	0.78	0.77	22.7	YES	NO	bb	bb	0.608
2	Total-tetradioxins	24.73	1.172e3	1.544e3	1.024	0.76	0.77	15.4	YES	NO	bb	db	0.441
3	Total-tetradioxins	24.52	7.971e2	1.009e3	1.024	0.79	0.77	11.6	YES	NO	bb	bd	0.293
4	Total-tetradioxins	23.80	2.952e3	3.664e3	1.024	0.81	0.77	46.2	YES	NO	bb	bd	1.074
5	1368-TCDD	23.53	4.008e3	5.021e3	1.015	0.80	0.77	64.2	YES	NO	bb	bb	1.479
6	Total-tetradioxins	26.52	4.002e2	5.546e2	1.024	0.72	0.77	5.1	YES	NO	db	db	0.155
7	12389-PECDD	31.90	7.833e2	4.932e2	1.184	1.59	1.55	14.8	YES	NO	bb	bb	0.239
8	12378-PeCDD	31.48	2.876e3	1.909e3	1.022	1.51	1.55	47.9	YES	NO	bb	bb	1.037
9	Total-pentadioxins	30.80	1.346e3	1.008e3	1.502	1.34	1.55	21.1	YES	NO	bb	bb	0.347
10	Total-pentadioxins	30.25	3.138e3	2.179e3	1.502	1.44	1.55	56.6	YES	NO	dd	dd	0.784
11	Total-pentadioxins	30.11	2.464e3	1.714e3	1.502	1.44	1.55	45.4	YES	NO	bd	bd	0.616
12	Total-pentadioxins	29.89	4.769e3	2.922e3	1.502	1.63	1.55	84.4	YES	NO	bb	bb	1.134
13	Total-pentadioxins	29.28	1.299e3	8.220e2	1.502	1.58	1.55	21.8	YES	NO	bb	bb	0.313
14	12479-PECDD	28.80	1.019e4	7.339e3	2.301	1.39	1.55	120.4	YES	NO	bb	bb	1.687
15	Total-hexadioxins	34.74	1.201e4	9.915e3	1.005	1.21	1.24	106.8	YES	NO	bd	bb	3.539
16	124679-HXCDD	33.97	7.360e4	6.111e4	1.115	1.20	1.24	678.2	YES	NO	bb	bb	20.928
17	123789-HxCDD	36.47	9.564e3	7.350e3	0.907	1.30	1.24	86.1	YES	NO	bb	bb	3.024
18	123678-HxCDD	36.10	3.555e4	3.035e4	1.001	1.17	1.24	330.2	YES	NO	dd	dd	10.034
19	123478-HxCDD	35.97	3.805e3	3.211e3	0.996	1.19	1.24	38.1	YES	NO	bd	bd	1.221
20	Total-hexadioxins	35.10	6.938e4	5.676e4	1.005	1.22	1.24	466.3	YES	NO	bb	bb	20.359
21	1234678-HpCDD	40.22	5.570e5	5.353e5	1.039	1.04	1.05	1971.2	YES	NO	bb	bb	282.833
22	1234679-HPCDD	39.17	5.206e5	5.095e5	1.137	1.02	1.05	1982.9	YES	NO	bb	bb	243.746
23	OCDD	44.93	3.670e6	4.252e6	0.920	0.86	0.89	25033.6	YES	NO	bb	bb	2307.3...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.66	6.355e3	8.787e3	0.727	0.72	0.77	86.4	YES	NO	db	db	2.751
2	Total-tetrafurans	24.42	1.623e3	2.404e3	0.727	0.68	0.77	16.9	YES	NO	bd	bd	0.732
3	Total-tetrafurans	23.99	2.024e3	2.740e3	0.727	0.74	0.77	29.3	YES	NO	db	db	0.866
4	Total-tetrafurans	23.75	8.707e3	1.029e4	0.727	0.85	0.77	80.1	YES	NO	dd	dd	3.453
5	Total-tetrafurans	23.58	7.591e2	1.030e3	0.727	0.74	0.77	14.3	YES	NO	dd	dd	0.325
6	Total-tetrafurans	23.50	5.586e3	7.145e3	0.727	0.78	0.77	71.8	YES	NO	dd	dd	2.313
7	Total-tetrafurans	23.40	1.886e3	2.598e3	0.727	0.73	0.77	23.6	YES	NO	dd	dd	0.815
8	Total-tetrafurans	23.27	2.188e3	2.544e3	0.727	0.86	0.77	22.6	YES	NO	dd	dd	0.860
9	Total-tetrafurans	23.09	9.720e3	1.414e4	0.727	0.69	0.77	125.9	YES	NO	bd	bd	4.335
10	Total-tetrafurans	22.51	2.451e3	3.245e3	0.727	0.76	0.77	35.0	YES	NO	bb	bb	1.035
11	1368-TCDF	22.26	1.542e3	2.174e3	0.802	0.71	0.77	20.6	YES	NO	bb	bb	0.612
12	1289-TCDF	27.19	7.155e2	8.327e2	0.678	0.86	0.77	5.5	YES	NO	bb	bd	0.302
13	Total-tetrafurans	26.16	1.245e3	1.692e3	0.727	0.74	0.77	17.3	YES	NO	db	db	0.534
14	Total-tetrafurans	25.97	2.480e3	3.217e3	0.727	0.77	0.77	26.3	YES	NO	dd	dd	1.035
15	Total-tetrafurans	25.89	7.321e2	1.028e3	0.727	0.71	0.77	10.8	YES	NO	dd	dd	0.320
16	2378-TCDF	25.77	3.678e3	5.176e3	0.702	0.71	0.77	34.0	YES	NO	dd	dd	1.667
17	Total-tetrafurans	25.08	1.140e3	1.470e3	0.727	0.78	0.77	11.4	YES	NO	bb	bd	0.474
18	Total-tetrafurans	24.84	2.519e3	3.352e3	0.727	0.75	0.77	34.9	YES	NO	bb	bb	1.067
19	Total-pentafurans	28.82	6.412e4	4.690e4	0.654	1.37	1.55	269.4	YES	NO	db	dd	26.235
20	23478-PeCDF	31.24	1.222e4	8.885e3	0.786	1.38	1.55	54.5	YES	NO	db	db	4.177
21	Total-pentafurans	31.08	1.496e4	1.052e4	0.654	1.42	1.55	69.5	YES	NO	dd	dd	6.022
22	Total-pentafurans	30.96	1.455e3	9.100e2	0.654	1.60	1.55	6.8	YES	NO	bd	bd	0.559
23	Total-pentafurans	30.09	8.539e3	5.933e3	0.654	1.44	1.55	37.1	YES	NO	dd	dd	3.420
24	12378-PeCDF	29.90	5.214e3	3.593e3	0.679	1.45	1.55	23.5	YES	NO	bd	bd	1.990
25	Total-pentafurans	29.60	4.446e3	2.964e3	0.654	1.50	1.55	19.1	YES	NO	db	db	1.751
26	Total-pentafurans	29.53	5.537e3	3.932e3	0.654	1.41	1.55	26.2	YES	NO	dd	dd	2.238
27	Total-pentafurans	29.42	2.386e3	1.765e3	0.654	1.35	1.55	11.6	YES	NO	dd	dd	0.981
28	Total-pentafurans	29.26	1.386e3	1.034e3	0.654	1.34	1.55	4.6	YES	NO	bd	dd	0.572
29	234678-HxCDF	35.82	4.760e4	3.845e4	1.140	1.24	1.24	261.8	YES	NO	bd	bb	12.167
30	123678-HxCDF	34.99	3.529e4	2.731e4	1.091	1.29	1.24	200.4	YES	NO	dd	db	8.034
31	123478-HxCDF	34.85	1.794e5	1.462e5	1.166	1.23	1.24	1115.3	YES	NO	dd	dd	43.692
32	Total-hexafurans	34.70	1.130e4	8.686e3	1.141	1.30	1.24	72.9	YES	NO	bd	bd	2.780
33	Total-hexafurans	34.24	5.152e5	4.158e5	1.141	1.24	1.24	3365.3	YES	NO	bb	bb	129.519
34	Total-hexafurans	33.93	6.670e3	5.263e3	1.141	1.27	1.24	43.4	YES	NO	bb	bb	1.660
35	Total-hexafurans	33.40	2.134e5	1.756e5	1.141	1.22	1.24	1342.5	YES	NO	bb	db	54.117
36	123468-HXCDF	33.19	5.369e4	4.406e4	1.169	1.22	1.24	344.5	YES	NO	bb	bd	13.082
37	123789-HxCDF	36.85	2.416e4	1.956e4	1.137	1.23	1.24	156.5	YES	NO	bb	bb	7.031

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234789-HpCDF	40.95	5.219e4	5.179e4	0.953	1.01	1.05	330.8	YES	NO	bb	bb	28.399
39	Total-heptafurans	39.38	8.144e5	8.184e5	0.978	1.00	1.05	5814.5	YES	NO	bb	bb	419.799
40	Total-heptafurans	39.14	5.385e3	5.433e3	0.978	0.99	1.05	34.3	YES	NO	bb	bb	2.781
41	1234678-HpCDF	38.73	3.086e5	3.098e5	1.003	1.00	1.05	2247.9	YES	NO	bb	bb	149.934
42	OCDF	45.17	4.802e5	5.626e5	0.778	0.85	0.89	4468.4	YES	NO	bb	bb	359.207
43	Total-penta1	27.17	9.864e4	6.419e4		1.54	1.55	2039.7	YES	NO	bb	bb	27.256
44	Total-tetradioxins	25.00	1.644e3	2.100e3	1.024	0.78	0.77	22.7	YES	NO	bb	bb	0.608
45	Total-tetradioxins	24.73	1.172e3	1.544e3	1.024	0.76	0.77	15.4	YES	NO	bb	db	0.441
46	Total-tetradioxins	24.52	7.971e2	1.009e3	1.024	0.79	0.77	11.6	YES	NO	bb	bd	0.293
47	Total-tetradioxins	23.80	2.952e3	3.664e3	1.024	0.81	0.77	46.2	YES	NO	bb	bd	1.074
48	1368-TCDD	23.53	4.008e3	5.021e3	1.015	0.80	0.77	64.2	YES	NO	bb	bb	1.479
49	Total-tetradioxins	26.52	4.002e2	5.546e2	1.024	0.72	0.77	5.1	YES	NO	db	db	0.155
50	12389-PECDD	31.90	7.833e2	4.932e2	1.184	1.59	1.55	14.8	YES	NO	bb	bb	0.239
51	12378-PeCDD	31.48	2.876e3	1.909e3	1.022	1.51	1.55	47.9	YES	NO	bb	bb	1.037
52	Total-pentadioxins	30.80	1.346e3	1.008e3	1.502	1.34	1.55	21.1	YES	NO	bb	bb	0.347
53	Total-pentadioxins	30.25	3.138e3	2.179e3	1.502	1.44	1.55	56.6	YES	NO	dd	dd	0.784
54	Total-pentadioxins	30.11	2.464e3	1.714e3	1.502	1.44	1.55	45.4	YES	NO	bd	bd	0.616
55	Total-pentadioxins	29.89	4.769e3	2.922e3	1.502	1.63	1.55	84.4	YES	NO	bb	bb	1.134
56	Total-pentadioxins	29.28	1.299e3	8.220e2	1.502	1.58	1.55	21.8	YES	NO	bb	bb	0.313
57	12479-PECDD	28.80	1.019e4	7.339e3	2.301	1.39	1.55	120.4	YES	NO	bb	bb	1.687
58	Total-hexadioxins	34.74	1.201e4	9.915e3	1.005	1.21	1.24	106.8	YES	NO	bd	bb	3.539
59	124679-HXCDD	33.97	7.360e4	6.111e4	1.115	1.20	1.24	678.2	YES	NO	bb	bb	20.928
60	123789-HxCDD	36.47	9.564e3	7.350e3	0.907	1.30	1.24	86.1	YES	NO	bb	bb	3.024
61	123678-HxCDD	36.10	3.555e4	3.035e4	1.001	1.17	1.24	330.2	YES	NO	dd	dd	10.034
62	123478-HxCDD	35.97	3.805e3	3.211e3	0.996	1.19	1.24	38.1	YES	NO	bd	bd	1.221
63	Total-hexadioxins	35.10	6.938e4	5.676e4	1.005	1.22	1.24	466.3	YES	NO	bb	bb	20.359
64	1234678-HpCDD	40.22	5.570e5	5.353e5	1.039	1.04	1.05	1971.2	YES	NO	bb	bb	282.833
65	1234679-HPCDD	39.17	5.206e5	5.095e5	1.137	1.02	1.05	1982.9	YES	NO	bb	bb	243.746
66	OCDD	44.93	3.670e6	4.252e6	0.920	0.86	0.89	25033.6	YES	NO	bb	bb	2307.3...

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.54	3.412e5					5.3	YES		bb		
2	FUNCTION1 PFK	22.54	2.780e6					6.8	YES		bb		
3	FUNCTION1 PFK	21.79	3.755e6					28.5	YES		db		
4	FUNCTION1 PFK	21.59	2.559e6					29.5	YES		dd		
5	FUNCTION1 PFK	21.44	1.075e6					24.4	YES		bd		
6	FUNCTION1 PFK	21.21	1.362e6					17.7	YES		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.70	1.308e5					1.2	NO		bb		0.000
2	FUNCTION2 PFK	32.42	2.470e5					9.4	YES		bb		0.000
3	FUNCTION2 PFK	29.39	2.783e4					0.0	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.92	5.600e5					9.0	YES		db		0.000
2	FUNCTION3 PFK	36.68	6.521e5					18.1	YES		dd		0.000
3	FUNCTION3 PFK	35.19	5.177e7					44.7	YES		dd		0.000
4	FUNCTION3 PFK	32.91	5.837e6					72.0	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.60	5.814e3					1.8	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.65	3.193e2					7.6	YES		bb		0.000
2	FUNCTION1 HXCD...	26.81	5.195e2					10.9	YES		bb		0.000
3	FUNCTION1 HXCD...	26.14	1.675e3					38.9	YES		bb		0.000
4	FUNCTION1 HXCD...	25.77	1.426e3					32.8	YES		bb		0.000
5	FUNCTION1 HXCD...	25.12	3.023e2					6.4	YES		bb		0.000
6	FUNCTION1 HXCD...	23.97	7.876e1					2.2	NO		bb		0.000
7	FUNCTION1 HXCD...	23.78	2.199e3					53.0	YES		bb		0.000
8	FUNCTION1 HXCD...	23.57	7.233e1					2.5	NO		bb		0.000
9	FUNCTION1 HXCD...	22.75	5.440e2					10.4	YES		bb		0.000
10	FUNCTION1 HXCD...	22.33	3.115e2					6.6	YES		bb		0.000
11	FUNCTION1 HXCD...	22.14	3.925e2					7.6	YES		bb		0.000
12	FUNCTION1 HXCD...	21.92	8.496e1					2.5	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.22	9.320e2					22.6	YES		bb		0.000
2	FUNCTION2 HPCD...	29.10	4.381e2					11.8	YES		db		0.000
3	FUNCTION2 HPCD...	28.97	2.330e3					52.1	YES		bd		0.000
4	FUNCTION2 HPCD...	27.94	2.509e2					8.5	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.86	9.405e1					3.9	YES		bb		0.000
2	FUNCTION3 OCDPE	36.45	1.582e2					4.8	YES		bb		0.000
3	FUNCTION3 OCDPE	34.21	6.865e2					18.4	YES		bb		0.000
4	FUNCTION3 OCDPE	33.11	6.317e2					19.3	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.26	8.470e1					2.8	NO		bb		0.000
2	FUNCTION4 NCDPE	38.38	2.681e3					67.2	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.96	8.307e2					13.5	YES		bb		0.000

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Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:49:26 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
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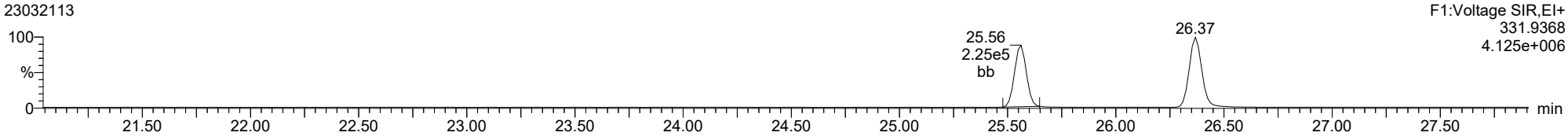
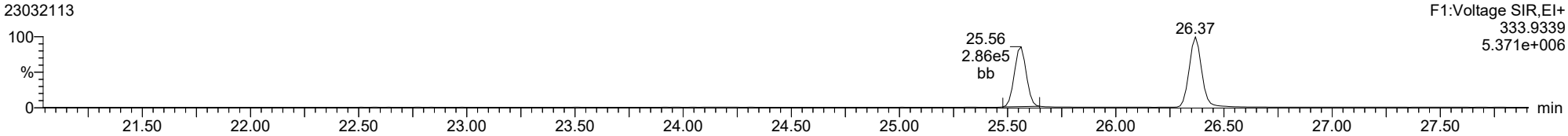
ID: 23B0494-02, Name: 23032113, Date: 21-Mar-2023, Time: 20:08:24, Conditions: AUTOSPEC01, User: pk

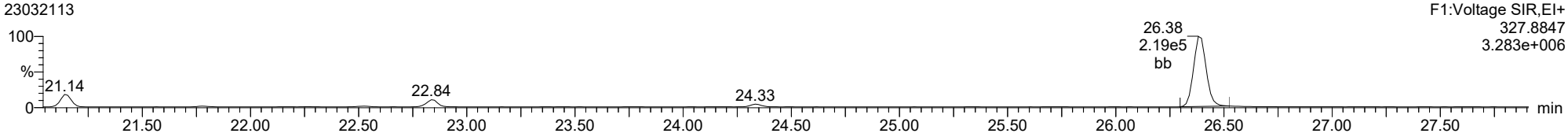
13C-1234-TCDD



13C-1234-TCDD



37CL-2378-TCDD



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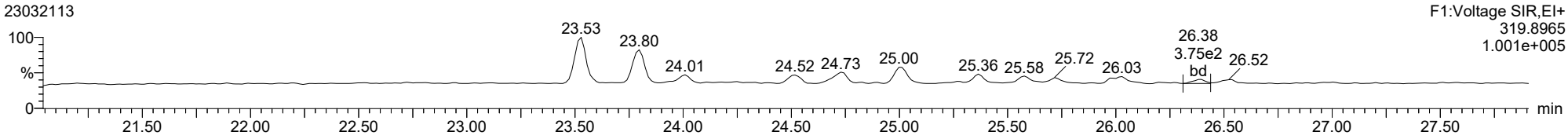
2378-TCDD



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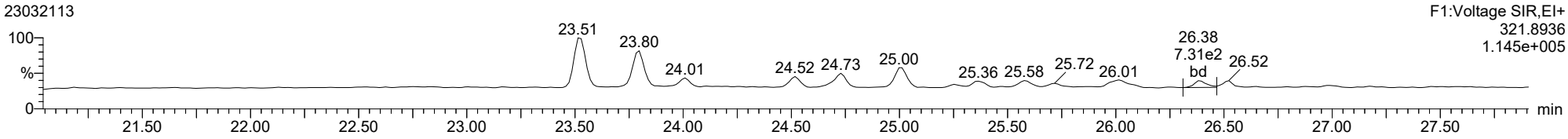

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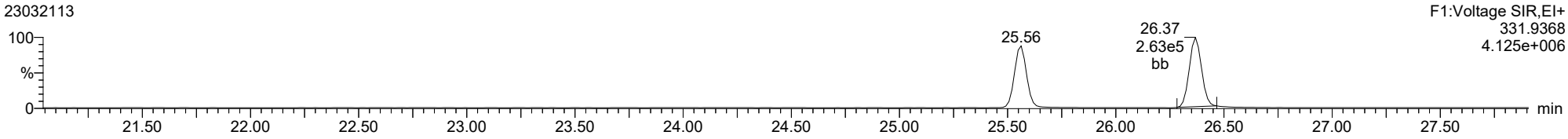

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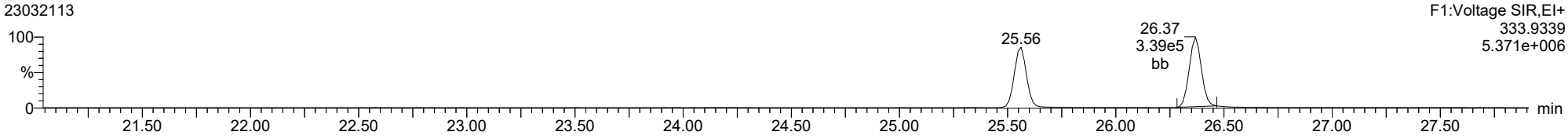

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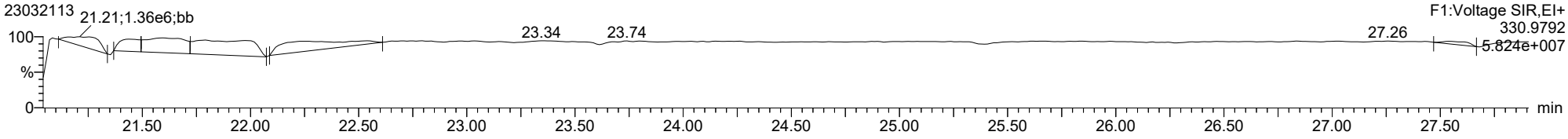

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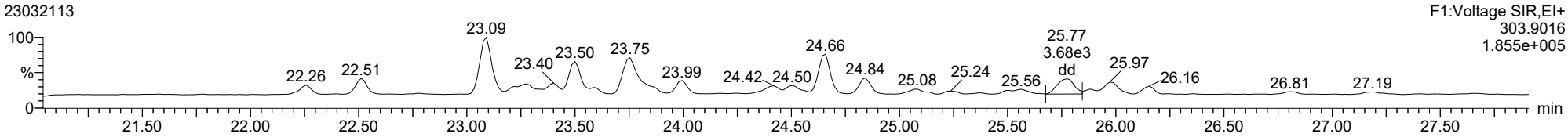
2378-TCDF



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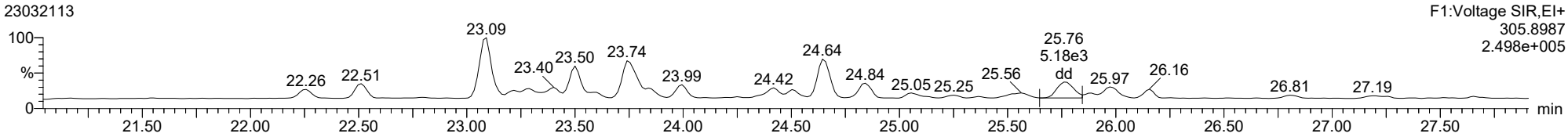

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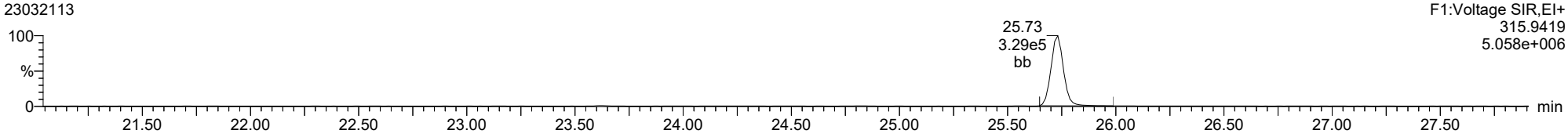

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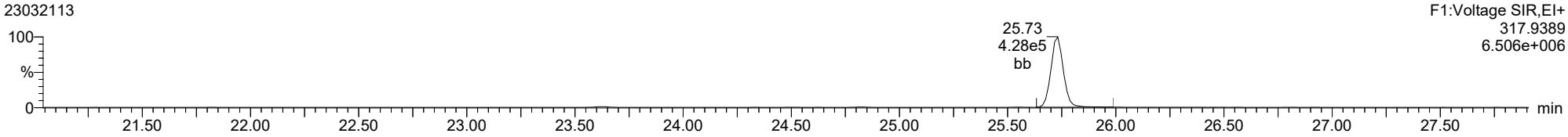
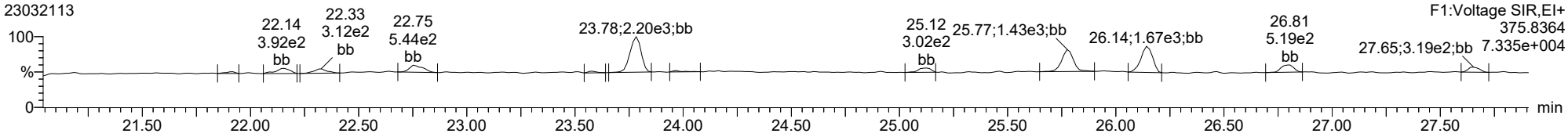
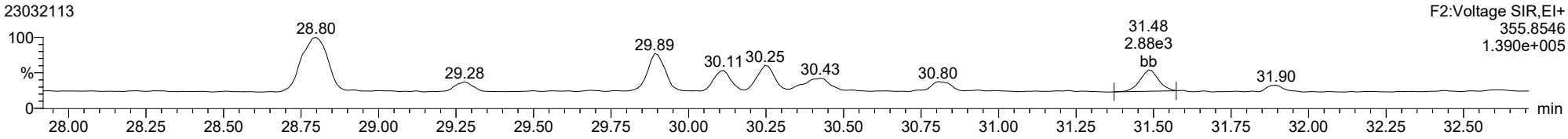


FUNCTION1 HXCDPE

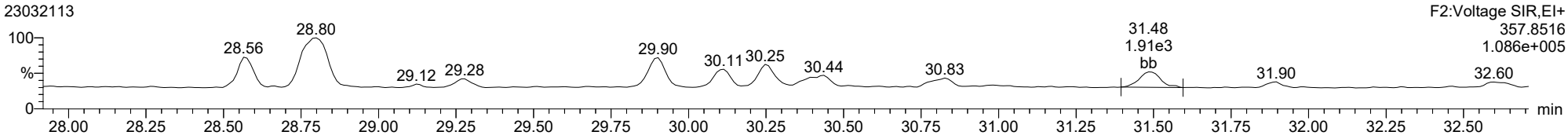


ID: 23B0494-02, Name: 23032113, Date: 21-Mar-2023, Time: 20:08:24, Conditions: AUTOSPEC01, User: pk

12378-PeCDD



12378-PeCDD



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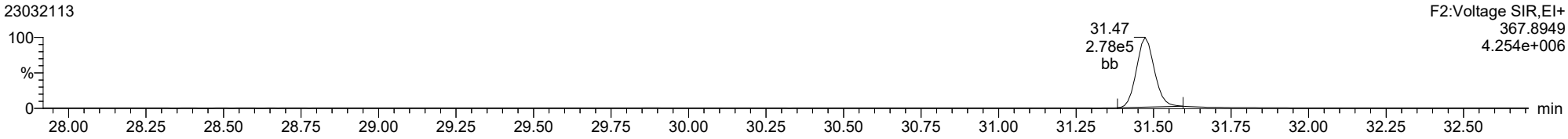

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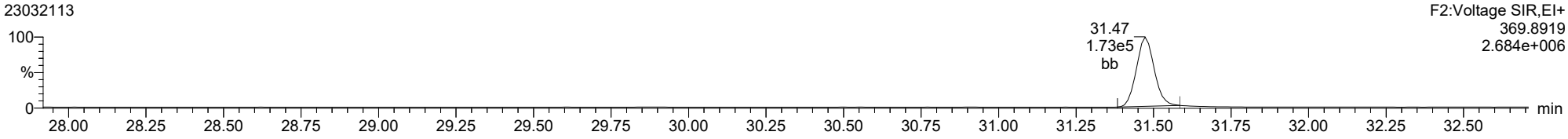
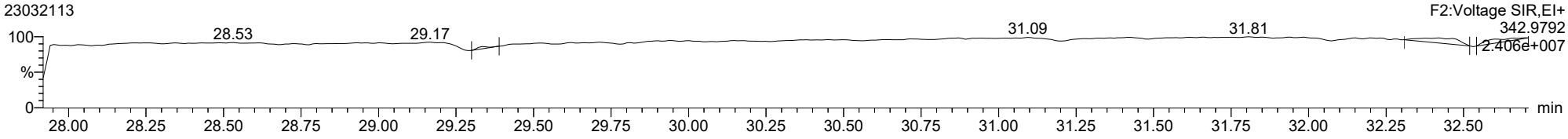


FUNCTION2 PFK



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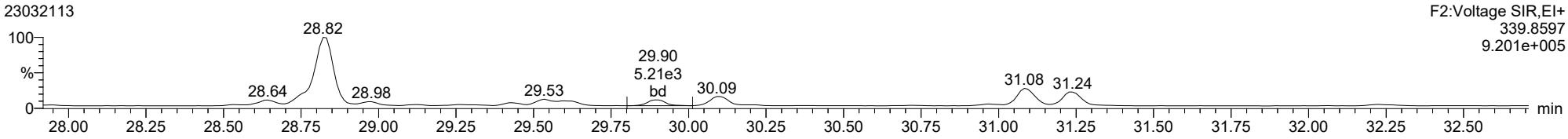

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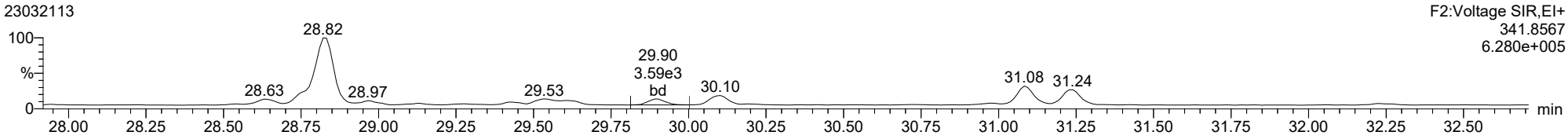

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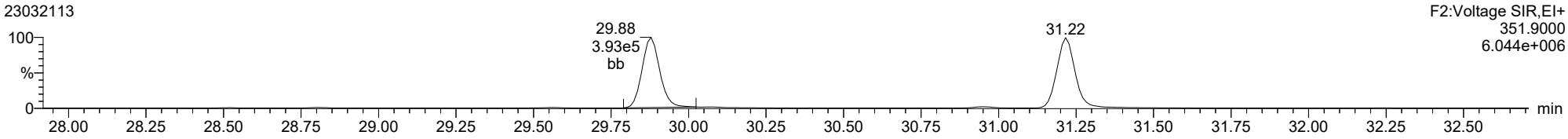

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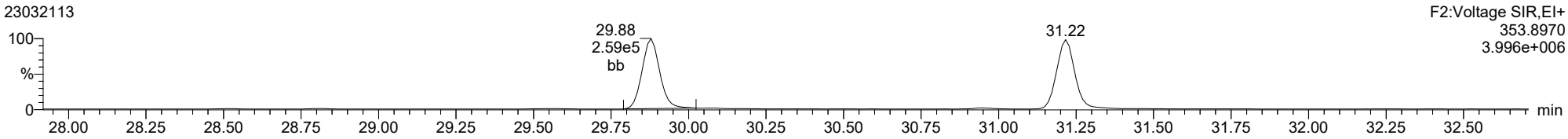
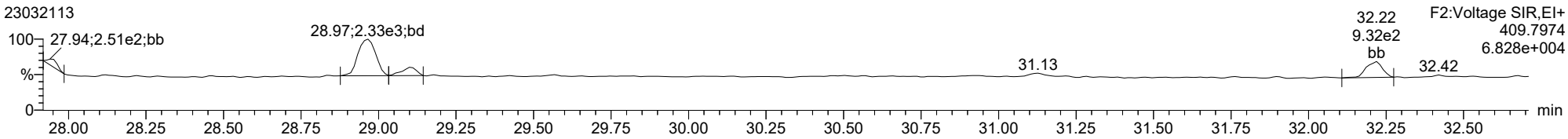


FUNCTION2 HPCDPE



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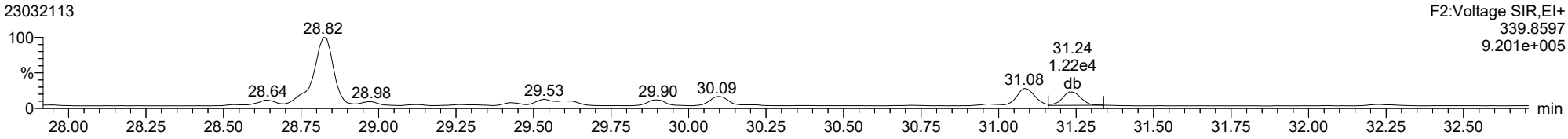
23478-PeCDF



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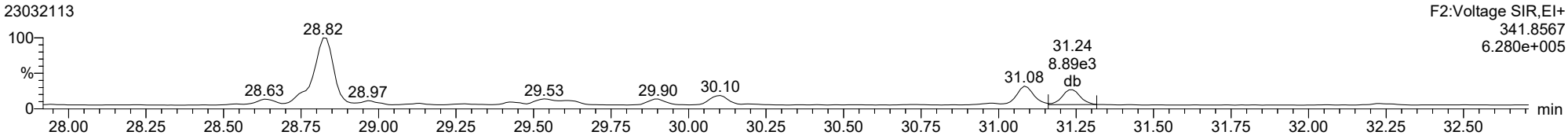

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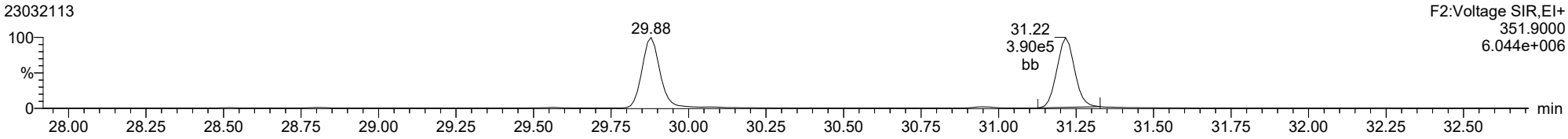

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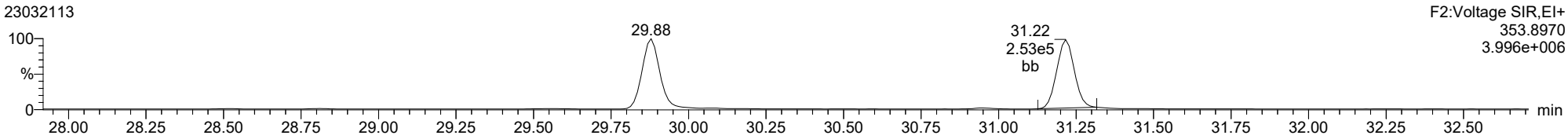
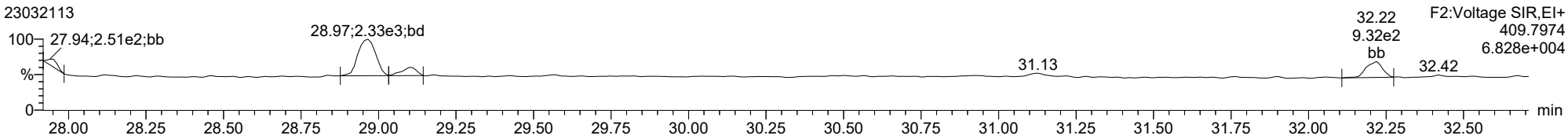
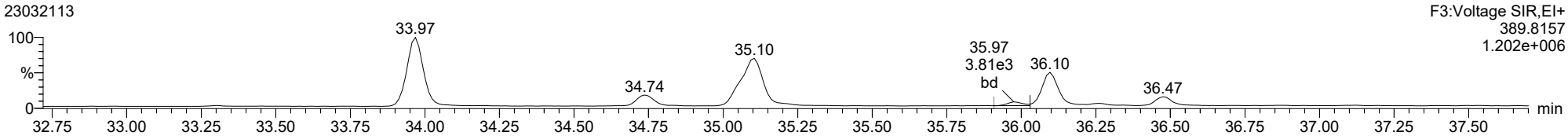


FUNCTION2 HPCDPE

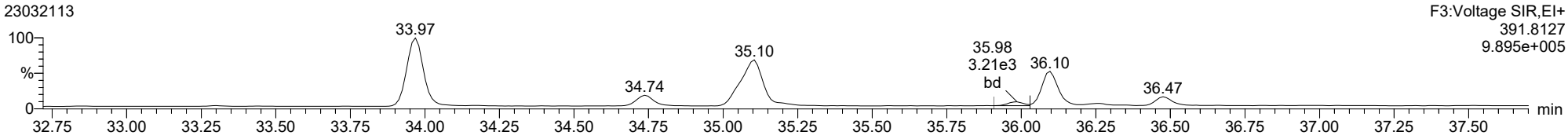


ID: 23B0494-02, Name: 23032113, Date: 21-Mar-2023, Time: 20:08:24, Conditions: AUTOSPEC01, User: pk

123478-HxCDD



123478-HxCDD



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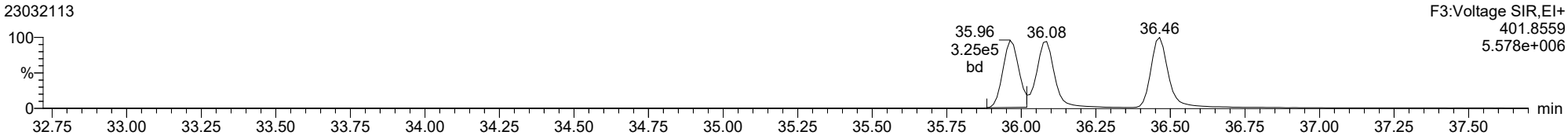

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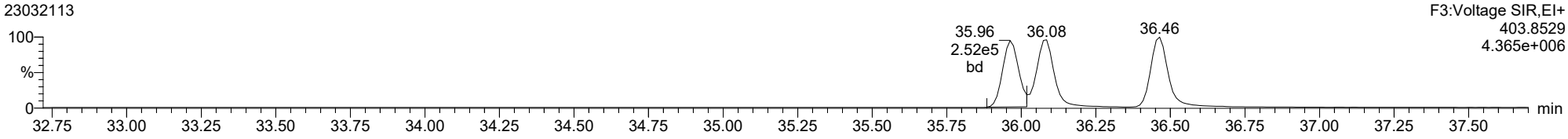

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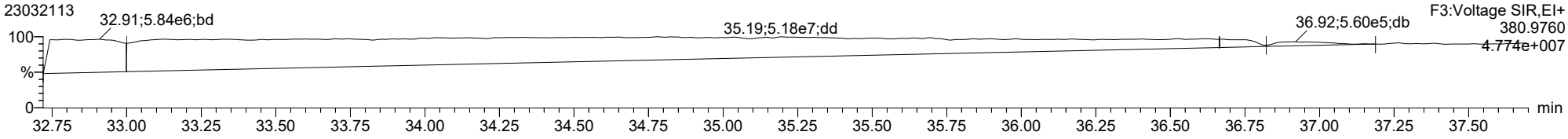

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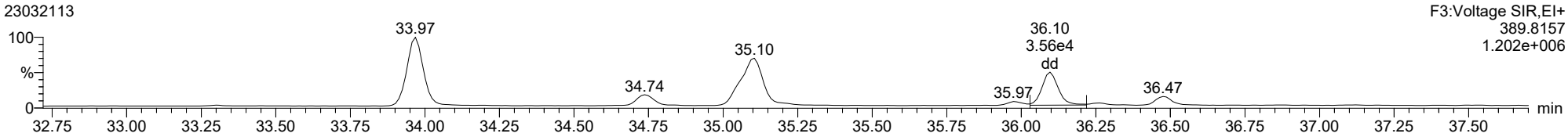
123678-HxCDD



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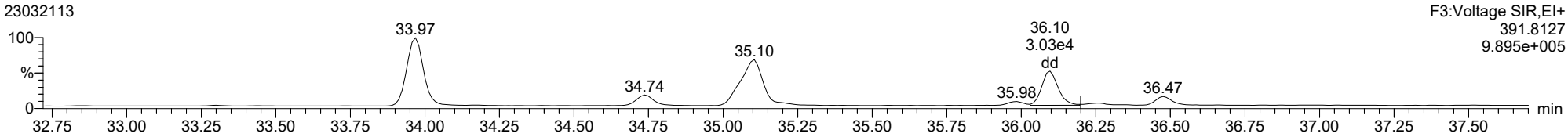

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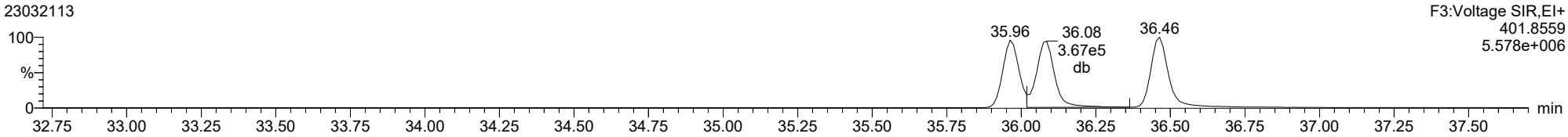

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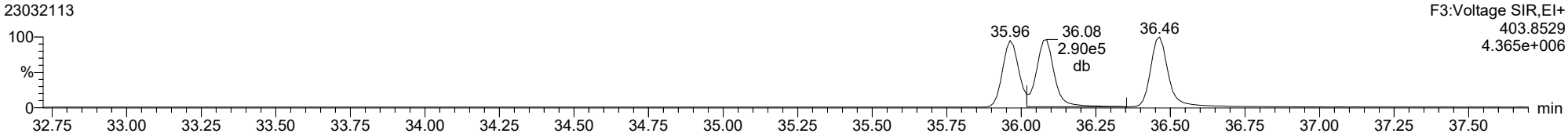

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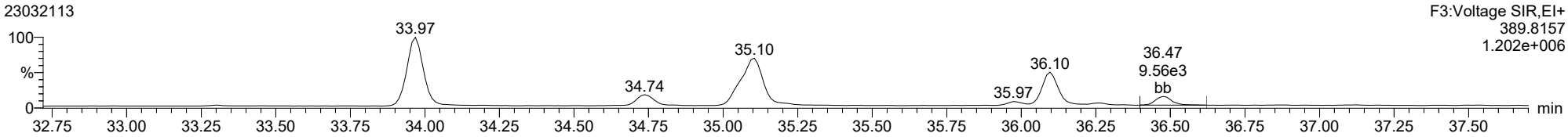

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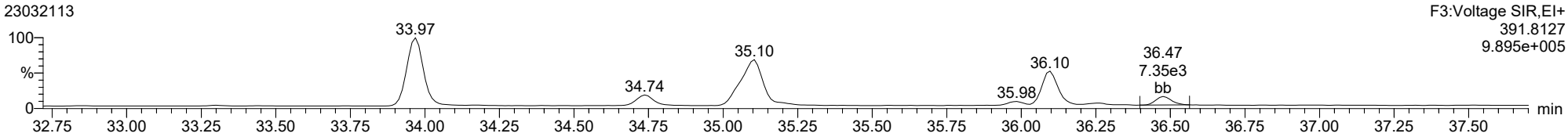

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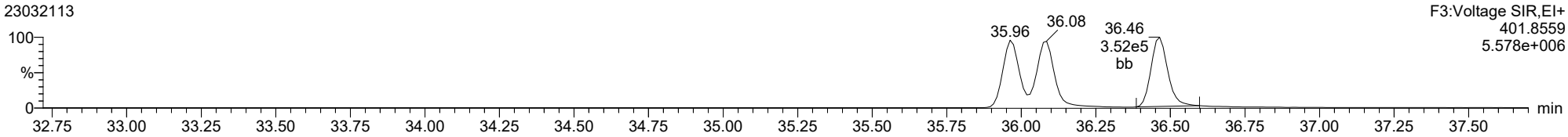

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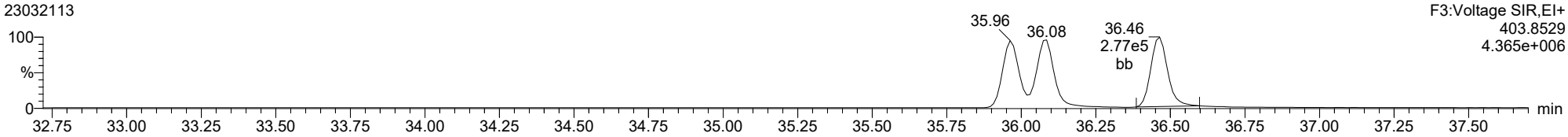

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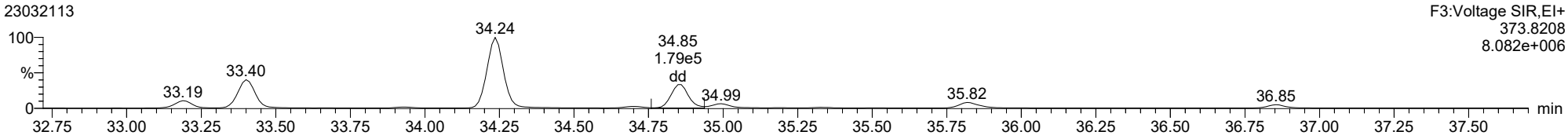

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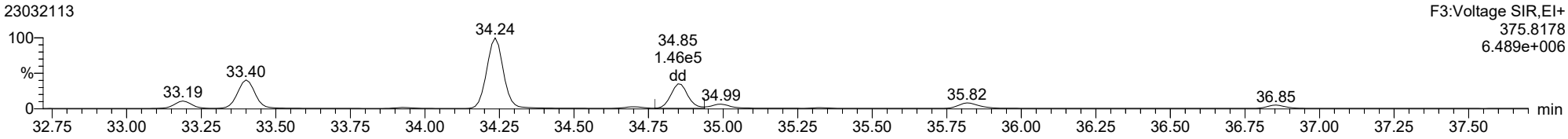

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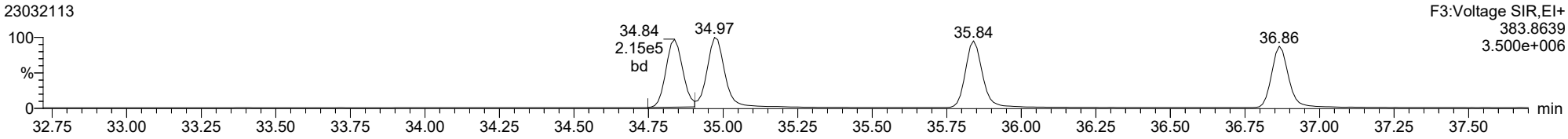

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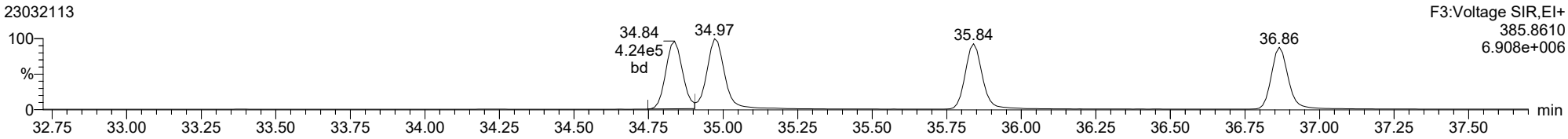
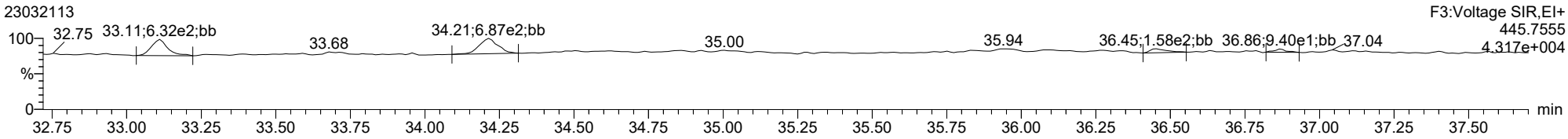


FUNCTION3 OCDPE



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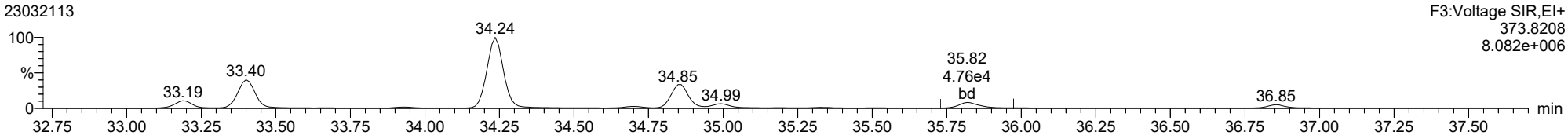
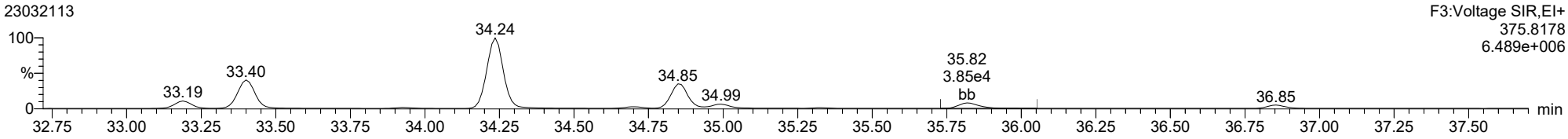
234678-HxCDF



234678-HxCDF



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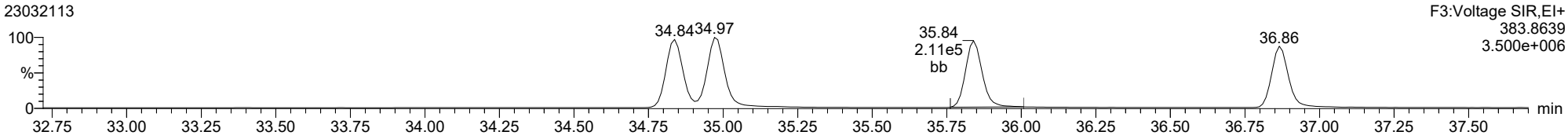

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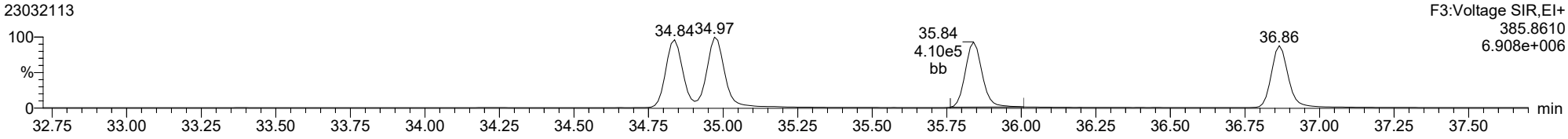

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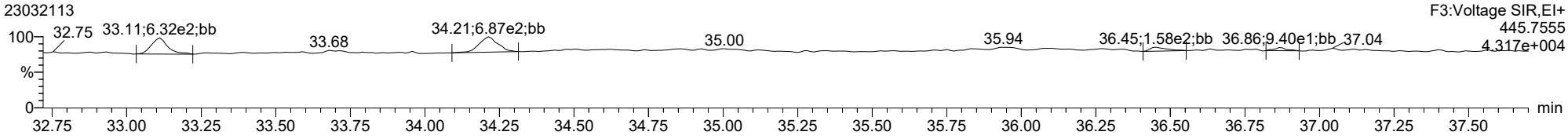

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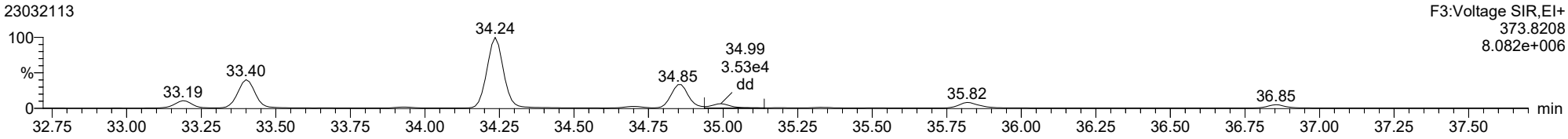

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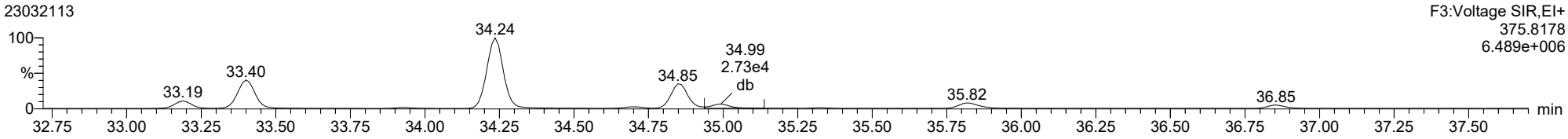

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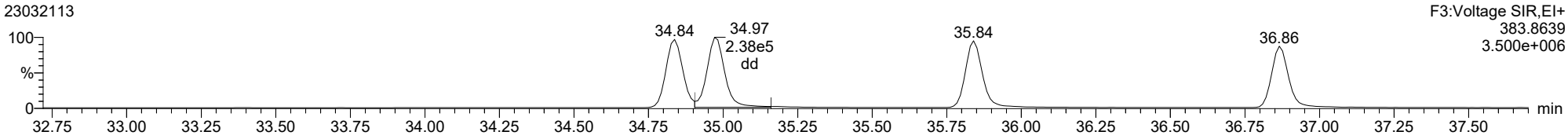

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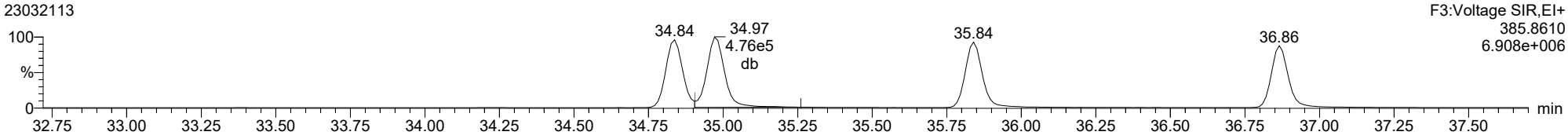

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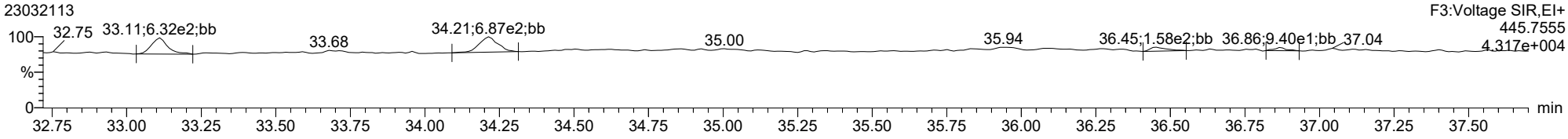

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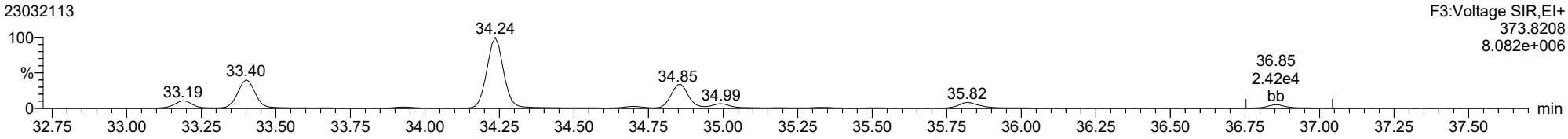

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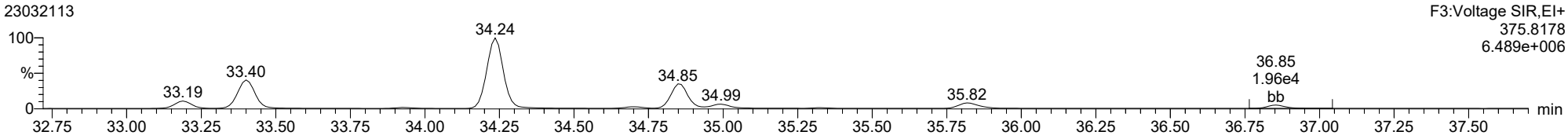

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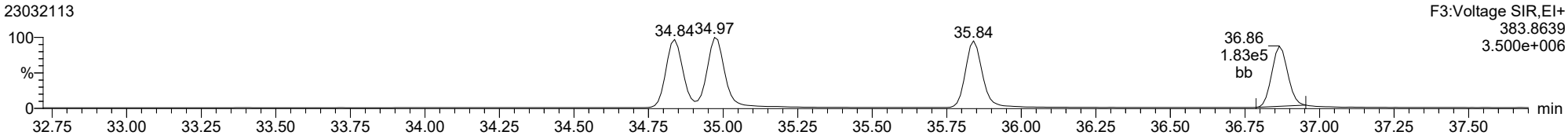

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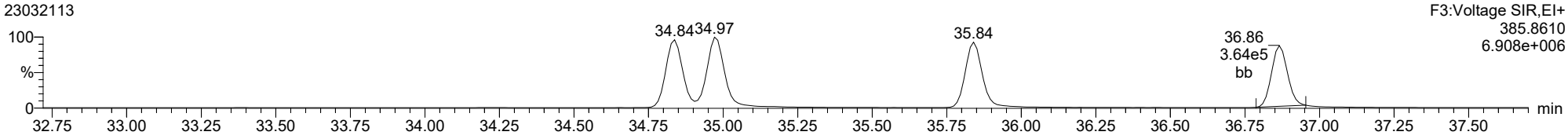

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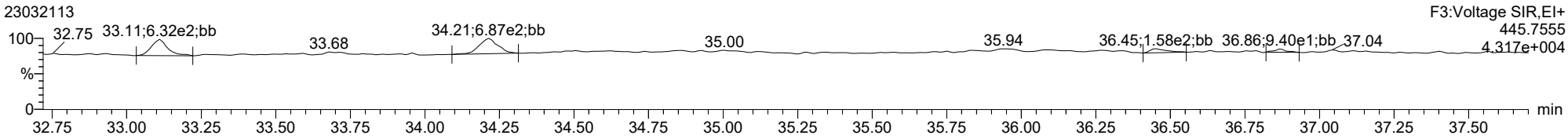

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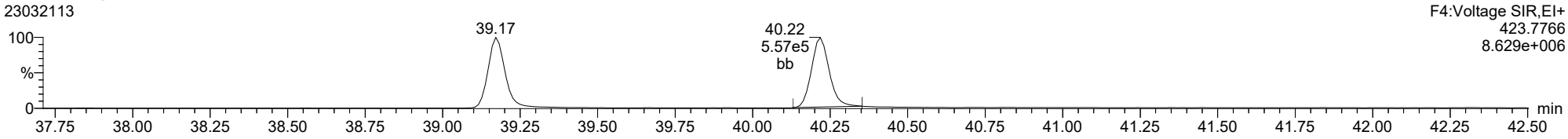

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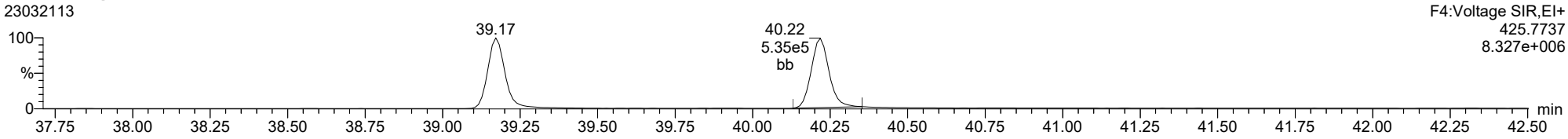

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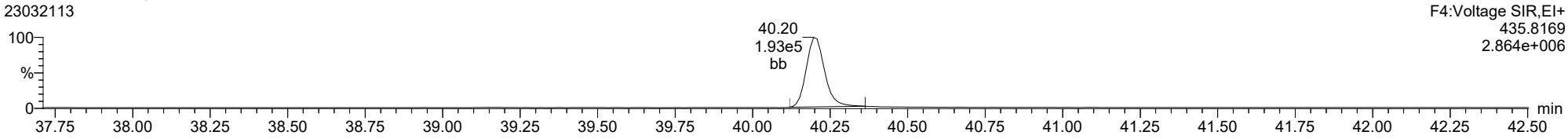

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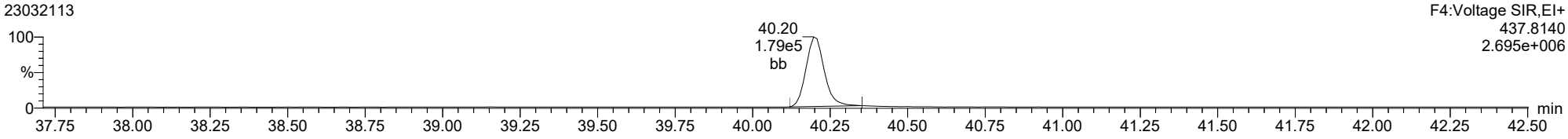

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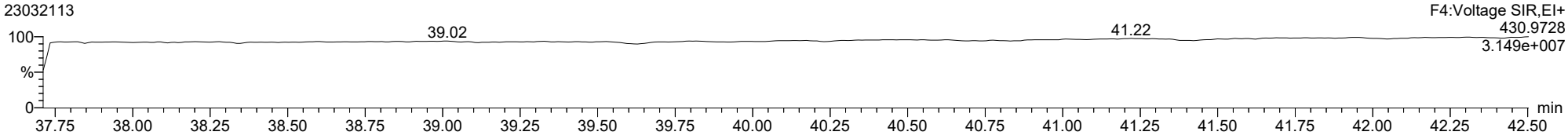

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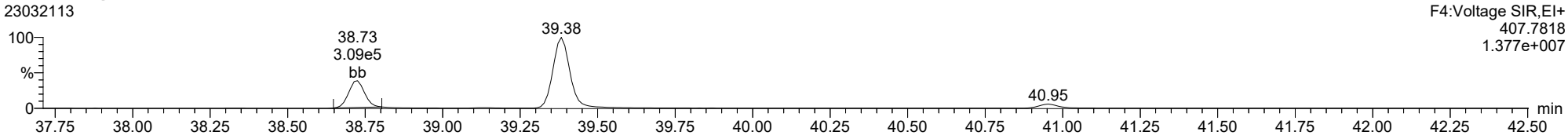

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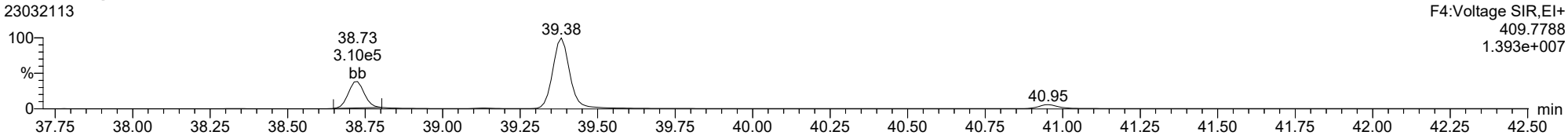

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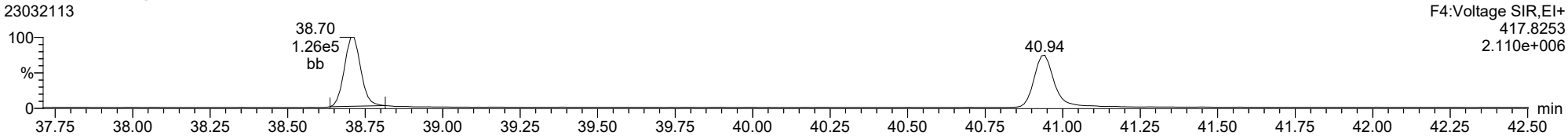

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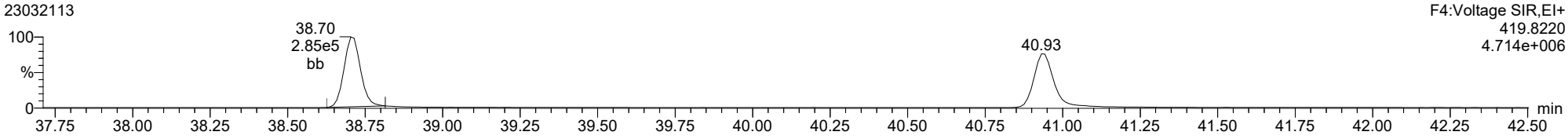

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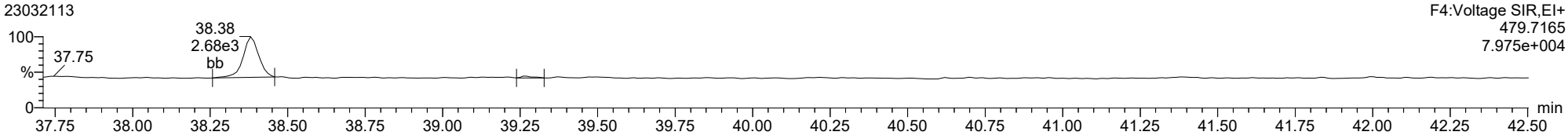

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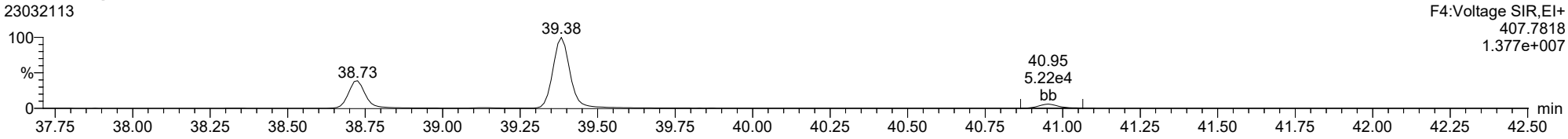

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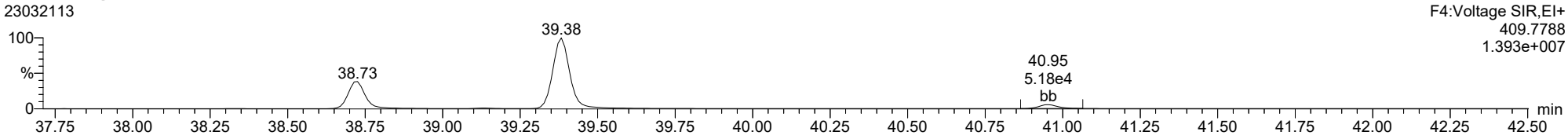

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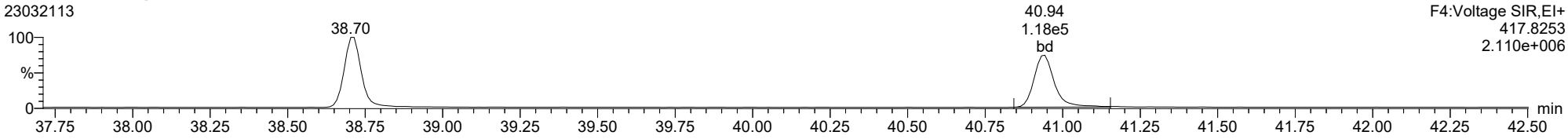

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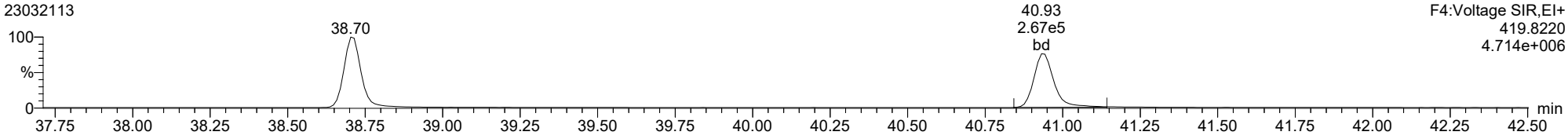

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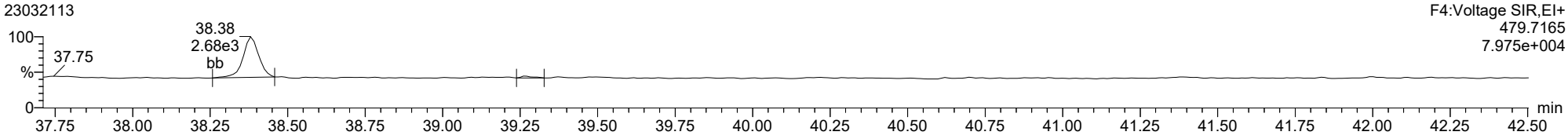

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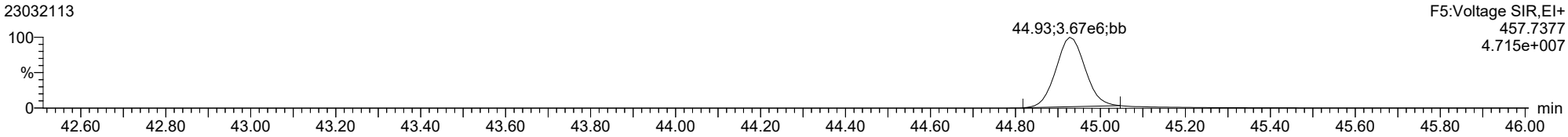

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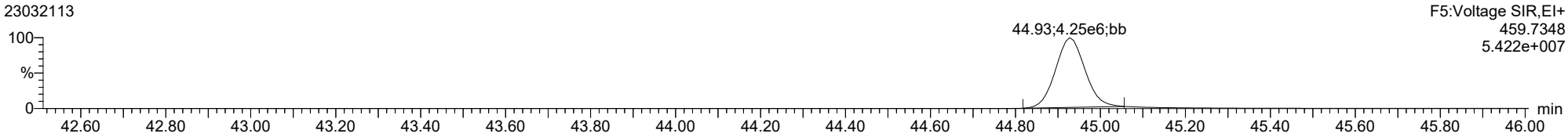

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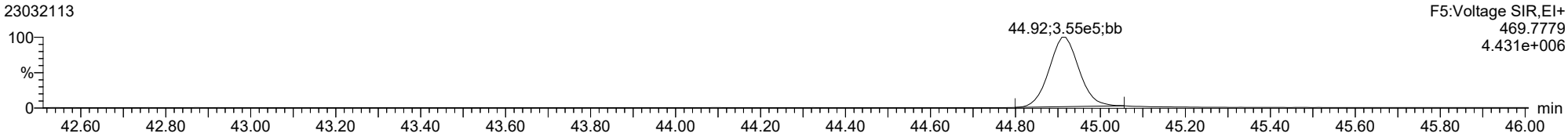

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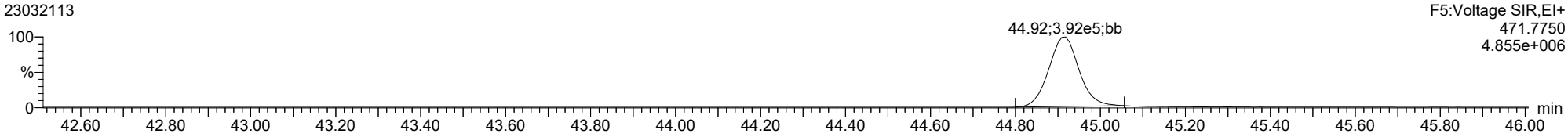

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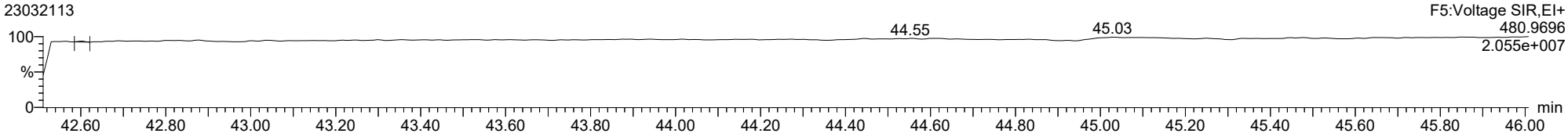

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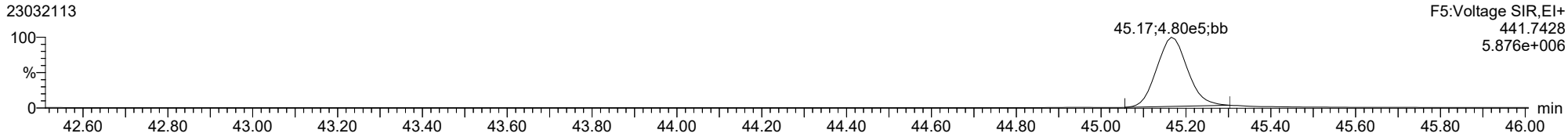

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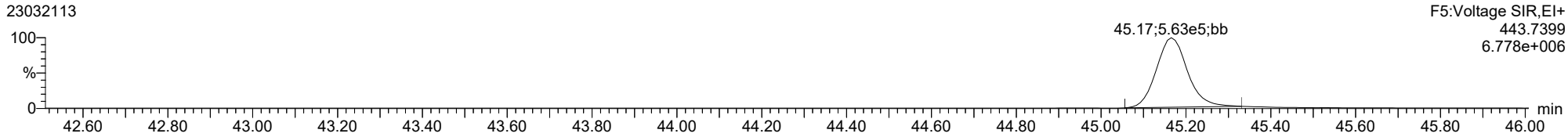

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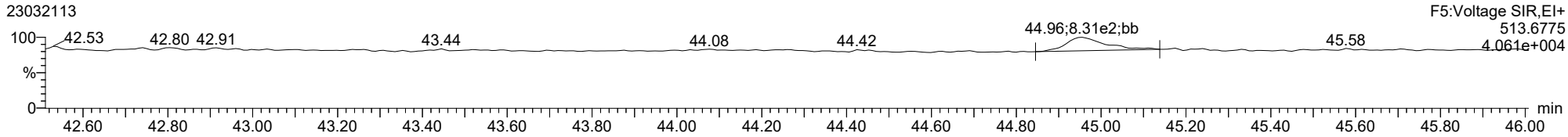

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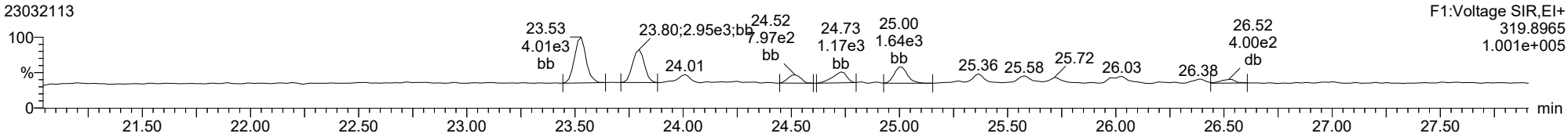

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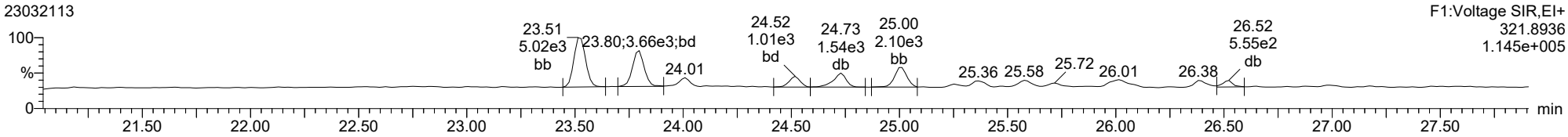

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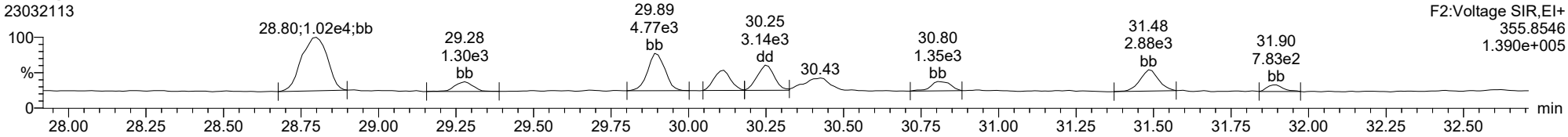

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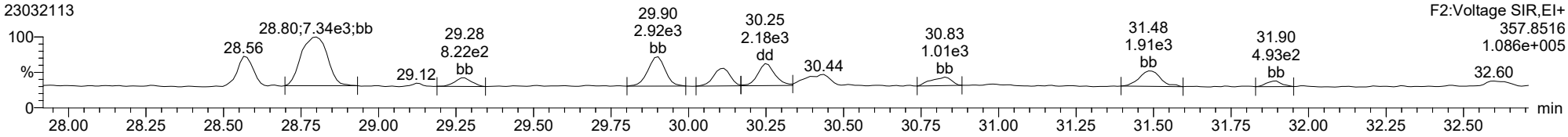

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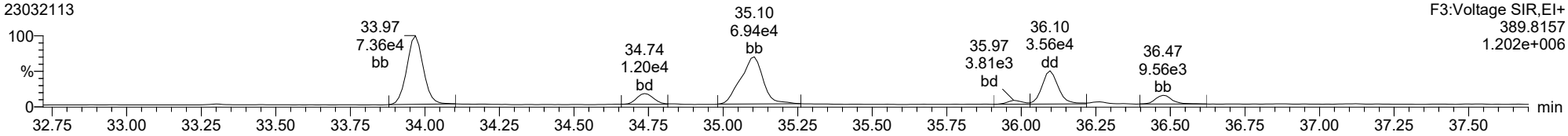

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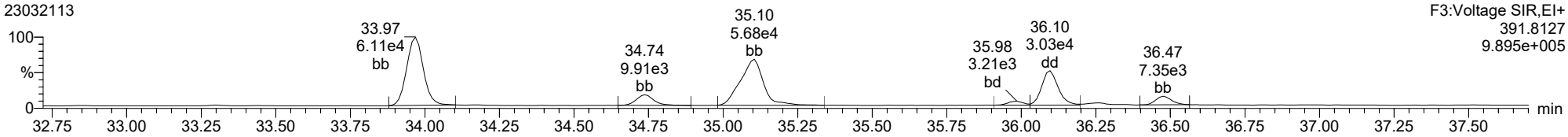

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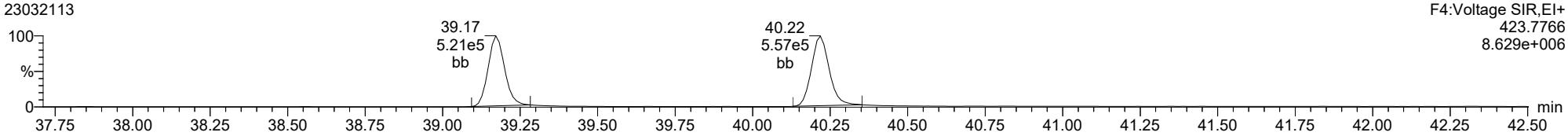

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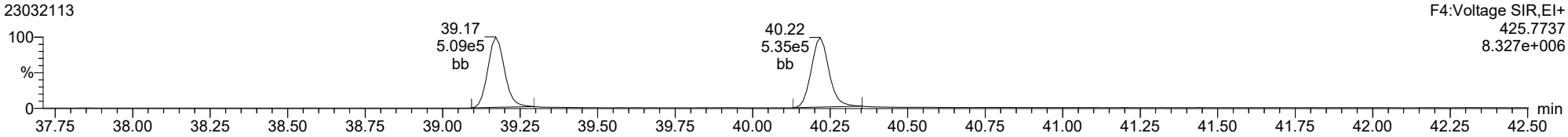

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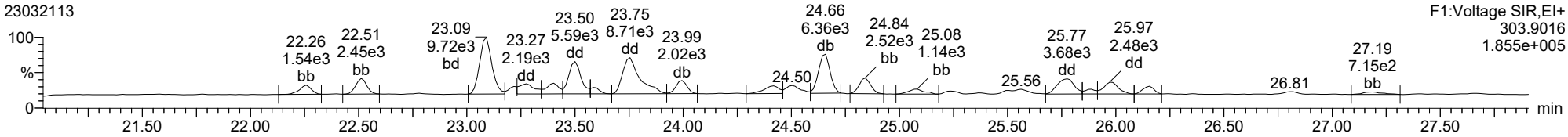

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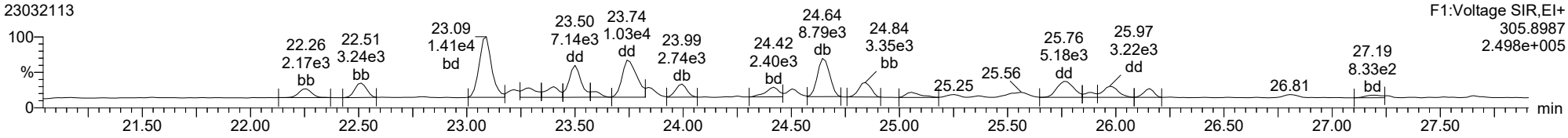

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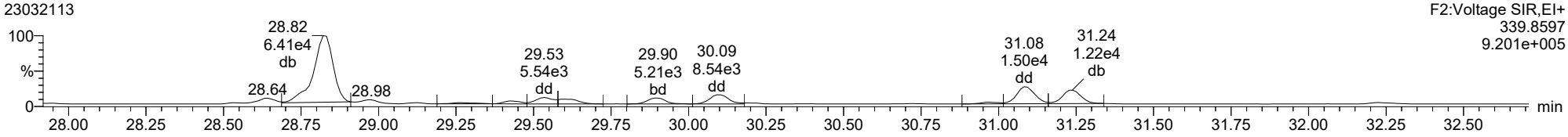

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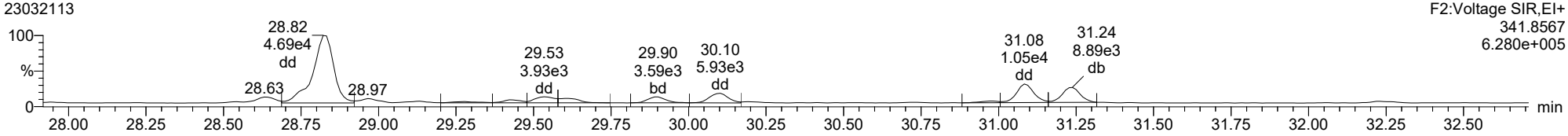

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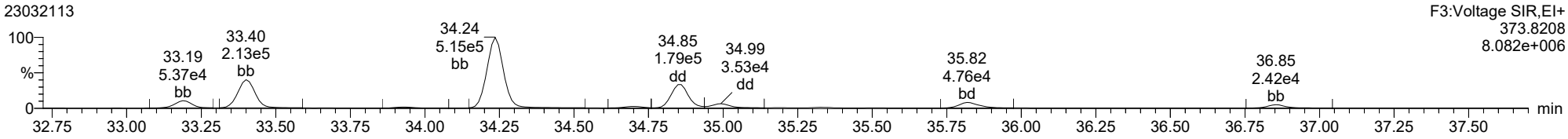

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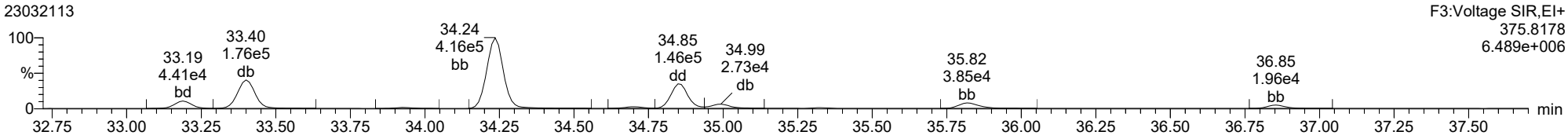

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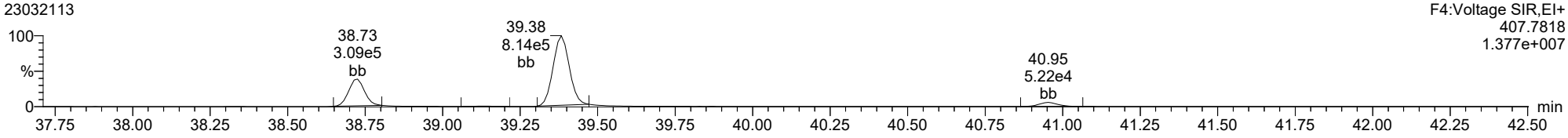

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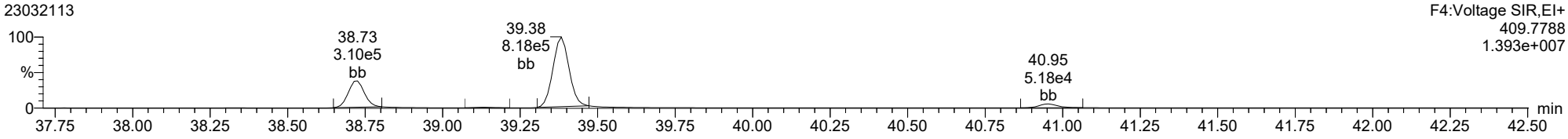

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Batch: BLB0709 Batch Matrix: Solid
Preparation: EPA 8290

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
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LDW21-IT635B	23B0494-02	23032113	02/28/23 06:55	
Blank	BLB0709-BLK1	23032108	02/28/23 06:55	
LCS	BLB0709-BS1	23032109	02/28/23 06:55	
LDW21-IT635A	BLB0709-DUP1	23032111	02/28/23 06:55	
Reference	BLB0709-SRM1	23032110	02/28/23 06:55	

Analytical Resources, LLC
Analytical Chemists and Consultants

HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A, 1613B or HRSM02.1

Batch: BLB0709

Solid Samples

ARI Work Orders:	23B0445,23B0494,23B0506			
Matrix (circle one)	(Soil)	Sediment	Oil	Tissue
Extraction Method	Start Date/Time:		End Date/Time:	
(Soxhlet) SepF Shake out	3/2/23 12:58		3/3/23 0803	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Glasswool		JB12850	DP	3/8/23
Basic Silica		L000710	DP	3/8/23
Acid Silica		L001728	DP	3/8/23
Activated Florisil		K000956	DP	3/8/23
Balance		24650344	DP	3/2/23
Toluene		K011233	DP	3/2/23
Hexane		L001957/L002889	DP	3/3/23/3/7/23
CH2Cl2		K005158	DP	3/8/23
H2SO4		L001033	DP	3/7/23
Na2SO4		L001285	DP	3/2/23
Other (RM)		L001273	DP	3/2/23
0% Silica		K011054	DP	3/8/23
Nonane		H006038	DP	3/9/23

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry)	Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
23B0445-01 A	DBAF3	100	(10.00)	10.00	1 (2)	0.0	20
23B0445-02 A	DBAF4	100	(10.00)	10.00	(1) 2	0.0	20
23B0494-01 B	LDW21-IT635A	56.5	(17.70)	17.72	1 (2)	3.0	20
~~23B0494-01 B~~	~~LDW21-IT635A~~	~~56.5~~	~~(17.70)~~		(1) 2		20
~~23B0494-01 B~~	~~LDW21-IT635A~~	~~56.5~~	~~(17.70)~~		1 (2)		20
23B0494-02 B	LDW21-IT635B	66.86	(14.96)	14.97	(1) 2	4.8	20
23B0506-01 A	S0-B4-4-6-0223	83.61	(11.96)	11.97	1 (2)	1.5	20
23B0506-02 A	S0-B6-4-6-0223	81.03	(12.34)	12.36	(1) 2	2.0	20
23B0506-03 A	S0-B8-6-8-0223	81.95	(12.20)	12.29	1 (2)	2.5	20
23B0506-04 A	S0-B10-8-10-0223	78.92	(12.67)	12.72	(1) 2	2.4	20
23B0506-05 A	S0-B12-2-4-0223	82.37	(12.14)	12.19	1 (2)	1.8	20
BLB0709-BLK1	DBLK03	100	()	10.01	(1) 2	0.0	20
BLB0709-BS1	DLCS03	100	()	10.01	1 (2)	0.0	20
BLB0709-BSD1	DLCSD03	100	()	10.01	(1) 2	0.0	20
BLB0709-DUP1	Duplicate	56.5	(17.70)	17.72	1 (2)	5.5	20
BLB0709-SRM1	Reference	100	()	10.00	(1) 2	0.0	20
Prep Analyst / Date:		DP 3/2/23			DP 3/7/23	DP 3/3/23	

23B0494-01B

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	K011158	2/4 ng/mL	12/2/23	DP	TW	3/2/23
OPR	1.0 mL	L000046	0.2/1.0/2.0 ng/mL	1/3/24	DP	TW	3/2/23
~~QC3 Standard~~	~~1.0 mL~~		~~50/200/400 ng/mL~~				
Cleanu-up Standard	1.0 mL	L001332	0.8 ng/mL	2/8/24	DP	TW	3/8/23

Verify Client ID
Analyst / Date: DP 3/2/23

Acid Clean (Y) N
Analyst / Date: DP 3/7/23

Silica-Florisil Clean (Y) N
Analyst / Date: DP 3/8/23

Supervisor Review By 3/17/23 Date

Printed: 2/28/2023 7:03:58AM

Analytical Resources, LLC
Analytical Chemists and Consultants

HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A, 1613B or HRSM02.1

Batch: BLB0709

Solid Samples

ARI Work Orders:	23B0445,23B0494,23B0506		
Matrix (circle one)	[Soil] Sediment Oil Tissue		
Extraction Method	Start Date/Time:	End Date/Time:	
[Soxhlet] SepF Shake out			

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Glasswool				
Basic Silica				
Acid Silica				
Activated Florisil				
Balance		24650344		
Toluene				
Hexane				
CH2Cl2				
H2SO4				
Na2SO4				
Other (RM)				
0% Silica				
Nonane				

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry) Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
23B0445-01 A	DBAF3	100	(10.00)	1 / 2		20
23B0445-02 A	DBAF4	100	(10.00)	1 / 2		20
23B0494-01 B	LDW21-IT635A	56.5	(17.70)	1 / 2		20
23B0494-01 B	LDW21-IT635A	56.5	(17.70)	1 / 2		20
23B0494-01 B	LDW21-IT635A	56.5	(17.70)	1 / 2		20
23B0494-02 B	LDW21-IT635B	66.86	(14.96)	1 / 2		20
23B0506-01 A	S0-B4-4-6-0223	83.61	(11.96)	1 / 2		20
23B0506-02 A	S0-B6-4-6-0223	81.03	(12.34)	1 / 2		20
23B0506-03 A	S0-B8-6-8-0223	81.95	(12.20)	1 / 2		20
23B0506-04 A	S0-B10-8-10-0223	78.92	(12.67)	1 / 2		20
23B0506-05 A	S0-B12-2-4-0223	82.37	(12.14)	1 / 2		20
BLB0709-BLK1	DBLK03	100	()	1 / 2		20
BLB0709-BS1	DLCS03	100	()	1 / 2		20
BLB0709-BSD1	DLCSD03	100	()	1 / 2		20
BLB0709-DUP1	Duplicate 23B0494-01B	56.5	(17.70)	1 / 2		20
BLB0709-SRM1	Reference	100	()	1 / 2		20
Prep Analyst / Date:						

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL		2/4 ng/mL				
OPR	1.0 mL		0.2/1.0/2.0 ng/mL				
~~QA Standard~~	~~1.0 mL~~		~~0.1/0.05/0.1 ng/mL~~				
Cleanu-up Standard	1.0 mL		0.8 ng/mL				

Verify Client ID

Analyst / Date:

Acid Clean

[Y] N

Analyst / Date:

Silica-Florisil Clean

[Y] N

Analyst / Date:

Supervisor Review By Date

Printed: 2/28/2023 7:03:58AM

3083F

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BLB0488
Date:	2/28/2023 5:18
Analyst:	NL
Drying Oven:	18
Analytical Balance:	24650344

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	2/27/2023 12:30
Date/time out:	2/28/2023 5:18
Elapsed hrs:	16.8

Oven Temp, C	TS (%) calculated as:
111	Final dry wt (g) = (Dry Wt - Tare Wt)
111	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	111
End Temp:	111

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23B0494-01	0.7900	11.2500	6.7000	5.91	**56.50%**	No
23B0494-02	0.8000	11.0900	7.6800	6.88	**66.86%**	No
23B0506-01	0.8000	11.1700	9.4700	8.67	**83.61%**	No
23B0506-02	0.8000	11.8200	9.7300	8.93	**81.03%**	No
23B0506-03	0.8000	11.2700	9.3800	8.58	**81.95%**	No
23B0506-04	0.8000	11.1900	9.0000	8.20	**78.92%**	No
23B0506-05	0.8000	12.2000	10.1900	9.39	**82.37%**	No

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BLB0488
Date:	
Analyst:	
Drying Oven:	Φ18
Analytical Balance:	24650341

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

			Oven Temp, C
Date/time in oven:	2/27/23	1230	111°C
Date/time out:	2/28/23	0518	111°C
Elapsed hrs:	0.0		

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	111°C
End Temp:	111°C

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23B0494-01	Φ.79	11.25	6.70			No
23B0494-02	Φ.80	11.09	9.68			No
23B0506-01	Φ.86	11.17	9.47			No
23B0506-02	Φ.80	11.82	9.73			No
23B0506-03	Φ.86	11.27	9.38			No
23B0506-04	Φ.86	11.19	9.00			No
23B0506-05	Φ.86	12.70	10.19			No

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch

Total Solids Batch: BLB0488 Work Order(s): 23B0494, 23B0506

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 23B0494-01B,02B, 23B0506	DSA M 2/27/23
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= 23B0506-03A, 04A	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= 23B0506-01A, 02A, 03A, 04A: some seashells/bits	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions).	
Rotovaped to sample 23B0445-02A on 3/3/23	DP 3/3/23
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

```
Injection Date  : 2/27/2023 10:21:29 AM        Seq. Line :   3
Sample Name     : CS4                          Location : Vial 3
Acq. Operator   : NL                               Inj :   1
                                             Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\022723A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/13/2023 8:23:37 AM by ZH
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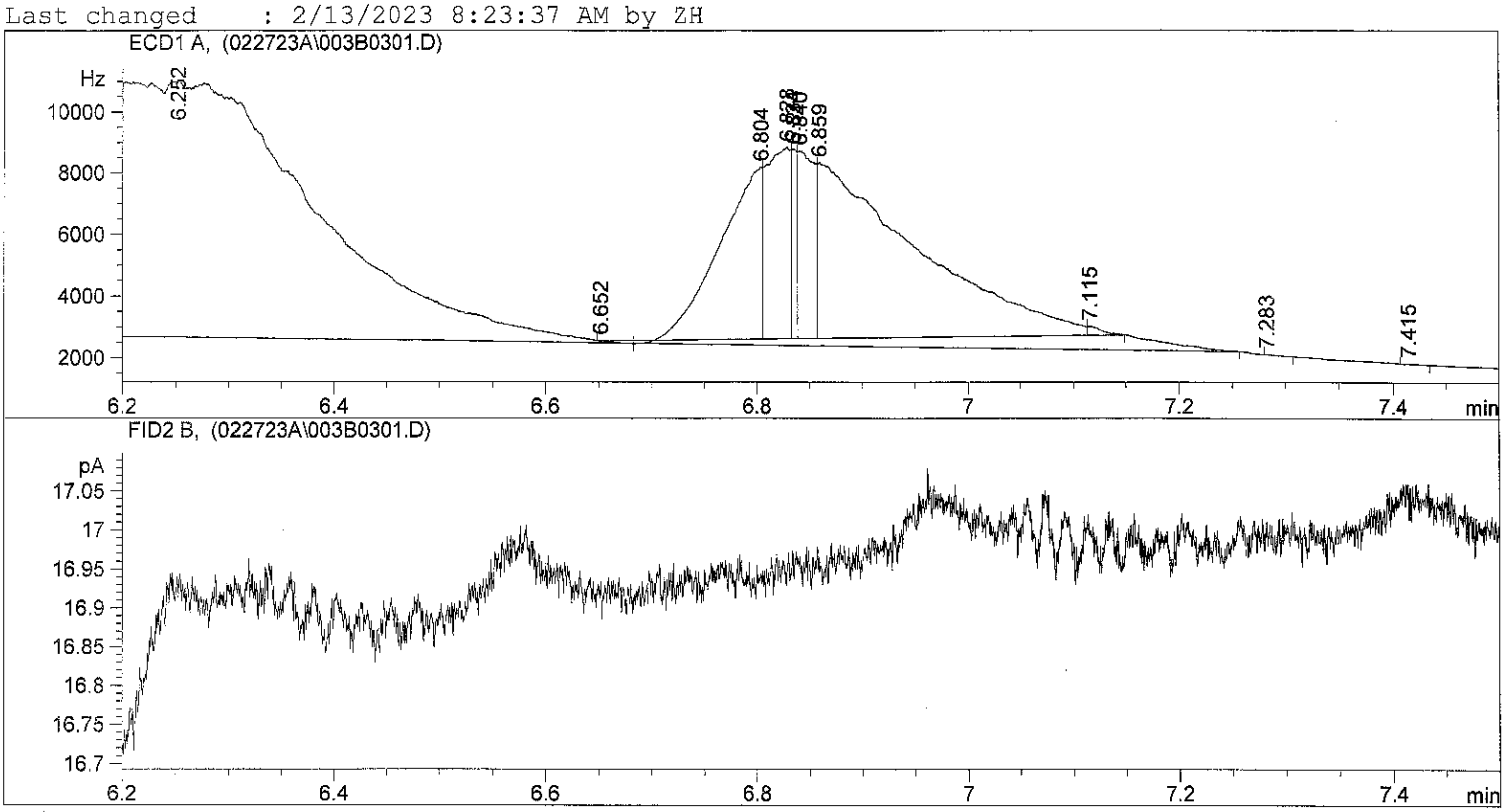

Area Percent Report

```
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
```

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.569	BV S	0.0442	2.00456e5	5.59189e4	17.67744
2	5.663	VV S	0.1430	6.16721e5	7.18805e4	54.38621
3	6.031	VV S	0.1123	1.08281e5	1.60698e4	9.54890
4	6.252	VB S	0.2080	1.36737e5	8349.63867	12.05828
5	6.652	BV T	0.0000	103.32705	16.26585	0.00911
6	6.804	PV T	0.0329	1.54007e4	5597.50928	1.35813
7	6.828	VV T	0.0185	9554.00391	6234.92432	0.84253
8	6.834	VV T	6.14e-3	2269.84814	6162.23096	0.20017
9	6.840	VV T	0.0181	6641.79346	6108.20850	0.58571
10	6.859	VV T	0.1094	3.74987e4	5712.37500	3.30686
11	7.115	PB T	0.0158	276.91525	292.12872	0.02442
12	7.283	BB	5.15e-3	5.20413	13.94408	0.00046
13	7.415	PP	9.16e-3	8.98875	12.25681	0.00079
14	7.532	PP	8.39e-3	11.12329	16.24932	0.00098
Totals :				1.13397e6	1.82385e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

==========

*** End of Report ***

```
Injection Date  : 2/27/2023 10:54:57 AM        Seq. Line :   6
Sample Name     : 23B0494-01B                   Location : Vial 4
Acq. Operator   : NL                               Inj :   1
                                              Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\022723A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/13/2023 8:23:37 AM by ZH
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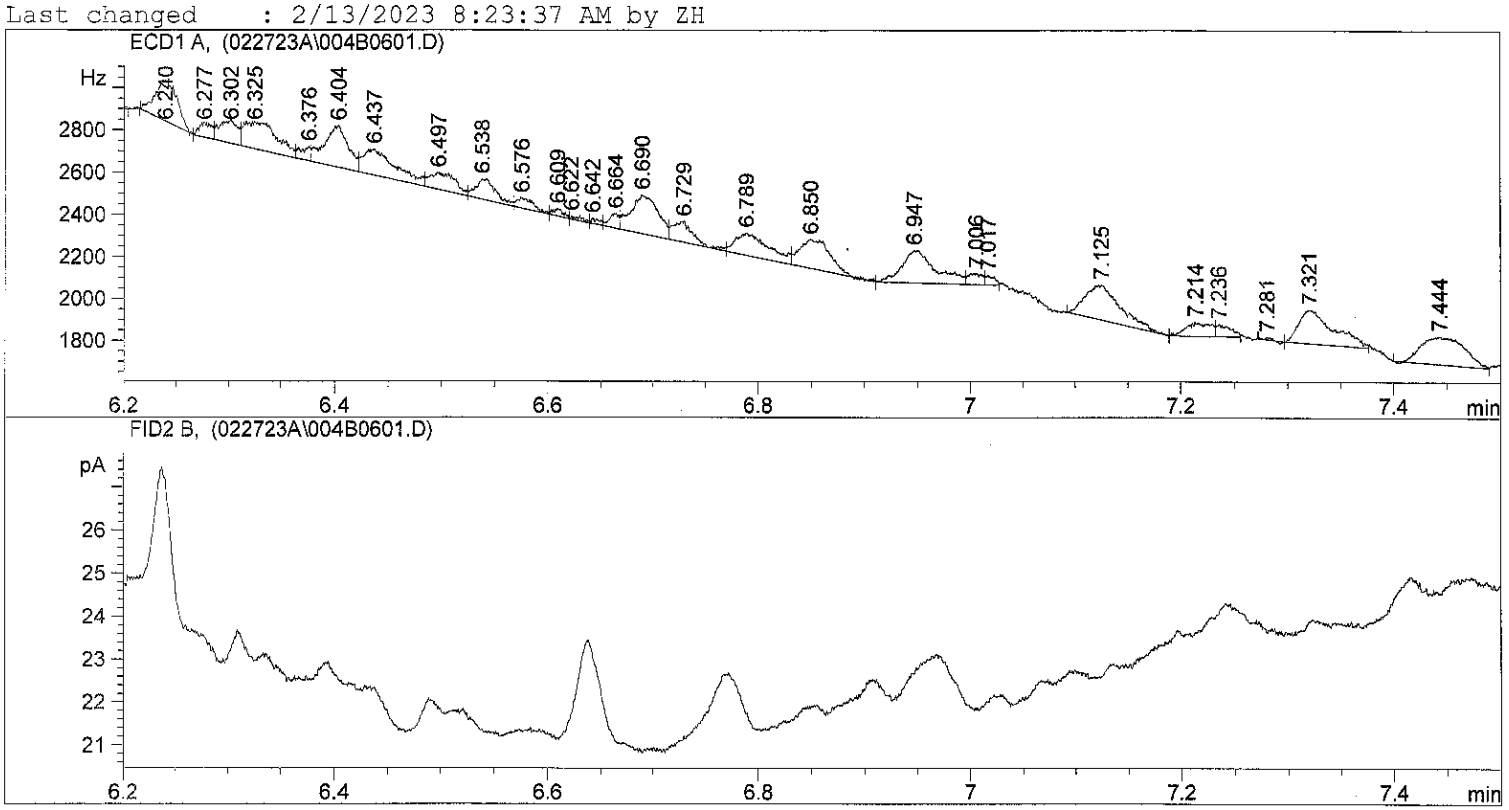


Area Percent Report

```
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
```

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.205	BV S	0.0226	764.16992	563.60114	3.11713
2	5.290	PV T	0.0212	596.91730	355.38083	2.43489
3	5.332	PV T	0.0101	158.89250	208.62694	0.64814
4	5.352	PV T	0.0000	6.31468	3.41694	0.02576
5	5.389	PV T	0.0221	2013.57568	1195.17346	8.21360
6	5.464	PV T	5.95e-3	8.84273	24.77979	0.03607
7	5.493	PV S	0.0238	5710.71680	3196.17432	23.29464
8	5.530	BB T	9.71e-3	205.55417	269.04932	0.83848
9	5.610	PV T	0.0154	251.22208	195.19713	1.02476
10	5.655	PV T	0.0112	93.18781	102.40795	0.38012
11	5.717	PV T	0.0241	2334.39844	1291.52991	9.52227
12	5.780	PV T	0.0178	1007.12518	715.32050	4.10817
13	5.834	PV T	0.0285	320.07428	135.91235	1.30562
14	5.866	PV T	5.66e-3	26.09613	62.68353	0.10645
15	5.896	PV T	0.0173	883.82526	632.44495	3.60522
16	5.920	PV T	0.0197	112.90445	95.36935	0.46055
17	5.981	PB S	0.0216	3522.56128	2332.56567	14.36891

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.016	BV T	8.72e-3	25.66747	37.79182	0.10470
19	6.058	PV T	0.0131	77.70036	72.71612	0.31695
20	6.090	PV T	0.0195	712.21356	444.43536	2.90520
21	6.138	PV T	0.0146	492.87183	424.34030	2.01048
22	6.170	PV T	6.34e-3	19.79031	51.98871	0.08073
23	6.184	PB T	0.0139	69.44790	61.97812	0.28329
24	6.240	BP	0.0189	281.39655	192.45525	1.14785
25	6.277	VV	9.79e-3	57.13925	70.97527	0.23308
26	6.302	VV	0.0136	128.24458	115.19926	0.52312
27	6.325	VV	0.0274	286.88956	124.90523	1.17025
28	6.376	VV	7.77e-3	40.87757	66.48808	0.16674
29	6.404	VV	0.0179	291.51962	196.26570	1.18914
30	6.437	VV	0.0262	264.04434	122.33394	1.07707
31	6.497	VV	0.0216	135.68060	77.54880	0.55346
32	6.538	VV	0.0161	127.00643	95.42802	0.51807
33	6.576	VV	0.0132	50.58866	46.76071	0.20636
34	6.609	VP	8.06e-3	22.50109	34.25842	0.09178
35	6.622	VV	0.0107	12.34983	13.98681	0.05038
36	6.642	VV	7.04e-3	13.68473	24.78856	0.05582
37	6.664	VV	8.17e-3	43.65528	69.12850	0.17807
38	6.690	VV	0.0220	332.71494	183.21844	1.35718
39	6.729	VV	0.0173	132.77000	98.96689	0.54158
40	6.789	VB	0.0265	238.99814	107.76337	0.97490
41	6.850	BP	0.0260	283.48581	138.07341	1.15637
42	6.947	VV	0.0269	350.94876	155.45670	1.43156
43	7.006	VV	0.0115	48.47537	51.90712	0.19774
44	7.017	VB	7.99e-3	26.19264	43.70513	0.10684
45	7.125	PP	0.0279	382.85638	167.13428	1.56171
46	7.214	VV	0.0195	105.86395	64.82661	0.43183
47	7.236	VB	0.0117	53.64639	57.26016	0.21883
48	7.281	BP	1.76e-3	1.06594	10.71773	0.00435
49	7.321	BB	0.0290	367.52530	158.59631	1.49918
50	7.444	PV	0.0340	370.95697	131.89014	1.51317
51	7.539	BP	0.0205	94.05270	56.32434	0.38365
52	7.608	VV	0.0211	93.31624	54.63522	0.38065
53	7.663	VV	0.0347	421.84155	145.10194	1.72074
54	7.748	VB	0.0164	40.79699	30.11530	0.16642
Totals :				2.45152e4	1.53791e4	

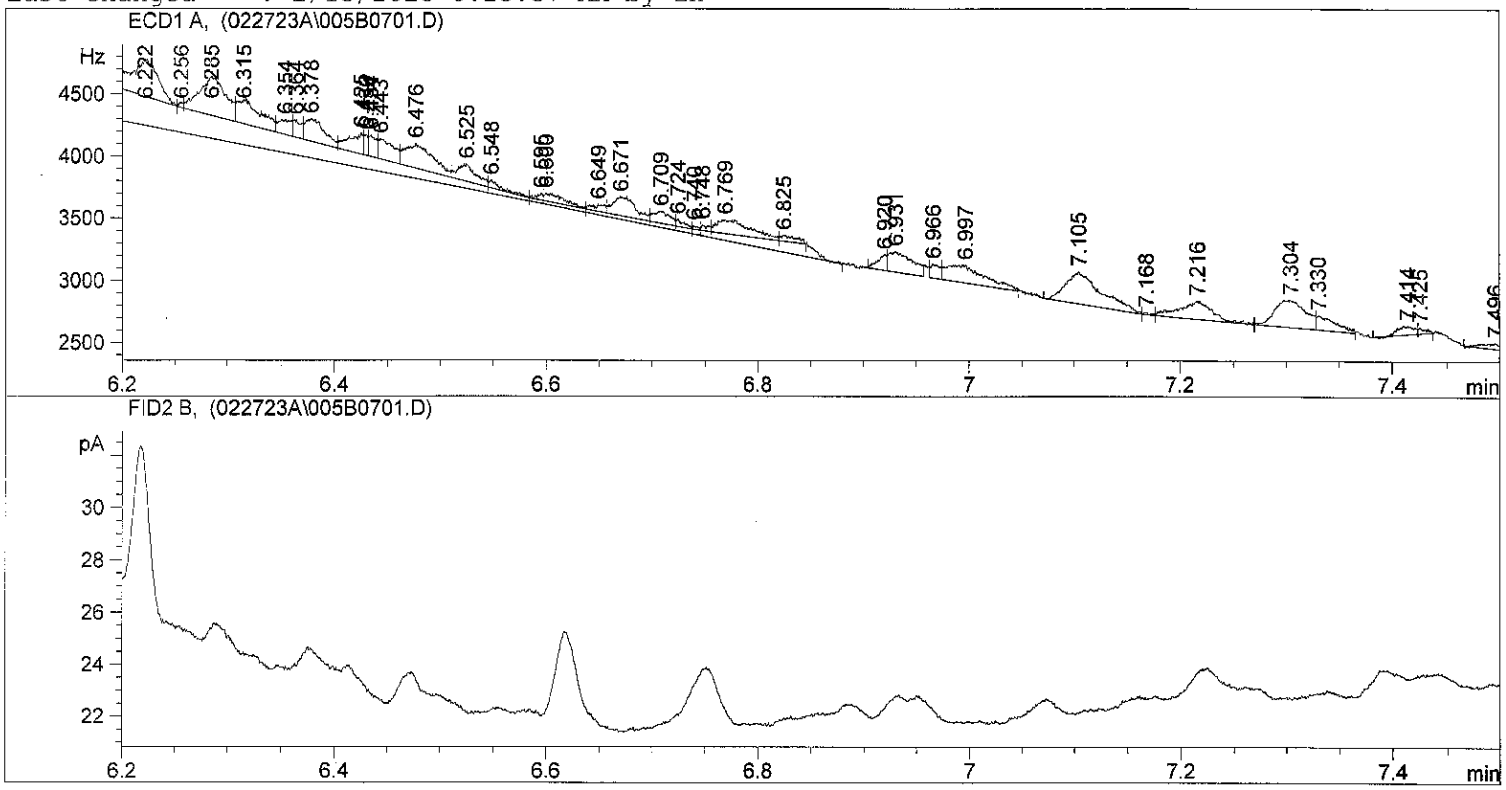
Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

Injection Date : 2/27/2023 11:06:11 AM Seq. Line : 7
Sample Name : 23B0494-02B Location : Vial 5
Acq. Operator : NL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\022723A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/13/2023 8:23:37 AM by ZH



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.256	BV	8.32e-3	223.14401	355.45673	0.41865
2	5.260	VV	7.29e-3	174.76826	346.32117	0.32789
3	5.287	VV	0.0200	710.14130	444.99179	1.33232
4	5.321	VV	0.0124	208.97501	209.63364	0.39206
5	5.346	VV	5.41e-3	52.04059	131.60016	0.09764
6	5.383	VV S	0.0279	6274.89551	2984.58032	11.77254
7	5.416	BV X	4.98e-3	17.05723	57.12352	0.03200
8	5.444	VV X	0.0130	360.43420	345.11761	0.67622
9	5.486	VV S	0.0194	1.15033e4	8586.32910	21.58173
10	5.520	VB S	0.0252	2133.96021	1412.97522	4.00359
11	5.602	BV	0.0185	660.99725	425.71057	1.24012
12	5.639	VV	9.95e-3	114.77646	143.16580	0.21534
13	5.659	VV	0.0146	277.21231	231.49231	0.52009
14	5.707	VV S	0.0259	6550.88379	3396.51123	12.29033
15	5.741	BV T	3.36e-3	6.77715	33.57700	0.01271
16	5.768	VV T	0.0151	804.35626	656.90906	1.50908
17	5.821	PV T	0.0144	213.60040	180.50352	0.40074

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.828	PV T	0.0141	164.01573	193.20436	0.30772
19	5.857	PV T	4.39e-3	9.04403	34.35858	0.01697
20	5.884	PV T	0.0226	1958.94739	1188.14661	3.67525
21	5.966	VB S	0.0599	1.21151e4	2509.36230	22.72954
22	6.001	BV T	6.17e-3	20.61216	46.50099	0.03867
23	6.029	PV T	9.96e-3	154.67841	192.85123	0.29020
24	6.034	PV T	5.14e-3	55.60732	180.47855	0.10433
25	6.043	PV T	6.80e-3	98.43536	205.03476	0.18468
26	6.058	PV T	0.0109	294.44122	347.37546	0.55241
27	6.071	PV T	7.87e-3	298.62228	479.19141	0.56026
28	6.076	VV T	0.0137	401.12036	487.55066	0.75256
29	6.121	PV T	0.0179	639.41534	432.32568	1.19963
30	6.172	PV T	0.0226	330.03268	173.25890	0.61919
31	6.222	PV T	0.0202	511.60291	301.59201	0.95984
32	6.256	PV T	4.06e-3	11.20376	42.65411	0.02102
33	6.285	PV T	0.0210	538.78802	311.76923	1.01084
34	6.315	PV T	0.0182	301.73761	197.74275	0.56610
35	6.354	PV T	0.0114	103.48253	120.84749	0.19415
36	6.364	PV T	8.53e-3	71.58136	139.86325	0.13430
37	6.378	PV T	0.0166	231.86060	179.86279	0.43500
38	6.425	PV T	0.0114	148.66495	169.27869	0.27892
39	6.430	PV T	4.37e-3	43.25418	164.92284	0.08115
40	6.434	PV T	7.90e-3	81.19173	171.30257	0.15233
41	6.443	PV T	0.0123	166.42763	162.89011	0.31224
42	6.476	PV T	0.0221	364.21689	197.71457	0.68332
43	6.525	PV T	0.0160	168.30681	138.54051	0.31577
44	6.548	PV T	0.0126	44.71524	59.17366	0.08389
45	6.595	PV T	4.64e-3	18.29313	52.84840	0.03432
46	6.600	PV T	0.0168	88.24355	63.40041	0.16556
47	6.649	PV T	9.76e-3	44.42456	55.38082	0.08335
48	6.671	PV T	0.0185	231.61630	148.95201	0.43454
49	6.709	PV T	0.0139	105.41087	93.90753	0.19776
50	6.724	PV T	8.82e-3	28.39940	53.69098	0.05328
51	6.740	PV T	4.86e-3	8.73399	29.95916	0.01639
52	6.748	PV T	7.89e-3	22.22762	46.93107	0.04170
53	6.769	PV T	0.0278	252.28568	110.68783	0.47332
54	6.825	PB T	0.0135	51.67122	46.69230	0.09694
55	6.920	BV	7.59e-3	72.81259	125.13029	0.13661
56	6.931	VB	0.0201	261.92844	163.30095	0.49141
57	6.966	BB	7.93e-3	69.32916	110.39424	0.13007
58	6.997	BB	0.0299	348.08844	142.35558	0.65306
59	7.105	PP	0.0278	591.03986	253.49724	1.10887
60	7.168	VV	5.97e-3	6.25112	15.97550	0.01173
61	7.216	VP	0.0253	303.03339	145.41557	0.56853
62	7.304	VV	0.0262	448.66983	222.09798	0.84176
63	7.330	VB	0.0162	146.96060	114.53819	0.27572
64	7.414	PV	0.0125	72.07465	69.31097	0.13522
65	7.425	VB	8.33e-3	23.45406	46.94408	0.04400
66	7.496	PB	0.0303	115.83025	48.73870	0.21731
67	7.570	PB	0.0133	25.74044	23.69504	0.04829
68	7.590	BV	0.0111	31.01634	38.24543	0.05819
69	7.605	VV	2.74e-3	6.24560	34.08063	0.01172
70	7.633	VV	0.0126	106.14273	111.04352	0.19914
71	7.637	VP	0.0205	197.83034	115.80010	0.37116
72	7.739	BB	6.95e-3	8.94405	17.52352	0.01678
Totals :				5.33011e4	3.12703e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

```
Injection Date  : 2/27/2023 11:17:26 AM          Seq. Line :   8
Sample Name     : 23B0506-01A                    Location : Vial 6
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\022723A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/13/2023 8:23:37 AM by ZH
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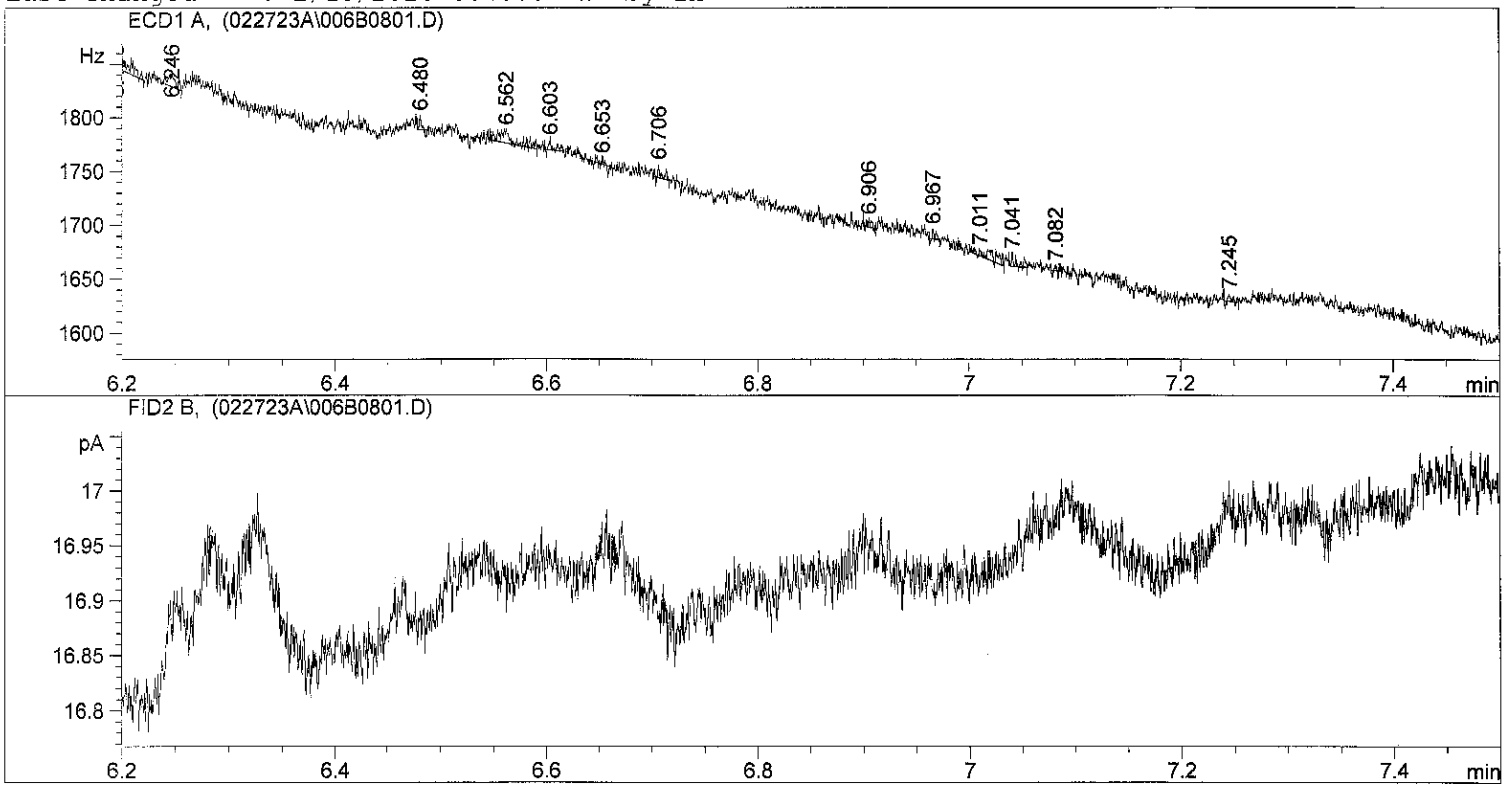

Area Percent Report

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Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
```

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.211	BP	0.0130	24.37567	24.02813	0.81959
2	5.289	BV	0.0222	139.40169	75.31154	4.68714
3	5.374	PV	0.0231	113.72787	59.37785	3.82390
4	5.408	VB	0.0138	29.19807	25.35826	0.98173
5	5.554	PV	0.0342	1058.02515	371.41895	35.57425
6	5.642	VV	0.0320	1173.37158	441.58395	39.45258
7	5.699	VB	0.0103	53.50885	64.14411	1.79914
8	5.732	BV	0.0264	103.56594	47.96606	3.48222
9	5.795	VV	0.0180	101.32907	67.16698	3.40701
10	5.802	VB	9.97e-3	44.20782	56.21469	1.48641
11	5.979	BV	0.0165	26.57804	20.31137	0.89364
12	5.988	VB	0.0134	27.06064	24.37213	0.90987
13	6.070	PP	0.0145	20.65008	17.32545	0.69432
14	6.124	PP	3.26e-3	3.10607	12.68463	0.10444
15	6.195	BP	0.0122	9.13999	9.31313	0.30732
16	6.246	BP	6.83e-3	5.69676	11.80304	0.19154
17	6.480	BB	1.77e-3	1.27578	12.74920	0.04290

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.562	BP	0.0120	10.90774	11.53746	0.36675
19	6.603	BB	4.52e-3	2.61109	8.65935	0.08779
20	6.653	PP	9.54e-4	1.56000e-1	5.13495	0.00525
21	6.706	PP	3.13e-3	2.53796	11.72376	0.08533
22	6.906	BP	3.28e-3	1.67193	6.77550	0.05622
23	6.967	PB	1.88e-3	9.75828e-1	8.67148	0.03281
24	7.011	PP	0.0198	8.10292	4.92384	0.27245
25	7.041	BP	4.29e-3	3.58856	11.35033	0.12066
26	7.082	PB	1.50e-3	2.29597e-1	3.80949	0.00772
27	7.245	BP	3.11e-3	1.11930	6.18534	0.03763
28	7.682	BP	9.70e-3	8.01166	10.04705	0.26938
Totals :				2974.13166	1429.94803	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

```
Injection Date  : 2/27/2023 11:28:27 AM        Seq. Line :   9
Sample Name     : 23B0506-02A                   Location : Vial 7
Acq. Operator   : NL                               Inj :   1
                                              Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\022723A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/13/2023 8:23:37 AM by ZH
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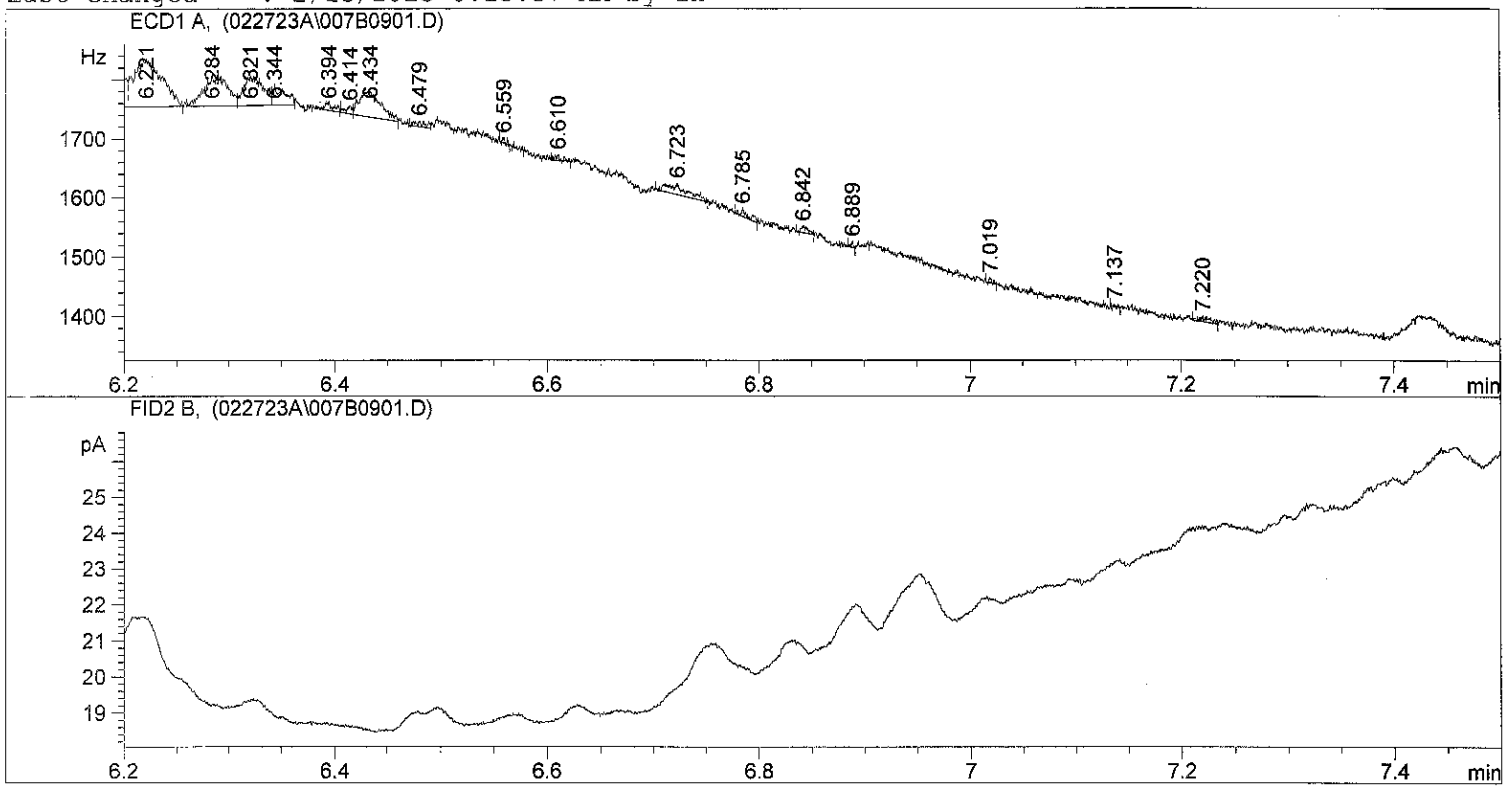

Area Percent Report

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Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
```

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.263	BV	0.0162	166.07887	124.03954	2.53589
2	5.291	VV	0.0167	114.48772	87.25043	1.74813
3	5.327	VP	0.0176	422.63123	328.61343	6.45323
4	5.398	VP	0.0207	205.72491	118.08532	3.14125
5	5.483	VV	0.0176	63.35619	43.59776	0.96740
6	5.528	VP	0.0202	98.22688	58.00230	1.49984
7	5.575	VP	0.0116	25.14974	26.61697	0.38402
8	5.612	VV	0.0185	43.23844	29.78412	0.66022
9	5.653	VP	9.55e-3	8.72313	11.63074	0.13319
10	5.691	VV	0.0173	126.31451	88.06495	1.92872
11	5.774	VP	0.0186	210.03568	142.71191	3.20707
12	5.819	VV	0.0141	29.13733	25.51604	0.44490
13	5.855	VV	0.0165	67.13016	49.20179	1.02502
14	5.883	VV	0.0166	32.97545	24.07789	0.50351
15	5.969	VV S	0.0177	2943.67603	2427.30884	44.94748
16	6.025	VB S	0.0207	25.27597	20.30755	0.38594
17	6.044	BV	5.45e-3	7.82645	18.09568	0.11950

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.078	VV	0.0167	569.32599	417.78220	8.69313
19	6.124	VV	0.0196	657.85120	417.22604	10.04484
20	6.173	VV	0.0222	216.61714	117.01495	3.30756
21	6.221	VB	0.0227	145.00969	78.76719	2.21418
22	6.284	BV	0.0186	79.52691	51.61018	1.21431
23	6.321	VV	0.0163	64.38922	47.14933	0.98317
24	6.344	VB	0.0121	24.65152	33.84366	0.37641
25	6.394	PB	7.41e-3	7.15184	13.88046	0.10920
26	6.414	BV	5.70e-3	5.65920	12.95173	0.08641
27	6.434	VP	0.0179	61.45518	43.47613	0.93837
28	6.479	PB	8.20e-3	6.10077	9.36273	0.09315
29	6.559	BB	3.36e-3	1.78161	8.12402	0.02720
30	6.610	PP	6.07e-3	3.34967	9.20468	0.05115
31	6.723	BB	0.0151	22.74748	18.52736	0.34734
32	6.785	BP	6.37e-3	6.14346	12.00361	0.09381
33	6.842	PP	6.29e-3	4.59992	10.55074	0.07024
34	6.889	BP	2.44e-3	1.54173	9.76917	0.02354
35	7.019	BB	3.13e-3	1.46405	7.31548	0.02235
36	7.137	BP	0.0000	1.13622e-1	2.85291	0.00173
37	7.220	BP	9.20e-3	5.71008	7.74838	0.08719
38	7.593	BB	0.0223	72.62785	40.95512	1.10897
39	7.788	BP	3.11e-3	1.33834	6.77233	0.02044
Totals :				6549.14514	4999.79367	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

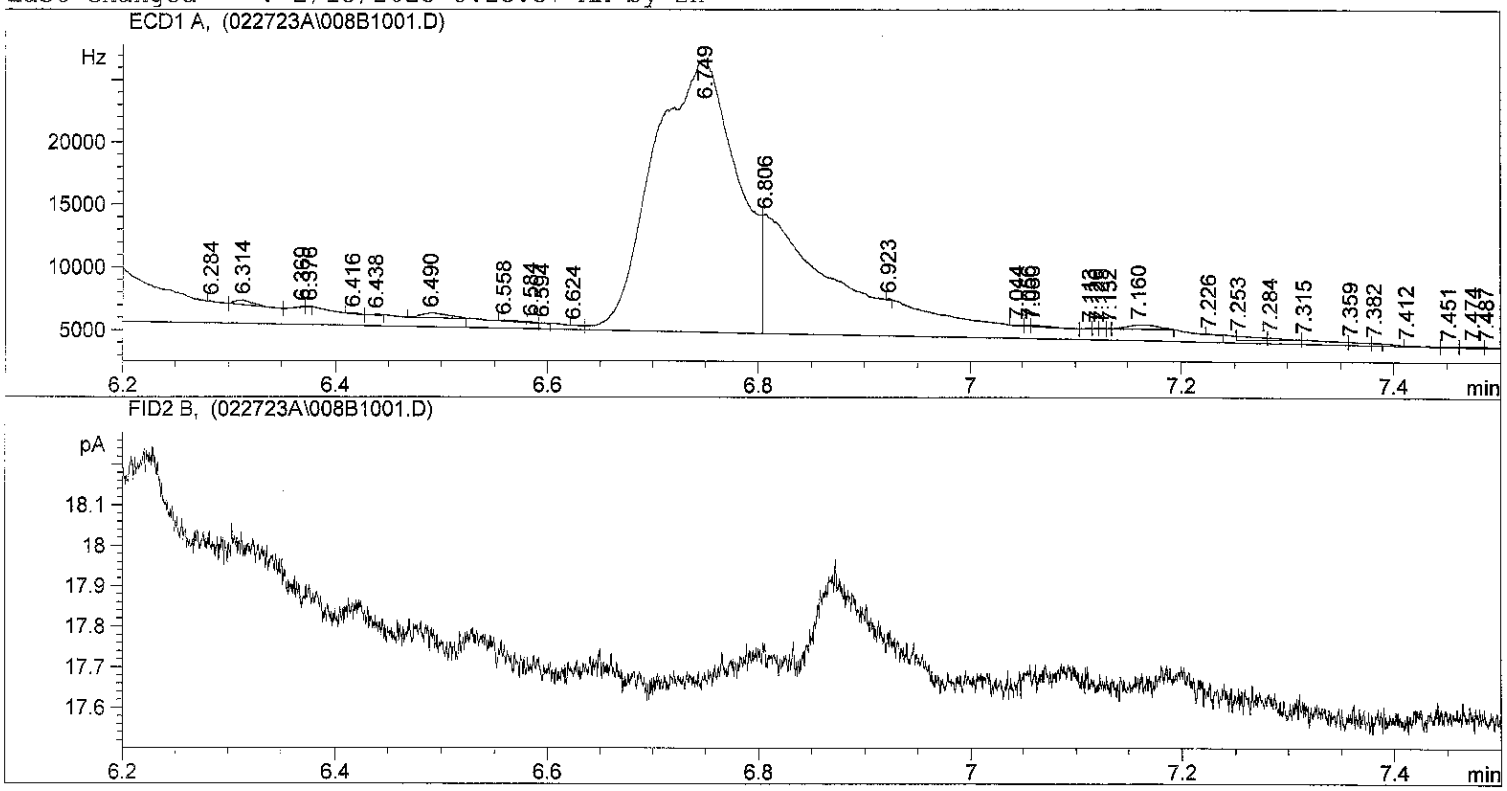
Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	5.377	PP	0.0192	26.58092	21.59733	1.000e2
Totals :				26.58092	21.59733	

Results obtained with enhanced integrator!

*** End of Report ***

Injection Date : 2/27/2023 11:39:29 AM Seq. Line : 10
Sample Name : 23B0506-03A Location : Vial 8
Acq. Operator : NL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\022723A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/13/2023 8:23:37 AM by ZH



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.230	BV	0.0198	3023.36182	1873.53064	0.72425
2	5.251	VV	0.0193	2674.74316	1688.73767	0.64074
3	5.319	VV S	0.0231	5769.65576	3041.63062	1.38212
4	5.363	VV S	0.0349	4024.70068	1924.27356	0.96412
5	5.429	VP S	0.0529	8445.85742	2662.61206	2.02321
6	5.500	PV S	0.0248	6451.90137	3325.62451	1.54556
7	5.575	VV S	0.0459	2.50092e4	6527.00293	5.99096
8	5.687	VV S	0.0467	2.17283e4	7761.21533	5.20502
9	5.744	VV S	0.1290	1.76291e4	2277.87891	4.22306
10	5.805	BV T	2.66e-4	4.93774e-1	30.91377	0.00012
11	5.820	PV T	0.0000	202.68735	123.02757	0.04855
12	5.874	PV T	0.0000	517.45050	18.67179	0.12396
13	5.916	PV T	0.0300	787.14130	318.42847	0.18856
14	5.935	PV T	0.0133	635.06024	583.82812	0.15213
15	5.967	PV T	0.0000	340.96878	335.06339	0.08168
16	6.029	VV S	0.0774	5.72729e4	1.23279e4	13.71974
17	6.145	VV S	0.1178	7.76869e4	1.09931e4	18.60993

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.284	BV T	1.98e-3	7.46926	62.83535	0.00179
19	6.314	PV T	0.0142	408.48410	355.90018	0.09785
20	6.369	PV T	5.03e-3	35.57039	98.06371	0.00852
21	6.376	PB T	4.67e-3	16.57059	59.10534	0.00397
22	6.416	BV T	8.64e-3	55.35666	91.78840	0.01326
23	6.438	PB T	6.69e-3	41.80754	77.50430	0.01002
24	6.490	BB T	0.0213	657.45184	371.02179	0.15749
25	6.558	BV T	0.0157	106.27259	81.95279	0.02546
26	6.584	PV T	6.86e-3	25.29622	61.42098	0.00606
27	6.594	PB T	7.26e-3	12.53221	28.75791	0.00300
28	6.624	BV T	8.50e-3	20.93175	41.02488	0.00501
29	6.749	PV S	0.0905	1.18568e5	2.18245e4	28.40307
30	6.806	VB S	0.1116	6.33189e4	9452.50000	15.16805
31	6.923	BB T	3.06e-3	16.20337	88.37753	0.00388
32	7.044	BV T	6.96e-3	32.76285	64.08656	0.00785
33	7.056	PV T	3.79e-3	27.17664	93.53899	0.00651
34	7.060	PV T	0.0185	103.36635	92.97136	0.02476
35	7.113	PV T	6.05e-3	30.87146	71.32179	0.00740
36	7.120	PV T	4.90e-3	18.56539	63.18379	0.00445
37	7.125	PV T	7.02e-3	28.75768	68.29810	0.00689
38	7.132	PV T	3.39e-3	13.66384	67.17880	0.00327
39	7.160	PB T	0.0237	710.01849	356.17932	0.17009
40	7.226	BB T	9.47e-3	27.16594	47.81322	0.00651
41	7.253	BV T	0.0238	458.57492	321.10165	0.10985
42	7.284	PV T	0.0153	164.46619	179.45486	0.03940
43	7.315	PV T	2.53e-3	3.43425	22.63518	0.00082
44	7.359	PV T	8.51e-3	15.48881	30.34099	0.00371
45	7.382	PB T	5.85e-3	9.81129	27.96688	0.00235
46	7.412	BV T	0.0157	54.35098	57.74832	0.01302
47	7.451	PV T	0.0126	26.82898	35.40631	0.00643
48	7.474	PV T	0.0137	103.98899	92.73462	0.02491
49	7.487	PB T	8.34e-3	43.02683	86.00321	0.01031
50	7.532	BP	8.44e-3	8.45463	12.91686	0.00203
51	7.570	PP	8.94e-3	13.91484	19.46723	0.00333
52	7.592	VB	0.0119	35.55219	36.80407	0.00852
53	7.733	BP	0.0109	27.02309	31.81477	0.00647
Totals :				4.17449e5	9.03871e4	

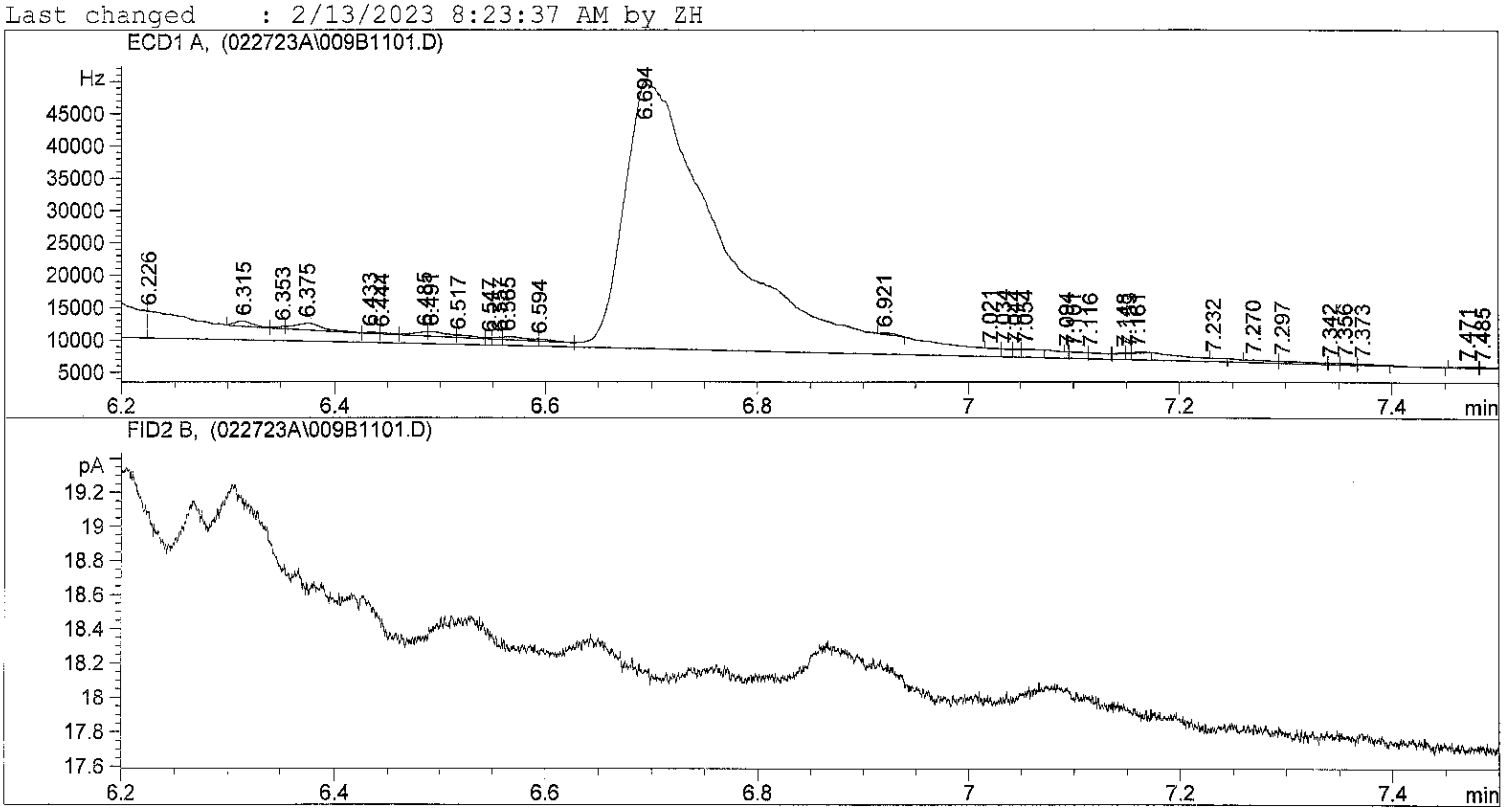
Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

Injection Date : 2/27/2023 11:50:42 AM Seq. Line : 11
Sample Name : 23B0506-04A Location : Vial 9
Acq. Operator : NL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\022723A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/13/2023 8:23:37 AM by ZH



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.227	BV S	0.0175	5467.08203	3775.48755	0.50377
2	5.318	VV S	0.0517	2.20974e4	7124.10889	2.03619
3	5.355	VV S	0.0351	9095.56934	4313.59033	0.83812
4	5.438	VV S	0.0487	1.04138e5	3.56144e4	9.59588
5	5.483	VV S	0.0326	1.04436e5	5.33801e4	9.62340
6	5.514	VV S	0.0376	1.01087e5	4.48642e4	9.31480
7	5.566	VV S	0.0278	2.82072e4	1.68962e4	2.59918
8	5.609	VV S	0.0534	4.58049e4	1.43071e4	4.22075
9	5.681	VV S	0.0349	6.17549e4	2.94510e4	5.69048
10	5.743	VV S	0.0856	3.31092e4	6443.02002	3.05089
11	5.819	BV T	0.0140	1208.17053	1048.05774	0.11133
12	5.859	PV T	5.93e-3	66.06316	144.73634	0.00609
13	5.880	PV T	0.0144	1186.48596	1020.19037	0.10933
14	5.913	PV T	0.0207	2007.31433	1252.06226	0.18497
15	6.017	PV S	0.0501	1.47166e5	3.55821e4	13.56077
16	6.134	VV S	0.0694	8.50585e4	2.04262e4	7.83782
17	6.226	VV S	0.1615	4.02994e4	4158.24414	3.71343

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.315	BV T	0.0170	934.89429	769.64551	0.08615
19	6.353	PV T	7.30e-3	195.01060	339.62582	0.01797
20	6.375	PV T	0.0206	1860.57703	1083.94885	0.17145
21	6.433	PV T	9.21e-3	161.83273	219.37059	0.01491
22	6.444	PV T	0.0122	161.61487	220.81886	0.01489
23	6.485	PV T	0.0109	583.34729	647.72180	0.05375
24	6.491	PV T	0.0206	889.61047	718.31805	0.08197
25	6.517	PV T	0.0214	455.58984	354.93045	0.04198
26	6.547	PV T	3.87e-3	50.96708	181.71376	0.00470
27	6.557	PV T	5.93e-3	164.77116	347.88705	0.01518
28	6.565	PV T	0.0177	731.15601	499.76828	0.06737
29	6.594	PV T	0.0157	314.97726	333.45963	0.02902
30	6.694	PB S	0.0818	2.83570e5	4.15738e4	26.12989
31	6.921	BB T	0.0147	272.05835	242.80838	0.02507
32	7.021	BV T	6.80e-3	37.86863	71.30345	0.00349
33	7.034	PV T	8.68e-3	33.98476	65.22613	0.00313
34	7.044	PV T	6.29e-3	22.48235	59.56462	0.00207
35	7.054	PB T	7.50e-3	58.42002	96.01552	0.00538
36	7.094	BV T	2.03e-3	6.73006	55.12084	0.00062
37	7.101	PV T	9.39e-3	42.95381	76.21338	0.00396
38	7.116	PV T	9.38e-3	37.57479	52.29012	0.00346
39	7.148	PV T	6.48e-3	65.58916	139.51373	0.00604
40	7.153	PV T	3.75e-3	39.30994	145.39481	0.00362
41	7.161	PB T	8.55e-3	135.70137	204.30150	0.01250
42	7.232	BB T	8.32e-3	31.93113	63.94438	0.00294
43	7.270	BV T	0.0124	113.33182	110.61195	0.01044
44	7.297	PV T	0.0193	143.83192	88.91573	0.01325
45	7.342	PV T	9.70e-3	40.89890	70.28487	0.00377
46	7.356	PV T	9.14e-3	98.84402	131.96553	0.00911
47	7.373	PB T	0.0127	114.19831	110.37421	0.01052
48	7.471	BV	0.0144	218.54991	184.80769	0.02014
49	7.485	VP	0.0148	259.79758	212.71315	0.02394
50	7.537	VV	6.46e-3	17.57415	45.36049	0.00162
51	7.545	VV	4.81e-3	25.59391	70.84816	0.00236
52	7.556	VV	0.0139	140.33560	129.06653	0.01293
53	7.582	VV	0.0136	164.11400	149.62515	0.01512
54	7.601	VV	6.03e-3	76.41396	184.58350	0.00704
55	7.606	VV	0.0226	409.01712	217.04604	0.03769
56	7.657	VP	0.0101	29.79661	36.65734	0.00275
57	7.683	VV	6.36e-3	15.59321	39.92157	0.00144
58	7.695	VV	2.90e-3	4.16827	23.10630	0.00038
59	7.707	VV	5.72e-3	31.77449	72.46439	0.00293
60	7.712	VV	5.14e-3	36.21119	93.12200	0.00334
61	7.723	VV	0.0108	114.83736	131.76709	0.01058
62	7.740	VV	0.0122	74.58228	78.85995	0.00687
63	7.760	VV	7.06e-3	24.17558	46.57519	0.00223
64	7.769	VP	7.42e-3	16.24762	27.80760	0.00150
65	7.784	VP	2.25e-3	5.07228	35.76160	0.00047
66	7.790	VP	2.90e-3	7.23145	36.66265	0.00067
67	7.797	VP	1.90e-3	1.83164	16.40507	0.00017
Totals :				1.08523e6	3.30709e5	

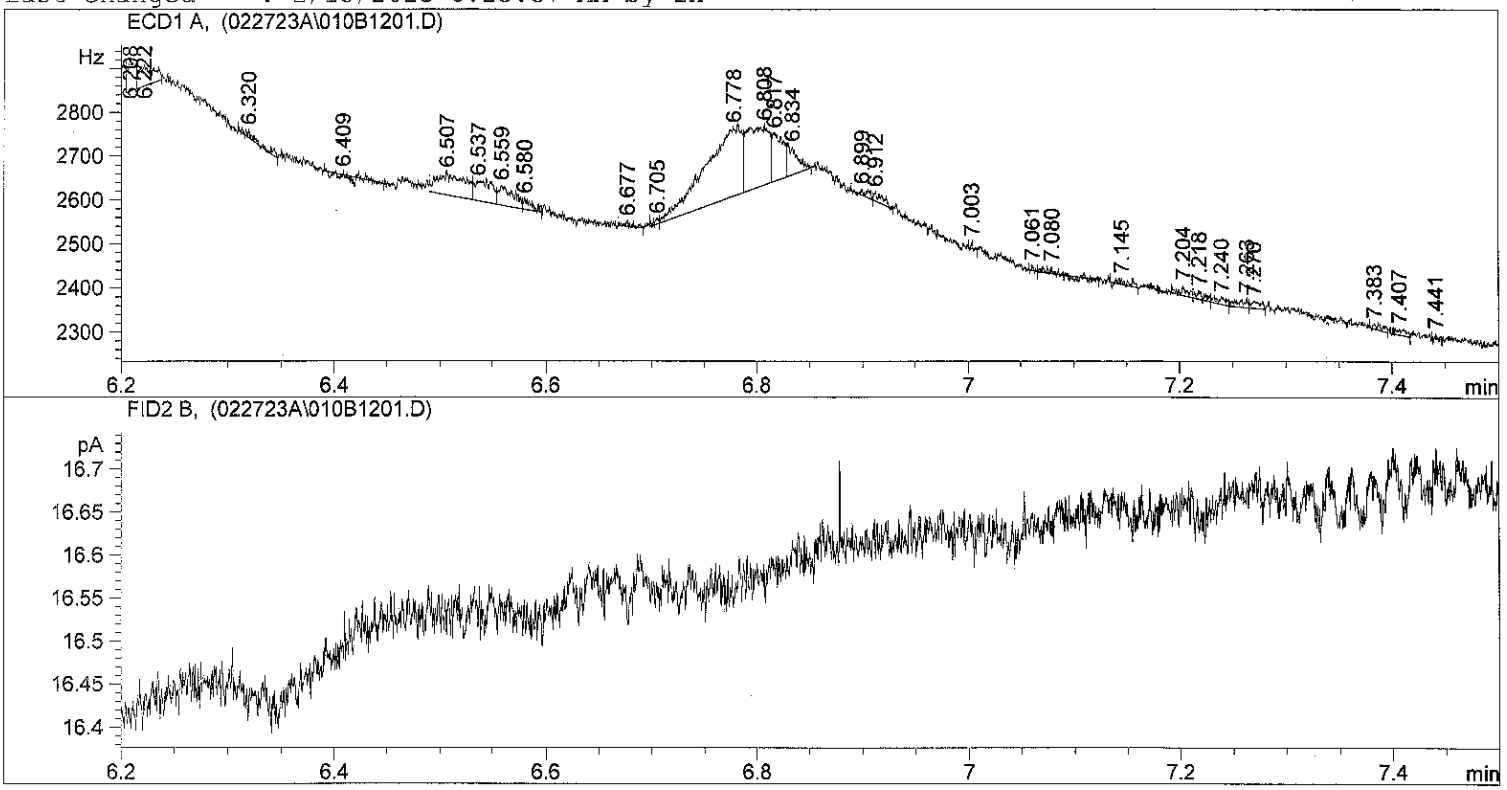
Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

Injection Date : 2/27/2023 12:02:01 PM Seq. Line : 12
Sample Name : 23B0506-05A Location : Vial 10
Acq. Operator : NL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\022723A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/13/2023 8:23:37 AM by ZH



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.214	BV	0.0115	35.62429	38.96576	0.75605
2	5.229	VP	9.21e-3	18.82166	26.75431	0.39945
3	5.268	VV	0.0126	25.73041	25.91884	0.54607
4	5.297	VB	0.0184	52.85356	35.09679	1.12171
5	5.344	BV	9.80e-3	10.70191	16.41842	0.22713
6	5.374	VV	0.0230	84.21213	43.53750	1.78723
7	5.411	VP	6.48e-3	6.53810	13.43876	0.13876
8	5.426	VP	5.85e-3	7.46855	17.24478	0.15850
9	5.607	VV	0.1056	2139.17505	237.73038	45.39955
10	5.678	VB	0.0228	212.32770	155.37003	4.50621
11	5.723	BV	0.0251	218.24864	102.99901	4.63187
12	5.757	VV	0.0125	78.37114	76.88705	1.66326
13	5.780	VV	0.0201	109.63175	66.19385	2.32671
14	5.795	VB	0.0113	43.87033	47.80492	0.93106
15	5.877	PV	0.0132	29.53425	27.33524	0.62680
16	5.899	VB	9.19e-3	13.23412	17.56738	0.28087
17	5.948	BP	4.65e-3	6.46812	18.62737	0.13727

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.972	VP	8.58e-3	14.82380	22.24229	0.31460
19	5.998	VP	7.40e-3	7.28265	13.27375	0.15456
20	6.021	VV	3.61e-3	4.68373	18.16281	0.09940
21	6.089	VV	0.0229	216.20328	115.10468	4.58847
22	6.119	VV	0.0249	222.96001	106.24075	4.73186
23	6.208	BV	6.41e-3	34.43977	69.16235	0.73091
24	6.222	VB	0.0125	43.73904	46.11564	0.92827
25	6.320	PP	0.0123	11.85702	16.11333	0.25164
26	6.409	PB	0.0000	6.92062	5.63110	0.14688
27	6.507	BB	0.0224	93.21862	49.96112	1.97837
28	6.537	BV	0.0154	55.33100	44.15033	1.17429
29	6.559	VV	0.0119	42.11246	43.54975	0.89375
30	6.580	VP	6.76e-3	12.93409	23.73580	0.27450
31	6.677	BP	6.29e-3	4.71069	11.24577	0.09997
32	6.705	BV	4.70e-3	3.86207	11.55255	0.08196
33	6.778	VV	0.0296	388.60965	155.19046	8.24743
34	6.808	VV	0.0185	209.57158	135.42363	4.44772
35	6.817	VB	9.39e-3	80.64021	109.56175	1.71142
36	6.834	BB	8.93e-3	45.00109	63.06395	0.95505
37	6.899	PP	5.89e-3	5.68988	12.55858	0.12076
38	6.912	VB	7.66e-3	11.53745	19.60808	0.24486
39	7.003	PP	1.34e-3	8.94875e-1	14.05003	0.01899
40	7.061	PP	1.86e-3	1.06909	9.88727	0.02269
41	7.080	BB	4.22e-3	2.86640	13.81538	0.06083
42	7.145	BP	8.90e-3	6.51189	11.34709	0.13820
43	7.204	BB	6.48e-3	11.02815	21.88194	0.23405
44	7.218	BB	7.73e-3	9.74062	17.59986	0.20672
45	7.240	BP	9.45e-3	10.46782	14.80221	0.22216
46	7.263	VV	7.54e-3	12.02568	20.20363	0.25522
47	7.270	VV	8.27e-3	10.29096	16.07824	0.21840
48	7.383	BB	8.54e-3	7.40940	11.16382	0.15725
49	7.407	PP	9.42e-3	8.95925	13.03537	0.19014
50	7.441	PB	2.18e-3	1.04153	8.80201	0.02210
51	7.558	PP	2.48e-3	2.69940	16.74470	0.05729
52	7.566	VB	4.61e-3	5.47682	15.92307	0.11623
53	7.611	BB	2.19e-3	2.61292	17.04234	0.05545
54	7.636	BP	9.13e-3	4.68896	6.57112	0.09951
55	7.682	BB	1.82e-3	1.61095	15.46134	0.03419
56	7.734	PP	2.73e-3	1.18800	7.19470	0.02521
57	7.789	BB	3.36e-3	2.36253	10.74846	0.05014
Totals :				4711.88569	2321.89143	

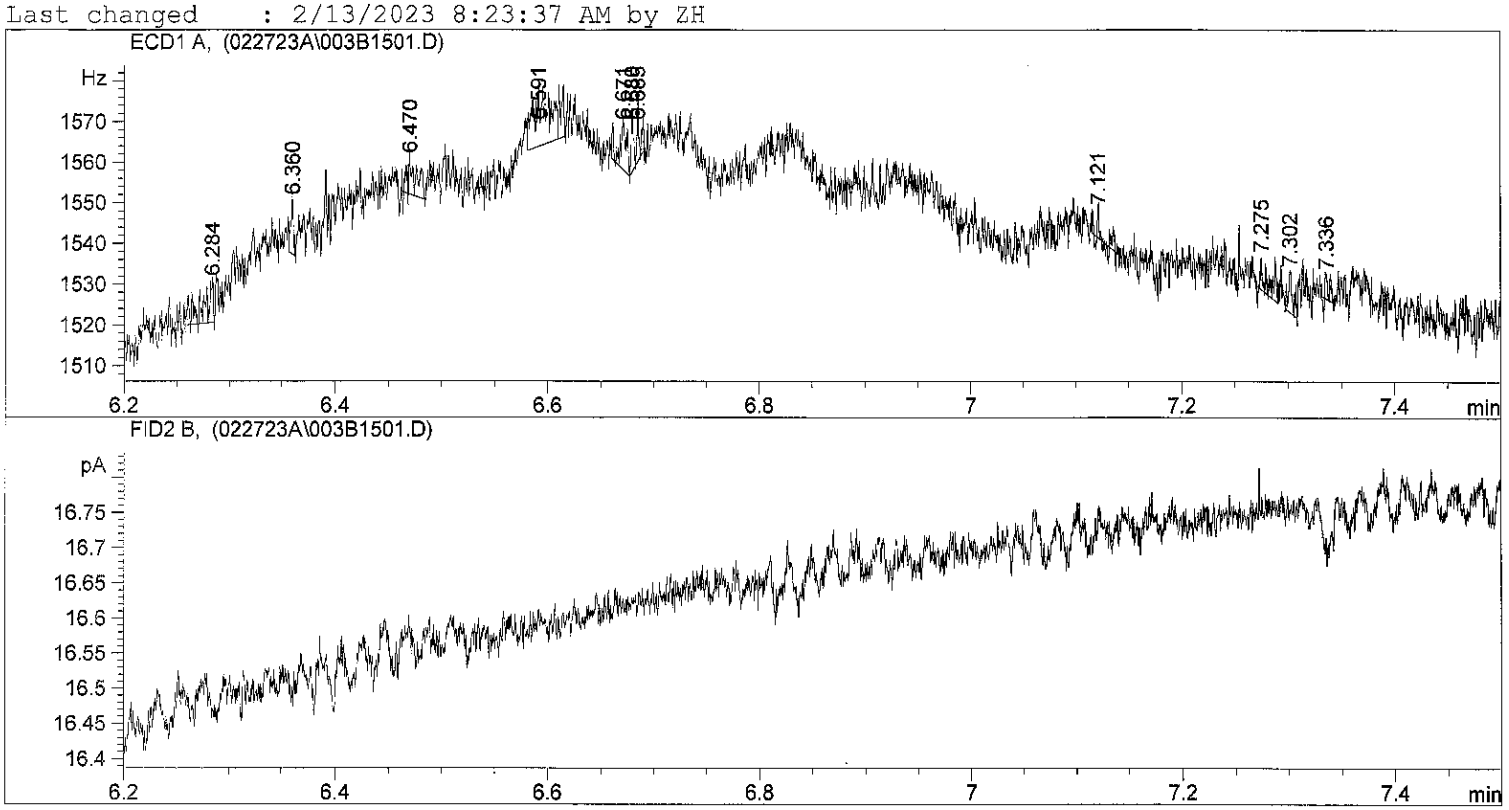
Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

Injection Date : 2/27/2023 12:35:30 PM Seq. Line : 15
Sample Name : CS4 Location : Vial 3
Acq. Operator : NL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\022723A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/13/2023 8:23:37 AM by ZH



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	6.012	BB	0.0237	53.07463	26.61622	42.59387
2	6.118	BP	0.0133	10.46394	10.07178	8.39760
3	6.161	BP	5.62e-3	1.84911	4.29858	1.48397
4	6.284	BP	8.55e-3	6.50949	10.05915	5.22405
5	6.360	BP	2.64e-3	2.30977	13.21250	1.85366
6	6.470	BP	7.55e-3	5.39166	8.79510	4.32696
7	6.591	BP	0.0186	17.20423	15.40185	13.80687
8	6.671	BP	6.01e-3	5.35022	11.54812	4.29370
9	6.680	VV	2.36e-3	2.23927	14.80676	1.79707
10	6.685	VB	2.49e-3	2.36242	14.58492	1.89591
11	7.121	BB	2.54e-3	1.13416	6.82414	0.91020
12	7.275	BB	6.12e-3	3.58098	7.57438	2.87384
13	7.302	BP	4.16e-3	2.85114	9.90564	2.28812
14	7.336	BP	3.26e-3	1.20543	5.71412	0.96739
15	7.556	PB	4.46e-3	3.33125	10.61092	2.67342
16	7.774	BP	5.80e-3	5.74855	13.97298	4.61337

Totals : 124.60627 183.99714

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glassware

Batch ID: BLB0709 Work Order: 23B0445, 23B0494, 23B0506, Extraction Parameter: Dioxin ARI Analyst

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer	Heating Mantle
BLB0709 - BLK1	3	12		39	40	21	104	27				4	4	A1
- BS1	8	11		33	96	143	55	15				4	4	A2
- BSD1	14	5		17	67	204	88	76				4	4	A3
- DUP1	21		76	22	94	32	57	43				4	4	A5
- SRM1	76	25		~~30~~ 28 177	41	12	2	53				4	4	A6
23B0445 - 01A	7	15		~~44~~ 49	64	26	139	79				4	4	B1
- 02A	51	26		23	45	30	53	71				4	4	B2
23B0494 - 01B	22	~~50~~	57	30	56	177	168	59				4	4	B3
- 02B	9	64		32	4	50	47	84				4	4	B4
23B0506 - 01A	25	110		138	43	46	17	8				4	4	B5
- 02A	86	16		19	48	185	142	11				4	4	B6
- 03A	45	23		31	84	43	121	12				4	4	C1
- 04A	34	70		13	51	3	164	40				4	4	C2
- 05A	59	13		40	70	102	46	33				4	4	C3
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Cleanup Batch:	CLC0078	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Duplicate	BLB0709-DUP1	23032111	03/07/2023	
LDW21-IT635A	23B0494-01	23032112	03/07/2023	
LDW21-IT635B	23B0494-02	23032113	03/07/2023	
Blank	BLB0709-BLK1	23032108	03/07/2023	
LCS	BLB0709-BS1	23032109	03/07/2023	
Reference	BLB0709-SRM1	23032110	03/07/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0078

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 3/9/2023 4:14:31PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23B0445-01	A	DBAF3	A 01	20	20	HRSM02.x	3/7/2023	DxP	
23B0445-02	A	DBAF4	A 01	20	20	HRSM02.x	3/7/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	HRSM02.x	3/7/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	8290 Dioxin	3/7/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	1613B Dioxin	3/7/2023	DxP	
23B0494-02	B	LDW21-IT635B	B 01	20	20	1613B Dioxin	3/7/2023	DxP	
23B0506-01	A	S0-B4-4-6-0223	A 01	20	20	8290 Dioxin	3/7/2023	DxP	
23B0506-02	A	S0-B6-4-6-0223	A 01	20	20	8290 Dioxin	3/7/2023	DxP	
23B0506-03	A	S0-B8-6-8-0223	A 01	20	20	8290 Dioxin	3/7/2023	DxP	
23B0506-04	A	S0-B10-8-10-0223	A 01	20	20	8290 Dioxin	3/7/2023	DxP	
23B0506-05	A	S0-B12-2-4-0223	A 01	20	20	8290 Dioxin	3/7/2023	DxP	
BLB0709-BLK1	-	DBLK03	-	20	20	-	3/7/2023	DxP	
BLB0709-BS1	-	DLCS03	-	20	20	-	3/7/2023	DxP	
BLB0709-BSD1	-	DLCSD03	-	20	20	-	3/7/2023	DxP	
BLB0709-DUP1	-	Duplicate	-	20	20	-	3/7/2023	DxP	
BLB0709-SRM1	-	Reference	-	20	20	-	3/7/2023	DxP	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Cleanup Batch:	CLC0079	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Blank	BLB0709-BLK1	23032108	03/08/2023	
Duplicate	BLB0709-DUP1	23032111	03/08/2023	
Reference	BLB0709-SRM1	23032110	03/08/2023	
LDW21-IT635B	23B0494-02	23032113	03/08/2023	
LDW21-IT635A	23B0494-01	23032112	03/08/2023	
LCS	BLB0709-BS1	23032109	03/08/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0079

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup - uL** **Printed: 3/9/2023 4:16:24PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23B0445-01	A	DBAF3	A 01	20	20	HRSM02.x	3/8/2023	DxP	
23B0445-02	A	DBAF4	A 01	20	20	HRSM02.x	3/8/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	HRSM02.x	3/8/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	1613B Dioxin	3/8/2023	DxP	
23B0494-02	B	LDW21-IT635B	B 01	20	20	1613B Dioxin	3/8/2023	DxP	
23B0506-01	A	S0-B4-4-6-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-02	A	S0-B6-4-6-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-03	A	S0-B8-6-8-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-04	A	S0-B10-8-10-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-05	A	S0-B12-2-4-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
BLB0709-BLK1	-	DBLK03	-	20	20	-	3/8/2023	DxP	
BLB0709-BS1	-	DLCS03	-	20	20	-	3/8/2023	DxP	
BLB0709-BSD1	-	DLCSD03	-	20	20	-	3/8/2023	DxP	
BLB0709-DUP1	-	Duplicate	-	20	20	-	3/8/2023	DxP	
BLB0709-SRM1	-	Reference	-	20	20	-	3/8/2023	DxP	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Cleanup Batch:	CLC0080	Cleanup Type:	Florisil
Cleanup Method:	EPA 3620B Florisil Cleanup (uL)	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT635B	23B0494-02	23032113	03/08/2023	
LCS	BLB0709-BS1	23032109	03/08/2023	
Duplicate	BLB0709-DUP1	23032111	03/08/2023	
Blank	BLB0709-BLK1	23032108	03/08/2023	
Reference	BLB0709-SRM1	23032110	03/08/2023	
LDW21-IT635A	23B0494-01	23032112	03/08/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0080

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (uL)** **Check Standard: CKK0015-FLO1** **Printed: 3/9/2023 4:16:45PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23B0445-01	A	DBAF3	A 01	20	20	HRSM02.x	3/8/2023	DxP	
23B0445-02	A	DBAF4	A 01	20	20	HRSM02.x	3/8/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	HRSM02.x	3/8/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0494-01	B	LDW21-IT635A	B 01	20	20	1613B Dioxin	3/8/2023	DxP	
23B0494-02	B	LDW21-IT635B	B 01	20	20	1613B Dioxin	3/8/2023	DxP	
23B0506-01	A	S0-B4-4-6-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-02	A	S0-B6-4-6-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-03	A	S0-B8-6-8-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-04	A	S0-B10-8-10-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
23B0506-05	A	S0-B12-2-4-0223	A 01	20	20	8290 Dioxin	3/8/2023	DxP	
BLB0709-BLK1	-	DBLK03	-	20	20	-	3/8/2023	DxP	
BLB0709-BS1	-	DLCS03	-	20	20	-	3/8/2023	DxP	
BLB0709-BSD1	-	DLCSD03	-	20	20	-	3/8/2023	DxP	
BLB0709-DUP1	-	Duplicate	-	20	20	-	3/8/2023	DxP	
BLB0709-SRM1	-	Reference	-	20	20	-	3/8/2023	DxP	

Analytical Resources, LLC
Analytical Chemists and Consultants

Blank

Form 1
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Solid	Laboratory ID:	BLB0709-BLK1	File ID:	23032108
Sampled:	N/A	Prepared:	02/28/23 06:55	Analyzed:	03/21/23 16:04
Solids Wt%:		Preparation:	EPA 8290	Initial/Final:	10.01 g / 20 uL
Result Basis:	Dry	Sequence:	SLC0322	Calibration:	GC00015
Batch:	BLB0709	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.000	0.655-0.886	0.227	0.999	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.183	0.999	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.227	0.999	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.216	0.999	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.210	0.999	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.114	0.999	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.111	0.999	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.132	0.999	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.166	0.999	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.146	0.999	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.137	0.999	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.155	0.999	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.000	0.893-1.208	0.188	0.999	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.297	0.999	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.032	0.893-1.208	0.283	2.50	0.977	ng/kg	J
39001-02-0	OCDF	1	0.000	0.757-1.024	0.461	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	1.033	0.757-1.024	0.392	9.99	4.81	ng/kg	EMPC, J

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	ND	ng/kg
41903-57-5	Total TCDD	1	0.000			0.999	ND	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.999	ND	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.999	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.999	ND	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.999	ND	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.999	0.309	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.999	3.13	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.011
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.306

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Blank

Form 2
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Matrix:	Solid	Laboratory ID:	BLB0709-BLK1	File ID:	23032108
Sampled:	N/A	Prepared:	02/28/23 06:55	Analyzed:	03/21/23 16:04
Solids Wt%:	0.00	Preparation:	EPA 8290	Initial/Final:	10.01 g / 20 uL
Result Basis:	Dry	Sequence:	SLC0322	Calibration:	GC00015
Batch:	BLB0709	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.777	0.655-0.886	0.23	84.4	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.775	0.655-0.886	0.26	91.6	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.510	1.318-1.783	0.40	109	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.545	1.318-1.783	0.44	108	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.561	1.318-1.783	0.29	106	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.510	0.434-0.587	0.43	108	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.513	0.434-0.587	0.36	113	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.501	0.434-0.587	0.44	104	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.519	0.434-0.587	0.53	95.7	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.277	1.054-1.426	0.55	109	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.273	1.054-1.426	0.47	114	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.435	0.374-0.506	0.58	96.2	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.449	0.374-0.506	0.67	90.4	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.033	0.893-1.208	0.51	85.9	23 - 140 %	
13C12-OCDD	1	0.852	0.757-1.024	0.68	90.7	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.09	70.7	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:16 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.702		0.770	529	1096								
12378-PeCDF					0.679		1.550	703	878								
23478-PeCDF					0.786		1.550	703	878								
123478-HxCDF					1.166		1.240	645	585								
234678-HxCDF					1.140		1.240	645	585								
123678-HxCDF					1.091		1.240	645	585								
123789-HxCDF					1.137		1.240	645	585								
1234678-HpCDF					1.003		1.050	527	680								
1234789-HpCDF					0.953		1.050	527	680								
OCDF					0.778		0.890	588	689								
2378-TCDD					1.149		0.770	1020	786								
12378-PeCDD					1.022		1.550	736	659								
123478-HxCDD					0.996		1.240	598	607								
123678-HxCDD					1.001		1.240	598	607								
123789-HxCDD					0.907		1.240	598	607								
1234678-HpCDD	40.207	1.000	5.437e2	5.267e2	1.039	1.032	1.050	593	787	8.87e3	8.66e3	15.0	11.0	NO	bb	bb	0.489
OCDD	44.918	1.000	2.287e3	2.214e3	0.920	1.033	0.890	600	684	2.76e4	3.03e4	46.1	44.4	YES	bb	bb	2.407
13C-2378-TCDF	25.732	1.007	1.939e5	2.494e5	1.620	0.777	0.770	1657	1384	2.68e6	3.50e6	1618.0	2528.5	NO	bb	bb	84.357
13C-12378-PeCDF	29.879	1.169	2.647e5	1.753e5	1.240	1.510	1.550	2318	1738	3.70e6	2.41e6	1596.8	1384.8	NO	bd	bb	109.356
13C-23478-PeCDF	31.216	1.221	2.369e5	1.533e5	1.118	1.545	1.550	2318	1738	3.38e6	2.23e6	1458.5	1281.5	NO	bb	bb	107.634
13C-123478-HxCDF	34.837	0.956	1.243e5	2.437e5	1.168	0.510	0.510	1687	1903	1.87e6	3.65e6	1111.4	1920.1	NO	bd	bd	107.897
13C-123678-HxCDF	34.971	0.959	1.559e5	3.035e5	1.386	0.513	0.510	1687	1903	2.07e6	4.09e6	1229.6	2146.5	NO	db	db	113.492
13C-234678-HxCDF	35.840	0.983	1.149e5	2.295e5	1.129	0.501	0.510	1687	1903	1.63e6	3.27e6	967.5	1718.9	NO	bb	bb	104.477
13C-123789-HxCDF	36.865	1.011	8.894e4	1.714e5	0.932	0.519	0.510	1687	1903	1.33e6	2.55e6	791.3	1341.3	NO	bb	bb	95.718
13C-1234678-HpCDF	38.703	1.062	7.623e4	1.752e5	0.895	0.435	0.440	1798	1926	1.16e6	2.64e6	646.7	1373.4	NO	bb	bb	96.202
13C-1234789-HpCDF	40.931	1.123	6.287e4	1.402e5	0.770	0.449	0.440	1798	1926	7.90e5	1.80e6	439.5	933.4	NO	bd	bb	90.362
13C-1234-TCDD	25.562	0.000	1.425e5	1.818e5	1.000	0.784	0.770	1468	1015	2.17e6	2.75e6	1478.8	2709.5	NO	bb	bb	100.000
13C-2378-TCDD	26.368	1.031	1.496e5	1.930e5	1.152	0.775	0.770	1468	1015	2.24e6	2.90e6	1528.9	2858.2	NO	bb	bb	91.650
13C-12378-PeCDD	31.472	1.231	1.739e5	1.114e5	0.829	1.561	1.550	749	1201	2.37e6	1.50e6	3165.0	1246.1	NO	bd	bb	106.107
13C-123478-HxCDD	35.963	0.987	1.782e5	1.396e5	0.995	1.277	1.240	943	3018	2.78e6	2.15e6	2953.4	713.0	NO	bd	bd	109.426
13C-123678-HxCDD	36.074	0.990	2.163e5	1.700e5	1.157	1.273	1.240	943	3018	2.95e6	2.28e6	3123.5	755.0	NO	db	db	114.410
13C-1234678-HpCDD	40.196	1.103	1.070e5	1.037e5	0.840	1.033	1.050	1294	1791	1.43e6	1.35e6	1103.2	752.3	NO	bb	bb	85.902
13C-OCDD	44.900	1.232	1.870e5	2.195e5	0.767	0.852	0.890	1993	1760	1.96e6	2.19e6	984.6	1242.7	NO	bb	bd	181.441
13C-123789-HxCDD	36.453	0.000	1.598e5	1.322e5	1.000	1.209	1.240	943	3018	2.37e6	1.88e6	2514.2	623.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.382	1.032	1.181e5		1.288			995		1.70e6		1704.2			bb		28.267

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:16 Pacific Daylight Time

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	529	1096								
1289-TCDF					0.678		0.770	529	1096								
13468-PECDF					1.246		1.550	728	805								
12389-PECDF					0.496		1.550	703	878								
123468-HXCDF					1.169		1.240	645	585								
1368-TCDD					1.015		0.770	1020	786								
1289-TCDD					0.909		0.770	1020	786								
12479-PECDD					2.301		1.550	736	659								
12389-PECDD					1.184		1.550	736	659								
124679-HXCDD	33.968	0.945	1.061e2	7.427e1	1.115	1.428	1.240	598	607	2.43e3	1.53e3	4.1	2.5	YES	dd	bb	0.051
1234679-HPCDD	39.160	0.974	1.275e3	1.307e3	1.137	0.976	1.050	593	787	1.69e4	2.02e4	28.6	25.7	NO	bb	bd	1.078
Total-tetrafurans			0.000e0		0.727			529		0.00e0							
Total-penta1			0.000e0					728		0.00e0							
Total-pentafurans			0.000e0		0.654			703		0.00e0							
Total-hexafurans			0.000e0		1.141			645		0.00e0							
Total-heptafurans			1.664e2		0.978			527		3.53e3							0.155
Total-Furans			1.664e2		0.922			529		3.53e3							0.155
Total-tetradioxins			0.000e0		1.024			1020		0.00e0							
Total-pentadioxins			0.000e0		1.502			736		0.00e0							
Total-hexadioxins			0.000e0		1.005			598		0.00e0							
Total-heptadioxins			1.819e3		1.088			593		2.58e4							1.567
Total-Dioxins			1.819e3		1.130			1020		2.58e4							1.567
Total-TEQ			1.985e3					1020		2.93e4							1.722
FUNCTION1 PFK			1.518e7					412494		7.33e7							
FUNCTION2 PFK			4.911e5					376162		1.31e7							0.000
FUNCTION3 PFK			6.874e7					503248		3.53e7							0.000
FUNCTION4 PFK			4.714e5					257255		7.99e6							
FUNCTION5 PFK			8.089e4					179387		2.37e6							
FUNCTION1 HXCD...			1.229e3					591		1.64e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.271e2					656		9.44e3							0.000
FUNCTION3 OCDPE			3.265e2					513		3.66e3							0.000
FUNCTION4 NCDPE			4.994e2					574		8.12e3							0.000
FUNCTION5 DCDPE			1.039e2					600		1.64e3							0.000

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.37	1.664e2	1.774e2	0.978	0.94	1.05	6.7	YES	NO	bb	bb	0.155

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.37	1.664e2	1.774e2	0.978	0.94	1.05	6.7	YES	NO	bb	bb	0.155

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:16 Pacific Daylight Time

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.21	5.437e2	5.267e2	1.039	1.03	1.05	15.0	YES	NO	bb	bb	0.489
2	1234679-HPCDD	39.16	1.275e3	1.307e3	1.137	0.98	1.05	28.6	YES	NO	bb	bd	1.078

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.21	5.437e2	5.267e2	1.039	1.03	1.05	15.0	YES	NO	bb	bb	0.489
2	1234679-HPCDD	39.16	1.275e3	1.307e3	1.137	0.98	1.05	28.6	YES	NO	bb	bd	1.078

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.37	1.664e2	1.774e2	0.978	0.94	1.05	6.7	YES	NO	bb	bb	0.155
2	1234678-HpCDD	40.21	5.437e2	5.267e2	1.039	1.03	1.05	15.0	YES	NO	bb	bb	0.489
3	1234679-HPCDD	39.16	1.275e3	1.307e3	1.137	0.98	1.05	28.6	YES	NO	bb	bd	1.078

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.74	6.355e5					17.0	YES		dd		
2	FUNCTION1 PFK	22.54	6.173e5					18.9	YES		dd		
3	FUNCTION1 PFK	22.50	5.176e5					15.9	YES		bd		
4	FUNCTION1 PFK	22.31	1.294e6					20.4	YES		db		
5	FUNCTION1 PFK	22.17	1.397e6					18.3	YES		bd		
6	FUNCTION1 PFK	21.88	4.502e5					11.9	YES		db		
7	FUNCTION1 PFK	21.57	1.594e6					9.4	YES		bd		
8	FUNCTION1 PFK	27.50	3.059e5					7.2	YES		bb		
9	FUNCTION1 PFK	25.20	6.772e4					3.1	YES		bb		
10	FUNCTION1 PFK	24.14	3.605e5					5.9	YES		bb		
11	FUNCTION1 PFK	23.91	5.804e5					14.8	YES		db		
12	FUNCTION1 PFK	23.73	4.285e6					16.1	YES		dd		
13	FUNCTION1 PFK	23.09	3.077e6					18.8	YES		dd		

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.92	1.589e4					1.5	NO		bd		0.000
2	FUNCTION2 PFK	28.87	9.902e3					0.9	NO		bb		0.000
3	FUNCTION2 PFK	28.61	1.310e4					0.9	NO		bb		0.000
4	FUNCTION2 PFK	28.35	7.037e3					0.6	NO		bb		0.000
5	FUNCTION2 PFK	28.29	2.771e3					0.4	NO		bb		0.000
6	FUNCTION2 PFK	28.19	1.174e4					1.1	NO		bb		0.000
7	FUNCTION2 PFK	28.14	1.087e4					1.1	NO		bb		0.000
8	FUNCTION2 PFK	28.06	1.503e4					1.4	NO		bb		0.000
9	FUNCTION2 PFK	28.00	2.447e3					0.5	NO		bb		0.000
10	FUNCTION2 PFK	31.08	1.134e3					0.3	NO		bb		0.000
11	FUNCTION2 PFK	30.87	1.877e4					0.8	NO		bb		0.000
12	FUNCTION2 PFK	30.60	7.140e3					0.7	NO		bb		0.000
13	FUNCTION2 PFK	30.51	1.053e4					1.0	NO		db		0.000
14	FUNCTION2 PFK	30.47	1.038e4					0.8	NO		dd		0.000
15	FUNCTION2 PFK	30.40	2.929e4					1.8	NO		bd		0.000
16	FUNCTION2 PFK	30.04	1.156e4					0.9	NO		bb		0.000
17	FUNCTION2 PFK	29.97	4.880e3					0.5	NO		db		0.000
18	FUNCTION2 PFK	29.91	2.059e4					0.9	NO		dd		0.000
19	FUNCTION2 PFK	29.78	1.255e4					0.9	NO		bd		0.000
20	FUNCTION2 PFK	29.67	7.681e3					0.8	NO		bb		0.000
21	FUNCTION2 PFK	29.57	5.244e3					0.7	NO		bb		0.000
22	FUNCTION2 PFK	29.51	4.931e3					0.4	NO		bb		0.000
23	FUNCTION2 PFK	29.28	1.182e4					0.7	NO		bb		0.000
24	FUNCTION2 PFK	29.11	1.871e4					1.0	NO		bb		0.000
25	FUNCTION2 PFK	28.97	1.922e4					1.2	NO		db		0.000
26	FUNCTION2 PFK	32.64	2.210e4					1.2	NO		db		0.000
27	FUNCTION2 PFK	32.52	2.101e4					1.0	NO		dd		0.000
28	FUNCTION2 PFK	32.46	1.992e4					1.1	NO		dd		0.000
29	FUNCTION2 PFK	32.40	1.313e4					1.0	NO		bd		0.000
30	FUNCTION2 PFK	32.29	2.432e4					1.4	NO		bb		0.000
31	FUNCTION2 PFK	32.03	1.127e3					0.3	NO		bb		0.000
32	FUNCTION2 PFK	31.99	8.555e3					0.6	NO		bb		0.000
33	FUNCTION2 PFK	31.74	1.037e3					0.2	NO		bb		0.000
34	FUNCTION2 PFK	31.70	8.316e3					0.8	NO		db		0.000
35	FUNCTION2 PFK	31.64	2.559e4					1.6	NO		dd		0.000
36	FUNCTION2 PFK	31.58	1.337e4					1.2	NO		bd		0.000
37	FUNCTION2 PFK	31.49	3.038e4					1.4	NO		db		0.000

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	31.45	1.905e4					1.5	NO		bd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.00	1.939e7					33.6	YES		db		0.000
2	FUNCTION3 PFK	34.77	4.935e7					36.5	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	42.29	5.235e3					0.7	NO		bd		
2	FUNCTION4 PFK	42.11	1.009e4					0.7	NO		bb		
3	FUNCTION4 PFK	41.54	1.095e3					0.4	NO		bb		
4	FUNCTION4 PFK	41.01	7.741e3					1.3	NO		bb		
5	FUNCTION4 PFK	40.80	6.089e3					0.9	NO		bb		
6	FUNCTION4 PFK	40.47	1.831e3					0.6	NO		bb		
7	FUNCTION4 PFK	40.43	1.072e3					0.4	NO		bb		
8	FUNCTION4 PFK	40.39	5.547e3					0.9	NO		bb		
9	FUNCTION4 PFK	40.24	1.135e4					1.2	NO		bb		
10	FUNCTION4 PFK	39.74	1.550e4					1.2	NO		bb		
11	FUNCTION4 PFK	39.13	4.160e3					0.8	NO		bb		
12	FUNCTION4 PFK	39.07	8.683e3					1.1	NO		bb		
13	FUNCTION4 PFK	37.86	2.232e5					6.1	YES		db		
14	FUNCTION4 PFK	37.79	9.757e4					6.8	YES		dd		
15	FUNCTION4 PFK	37.75	5.544e4					7.2	YES		bd		
16	FUNCTION4 PFK	42.37	1.686e4					0.8	NO		db		

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.68	1.283e4					1.6	NO		db		
2	FUNCTION5 PFK	45.65	1.612e4					2.0	NO		bd		
3	FUNCTION5 PFK	45.58	6.738e2					0.4	NO		bb		
4	FUNCTION5 PFK	45.11	1.778e3					0.6	NO		bb		
5	FUNCTION5 PFK	44.52	8.418e2					0.5	NO		bb		
6	FUNCTION5 PFK	44.12	9.428e3					1.4	NO		bb		
7	FUNCTION5 PFK	43.99	4.814e3					1.3	NO		bb		
8	FUNCTION5 PFK	43.81	6.242e3					1.1	NO		bb		
9	FUNCTION5 PFK	43.72	9.836e3					1.1	NO		bb		
10	FUNCTION5 PFK	42.96	1.196e3					0.5	NO		bb		
11	FUNCTION5 PFK	42.70	7.458e3					1.1	NO		bb		
12	FUNCTION5 PFK	42.58	9.672e3					1.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.10	7.944e1					2.6	NO		bd		0.000
2	FUNCTION1 HXCD...	27.71	1.165e2					2.9	NO		bb		0.000
3	FUNCTION1 HXCD...	26.69	1.306e2					1.6	NO		bb		0.000
4	FUNCTION1 HXCD...	26.35	9.977e1					2.4	NO		bb		0.000
5	FUNCTION1 HXCD...	25.92	7.903e1					2.2	NO		bb		0.000
6	FUNCTION1 HXCD...	25.82	9.822e1					2.3	NO		bb		0.000
7	FUNCTION1 HXCD...	25.10	7.839e1					2.6	NO		bb		0.000
8	FUNCTION1 HXCD...	23.10	9.784e1					2.0	NO		db		0.000
9	FUNCTION1 HXCD...	22.95	2.563e2					4.5	YES		bd		0.000
10	FUNCTION1 HXCD...	22.36	7.605e1					1.9	NO		bb		0.000
11	FUNCTION1 HXCD...	21.17	1.170e2					2.8	NO		db		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.68	1.002e2					2.0	NO		db		0.000
2	FUNCTION2 HPCD...	32.53	1.375e2					4.2	YES		bd		0.000
3	FUNCTION2 HPCD...	32.41	7.223e1					2.4	NO		bb		0.000
4	FUNCTION2 HPCD...	30.77	7.818e1					2.8	NO		bb		0.000
5	FUNCTION2 HPCD...	28.15	1.389e2					3.0	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.02	1.530e2					2.6	NO		bb		0.000
2	FUNCTION3 OCDPE	36.41	7.593e1					2.0	NO		bb		0.000
3	FUNCTION3 OCDPE	36.08	9.756e1					2.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.13	1.790e2					3.7	YES		bb		0.000
2	FUNCTION4 NCDPE	39.93	8.655e1					3.2	YES		db		0.000
3	FUNCTION4 NCDPE	39.85	9.482e1					2.5	NO		bd		0.000
4	FUNCTION4 NCDPE	38.13	1.390e2					4.7	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	42.57	1.039e2					2.7	NO		bb		0.000

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ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

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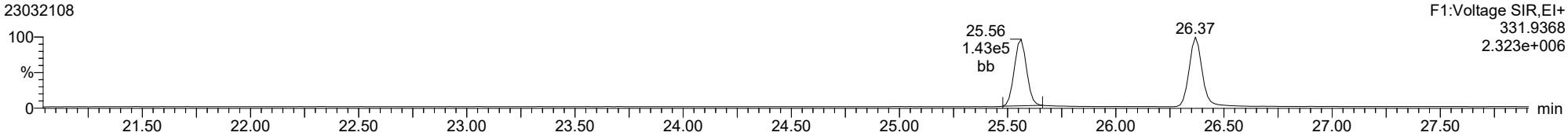

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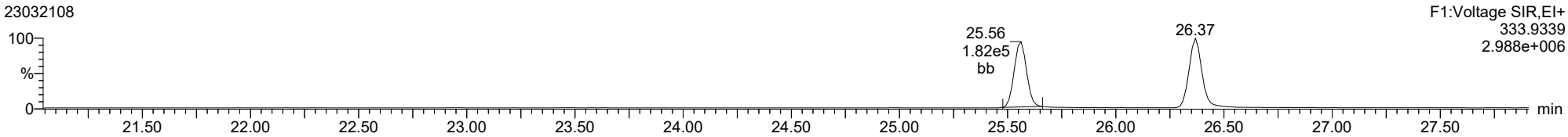

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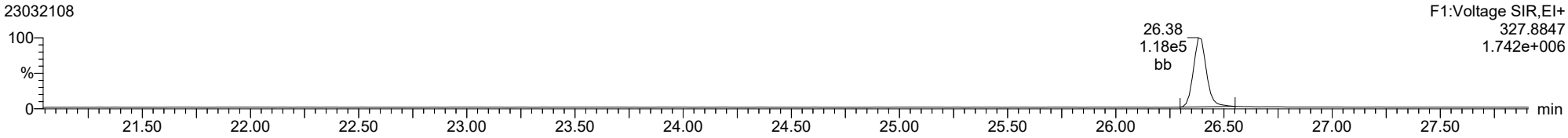

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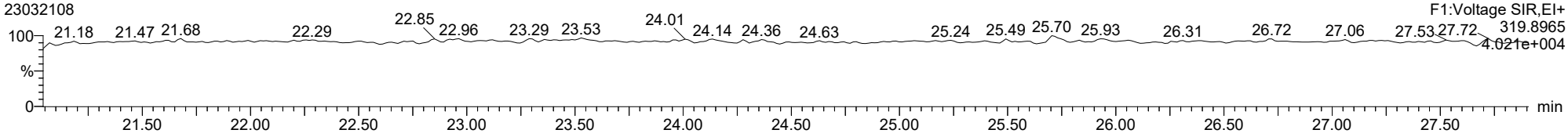

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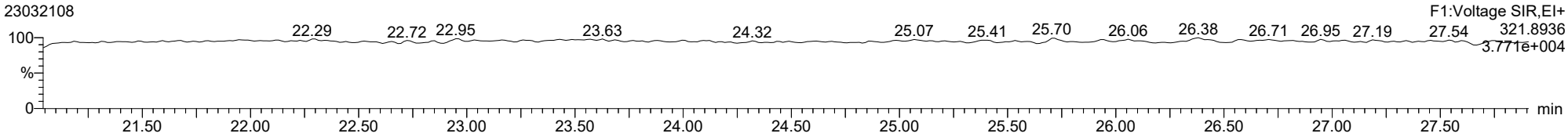

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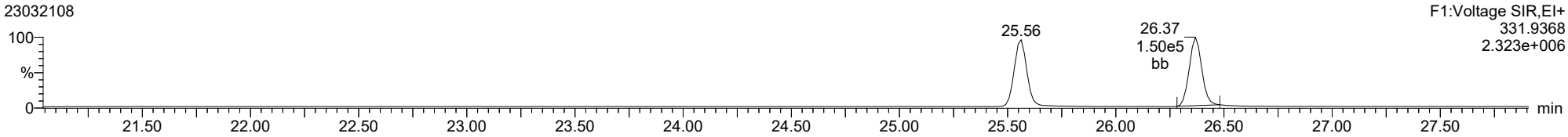

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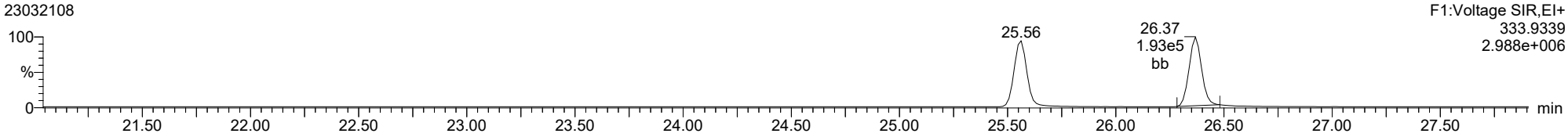

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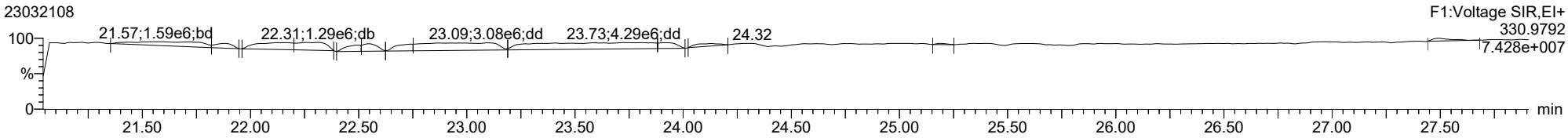

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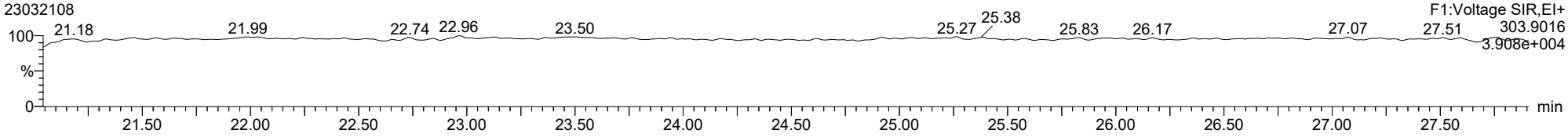

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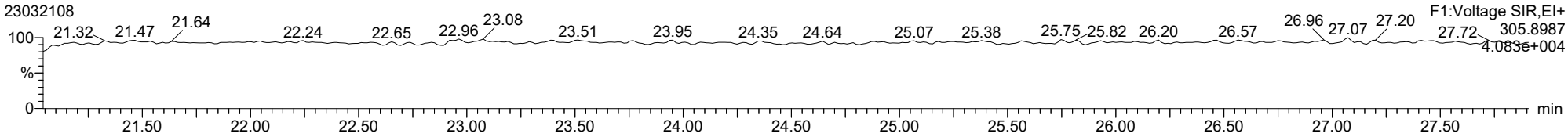

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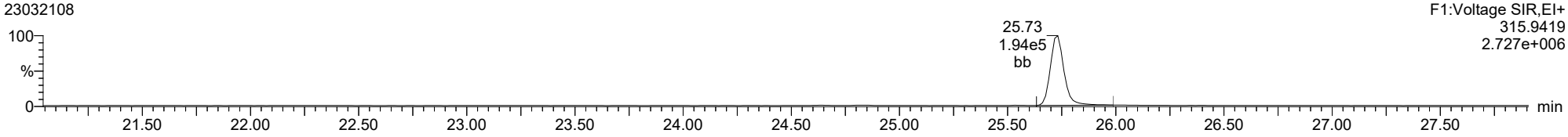

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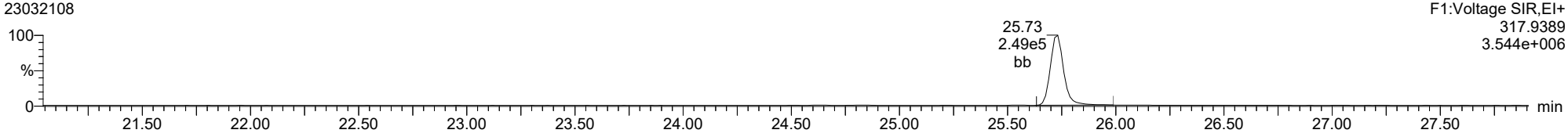
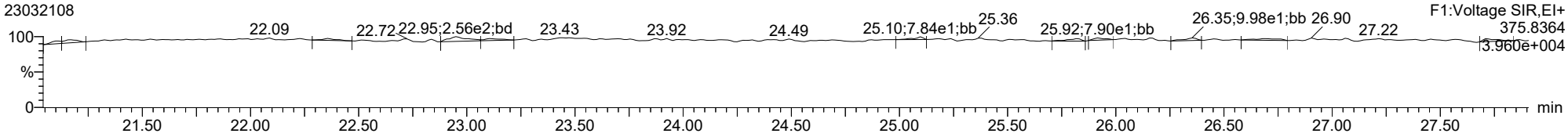


FUNCTION1 HXCDPE



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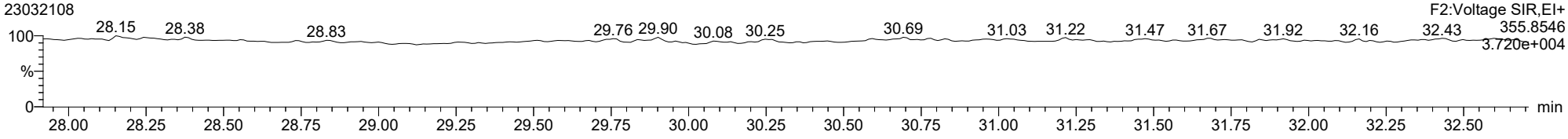
12378-PeCDD



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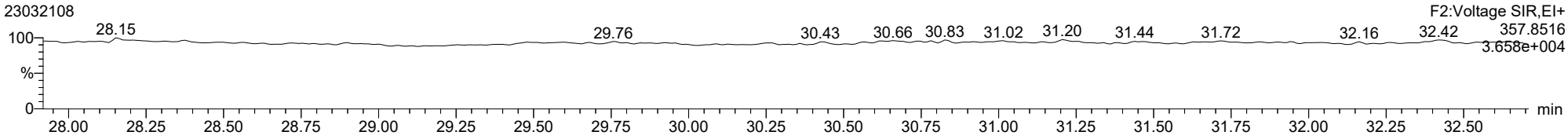

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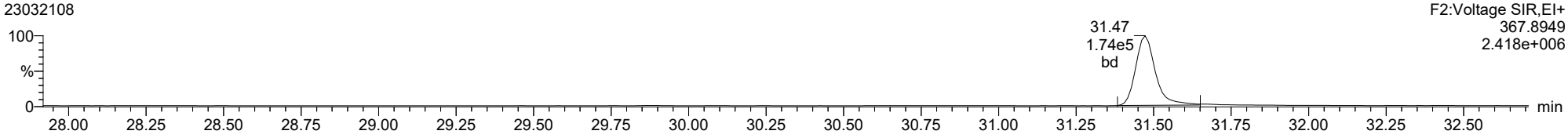

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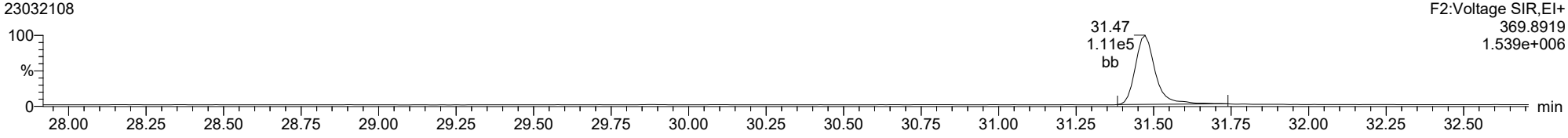
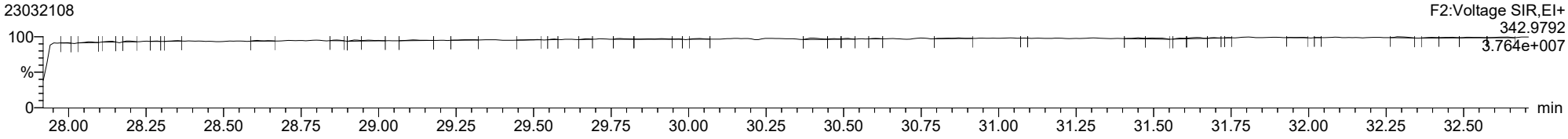


FUNCTION2 PFK



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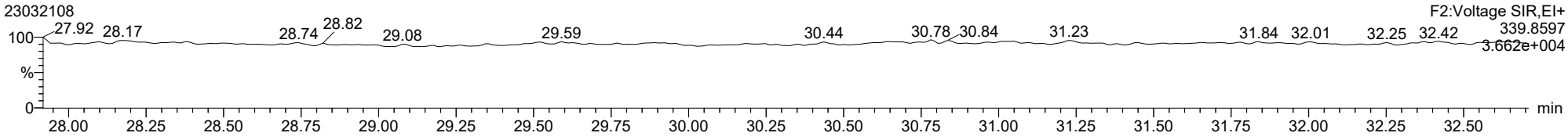

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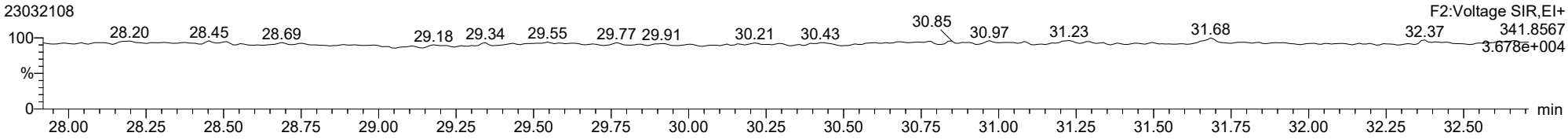

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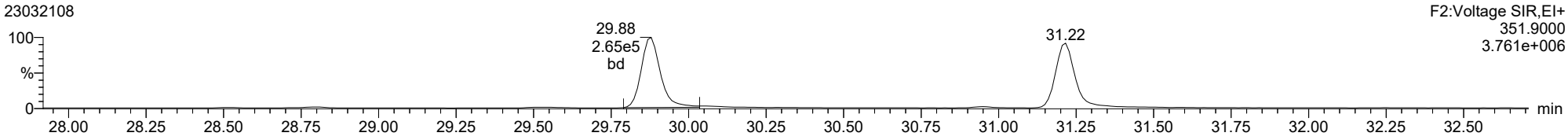

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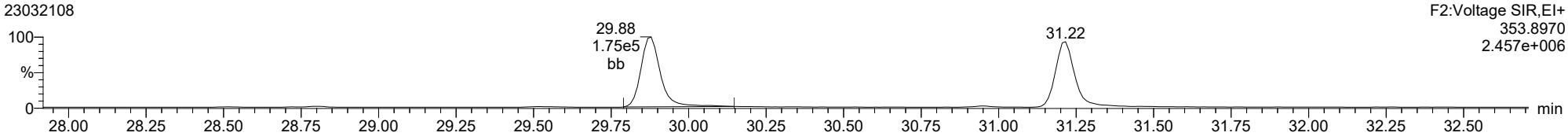
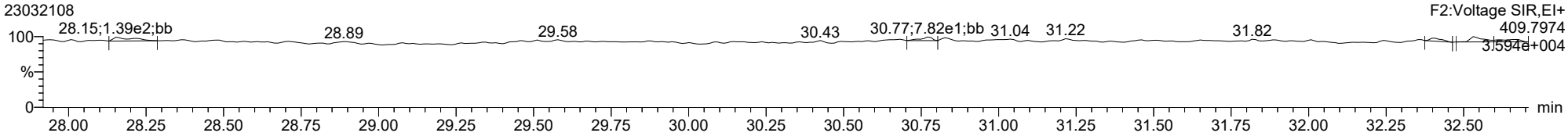


FUNCTION2 HPCDPE



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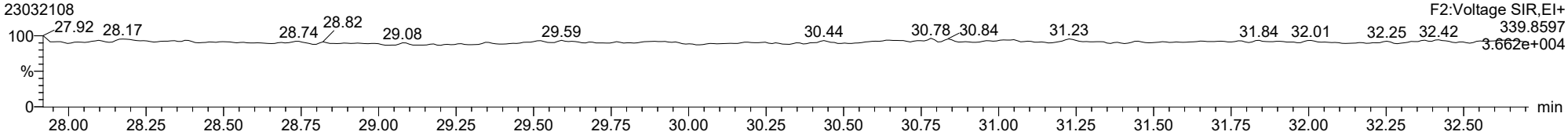
23478-PeCDF



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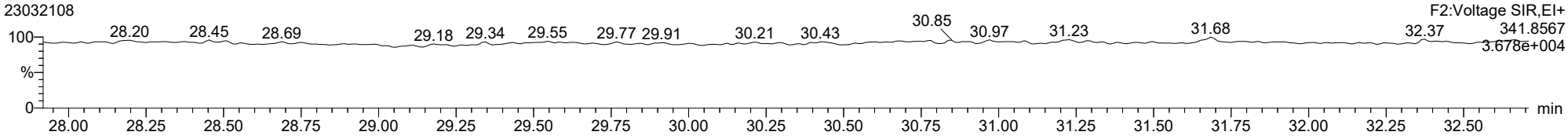

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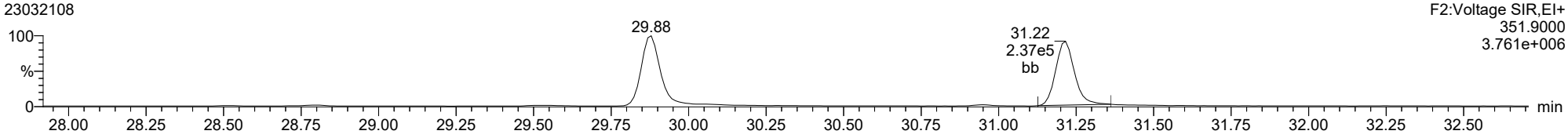

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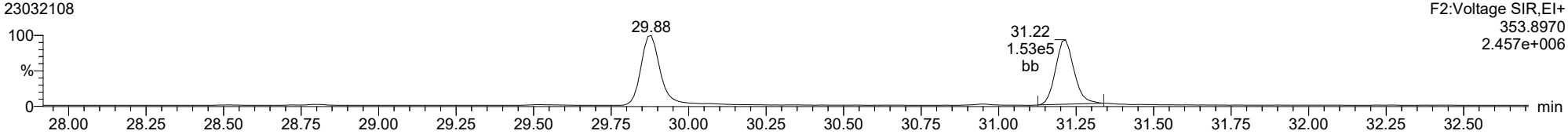

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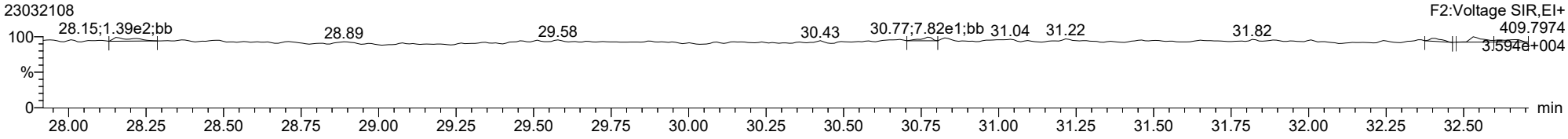

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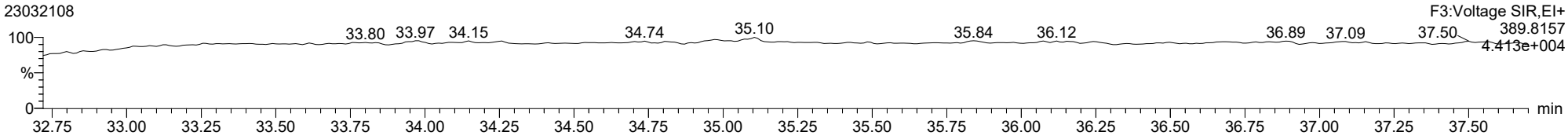
123478-HxCDD



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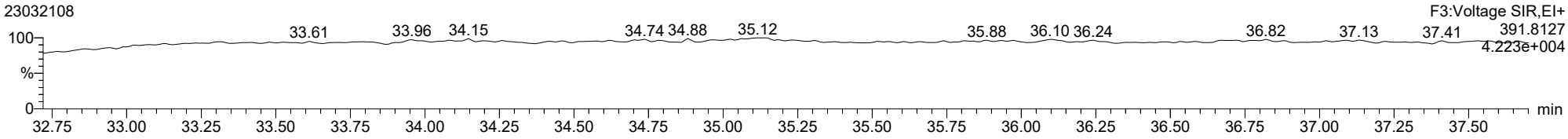

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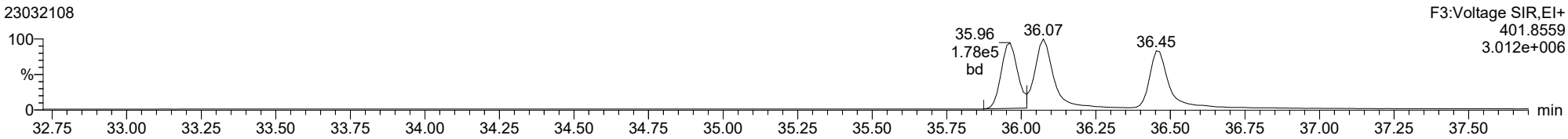

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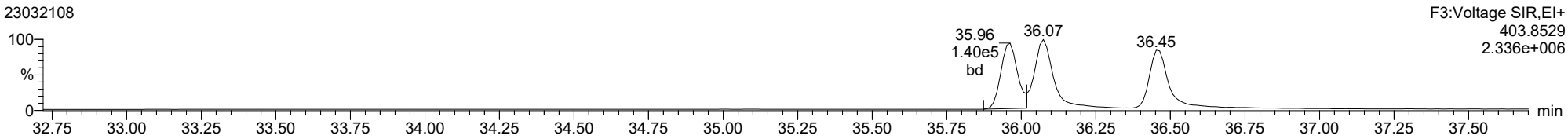
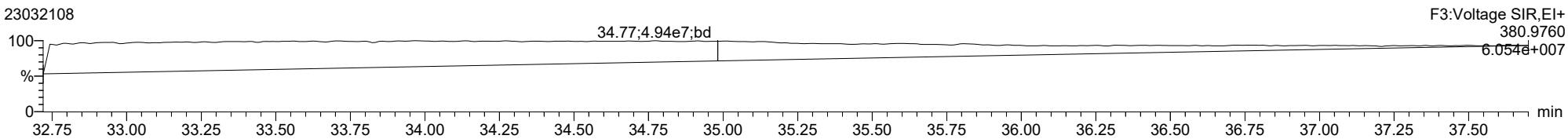


FUNCTION3 PFK



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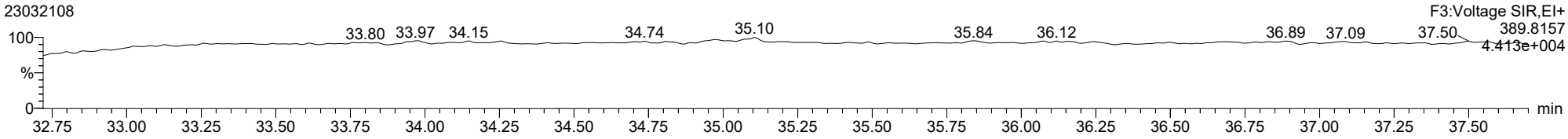

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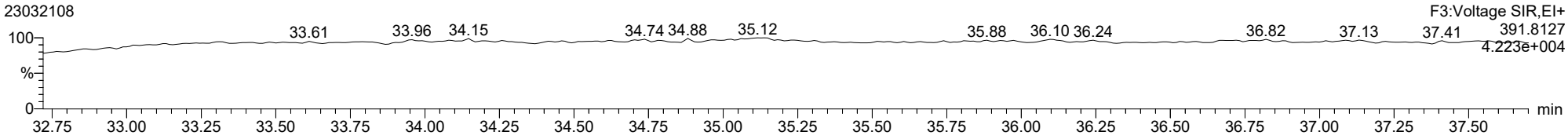

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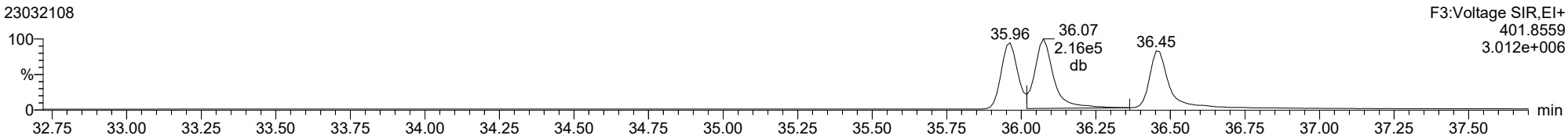

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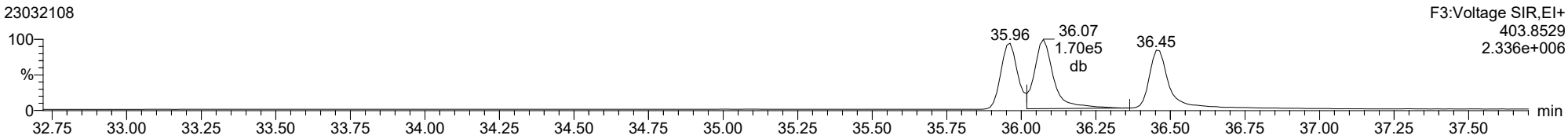

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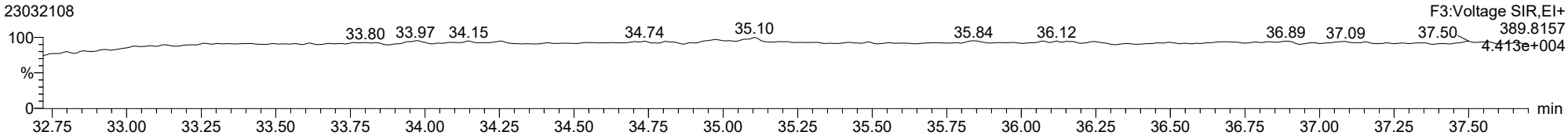

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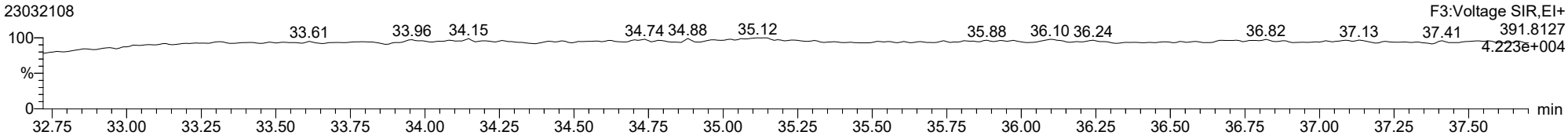

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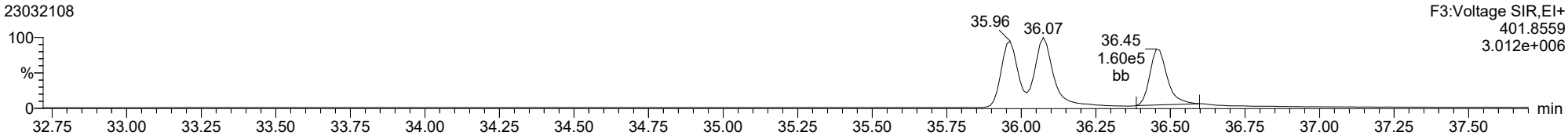

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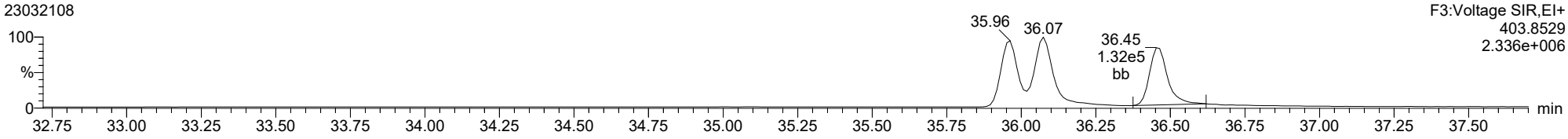

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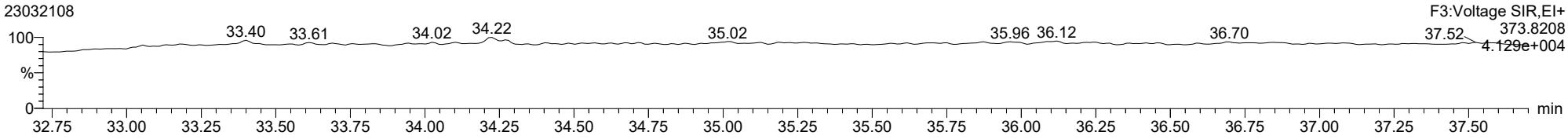

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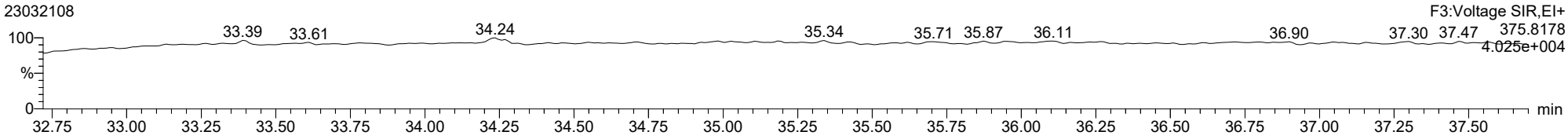

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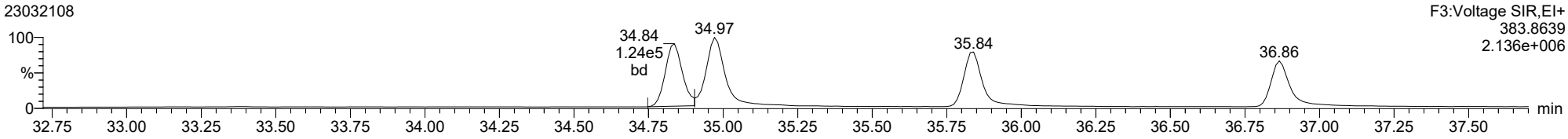

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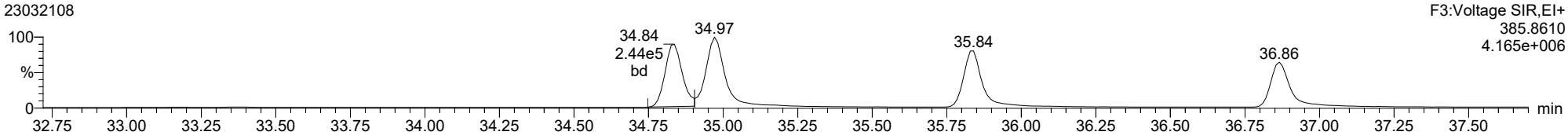

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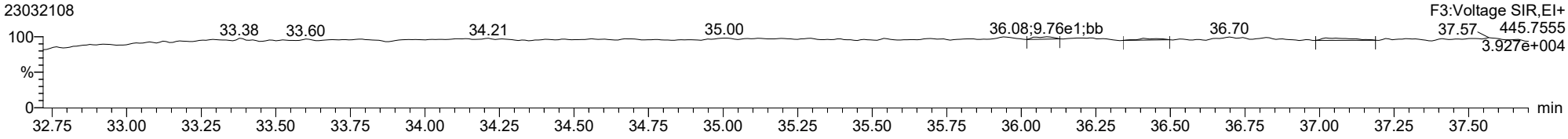

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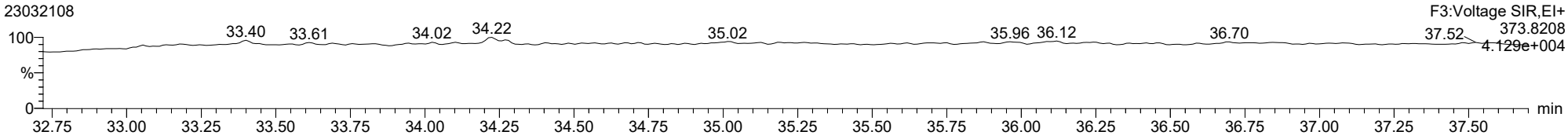
234678-HxCDF



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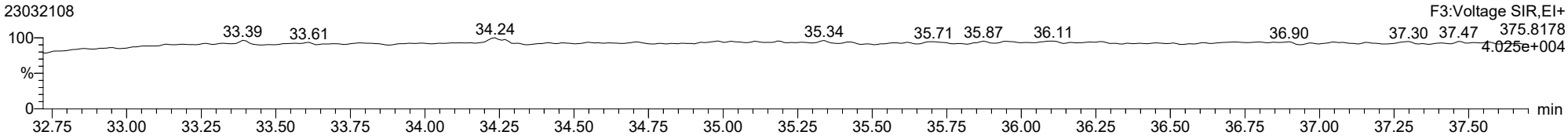

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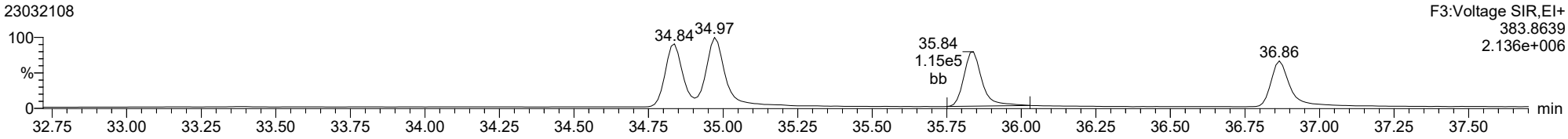

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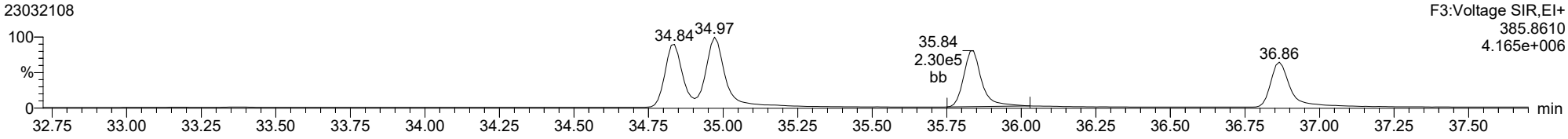

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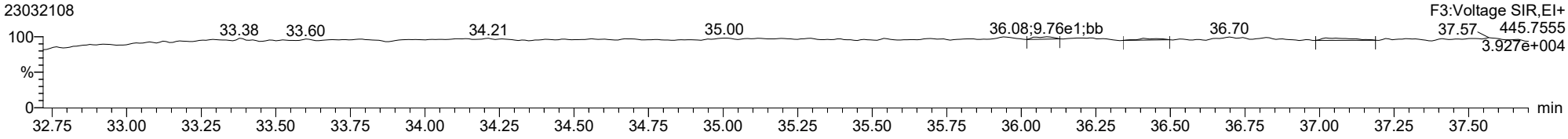

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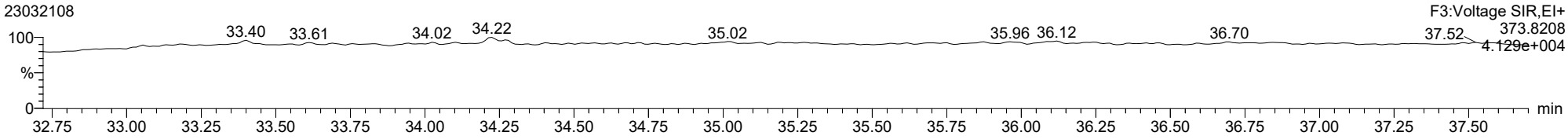

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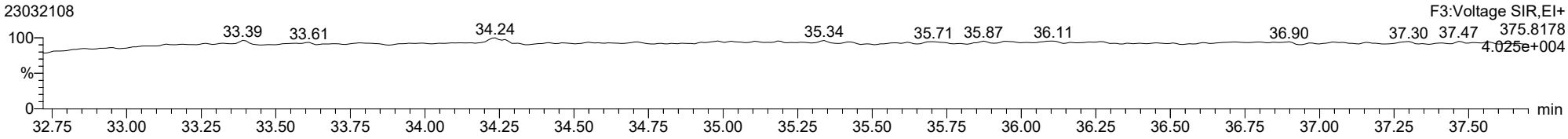

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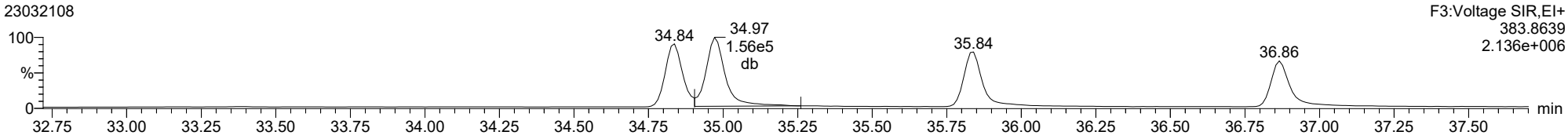

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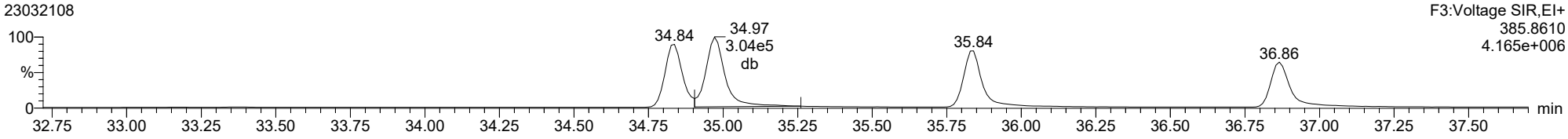

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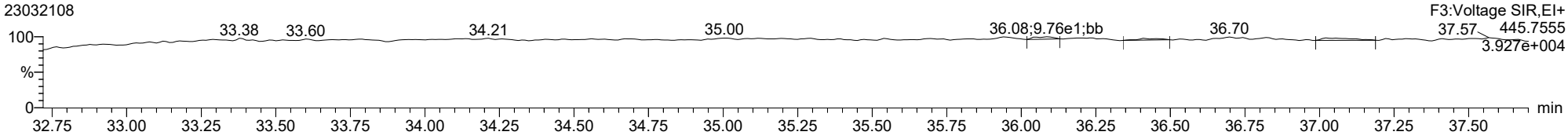

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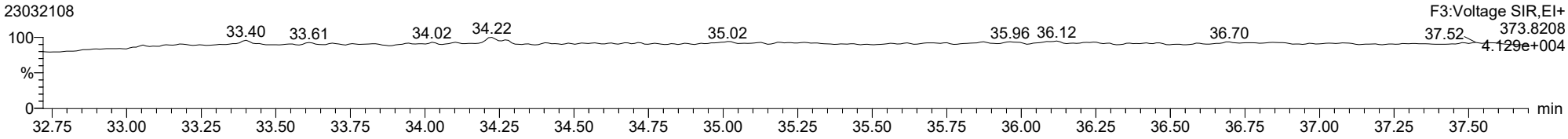

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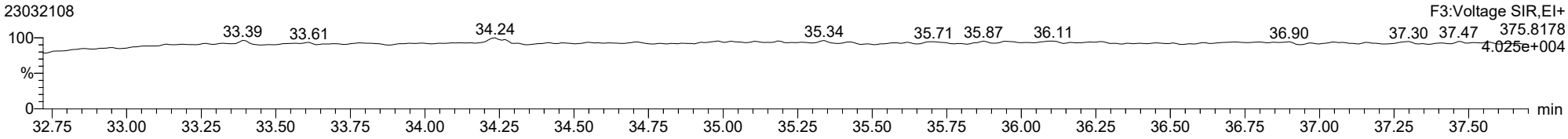

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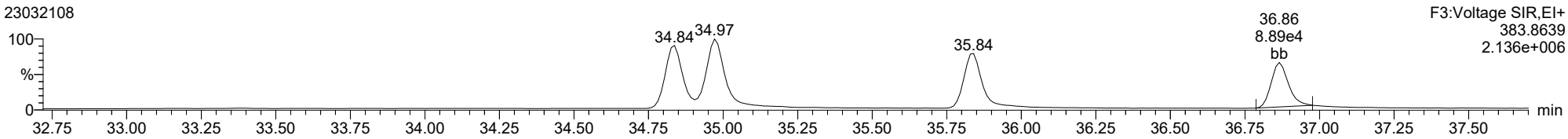

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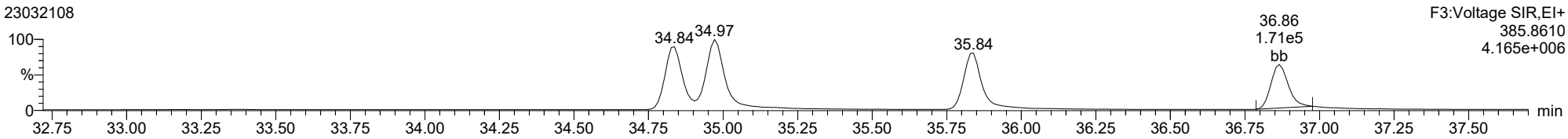

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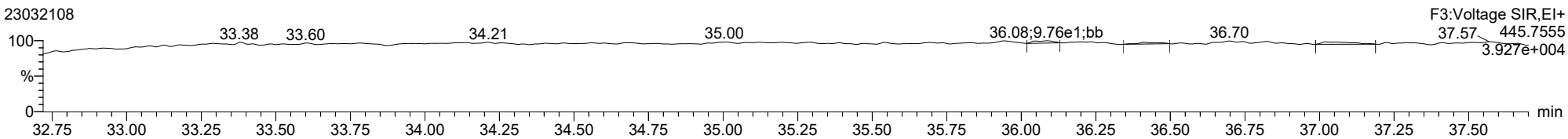

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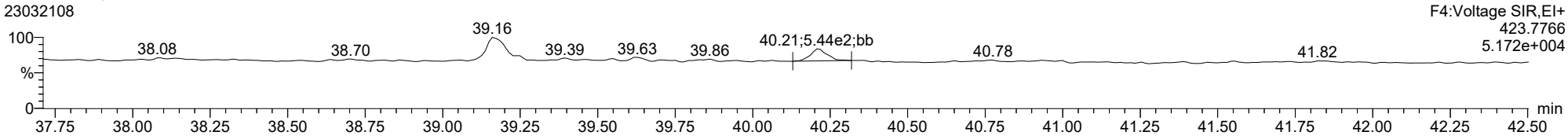

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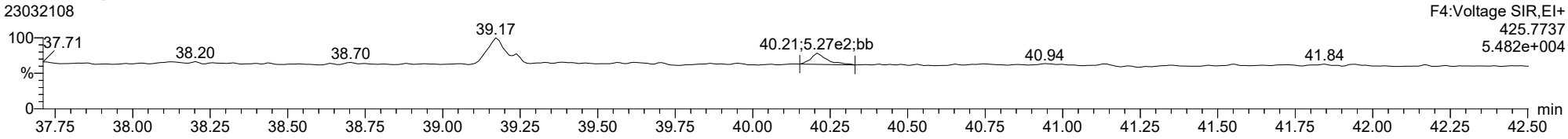

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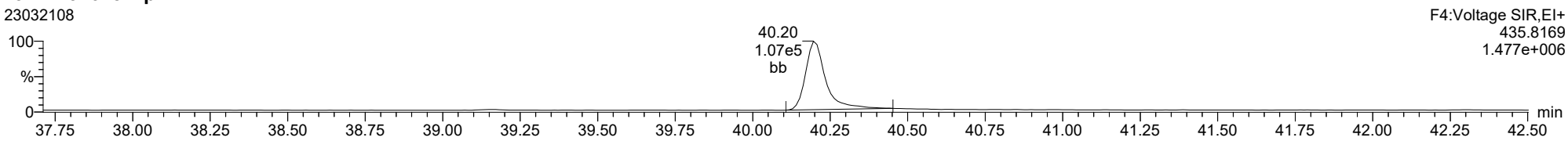

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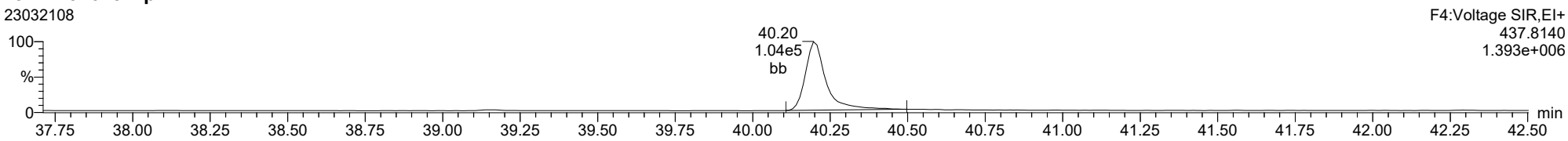
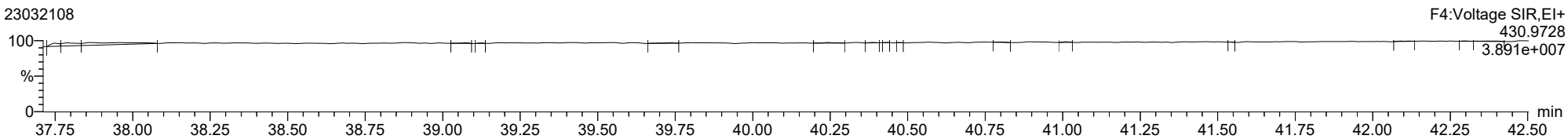


FUNCTION4 PFK



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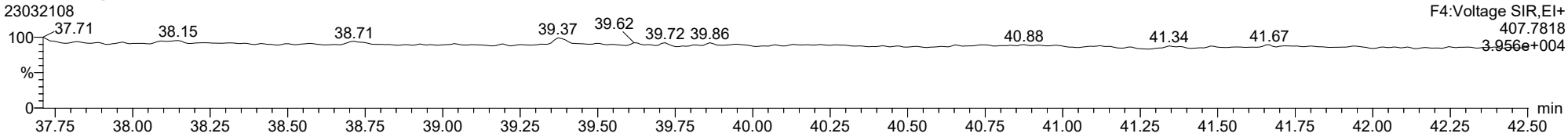

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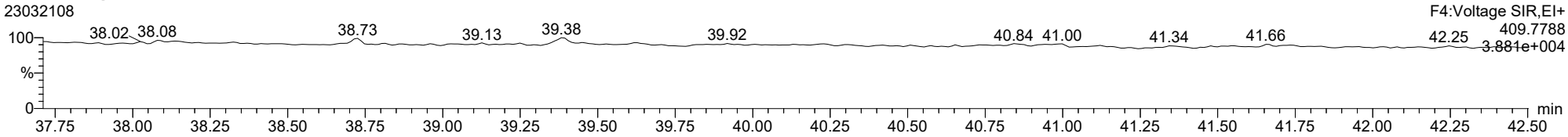

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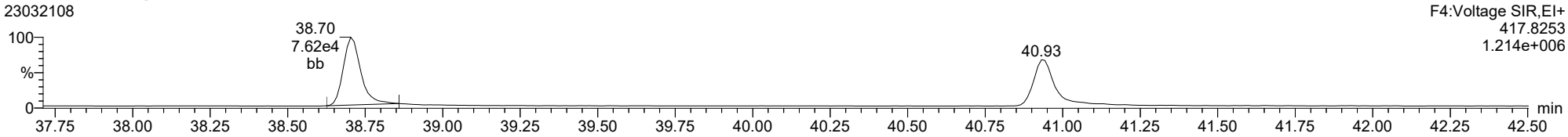

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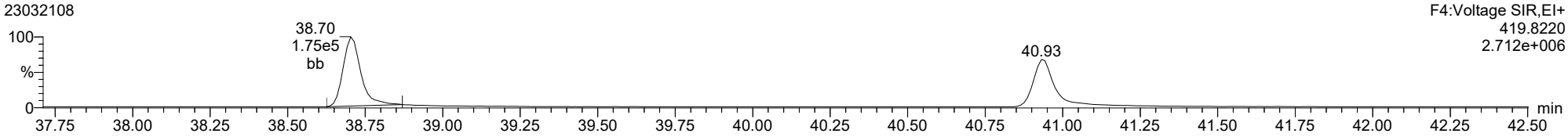
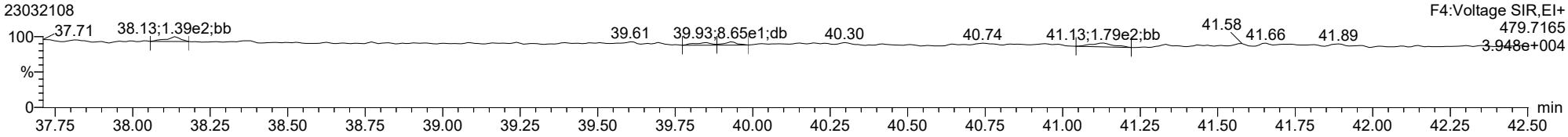


FUNCTION4 NCDPE



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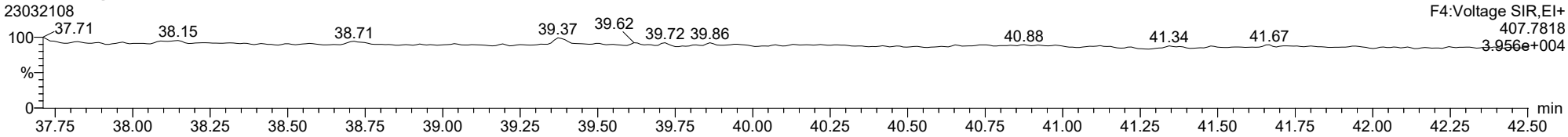
1234789-HpCDF



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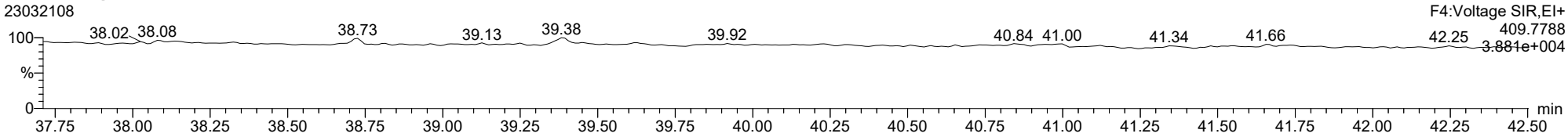

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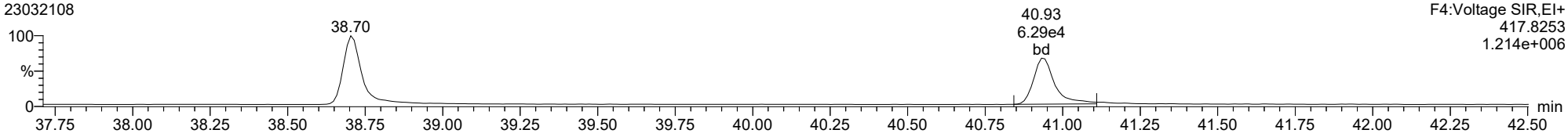

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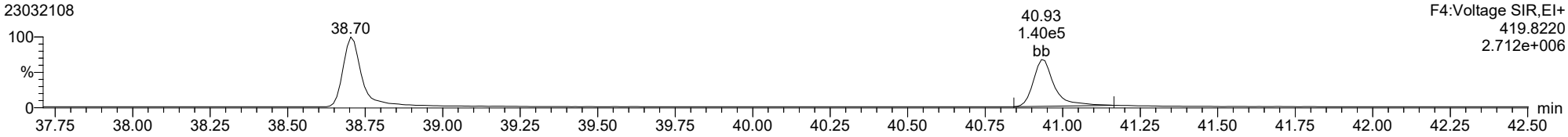

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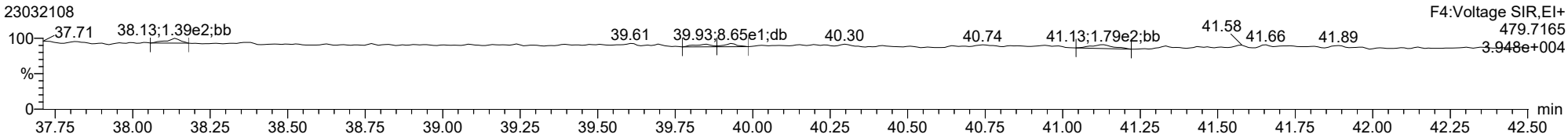

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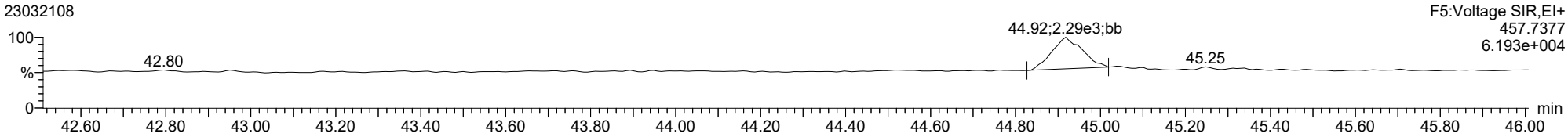
OCDD



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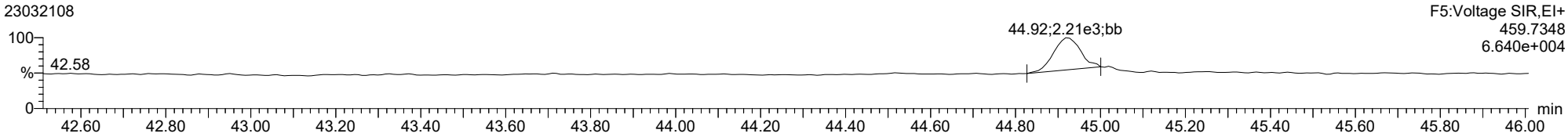

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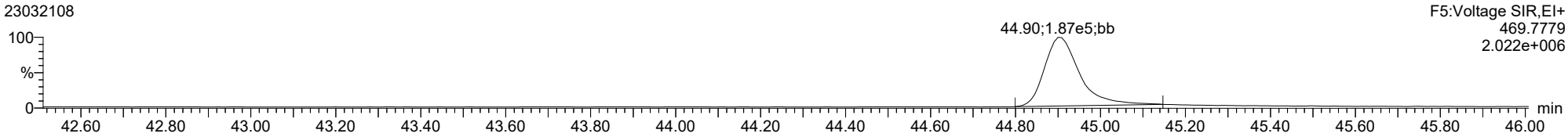

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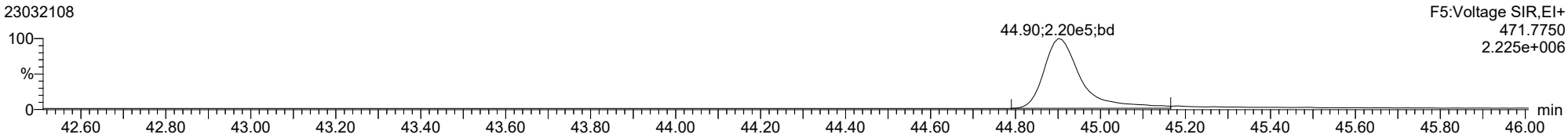
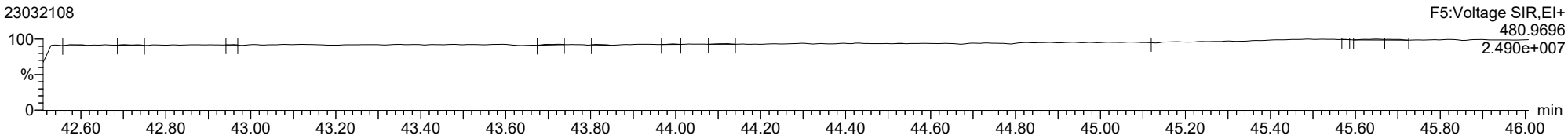


FUNCTION5 PFK



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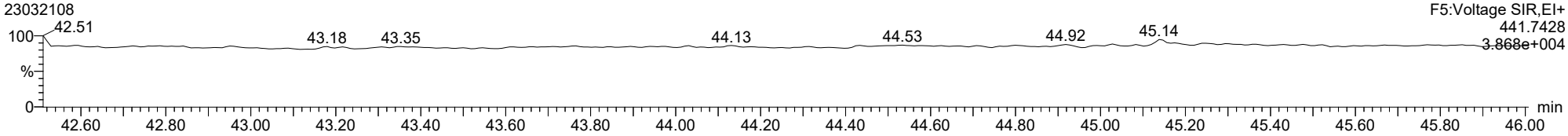
OCDF



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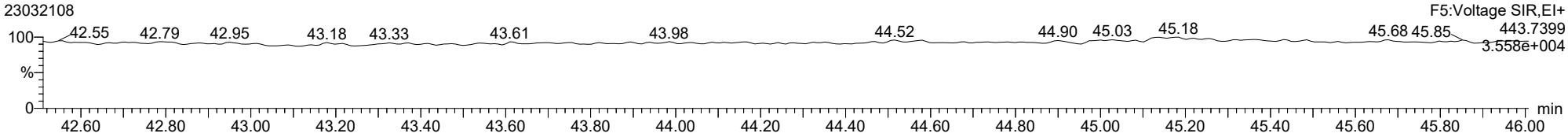
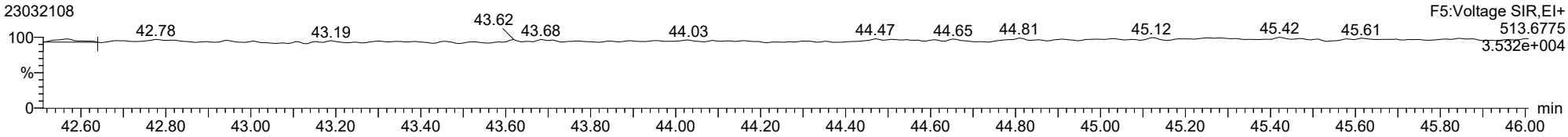


FUNCTION5 DCDPE



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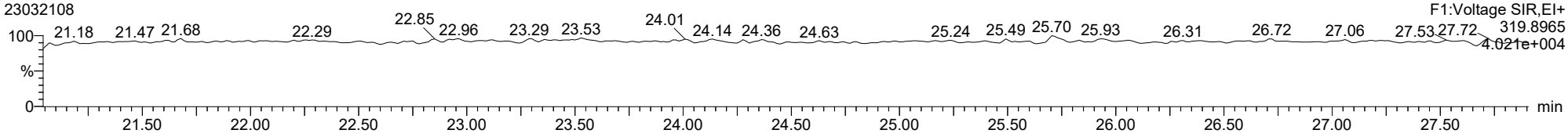
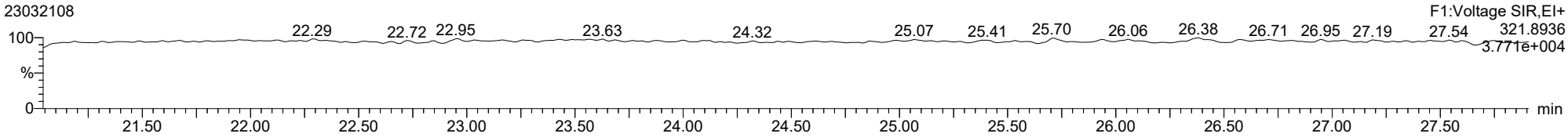
Printed: Wednesday, March 22, 2023 11:48:16 Pacific Daylight Time

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



Total-tetradioxins



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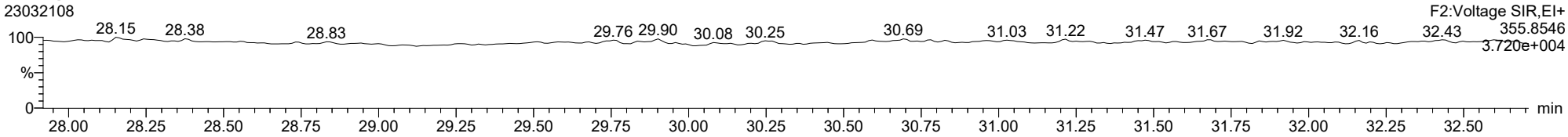
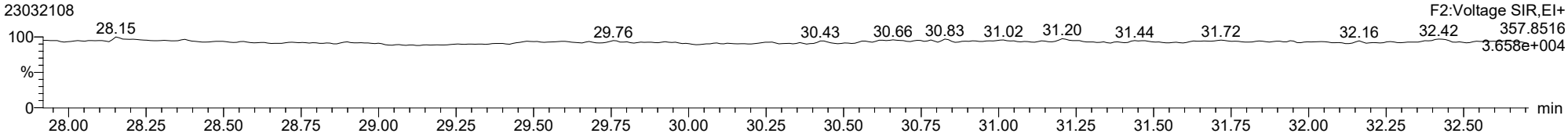
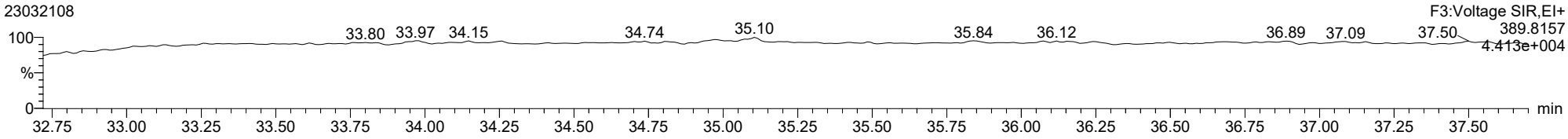


Total-pentadioxins



ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



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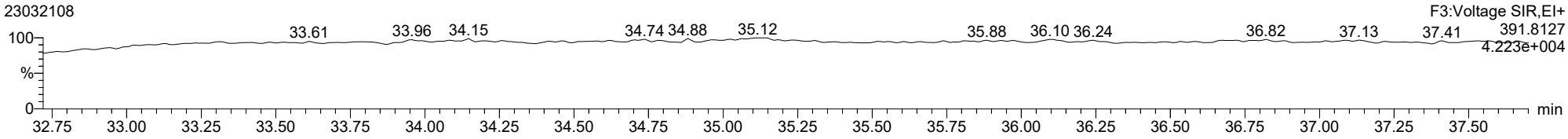
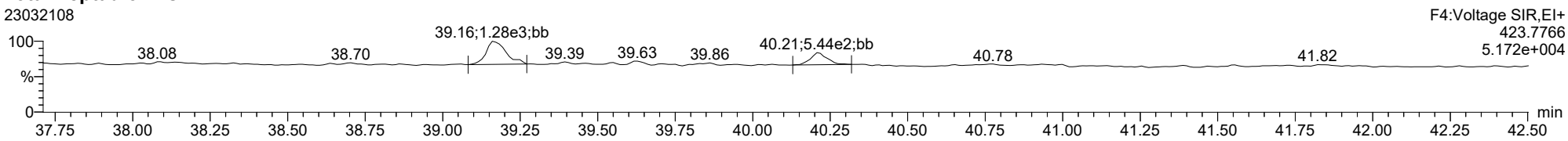


Total-heptadioxins



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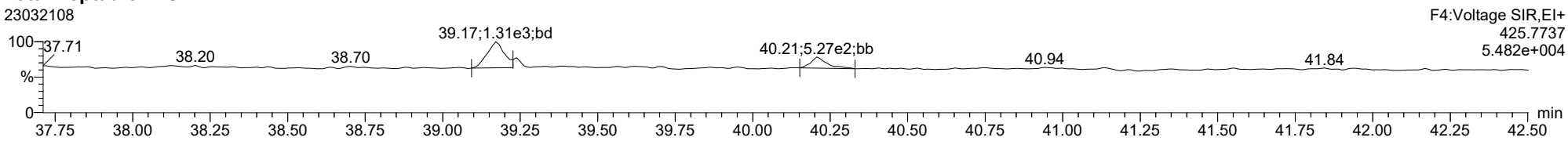
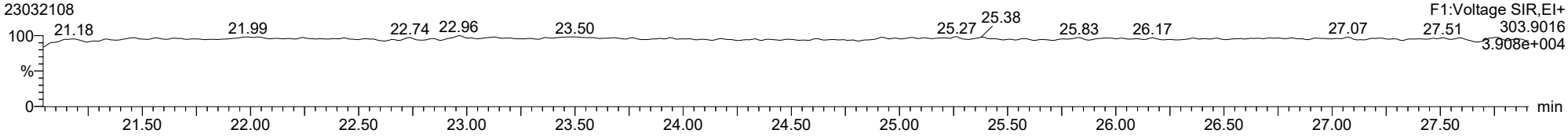


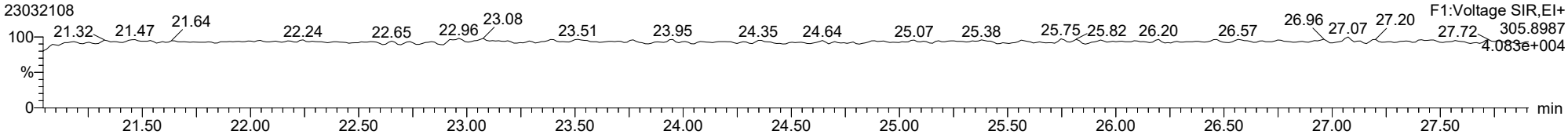
Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:16 Pacific Daylight Time

ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

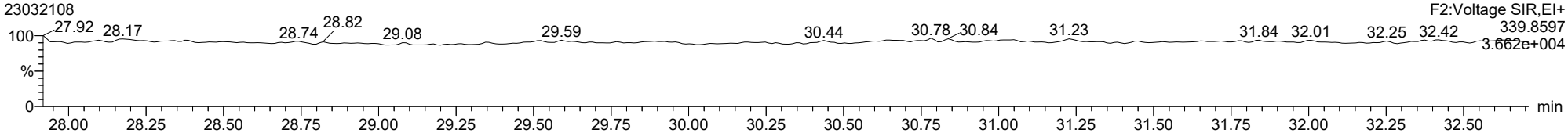
Total-tetrafurans



Total-tetrafurans



Total-pentafurans



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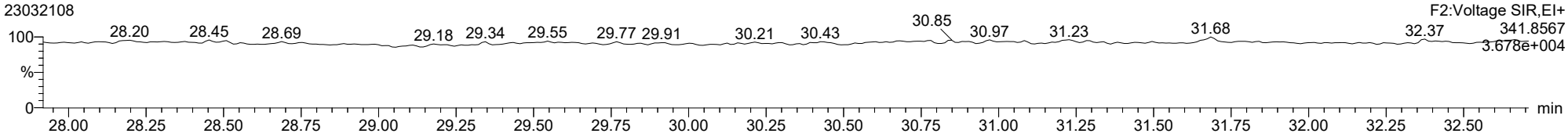
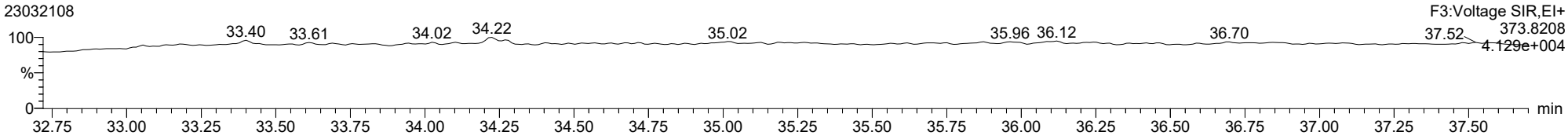
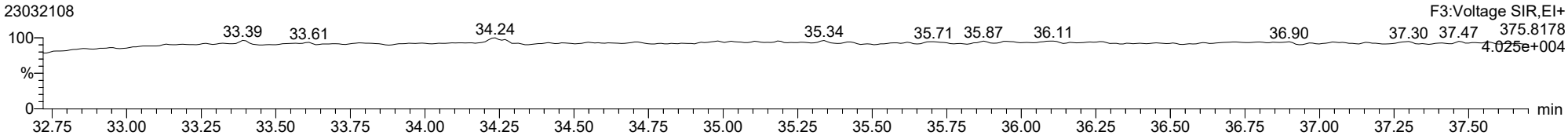


ID: BLB0709-BLK1, Name: 23032108, Date: 21-Mar-2023, Time: 16:04:16, Conditions: AUTOSPEC01, User: pk

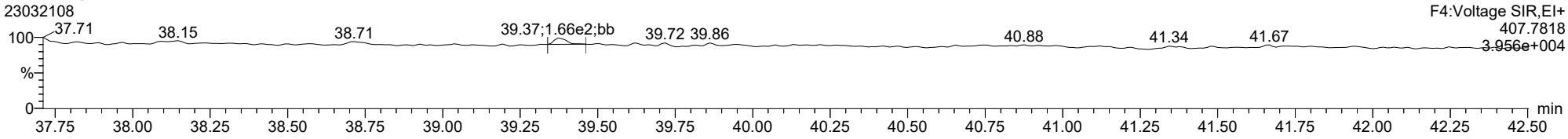
Total-hexafurans



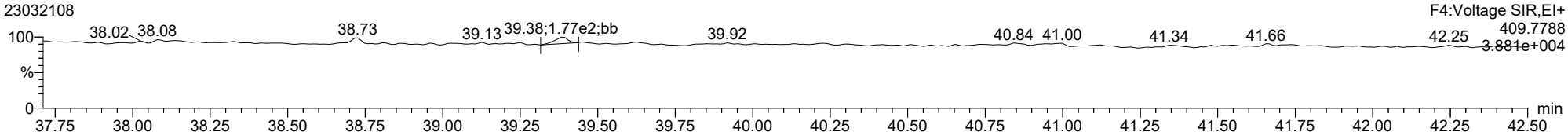
Total-hexafurans



Total-heptafurans



Total-heptafurans



LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Matrix:	Solid	Analyzed:	03/21/23 16:52
Batch:	BLB0709	Laboratory ID:	BLB0709-BS1
Preparation:	EPA 8290	Sequence Name:	DLCS03
Initial/Final:	10.01 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	16.6		83.2	75 - 158
2,3,7,8-TCDD	20.0	15.7		78.8	67 - 158
1,2,3,7,8-PeCDF	99.9	82.1		82.2	80 - 134
2,3,4,7,8-PeCDF	99.9	82.2		82.2	68 - 160
1,2,3,7,8-PeCDD	99.9	86.2		86.3	70 - 142
1,2,3,4,7,8-HxCDF	99.9	75.0		75.0	72 - 134
1,2,3,6,7,8-HxCDF	99.9	76.0	*	76.0 *	84 - 130
2,3,4,6,7,8-HxCDF	99.9	77.7		77.8	70 - 156
1,2,3,7,8,9-HxCDF	99.9	84.3		84.4	78 - 130
1,2,3,4,7,8-HxCDD	99.9	80.0		80.1	70 - 164
1,2,3,6,7,8-HxCDD	99.9	80.6		80.7	76 - 134
1,2,3,7,8,9-HxCDD	99.9	87.6		87.6	64 - 162
1,2,3,4,6,7,8-HpCDF	99.9	76.9	*	77.0 *	82 - 122
1,2,3,4,7,8,9-HpCDF	99.9	87.3		87.4	78 - 138
1,2,3,4,6,7,8-HpCDD	99.9	83.8	B	83.9	70 - 140
OCDF	200	176		88.0	63 - 170
OCDD	200	172	B	86.2	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:29 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.732	1.001	6.563e3	8.239e3	0.702	0.797	0.770	784	1206	9.66e4	1.15e5	123.2	95.5	NO	bb	bb	8.318
12378-PeCDF	29.890	1.001	6.478e4	4.423e4	0.679	1.465	1.550	984	1649	9.23e5	6.32e5	938.1	383.2	NO	bb	bb	41.099
23478-PeCDF	31.216	1.000	6.397e4	4.401e4	0.786	1.453	1.550	984	1649	9.50e5	6.45e5	965.2	391.4	NO	bb	bb	41.120
123478-HxCDF	34.837	1.000	7.521e4	6.101e4	1.166	1.233	1.240	1381	1092	1.11e6	9.22e5	803.6	844.6	NO	bd	bd	37.519
234678-HxCDF	35.840	1.000	7.913e4	6.434e4	1.140	1.230	1.240	1381	1092	1.13e6	9.20e5	818.1	842.4	NO	bd	bb	38.887
123678-HxCDF	34.982	1.001	9.087e4	7.179e4	1.091	1.266	1.240	1381	1092	1.19e6	9.71e5	862.6	889.2	NO	dd	dd	38.014
123789-HxCDF	36.876	1.001	6.251e4	4.939e4	1.137	1.265	1.240	1381	1092	8.43e5	6.73e5	610.4	616.2	NO	bd	bb	42.185
1234678-HpCDF	38.714	1.001	4.979e4	4.931e4	1.003	1.010	1.050	1648	1366	7.73e5	7.63e5	469.1	558.7	NO	bb	bb	38.498
1234789-HpCDF	40.943	1.000	4.201e4	3.997e4	0.953	1.051	1.050	1648	1366	5.02e5	5.25e5	304.8	384.2	NO	bd	bd	43.686
OCDF	45.147	1.006	6.633e4	7.287e4	0.778	0.910	0.890	810	1070	6.69e5	7.48e5	825.9	699.2	NO	bd	bd	87.998
2378-TCDD	26.382	1.000	9.556e3	1.165e4	1.149	0.821	0.770	1179	731	1.31e5	1.71e5	110.8	233.6	NO	bb	bb	7.879
12378-PeCDD	31.483	1.001	6.883e4	4.189e4	1.022	1.643	1.550	935	786	9.68e5	6.06e5	1036.0	770.3	NO	bd	bb	43.137
123478-HxCDD	35.962	1.000	6.103e4	5.053e4	0.996	1.208	1.240	1087	958	9.85e5	8.11e5	905.8	846.9	NO	bd	bd	40.025
123678-HxCDD	36.074	1.000	7.683e4	6.436e4	1.001	1.194	1.240	1087	958	1.01e6	8.49e5	926.4	886.5	NO	db	db	40.361
123789-HxCDD	36.464	1.011	6.958e4	5.553e4	0.907	1.253	1.240	1087	958	9.84e5	7.84e5	904.4	818.4	NO	bd	bd	43.825
1234678-HpCDD	40.207	1.001	4.305e4	4.233e4	1.039	1.017	1.050	1387	1189	6.24e5	5.59e5	450.2	470.4	NO	bb	bb	41.960
OCDD	44.910	1.000	7.404e4	8.723e4	0.920	0.849	0.890	1103	1058	7.91e5	9.52e5	717.1	900.0	NO	bd	bd	86.200
13C-2378-TCDF	25.718	1.007	1.109e5	1.428e5	1.620	0.776	0.770	1720	1039	1.56e6	1.99e6	904.5	1917.7	NO	bb	bb	49.105
13C-12378-PeCDF	29.868	1.169	2.353e5	1.552e5	1.240	1.516	1.550	1849	1354	3.36e6	2.18e6	1817.2	1611.6	NO	bd	bd	98.745
13C-23478-PeCDF	31.205	1.221	2.034e5	1.306e5	1.118	1.558	1.550	1849	1354	3.08e6	2.01e6	1664.9	1482.2	NO	bb	bb	93.734
13C-123478-HxCDF	34.826	0.955	1.044e5	2.070e5	1.168	0.504	0.510	2223	1587	1.59e6	3.09e6	713.1	1945.6	NO	bd	bd	100.549
13C-123678-HxCDF	34.960	0.959	1.317e5	2.606e5	1.386	0.505	0.510	2223	1587	1.73e6	3.46e6	780.3	2181.7	NO	db	db	106.751
13C-234678-HxCDF	35.829	0.983	1.062e5	2.175e5	1.129	0.488	0.510	2223	1587	1.55e6	3.04e6	695.1	1912.3	NO	bb	bb	108.151
13C-123789-HxCDF	36.854	1.011	7.824e4	1.550e5	0.932	0.505	0.510	2223	1587	1.23e6	2.37e6	551.2	1494.2	NO	bb	bb	94.458
13C-1234678-HpCDF	38.692	1.061	7.743e4	1.792e5	0.895	0.432	0.440	1301	1876	1.12e6	2.53e6	858.1	1349.3	NO	bd	bb	108.164
13C-1234789-HpCDF	40.921	1.123	6.048e4	1.364e5	0.770	0.443	0.440	1301	1876	7.50e5	1.69e6	576.3	898.4	NO	bd	bd	96.497
13C-1234-TCDD	25.548	0.000	1.394e5	1.794e5	1.000	0.777	0.770	1403	825	2.13e6	2.73e6	1515.6	3305.7	NO	bb	bb	100.000
13C-2378-TCDD	26.368	1.032	1.016e5	1.326e5	1.152	0.766	0.770	1403	825	1.52e6	1.98e6	1085.1	2397.9	NO	bb	bb	63.769
13C-12378-PeCDD	31.461	1.231	1.518e5	9.938e4	0.829	1.527	1.550	1336	862	2.25e6	1.39e6	1682.5	1614.2	NO	bb	bb	95.055
13C-123478-HxCDD	35.951	0.986	1.555e5	1.245e5	0.995	1.249	1.240	1101	989	2.45e6	1.95e6	2228.9	1976.2	NO	bd	bd	106.149
13C-123678-HxCDD	36.063	0.989	1.962e5	1.532e5	1.157	1.281	1.240	1101	989	2.61e6	2.05e6	2367.6	2076.9	NO	db	db	113.987
13C-1234678-HpCDD	40.185	1.102	9.886e4	9.697e4	0.840	1.020	1.050	1957	1449	1.35e6	1.28e6	691.5	884.2	NO	bb	bd	87.945
13C-OCDD	44.891	1.232	1.904e5	2.164e5	0.767	0.880	0.890	1889	1898	2.11e6	2.33e6	1116.4	1229.0	NO	bd	bd	199.956
13C-123789-HxCDD	36.453	0.000	1.440e5	1.210e5	1.000	1.190	1.240	1101	989	2.09e6	1.62e6	1895.0	1642.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.382	1.033	8.207e4		1.288			1026		1.19e6		1164.2			bb		19.991

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
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ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	784	1206								
1289-TCDF					0.678		0.770	784	1206								
13468-PECDF					1.246		1.550	560	907								
12389-PECDF					0.496		1.550	984	1649								
123468-HXCDF					1.169		1.240	1381	1092								
1368-TCDD					1.015		0.770	1179	731								
1289-TCDD					0.909		0.770	1179	731								
12479-PECDD					2.301		1.550	935	786								
12389-PECDD					1.184		1.550	935	786								
124679-HXCDD					1.115		1.240	1087	958								
1234679-HPCDD	39.171	0.975	5.176e2	6.145e2	1.137	0.842	1.050	1387	1189	9.15e3	1.04e4	6.6	8.8	YES	bb	bb	0.509
Total-tetrafurans			6.563e3		0.727			784		9.66e4							8.318
Total-penta1			0.000e0					560		0.00e0							
Total-pentafurans			1.288e5		0.654			984		1.87e6							82.219
Total-hexafurans			3.077e5		1.141			1381		4.27e6							156.606
Total-heptafurans			9.179e4		0.978			1648		1.28e6							82.184
Total-Furans			6.012e5		0.922			784		8.19e6							417.325
Total-tetradioxins			9.556e3		1.024			1179		1.31e5							7.879
Total-pentadioxins			6.883e4		1.502			935		9.68e5							43.137
Total-hexadioxins			2.076e5		1.005			1087		2.98e6							124.314
Total-heptadioxins			4.305e4		1.088			1387		6.24e5							41.960
Total-Dioxins			4.031e5		1.130			1179		5.50e6							303.490
Total-TEQ			1.004e6					1179		1.37e7							720.815
FUNCTION1 PFK			4.385e7					396976		2.39e8							
FUNCTION2 PFK			7.539e5					262701		7.64e6							0.000
FUNCTION3 PFK			6.519e7					401893		2.27e7							0.000
FUNCTION4 PFK			5.244e5					276477		1.24e7							
FUNCTION5 PFK			0.000e0					158154		0.00e0							
FUNCTION1 HXCD...			2.125e2					568		4.02e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.186e2					822		1.05e4							0.000
FUNCTION3 OCDPE			6.587e2					699		1.03e4							0.000
FUNCTION4 NCDPE			1.508e2					814		1.89e3							0.000
FUNCTION5 DCDPE			7.525e1					487		1.40e3							0.000

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.73	6.563e3	8.239e3	0.702	0.80	0.77	123.2	YES	NO	bb	bb	8.318

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.89	6.478e4	4.423e4	0.679	1.46	1.55	938.1	YES	NO	bb	bb	41.099
2	23478-PeCDF	31.22	6.397e4	4.401e4	0.786	1.45	1.55	965.2	YES	NO	bb	bb	41.120

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.98	9.087e4	7.179e4	1.091	1.27	1.24	862.6	YES	NO	dd	dd	38.014
2	123478-HxCDF	34.84	7.521e4	6.101e4	1.166	1.23	1.24	803.6	YES	NO	bd	bd	37.519
3	123789-HxCDF	36.88	6.251e4	4.939e4	1.137	1.27	1.24	610.4	YES	NO	bd	bb	42.185
4	234678-HxCDF	35.84	7.913e4	6.434e4	1.140	1.23	1.24	818.1	YES	NO	bd	bb	38.887

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.94	4.201e4	3.997e4	0.953	1.05	1.05	304.8	YES	NO	bd	bd	43.686
2	1234678-HpCDF	38.71	4.979e4	4.931e4	1.003	1.01	1.05	469.1	YES	NO	bb	bb	38.498

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.89	6.478e4	4.423e4	0.679	1.46	1.55	938.1	YES	NO	bb	bb	41.099
2	2378-TCDF	25.73	6.563e3	8.239e3	0.702	0.80	0.77	123.2	YES	NO	bb	bb	8.318
3	123678-HxCDF	34.98	9.087e4	7.179e4	1.091	1.27	1.24	862.6	YES	NO	dd	dd	38.014
4	123478-HxCDF	34.84	7.521e4	6.101e4	1.166	1.23	1.24	803.6	YES	NO	bd	bd	37.519
5	23478-PeCDF	31.22	6.397e4	4.401e4	0.786	1.45	1.55	965.2	YES	NO	bb	bb	41.120
6	123789-HxCDF	36.88	6.251e4	4.939e4	1.137	1.27	1.24	610.4	YES	NO	bd	bb	42.185
7	234678-HxCDF	35.84	7.913e4	6.434e4	1.140	1.23	1.24	818.1	YES	NO	bd	bb	38.887
8	1234789-HpCDF	40.94	4.201e4	3.997e4	0.953	1.05	1.05	304.8	YES	NO	bd	bd	43.686
9	1234678-HpCDF	38.71	4.979e4	4.931e4	1.003	1.01	1.05	469.1	YES	NO	bb	bb	38.498
10	OCDF	45.15	6.633e4	7.287e4	0.778	0.91	0.89	825.9	YES	NO	bd	bd	87.998

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.38	9.556e3	1.165e4	1.149	0.82	0.77	110.8	YES	NO	bb	bb	7.879

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.48	6.883e4	4.189e4	1.022	1.64	1.55	1036.0	YES	NO	bd	bb	43.137

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	36.83	1.813e2	1.434e2	1.005	1.26	1.24	4.9	YES	NO	db	dd	0.103
2	123789-HxCDD	36.46	6.958e4	5.553e4	0.907	1.25	1.24	904.4	YES	NO	bd	bd	43.825
3	123678-HxCDD	36.07	7.683e4	6.436e4	1.001	1.19	1.24	926.4	YES	NO	db	db	40.361
4	123478-HxCDD	35.96	6.103e4	5.053e4	0.996	1.21	1.24	905.8	YES	NO	bd	bd	40.025

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.21	4.305e4	4.233e4	1.039	1.02	1.05	450.2	YES	NO	bb	bb	41.960

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.48	6.883e4	4.189e4	1.022	1.64	1.55	1036.0	YES	NO	bd	bb	43.137
2	2378-TCDD	26.38	9.556e3	1.165e4	1.149	0.82	0.77	110.8	YES	NO	bb	bb	7.879
3	Total-hexadioxins	36.83	1.813e2	1.434e2	1.005	1.26	1.24	4.9	YES	NO	db	dd	0.103
4	123789-HxCDD	36.46	6.958e4	5.553e4	0.907	1.25	1.24	904.4	YES	NO	bd	bd	43.825
5	123678-HxCDD	36.07	7.683e4	6.436e4	1.001	1.19	1.24	926.4	YES	NO	db	db	40.361
6	123478-HxCDD	35.96	6.103e4	5.053e4	0.996	1.21	1.24	905.8	YES	NO	bd	bd	40.025
7	1234678-HpCDD	40.21	4.305e4	4.233e4	1.039	1.02	1.05	450.2	YES	NO	bb	bb	41.960
8	OCDD	44.91	7.404e4	8.723e4	0.920	0.85	0.89	717.1	YES	NO	bd	bd	86.200

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.89	6.478e4	4.423e4	0.679	1.46	1.55	938.1	YES	NO	bb	bb	41.099
2	2378-TCDF	25.73	6.563e3	8.239e3	0.702	0.80	0.77	123.2	YES	NO	bb	bb	8.318
3	123678-HxCDF	34.98	9.087e4	7.179e4	1.091	1.27	1.24	862.6	YES	NO	dd	dd	38.014
4	123478-HxCDF	34.84	7.521e4	6.101e4	1.166	1.23	1.24	803.6	YES	NO	bd	bd	37.519
5	23478-PeCDF	31.22	6.397e4	4.401e4	0.786	1.45	1.55	965.2	YES	NO	bb	bb	41.120
6	123789-HxCDF	36.88	6.251e4	4.939e4	1.137	1.27	1.24	610.4	YES	NO	bd	bb	42.185
7	234678-HxCDF	35.84	7.913e4	6.434e4	1.140	1.23	1.24	818.1	YES	NO	bd	bb	38.887
8	1234789-HpCDF	40.94	4.201e4	3.997e4	0.953	1.05	1.05	304.8	YES	NO	bd	bd	43.686
9	1234678-HpCDF	38.71	4.979e4	4.931e4	1.003	1.01	1.05	469.1	YES	NO	bb	bb	38.498
10	OCDF	45.15	6.633e4	7.287e4	0.778	0.91	0.89	825.9	YES	NO	bd	bd	87.998
11	12378-PeCDD	31.48	6.883e4	4.189e4	1.022	1.64	1.55	1036.0	YES	NO	bd	bb	43.137
12	2378-TCDD	26.38	9.556e3	1.165e4	1.149	0.82	0.77	110.8	YES	NO	bb	bb	7.879
13	Total-hexadioxins	36.83	1.813e2	1.434e2	1.005	1.26	1.24	4.9	YES	NO	db	dd	0.103
14	123789-HxCDD	36.46	6.958e4	5.553e4	0.907	1.25	1.24	904.4	YES	NO	bd	bd	43.825
15	123678-HxCDD	36.07	7.683e4	6.436e4	1.001	1.19	1.24	926.4	YES	NO	db	db	40.361
16	123478-HxCDD	35.96	6.103e4	5.053e4	0.996	1.21	1.24	905.8	YES	NO	bd	bd	40.025
17	1234678-HpCDD	40.21	4.305e4	4.233e4	1.039	1.02	1.05	450.2	YES	NO	bb	bb	41.960
18	OCDD	44.91	7.404e4	8.723e4	0.920	0.85	0.89	717.1	YES	NO	bd	bd	86.200

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.56	1.734e6					22.9	YES		dd		
2	FUNCTION1 PFK	24.42	6.531e4					5.5	YES		bd		
3	FUNCTION1 PFK	24.31	6.935e5					17.0	YES		bb		
4	FUNCTION1 PFK	23.44	2.638e6					16.1	YES		bb		
5	FUNCTION1 PFK	23.09	2.176e6					50.6	YES		db		
6	FUNCTION1 PFK	22.96	1.567e6					49.3	YES		dd		
7	FUNCTION1 PFK	22.92	5.511e6					48.6	YES		dd		
8	FUNCTION1 PFK	22.53	2.690e6					37.8	YES		dd		
9	FUNCTION1 PFK	22.30	2.942e6					35.8	YES		dd		
10	FUNCTION1 PFK	22.12	1.891e6					30.7	YES		dd		
11	FUNCTION1 PFK	21.86	9.935e5					23.1	YES		dd		
12	FUNCTION1 PFK	21.62	3.183e6					21.2	YES		bd		
13	FUNCTION1 PFK	21.20	4.418e5					6.8	YES		bb		
14	FUNCTION1 PFK	27.54	6.672e5					16.3	YES		bb		
15	FUNCTION1 PFK	27.34	8.323e5					18.5	YES		db		
16	FUNCTION1 PFK	27.20	4.354e5					16.1	YES		dd		
17	FUNCTION1 PFK	27.12	9.744e5					18.7	YES		bd		
18	FUNCTION1 PFK	26.93	2.212e5					9.2	YES		db		
19	FUNCTION1 PFK	26.86	2.944e5					10.0	YES		dd		
20	FUNCTION1 PFK	26.69	5.290e5					8.3	YES		bd		
21	FUNCTION1 PFK	26.20	3.203e6					11.3	YES		bb		
22	FUNCTION1 PFK	25.59	2.115e6					34.7	YES		db		
23	FUNCTION1 PFK	25.41	2.476e6					35.1	YES		dd		
24	FUNCTION1 PFK	25.17	3.920e6					33.3	YES		dd		
25	FUNCTION1 PFK	24.77	1.652e6					25.9	YES		dd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.05	2.766e5					6.6	YES		bb		0.000
2	FUNCTION2 PFK	28.25	1.822e5					9.1	YES		bb		0.000
3	FUNCTION2 PFK	28.11	2.951e5					13.4	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.73	6.519e7					56.6	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.23	4.516e3					0.7	NO		bb		
2	FUNCTION4 PFK	39.15	3.981e3					0.7	NO		bb		
3	FUNCTION4 PFK	39.06	1.098e3					0.4	NO		bb		
4	FUNCTION4 PFK	39.02	5.026e3					0.7	NO		db		
5	FUNCTION4 PFK	38.97	1.907e4					1.6	NO		bd		
6	FUNCTION4 PFK	38.50	2.034e3					0.5	NO		bb		
7	FUNCTION4 PFK	38.40	2.060e3					0.4	NO		bb		
8	FUNCTION4 PFK	38.17	6.407e3					0.8	NO		bb		
9	FUNCTION4 PFK	38.05	1.052e5					1.7	NO		db		
10	FUNCTION4 PFK	37.88	3.962e4					4.2	YES		dd		
11	FUNCTION4 PFK	37.83	4.001e4					4.9	YES		dd		
12	FUNCTION4 PFK	37.80	6.220e4					5.4	YES		dd		
13	FUNCTION4 PFK	37.74	9.402e4					7.5	YES		bd		
14	FUNCTION4 PFK	41.39	9.489e2					0.3	NO		bb		
15	FUNCTION4 PFK	41.34	7.139e3					1.1	NO		bb		
16	FUNCTION4 PFK	41.23	3.641e4					1.9	NO		bb		
17	FUNCTION4 PFK	40.97	9.621e2					0.3	NO		bb		
18	FUNCTION4 PFK	40.51	5.838e3					0.9	NO		bb		
19	FUNCTION4 PFK	40.40	6.194e3					1.0	NO		bb		
20	FUNCTION4 PFK	40.29	1.881e4					1.6	NO		bb		
21	FUNCTION4 PFK	40.22	6.411e3					1.0	NO		bb		
22	FUNCTION4 PFK	40.04	1.002e3					0.3	NO		bb		
23	FUNCTION4 PFK	40.00	5.636e3					0.9	NO		bb		
24	FUNCTION4 PFK	39.86	2.405e3					0.5	NO		bb		
25	FUNCTION4 PFK	39.82	1.103e3					0.4	NO		bb		
26	FUNCTION4 PFK	39.77	3.008e3					0.6	NO		bb		
27	FUNCTION4 PFK	39.49	2.833e3					0.6	NO		bb		
28	FUNCTION4 PFK	39.38	7.194e3					1.0	NO		bb		
29	FUNCTION4 PFK	39.33	1.543e3					0.5	NO		bb		
30	FUNCTION4 PFK	42.02	1.468e4					1.1	NO		bb		
31	FUNCTION4 PFK	41.69	1.704e4					1.5	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.93	9.014e1					3.5	YES		db		0.000
2	FUNCTION1 HXCD...	26.88	1.224e2					3.5	YES		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.62	9.778e1					2.5	NO		bb		0.000
2	FUNCTION2 HPCD...	31.65	1.893e2					2.8	NO		bb		0.000
3	FUNCTION2 HPCD...	30.80	8.612e1					1.6	NO		bb		0.000
4	FUNCTION2 HPCD...	30.54	1.449e2					2.7	NO		db		0.000
5	FUNCTION2 HPCD...	30.48	1.005e2					3.1	YES		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.41	7.106e1					1.7	NO		db		0.000
2	FUNCTION3 OCDPE	33.22	1.519e2					2.8	NO		dd		0.000
3	FUNCTION3 OCDPE	33.12	1.073e2					1.7	NO		bd		0.000
4	FUNCTION3 OCDPE	37.62	7.559e1					1.9	NO		bb		0.000
5	FUNCTION3 OCDPE	36.07	9.923e1					2.4	NO		bb		0.000
6	FUNCTION3 OCDPE	35.16	7.052e1					1.8	NO		bb		0.000
7	FUNCTION3 OCDPE	34.86	8.313e1					2.2	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.41	1.508e2					2.3	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.92	7.525e1					2.9	NO		bb		0.000

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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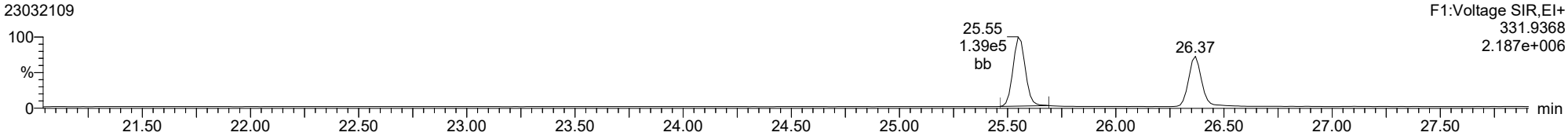
13C-1234-TCDD



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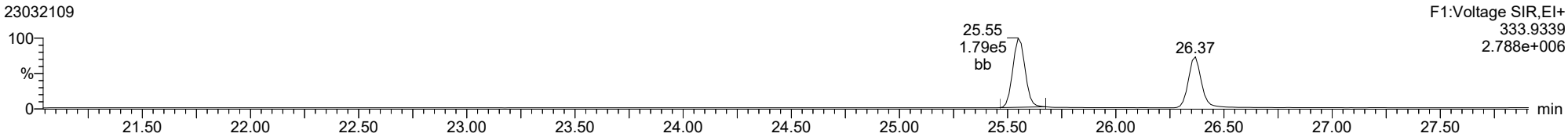

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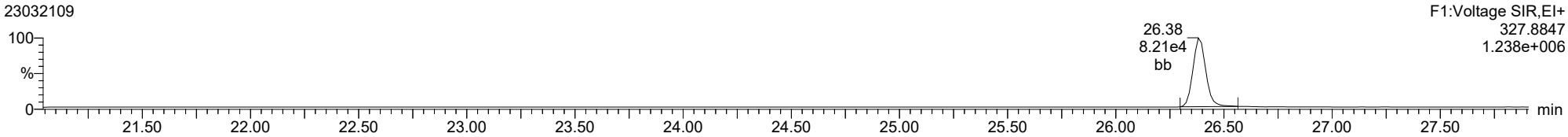

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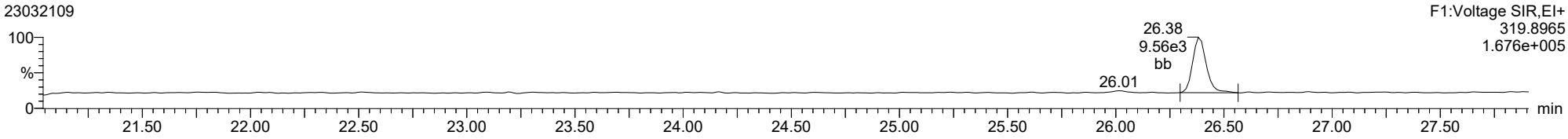
2378-TCDD



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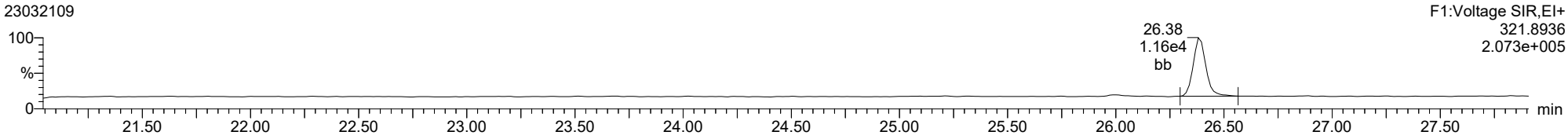

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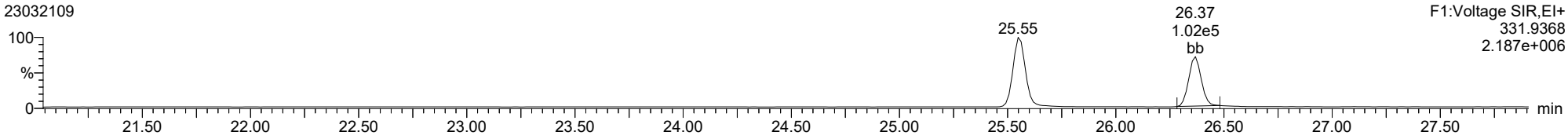

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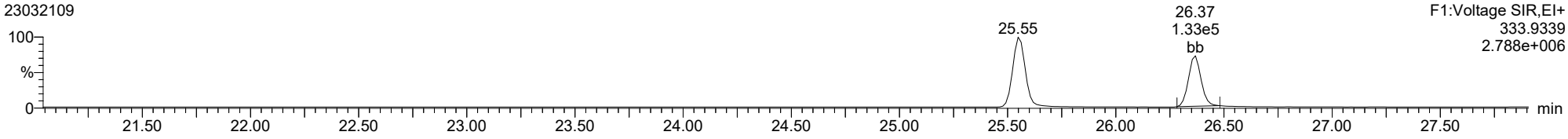
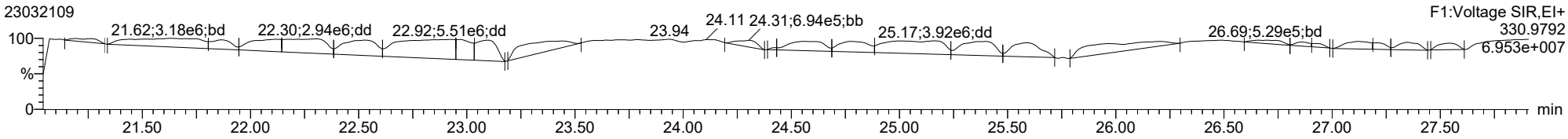


FUNCTION1 PFK



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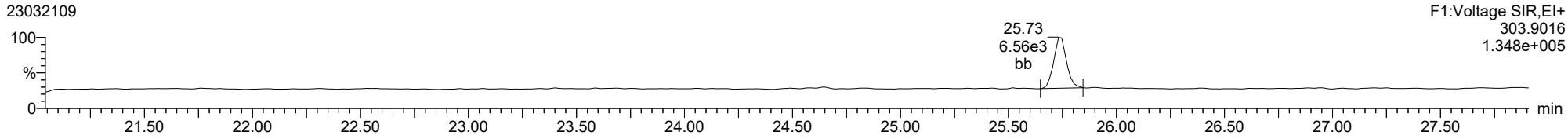
2378-TCDF



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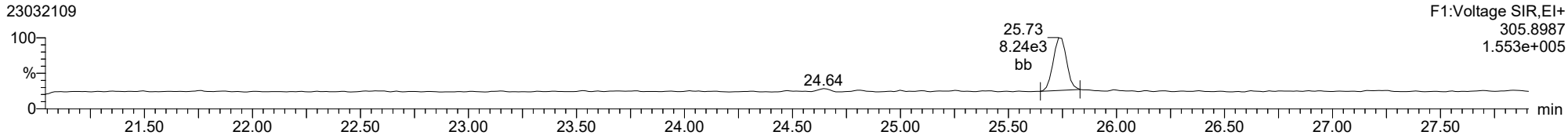

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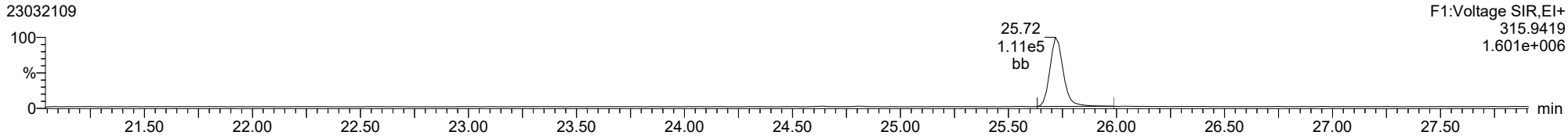

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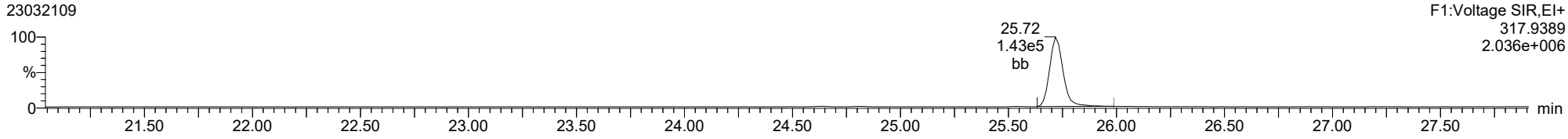

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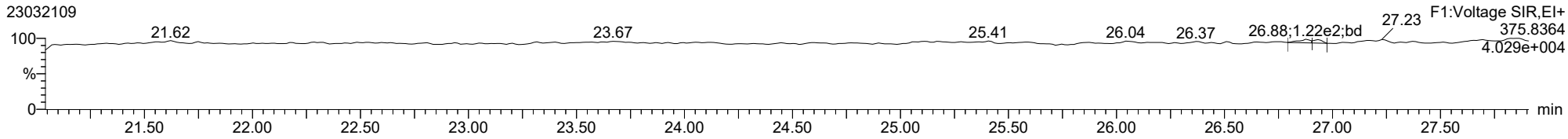

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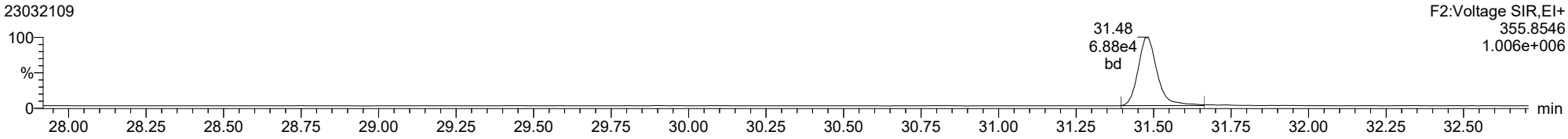
12378-PeCDD



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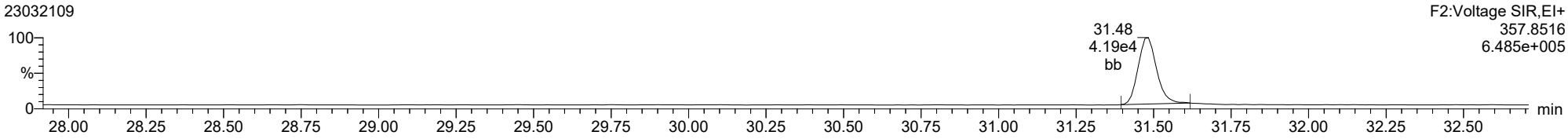

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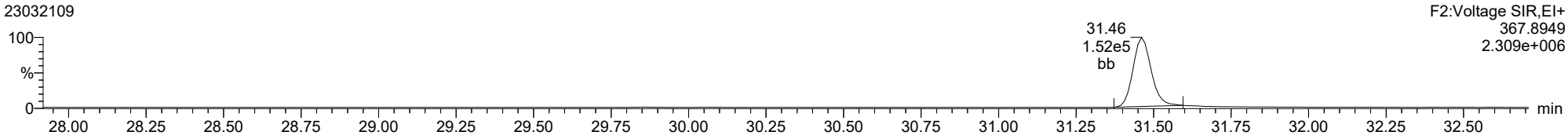

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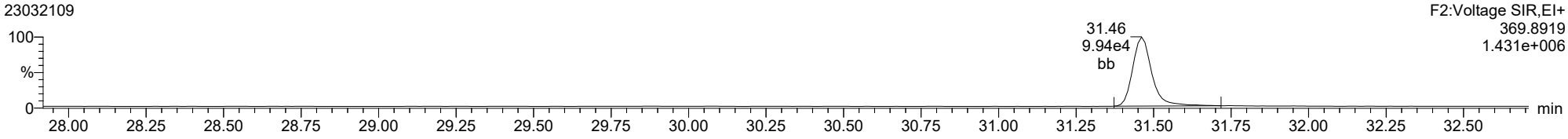
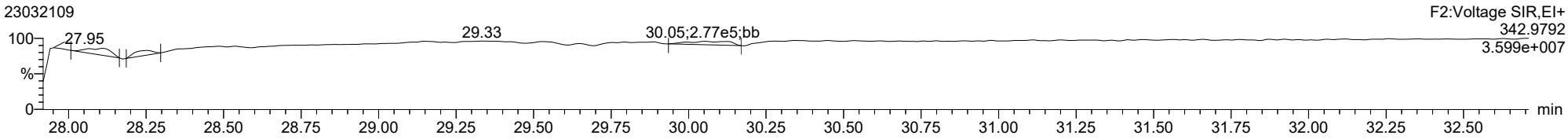


FUNCTION2 PFK



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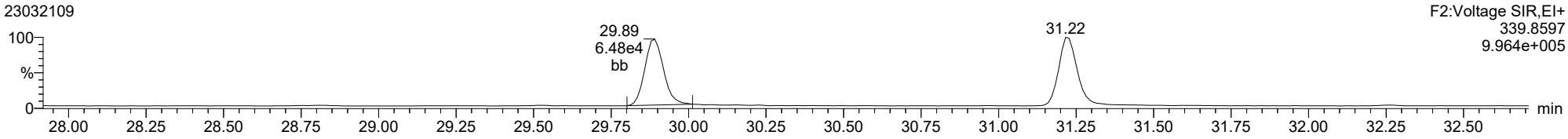
12378-PeCDF



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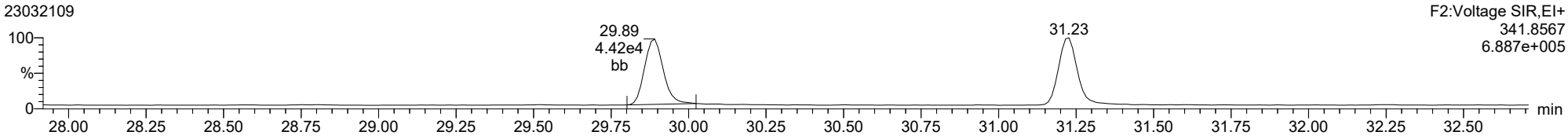

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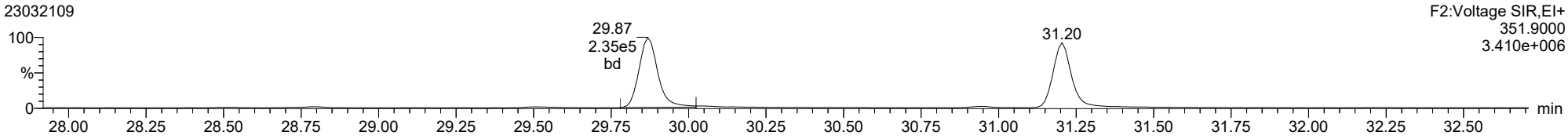

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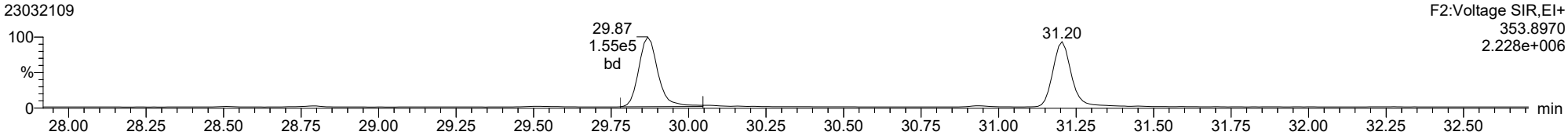
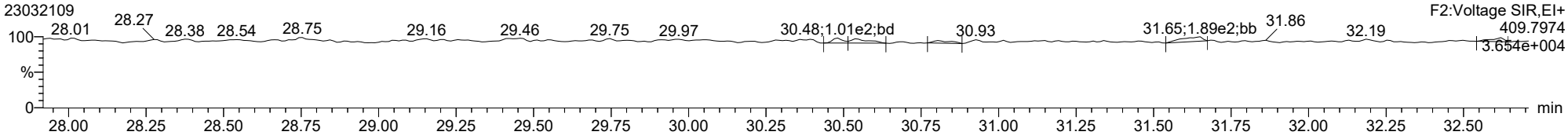


FUNCTION2 HPCDPE



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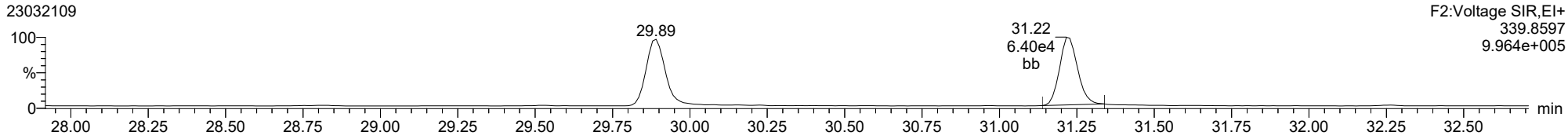
23478-PeCDF



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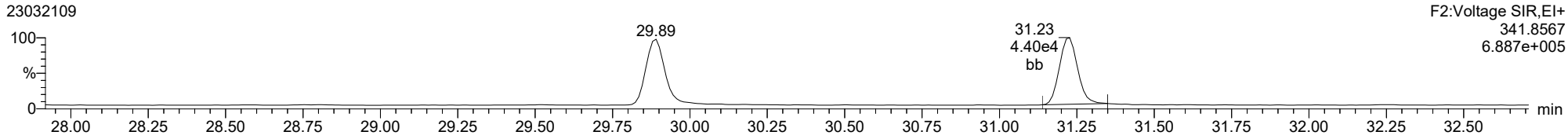

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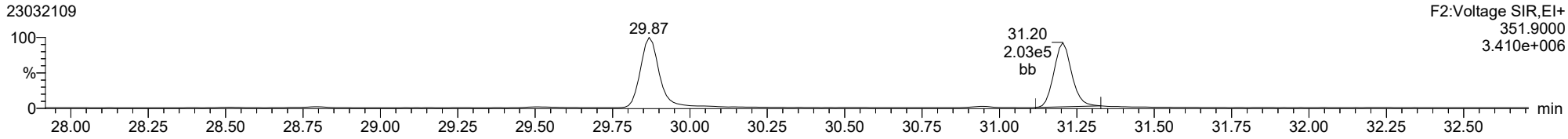

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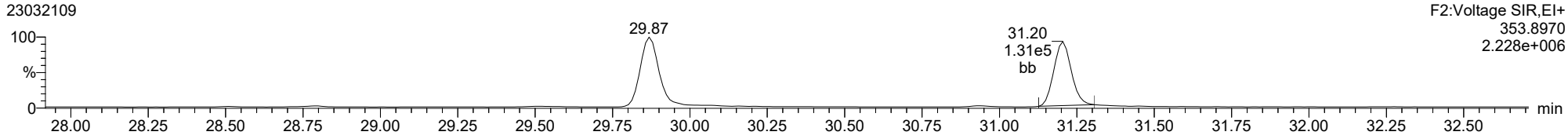
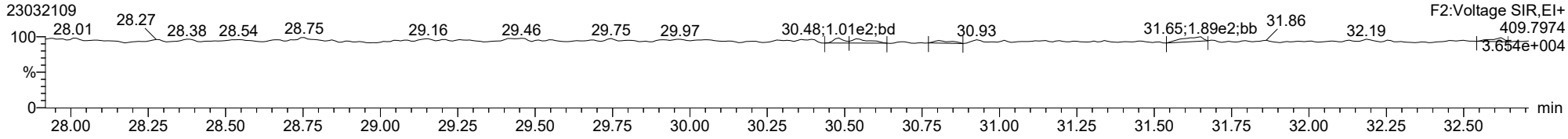


FUNCTION2 HPCDPE



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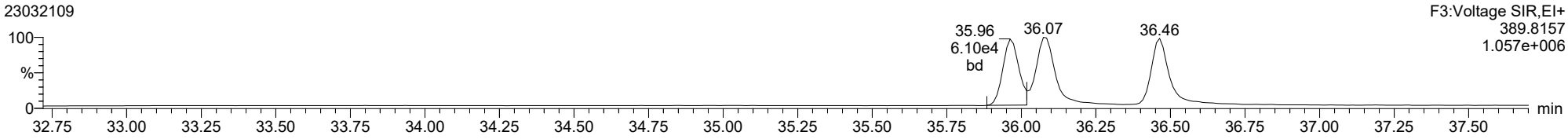
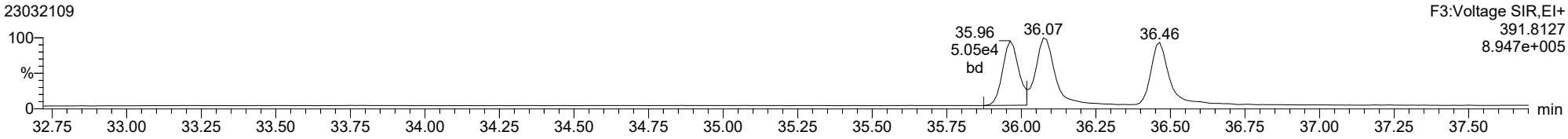


123478-HxCDD



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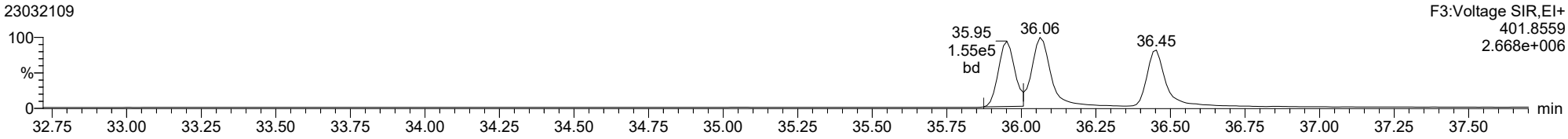

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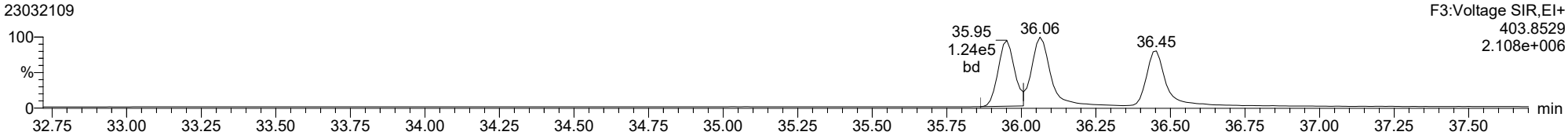
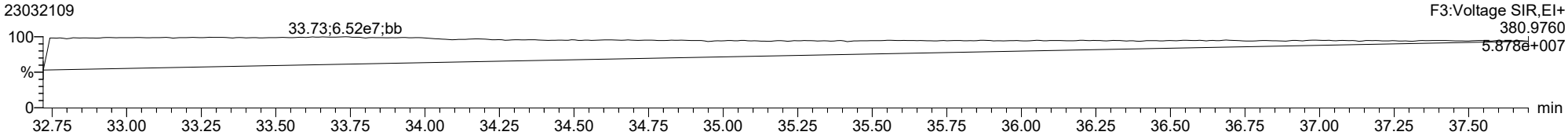


FUNCTION3 PFK



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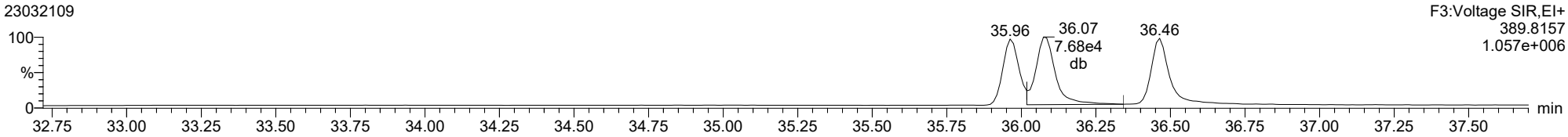
ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

123678-HxCDD



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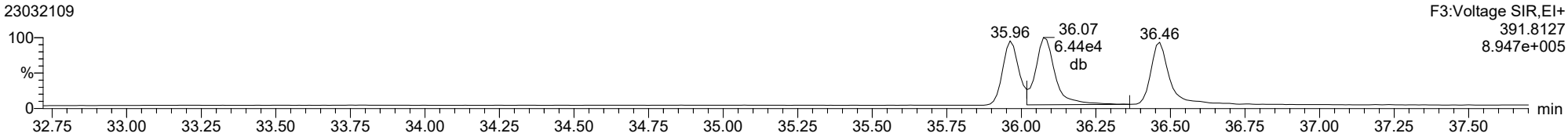

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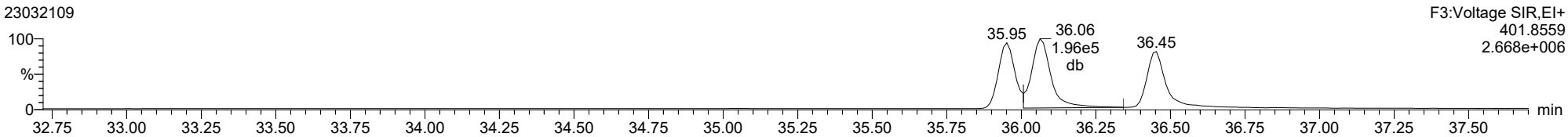

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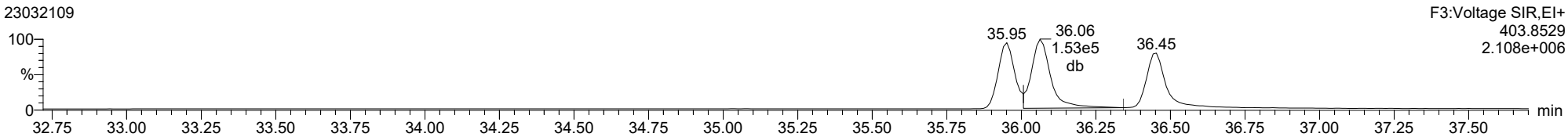

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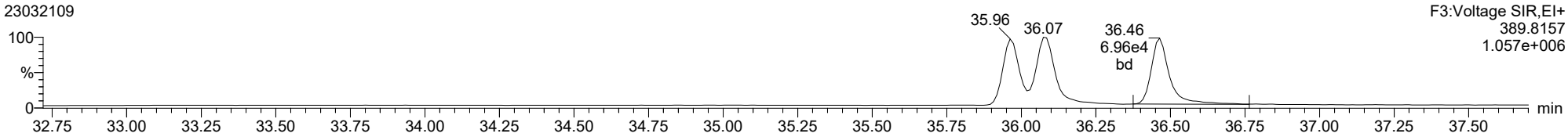
ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

123789-HxCDD



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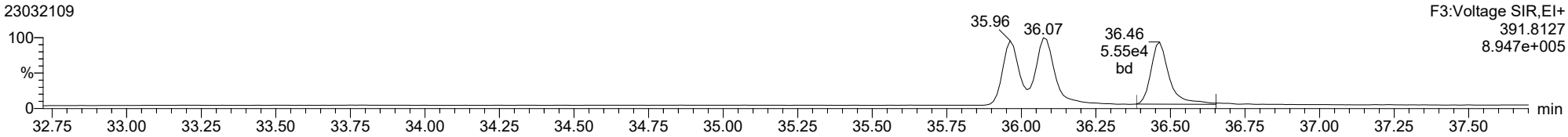

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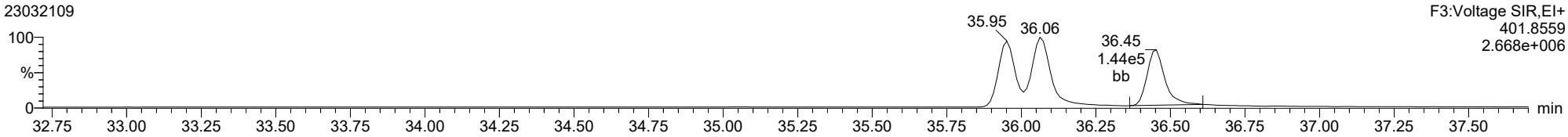

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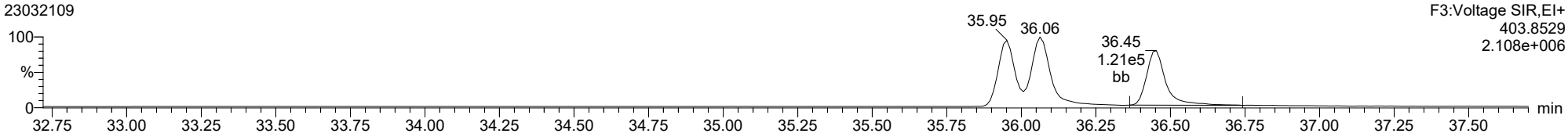

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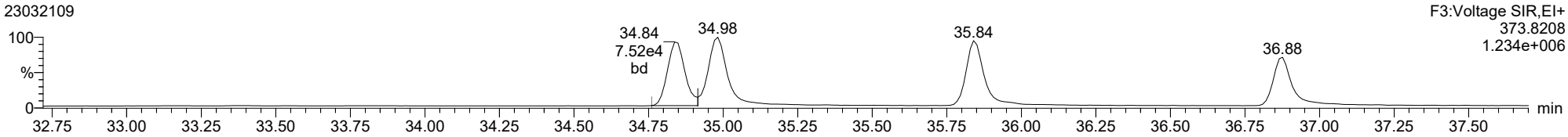
123478-HxCDF



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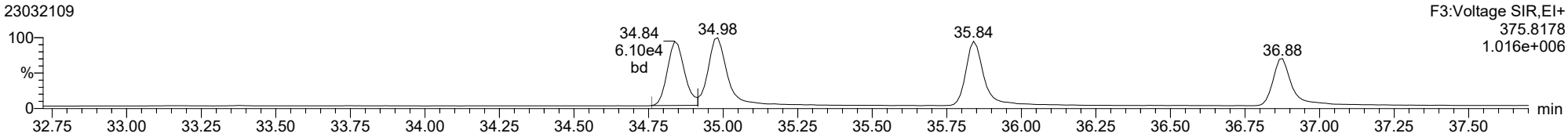

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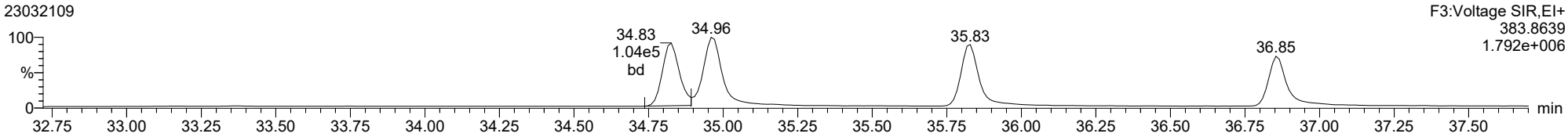

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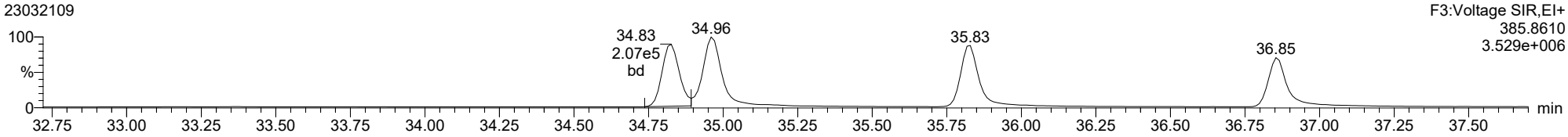
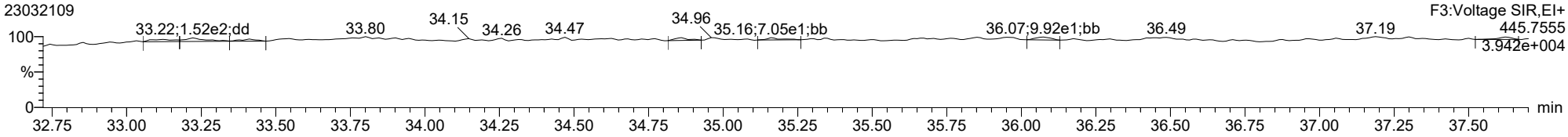


FUNCTION3 OCDPE



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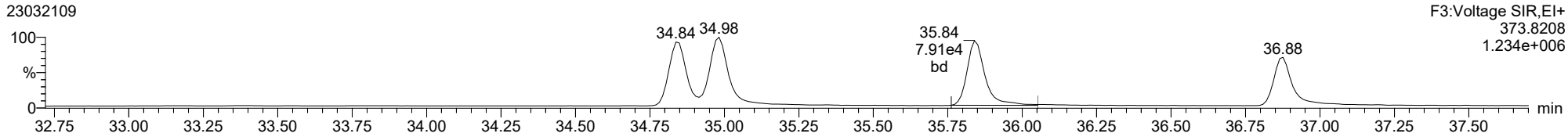
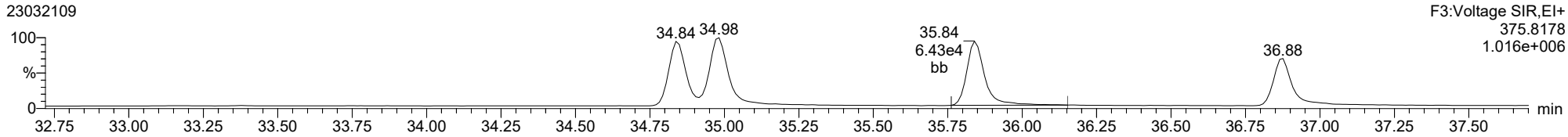
234678-HxCDF



234678-HxCDF



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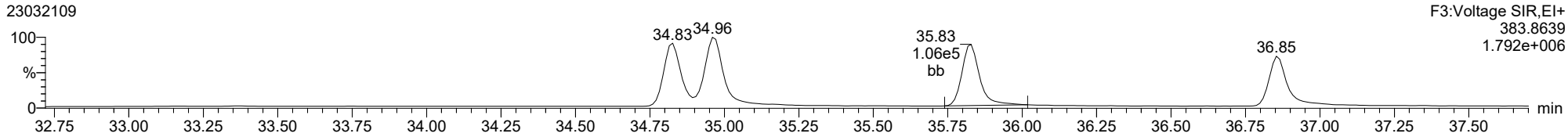

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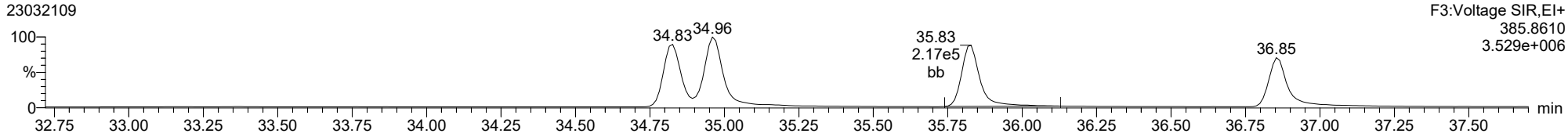
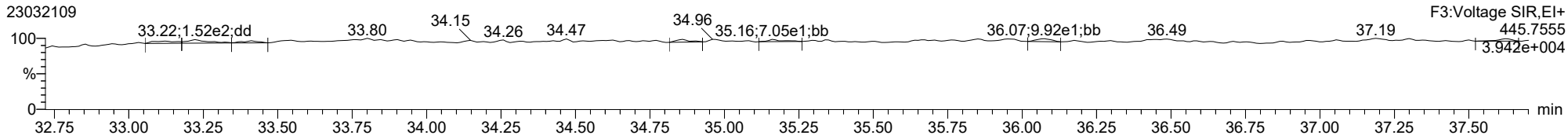


FUNCTION3 OCDPE



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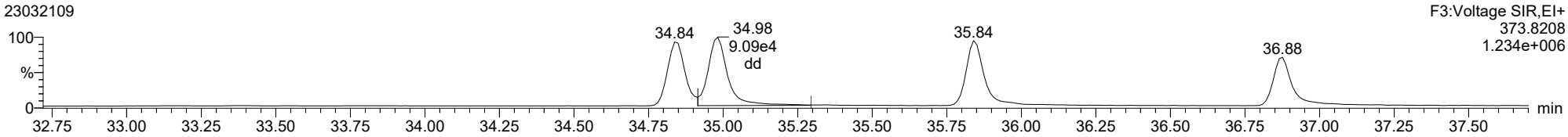
123678-HxCDF



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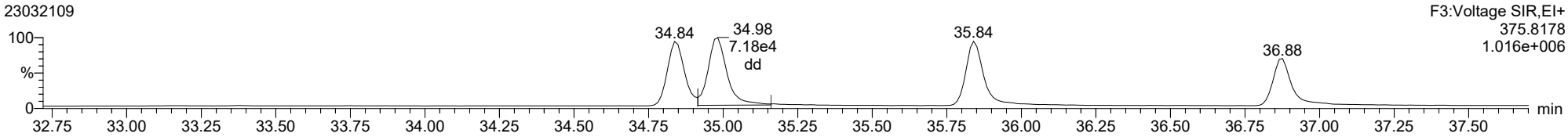

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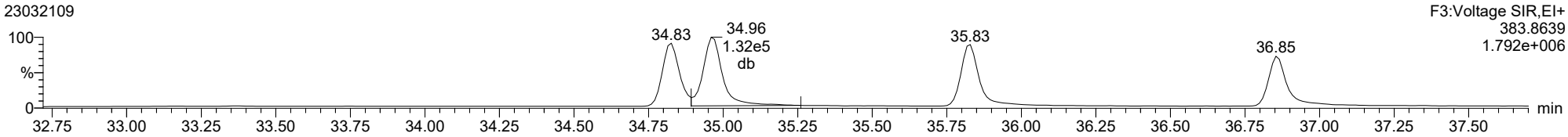

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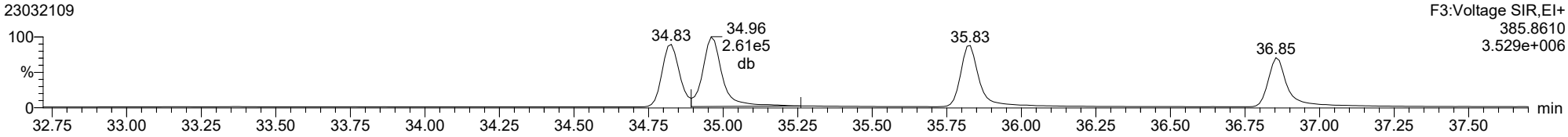
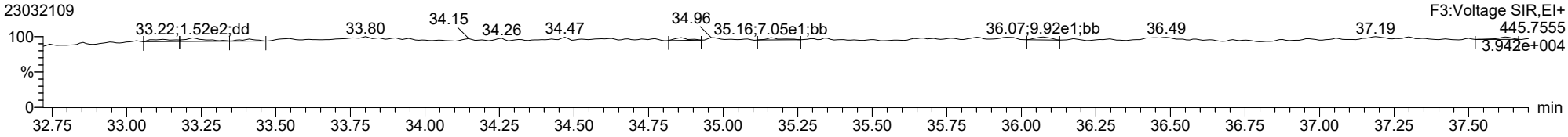


FUNCTION3 OCDPE



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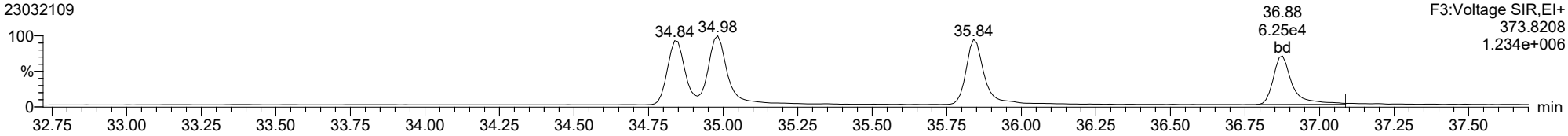
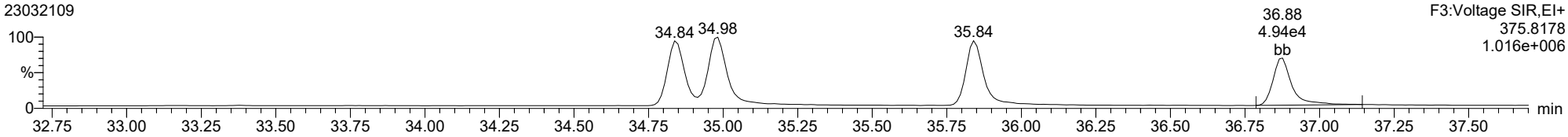
123789-HxCDF



123789-HxCDF



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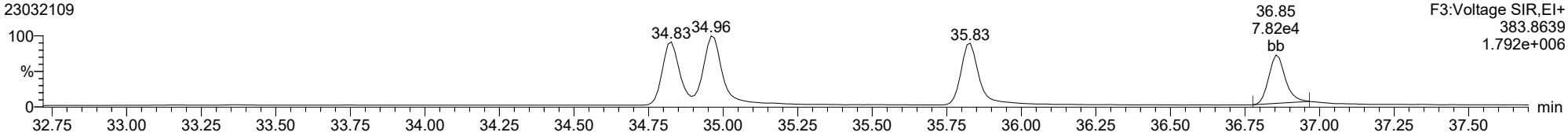

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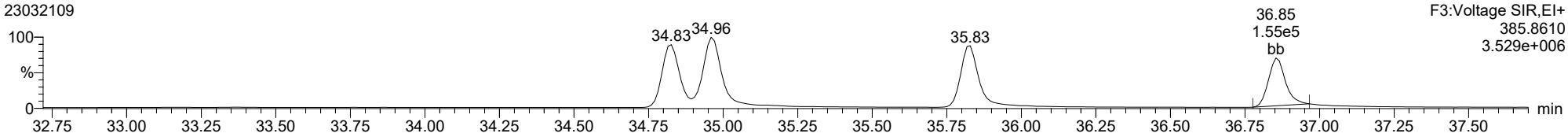
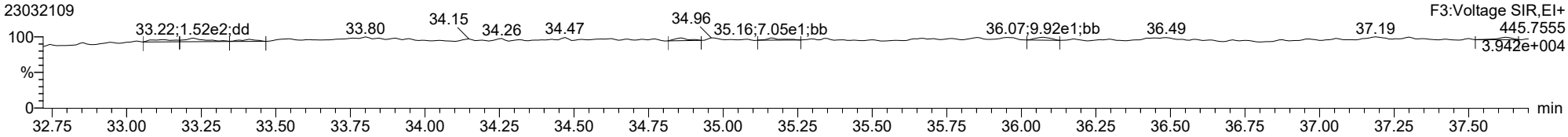


FUNCTION3 OCDPE



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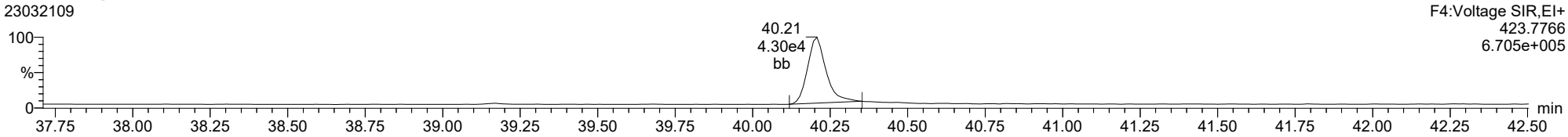
1234678-HpCDD



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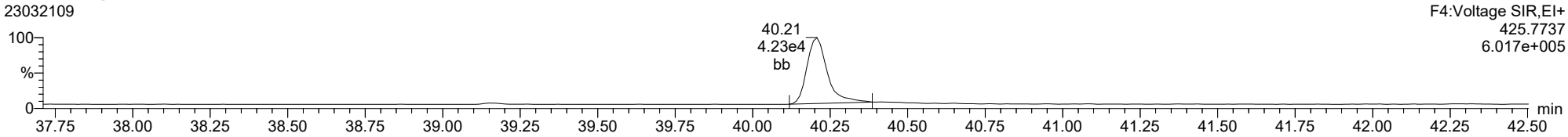

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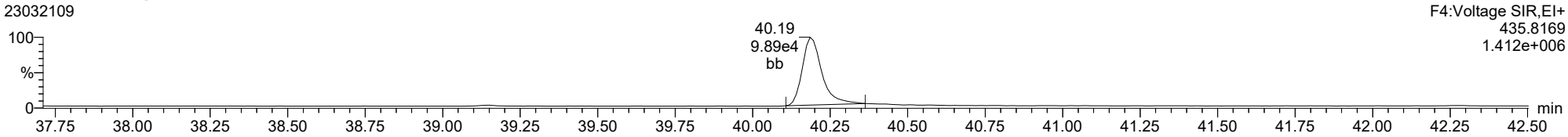

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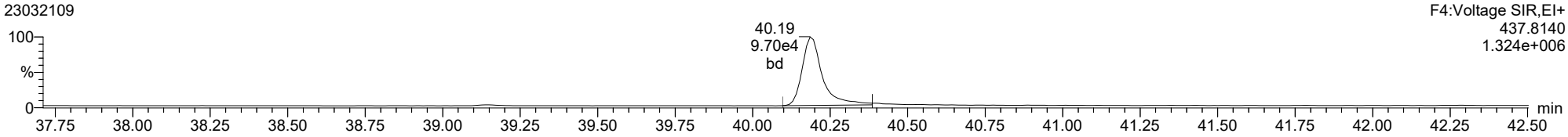
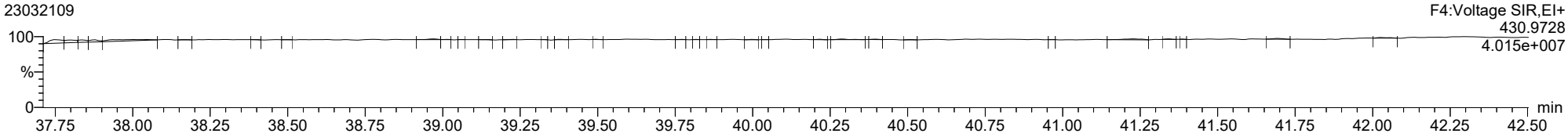
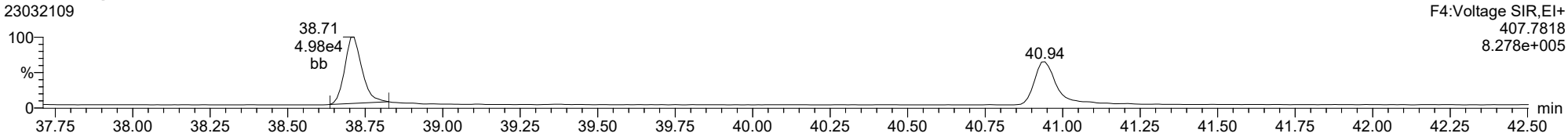


FUNCTION4 PFK



ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

1234678-HpCDF



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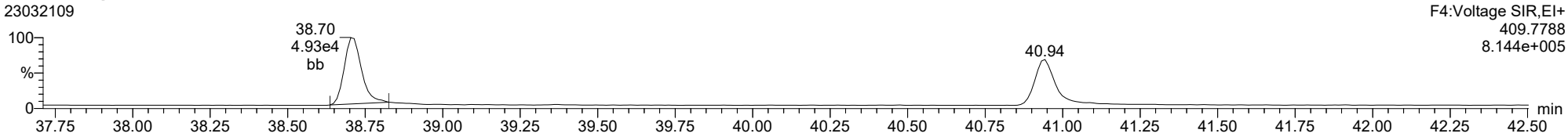

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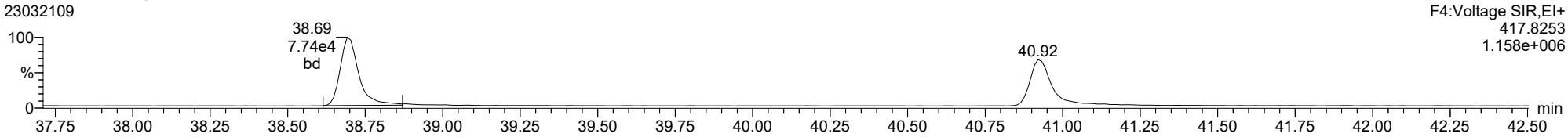

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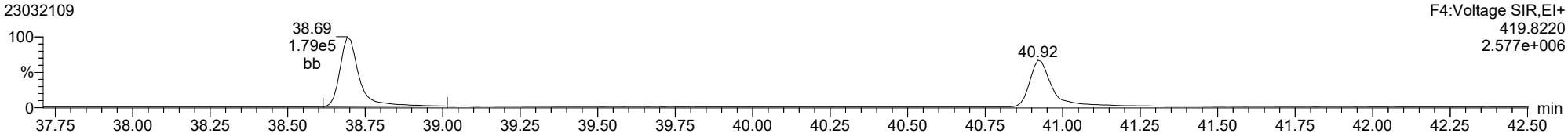
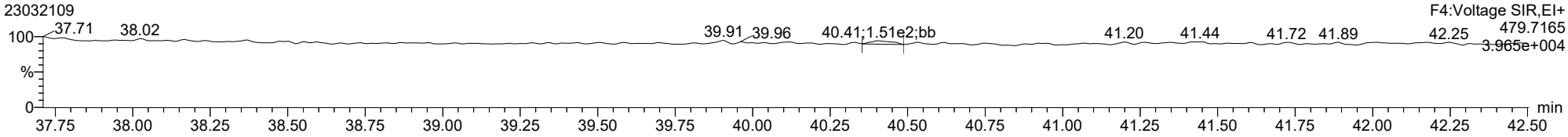
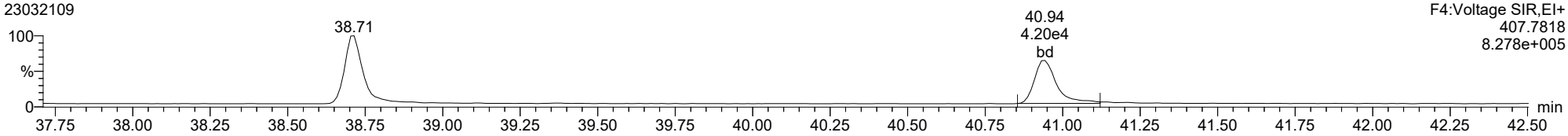


FUNCTION4 NCDPE

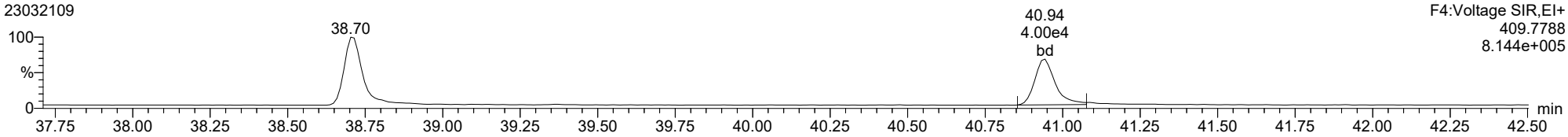


ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

1234789-HpCDF



1234789-HpCDF



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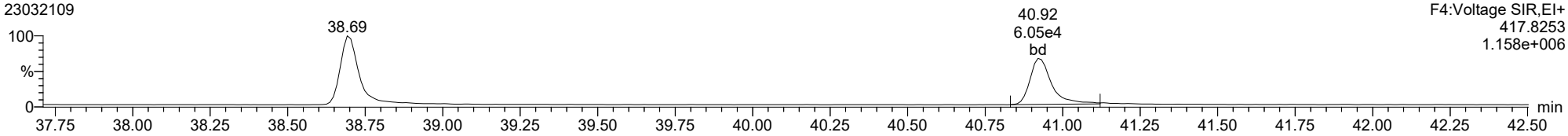

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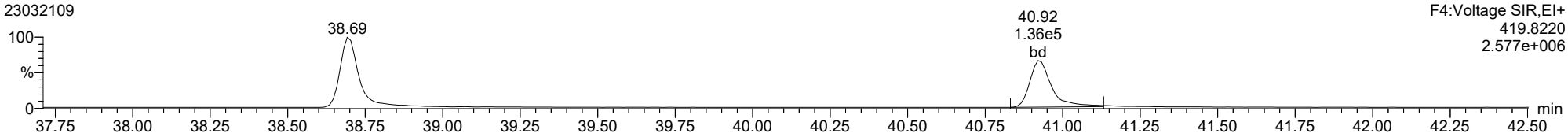
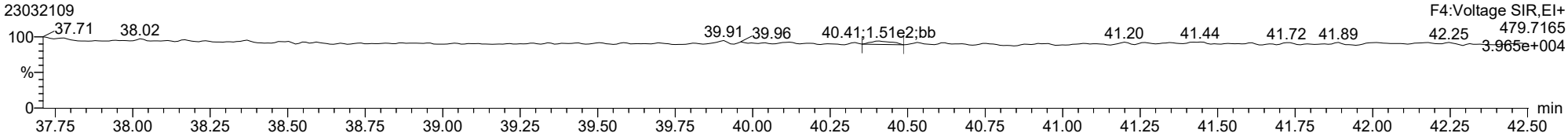
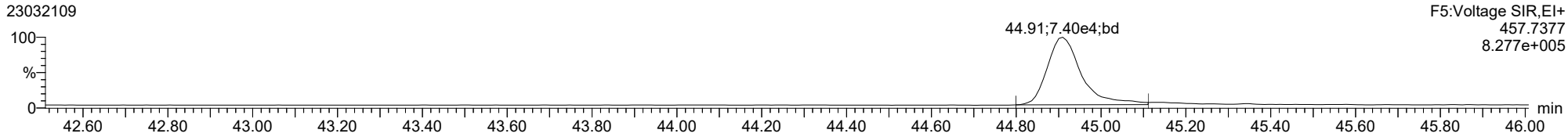


FUNCTION4 NCDPE

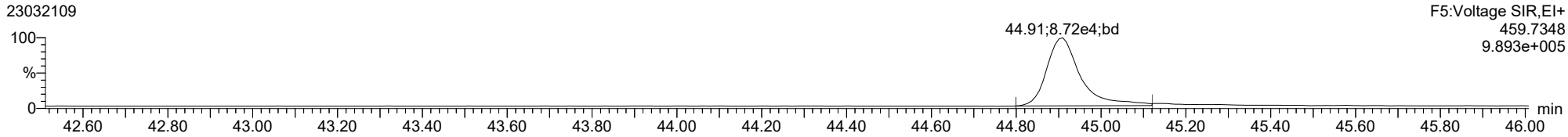


ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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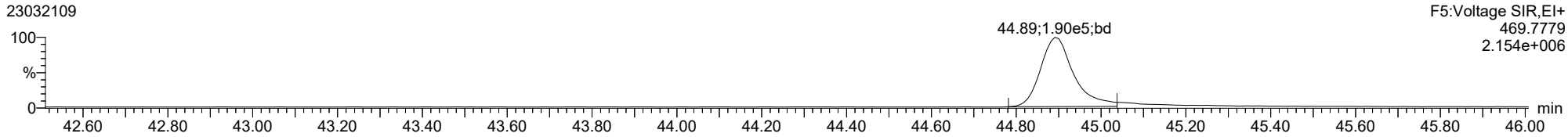

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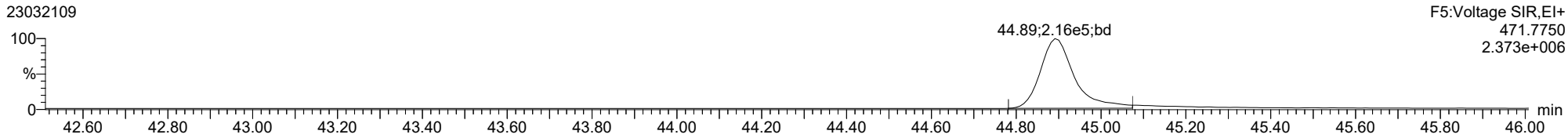
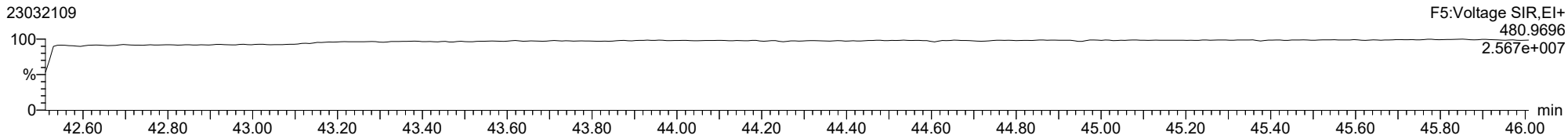
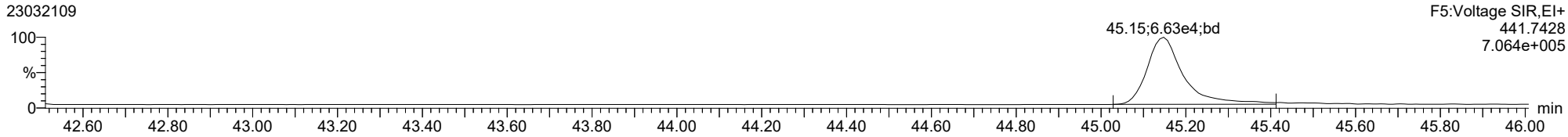


FUNCTION5 PFK

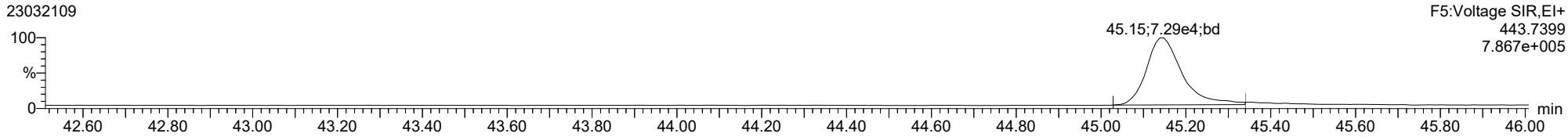


ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

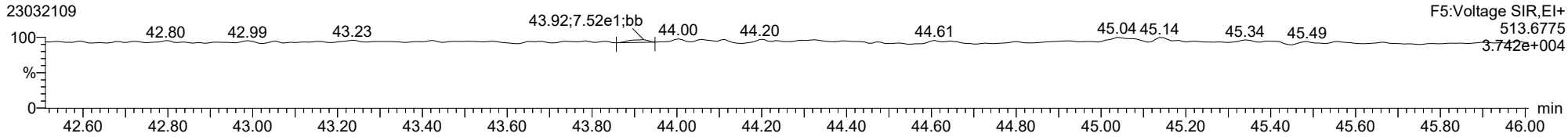
OCDF



OCDF

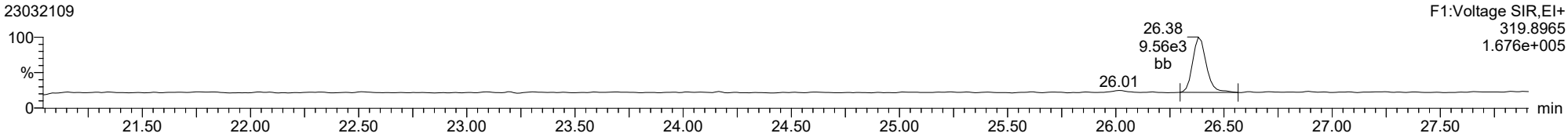


FUNCTION5 DCDPE

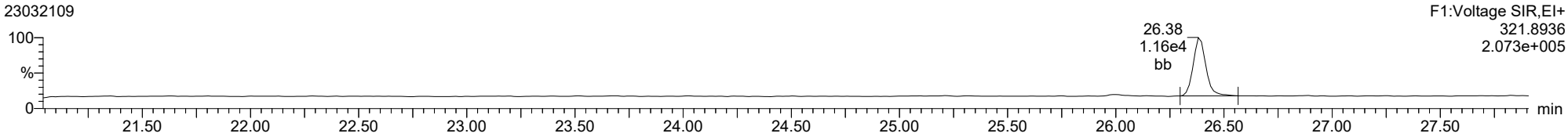


ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



Total-tetradioxins



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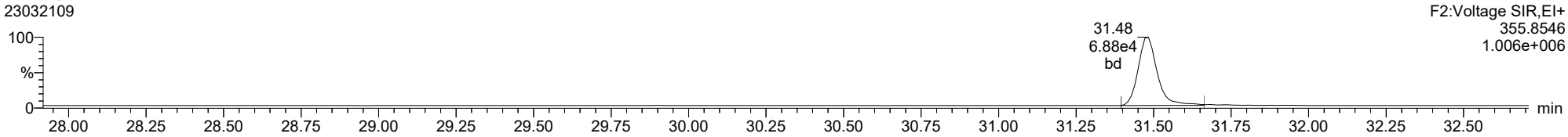
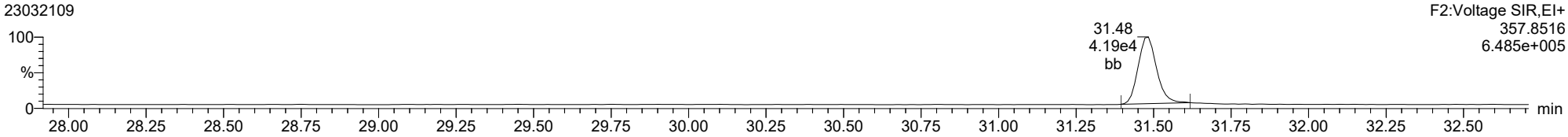
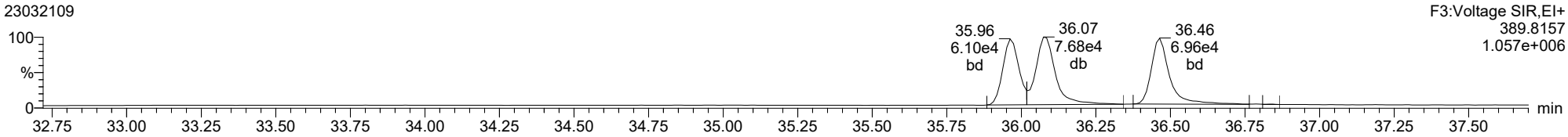


Total-pentadioxins

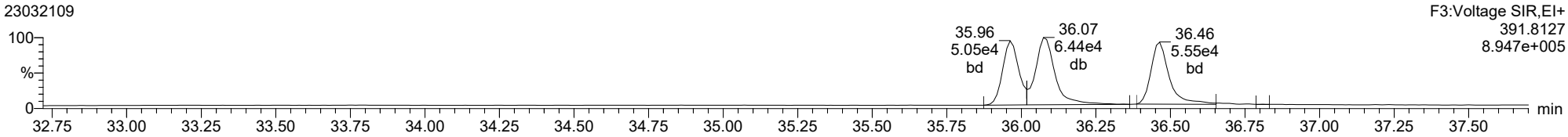


ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

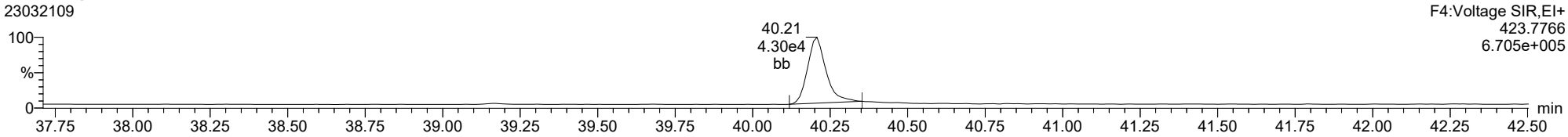
Total-hexadioxins



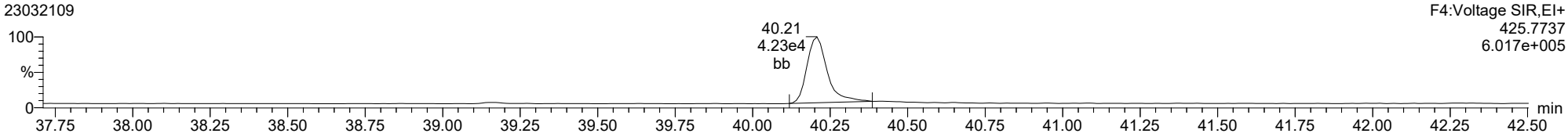
Total-hexadioxins



Total-heptadioxins

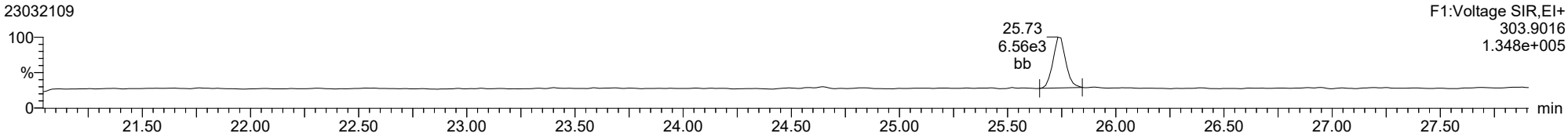


Total-heptadioxins



ID: BLB0709-BS1, Name: 23032109, Date: 21-Mar-2023, Time: 16:52:36, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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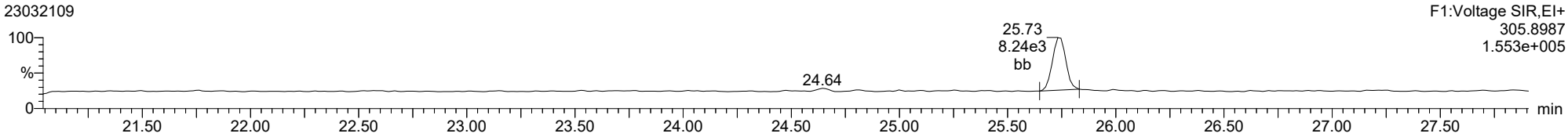

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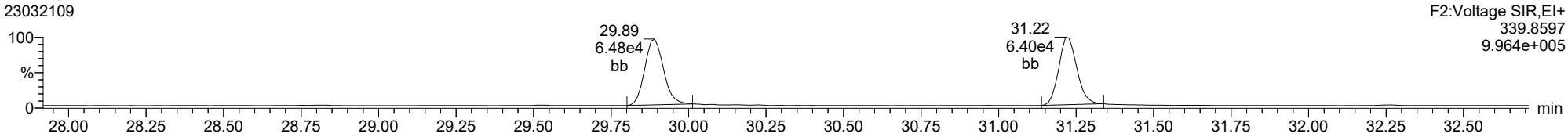

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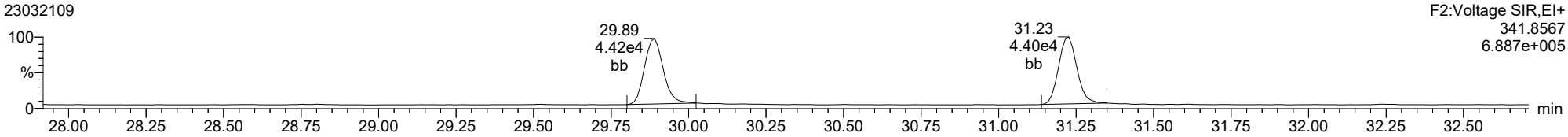

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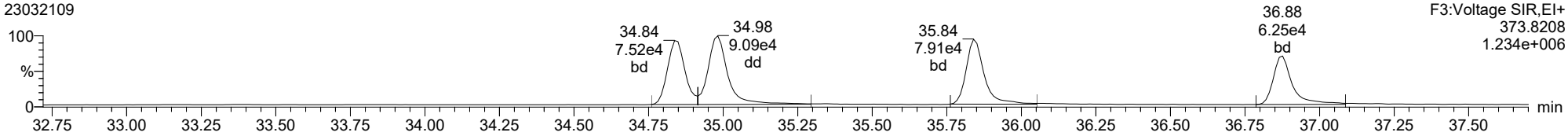

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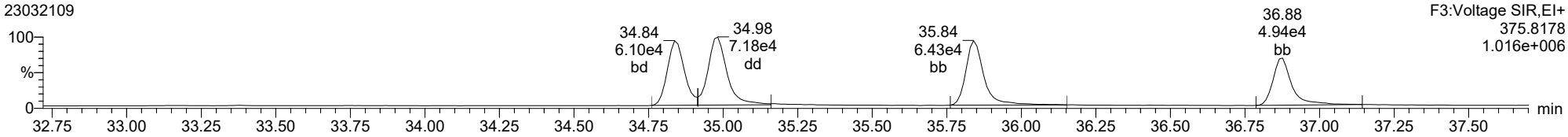

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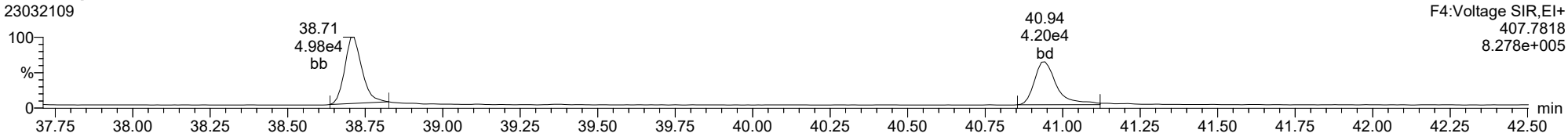
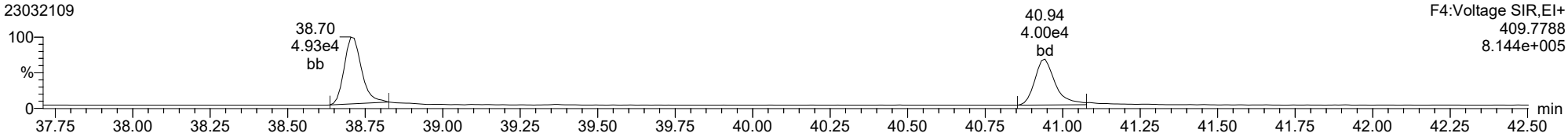


Total-heptafurans



DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Anchor QEA, LLC
Matrix: Solid
Batch: BLB0709
Preparation: EPA 8290
Source Sample Name: LDW21-IT635A

SDG: 23B0494
Project: AOC4 UR Phase 3
Laboratory ID: BLB0709-DUP1
Lab Source ID: 23B0494-01
Initial/Final: 17.72 g / 20 uL
% Solids: 56.50

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
2,3,7,8-TCDF	25	1.96	2.17	9.89	
2,3,7,8-TCDD	25	0.670	0.799	17.5	
1,2,3,7,8-PeCDF	25	1.54	1.45	6.17	
2,3,4,7,8-PeCDF	25	3.46	3.46	0.267	
1,2,3,7,8-PeCDD	25	2.31	2.48	7.02	
1,2,3,4,7,8-HxCDF	25	18.1	16.0	12.4	
1,2,3,6,7,8-HxCDF	25	4.90	4.92	0.490	
2,3,4,6,7,8-HxCDF	25	6.34	6.32	0.354	
1,2,3,7,8,9-HxCDF	25	3.62	2.93	21.2	
1,2,3,4,7,8-HxCDD	25	2.02	2.48	20.6	
1,2,3,6,7,8-HxCDD	25	10.8	11.8	8.96	
1,2,3,7,8,9-HxCDD	25	5.84	7.52	25.2	*
1,2,3,4,6,7,8-HpCDF	25	104	91.7	12.3	
1,2,3,4,7,8,9-HpCDF	25	14.8	11.0	29.5	*
1,2,3,4,6,7,8-HpCDD	25	340	353	3.86	
OCDF	25	403	344	15.9	
OCDD	25	3090	2980	3.56	
Total TCDF	200	23.3	34.3	38.0	
Total TCDD	200	3.16	5.46	53.4	
Total PeCDF	200	50.3	31.5	45.9	
Total PeCDD	200	8.74	10.1	14.0	
Total HxCDF	200	141	133	5.91	
Total HxCDD	200	89.8	91.9	2.31	
Total HpCDF	200	452	365	21.3	
Total HpCDD	200	719	679	5.72	
13C12-2,3,7,8-TCDF		44.1	68.7		
13C12-2,3,7,8-TCDD		50.7	83.5		

* Values outside of QC limits
L Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD

DUPLICATES

EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Anchor QEA, LLC
Matrix: Solid
Batch: BLB0709
Preparation: EPA 8290
Source Sample Name: LDW21-IT635A

SDG: 23B0494
Project: AOC4 UR Phase 3
Laboratory ID: BLB0709-DUP1
Lab Source ID: 23B0494-01
Initial/Final: 17.72 g / 20 uL
% Solids: 56.50

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
13C12-1,2,3,7,8-PeCDF		48.7	92.1		
13C12-2,3,4,7,8-PeCDF		50.6	94.4		
13C12-1,2,3,7,8-PeCDD		48.0	91.5		
13C12-1,2,3,4,7,8-HxCDF		46.3	82.8		
13C12-1,2,3,6,7,8-HxCDF		41.6	76.9		
13C12-2,3,4,6,7,8-HxCDF		46.8	88.3		
13C12-1,2,3,7,8,9-HxCDF		48.4	92.9		
13C12-1,2,3,4,7,8-HxCDD		51.6	94.9		
13C12-1,2,3,6,7,8-HxCDD		48.0	89.1		
13C12-1,2,3,4,6,7,8-HpCDF		42.9	78.9		
13C12-1,2,3,4,7,8,9-HpCDF		41.0	83.1		
13C12-1,2,3,4,6,7,8-HpCDD		39.8	78.5		
13C12-OCDD		79.9	150		
37Cl4-2,3,7,8-TCDD		56.4	53.3		

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:57 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.746	1.001	2.029e3	2.733e3	0.702	0.742	0.770	1075	1356	2.82e4	3.95e4	26.3	29.1	NO	bd	bd	1.085
12378-PeCDF	29.890	1.000	1.918e3	1.240e3	0.679	1.546	1.550	1557	1501	2.88e4	1.74e4	18.5	11.6	NO	bd	bb	0.724
23478-PeCDF	31.238	1.001	4.710e3	3.378e3	0.786	1.394	1.550	1557	1501	6.46e4	4.78e4	41.5	31.9	NO	db	db	1.734
123478-HxCDF	34.848	1.000	3.057e4	2.535e4	1.166	1.206	1.240	1041	1315	4.72e5	3.85e5	453.3	292.5	NO	bd	bd	7.991
234678-HxCDF	35.828	1.000	1.214e4	1.015e4	1.140	1.196	1.240	1041	1315	1.45e5	1.24e5	138.8	94.4	NO	bb	bb	3.165
123678-HxCDF	34.993	1.000	9.979e3	7.789e3	1.091	1.281	1.240	1041	1315	1.41e5	1.17e5	135.3	88.8	NO	db	db	2.463
123789-HxCDF	36.864	1.000	4.957e3	3.986e3	1.137	1.243	1.240	1041	1315	7.19e4	6.03e4	69.1	45.8	NO	bb	bb	1.465
1234678-HpCDF	38.725	1.000	1.002e5	1.015e5	1.003	0.987	1.050	1744	1381	1.65e6	1.66e6	946.7	1201.1	NO	bb	bb	45.887
1234789-HpCDF	40.953	1.000	1.010e4	1.072e4	0.953	0.942	1.050	1744	1381	1.43e5	1.51e5	82.1	109.4	NO	bb	bb	5.508
OCDF	45.174	1.006	2.291e5	2.478e5	0.778	0.924	0.890	988	1296	2.64e6	2.95e6	2675.6	2277.4	NO	bd	bb	172.062
2378-TCDD	26.382	1.000	1.048e3	1.438e3	1.149	0.729	0.770	1040	912	1.52e4	2.04e4	14.6	22.4	NO	bd	bd	0.400
12378-PeCDD	31.494	1.001	3.302e3	2.112e3	1.022	1.564	1.550	1150	1167	4.94e4	2.82e4	42.9	24.2	NO	bb	bb	1.243
123478-HxCDD	35.984	1.000	3.993e3	3.243e3	0.996	1.231	1.240	1044	1583	6.56e4	5.44e4	62.8	34.4	NO	bd	bd	1.242
123678-HxCDD	36.107	1.001	2.031e4	1.757e4	1.001	1.156	1.240	1044	1583	3.22e5	2.69e5	308.3	169.8	NO	dd	dd	5.920
123789-HxCDD	36.474	1.011	1.118e4	9.725e3	0.907	1.150	1.240	1044	1583	1.82e5	1.50e5	174.6	94.9	NO	bb	db	3.765
1234678-HpCDD	40.218	1.000	3.773e5	3.734e5	1.039	1.010	1.050	2438	3498	5.80e6	5.64e6	2380.7	1613.7	NO	bb	bb	176.670
OCDD	44.936	1.000	2.283e6	2.607e6	0.920	0.876	0.890	1953	2001	2.85e7	3.27e7	14604.1	16361.6	NO	bb	bb	1491.878
13C-2378-TCDF	25.732	1.007	2.733e5	3.524e5	1.620	0.775	0.770	1632	1258	4.14e6	5.36e6	2535.9	4257.6	NO	bb	bb	68.692
13C-12378-PeCDF	29.879	1.169	3.924e5	2.499e5	1.240	1.570	1.550	1602	1690	5.85e6	3.80e6	3648.6	2246.9	NO	bd	bb	92.110
13C-23478-PeCDF	31.216	1.221	3.569e5	2.362e5	1.118	1.511	1.550	1602	1690	5.44e6	3.67e6	3395.9	2169.8	NO	bb	bb	94.397
13C-123478-HxCDF	34.837	0.955	2.014e5	3.987e5	1.168	0.505	0.510	1418	1720	3.15e6	6.29e6	2222.2	3658.7	NO	bd	bd	82.838
13C-123678-HxCDF	34.981	0.959	2.199e5	4.415e5	1.386	0.498	0.510	1418	1720	3.23e6	6.36e6	2275.0	3696.6	NO	dd	dd	76.926
13C-234678-HxCDF	35.839	0.983	2.082e5	4.098e5	1.129	0.508	0.510	1418	1720	3.21e6	6.32e6	2265.0	3673.1	NO	bb	bb	88.261
13C-123789-HxCDF	36.864	1.011	1.805e5	3.562e5	0.932	0.507	0.510	1418	1720	2.97e6	5.78e6	2091.6	3360.7	NO	bb	bb	92.894
13C-1234678-HpCDF	38.714	1.062	1.333e5	3.049e5	0.895	0.437	0.440	1231	1288	2.22e6	4.93e6	1801.8	3827.4	NO	bb	bb	78.949
13C-1234789-HpCDF	40.942	1.123	1.210e5	2.756e5	0.770	0.439	0.440	1231	1288	1.67e6	3.78e6	1357.8	2937.0	NO	bb	bb	83.105
13C-1234-TCDD	25.562	0.000	2.459e5	3.163e5	1.000	0.778	0.770	1526	1173	3.81e6	4.89e6	2496.4	4165.7	NO	bb	bb	100.000
13C-2378-TCDD	26.367	1.031	2.371e5	3.039e5	1.152	0.780	0.770	1526	1173	3.69e6	4.73e6	2419.4	4034.4	NO	bb	bb	83.508
13C-12378-PeCDD	31.472	1.231	2.602e5	1.661e5	0.829	1.566	1.550	694	878	3.92e6	2.52e6	5647.2	2875.0	NO	bb	bb	91.482
13C-123478-HxCDD	35.973	0.987	3.287e5	2.565e5	0.995	1.281	1.240	1394	1767	5.22e6	4.07e6	3745.7	2306.1	NO	bd	bd	94.853
13C-123678-HxCDD	36.084	0.990	3.563e5	2.830e5	1.157	1.259	1.240	1394	1767	5.25e6	4.22e6	3768.3	2386.3	NO	db	db	89.135
13C-1234678-HpCDD	40.196	1.102	2.123e5	1.967e5	0.840	1.079	1.050	1119	1107	3.16e6	2.97e6	2823.3	2682.3	NO	bb	bb	78.512
13C-OCDD	44.918	1.232	3.397e5	3.730e5	0.767	0.911	0.890	1223	1220	4.12e6	4.52e6	3369.8	3705.9	NO	bb	bb	149.751
13C-123789-HxCDD	36.463	0.000	3.496e5	2.705e5	1.000	1.293	1.240	1394	1767	5.53e6	4.38e6	3970.6	2477.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.382	1.032	1.933e5		1.288			945		2.85e6		3018.2			bb		26.694

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:57 Pacific Daylight Time

ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.257	0.865	6.047e2	9.840e2	0.802	0.614	0.770	1075	1356	9.87e3	1.69e4	9.2	12.4	YES	bb	bb	0.317
1289-TCDF					0.678		0.770	1075	1356								
13468-PECDF					1.246		1.550	668	955								
12389-PECDF					0.496		1.550	1557	1501								
123468-HXCDF	33.188	0.953	1.473e4	1.252e4	1.169	1.177	1.240	1041	1315	2.21e5	1.94e5	212.2	147.5	NO	bb	bb	3.885
1368-TCDD	23.528	0.892	1.881e3	2.146e3	1.015	0.876	0.770	1040	912	3.10e4	3.79e4	29.8	41.6	NO	bb	bb	0.733
1289-TCDD					0.909		0.770	1040	912								
12479-PECDD	28.809	0.915	8.724e3	6.597e3	2.301	1.322	1.550	1150	1167	9.15e4	7.00e4	79.6	59.9	NO	bb	bb	1.562
12389-PECDD					1.184		1.550	1150	1167								
124679-HXCDD	33.968	0.944	5.712e4	4.741e4	1.115	1.205	1.240	1044	1583	8.90e5	7.28e5	851.8	460.0	NO	bb	bb	16.013
1234679-HPCDD	39.171	0.975	3.836e5	3.764e5	1.137	1.019	1.050	2438	3498	6.21e6	6.04e6	2548.4	1727.1	NO	bb	bb	163.448
Total-tetrafurans			3.273e4		0.727			1075		4.90e5							17.155
Total-penta1			3.877e4					668		5.59e5							10.954
Total-pentafurans			1.217e4		0.654			1557		1.72e5							4.834
Total-hexafurans			2.532e5		1.141			1041		3.82e6							66.577
Total-heptafurans			3.764e5		0.978			1744		6.27e6							182.498
Total-Furans			9.423e5		0.922			1075		1.40e7							454.080
Total-tetradioxins			6.828e3		1.024			1040		1.01e5							2.734
Total-pentadioxins			2.067e4		1.502			1150		2.72e5							5.031
Total-hexadioxins			1.568e5		1.005			1044		2.19e6							46.026
Total-heptadioxins			7.610e5		1.088			2438		1.20e7							340.118
Total-Dioxins			3.229e6		1.130			1040		4.31e7							1885.787
Total-TEQ			4.171e6					1040		5.71e7							2339.868
FUNCTION1 PFK			1.982e7					471248		7.75e7							
FUNCTION2 PFK			1.175e7					220343		1.61e7							0.000
FUNCTION3 PFK			3.159e6					296146		9.52e6							0.000
FUNCTION4 PFK			4.068e5					316161		4.02e6							
FUNCTION5 PFK			0.000e0					151377		0.00e0							
FUNCTION1 HXCD...			2.408e3					551		3.94e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.662e2					765		1.57e4							0.000
FUNCTION3 OCDPE			1.012e3					859		1.72e4							0.000
FUNCTION4 NCDPE			2.837e3					474		4.73e4							0.000
FUNCTION5 DCDPE			8.470e1					591		2.22e3							0.000

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.50	1.297e3	1.517e3	0.727	0.85	0.77	16.2	YES	NO	dd	dd	0.619
2	Total-tetrafurans	24.42	2.177e3	2.943e3	0.727	0.74	0.77	31.2	YES	NO	bd	bd	1.126
3	Total-tetrafurans	23.99	2.378e3	3.414e3	0.727	0.70	0.77	34.9	YES	NO	db	db	1.273
4	Total-tetrafurans	23.85	2.358e3	3.380e3	0.727	0.70	0.77	32.4	YES	NO	dd	dd	1.261
5	Total-tetrafurans	23.75	2.218e3	3.170e3	0.727	0.70	0.77	33.3	YES	NO	bd	bd	1.185
6	Total-tetrafurans	23.50	2.775e3	3.864e3	0.727	0.72	0.77	40.7	YES	NO	dd	dd	1.459
7	Total-tetrafurans	23.08	4.011e3	6.023e3	0.727	0.67	0.77	52.4	YES	NO	bd	bd	2.206
8	Total-tetrafurans	22.51	1.919e3	2.867e3	0.727	0.67	0.77	28.7	YES	NO	bb	bb	1.052
9	Total-tetrafurans	25.97	3.981e3	5.119e3	0.727	0.78	0.77	51.5	YES	NO	db	db	2.001
10	Total-tetrafurans	25.87	1.724e3	2.021e3	0.727	0.85	0.77	26.2	YES	NO	dd	dd	0.823
11	2378-TCDF	25.75	2.029e3	2.733e3	0.702	0.74	0.77	26.3	YES	NO	bd	bd	1.085
12	Total-tetrafurans	25.25	6.125e2	7.789e2	0.727	0.79	0.77	9.4	YES	NO	db	db	0.306
13	Total-tetrafurans	24.83	1.832e3	2.685e3	0.727	0.68	0.77	24.1	YES	NO	db	db	0.993
14	Total-tetrafurans	24.64	3.419e3	4.615e3	0.727	0.74	0.77	48.5	YES	NO	dd	dd	1.766

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.17	3.877e4	2.576e4		1.51	1.55	836.1	YES	NO	bb	bb	10.954

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.24	4.710e3	3.378e3	0.786	1.39	1.55	41.5	YES	NO	db	db	1.734
2	Total-pentafurans	31.09	3.964e3	2.979e3	0.654	1.33	1.55	36.6	YES	NO	dd	dd	1.719
3	Total-pentafurans	30.97	1.581e3	1.073e3	0.654	1.47	1.55	13.8	YES	NO	bd	bd	0.657
4	12378-PeCDF	29.89	1.918e3	1.240e3	0.679	1.55	1.55	18.5	YES	NO	bd	bb	0.724

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.86	4.957e3	3.986e3	1.137	1.24	1.24	69.1	YES	NO	bb	bb	1.465
2	234678-HxCDF	35.83	1.214e4	1.015e4	1.140	1.20	1.24	138.8	YES	NO	bb	bb	3.165
3	123678-HxCDF	34.99	9.979e3	7.789e3	1.091	1.28	1.24	135.3	YES	NO	db	db	2.463
4	123478-HxCDF	34.85	3.057e4	2.535e4	1.166	1.21	1.24	453.3	YES	NO	bd	bd	7.991
5	Total-hexafurans	34.70	3.076e3	2.418e3	1.141	1.27	1.24	48.7	YES	NO	bb	bb	0.797
6	Total-hexafurans	34.24	1.157e5	9.520e4	1.141	1.22	1.24	1711.3	YES	NO	bb	bb	30.614
7	Total-hexafurans	33.93	2.677e3	2.252e3	1.141	1.19	1.24	38.6	YES	NO	bb	bb	0.715
8	Total-hexafurans	33.40	5.936e4	4.730e4	1.141	1.25	1.24	861.7	YES	NO	bb	bb	15.482
9	123468-HXCDF	33.19	1.473e4	1.252e4	1.169	1.18	1.24	212.2	YES	NO	bb	bb	3.885

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.95	1.010e4	1.072e4	0.953	0.94	1.05	82.1	YES	NO	bb	bb	5.508
2	Total-heptafurans	39.38	2.641e5	2.672e5	0.978	0.99	1.05	2552.5	YES	NO	bb	bb	130.120
3	Total-heptafurans	39.13	1.991e3	2.020e3	0.978	0.99	1.05	16.1	YES	NO	bb	bb	0.982
4	1234678-HpCDF	38.72	1.002e5	1.015e5	1.003	0.99	1.05	946.7	YES	NO	bb	bb	45.887

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.50	1.297e3	1.517e3	0.727	0.85	0.77	16.2	YES	NO	dd	dd	0.619
2	Total-tetrafurans	24.42	2.177e3	2.943e3	0.727	0.74	0.77	31.2	YES	NO	bd	bd	1.126
3	Total-tetrafurans	23.99	2.378e3	3.414e3	0.727	0.70	0.77	34.9	YES	NO	db	db	1.273
4	Total-tetrafurans	23.85	2.358e3	3.380e3	0.727	0.70	0.77	32.4	YES	NO	dd	dd	1.261
5	Total-tetrafurans	23.75	2.218e3	3.170e3	0.727	0.70	0.77	33.3	YES	NO	bd	bd	1.185
6	Total-tetrafurans	23.50	2.775e3	3.864e3	0.727	0.72	0.77	40.7	YES	NO	dd	dd	1.459
7	Total-tetrafurans	23.08	4.011e3	6.023e3	0.727	0.67	0.77	52.4	YES	NO	bd	bd	2.206
8	Total-tetrafurans	22.51	1.919e3	2.867e3	0.727	0.67	0.77	28.7	YES	NO	bb	bb	1.052
9	Total-tetrafurans	25.97	3.981e3	5.119e3	0.727	0.78	0.77	51.5	YES	NO	db	db	2.001
10	Total-tetrafurans	25.87	1.724e3	2.021e3	0.727	0.85	0.77	26.2	YES	NO	dd	dd	0.823
11	2378-TCDF	25.75	2.029e3	2.733e3	0.702	0.74	0.77	26.3	YES	NO	bd	bd	1.085
12	Total-tetrafurans	25.25	6.125e2	7.789e2	0.727	0.79	0.77	9.4	YES	NO	db	db	0.306
13	Total-tetrafurans	24.83	1.832e3	2.685e3	0.727	0.68	0.77	24.1	YES	NO	db	db	0.993
14	Total-tetrafurans	24.64	3.419e3	4.615e3	0.727	0.74	0.77	48.5	YES	NO	dd	dd	1.766
15	23478-PeCDF	31.24	4.710e3	3.378e3	0.786	1.39	1.55	41.5	YES	NO	db	db	1.734
16	Total-pentafurans	31.09	3.964e3	2.979e3	0.654	1.33	1.55	36.6	YES	NO	dd	dd	1.719
17	Total-pentafurans	30.97	1.581e3	1.073e3	0.654	1.47	1.55	13.8	YES	NO	bd	bd	0.657
18	12378-PeCDF	29.89	1.918e3	1.240e3	0.679	1.55	1.55	18.5	YES	NO	bd	bb	0.724
19	123789-HxCDF	36.86	4.957e3	3.986e3	1.137	1.24	1.24	69.1	YES	NO	bb	bb	1.465
20	234678-HxCDF	35.83	1.214e4	1.015e4	1.140	1.20	1.24	138.8	YES	NO	bb	bb	3.165
21	123678-HxCDF	34.99	9.979e3	7.789e3	1.091	1.28	1.24	135.3	YES	NO	db	db	2.463
22	123478-HxCDF	34.85	3.057e4	2.535e4	1.166	1.21	1.24	453.3	YES	NO	bd	bd	7.991
23	Total-hexafurans	34.70	3.076e3	2.418e3	1.141	1.27	1.24	48.7	YES	NO	bb	bb	0.797
24	Total-hexafurans	34.24	1.157e5	9.520e4	1.141	1.22	1.24	1711.3	YES	NO	bb	bb	30.614
25	Total-hexafurans	33.93	2.677e3	2.252e3	1.141	1.19	1.24	38.6	YES	NO	bb	bb	0.715
26	Total-hexafurans	33.40	5.936e4	4.730e4	1.141	1.25	1.24	861.7	YES	NO	bb	bb	15.482
27	123468-HXCDF	33.19	1.473e4	1.252e4	1.169	1.18	1.24	212.2	YES	NO	bb	bb	3.885
28	1234789-HpCDF	40.95	1.010e4	1.072e4	0.953	0.94	1.05	82.1	YES	NO	bb	bb	5.508
29	Total-heptafurans	39.38	2.641e5	2.672e5	0.978	0.99	1.05	2552.5	YES	NO	bb	bb	130.120
30	Total-heptafurans	39.13	1.991e3	2.020e3	0.978	0.99	1.05	16.1	YES	NO	bb	bb	0.982
31	1234678-HpCDF	38.72	1.002e5	1.015e5	1.003	0.99	1.05	946.7	YES	NO	bb	bb	45.887
32	OCDF	45.17	2.291e5	2.478e5	0.778	0.92	0.89	2675.6	YES	NO	bd	bb	172.062
33	Total-penta1	27.17	3.877e4	2.576e4		1.51	1.55	836.1	YES	NO	bb	bb	10.954

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.38	1.048e3	1.438e3	1.149	0.73	0.77	14.6	YES	NO	bd	bd	0.400
2	Total-tetradioxins	26.03	6.695e2	8.308e2	1.024	0.81	0.77	5.8	YES	NO	bb	bb	0.271
3	Total-tetradioxins	25.35	4.057e2	4.986e2	1.024	0.81	0.77	6.2	YES	NO	db	bb	0.163
4	Total-tetradioxins	25.00	1.161e3	1.520e3	1.024	0.76	0.77	15.7	YES	NO	bb	bb	0.484
5	Total-tetradioxins	23.80	1.663e3	2.125e3	1.024	0.78	0.77	25.1	YES	NO	bb	db	0.683
6	1368-TCDD	23.53	1.881e3	2.146e3	1.015	0.88	0.77	29.8	YES	NO	bb	bb	0.733

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.49	3.302e3	2.112e3	1.022	1.56	1.55	42.9	YES	NO	bb	bb	1.243
2	Total-pentadioxins	30.26	2.427e3	1.580e3	1.502	1.54	1.55	31.3	YES	NO	dd	dd	0.626
3	Total-pentadioxins	30.11	3.266e3	2.071e3	1.502	1.58	1.55	43.2	YES	NO	bd	bd	0.833
4	Total-pentadioxins	29.89	2.951e3	1.961e3	1.502	1.50	1.55	39.8	YES	NO	bb	bb	0.767
5	12479-PECDD	28.81	8.724e3	6.597e3	2.301	1.32	1.55	79.6	YES	NO	bb	bb	1.562

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.10	5.613e4	4.652e4	1.005	1.21	1.24	580.4	YES	NO	bd	bd	16.687
2	Total-hexadioxins	34.74	8.105e3	6.658e3	1.005	1.22	1.24	119.5	YES	NO	bb	bd	2.400
3	124679-HXCDD	33.97	5.712e4	4.741e4	1.115	1.20	1.24	851.8	YES	NO	bb	bb	16.013
4	123789-HxCDD	36.47	1.118e4	9.725e3	0.907	1.15	1.24	174.6	YES	NO	bb	db	3.765
5	123678-HxCDD	36.11	2.031e4	1.757e4	1.001	1.16	1.24	308.3	YES	NO	dd	dd	5.920
6	123478-HxCDD	35.98	3.993e3	3.243e3	0.996	1.23	1.24	62.8	YES	NO	bd	bd	1.242

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.22	3.773e5	3.734e5	1.039	1.01	1.05	2380.7	YES	NO	bb	bb	176.670
2	1234679-HPCDD	39.17	3.836e5	3.764e5	1.137	1.02	1.05	2548.4	YES	NO	bb	bb	163.448

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.38	1.048e3	1.438e3	1.149	0.73	0.77	14.6	YES	NO	bd	bd	0.400
2	Total-tetradioxins	26.03	6.695e2	8.308e2	1.024	0.81	0.77	5.8	YES	NO	bb	bb	0.271
3	Total-tetradioxins	25.35	4.057e2	4.986e2	1.024	0.81	0.77	6.2	YES	NO	db	bb	0.163
4	Total-tetradioxins	25.00	1.161e3	1.520e3	1.024	0.76	0.77	15.7	YES	NO	bb	bb	0.484
5	Total-tetradioxins	23.80	1.663e3	2.125e3	1.024	0.78	0.77	25.1	YES	NO	bb	db	0.683
6	1368-TCDD	23.53	1.881e3	2.146e3	1.015	0.88	0.77	29.8	YES	NO	bb	bb	0.733
7	12378-PeCDD	31.49	3.302e3	2.112e3	1.022	1.56	1.55	42.9	YES	NO	bb	bb	1.243
8	Total-pentadioxins	30.26	2.427e3	1.580e3	1.502	1.54	1.55	31.3	YES	NO	dd	dd	0.626
9	Total-pentadioxins	30.11	3.266e3	2.071e3	1.502	1.58	1.55	43.2	YES	NO	bd	bd	0.833
10	Total-pentadioxins	29.89	2.951e3	1.961e3	1.502	1.50	1.55	39.8	YES	NO	bb	bb	0.767
11	12479-PECDD	28.81	8.724e3	6.597e3	2.301	1.32	1.55	79.6	YES	NO	bb	bb	1.562
12	Total-hexadioxins	35.10	5.613e4	4.652e4	1.005	1.21	1.24	580.4	YES	NO	bd	bd	16.687
13	Total-hexadioxins	34.74	8.105e3	6.658e3	1.005	1.22	1.24	119.5	YES	NO	bb	bd	2.400
14	124679-HXCDD	33.97	5.712e4	4.741e4	1.115	1.20	1.24	851.8	YES	NO	bb	bb	16.013
15	123789-HxCDD	36.47	1.118e4	9.725e3	0.907	1.15	1.24	174.6	YES	NO	bb	db	3.765
16	123678-HxCDD	36.11	2.031e4	1.757e4	1.001	1.16	1.24	308.3	YES	NO	dd	dd	5.920
17	123478-HxCDD	35.98	3.993e3	3.243e3	0.996	1.23	1.24	62.8	YES	NO	bd	bd	1.242
18	1234678-HpCDD	40.22	3.773e5	3.734e5	1.039	1.01	1.05	2380.7	YES	NO	bb	bb	176.670
19	1234679-HPCDD	39.17	3.836e5	3.764e5	1.137	1.02	1.05	2548.4	YES	NO	bb	bb	163.448
20	OCDD	44.94	2.283e6	2.607e6	0.920	0.88	0.89	14604.1	YES	NO	bb	bb	1491.8...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.50	1.297e3	1.517e3	0.727	0.85	0.77	16.2	YES	NO	dd	dd	0.619
2	Total-tetrafurans	24.42	2.177e3	2.943e3	0.727	0.74	0.77	31.2	YES	NO	bd	bd	1.126
3	Total-tetrafurans	23.99	2.378e3	3.414e3	0.727	0.70	0.77	34.9	YES	NO	db	db	1.273
4	Total-tetrafurans	23.85	2.358e3	3.380e3	0.727	0.70	0.77	32.4	YES	NO	dd	dd	1.261
5	Total-tetrafurans	23.75	2.218e3	3.170e3	0.727	0.70	0.77	33.3	YES	NO	bd	bd	1.185
6	Total-tetrafurans	23.50	2.775e3	3.864e3	0.727	0.72	0.77	40.7	YES	NO	dd	dd	1.459
7	Total-tetrafurans	23.08	4.011e3	6.023e3	0.727	0.67	0.77	52.4	YES	NO	bd	bd	2.206
8	Total-tetrafurans	22.51	1.919e3	2.867e3	0.727	0.67	0.77	28.7	YES	NO	bb	bb	1.052
9	Total-tetrafurans	25.97	3.981e3	5.119e3	0.727	0.78	0.77	51.5	YES	NO	db	db	2.001
10	Total-tetrafurans	25.87	1.724e3	2.021e3	0.727	0.85	0.77	26.2	YES	NO	dd	dd	0.823
11	2378-TCDF	25.75	2.029e3	2.733e3	0.702	0.74	0.77	26.3	YES	NO	bd	bd	1.085
12	Total-tetrafurans	25.25	6.125e2	7.789e2	0.727	0.79	0.77	9.4	YES	NO	db	db	0.306
13	Total-tetrafurans	24.83	1.832e3	2.685e3	0.727	0.68	0.77	24.1	YES	NO	db	db	0.993
14	Total-tetrafurans	24.64	3.419e3	4.615e3	0.727	0.74	0.77	48.5	YES	NO	dd	dd	1.766
15	23478-PeCDF	31.24	4.710e3	3.378e3	0.786	1.39	1.55	41.5	YES	NO	db	db	1.734
16	Total-pentafurans	31.09	3.964e3	2.979e3	0.654	1.33	1.55	36.6	YES	NO	dd	dd	1.719
17	Total-pentafurans	30.97	1.581e3	1.073e3	0.654	1.47	1.55	13.8	YES	NO	bd	bd	0.657
18	12378-PeCDF	29.89	1.918e3	1.240e3	0.679	1.55	1.55	18.5	YES	NO	bd	bb	0.724
19	123789-HxCDF	36.86	4.957e3	3.986e3	1.137	1.24	1.24	69.1	YES	NO	bb	bb	1.465
20	234678-HxCDF	35.83	1.214e4	1.015e4	1.140	1.20	1.24	138.8	YES	NO	bb	bb	3.165
21	123678-HxCDF	34.99	9.979e3	7.789e3	1.091	1.28	1.24	135.3	YES	NO	db	db	2.463
22	123478-HxCDF	34.85	3.057e4	2.535e4	1.166	1.21	1.24	453.3	YES	NO	bd	bd	7.991
23	Total-hexafurans	34.70	3.076e3	2.418e3	1.141	1.27	1.24	48.7	YES	NO	bb	bb	0.797
24	Total-hexafurans	34.24	1.157e5	9.520e4	1.141	1.22	1.24	1711.3	YES	NO	bb	bb	30.614
25	Total-hexafurans	33.93	2.677e3	2.252e3	1.141	1.19	1.24	38.6	YES	NO	bb	bb	0.715
26	Total-hexafurans	33.40	5.936e4	4.730e4	1.141	1.25	1.24	861.7	YES	NO	bb	bb	15.482
27	123468-HXCDF	33.19	1.473e4	1.252e4	1.169	1.18	1.24	212.2	YES	NO	bb	bb	3.885
28	1234789-HpCDF	40.95	1.010e4	1.072e4	0.953	0.94	1.05	82.1	YES	NO	bb	bb	5.508
29	Total-heptafurans	39.38	2.641e5	2.672e5	0.978	0.99	1.05	2552.5	YES	NO	bb	bb	130.120
30	Total-heptafurans	39.13	1.991e3	2.020e3	0.978	0.99	1.05	16.1	YES	NO	bb	bb	0.982
31	1234678-HpCDF	38.72	1.002e5	1.015e5	1.003	0.99	1.05	946.7	YES	NO	bb	bb	45.887
32	OCDF	45.17	2.291e5	2.478e5	0.778	0.92	0.89	2675.6	YES	NO	bd	bb	172.062
33	Total-penta1	27.17	3.877e4	2.576e4		1.51	1.55	836.1	YES	NO	bb	bb	10.954
34	2378-TCDD	26.38	1.048e3	1.438e3	1.149	0.73	0.77	14.6	YES	NO	bd	bd	0.400
35	Total-tetradioxins	26.03	6.695e2	8.308e2	1.024	0.81	0.77	5.8	YES	NO	bb	bb	0.271
36	Total-tetradioxins	25.35	4.057e2	4.986e2	1.024	0.81	0.77	6.2	YES	NO	db	bb	0.163
37	Total-tetradioxins	25.00	1.161e3	1.520e3	1.024	0.76	0.77	15.7	YES	NO	bb	bb	0.484

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-tetradioxins	23.80	1.663e3	2.125e3	1.024	0.78	0.77	25.1	YES	NO	bb	db	0.683
39	1368-TCDD	23.53	1.881e3	2.146e3	1.015	0.88	0.77	29.8	YES	NO	bb	bb	0.733
40	12378-PeCDD	31.49	3.302e3	2.112e3	1.022	1.56	1.55	42.9	YES	NO	bb	bb	1.243
41	Total-pentadioxins	30.26	2.427e3	1.580e3	1.502	1.54	1.55	31.3	YES	NO	dd	dd	0.626
42	Total-pentadioxins	30.11	3.266e3	2.071e3	1.502	1.58	1.55	43.2	YES	NO	bd	bd	0.833
43	Total-pentadioxins	29.89	2.951e3	1.961e3	1.502	1.50	1.55	39.8	YES	NO	bb	bb	0.767
44	12479-PECDD	28.81	8.724e3	6.597e3	2.301	1.32	1.55	79.6	YES	NO	bb	bb	1.562
45	Total-hexadioxins	35.10	5.613e4	4.652e4	1.005	1.21	1.24	580.4	YES	NO	bd	bd	16.687
46	Total-hexadioxins	34.74	8.105e3	6.658e3	1.005	1.22	1.24	119.5	YES	NO	bb	bd	2.400
47	124679-HXCDD	33.97	5.712e4	4.741e4	1.115	1.20	1.24	851.8	YES	NO	bb	bb	16.013
48	123789-HxCDD	36.47	1.118e4	9.725e3	0.907	1.15	1.24	174.6	YES	NO	bb	db	3.765
49	123678-HxCDD	36.11	2.031e4	1.757e4	1.001	1.16	1.24	308.3	YES	NO	dd	dd	5.920
50	123478-HxCDD	35.98	3.993e3	3.243e3	0.996	1.23	1.24	62.8	YES	NO	bd	bd	1.242
51	1234678-HpCDD	40.22	3.773e5	3.734e5	1.039	1.01	1.05	2380.7	YES	NO	bb	bb	176.670
52	1234679-HPCDD	39.17	3.836e5	3.764e5	1.137	1.02	1.05	2548.4	YES	NO	bb	bb	163.448
53	OCDD	44.94	2.283e6	2.607e6	0.920	0.88	0.89	14604.1	YES	NO	bb	bb	1491.8...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.82	7.191e6					35.3	YES		dd		
2	FUNCTION1 PFK	22.54	3.007e6					33.1	YES		dd		
3	FUNCTION1 PFK	22.29	3.737e6					30.7	YES		bd		
4	FUNCTION1 PFK	21.99	2.074e6					23.3	YES		bb		
5	FUNCTION1 PFK	25.18	9.979e5					7.3	YES		bb		
6	FUNCTION1 PFK	23.42	2.454e6					20.9	YES		bb		
7	FUNCTION1 PFK	23.16	3.560e5					13.9	YES		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.07	9.613e4					4.3	YES		bb		0.000
2	FUNCTION2 PFK	29.68	4.613e4					1.9	NO		bb		0.000
3	FUNCTION2 PFK	29.33	4.638e4					5.0	YES		db		0.000
4	FUNCTION2 PFK	29.18	7.669e5					19.9	YES		dd		0.000
5	FUNCTION2 PFK	28.58	1.080e7					41.9	YES		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.09	7.291e5					4.5	YES		bb		0.000
2	FUNCTION3 PFK	36.60	2.117e6					18.3	YES		bb		0.000
3	FUNCTION3 PFK	32.92	3.127e5					9.3	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.76	4.068e5					12.7	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.78	1.736e2					4.4	YES		bb		0.000
2	FUNCTION1 HXCD...	26.13	2.449e2					6.4	YES		bb		0.000
3	FUNCTION1 HXCD...	25.77	1.405e2					5.5	YES		bb		0.000
4	FUNCTION1 HXCD...	23.78	3.552e2					11.0	YES		bb		0.000
5	FUNCTION1 HXCD...	23.60	1.702e2					6.1	YES		bb		0.000
6	FUNCTION1 HXCD...	22.31	4.557e2					14.2	YES		bb		0.000
7	FUNCTION1 HXCD...	22.14	7.620e2					19.7	YES		bb		0.000
8	FUNCTION1 HXCD...	21.30	1.061e2					4.1	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.19	1.143e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.45	8.439e1					2.9	NO		bb		0.000
3	FUNCTION2 HPCD...	29.09	9.083e1					2.3	NO		db		0.000
4	FUNCTION2 HPCD...	28.97	5.767e2					12.6	YES		bd		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.11	1.682e2					3.3	YES		bb		0.000
2	FUNCTION3 OCDPE	37.33	1.185e2					3.0	NO		bb		0.000
3	FUNCTION3 OCDPE	36.88	8.747e1					2.2	NO		bb		0.000
4	FUNCTION3 OCDPE	36.49	1.875e2					3.3	YES		bb		0.000
5	FUNCTION3 OCDPE	36.07	7.889e1					2.1	NO		bb		0.000
6	FUNCTION3 OCDPE	35.06	1.374e2					2.4	NO		db		0.000
7	FUNCTION3 OCDPE	34.93	1.385e2					1.6	NO		bd		0.000
8	FUNCTION3 OCDPE	34.22	9.516e1					2.0	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.86	2.279e2					8.6	YES		bb		0.000
2	FUNCTION4 NCDPE	41.43	2.184e2					5.9	YES		bb		0.000
3	FUNCTION4 NCDPE	40.56	1.137e2					5.1	YES		bb		0.000
4	FUNCTION4 NCDPE	38.38	2.277e3					80.0	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	42.68	8.470e1					3.8	YES		bb		0.000

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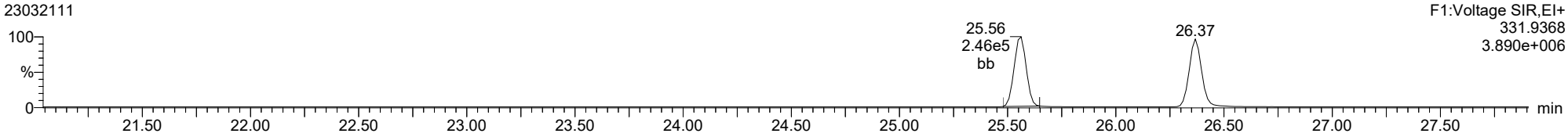

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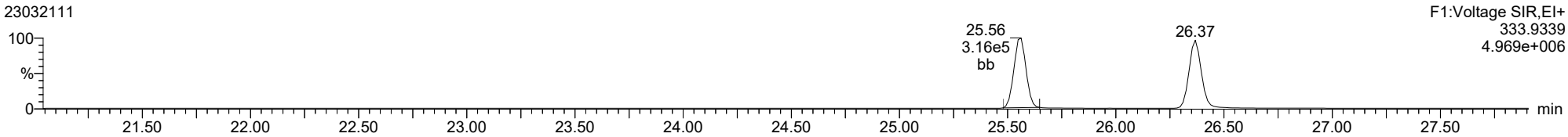

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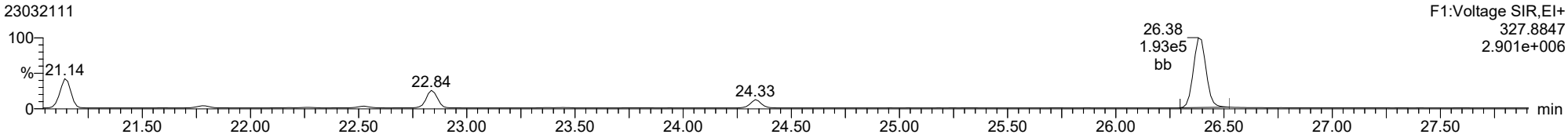

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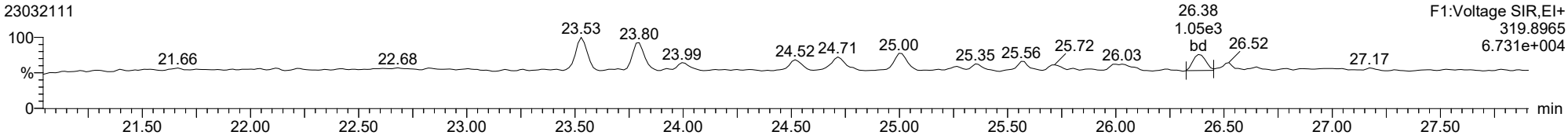
2378-TCDD



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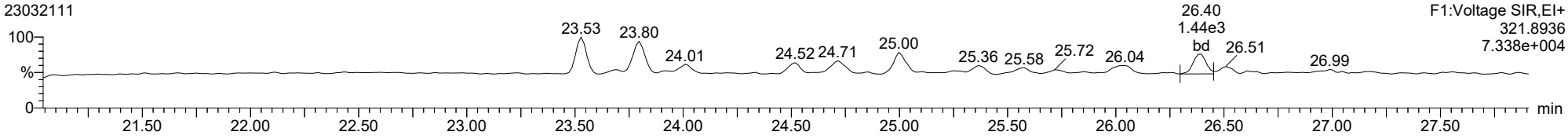

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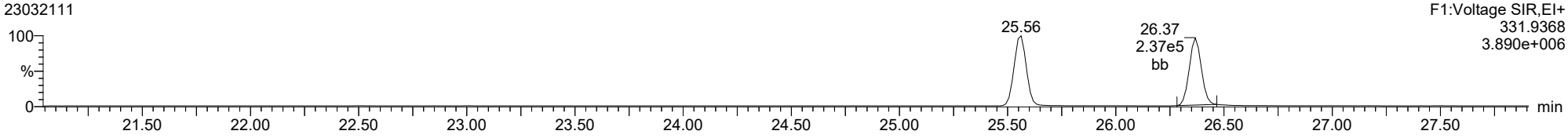

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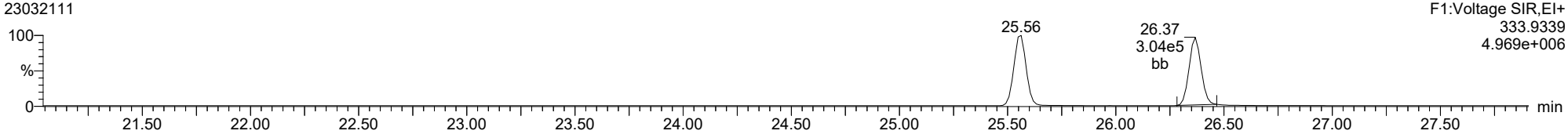

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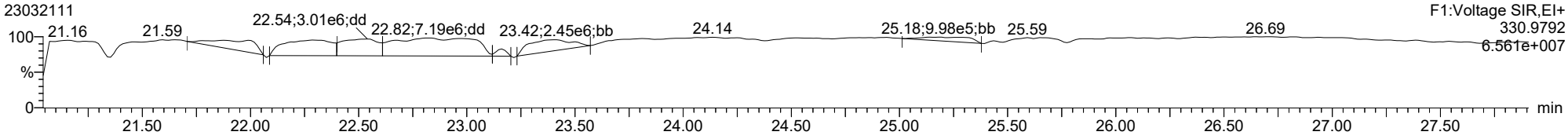
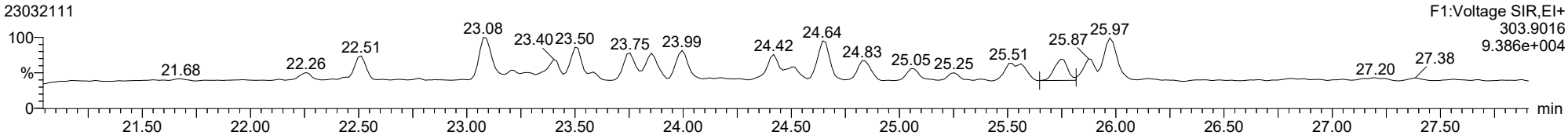
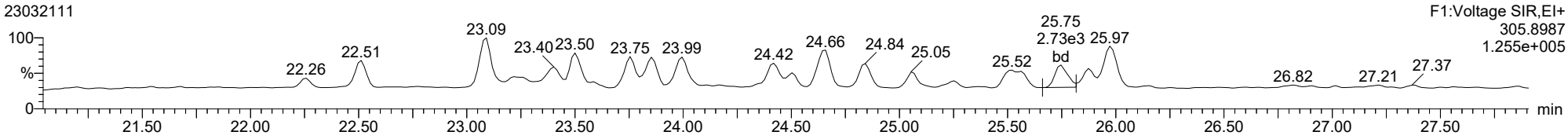


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

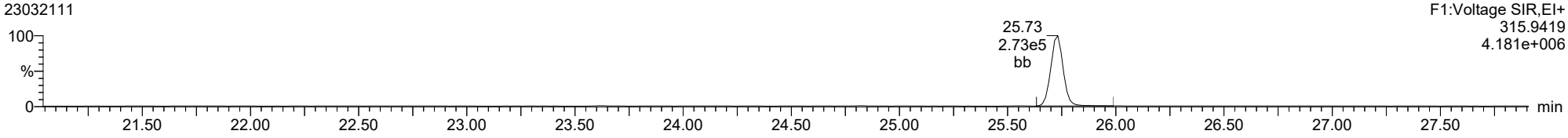
2378-TCDF



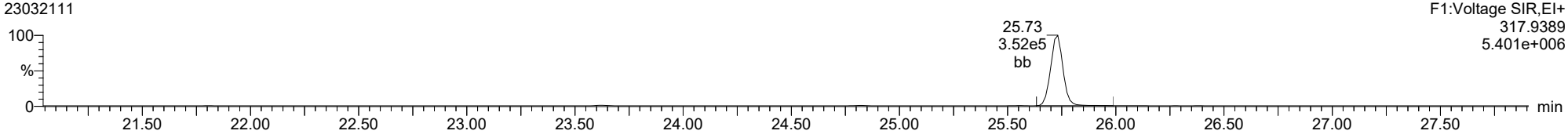
2378-TCDF



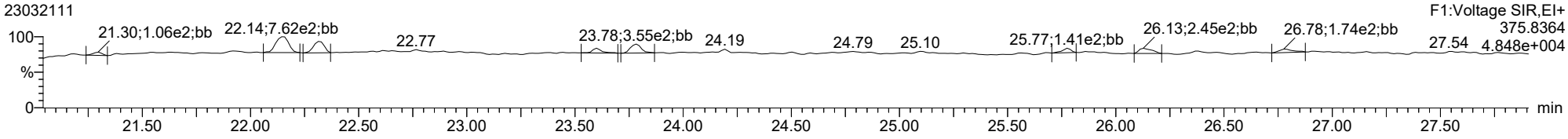
13C-2378-TCDF



13C-2378-TCDF



FUNCTION1 HXCDPE



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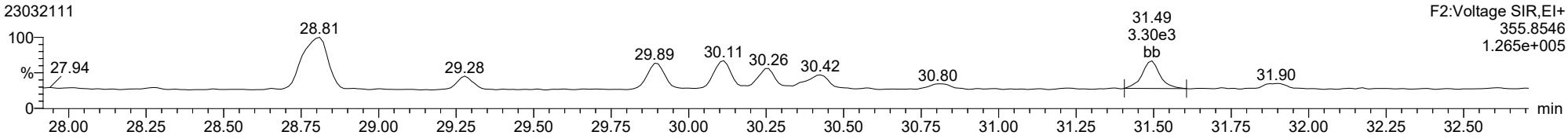
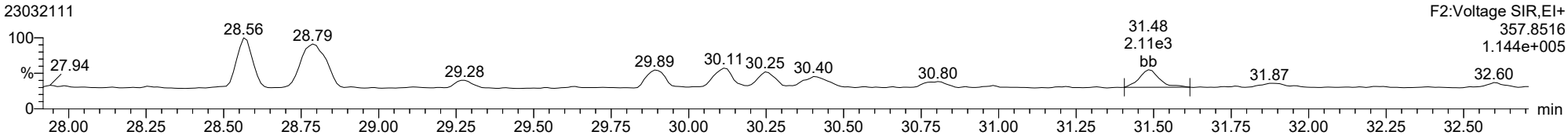
12378-PeCDD



12378-PeCDD



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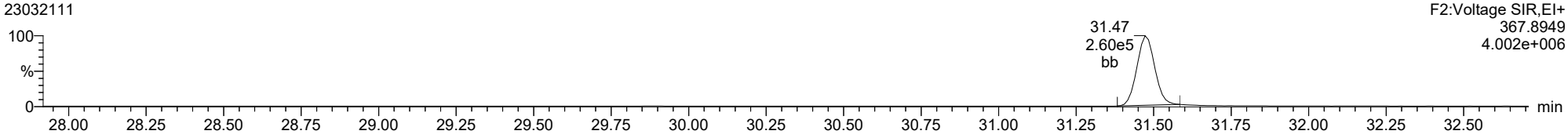

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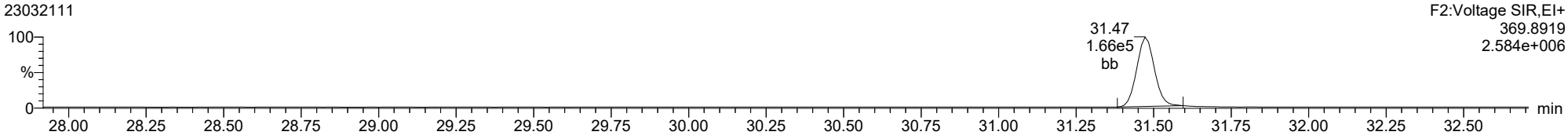
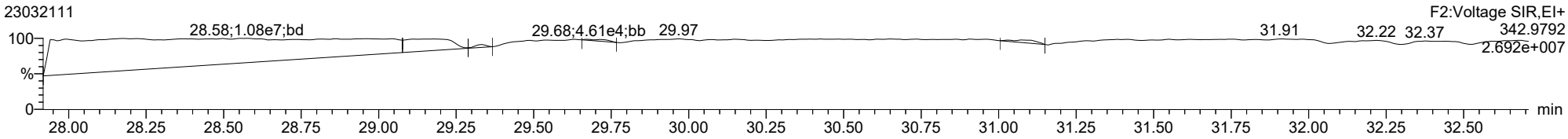


FUNCTION2 PFK



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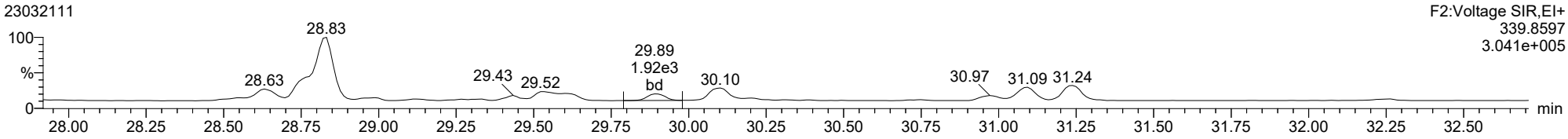
12378-PeCDF



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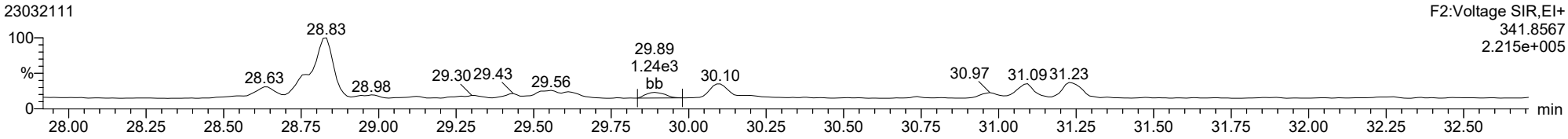

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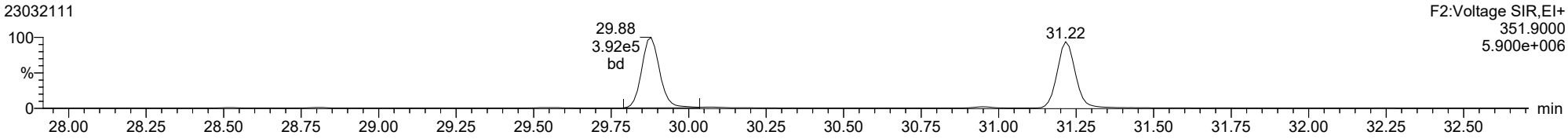

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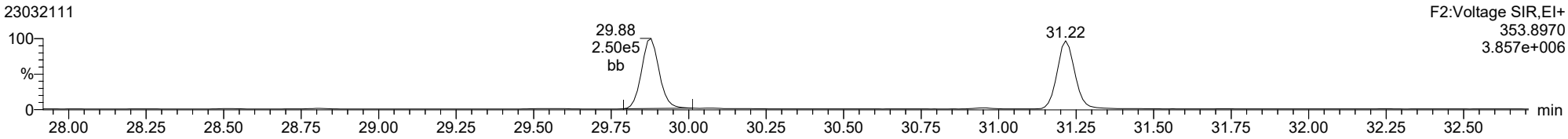
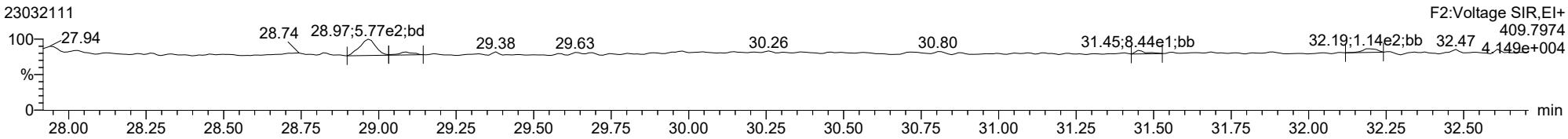


FUNCTION2 HPCDPE



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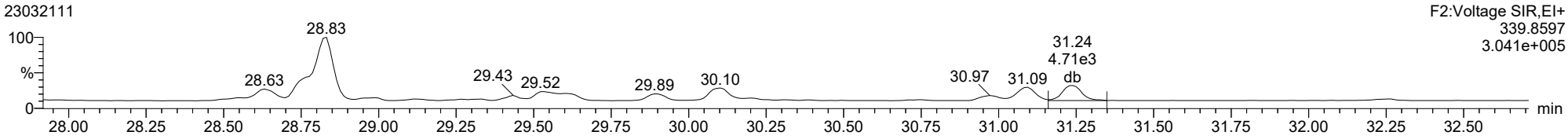
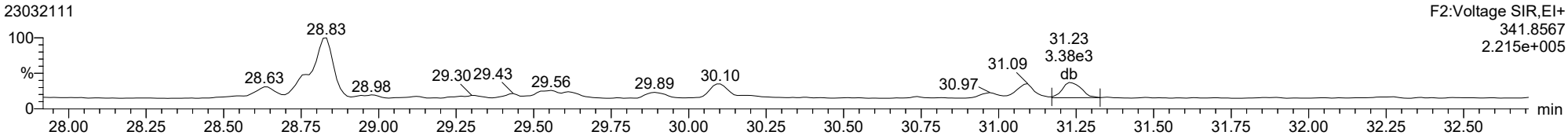
23478-PeCDF



23478-PeCDF



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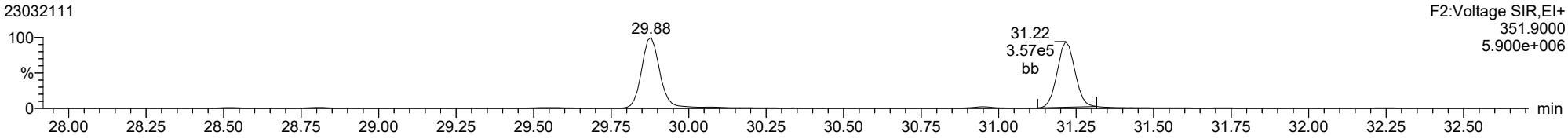

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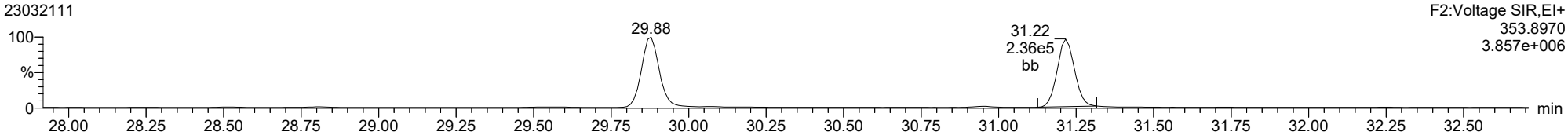
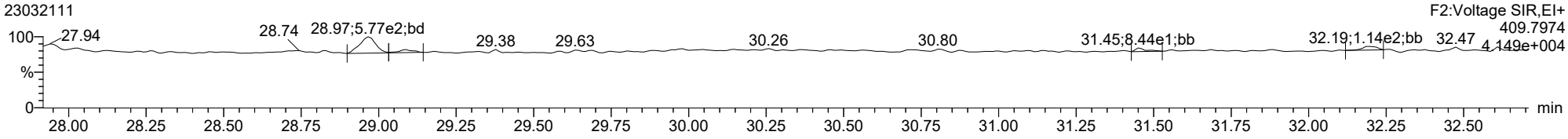
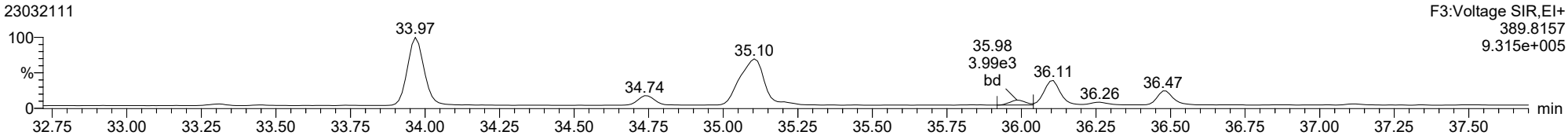


FUNCTION2 HPCDPE

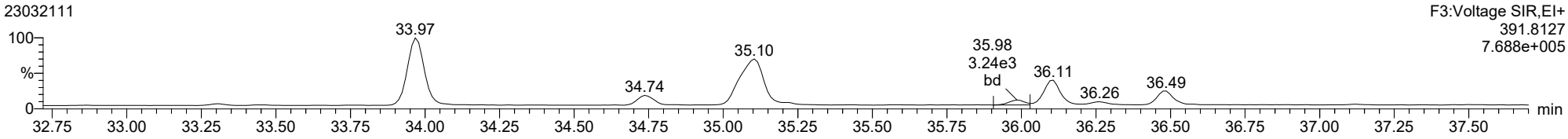


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

123478-HxCDD



123478-HxCDD



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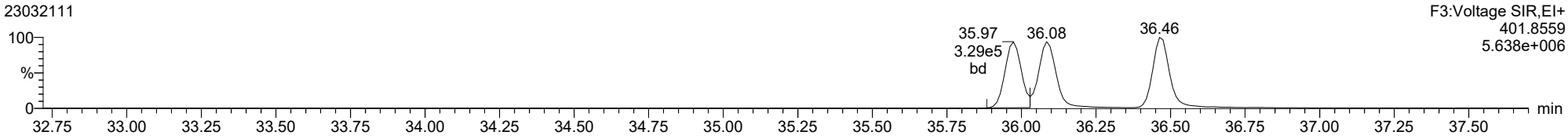

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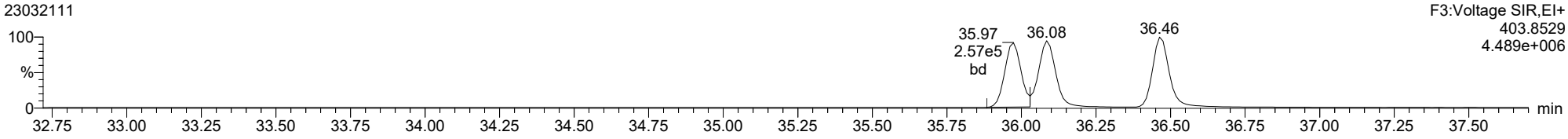
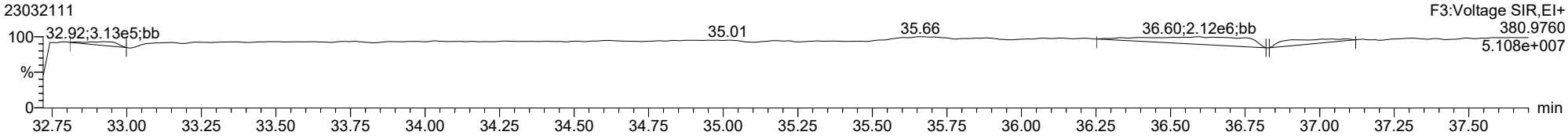
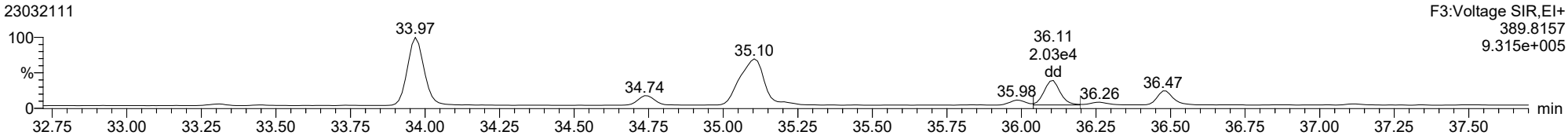


FUNCTION3 PFK



ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

123678-HxCDD



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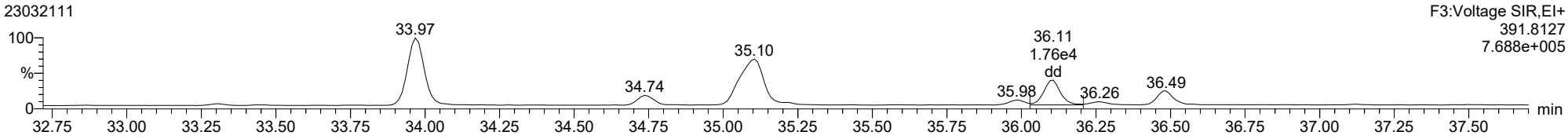

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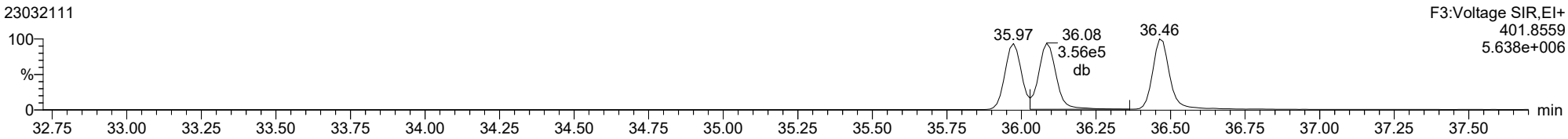

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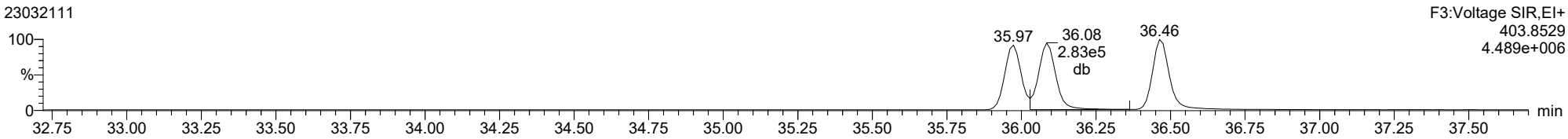

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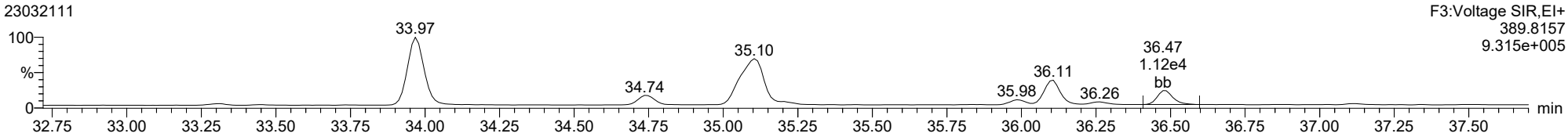
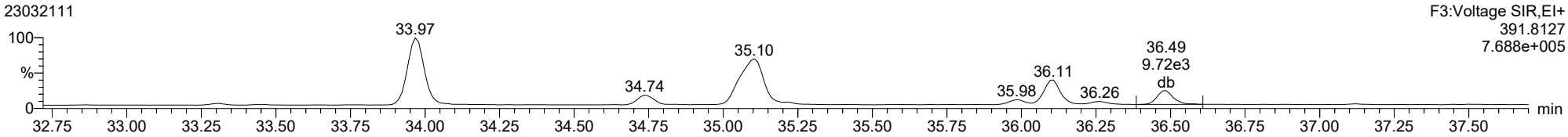
123789-HxCDD



123789-HxCDD



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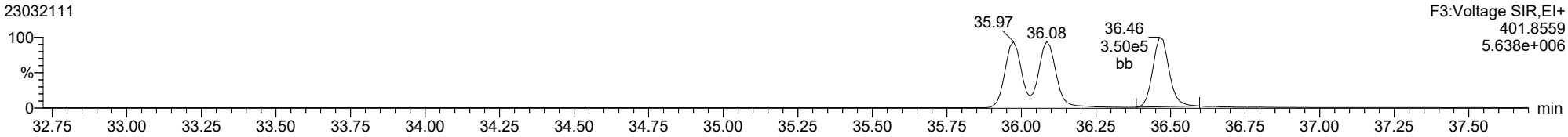

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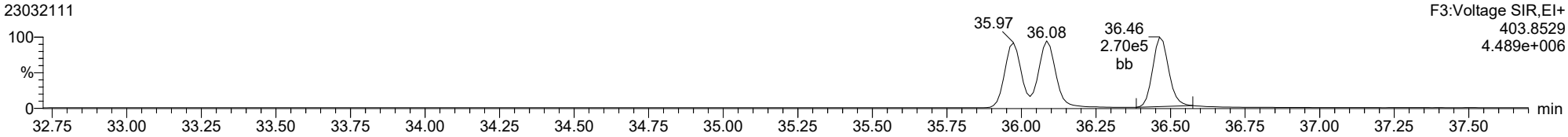

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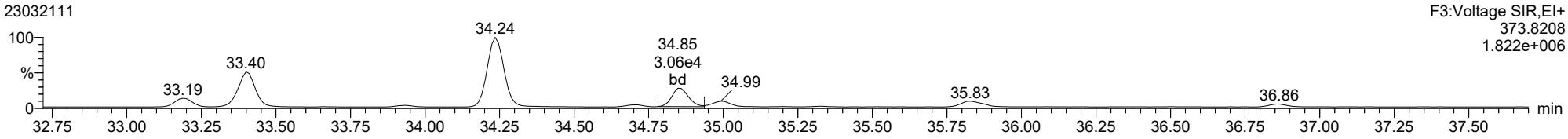
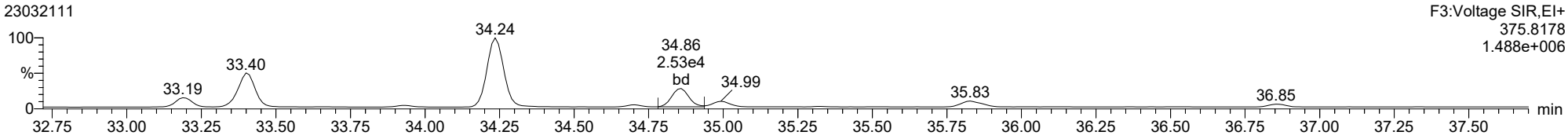
123478-HxCDF



123478-HxCDF



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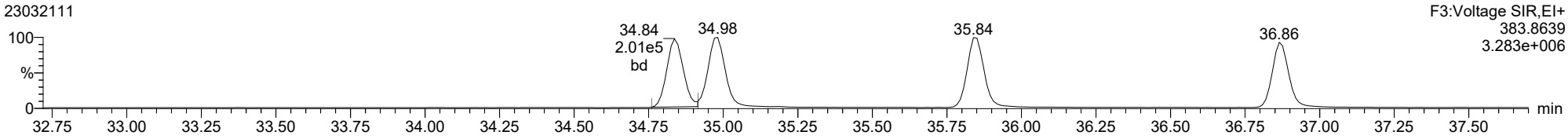

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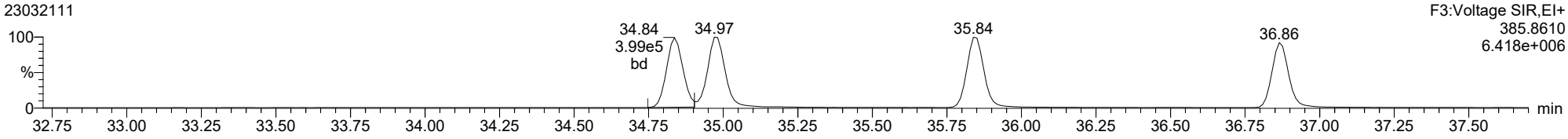
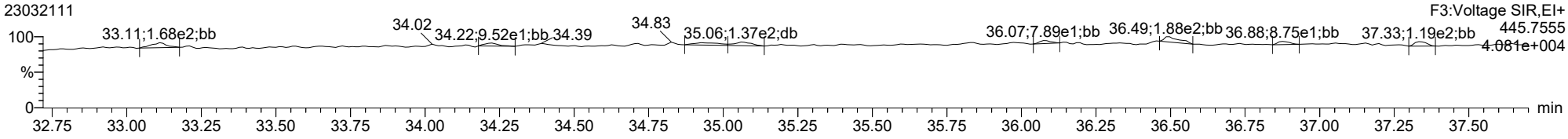


FUNCTION3 OCDPE



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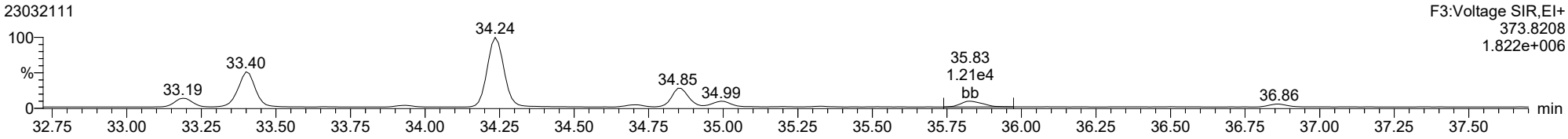
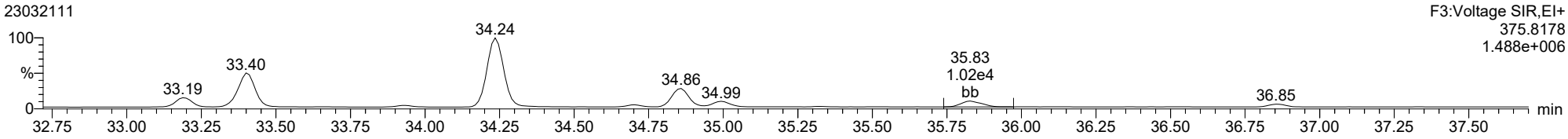
234678-HxCDF



234678-HxCDF



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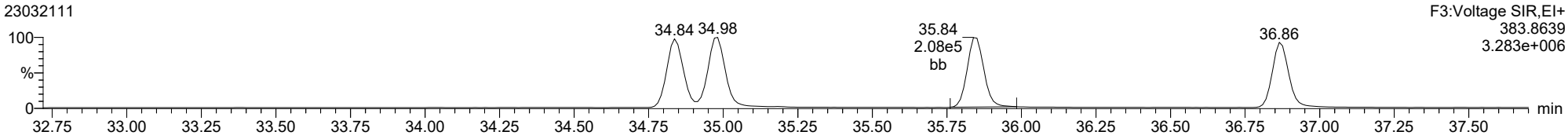

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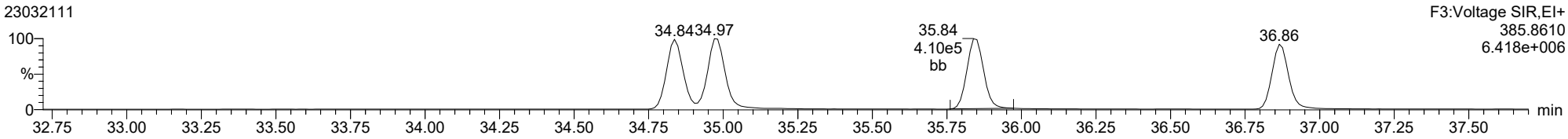
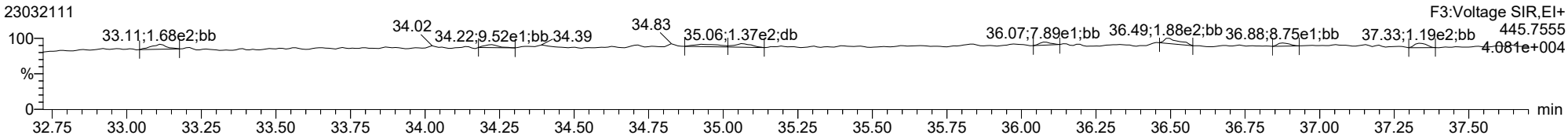
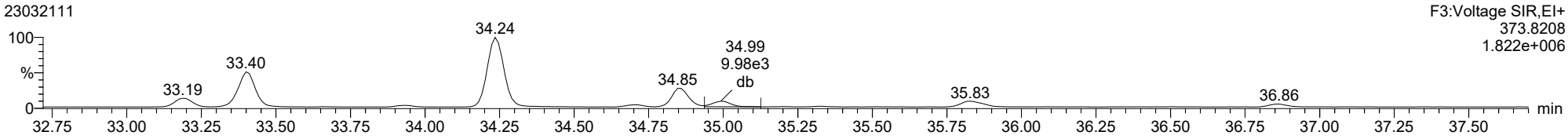


FUNCTION3 OCDPE

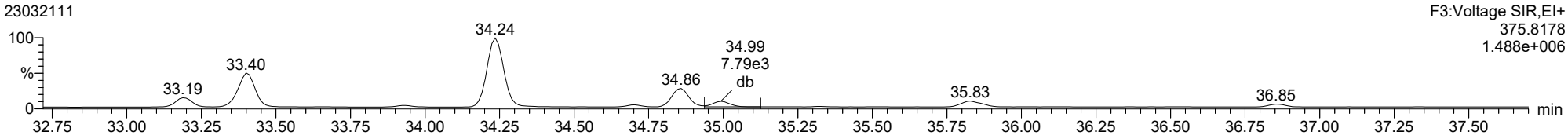


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

123678-HxCDF



123678-HxCDF



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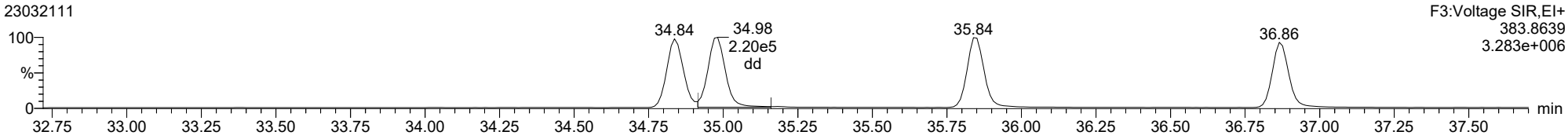

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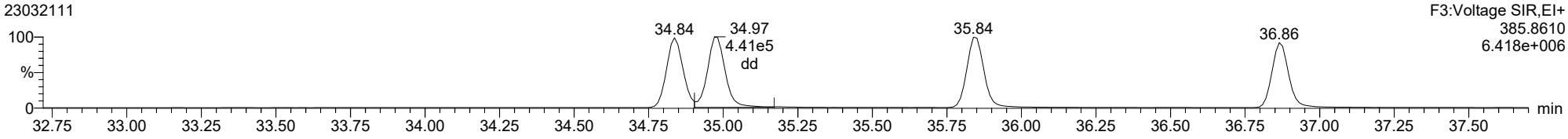
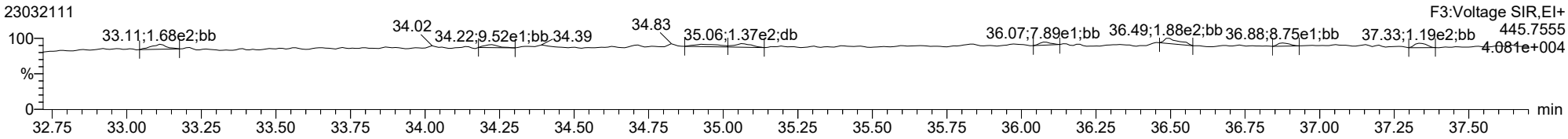


FUNCTION3 OCDPE



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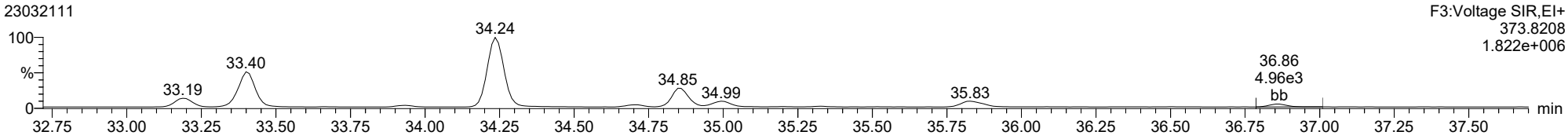
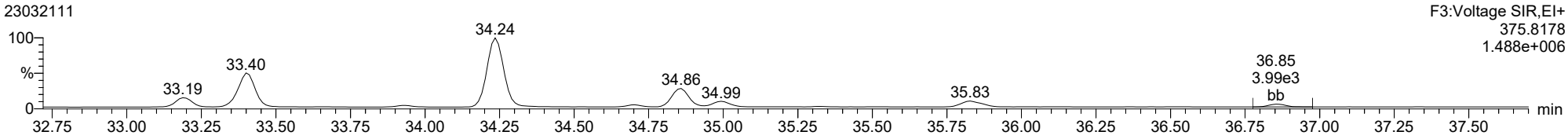
123789-HxCDF



123789-HxCDF



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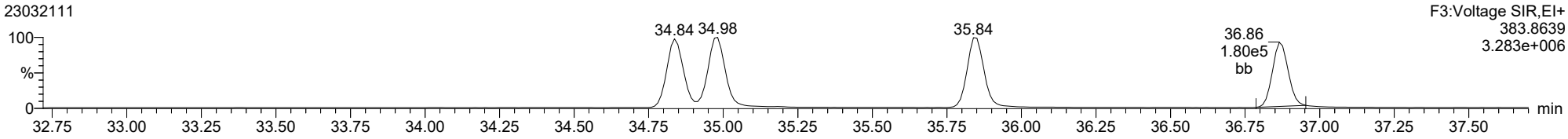

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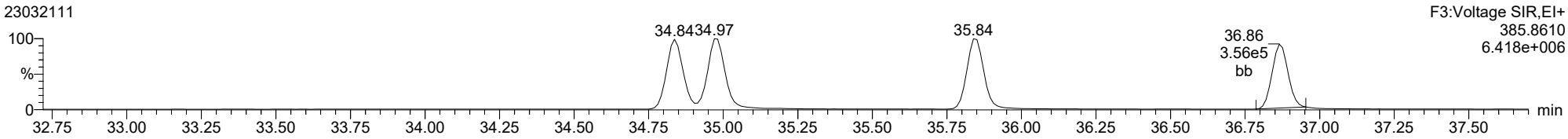
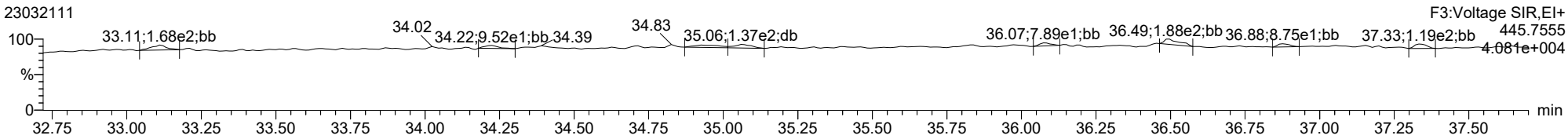
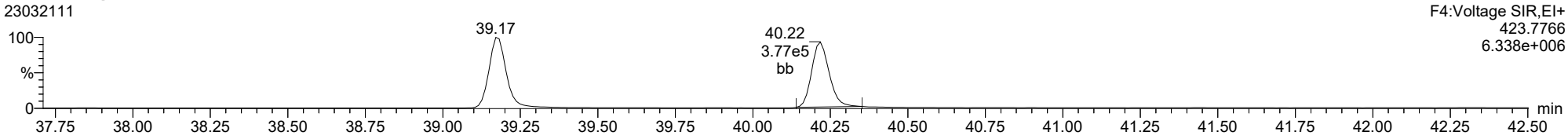


FUNCTION3 OCDPE

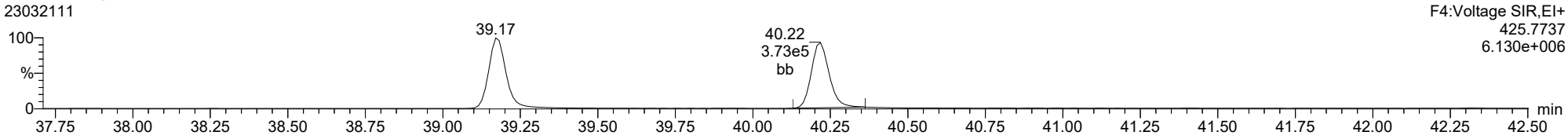


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

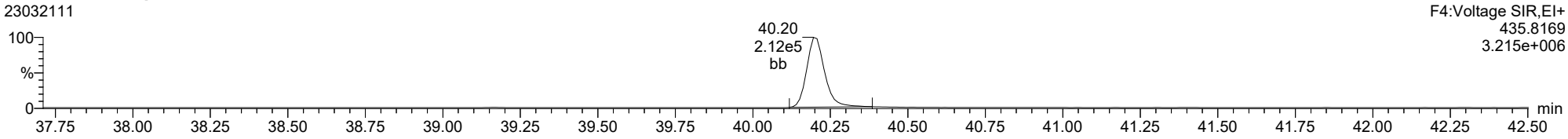
1234678-HpCDD



1234678-HpCDD



13C-1234678-HpCDD



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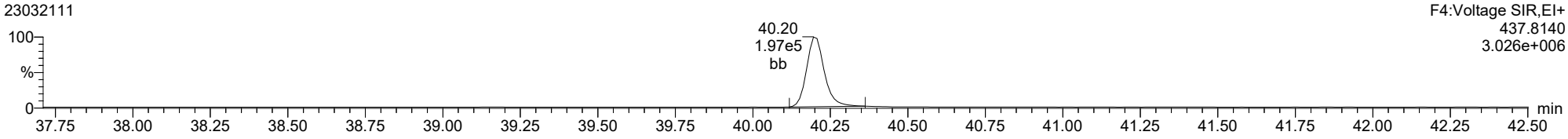
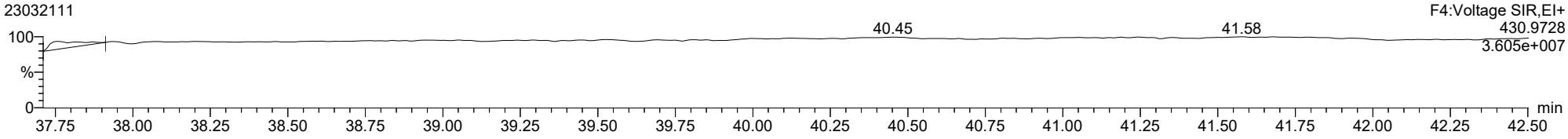
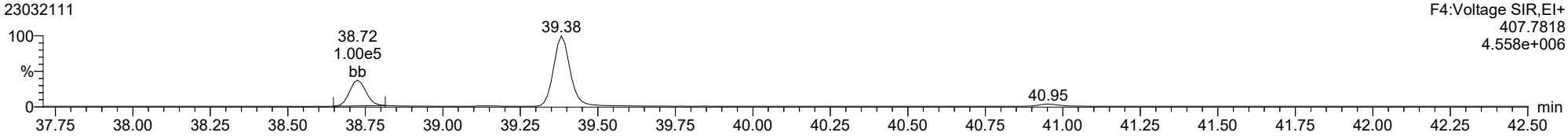


FUNCTION4 PFK

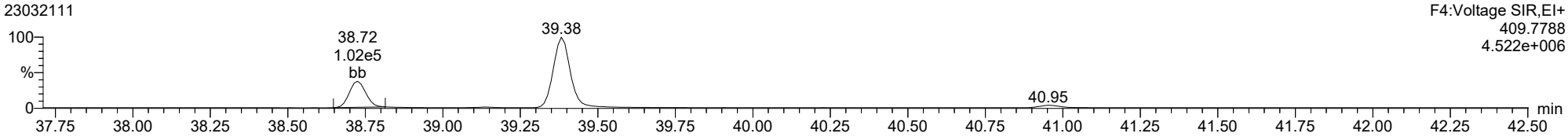


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

1234678-HpCDF



1234678-HpCDF



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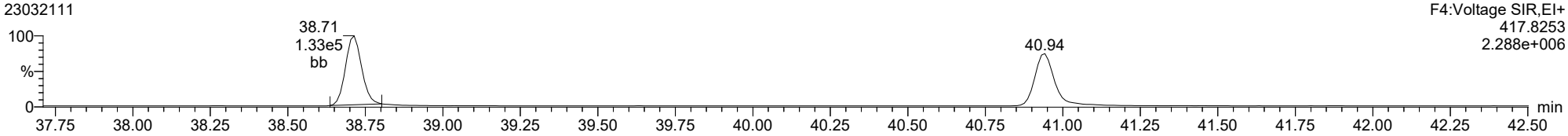

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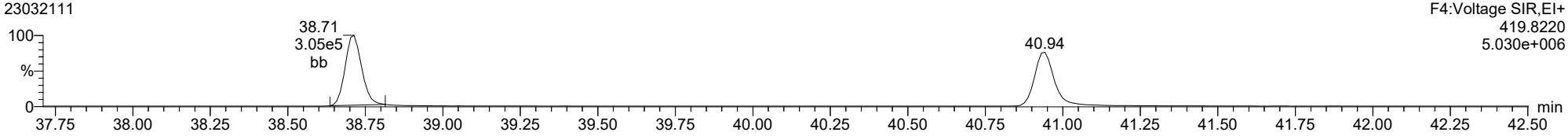
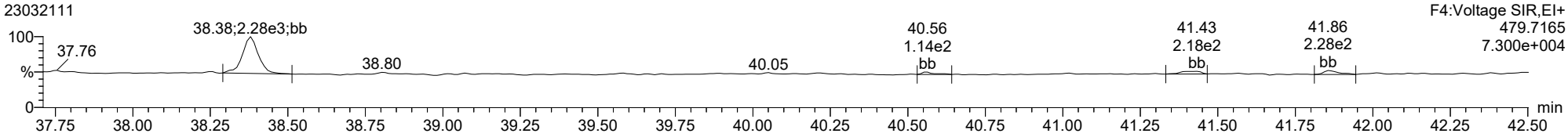
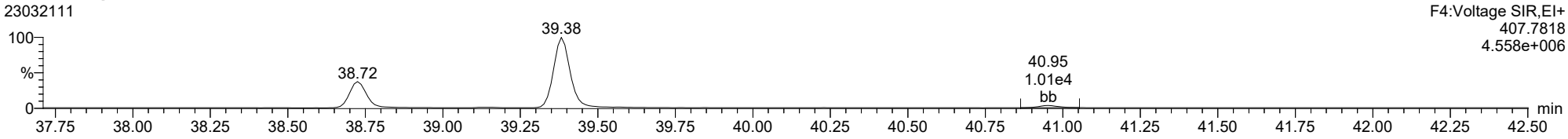


FUNCTION4 NCDPE

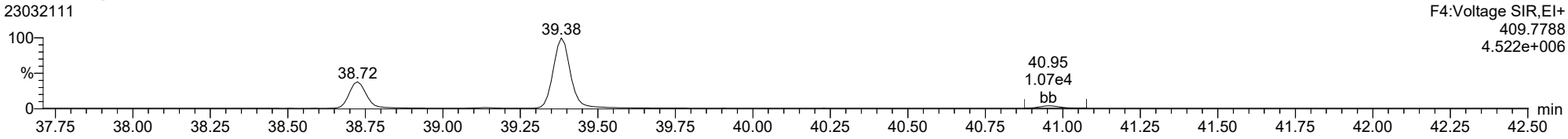


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

1234789-HpCDF



1234789-HpCDF



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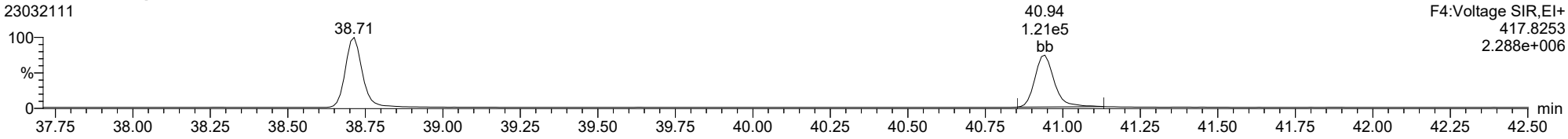

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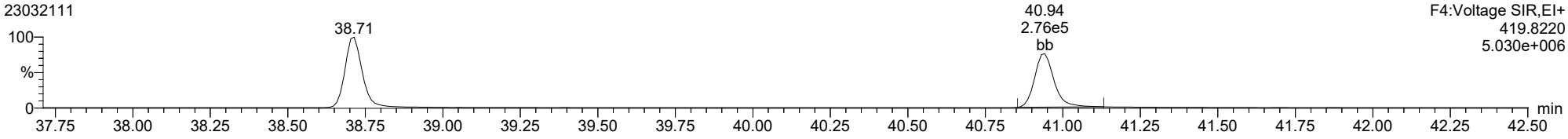
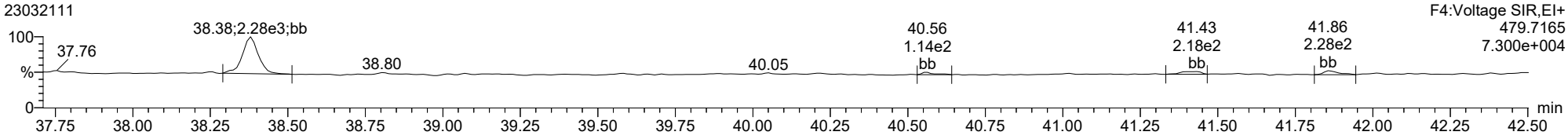
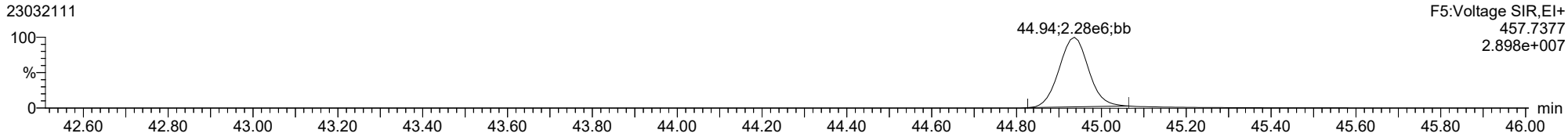


FUNCTION4 NCDPE

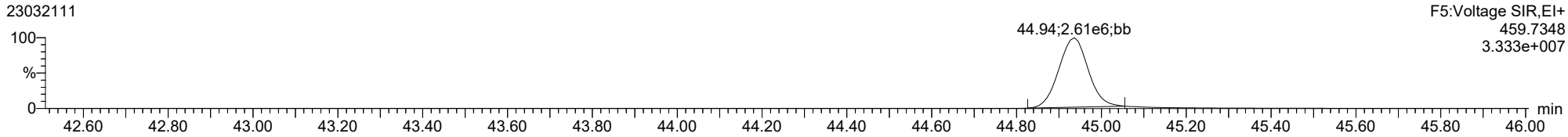


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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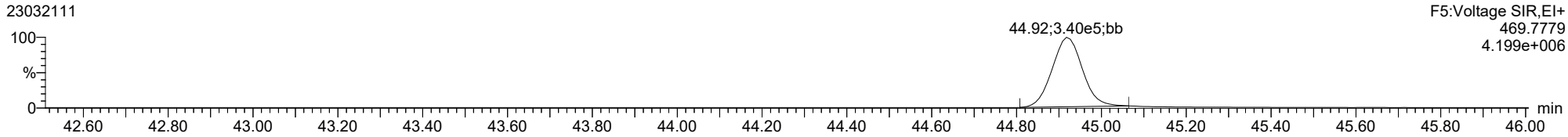
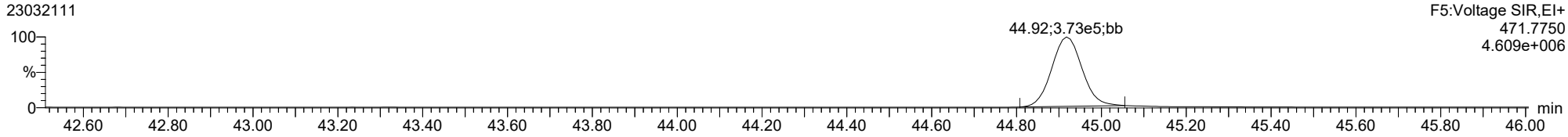
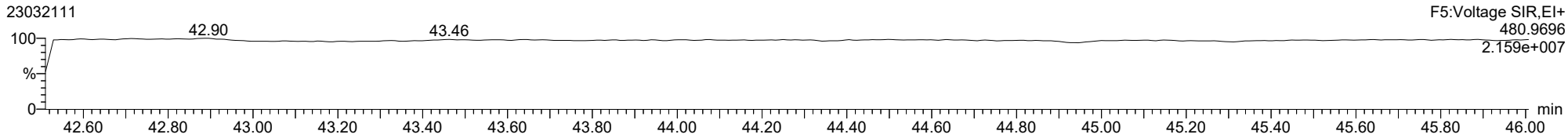


13C-OCDD

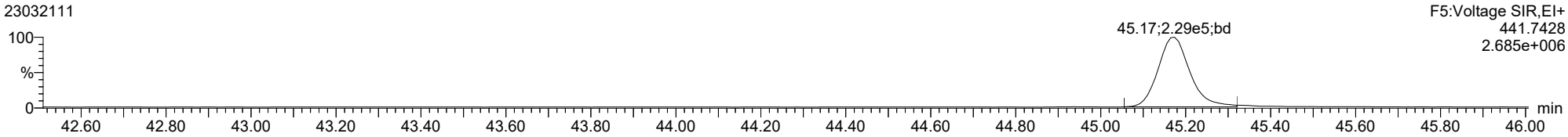


FUNCTION5 PFK

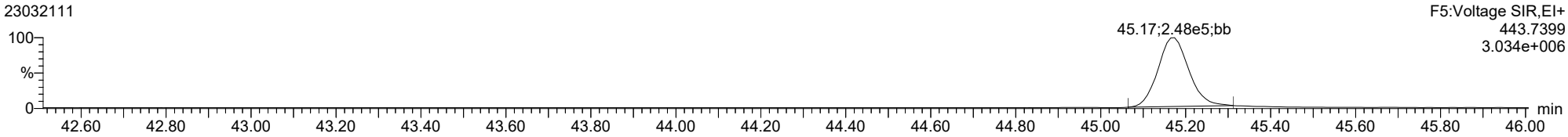


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

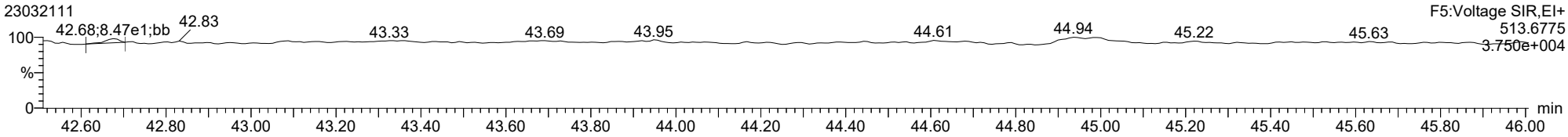
OCDF



OCDF

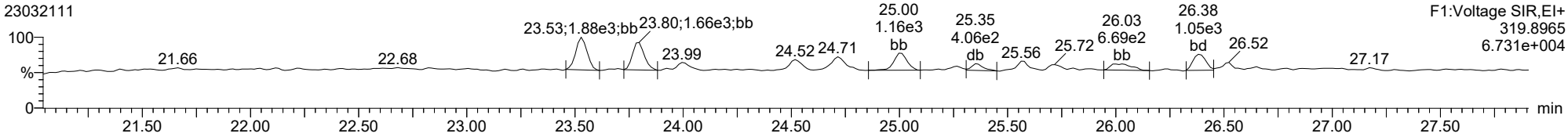


FUNCTION5 DCDPE

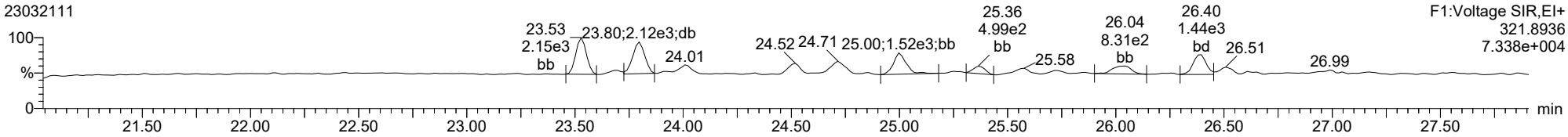


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

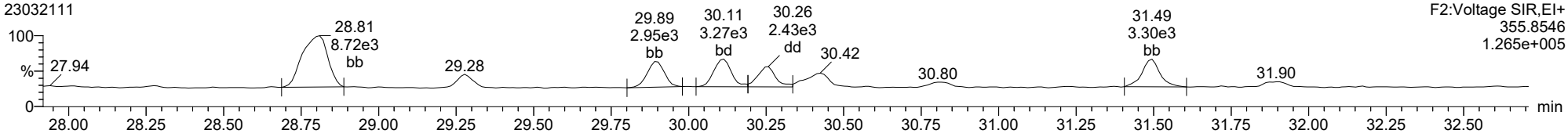
Total-tetradioxins



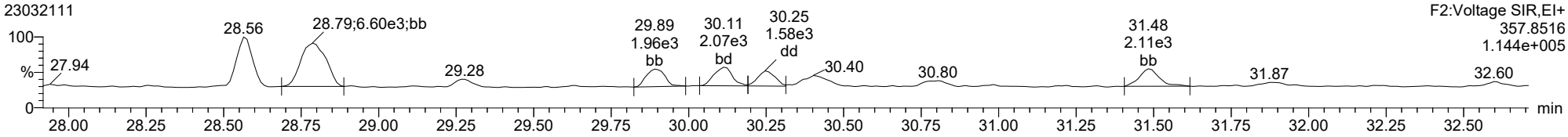
Total-tetradioxins



Total-pentadioxins

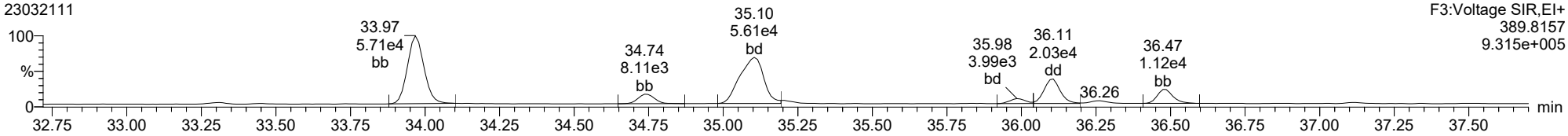


Total-pentadioxins

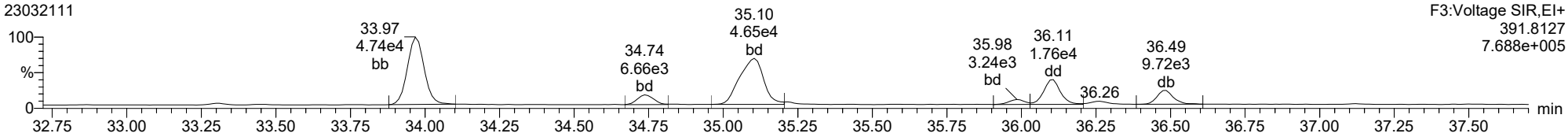


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

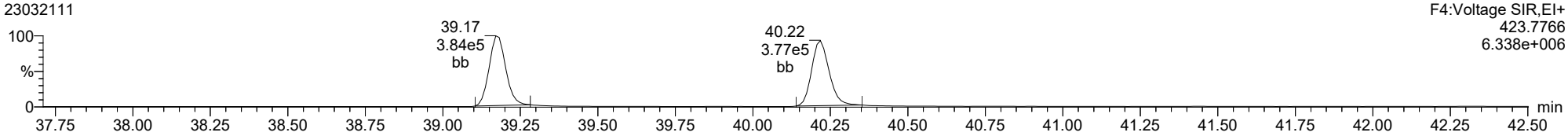
Total-hexadioxins



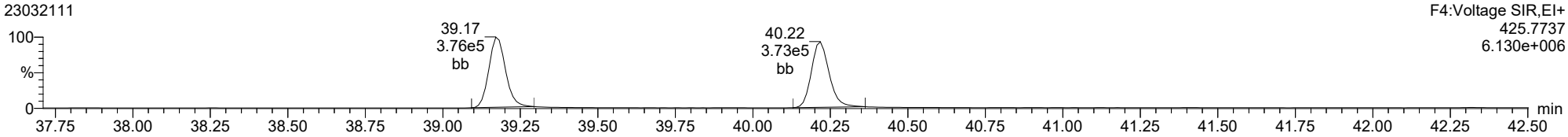
Total-hexadioxins



Total-heptadioxins

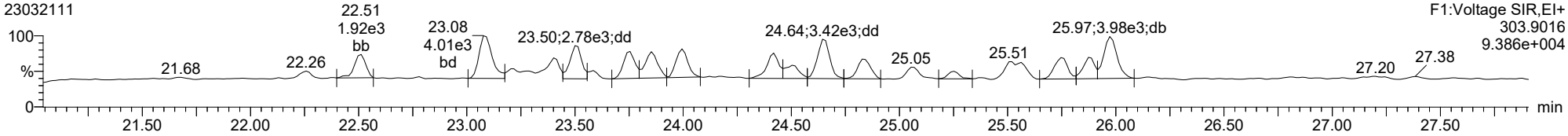


Total-heptadioxins

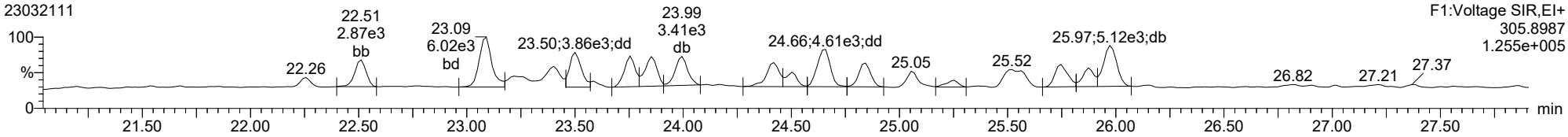


ID: BLB0709-DUP1, Name: 23032111, Date: 21-Mar-2023, Time: 18:30:27, Conditions: AUTOSPEC01, User: pk

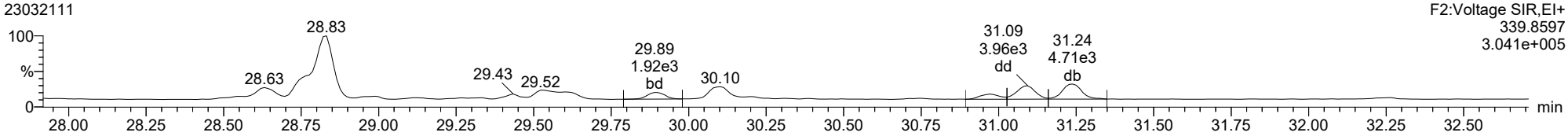
Total-tetrafurans



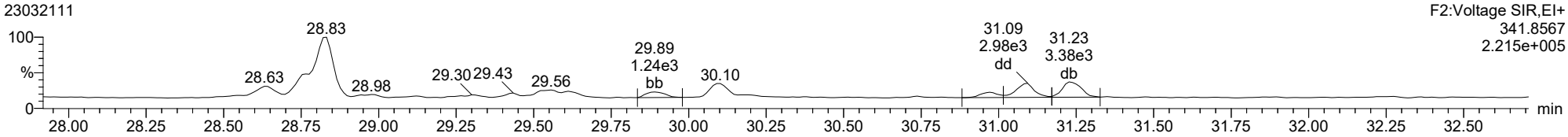
Total-tetrafurans



Total-pentafurans



Total-pentafurans



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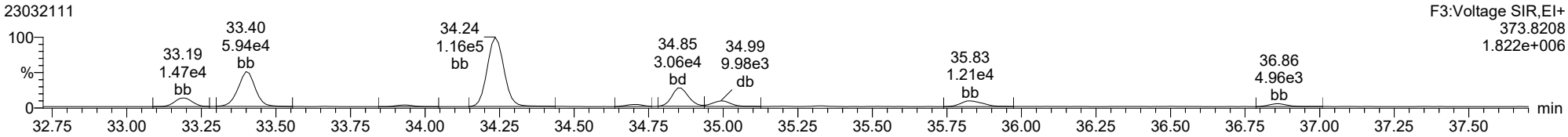
Total-hexafurans



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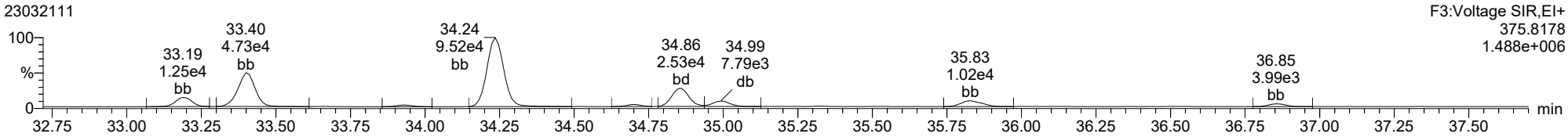
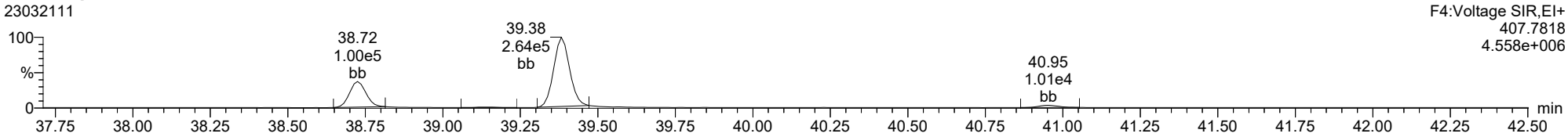
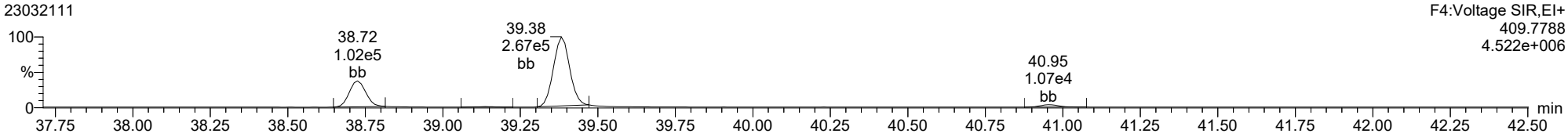


Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Laboratory ID: BLB0709-SRM1
Batch: BLB0709
Initial/Final: 10 g / 20 uL
Preparation: EPA 8290
Analyzed: 03/21/2023 17:41
Standard ID: L001273
Expires: 08/05/2023
Standard Lot#: PSRM0172
Description: Puget Sound reference-SRM

ANALYTE	TRUE (ng/kg wet)	FOUND (ng/kg wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
2,3,7,8-TCDF	1.1100	0.730	0.275	1.00	J	65.8	50 - 150
2,3,7,8-TCDD	1.0500	0.879	0.150	1.00	J	83.8	50 - 150
1,2,3,7,8-PeCDF	1.2300	1.08	0.240	1.00		87.5	50 - 150
2,3,4,7,8-PeCDF	1.0700	0.744	0.220	1.00	J	69.6	50 - 150
1,2,3,7,8-PeCDD	1.0800	1.23	0.180	1.00		114	50 - 150
1,2,3,4,7,8-HxCDF	3.0200	2.24	0.280	1.00		74.2	50 - 150
1,2,3,6,7,8-HxCDF	1.0900	0.839	0.200	1.00	J	77.0	50 - 150
2,3,4,6,7,8-HxCDF	1.8300	1.32	0.170	1.00		72.0	50 - 150
1,2,3,7,8,9-HxCDF	0.51100	0.463	0.190	1.00	J	90.6	50 - 150
1,2,3,4,7,8-HxCDD	1.5900	1.33	0.170	1.00		83.5	50 - 150
1,2,3,6,7,8-HxCDD	3.8800	2.80	0.180	1.00		72.1	50 - 150
1,2,3,7,8,9-HxCDD	3.0400	2.47	0.220	1.00		81.3	50 - 150
1,2,3,4,6,7,8-HpCDF	18.700	16.7	0.210	1.00		89.5	50 - 150
1,2,3,4,7,8,9-HpCDF	1.6300	1.31	0.240	1.00		80.2	50 - 150
1,2,3,4,6,7,8-HpCDD	90.600	87.1	0.560	2.50	B	96.2	50 - 150
OCDF	58.400	50.0	1.10	2.50		85.6	50 - 150
OCDD	811.00	687	4.60	10.0	B	84.7	50 - 150

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:42 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.732	1.000	7.164e2	8.201e2	0.702	0.873	0.770	1312	1527	9.91e3	1.37e4	7.6	8.9	NO	dd	MM	0.365
12378-PeCDF	29.879	1.000	1.289e3	8.782e2	0.679	1.468	1.550	976	1280	1.79e4	1.33e4	18.4	10.4	NO	bb	bb	0.538
23478-PeCDF	31.227	1.001	9.227e2	6.644e2	0.786	1.389	1.550	976	1280	1.39e4	9.51e3	14.2	7.4	NO	MM	MM	0.372
123478-HxCDF	34.848	1.001	3.668e3	2.864e3	1.166	1.281	1.240	971	579	5.59e4	4.33e4	57.6	74.8	NO	bd	dd	1.120
234678-HxCDF	35.851	1.000	2.161e3	1.655e3	1.140	1.305	1.240	971	579	2.54e4	2.04e4	26.2	35.3	NO	bb	bb	0.659
123678-HxCDF	34.982	1.000	1.383e3	1.200e3	1.091	1.152	1.240	971	579	1.99e4	1.56e4	20.5	27.0	NO	db	db	0.420
123789-HxCDF	36.854	1.000	6.497e2	4.333e2	1.137	1.499	1.240	971	579	1.11e4	6.44e3	11.4	11.1	YES	bb	bb	0.232
1234678-HpCDF	38.714	1.000	1.610e4	1.495e4	1.003	1.077	1.050	846	898	2.68e5	2.42e5	317.0	269.0	NO	bb	bb	8.366
1234789-HpCDF	40.942	1.000	1.135e3	1.102e3	0.953	1.029	1.050	846	898	1.66e4	1.73e4	19.7	19.3	NO	bb	bb	0.654
OCDF	45.156	1.006	3.008e4	3.336e4	0.778	0.902	0.890	940	766	3.35e5	3.69e5	356.2	482.1	NO	bb	bb	24.981
2378-TCDD	26.368	1.000	1.049e3	1.461e3	1.149	0.718	0.770	1144	695	1.49e4	2.24e4	13.1	32.2	NO	dd	bb	0.440
12378-PeCDD	31.483	1.001	1.416e3	8.702e2	1.022	1.628	1.550	699	923	1.92e4	1.29e4	27.5	13.9	NO	bb	bb	0.615
123478-HxCDD	35.996	1.001	1.792e3	1.333e3	0.996	1.345	1.240	1026	1076	2.91e4	2.19e4	28.4	20.3	NO	bd	bd	0.663
123678-HxCDD	36.107	1.001	4.382e3	3.207e3	1.001	1.366	1.240	1026	1076	6.58e4	5.03e4	64.1	46.7	NO	dd	db	1.399
123789-HxCDD	36.486	1.011	3.080e3	2.608e3	0.907	1.181	1.240	1026	1076	4.58e4	3.92e4	44.6	36.4	NO	bb	bb	1.236
1234678-HpCDD	40.207	1.001	8.286e4	7.803e4	1.039	1.062	1.050	1511	1440	1.15e6	1.13e6	757.9	784.6	NO	bd	bb	43.573
OCDD	44.918	1.000	4.781e5	5.531e5	0.920	0.864	0.890	1183	953	5.69e6	6.65e6	4813.1	6977.9	NO	bb	bb	343.324
13C-2378-TCDF	25.718	1.007	2.609e5	3.391e5	1.620	0.770	0.770	2124	1397	3.84e6	5.02e6	1806.8	3595.5	NO	bb	bb	73.574
13C-12378-PeCDF	29.868	1.169	3.599e5	2.333e5	1.240	1.542	1.550	2072	1490	5.23e6	3.42e6	2523.5	2296.3	NO	bb	bd	95.010
13C-23478-PeCDF	31.205	1.221	3.280e5	2.144e5	1.118	1.530	1.550	2072	1490	4.83e6	3.21e6	2331.8	2153.5	NO	bb	bb	96.412
13C-123478-HxCDF	34.826	0.955	1.667e5	3.334e5	1.168	0.500	0.510	1187	1734	2.53e6	5.10e6	2128.5	2939.5	NO	bd	bd	85.028
13C-123678-HxCDF	34.971	0.959	1.912e5	3.730e5	1.386	0.513	0.510	1187	1734	2.64e6	5.18e6	2225.5	2984.4	NO	db	db	80.840
13C-234678-HxCDF	35.851	0.983	1.710e5	3.372e5	1.129	0.507	0.510	1187	1734	2.51e6	4.86e6	2113.0	2805.5	NO	bb	bb	89.398
13C-123789-HxCDF	36.854	1.011	1.389e5	2.724e5	0.932	0.510	0.510	1187	1734	2.46e6	4.84e6	2072.5	2789.1	NO	bb	bb	87.695
13C-1234678-HpCDF	38.703	1.061	1.142e5	2.557e5	0.895	0.447	0.440	1300	1019	1.80e6	4.07e6	1386.7	3992.2	NO	bb	bb	82.098
13C-1234789-HpCDF	40.920	1.122	1.103e5	2.486e5	0.770	0.444	0.440	1300	1019	1.47e6	3.32e6	1128.8	3254.9	NO	bd	bb	92.617
13C-1234-TCDD	25.548	0.000	2.205e5	2.828e5	1.000	0.780	0.770	2100	865	3.39e6	4.37e6	1613.4	5045.2	NO	bb	bb	100.000
13C-2378-TCDD	26.353	1.031	2.160e5	2.810e5	1.152	0.769	0.770	2100	865	3.21e6	4.17e6	1530.7	4819.2	NO	bb	bb	85.693
13C-12378-PeCDD	31.461	1.231	2.237e5	1.404e5	0.829	1.593	1.550	696	1029	3.25e6	2.05e6	4671.5	1990.7	NO	bb	bb	87.271
13C-123478-HxCDD	35.973	0.987	2.658e5	2.074e5	0.995	1.282	1.240	1178	1196	4.19e6	3.30e6	3552.6	2756.6	NO	bd	bd	94.465
13C-123678-HxCDD	36.085	0.990	3.022e5	2.396e5	1.157	1.261	1.240	1178	1196	4.26e6	3.42e6	3611.8	2855.1	NO	db	db	93.047
13C-1234678-HpCDD	40.185	1.102	1.805e5	1.748e5	0.840	1.033	1.050	1319	1406	2.63e6	2.49e6	1996.1	1770.2	NO	bb	bb	84.031
13C-OCDD	44.900	1.231	3.019e5	3.511e5	0.767	0.860	0.890	1163	1759	3.56e6	3.97e6	3063.2	2256.3	NO	bb	bd	169.019
13C-123789-HxCDD	36.464	0.000	2.824e5	2.210e5	1.000	1.278	1.240	1178	1196	4.42e6	3.49e6	3751.2	2917.7	NO	bb	bb	100.000
37CL-2378-TCDD	26.382	1.033	1.768e5		1.288			1573		2.52e6		1602.6			bb		27.272

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Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:42 Pacific Daylight Time

ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.243	0.865	3.024e2	2.519e2	0.802	1.201	0.770	1312	1527	3.72e3	4.29e3	2.8	2.8	YES	bb	bb	0.115
1289-TCDF					0.678		0.770	1312	1527								
13468-PECDF					1.246		1.550	673	999								
12389-PECDF					0.496		1.550	976	1280								
123468-HXCDF	33.177	0.953	3.383e3	2.635e3	1.169	1.284	1.240	971	579	5.36e4	4.21e4	55.2	72.8	NO	bb	bb	1.029
1368-TCDD	23.500	0.892	6.792e2	8.677e2	1.015	0.783	0.770	1144	695	9.38e3	1.28e4	8.2	18.4	NO	db	bb	0.307
1289-TCDD					0.909		0.770	1144	695								
12479-PECDD	28.810	0.916	2.522e3	1.224e3	2.301	2.062	1.550	699	923	2.46e4	1.63e4	35.1	17.7	YES	bb	db	0.447
12389-PECDD					1.184		1.550	699	923								
124679-HXCDD	33.957	0.944	1.158e4	9.781e3	1.115	1.183	1.240	1026	1076	1.82e5	1.45e5	177.4	135.0	NO	bb	bb	4.046
1234679-HPCDD	39.160	0.975	1.096e5	1.078e5	1.137	1.016	1.050	1511	1440	1.78e6	1.79e6	1180.7	1241.3	NO	bb	bb	53.801
Total-tetrafurans			7.551e3		0.727			1312		1.09e5							3.939
Total-penta1			1.072e4					673		1.39e5							3.222
Total-pentafurans			9.068e3		0.654			976		1.29e5							4.039
Total-hexafurans			3.577e4		1.141			971		5.33e5							11.311
Total-heptafurans			4.863e4		0.978			846		7.83e5							26.209
Total-Furans			1.418e5		0.922			1312		2.03e6							73.699
Total-tetradioxins			5.585e3		1.024			1144		8.04e4							2.417
Total-pentadioxins			4.150e3		1.502			699		5.84e4							1.443
Total-hexadioxins			3.418e4		1.005			1026		4.56e5							12.097
Total-heptadioxins			1.924e5		1.088			1511		2.93e6							97.374
Total-Dioxins			7.145e5		1.130			1144		9.22e6							456.656
Total-TEQ			8.563e5					1144		1.12e7							530.356
FUNCTION1 PFK			1.198e7					340349		6.05e7							
FUNCTION2 PFK			4.744e6					287518		1.25e7							0.000
FUNCTION3 PFK			1.037e7					358175		2.03e7							0.000
FUNCTION4 PFK			5.526e5					224871		3.29e6							
FUNCTION5 PFK			1.768e7					142065		9.85e6							
FUNCTION1 HXCD...			1.752e3					579		2.83e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			6.271e2					845		1.13e4							0.000
FUNCTION3 OCDPE			4.511e2					742		7.61e3							0.000
FUNCTION4 NCDPE			4.937e3					811		8.31e4							0.000
FUNCTION5 DCDPE			0.000e0					594		0.00e0							

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.85	5.737e2	7.143e2	0.727	0.80	0.77	4.4	YES	NO	dd	dd	0.295
2	Total-tetrafurans	23.49	3.045e2	4.476e2	0.727	0.68	0.77	5.0	YES	NO	bd	bd	0.172
3	Total-tetrafurans	23.08	9.174e2	1.094e3	0.727	0.84	0.77	11.1	YES	NO	bb	bb	0.461
4	Total-tetrafurans	25.89	3.681e2	5.309e2	0.727	0.69	0.77	4.1	YES	NO	dd	dd	0.206
5	2378-TCDF	25.73	7.164e2	8.201e2	0.702	0.87	0.77	7.6	YES	NO	dd	MM	0.365
6	Total-tetrafurans	24.83	1.134e3	1.293e3	0.727	0.88	0.77	11.9	YES	NO	db	bb	0.556
7	Total-tetrafurans	24.64	8.540e2	1.115e3	0.727	0.77	0.77	7.3	YES	NO	dd	db	0.452
8	Total-tetrafurans	24.49	1.658e3	2.118e3	0.727	0.78	0.77	18.3	YES	NO	dd	dd	0.866
9	Total-tetrafurans	24.42	5.575e2	8.512e2	0.727	0.65	0.77	7.8	YES	NO	dd	dd	0.323
10	Total-tetrafurans	27.37	4.670e2	5.884e2	0.727	0.79	0.77	5.6	YES	NO	bb	bb	0.242

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.26	9.695e2	5.447e2		1.78	1.55	19.7	YES	NO	dd	db	0.278
2	Total-penta1	27.16	9.747e3	6.263e3		1.56	1.55	186.9	YES	NO	dd	bd	2.943

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.82	2.311e3	1.747e3	0.654	1.32	1.55	30.5	YES	NO	dd	db	1.093
2	Total-pentafurans	28.75	1.140e3	7.450e2	0.654	1.53	1.55	21.4	YES	NO	dd	dd	0.508
3	Total-pentafurans	28.63	8.646e2	5.808e2	0.654	1.49	1.55	12.2	YES	NO	dd	dd	0.389
4	Total-pentafurans	28.48	1.608e3	1.024e3	0.654	1.57	1.55	21.5	YES	NO	bd	bd	0.709
5	23478-PeCDF	31.23	9.227e2	6.644e2	0.786	1.39	1.55	14.2	YES	NO	MM	MM	0.372
6	Total-pentafurans	30.15	9.327e2	6.627e2	0.654	1.41	1.55	14.3	YES	NO	dd	db	0.430
7	12378-PeCDF	29.88	1.289e3	8.782e2	0.679	1.47	1.55	18.4	YES	NO	bb	bb	0.538

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.98	1.383e3	1.200e3	1.091	1.15	1.24	20.5	YES	NO	db	db	0.420
2	123478-HxCDF	34.85	3.668e3	2.864e3	1.166	1.28	1.24	57.6	YES	NO	bd	dd	1.120
3	Total-hexafurans	34.22	1.380e4	1.111e4	1.141	1.24	1.24	214.4	YES	NO	bb	bb	4.403
4	Total-hexafurans	33.93	2.260e2	2.115e2	1.141	1.07	1.24	4.8	YES	NO	bb	bb	0.077
5	Total-hexafurans	33.39	1.115e4	9.223e3	1.141	1.21	1.24	169.8	YES	NO	bb	bb	3.602
6	123468-HXCDF	33.18	3.383e3	2.635e3	1.169	1.28	1.24	55.2	YES	NO	bb	bb	1.029
7	234678-HxCDF	35.85	2.161e3	1.655e3	1.140	1.31	1.24	26.2	YES	NO	bb	bb	0.659

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.94	1.135e3	1.102e3	0.953	1.03	1.05	19.7	YES	NO	bb	bb	0.654
2	Total-heptafurans	39.37	3.113e4	2.960e4	0.978	1.05	1.05	584.4	YES	NO	bb	bb	17.040
3	Total-heptafurans	39.13	2.676e2	2.637e2	0.978	1.01	1.05	5.0	YES	NO	bb	bb	0.149
4	1234678-HpCDF	38.71	1.610e4	1.495e4	1.003	1.08	1.05	317.0	YES	NO	bb	bb	8.366

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.85	5.737e2	7.143e2	0.727	0.80	0.77	4.4	YES	NO	dd	dd	0.295
2	Total-tetrafurans	23.49	3.045e2	4.476e2	0.727	0.68	0.77	5.0	YES	NO	bd	bd	0.172
3	Total-tetrafurans	23.08	9.174e2	1.094e3	0.727	0.84	0.77	11.1	YES	NO	bb	bb	0.461
4	Total-tetrafurans	25.89	3.681e2	5.309e2	0.727	0.69	0.77	4.1	YES	NO	dd	dd	0.206
5	2378-TCDF	25.73	7.164e2	8.201e2	0.702	0.87	0.77	7.6	YES	NO	dd	MM	0.365
6	Total-tetrafurans	24.83	1.134e3	1.293e3	0.727	0.88	0.77	11.9	YES	NO	db	bb	0.556
7	Total-tetrafurans	24.64	8.540e2	1.115e3	0.727	0.77	0.77	7.3	YES	NO	dd	db	0.452
8	Total-tetrafurans	24.49	1.658e3	2.118e3	0.727	0.78	0.77	18.3	YES	NO	dd	dd	0.866
9	Total-tetrafurans	24.42	5.575e2	8.512e2	0.727	0.65	0.77	7.8	YES	NO	dd	dd	0.323
10	Total-tetrafurans	27.37	4.670e2	5.884e2	0.727	0.79	0.77	5.6	YES	NO	bb	bb	0.242
11	Total-pentafurans	28.82	2.311e3	1.747e3	0.654	1.32	1.55	30.5	YES	NO	dd	db	1.093
12	Total-pentafurans	28.75	1.140e3	7.450e2	0.654	1.53	1.55	21.4	YES	NO	dd	dd	0.508
13	Total-pentafurans	28.63	8.646e2	5.808e2	0.654	1.49	1.55	12.2	YES	NO	dd	dd	0.389
14	Total-pentafurans	28.48	1.608e3	1.024e3	0.654	1.57	1.55	21.5	YES	NO	bd	bd	0.709
15	23478-PeCDF	31.23	9.227e2	6.644e2	0.786	1.39	1.55	14.2	YES	NO	MM	MM	0.372
16	Total-pentafurans	30.15	9.327e2	6.627e2	0.654	1.41	1.55	14.3	YES	NO	dd	db	0.430
17	12378-PeCDF	29.88	1.289e3	8.782e2	0.679	1.47	1.55	18.4	YES	NO	bb	bb	0.538
18	123678-HxCDF	34.98	1.383e3	1.200e3	1.091	1.15	1.24	20.5	YES	NO	db	db	0.420
19	123478-HxCDF	34.85	3.668e3	2.864e3	1.166	1.28	1.24	57.6	YES	NO	bd	dd	1.120
20	Total-hexafurans	34.22	1.380e4	1.111e4	1.141	1.24	1.24	214.4	YES	NO	bb	bb	4.403
21	Total-hexafurans	33.93	2.260e2	2.115e2	1.141	1.07	1.24	4.8	YES	NO	bb	bb	0.077
22	Total-hexafurans	33.39	1.115e4	9.223e3	1.141	1.21	1.24	169.8	YES	NO	bb	bb	3.602
23	123468-HXCDF	33.18	3.383e3	2.635e3	1.169	1.28	1.24	55.2	YES	NO	bb	bb	1.029
24	234678-HxCDF	35.85	2.161e3	1.655e3	1.140	1.31	1.24	26.2	YES	NO	bb	bb	0.659
25	1234789-HpCDF	40.94	1.135e3	1.102e3	0.953	1.03	1.05	19.7	YES	NO	bb	bb	0.654
26	Total-heptafurans	39.37	3.113e4	2.960e4	0.978	1.05	1.05	584.4	YES	NO	bb	bb	17.040
27	Total-heptafurans	39.13	2.676e2	2.637e2	0.978	1.01	1.05	5.0	YES	NO	bb	bb	0.149
28	1234678-HpCDF	38.71	1.610e4	1.495e4	1.003	1.08	1.05	317.0	YES	NO	bb	bb	8.366
29	OCDF	45.16	3.008e4	3.336e4	0.778	0.90	0.89	356.2	YES	NO	bb	bb	24.981
30	Total-penta1	27.26	9.695e2	5.447e2		1.78	1.55	19.7	YES	NO	dd	db	0.278
31	Total-penta1	27.16	9.747e3	6.263e3		1.56	1.55	186.9	YES	NO	dd	bd	2.943

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.78	6.248e2	7.109e2	1.024	0.88	0.77	7.3	YES	NO	bb	bb	0.262
2	1368-TCDD	23.50	6.792e2	8.677e2	1.015	0.78	0.77	8.2	YES	NO	db	bb	0.307
3	2378-TCDD	26.37	1.049e3	1.461e3	1.149	0.72	0.77	13.1	YES	NO	dd	bb	0.440
4	Total-tetradioxins	26.01	4.119e2	4.663e2	1.024	0.88	0.77	4.5	YES	NO	db	bb	0.173
5	Total-tetradioxins	25.56	7.631e2	9.050e2	1.024	0.84	0.77	9.7	YES	NO	bd	bb	0.328
6	Total-tetradioxins	25.00	6.878e2	9.305e2	1.024	0.74	0.77	8.5	YES	NO	bd	bb	0.318
7	Total-tetradioxins	24.71	3.000e2	3.870e2	1.024	0.78	0.77	4.5	YES	NO	dd	db	0.135
8	Total-tetradioxins	24.50	7.639e2	8.857e2	1.024	0.86	0.77	9.2	YES	NO	bd	dd	0.324
9	Total-tetradioxins	24.02	3.051e2	3.651e2	1.024	0.84	0.77	5.2	YES	NO	db	bb	0.132

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.48	1.416e3	8.702e2	1.022	1.63	1.55	27.5	YES	NO	bb	bb	0.615
2	Total-pentadioxins	30.24	1.037e3	7.098e2	1.502	1.46	1.55	20.7	YES	NO	dd	dd	0.319
3	Total-pentadioxins	29.88	9.289e2	6.272e2	1.502	1.48	1.55	18.2	YES	NO	bd	bd	0.285
4	Total-pentadioxins	29.27	7.673e2	4.610e2	1.502	1.66	1.55	17.1	YES	NO	bb	bb	0.225

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.10	1.335e4	1.088e4	1.005	1.23	1.24	129.4	YES	NO	bd	bd	4.752
2	124679-HXCDD	33.96	1.158e4	9.781e3	1.115	1.18	1.24	177.4	YES	NO	bb	bb	4.046
3	123789-HxCDD	36.49	3.080e3	2.608e3	0.907	1.18	1.24	44.6	YES	NO	bb	bb	1.236
4	123678-HxCDD	36.11	4.382e3	3.207e3	1.001	1.37	1.24	64.1	YES	NO	dd	db	1.399
5	123478-HxCDD	36.00	1.792e3	1.333e3	0.996	1.34	1.24	28.4	YES	NO	bd	bd	0.663

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.21	8.286e4	7.803e4	1.039	1.06	1.05	757.9	YES	NO	bd	bb	43.573
2	1234679-HPCDD	39.16	1.096e5	1.078e5	1.137	1.02	1.05	1180.7	YES	NO	bb	bb	53.801

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:42 Pacific Daylight Time

ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.78	6.248e2	7.109e2	1.024	0.88	0.77	7.3	YES	NO	bb	bb	0.262
2	1368-TCDD	23.50	6.792e2	8.677e2	1.015	0.78	0.77	8.2	YES	NO	db	bb	0.307
3	2378-TCDD	26.37	1.049e3	1.461e3	1.149	0.72	0.77	13.1	YES	NO	dd	bb	0.440
4	Total-tetradioxins	26.01	4.119e2	4.663e2	1.024	0.88	0.77	4.5	YES	NO	db	bb	0.173
5	Total-tetradioxins	25.56	7.631e2	9.050e2	1.024	0.84	0.77	9.7	YES	NO	bd	bb	0.328
6	Total-tetradioxins	25.00	6.878e2	9.305e2	1.024	0.74	0.77	8.5	YES	NO	bd	bb	0.318
7	Total-tetradioxins	24.71	3.000e2	3.870e2	1.024	0.78	0.77	4.5	YES	NO	dd	db	0.135
8	Total-tetradioxins	24.50	7.639e2	8.857e2	1.024	0.86	0.77	9.2	YES	NO	bd	dd	0.324
9	Total-tetradioxins	24.02	3.051e2	3.651e2	1.024	0.84	0.77	5.2	YES	NO	db	bb	0.132
10	12378-PeCDD	31.48	1.416e3	8.702e2	1.022	1.63	1.55	27.5	YES	NO	bb	bb	0.615
11	Total-pentadioxins	30.24	1.037e3	7.098e2	1.502	1.46	1.55	20.7	YES	NO	dd	dd	0.319
12	Total-pentadioxins	29.88	9.289e2	6.272e2	1.502	1.48	1.55	18.2	YES	NO	bd	bd	0.285
13	Total-pentadioxins	29.27	7.673e2	4.610e2	1.502	1.66	1.55	17.1	YES	NO	bb	bb	0.225
14	Total-hexadioxins	35.10	1.335e4	1.088e4	1.005	1.23	1.24	129.4	YES	NO	bd	bd	4.752
15	124679-HXCDD	33.96	1.158e4	9.781e3	1.115	1.18	1.24	177.4	YES	NO	bb	bb	4.046
16	123789-HxCDD	36.49	3.080e3	2.608e3	0.907	1.18	1.24	44.6	YES	NO	bb	bb	1.236
17	123678-HxCDD	36.11	4.382e3	3.207e3	1.001	1.37	1.24	64.1	YES	NO	dd	db	1.399
18	123478-HxCDD	36.00	1.792e3	1.333e3	0.996	1.34	1.24	28.4	YES	NO	bd	bd	0.663
19	1234678-HpCDD	40.21	8.286e4	7.803e4	1.039	1.06	1.05	757.9	YES	NO	bd	bb	43.573
20	1234679-HPCDD	39.16	1.096e5	1.078e5	1.137	1.02	1.05	1180.7	YES	NO	bb	bb	53.801
21	OCDD	44.92	4.781e5	5.531e5	0.920	0.86	0.89	4813.1	YES	NO	bb	bb	343.324

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.85	5.737e2	7.143e2	0.727	0.80	0.77	4.4	YES	NO	dd	dd	0.295
2	Total-tetrafurans	23.49	3.045e2	4.476e2	0.727	0.68	0.77	5.0	YES	NO	bd	bd	0.172
3	Total-tetrafurans	23.08	9.174e2	1.094e3	0.727	0.84	0.77	11.1	YES	NO	bb	bb	0.461
4	Total-tetrafurans	25.89	3.681e2	5.309e2	0.727	0.69	0.77	4.1	YES	NO	dd	dd	0.206
5	2378-TCDF	25.73	7.164e2	8.201e2	0.702	0.87	0.77	7.6	YES	NO	dd	MM	0.365
6	Total-tetrafurans	24.83	1.134e3	1.293e3	0.727	0.88	0.77	11.9	YES	NO	db	bb	0.556
7	Total-tetrafurans	24.64	8.540e2	1.115e3	0.727	0.77	0.77	7.3	YES	NO	dd	db	0.452
8	Total-tetrafurans	24.49	1.658e3	2.118e3	0.727	0.78	0.77	18.3	YES	NO	dd	dd	0.866
9	Total-tetrafurans	24.42	5.575e2	8.512e2	0.727	0.65	0.77	7.8	YES	NO	dd	dd	0.323
10	Total-tetrafurans	27.37	4.670e2	5.884e2	0.727	0.79	0.77	5.6	YES	NO	bb	bb	0.242
11	Total-pentafurans	28.82	2.311e3	1.747e3	0.654	1.32	1.55	30.5	YES	NO	dd	db	1.093
12	Total-pentafurans	28.75	1.140e3	7.450e2	0.654	1.53	1.55	21.4	YES	NO	dd	dd	0.508
13	Total-pentafurans	28.63	8.646e2	5.808e2	0.654	1.49	1.55	12.2	YES	NO	dd	dd	0.389
14	Total-pentafurans	28.48	1.608e3	1.024e3	0.654	1.57	1.55	21.5	YES	NO	bd	bd	0.709
15	23478-PeCDF	31.23	9.227e2	6.644e2	0.786	1.39	1.55	14.2	YES	NO	MM	MM	0.372
16	Total-pentafurans	30.15	9.327e2	6.627e2	0.654	1.41	1.55	14.3	YES	NO	dd	db	0.430
17	12378-PeCDF	29.88	1.289e3	8.782e2	0.679	1.47	1.55	18.4	YES	NO	bb	bb	0.538
18	123678-HxCDF	34.98	1.383e3	1.200e3	1.091	1.15	1.24	20.5	YES	NO	db	db	0.420
19	123478-HxCDF	34.85	3.668e3	2.864e3	1.166	1.28	1.24	57.6	YES	NO	bd	dd	1.120
20	Total-hexafurans	34.22	1.380e4	1.111e4	1.141	1.24	1.24	214.4	YES	NO	bb	bb	4.403
21	Total-hexafurans	33.93	2.260e2	2.115e2	1.141	1.07	1.24	4.8	YES	NO	bb	bb	0.077
22	Total-hexafurans	33.39	1.115e4	9.223e3	1.141	1.21	1.24	169.8	YES	NO	bb	bb	3.602
23	123468-HXCDF	33.18	3.383e3	2.635e3	1.169	1.28	1.24	55.2	YES	NO	bb	bb	1.029
24	234678-HxCDF	35.85	2.161e3	1.655e3	1.140	1.31	1.24	26.2	YES	NO	bb	bb	0.659
25	1234789-HpCDF	40.94	1.135e3	1.102e3	0.953	1.03	1.05	19.7	YES	NO	bb	bb	0.654
26	Total-heptafurans	39.37	3.113e4	2.960e4	0.978	1.05	1.05	584.4	YES	NO	bb	bb	17.040
27	Total-heptafurans	39.13	2.676e2	2.637e2	0.978	1.01	1.05	5.0	YES	NO	bb	bb	0.149
28	1234678-HpCDF	38.71	1.610e4	1.495e4	1.003	1.08	1.05	317.0	YES	NO	bb	bb	8.366
29	OCDF	45.16	3.008e4	3.336e4	0.778	0.90	0.89	356.2	YES	NO	bb	bb	24.981
30	Total-penta1	27.26	9.695e2	5.447e2		1.78	1.55	19.7	YES	NO	dd	db	0.278
31	Total-penta1	27.16	9.747e3	6.263e3		1.56	1.55	186.9	YES	NO	dd	bd	2.943
32	Total-tetradioxins	23.78	6.248e2	7.109e2	1.024	0.88	0.77	7.3	YES	NO	bb	bb	0.262
33	1368-TCDD	23.50	6.792e2	8.677e2	1.015	0.78	0.77	8.2	YES	NO	db	bb	0.307
34	2378-TCDD	26.37	1.049e3	1.461e3	1.149	0.72	0.77	13.1	YES	NO	dd	bb	0.440
35	Total-tetradioxins	26.01	4.119e2	4.663e2	1.024	0.88	0.77	4.5	YES	NO	db	bb	0.173
36	Total-tetradioxins	25.56	7.631e2	9.050e2	1.024	0.84	0.77	9.7	YES	NO	bd	bb	0.328
37	Total-tetradioxins	25.00	6.878e2	9.305e2	1.024	0.74	0.77	8.5	YES	NO	bd	bb	0.318

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-tetradioxins	24.71	3.000e2	3.870e2	1.024	0.78	0.77	4.5	YES	NO	dd	db	0.135
39	Total-tetradioxins	24.50	7.639e2	8.857e2	1.024	0.86	0.77	9.2	YES	NO	bd	dd	0.324
40	Total-tetradioxins	24.02	3.051e2	3.651e2	1.024	0.84	0.77	5.2	YES	NO	db	bb	0.132
41	12378-PeCDD	31.48	1.416e3	8.702e2	1.022	1.63	1.55	27.5	YES	NO	bb	bb	0.615
42	Total-pentadioxins	30.24	1.037e3	7.098e2	1.502	1.46	1.55	20.7	YES	NO	dd	dd	0.319
43	Total-pentadioxins	29.88	9.289e2	6.272e2	1.502	1.48	1.55	18.2	YES	NO	bd	bd	0.285
44	Total-pentadioxins	29.27	7.673e2	4.610e2	1.502	1.66	1.55	17.1	YES	NO	bb	bb	0.225
45	Total-hexadioxins	35.10	1.335e4	1.088e4	1.005	1.23	1.24	129.4	YES	NO	bd	bd	4.752
46	124679-HXCDD	33.96	1.158e4	9.781e3	1.115	1.18	1.24	177.4	YES	NO	bb	bb	4.046
47	123789-HxCDD	36.49	3.080e3	2.608e3	0.907	1.18	1.24	44.6	YES	NO	bb	bb	1.236
48	123678-HxCDD	36.11	4.382e3	3.207e3	1.001	1.37	1.24	64.1	YES	NO	dd	db	1.399
49	123478-HxCDD	36.00	1.792e3	1.333e3	0.996	1.34	1.24	28.4	YES	NO	bd	bd	0.663
50	1234678-HpCDD	40.21	8.286e4	7.803e4	1.039	1.06	1.05	757.9	YES	NO	bd	bb	43.573
51	1234679-HPCDD	39.16	1.096e5	1.078e5	1.137	1.02	1.05	1180.7	YES	NO	bb	bb	53.801
52	OCDD	44.92	4.781e5	5.531e5	0.920	0.86	0.89	4813.1	YES	NO	bb	bb	343.324

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.58	9.669e5					21.0	YES		bb		
2	FUNCTION1 PFK	27.38	1.315e6					28.5	YES		db		
3	FUNCTION1 PFK	27.14	2.105e5					5.9	YES		bd		
4	FUNCTION1 PFK	23.32	1.021e6					10.1	YES		bb		
5	FUNCTION1 PFK	22.65	5.858e4					3.4	YES		bb		
6	FUNCTION1 PFK	22.30	1.039e6					10.2	YES		bb		
7	FUNCTION1 PFK	21.97	1.364e6					20.0	YES		bb		
8	FUNCTION1 PFK	21.16	6.003e6					78.7	YES		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.68	1.569e5					1.8	NO		bb		0.000
2	FUNCTION2 PFK	32.42	3.134e5					7.1	YES		bb		0.000
3	FUNCTION2 PFK	32.19	2.708e5					6.4	YES		bb		0.000
4	FUNCTION2 PFK	29.92	1.859e6					6.2	YES		bb		0.000
5	FUNCTION2 PFK	29.32	8.955e4					6.8	YES		db		0.000
6	FUNCTION2 PFK	28.98	2.055e6					15.2	YES		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.09	2.224e6					16.1	YES		bb		0.000
2	FUNCTION3 PFK	36.54	7.899e6					34.7	YES		bb		0.000
3	FUNCTION3 PFK	35.84	2.470e5					5.9	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.80	5.526e5					14.6	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.07	5.665e5					20.5	YES		dd		
2	FUNCTION5 PFK	44.23	1.695e7					41.3	YES		bd		
3	FUNCTION5 PFK	45.50	1.711e5					7.5	YES		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.33	9.844e1					3.6	YES		db		0.000
2	FUNCTION1 HXCD...	26.25	7.047e1					2.6	NO		bd		0.000
3	FUNCTION1 HXCD...	26.14	7.233e1					2.2	NO		bb		0.000
4	FUNCTION1 HXCD...	25.89	9.283e1					3.3	YES		db		0.000
5	FUNCTION1 HXCD...	25.82	8.543e1					2.5	NO		bd		0.000
6	FUNCTION1 HXCD...	25.17	1.321e2					3.3	YES		bb		0.000
7	FUNCTION1 HXCD...	24.02	1.151e2					3.8	YES		db		0.000
8	FUNCTION1 HXCD...	23.99	7.483e1					2.5	NO		bd		0.000
9	FUNCTION1 HXCD...	23.46	7.973e1					2.0	NO		bb		0.000
10	FUNCTION1 HXCD...	23.23	8.990e1					2.8	NO		db		0.000
11	FUNCTION1 HXCD...	23.15	7.429e1					1.6	NO		bd		0.000
12	FUNCTION1 HXCD...	22.31	8.805e1					2.5	NO		bb		0.000
13	FUNCTION1 HXCD...	22.12	1.875e2					4.9	YES		bb		0.000
14	FUNCTION1 HXCD...	21.41	9.786e1					3.3	YES		bb		0.000
15	FUNCTION1 HXCD...	27.34	1.568e2					2.4	NO		bb		0.000
16	FUNCTION1 HXCD...	26.76	2.366e2					5.7	YES		bb		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.59	1.286e2					1.8	NO		bb		0.000
2	FUNCTION2 HPCD...	31.90	1.248e2					4.4	YES		bb		0.000
3	FUNCTION2 HPCD...	30.57	9.098e1					1.8	NO		bb		0.000
4	FUNCTION2 HPCD...	29.26	8.073e1					1.9	NO		bb		0.000
5	FUNCTION2 HPCD...	29.10	9.530e1					1.4	NO		db		0.000
6	FUNCTION2 HPCD...	28.95	1.067e2					2.0	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.23	8.455e1					1.3	NO		bb		0.000
2	FUNCTION3 OCDPE	36.07	1.112e2					2.2	NO		db		0.000
3	FUNCTION3 OCDPE	35.96	1.056e2					2.6	NO		bd		0.000
4	FUNCTION3 OCDPE	35.15	7.188e1					2.1	NO		bb		0.000
5	FUNCTION3 OCDPE	33.10	7.785e1					2.1	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.37	4.937e3					102.5	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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Printed: Wednesday, March 22, 2023 11:48:42 Pacific Daylight Time

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ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

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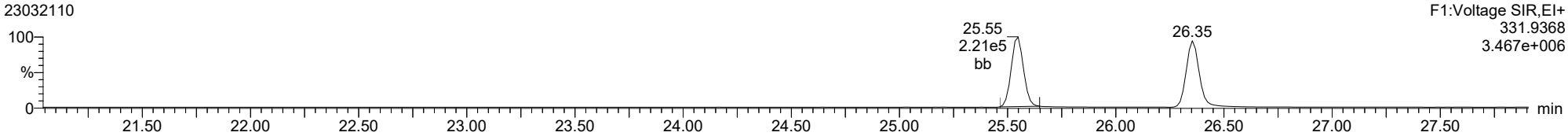

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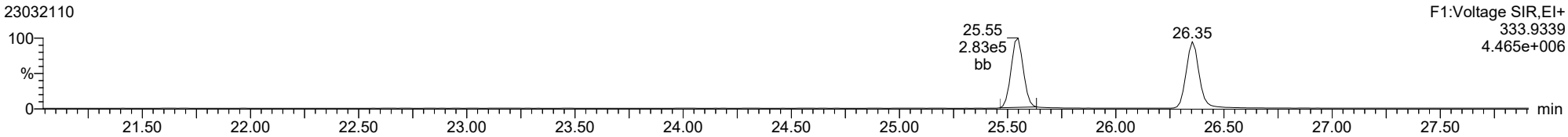

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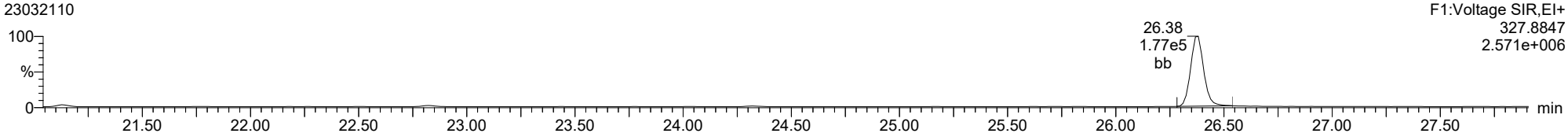

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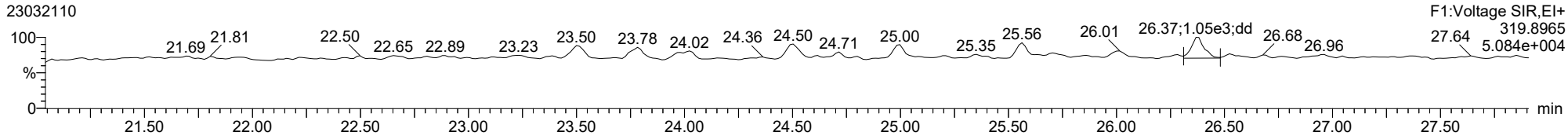

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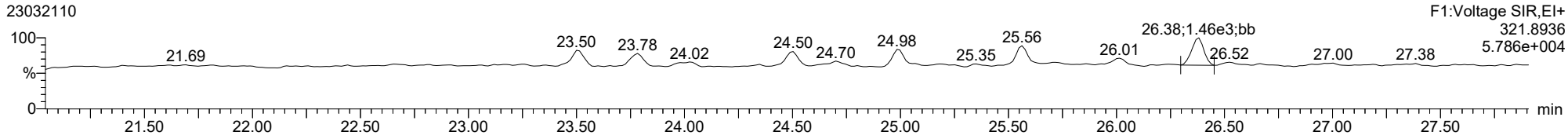

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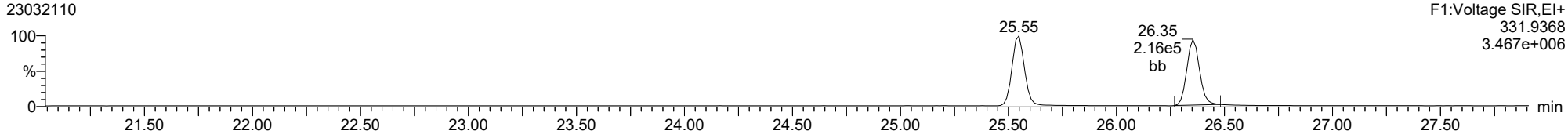

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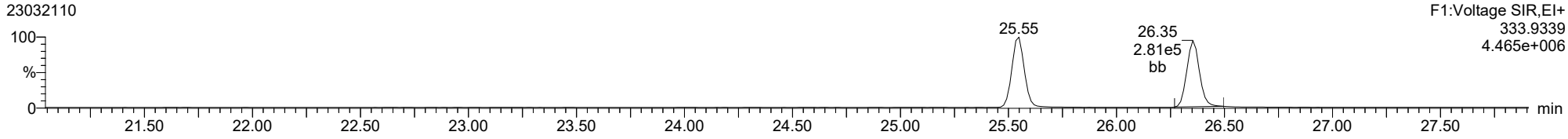
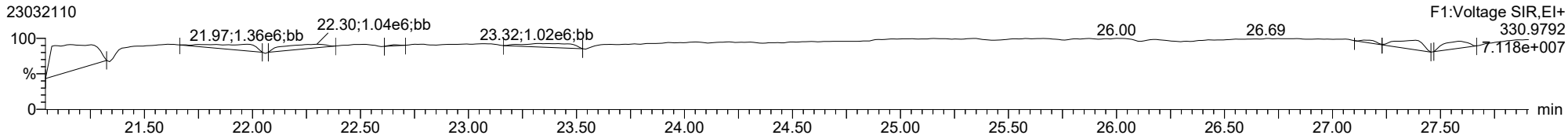
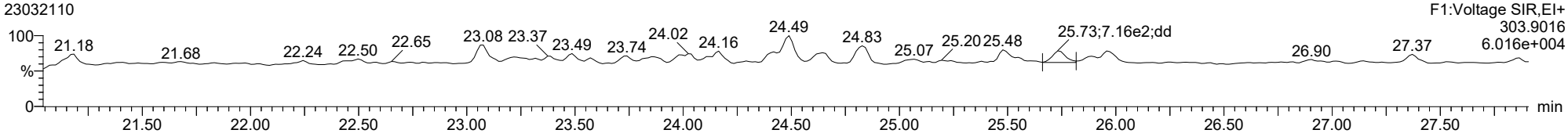


FUNCTION1 PFK

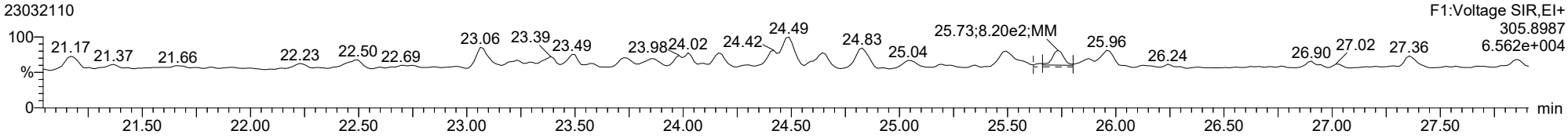


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

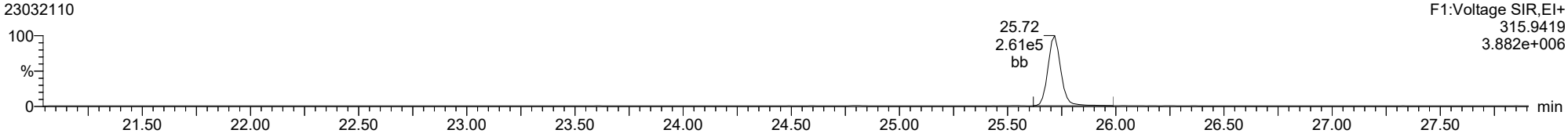
2378-TCDF



2378-TCDF



13C-2378-TCDF



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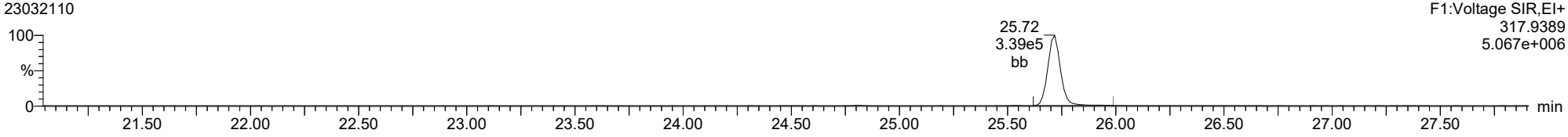
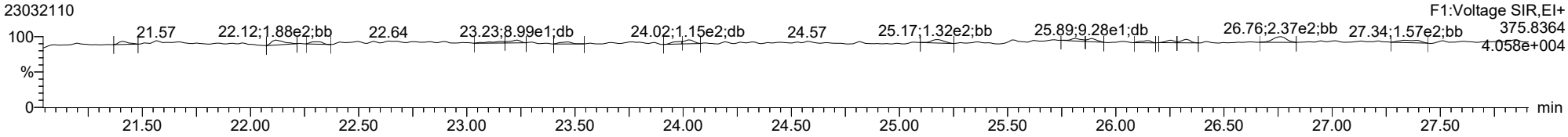
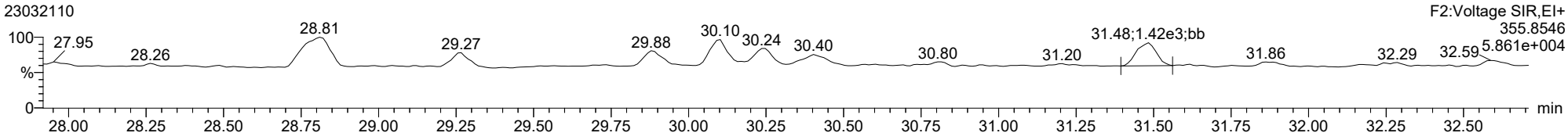


FUNCTION1 HXCDPE

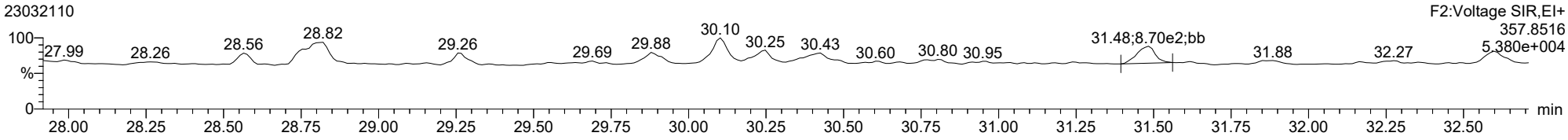


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

12378-PeCDD



12378-PeCDD



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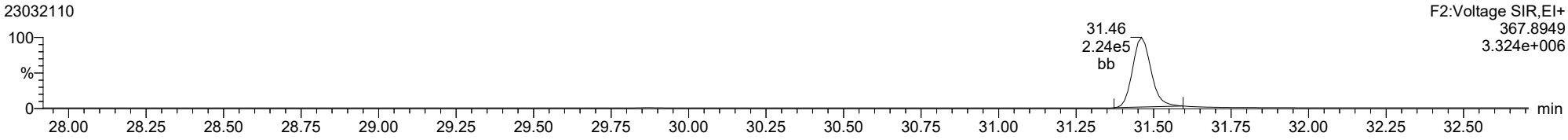

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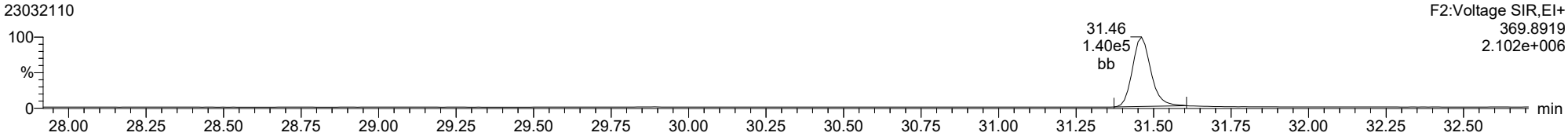
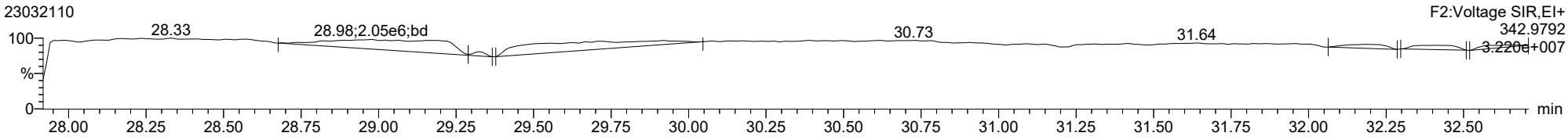


FUNCTION2 PFK



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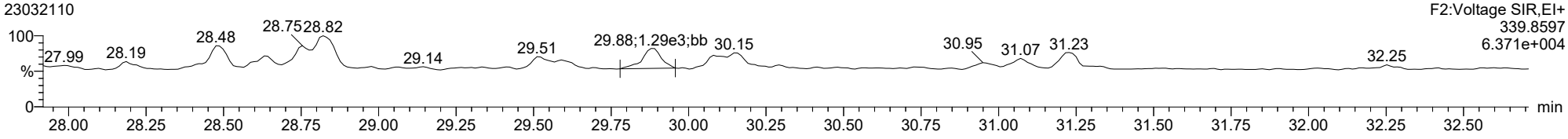
12378-PeCDF



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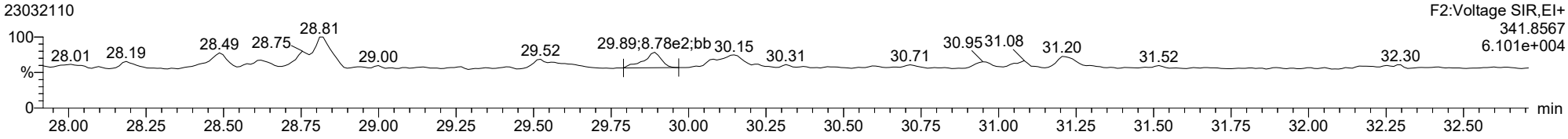

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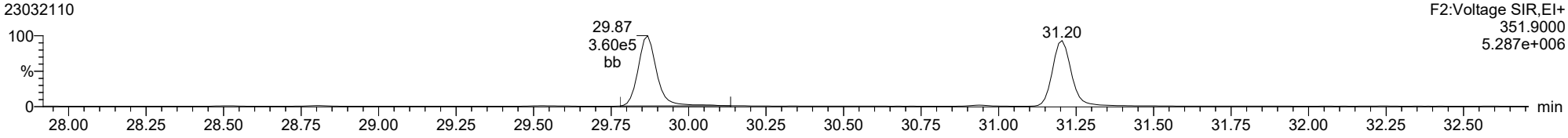

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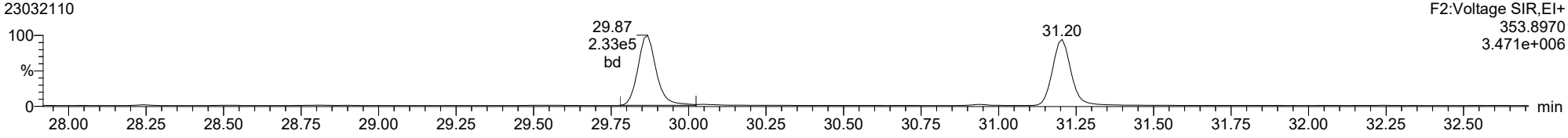
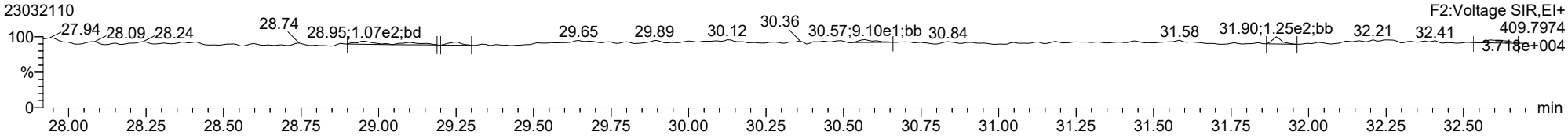
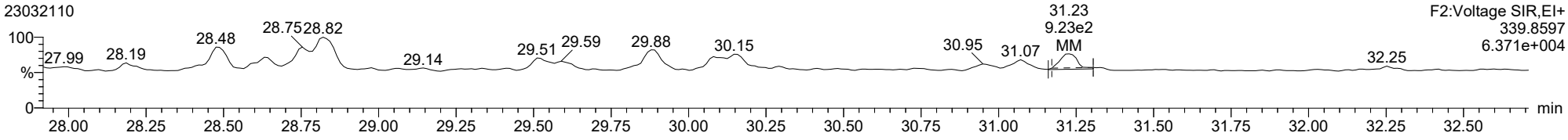


FUNCTION2 HPCDPE

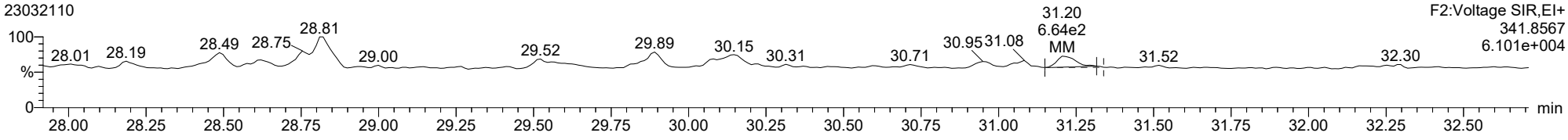


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

23478-PeCDF



23478-PeCDF



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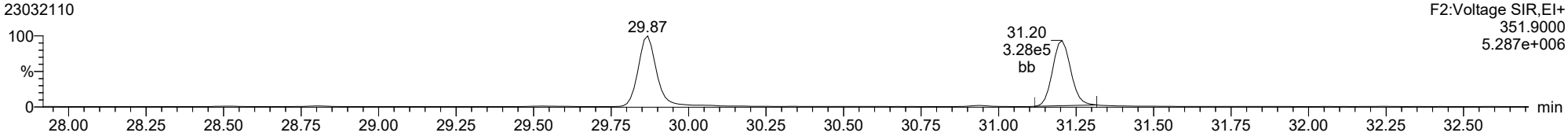

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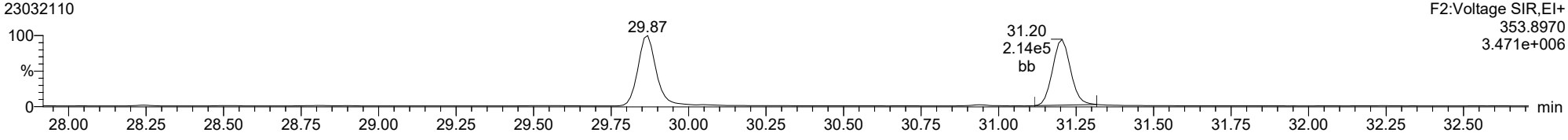
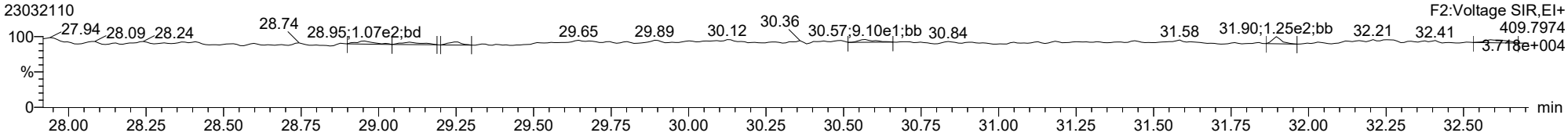
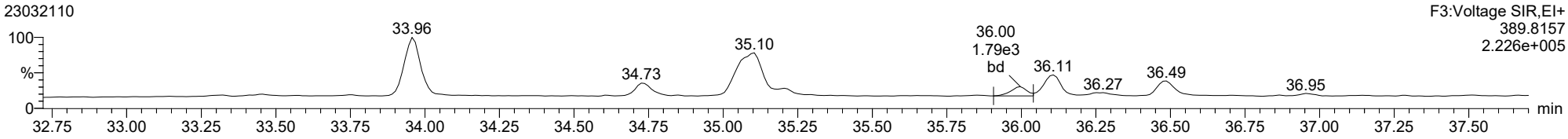


FUNCTION2 HPCDPE

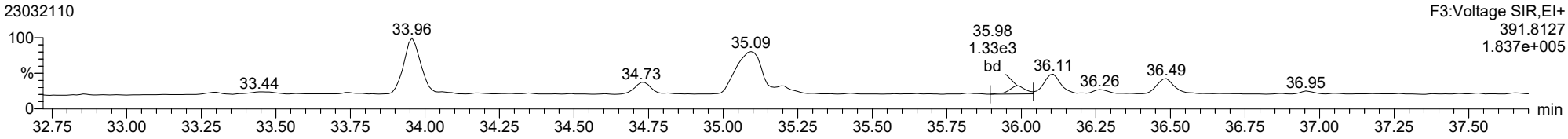


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

123478-HxCDD



123478-HxCDD



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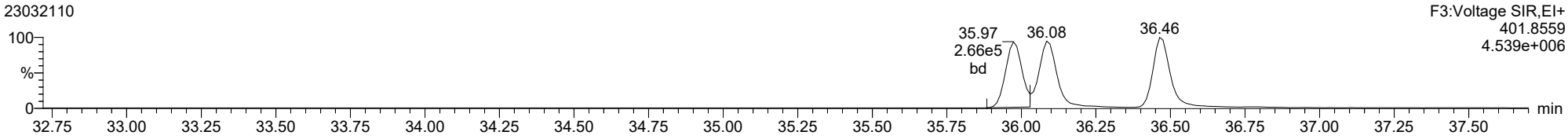

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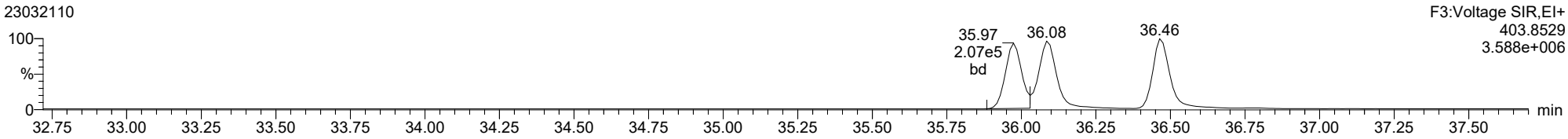
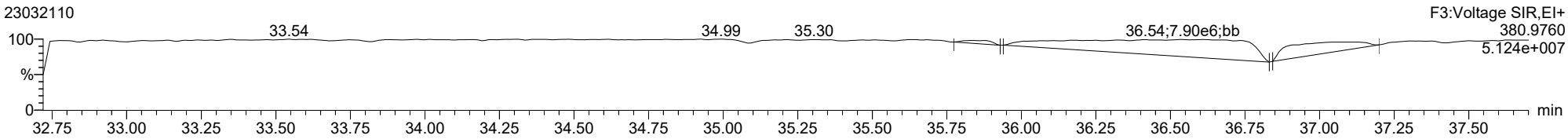
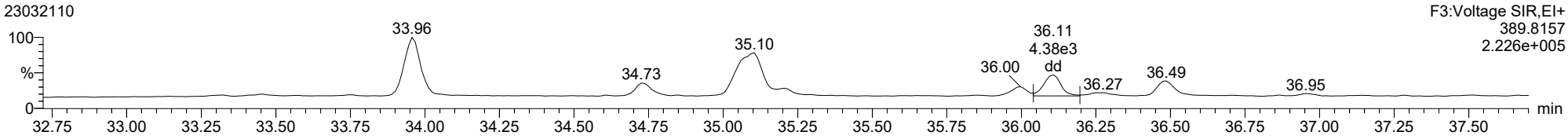


FUNCTION3 PFK



ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

123678-HxCDD



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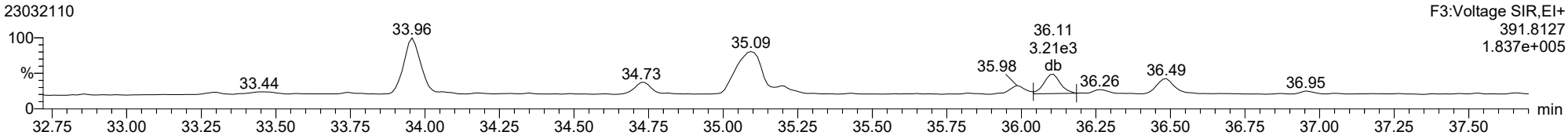

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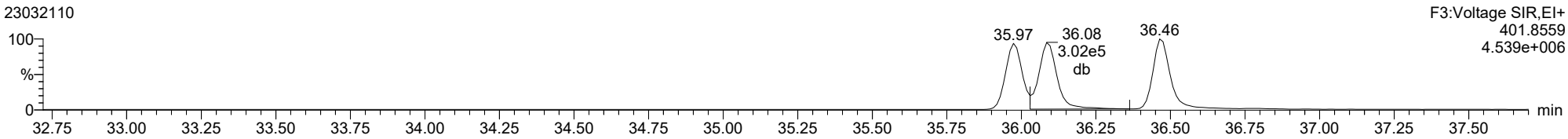

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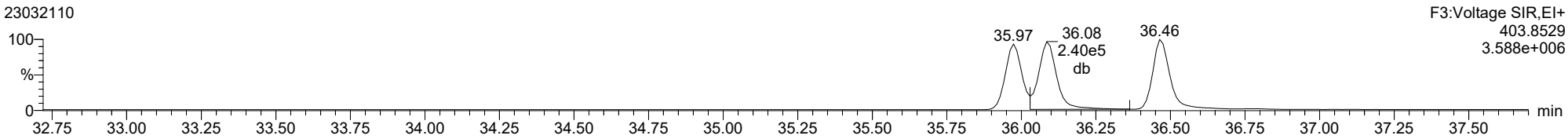

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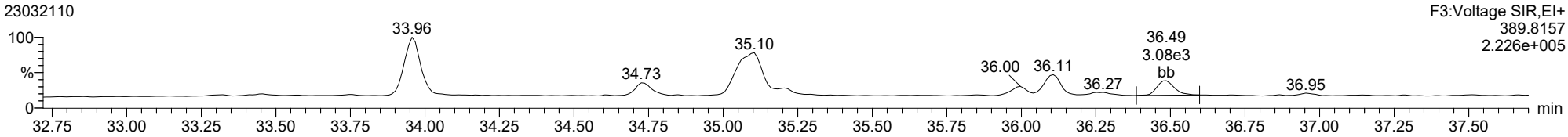
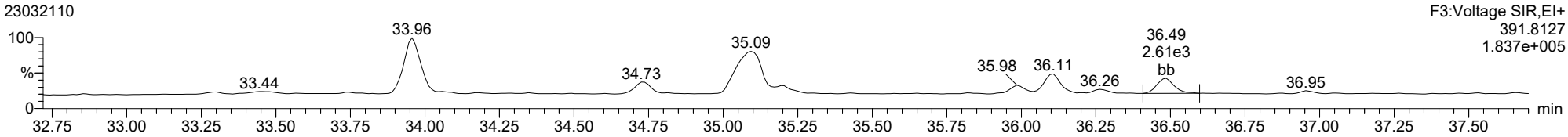
123789-HxCDD



123789-HxCDD



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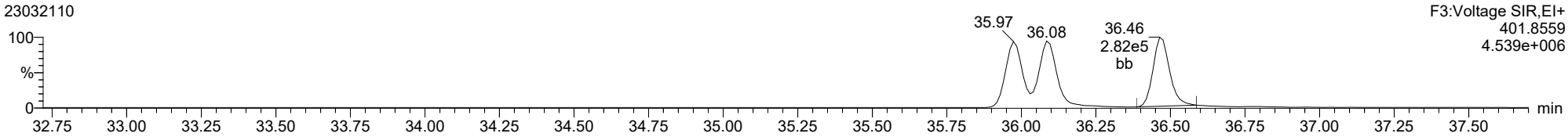

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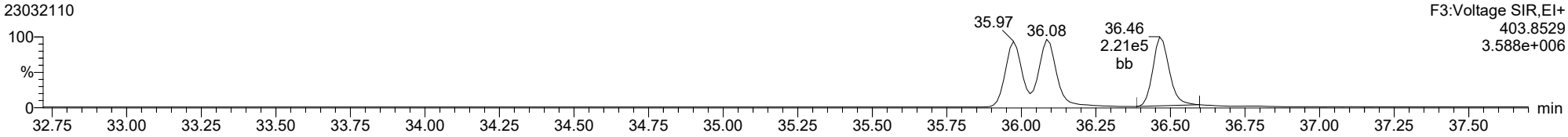

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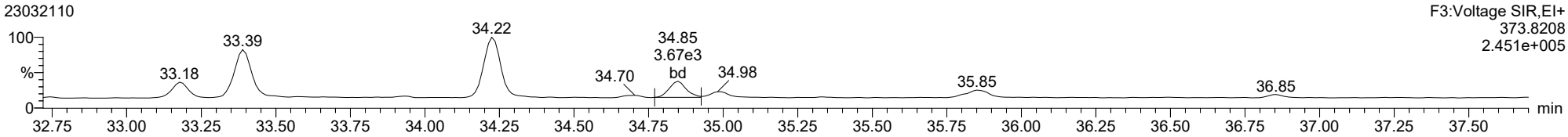
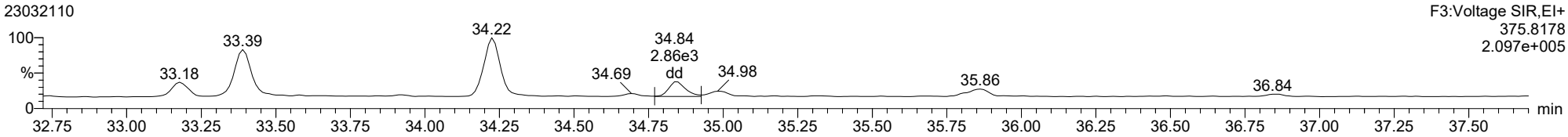
123478-HxCDF



123478-HxCDF



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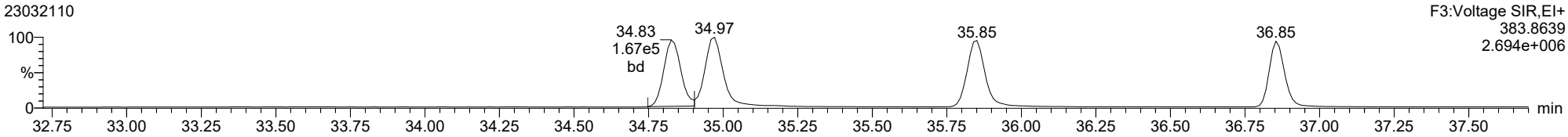

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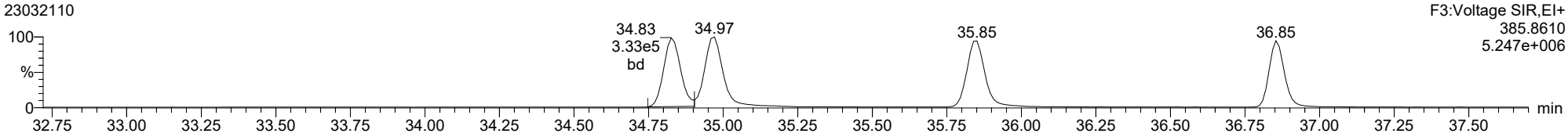
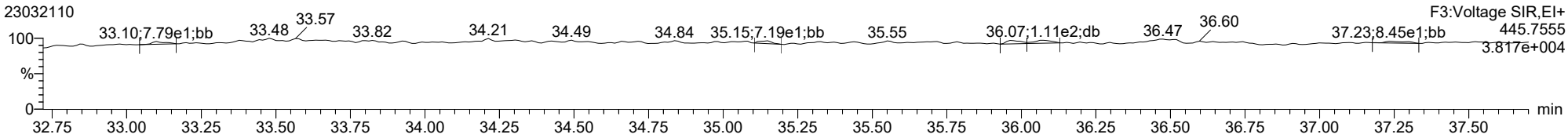


FUNCTION3 OCDPE



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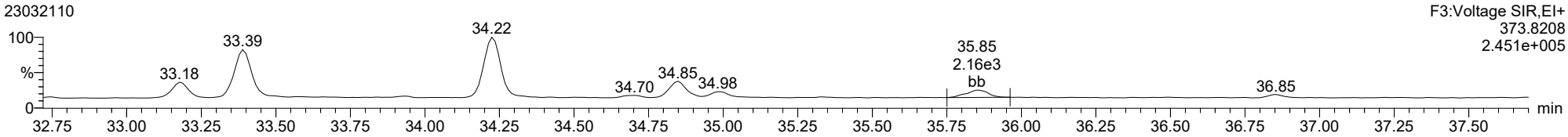
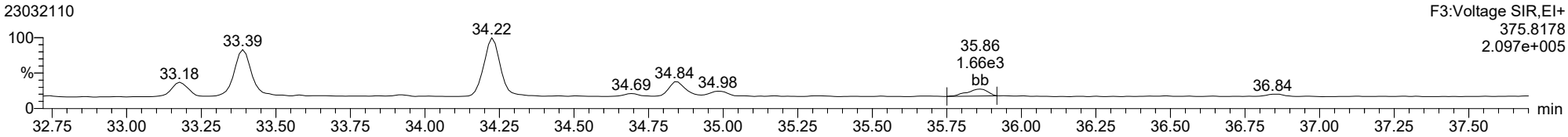
234678-HxCDF



234678-HxCDF



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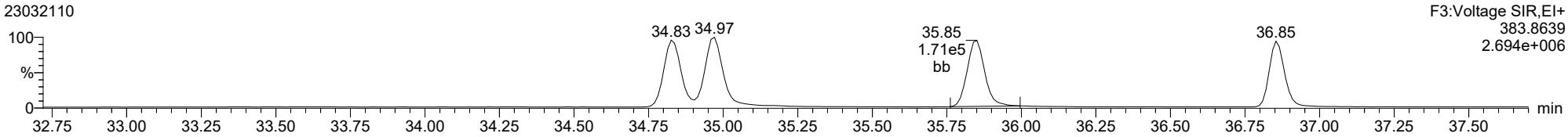

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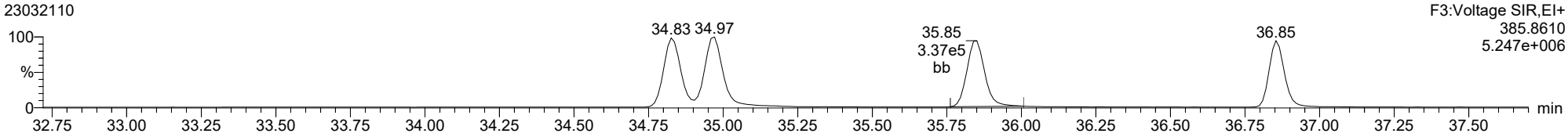
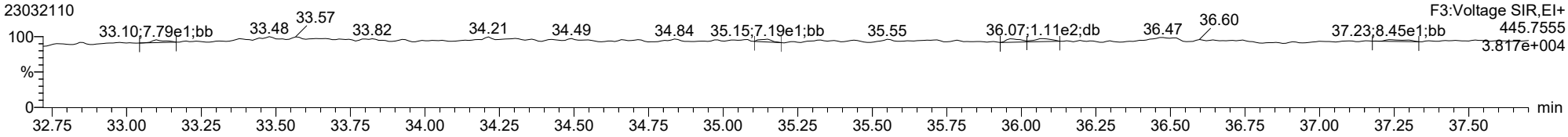


FUNCTION3 OCDPE



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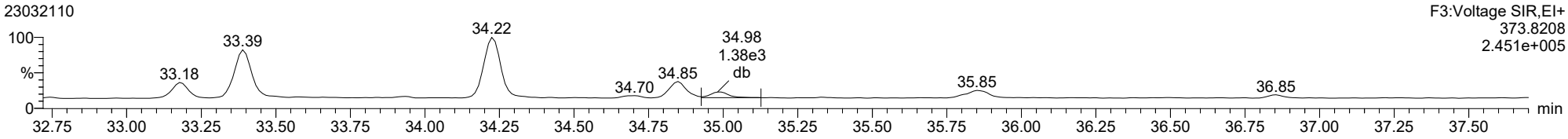
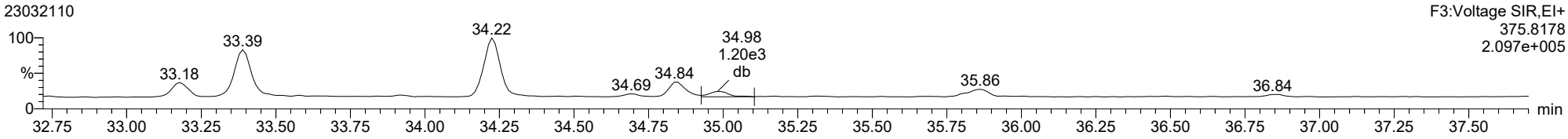
123678-HxCDF



123678-HxCDF



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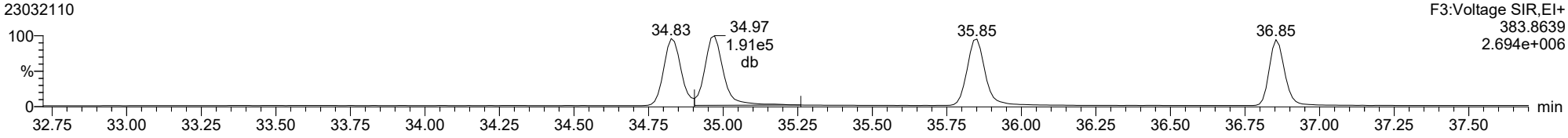

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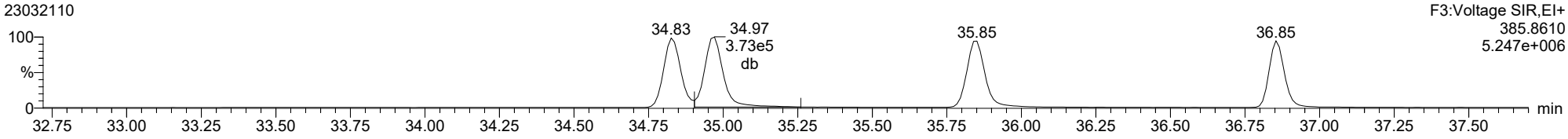
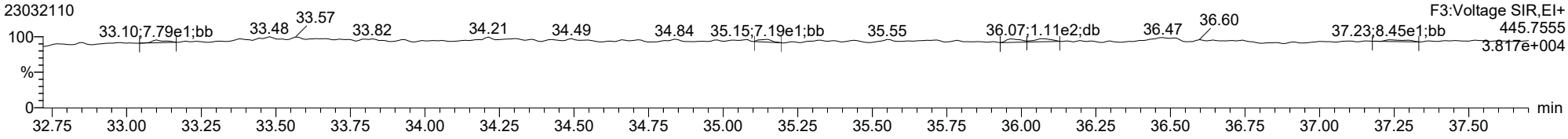
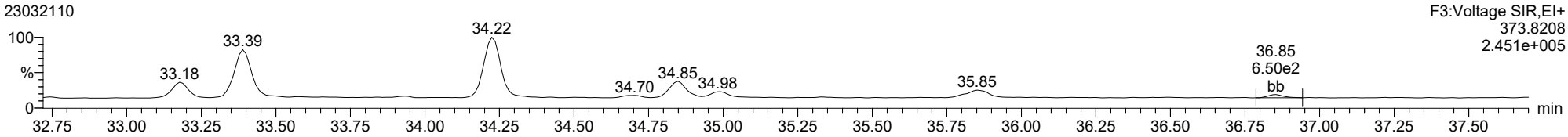


FUNCTION3 OCDPE

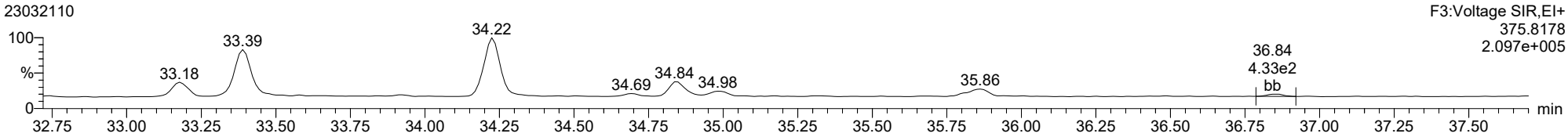


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

123789-HxCDF



123789-HxCDF



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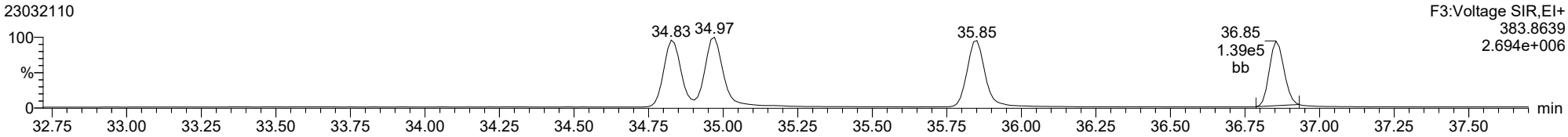

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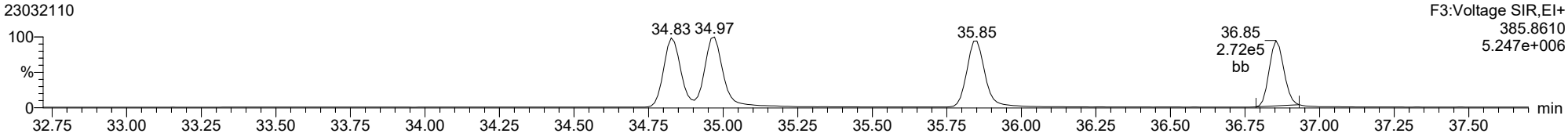
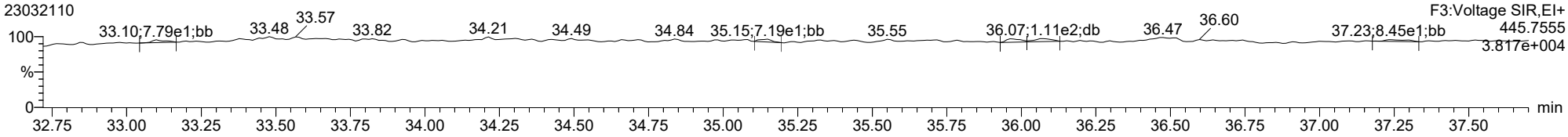


FUNCTION3 OCDPE



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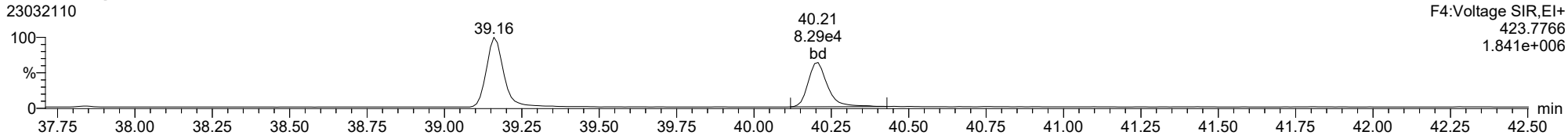
1234678-HpCDD



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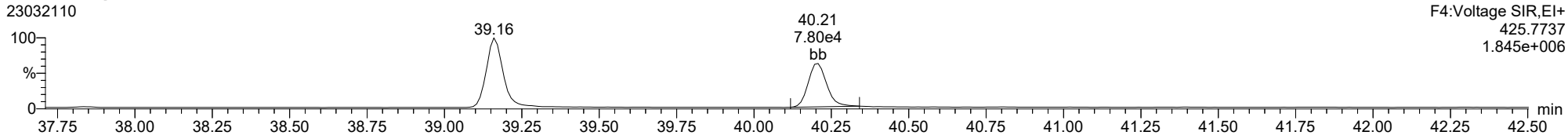

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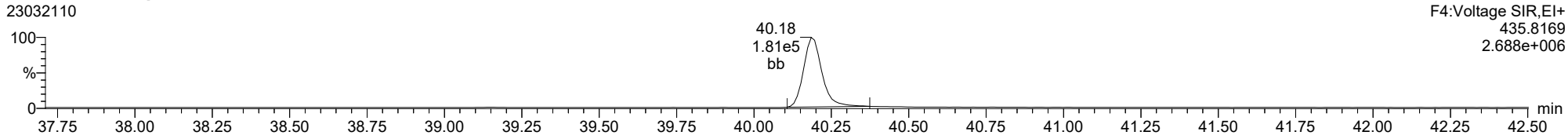

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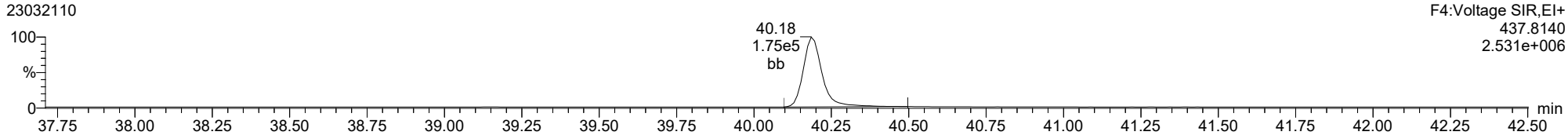
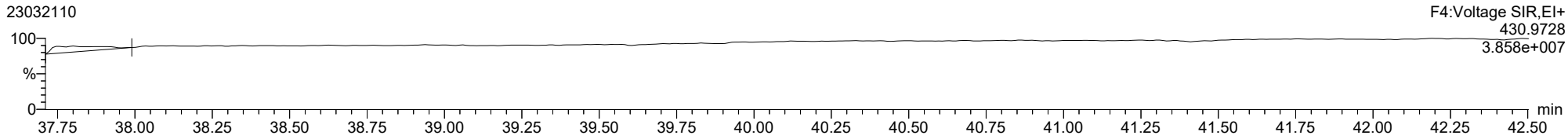


FUNCTION4 PFK



ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

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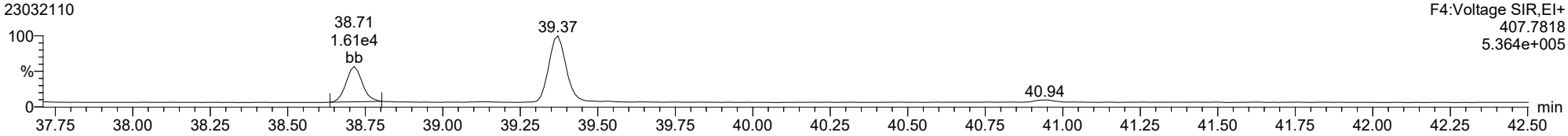

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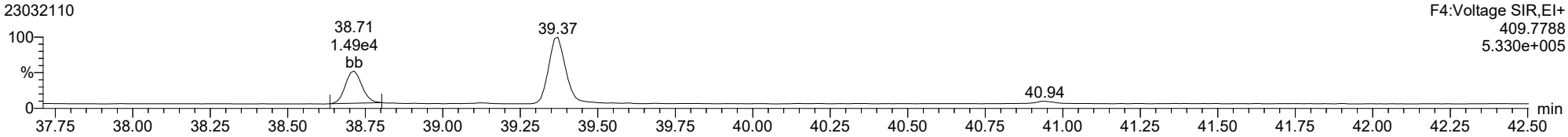

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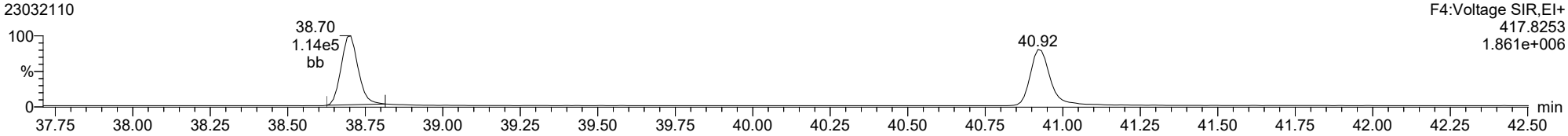

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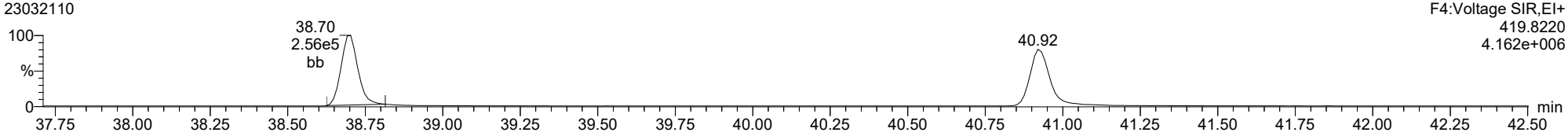
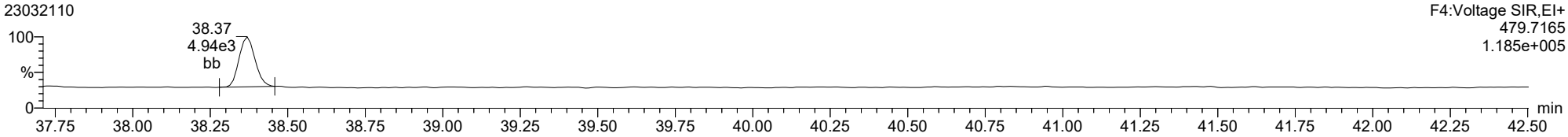
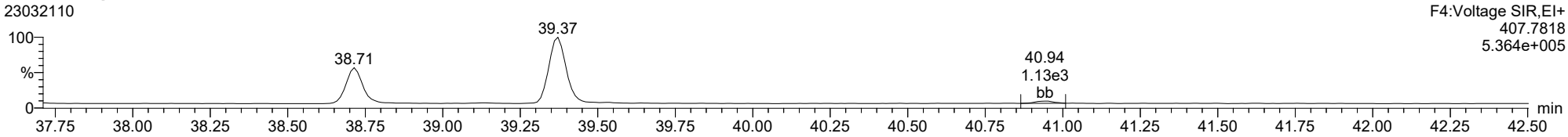


FUNCTION4 NCDPE

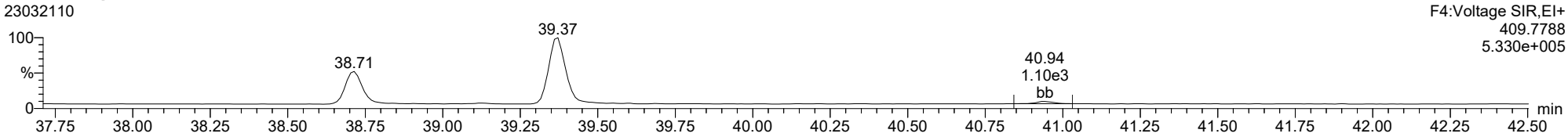


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

1234789-HpCDF



1234789-HpCDF



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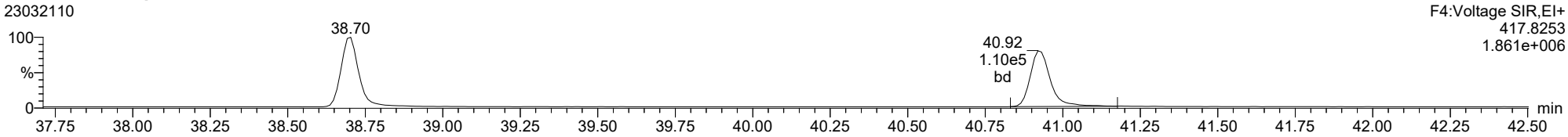

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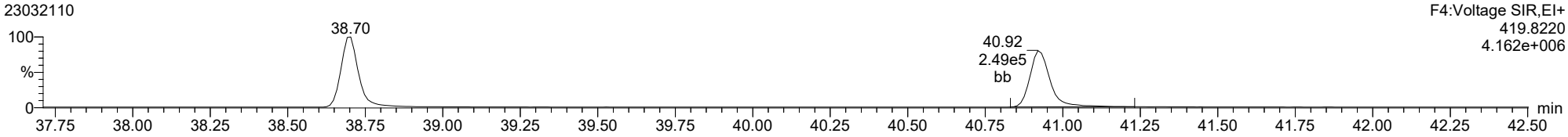
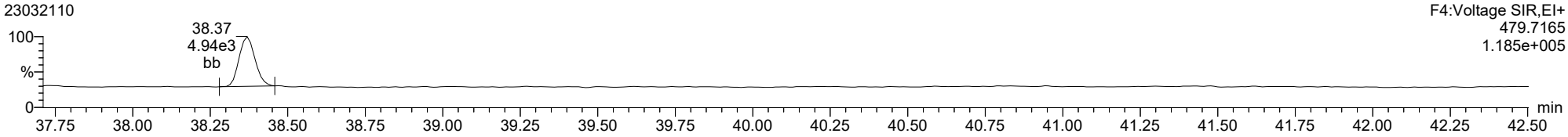
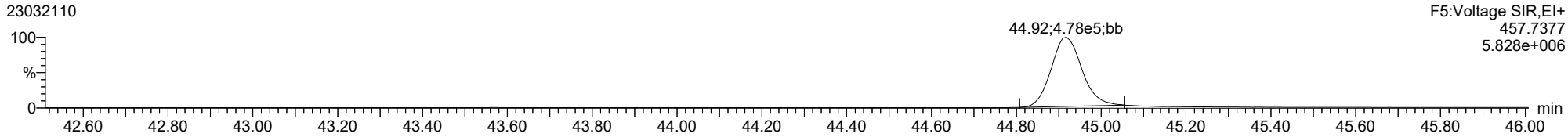


FUNCTION4 NCDPE

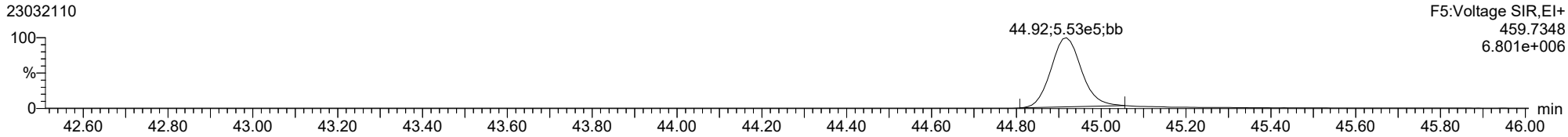


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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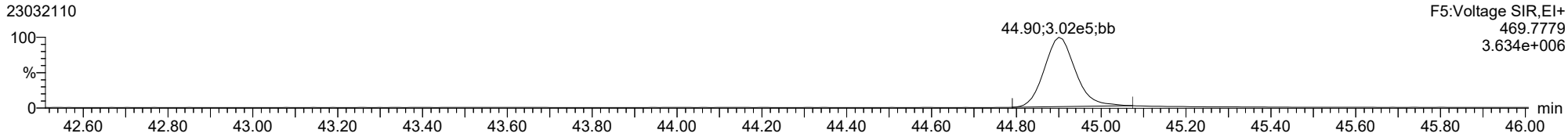

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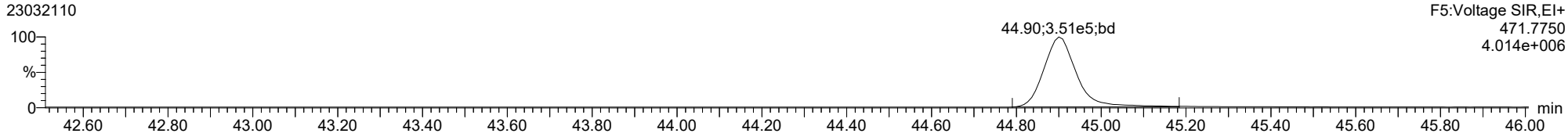
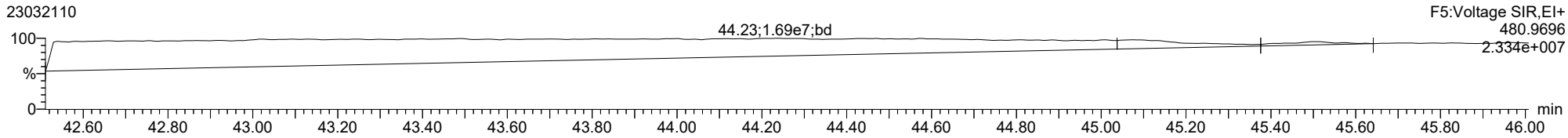
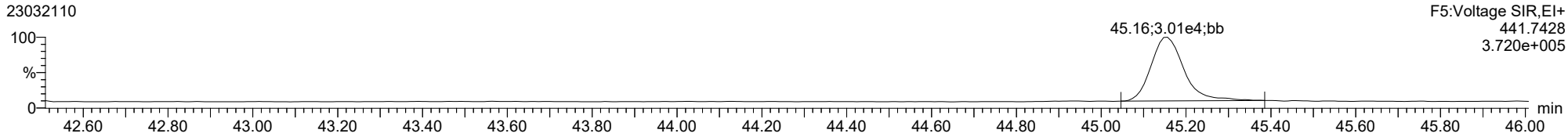


FUNCTION5 PFK

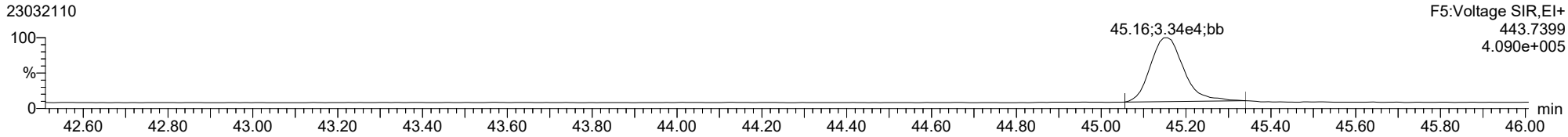


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

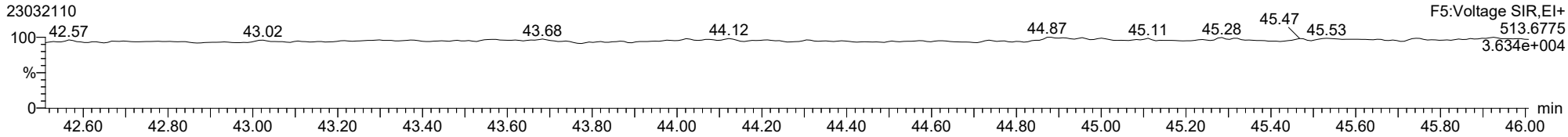
OCDF



OCDF

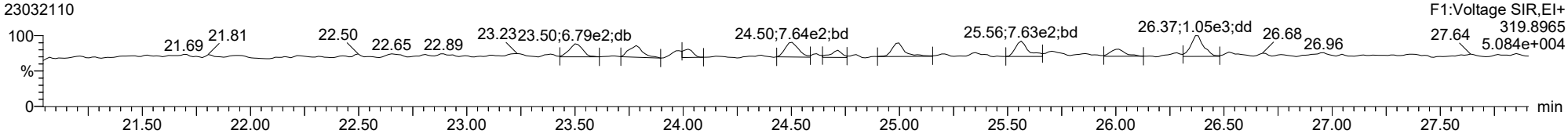


FUNCTION5 DCDPE

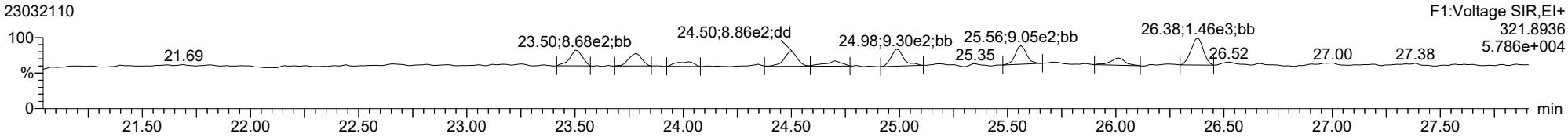


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

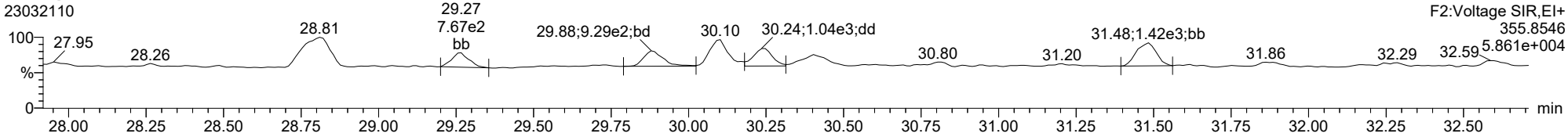
Total-tetradioxins



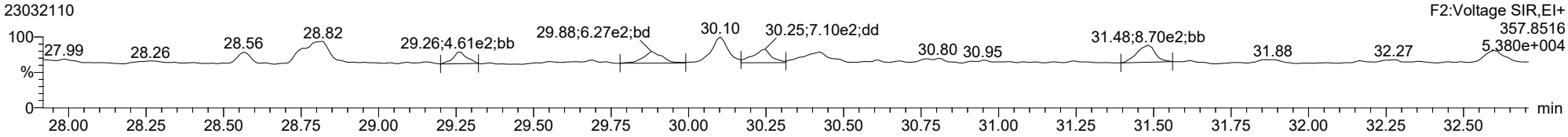
Total-tetradioxins



Total-pentadioxins

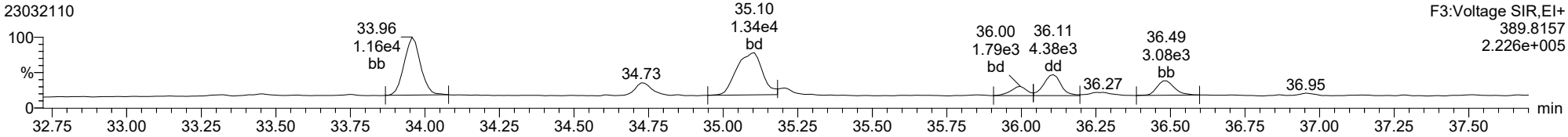


Total-pentadioxins

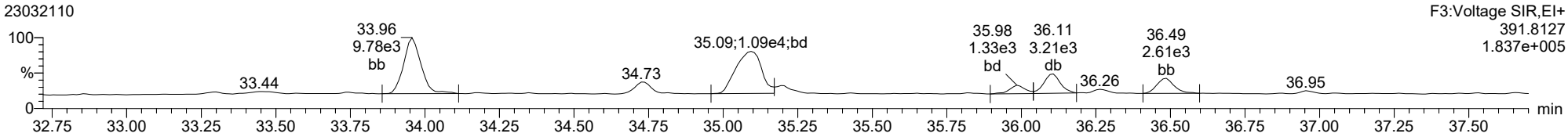


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

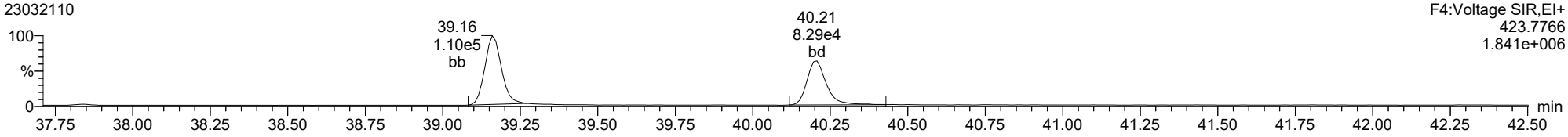
Total-hexadioxins



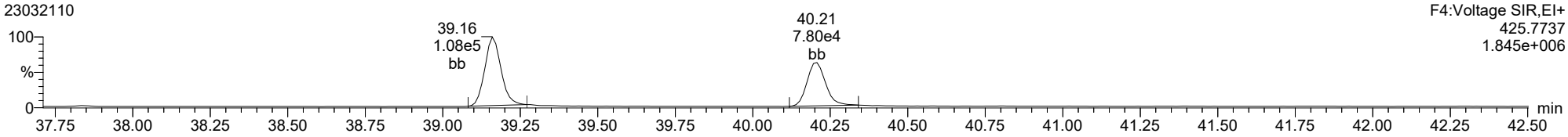
Total-hexadioxins



Total-heptadioxins

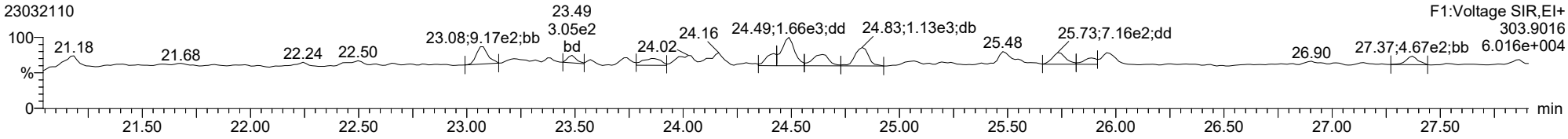


Total-heptadioxins

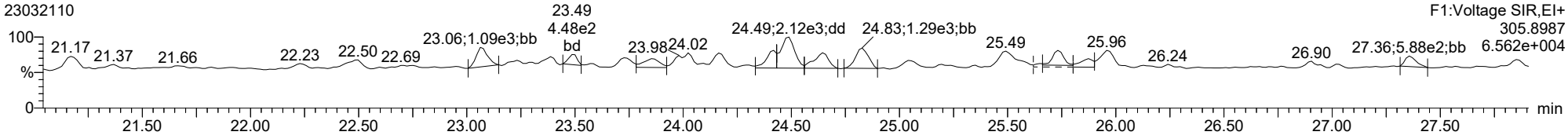


ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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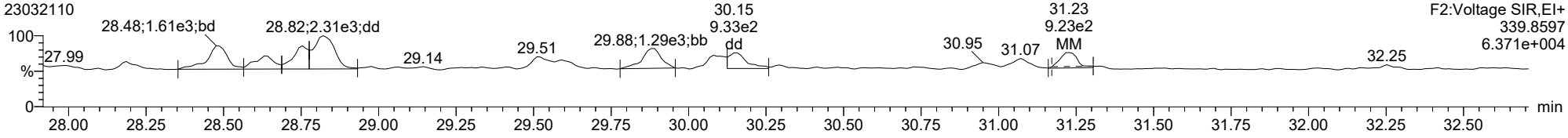

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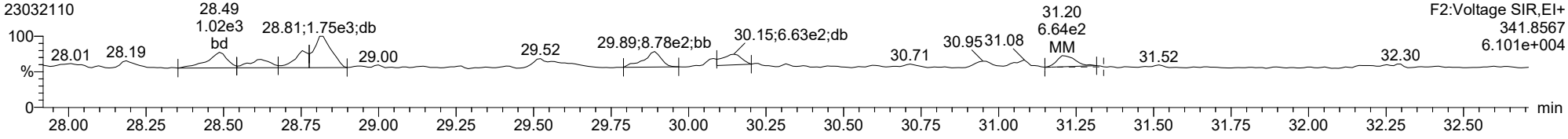

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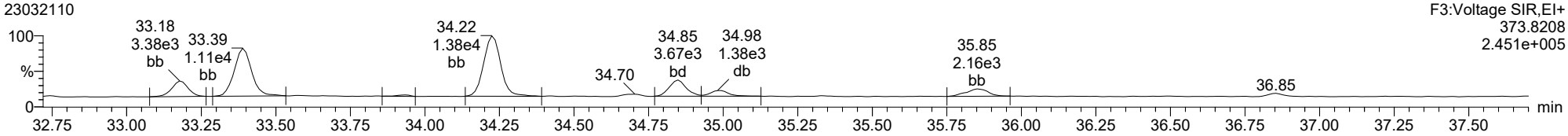
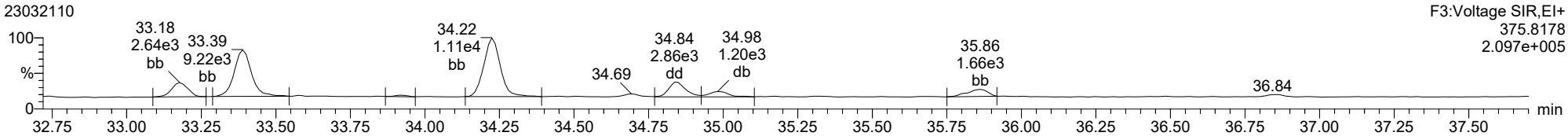
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:48:42 Pacific Daylight Time

ID: BLB0709-SRM1, Name: 23032110, Date: 21-Mar-2023, Time: 17:41:28, Conditions: AUTOSPEC01, User: pk

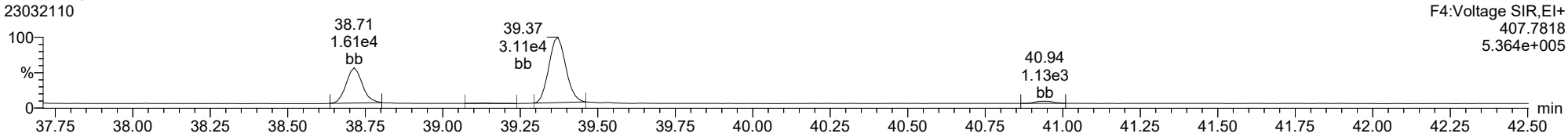
Total-hexafurans



Total-hexafurans



Total-heptafurans



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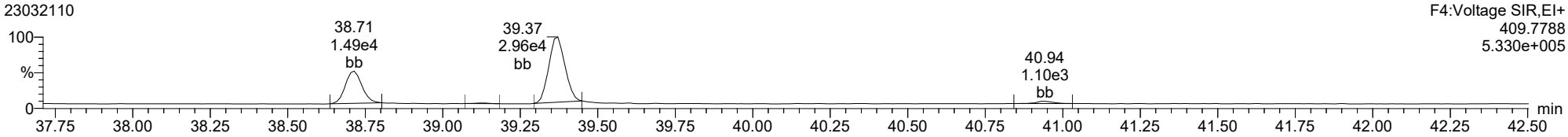

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
2,3,7,8-TCDF			0.5	0.6926363	2	0.6813224	10	0.7107923	40	0.719723	200	0.7031621
2,3,7,8-TCDD			0.5	1.116738	2	1.187915	10	1.134128	40	1.147736	200	1.156792
1,2,3,7,8-PeCDF	0.5	0.7064839	2.5	0.5889757	10	0.710829	50	0.6668491	200	0.6891968	1000	0.7130453
2,3,4,7,8-PeCDF	0.5	0.7979673	2.5	0.750268	10	0.8092124	50	0.7777683	200	0.7907891	1000	0.7910175
1,2,3,7,8-PeCDD	0.5	1.103364	2.5	0.959607	10	1.01992	50	1.019473	200	1.01999	1000	1.008719
1,2,3,4,7,8-HxCDF	0.5	1.217557	2.5	1.181192	10	1.149885	50	1.142227	200	1.15269	1000	1.152678
1,2,3,6,7,8-HxCDF	0.5	1.080855	2.5	1.053928	10	1.175308	50	1.102076	200	1.035098	1000	1.097184
2,3,4,6,7,8-HxCDF	0.5	1.045907	2.5	1.140857	10	1.199347	50	1.11691	200	1.197861	1000	1.13731
1,2,3,7,8,9-HxCDF	0.5	1.190403	2.5	1.119796	10	1.130872	50	1.147742	200	1.139146	1000	1.094601
1,2,3,4,7,8-HxCDD	0.5	1.079554	2.5	0.961704	10	0.973768	50	0.967789	200	0.9862736	1000	1.004325
1,2,3,6,7,8-HxCDD	0.5	0.9586431	2.5	0.9983677	10	0.9838912	50	1.030566	200	1.022077	1000	1.012084
1,2,3,7,8,9-HxCDD	0.5	0.930997	2.5	0.8854269	10	0.8092562	50	0.9267543	200	0.9251392	1000	0.9651099
1,2,3,4,6,7,8-HpCDF	0.5	0.934103	2.5	1.075239	10	1.011687	50	0.9661089	200	1.026311	1000	1.004508
1,2,3,4,7,8,9-HpCDF	0.5	0.8861422	2.5	0.8930411	10	1.006144	50	0.9387033	200	0.9934576	1000	1.001203
1,2,3,4,6,7,8-HpCDD	0.5	1.103772	2.5	0.971421	10	1.040117	50	1.038088	200	1.030577	1000	1.050103
OCDF	1	0.8118871	5	0.7091624	20	0.7657645	100	0.7266152	400	0.8162858	2000	0.8371317
OCDD			5	1.012935	20	0.8906655	100	0.878436	400	0.9061913	2000	0.9115405
13C12-2,3,7,8-TCDF	100	1.631571	100	1.588495	100	1.670669	100	1.492829	100	1.645068	100	1.692541
13C12-2,3,7,8-TCDD	100	1.103543	100	1.165686	100	1.103763	100	1.147762	100	1.181831	100	1.211872
13C12-1,2,3,7,8-PeCDF	100	1.373516	100	0.8861478	100	1.254697	100	1.157546	100	1.425701	100	1.345107
13C12-2,3,4,7,8-PeCDF	100	1.219579	100	0.8983995	100	1.113808	100	0.8611233	100	1.32733	100	1.286474
13C12-1,2,3,7,8-PeCDD	100	0.9177021	100	0.7002528	100	0.8365419	100	0.5962156	100	0.9821822	100	0.939983
13C12-1,2,3,4,7,8-HxCDF	100	1.152029	100	1.095885	100	1.513935	100	1.121285	100	1.094572	100	1.032122
13C12-1,2,3,6,7,8-HxCDF	100	1.353853	100	1.348693	100	1.689158	100	1.367383	100	1.37092	100	1.188788
13C12-2,3,4,6,7,8-HxCDF	100	1.092029	100	1.127896	100	1.240354	100	1.126074	100	1.087409	100	1.101774
13C12-1,2,3,7,8,9-HxCDF	100	0.8958406	100	0.9493947	100	0.9152119	100	0.9630403	100	0.8996667	100	0.9673701
13C12-1,2,3,4,7,8-HxCDD	100	0.9718531	100	0.9656819	100	1.113686	100	0.9864835	100	0.9766715	100	0.95586
13C12-1,2,3,6,7,8-HxCDD	100	1.184228	100	1.157253	100	1.278683	100	1.163318	100	1.111106	100	1.045546

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
13C12-1,2,3,4,6,7,8-HpCDF	100	0.7396157	100	0.9023055	100	1.063192	100	0.9589237	100	0.7622694	100	0.9449039
13C12-1,2,3,4,7,8,9-HpCDF	100	0.6488087	100	0.8119515	100	0.8176949	100	0.8667001	100	0.665459	100	0.8078955
13C12-1,2,3,4,6,7,8-HpCDD	100	0.724191	100	0.8737196	100	0.9555336	100	0.9094052	100	0.7229358	100	0.8549505
13C12-OCDD	200	0.701507	200	0.6312376	200	0.823691	200	0.8980531	200	0.7066522	200	0.8436876
37Cl4-2,3,7,8-TCDD	0.1	1.576039	0.5	1.320077	2	1.177166	10	1.132717	40	1.2366	200	1.284223
13C12-1,2,3,4-TCDD	100	1	100	1	100	1	100	1	100	1	100	1
13C12-1,2,3,7,8,9-HxCDD	100	1	100	1	100	1	100	1	100	1	100	1

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
2,3,7,8-TCDF	0.7015272	2.1			RSD ()	
2,3,7,8-TCDD	1.148662	2.3			RSD ()	
1,2,3,7,8-PeCDF	0.67923	7.0			RSD ()	
2,3,4,7,8-PeCDF	0.7861704	2.6			RSD ()	
1,2,3,7,8-PeCDD	1.021845	4.5			RSD ()	
1,2,3,4,7,8-HxCDF	1.166038	2.4			RSD ()	
1,2,3,6,7,8-HxCDF	1.090741	4.5			RSD ()	
2,3,4,6,7,8-HxCDF	1.139699	5.0			RSD ()	
1,2,3,7,8,9-HxCDF	1.137093	2.8			RSD ()	
1,2,3,4,7,8-HxCDD	0.9955689	4.4			RSD ()	
1,2,3,6,7,8-HxCDD	1.000938	2.7			RSD ()	
1,2,3,7,8,9-HxCDD	0.9071139	6.0			RSD ()	
1,2,3,4,6,7,8-HpCDF	1.002993	4.9			RSD ()	
1,2,3,4,7,8,9-HpCDF	0.9531152	5.8			RSD ()	
1,2,3,4,6,7,8-HpCDD	1.039013	4.1			RSD ()	
OCDF	0.7778078	6.7			RSD ()	
OCDD	0.9199537	5.8			RSD ()	
13C12-2,3,7,8-TCDF	1.620196	4.4			RSD ()	
13C12-2,3,7,8-TCDD	1.152409	3.8			RSD ()	
13C12-1,2,3,7,8-PeCDF	1.240452	15.9			RSD ()	
13C12-2,3,4,7,8-PeCDF	1.117786	17.7			RSD ()	
13C12-1,2,3,7,8-PeCDD	0.8288129	18.3			RSD ()	
13C12-1,2,3,4,7,8-HxCDF	1.168305	14.9			RSD ()	
13C12-1,2,3,6,7,8-HxCDF	1.386466	11.8			RSD ()	
13C12-2,3,4,6,7,8-HxCDF	1.129256	5.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDF	0.9317541	3.4			RSD ()	
13C12-1,2,3,4,7,8-HxCDD	0.9950393	5.9			RSD ()	
13C12-1,2,3,6,7,8-HxCDD	1.156689	6.7			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDF	0.8952017	13.8			RSD ()	
13C12-1,2,3,4,7,8,9-HpCDF	0.7697516	11.7			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDD	0.8401226	11.5			RSD ()	

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
13C12-OCDD	0.7674714	13.4			RSD ()	
37Cl4-2,3,7,8-TCDD	1.287804	12.2			RSD ()	
13C12-1,2,3,4-TCDD	1	0.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDD	1	0.0			RSD ()	

ANALYSIS SEQUENCE

SLC0045

Instrument: AUTOSPEC01 HRGCMS Column ID: K2310
Calibration ID: GC00015 Tune File: FEB0923_1-5
EM Voltage: 350 Resolution check times : 9:51, 18:18

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLC0045-ICV1	CS3W1	QC		1	K009821		03/03/2023 09:51	23030302	PK	
SLC0045-RES1	ISCW1	QC		2	L002084		03/03/2023 10:39	23030303	PK	
SLC0045-CAL1	CSLCW	QC		3	I005460		03/03/2023 11:28	23030304	PK	
SLC0045-CAL2	CS1CW	QC		4	I005456		03/03/2023 12:23	23030305	PK	
SLC0045-CAL3	CS2CW	QC		5	I005457		03/03/2023 13:16	23030306	PK	
SLC0045-CAL4	CS3CW	QC		6	K009821		03/03/2023 14:06	23030307	PK	
SLC0045-CAL5	CS4CW	QC		7	I005458		03/03/2023 14:59	23030308	PK	
SLC0045-CAL6	CS5CW	QC		8	I005459		03/03/2023 15:47	23030309	PK	
SLC0045-SCV1	ICVCW	QC		9	H008219		03/03/2023 16:36	23030310	PK	
SLC0045-CCV1	CS3V4	QC		10	K009821		03/03/2023 17:25	23030311	PK	
SLC0045-RES2	ISCV4	QC		11	L002084		03/03/2023 18:18	23030312	PK	

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 10:58:44 Pacific Standard Time

3/6/23 PK

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Calibrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:23030304, Compound:TD, RT:26.410	1
Peak deleted	Sample:23030304, Compound:OD, RT:44.990	1
Peak deleted	Sample:23030304, Compound:TF, RT:25.774	1
Pre modification peak	Sample:23030305, Compound:TF, RT:25.774	2
Peak modified	Sample:23030305, Compound:TF, RT:25.774	2
Pre modification peak	Sample:23030304, Compound:HPD, RT:40.261	1
Peak modified	Sample:23030304, Compound:HPD, RT:40.261	1
Peak deleted	Sample:23030308, Compound:PF, RT:32.328	5
Peak deleted	Sample:23030309, Compound:PF, RT:32.307	6
Peak deleted	Sample:23030309, Compound:HF, RT:33.220	6
Peak deleted	Sample:23030309, Compound:TD, RT:27.017	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.995	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.917	6
Peak deleted	Sample:23030308, Compound:HD, RT:34.000	5
Peak deleted	Sample:23030308, Compound:HPD, RT:39.225	5
Peak deleted	Sample:23030309, Compound:HPD, RT:39.214	6
Pre modification peak	Sample:23030305, Compound:OF, RT:45.237	2
Peak modified	Sample:23030305, Compound:OF, RT:45.237	2
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230303ICIH.qld'	

Dataset: T:\Autospec\Processed Data Batch\230303IHOP.qld
Last Altered: Monday, March 06, 2023 11:36:30 Pacific Standard Time
Printed: Monday, March 06, 2023 11:37:17 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS3W1, Name: 23030302, Date: 03-Mar-2023, Time: 09:51:40, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	4.469e4	5.839e4	0.702	0.765	0.770	894	1638	6.87e5	9.09e5	769.3	554.8	NO	bb	bb	9.550
12378-PeCDF	29.956	1.001	2.355e5	1.540e5	0.679	1.529	1.550	2187	1572	3.61e6	2.40e6	1652.4	1526.9	NO	bb	bb	49.641
23478-PeCDF	31.293	1.001	2.214e5	1.482e5	0.786	1.494	1.550	2187	1572	3.41e6	2.30e6	1560.8	1464.8	NO	bb	bb	47.528
123478-HxCDF	34.914	1.001	2.600e5	2.102e5	1.166	1.237	1.240	1592	1910	4.13e6	3.31e6	2594.2	1730.9	NO	bd	bd	47.118
234678-HxCDF	35.917	1.001	2.733e5	2.175e5	1.140	1.257	1.240	1592	1910	4.33e6	3.47e6	2719.2	1818.9	NO	bb	bb	49.341
123678-HxCDF	35.048	1.000	2.727e5	2.151e5	1.091	1.268	1.240	1592	1910	4.23e6	3.33e6	2659.9	1743.3	NO	db	db	49.569
123789-HxCDF	36.941	1.000	2.420e5	1.912e5	1.137	1.266	1.240	1592	1910	3.95e6	3.13e6	2482.2	1637.3	NO	bb	bb	46.959
1234678-HpCDF	38.780	1.000	1.767e5	1.776e5	1.003	0.995	1.050	1849	2300	2.99e6	3.02e6	1618.0	1311.0	NO	bb	bb	47.490
1234789-HpCDF	41.019	1.000	1.595e5	1.575e5	0.953	1.013	1.050	1849	2300	2.36e6	2.33e6	1274.2	1012.6	NO	bb	bb	50.221
OCDF	45.246	1.005	2.326e5	2.612e5	0.778	0.891	0.890	910	1225	2.82e6	3.14e6	3100.2	2559.9	NO	bb	bb	88.591
2378-TCDD	26.438	1.001	5.709e4	7.150e4	1.149	0.798	0.770	1506	757	9.09e5	1.12e6	603.1	1485.0	NO	bb	bb	9.450
12378-PeCDD	31.549	1.001	2.156e5	1.424e5	1.022	1.514	1.550	2044	1419	3.32e6	2.17e6	1626.0	1530.4	NO	bb	bb	49.654
123478-HxCDD	36.028	1.000	2.225e5	1.815e5	0.996	1.226	1.240	1845	1377	3.65e6	2.93e6	1979.4	2130.4	NO	bd	bd	50.053
123678-HxCDD	36.150	1.000	2.361e5	1.995e5	1.001	1.184	1.240	1845	1377	3.83e6	3.15e6	2076.5	2285.7	NO	db	db	49.648
123789-HxCDD	36.529	1.011	2.267e5	1.883e5	0.907	1.204	1.240	1845	1377	3.65e6	3.02e6	1979.8	2191.3	NO	bb	bb	54.229
1234678-HpCDD	40.284	1.001	1.918e5	1.891e5	1.039	1.015	1.050	2026	1655	2.99e6	2.92e6	1477.4	1764.9	NO	bb	bb	47.619
OCDD	45.008	1.000	3.015e5	3.475e5	0.920	0.868	0.890	1418	1100	3.70e6	4.29e6	2606.9	3904.9	NO	bb	bb	98.432
13C-2378-TCDF	25.774	1.007	6.611e5	8.775e5	1.620	0.753	0.770	2458	1918	1.00e7	1.34e7	4080.0	6997.2	NO	bb	bb	94.015
13C-12378-PeCDF	29.934	1.169	6.937e5	4.618e5	1.240	1.502	1.550	2176	1857	1.07e7	7.10e6	4925.2	3826.5	NO	bb	bb	92.213
13C-23478-PeCDF	31.271	1.221	5.928e5	3.963e5	1.118	1.496	1.550	2176	1857	9.20e6	6.25e6	4229.1	3368.5	NO	bb	bb	87.601
13C-123478-HxCDF	34.891	0.955	2.871e5	5.687e5	1.168	0.505	0.510	1657	1593	4.56e6	9.04e6	2750.7	5674.1	NO	bd	bd	84.013
13C-123678-HxCDF	35.036	0.959	3.069e5	5.954e5	1.386	0.515	0.510	1657	1593	4.75e6	9.14e6	2868.0	5738.5	NO	db	db	74.642
13C-234678-HxCDF	35.894	0.983	2.954e5	5.775e5	1.129	0.512	0.510	1657	1593	4.85e6	9.48e6	2926.1	5951.0	NO	bb	bb	88.651
13C-123789-HxCDF	36.930	1.011	2.724e5	5.390e5	0.932	0.505	0.510	1657	1593	4.39e6	8.57e6	2648.2	5379.8	NO	bb	bb	99.871
13C-1234678-HpCDF	38.769	1.062	2.262e5	5.177e5	0.895	0.437	0.440	2036	2545	3.83e6	8.70e6	1881.8	3416.5	NO	bb	bb	95.295
13C-1234789-HpCDF	41.008	1.123	1.995e5	4.627e5	0.770	0.431	0.440	2036	2545	2.95e6	6.70e6	1450.8	2632.3	NO	bb	bb	98.667
13C-1234-TCDD	25.605	0.000	4.500e5	5.601e5	1.000	0.803	0.770	1910	1117	7.08e6	8.81e6	3705.2	7891.1	NO	bb	bb	100.000
13C-2378-TCDD	26.424	1.032	5.241e5	6.605e5	1.152	0.794	0.770	1910	1117	7.92e6	9.96e6	4144.8	8917.7	NO	bb	bb	101.762
13C-12378-PeCDD	31.527	1.231	4.348e5	2.708e5	0.829	1.606	1.550	951	872	6.72e6	4.16e6	7062.4	4771.1	NO	bb	bb	84.283
13C-123478-HxCDD	36.017	0.986	4.575e5	3.533e5	0.995	1.295	1.240	1714	1036	7.67e6	5.90e6	4475.1	5696.2	NO	bd	bd	93.458
13C-123678-HxCDD	36.139	0.990	4.929e5	3.835e5	1.157	1.285	1.240	1714	1036	7.72e6	6.07e6	4504.9	5859.4	NO	db	db	86.905
13C-1234678-HpCDD	40.262	1.103	3.870e5	3.828e5	0.840	1.011	1.050	1736	1260	5.92e6	5.62e6	3411.3	4462.2	NO	bb	bb	105.085
13C-OCDD	44.999	1.232	6.781e5	7.554e5	0.767	0.898	0.890	1440	1232	8.22e6	9.13e6	5710.3	7413.0	NO	bb	bb	214.218
13C-123789-HxCDD	36.518	0.000	4.889e5	3.830e5	1.000	1.277	1.240	1714	1036	7.91e6	6.13e6	4618.2	5918.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.438	1.033	1.177e5		1.288			2053		1.80e6		877.6			bb		9.046

Dataset: T:\Autospec\Processed Data Batch\230303IHOP.qld
Last Altered: Monday, March 06, 2023 11:36:30 Pacific Standard Time
Printed: Monday, March 06, 2023 11:37:17 Pacific Standard Time

ID: CS3W1, Name: 23030302, Date: 03-Mar-2023, Time: 09:51:40, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.285	0.865	4.825e4	6.619e4	0.802	0.729	0.770	894	1638	7.69e5	1.08e6	860.8	657.5	NO	bb	bb	9.280
1289-TCDF	27.286	1.059	4.233e4	5.922e4	0.678	0.715	0.770	894	1638	6.48e5	8.96e5	725.0	547.0	NO	db	db	9.735
13468-PECDF	27.145	0.907	4.529e5	2.964e5	1.246	1.528	1.550	639	866	7.07e6	4.64e6	11052.6	5356.5	NO	bb	bb	52.031
12389-PECDF	32.329	1.080	1.727e5	1.137e5	0.496	1.519	1.550	2187	1572	2.66e6	1.70e6	1217.2	1080.5	NO	bb	bb	49.938
123468-HXCDF	33.243	0.953	2.450e5	1.964e5	1.169	1.248	1.240	1592	1910	3.71e6	2.99e6	2333.1	1567.3	NO	bb	bb	44.113
1368-TCDD	23.571	0.892	5.082e4	6.674e4	1.015	0.761	0.770	1506	757	8.30e5	1.09e6	551.2	1438.0	NO	bb	bb	9.774
1289-TCDD	27.031	1.023	4.817e4	6.482e4	0.909	0.743	0.770	1506	757	7.39e5	9.76e5	490.7	1289.2	NO	bb	bb	10.496
12479-PECDD	28.831	0.914	4.117e5	2.743e5	2.301	1.501	1.550	2044	1419	3.99e6	2.64e6	1950.7	1862.6	NO	bb	bb	42.238
12389-PECDD	31.939	1.013	2.280e5	1.502e5	1.184	1.518	1.550	2044	1419	3.50e6	2.32e6	1711.4	1633.6	NO	bb	bb	45.288
124679-HXCDD	34.022	0.945	2.111e5	1.738e5	1.115	1.214	1.240	1845	1377	3.36e6	2.72e6	1819.4	1971.8	NO	bb	bb	42.563
1234679-HPCDD	39.236	0.975	2.063e5	2.043e5	1.137	1.010	1.050	2026	1655	3.38e6	3.38e6	1668.0	2041.4	NO	bb	bb	46.924
Total-tetrafurans			1.368e5		0.727			894		2.13e6							28.888
Total-penta1			4.529e5					639		7.07e6							52.031
Total-pentafurans			6.685e5		0.654			2187		1.03e7							156.333
Total-hexafurans			1.293e6		1.141			1592		2.04e7							237.100
Total-heptafurans			3.381e5		0.978			1849		5.38e6							98.217
Total-Furans			3.122e6		0.922			894		4.80e7							661.160
Total-tetradioxins			2.626e5		1.024			1506		3.74e6							49.711
Total-pentadioxins			8.563e5		1.502			2044		1.08e7							137.339
Total-hexadioxins			8.975e5		1.005			1845		1.45e7							196.701
Total-heptadioxins			3.982e5		1.088			2026		6.38e6							94.566
Total-Dioxins			2.716e6		1.130			1506		3.92e7							576.750
Total-TEQ			5.838e6					1506		8.72e7							1237.909
FUNCTION1 PFK			0.000e0					705807		0.00e0							
FUNCTION2 PFK			1.098e6					272509		2.65e6							0.000
FUNCTION3 PFK			8.030e5					419872		3.44e6							0.000
FUNCTION4 PFK			2.346e5					346452		6.90e6							
FUNCTION5 PFK			5.429e4					176842		2.44e6							
FUNCTION1 HXCD...			8.708e2					511		1.38e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.374e3					1181		2.70e4							0.000
FUNCTION3 OCDPE			4.232e2					570		6.10e3							0.000
FUNCTION4 NCDPE			7.938e2					683		4.57e3							0.000
FUNCTION5 DCDPE			0.000e0					526		0.00e0							

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS3W1, Name: 23030302, Date: 03-Mar-2023, Time: 09:51:40, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.233e4	5.922e4	0.678	0.71	0.77	725.0	YES	NO	db	db	9.735
2	Total-tetrafurans	27.16	6.976e2	1.059e3	0.727	0.66	0.77	14.1	YES	NO	bd	bd	0.157
3	2378-TCDF	25.79	4.469e4	5.839e4	0.702	0.77	0.77	769.3	YES	NO	bb	bb	9.550
4	Total-tetrafurans	24.88	4.805e2	5.664e2	0.727	0.85	0.77	7.5	YES	NO	bb	bb	0.094
5	Total-tetrafurans	24.57	3.491e2	4.664e2	0.727	0.75	0.77	6.2	YES	NO	bd	bd	0.073
6	1368-TCDF	22.29	4.825e4	6.619e4	0.802	0.73	0.77	860.8	YES	NO	bb	bb	9.280

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.14	4.529e5	2.964e5	1.246	1.53	1.55	11052.6	YES	NO	bb	bb	52.031

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.96	2.355e5	1.540e5	0.679	1.53	1.55	1652.4	YES	NO	bb	bb	49.641
2	Total-pentafurans	28.81	3.891e4	2.579e4	0.654	1.51	1.55	273.1	YES	NO	bb	bb	9.226
3	12389-PECDF	32.33	1.727e5	1.137e5	0.496	1.52	1.55	1217.2	YES	NO	bb	bb	49.938
4	23478-PeCDF	31.29	2.214e5	1.482e5	0.786	1.49	1.55	1560.8	YES	NO	bb	bb	47.528

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	2.420e5	1.912e5	1.137	1.27	1.24	2482.2	YES	NO	bb	bb	46.959
2	234678-HxCDF	35.92	2.733e5	2.175e5	1.140	1.26	1.24	2719.2	YES	NO	bb	bb	49.341
3	123678-HxCDF	35.05	2.727e5	2.151e5	1.091	1.27	1.24	2659.9	YES	NO	db	db	49.569
4	123478-HxCDF	34.91	2.600e5	2.102e5	1.166	1.24	1.24	2594.2	YES	NO	bd	bd	47.118
5	123468-HXCDF	33.24	2.450e5	1.964e5	1.169	1.25	1.24	2333.1	YES	NO	bb	bb	44.113

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	41.38	1.097e2	1.037e2	0.978	1.06	1.05	1.8	NO	NO	bb	bb	0.031
2	1234789-HpCDF	41.02	1.595e5	1.575e5	0.953	1.01	1.05	1274.2	YES	NO	bb	bb	50.221
3	Total-heptafurans	39.45	1.654e3	1.420e3	0.978	1.17	1.05	14.3	YES	NO	bb	bb	0.447
4	Total-heptafurans	39.28	9.725e1	9.433e1	0.978	1.03	1.05	1.5	NO	NO	bb	bb	0.028
5	1234678-HpCDF	38.78	1.767e5	1.776e5	1.003	1.00	1.05	1618.0	YES	NO	bb	bb	47.490

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.233e4	5.922e4	0.678	0.71	0.77	725.0	YES	NO	db	db	9.735
2	Total-tetrafurans	27.16	6.976e2	1.059e3	0.727	0.66	0.77	14.1	YES	NO	bd	bd	0.157
3	2378-TCDF	25.79	4.469e4	5.839e4	0.702	0.77	0.77	769.3	YES	NO	bb	bb	9.550
4	Total-tetrafurans	24.88	4.805e2	5.664e2	0.727	0.85	0.77	7.5	YES	NO	bb	bb	0.094
5	Total-tetrafurans	24.57	3.491e2	4.664e2	0.727	0.75	0.77	6.2	YES	NO	bd	bd	0.073
6	1368-TCDF	22.29	4.825e4	6.619e4	0.802	0.73	0.77	860.8	YES	NO	bb	bb	9.280
7	12378-PeCDF	29.96	2.355e5	1.540e5	0.679	1.53	1.55	1652.4	YES	NO	bb	bb	49.641
8	Total-pentafurans	28.81	3.891e4	2.579e4	0.654	1.51	1.55	273.1	YES	NO	bb	bb	9.226
9	12389-PECDF	32.33	1.727e5	1.137e5	0.496	1.52	1.55	1217.2	YES	NO	bb	bb	49.938
10	23478-PeCDF	31.29	2.214e5	1.482e5	0.786	1.49	1.55	1560.8	YES	NO	bb	bb	47.528
11	123789-HxCDF	36.94	2.420e5	1.912e5	1.137	1.27	1.24	2482.2	YES	NO	bb	bb	46.959
12	234678-HxCDF	35.92	2.733e5	2.175e5	1.140	1.26	1.24	2719.2	YES	NO	bb	bb	49.341
13	123678-HxCDF	35.05	2.727e5	2.151e5	1.091	1.27	1.24	2659.9	YES	NO	db	db	49.569
14	123478-HxCDF	34.91	2.600e5	2.102e5	1.166	1.24	1.24	2594.2	YES	NO	bd	bd	47.118
15	123468-HXCDF	33.24	2.450e5	1.964e5	1.169	1.25	1.24	2333.1	YES	NO	bb	bb	44.113
16	Total-heptafurans	41.38	1.097e2	1.037e2	0.978	1.06	1.05	1.8	NO	NO	bb	bb	0.031
17	1234789-HpCDF	41.02	1.595e5	1.575e5	0.953	1.01	1.05	1274.2	YES	NO	bb	bb	50.221
18	Total-heptafurans	39.45	1.654e3	1.420e3	0.978	1.17	1.05	14.3	YES	NO	bb	bb	0.447
19	Total-heptafurans	39.28	9.725e1	9.433e1	0.978	1.03	1.05	1.5	NO	NO	bb	bb	0.028
20	1234678-HpCDF	38.78	1.767e5	1.776e5	1.003	1.00	1.05	1618.0	YES	NO	bb	bb	47.490
21	OCDF	45.25	2.326e5	2.612e5	0.778	0.89	0.89	3100.2	YES	NO	bb	bb	88.591
22	13468-PECDF	27.14	4.529e5	2.964e5	1.246	1.53	1.55	11052.6	YES	NO	bb	bb	52.031

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.57	5.082e4	6.674e4	1.015	0.76	0.77	551.2	YES	NO	bb	bb	9.774
2	1289-TCDD	27.03	4.817e4	6.482e4	0.909	0.74	0.77	490.7	YES	NO	bb	bb	10.496
3	2378-TCDD	26.44	5.709e4	7.150e4	1.149	0.80	0.77	603.1	YES	NO	bb	bb	9.450
4	Total-tetradioxins	26.11	8.149e4	1.045e5	1.024	0.78	0.77	583.1	YES	NO	bb	bb	15.330
5	Total-tetradioxins	25.62	2.499e4	3.156e4	1.024	0.79	0.77	257.1	YES	NO	bb	bb	4.660

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.94	2.280e5	1.502e5	1.184	1.52	1.55	1711.4	YES	NO	bb	bb	45.288
2	12378-PeCDD	31.55	2.156e5	1.424e5	1.022	1.51	1.55	1626.0	YES	NO	bb	bb	49.654
3	Total-pentadioxins	30.87	1.016e3	6.817e2	1.502	1.49	1.55	7.9	YES	NO	bb	bb	0.160
4	12479-PECDD	28.83	4.117e5	2.743e5	2.301	1.50	1.55	1950.7	YES	NO	bb	bb	42.238

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	2.267e5	1.883e5	0.907	1.20	1.24	1979.8	YES	NO	bb	bb	54.229
2	123678-HxCDD	36.15	2.361e5	1.995e5	1.001	1.18	1.24	2076.5	YES	NO	db	db	49.648
3	123478-HxCDD	36.03	2.225e5	1.815e5	0.996	1.23	1.24	1979.4	YES	NO	bd	bd	50.053
4	Total-hexadioxins	35.14	9.946e2	7.755e2	1.005	1.28	1.24	9.3	YES	NO	db	bd	0.209
5	124679-HXCDD	34.02	2.111e5	1.738e5	1.115	1.21	1.24	1819.4	YES	NO	bb	bb	42.563

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.24	2.063e5	2.043e5	1.137	1.01	1.05	1668.0	YES	NO	bb	bb	46.924
2	Total-heptadioxins	40.58	1.040e2	8.729e1	1.088	1.19	1.05	2.1	NO	NO	bb	bb	0.023
3	1234678-HpCDD	40.28	1.918e5	1.891e5	1.039	1.01	1.05	1477.4	YES	NO	bb	bb	47.619

Dataset: T:\Autospec\Processed Data Batch\230303IHOP.qld
Last Altered: Monday, March 06, 2023 11:36:30 Pacific Standard Time
Printed: Monday, March 06, 2023 11:37:17 Pacific Standard Time

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.57	5.082e4	6.674e4	1.015	0.76	0.77	551.2	YES	NO	bb	bb	9.774
2	1289-TCDD	27.03	4.817e4	6.482e4	0.909	0.74	0.77	490.7	YES	NO	bb	bb	10.496
3	2378-TCDD	26.44	5.709e4	7.150e4	1.149	0.80	0.77	603.1	YES	NO	bb	bb	9.450
4	Total-tetradioxins	26.11	8.149e4	1.045e5	1.024	0.78	0.77	583.1	YES	NO	bb	bb	15.330
5	Total-tetradioxins	25.62	2.499e4	3.156e4	1.024	0.79	0.77	257.1	YES	NO	bb	bb	4.660
6	12389-PECDD	31.94	2.280e5	1.502e5	1.184	1.52	1.55	1711.4	YES	NO	bb	bb	45.288
7	12378-PeCDD	31.55	2.156e5	1.424e5	1.022	1.51	1.55	1626.0	YES	NO	bb	bb	49.654
8	Total-pentadioxins	30.87	1.016e3	6.817e2	1.502	1.49	1.55	7.9	YES	NO	bb	bb	0.160
9	12479-PECDD	28.83	4.117e5	2.743e5	2.301	1.50	1.55	1950.7	YES	NO	bb	bb	42.238
10	123789-HxCDD	36.53	2.267e5	1.883e5	0.907	1.20	1.24	1979.8	YES	NO	bb	bb	54.229
11	123678-HxCDD	36.15	2.361e5	1.995e5	1.001	1.18	1.24	2076.5	YES	NO	db	db	49.648
12	123478-HxCDD	36.03	2.225e5	1.815e5	0.996	1.23	1.24	1979.4	YES	NO	bd	bd	50.053
13	Total-hexadioxins	35.14	9.946e2	7.755e2	1.005	1.28	1.24	9.3	YES	NO	db	bd	0.209
14	124679-HXCDD	34.02	2.111e5	1.738e5	1.115	1.21	1.24	1819.4	YES	NO	bb	bb	42.563
15	1234679-HPCDD	39.24	2.063e5	2.043e5	1.137	1.01	1.05	1668.0	YES	NO	bb	bb	46.924
16	Total-heptadioxins	40.58	1.040e2	8.729e1	1.088	1.19	1.05	2.1	NO	NO	bb	bb	0.023
17	1234678-HpCDD	40.28	1.918e5	1.891e5	1.039	1.01	1.05	1477.4	YES	NO	bb	bb	47.619
18	OCDD	45.01	3.015e5	3.475e5	0.920	0.87	0.89	2606.9	YES	NO	bb	bb	98.432

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.233e4	5.922e4	0.678	0.71	0.77	725.0	YES	NO	db	db	9.735
2	Total-tetrafurans	27.16	6.976e2	1.059e3	0.727	0.66	0.77	14.1	YES	NO	bd	bd	0.157
3	2378-TCDF	25.79	4.469e4	5.839e4	0.702	0.77	0.77	769.3	YES	NO	bb	bb	9.550
4	Total-tetrafurans	24.88	4.805e2	5.664e2	0.727	0.85	0.77	7.5	YES	NO	bb	bb	0.094
5	Total-tetrafurans	24.57	3.491e2	4.664e2	0.727	0.75	0.77	6.2	YES	NO	bd	bd	0.073
6	1368-TCDF	22.29	4.825e4	6.619e4	0.802	0.73	0.77	860.8	YES	NO	bb	bb	9.280
7	12378-PeCDF	29.96	2.355e5	1.540e5	0.679	1.53	1.55	1652.4	YES	NO	bb	bb	49.641
8	Total-pentafurans	28.81	3.891e4	2.579e4	0.654	1.51	1.55	273.1	YES	NO	bb	bb	9.226
9	12389-PECDF	32.33	1.727e5	1.137e5	0.496	1.52	1.55	1217.2	YES	NO	bb	bb	49.938
10	23478-PeCDF	31.29	2.214e5	1.482e5	0.786	1.49	1.55	1560.8	YES	NO	bb	bb	47.528
11	123789-HxCDF	36.94	2.420e5	1.912e5	1.137	1.27	1.24	2482.2	YES	NO	bb	bb	46.959
12	234678-HxCDF	35.92	2.733e5	2.175e5	1.140	1.26	1.24	2719.2	YES	NO	bb	bb	49.341
13	123678-HxCDF	35.05	2.727e5	2.151e5	1.091	1.27	1.24	2659.9	YES	NO	db	db	49.569
14	123478-HxCDF	34.91	2.600e5	2.102e5	1.166	1.24	1.24	2594.2	YES	NO	bd	bd	47.118
15	123468-HXCDF	33.24	2.450e5	1.964e5	1.169	1.25	1.24	2333.1	YES	NO	bb	bb	44.113
16	Total-heptafurans	41.38	1.097e2	1.037e2	0.978	1.06	1.05	1.8	NO	NO	bb	bb	0.031
17	1234789-HpCDF	41.02	1.595e5	1.575e5	0.953	1.01	1.05	1274.2	YES	NO	bb	bb	50.221
18	Total-heptafurans	39.45	1.654e3	1.420e3	0.978	1.17	1.05	14.3	YES	NO	bb	bb	0.447
19	Total-heptafurans	39.28	9.725e1	9.433e1	0.978	1.03	1.05	1.5	NO	NO	bb	bb	0.028
20	1234678-HpCDF	38.78	1.767e5	1.776e5	1.003	1.00	1.05	1618.0	YES	NO	bb	bb	47.490
21	OCDF	45.25	2.326e5	2.612e5	0.778	0.89	0.89	3100.2	YES	NO	bb	bb	88.591
22	13468-PECDF	27.14	4.529e5	2.964e5	1.246	1.53	1.55	11052.6	YES	NO	bb	bb	52.031
23	1368-TCDD	23.57	5.082e4	6.674e4	1.015	0.76	0.77	551.2	YES	NO	bb	bb	9.774
24	1289-TCDD	27.03	4.817e4	6.482e4	0.909	0.74	0.77	490.7	YES	NO	bb	bb	10.496
25	2378-TCDD	26.44	5.709e4	7.150e4	1.149	0.80	0.77	603.1	YES	NO	bb	bb	9.450
26	Total-tetradioxins	26.11	8.149e4	1.045e5	1.024	0.78	0.77	583.1	YES	NO	bb	bb	15.330
27	Total-tetradioxins	25.62	2.499e4	3.156e4	1.024	0.79	0.77	257.1	YES	NO	bb	bb	4.660
28	12389-PECDD	31.94	2.280e5	1.502e5	1.184	1.52	1.55	1711.4	YES	NO	bb	bb	45.288
29	12378-PeCDD	31.55	2.156e5	1.424e5	1.022	1.51	1.55	1626.0	YES	NO	bb	bb	49.654
30	Total-pentadioxins	30.87	1.016e3	6.817e2	1.502	1.49	1.55	7.9	YES	NO	bb	bb	0.160
31	12479-PECDD	28.83	4.117e5	2.743e5	2.301	1.50	1.55	1950.7	YES	NO	bb	bb	42.238
32	123789-HxCDD	36.53	2.267e5	1.883e5	0.907	1.20	1.24	1979.8	YES	NO	bb	bb	54.229
33	123678-HxCDD	36.15	2.361e5	1.995e5	1.001	1.18	1.24	2076.5	YES	NO	db	db	49.648
34	123478-HxCDD	36.03	2.225e5	1.815e5	0.996	1.23	1.24	1979.4	YES	NO	bd	bd	50.053
35	Total-hexadioxins	35.14	9.946e2	7.755e2	1.005	1.28	1.24	9.3	YES	NO	db	bd	0.209
36	124679-HXCDD	34.02	2.111e5	1.738e5	1.115	1.21	1.24	1819.4	YES	NO	bb	bb	42.563
37	1234679-HPCDD	39.24	2.063e5	2.043e5	1.137	1.01	1.05	1668.0	YES	NO	bb	bb	46.924

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-heptadioxins	40.58	1.040e2	8.729e1	1.088	1.19	1.05	2.1	NO	NO	bb	bb	0.023
39	1234678-HpCDD	40.28	1.918e5	1.891e5	1.039	1.01	1.05	1477.4	YES	NO	bb	bb	47.619
40	OCDD	45.01	3.015e5	3.475e5	0.920	0.87	0.89	2606.9	YES	NO	bb	bb	98.432

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.96	1.058e5					1.1	NO		bb		0.000
2	FUNCTION2 PFK	30.15	5.471e5					3.7	YES		bb		0.000
3	FUNCTION2 PFK	28.28	4.455e5					4.9	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.89	2.667e5					4.7	YES		bb		0.000
2	FUNCTION3 PFK	33.03	5.362e5					3.5	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.07	4.905e4					2.0	NO		db		
2	FUNCTION4 PFK	37.96	1.071e4					1.3	NO		bd		
3	FUNCTION4 PFK	37.89	4.848e3					0.7	NO		bb		
4	FUNCTION4 PFK	42.18	1.359e4					1.2	NO		bb		
5	FUNCTION4 PFK	41.91	8.056e3					0.9	NO		db		
6	FUNCTION4 PFK	41.83	2.292e4					1.6	NO		bd		
7	FUNCTION4 PFK	41.77	1.673e4					1.5	NO		bb		
8	FUNCTION4 PFK	41.48	1.418e4					1.4	NO		bb		
9	FUNCTION4 PFK	41.32	2.104e3					0.5	NO		bb		
10	FUNCTION4 PFK	41.13	8.695e3					1.0	NO		bb		
11	FUNCTION4 PFK	40.63	8.163e3					0.8	NO		bb		
12	FUNCTION4 PFK	40.08	1.008e4					1.1	NO		db		
13	FUNCTION4 PFK	40.04	1.572e4					1.4	NO		bd		
14	FUNCTION4 PFK	39.51	7.181e3					1.0	NO		bb		
15	FUNCTION4 PFK	39.44	5.021e3					0.7	NO		bb		
16	FUNCTION4 PFK	38.96	9.511e3					1.3	NO		db		
17	FUNCTION4 PFK	38.92	2.806e4					1.5	NO		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.57	1.411e3					0.9	NO		bb		
2	FUNCTION5 PFK	45.95	2.307e4					3.9	YES		bb		
3	FUNCTION5 PFK	45.69	1.018e3					0.6	NO		bb		
4	FUNCTION5 PFK	45.54	1.146e3					0.7	NO		bb		
5	FUNCTION5 PFK	45.12	9.805e3					2.3	NO		bb		
6	FUNCTION5 PFK	44.83	5.276e3					1.3	NO		bb		
7	FUNCTION5 PFK	44.58	5.554e3					1.4	NO		bb		
8	FUNCTION5 PFK	44.38	2.760e3					0.9	NO		db		
9	FUNCTION5 PFK	44.35	3.252e3					1.1	NO		bd		
10	FUNCTION5 PFK	42.99	9.959e2					0.6	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.01	7.970e1					3.2	YES		bb		0.000
2	FUNCTION1 HXCD...	23.47	8.919e1					3.0	YES		db		0.000
3	FUNCTION1 HXCD...	23.40	8.065e1					2.9	NO		dd		0.000
4	FUNCTION1 HXCD...	23.32	1.305e2					3.4	YES		dd		0.000
5	FUNCTION1 HXCD...	23.22	1.146e2					2.8	NO		bd		0.000
6	FUNCTION1 HXCD...	22.41	7.936e1					4.3	YES		bb		0.000
7	FUNCTION1 HXCD...	27.40	7.698e1					2.2	NO		bb		0.000
8	FUNCTION1 HXCD...	27.14	1.376e2					3.3	YES		bb		0.000
9	FUNCTION1 HXCD...	25.79	8.222e1					1.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.53	2.999e2					2.9	NO		bb		0.000
2	FUNCTION2 HPCD...	31.17	3.219e2					4.5	YES		bb		0.000
3	FUNCTION2 HPCD...	29.58	8.369e1					1.2	NO		db		0.000
4	FUNCTION2 HPCD...	29.50	8.185e1					1.4	NO		bd		0.000
5	FUNCTION2 HPCD...	29.43	9.066e1					2.2	NO		bb		0.000
6	FUNCTION2 HPCD...	28.26	1.049e2					2.5	NO		db		0.000
7	FUNCTION2 HPCD...	28.22	1.658e2					2.8	NO		bd		0.000
8	FUNCTION2 HPCD...	28.15	1.360e2					3.3	YES		db		0.000
9	FUNCTION2 HPCD...	28.11	8.921e1					2.1	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.53	2.562e2					6.2	YES		bb		0.000
2	FUNCTION3 OCDPE	36.14	1.671e2					4.5	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.04	8.282e1					2.4	NO		bb		0.000
2	FUNCTION4 NCDPE	38.07	5.777e2					4.3	YES		bb		0.000
3	FUNCTION4 NCDPE	37.82	1.333e2					0.0	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
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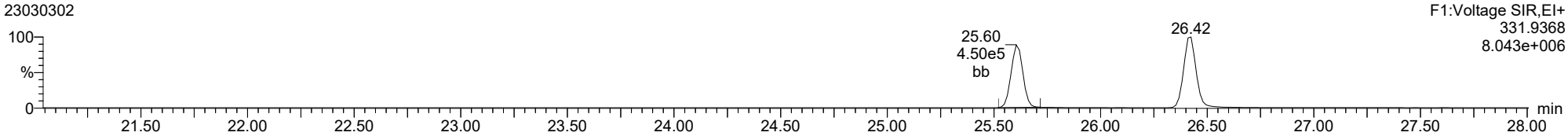
ID: CS3W1, Name: 23030302, Date: 03-Mar-2023, Time: 09:51:40, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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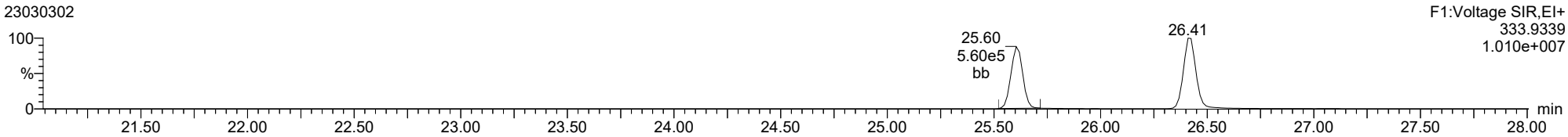
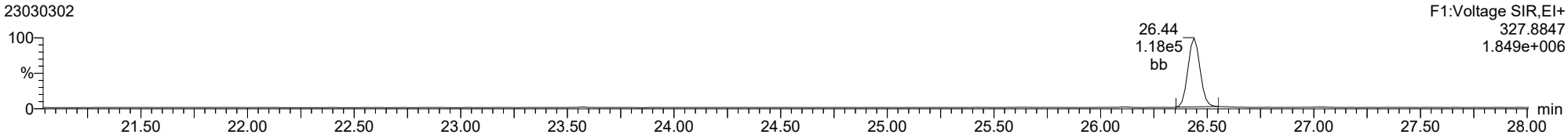


37CL-2378-TCDD



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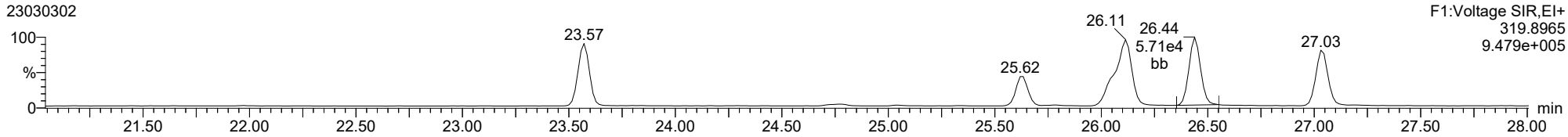

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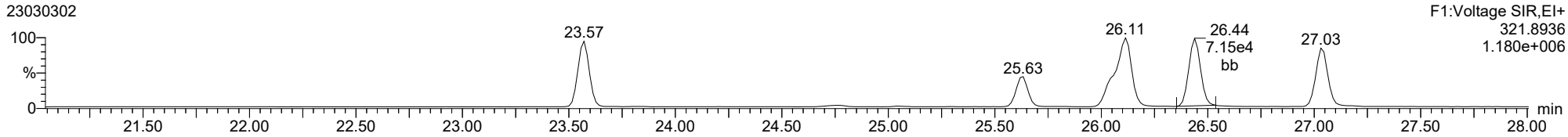

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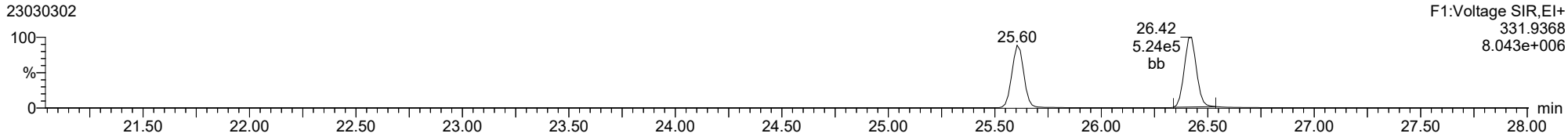

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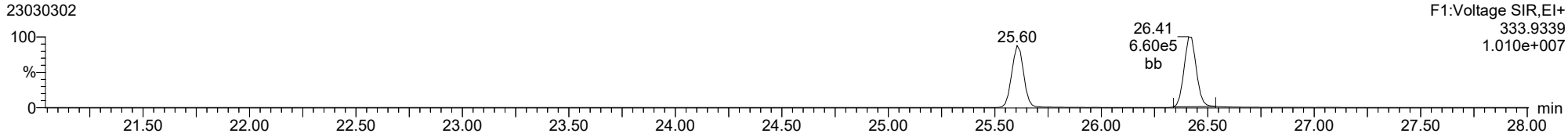

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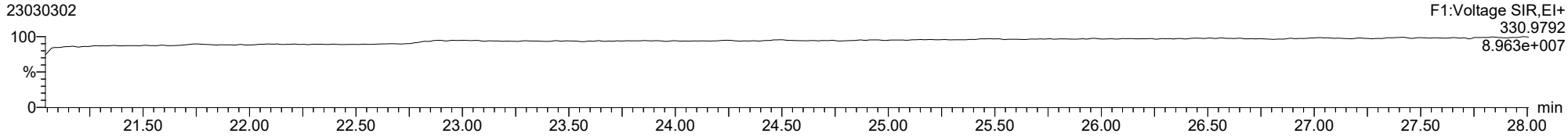

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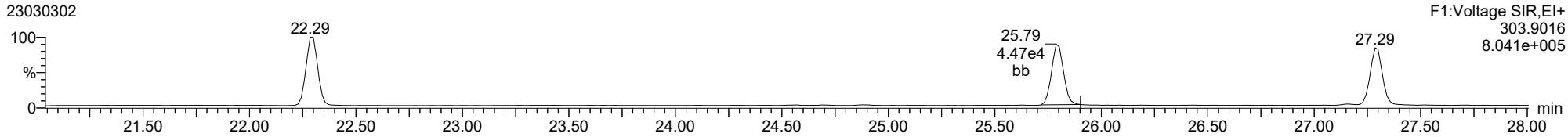

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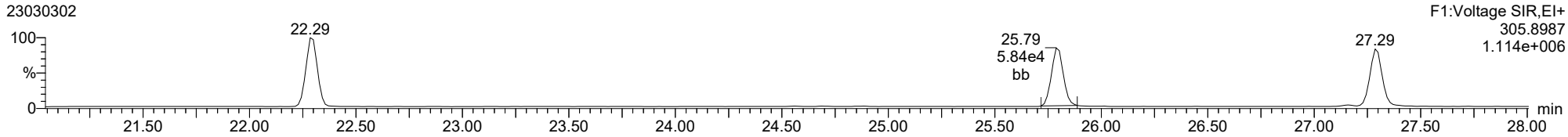

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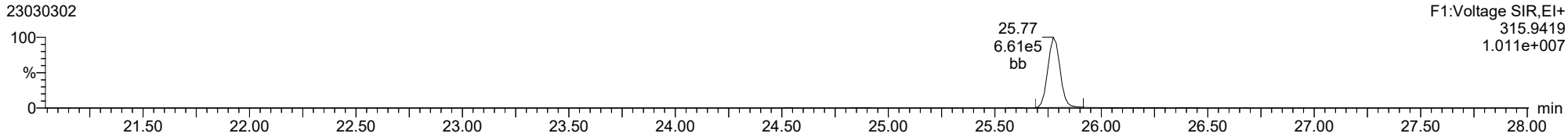

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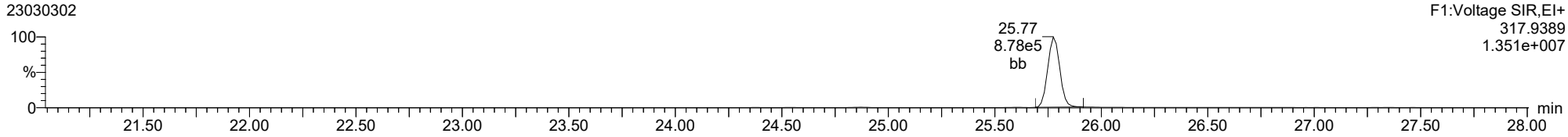
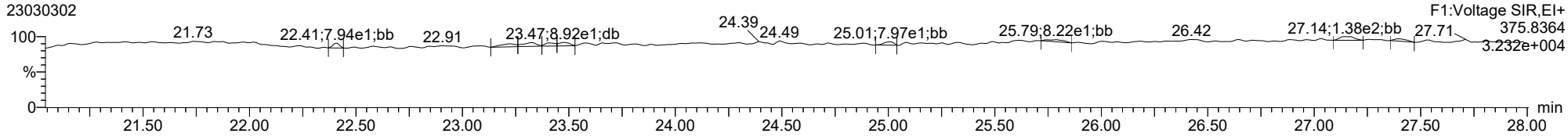


FUNCTION1 HXCDPE



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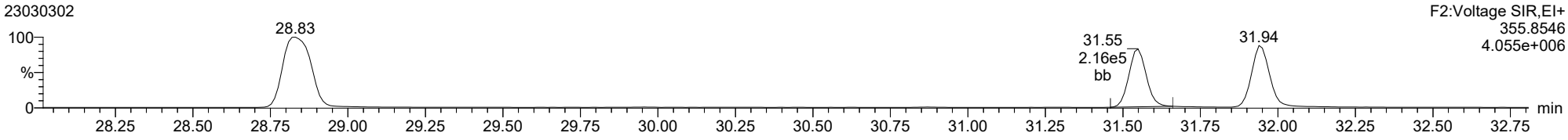
12378-PeCDD



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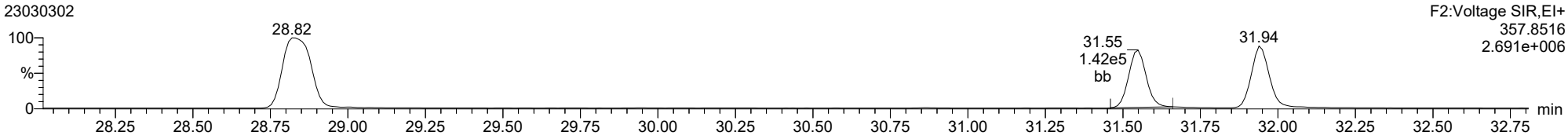

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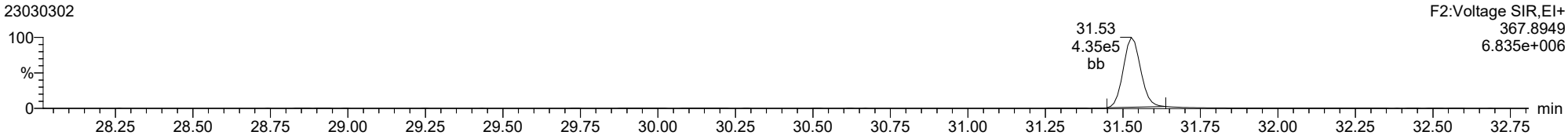

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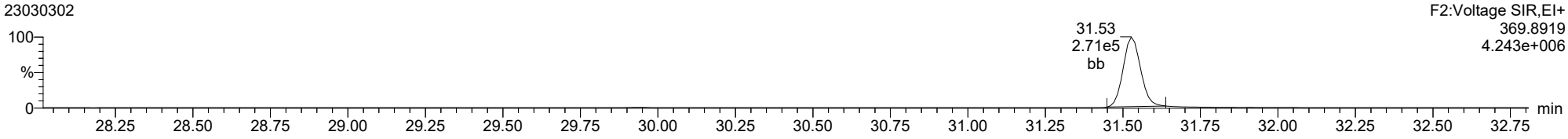
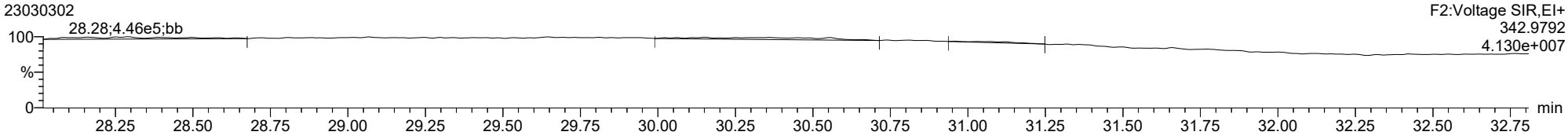


FUNCTION2 PFK



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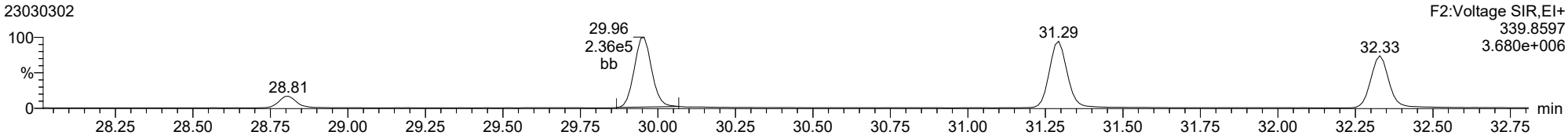

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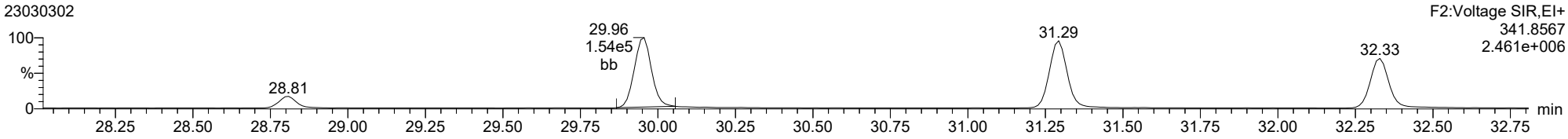

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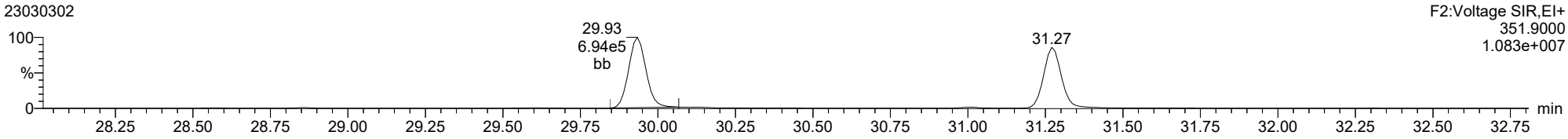

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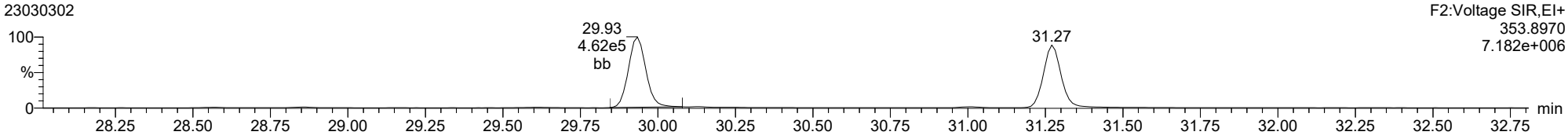
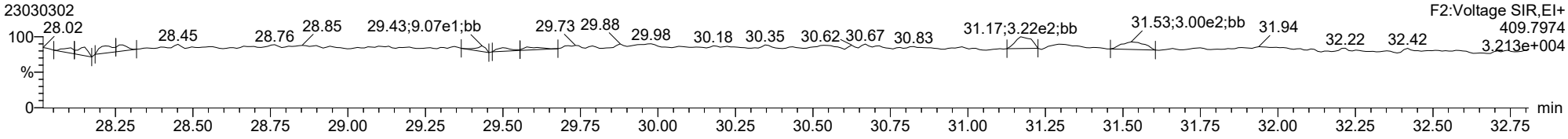


FUNCTION2 HPCDPE



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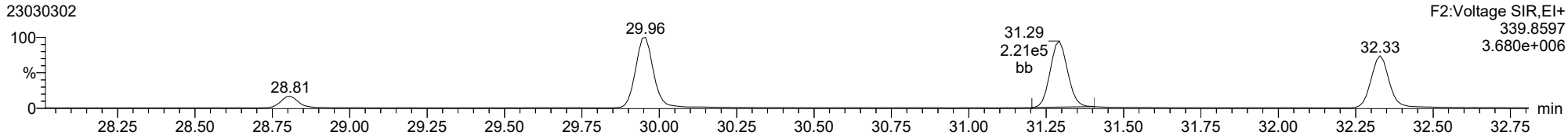
23478-PeCDF



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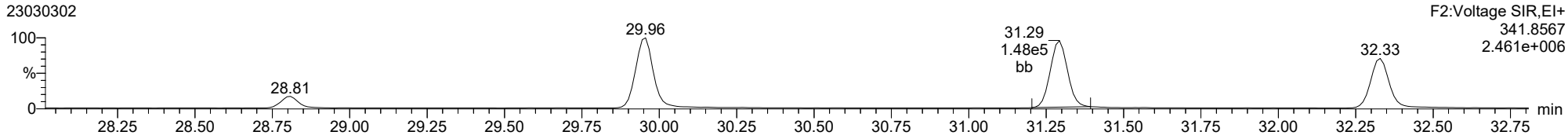

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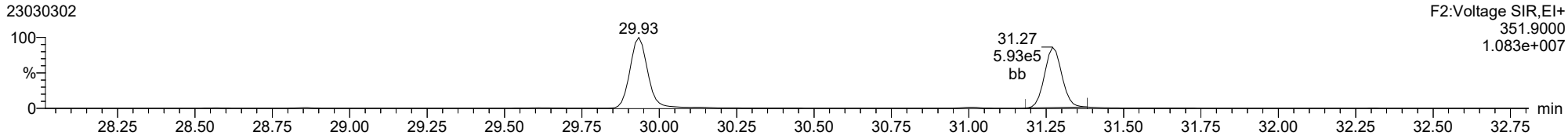

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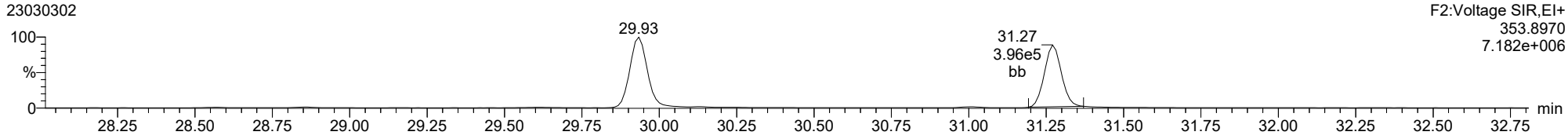
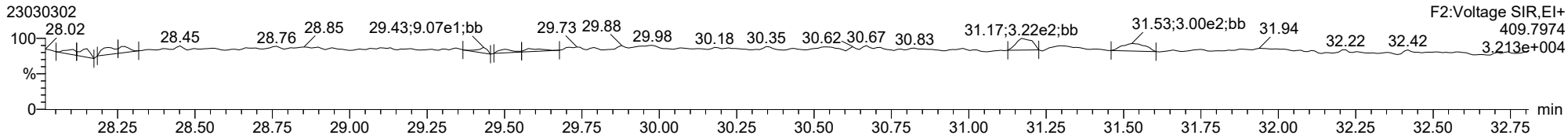


FUNCTION2 HPCDPE



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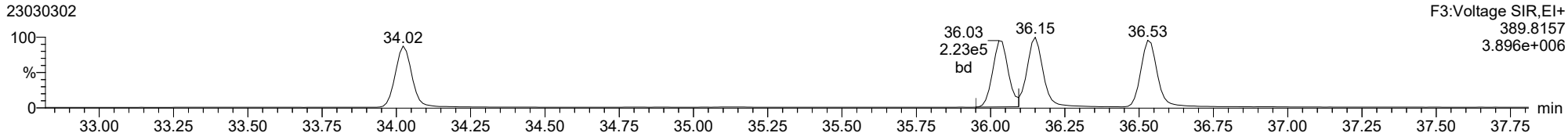
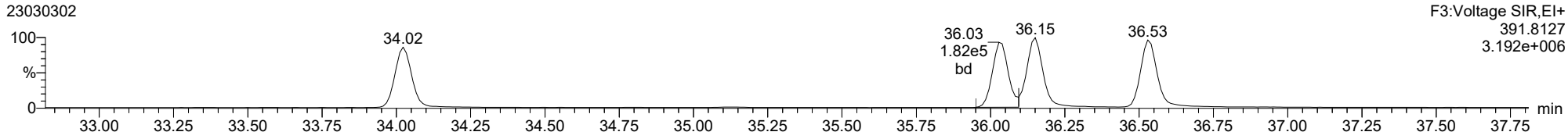
123478-HxCDD



123478-HxCDD



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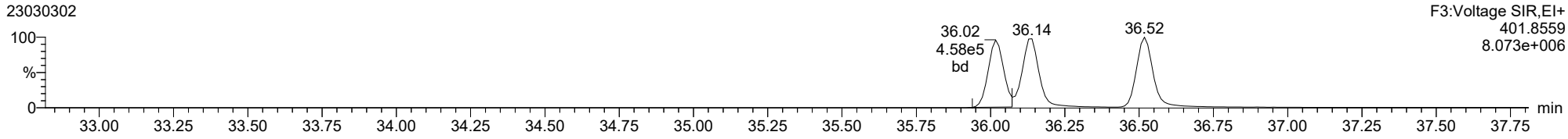

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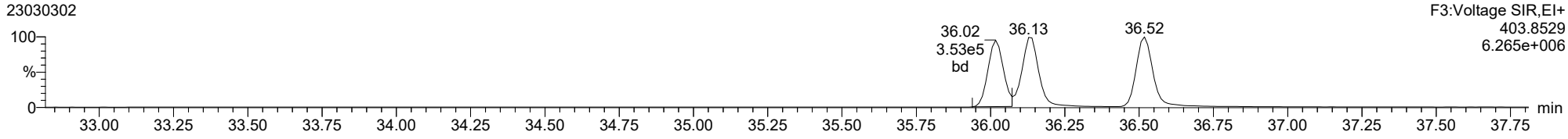
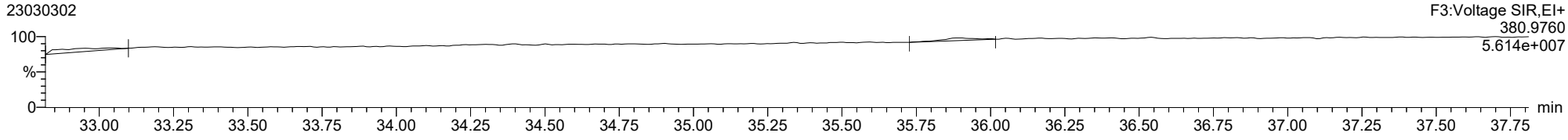


FUNCTION3 PFK



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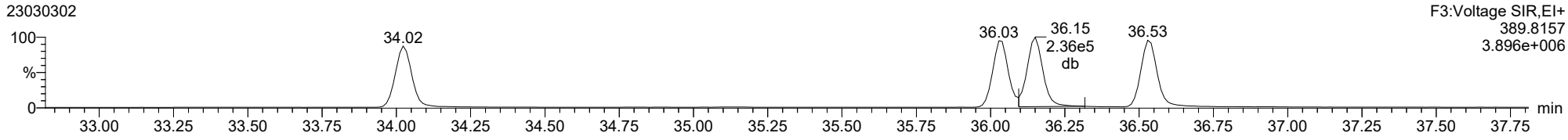
123678-HxCDD



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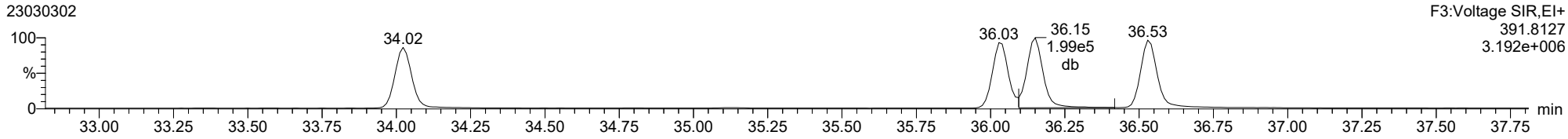

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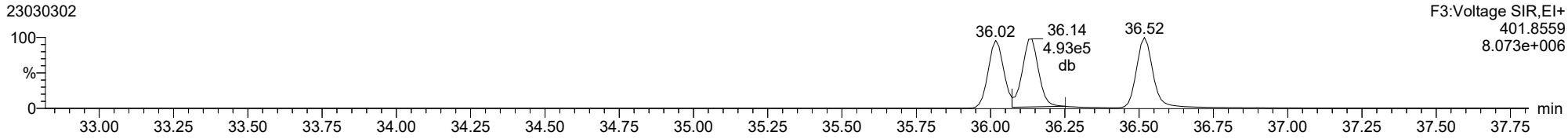

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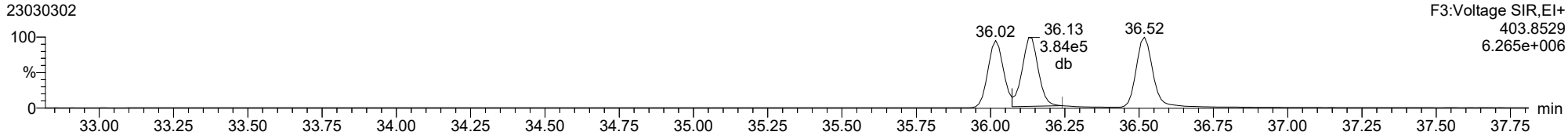

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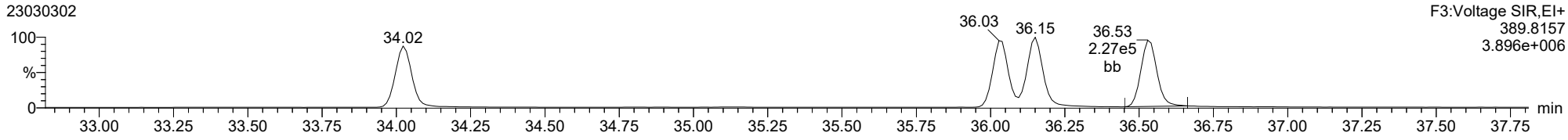
123789-HxCDD



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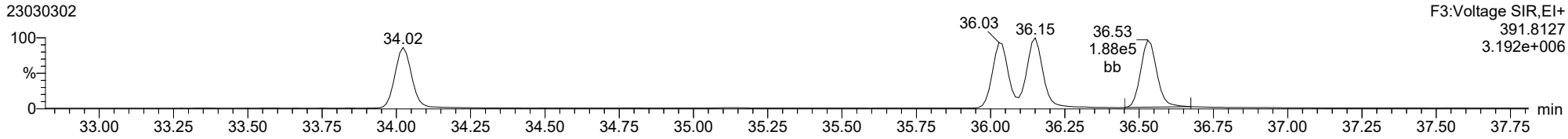

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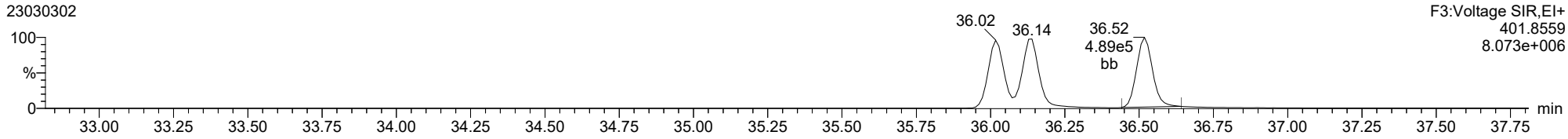

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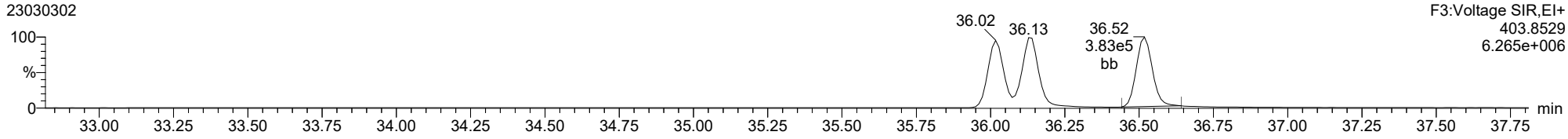

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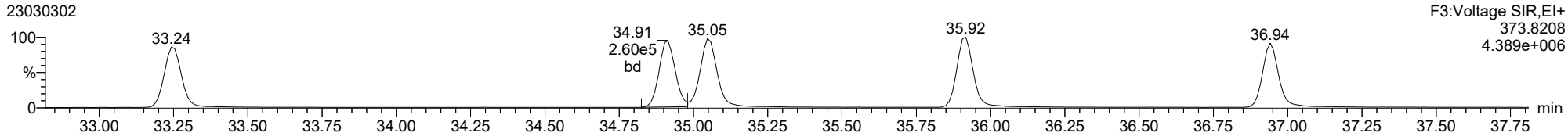

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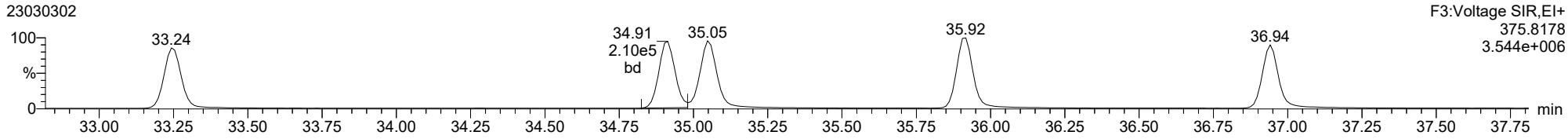

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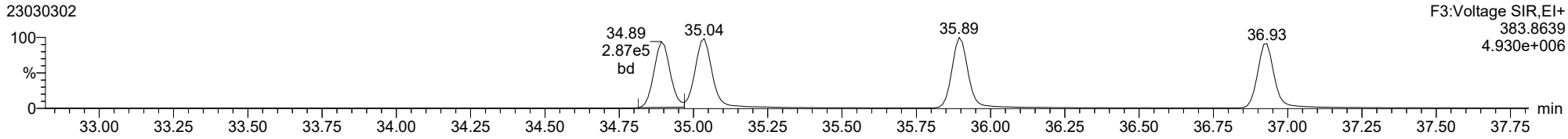

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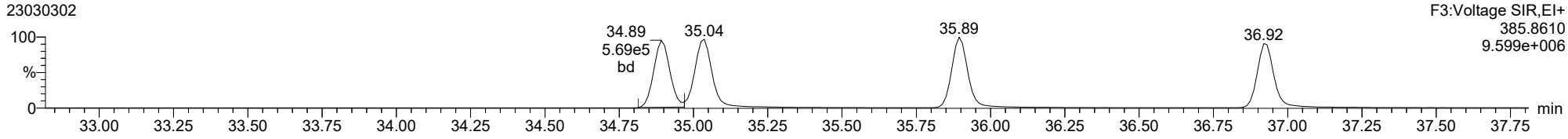

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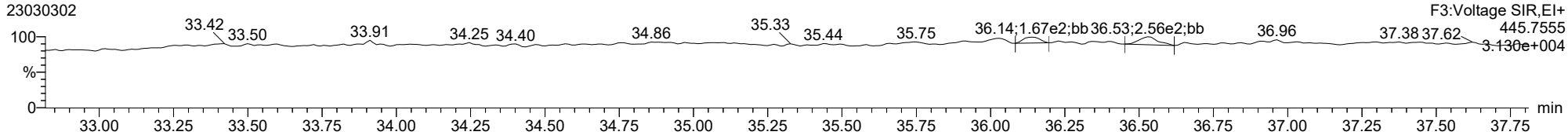

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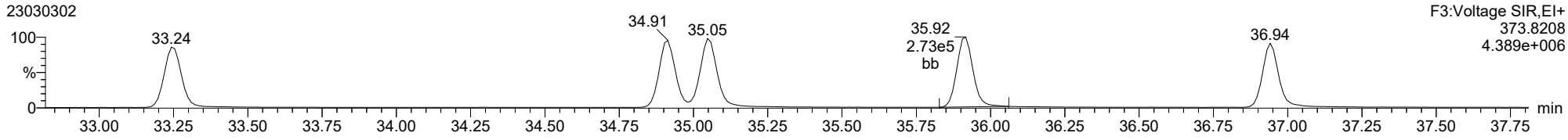

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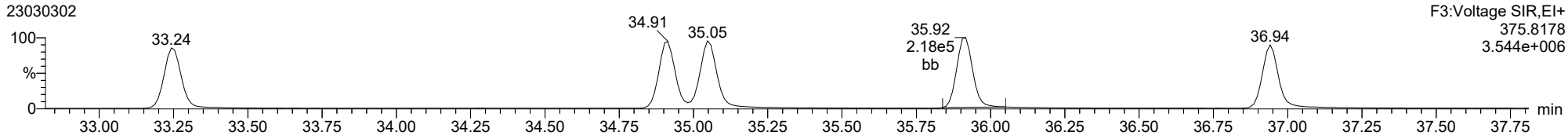

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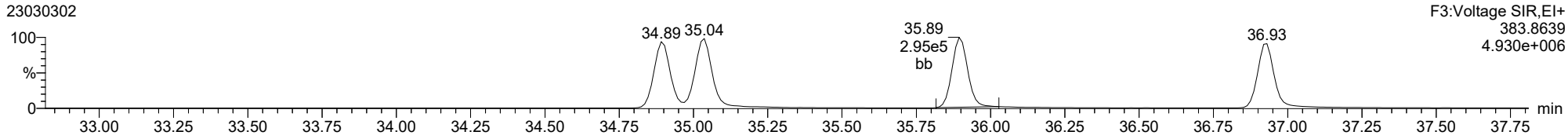

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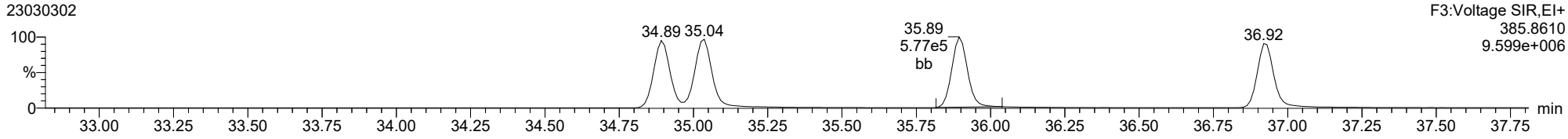

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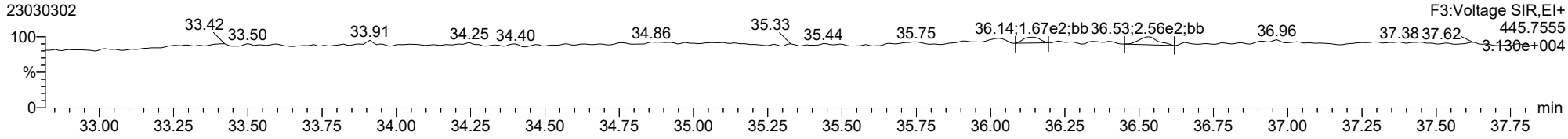

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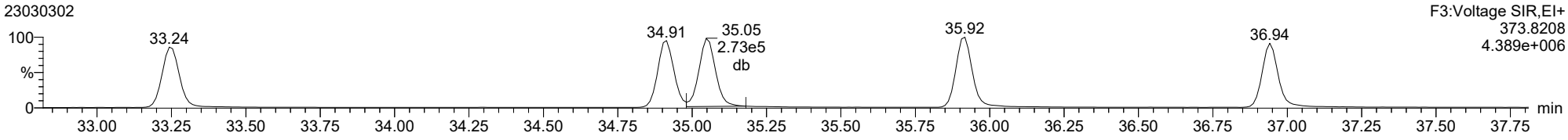

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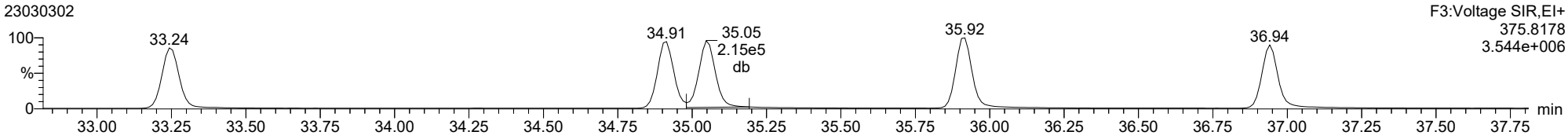

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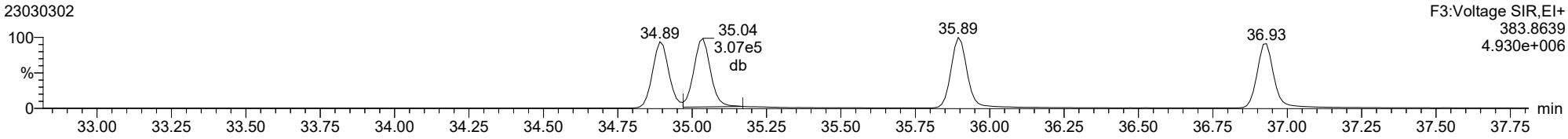

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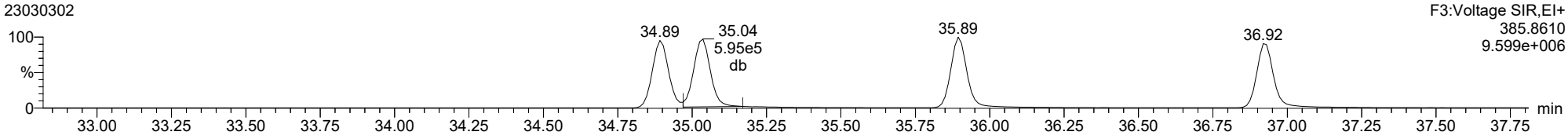

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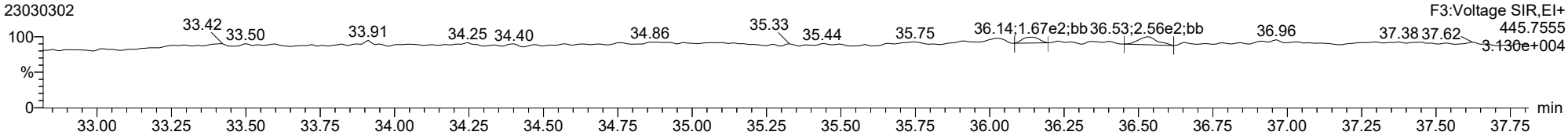

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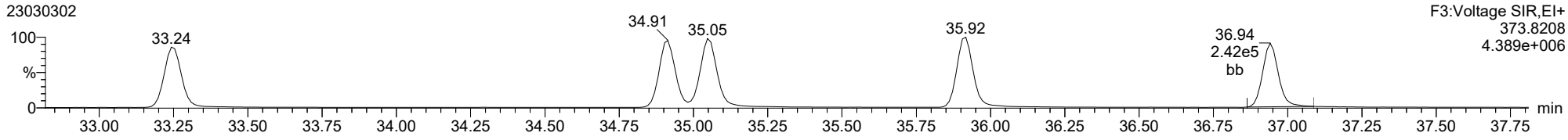

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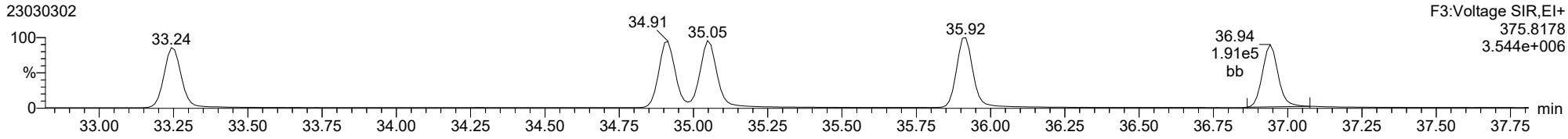

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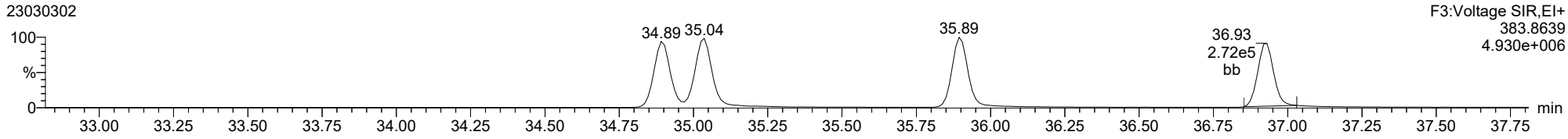

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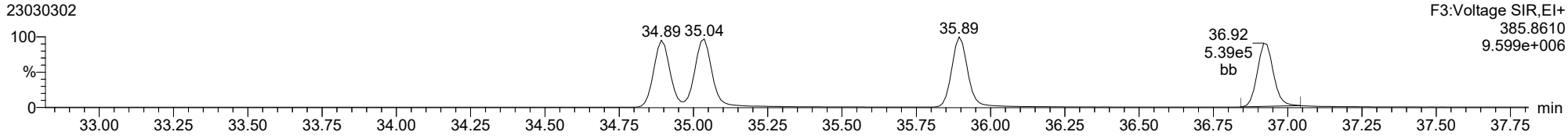

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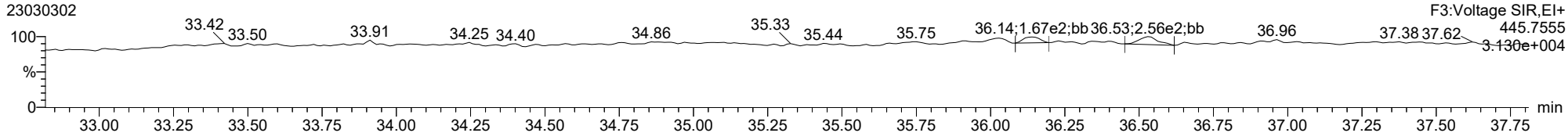

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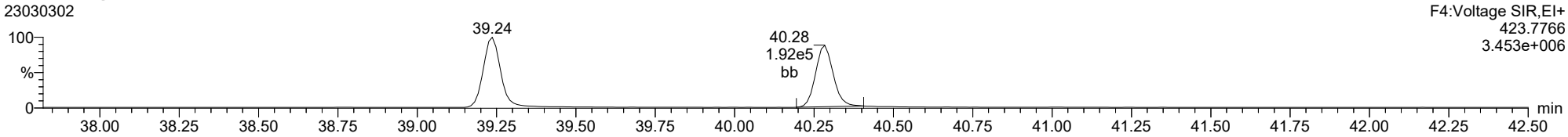

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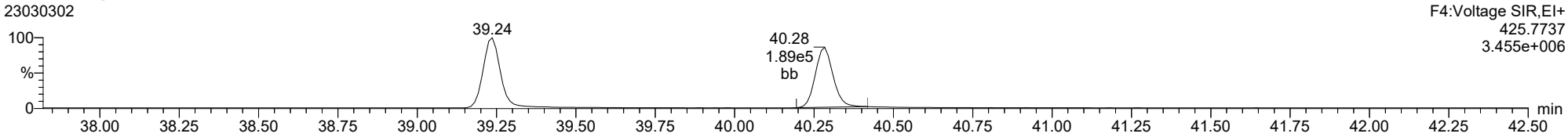

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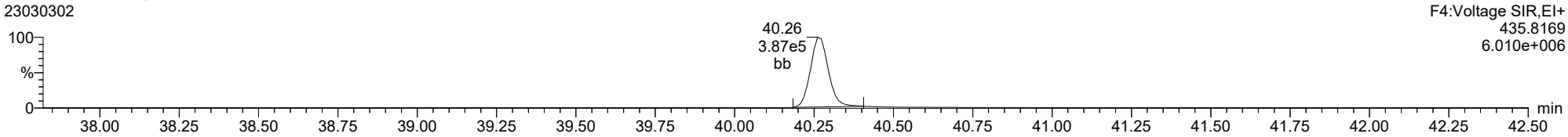

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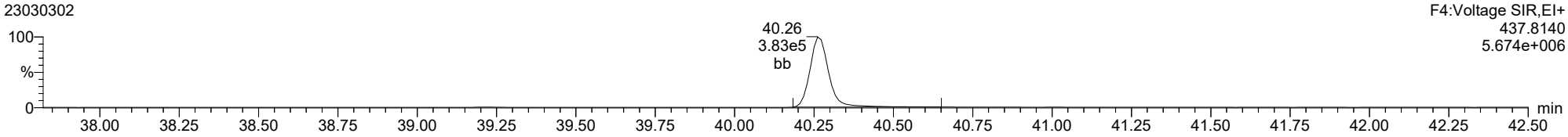
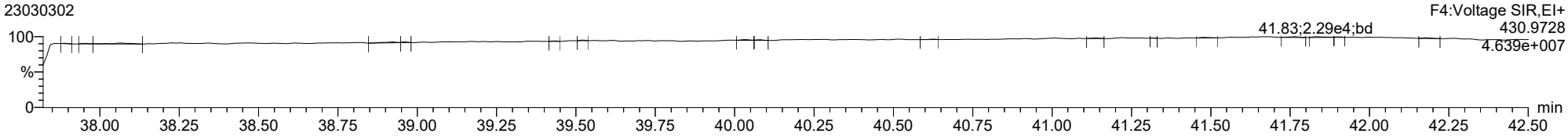


FUNCTION4 PFK



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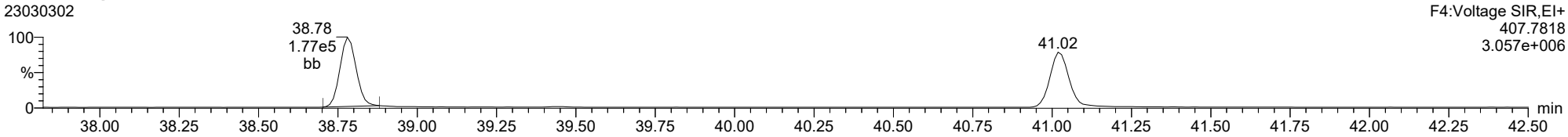

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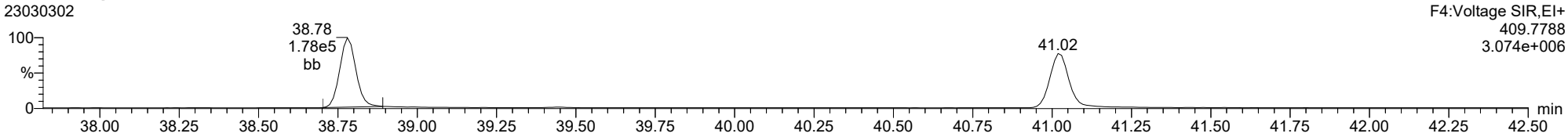

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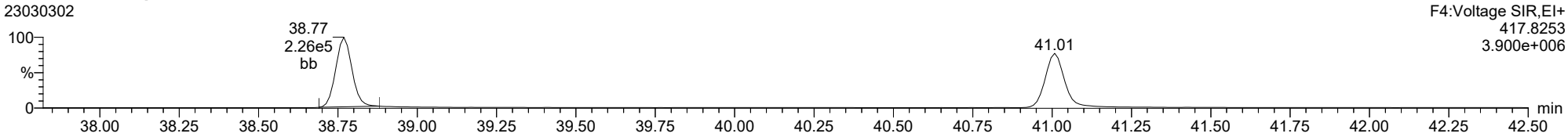

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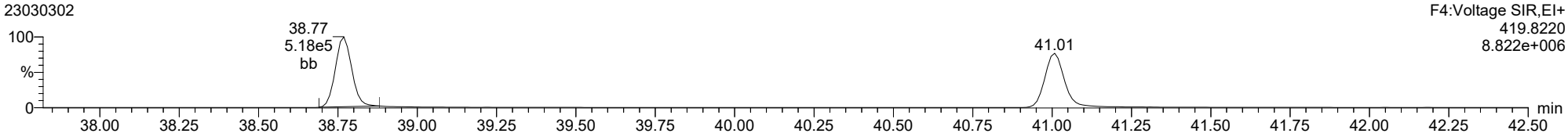

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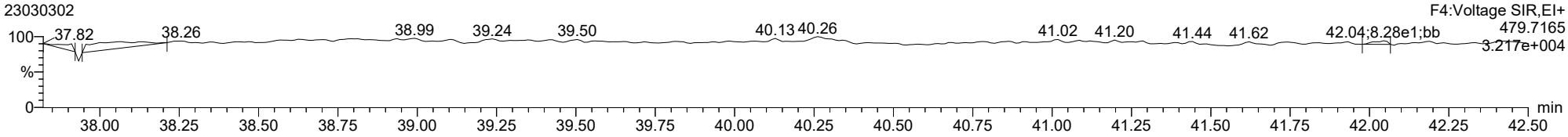

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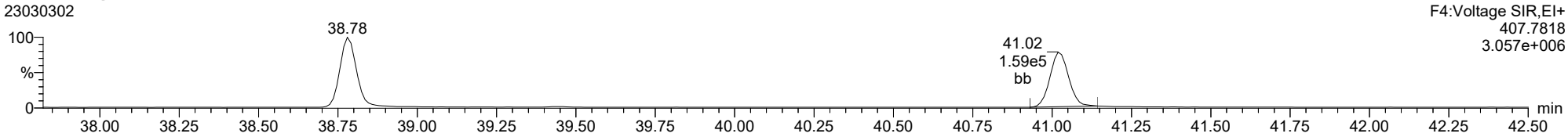

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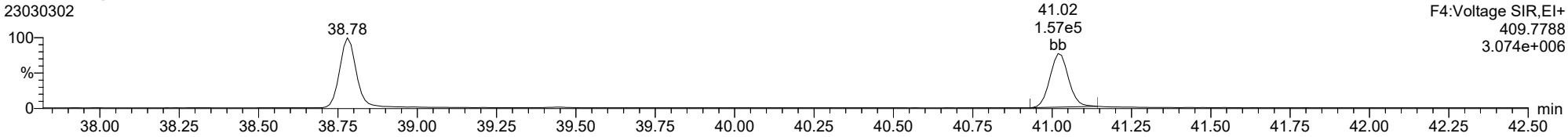

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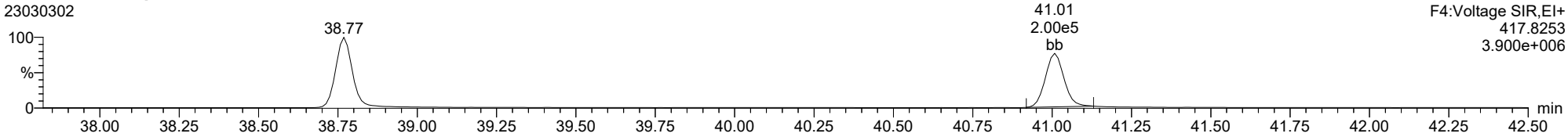

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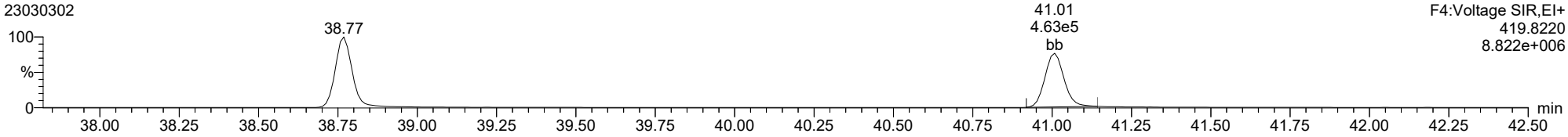
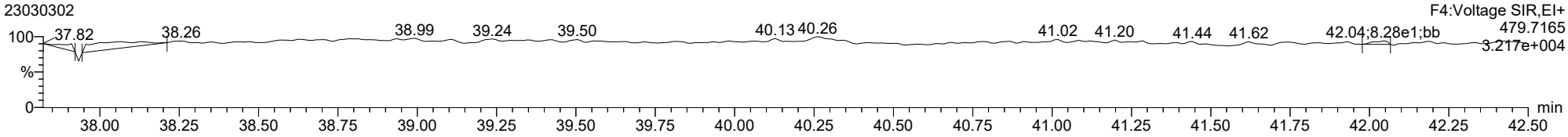


FUNCTION4 NCDPE



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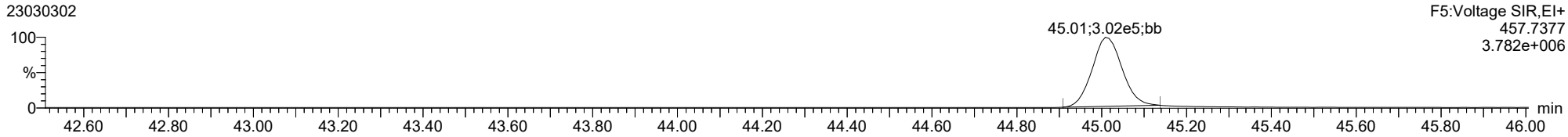

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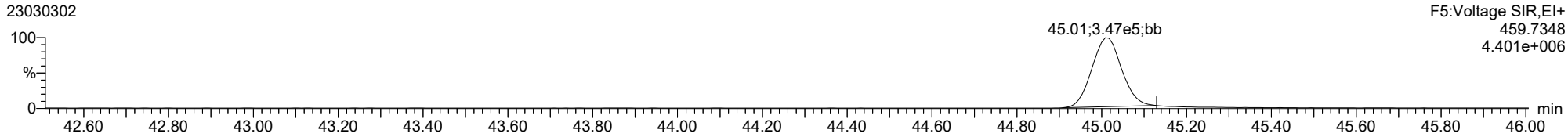

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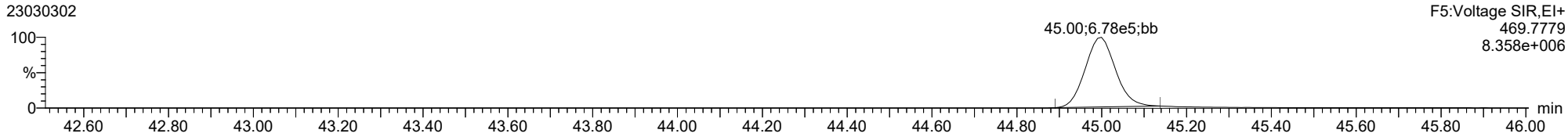

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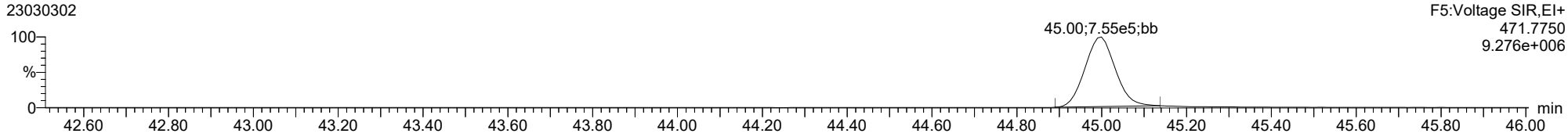
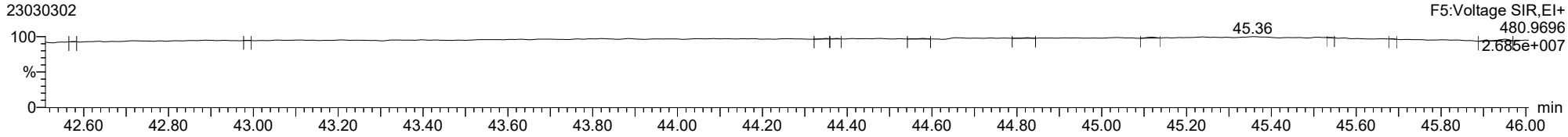


FUNCTION5 PFK



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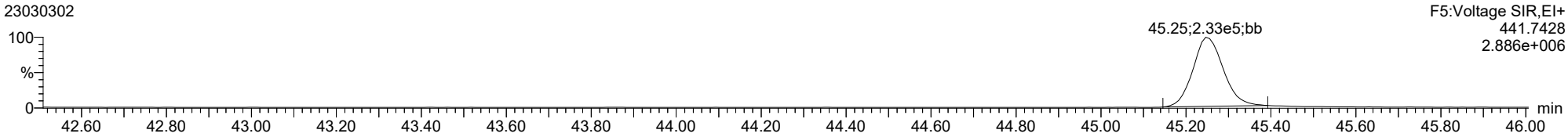

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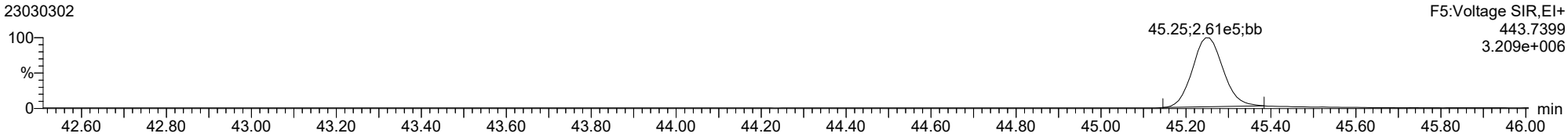
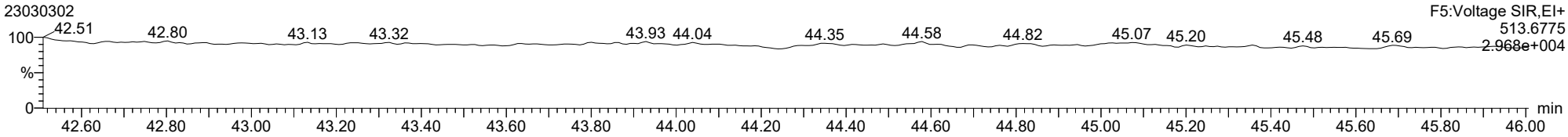


FUNCTION5 DCDPE



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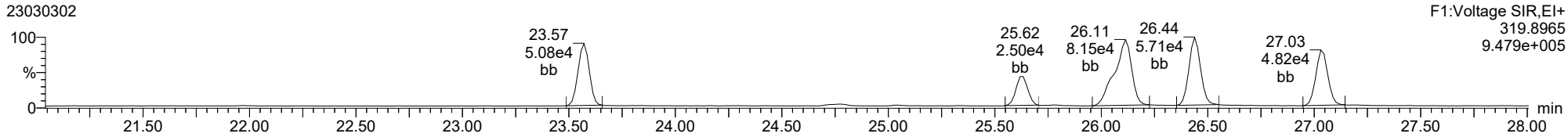
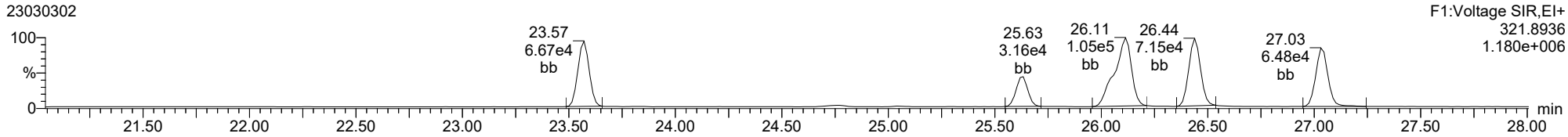
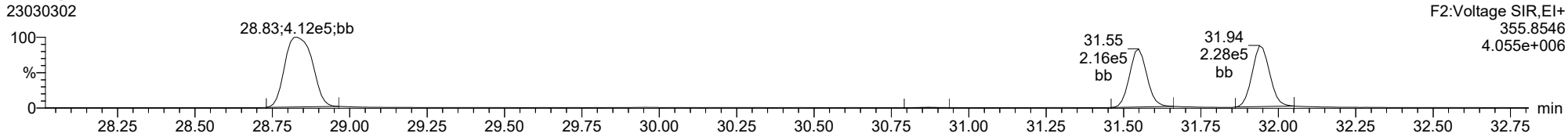


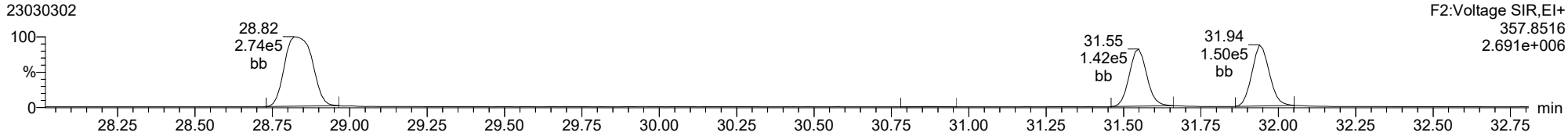
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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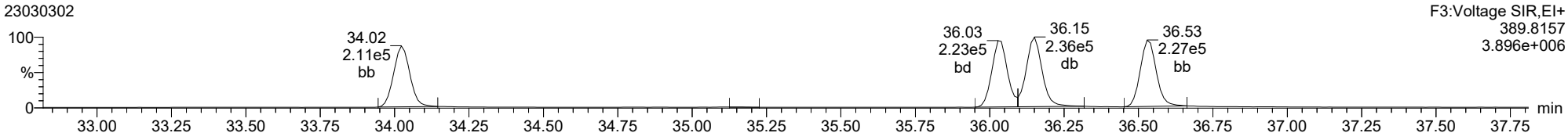
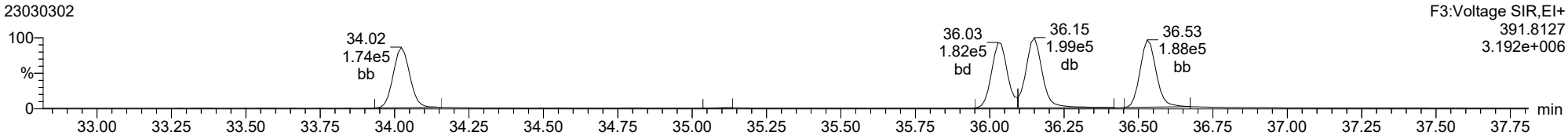
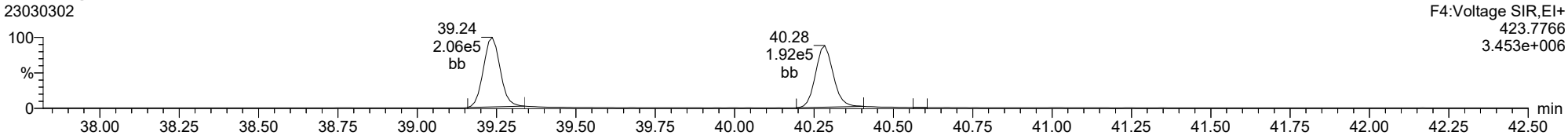


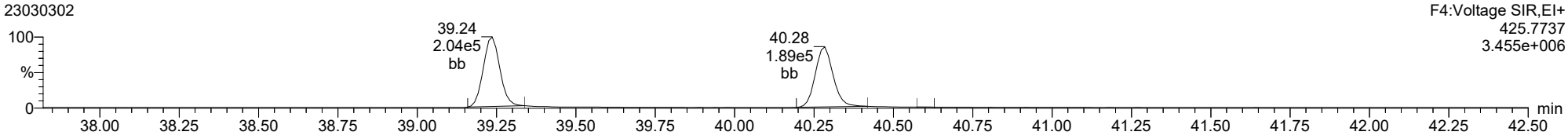
Total-hexadioxins



Total-heptadioxins



Total-heptadioxins



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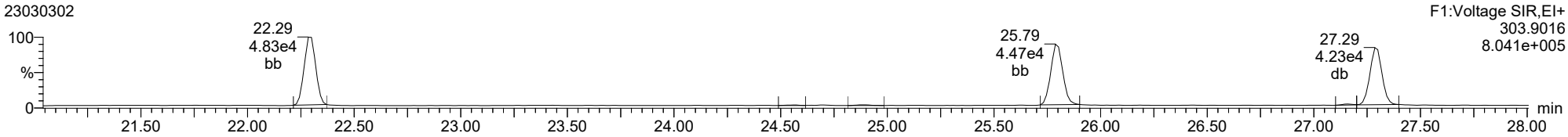
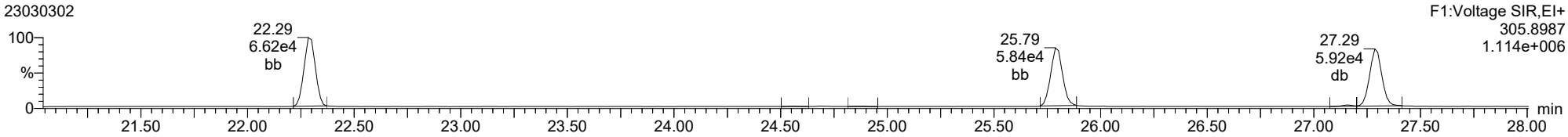
Total-tetrafurans



Total-tetrafurans



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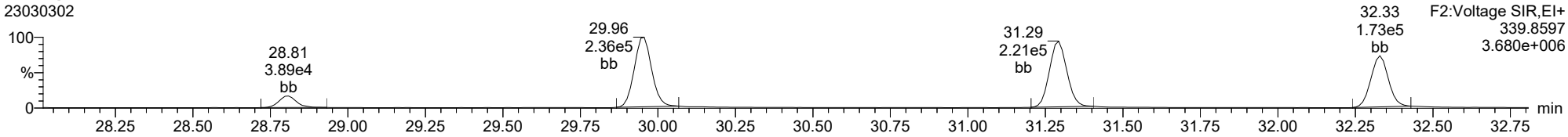

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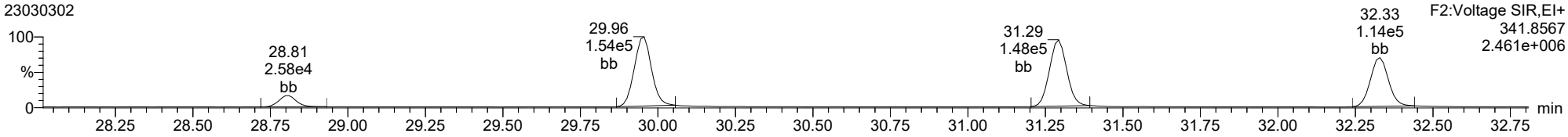

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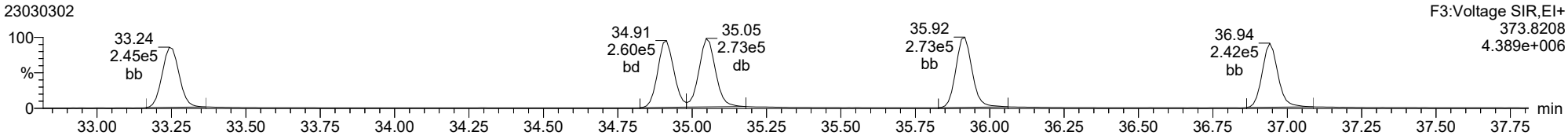
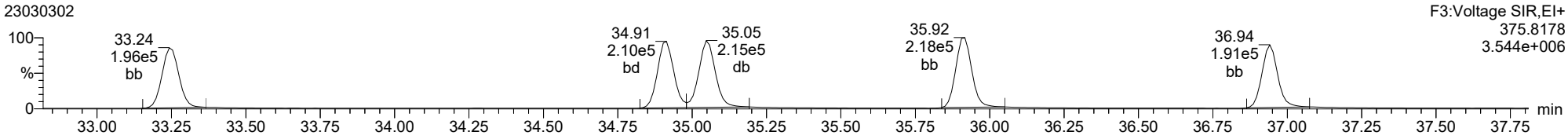
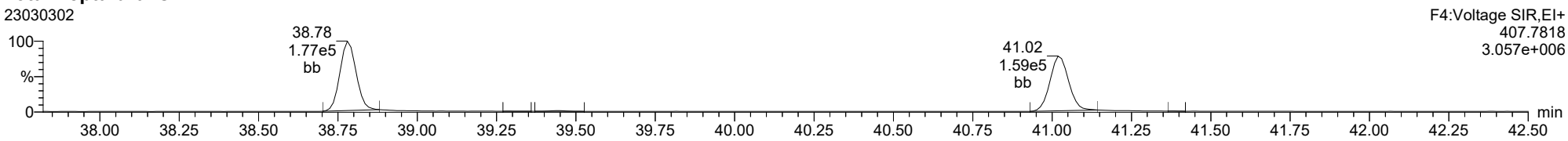
Total-hexafurans



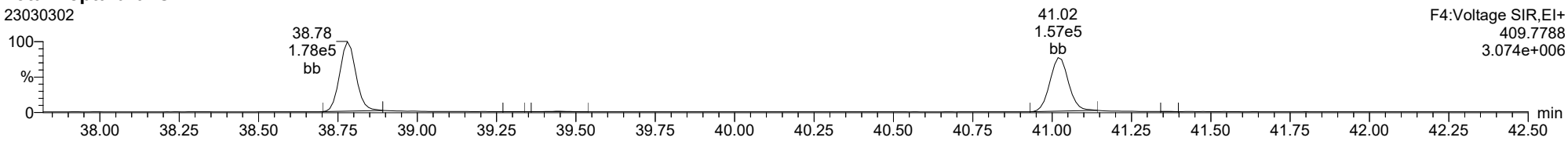
Total-hexafurans



Total-heptafurans



Total-heptafurans



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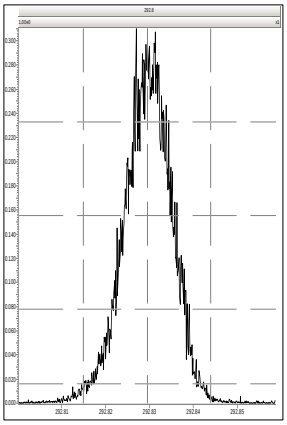
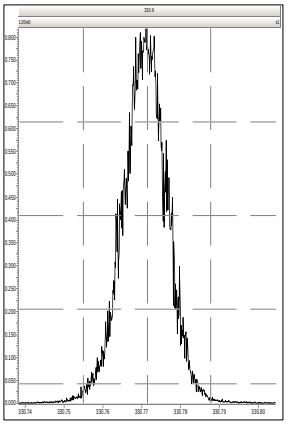
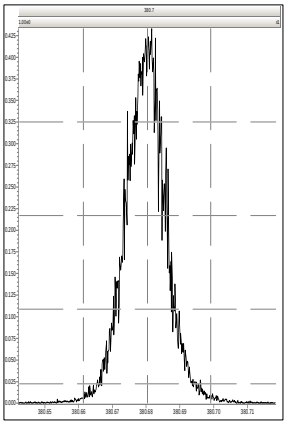
M 292.9824 R 11554



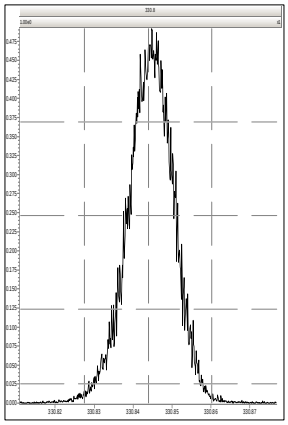
M 330.9792 R 12378



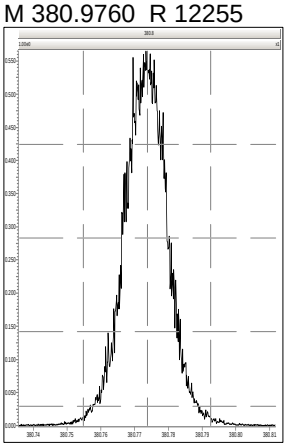
M 380.9760 R 13750



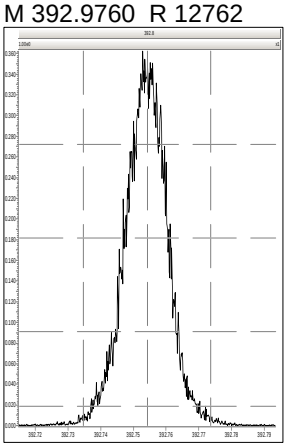
M 330.9792 R 11876



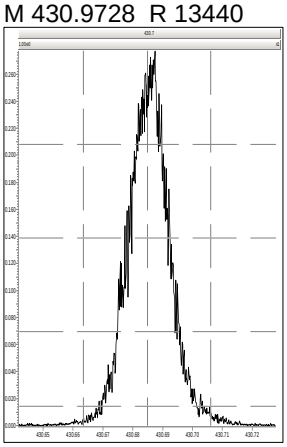
M 380.9760 R 12255



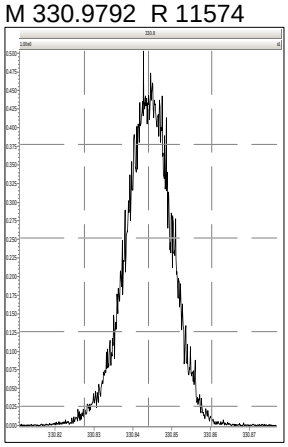
M 392.9760 R 12762



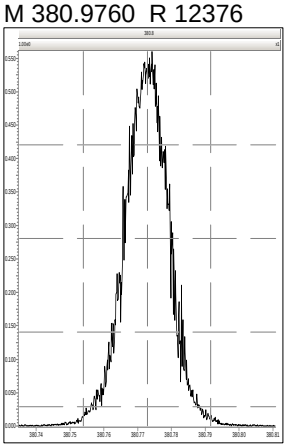
M 430.9728 R 13440



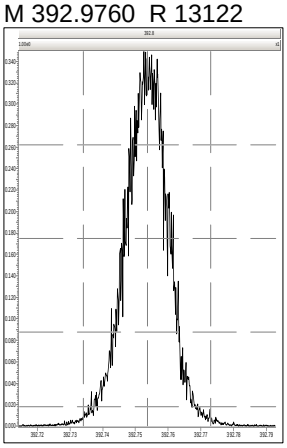
M 330.9792 R 11574



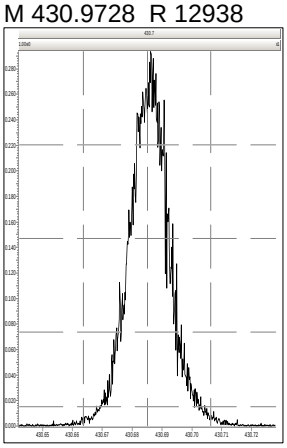
M 380.9760 R 12376



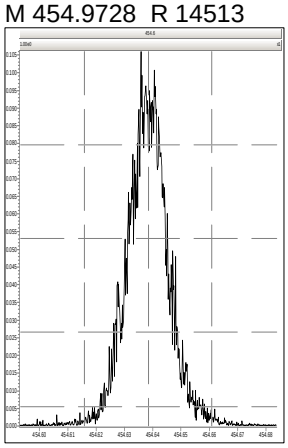
M 392.9760 R 13122



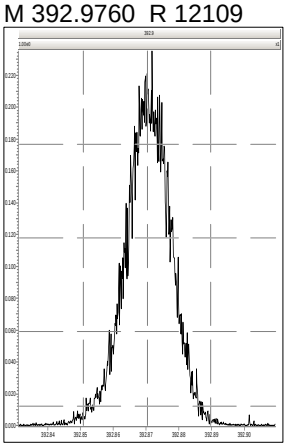
M 430.9728 R 12938



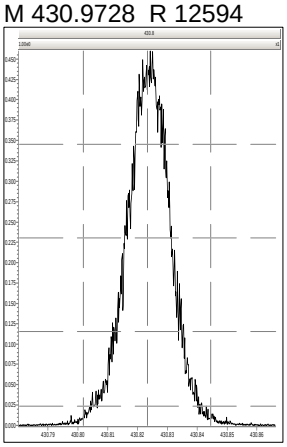
M 454.9728 R 14513



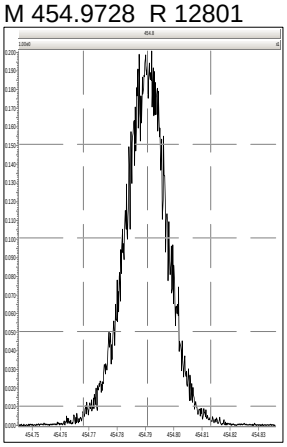
M 392.9760 R 12109



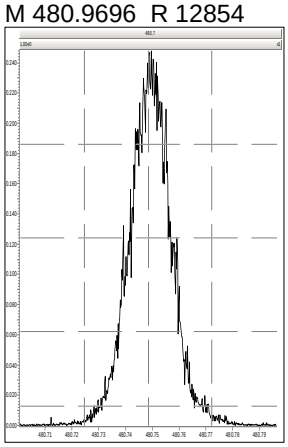
M 430.9728 R 12594



M 454.9728 R 12801



M 480.9696 R 12854



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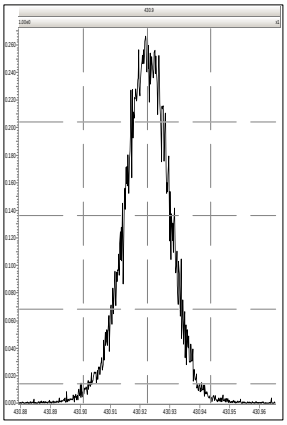
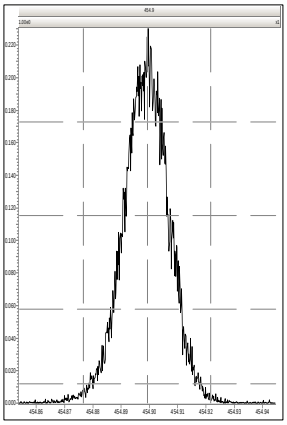
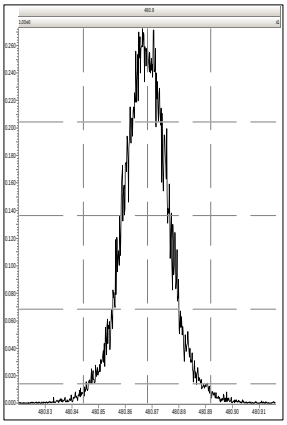
M 430.9728 R 12109



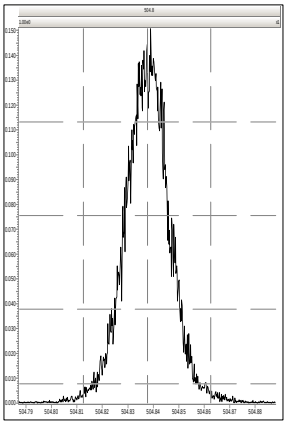
M 454.9728 R 12077



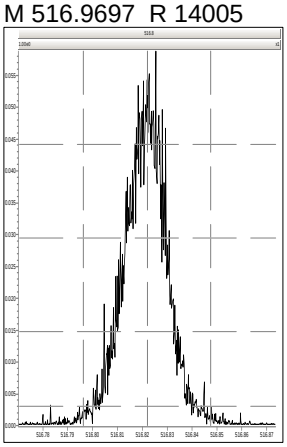
M 480.9696 R 11443

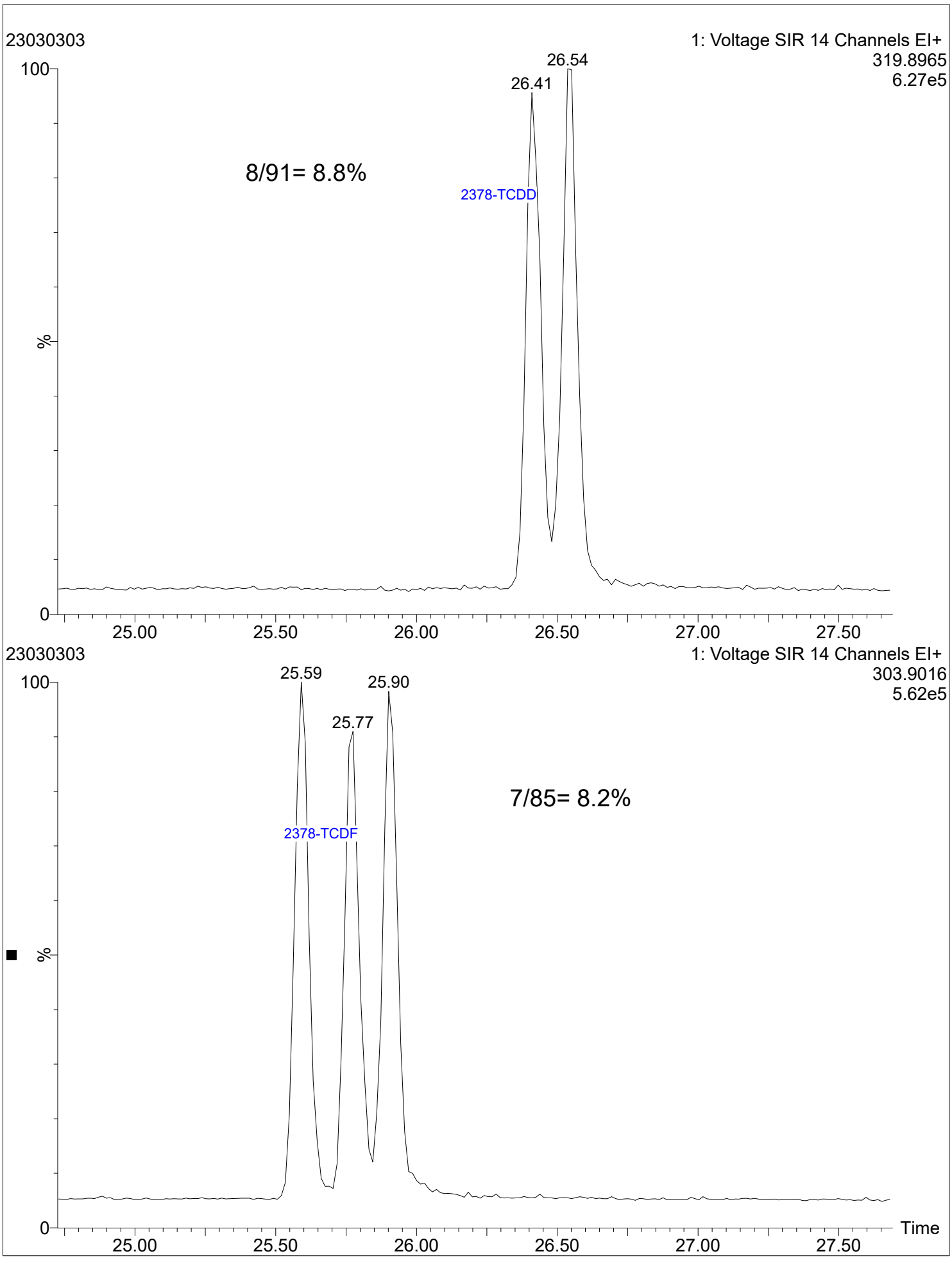


M 504.9696 R 12722



M 516.9697 R 14005




23030303
1: Voltage SIR 14 Channels EI+
319.8965
6.27e5
100
26.54
26.41
8/91= 8.8%
2378-TCDD
%
0
25.00
25.50
26.00
26.50
27.00
27.50
23030303
1: Voltage SIR 14 Channels EI+
303.9016
5.62e5
100
25.59
25.90
25.77
7/85= 8.2%
2378-TCDF
%
0
Time
25.00
25.50
26.00
26.50
27.00
27.50

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:33:58 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.702		0.770	1141	1568								
12378-PeCDF	29.922	1.000	2.331e3	1.631e3	0.679	1.429	1.550	717	1165	3.89e4	2.49e4	54.3	21.4	NO	bb	bd	0.520
23478-PeCDF	31.270	1.001	2.446e3	1.527e3	0.786	1.602	1.550	717	1165	3.60e4	2.25e4	50.1	19.4	NO	bb	bb	0.508
123478-HxCDF	34.891	1.001	2.740e3	2.578e3	1.166	1.063	1.240	675	706	4.36e4	3.63e4	64.6	51.5	NO	bd	bd	0.522
234678-HxCDF	35.894	1.001	2.363e3	1.967e3	1.140	1.201	1.240	675	706	3.52e4	3.17e4	52.2	44.9	NO	bb	bb	0.459
123678-HxCDF	35.025	1.000	2.955e3	2.593e3	1.091	1.140	1.240	675	706	3.97e4	3.71e4	58.8	52.6	NO	db	dd	0.495
123789-HxCDF	36.919	1.000	2.292e3	1.751e3	1.137	1.309	1.240	675	706	3.51e4	2.45e4	52.0	34.7	NO	bd	bb	0.523
1234678-HpCDF	38.769	1.001	1.264e3	1.356e3	1.003	0.932	1.050	1176	1150	2.17e4	2.11e4	18.4	18.3	NO	bd	bb	0.466
1234789-HpCDF	40.997	1.000	1.144e3	1.036e3	0.953	1.105	1.050	1176	1150	1.78e4	1.51e4	15.1	13.1	NO	bb	bd	0.465
OCDF	45.228	1.006	2.105e3	2.214e3	0.778	0.951	0.890	762	984	2.31e4	2.16e4	30.2	22.0	NO	bb	bb	1.044
2378-TCDD					1.149		0.770	1186	741								
12378-PeCDD	31.527	1.001	2.628e3	1.506e3	1.022	1.745	1.550	935	615	3.66e4	1.58e4	39.1	25.7	NO	bb	bb	0.540
123478-HxCDD	36.016	1.001	2.113e3	1.865e3	0.996	1.133	1.240	725	812	3.30e4	2.93e4	45.6	36.1	NO	dd	bd	0.542
123678-HxCDD	36.128	1.001	2.428e3	1.876e3	1.001	1.294	1.240	725	812	3.70e4	2.39e4	51.1	29.5	NO	db	db	0.479
123789-HxCDD	36.507	1.011	2.154e3	1.651e3	0.907	1.304	1.240	725	812	3.30e4	2.34e4	45.5	28.9	NO	bd	bb	0.513
1234678-HpCDD	40.261	1.000	1.634e3	1.397e3	1.039	1.170	1.050	985	1205	2.31e4	2.24e4	23.5	18.6	NO	MM	bb	0.531
OCDD					0.920		0.890	1090	941								
13C-2378-TCDF	25.746	1.007	5.730e5	7.592e5	1.620	0.755	0.770	2498	2006	8.42e6	1.11e7	3371.3	5556.4	NO	bb	bb	100.702
13C-12378-PeCDF	29.911	1.169	6.805e5	4.409e5	1.240	1.543	1.550	2678	2220	9.20e6	6.10e6	3433.8	2749.3	NO	bb	bd	110.727
13C-23478-PeCDF	31.248	1.222	6.001e5	3.956e5	1.118	1.517	1.550	2678	2220	8.66e6	5.74e6	3235.2	2585.6	NO	bb	bb	109.107
13C-123478-HxCDF	34.869	0.955	2.965e5	5.770e5	1.168	0.514	0.510	1558	3112	4.38e6	8.54e6	2813.2	2745.5	NO	bd	bd	98.607
13C-123678-HxCDF	35.014	0.959	3.446e5	6.820e5	1.386	0.505	0.510	1558	3112	4.56e6	9.02e6	2927.1	2898.6	NO	db	dd	97.648
13C-234678-HxCDF	35.872	0.983	2.821e5	5.460e5	1.129	0.517	0.510	1558	3112	4.13e6	8.00e6	2652.6	2572.0	NO	bb	bb	96.703
13C-123789-HxCDF	36.908	1.011	2.282e5	4.511e5	0.932	0.506	0.510	1558	3112	3.31e6	6.47e6	2122.2	2079.8	NO	bb	bb	96.146
13C-1234678-HpCDF	38.746	1.062	1.794e5	3.814e5	0.895	0.470	0.440	2435	3572	2.60e6	5.93e6	1069.0	1659.1	NO	bd	bb	82.620
13C-1234789-HpCDF	40.986	1.123	1.404e5	3.516e5	0.770	0.399	0.440	2435	3572	1.98e6	4.51e6	813.8	1262.1	NO	bb	bb	84.288
13C-1234-TCDD	25.576	0.000	3.640e5	4.524e5	1.000	0.805	0.770	1931	1352	5.55e6	6.91e6	2875.2	5114.0	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.032	4.012e5	4.998e5	1.152	0.803	0.770	1931	1352	5.75e6	7.10e6	2979.4	5249.9	NO	bb	bb	95.760
13C-12378-PeCDD	31.504	1.232	4.613e5	2.880e5	0.829	1.602	1.550	1401	1533	6.70e6	4.14e6	4781.1	2700.1	NO	bb	bb	110.725
13C-123478-HxCDD	35.994	0.986	4.133e5	3.236e5	0.995	1.277	1.240	1744	1461	6.55e6	5.10e6	3756.0	3493.2	NO	bd	bd	97.670
13C-123678-HxCDD	36.106	0.989	5.195e5	3.785e5	1.157	1.372	1.240	1744	1461	6.84e6	5.29e6	3920.0	3622.3	NO	db	db	102.381
13C-1234678-HpCDD	40.250	1.103	2.785e5	2.707e5	0.840	1.029	1.050	1497	2275	3.82e6	3.65e6	2553.8	1605.5	NO	bb	bd	86.201
13C-OCDD	44.972	1.232	5.210e5	5.429e5	0.767	0.960	0.890	2989	1436	5.87e6	6.48e6	1964.2	4513.5	NO	bd	bb	182.810
13C-123789-HxCDD	36.496	0.000	4.181e5	3.402e5	1.000	1.229	1.240	1744	1461	6.11e6	4.85e6	3503.9	3317.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.410	1.033	1.287e3		1.288			1959		1.53e4		7.8			db		0.122

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:33:58 Pacific Standard Time

ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1141	1568								
1289-TCDF					0.678		0.770	1141	1568								
13468-PECDF					1.246		1.550	669	893								
12389-PECDF					0.496		1.550	717	1165								
123468-HXCDF					1.169		1.240	675	706								
1368-TCDD					1.015		0.770	1186	741								
1289-TCDD					0.909		0.770	1186	741								
12479-PECDD					2.301		1.550	935	615								
12389-PECDD					1.184		1.550	935	615								
124679-HXCDD					1.115		1.240	725	812								
1234679-HPCDD					1.137		1.050	985	1205								
Total-tetrafurans			0.000e0		0.727			1141		0.00e0							
Total-penta1			0.000e0					669		0.00e0							
Total-pentafurans			4.777e3		0.654			717		7.49e4							1.028
Total-hexafurans			1.035e4		1.141			675		1.54e5							2.000
Total-heptafurans			2.408e3		0.978			1176		3.94e4							0.931
Total-Furans			1.971e4		0.922			1141		2.93e5							5.016
Total-tetradioxins			0.000e0		1.024			1186		0.00e0							
Total-pentadioxins			2.628e3		1.502			935		3.66e4							0.540
Total-hexadioxins			6.694e3		1.005			725		1.03e5							1.534
Total-heptadioxins			1.634e3		1.088			985		2.31e4							0.531
Total-Dioxins			1.096e4		1.130			1186		1.63e5							2.605
Total-TEQ			3.067e4					1186		4.55e5							7.621
FUNCTION1 PFK			3.116e6					620464		1.62e6							
FUNCTION2 PFK			1.698e6					301200		2.24e6							0.000
FUNCTION3 PFK			5.380e7					450736		2.93e7							0.000
FUNCTION4 PFK			1.391e7					291095		1.60e7							
FUNCTION5 PFK			7.208e4					238350		2.59e6							
FUNCTION1 HXCD...			4.809e2					559		5.84e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.084e2					933		1.50e4							0.000
FUNCTION3 OCDPE			0.000e0					494		0.00e0							
FUNCTION4 NCDPE			6.931e2					845		1.26e4							0.000
FUNCTION5 DCDPE			7.511e2					821		1.86e4							0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	2.446e3	1.527e3	0.786	1.60	1.55	50.1	YES	NO	bb	bb	0.508
2	12378-PeCDF	29.92	2.331e3	1.631e3	0.679	1.43	1.55	54.3	YES	NO	bb	bd	0.520

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.92	2.292e3	1.751e3	1.137	1.31	1.24	52.0	YES	NO	bd	bb	0.523
2	234678-HxCDF	35.89	2.363e3	1.967e3	1.140	1.20	1.24	52.2	YES	NO	bb	bb	0.459
3	123678-HxCDF	35.03	2.955e3	2.593e3	1.091	1.14	1.24	58.8	YES	NO	db	dd	0.495
4	123478-HxCDF	34.89	2.740e3	2.578e3	1.166	1.06	1.24	64.6	YES	NO	bd	bd	0.522

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.77	1.264e3	1.356e3	1.003	0.93	1.05	18.4	YES	NO	bd	bb	0.466
2	1234789-HpCDF	41.00	1.144e3	1.036e3	0.953	1.10	1.05	15.1	YES	NO	bb	bd	0.465

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-Furans	21.68	7.033e1	1.021e2	0.922	0.69	0.77	1.5	NO	NO	bb	bb	0.014
2	123789-HxCDF	36.92	2.292e3	1.751e3	1.137	1.31	1.24	52.0	YES	NO	bd	bb	0.523
3	234678-HxCDF	35.89	2.363e3	1.967e3	1.140	1.20	1.24	52.2	YES	NO	bb	bb	0.459
4	123678-HxCDF	35.03	2.955e3	2.593e3	1.091	1.14	1.24	58.8	YES	NO	db	dd	0.495
5	123478-HxCDF	34.89	2.740e3	2.578e3	1.166	1.06	1.24	64.6	YES	NO	bd	bd	0.522
6	23478-PeCDF	31.27	2.446e3	1.527e3	0.786	1.60	1.55	50.1	YES	NO	bb	bb	0.508
7	12378-PeCDF	29.92	2.331e3	1.631e3	0.679	1.43	1.55	54.3	YES	NO	bb	bd	0.520
8	1234678-HpCDF	38.77	1.264e3	1.356e3	1.003	0.93	1.05	18.4	YES	NO	bd	bb	0.466
9	1234789-HpCDF	41.00	1.144e3	1.036e3	0.953	1.10	1.05	15.1	YES	NO	bb	bd	0.465
10	OCDF	45.23	2.105e3	2.214e3	0.778	0.95	0.89	30.2	YES	NO	bb	bb	1.044

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.53	2.628e3	1.506e3	1.022	1.75	1.55	39.1	YES	NO	bb	bb	0.540

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.51	2.154e3	1.651e3	0.907	1.30	1.24	45.5	YES	NO	bd	bb	0.513
2	123678-HxCDD	36.13	2.428e3	1.876e3	1.001	1.29	1.24	51.1	YES	NO	db	db	0.479
3	123478-HxCDD	36.02	2.113e3	1.865e3	0.996	1.13	1.24	45.6	YES	NO	dd	bd	0.542

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	1.634e3	1.397e3	1.039	1.17	1.05	23.5	YES	NO	MM	bb	0.531

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.53	2.628e3	1.506e3	1.022	1.75	1.55	39.1	YES	NO	bb	bb	0.540
2	123789-HxCDD	36.51	2.154e3	1.651e3	0.907	1.30	1.24	45.5	YES	NO	bd	bb	0.513
3	123678-HxCDD	36.13	2.428e3	1.876e3	1.001	1.29	1.24	51.1	YES	NO	db	db	0.479
4	123478-HxCDD	36.02	2.113e3	1.865e3	0.996	1.13	1.24	45.6	YES	NO	dd	bd	0.542
5	1234678-HpCDD	40.26	1.634e3	1.397e3	1.039	1.17	1.05	23.5	YES	NO	MM	bb	0.531

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-Furans	21.68	7.033e1	1.021e2	0.922	0.69	0.77	1.5	NO	NO	bb	bb	0.014
2	123789-HxCDF	36.92	2.292e3	1.751e3	1.137	1.31	1.24	52.0	YES	NO	bd	bb	0.523
3	234678-HxCDF	35.89	2.363e3	1.967e3	1.140	1.20	1.24	52.2	YES	NO	bb	bb	0.459
4	123678-HxCDF	35.03	2.955e3	2.593e3	1.091	1.14	1.24	58.8	YES	NO	db	dd	0.495
5	123478-HxCDF	34.89	2.740e3	2.578e3	1.166	1.06	1.24	64.6	YES	NO	bd	bd	0.522
6	23478-PeCDF	31.27	2.446e3	1.527e3	0.786	1.60	1.55	50.1	YES	NO	bb	bb	0.508
7	12378-PeCDF	29.92	2.331e3	1.631e3	0.679	1.43	1.55	54.3	YES	NO	bb	bd	0.520
8	1234678-HpCDF	38.77	1.264e3	1.356e3	1.003	0.93	1.05	18.4	YES	NO	bd	bb	0.466
9	1234789-HpCDF	41.00	1.144e3	1.036e3	0.953	1.10	1.05	15.1	YES	NO	bb	bd	0.465
10	OCDF	45.23	2.105e3	2.214e3	0.778	0.95	0.89	30.2	YES	NO	bb	bb	1.044
11	12378-PeCDD	31.53	2.628e3	1.506e3	1.022	1.75	1.55	39.1	YES	NO	bb	bb	0.540
12	123789-HxCDD	36.51	2.154e3	1.651e3	0.907	1.30	1.24	45.5	YES	NO	bd	bb	0.513
13	123678-HxCDD	36.13	2.428e3	1.876e3	1.001	1.29	1.24	51.1	YES	NO	db	db	0.479
14	123478-HxCDD	36.02	2.113e3	1.865e3	0.996	1.13	1.24	45.6	YES	NO	dd	bd	0.542
15	1234678-HpCDD	40.26	1.634e3	1.397e3	1.039	1.17	1.05	23.5	YES	NO	MM	bb	0.531

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.18	3.116e6					2.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.19	1.560e6					3.1	YES		bb		0.000
2	FUNCTION2 PFK	28.13	1.376e5					4.3	YES		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.12	2.560e6					15.7	YES		db		0.000
2	FUNCTION3 PFK	36.37	7.058e6					24.4	YES		dd		0.000
3	FUNCTION3 PFK	36.11	4.418e7					24.8	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	42.43	1.404e5					1.6	NO		bb		
2	FUNCTION4 PFK	37.89	1.377e7					53.2	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.15	7.152e3					1.1	NO		bb		
2	FUNCTION5 PFK	45.07	1.178e3					0.5	NO		bb		
3	FUNCTION5 PFK	44.98	1.177e3					0.5	NO		bb		
4	FUNCTION5 PFK	44.19	7.772e3					0.8	NO		bb		
5	FUNCTION5 PFK	43.72	7.921e3					1.3	NO		bb		
6	FUNCTION5 PFK	43.60	4.474e3					0.7	NO		bb		
7	FUNCTION5 PFK	43.17	6.636e3					1.2	NO		bb		
8	FUNCTION5 PFK	43.01	5.001e3					0.7	NO		bb		
9	FUNCTION5 PFK	42.76	1.253e4					1.4	NO		bb		
10	FUNCTION5 PFK	45.91	8.220e3					0.4	NO		bb		
11	FUNCTION5 PFK	45.75	6.523e3					1.4	NO		bb		
12	FUNCTION5 PFK	45.25	3.501e3					0.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.60	9.542e1					2.4	NO		bb		0.000
2	FUNCTION1 HXCD...	26.42	7.837e1					1.9	NO		bb		0.000
3	FUNCTION1 HXCD...	25.58	1.709e2					3.5	YES		bb		0.000
4	FUNCTION1 HXCD...	23.40	1.362e2					2.7	NO		bb		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.36	1.308e2					1.8	NO		bb		0.000
2	FUNCTION2 HPCD...	31.75	8.377e1					1.7	NO		bb		0.000
3	FUNCTION2 HPCD...	31.30	1.170e2					2.2	NO		db		0.000
4	FUNCTION2 HPCD...	31.24	1.138e2					2.6	NO		bd		0.000
5	FUNCTION2 HPCD...	30.92	1.786e2					3.2	YES		bb		0.000
6	FUNCTION2 HPCD...	30.04	8.034e1					1.7	NO		bb		0.000
7	FUNCTION2 HPCD...	29.47	1.041e2					2.9	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.04	9.826e1					2.2	NO		bb		0.000
2	FUNCTION4 NCDPE	41.83	1.085e2					2.1	NO		bb		0.000
3	FUNCTION4 NCDPE	41.67	8.318e1					2.8	NO		db		0.000
4	FUNCTION4 NCDPE	41.58	1.047e2					2.5	NO		bd		0.000
5	FUNCTION4 NCDPE	41.32	1.741e2					2.4	NO		bb		0.000
6	FUNCTION4 NCDPE	41.15	1.244e2					2.8	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.53	7.557e1					1.5	NO		bb		0.000
2	FUNCTION5 DCDPE	43.39	1.767e2					2.9	NO		bb		0.000
3	FUNCTION5 DCDPE	43.31	8.303e1					2.9	NO		db		0.000
4	FUNCTION5 DCDPE	43.27	1.217e2					4.5	YES		bd		0.000
5	FUNCTION5 DCDPE	43.04	1.550e2					3.9	YES		bb		0.000
6	FUNCTION5 DCDPE	42.73	1.390e2					7.0	YES		bb		0.000

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Printed: Monday, March 06, 2023 11:33:58 Pacific Standard Time

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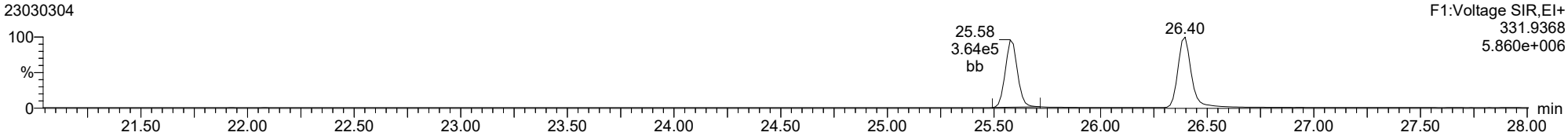

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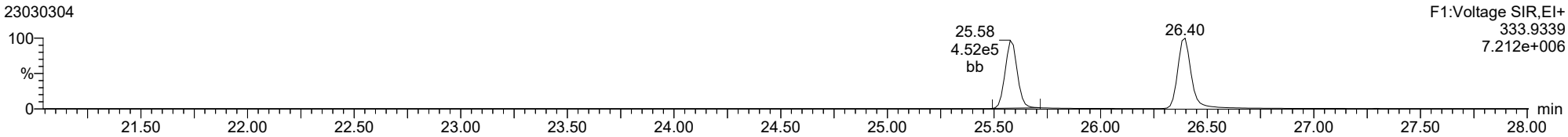

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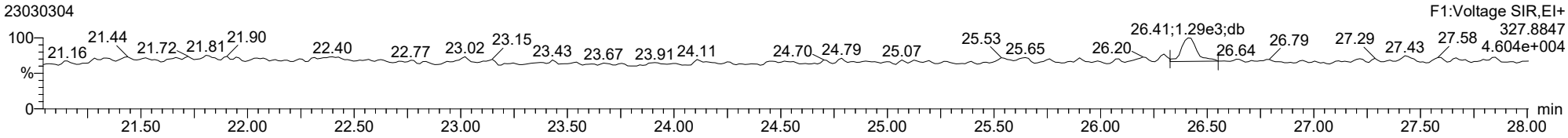

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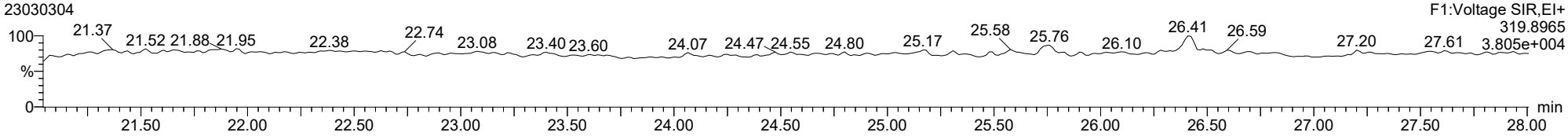

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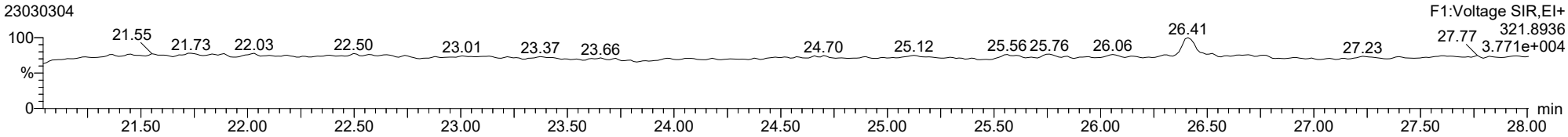

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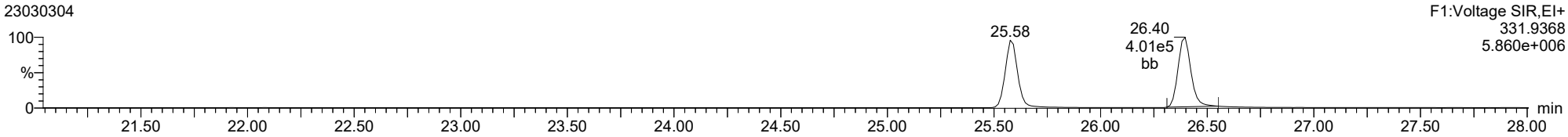

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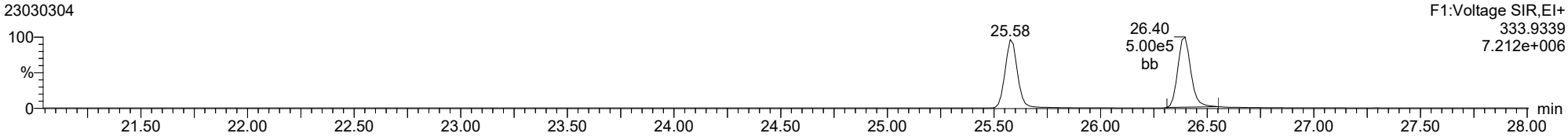

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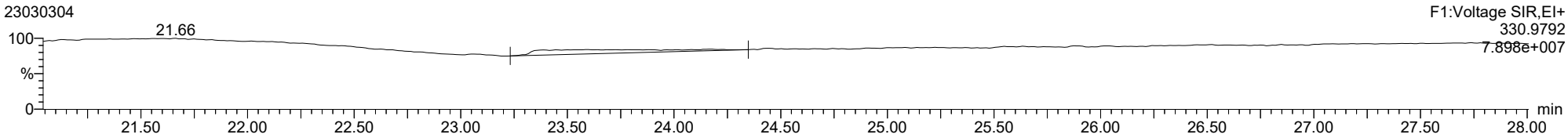

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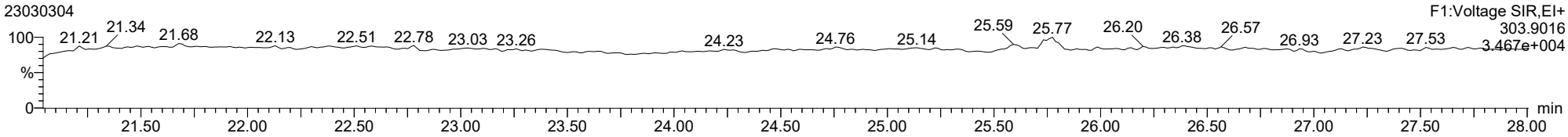

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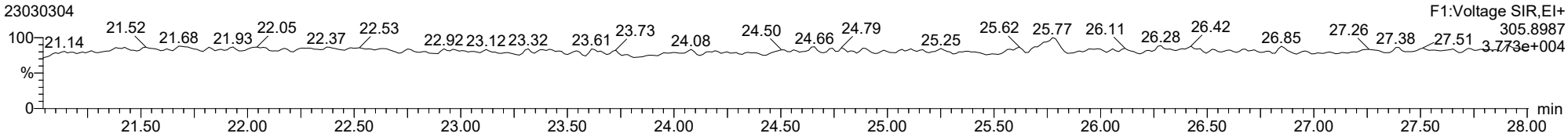

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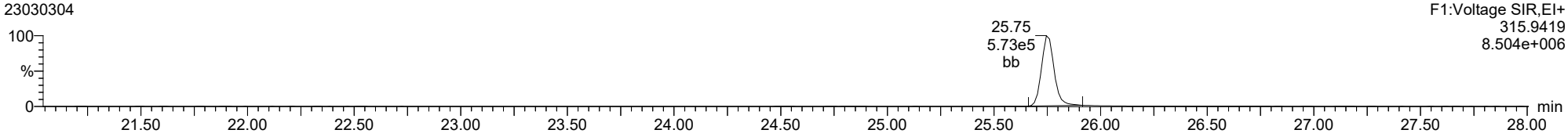

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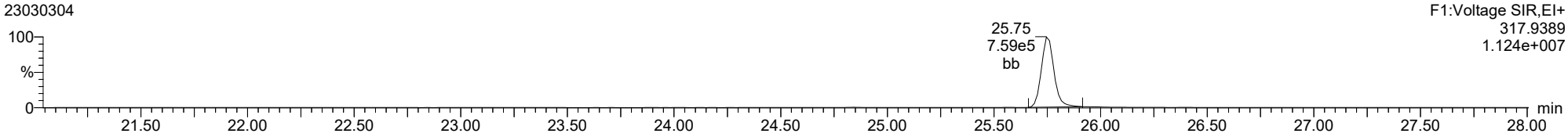

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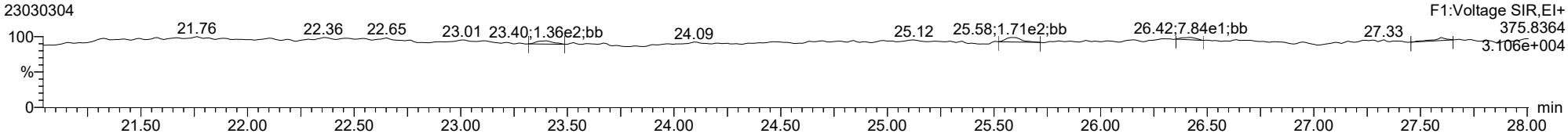

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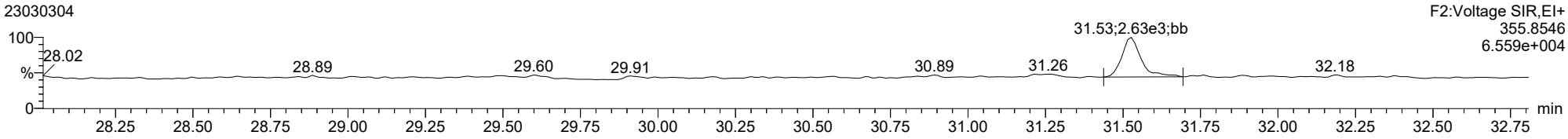
12378-PeCDD



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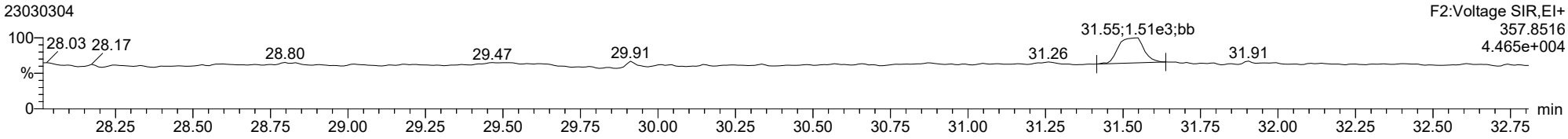

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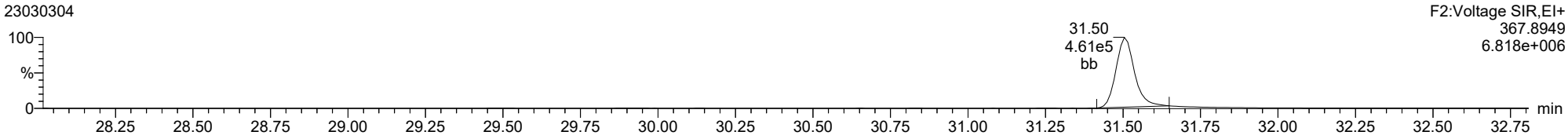

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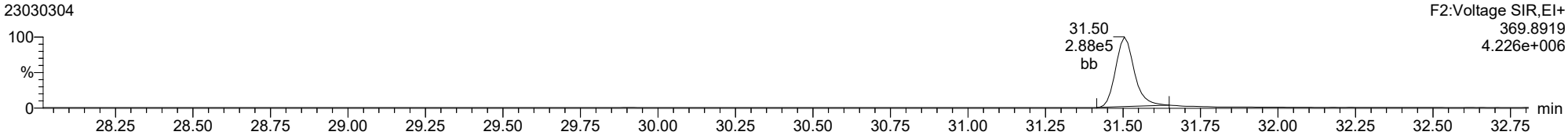
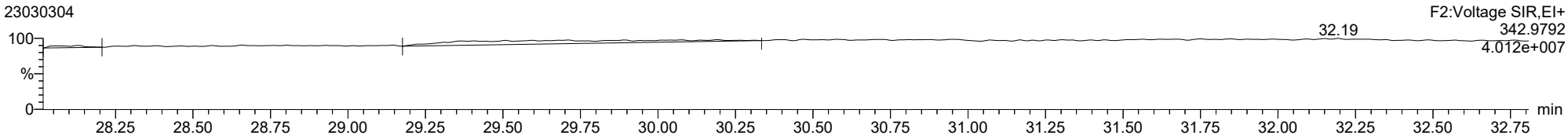


FUNCTION2 PFK



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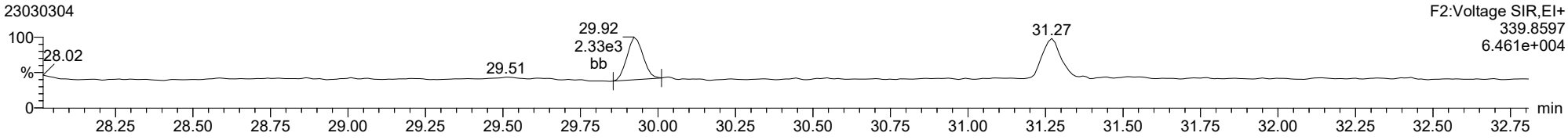
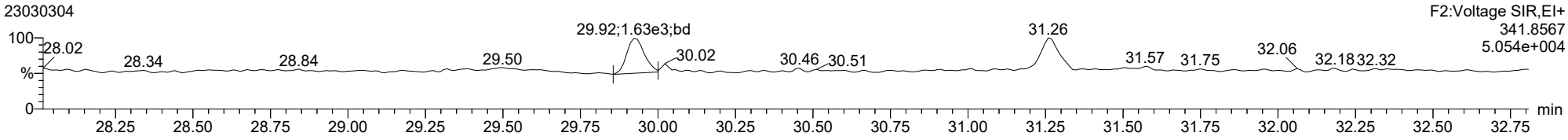
12378-PeCDF



12378-PeCDF



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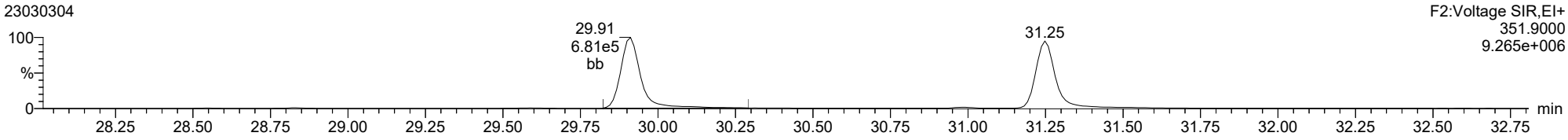

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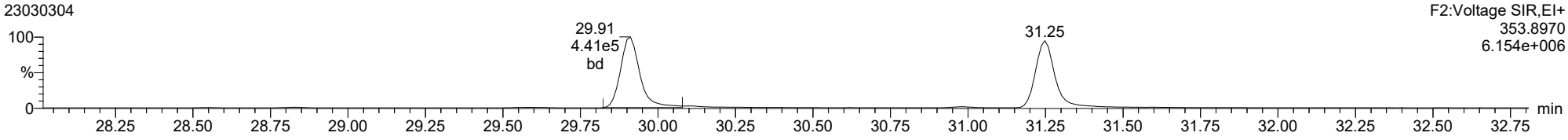

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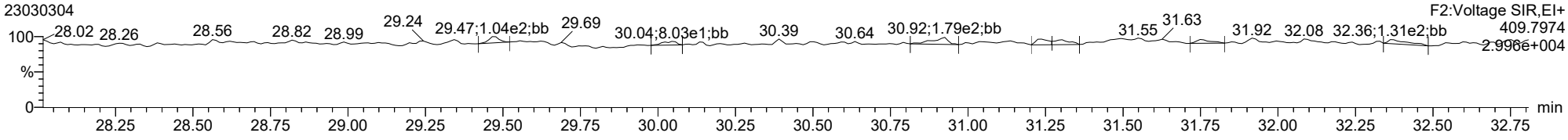

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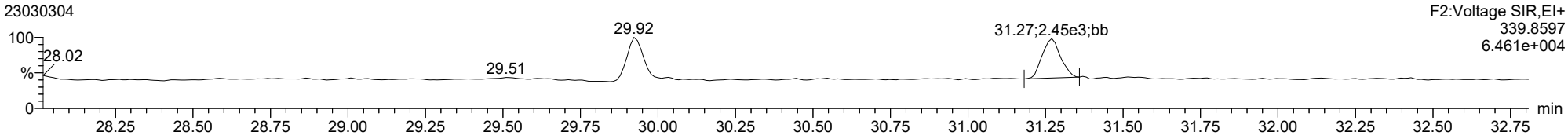

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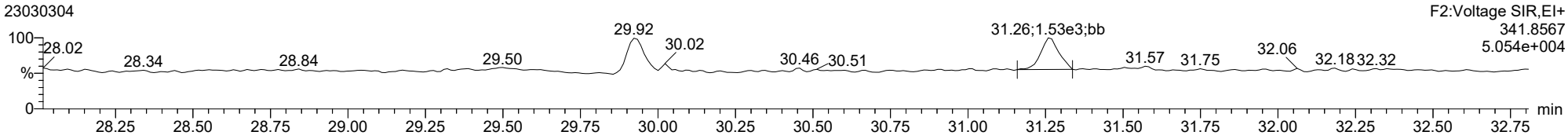

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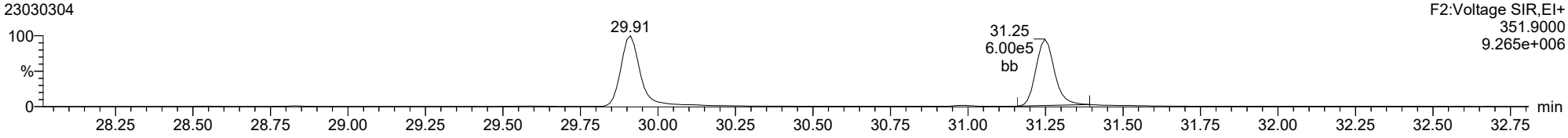

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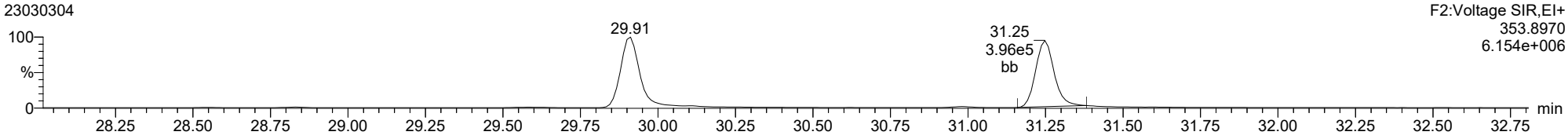

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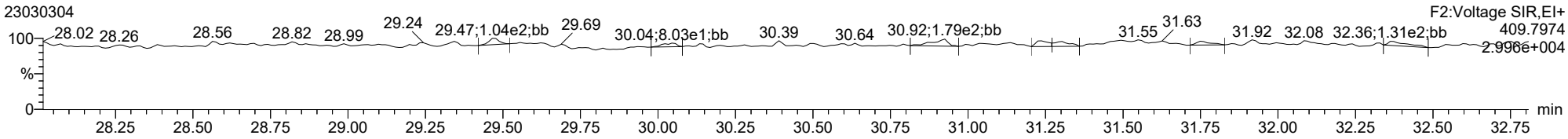

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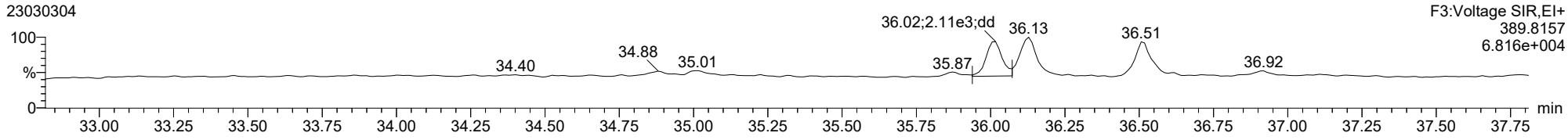

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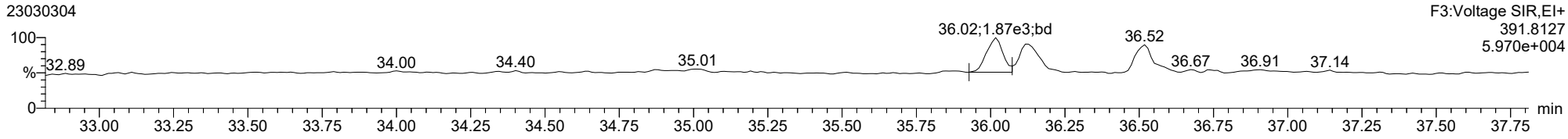

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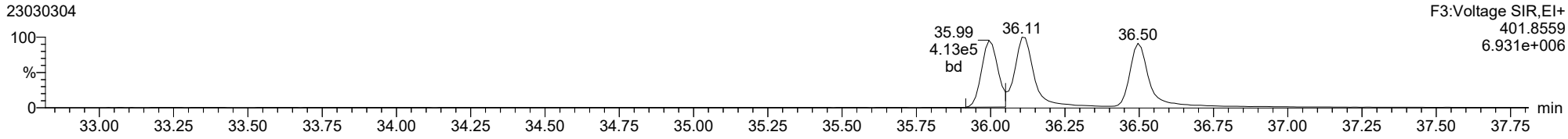

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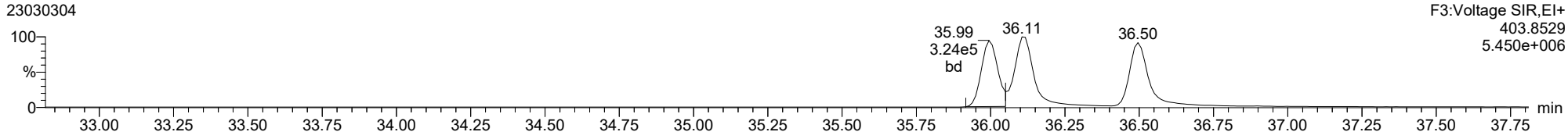

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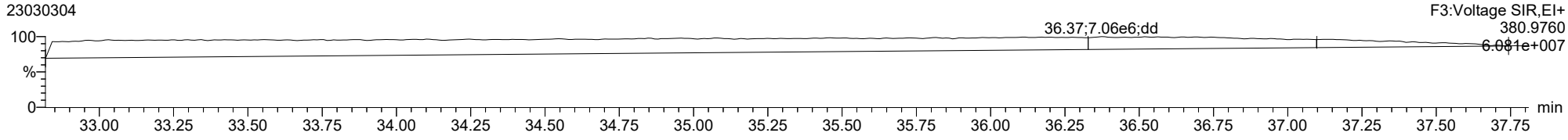

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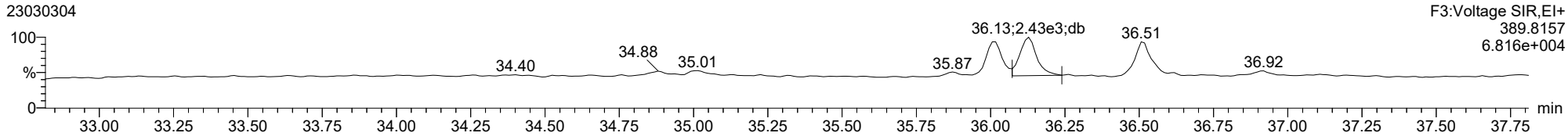

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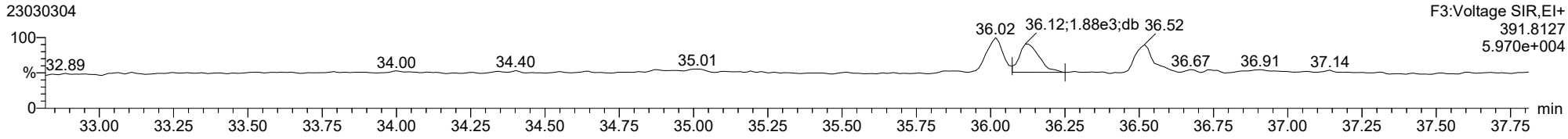

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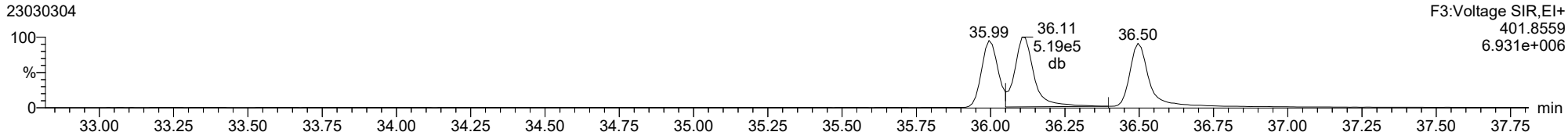

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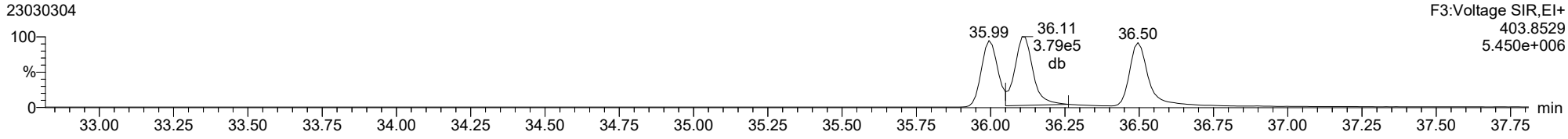

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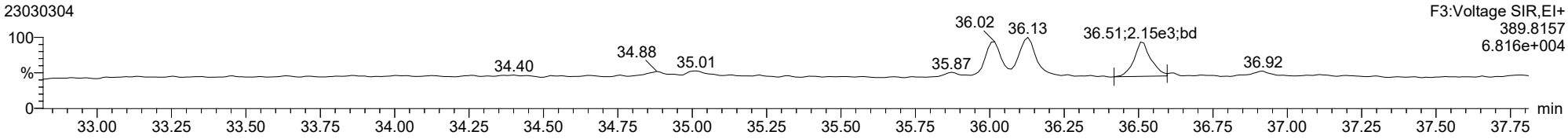

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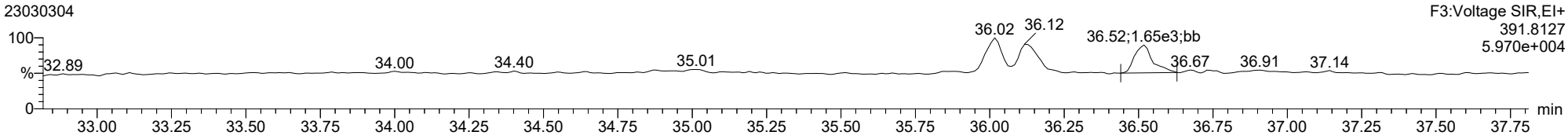

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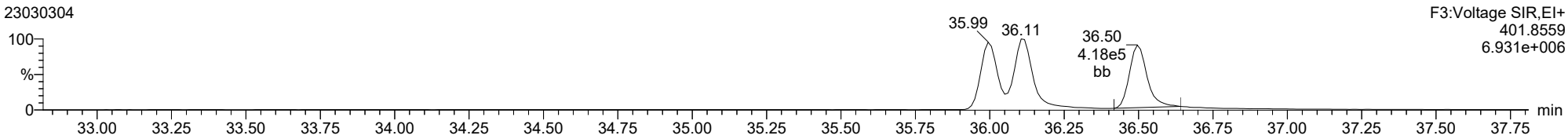

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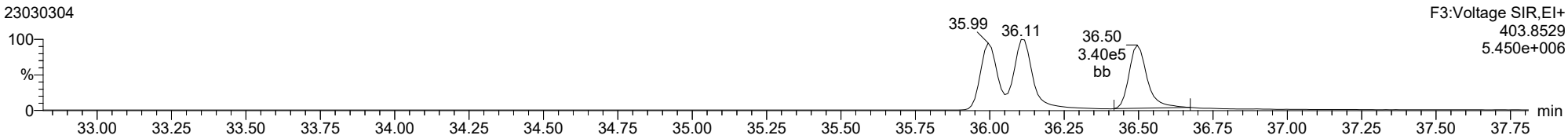

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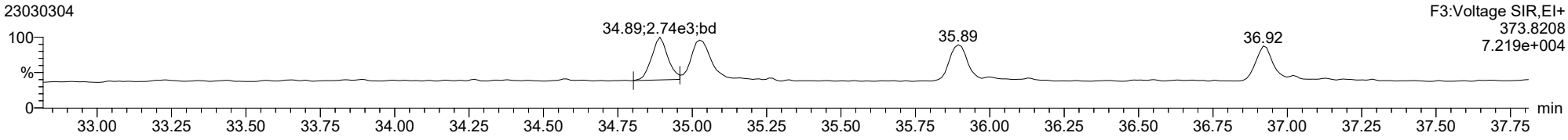

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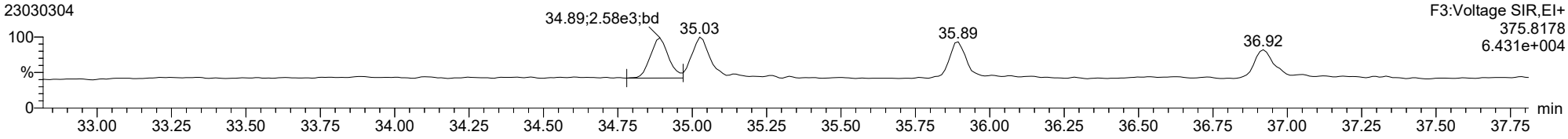

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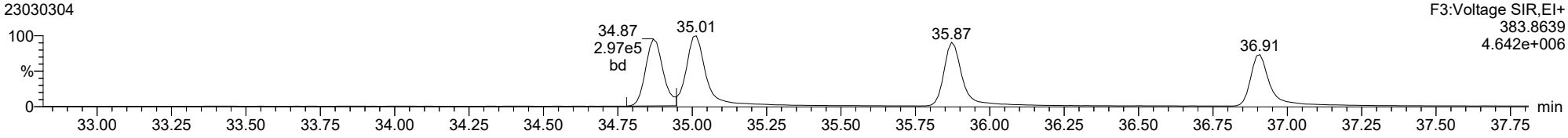

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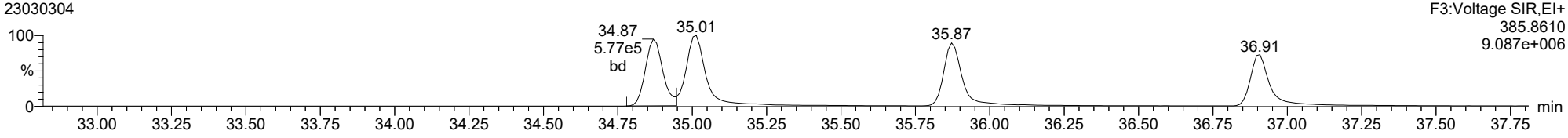
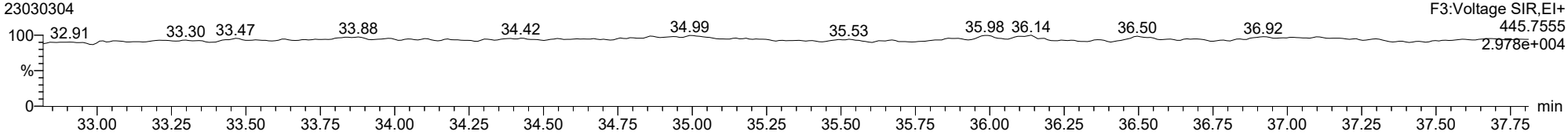


FUNCTION3 OCDPE



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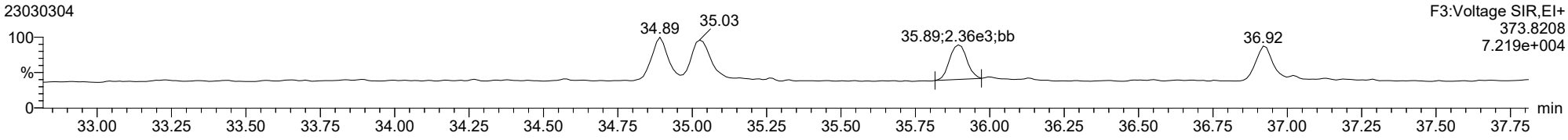
234678-HxCDF



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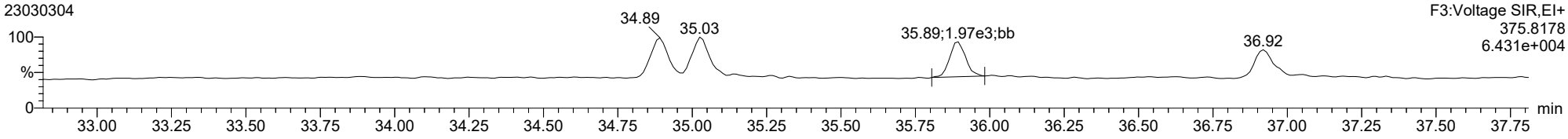

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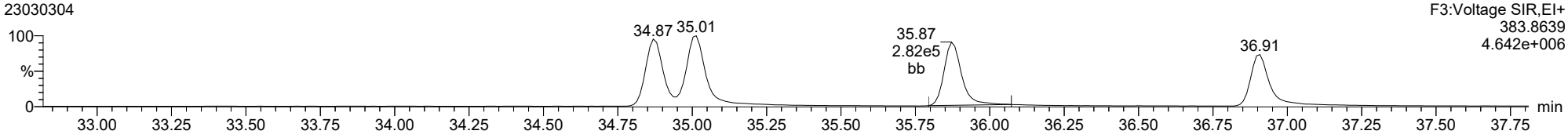

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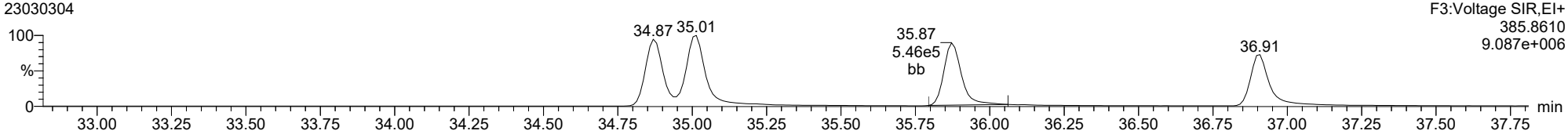
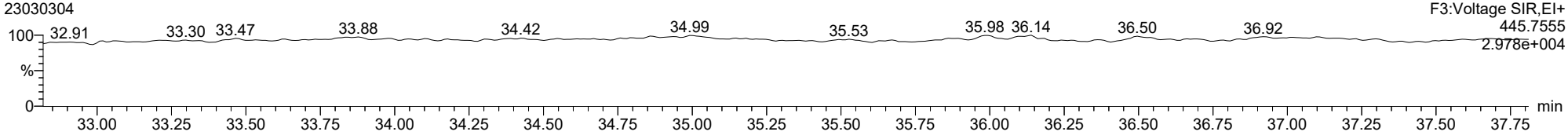


FUNCTION3 OCDPE



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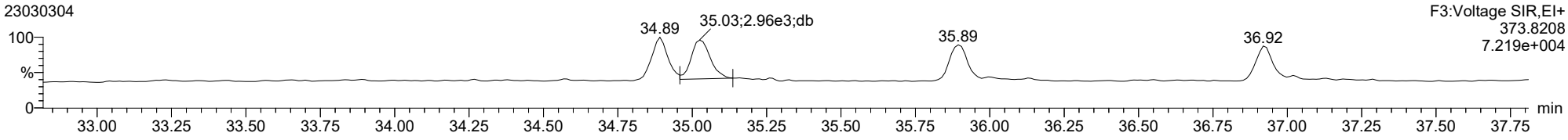

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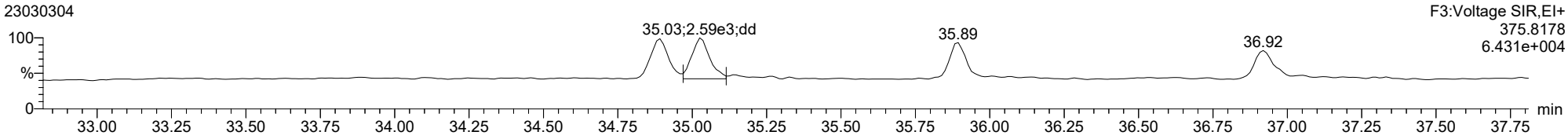

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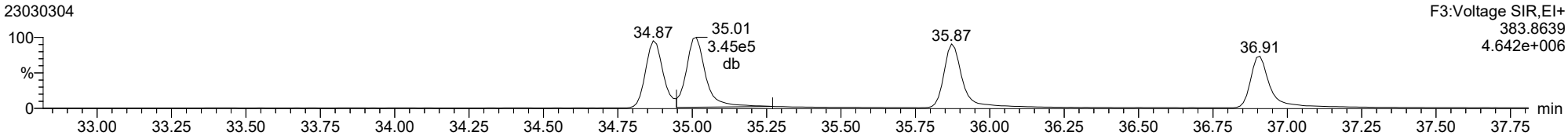

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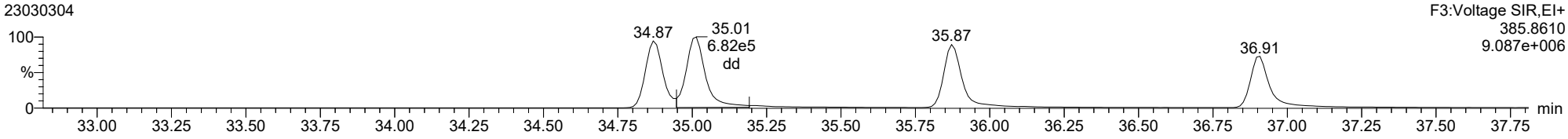
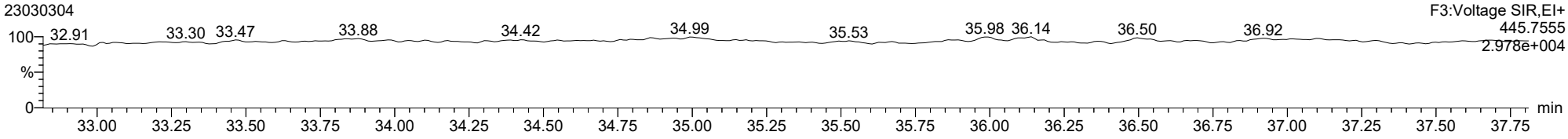


FUNCTION3 OCDPE



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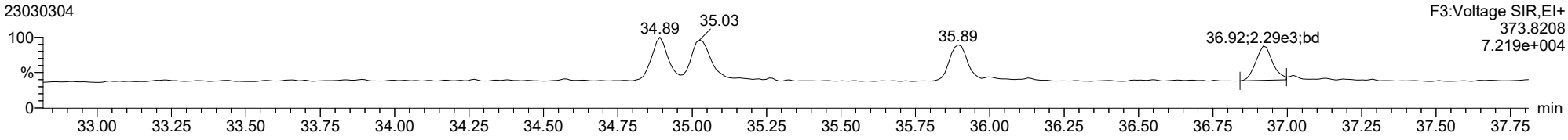

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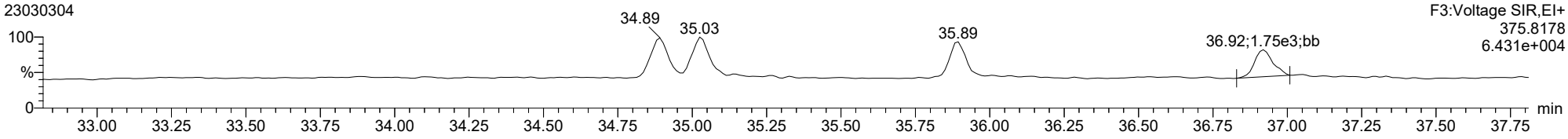

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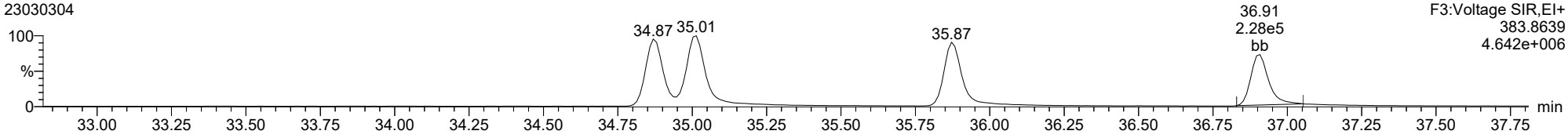

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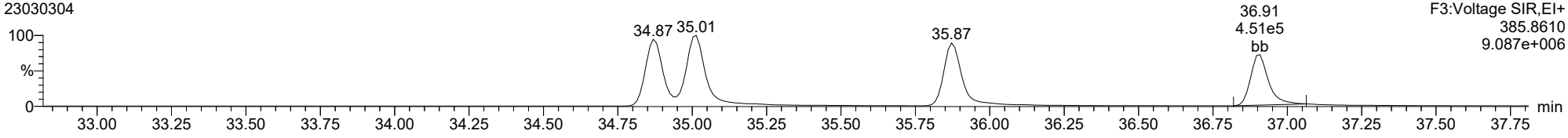
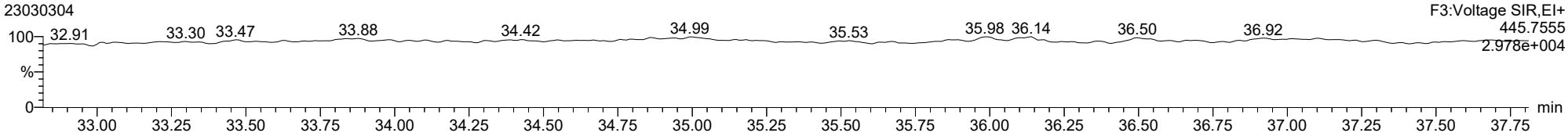


FUNCTION3 OCDPE



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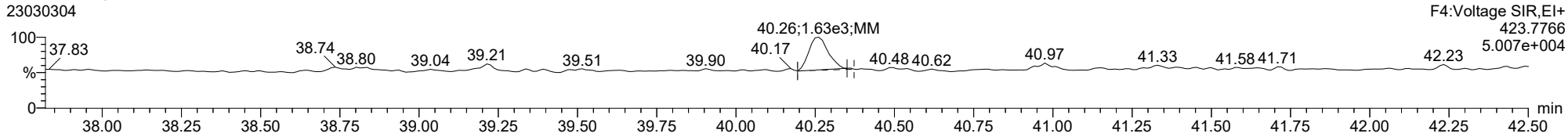

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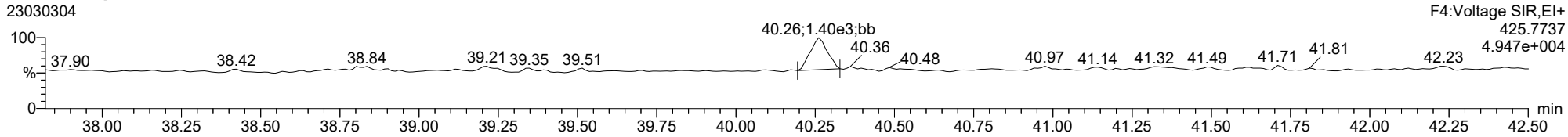

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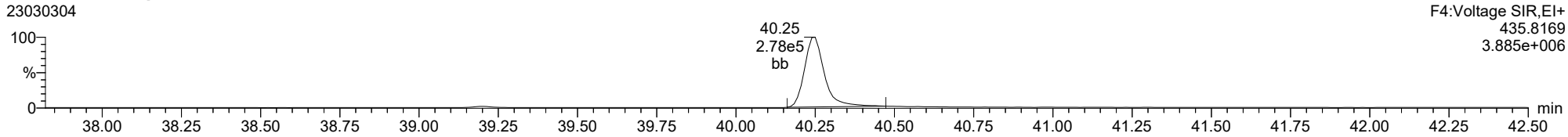

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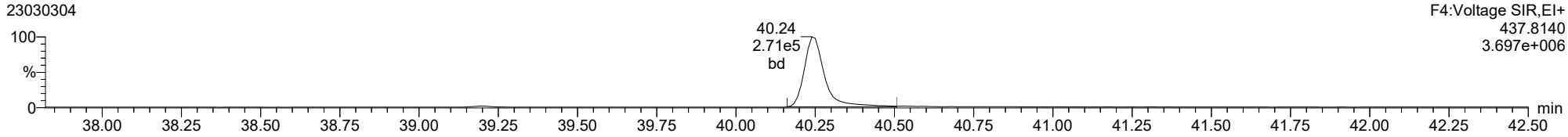
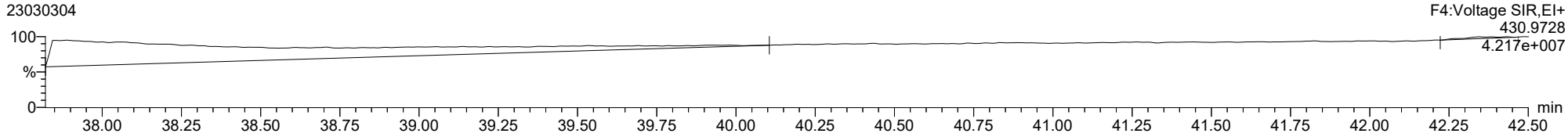


FUNCTION4 PFK



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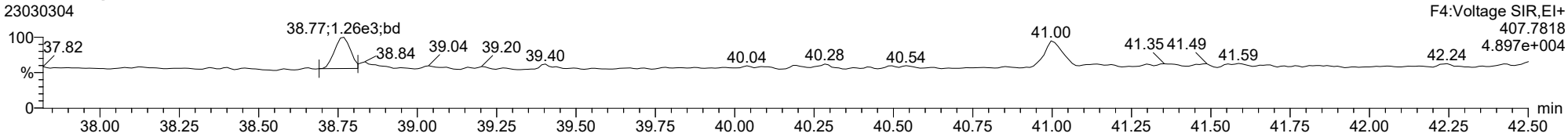

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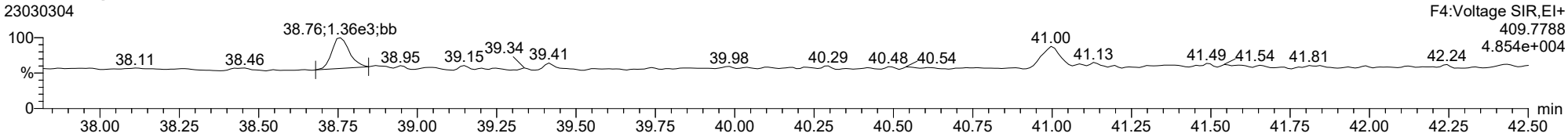

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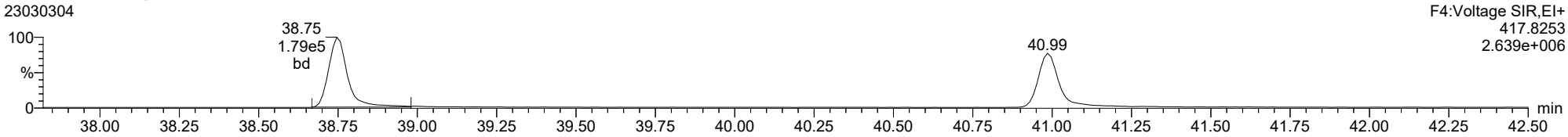

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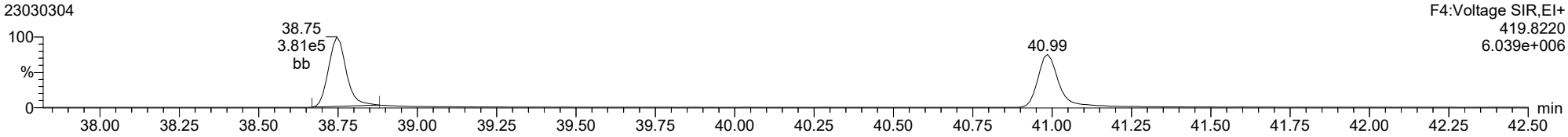
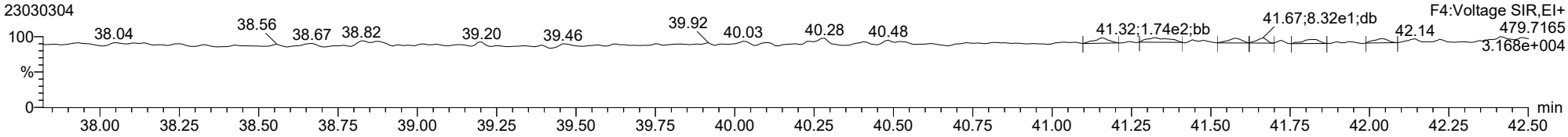


FUNCTION4 NCDPE



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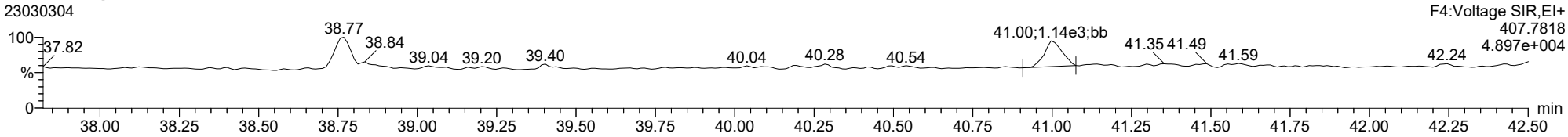
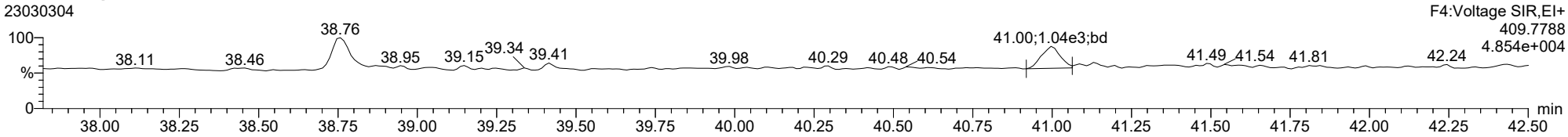
1234789-HpCDF



1234789-HpCDF



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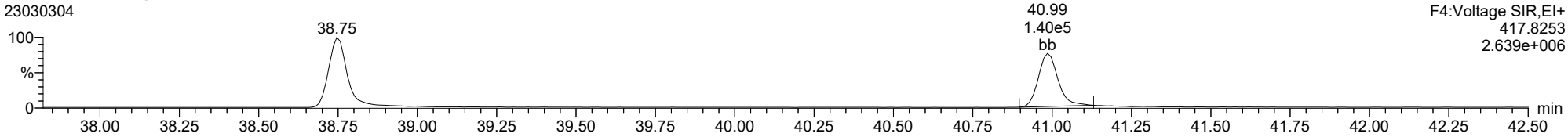

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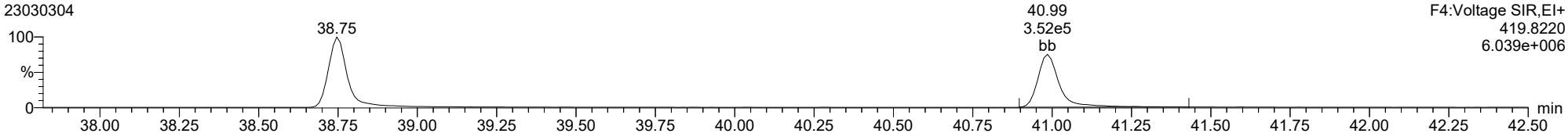
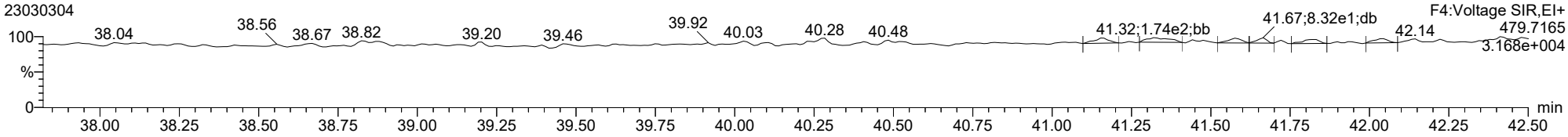
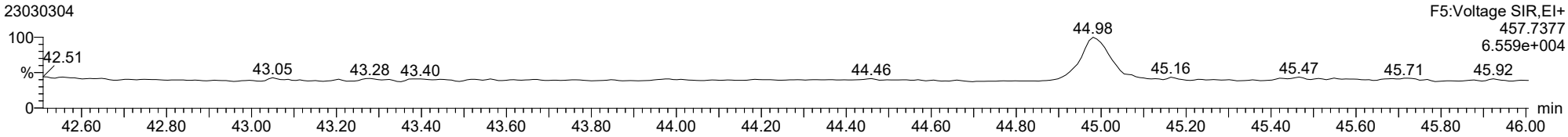


FUNCTION4 NCDPE

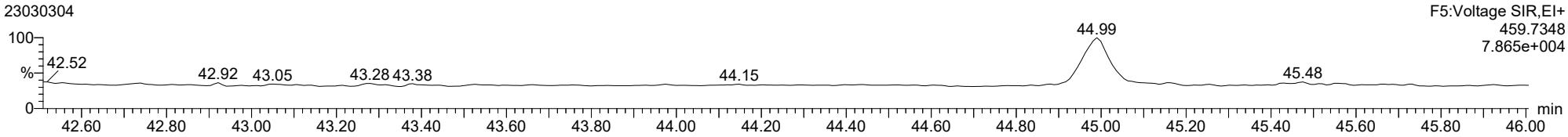


ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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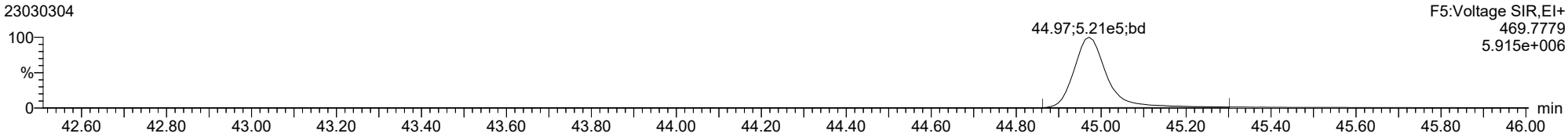

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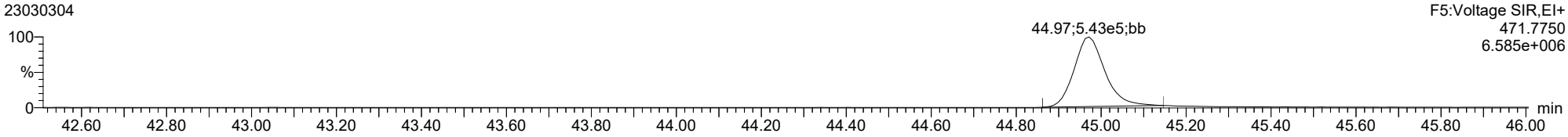
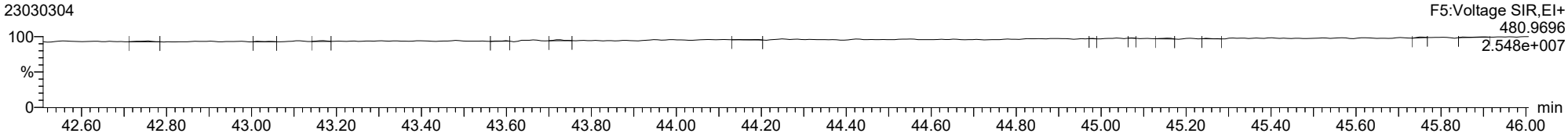


FUNCTION5 PFK



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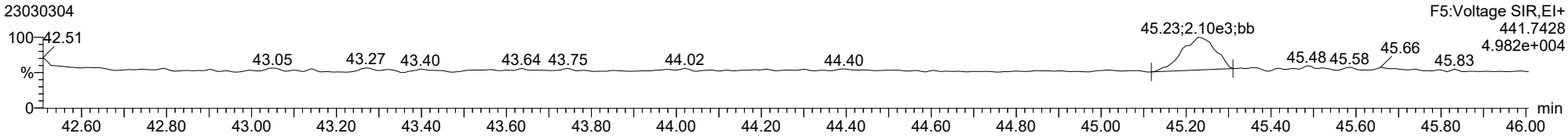
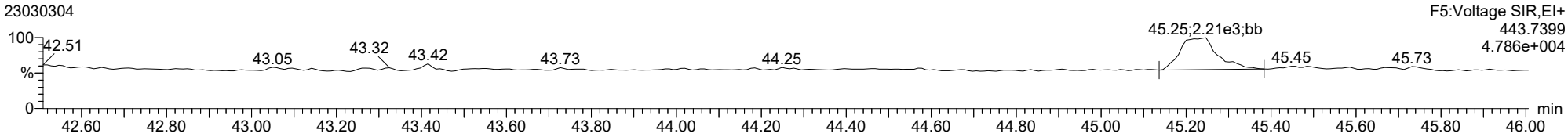
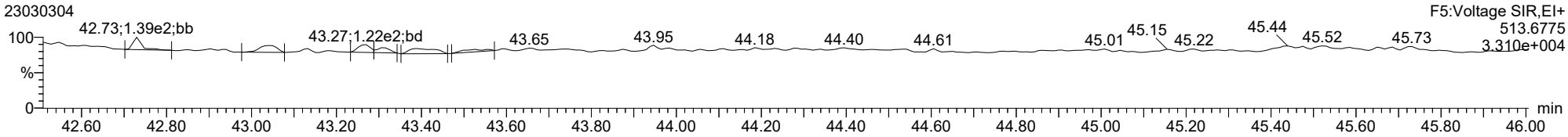
OCDF



OCDF

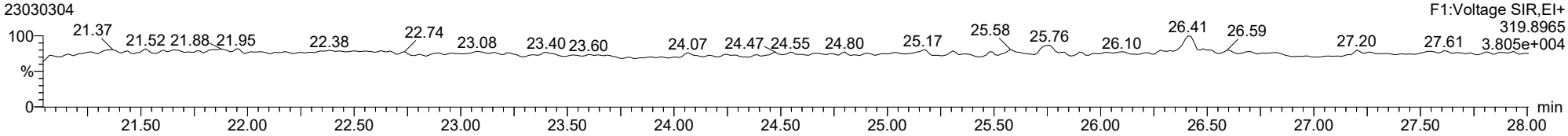


FUNCTION5 DCDPE

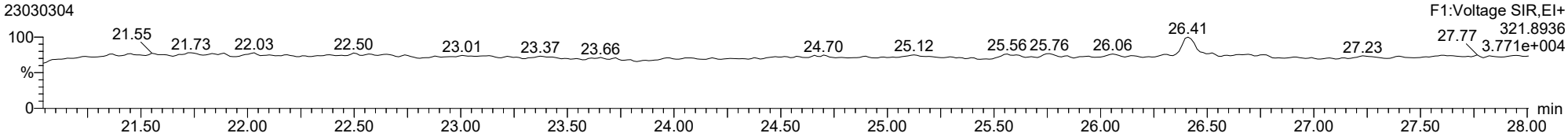


ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

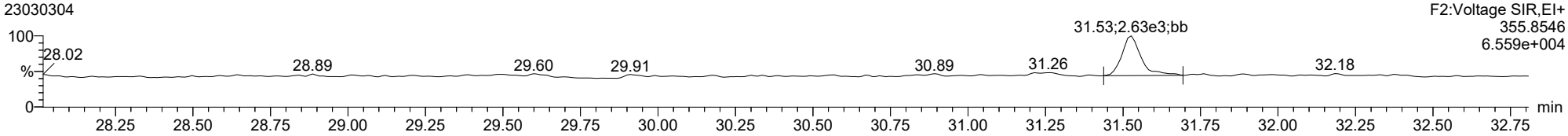
Total-tetradioxins



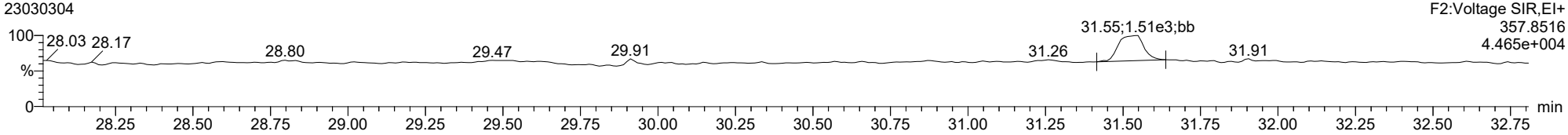
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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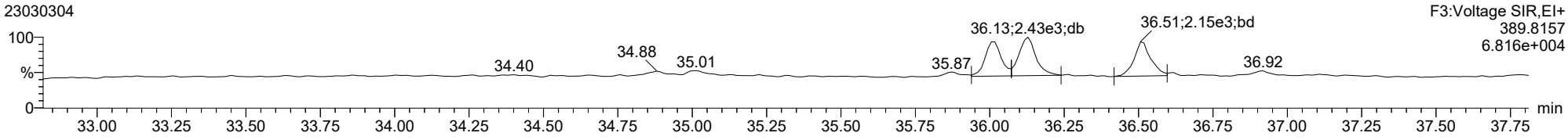
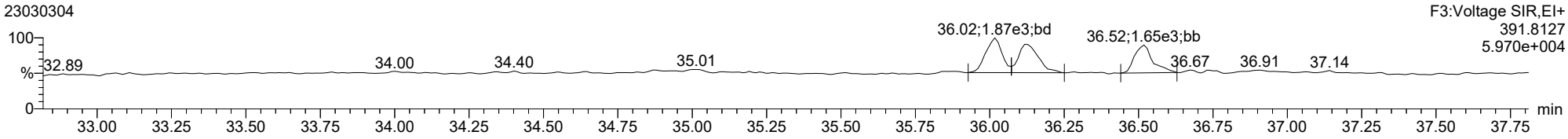
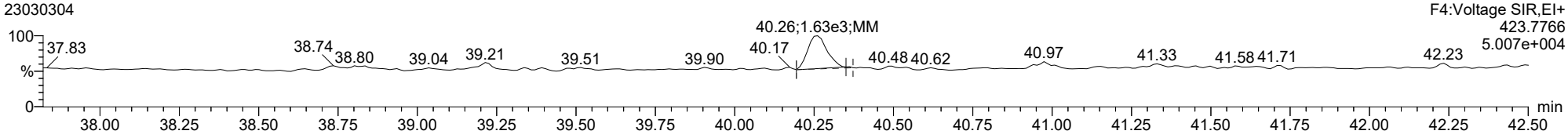
Total-hexadioxins



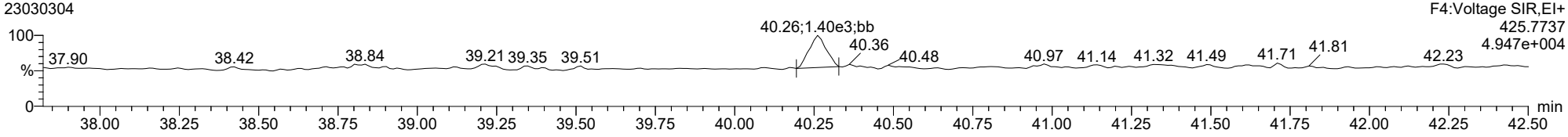
Total-hexadioxins



Total-heptadioxins



Total-heptadioxins



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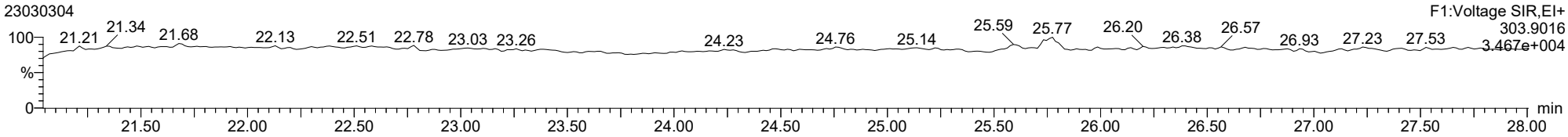
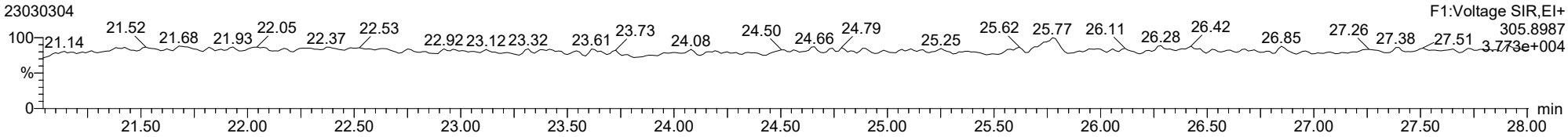
Total-tetrafurans



Total-tetrafurans



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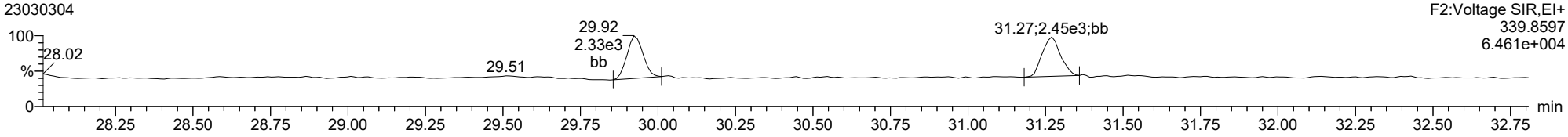
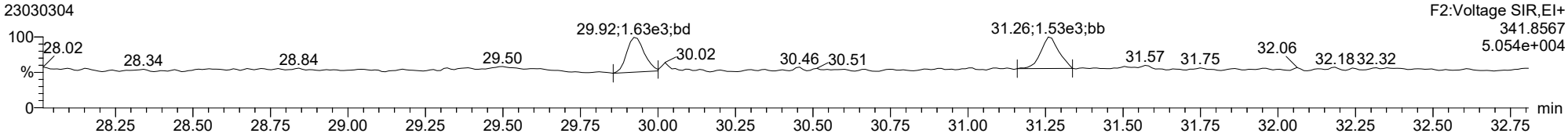


Total-pentafurans



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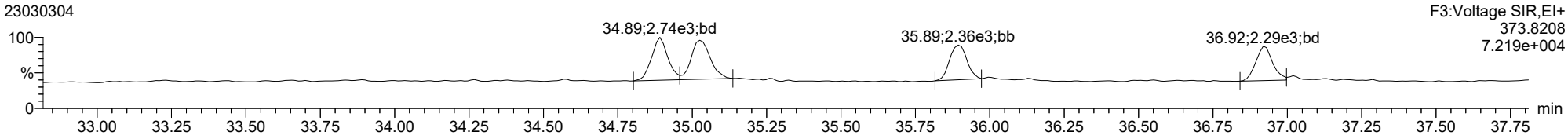
Total-hexafurans



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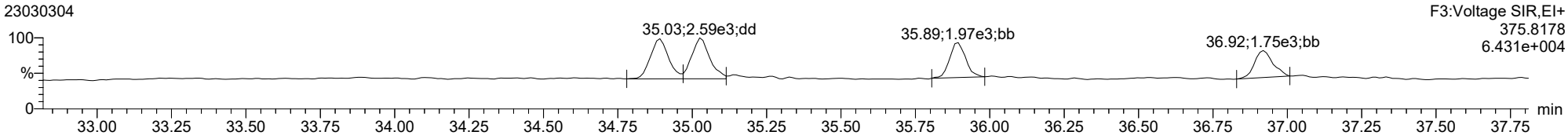
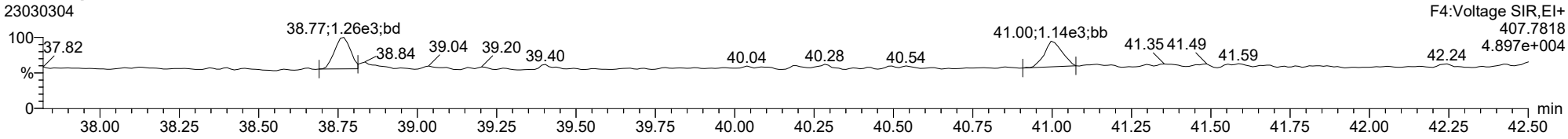


Total-heptafurans



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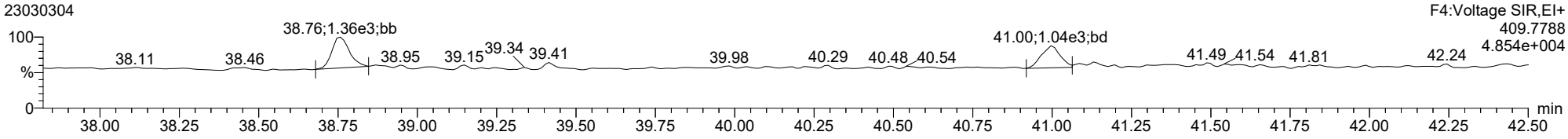

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Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:10 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	1.705e3	2.516e3	0.702	0.678	0.770	886	1799	2.34e4	3.87e4	26.4	21.5	NO	bb	MM	0.494
12378-PeCDF	29.933	1.000	5.914e3	4.099e3	0.679	1.442	1.550	1151	1276	9.10e4	6.48e4	79.1	50.8	NO	bb	bb	2.168
23478-PeCDF	31.270	1.000	7.974e3	4.958e3	0.786	1.608	1.550	1151	1276	1.22e5	6.97e4	106.1	54.6	NO	bb	bb	2.386
123478-HxCDF	34.891	1.000	1.063e4	7.851e3	1.166	1.354	1.240	1046	1170	1.58e5	1.17e5	151.4	100.1	NO	bd	bd	2.532
234678-HxCDF	35.894	1.000	1.057e4	7.802e3	1.140	1.354	1.240	1046	1170	1.51e5	1.18e5	143.9	100.6	NO	bb	bb	2.503
123678-HxCDF	35.036	1.001	1.161e4	8.676e3	1.091	1.339	1.240	1046	1170	1.53e5	1.27e5	146.1	108.8	NO	dd	dd	2.416
123789-HxCDF	36.930	1.001	8.482e3	6.693e3	1.137	1.267	1.240	1046	1170	1.18e5	8.92e4	112.7	76.2	NO	bd	bb	2.462
1234678-HpCDF	38.768	1.000	7.253e3	6.596e3	1.003	1.100	1.050	811	627	1.05e5	9.73e4	128.9	155.1	NO	bb	bb	2.680
1234789-HpCDF	41.008	1.000	5.116e3	5.234e3	0.953	0.978	1.050	811	627	7.22e4	7.17e4	89.0	114.3	NO	bb	bb	2.342
OCDF	45.237	1.006	5.981e3	6.798e3	0.778	0.880	0.890	709	890	6.92e4	8.13e4	97.6	91.3	NO	MM	bd	4.559
2378-TCDD	26.424	1.001	2.272e3	2.723e3	1.149	0.834	0.770	1286	820	3.35e4	3.73e4	26.0	45.5	NO	bb	bb	0.486
12378-PeCDD	31.538	1.001	7.831e3	5.061e3	1.022	1.548	1.550	902	618	1.00e5	7.05e4	111.4	114.0	NO	bb	bd	2.348
123478-HxCDD	36.016	1.000	7.381e3	5.875e3	0.996	1.256	1.240	655	843	1.17e5	9.68e4	178.2	114.9	NO	bd	bd	2.415
123678-HxCDD	36.139	1.001	9.152e3	7.340e3	1.001	1.247	1.240	655	843	1.26e5	9.90e4	192.8	117.4	NO	db	dd	2.494
123789-HxCDD	36.518	1.011	7.480e3	5.936e3	0.907	1.260	1.240	655	843	1.06e5	8.62e4	162.4	102.3	NO	bd	bd	2.440
1234678-HpCDD	40.272	1.001	6.283e3	5.832e3	1.039	1.077	1.050	694	917	8.98e4	8.16e4	129.4	89.0	NO	bb	bd	2.337
OCDD	44.999	1.000	8.578e3	9.676e3	0.920	0.887	0.890	635	634	9.84e4	1.12e5	154.9	175.9	NO	bd	bb	5.505
13C-2378-TCDF	25.760	1.007	5.230e5	6.960e5	1.620	0.752	0.770	2566	1723	7.68e6	1.02e7	2994.2	5911.4	NO	bb	bb	98.043
13C-12378-PeCDF	29.922	1.169	4.082e5	2.718e5	1.240	1.502	1.550	3092	2294	5.44e6	3.64e6	1758.1	1584.9	NO	bd	bb	71.437
13C-23478-PeCDF	31.259	1.222	4.106e5	2.788e5	1.118	1.473	1.550	3092	2294	5.91e6	4.02e6	1912.5	1751.3	NO	bb	bb	80.373
13C-123478-HxCDF	34.880	0.955	2.117e5	4.140e5	1.168	0.511	0.510	1778	2186	3.18e6	6.21e6	1786.5	2841.3	NO	bd	bd	93.801
13C-123678-HxCDF	35.014	0.959	2.754e5	4.947e5	1.386	0.557	0.510	1778	2186	3.40e6	6.43e6	1911.3	2941.0	NO	db	db	97.276
13C-234678-HxCDF	35.882	0.983	2.122e5	4.318e5	1.129	0.491	0.510	1778	2186	3.04e6	5.98e6	1709.4	2734.1	NO	bb	bd	99.880
13C-123789-HxCDF	36.908	1.011	1.853e5	3.568e5	0.932	0.519	0.510	1778	2186	2.62e6	5.01e6	1471.0	2293.6	NO	bb	bb	101.893
13C-1234678-HpCDF	38.757	1.062	1.579e5	3.573e5	0.895	0.442	0.440	2049	3174	2.36e6	5.45e6	1151.3	1718.3	NO	bb	bb	100.794
13C-1234789-HpCDF	40.997	1.123	1.372e5	3.264e5	0.770	0.420	0.440	2049	3174	1.74e6	3.92e6	851.0	1236.7	NO	bd	bd	105.482
13C-1234-TCDD	25.591	0.000	3.429e5	4.245e5	1.000	0.808	0.770	2519	1748	5.22e6	6.49e6	2072.6	3712.2	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	3.982e5	4.964e5	1.152	0.802	0.770	2519	1748	5.51e6	6.93e6	2188.2	3962.8	NO	bb	bb	101.152
13C-12378-PeCDD	31.515	1.232	3.242e5	2.131e5	0.829	1.521	1.550	1586	877	4.46e6	2.78e6	2809.5	3168.1	NO	bb	bd	84.489
13C-123478-HxCDD	36.005	0.986	3.100e5	2.413e5	0.995	1.285	1.240	2517	1649	4.83e6	3.77e6	1920.9	2283.3	NO	bd	bd	97.050
13C-123678-HxCDD	36.117	0.989	3.700e5	2.908e5	1.157	1.273	1.240	2517	1649	5.06e6	4.03e6	2012.2	2442.3	NO	db	db	100.049
13C-1234678-HpCDD	40.250	1.102	2.556e5	2.433e5	0.840	1.051	1.050	2183	1602	3.48e6	3.29e6	1594.9	2052.3	NO	bb	bb	103.999
13C-OCDD	44.980	1.232	3.386e5	3.823e5	0.767	0.886	0.890	3187	1733	3.80e6	4.27e6	1193.7	2462.5	NO	bb	bb	164.498
13C-123789-HxCDD	36.507	0.000	3.194e5	2.515e5	1.000	1.270	1.240	2517	1649	4.46e6	3.59e6	1770.5	2177.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	5.065e3		1.288			2040		7.28e4		35.7			bb		0.513

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
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ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	886	1799								
1289-TCDF					0.678		0.770	886	1799								
13468-PECDF					1.246		1.550	811	1221								
12389-PECDF					0.496		1.550	1151	1276								
123468-HXCDF					1.169		1.240	1046	1170								
1368-TCDD					1.015		0.770	1286	820								
1289-TCDD					0.909		0.770	1286	820								
12479-PECDD					2.301		1.550	902	618								
12389-PECDD					1.184		1.550	902	618								
124679-HXCDD					1.115		1.240	655	843								
1234679-HPCDD					1.137		1.050	694	917								
Total-tetrafurans			1.705e3		0.727			886		2.34e4							0.494
Total-penta1			0.000e0					811		0.00e0							
Total-pentafurans			1.389e4		0.654			1151		2.13e5							4.554
Total-hexafurans			4.139e4		1.141			1046		5.82e5							9.938
Total-heptafurans			1.237e4		0.978			811		1.77e5							5.023
Total-Furans			7.533e4		0.922			886		1.06e6							24.566
Total-tetradioxins			2.272e3		1.024			1286		3.35e4							0.486
Total-pentadioxins			7.831e3		1.502			902		1.00e5							2.348
Total-hexadioxins			2.401e4		1.005			655		3.49e5							7.349
Total-heptadioxins			6.283e3		1.088			694		8.98e4							2.337
Total-Dioxins			4.898e4		1.130			1286		6.72e5							18.025
Total-TEQ			1.243e5					1286		1.74e6							42.592
FUNCTION1 PFK			0.000e0					501375		0.00e0							
FUNCTION2 PFK			7.687e6					300953		7.99e6							0.000
FUNCTION3 PFK			1.081e7					473463		1.95e7							0.000
FUNCTION4 PFK			1.035e7					332160		2.87e6							
FUNCTION5 PFK			6.101e5					195111		8.38e5							
FUNCTION1 HXCD...			6.739e2					611		6.36e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.361e2					923		1.83e4							0.000
FUNCTION3 OCDPE			2.008e2					596		2.61e3							0.000
FUNCTION4 NCDPE			9.397e1					539		1.40e3							0.000
FUNCTION5 DCDPE			1.677e2					561		3.39e3							0.000

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	1.705e3	2.516e3	0.702	0.68	0.77	26.4	YES	NO	bb	MM	0.494

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	7.974e3	4.958e3	0.786	1.61	1.55	106.1	YES	NO	bb	bb	2.386
2	12378-PeCDF	29.93	5.914e3	4.099e3	0.679	1.44	1.55	79.1	YES	NO	bb	bb	2.168

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.93	8.482e3	6.693e3	1.137	1.27	1.24	112.7	YES	NO	bd	bb	2.462
2	234678-HxCDF	35.89	1.057e4	7.802e3	1.140	1.35	1.24	143.9	YES	NO	bb	bb	2.503
3	Total-hexafurans	35.23	1.011e2	8.523e1	1.141	1.19	1.24	2.2	NO	NO	db	db	0.025
4	123678-HxCDF	35.04	1.161e4	8.676e3	1.091	1.34	1.24	146.1	YES	NO	dd	dd	2.416
5	123478-HxCDF	34.89	1.063e4	7.851e3	1.166	1.35	1.24	151.4	YES	NO	bd	bd	2.532

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.77	7.253e3	6.596e3	1.003	1.10	1.05	128.9	YES	NO	bb	bb	2.680
2	1234789-HpCDF	41.01	5.116e3	5.234e3	0.953	0.98	1.05	89.0	YES	NO	bb	bb	2.342

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	7.974e3	4.958e3	0.786	1.61	1.55	106.1	YES	NO	bb	bb	2.386
2	12378-PeCDF	29.93	5.914e3	4.099e3	0.679	1.44	1.55	79.1	YES	NO	bb	bb	2.168
3	2378-TCDF	25.79	1.705e3	2.516e3	0.702	0.68	0.77	26.4	YES	NO	bb	MM	0.494
4	123789-HxCDF	36.93	8.482e3	6.693e3	1.137	1.27	1.24	112.7	YES	NO	bd	bb	2.462
5	234678-HxCDF	35.89	1.057e4	7.802e3	1.140	1.35	1.24	143.9	YES	NO	bb	bb	2.503
6	Total-hexafurans	35.23	1.011e2	8.523e1	1.141	1.19	1.24	2.2	NO	NO	db	db	0.025
7	123678-HxCDF	35.04	1.161e4	8.676e3	1.091	1.34	1.24	146.1	YES	NO	dd	dd	2.416
8	123478-HxCDF	34.89	1.063e4	7.851e3	1.166	1.35	1.24	151.4	YES	NO	bd	bd	2.532
9	1234678-HpCDF	38.77	7.253e3	6.596e3	1.003	1.10	1.05	128.9	YES	NO	bb	bb	2.680
10	OCDF	45.24	5.981e3	6.798e3	0.778	0.88	0.89	97.6	YES	NO	MM	bd	4.559
11	1234789-HpCDF	41.01	5.116e3	5.234e3	0.953	0.98	1.05	89.0	YES	NO	bb	bb	2.342

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	2.272e3	2.723e3	1.149	0.83	0.77	26.0	YES	NO	bb	bb	0.486

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.54	7.831e3	5.061e3	1.022	1.55	1.55	111.4	YES	NO	bb	bd	2.348

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.52	7.480e3	5.936e3	0.907	1.26	1.24	162.4	YES	NO	bd	bd	2.440
2	123678-HxCDD	36.14	9.152e3	7.340e3	1.001	1.25	1.24	192.8	YES	NO	db	dd	2.494
3	123478-HxCDD	36.02	7.381e3	5.875e3	0.996	1.26	1.24	178.2	YES	NO	bd	bd	2.415

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	6.283e3	5.832e3	1.039	1.08	1.05	129.4	YES	NO	bb	bd	2.337

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	2.272e3	2.723e3	1.149	0.83	0.77	26.0	YES	NO	bb	bb	0.486
2	123789-HxCDD	36.52	7.480e3	5.936e3	0.907	1.26	1.24	162.4	YES	NO	bd	bd	2.440
3	123678-HxCDD	36.14	9.152e3	7.340e3	1.001	1.25	1.24	192.8	YES	NO	db	dd	2.494
4	123478-HxCDD	36.02	7.381e3	5.875e3	0.996	1.26	1.24	178.2	YES	NO	bd	bd	2.415
5	12378-PeCDD	31.54	7.831e3	5.061e3	1.022	1.55	1.55	111.4	YES	NO	bb	bd	2.348
6	1234678-HpCDD	40.27	6.283e3	5.832e3	1.039	1.08	1.05	129.4	YES	NO	bb	bd	2.337
7	OCDD	45.00	8.578e3	9.676e3	0.920	0.89	0.89	154.9	YES	NO	bd	bb	5.505

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	7.974e3	4.958e3	0.786	1.61	1.55	106.1	YES	NO	bb	bb	2.386
2	12378-PeCDF	29.93	5.914e3	4.099e3	0.679	1.44	1.55	79.1	YES	NO	bb	bb	2.168
3	2378-TCDF	25.79	1.705e3	2.516e3	0.702	0.68	0.77	26.4	YES	NO	bb	MM	0.494
4	123789-HxCDF	36.93	8.482e3	6.693e3	1.137	1.27	1.24	112.7	YES	NO	bd	bb	2.462
5	234678-HxCDF	35.89	1.057e4	7.802e3	1.140	1.35	1.24	143.9	YES	NO	bb	bb	2.503
6	Total-hexafurans	35.23	1.011e2	8.523e1	1.141	1.19	1.24	2.2	NO	NO	db	db	0.025
7	123678-HxCDF	35.04	1.161e4	8.676e3	1.091	1.34	1.24	146.1	YES	NO	dd	dd	2.416
8	123478-HxCDF	34.89	1.063e4	7.851e3	1.166	1.35	1.24	151.4	YES	NO	bd	bd	2.532
9	1234678-HpCDF	38.77	7.253e3	6.596e3	1.003	1.10	1.05	128.9	YES	NO	bb	bb	2.680
10	OCDF	45.24	5.981e3	6.798e3	0.778	0.88	0.89	97.6	YES	NO	MM	bd	4.559
11	1234789-HpCDF	41.01	5.116e3	5.234e3	0.953	0.98	1.05	89.0	YES	NO	bb	bb	2.342
12	2378-TCDD	26.42	2.272e3	2.723e3	1.149	0.83	0.77	26.0	YES	NO	bb	bb	0.486
13	123789-HxCDD	36.52	7.480e3	5.936e3	0.907	1.26	1.24	162.4	YES	NO	bd	bd	2.440
14	123678-HxCDD	36.14	9.152e3	7.340e3	1.001	1.25	1.24	192.8	YES	NO	db	dd	2.494
15	123478-HxCDD	36.02	7.381e3	5.875e3	0.996	1.26	1.24	178.2	YES	NO	bd	bd	2.415
16	12378-PeCDD	31.54	7.831e3	5.061e3	1.022	1.55	1.55	111.4	YES	NO	bb	bd	2.348
17	1234678-HpCDD	40.27	6.283e3	5.832e3	1.039	1.08	1.05	129.4	YES	NO	bb	bd	2.337
18	OCDD	45.00	8.578e3	9.676e3	0.920	0.89	0.89	154.9	YES	NO	bd	bb	5.505

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.41	6.929e5					4.3	YES		bb		0.000
2	FUNCTION2 PFK	28.05	6.994e6					22.3	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.60	1.788e4					1.3	NO		bb		0.000
2	FUNCTION3 PFK	36.61	1.585e4					1.4	NO		bb		0.000
3	FUNCTION3 PFK	36.53	6.942e3					0.8	NO		bb		0.000
4	FUNCTION3 PFK	33.99	9.502e3					0.9	NO		bb		0.000
5	FUNCTION3 PFK	33.78	4.298e6					7.0	YES		db		0.000
6	FUNCTION3 PFK	33.15	6.467e6					29.8	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.85	1.035e7					8.6	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.97	6.101e5					4.3	YES		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.27	8.033e1					1.9	NO		bb		0.000
2	FUNCTION1 HXCD...	24.98	2.706e2					3.4	YES		bb		0.000
3	FUNCTION1 HXCD...	22.17	1.286e2					2.0	NO		bb		0.000
4	FUNCTION1 HXCD...	21.47	8.089e1					1.9	NO		bb		0.000
5	FUNCTION1 HXCD...	21.17	1.135e2					1.3	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.66	1.045e2					4.3	YES		db		0.000
2	FUNCTION2 HPCD...	32.58	1.134e2					3.0	NO		bd		0.000
3	FUNCTION2 HPCD...	31.88	7.272e1					1.9	NO		bb		0.000
4	FUNCTION2 HPCD...	30.71	7.070e1					1.8	NO		bb		0.000
5	FUNCTION2 HPCD...	30.13	1.134e2					2.5	NO		bb		0.000
6	FUNCTION2 HPCD...	28.92	7.142e1					2.0	NO		bb		0.000
7	FUNCTION2 HPCD...	28.66	9.983e1					2.2	NO		bb		0.000
8	FUNCTION2 HPCD...	28.24	9.016e1					2.1	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.50	2.008e2					4.4	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.59	9.397e1					2.6	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.72	7.355e1					2.5	NO		bb		0.000
2	FUNCTION5 DCDPE	44.30	9.416e1					3.6	YES		bb		0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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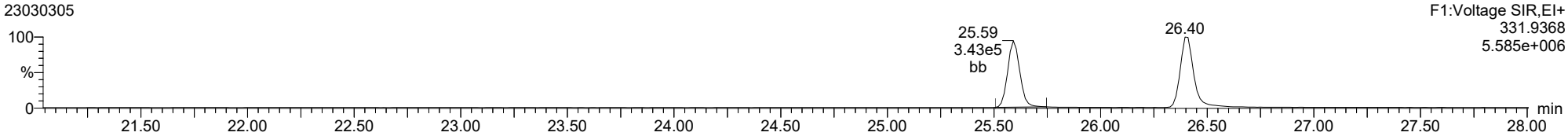

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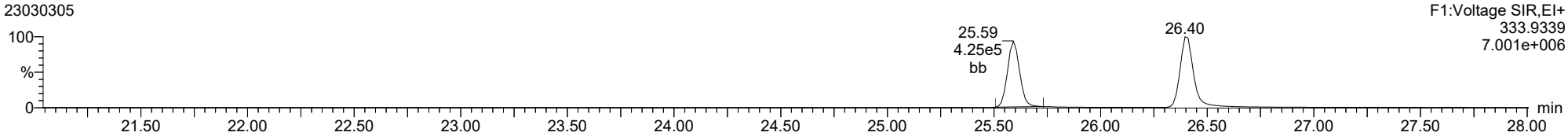

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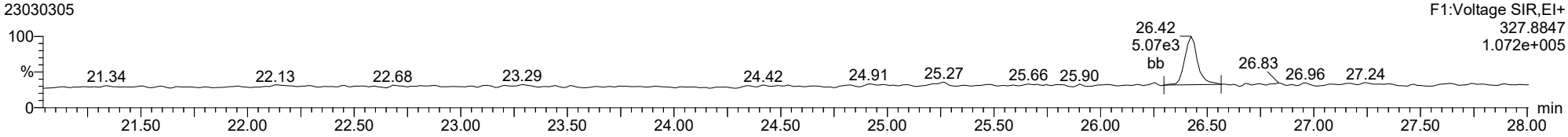

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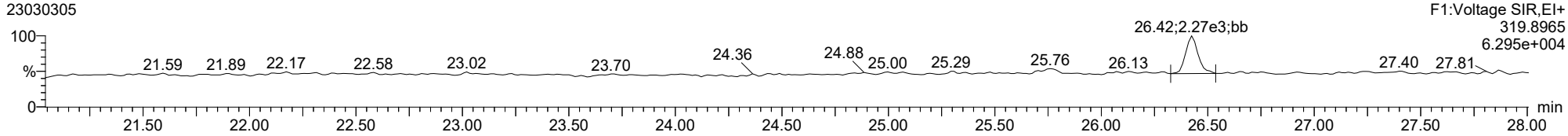

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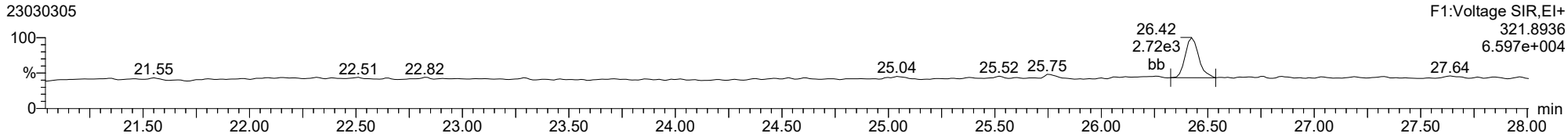

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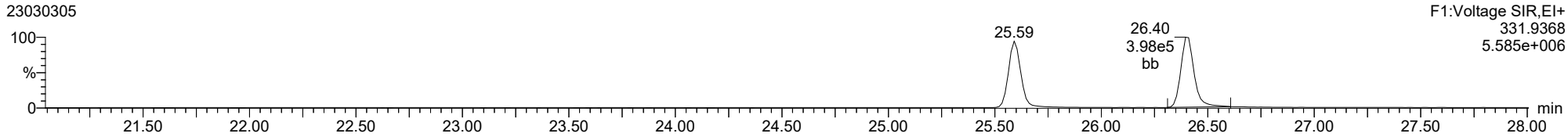

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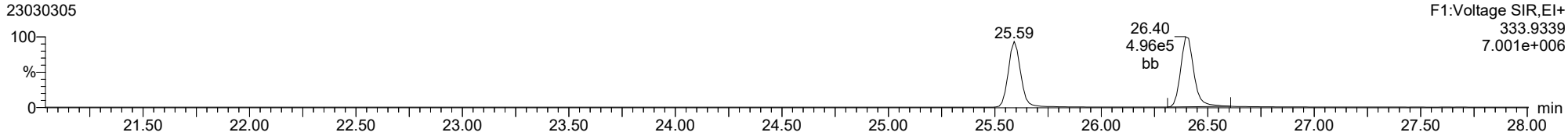

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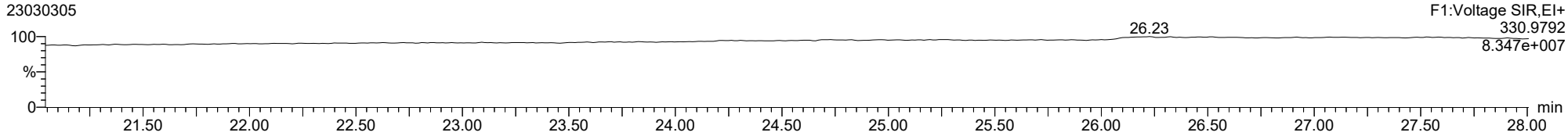

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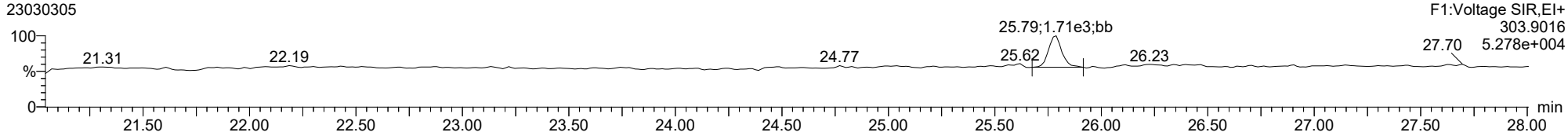

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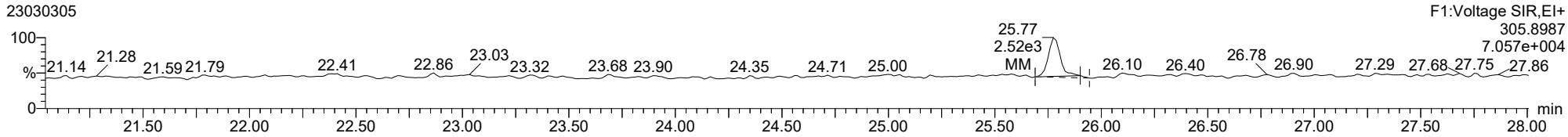

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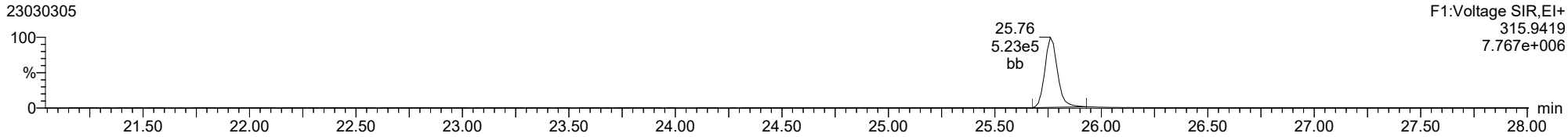

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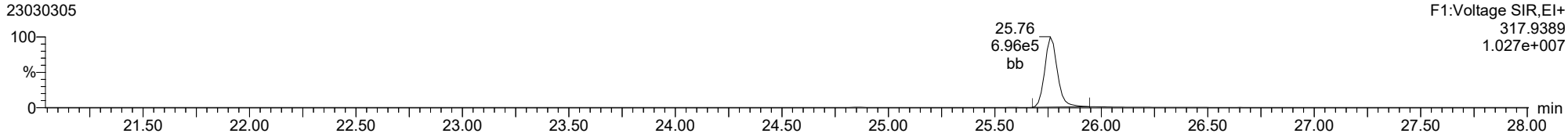
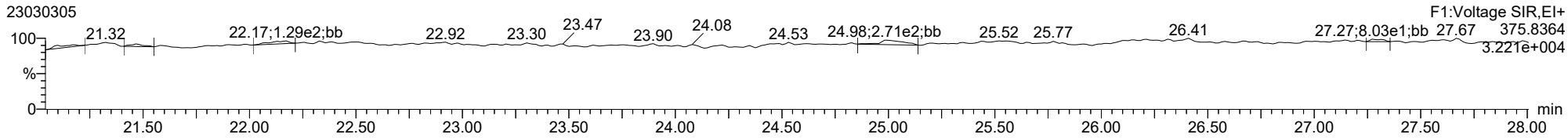
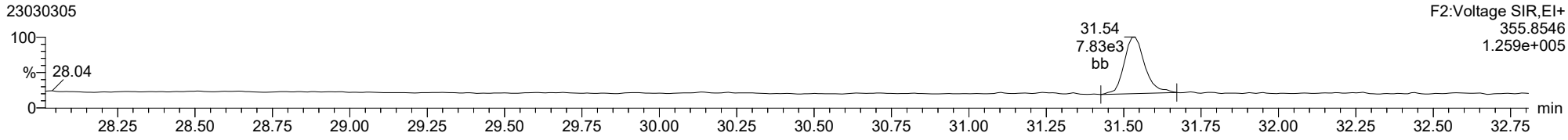


FUNCTION1 HXCDPE



ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

12378-PeCDD



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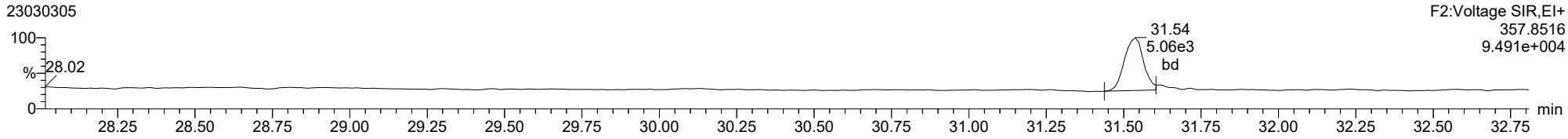

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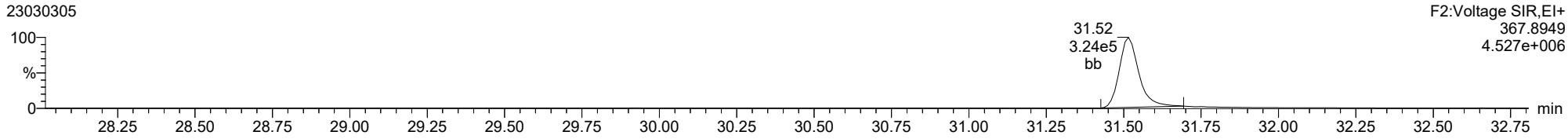

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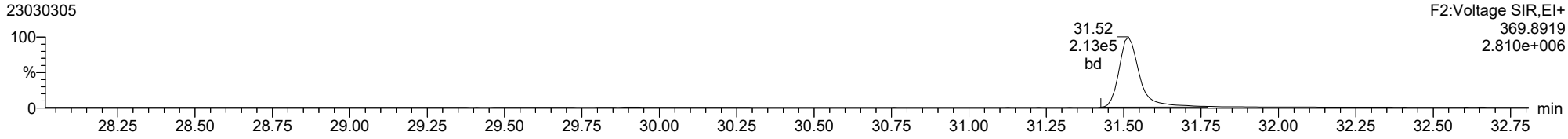
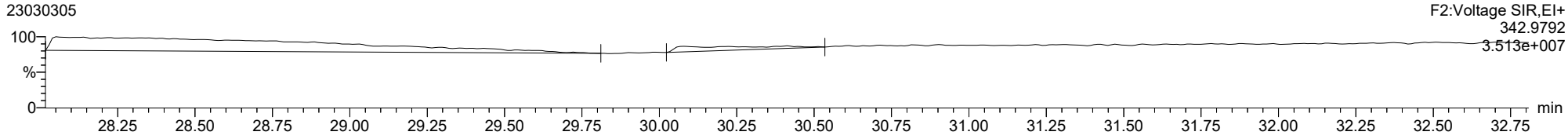


FUNCTION2 PFK



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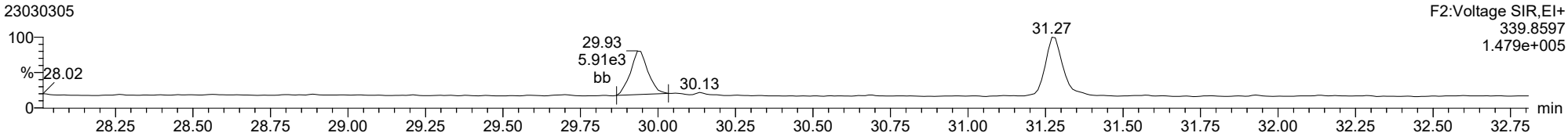

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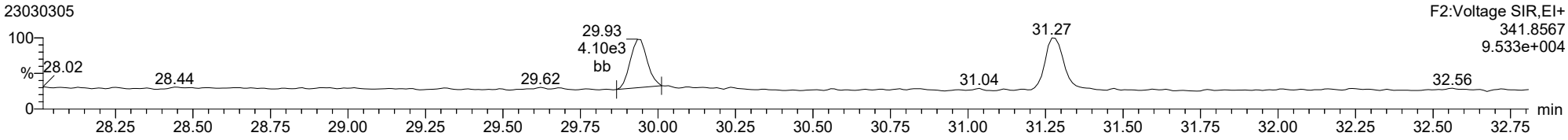

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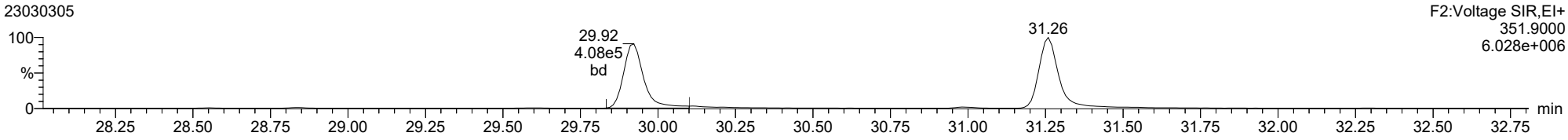

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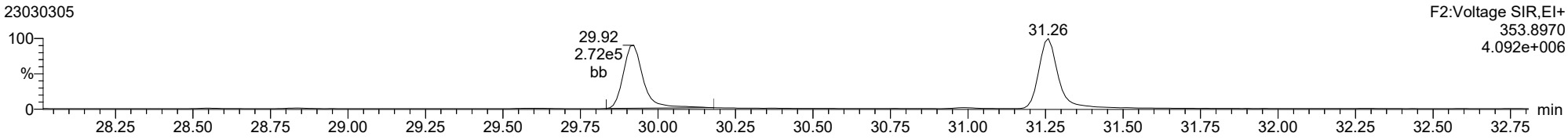
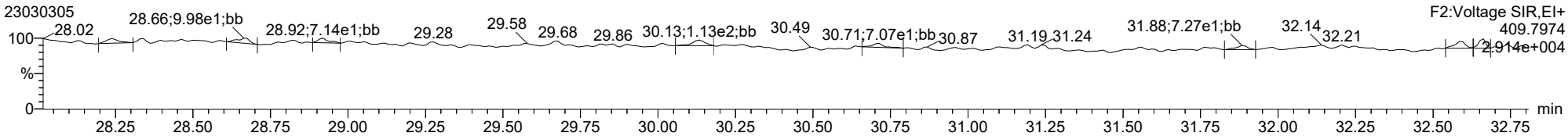


FUNCTION2 HPCDPE



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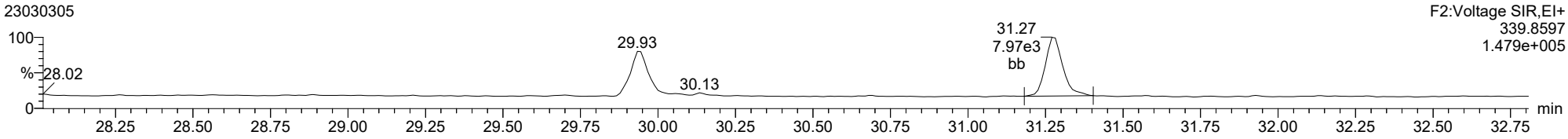

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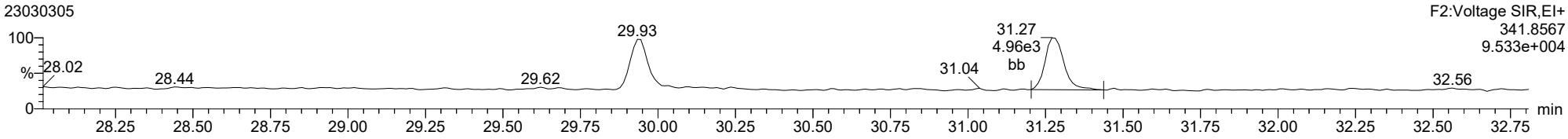

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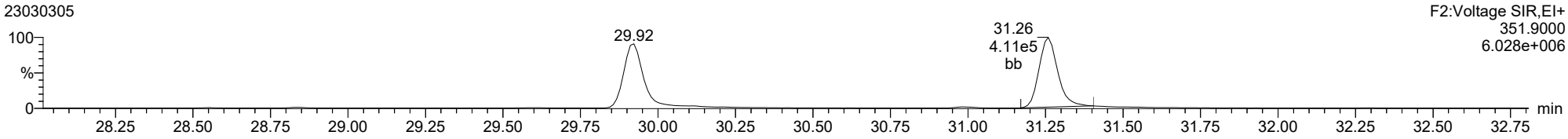

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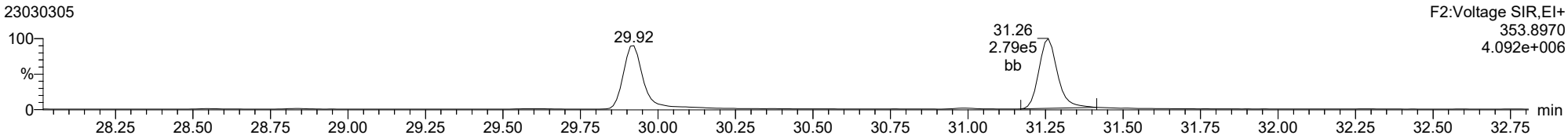

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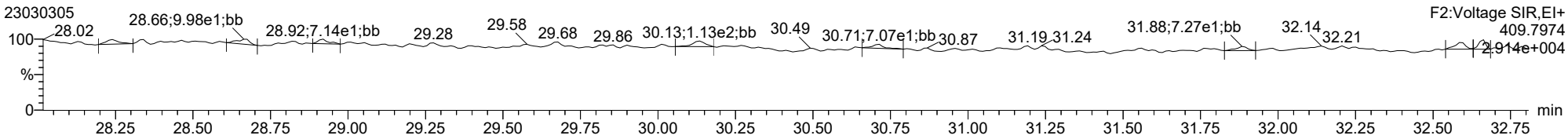

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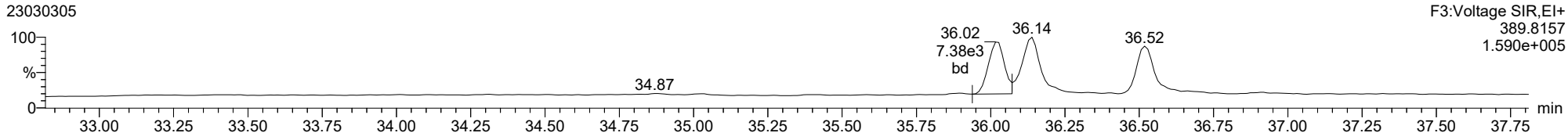

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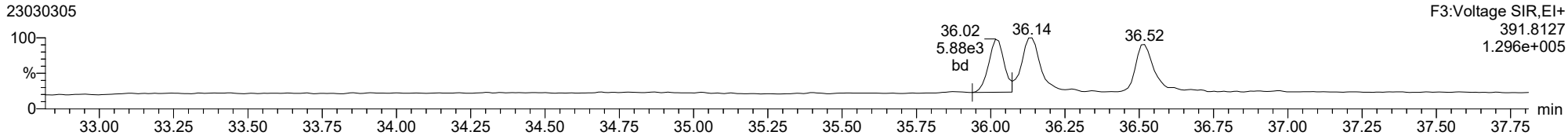

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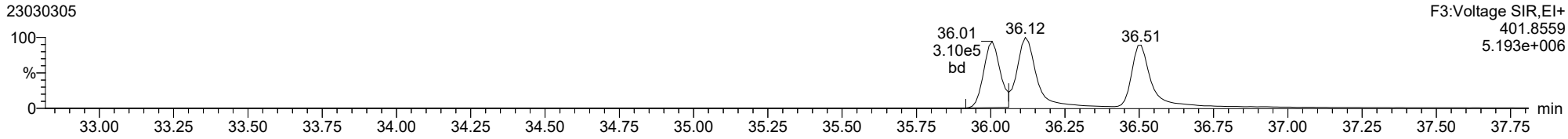

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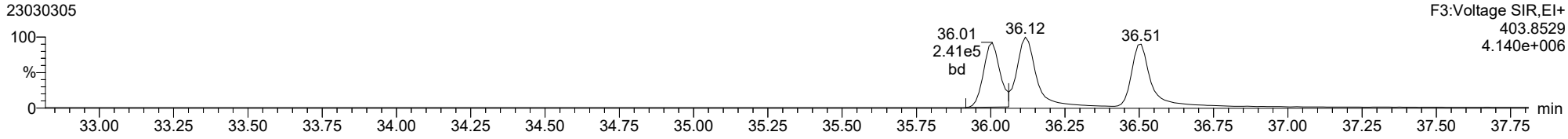

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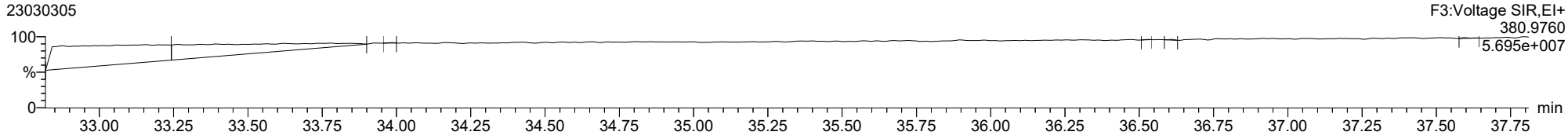

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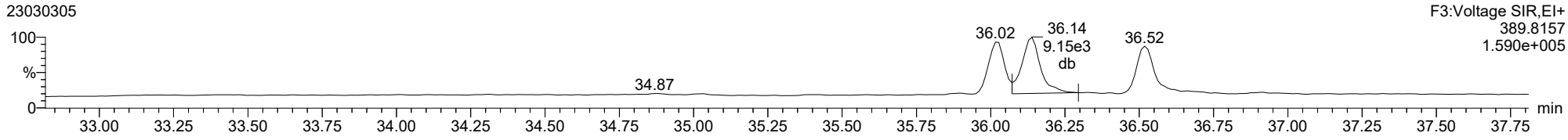

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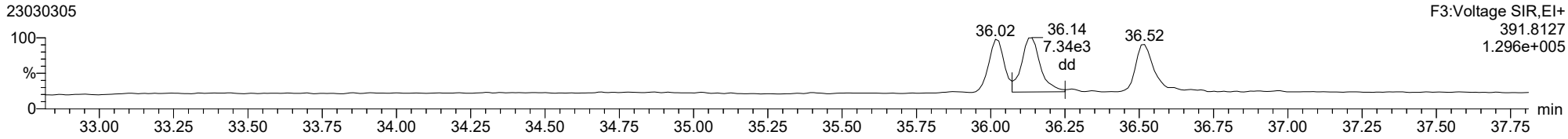

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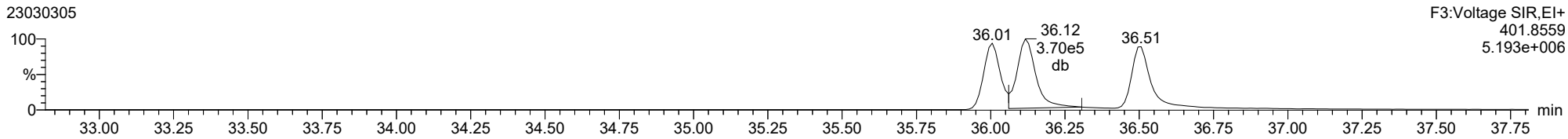

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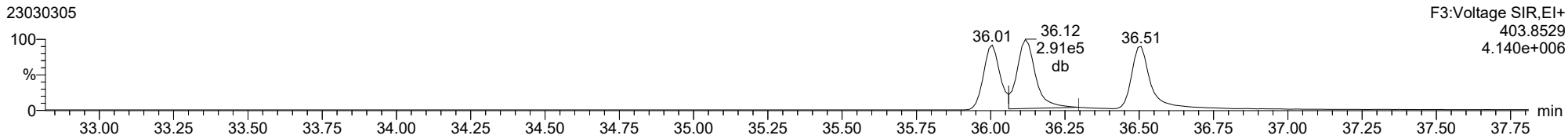

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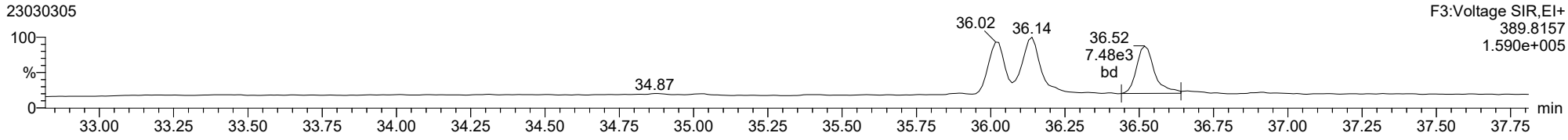

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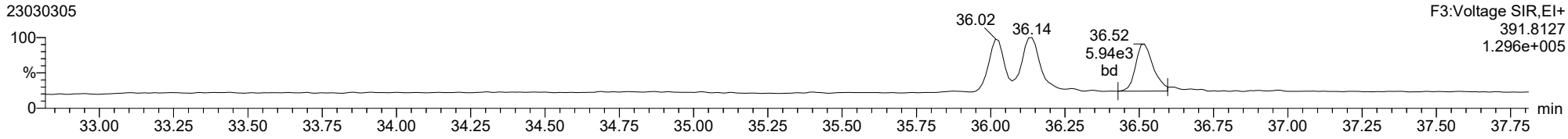

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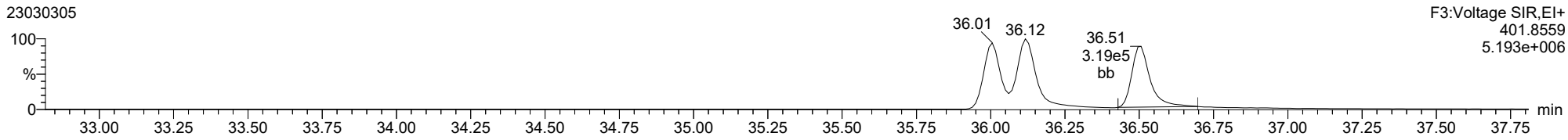

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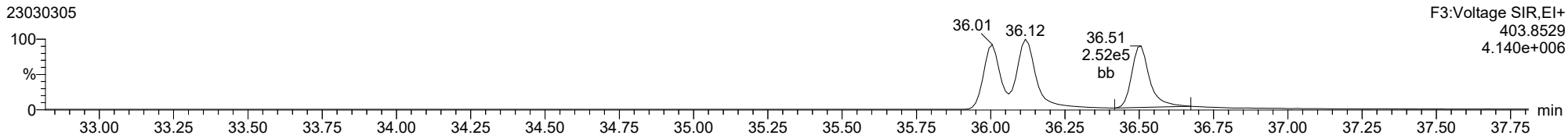

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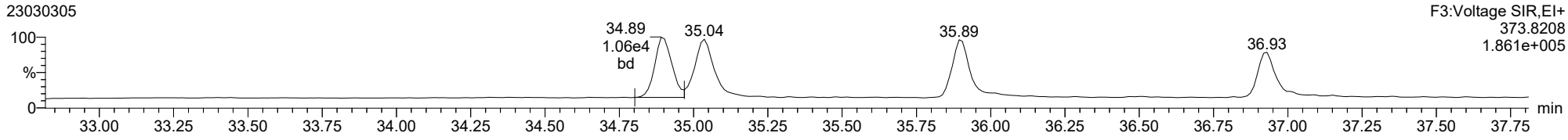

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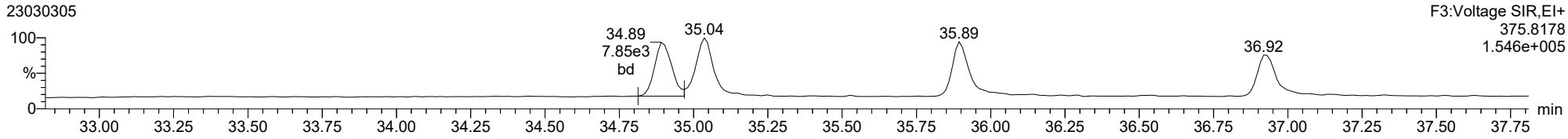

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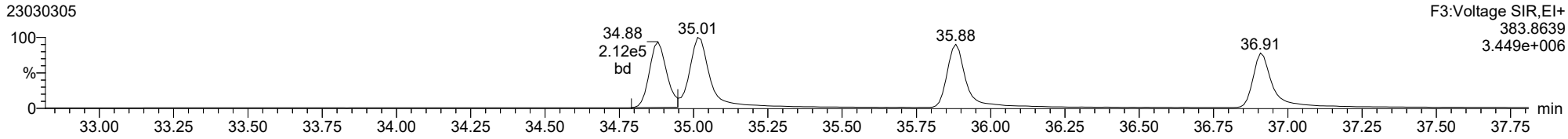

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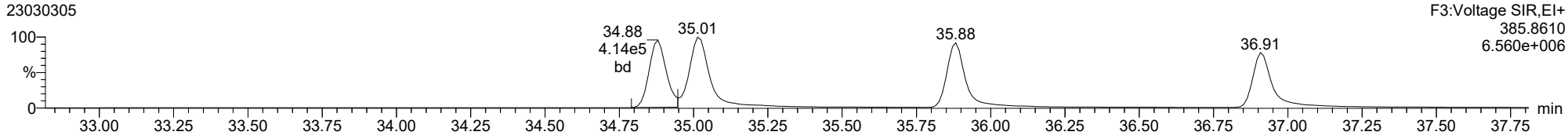

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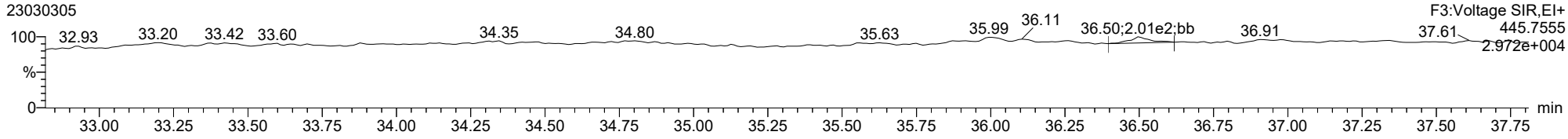

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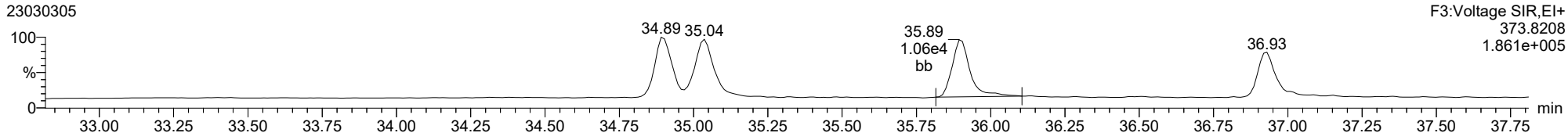
234678-HxCDF



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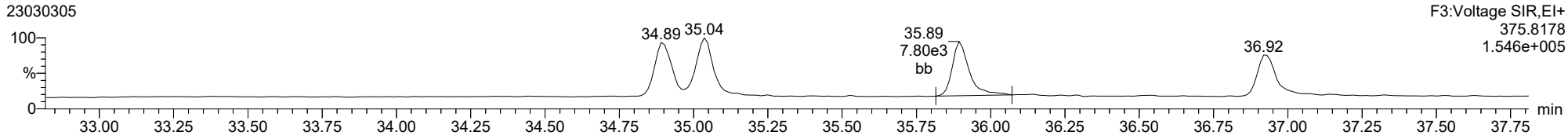

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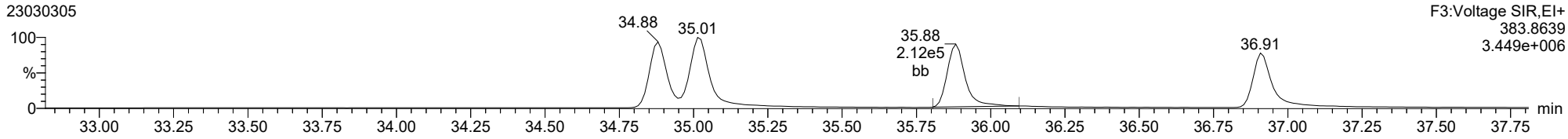

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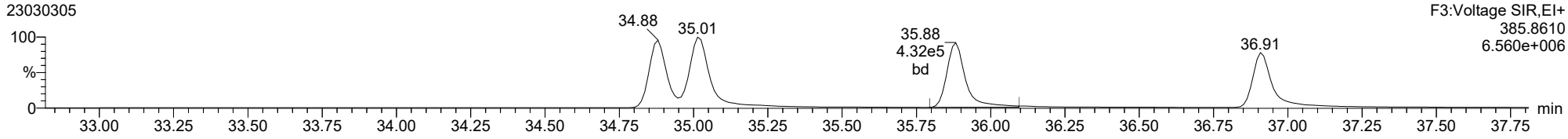

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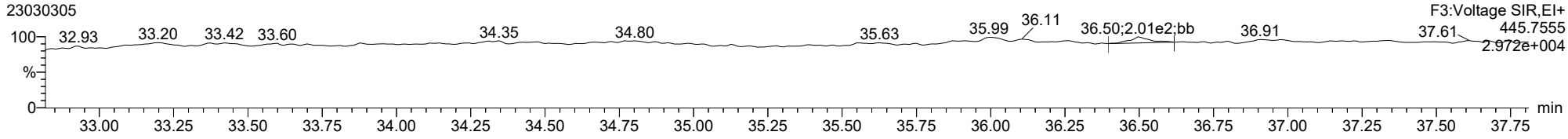

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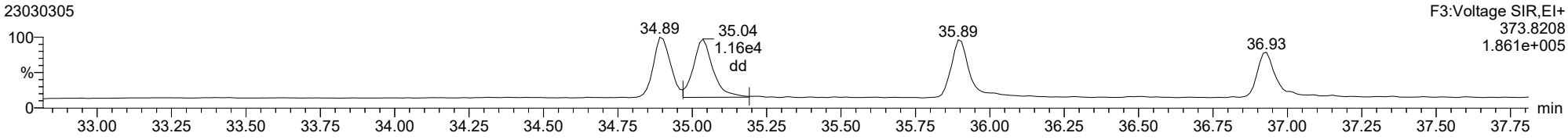

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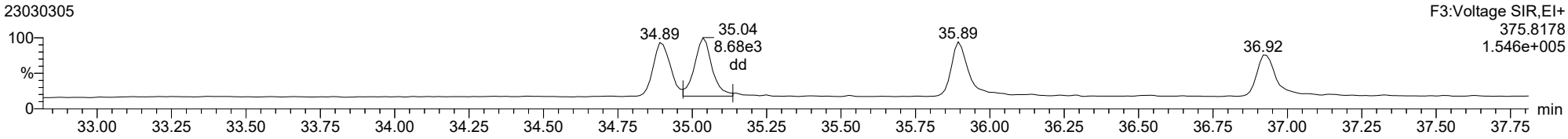

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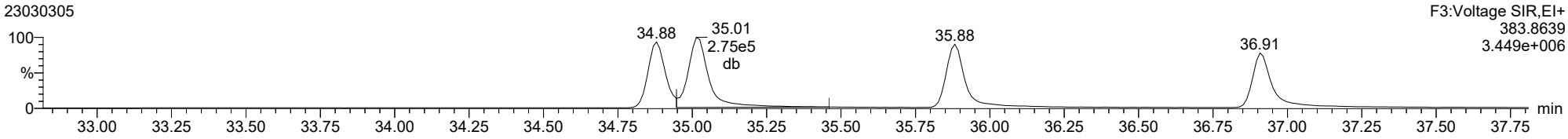

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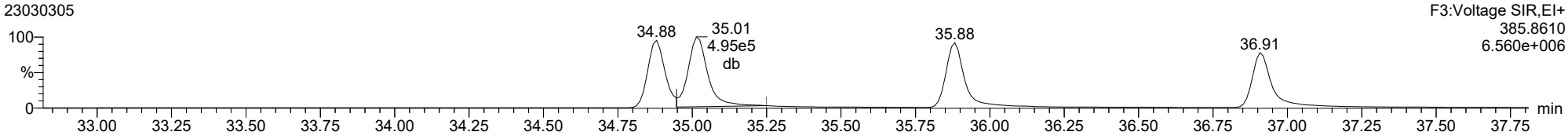

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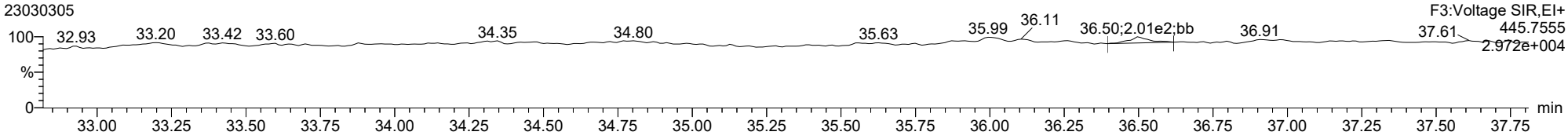

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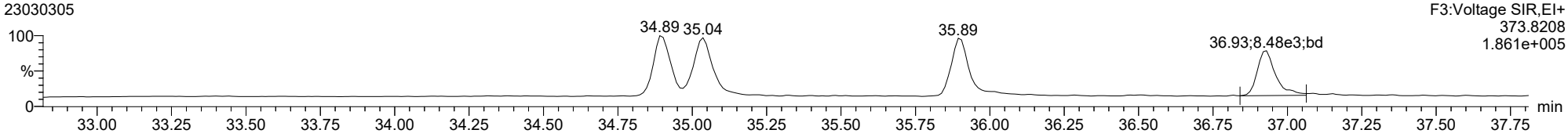

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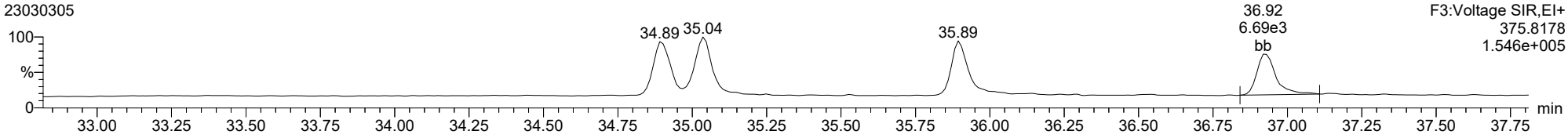

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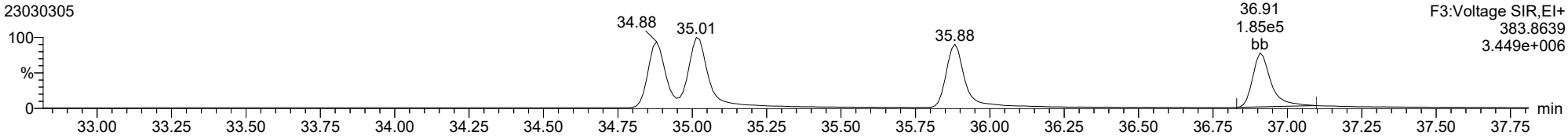

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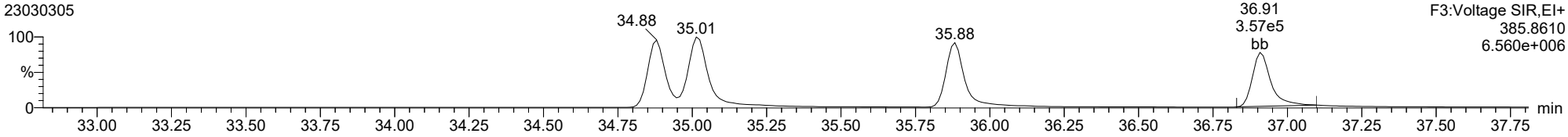

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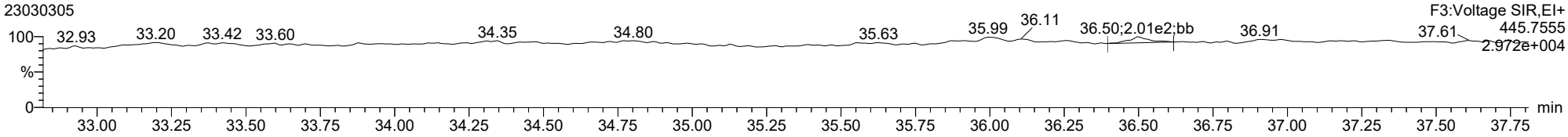

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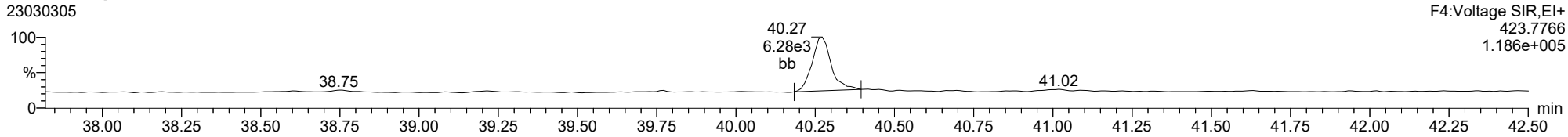
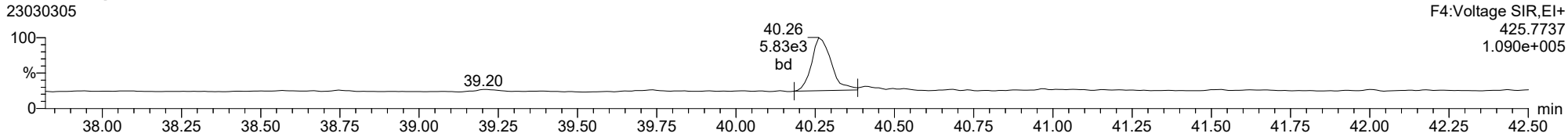


1234678-HpCDD



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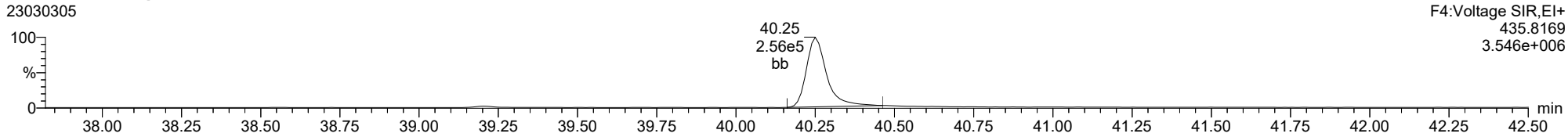

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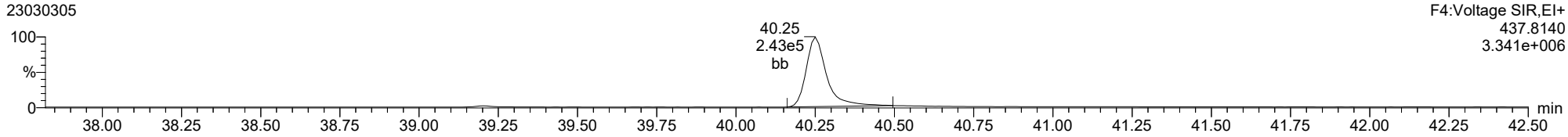

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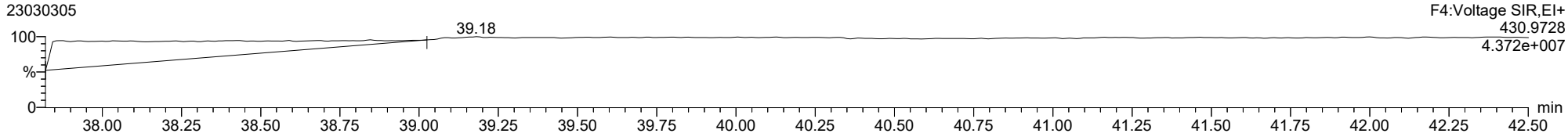

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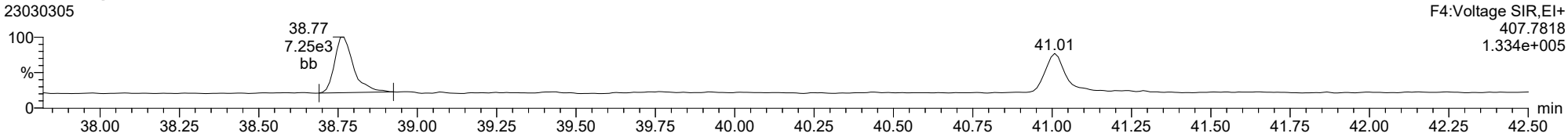

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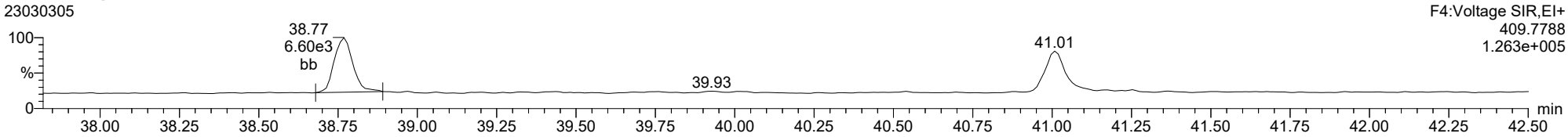

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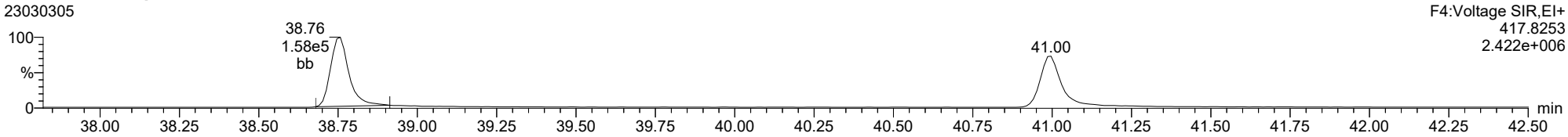

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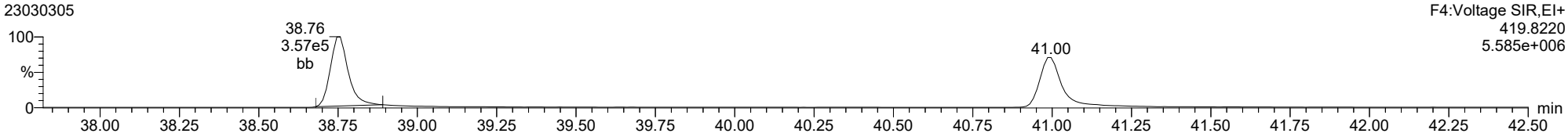
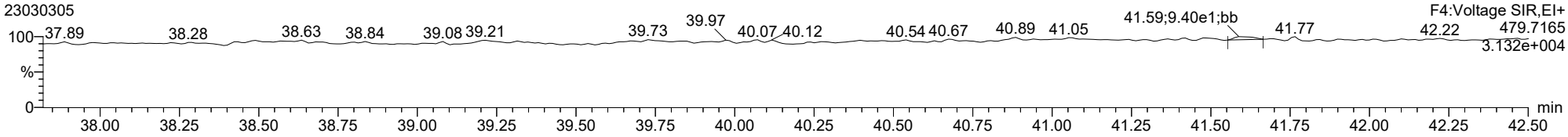


FUNCTION4 NCDPE



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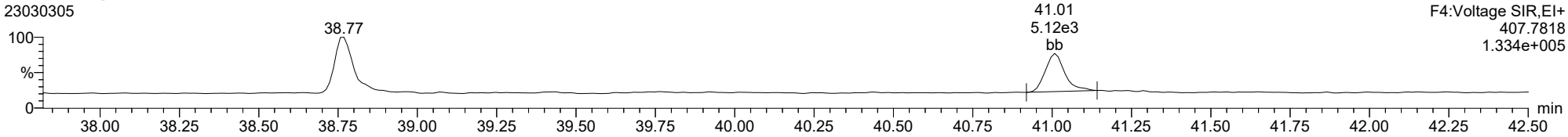
1234789-HpCDF



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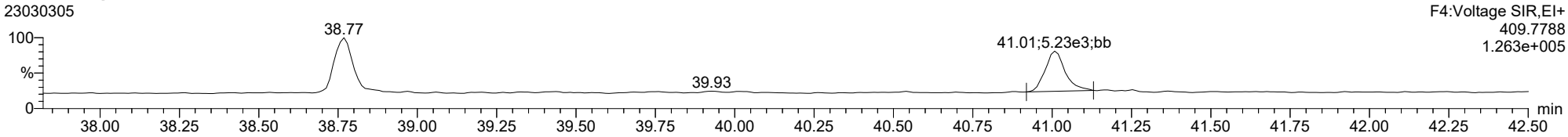

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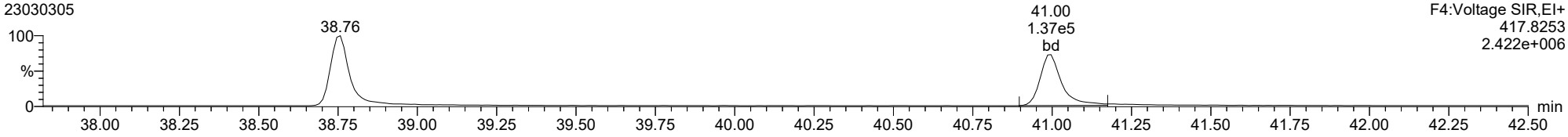

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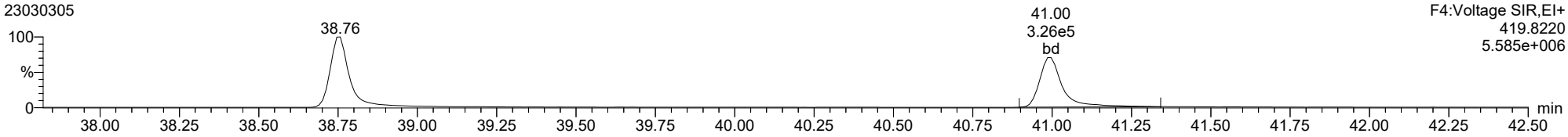
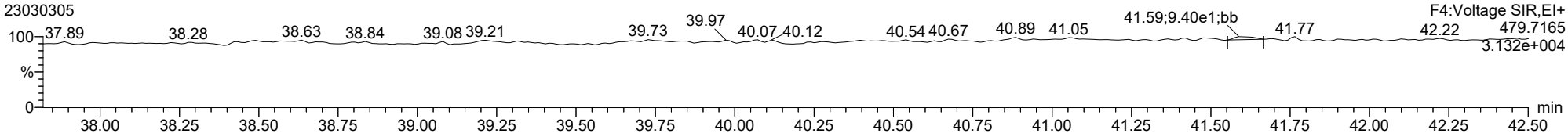


FUNCTION4 NCDPE



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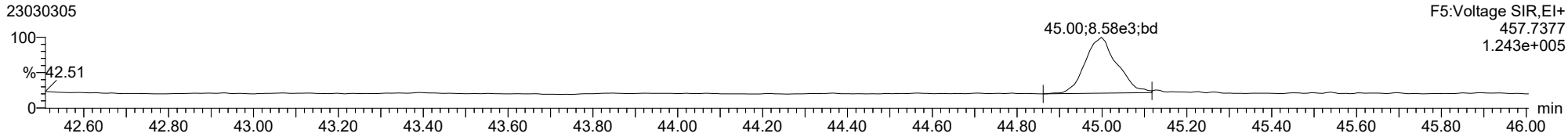
OCDD



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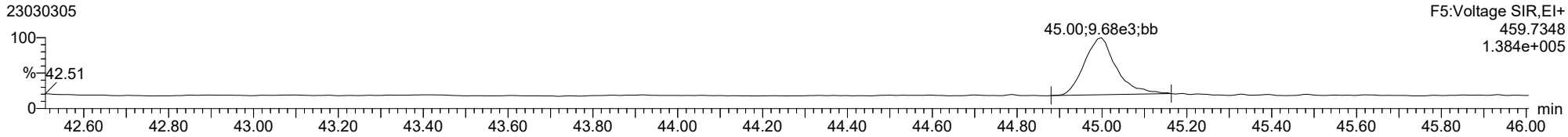

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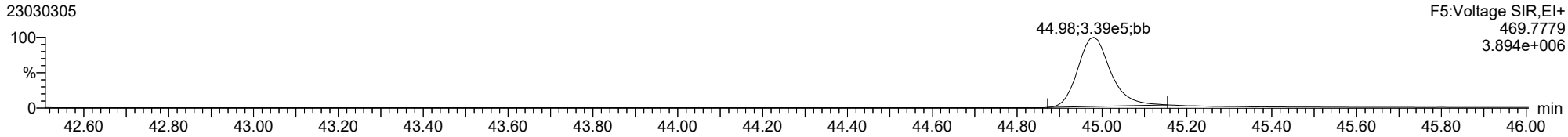

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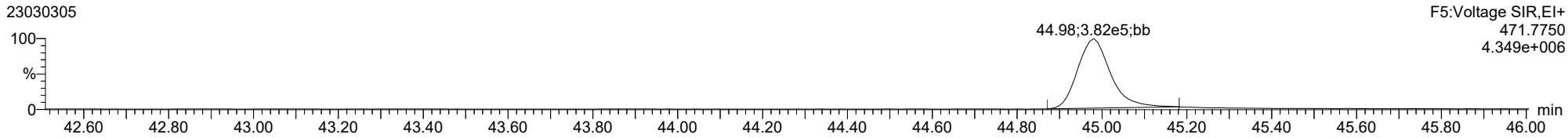
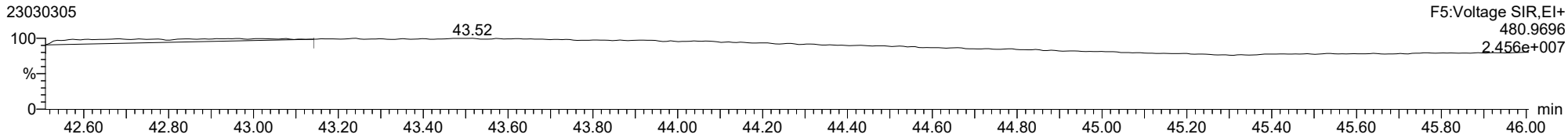


FUNCTION5 PFK



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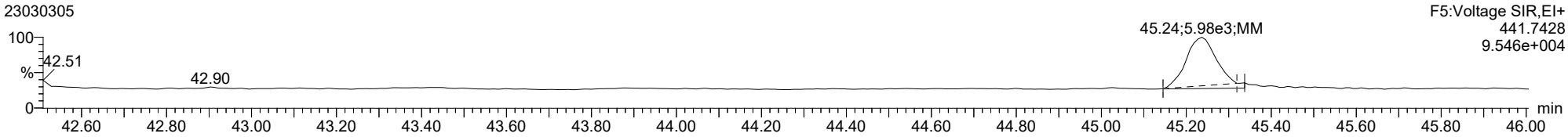
OCDF



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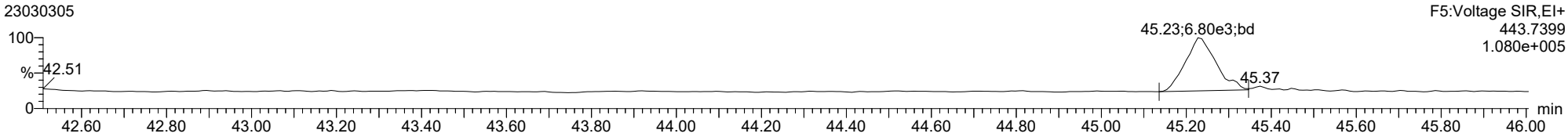
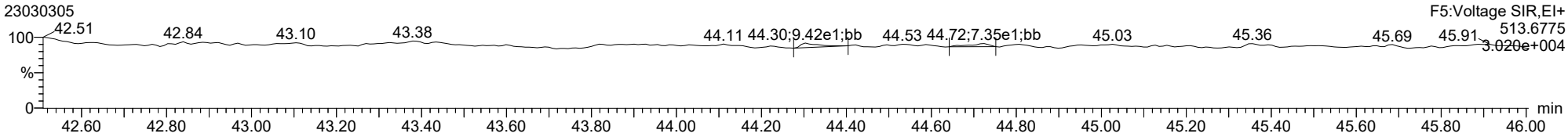


FUNCTION5 DCDPE



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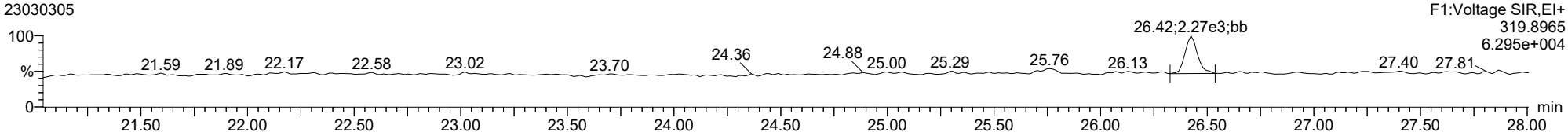
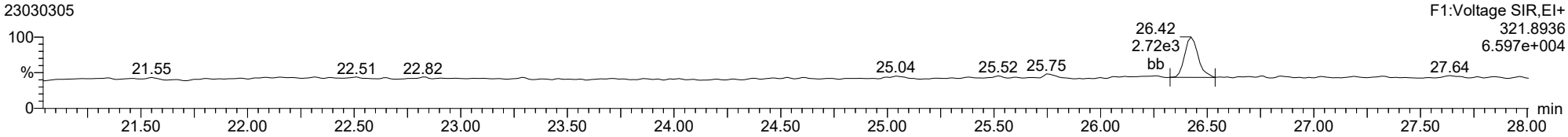
Total-tetradioxins



Total-tetradioxins



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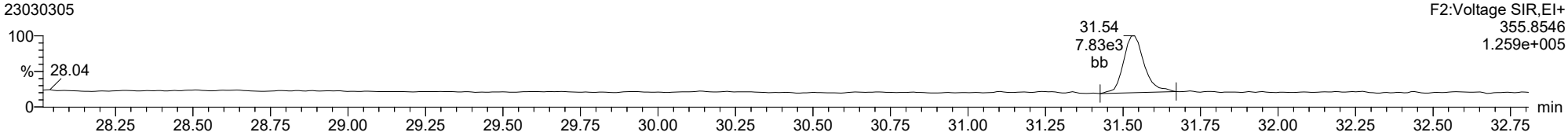

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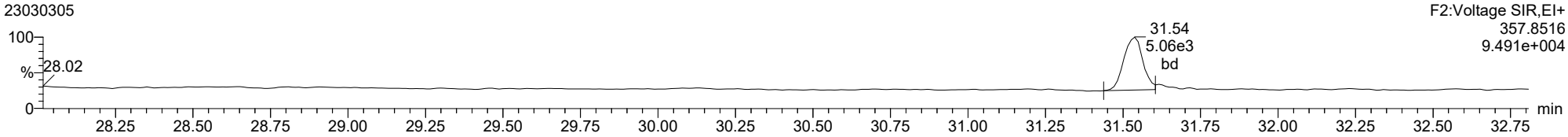

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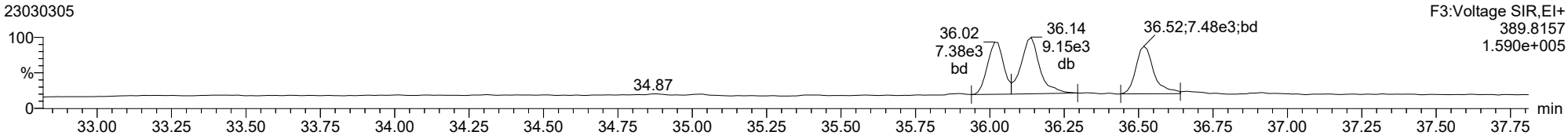
Total-hexadioxins



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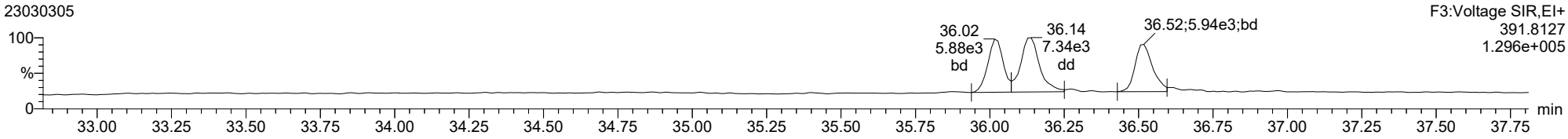
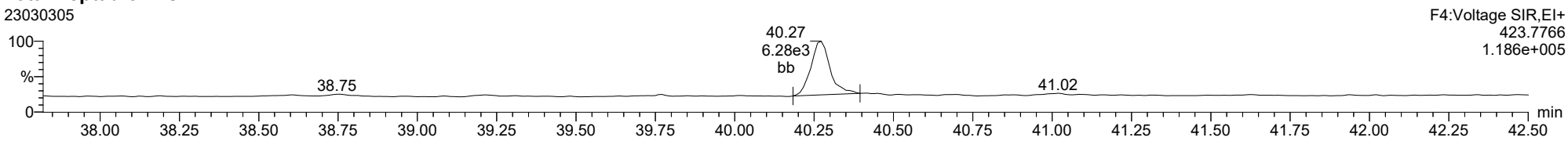


Total-heptadioxins



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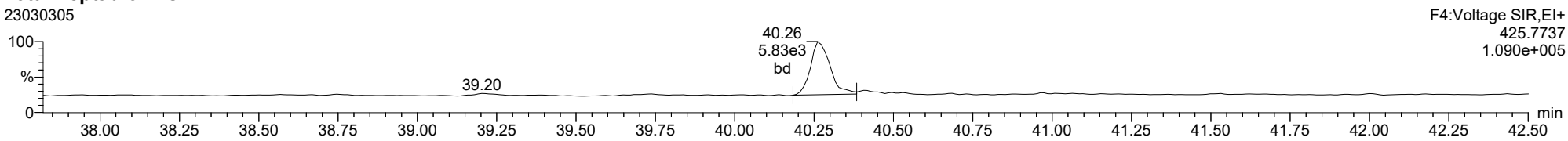
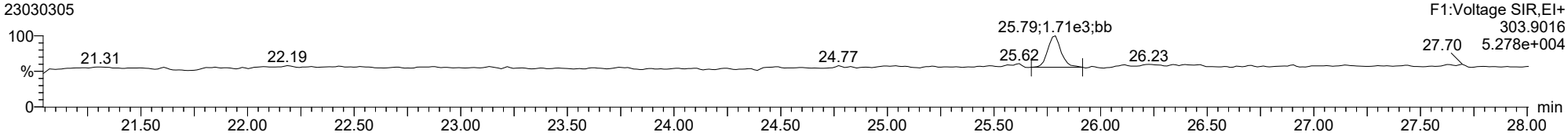


ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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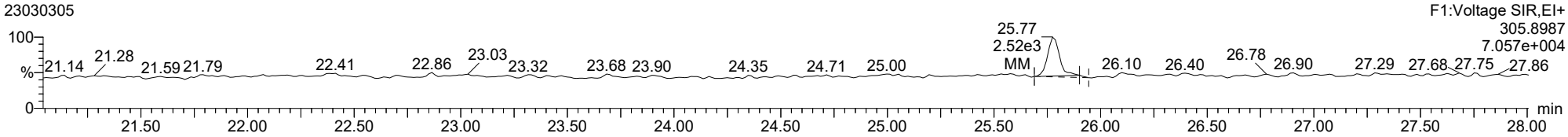

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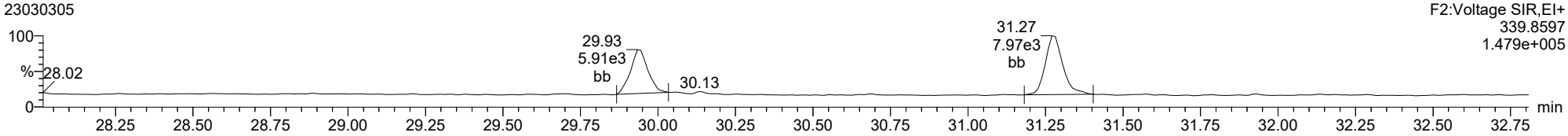

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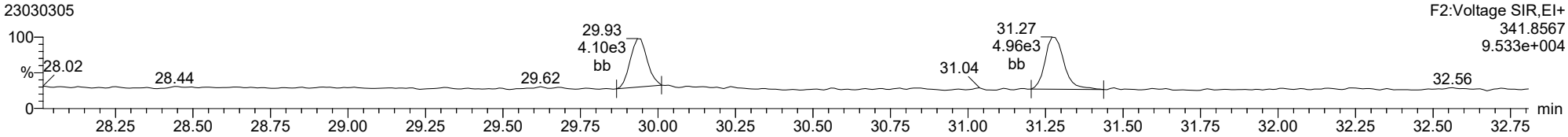

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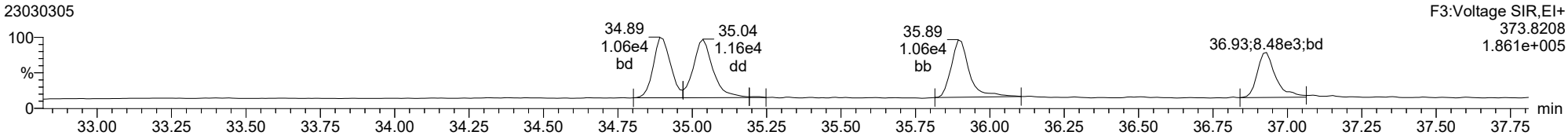

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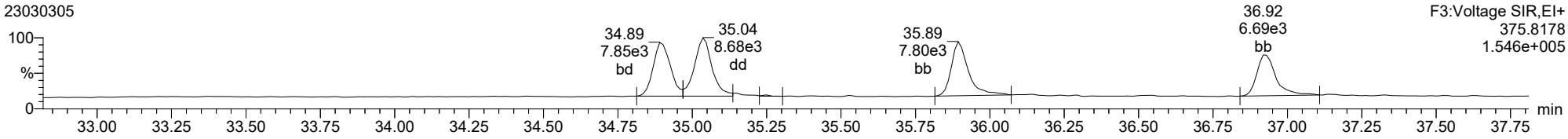

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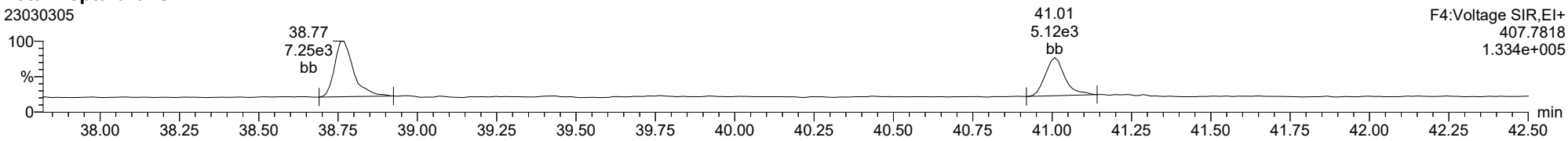

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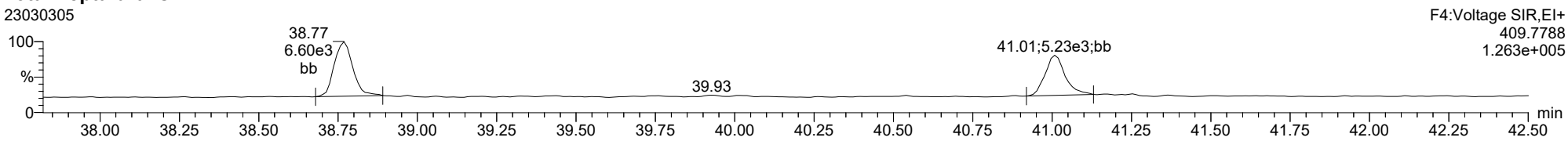

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Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.789	1.001	8.311e3	1.080e4	0.702	0.769	0.770	1017	2375	1.17e5	1.59e5	114.9	67.2	NO	bd	bb	1.942
12378-PeCDF	29.945	1.001	4.669e4	2.820e4	0.679	1.656	1.550	1114	1452	6.51e5	4.26e5	583.9	293.2	NO	bd	bb	10.465
23478-PeCDF	31.282	1.000	4.676e4	2.892e4	0.786	1.617	1.550	1114	1452	6.63e5	4.21e5	595.0	289.8	NO	bb	bb	10.293
123478-HxCDF	34.903	1.000	5.097e4	3.855e4	1.166	1.322	1.240	1081	974	7.67e5	5.88e5	709.2	604.2	NO	bd	bd	9.861
234678-HxCDF	35.906	1.000	4.287e4	3.364e4	1.140	1.274	1.240	1081	974	6.16e5	4.95e5	570.0	508.0	NO	bd	bb	10.523
123678-HxCDF	35.048	1.001	5.830e4	4.380e4	1.091	1.331	1.240	1081	974	7.78e5	6.16e5	719.4	632.0	NO	dd	db	10.775
123789-HxCDF	36.942	1.001	3.050e4	2.273e4	1.137	1.342	1.240	1081	974	4.14e5	3.24e5	383.3	332.2	NO	bb	bb	9.945
1234678-HpCDF	38.780	1.001	2.871e4	2.660e4	1.003	1.079	1.050	1234	1299	4.33e5	4.29e5	350.5	330.3	NO	bd	bb	10.087
1234789-HpCDF	41.020	1.000	2.198e4	2.032e4	0.953	1.082	1.050	1234	1299	3.09e5	2.76e5	250.5	212.3	NO	bb	bb	10.556
OCDF	45.247	1.006	3.160e4	3.327e4	0.778	0.950	0.890	832	1108	3.53e5	3.88e5	424.8	350.5	NO	bd	bb	19.690
2378-TCDD	26.438	1.001	9.033e3	1.299e4	1.149	0.696	0.770	1078	937	1.34e5	1.84e5	124.1	196.6	NO	bb	bb	2.068
12378-PeCDD	31.538	1.000	4.287e4	2.877e4	1.022	1.490	1.550	1012	882	6.26e5	3.88e5	618.4	440.6	NO	bb	bb	9.981
123478-HxCDD	36.028	1.001	3.011e4	2.566e4	0.996	1.173	1.240	1087	1355	4.81e5	4.17e5	442.1	307.5	NO	bd	bd	9.781
123678-HxCDD	36.140	1.000	3.660e4	2.810e4	1.001	1.303	1.240	1087	1355	5.13e5	3.98e5	471.9	293.4	NO	dd	db	9.830
123789-HxCDD	36.530	1.011	2.694e4	2.285e4	0.907	1.179	1.240	1087	1355	3.87e5	3.22e5	355.7	237.4	NO	bb	bb	8.921
1234678-HpCDD	40.273	1.000	2.448e4	2.664e4	1.039	0.919	1.050	853	881	3.43e5	3.58e5	402.1	405.9	NO	bb	bd	10.011
OCDD	45.009	1.000	3.531e4	4.015e4	0.920	0.879	0.890	1050	1012	4.08e5	4.99e5	388.3	492.6	NO	bb	bb	19.363
13C-2378-TCDF	25.774	1.007	6.035e5	7.993e5	1.620	0.755	0.770	2457	1835	8.64e6	1.14e7	3516.1	6186.3	NO	bb	bb	103.115
13C-12378-PeCDF	29.923	1.169	6.526e5	4.010e5	1.240	1.628	1.550	3002	2090	8.73e6	5.82e6	2907.1	2783.7	NO	bb	bb	101.148
13C-23478-PeCDF	31.271	1.221	5.554e5	3.799e5	1.118	1.462	1.550	3002	2090	8.01e6	5.41e6	2667.8	2586.4	NO	bb	bb	99.644
13C-123478-HxCDF	34.892	0.956	2.641e5	5.144e5	1.168	0.513	0.510	1857	2488	3.90e6	7.62e6	2100.8	3063.0	NO	bd	bd	129.584
13C-123678-HxCDF	35.026	0.959	2.932e5	5.755e5	1.386	0.510	0.510	1857	2488	4.18e6	8.13e6	2249.4	3269.5	NO	db	db	121.832
13C-234678-HxCDF	35.895	0.983	2.180e5	4.199e5	1.129	0.519	0.510	1857	2488	3.14e6	6.08e6	1689.2	2442.9	NO	bb	bb	109.838
13C-123789-HxCDF	36.920	1.011	1.570e5	3.137e5	0.932	0.501	0.510	1857	2488	2.29e6	4.45e6	1232.1	1790.1	NO	bb	bb	98.225
13C-1234678-HpCDF	38.758	1.062	1.644e5	3.823e5	0.895	0.430	0.440	2012	3375	2.57e6	5.95e6	1277.0	1763.6	NO	bb	bb	118.766
13C-1234789-HpCDF	40.998	1.123	1.271e5	2.934e5	0.770	0.433	0.440	2012	3375	1.71e6	4.02e6	850.7	1191.4	NO	bb	bb	106.228
13C-1234-TCDD	25.605	0.000	3.763e5	4.634e5	1.000	0.812	0.770	2552	2183	5.75e6	7.05e6	2254.8	3231.1	NO	bb	bb	100.000
13C-2378-TCDD	26.410	1.031	4.085e5	5.183e5	1.152	0.788	0.770	2552	2183	5.98e6	7.56e6	2342.4	3461.2	NO	bb	bb	95.779
13C-12378-PeCDD	31.527	1.231	4.337e5	2.688e5	0.829	1.614	1.550	1077	1542	6.15e6	3.74e6	5715.6	2425.2	NO	bb	bb	100.933
13C-123478-HxCDD	36.006	0.986	3.223e5	2.505e5	0.995	1.287	1.240	2237	1883	4.87e6	3.76e6	2175.2	1999.6	NO	bd	bd	111.924
13C-123678-HxCDD	36.129	0.990	3.608e5	2.967e5	1.157	1.216	1.240	2237	1883	5.10e6	4.02e6	2277.5	2137.4	NO	db	db	110.547
13C-1234678-HpCDD	40.262	1.103	2.573e5	2.341e5	0.840	1.099	1.050	2349	1481	3.41e6	3.22e6	1450.8	2172.3	NO	bd	bb	113.737
13C-OCDD	44.991	1.232	4.017e5	4.455e5	0.767	0.902	0.890	2278	1800	4.53e6	5.05e6	1990.6	2807.7	NO	bb	bb	214.651
13C-123789-HxCDD	36.507	0.000	2.902e5	2.240e5	1.000	1.296	1.240	2237	1883	4.20e6	3.27e6	1878.6	1737.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.032	1.977e4		1.288			2484		2.93e5		117.9			bb		1.828

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ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1017	2375								
1289-TCDF					0.678		0.770	1017	2375								
13468-PECDF					1.246		1.550	633	1159								
12389-PECDF					0.496		1.550	1114	1452								
123468-HXCDF					1.169		1.240	1081	974								
1368-TCDD					1.015		0.770	1078	937								
1289-TCDD					0.909		0.770	1078	937								
12479-PECDD					2.301		1.550	1012	882								
12389-PECDD					1.184		1.550	1012	882								
124679-HXCDD					1.115		1.240	1087	1355								
1234679-HPCDD					1.137		1.050	853	881								
Total-tetrafurans			8.311e3		0.727			1017		1.17e5							1.942
Total-penta1			0.000e0					633		0.00e0							
Total-pentafurans			9.345e4		0.654			1114		1.31e6							20.758
Total-hexafurans			1.826e5		1.141			1081		2.58e6							41.105
Total-heptafurans			5.070e4		0.978			1234		7.42e5							20.643
Total-Furans			3.667e5		0.922			1017		5.10e6							104.140
Total-tetradioxins			9.033e3		1.024			1078		1.34e5							2.068
Total-pentadioxins			4.287e4		1.502			1012		6.26e5							9.981
Total-hexadioxins			9.364e4		1.005			1087		1.38e6							28.532
Total-heptadioxins			2.448e4		1.088			853		3.43e5							10.011
Total-Dioxins			2.053e5		1.130			1078		2.89e6							69.955
Total-TEQ			5.720e5					1078		7.99e6							174.095
FUNCTION1 PFK			1.995e6					567717		7.69e6							
FUNCTION2 PFK			1.258e5					282093		4.74e6							0.000
FUNCTION3 PFK			4.711e7					382868		3.34e7							0.000
FUNCTION4 PFK			2.092e7					278389		1.32e7							
FUNCTION5 PFK			6.777e4					239180		2.68e6							
FUNCTION1 HXCD...			0.000e0					613		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.408e2					965		2.85e3							0.000
FUNCTION3 OCDPE			0.000e0					571		0.00e0							
FUNCTION4 NCDPE			3.810e2					638		4.39e3							0.000
FUNCTION5 DCDPE			0.000e0					603		0.00e0							

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	8.311e3	1.080e4	0.702	0.77	0.77	114.9	YES	NO	bd	bb	1.942

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	4.676e4	2.892e4	0.786	1.62	1.55	595.0	YES	NO	bb	bb	10.293
2	12378-PeCDF	29.94	4.669e4	2.820e4	0.679	1.66	1.55	583.9	YES	NO	bd	bb	10.465

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	3.050e4	2.273e4	1.137	1.34	1.24	383.3	YES	NO	bb	bb	9.945
2	234678-HxCDF	35.91	4.287e4	3.364e4	1.140	1.27	1.24	570.0	YES	NO	bd	bb	10.523
3	123678-HxCDF	35.05	5.830e4	4.380e4	1.091	1.33	1.24	719.4	YES	NO	dd	db	10.775
4	123478-HxCDF	34.90	5.097e4	3.855e4	1.166	1.32	1.24	709.2	YES	NO	bd	bd	9.861

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.02	2.198e4	2.032e4	0.953	1.08	1.05	250.5	YES	NO	bb	bb	10.556
2	1234678-HpCDF	38.78	2.871e4	2.660e4	1.003	1.08	1.05	350.5	YES	NO	bd	bb	10.087

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	4.676e4	2.892e4	0.786	1.62	1.55	595.0	YES	NO	bb	bb	10.293
2	12378-PeCDF	29.94	4.669e4	2.820e4	0.679	1.66	1.55	583.9	YES	NO	bd	bb	10.465
3	2378-TCDF	25.79	8.311e3	1.080e4	0.702	0.77	0.77	114.9	YES	NO	bd	bb	1.942
4	123789-HxCDF	36.94	3.050e4	2.273e4	1.137	1.34	1.24	383.3	YES	NO	bb	bb	9.945
5	234678-HxCDF	35.91	4.287e4	3.364e4	1.140	1.27	1.24	570.0	YES	NO	bd	bb	10.523
6	123678-HxCDF	35.05	5.830e4	4.380e4	1.091	1.33	1.24	719.4	YES	NO	dd	db	10.775
7	123478-HxCDF	34.90	5.097e4	3.855e4	1.166	1.32	1.24	709.2	YES	NO	bd	bd	9.861
8	1234789-HpCDF	41.02	2.198e4	2.032e4	0.953	1.08	1.05	250.5	YES	NO	bb	bb	10.556
9	1234678-HpCDF	38.78	2.871e4	2.660e4	1.003	1.08	1.05	350.5	YES	NO	bd	bb	10.087
10	OCDF	45.25	3.160e4	3.327e4	0.778	0.95	0.89	424.8	YES	NO	bd	bb	19.690

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.44	9.033e3	1.299e4	1.149	0.70	0.77	124.1	YES	NO	bb	bb	2.068

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.54	4.287e4	2.877e4	1.022	1.49	1.55	618.4	YES	NO	bb	bb	9.981

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	2.694e4	2.285e4	0.907	1.18	1.24	355.7	YES	NO	bb	bb	8.921
2	123678-HxCDD	36.14	3.660e4	2.810e4	1.001	1.30	1.24	471.9	YES	NO	dd	db	9.830
3	123478-HxCDD	36.03	3.011e4	2.566e4	0.996	1.17	1.24	442.1	YES	NO	bd	bd	9.781

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	2.448e4	2.664e4	1.039	0.92	1.05	402.1	YES	NO	bb	bd	10.011

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.54	4.287e4	2.877e4	1.022	1.49	1.55	618.4	YES	NO	bb	bb	9.981
2	2378-TCDD	26.44	9.033e3	1.299e4	1.149	0.70	0.77	124.1	YES	NO	bb	bb	2.068
3	123789-HxCDD	36.53	2.694e4	2.285e4	0.907	1.18	1.24	355.7	YES	NO	bb	bb	8.921
4	123678-HxCDD	36.14	3.660e4	2.810e4	1.001	1.30	1.24	471.9	YES	NO	dd	db	9.830
5	123478-HxCDD	36.03	3.011e4	2.566e4	0.996	1.17	1.24	442.1	YES	NO	bd	bd	9.781
6	1234678-HpCDD	40.27	2.448e4	2.664e4	1.039	0.92	1.05	402.1	YES	NO	bb	bd	10.011
7	OCDD	45.01	3.531e4	4.015e4	0.920	0.88	0.89	388.3	YES	NO	bb	bb	19.363

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	4.676e4	2.892e4	0.786	1.62	1.55	595.0	YES	NO	bb	bb	10.293
2	12378-PeCDF	29.94	4.669e4	2.820e4	0.679	1.66	1.55	583.9	YES	NO	bd	bb	10.465
3	2378-TCDF	25.79	8.311e3	1.080e4	0.702	0.77	0.77	114.9	YES	NO	bd	bb	1.942
4	123789-HxCDF	36.94	3.050e4	2.273e4	1.137	1.34	1.24	383.3	YES	NO	bb	bb	9.945
5	234678-HxCDF	35.91	4.287e4	3.364e4	1.140	1.27	1.24	570.0	YES	NO	bd	bb	10.523
6	123678-HxCDF	35.05	5.830e4	4.380e4	1.091	1.33	1.24	719.4	YES	NO	dd	db	10.775
7	123478-HxCDF	34.90	5.097e4	3.855e4	1.166	1.32	1.24	709.2	YES	NO	bd	bd	9.861
8	1234789-HpCDF	41.02	2.198e4	2.032e4	0.953	1.08	1.05	250.5	YES	NO	bb	bb	10.556
9	1234678-HpCDF	38.78	2.871e4	2.660e4	1.003	1.08	1.05	350.5	YES	NO	bd	bb	10.087
10	OCDF	45.25	3.160e4	3.327e4	0.778	0.95	0.89	424.8	YES	NO	bd	bb	19.690
11	12378-PeCDD	31.54	4.287e4	2.877e4	1.022	1.49	1.55	618.4	YES	NO	bb	bb	9.981
12	2378-TCDD	26.44	9.033e3	1.299e4	1.149	0.70	0.77	124.1	YES	NO	bb	bb	2.068
13	123789-HxCDD	36.53	2.694e4	2.285e4	0.907	1.18	1.24	355.7	YES	NO	bb	bb	8.921
14	123678-HxCDD	36.14	3.660e4	2.810e4	1.001	1.30	1.24	471.9	YES	NO	dd	db	9.830
15	123478-HxCDD	36.03	3.011e4	2.566e4	0.996	1.17	1.24	442.1	YES	NO	bd	bd	9.781
16	1234678-HpCDD	40.27	2.448e4	2.664e4	1.039	0.92	1.05	402.1	YES	NO	bb	bd	10.011
17	OCDD	45.01	3.531e4	4.015e4	0.920	0.88	0.89	388.3	YES	NO	bb	bb	19.363

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.73	8.333e5					6.7	YES		bb		
2	FUNCTION1 PFK	21.10	1.162e6					6.9	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.61	1.110e4					1.3	NO		bb		0.000
2	FUNCTION2 PFK	28.31	1.183e4					1.5	NO		bb		0.000
3	FUNCTION2 PFK	31.85	7.066e3					1.3	NO		bb		0.000
4	FUNCTION2 PFK	31.75	1.168e4					1.4	NO		bb		0.000
5	FUNCTION2 PFK	30.95	1.613e4					2.1	NO		bb		0.000
6	FUNCTION2 PFK	30.06	7.806e3					1.3	NO		bb		0.000
7	FUNCTION2 PFK	29.77	1.198e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	29.47	1.476e4					2.1	NO		bb		0.000
9	FUNCTION2 PFK	29.28	1.360e4					2.0	NO		db		0.000
10	FUNCTION2 PFK	29.22	1.980e4					2.4	NO		bd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.30	3.856e7					44.6	YES		db		0.000
2	FUNCTION3 PFK	33.18	8.558e6					42.7	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.24	1.285e7					8.2	YES		db		
2	FUNCTION4 PFK	38.41	8.070e6					39.3	YES		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.68	1.647e4					1.8	NO		bb		
2	FUNCTION5 PFK	45.75	3.282e3					1.0	NO		bb		
3	FUNCTION5 PFK	45.28	6.957e3					1.1	NO		bb		
4	FUNCTION5 PFK	44.90	6.364e3					1.0	NO		bb		
5	FUNCTION5 PFK	44.84	1.531e3					0.5	NO		bb		
6	FUNCTION5 PFK	44.40	6.282e3					1.0	NO		bb		
7	FUNCTION5 PFK	44.21	4.626e3					1.1	NO		bb		
8	FUNCTION5 PFK	44.03	7.842e3					1.2	NO		bb		
9	FUNCTION5 PFK	43.96	6.415e3					1.4	NO		bb		
10	FUNCTION5 PFK	43.84	7.992e3					1.2	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.54	1.408e2					3.0	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.65	1.069e2					1.9	NO		bb		0.000
2	FUNCTION4 NCDPE	40.25	1.358e2					2.2	NO		bb		0.000
3	FUNCTION4 NCDPE	41.02	1.383e2					2.8	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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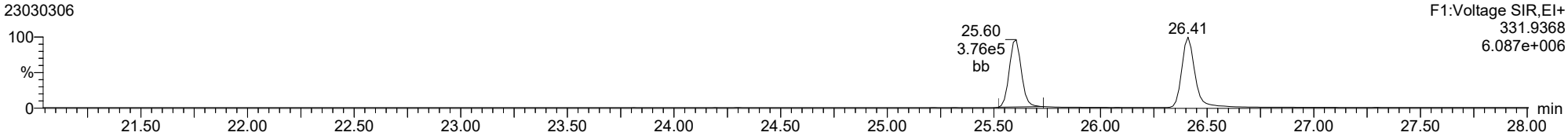

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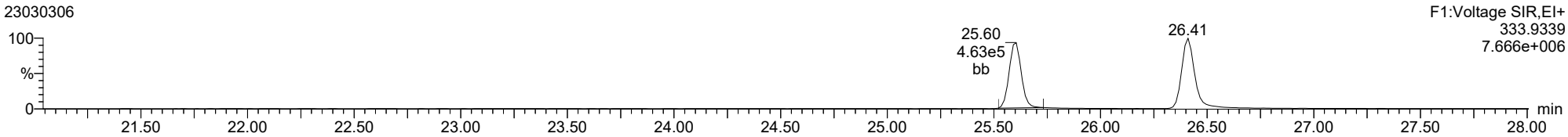

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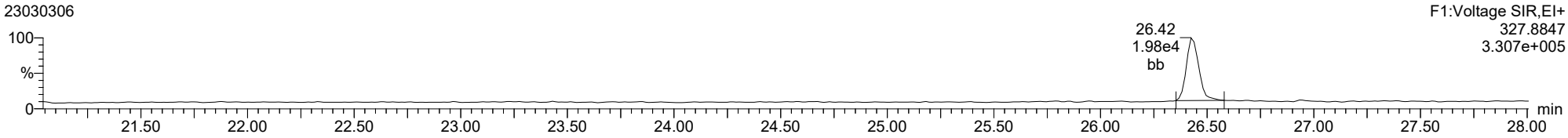

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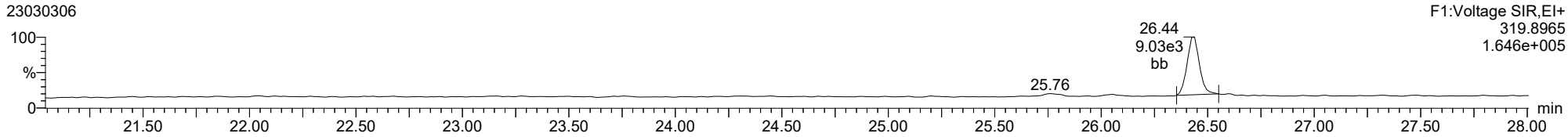

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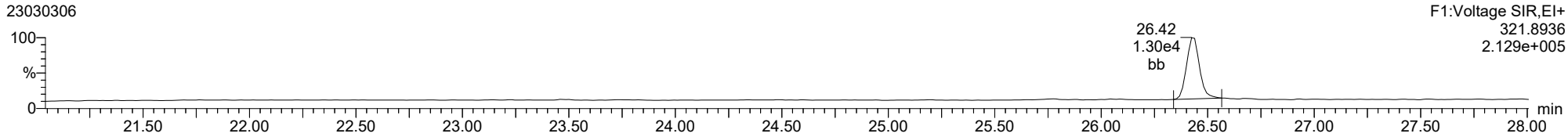

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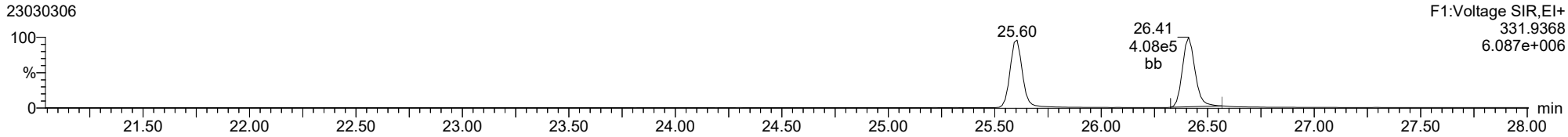

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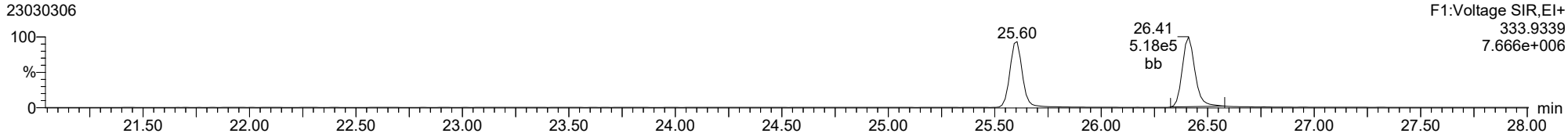

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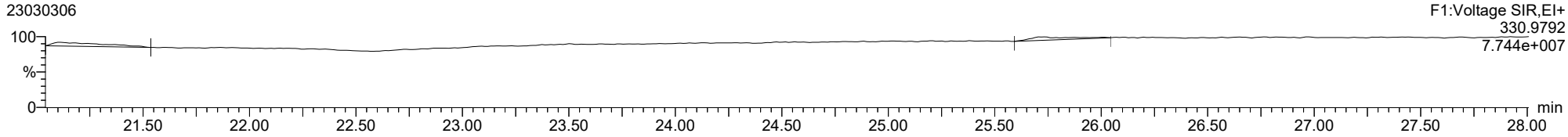

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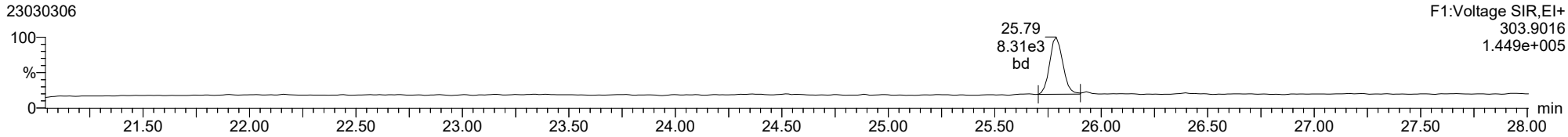

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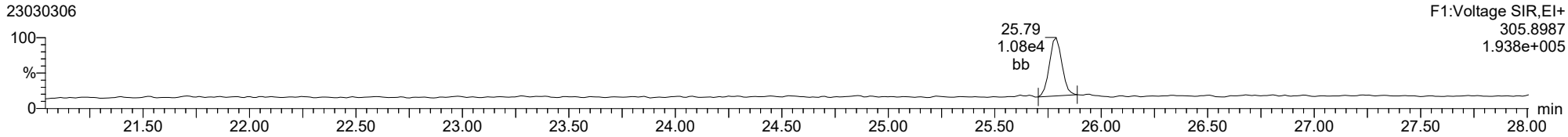

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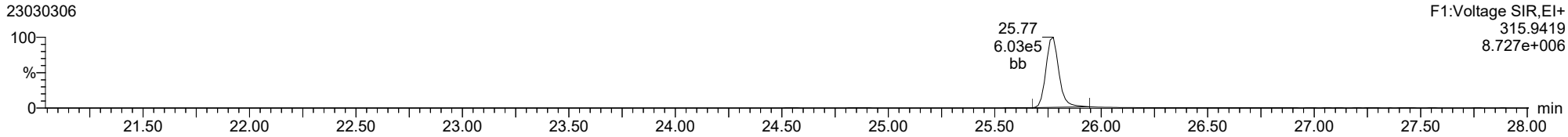

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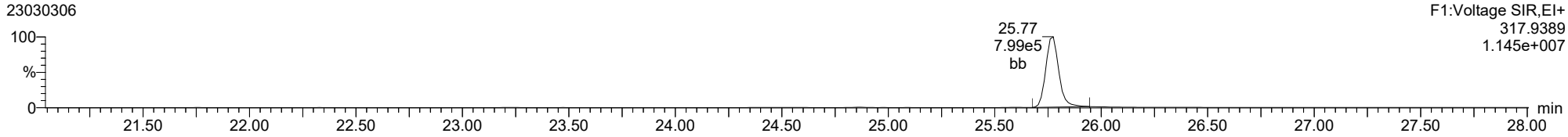

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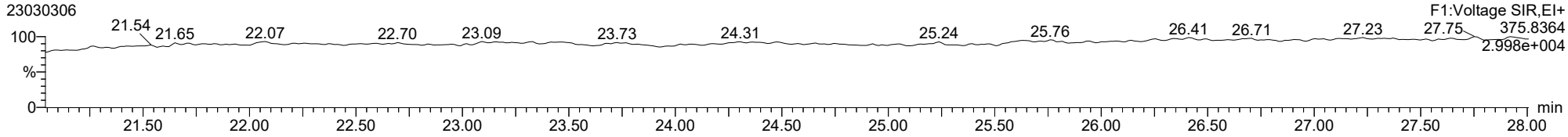

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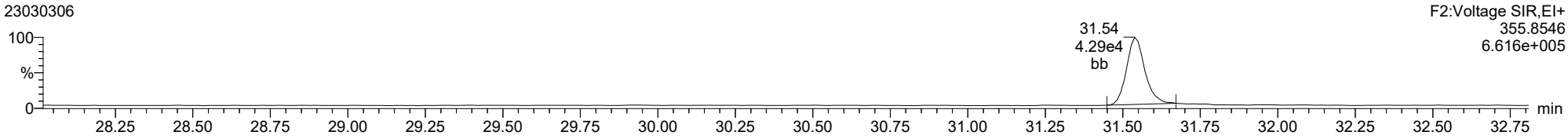
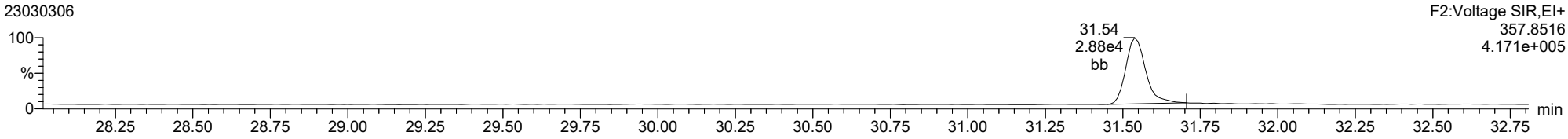
12378-PeCDD



12378-PeCDD



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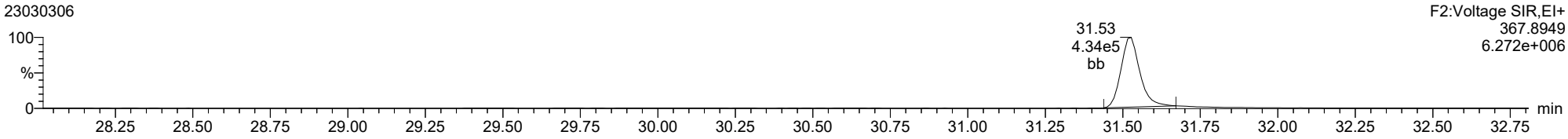

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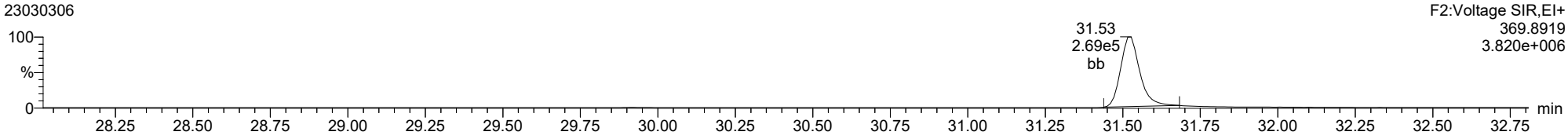
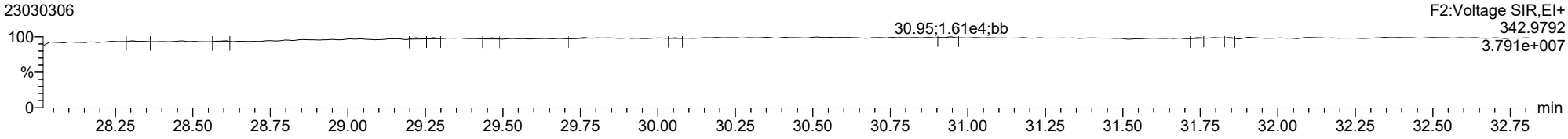


FUNCTION2 PFK



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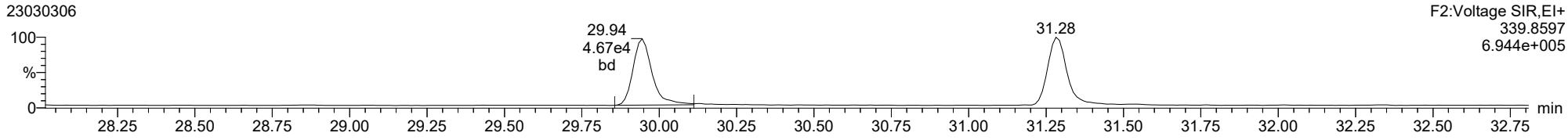

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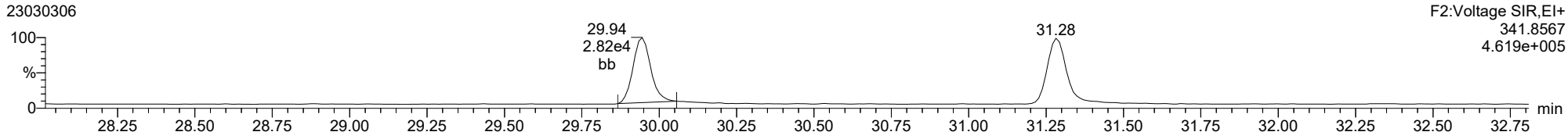

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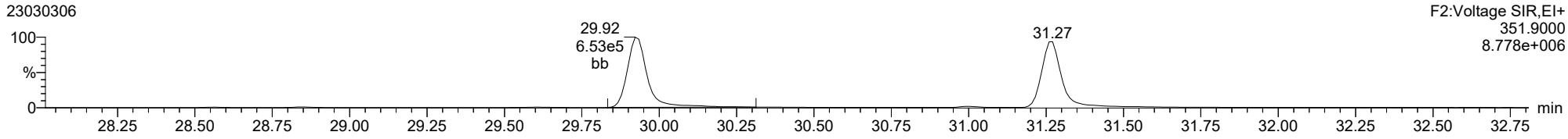

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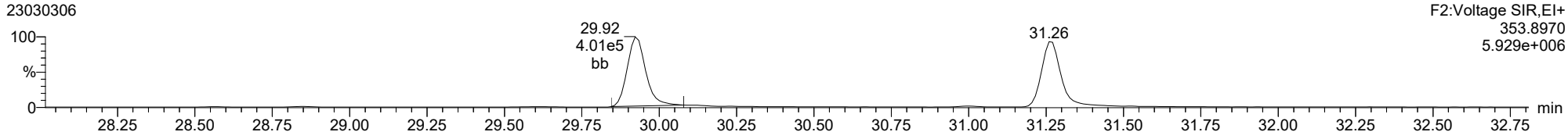

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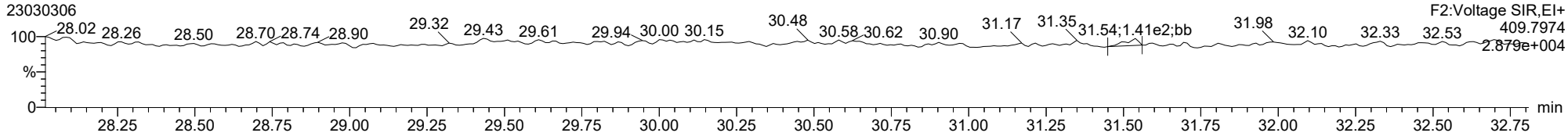

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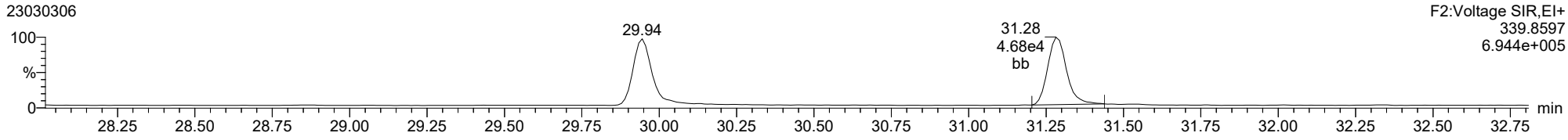

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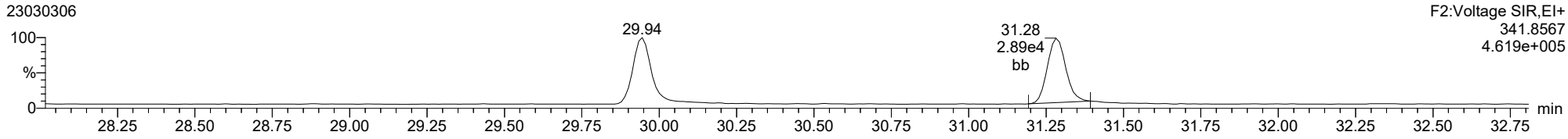

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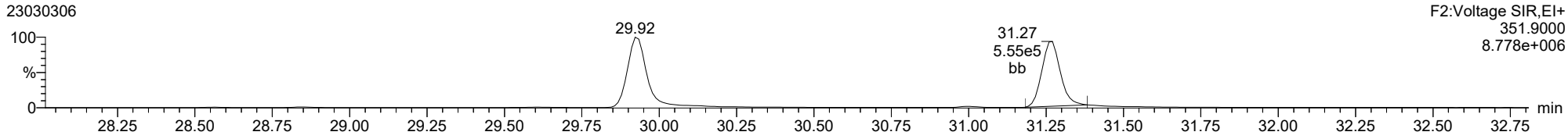

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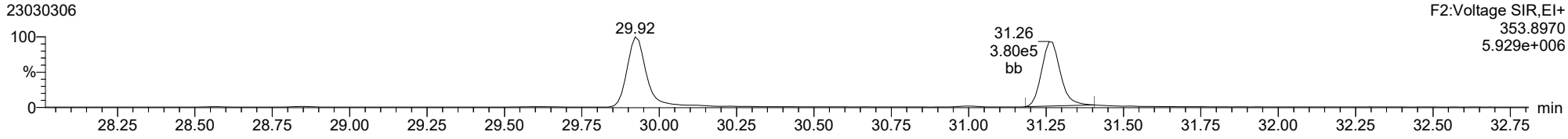

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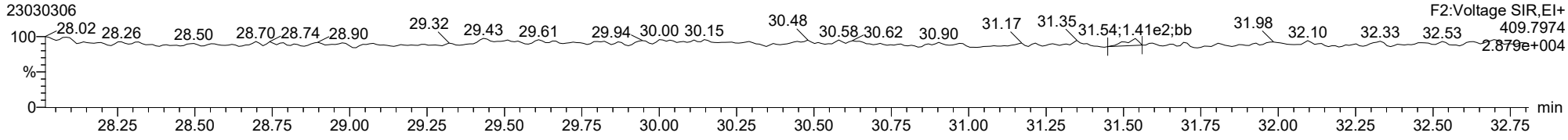

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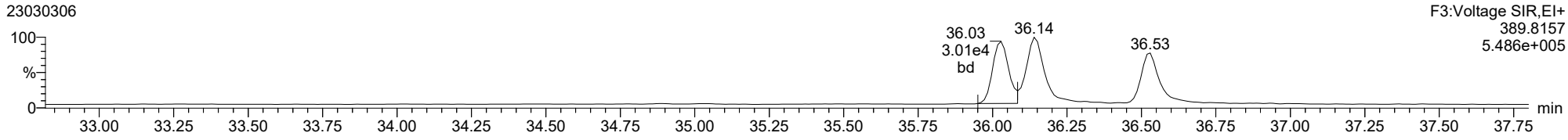

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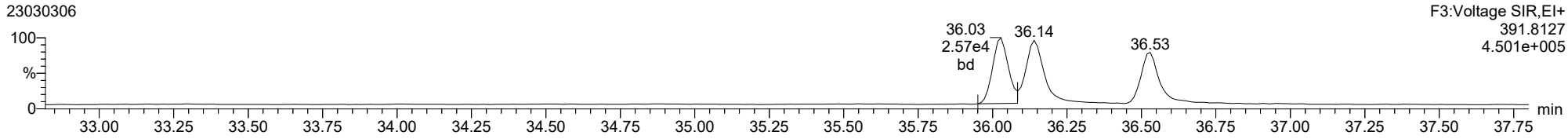

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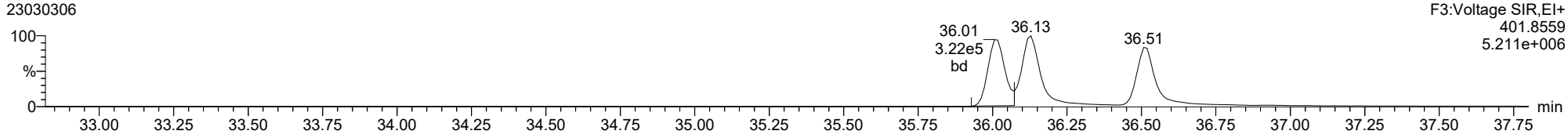

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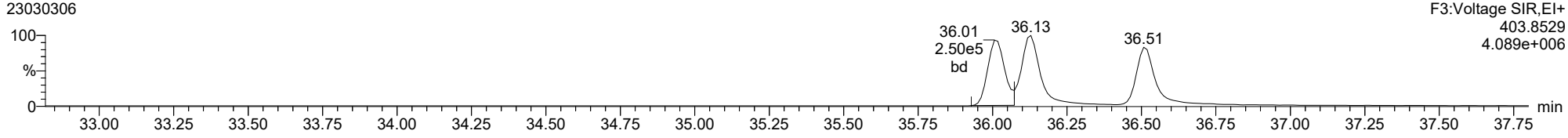

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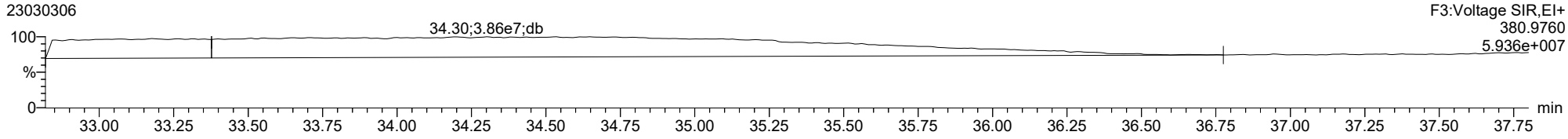

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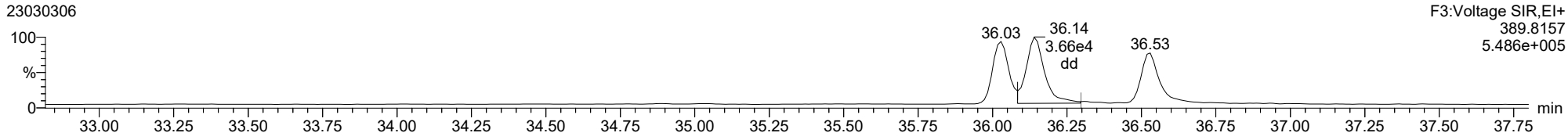

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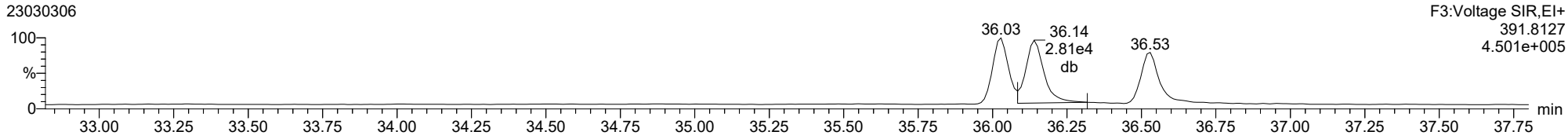

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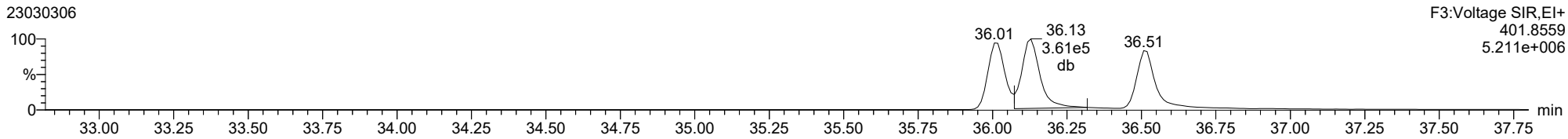

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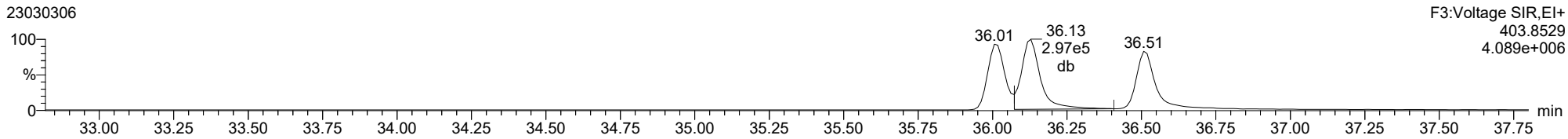

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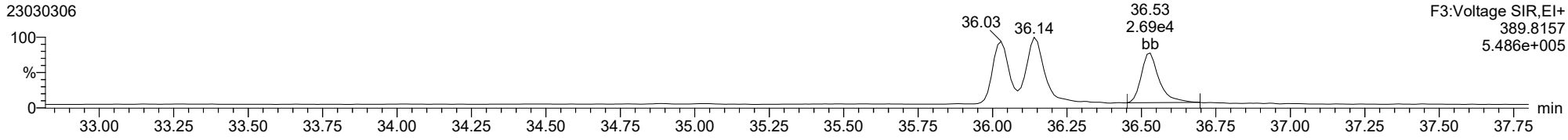

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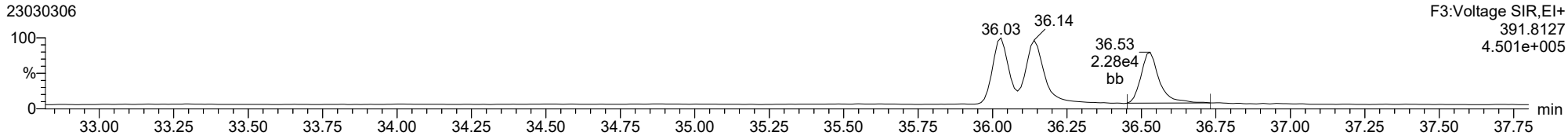

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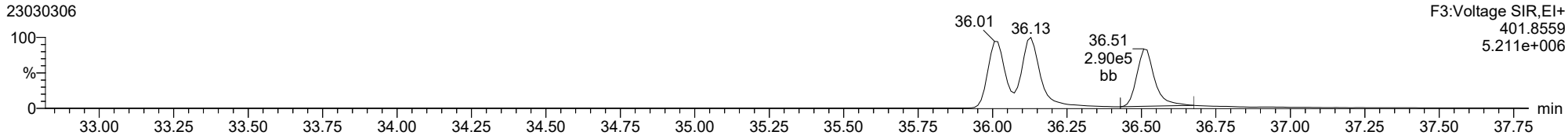

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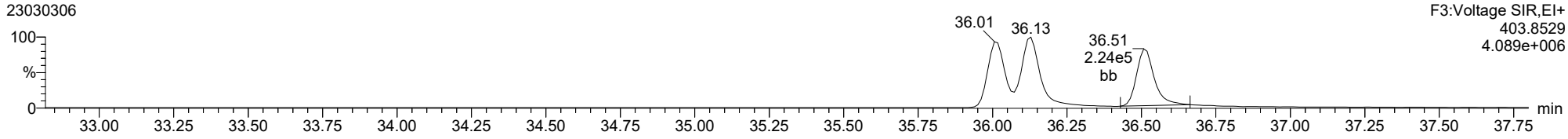

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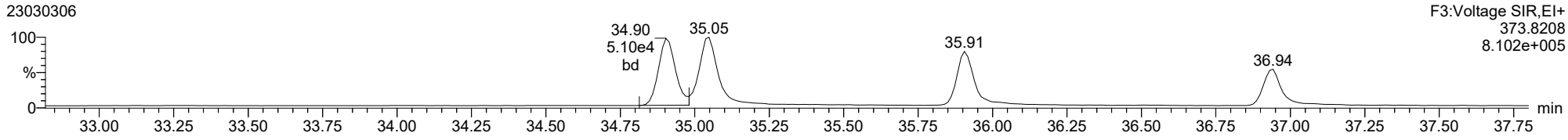

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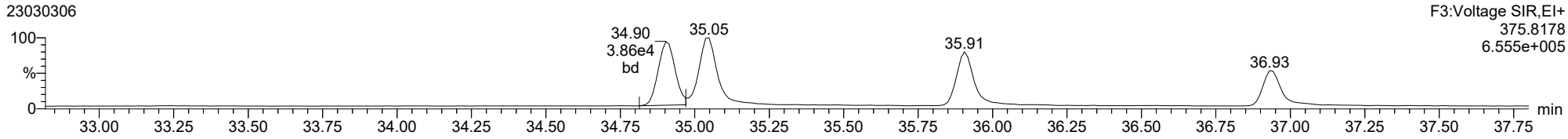

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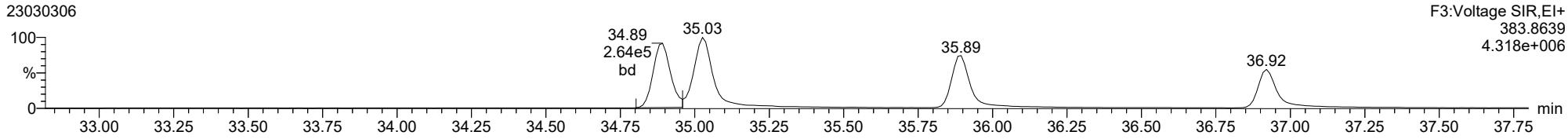

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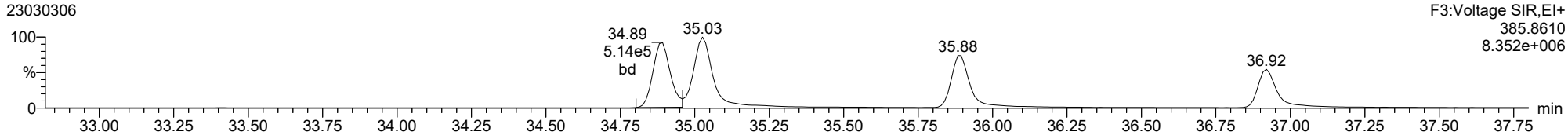

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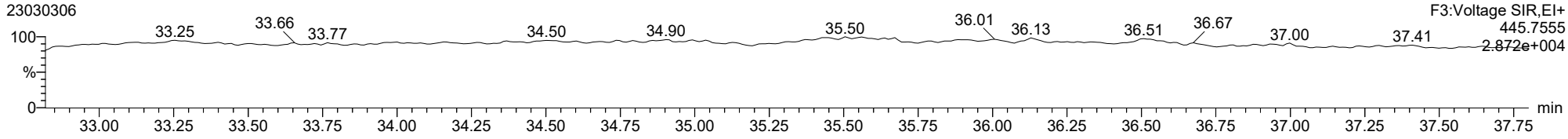

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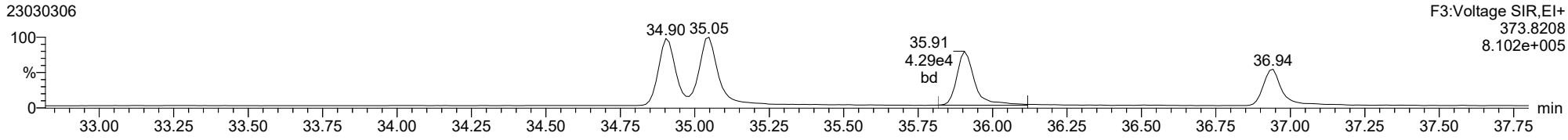

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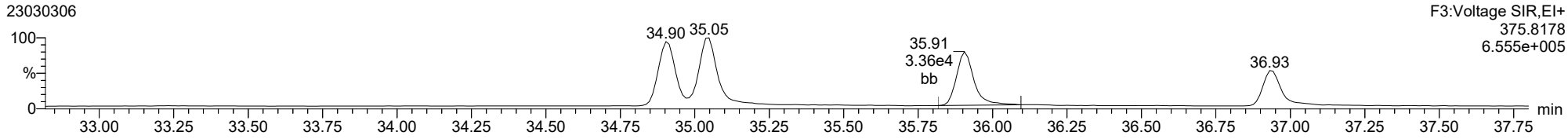

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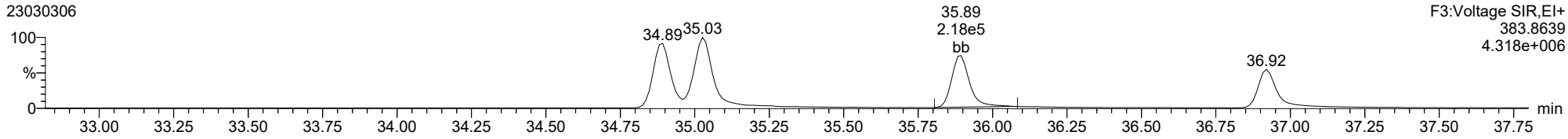

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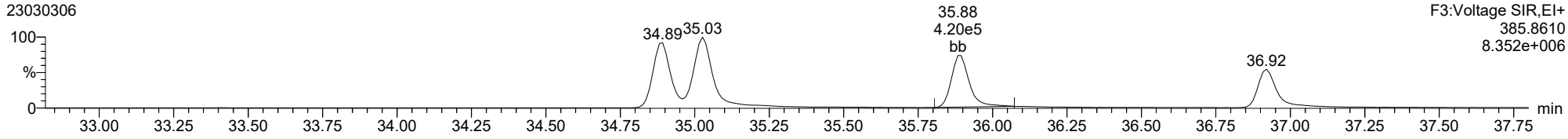

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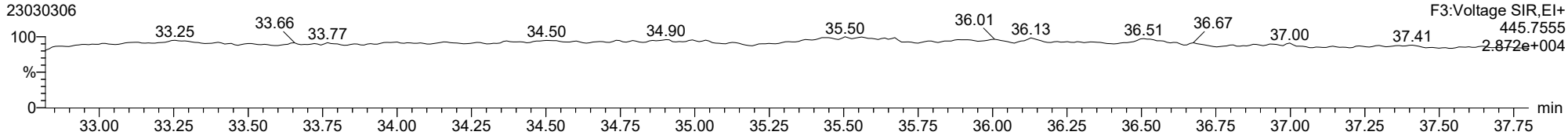

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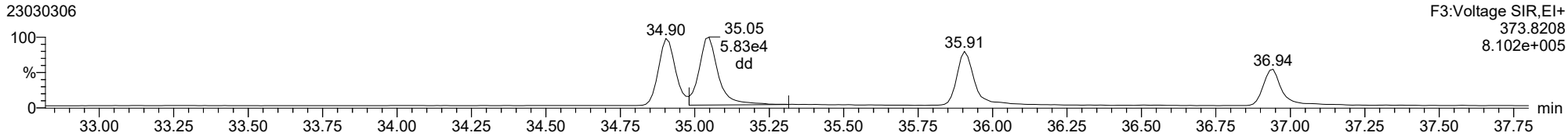

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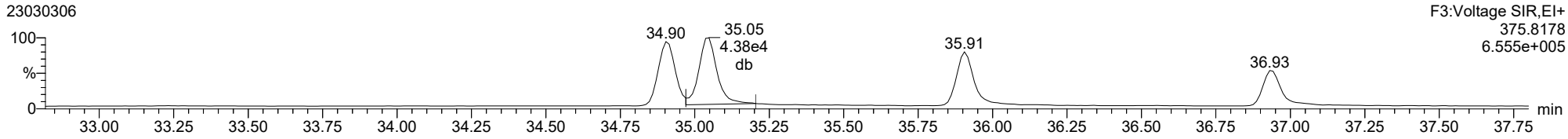

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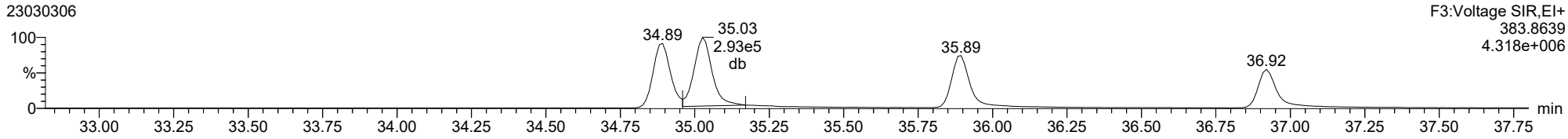

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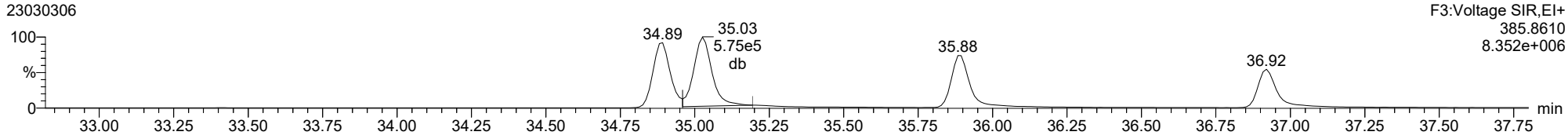

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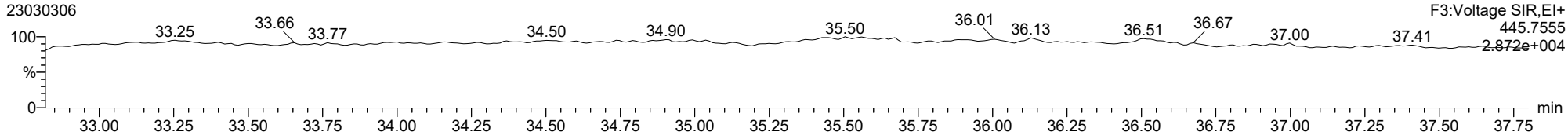

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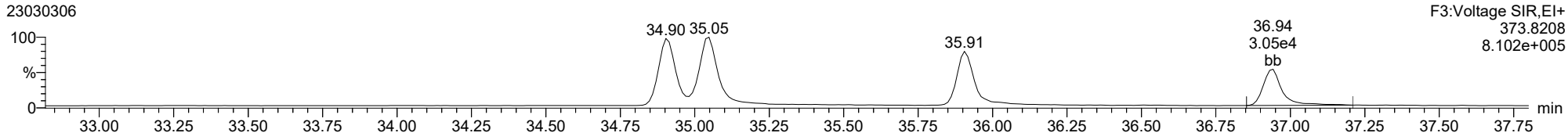

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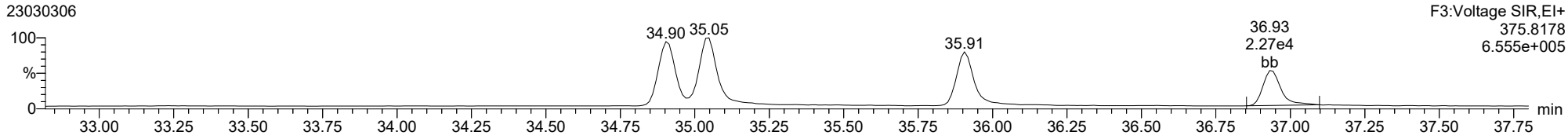

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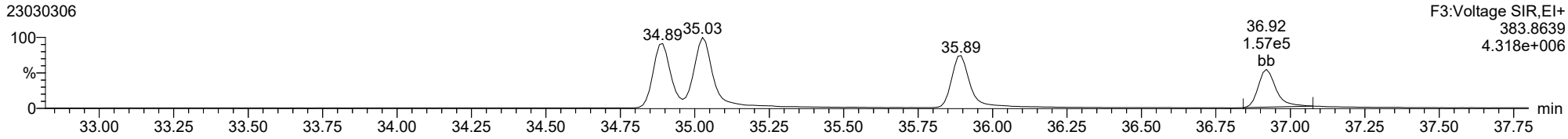

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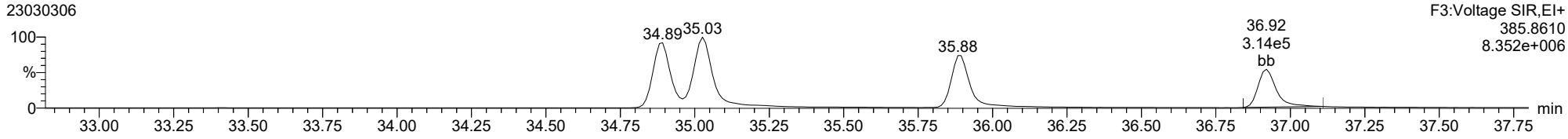

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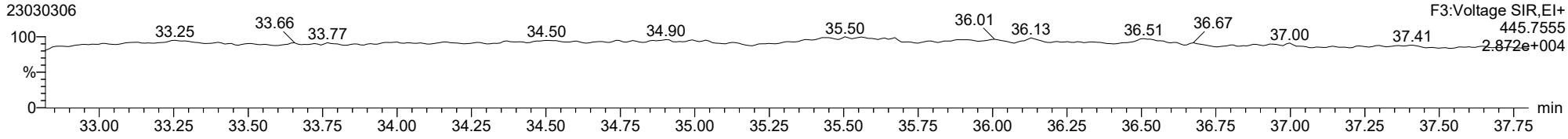

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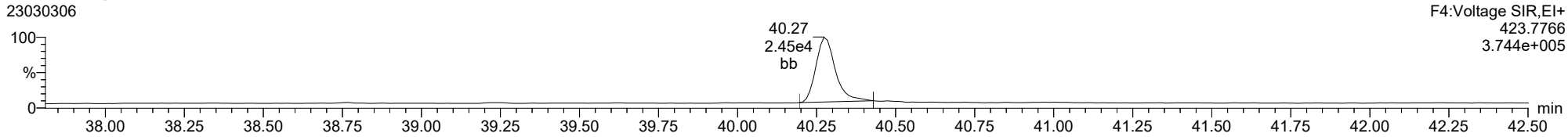

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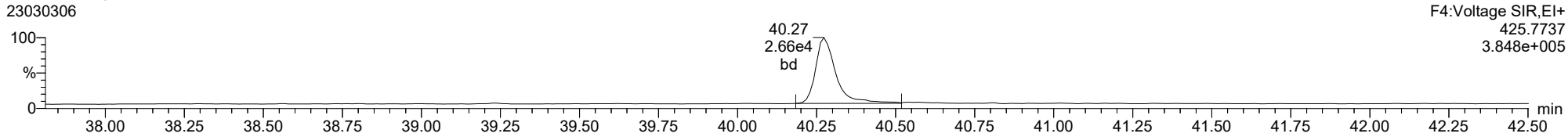

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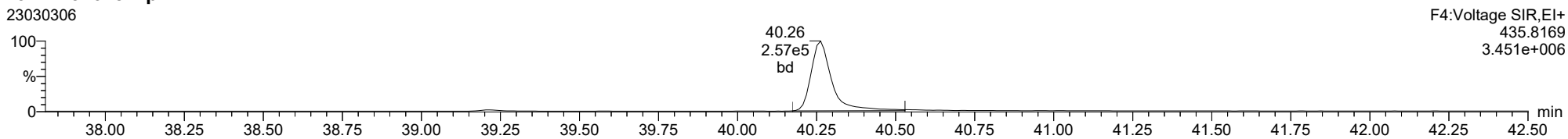

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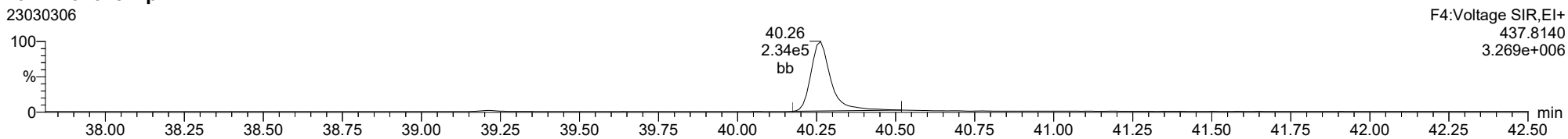

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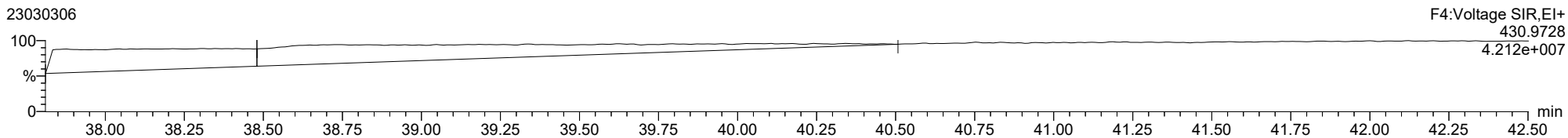

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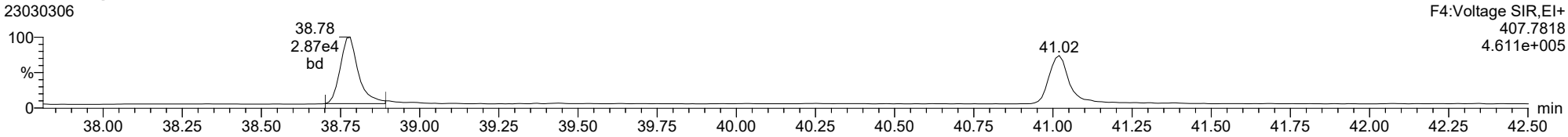
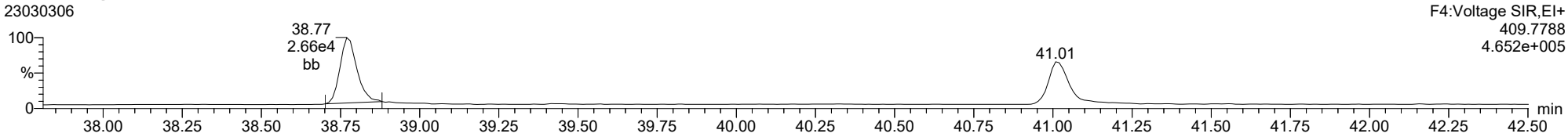


1234678-HpCDF



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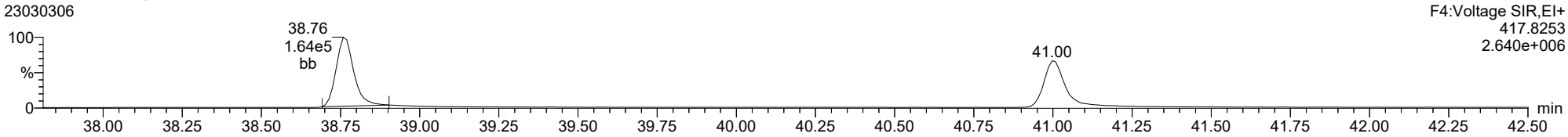

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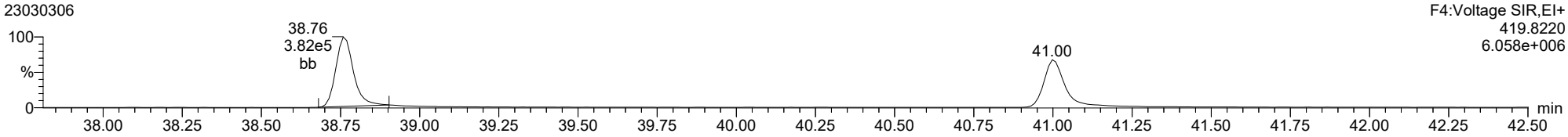
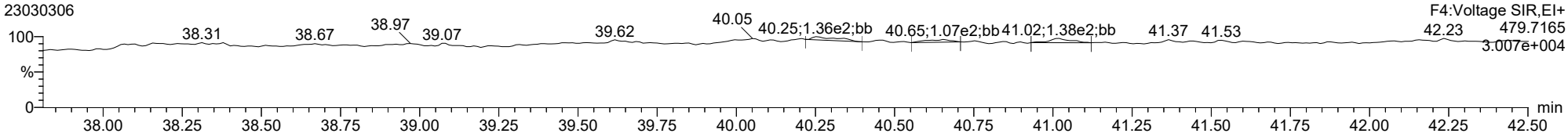


FUNCTION4 NCDPE



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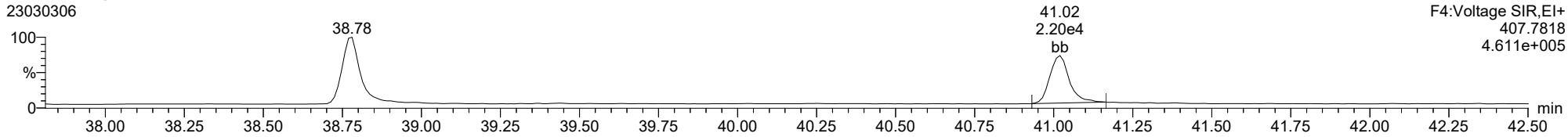

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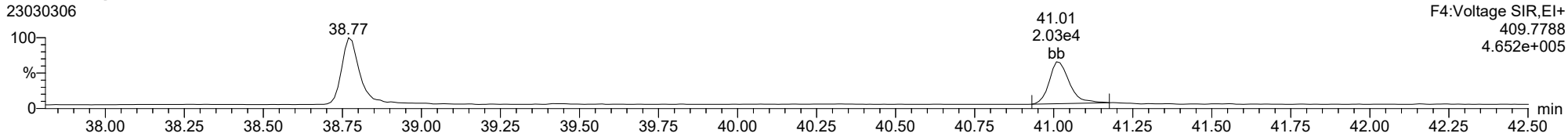

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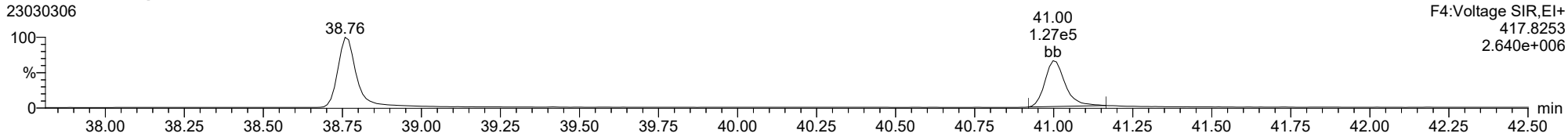

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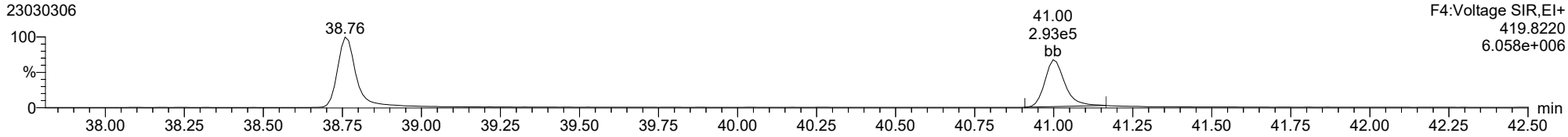
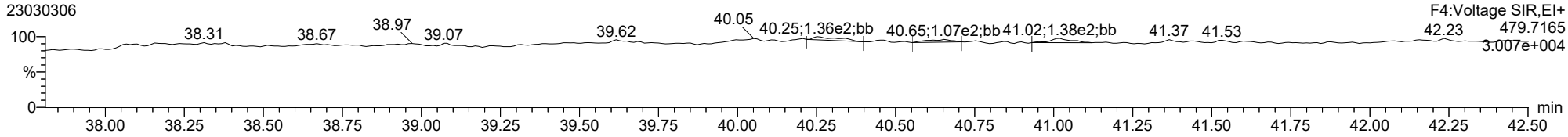


FUNCTION4 NCDPE



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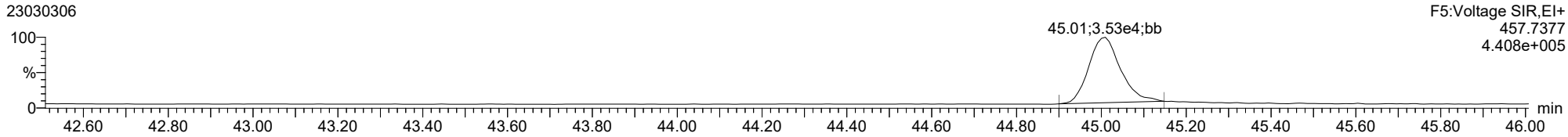
OCDD



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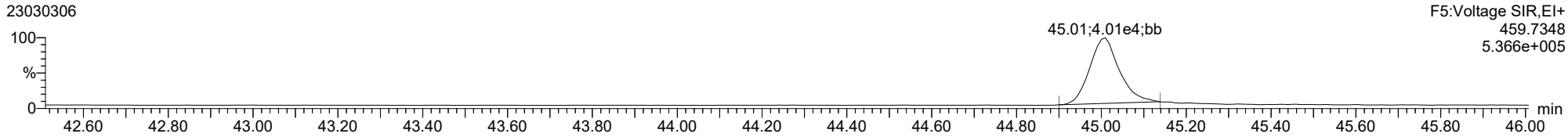

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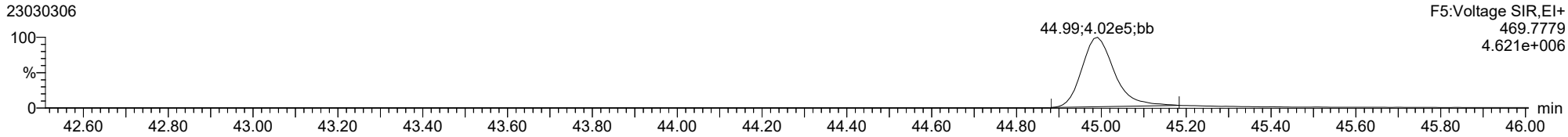

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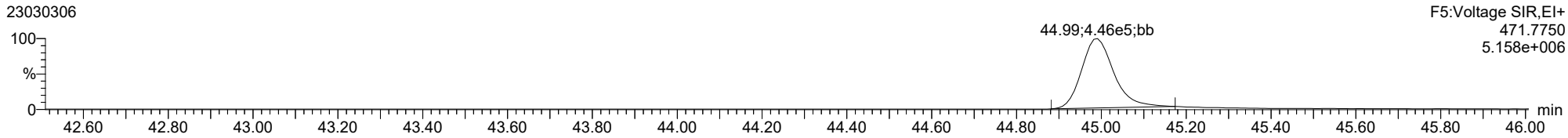
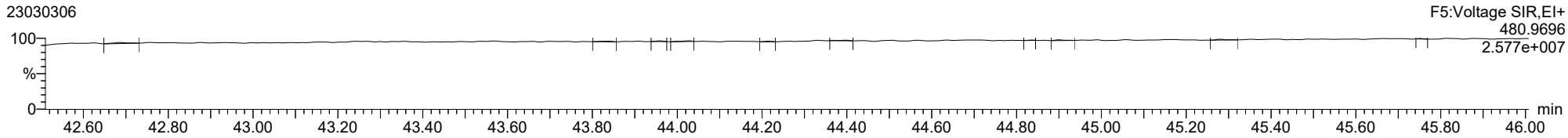


FUNCTION5 PFK



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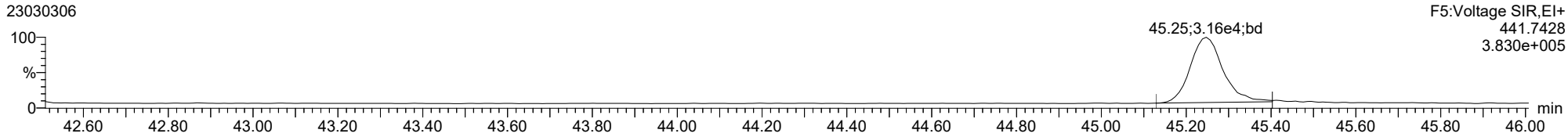

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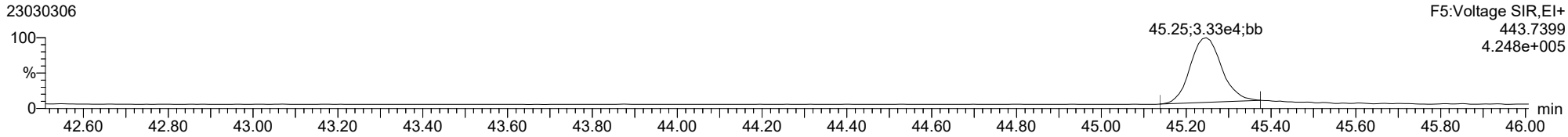
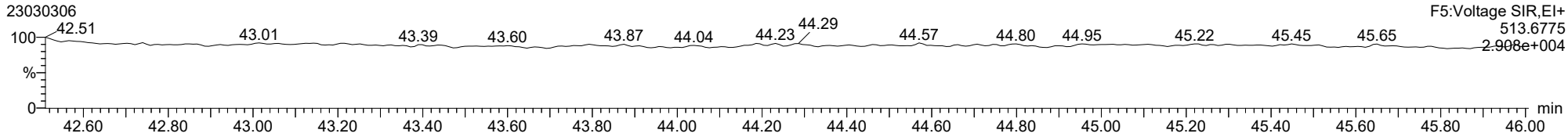


FUNCTION5 DCDPE



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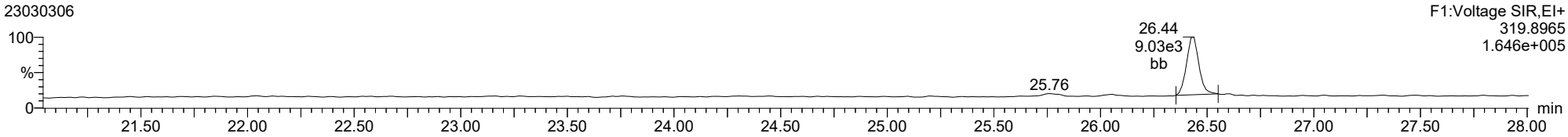
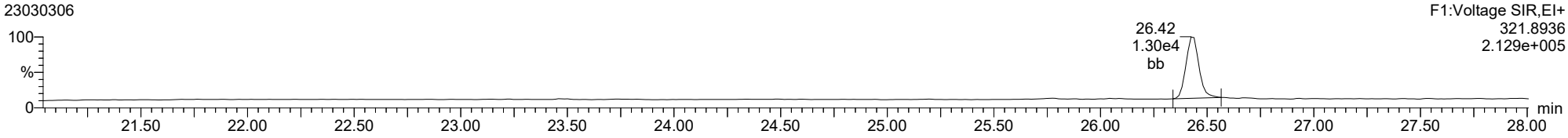


Total-tetradioxins



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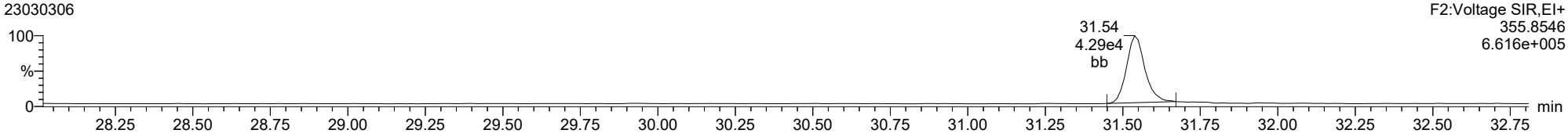

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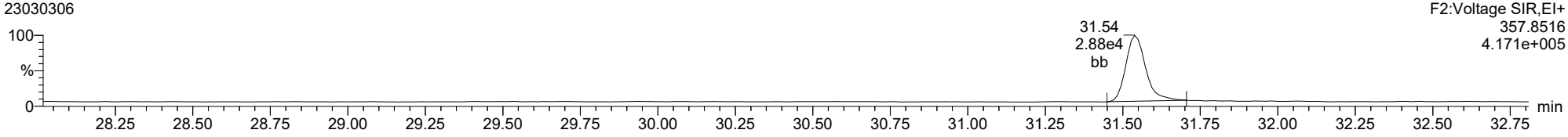

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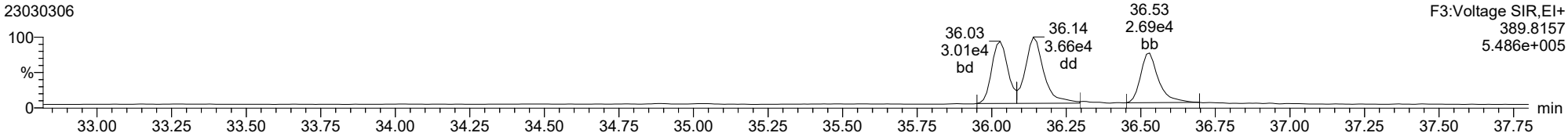

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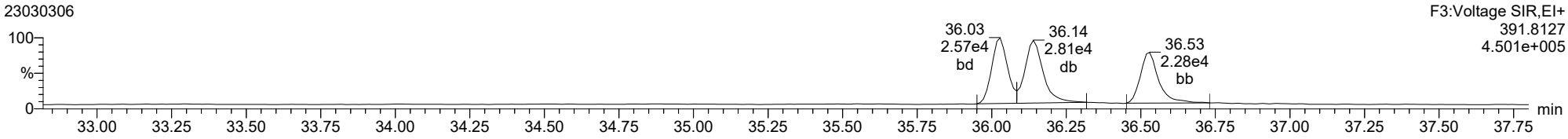

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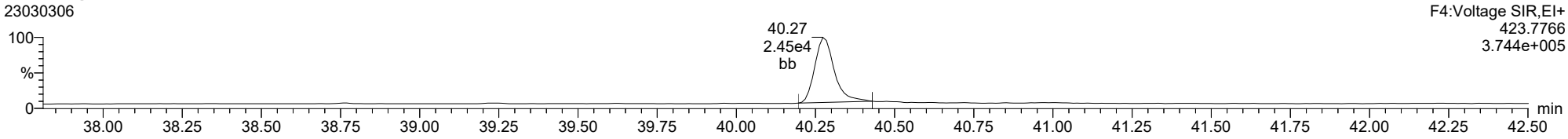

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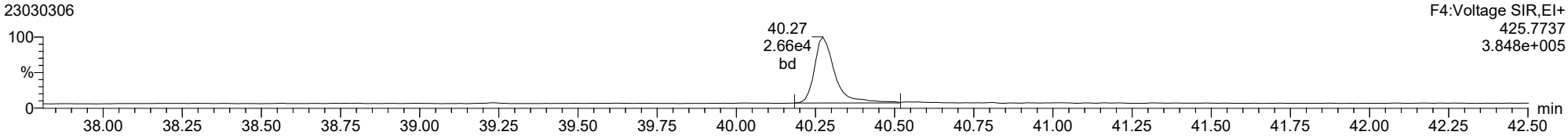

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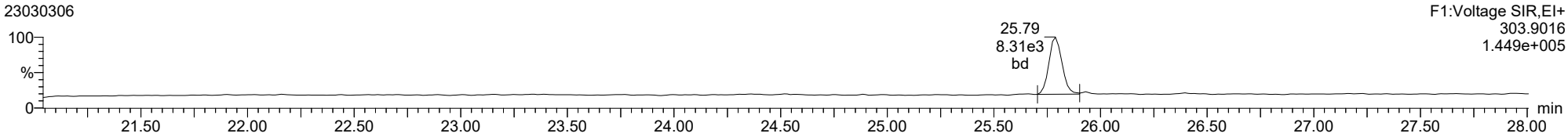
Total-tetrafurans



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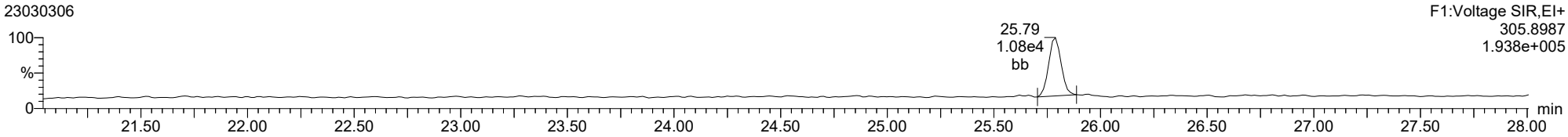

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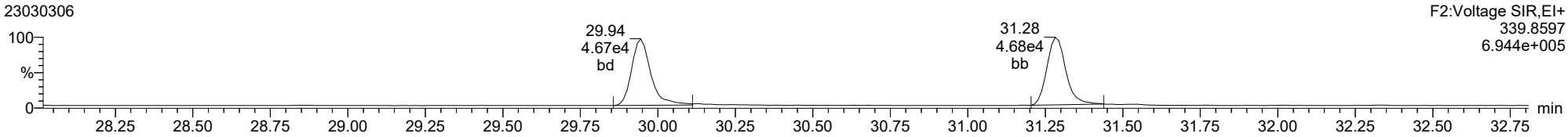

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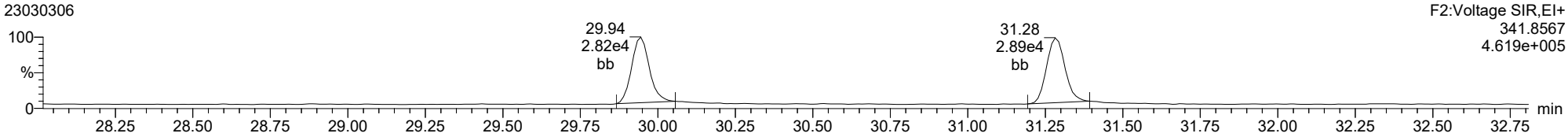

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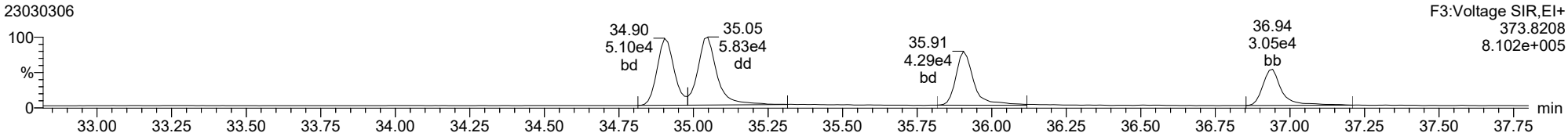
ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



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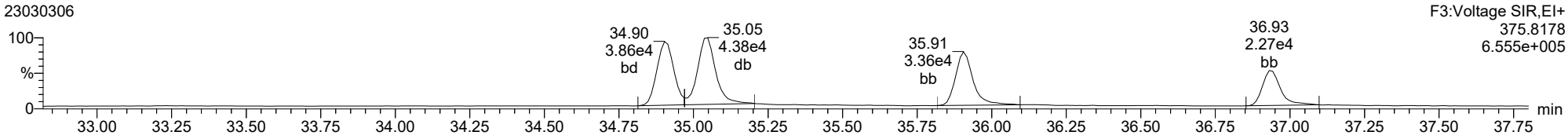

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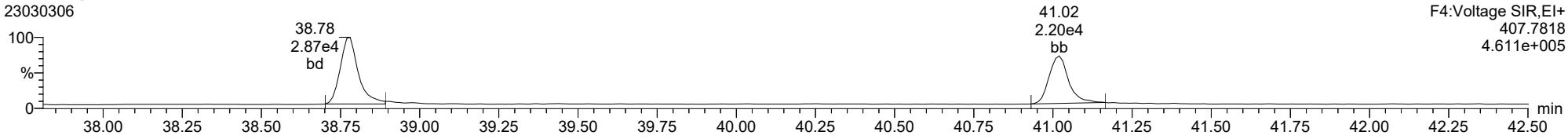

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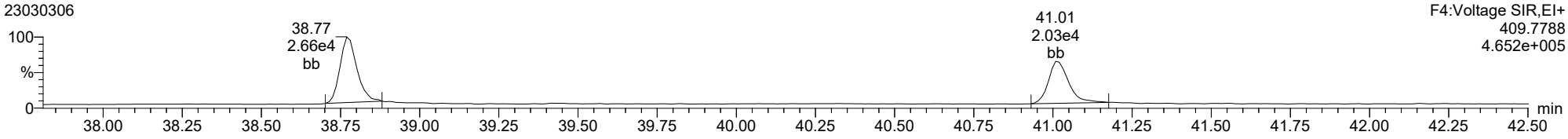

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS3CW, Name: 23030307, Date: 03-Mar-2023, Time: 14:06:39, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	4.563e4	6.298e4	0.702	0.724	0.770	1455	2151	7.03e5	9.46e5	483.4	440.0	NO	bb	bb	10.132
12378-PeCDF	29.945	1.001	2.374e5	1.577e5	0.679	1.505	1.550	2714	2519	3.51e6	2.28e6	1294.3	903.8	NO	bb	bb	49.089
23478-PeCDF	31.282	1.001	2.063e5	1.364e5	0.786	1.512	1.550	2714	2519	3.03e6	1.99e6	1118.0	788.5	NO	bb	bb	49.466
123478-HxCDF	34.903	1.000	2.473e5	1.941e5	1.166	1.275	1.240	3008	2708	3.76e6	2.98e6	1248.4	1099.9	NO	bd	bd	48.979
234678-HxCDF	35.905	1.000	2.404e5	1.930e5	1.140	1.246	1.240	3008	2708	3.53e6	2.85e6	1172.2	1053.8	NO	bb	bb	49.000
123678-HxCDF	35.048	1.001	2.970e5	2.223e5	1.091	1.336	1.240	3008	2708	3.95e6	3.09e6	1312.5	1142.3	NO	db	db	50.520
123789-HxCDF	36.942	1.001	2.103e5	1.706e5	1.137	1.233	1.240	3008	2708	2.89e6	2.30e6	959.2	849.3	NO	bd	bd	50.468
1234678-HpCDF	38.780	1.000	1.592e5	1.601e5	1.003	0.994	1.050	2672	2189	2.51e6	2.53e6	939.2	1157.5	NO	bb	bb	48.161
1234789-HpCDF	41.019	1.000	1.361e5	1.443e5	0.953	0.943	1.050	2672	2189	1.84e6	1.86e6	689.1	851.7	NO	bb	bd	49.244
OCDF	45.247	1.006	2.019e5	2.478e5	0.778	0.815	0.890	1393	1380	2.32e6	2.62e6	1663.0	1900.3	NO	bb	bd	93.418
2378-TCDD	26.424	1.000	5.877e4	7.446e4	1.149	0.789	0.770	1483	1021	8.00e5	1.03e6	539.5	1013.7	NO	bd	bb	9.873
12378-PeCDD	31.538	1.000	1.890e5	1.221e5	1.022	1.548	1.550	1651	2172	2.74e6	1.77e6	1662.3	815.6	NO	bb	bb	49.884
123478-HxCDD	36.028	1.000	1.812e5	1.479e5	0.996	1.225	1.240	1690	2600	2.90e6	2.38e6	1717.5	913.7	NO	bd	bd	48.605
123678-HxCDD	36.139	1.000	2.270e5	1.862e5	1.001	1.219	1.240	1690	2600	3.05e6	2.54e6	1803.3	977.3	NO	db	db	51.480
123789-HxCDD	36.529	1.011	1.887e5	1.546e5	0.907	1.221	1.240	1690	2600	2.71e6	2.20e6	1606.4	846.3	NO	bb	bb	51.083
1234678-HpCDD	40.273	1.000	1.573e5	1.681e5	1.039	0.936	1.050	2523	2313	2.21e6	2.22e6	874.4	957.9	NO	bb	bd	49.956
OCDD	45.009	1.000	2.508e5	2.930e5	0.920	0.856	0.890	1279	1652	2.91e6	3.41e6	2272.5	2065.6	NO	bb	bb	95.487
13C-2378-TCDF	25.774	1.007	6.575e5	8.705e5	1.620	0.755	0.770	2127	1667	9.70e6	1.27e7	4562.2	7600.8	NO	bb	bb	92.139
13C-12378-PeCDF	29.922	1.169	7.106e5	4.742e5	1.240	1.498	1.550	3150	3257	9.76e6	6.54e6	3098.5	2009.5	NO	bd	bd	93.316
13C-23478-PeCDF	31.259	1.221	5.241e5	3.573e5	1.118	1.467	1.550	3150	3257	7.68e6	5.27e6	2437.6	1617.5	NO	bb	bb	77.038
13C-123478-HxCDF	34.891	0.956	2.605e5	5.124e5	1.168	0.508	0.510	2130	2302	3.94e6	7.71e6	1851.1	3349.5	NO	bd	bd	95.975
13C-123678-HxCDF	35.025	0.959	3.029e5	6.396e5	1.386	0.474	0.510	2130	2302	4.25e6	8.39e6	1994.1	3646.7	NO	db	db	98.624
13C-234678-HxCDF	35.894	0.983	2.705e5	5.057e5	1.129	0.535	0.510	2130	2302	3.77e6	7.17e6	1772.4	3115.7	NO	bd	bb	99.718
13C-123789-HxCDF	36.919	1.011	2.253e5	4.385e5	0.932	0.514	0.510	2130	2302	3.30e6	6.48e6	1548.0	2814.2	NO	bb	bb	103.358
13C-1234678-HpCDF	38.769	1.062	2.032e5	4.578e5	0.895	0.444	0.440	2209	3025	3.15e6	7.13e6	1428.1	2357.0	NO	bb	bb	107.118
13C-1234789-HpCDF	41.008	1.123	1.757e5	4.217e5	0.770	0.417	0.440	2209	3025	2.29e6	5.20e6	1036.4	1717.4	NO	bb	bb	112.595
13C-1234-TCDD	25.605	0.000	4.555e5	5.681e5	1.000	0.802	0.770	2485	1606	6.85e6	8.57e6	2757.9	5335.2	NO	bb	bb	100.000
13C-2378-TCDD	26.410	1.031	5.228e5	6.520e5	1.152	0.802	0.770	2485	1606	7.70e6	9.63e6	3097.5	5999.3	NO	bb	bb	99.597
13C-12378-PeCDD	31.527	1.231	3.747e5	2.356e5	0.829	1.590	1.550	1413	1348	5.28e6	3.29e6	3736.6	2437.5	NO	bb	bb	71.936
13C-123478-HxCDD	36.017	0.986	3.837e5	2.963e5	0.995	1.295	1.240	1796	1719	5.91e6	4.54e6	3293.9	2638.3	NO	bd	bd	99.140
13C-123678-HxCDD	36.128	0.989	4.675e5	3.344e5	1.157	1.398	1.240	1796	1719	6.38e6	4.87e6	3554.2	2831.4	NO	db	db	100.573
13C-1234678-HpCDD	40.262	1.102	3.210e5	3.059e5	0.840	1.049	1.050	2165	1959	4.38e6	4.15e6	2024.2	2117.7	NO	bb	bb	108.247
13C-OCDD	44.990	1.232	6.075e5	6.305e5	0.767	0.963	0.890	2629	1930	6.50e6	7.26e6	2473.3	3761.0	NO	bd	bb	234.029
13C-123789-HxCDD	36.518	0.000	3.849e5	3.043e5	1.000	1.265	1.240	1796	1719	5.52e6	4.36e6	3076.5	2537.0	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.032	1.159e5		1.288			2383		1.68e6		703.2			bb		8.796

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Printed: Monday, March 06, 2023 11:34:37 Pacific Standard Time

ID: CS3CW, Name: 23030307, Date: 03-Mar-2023, Time: 14:06:39, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.285	0.865	5.143e4	7.104e4	0.802	0.724	0.770	1455	2151	8.64e5	1.17e6	593.7	544.2	NO	bb	bb	10.000
1289-TCDF	27.286	1.059	4.449e4	5.910e4	0.678	0.753	0.770	1455	2151	6.41e5	8.65e5	440.8	402.3	NO	bb	db	10.000
13468-PECDF	27.144	0.907	4.471e5	2.913e5	1.246	1.535	1.550	765	1431	6.85e6	4.42e6	8952.4	3092.4	NO	bb	bb	50.000
12389-PECDF	32.318	1.080	1.756e5	1.185e5	0.496	1.482	1.550	2714	2519	2.46e6	1.67e6	905.1	663.5	NO	bb	bb	50.000
123468-HXCDF	33.243	0.953	2.474e5	2.044e5	1.169	1.210	1.240	3008	2708	3.57e6	2.89e6	1187.3	1066.9	NO	bb	bd	50.000
1368-TCDD	23.557	0.892	5.333e4	6.596e4	1.015	0.808	0.770	1483	1021	8.25e5	1.09e6	556.5	1064.4	NO	bb	bb	10.000
1289-TCDD	27.031	1.023	4.649e4	6.027e4	0.909	0.771	0.770	1483	1021	6.71e5	8.87e5	452.4	868.9	NO	bb	bb	10.000
12479-PECDD	28.830	0.914	4.152e5	2.870e5	2.301	1.447	1.550	1651	2172	3.89e6	2.64e6	2354.1	1214.5	NO	bb	bd	50.000
12389-PECDD	31.939	1.013	2.202e5	1.409e5	1.184	1.563	1.550	1651	2172	2.97e6	1.93e6	1798.8	887.7	NO	bd	bd	50.000
124679-HXCDD	34.011	0.944	2.133e5	1.659e5	1.115	1.286	1.240	1690	2600	2.98e6	2.42e6	1762.3	930.8	NO	bd	bb	50.000
1234679-HPCDD	39.225	0.974	1.868e5	1.696e5	1.137	1.101	1.050	2523	2313	2.68e6	2.60e6	1062.7	1125.2	NO	bd	bb	50.000
Total-tetrafurans			1.415e5		0.727			1455		2.21e6							30.132
Total-penta1			4.471e5					765		6.85e6							50.000
Total-pentafurans			6.595e5		0.654			2714		9.58e6							158.378
Total-hexafurans			1.243e6		1.141			3008		1.77e7							249.074
Total-heptafurans			2.965e5		0.978			2672		4.37e6							97.824
Total-Furans			2.990e6		0.922			1455		4.30e7							678.826
Total-tetradioxins			2.666e5		1.024			1483		3.52e6							50.252
Total-pentadioxins			8.253e5		1.502			1651		9.61e6							150.025
Total-hexadioxins			8.102e5		1.005			1690		1.16e7							201.167
Total-heptadioxins			3.440e5		1.088			2523		4.89e6							99.956
Total-Dioxins			2.497e6		1.130			1483		3.26e7							596.887
Total-TEQ			5.487e6					1483		7.56e7							1275.713
FUNCTION1 PFK			2.078e5					640846		4.44e6							
FUNCTION2 PFK			1.544e7					302960		1.17e7							0.000
FUNCTION3 PFK			6.335e6					441696		3.43e7							0.000
FUNCTION4 PFK			1.606e7					302692		2.36e6							
FUNCTION5 PFK			3.357e4					240421		1.60e6							
FUNCTION1 HXCD...			1.444e3					587		1.68e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			9.034e2					1003		1.66e4							0.000
FUNCTION3 OCDPE			5.560e2					494		8.57e3							0.000
FUNCTION4 NCDPE			9.205e2					776		1.78e4							0.000
FUNCTION5 DCDPE			9.291e1					548		1.29e3							0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.449e4	5.910e4	0.678	0.75	0.77	440.8	YES	NO	bb	db	10.000
2	2378-TCDF	25.79	4.563e4	6.298e4	0.702	0.72	0.77	483.4	YES	NO	bb	bb	10.132
3	1368-TCDF	22.29	5.143e4	7.104e4	0.802	0.72	0.77	593.7	YES	NO	bb	bb	10.000

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.14	4.471e5	2.913e5	1.246	1.53	1.55	8952.4	YES	NO	bb	bb	50.000

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.32	1.756e5	1.185e5	0.496	1.48	1.55	905.1	YES	NO	bb	bb	50.000
2	23478-PeCDF	31.28	2.063e5	1.364e5	0.786	1.51	1.55	1118.0	YES	NO	bb	bb	49.466
3	Total-pentafurans	30.13	4.319e2	3.264e2	0.654	1.32	1.55	1.8	NO	NO	bb	bb	0.112
4	12378-PeCDF	29.94	2.374e5	1.577e5	0.679	1.51	1.55	1294.3	YES	NO	bb	bb	49.089
5	Total-pentafurans	28.80	3.978e4	2.583e4	0.654	1.54	1.55	212.5	YES	NO	bb	bb	9.712

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	37.33	5.073e2	4.522e2	1.141	1.12	1.24	4.2	YES	NO	db	dd	0.107
2	123789-HxCDF	36.94	2.103e5	1.706e5	1.137	1.23	1.24	959.2	YES	NO	bd	bd	50.468
3	234678-HxCDF	35.91	2.404e5	1.930e5	1.140	1.25	1.24	1172.2	YES	NO	bb	bb	49.000
4	123678-HxCDF	35.05	2.970e5	2.223e5	1.091	1.34	1.24	1312.5	YES	NO	db	db	50.520
5	123478-HxCDF	34.90	2.473e5	1.941e5	1.166	1.27	1.24	1248.4	YES	NO	bd	bd	48.979
6	123468-HXCDF	33.24	2.474e5	2.044e5	1.169	1.21	1.24	1187.3	YES	NO	bb	bd	50.000

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.02	1.361e5	1.443e5	0.953	0.94	1.05	689.1	YES	NO	bb	bd	49.244
2	Total-heptafurans	39.44	1.302e3	1.273e3	0.978	1.02	1.05	8.5	YES	NO	bb	bb	0.418
3	1234678-HpCDF	38.78	1.592e5	1.601e5	1.003	0.99	1.05	939.2	YES	NO	bb	bb	48.161

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.449e4	5.910e4	0.678	0.75	0.77	440.8	YES	NO	bb	db	10.000
2	2378-TCDF	25.79	4.563e4	6.298e4	0.702	0.72	0.77	483.4	YES	NO	bb	bb	10.132
3	1368-TCDF	22.29	5.143e4	7.104e4	0.802	0.72	0.77	593.7	YES	NO	bb	bb	10.000
4	12389-PECDF	32.32	1.756e5	1.185e5	0.496	1.48	1.55	905.1	YES	NO	bb	bb	50.000
5	23478-PeCDF	31.28	2.063e5	1.364e5	0.786	1.51	1.55	1118.0	YES	NO	bb	bb	49.466
6	Total-pentafurans	30.13	4.319e2	3.264e2	0.654	1.32	1.55	1.8	NO	NO	bb	bb	0.112
7	12378-PeCDF	29.94	2.374e5	1.577e5	0.679	1.51	1.55	1294.3	YES	NO	bb	bb	49.089
8	Total-pentafurans	28.80	3.978e4	2.583e4	0.654	1.54	1.55	212.5	YES	NO	bb	bb	9.712
9	Total-hexafurans	37.33	5.073e2	4.522e2	1.141	1.12	1.24	4.2	YES	NO	db	dd	0.107
10	123789-HxCDF	36.94	2.103e5	1.706e5	1.137	1.23	1.24	959.2	YES	NO	bd	bd	50.468
11	234678-HxCDF	35.91	2.404e5	1.930e5	1.140	1.25	1.24	1172.2	YES	NO	bb	bb	49.000
12	123678-HxCDF	35.05	2.970e5	2.223e5	1.091	1.34	1.24	1312.5	YES	NO	db	db	50.520
13	123478-HxCDF	34.90	2.473e5	1.941e5	1.166	1.27	1.24	1248.4	YES	NO	bd	bd	48.979
14	123468-HXCDF	33.24	2.474e5	2.044e5	1.169	1.21	1.24	1187.3	YES	NO	bb	bd	50.000
15	1234789-HpCDF	41.02	1.361e5	1.443e5	0.953	0.94	1.05	689.1	YES	NO	bb	bd	49.244
16	Total-heptafurans	39.44	1.302e3	1.273e3	0.978	1.02	1.05	8.5	YES	NO	bb	bb	0.418
17	1234678-HpCDF	38.78	1.592e5	1.601e5	1.003	0.99	1.05	939.2	YES	NO	bb	bb	48.161
18	OCDF	45.25	2.019e5	2.478e5	0.778	0.81	0.89	1663.0	YES	NO	bb	bd	93.418
19	13468-PECDF	27.14	4.471e5	2.913e5	1.246	1.53	1.55	8952.4	YES	NO	bb	bb	50.000

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.333e4	6.596e4	1.015	0.81	0.77	556.5	YES	NO	bb	bb	10.000
2	1289-TCDD	27.03	4.649e4	6.027e4	0.909	0.77	0.77	452.4	YES	NO	bb	bb	10.000
3	2378-TCDD	26.42	5.877e4	7.446e4	1.149	0.79	0.77	539.5	YES	NO	bd	bb	9.873
4	Total-tetradioxins	26.10	8.105e4	1.035e5	1.024	0.78	0.77	553.1	YES	NO	bb	bb	15.333
5	Total-tetradioxins	25.62	2.642e4	3.299e4	1.024	0.80	0.77	267.0	YES	NO	bd	bb	4.937
6	Total-tetradioxins	25.04	5.856e2	7.161e2	1.024	0.82	0.77	7.0	YES	NO	bb	bb	0.108

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.94	2.202e5	1.409e5	1.184	1.56	1.55	1798.8	YES	NO	bd	bd	50.000
2	12378-PeCDD	31.54	1.890e5	1.221e5	1.022	1.55	1.55	1662.3	YES	NO	bb	bb	49.884
3	Total-pentadioxins	30.88	8.263e2	4.657e2	1.502	1.77	1.55	8.6	YES	NO	bb	bb	0.141
4	12479-PECDD	28.83	4.152e5	2.870e5	2.301	1.45	1.55	2354.1	YES	NO	bb	bd	50.000

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	1.887e5	1.546e5	0.907	1.22	1.24	1606.4	YES	NO	bb	bb	51.083
2	123678-HxCDD	36.14	2.270e5	1.862e5	1.001	1.22	1.24	1803.3	YES	NO	db	db	51.480
3	123478-HxCDD	36.03	1.812e5	1.479e5	0.996	1.23	1.24	1717.5	YES	NO	bd	bd	48.605
4	124679-HXCDD	34.01	2.133e5	1.659e5	1.115	1.29	1.24	1762.3	YES	NO	bd	bb	50.000

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	1.573e5	1.681e5	1.039	0.94	1.05	874.4	YES	NO	bb	bd	49.956
2	1234679-HPCDD	39.23	1.868e5	1.696e5	1.137	1.10	1.05	1062.7	YES	NO	bd	bb	50.000

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.333e4	6.596e4	1.015	0.81	0.77	556.5	YES	NO	bb	bb	10.000
2	1289-TCDD	27.03	4.649e4	6.027e4	0.909	0.77	0.77	452.4	YES	NO	bb	bb	10.000
3	2378-TCDD	26.42	5.877e4	7.446e4	1.149	0.79	0.77	539.5	YES	NO	bd	bb	9.873
4	Total-tetradioxins	26.10	8.105e4	1.035e5	1.024	0.78	0.77	553.1	YES	NO	bb	bb	15.333
5	Total-tetradioxins	25.62	2.642e4	3.299e4	1.024	0.80	0.77	267.0	YES	NO	bd	bb	4.937
6	Total-tetradioxins	25.04	5.856e2	7.161e2	1.024	0.82	0.77	7.0	YES	NO	bb	bb	0.108
7	12389-PECDD	31.94	2.202e5	1.409e5	1.184	1.56	1.55	1798.8	YES	NO	bd	bd	50.000
8	12378-PeCDD	31.54	1.890e5	1.221e5	1.022	1.55	1.55	1662.3	YES	NO	bb	bb	49.884
9	Total-pentadioxins	30.88	8.263e2	4.657e2	1.502	1.77	1.55	8.6	YES	NO	bb	bb	0.141
10	12479-PECDD	28.83	4.152e5	2.870e5	2.301	1.45	1.55	2354.1	YES	NO	bb	bd	50.000
11	123789-HxCDD	36.53	1.887e5	1.546e5	0.907	1.22	1.24	1606.4	YES	NO	bb	bb	51.083
12	123678-HxCDD	36.14	2.270e5	1.862e5	1.001	1.22	1.24	1803.3	YES	NO	db	db	51.480
13	123478-HxCDD	36.03	1.812e5	1.479e5	0.996	1.23	1.24	1717.5	YES	NO	bd	bd	48.605
14	124679-HXCDD	34.01	2.133e5	1.659e5	1.115	1.29	1.24	1762.3	YES	NO	bd	bb	50.000
15	1234678-HpCDD	40.27	1.573e5	1.681e5	1.039	0.94	1.05	874.4	YES	NO	bb	bd	49.956
16	1234679-HPCDD	39.23	1.868e5	1.696e5	1.137	1.10	1.05	1062.7	YES	NO	bd	bb	50.000
17	OCDD	45.01	2.508e5	2.930e5	0.920	0.86	0.89	2272.5	YES	NO	bb	bb	95.487

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.449e4	5.910e4	0.678	0.75	0.77	440.8	YES	NO	bb	db	10.000
2	2378-TCDF	25.79	4.563e4	6.298e4	0.702	0.72	0.77	483.4	YES	NO	bb	bb	10.132
3	1368-TCDF	22.29	5.143e4	7.104e4	0.802	0.72	0.77	593.7	YES	NO	bb	bb	10.000
4	12389-PECDF	32.32	1.756e5	1.185e5	0.496	1.48	1.55	905.1	YES	NO	bb	bb	50.000
5	23478-PeCDF	31.28	2.063e5	1.364e5	0.786	1.51	1.55	1118.0	YES	NO	bb	bb	49.466
6	Total-pentafurans	30.13	4.319e2	3.264e2	0.654	1.32	1.55	1.8	NO	NO	bb	bb	0.112
7	12378-PeCDF	29.94	2.374e5	1.577e5	0.679	1.51	1.55	1294.3	YES	NO	bb	bb	49.089
8	Total-pentafurans	28.80	3.978e4	2.583e4	0.654	1.54	1.55	212.5	YES	NO	bb	bb	9.712
9	Total-hexafurans	37.33	5.073e2	4.522e2	1.141	1.12	1.24	4.2	YES	NO	db	dd	0.107
10	123789-HxCDF	36.94	2.103e5	1.706e5	1.137	1.23	1.24	959.2	YES	NO	bd	bd	50.468
11	234678-HxCDF	35.91	2.404e5	1.930e5	1.140	1.25	1.24	1172.2	YES	NO	bb	bb	49.000
12	123678-HxCDF	35.05	2.970e5	2.223e5	1.091	1.34	1.24	1312.5	YES	NO	db	db	50.520
13	123478-HxCDF	34.90	2.473e5	1.941e5	1.166	1.27	1.24	1248.4	YES	NO	bd	bd	48.979
14	123468-HXCDF	33.24	2.474e5	2.044e5	1.169	1.21	1.24	1187.3	YES	NO	bb	bd	50.000
15	1234789-HpCDF	41.02	1.361e5	1.443e5	0.953	0.94	1.05	689.1	YES	NO	bb	bd	49.244
16	Total-heptafurans	39.44	1.302e3	1.273e3	0.978	1.02	1.05	8.5	YES	NO	bb	bb	0.418
17	1234678-HpCDF	38.78	1.592e5	1.601e5	1.003	0.99	1.05	939.2	YES	NO	bb	bb	48.161
18	OCDF	45.25	2.019e5	2.478e5	0.778	0.81	0.89	1663.0	YES	NO	bb	bd	93.418
19	13468-PECDF	27.14	4.471e5	2.913e5	1.246	1.53	1.55	8952.4	YES	NO	bb	bb	50.000
20	1368-TCDD	23.56	5.333e4	6.596e4	1.015	0.81	0.77	556.5	YES	NO	bb	bb	10.000
21	1289-TCDD	27.03	4.649e4	6.027e4	0.909	0.77	0.77	452.4	YES	NO	bb	bb	10.000
22	2378-TCDD	26.42	5.877e4	7.446e4	1.149	0.79	0.77	539.5	YES	NO	bd	bb	9.873
23	Total-tetradioxins	26.10	8.105e4	1.035e5	1.024	0.78	0.77	553.1	YES	NO	bb	bb	15.333
24	Total-tetradioxins	25.62	2.642e4	3.299e4	1.024	0.80	0.77	267.0	YES	NO	bd	bb	4.937
25	Total-tetradioxins	25.04	5.856e2	7.161e2	1.024	0.82	0.77	7.0	YES	NO	bb	bb	0.108
26	12389-PECDD	31.94	2.202e5	1.409e5	1.184	1.56	1.55	1798.8	YES	NO	bd	bd	50.000
27	12378-PeCDD	31.54	1.890e5	1.221e5	1.022	1.55	1.55	1662.3	YES	NO	bb	bb	49.884
28	Total-pentadioxins	30.88	8.263e2	4.657e2	1.502	1.77	1.55	8.6	YES	NO	bb	bb	0.141
29	12479-PECDD	28.83	4.152e5	2.870e5	2.301	1.45	1.55	2354.1	YES	NO	bb	bd	50.000
30	123789-HxCDD	36.53	1.887e5	1.546e5	0.907	1.22	1.24	1606.4	YES	NO	bb	bb	51.083
31	123678-HxCDD	36.14	2.270e5	1.862e5	1.001	1.22	1.24	1803.3	YES	NO	db	db	51.480
32	123478-HxCDD	36.03	1.812e5	1.479e5	0.996	1.23	1.24	1717.5	YES	NO	bd	bd	48.605
33	124679-HXCDD	34.01	2.133e5	1.659e5	1.115	1.29	1.24	1762.3	YES	NO	bd	bb	50.000
34	1234678-HpCDD	40.27	1.573e5	1.681e5	1.039	0.94	1.05	874.4	YES	NO	bb	bd	49.956
35	1234679-HPCDD	39.23	1.868e5	1.696e5	1.137	1.10	1.05	1062.7	YES	NO	bd	bb	50.000
36	OCDD	45.01	2.508e5	2.930e5	0.920	0.86	0.89	2272.5	YES	NO	bb	bb	95.487

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.24	1.621e5					3.0	YES		bb		
2	FUNCTION1 PFK	26.04	7.004e3					0.8	NO		bb		
3	FUNCTION1 PFK	25.20	1.505e4					1.0	NO		bb		
4	FUNCTION1 PFK	24.33	1.235e4					0.8	NO		bb		
5	FUNCTION1 PFK	23.94	5.589e3					0.6	NO		bb		
6	FUNCTION1 PFK	23.61	5.711e3					0.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.40	1.216e5					2.2	NO		bb		0.000
2	FUNCTION2 PFK	29.43	1.324e7					19.8	YES		db		0.000
3	FUNCTION2 PFK	28.41	2.080e6					16.6	YES		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.64	4.177e4					1.9	NO		bb		0.000
2	FUNCTION3 PFK	33.49	1.199e5					5.0	YES		db		0.000
3	FUNCTION3 PFK	33.44	2.654e6					7.0	YES		dd		0.000
4	FUNCTION3 PFK	33.06	2.958e6					23.7	YES		bd		0.000
5	FUNCTION3 PFK	35.38	2.169e4					1.0	NO		bb		0.000
6	FUNCTION3 PFK	35.25	5.928e3					0.6	NO		bb		0.000
7	FUNCTION3 PFK	35.11	7.037e3					0.7	NO		bb		0.000
8	FUNCTION3 PFK	34.99	1.627e4					1.0	NO		bb		0.000
9	FUNCTION3 PFK	34.92	1.103e4					1.1	NO		db		0.000
10	FUNCTION3 PFK	34.86	1.305e4					1.0	NO		bd		0.000
11	FUNCTION3 PFK	34.80	9.642e3					0.9	NO		bb		0.000
12	FUNCTION3 PFK	34.66	1.233e4					0.9	NO		db		0.000
13	FUNCTION3 PFK	34.64	7.688e3					0.8	NO		bd		0.000
14	FUNCTION3 PFK	34.57	9.132e3					0.8	NO		bb		0.000
15	FUNCTION3 PFK	34.47	7.208e3					0.8	NO		bb		0.000
16	FUNCTION3 PFK	34.31	1.503e4					1.0	NO		bb		0.000
17	FUNCTION3 PFK	34.22	2.675e4					1.4	NO		bb		0.000
18	FUNCTION3 PFK	34.01	3.007e4					2.1	NO		db		0.000
19	FUNCTION3 PFK	33.97	1.328e4					1.1	NO		bd		0.000
20	FUNCTION3 PFK	33.91	6.249e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	36.99	2.219e4					1.1	NO		bd		0.000
22	FUNCTION3 PFK	36.87	2.133e3					0.4	NO		bb		0.000
23	FUNCTION3 PFK	36.83	5.225e3					0.6	NO		bb		0.000
24	FUNCTION3 PFK	36.70	4.929e4					1.7	NO		bb		0.000
25	FUNCTION3 PFK	36.43	1.980e4					1.2	NO		bb		0.000
26	FUNCTION3 PFK	36.38	7.184e3					0.9	NO		bb		0.000
27	FUNCTION3 PFK	36.27	4.220e3					0.5	NO		bb		0.000
28	FUNCTION3 PFK	36.24	2.102e3					0.4	NO		bb		0.000
29	FUNCTION3 PFK	36.19	3.748e3					0.5	NO		bb		0.000
30	FUNCTION3 PFK	35.87	3.133e4					1.6	NO		db		0.000
31	FUNCTION3 PFK	35.83	1.912e4					1.5	NO		bd		0.000
32	FUNCTION3 PFK	35.78	2.675e3					0.4	NO		db		0.000
33	FUNCTION3 PFK	35.74	3.023e4					1.5	NO		dd		0.000
34	FUNCTION3 PFK	35.67	1.673e4					1.4	NO		bd		0.000
35	FUNCTION3 PFK	35.58	2.145e4					1.4	NO		db		0.000
36	FUNCTION3 PFK	35.53	1.268e4					1.1	NO		bd		0.000
37	FUNCTION3 PFK	37.67	2.243e4					1.6	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	37.45	8.583e3					0.7	NO		db		0.000
39	FUNCTION3 PFK	37.43	4.891e3					0.7	NO		bd		0.000
40	FUNCTION3 PFK	37.30	6.956e3					0.6	NO		bb		0.000
41	FUNCTION3 PFK	37.23	5.682e3					0.7	NO		db		0.000
42	FUNCTION3 PFK	37.20	9.815e3					0.9	NO		dd		0.000
43	FUNCTION3 PFK	37.15	5.475e3					0.6	NO		dd		0.000
44	FUNCTION3 PFK	37.11	7.631e3					0.8	NO		bd		0.000
45	FUNCTION3 PFK	37.06	2.709e4					1.4	NO		db		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.40	1.889e5					2.4	NO		bb		
2	FUNCTION4 PFK	39.68	1.587e7					5.4	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.63	9.422e3					1.5	NO		bb		
2	FUNCTION5 PFK	43.24	1.576e3					0.7	NO		bb		
3	FUNCTION5 PFK	43.00	1.263e4					1.7	NO		bb		
4	FUNCTION5 PFK	45.90	6.371e3					1.4	NO		bb		
5	FUNCTION5 PFK	45.34	1.310e3					0.6	NO		bb		
6	FUNCTION5 PFK	43.79	2.270e3					0.7	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.16	2.360e2					3.4	YES		bb		0.000
2	FUNCTION1 HXCD...	26.52	1.410e2					3.2	YES		db		0.000
3	FUNCTION1 HXCD...	26.41	1.480e2					3.3	YES		bd		0.000
4	FUNCTION1 HXCD...	26.16	8.707e1					1.9	NO		db		0.000
5	FUNCTION1 HXCD...	26.10	7.515e1					2.1	NO		bd		0.000
6	FUNCTION1 HXCD...	25.79	8.971e1					2.2	NO		bb		0.000
7	FUNCTION1 HXCD...	25.63	1.156e2					2.5	NO		bb		0.000
8	FUNCTION1 HXCD...	24.52	1.119e2					2.7	NO		db		0.000
9	FUNCTION1 HXCD...	24.43	1.844e2					3.5	YES		bd		0.000
10	FUNCTION1 HXCD...	23.75	1.728e2					2.1	NO		bb		0.000
11	FUNCTION1 HXCD...	21.31	8.251e1					1.7	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.95	1.010e2					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.18	4.333e2					5.6	YES		bb		0.000
3	FUNCTION2 HPCD...	30.70	7.244e1					2.1	NO		bb		0.000
4	FUNCTION2 HPCD...	30.31	7.131e1					1.6	NO		bb		0.000
5	FUNCTION2 HPCD...	29.76	7.422e1					1.6	NO		bb		0.000
6	FUNCTION2 HPCD...	29.04	7.307e1					1.9	NO		bb		0.000
7	FUNCTION2 HPCD...	28.55	7.813e1					2.1	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.51	1.400e2					5.4	YES		bb		0.000
2	FUNCTION3 OCDPE	35.04	1.909e2					5.6	YES		db		0.000
3	FUNCTION3 OCDPE	34.94	2.251e2					6.4	YES		bd		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.60	9.374e1					3.5	YES		bb		0.000
2	FUNCTION4 NCDPE	40.25	1.903e2					3.2	YES		bb		0.000
3	FUNCTION4 NCDPE	39.09	7.390e1					1.9	NO		bb		0.000
4	FUNCTION4 NCDPE	38.97	7.768e1					2.4	NO		bb		0.000
5	FUNCTION4 NCDPE	41.21	8.604e1					3.3	YES		bb		0.000
6	FUNCTION4 NCDPE	41.01	1.089e2					3.1	YES		bb		0.000
7	FUNCTION4 NCDPE	40.86	1.930e2					2.9	NO		db		0.000
8	FUNCTION4 NCDPE	40.74	9.692e1					2.6	NO		bd		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.90	9.291e1					2.4	NO		bb		0.000

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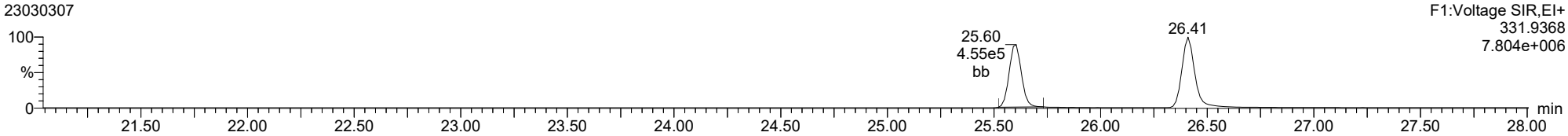

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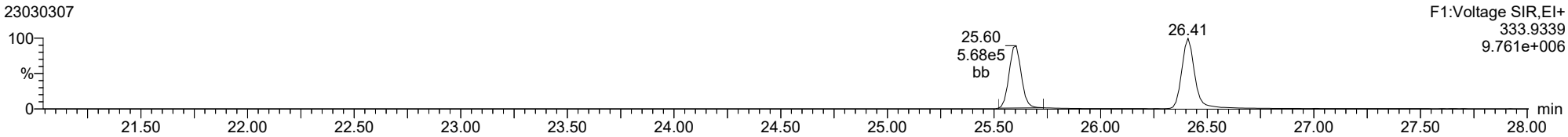
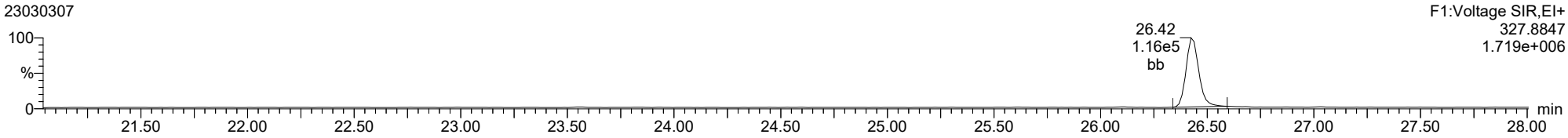


37CL-2378-TCDD



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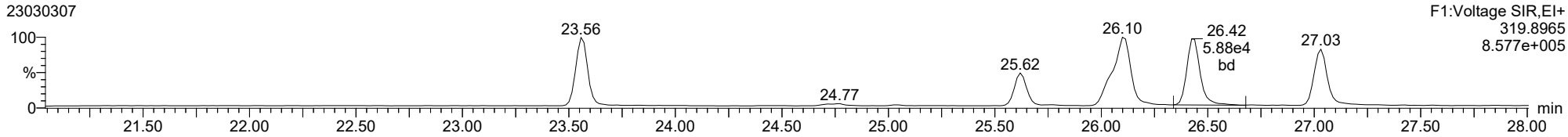

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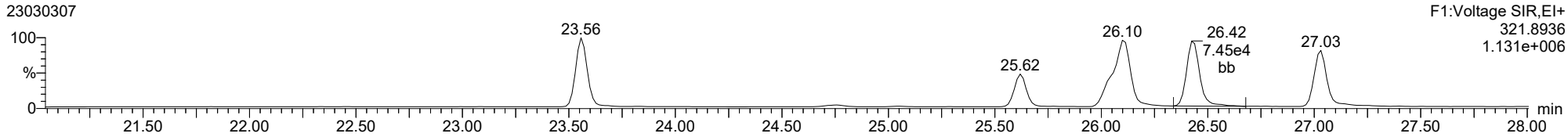

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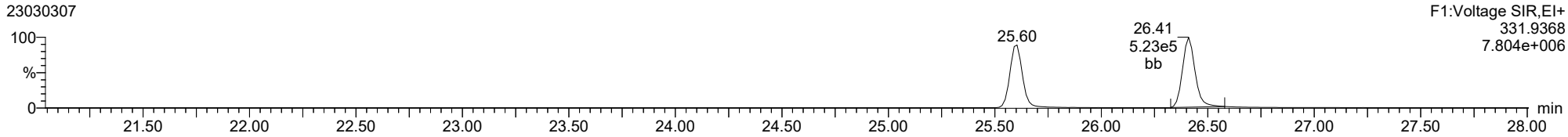

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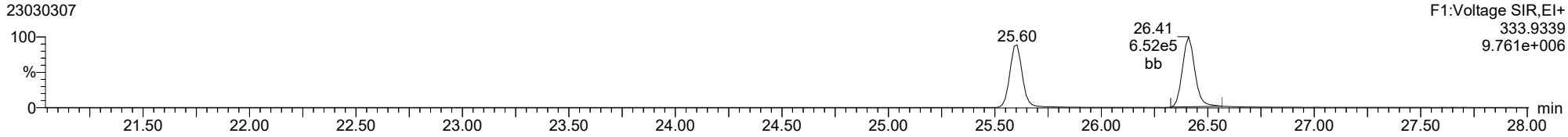
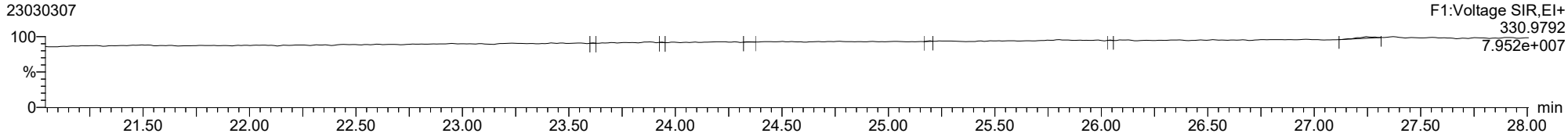


FUNCTION1 PFK



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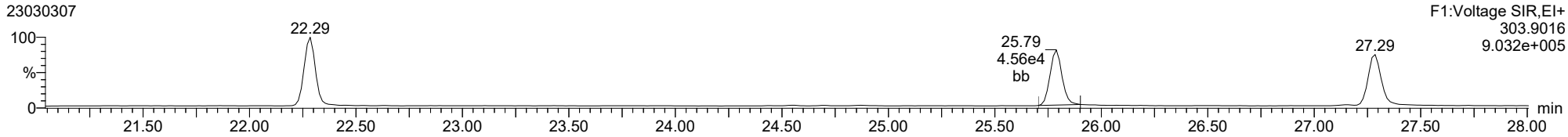

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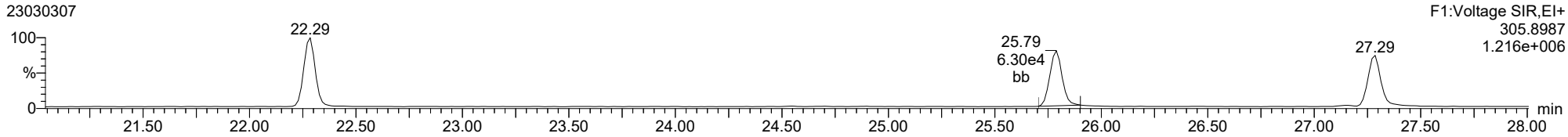

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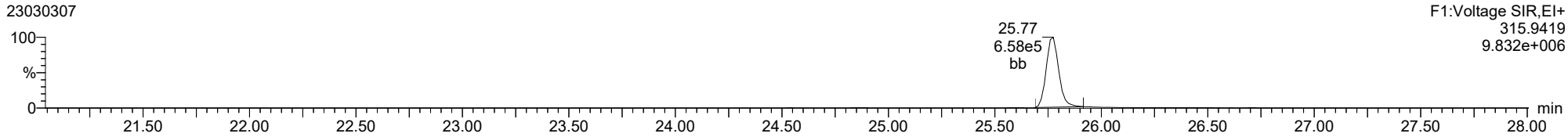

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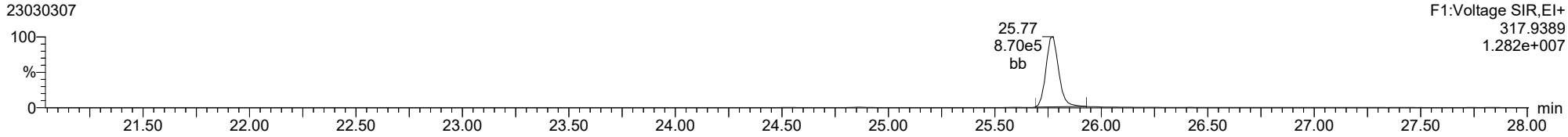

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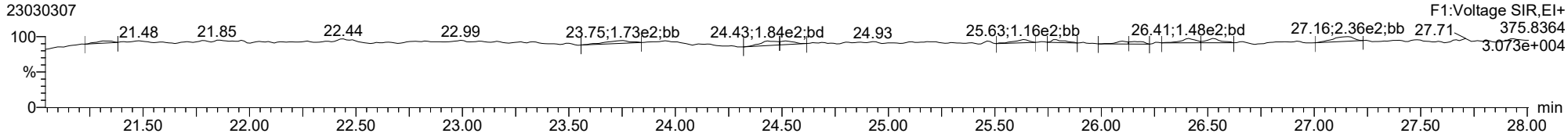

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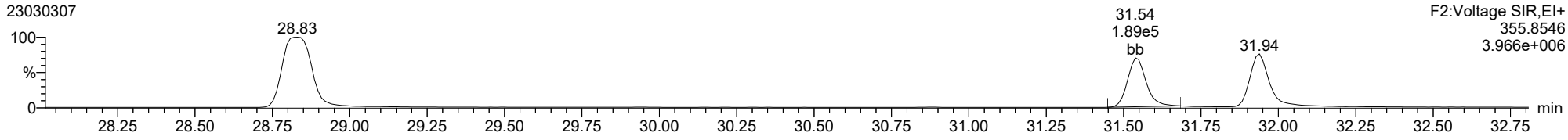

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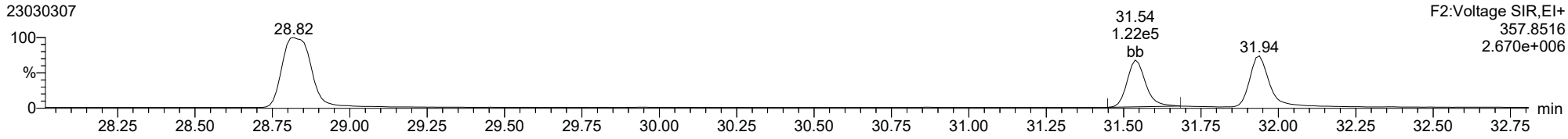

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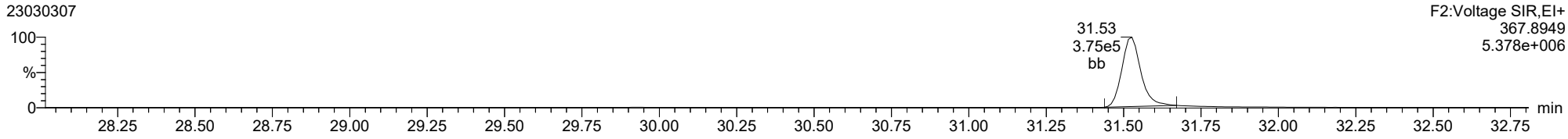

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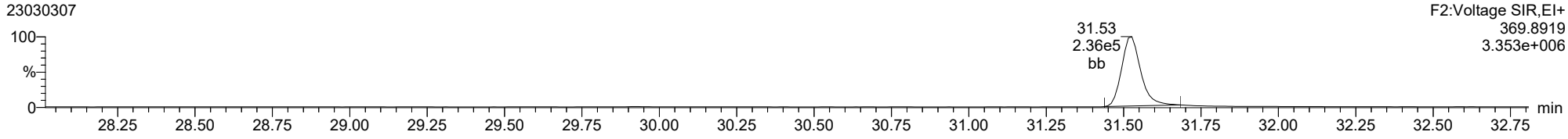
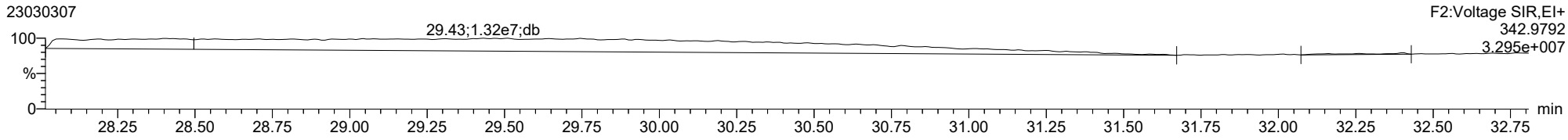


FUNCTION2 PFK



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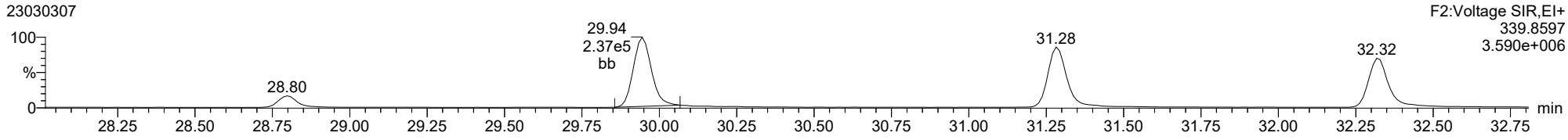

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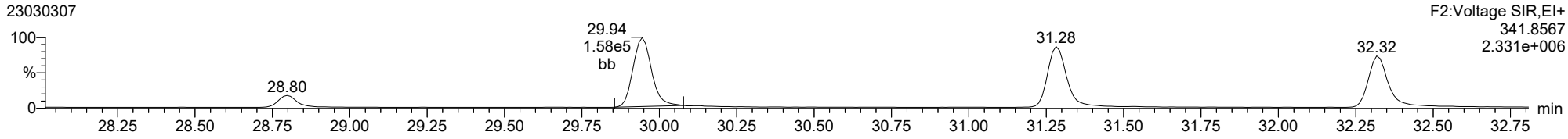

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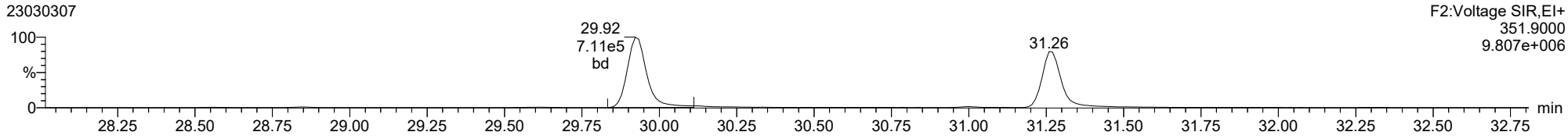

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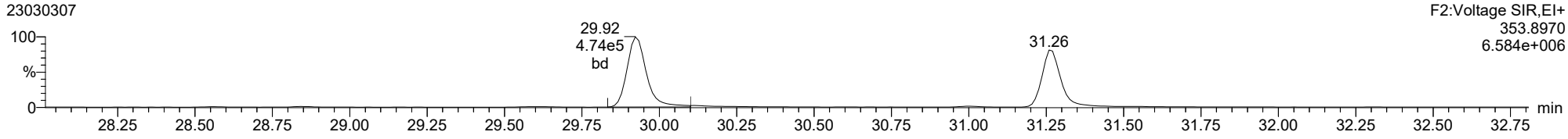

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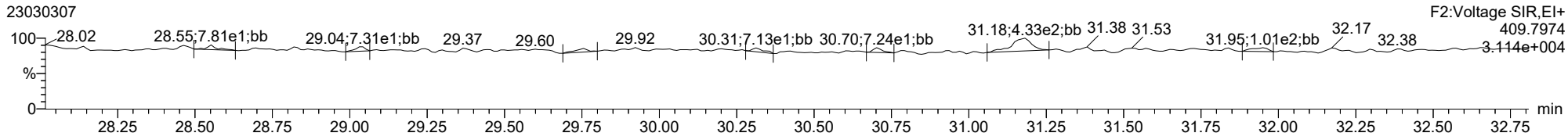

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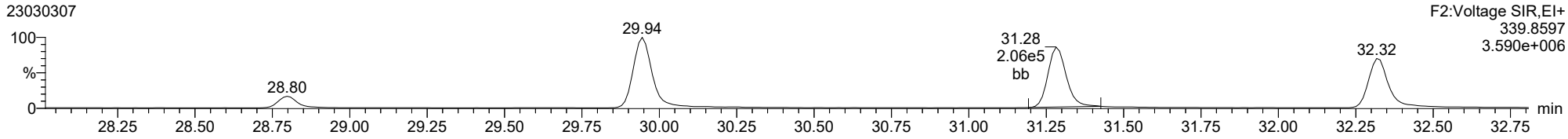
23478-PeCDF



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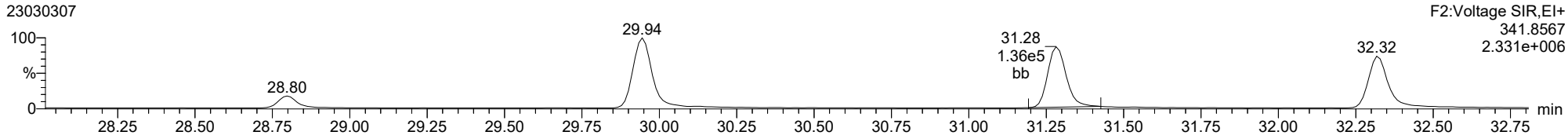

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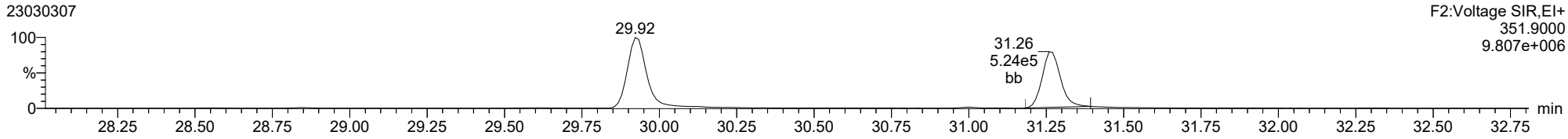

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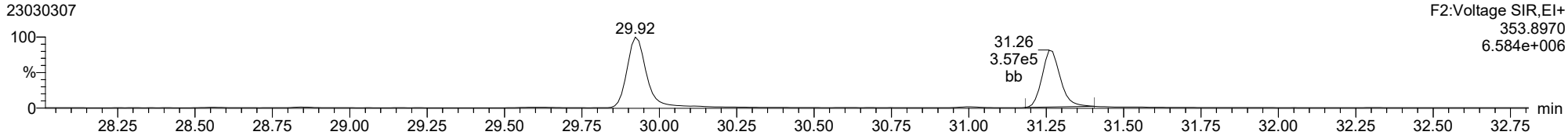

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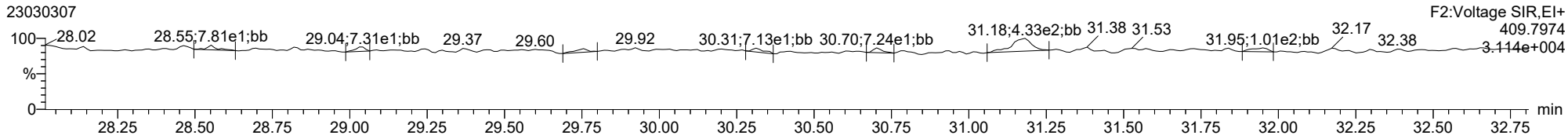

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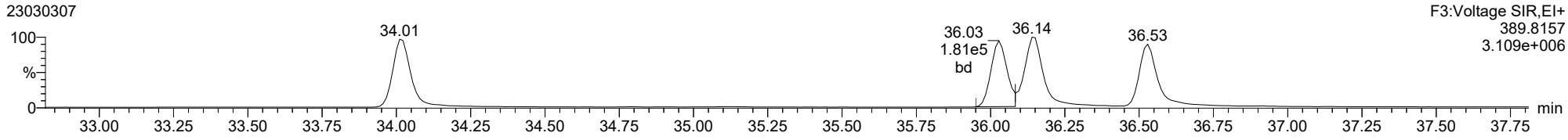

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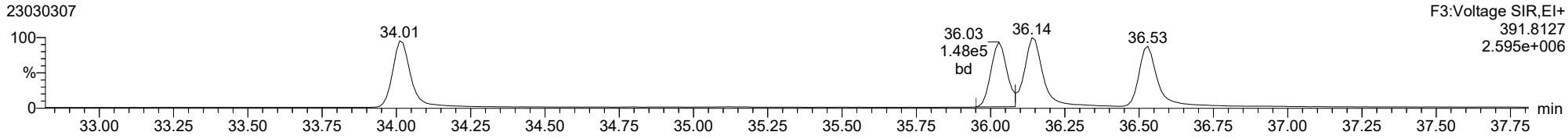

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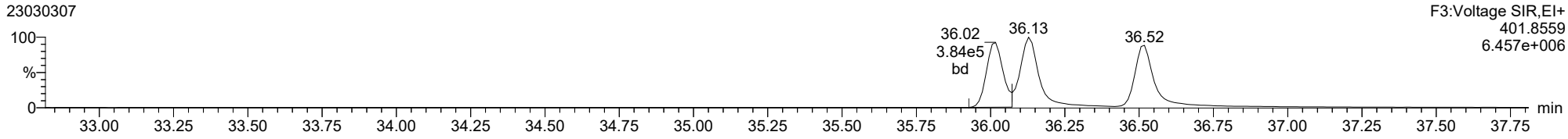

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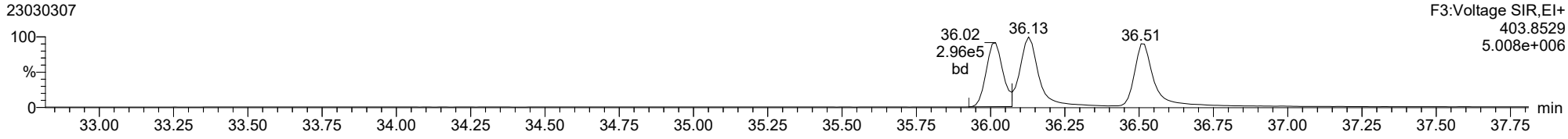

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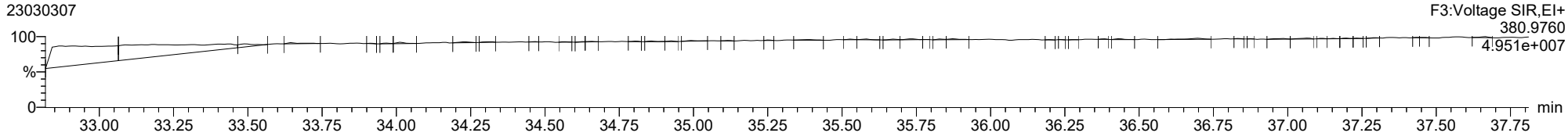

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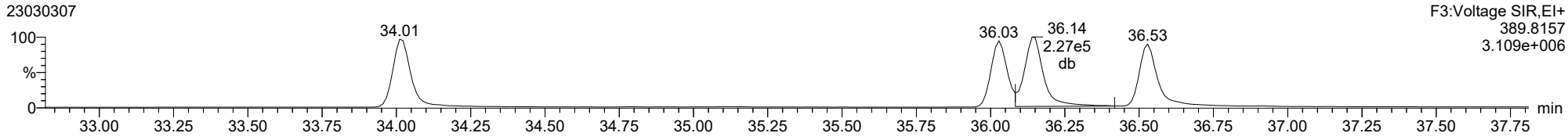

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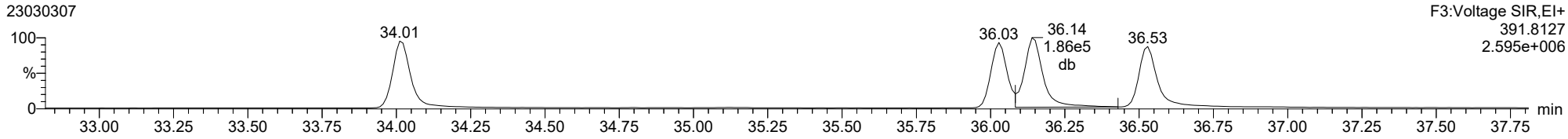

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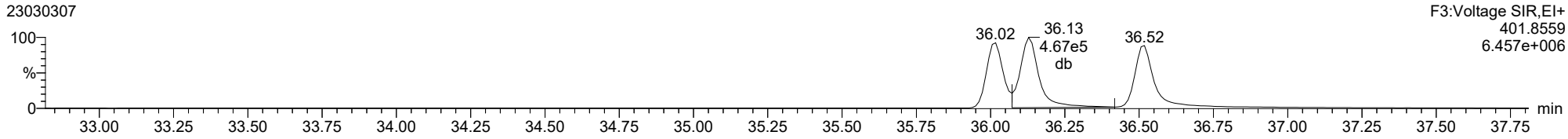

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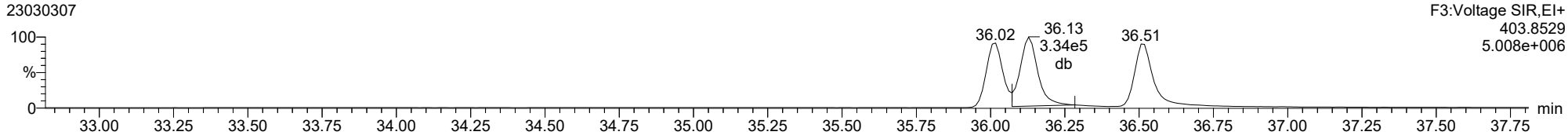

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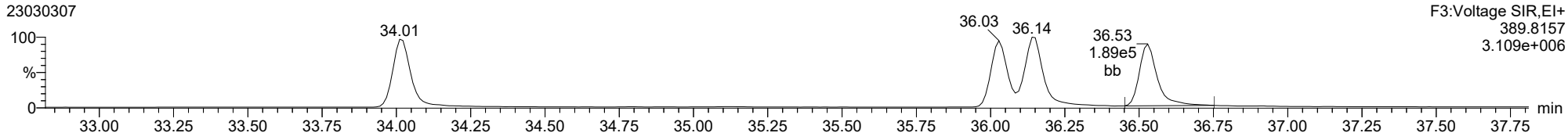

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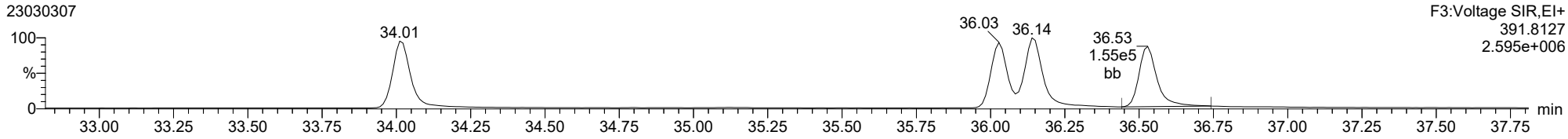

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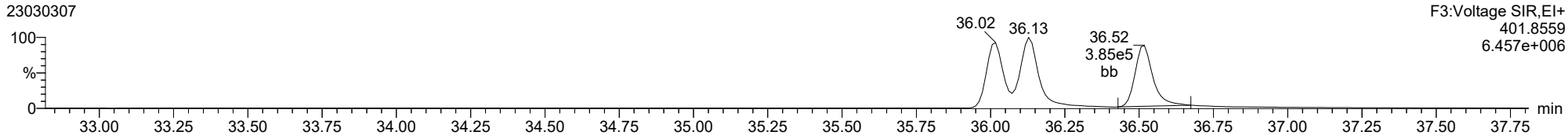

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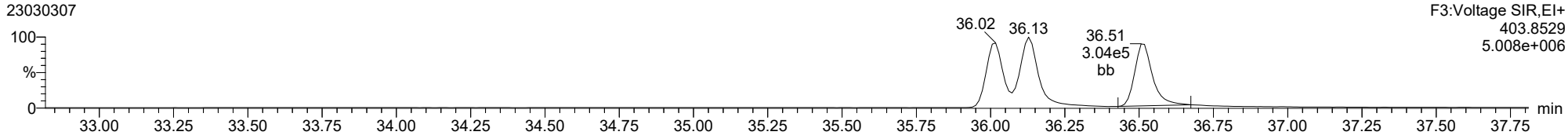

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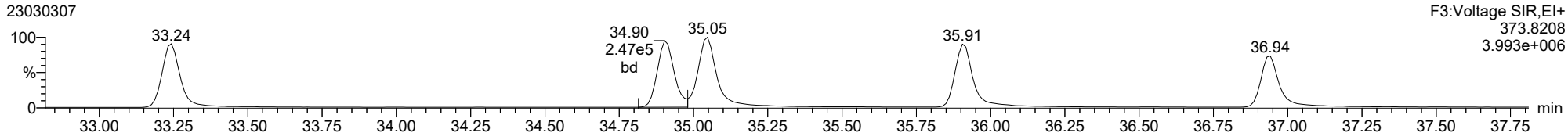

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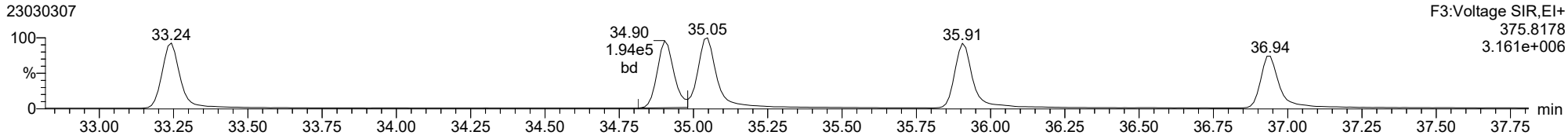

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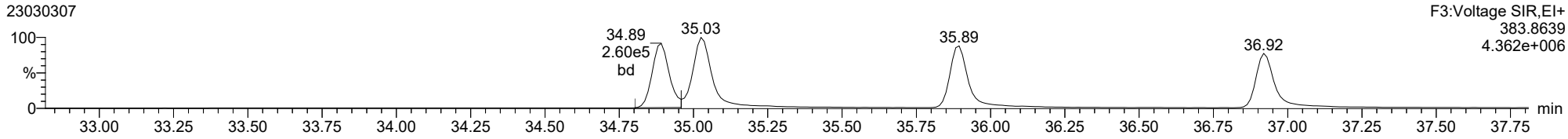

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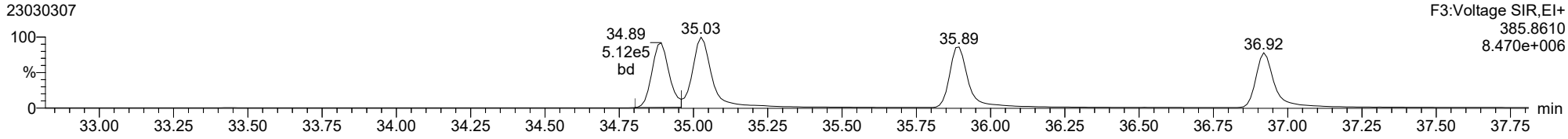
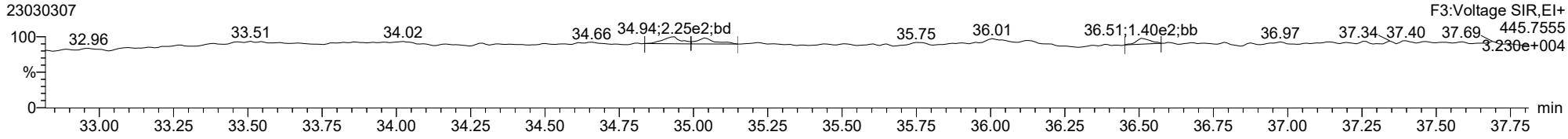


FUNCTION3 OCDPE



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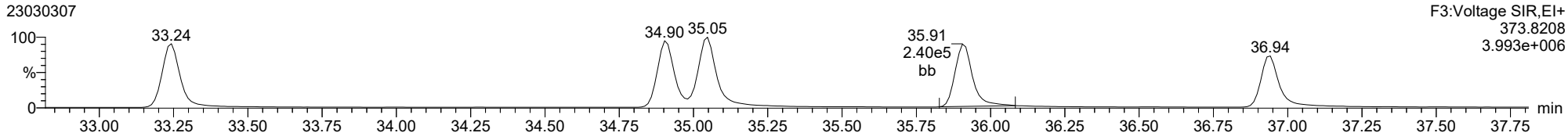

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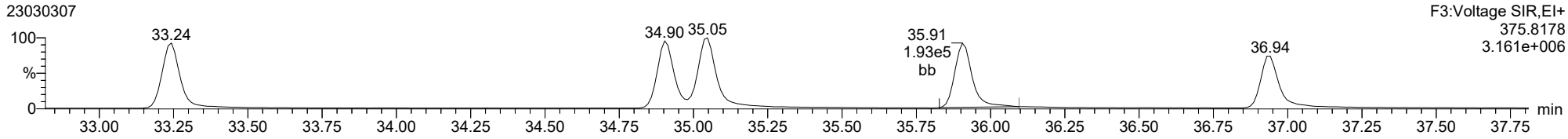

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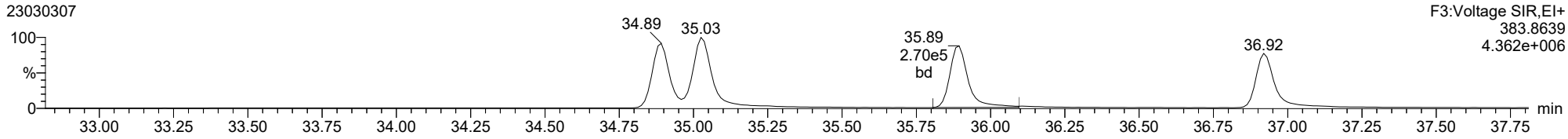

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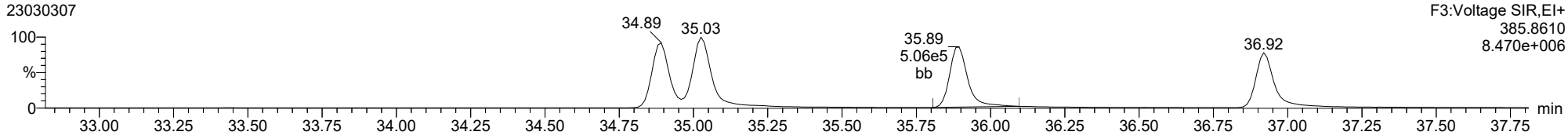

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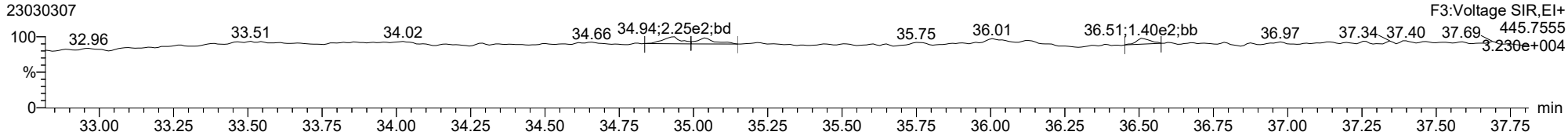

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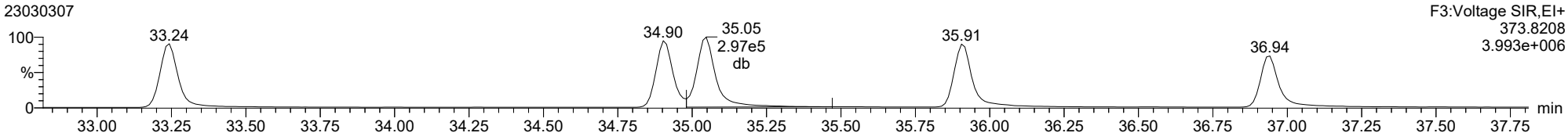

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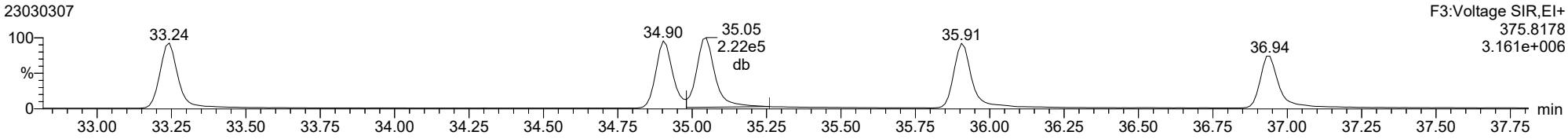

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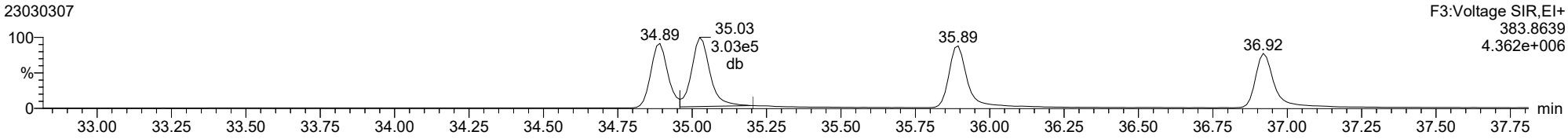

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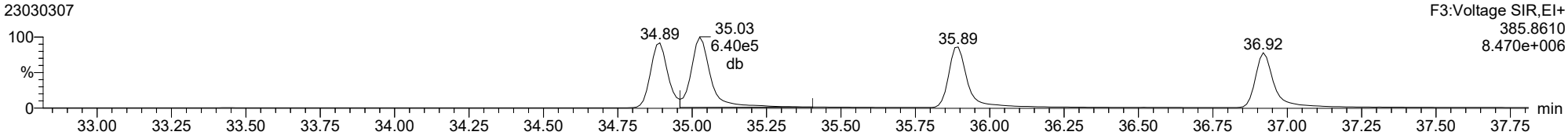

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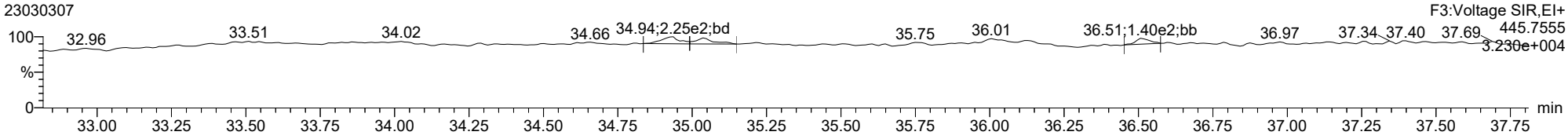

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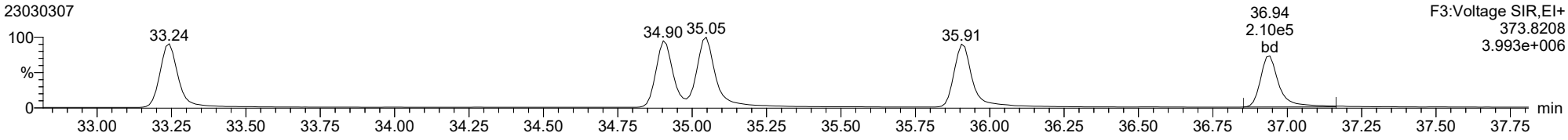

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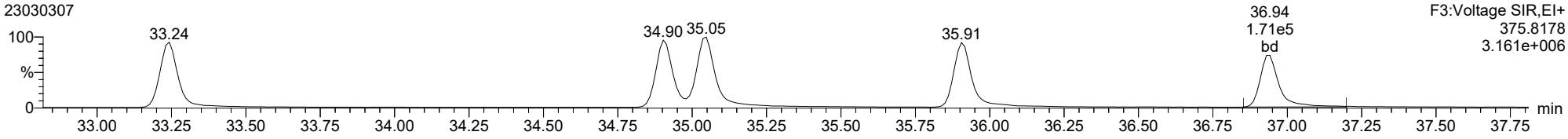

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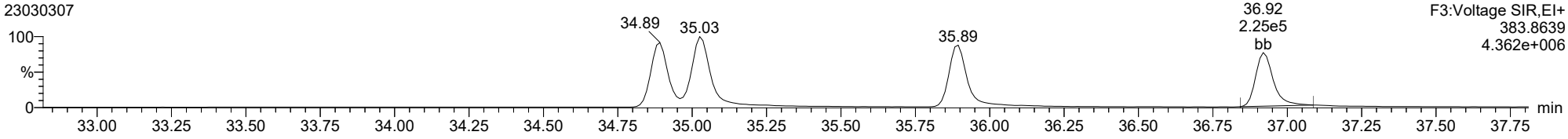

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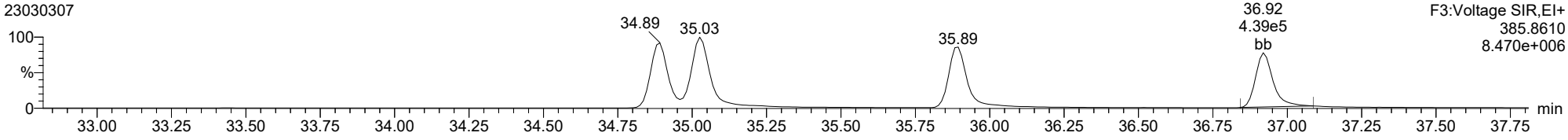

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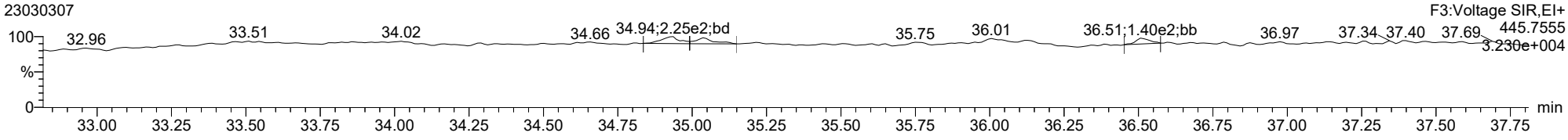

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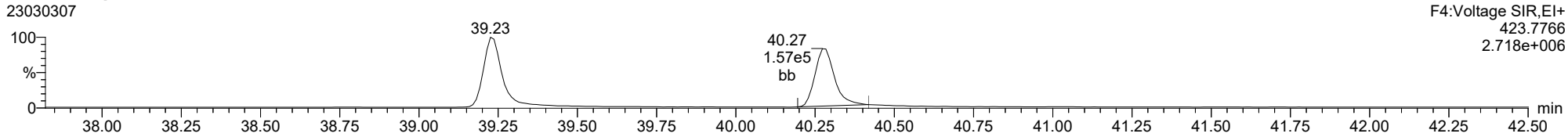

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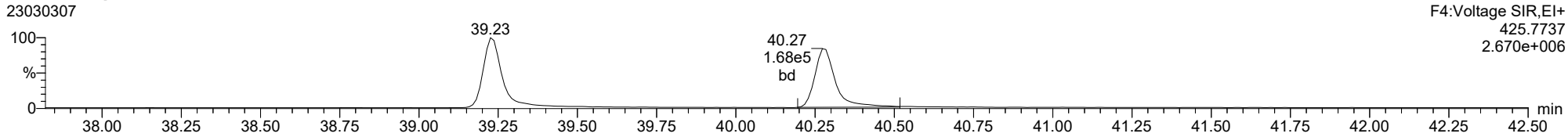

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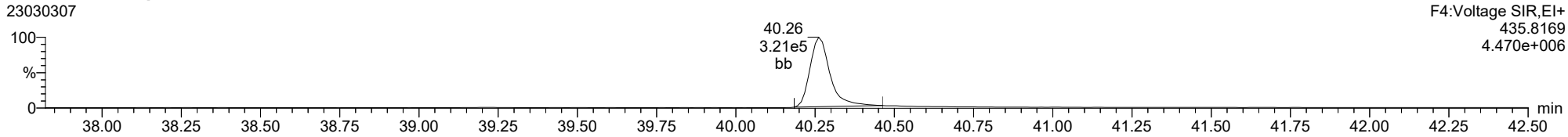

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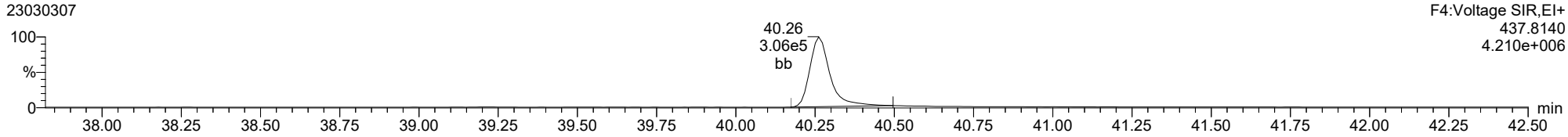

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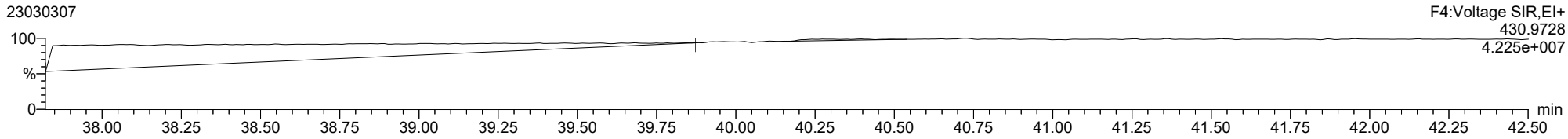

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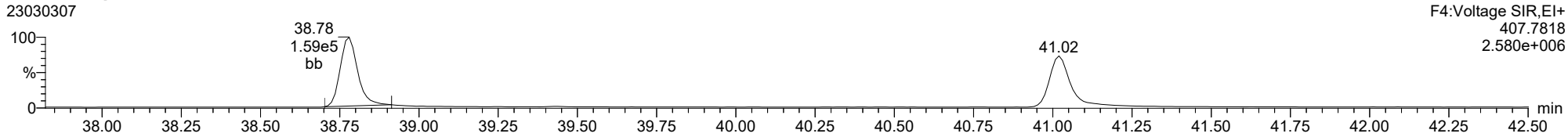

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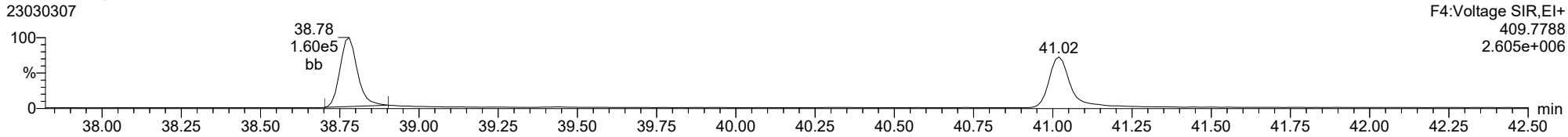

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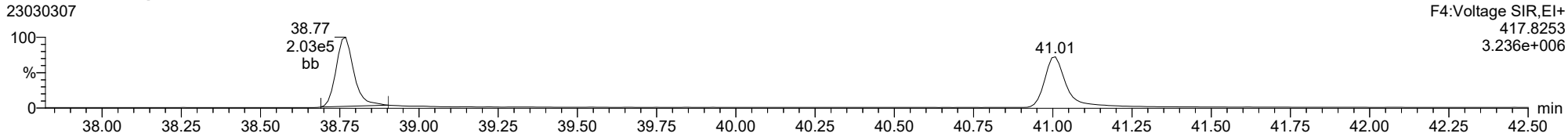

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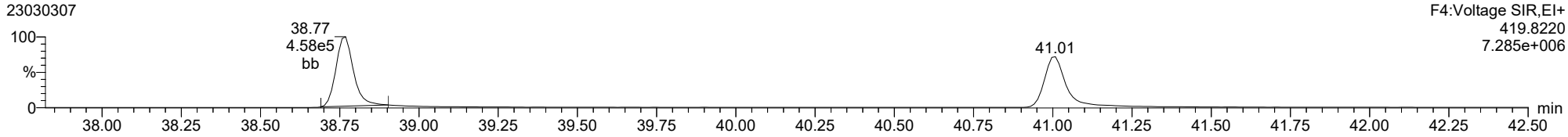

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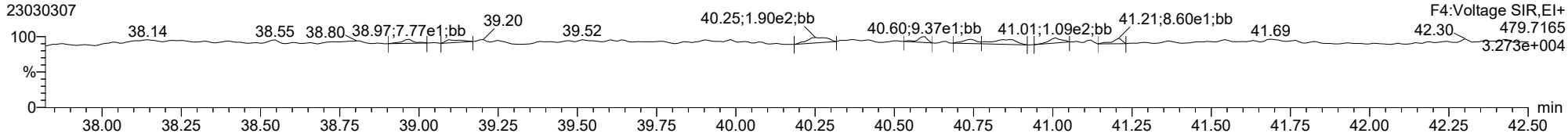

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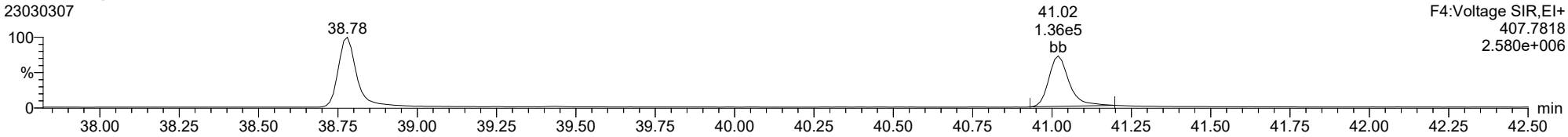

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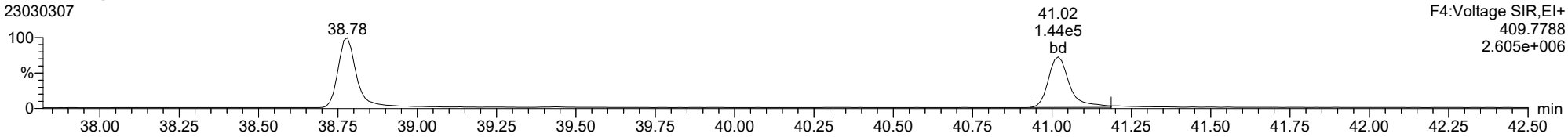

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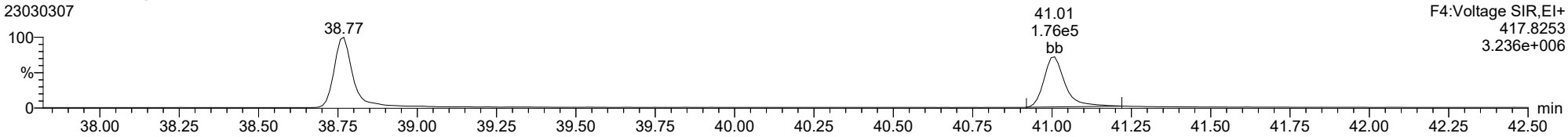

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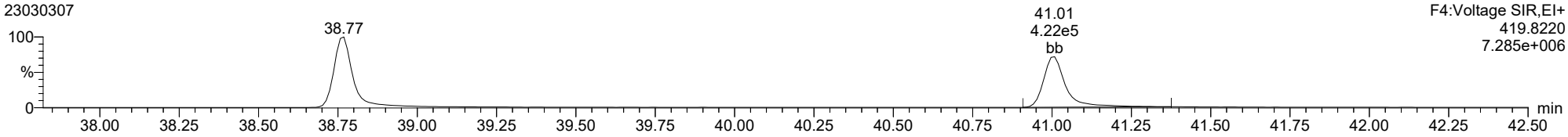
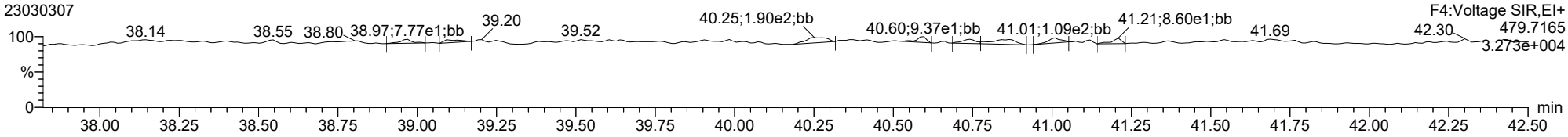


FUNCTION4 NCDPE



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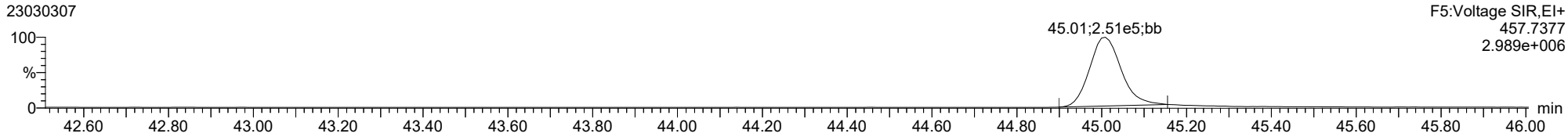

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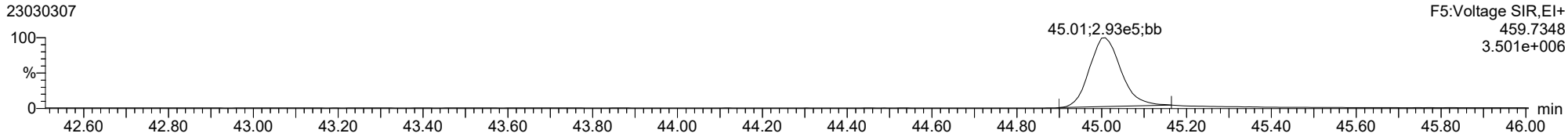

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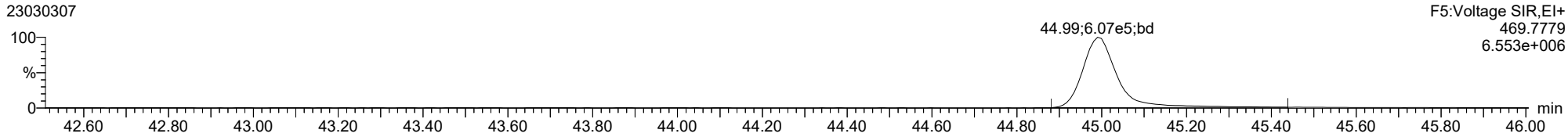
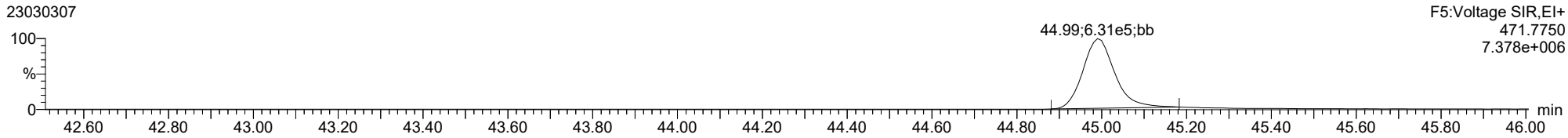
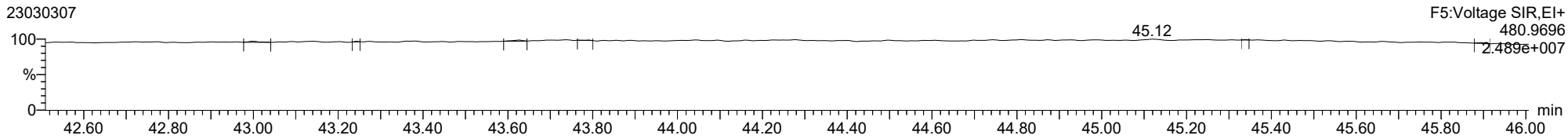


13C-OCDD

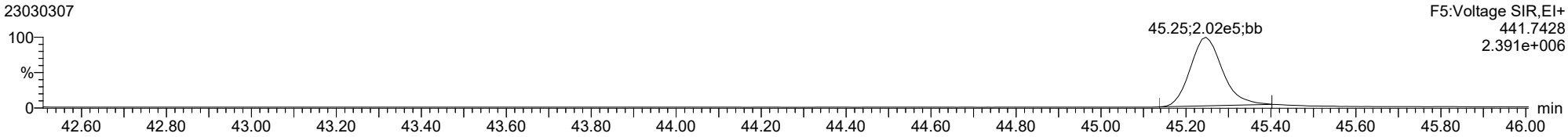


FUNCTION5 PFK



ID: CS3CW, Name: 23030307, Date: 03-Mar-2023, Time: 14:06:39, Conditions: AUTOSPEC01, User: pk

OCDF



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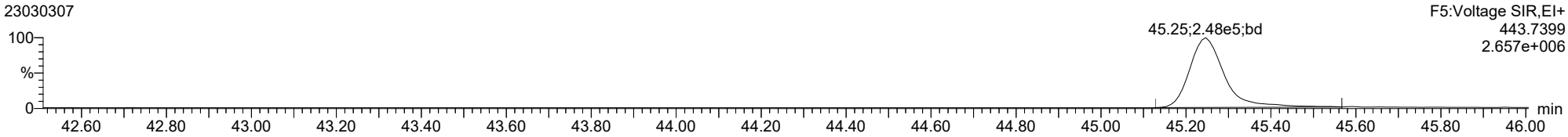
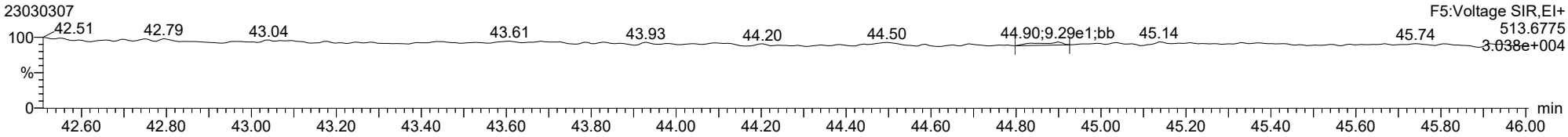


FUNCTION5 DCDPE



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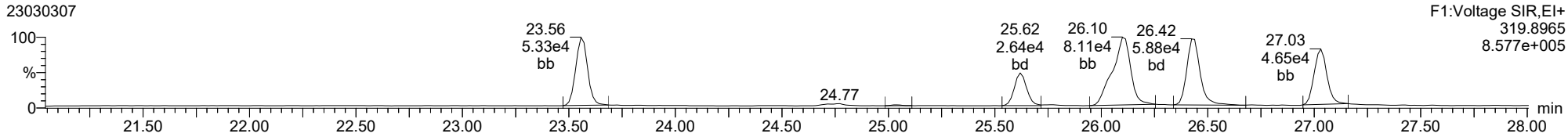
Total-tetradioxins



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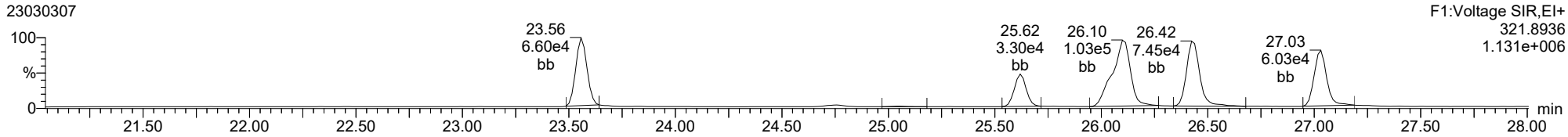
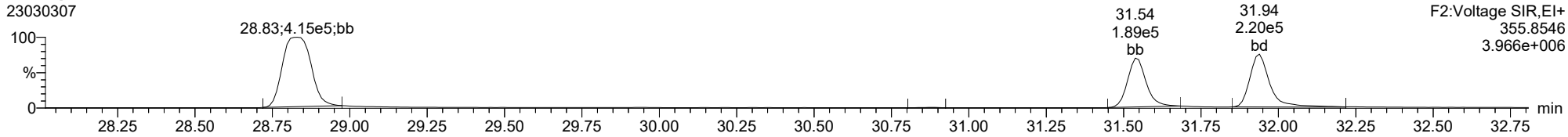
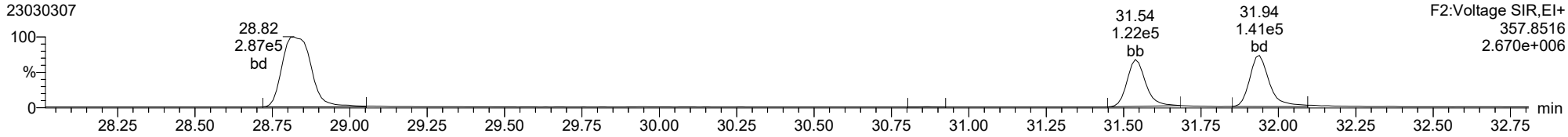


Total-pentadioxins



Total-pentadioxins



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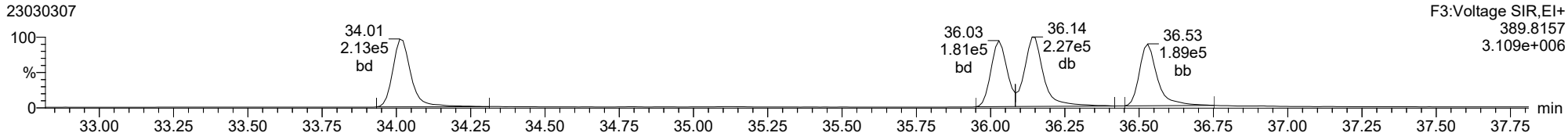
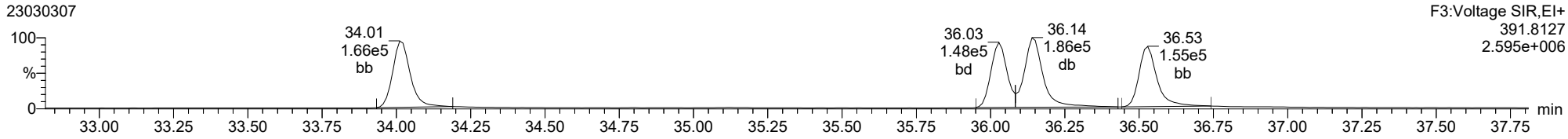
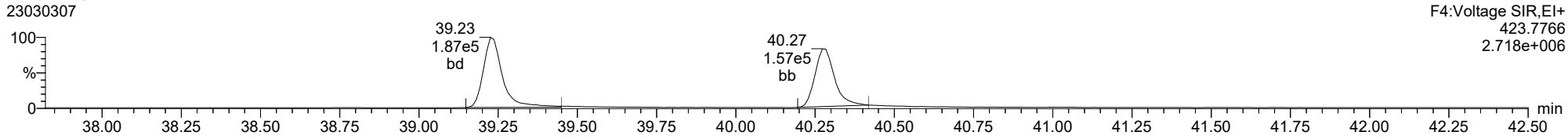
Total-hexadioxins



Total-hexadioxins



Total-heptadioxins



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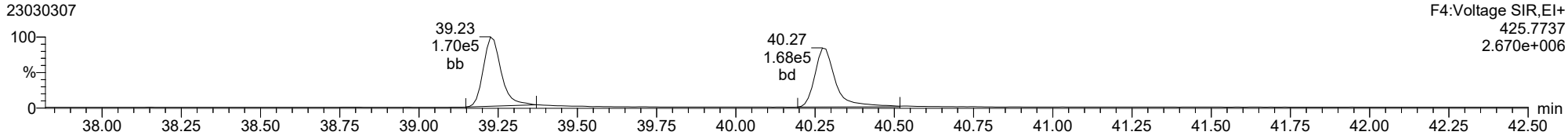

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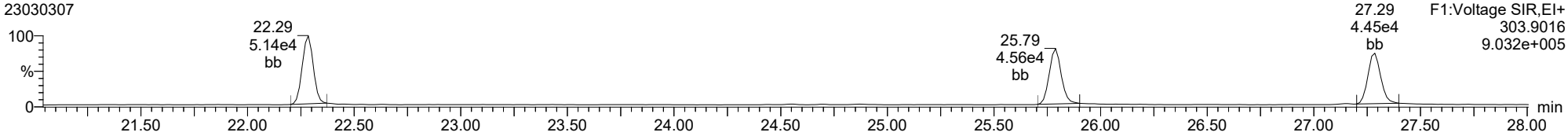
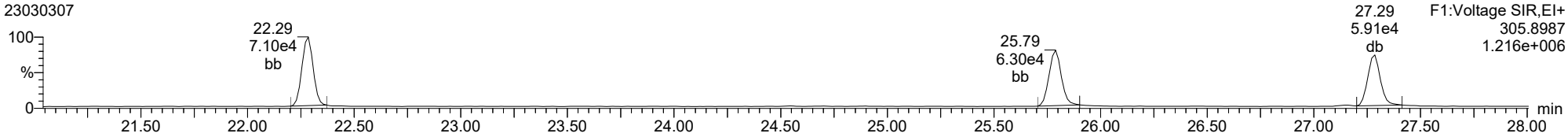
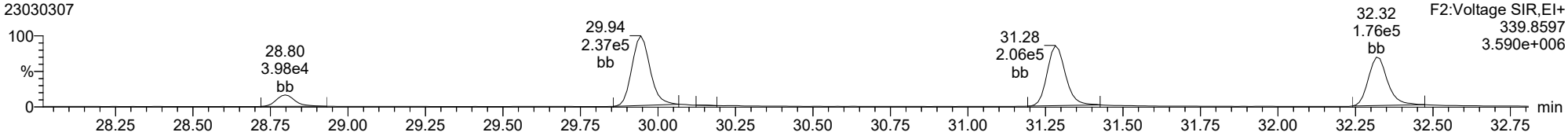
Total-tetrafurans



Total-tetrafurans



Total-pentafurans



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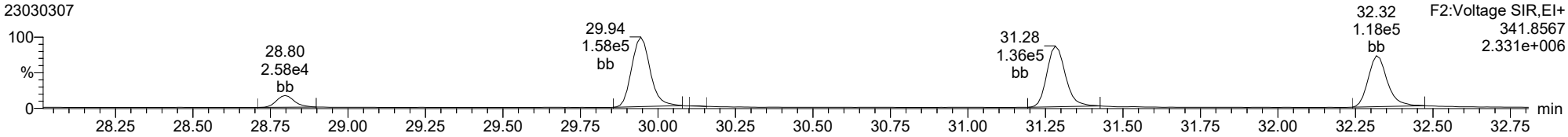

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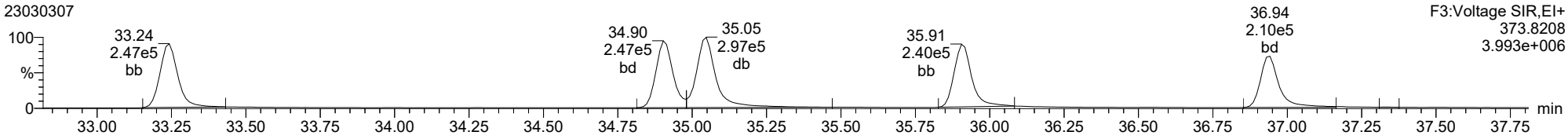

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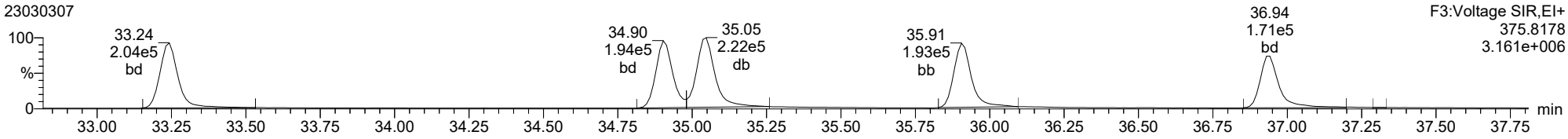

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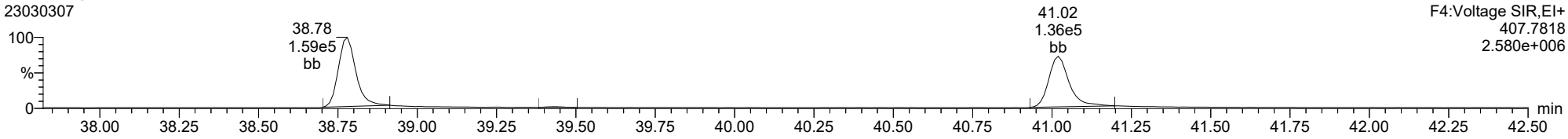

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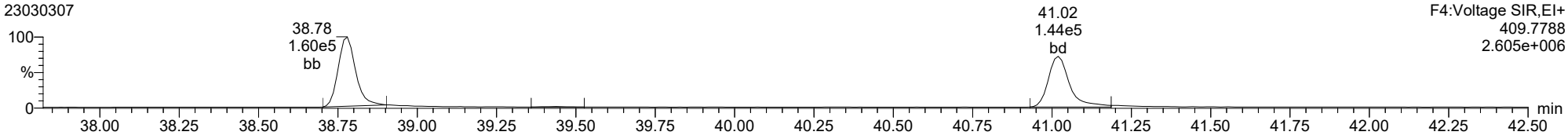

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Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:51 Pacific Standard Time

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	2.145e5	2.910e5	0.702	0.737	0.770	1085	2356	3.19e6	4.36e6	2939.3	1849.8	NO	bb	bb	41.038
12378-PeCDF	29.944	1.000	1.256e6	8.416e5	0.679	1.492	1.550	4273	3650	1.86e7	1.25e7	4360.5	3425.9	NO	bb	bb	202.935
23478-PeCDF	31.292	1.001	1.346e6	8.943e5	0.786	1.505	1.550	4273	3650	2.02e7	1.34e7	4738.5	3680.0	NO	bb	bb	201.175
123478-HxCDF	34.913	1.001	1.546e6	1.218e6	1.166	1.269	1.240	1919	2508	2.36e7	1.86e7	12323.4	7421.9	NO	bd	bd	197.711
234678-HxCDF	35.916	1.001	1.547e6	1.307e6	1.140	1.184	1.240	1919	2508	2.33e7	1.85e7	12125.4	7387.3	NO	bb	bd	210.207
123678-HxCDF	35.047	1.000	1.740e6	1.369e6	1.091	1.271	1.240	1919	2508	2.57e7	2.04e7	13394.0	8153.6	NO	db	db	189.797
123789-HxCDF	36.941	1.000	1.209e6	1.036e6	1.137	1.167	1.240	1919	2508	1.81e7	1.44e7	9441.6	5749.5	NO	bb	bd	200.361
1234678-HpCDF	38.779	1.000	8.720e5	8.418e5	1.003	1.036	1.050	3326	3780	1.44e7	1.42e7	4339.3	3745.4	NO	bb	bb	204.650
1234789-HpCDF	41.019	1.000	7.221e5	7.262e5	0.953	0.994	1.050	3326	3780	1.01e7	1.02e7	3041.3	2689.4	NO	bb	bb	208.465
OCDF	45.255	1.006	1.195e6	1.333e6	0.778	0.897	0.890	1809	2070	1.43e7	1.59e7	7923.8	7701.9	NO	bb	bb	419.788
2378-TCDD	26.438	1.001	2.573e5	3.218e5	1.149	0.799	0.770	1559	1107	3.81e6	4.84e6	2446.0	4371.1	NO	bb	bb	39.968
12378-PeCDD	31.549	1.001	1.294e6	8.446e5	1.022	1.532	1.550	1566	1736	1.89e7	1.24e7	12077.0	7164.9	NO	bb	bb	199.637
123478-HxCDD	36.027	1.000	1.162e6	9.482e5	0.996	1.225	1.240	1816	1276	1.93e7	1.57e7	10622.2	12327.7	NO	bd	bd	198.133
123678-HxCDD	36.150	1.001	1.363e6	1.125e6	1.001	1.212	1.240	1816	1276	1.97e7	1.61e7	10823.8	12618.8	NO	db	db	204.224
123789-HxCDD	36.528	1.011	1.168e6	9.477e5	0.907	1.232	1.240	1816	1276	1.77e7	1.44e7	9764.9	11291.0	NO	bb	bb	203.974
1234678-HpCDD	40.283	1.001	8.284e5	8.038e5	1.039	1.031	1.050	3177	2938	1.22e7	1.19e7	3841.2	4046.8	NO	bb	bb	198.376
OCDD	45.008	1.000	1.293e6	1.512e6	0.920	0.855	0.890	1475	2373	1.59e7	1.85e7	10744.0	7810.6	NO	bb	bb	394.016
13C-2378-TCDF	25.774	1.007	7.645e5	9.914e5	1.620	0.771	0.770	1843	2282	1.15e7	1.49e7	6238.3	6526.6	NO	bb	bb	101.535
13C-12378-PeCDF	29.933	1.169	9.119e5	6.098e5	1.240	1.495	1.550	3738	4574	1.28e7	8.50e6	3418.3	1857.5	NO	bd	bd	114.934
13C-23478-PeCDF	31.270	1.221	8.522e5	5.645e5	1.118	1.510	1.550	3738	4574	1.28e7	8.47e6	3423.2	1851.3	NO	bb	bb	118.746
13C-123478-HxCDF	34.891	0.956	4.043e5	7.946e5	1.168	0.509	0.510	3379	2646	6.26e6	1.23e7	1851.5	4643.3	NO	bd	bd	93.689
13C-123678-HxCDF	35.036	0.959	5.122e5	9.895e5	1.386	0.518	0.510	3379	2646	6.72e6	1.32e7	1988.7	4975.1	NO	db	dd	98.879
13C-234678-HxCDF	35.894	0.983	4.066e5	7.845e5	1.129	0.518	0.510	3379	2646	6.03e6	1.18e7	1785.1	4452.3	NO	bb	bb	96.294
13C-123789-HxCDF	36.930	1.011	3.312e5	6.542e5	0.932	0.506	0.510	3379	2646	4.85e6	9.52e6	1434.9	3598.2	NO	bb	bb	96.556
13C-1234678-HpCDF	38.768	1.062	2.524e5	5.825e5	0.895	0.433	0.440	1935	3511	4.16e6	9.49e6	2148.5	2703.4	NO	bb	bb	85.151
13C-1234789-HpCDF	41.007	1.123	2.205e5	5.084e5	0.770	0.434	0.440	1935	3511	3.02e6	6.92e6	1559.8	1971.4	NO	bb	bb	86.451
13C-1234-TCDD	25.605	0.000	4.743e5	5.931e5	1.000	0.800	0.770	2271	1813	7.33e6	9.12e6	3228.4	5028.5	NO	bb	bb	100.000
13C-2378-TCDD	26.410	1.031	5.640e5	6.974e5	1.152	0.809	0.770	2271	1813	8.09e6	1.01e7	3563.4	5571.0	NO	bb	bb	102.553
13C-12378-PeCDD	31.526	1.231	6.480e5	4.003e5	0.829	1.619	1.550	1212	1529	9.47e6	5.85e6	7814.9	3827.1	NO	bb	bb	118.505
13C-123478-HxCDD	36.016	0.986	6.052e5	4.646e5	0.995	1.303	1.240	1807	1475	9.78e6	7.54e6	5412.5	5108.2	NO	bd	bd	98.154
13C-123678-HxCDD	36.127	0.989	6.753e5	5.418e5	1.157	1.246	1.240	1807	1475	1.01e7	8.01e6	5594.1	5426.8	NO	db	db	96.059
13C-1234678-HpCDD	40.261	1.102	3.968e5	3.950e5	0.840	1.005	1.050	2357	2248	5.68e6	5.37e6	2408.3	2387.8	NO	bb	bb	86.051
13C-OCDD	44.999	1.232	7.332e5	8.149e5	0.767	0.900	0.890	1459	1173	8.67e6	9.61e6	5943.8	8191.6	NO	bb	bb	184.151
13C-123789-HxCDD	36.518	0.000	6.173e5	4.781e5	1.000	1.291	1.240	1807	1475	9.34e6	7.24e6	5171.1	4908.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.438	1.033	5.280e5		1.288			2576		7.74e6		3003.1			bb		38.410

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
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Printed: Monday, March 06, 2023 11:34:51 Pacific Standard Time

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1085	2356								
1289-TCDF					0.678		0.770	1085	2356								
13468-PECDF					1.246		1.550	728	1112								
12389-PECDF					0.496		1.550	4273	3650								
123468-HXCDF					1.169		1.240	1919	2508								
1368-TCDD					1.015		0.770	1559	1107								
1289-TCDD					0.909		0.770	1559	1107								
12479-PECDD					2.301		1.550	1566	1736								
12389-PECDD					1.184		1.550	1566	1736								
124679-HXCDD					1.115		1.240	1816	1276								
1234679-HPCDD					1.137		1.050	3177	2938								
Total-tetrafurans			2.178e5		0.727			1085		3.24e6							41.692
Total-penta1			0.000e0					728		0.00e0							
Total-pentafurans			2.604e6		0.654			4273		3.89e7							404.382
Total-hexafurans			6.043e6		1.141			1919		9.07e7							798.266
Total-heptafurans			1.594e6		0.978			3326		2.45e7							413.115
Total-Furans			1.165e7		0.922			1085		1.72e8							2077.243
Total-tetradioxins			2.634e5		1.024			1559		3.88e6							41.026
Total-pentadioxins			1.295e6		1.502			1566		1.89e7							199.743
Total-hexadioxins			3.693e6		1.005			1816		5.67e7							606.331
Total-heptadioxins			8.286e5		1.088			3177		1.22e7							198.425
Total-Dioxins			7.373e6		1.130			1559		1.08e8							1439.540
Total-TEQ			1.903e7					1559		2.79e8							3516.783
FUNCTION1 PFK			2.654e6					566854		2.19e6							
FUNCTION2 PFK			2.398e5					242860		6.75e6							0.000
FUNCTION3 PFK			5.441e7					394639		2.11e7							0.000
FUNCTION4 PFK			0.000e0					306708		0.00e0							
FUNCTION5 PFK			3.395e4					230570		1.65e6							
FUNCTION1 HXCD...			4.934e2					625		6.74e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.574e3					915		2.35e4							0.000
FUNCTION3 OCDPE			8.696e2					844		1.47e4							0.000
FUNCTION4 NCDPE			3.767e2					925		5.85e3							0.000
FUNCTION5 DCDPE			0.000e0					629		0.00e0							

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	2.145e5	2.910e5	0.702	0.74	0.77	2939.3	YES	NO	bb	bb	41.038
2	Total-tetrafurans	24.88	1.531e3	2.327e3	0.727	0.66	0.77	20.3	YES	NO	bb	bb	0.302
3	Total-tetrafurans	24.56	1.778e3	2.714e3	0.727	0.66	0.77	29.5	YES	NO	bb	bb	0.352

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	31.01	1.644e3	9.764e2	0.654	1.68	1.55	5.6	YES	NO	db	bd	0.273
2	12378-PeCDF	29.94	1.256e6	8.416e5	0.679	1.49	1.55	4360.5	YES	NO	bb	bb	202.935
3	23478-PeCDF	31.29	1.346e6	8.943e5	0.786	1.51	1.55	4738.5	YES	NO	bb	bb	201.175

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	1.209e6	1.036e6	1.137	1.17	1.24	9441.6	YES	NO	bb	bd	200.361
2	234678-HxCDF	35.92	1.547e6	1.307e6	1.140	1.18	1.24	12125.4	YES	NO	bb	bd	210.207
3	Total-hexafurans	35.77	1.562e2	1.389e2	1.141	1.12	1.24	3.4	NO	NO	bb	bb	0.021
4	123678-HxCDF	35.05	1.740e6	1.369e6	1.091	1.27	1.24	13394.0	YES	NO	db	db	189.797
5	123478-HxCDF	34.91	1.546e6	1.218e6	1.166	1.27	1.24	12323.4	YES	NO	bd	bd	197.711
6	Total-hexafurans	34.76	1.255e3	1.100e3	1.141	1.14	1.24	11.9	YES	NO	bb	bb	0.169

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.78	8.720e5	8.418e5	1.003	1.04	1.05	4339.3	YES	NO	bb	bb	204.650
2	1234789-HpCDF	41.02	7.221e5	7.262e5	0.953	0.99	1.05	3041.3	YES	NO	bb	bb	208.465

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	2.145e5	2.910e5	0.702	0.74	0.77	2939.3	YES	NO	bb	bb	41.038
2	Total-tetrafurans	24.88	1.531e3	2.327e3	0.727	0.66	0.77	20.3	YES	NO	bb	bb	0.302
3	Total-tetrafurans	24.56	1.778e3	2.714e3	0.727	0.66	0.77	29.5	YES	NO	bb	bb	0.352
4	Total-pentafurans	31.01	1.644e3	9.764e2	0.654	1.68	1.55	5.6	YES	NO	db	bd	0.273
5	12378-PeCDF	29.94	1.256e6	8.416e5	0.679	1.49	1.55	4360.5	YES	NO	bb	bb	202.935
6	23478-PeCDF	31.29	1.346e6	8.943e5	0.786	1.51	1.55	4738.5	YES	NO	bb	bb	201.175
7	123789-HxCDF	36.94	1.209e6	1.036e6	1.137	1.17	1.24	9441.6	YES	NO	bb	bd	200.361
8	234678-HxCDF	35.92	1.547e6	1.307e6	1.140	1.18	1.24	12125.4	YES	NO	bb	bd	210.207
9	Total-hexafurans	35.77	1.562e2	1.389e2	1.141	1.12	1.24	3.4	NO	NO	bb	bb	0.021
10	123678-HxCDF	35.05	1.740e6	1.369e6	1.091	1.27	1.24	13394.0	YES	NO	db	db	189.797
11	123478-HxCDF	34.91	1.546e6	1.218e6	1.166	1.27	1.24	12323.4	YES	NO	bd	bd	197.711
12	Total-hexafurans	34.76	1.255e3	1.100e3	1.141	1.14	1.24	11.9	YES	NO	bb	bb	0.169
13	1234678-HpCDF	38.78	8.720e5	8.418e5	1.003	1.04	1.05	4339.3	YES	NO	bb	bb	204.650
14	1234789-HpCDF	41.02	7.221e5	7.262e5	0.953	0.99	1.05	3041.3	YES	NO	bb	bb	208.465
15	OCDF	45.26	1.195e6	1.333e6	0.778	0.90	0.89	7923.8	YES	NO	bb	bb	419.788

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.44	2.573e5	3.218e5	1.149	0.80	0.77	2446.0	YES	NO	bb	bb	39.968
2	Total-tetradioxins	26.06	6.115e3	7.563e3	1.024	0.81	0.77	45.2	YES	NO	bb	bb	1.059

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.55	1.294e6	8.446e5	1.022	1.53	1.55	12077.0	YES	NO	bb	bb	199.637
2	Total-pentadioxins	29.94	9.896e2	6.778e2	1.502	1.46	1.55	7.8	YES	NO	bb	bb	0.106

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	1.168e6	9.477e5	0.907	1.23	1.24	9764.9	YES	NO	bb	bb	203.974
2	123678-HxCDD	36.15	1.363e6	1.125e6	1.001	1.21	1.24	10823.8	YES	NO	db	db	204.224
3	123478-HxCDD	36.03	1.162e6	9.482e5	0.996	1.23	1.24	10622.2	YES	NO	bd	bd	198.133

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptadioxins	40.57	2.148e2	2.026e2	1.088	1.06	1.05	2.3	NO	NO	bb	bb	0.048
2	1234678-HpCDD	40.28	8.284e5	8.038e5	1.039	1.03	1.05	3841.2	YES	NO	bb	bb	198.376

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.44	2.573e5	3.218e5	1.149	0.80	0.77	2446.0	YES	NO	bb	bb	39.968
2	Total-tetradioxins	26.06	6.115e3	7.563e3	1.024	0.81	0.77	45.2	YES	NO	bb	bb	1.059
3	12378-PeCDD	31.55	1.294e6	8.446e5	1.022	1.53	1.55	12077.0	YES	NO	bb	bb	199.637
4	Total-pentadioxins	29.94	9.896e2	6.778e2	1.502	1.46	1.55	7.8	YES	NO	bb	bb	0.106
5	123789-HxCDD	36.53	1.168e6	9.477e5	0.907	1.23	1.24	9764.9	YES	NO	bb	bb	203.974
6	123678-HxCDD	36.15	1.363e6	1.125e6	1.001	1.21	1.24	10823.8	YES	NO	db	db	204.224
7	123478-HxCDD	36.03	1.162e6	9.482e5	0.996	1.23	1.24	10622.2	YES	NO	bd	bd	198.133
8	Total-heptadioxins	40.57	2.148e2	2.026e2	1.088	1.06	1.05	2.3	NO	NO	bb	bb	0.048
9	1234678-HpCDD	40.28	8.284e5	8.038e5	1.039	1.03	1.05	3841.2	YES	NO	bb	bb	198.376
10	OCDD	45.01	1.293e6	1.512e6	0.920	0.86	0.89	10744.0	YES	NO	bb	bb	394.016

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	2.145e5	2.910e5	0.702	0.74	0.77	2939.3	YES	NO	bb	bb	41.038
2	Total-tetrafurans	24.88	1.531e3	2.327e3	0.727	0.66	0.77	20.3	YES	NO	bb	bb	0.302
3	Total-tetrafurans	24.56	1.778e3	2.714e3	0.727	0.66	0.77	29.5	YES	NO	bb	bb	0.352
4	Total-pentafurans	31.01	1.644e3	9.764e2	0.654	1.68	1.55	5.6	YES	NO	db	bd	0.273
5	12378-PeCDF	29.94	1.256e6	8.416e5	0.679	1.49	1.55	4360.5	YES	NO	bb	bb	202.935
6	23478-PeCDF	31.29	1.346e6	8.943e5	0.786	1.51	1.55	4738.5	YES	NO	bb	bb	201.175
7	123789-HxCDF	36.94	1.209e6	1.036e6	1.137	1.17	1.24	9441.6	YES	NO	bb	bd	200.361
8	234678-HxCDF	35.92	1.547e6	1.307e6	1.140	1.18	1.24	12125.4	YES	NO	bb	bd	210.207
9	Total-hexafurans	35.77	1.562e2	1.389e2	1.141	1.12	1.24	3.4	NO	NO	bb	bb	0.021
10	123678-HxCDF	35.05	1.740e6	1.369e6	1.091	1.27	1.24	13394.0	YES	NO	db	db	189.797
11	123478-HxCDF	34.91	1.546e6	1.218e6	1.166	1.27	1.24	12323.4	YES	NO	bd	bd	197.711
12	Total-hexafurans	34.76	1.255e3	1.100e3	1.141	1.14	1.24	11.9	YES	NO	bb	bb	0.169
13	1234678-HpCDF	38.78	8.720e5	8.418e5	1.003	1.04	1.05	4339.3	YES	NO	bb	bb	204.650
14	1234789-HpCDF	41.02	7.221e5	7.262e5	0.953	0.99	1.05	3041.3	YES	NO	bb	bb	208.465
15	OCDF	45.26	1.195e6	1.333e6	0.778	0.90	0.89	7923.8	YES	NO	bb	bb	419.788
16	2378-TCDD	26.44	2.573e5	3.218e5	1.149	0.80	0.77	2446.0	YES	NO	bb	bb	39.968
17	Total-tetradioxins	26.06	6.115e3	7.563e3	1.024	0.81	0.77	45.2	YES	NO	bb	bb	1.059
18	12378-PeCDD	31.55	1.294e6	8.446e5	1.022	1.53	1.55	12077.0	YES	NO	bb	bb	199.637
19	Total-pentadioxins	29.94	9.896e2	6.778e2	1.502	1.46	1.55	7.8	YES	NO	bb	bb	0.106
20	123789-HxCDD	36.53	1.168e6	9.477e5	0.907	1.23	1.24	9764.9	YES	NO	bb	bb	203.974
21	123678-HxCDD	36.15	1.363e6	1.125e6	1.001	1.21	1.24	10823.8	YES	NO	db	db	204.224
22	123478-HxCDD	36.03	1.162e6	9.482e5	0.996	1.23	1.24	10622.2	YES	NO	bd	bd	198.133
23	Total-heptadioxins	40.57	2.148e2	2.026e2	1.088	1.06	1.05	2.3	NO	NO	bb	bb	0.048
24	1234678-HpCDD	40.28	8.284e5	8.038e5	1.039	1.03	1.05	3841.2	YES	NO	bb	bb	198.376
25	OCDD	45.01	1.293e6	1.512e6	0.920	0.86	0.89	10744.0	YES	NO	bb	bb	394.016

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.75	1.219e6					0.4	NO		bb		
2	FUNCTION1 PFK	21.17	1.435e6					3.4	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.26	4.048e3					0.9	NO		bb		0.000
2	FUNCTION2 PFK	28.22	4.511e3					0.9	NO		bb		0.000
3	FUNCTION2 PFK	28.09	1.180e4					1.6	NO		bb		0.000
4	FUNCTION2 PFK	32.40	7.400e3					1.4	NO		bd		0.000
5	FUNCTION2 PFK	31.78	3.780e3					0.8	NO		db		0.000
6	FUNCTION2 PFK	31.75	1.880e3					0.6	NO		bd		0.000
7	FUNCTION2 PFK	31.70	9.648e3					1.7	NO		db		0.000
8	FUNCTION2 PFK	31.63	2.054e4					2.2	NO		bd		0.000
9	FUNCTION2 PFK	31.52	5.247e4					2.4	NO		db		0.000
10	FUNCTION2 PFK	31.37	1.454e4					1.4	NO		bd		0.000
11	FUNCTION2 PFK	31.10	7.031e3					1.1	NO		bb		0.000
12	FUNCTION2 PFK	30.32	1.036e4					1.3	NO		bb		0.000
13	FUNCTION2 PFK	30.01	2.058e3					0.8	NO		bb		0.000
14	FUNCTION2 PFK	29.82	6.711e3					1.2	NO		db		0.000
15	FUNCTION2 PFK	29.78	1.288e4					1.7	NO		bd		0.000
16	FUNCTION2 PFK	29.02	5.997e3					0.8	NO		bb		0.000
17	FUNCTION2 PFK	28.82	2.827e4					1.7	NO		bb		0.000
18	FUNCTION2 PFK	28.47	4.519e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	28.42	5.823e3					1.1	NO		bb		0.000
20	FUNCTION2 PFK	32.71	1.137e4					1.6	NO		bb		0.000
21	FUNCTION2 PFK	32.44	1.418e4					1.8	NO		db		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.64	7.406e6					25.3	YES		db		0.000
2	FUNCTION3 PFK	36.25	4.701e7					28.1	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.68	7.516e3					1.5	NO		bb		
2	FUNCTION5 PFK	45.50	5.255e3					1.2	NO		bb		
3	FUNCTION5 PFK	43.66	5.108e3					1.2	NO		bb		
4	FUNCTION5 PFK	43.06	3.867e3					1.1	NO		bb		
5	FUNCTION5 PFK	42.63	1.220e4					2.1	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.64	8.072e1					1.8	NO		bb		0.000
2	FUNCTION1 HXCD...	21.44	1.165e2					2.1	NO		db		0.000
3	FUNCTION1 HXCD...	21.34	7.544e1					2.3	NO		bd		0.000
4	FUNCTION1 HXCD...	26.42	1.399e2					2.7	NO		bb		0.000
5	FUNCTION1 HXCD...	21.99	8.086e1					2.0	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.18	1.574e3					25.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.15	3.227e2					5.7	YES		db		0.000
2	FUNCTION3 OCDPE	36.03	2.331e2					4.4	YES		bd		0.000
3	FUNCTION3 OCDPE	35.36	1.234e2					4.0	YES		bb		0.000
4	FUNCTION3 OCDPE	35.06	1.904e2					3.3	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.00	2.677e2					3.2	YES		bb		0.000
2	FUNCTION4 NCDPE	38.18	1.090e2					3.1	YES		bb		0.000

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ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
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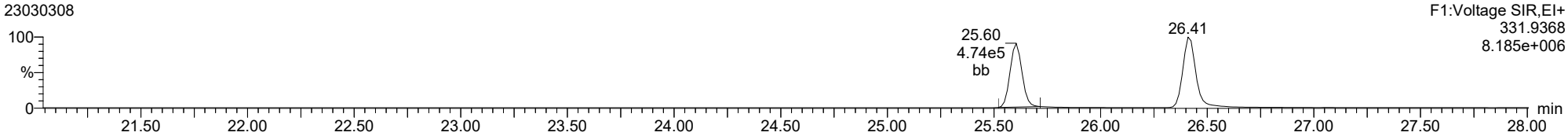
13C-1234-TCDD



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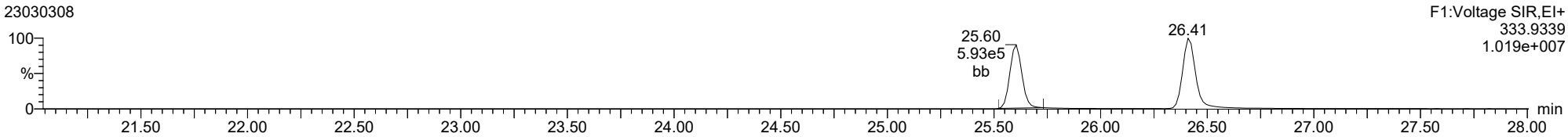
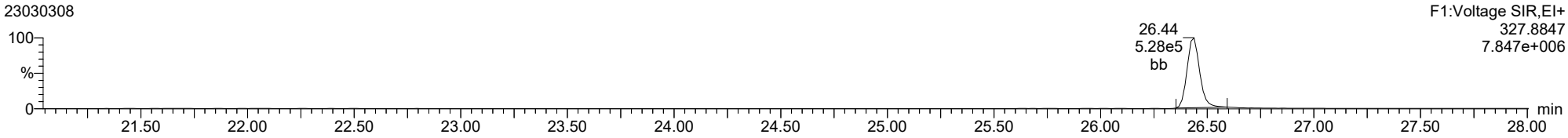


37CL-2378-TCDD



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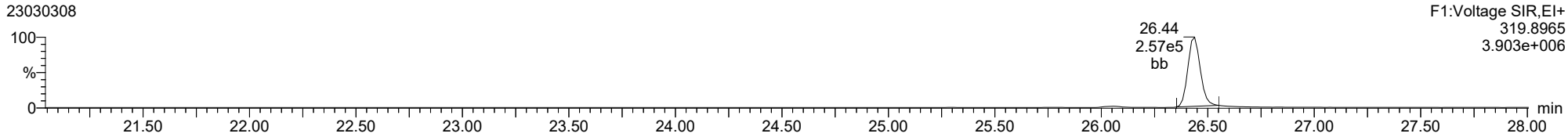
2378-TCDD



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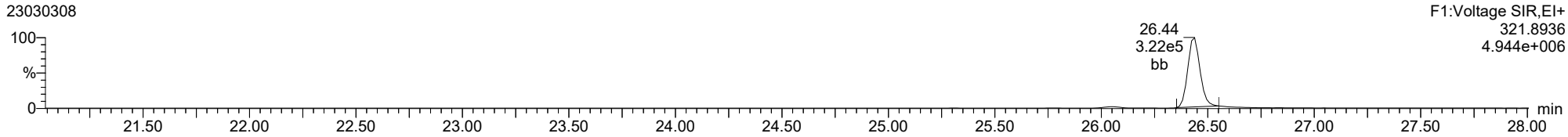

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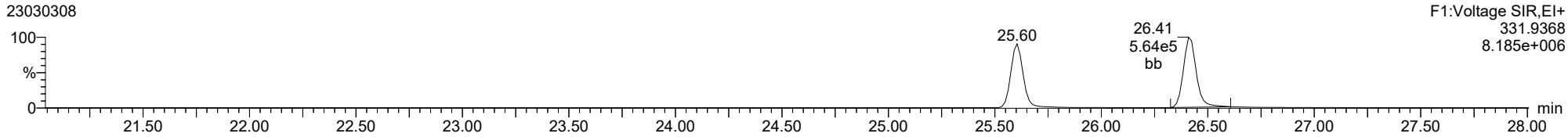

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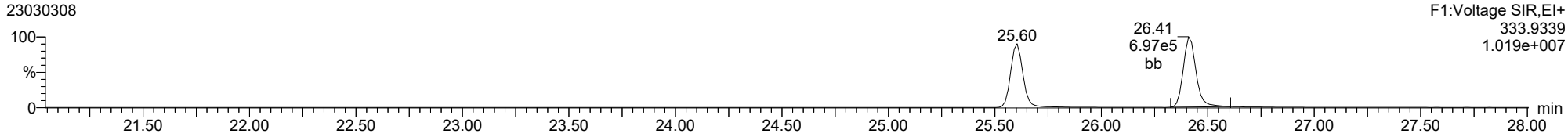
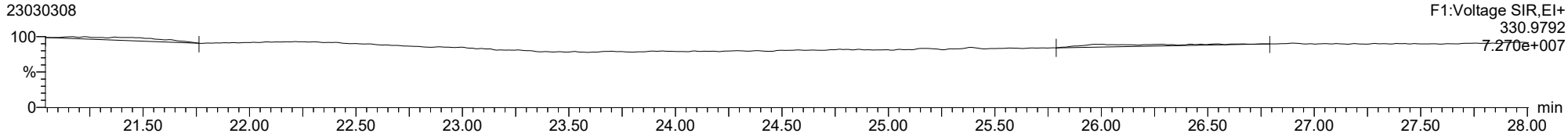


FUNCTION1 PFK



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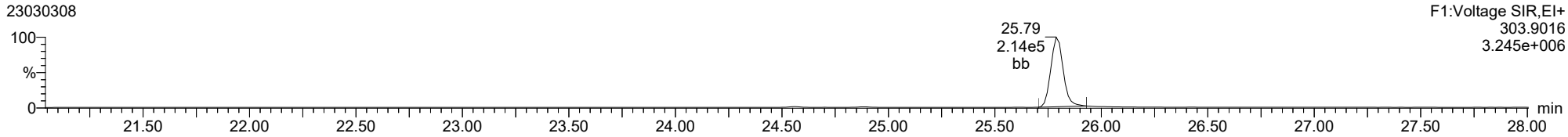
2378-TCDF



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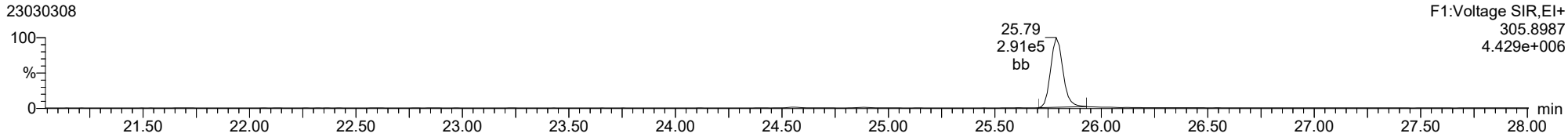

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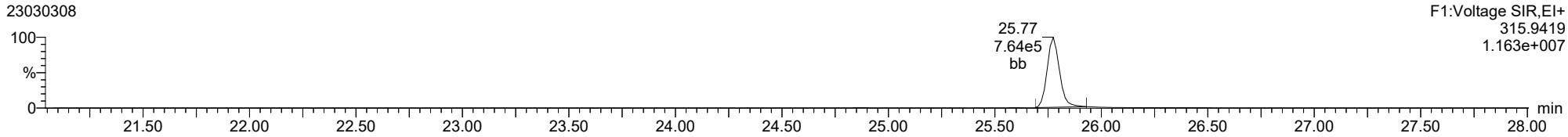
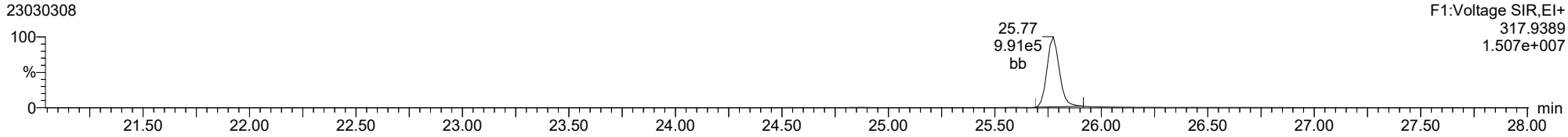


13C-2378-TCDF



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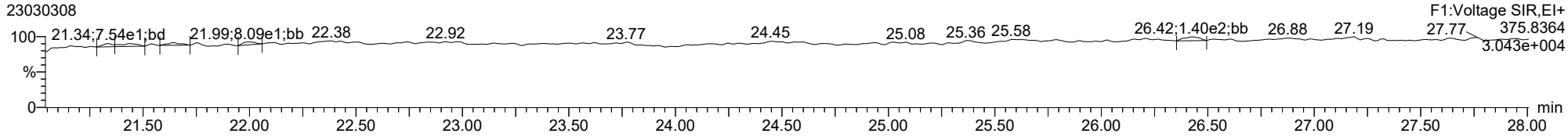

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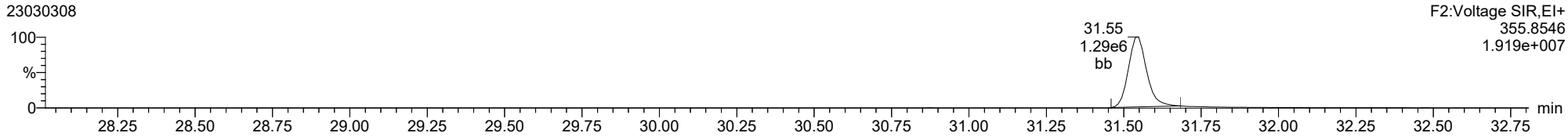

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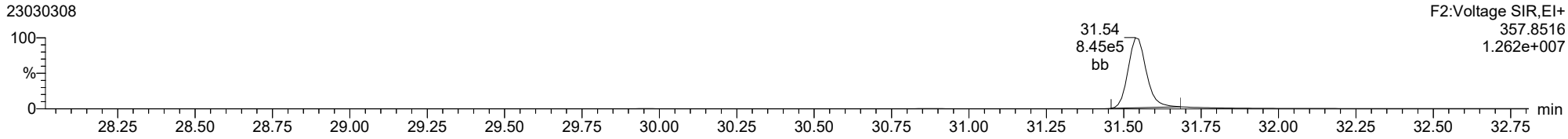

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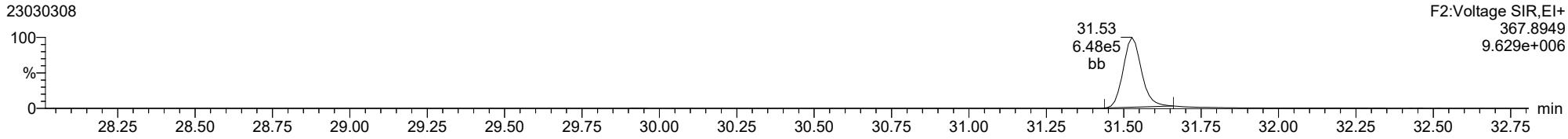

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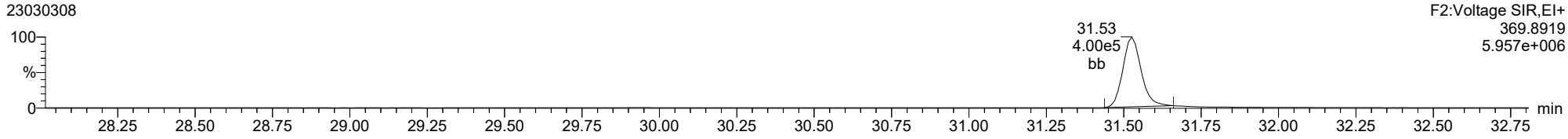

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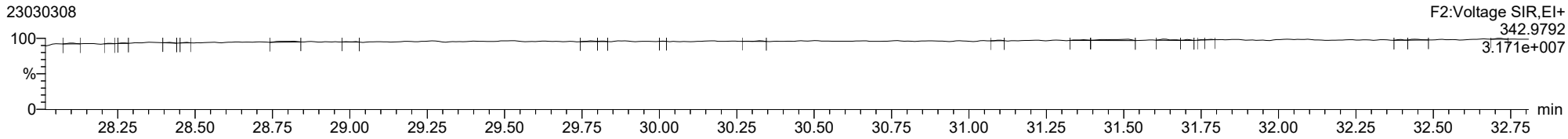

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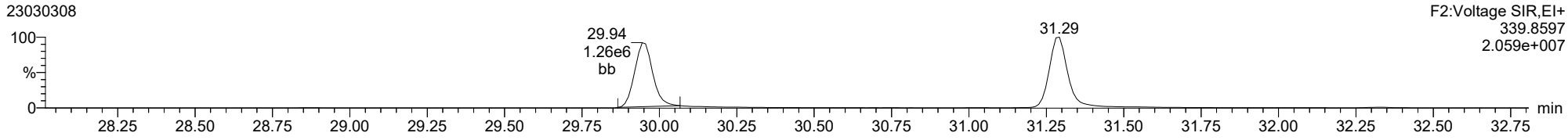

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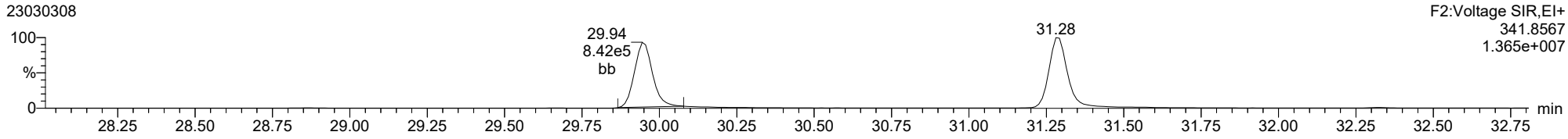

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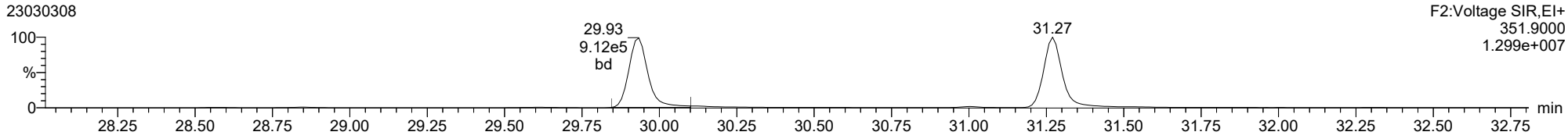

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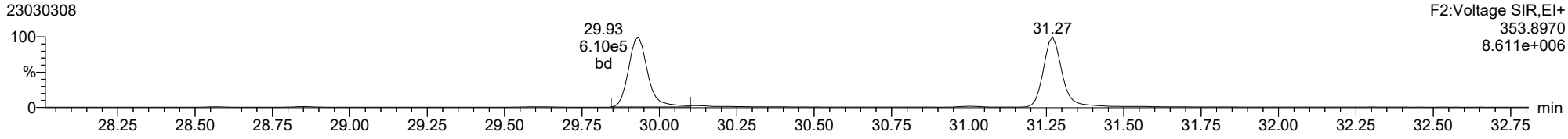

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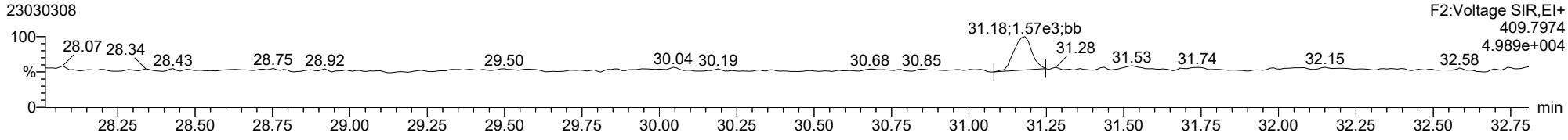

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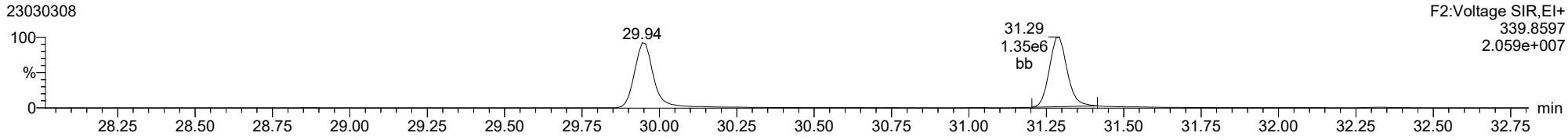

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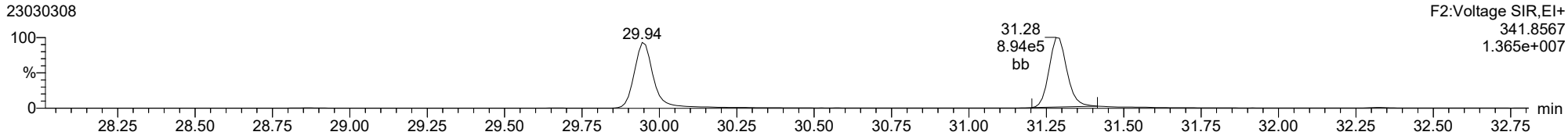

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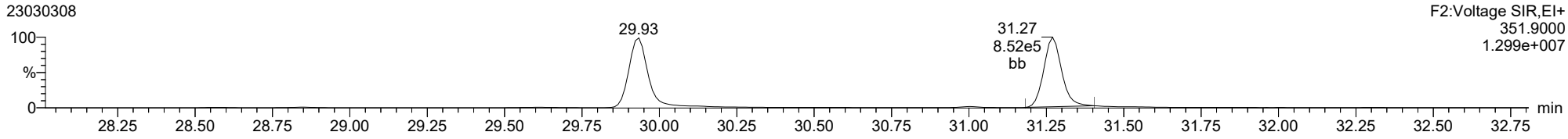

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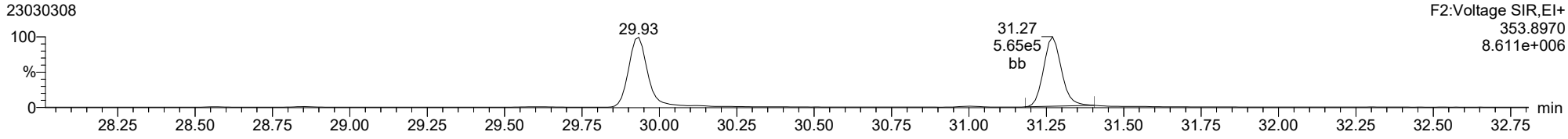

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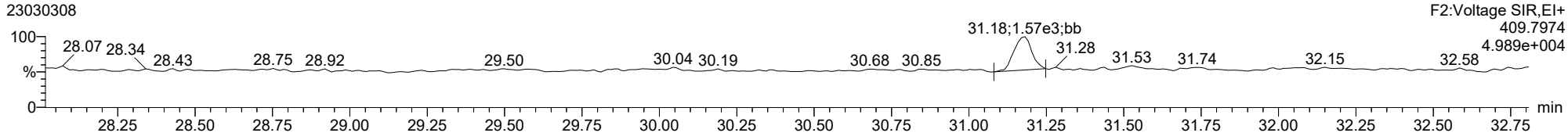

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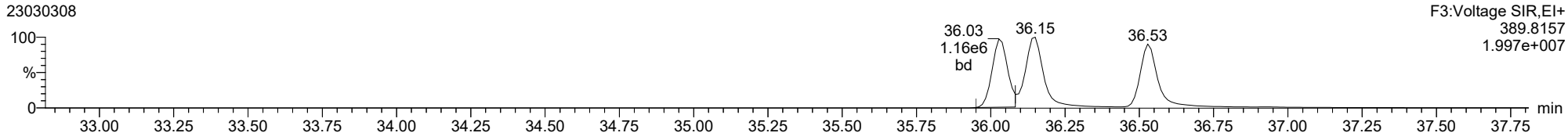

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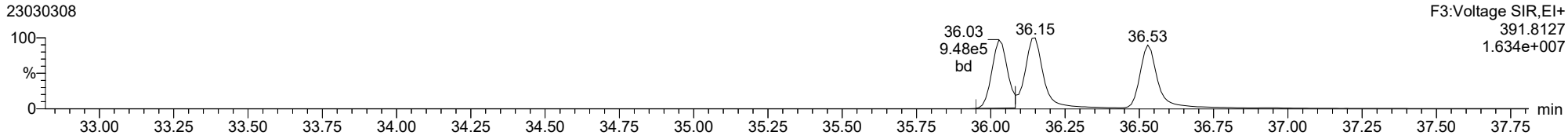

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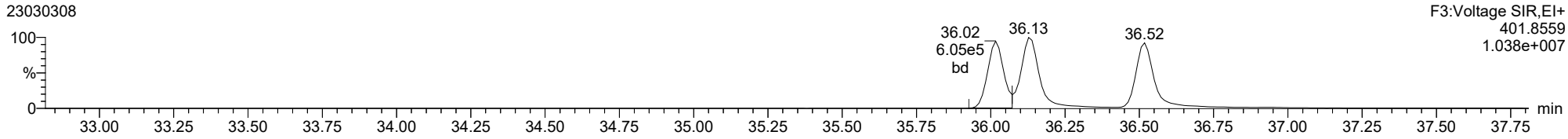

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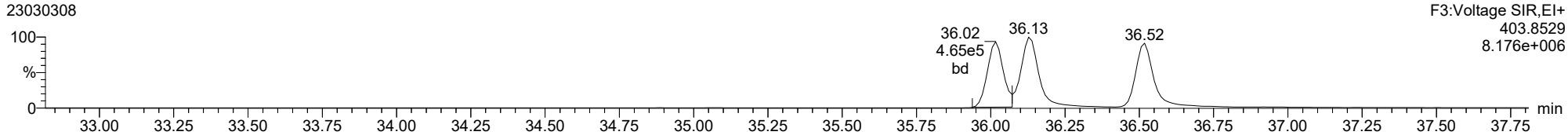

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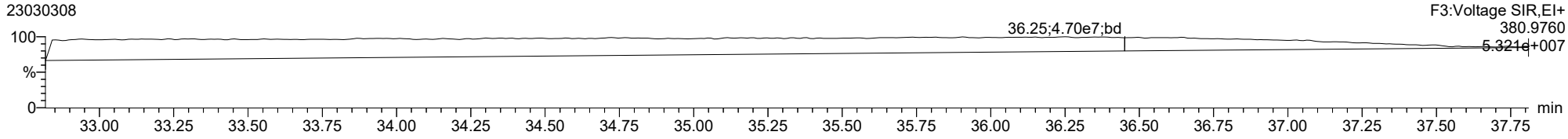

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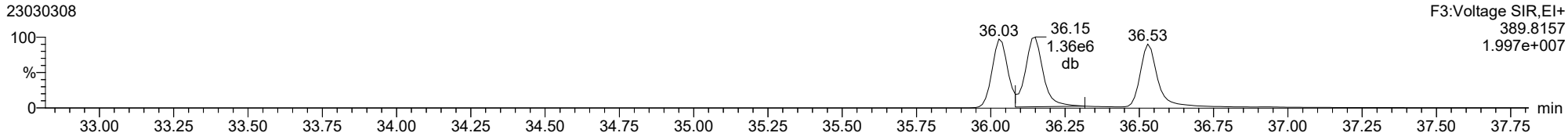

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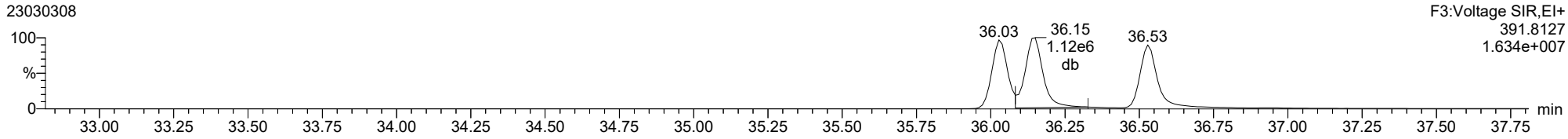

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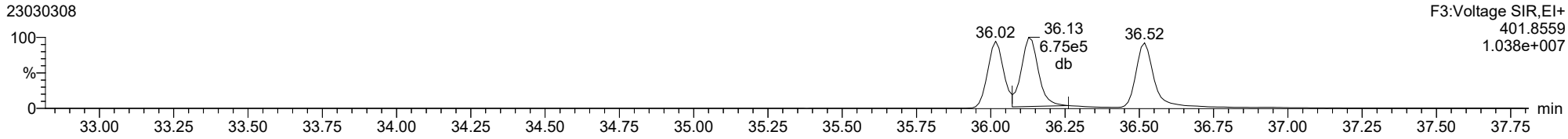

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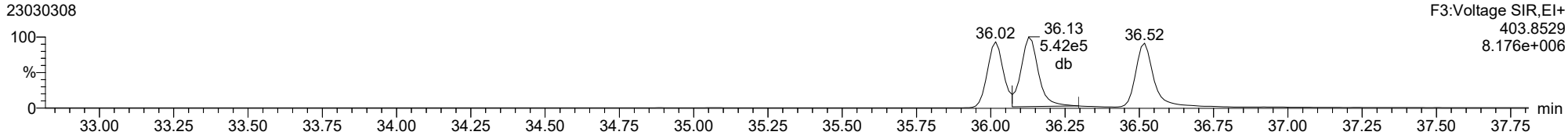

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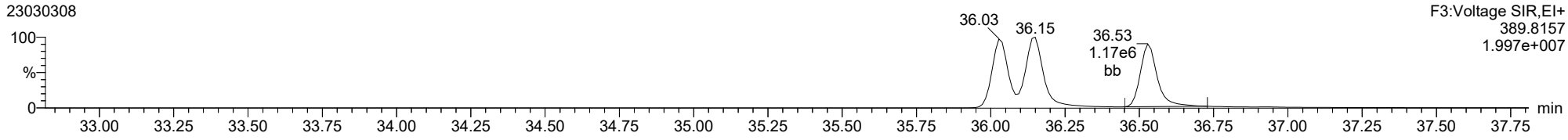

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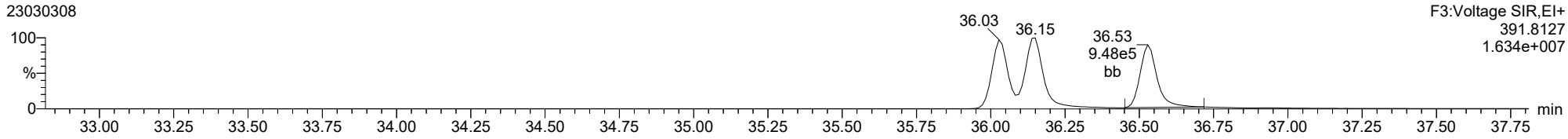

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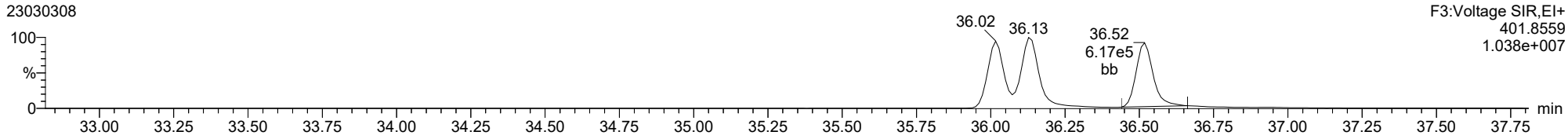

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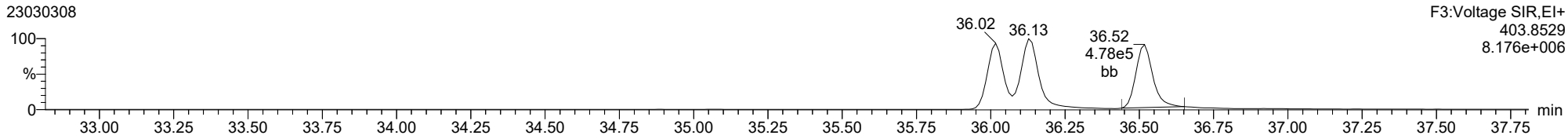

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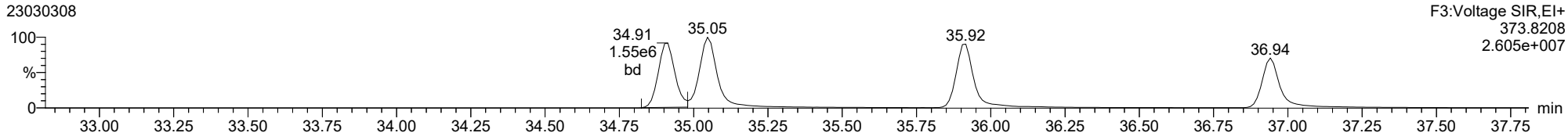

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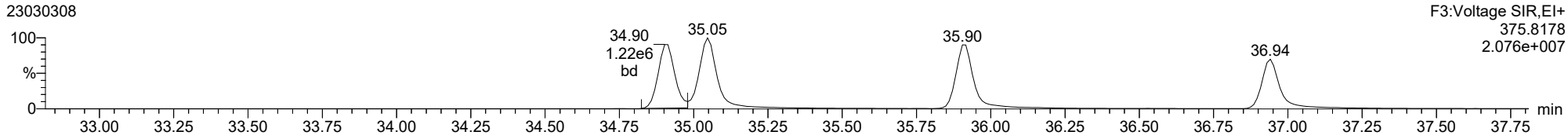

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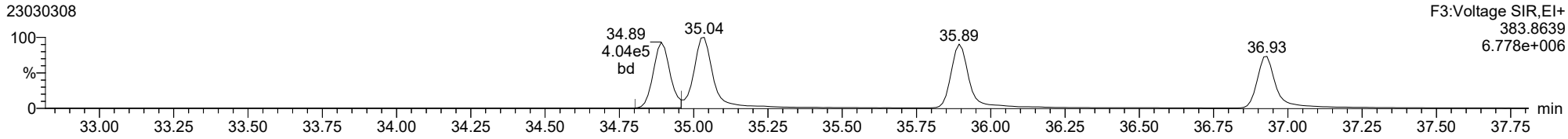

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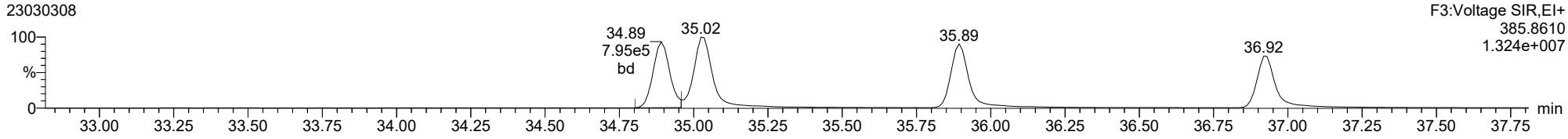

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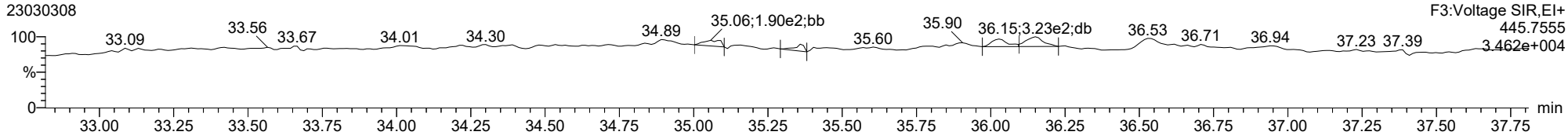

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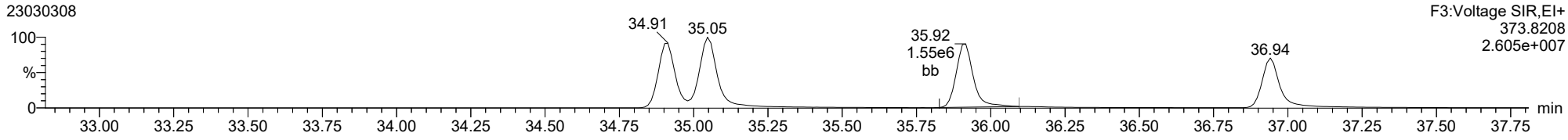
234678-HxCDF



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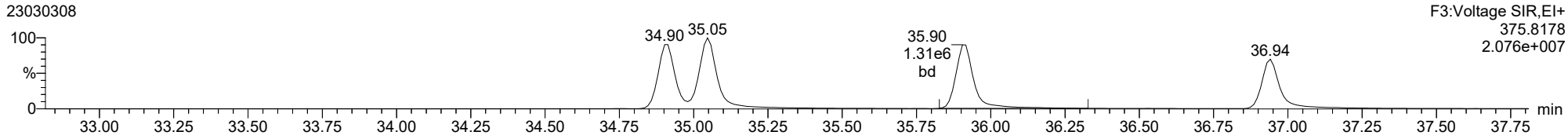

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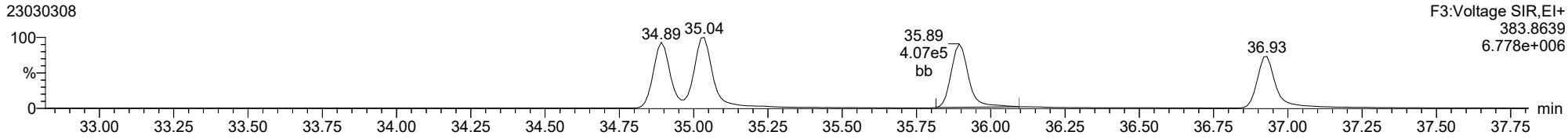

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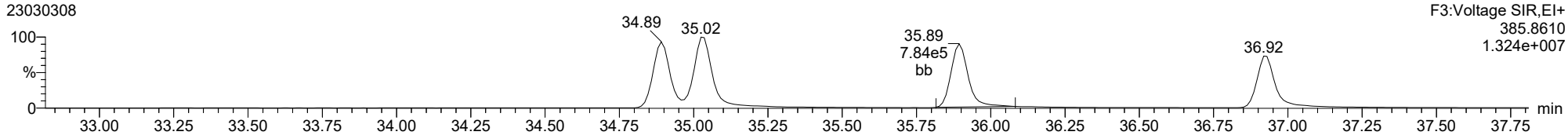

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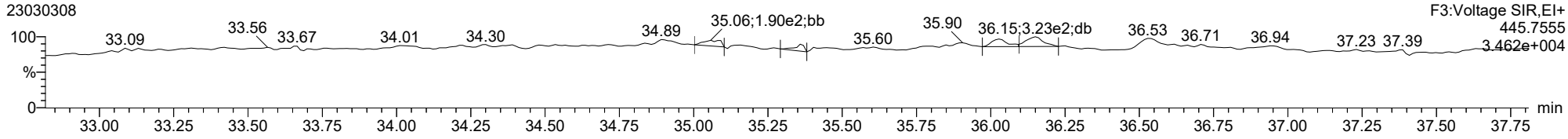

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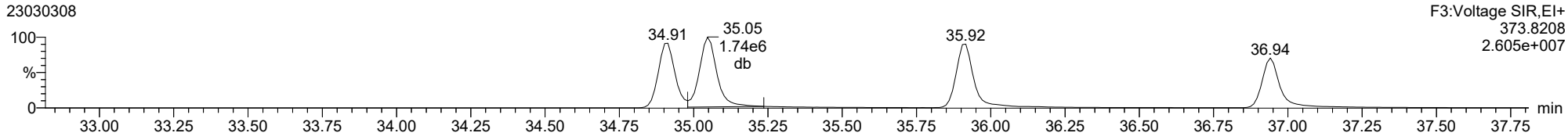

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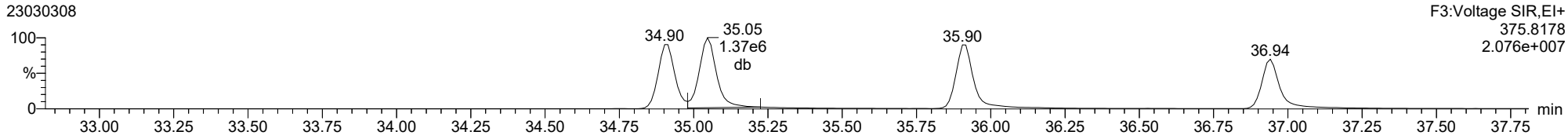

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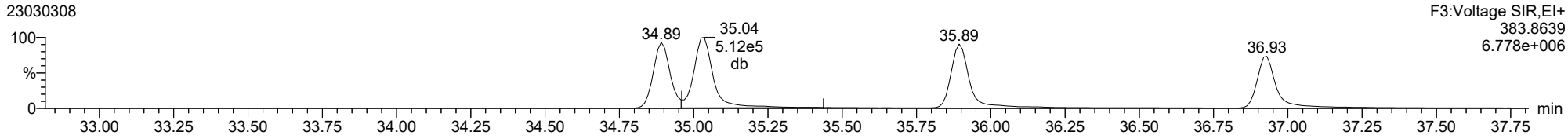

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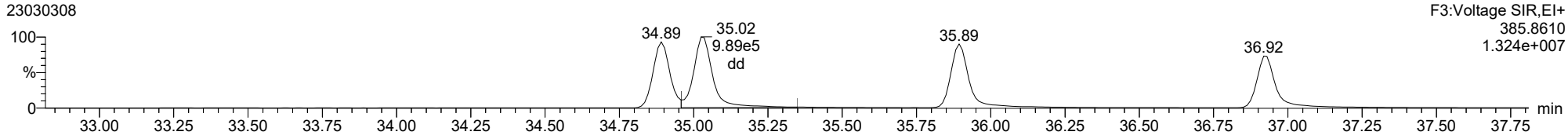

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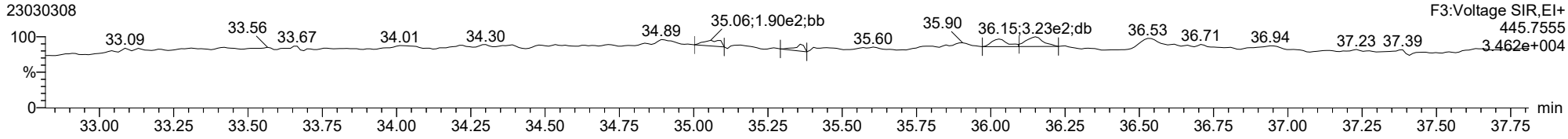

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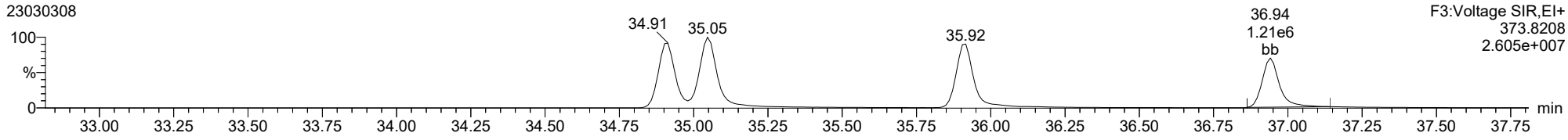

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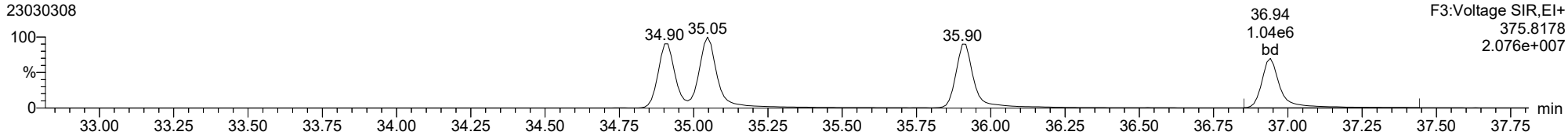

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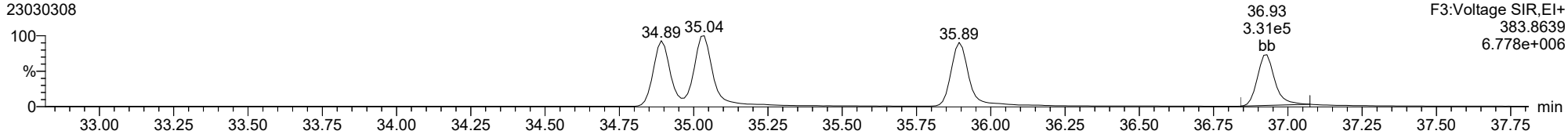

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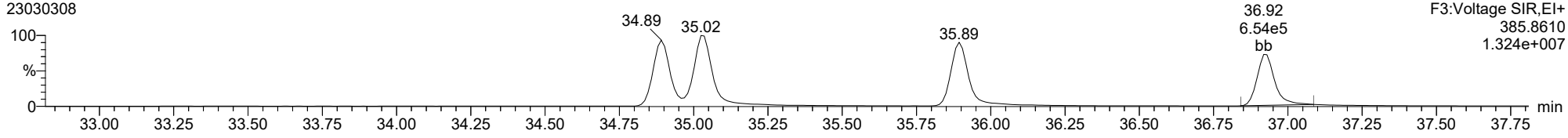

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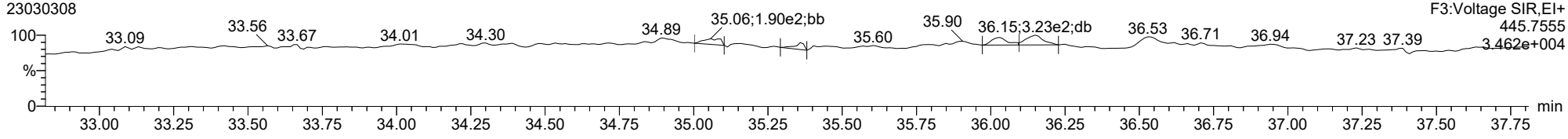

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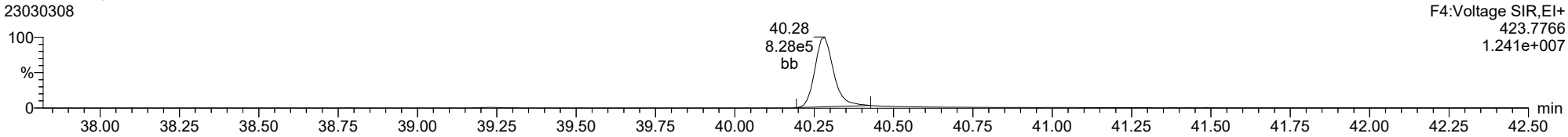

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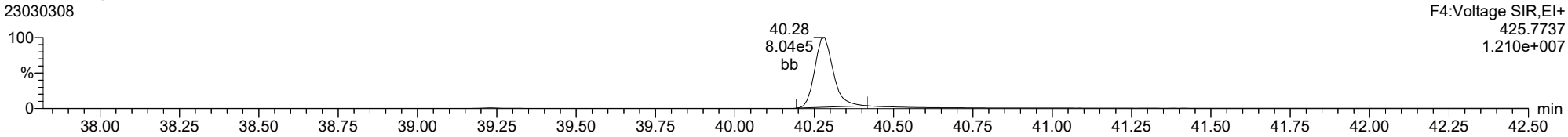

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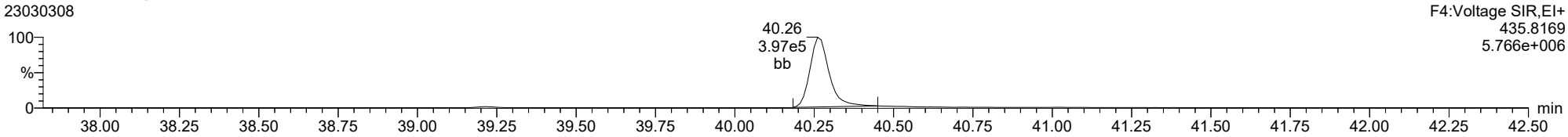

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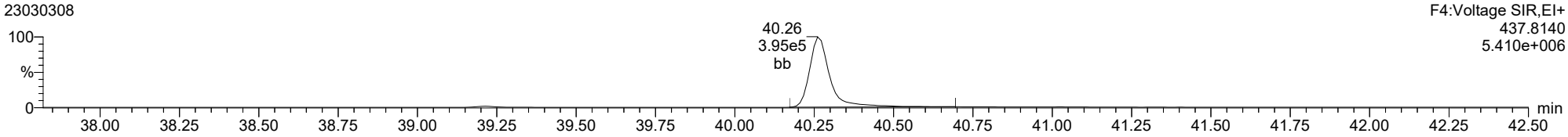
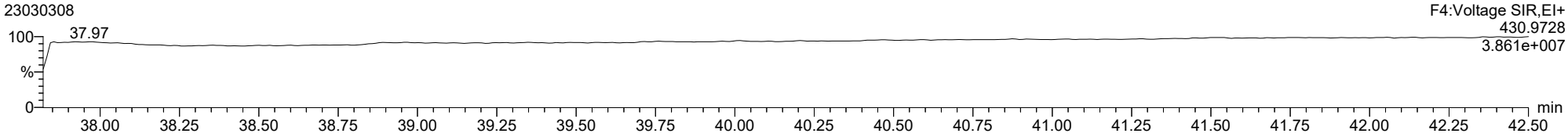


FUNCTION4 PFK



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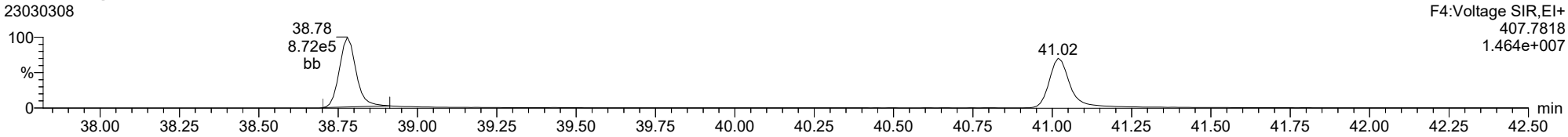
1234678-HpCDF



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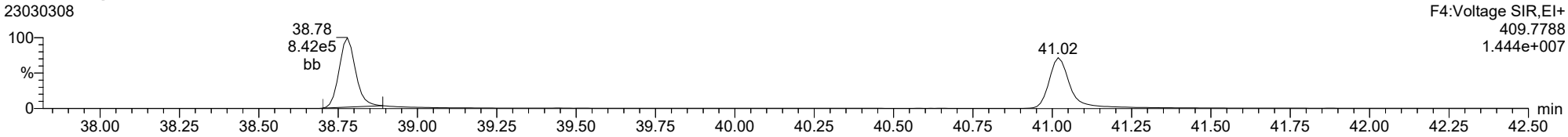

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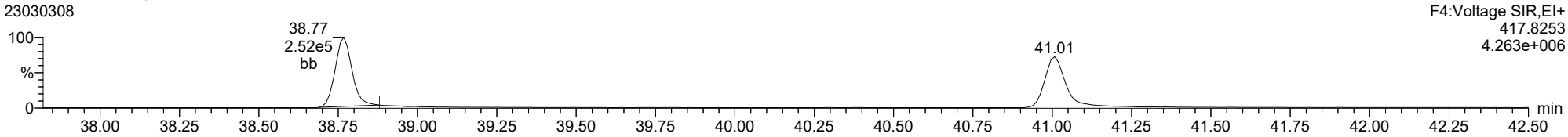

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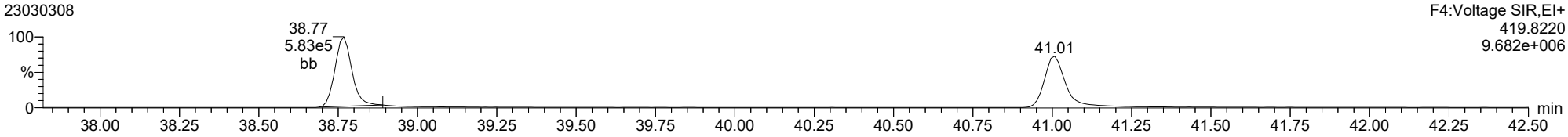
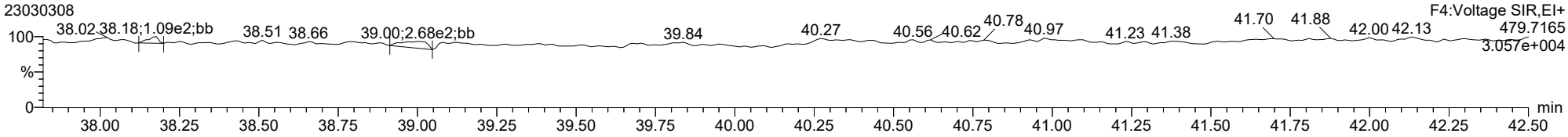
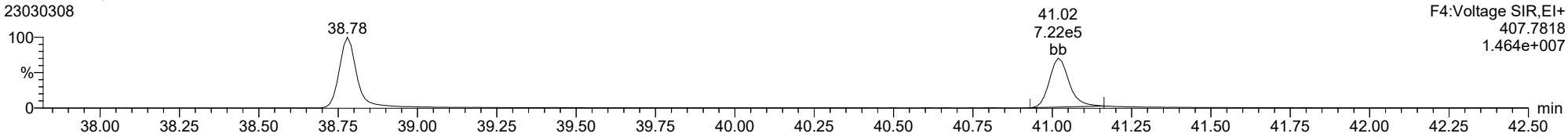


FUNCTION4 NCDPE



ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

1234789-HpCDF



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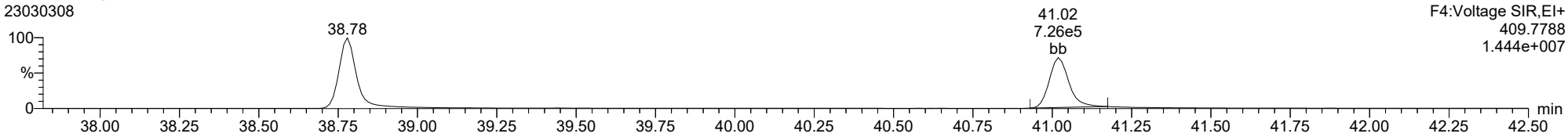

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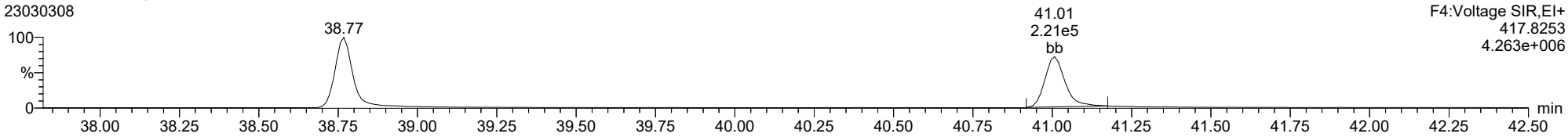

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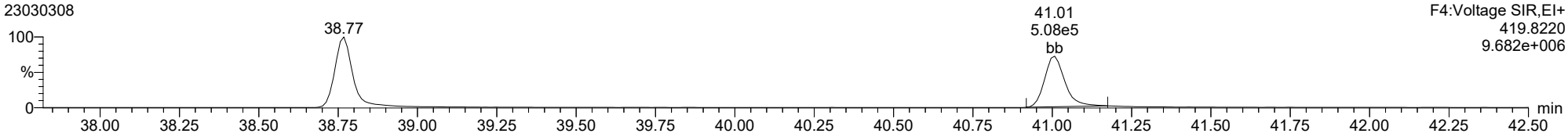
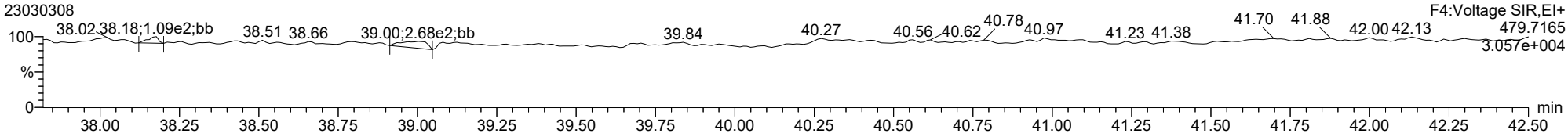
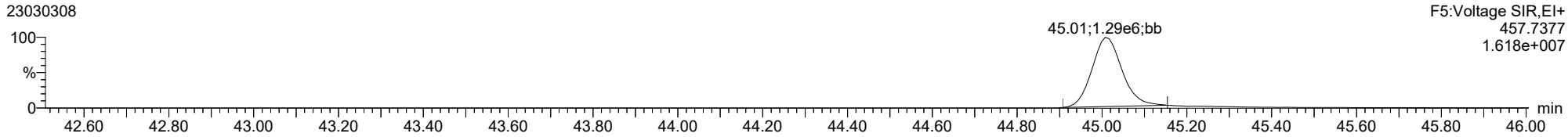


FUNCTION4 NCDPE



ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

OCDD



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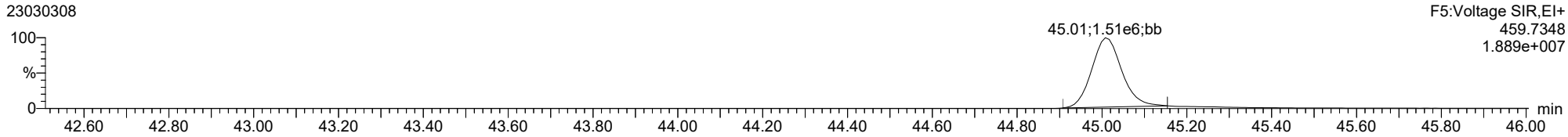

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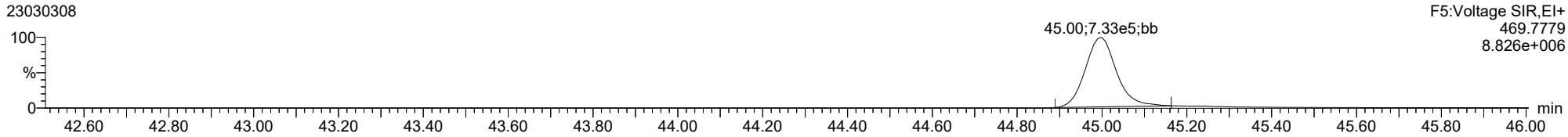
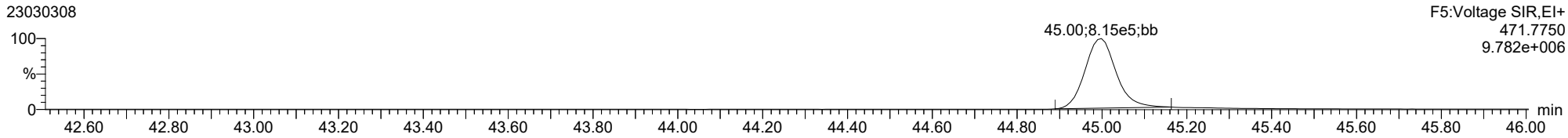
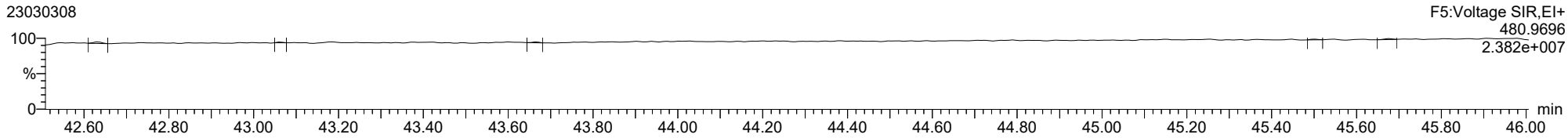


13C-OCDD



FUNCTION5 PFK



ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

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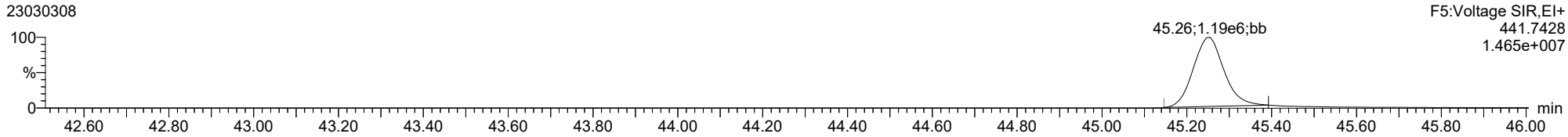

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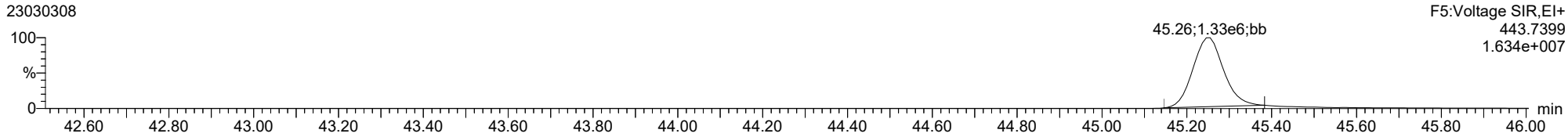
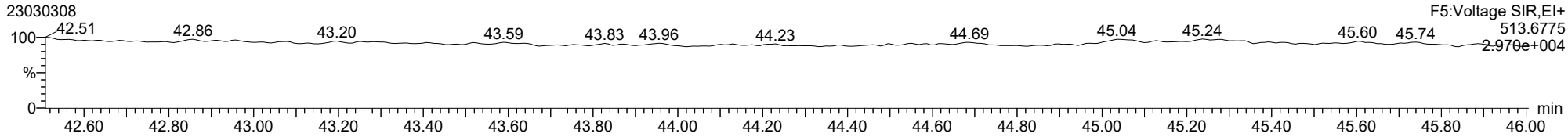


FUNCTION5 DCDPE



ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

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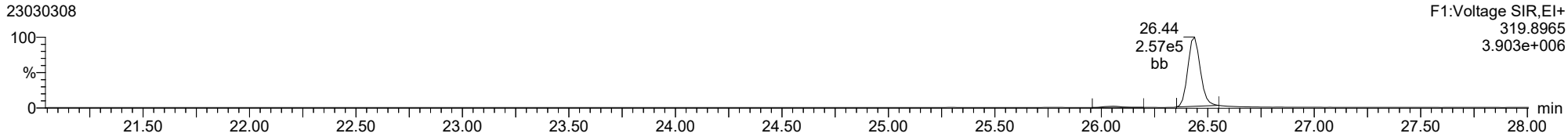
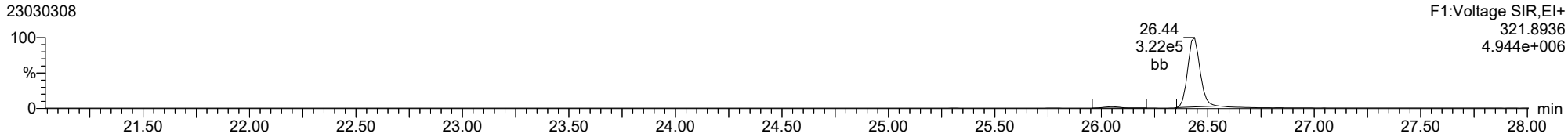


Total-tetradioxins



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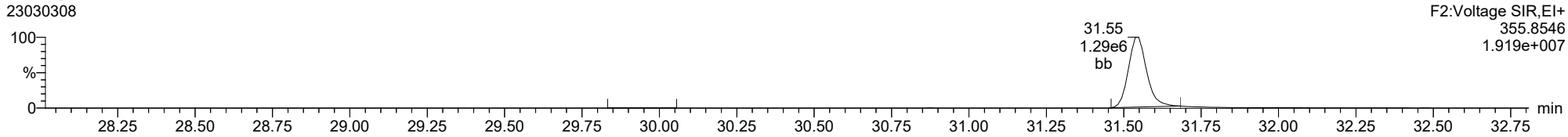
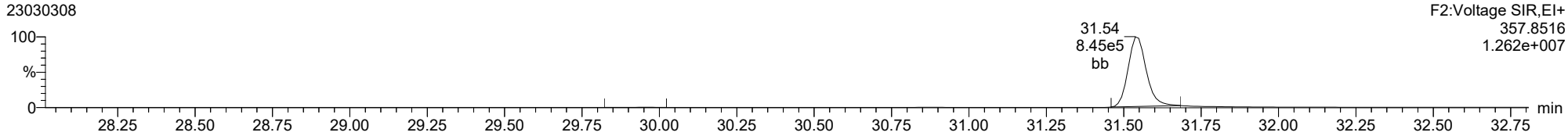


Total-pentadioxins



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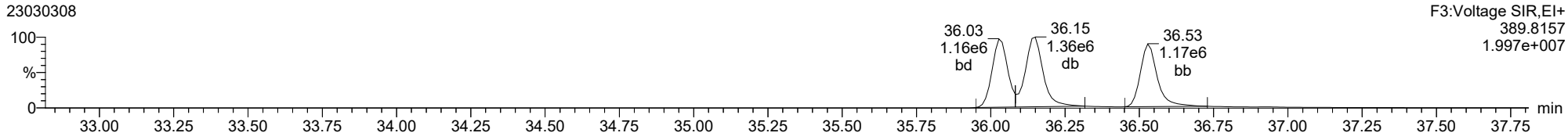

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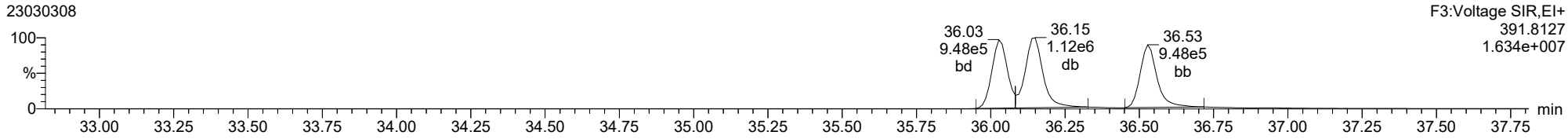

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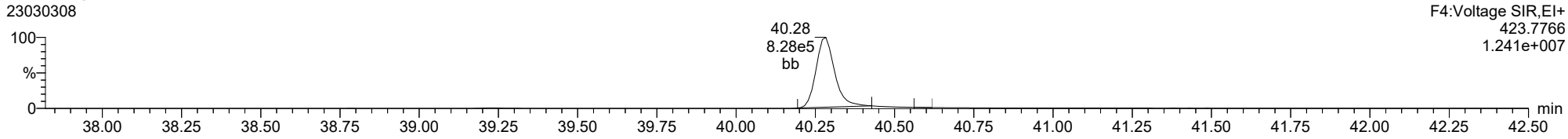

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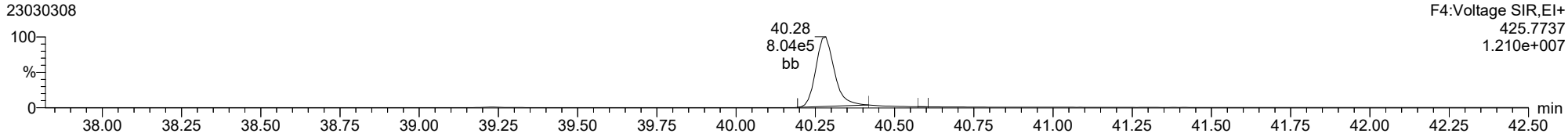

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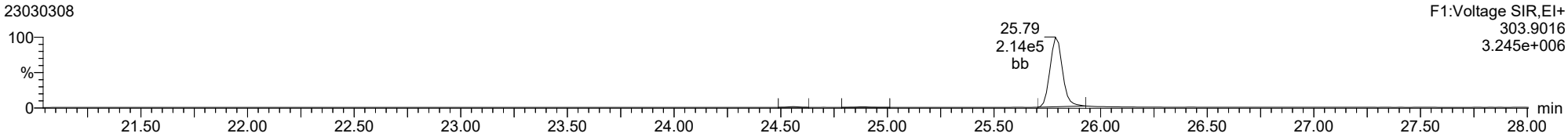
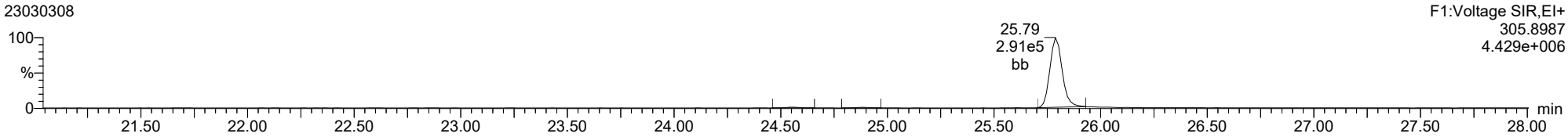
Total-tetrafurans



Total-tetrafurans



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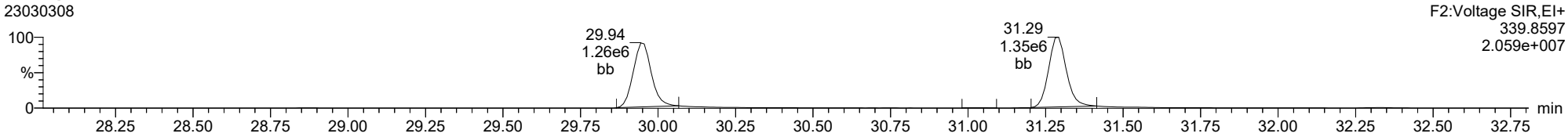

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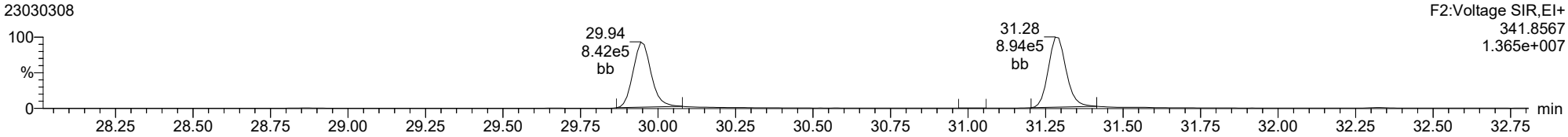

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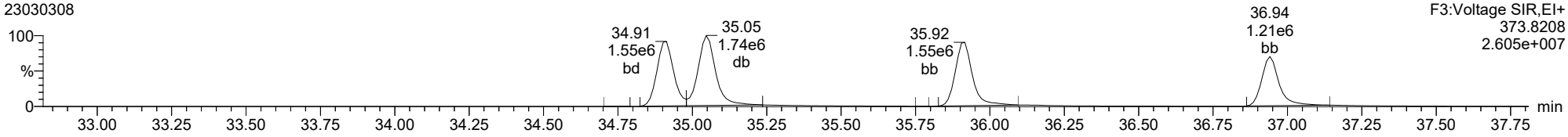
Total-hexafurans



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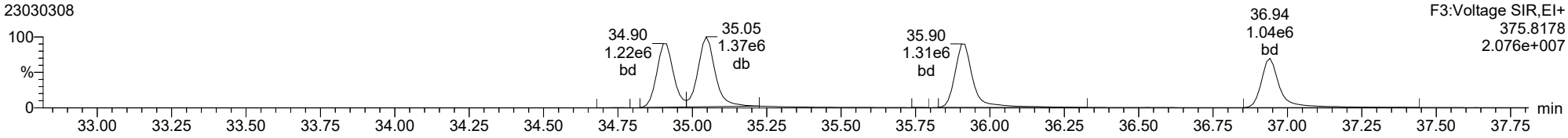

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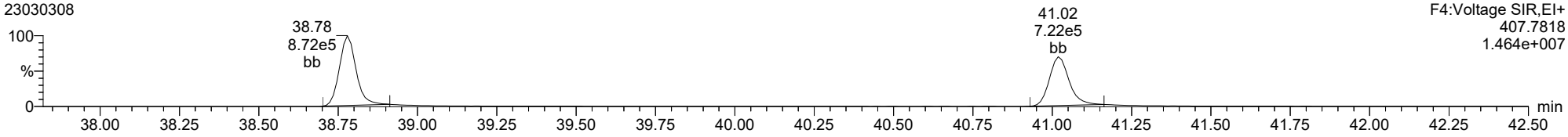
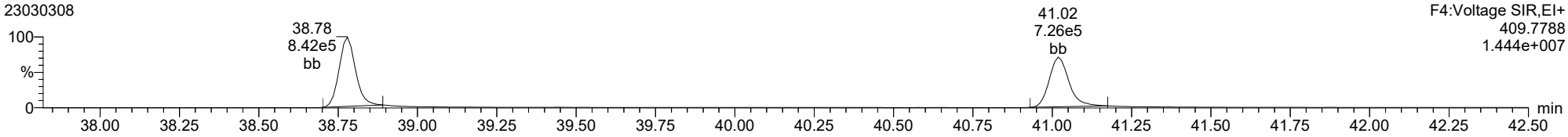


Total-heptafurans



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Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:35:04 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
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ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.774	1.000	1.334e6	1.787e6	0.702	0.746	0.770	1816	2705	2.07e7	2.78e7	11389.3	10270.6	NO	bb	bb	200.466
12378-PeCDF	29.934	1.000	7.598e6	4.979e6	0.679	1.526	1.550	4787	5694	1.20e8	7.84e7	24983.0	13764.4	NO	bb	bb	1049.785
23478-PeCDF	31.271	1.000	8.034e6	5.310e6	0.786	1.513	1.550	4787	5694	1.23e8	8.18e7	25734.3	14361.4	NO	bb	bb	1006.165
123478-HxCDF	34.903	1.001	7.954e6	6.371e6	1.166	1.248	1.240	1657	3079	1.28e8	1.02e8	76946.6	33145.2	NO	bd	bd	988.542
234678-HxCDF	35.894	1.000	8.440e6	6.648e6	1.140	1.270	1.240	1657	3079	1.32e8	1.04e8	79492.3	33730.7	NO	bd	bd	997.904
123678-HxCDF	35.036	1.000	8.729e6	6.976e6	1.091	1.251	1.240	1657	3079	1.37e8	1.09e8	82564.4	35544.8	NO	db	db	1005.907
123789-HxCDF	36.930	1.000	7.107e6	5.643e6	1.137	1.259	1.240	1657	3079	1.15e8	9.05e7	69330.3	29396.1	NO	bb	bb	962.631
1234678-HpCDF	38.769	1.000	5.729e6	5.700e6	1.003	1.005	1.050	5984	6276	9.87e7	9.77e7	16498.3	15567.0	NO	bb	bb	1001.511
1234789-HpCDF	41.008	1.000	4.891e6	4.848e6	0.953	1.009	1.050	5984	6276	7.31e7	7.29e7	12213.8	11617.0	NO	bb	bb	1050.453
OCDF	45.246	1.006	8.007e6	9.001e6	0.778	0.890	0.890	617	1698	1.01e8	1.14e8	163878.0	67066.1	NO	bb	bb	2152.541
2378-TCDD	26.424	1.001	1.623e6	2.053e6	1.149	0.791	0.770	1583	1421	2.49e7	3.15e7	15719.4	22173.2	NO	bb	bb	201.416
12378-PeCDD	31.527	1.000	7.500e6	4.933e6	1.022	1.520	1.550	3207	3258	1.15e8	7.59e7	35906.6	23308.0	NO	bb	bb	987.154
123478-HxCDD	36.017	1.000	6.446e6	5.113e6	0.996	1.261	1.240	1269	1319	1.05e8	8.63e7	82869.7	65420.3	NO	bd	bd	1008.795
123678-HxCDD	36.139	1.001	6.944e6	5.798e6	1.001	1.198	1.240	1269	1319	1.11e8	8.98e7	87214.8	68064.1	NO	db	db	1011.135
123789-HxCDD	36.518	1.011	6.387e6	5.242e6	0.907	1.218	1.240	1269	1319	1.04e8	8.52e7	81996.1	64539.0	NO	bb	bb	1063.935
1234678-HpCDD	40.273	1.000	5.468e6	5.342e6	1.039	1.023	1.050	4639	3285	8.81e7	8.56e7	19002.3	26055.7	NO	bb	bb	1010.673
OCDD	45.008	1.000	8.523e6	9.997e6	0.920	0.853	0.890	1224	2738	1.09e8	1.28e8	89206.2	46574.8	NO	bb	bb	1981.710
13C-2378-TCDF	25.760	1.007	9.657e5	1.254e6	1.620	0.770	0.770	2759	1757	1.47e7	1.88e7	5325.4	10693.5	NO	bb	bb	104.465
13C-12378-PeCDF	29.923	1.169	1.058e6	7.059e5	1.240	1.499	1.550	2137	2181	1.59e7	1.06e7	7426.1	4845.6	NO	bb	bb	108.437
13C-23478-PeCDF	31.259	1.222	1.010e6	6.768e5	1.118	1.492	1.550	2137	2181	1.54e7	1.03e7	7192.1	4709.7	NO	bb	bb	115.091
13C-123478-HxCDF	34.880	0.955	4.197e5	8.230e5	1.168	0.510	0.510	2074	3087	6.86e6	1.33e7	3308.7	4323.9	NO	bd	bd	88.344
13C-123678-HxCDF	35.025	0.959	4.843e5	9.471e5	1.386	0.511	0.510	2074	3087	7.37e6	1.42e7	3551.0	4614.4	NO	db	db	85.742
13C-234678-HxCDF	35.883	0.983	4.483e5	8.783e5	1.129	0.510	0.510	2074	3087	6.95e6	1.37e7	3352.7	4438.0	NO	bd	bd	97.566
13C-123789-HxCDF	36.919	1.011	3.958e5	7.690e5	0.932	0.515	0.510	2074	3087	6.35e6	1.23e7	3061.9	3979.7	NO	bb	bb	103.822
13C-1234678-HpCDF	38.757	1.062	3.445e5	7.933e5	0.895	0.434	0.440	2404	3556	5.77e6	1.33e7	2401.1	3732.0	NO	bb	bb	105.552
13C-1234789-HpCDF	40.997	1.123	2.963e5	6.765e5	0.770	0.438	0.440	2404	3556	4.35e6	9.96e6	1811.4	2800.3	NO	bb	bb	104.955
13C-1234-TCDD	25.591	0.000	5.845e5	7.267e5	1.000	0.804	0.770	2994	1335	8.98e6	1.11e7	2999.9	8316.3	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	7.030e5	8.860e5	1.152	0.794	0.770	2994	1335	1.05e7	1.32e7	3492.1	9847.6	NO	bb	bb	105.160
13C-12378-PeCDD	31.515	1.232	7.626e5	4.699e5	0.829	1.623	1.550	1207	1205	1.17e7	7.16e6	9657.3	5939.7	NO	bb	bb	113.413
13C-123478-HxCDD	36.006	0.986	6.492e5	5.017e5	0.995	1.294	1.240	1422	1281	1.08e7	8.26e6	7562.7	6444.6	NO	bd	bd	96.063
13C-123678-HxCDD	36.117	0.989	7.072e5	5.517e5	1.157	1.282	1.240	1422	1281	1.11e7	8.74e6	7828.3	6824.3	NO	db	db	90.391
13C-1234678-HpCDD	40.262	1.103	5.341e5	4.953e5	0.840	1.078	1.050	2026	1583	8.10e6	7.45e6	3998.5	4702.7	NO	bb	bb	101.765
13C-OCDD	44.990	1.232	9.650e5	1.067e6	0.767	0.905	0.890	1467	1005	1.21e7	1.35e7	8264.7	13401.8	NO	bb	bb	219.862
13C-123789-HxCDD	36.507	0.000	6.722e5	5.319e5	1.000	1.264	1.240	1422	1281	1.10e7	8.62e6	7719.2	6727.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	3.368e6		1.288			2667		5.07e7		19022.1			bb		199.444

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:35:04 Pacific Standard Time

ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1816	2705								
1289-TCDF					0.678		0.770	1816	2705								
13468-PECDF					1.246		1.550	665	1133								
12389-PECDF					0.496		1.550	4787	5694								
123468-HXCDF					1.169		1.240	1657	3079								
1368-TCDD					1.015		0.770	1583	1421								
1289-TCDD					0.909		0.770	1583	1421								
12479-PECDD					2.301		1.550	3207	3258								
12389-PECDD					1.184		1.550	3207	3258								
124679-HXCDD					1.115		1.240	1269	1319								
1234679-HPCDD					1.137		1.050	4639	3285								
Total-tetrafurans			1.355e6		0.727			1816		2.10e7							203.619
Total-penta1			0.000e0					665		0.00e0							
Total-pentafurans			1.567e7		0.654			4787		2.43e8							2061.969
Total-hexafurans			3.237e7		1.141			1657		5.13e8							3971.633
Total-heptafurans			1.063e7		0.978			5984		1.72e8							2053.620
Total-Furans			6.803e7		0.922			1816		1.05e9							10443.382
Total-tetradioxins			1.660e6		1.024			1583		2.53e7							206.551
Total-pentadioxins			7.518e6		1.502			3207		1.15e8							988.757
Total-hexadioxins			1.981e7		1.005			1269		3.20e8							3089.249
Total-heptadioxins			5.468e6		1.088			4639		8.81e7							1010.701
Total-Dioxins			4.298e7		1.130			1583		6.58e8							7276.969
Total-TEQ			1.110e8					1583		1.71e9							17720.350
FUNCTION1 PFK			8.364e4					590794		3.29e6							
FUNCTION2 PFK			1.452e7					287139		1.24e7							0.000
FUNCTION3 PFK			2.904e5					447834		7.86e6							0.000
FUNCTION4 PFK			1.983e5					258971		5.49e6							
FUNCTION5 PFK			1.360e5					213310		3.56e6							
FUNCTION1 HXCD...			9.848e2					660		1.37e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			9.974e3					875		1.52e5							0.000
FUNCTION3 OCDPE			5.118e3					487		5.72e4							0.000
FUNCTION4 NCDPE			1.842e3					616		1.81e4							0.000
FUNCTION5 DCDPE			3.423e3					534		2.47e4							0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.77	1.334e6	1.787e6	0.702	0.75	0.77	11389.3	YES	NO	bb	bb	200.466
2	Total-tetrafurans	24.87	8.544e3	1.186e4	0.727	0.72	0.77	70.8	YES	NO	bb	bb	1.264
3	Total-tetrafurans	24.67	1.054e3	1.493e3	0.727	0.71	0.77	9.1	YES	NO	db	db	0.158
4	Total-tetrafurans	24.55	1.152e4	1.641e4	0.727	0.70	0.77	91.4	YES	NO	bd	bd	1.731

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	8.034e6	5.310e6	0.786	1.51	1.55	25734.3	YES	NO	bb	bb	1006.1...
2	Total-pentafurans	31.00	7.155e3	5.348e3	0.654	1.34	1.55	24.5	YES	NO	bb	bb	1.108
3	Total-pentafurans	30.22	6.707e3	3.991e3	0.654	1.68	1.55	18.6	YES	NO	bb	bb	0.948
4	12378-PeCDF	29.93	7.598e6	4.979e6	0.679	1.53	1.55	24983.0	YES	NO	bb	bb	1049.7...
5	Total-pentafurans	29.57	3.743e3	2.429e3	0.654	1.54	1.55	12.5	YES	NO	bd	bd	0.547
6	Total-pentafurans	28.85	2.348e4	1.505e4	0.654	1.56	1.55	59.4	YES	NO	bb	bb	3.415

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.04	8.729e6	6.976e6	1.091	1.25	1.24	82564.4	YES	NO	db	db	1005.9...
2	123478-HxCDF	34.90	7.954e6	6.371e6	1.166	1.25	1.24	76946.6	YES	NO	bd	bd	988.542
3	Total-hexafurans	34.75	7.748e3	5.706e3	1.141	1.36	1.24	87.3	YES	NO	bb	bb	0.913
4	Total-hexafurans	33.44	5.026e3	3.534e3	1.141	1.42	1.24	38.8	YES	NO	db	bb	0.581
5	123789-HxCDF	36.93	7.107e6	5.643e6	1.137	1.26	1.24	69330.3	YES	NO	bb	bb	962.631
6	Total-hexafurans	36.53	1.628e4	1.267e4	1.141	1.29	1.24	124.4	YES	NO	dd	bd	1.966
7	Total-hexafurans	36.13	1.100e5	8.424e4	1.141	1.31	1.24	706.6	YES	NO	dd	dd	13.189
8	234678-HxCDF	35.89	8.440e6	6.648e6	1.140	1.27	1.24	79492.3	YES	NO	bd	bd	997.904

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.01	4.891e6	4.848e6	0.953	1.01	1.05	12213.8	YES	NO	bb	bb	1050.4...
2	Total-heptafurans	39.43	9.256e3	7.833e3	0.978	1.18	1.05	24.5	YES	NO	bb	bb	1.656
3	1234678-HpCDF	38.77	5.729e6	5.700e6	1.003	1.01	1.05	16498.3	YES	NO	bb	bb	1001.5...

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.77	1.334e6	1.787e6	0.702	0.75	0.77	11389.3	YES	NO	bb	bb	200.466
2	Total-tetrafurans	24.87	8.544e3	1.186e4	0.727	0.72	0.77	70.8	YES	NO	bb	bb	1.264
3	Total-tetrafurans	24.67	1.054e3	1.493e3	0.727	0.71	0.77	9.1	YES	NO	db	db	0.158
4	Total-tetrafurans	24.55	1.152e4	1.641e4	0.727	0.70	0.77	91.4	YES	NO	bd	bd	1.731
5	23478-PeCDF	31.27	8.034e6	5.310e6	0.786	1.51	1.55	25734.3	YES	NO	bb	bb	1006.1...
6	Total-pentafurans	31.00	7.155e3	5.348e3	0.654	1.34	1.55	24.5	YES	NO	bb	bb	1.108
7	Total-pentafurans	30.22	6.707e3	3.991e3	0.654	1.68	1.55	18.6	YES	NO	bb	bb	0.948
8	12378-PeCDF	29.93	7.598e6	4.979e6	0.679	1.53	1.55	24983.0	YES	NO	bb	bb	1049.7...
9	Total-pentafurans	29.57	3.743e3	2.429e3	0.654	1.54	1.55	12.5	YES	NO	bd	bd	0.547
10	Total-pentafurans	28.85	2.348e4	1.505e4	0.654	1.56	1.55	59.4	YES	NO	bb	bb	3.415
11	123678-HxCDF	35.04	8.729e6	6.976e6	1.091	1.25	1.24	82564.4	YES	NO	db	db	1005.9...
12	123478-HxCDF	34.90	7.954e6	6.371e6	1.166	1.25	1.24	76946.6	YES	NO	bd	bd	988.542
13	Total-hexafurans	34.75	7.748e3	5.706e3	1.141	1.36	1.24	87.3	YES	NO	bb	bb	0.913
14	Total-hexafurans	33.44	5.026e3	3.534e3	1.141	1.42	1.24	38.8	YES	NO	db	bb	0.581
15	123789-HxCDF	36.93	7.107e6	5.643e6	1.137	1.26	1.24	69330.3	YES	NO	bb	bb	962.631
16	Total-hexafurans	36.53	1.628e4	1.267e4	1.141	1.29	1.24	124.4	YES	NO	dd	bd	1.966
17	Total-hexafurans	36.13	1.100e5	8.424e4	1.141	1.31	1.24	706.6	YES	NO	dd	dd	13.189
18	234678-HxCDF	35.89	8.440e6	6.648e6	1.140	1.27	1.24	79492.3	YES	NO	bd	bd	997.904
19	1234789-HpCDF	41.01	4.891e6	4.848e6	0.953	1.01	1.05	12213.8	YES	NO	bb	bb	1050.4...
20	Total-heptafurans	39.43	9.256e3	7.833e3	0.978	1.18	1.05	24.5	YES	NO	bb	bb	1.656
21	1234678-HpCDF	38.77	5.729e6	5.700e6	1.003	1.01	1.05	16498.3	YES	NO	bb	bb	1001.5...
22	OCDF	45.25	8.007e6	9.001e6	0.778	0.89	0.89	16387...	YES	NO	bb	bb	2152.5...

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	1.623e6	2.053e6	1.149	0.79	0.77	15719.4	YES	NO	bb	bb	201.416
2	Total-tetradioxins	26.03	3.492e4	4.469e4	1.024	0.78	0.77	261.5	YES	NO	bb	bb	4.891
3	Total-tetradioxins	25.59	3.088e2	4.283e2	1.024	0.72	0.77	3.2	YES	NO	bb	bb	0.045
4	Total-tetradioxins	25.29	1.293e3	1.946e3	1.024	0.66	0.77	15.2	YES	NO	bb	bb	0.199

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.29	1.049e3	6.224e2	1.502	1.68	1.55	4.4	YES	NO	dd	db	0.090
2	Total-pentadioxins	30.15	1.847e3	1.302e3	1.502	1.42	1.55	8.1	YES	NO	dd	dd	0.170
3	Total-pentadioxins	29.93	6.137e3	4.352e3	1.502	1.41	1.55	24.1	YES	NO	bd	bd	0.567
4	12378-PeCDD	31.53	7.500e6	4.933e6	1.022	1.52	1.55	35906.6	YES	NO	bb	bb	987.154
5	Total-pentadioxins	30.86	8.777e3	5.596e3	1.502	1.57	1.55	39.8	YES	NO	bd	bb	0.776

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	36.92	3.612e4	2.906e4	1.005	1.24	1.24	377.1	YES	NO	bb	bb	5.383
2	123789-HxCDD	36.52	6.387e6	5.242e6	0.907	1.22	1.24	81996.1	YES	NO	bb	bb	1063.9...
3	123678-HxCDD	36.14	6.944e6	5.798e6	1.001	1.20	1.24	87214.8	YES	NO	db	db	1011.1...
4	123478-HxCDD	36.02	6.446e6	5.113e6	0.996	1.26	1.24	82869.7	YES	NO	bd	bd	1008.7...

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptadioxins	40.66	1.670e2	1.486e2	1.088	1.12	1.05	0.0	NO	NO	bb	bb	0.028
2	1234678-HpCDD	40.27	5.468e6	5.342e6	1.039	1.02	1.05	19002.3	YES	NO	bb	bb	1010.6...

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	1.623e6	2.053e6	1.149	0.79	0.77	15719.4	YES	NO	bb	bb	201.416
2	Total-tetradioxins	26.03	3.492e4	4.469e4	1.024	0.78	0.77	261.5	YES	NO	bb	bb	4.891
3	Total-tetradioxins	25.59	3.088e2	4.283e2	1.024	0.72	0.77	3.2	YES	NO	bb	bb	0.045
4	Total-tetradioxins	25.29	1.293e3	1.946e3	1.024	0.66	0.77	15.2	YES	NO	bb	bb	0.199
5	Total-pentadioxins	30.29	1.049e3	6.224e2	1.502	1.68	1.55	4.4	YES	NO	dd	db	0.090
6	Total-pentadioxins	30.15	1.847e3	1.302e3	1.502	1.42	1.55	8.1	YES	NO	dd	dd	0.170
7	Total-pentadioxins	29.93	6.137e3	4.352e3	1.502	1.41	1.55	24.1	YES	NO	bd	bd	0.567
8	12378-PeCDD	31.53	7.500e6	4.933e6	1.022	1.52	1.55	35906.6	YES	NO	bb	bb	987.154
9	Total-pentadioxins	30.86	8.777e3	5.596e3	1.502	1.57	1.55	39.8	YES	NO	bd	bb	0.776
10	Total-hexadioxins	36.92	3.612e4	2.906e4	1.005	1.24	1.24	377.1	YES	NO	bb	bb	5.383
11	123789-HxCDD	36.52	6.387e6	5.242e6	0.907	1.22	1.24	81996.1	YES	NO	bb	bb	1063.9...
12	123678-HxCDD	36.14	6.944e6	5.798e6	1.001	1.20	1.24	87214.8	YES	NO	db	db	1011.1...
13	123478-HxCDD	36.02	6.446e6	5.113e6	0.996	1.26	1.24	82869.7	YES	NO	bd	bd	1008.7...
14	Total-heptadioxins	40.66	1.670e2	1.486e2	1.088	1.12	1.05	0.0	NO	NO	bb	bb	0.028
15	1234678-HpCDD	40.27	5.468e6	5.342e6	1.039	1.02	1.05	19002.3	YES	NO	bb	bb	1010.6...
16	OCDD	45.01	8.523e6	9.997e6	0.920	0.85	0.89	89206.2	YES	NO	bb	bb	1981.7...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.77	1.334e6	1.787e6	0.702	0.75	0.77	11389.3	YES	NO	bb	bb	200.466
2	Total-tetrafurans	24.87	8.544e3	1.186e4	0.727	0.72	0.77	70.8	YES	NO	bb	bb	1.264
3	Total-tetrafurans	24.67	1.054e3	1.493e3	0.727	0.71	0.77	9.1	YES	NO	db	db	0.158
4	Total-tetrafurans	24.55	1.152e4	1.641e4	0.727	0.70	0.77	91.4	YES	NO	bd	bd	1.731
5	23478-PeCDF	31.27	8.034e6	5.310e6	0.786	1.51	1.55	25734.3	YES	NO	bb	bb	1006.1...
6	Total-pentafurans	31.00	7.155e3	5.348e3	0.654	1.34	1.55	24.5	YES	NO	bb	bb	1.108
7	Total-pentafurans	30.22	6.707e3	3.991e3	0.654	1.68	1.55	18.6	YES	NO	bb	bb	0.948
8	12378-PeCDF	29.93	7.598e6	4.979e6	0.679	1.53	1.55	24983.0	YES	NO	bb	bb	1049.7...
9	Total-pentafurans	29.57	3.743e3	2.429e3	0.654	1.54	1.55	12.5	YES	NO	bd	bd	0.547
10	Total-pentafurans	28.85	2.348e4	1.505e4	0.654	1.56	1.55	59.4	YES	NO	bb	bb	3.415
11	123678-HxCDF	35.04	8.729e6	6.976e6	1.091	1.25	1.24	82564.4	YES	NO	db	db	1005.9...
12	123478-HxCDF	34.90	7.954e6	6.371e6	1.166	1.25	1.24	76946.6	YES	NO	bd	bd	988.542
13	Total-hexafurans	34.75	7.748e3	5.706e3	1.141	1.36	1.24	87.3	YES	NO	bb	bb	0.913
14	Total-hexafurans	33.44	5.026e3	3.534e3	1.141	1.42	1.24	38.8	YES	NO	db	bb	0.581
15	123789-HxCDF	36.93	7.107e6	5.643e6	1.137	1.26	1.24	69330.3	YES	NO	bb	bb	962.631
16	Total-hexafurans	36.53	1.628e4	1.267e4	1.141	1.29	1.24	124.4	YES	NO	dd	bd	1.966
17	Total-hexafurans	36.13	1.100e5	8.424e4	1.141	1.31	1.24	706.6	YES	NO	dd	dd	13.189
18	234678-HxCDF	35.89	8.440e6	6.648e6	1.140	1.27	1.24	79492.3	YES	NO	bd	bd	997.904
19	1234789-HpCDF	41.01	4.891e6	4.848e6	0.953	1.01	1.05	12213.8	YES	NO	bb	bb	1050.4...
20	Total-heptafurans	39.43	9.256e3	7.833e3	0.978	1.18	1.05	24.5	YES	NO	bb	bb	1.656
21	1234678-HpCDF	38.77	5.729e6	5.700e6	1.003	1.01	1.05	16498.3	YES	NO	bb	bb	1001.5...
22	OCDF	45.25	8.007e6	9.001e6	0.778	0.89	0.89	16387...	YES	NO	bb	bb	2152.5...
23	2378-TCDD	26.42	1.623e6	2.053e6	1.149	0.79	0.77	15719.4	YES	NO	bb	bb	201.416
24	Total-tetradioxins	26.03	3.492e4	4.469e4	1.024	0.78	0.77	261.5	YES	NO	bb	bb	4.891
25	Total-tetradioxins	25.59	3.088e2	4.283e2	1.024	0.72	0.77	3.2	YES	NO	bb	bb	0.045
26	Total-tetradioxins	25.29	1.293e3	1.946e3	1.024	0.66	0.77	15.2	YES	NO	bb	bb	0.199
27	Total-pentadioxins	30.29	1.049e3	6.224e2	1.502	1.68	1.55	4.4	YES	NO	dd	db	0.090
28	Total-pentadioxins	30.15	1.847e3	1.302e3	1.502	1.42	1.55	8.1	YES	NO	dd	dd	0.170
29	Total-pentadioxins	29.93	6.137e3	4.352e3	1.502	1.41	1.55	24.1	YES	NO	bd	bd	0.567
30	12378-PeCDD	31.53	7.500e6	4.933e6	1.022	1.52	1.55	35906.6	YES	NO	bb	bb	987.154
31	Total-pentadioxins	30.86	8.777e3	5.596e3	1.502	1.57	1.55	39.8	YES	NO	bd	bb	0.776
32	Total-hexadioxins	36.92	3.612e4	2.906e4	1.005	1.24	1.24	377.1	YES	NO	bb	bb	5.383
33	123789-HxCDD	36.52	6.387e6	5.242e6	0.907	1.22	1.24	81996.1	YES	NO	bb	bb	1063.9...
34	123678-HxCDD	36.14	6.944e6	5.798e6	1.001	1.20	1.24	87214.8	YES	NO	db	db	1011.1...
35	123478-HxCDD	36.02	6.446e6	5.113e6	0.996	1.26	1.24	82869.7	YES	NO	bd	bd	1008.7...
36	Total-heptadioxins	40.66	1.670e2	1.486e2	1.088	1.12	1.05	0.0	NO	NO	bb	bb	0.028
37	1234678-HpCDD	40.27	5.468e6	5.342e6	1.039	1.02	1.05	19002.3	YES	NO	bb	bb	1010.6...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	OCDD	45.01	8.523e6	9.997e6	0.920	0.85	0.89	89206.2	YES	NO	bb	bb	1981.7...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.64	6.068e3					0.7	NO		bb		
2	FUNCTION1 PFK	21.78	2.376e4					1.4	NO		bb		
3	FUNCTION1 PFK	26.65	6.322e3					0.8	NO		bb		
4	FUNCTION1 PFK	26.20	6.018e3					0.7	NO		bb		
5	FUNCTION1 PFK	24.62	4.147e4					1.9	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.96	1.329e6					11.3	YES		db		0.000
2	FUNCTION2 PFK	29.68	9.729e6					13.1	YES		dd		0.000
3	FUNCTION2 PFK	29.12	3.197e6					12.0	YES		dd		0.000
4	FUNCTION2 PFK	28.11	2.639e5					6.8	YES		bd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.58	5.268e3					0.6	NO		bb		0.000
2	FUNCTION3 PFK	35.20	2.459e4					1.4	NO		bb		0.000
3	FUNCTION3 PFK	34.94	1.904e4					1.3	NO		bb		0.000
4	FUNCTION3 PFK	34.64	1.893e4					1.6	NO		bb		0.000
5	FUNCTION3 PFK	34.45	3.091e4					1.7	NO		bb		0.000
6	FUNCTION3 PFK	34.20	2.876e3					0.6	NO		bb		0.000
7	FUNCTION3 PFK	34.01	8.291e4					2.8	NO		bb		0.000
8	FUNCTION3 PFK	37.45	2.878e4					1.5	NO		bb		0.000
9	FUNCTION3 PFK	37.14	1.025e4					1.2	NO		bb		0.000
10	FUNCTION3 PFK	36.92	2.201e4					1.4	NO		bb		0.000
11	FUNCTION3 PFK	36.82	6.882e3					0.7	NO		bb		0.000
12	FUNCTION3 PFK	36.27	2.697e4					1.6	NO		bb		0.000
13	FUNCTION3 PFK	35.83	1.096e4					1.2	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.36	1.487e4					2.2	NO		db		
2	FUNCTION4 PFK	40.28	5.399e4					2.8	NO		bd		
3	FUNCTION4 PFK	39.84	7.632e3					1.3	NO		bb		
4	FUNCTION4 PFK	39.63	5.817e3					1.3	NO		bb		
5	FUNCTION4 PFK	39.58	2.233e4					2.4	NO		bb		
6	FUNCTION4 PFK	39.26	1.840e3					0.6	NO		bb		
7	FUNCTION4 PFK	39.15	1.821e4					2.0	NO		bb		
8	FUNCTION4 PFK	38.75	4.539e3					0.9	NO		bb		
9	FUNCTION4 PFK	38.40	3.735e3					0.9	NO		bb		
10	FUNCTION4 PFK	42.22	2.101e4					1.9	NO		bb		
11	FUNCTION4 PFK	41.91	9.871e3					1.2	NO		bb		
12	FUNCTION4 PFK	41.56	2.609e4					2.3	NO		bb		
13	FUNCTION4 PFK	40.96	8.343e3					1.4	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.55	1.986e4					1.8	NO		bb		
2	FUNCTION5 PFK	44.84	1.038e4					2.0	NO		bb		
3	FUNCTION5 PFK	44.32	5.641e3					1.1	NO		bb		
4	FUNCTION5 PFK	44.16	5.508e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.92	3.533e3					1.2	NO		bb		
6	FUNCTION5 PFK	43.74	1.099e4					1.6	NO		bb		
7	FUNCTION5 PFK	43.65	5.197e4					3.3	YES		db		
8	FUNCTION5 PFK	43.53	1.828e4					2.1	NO		bd		
9	FUNCTION5 PFK	42.94	8.618e3					1.5	NO		bb		
10	FUNCTION5 PFK	42.73	1.271e3					0.6	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.02	8.181e1					1.9	NO		bb		0.000
2	FUNCTION1 HXCD...	26.42	2.971e2					5.1	YES		bb		0.000
3	FUNCTION1 HXCD...	25.83	8.848e1					2.3	NO		db		0.000
4	FUNCTION1 HXCD...	25.77	1.170e2					2.5	NO		dd		0.000
5	FUNCTION1 HXCD...	25.59	1.285e2					2.6	NO		bd		0.000
6	FUNCTION1 HXCD...	24.84	1.183e2					1.2	NO		bb		0.000
7	FUNCTION1 HXCD...	24.11	7.501e1					1.5	NO		bb		0.000
8	FUNCTION1 HXCD...	22.26	7.865e1					3.6	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.55	8.739e2					12.4	YES		bb		0.000
2	FUNCTION2 HPCD...	31.16	9.100e3					161.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.02	1.011e3					23.2	YES		dd		0.000
2	FUNCTION3 OCDPE	35.92	4.171e2					12.8	YES		bd		0.000
3	FUNCTION3 OCDPE	35.05	6.001e2					12.0	YES		db		0.000
4	FUNCTION3 OCDPE	34.90	4.386e2					11.4	YES		bd		0.000
5	FUNCTION3 OCDPE	36.94	5.713e2					12.4	YES		bb		0.000
6	FUNCTION3 OCDPE	36.52	9.647e2					21.7	YES		bb		0.000
7	FUNCTION3 OCDPE	36.14	1.116e3					24.0	YES		db		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.03	4.935e2					7.5	YES		bb		0.000
2	FUNCTION4 NCDPE	40.28	7.486e2					12.2	YES		bb		0.000
3	FUNCTION4 NCDPE	38.78	6.004e2					9.6	YES		bb		0.000

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ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.26	1.761e3					22.2	YES		db		0.000
2	FUNCTION5 DCDPE	45.02	1.661e3					24.0	YES		bd		0.000

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Printed: Monday, March 06, 2023 11:35:04 Pacific Standard Time

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ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

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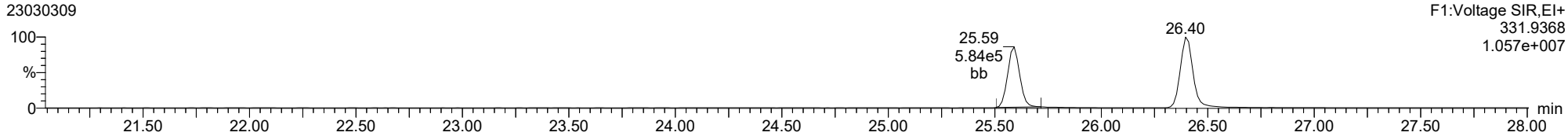

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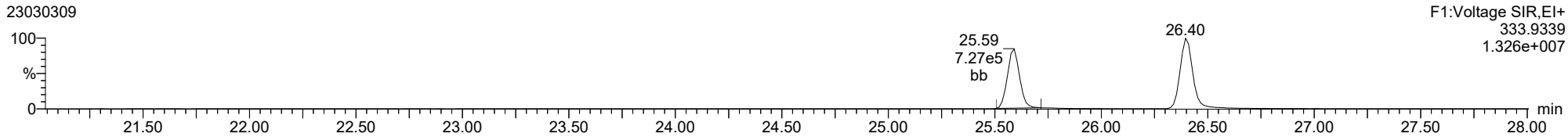
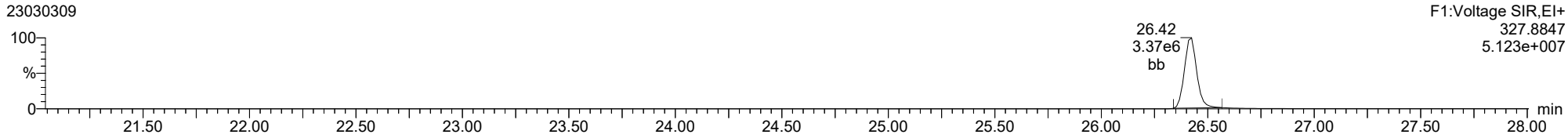


37CL-2378-TCDD



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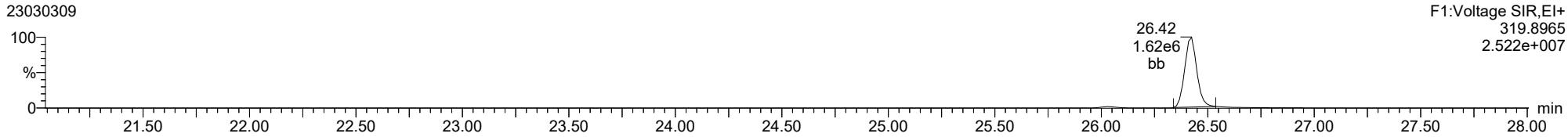

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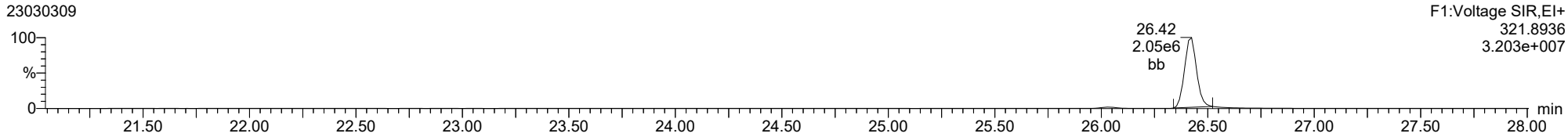

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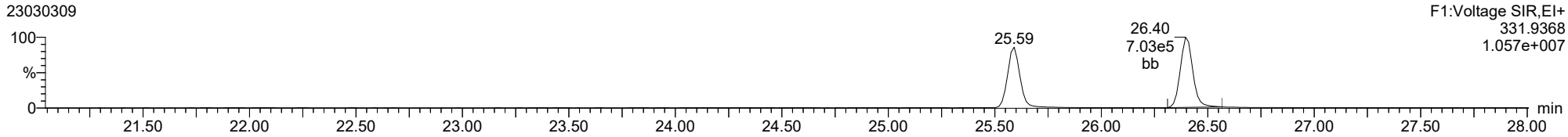

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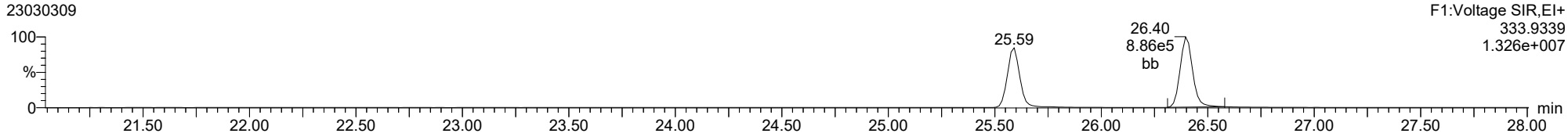

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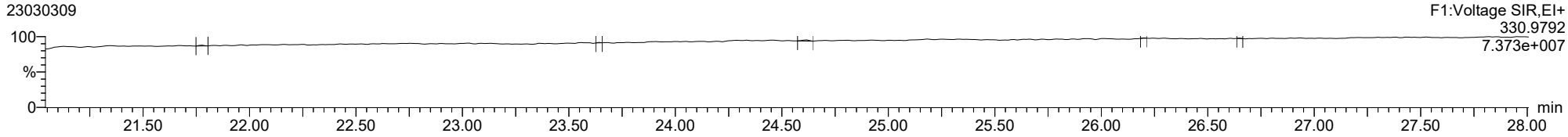

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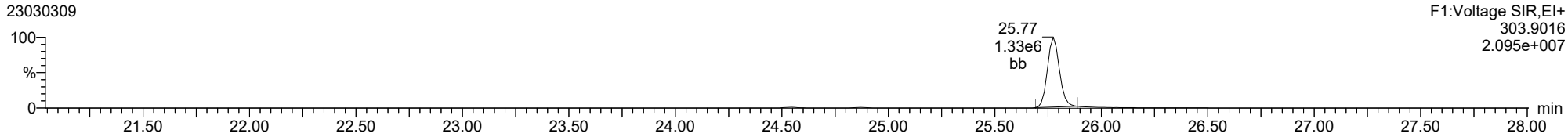

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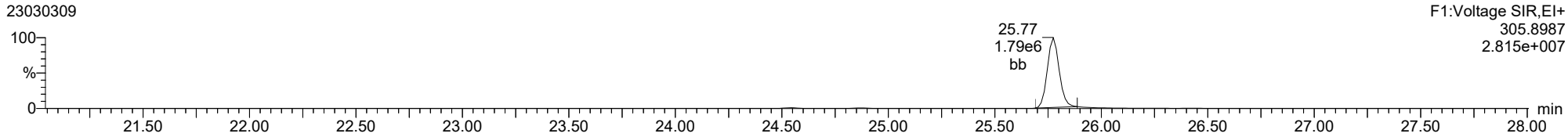

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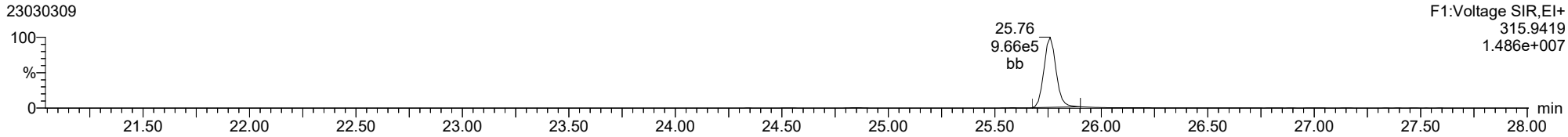

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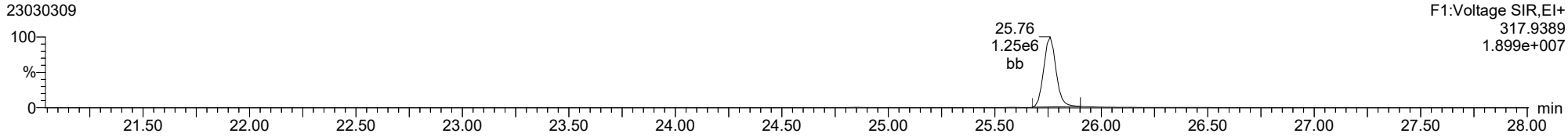
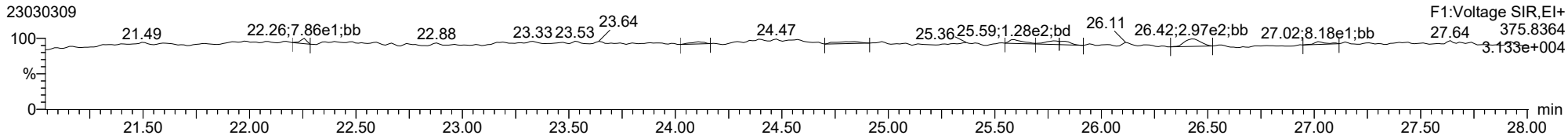


FUNCTION1 HXCDPE



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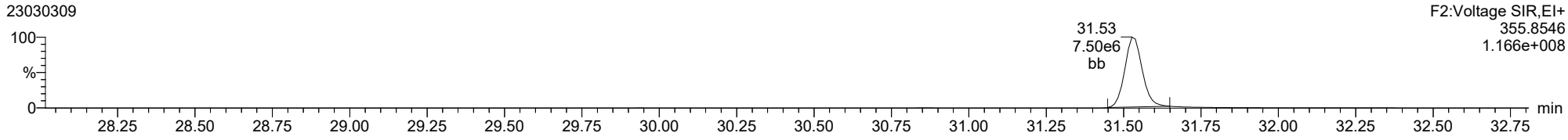
12378-PeCDD



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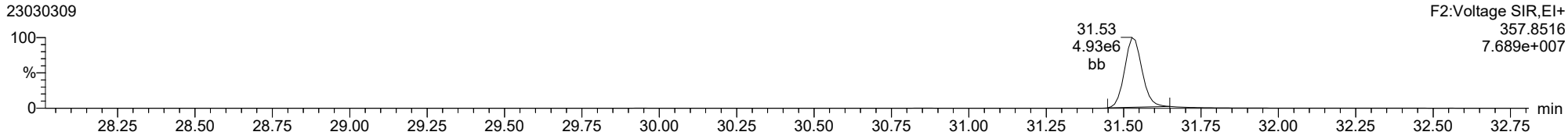

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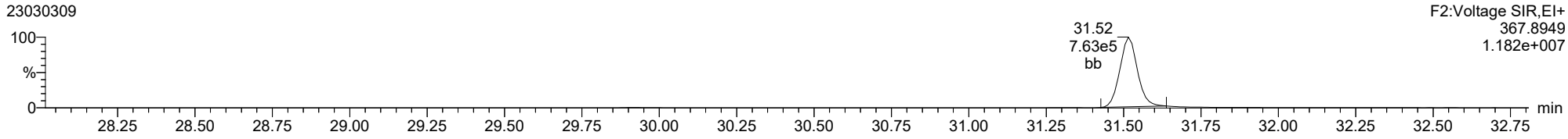

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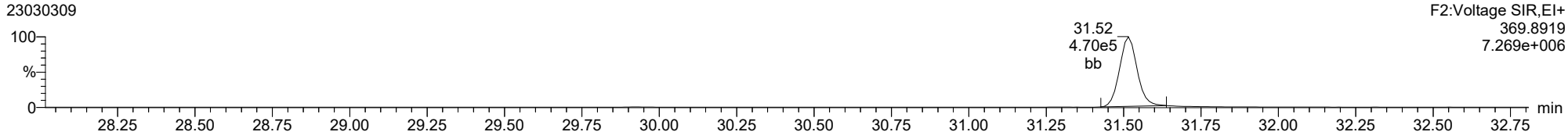
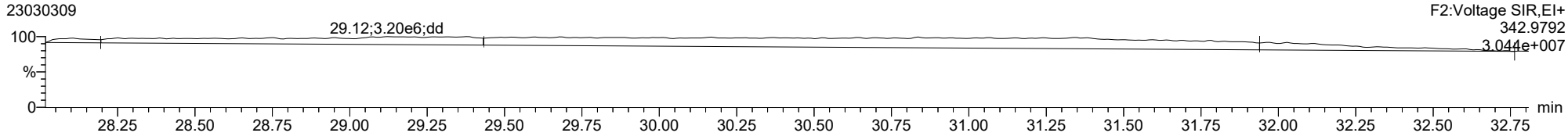


FUNCTION2 PFK



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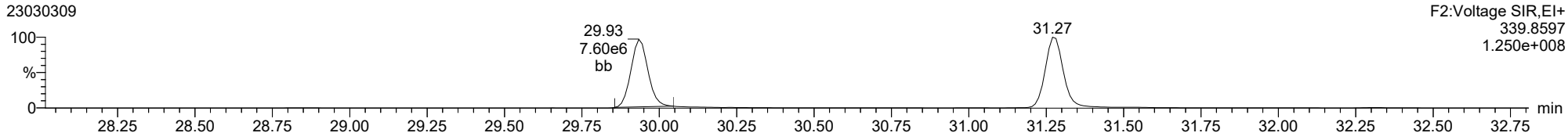

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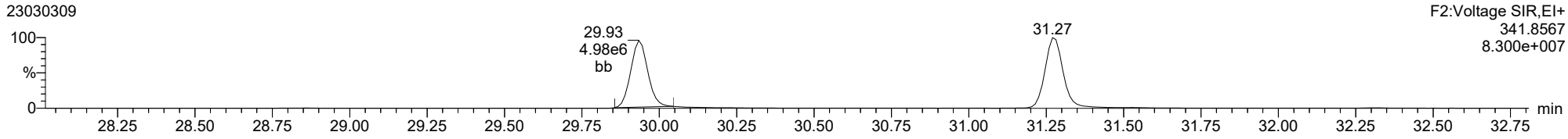

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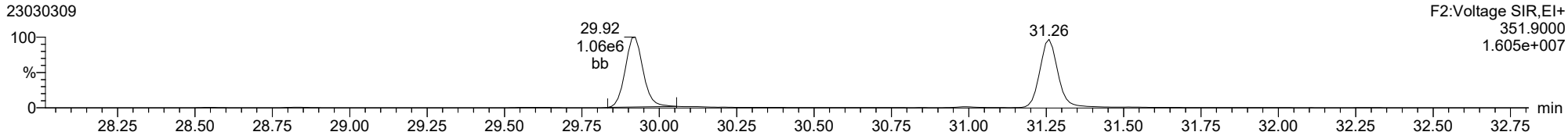

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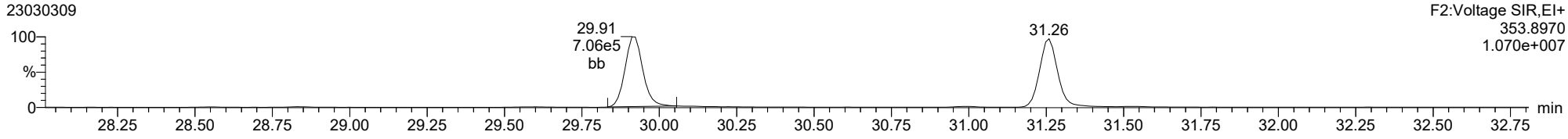
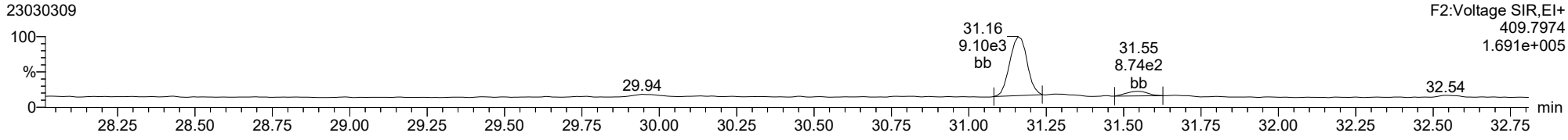


FUNCTION2 HPCDPE



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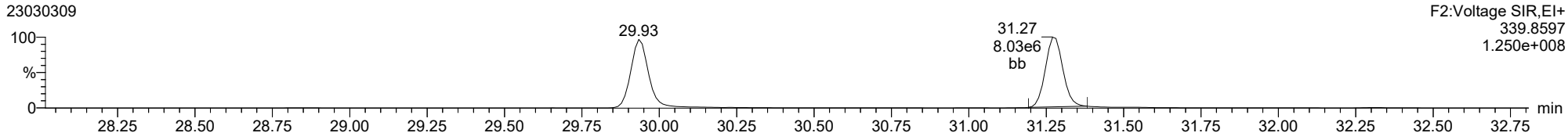
23478-PeCDF



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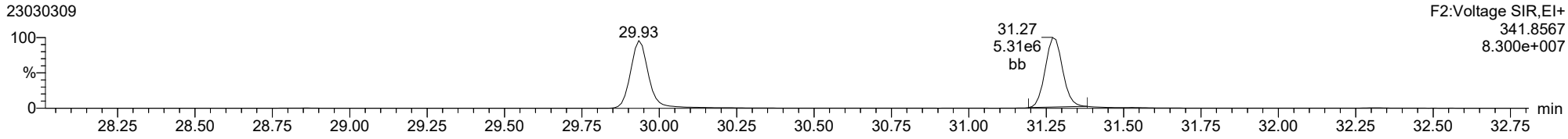

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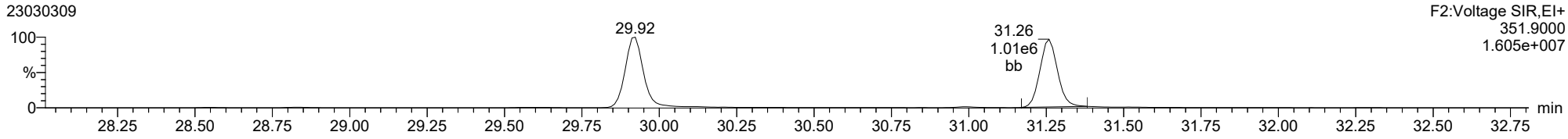

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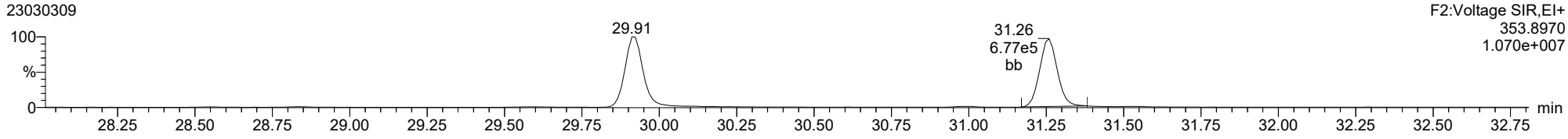

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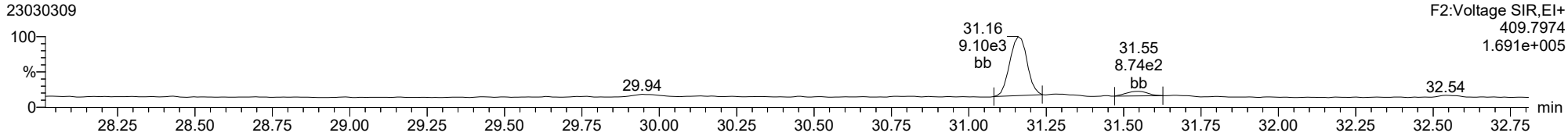

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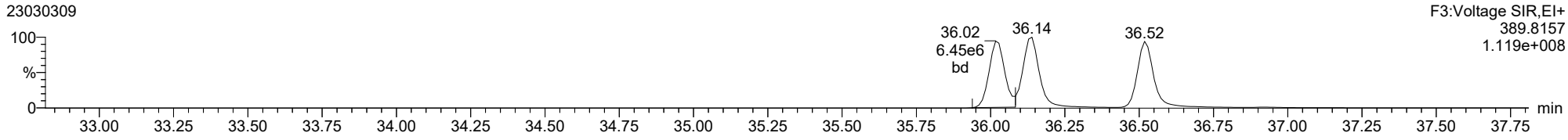
123478-HxCDD



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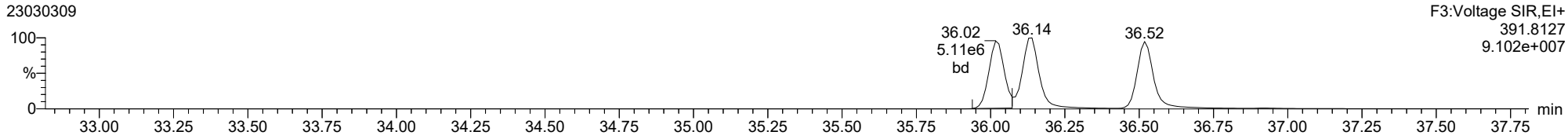

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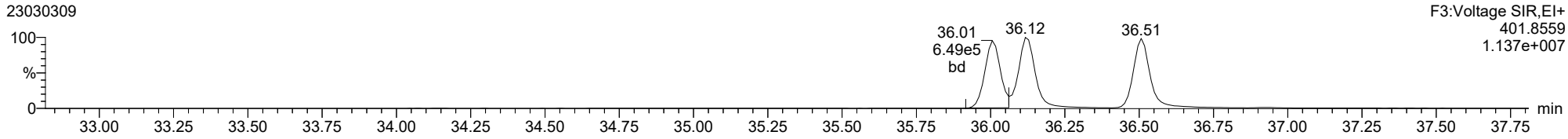

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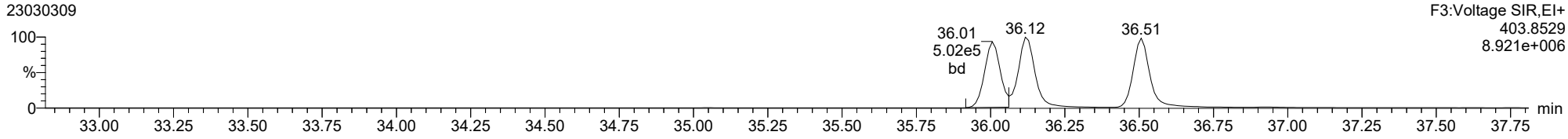

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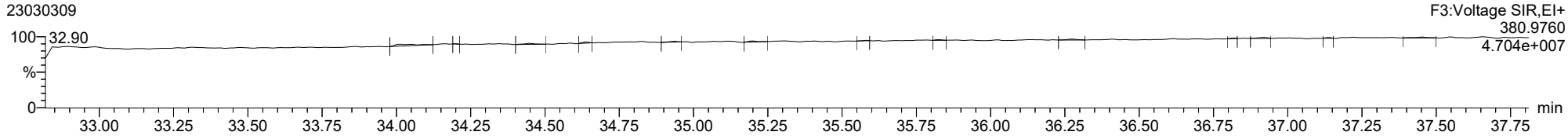

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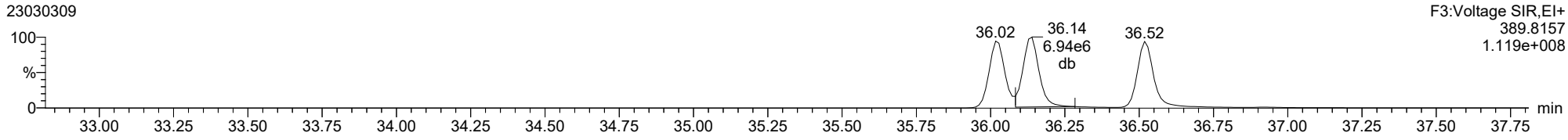

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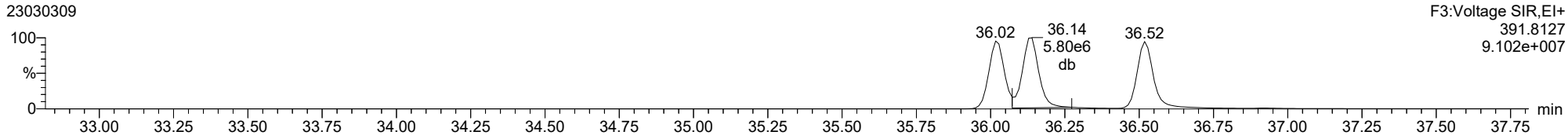

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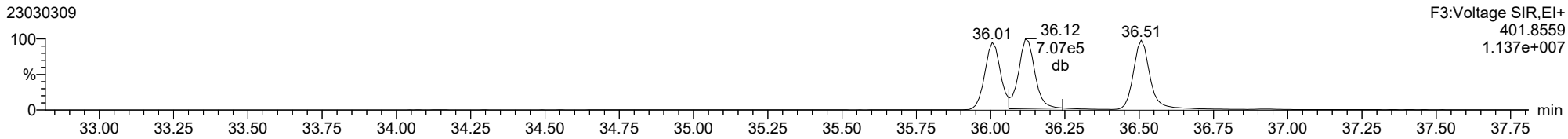

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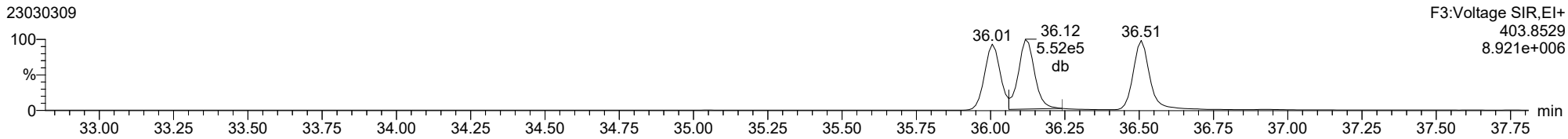

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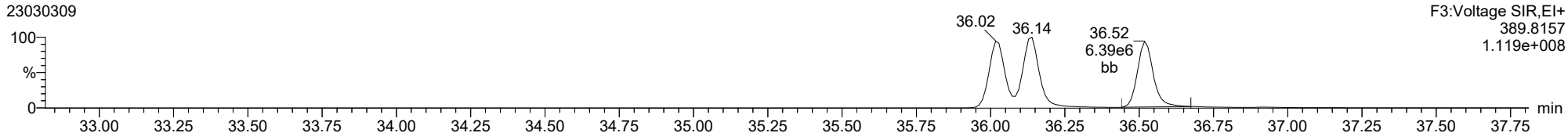

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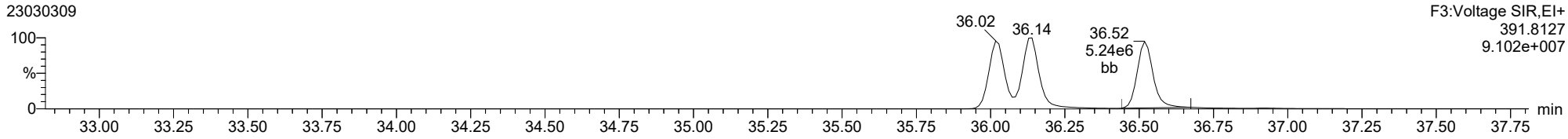

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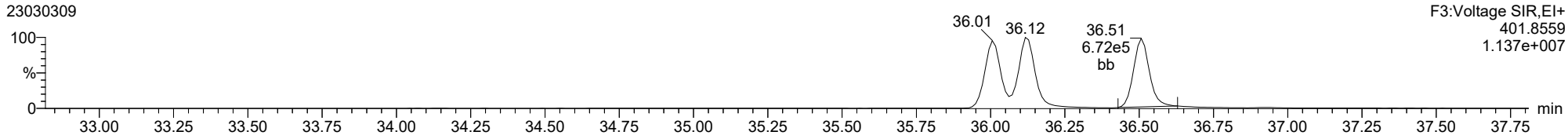

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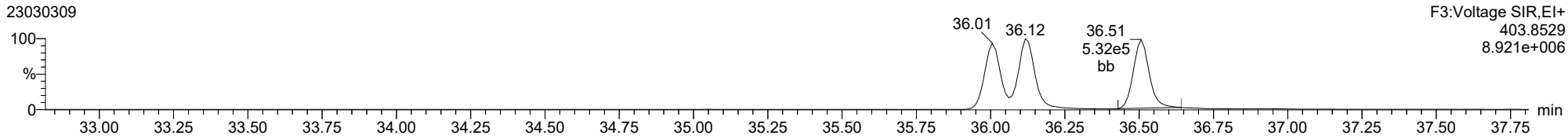

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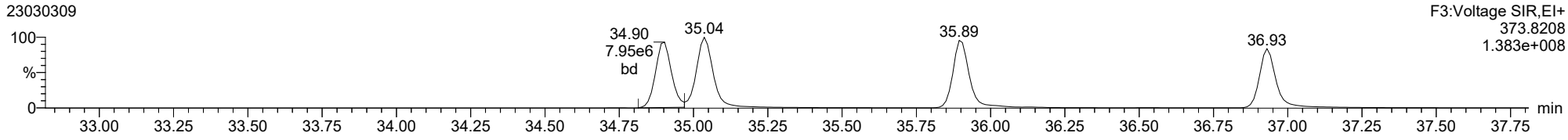

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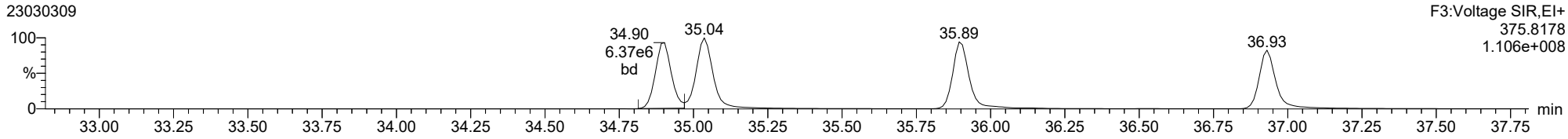

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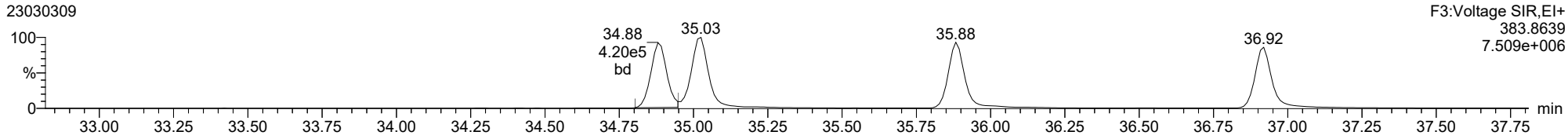

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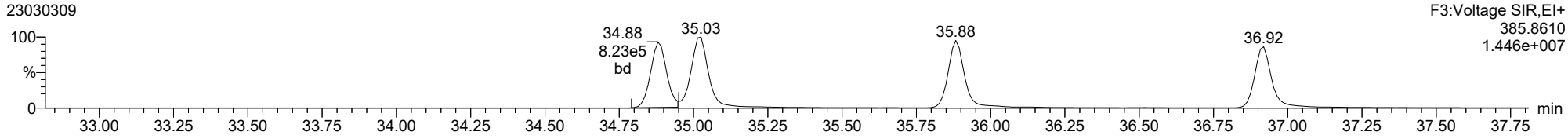

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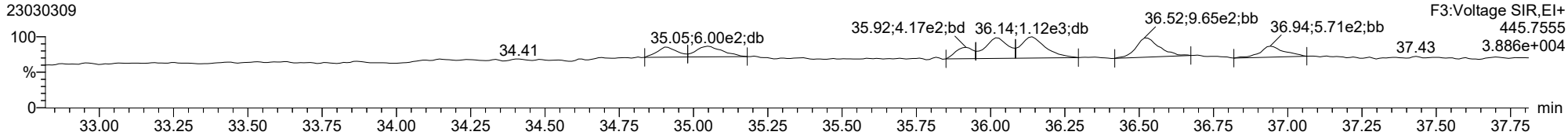

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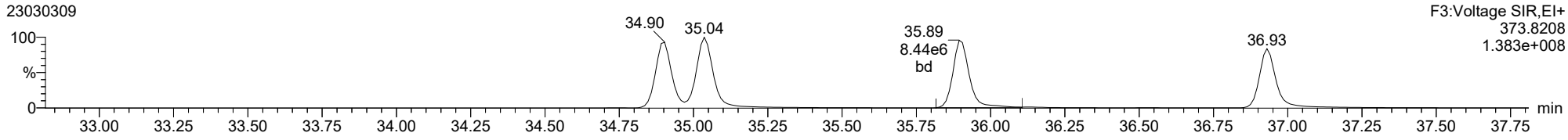

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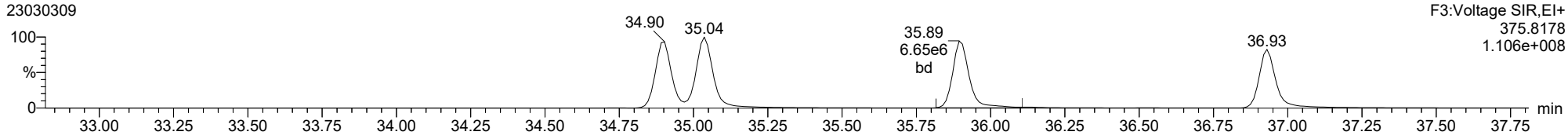

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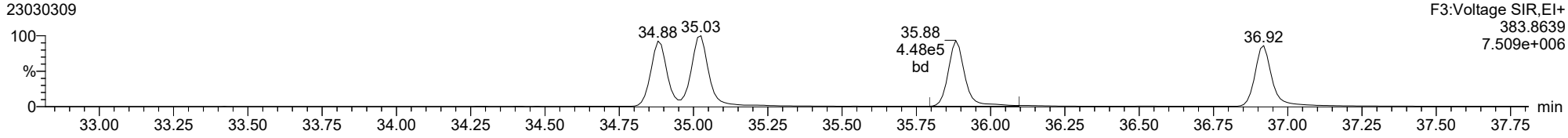

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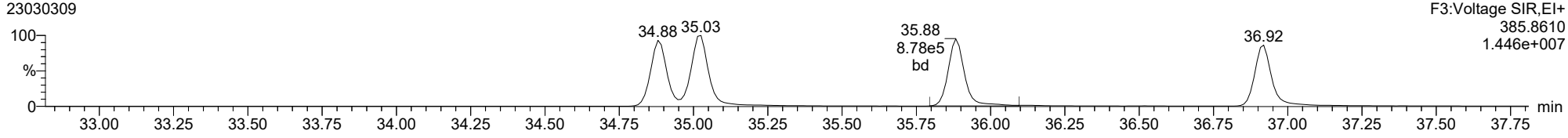

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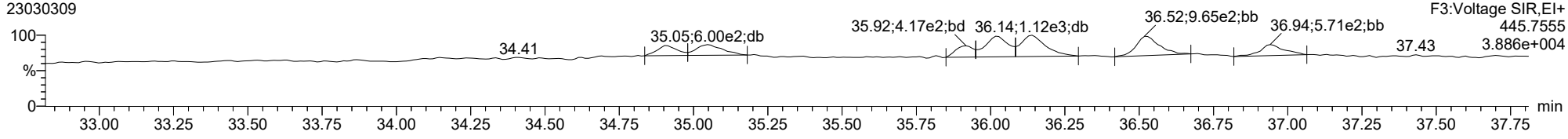

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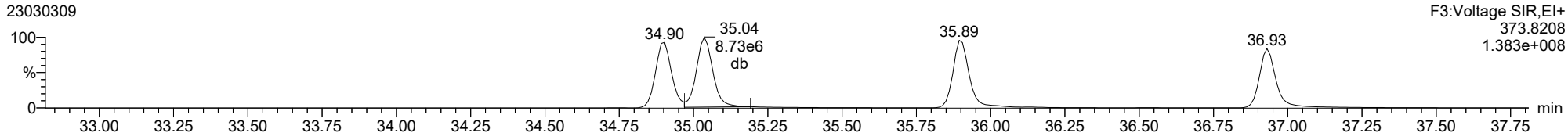

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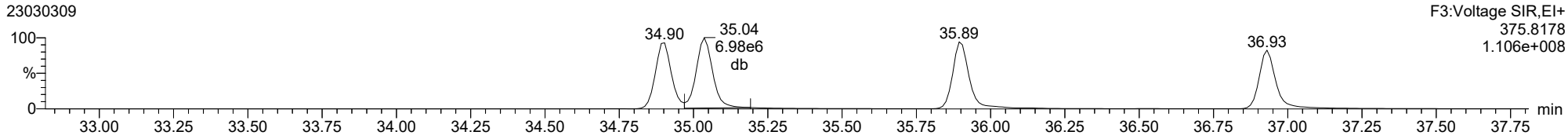

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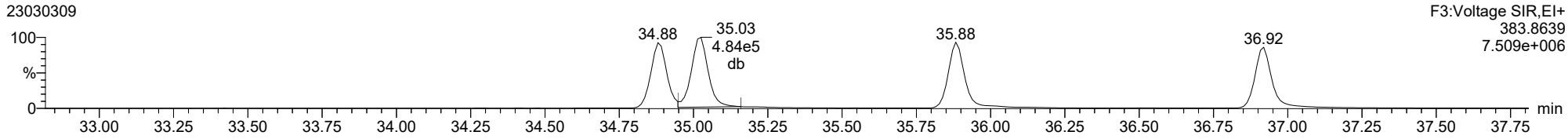

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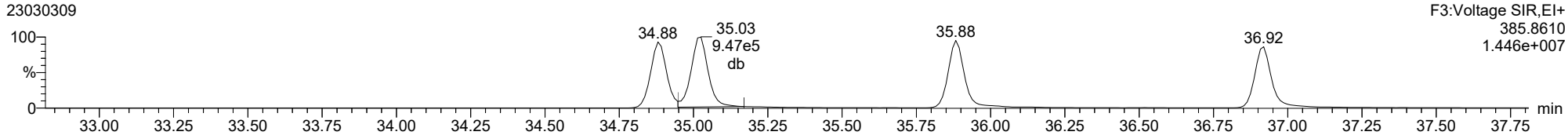

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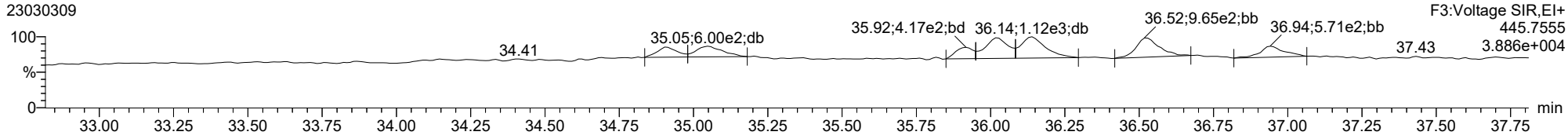

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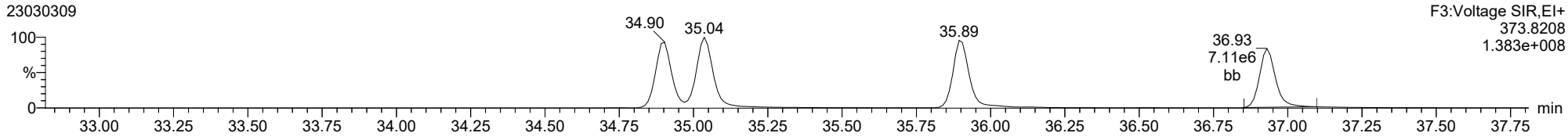

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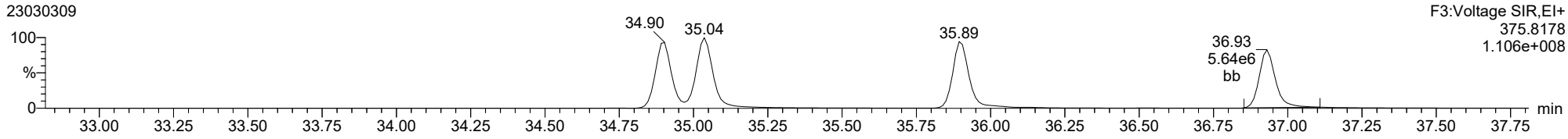

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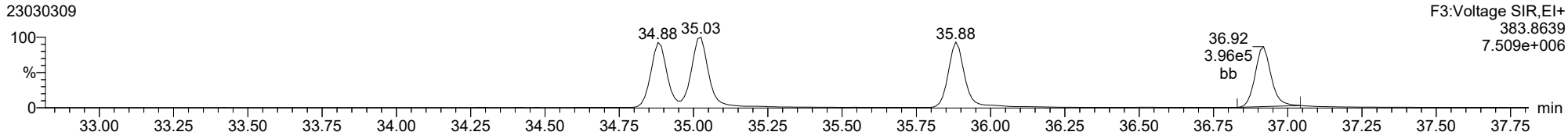

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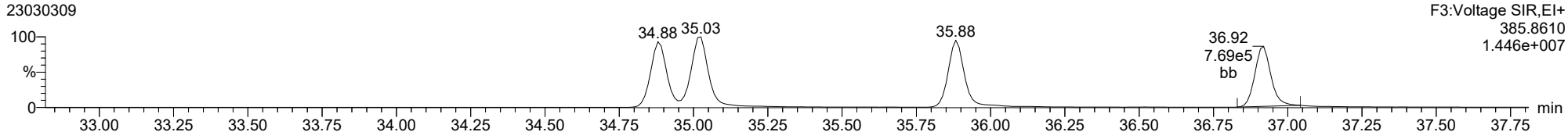

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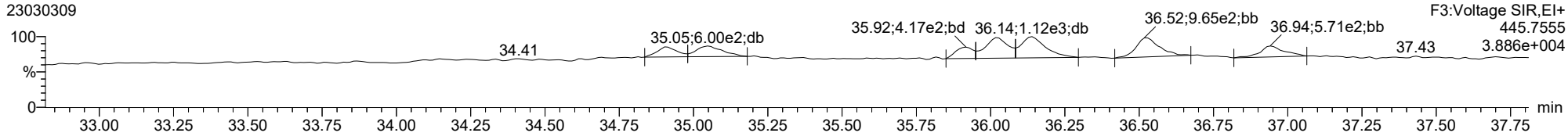

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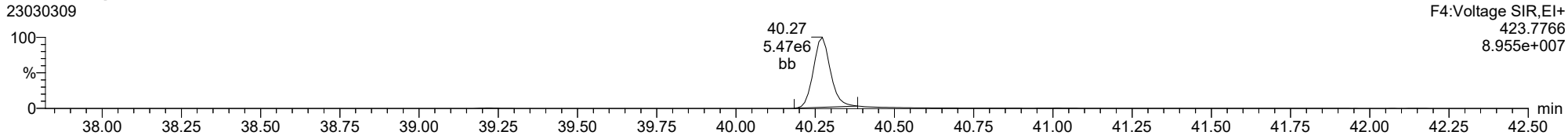
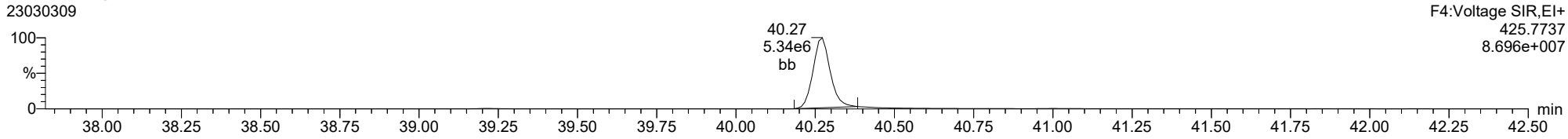


1234678-HpCDD



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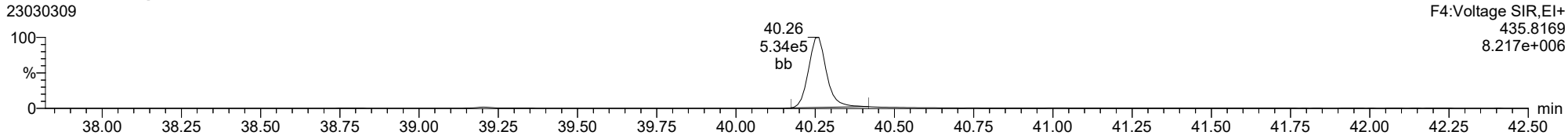

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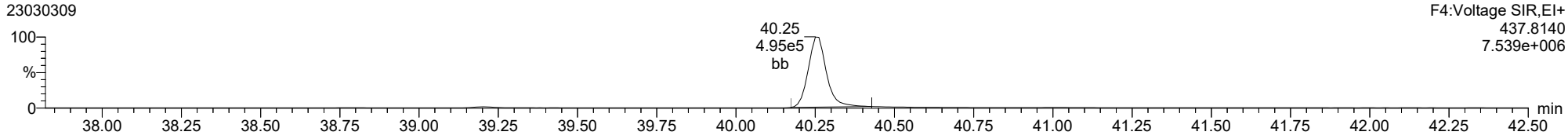
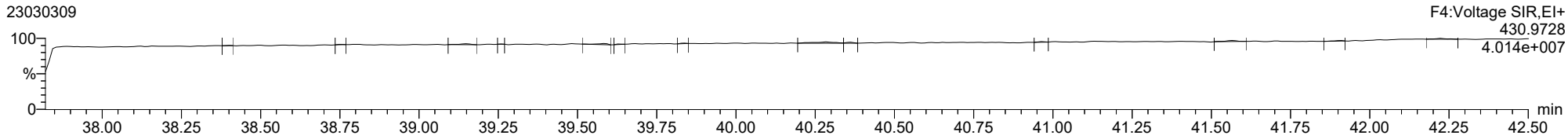


FUNCTION4 PFK



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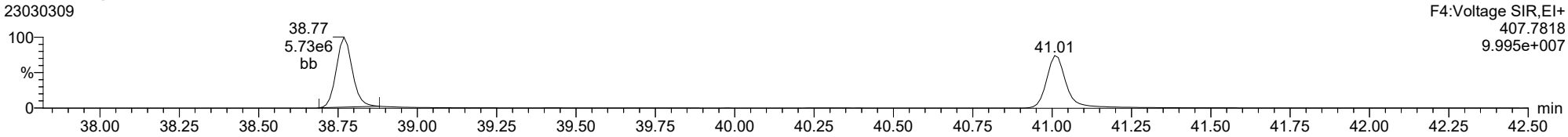

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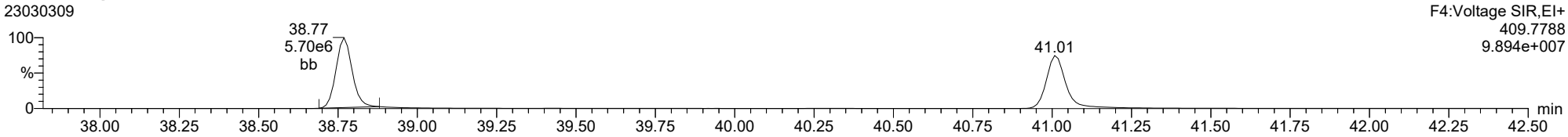

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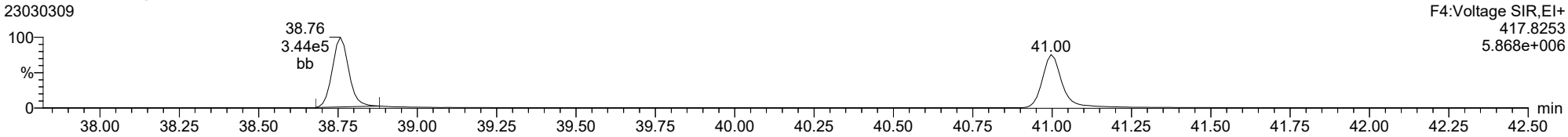

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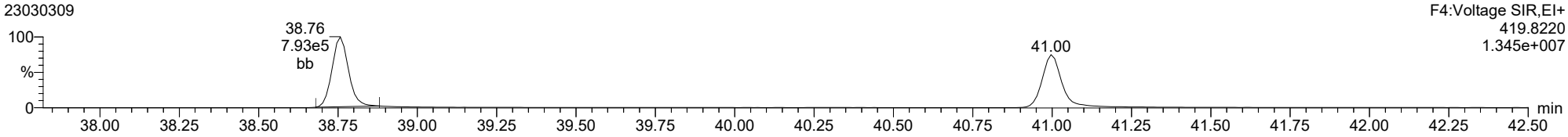

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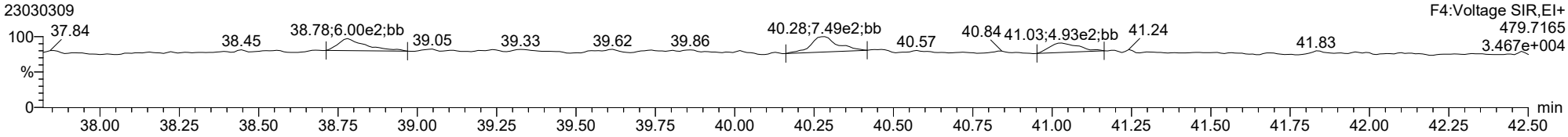

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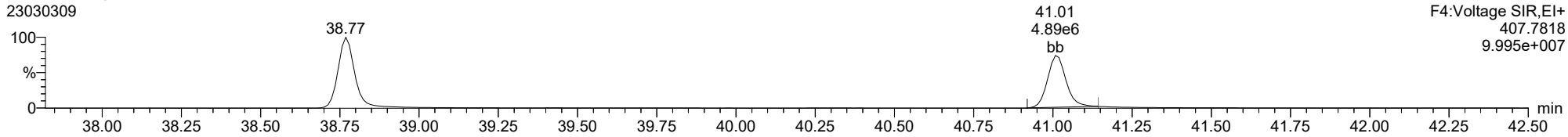

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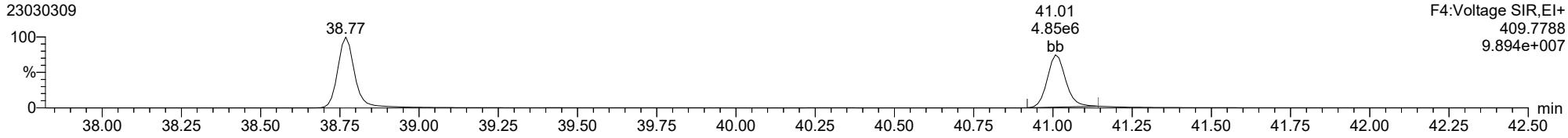

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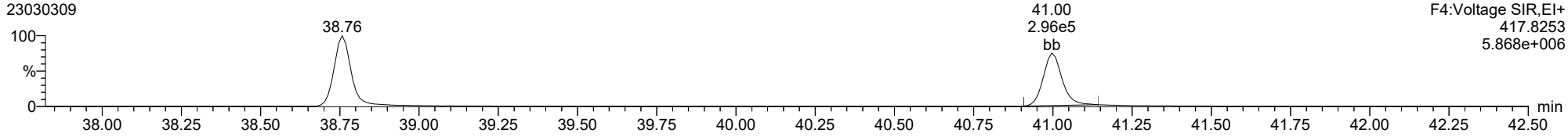

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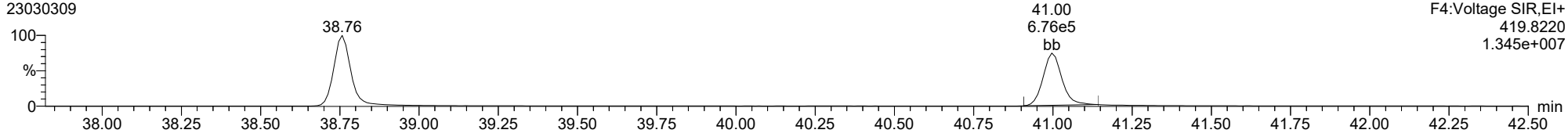

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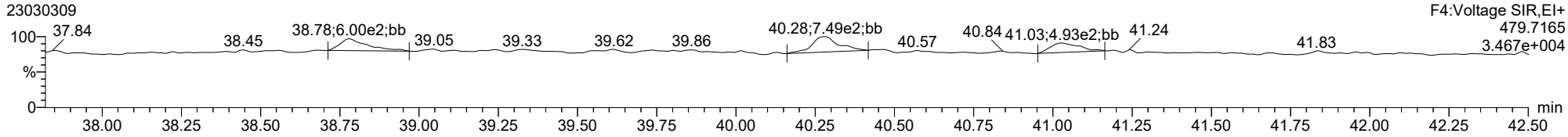

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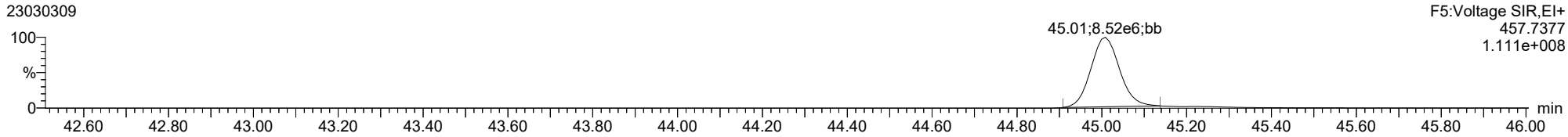
OCDD



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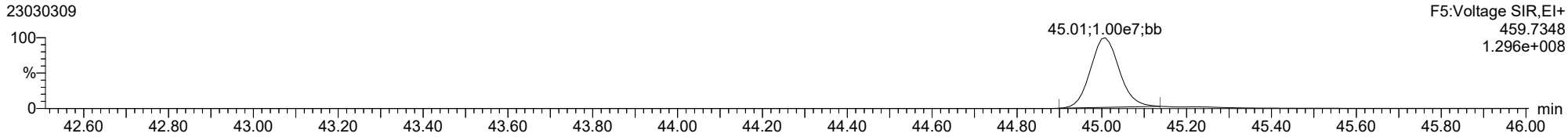

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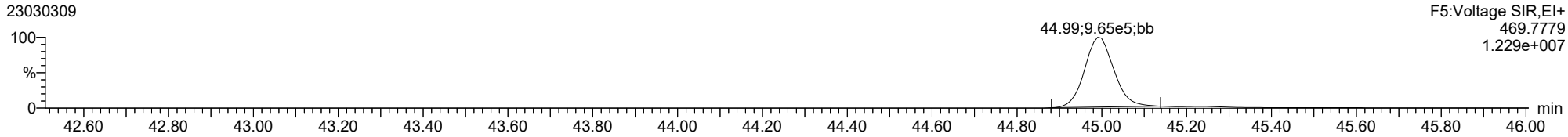

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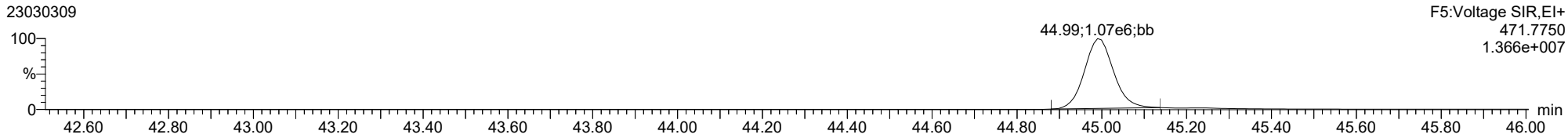
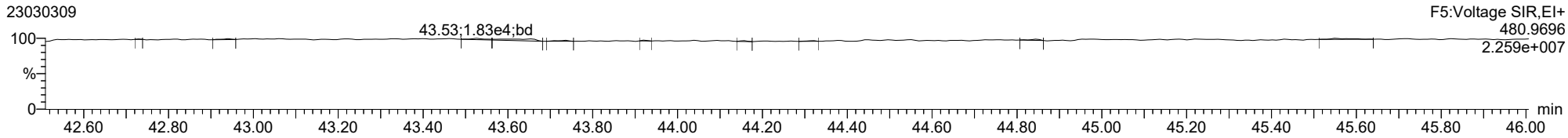


FUNCTION5 PFK



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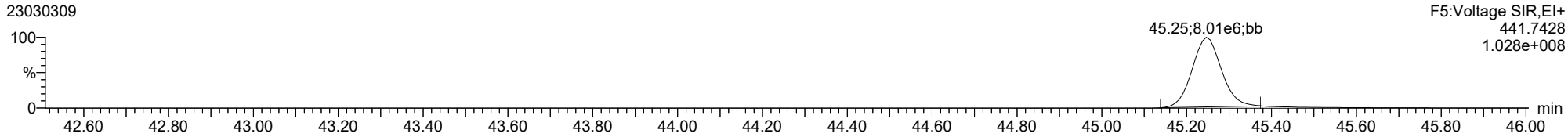
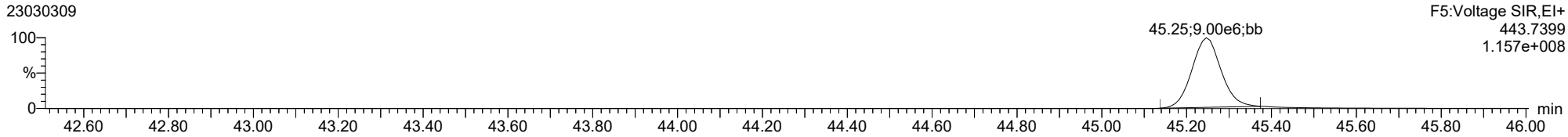
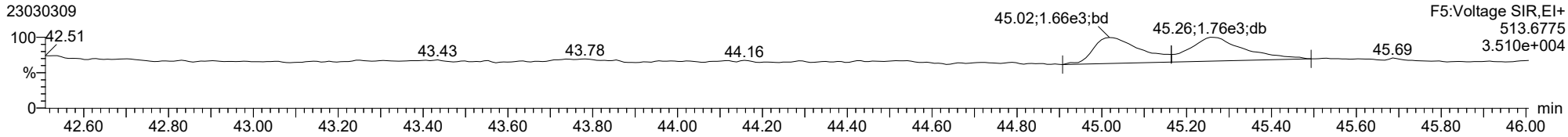


OCDF



FUNCTION5 DCDPE



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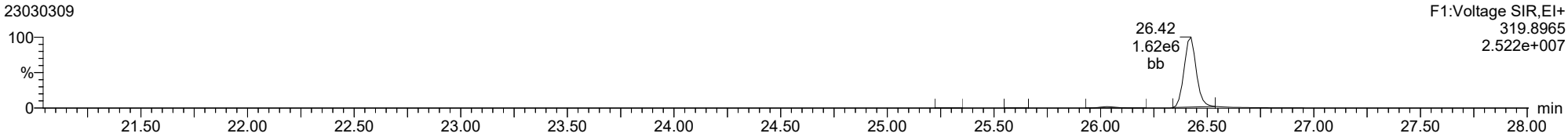
Total-tetradioxins



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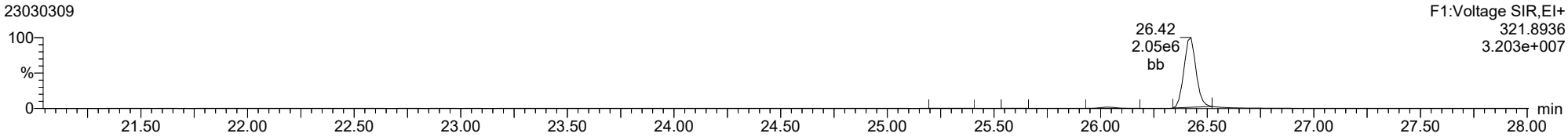
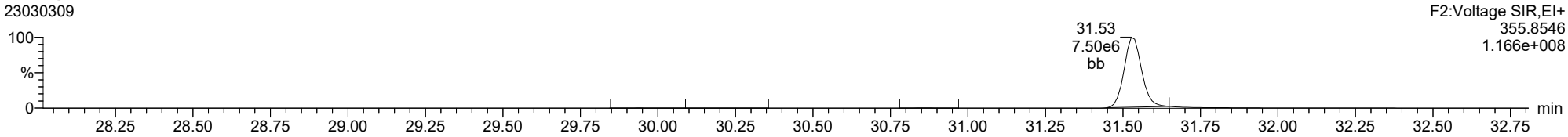
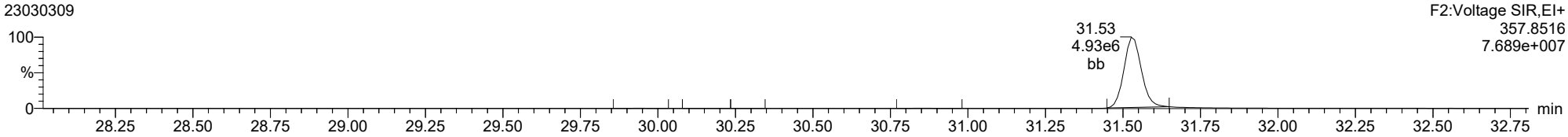


Total-pentadioxins



Total-pentadioxins



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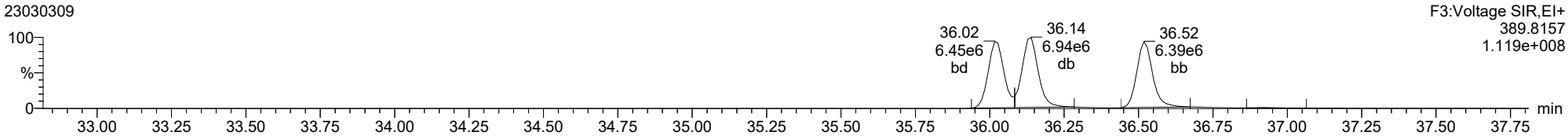
Total-hexadioxins



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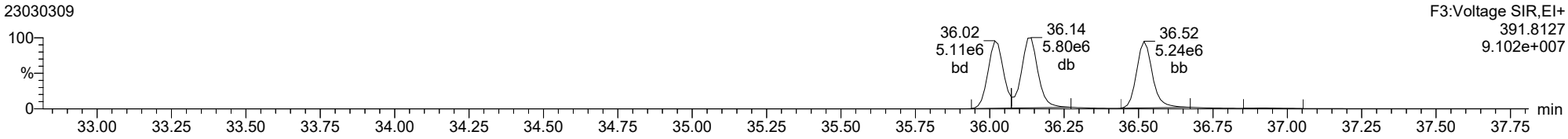
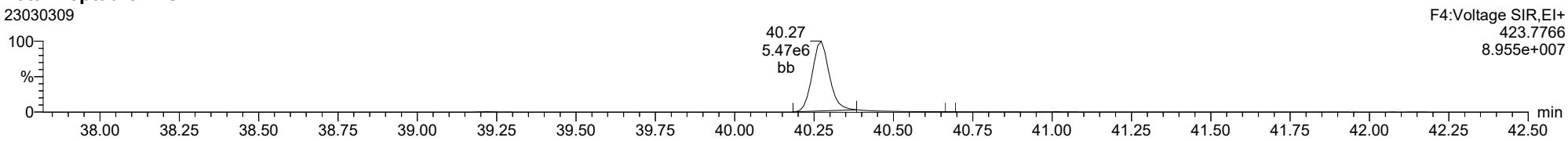
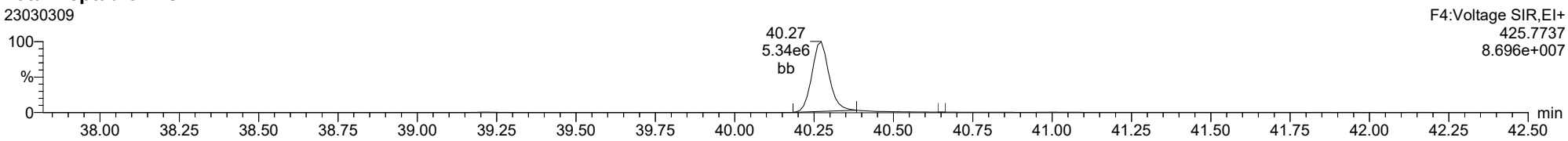


Total-heptadioxins



Total-heptadioxins



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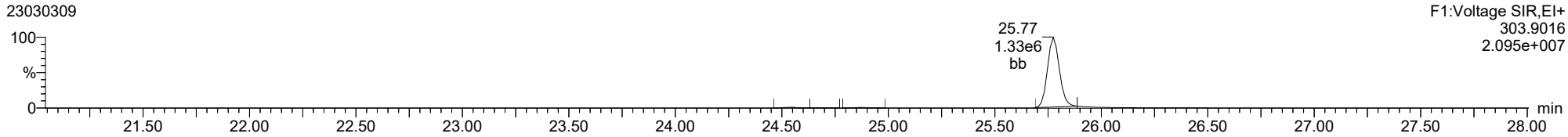
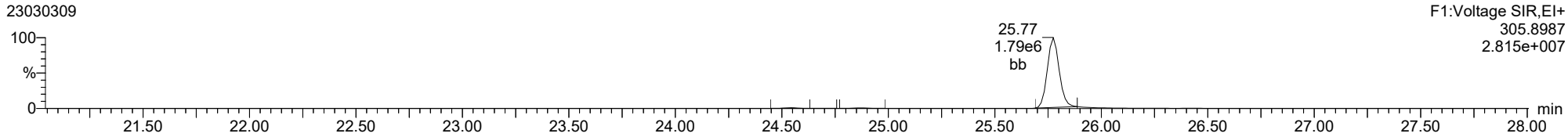
Total-tetrafurans



Total-tetrafurans



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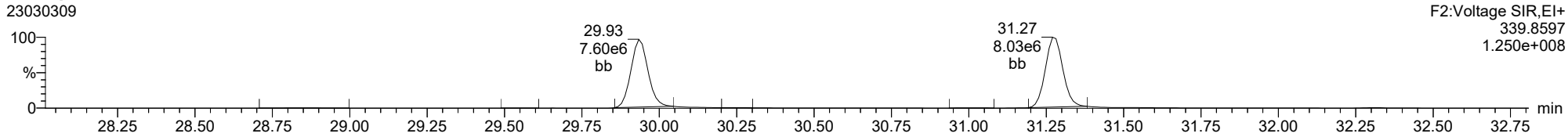
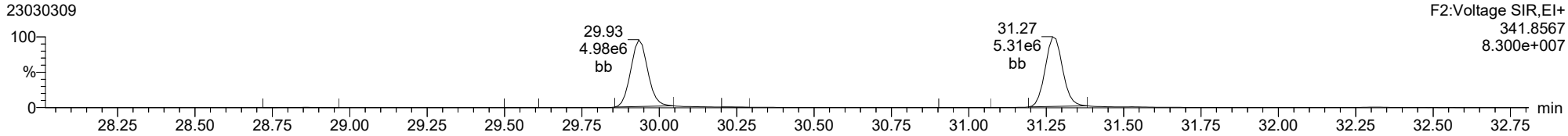


Total-pentafurans



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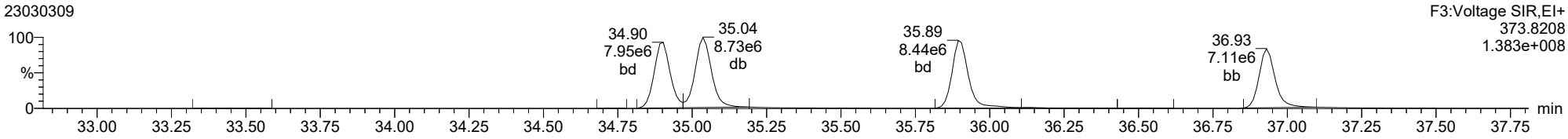
Total-hexafurans



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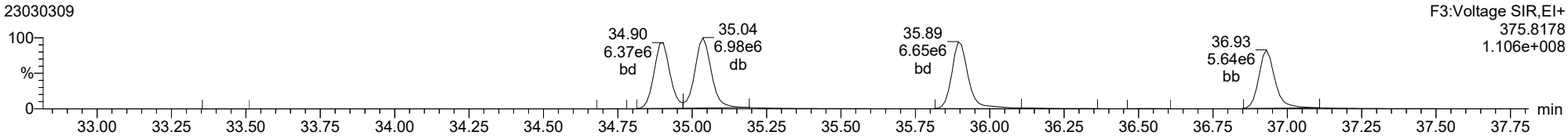
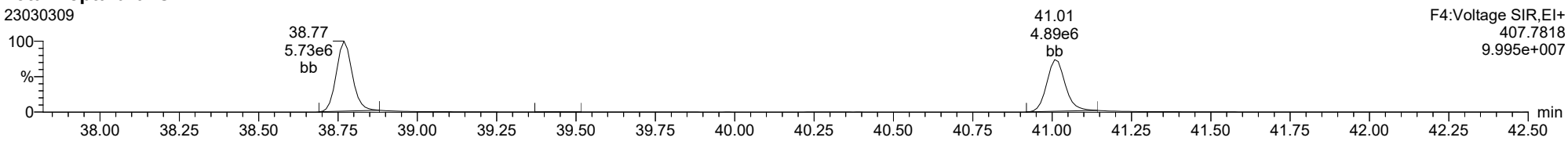
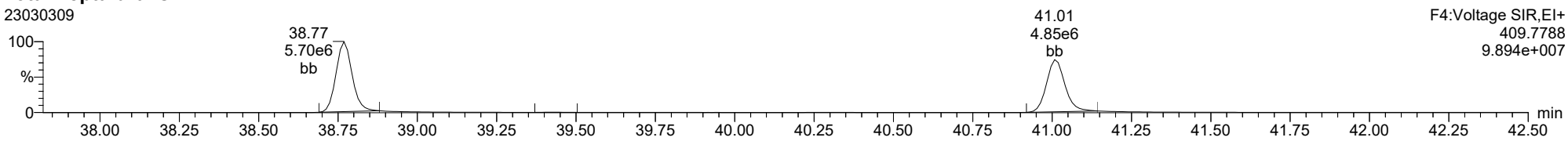


Total-heptafurans



Total-heptafurans



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Last Altered: Monday, March 06, 2023 11:49:27 Pacific Standard Time
Printed: Monday, March 06, 2023 14:47:19 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: ICVCW, Name: 23030310, Date: 03-Mar-2023, Time: 16:36:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.774	1.000	5.338e4	7.452e4	0.702	0.716	0.770	1163	2029	8.36e5	1.13e6	718.7	556.3	NO	bb	bb	9.838
12378-PeCDF	29.934	1.000	2.214e5	1.526e5	0.679	1.451	1.550	3022	2812	3.24e6	2.15e6	1073.8	764.7	NO	bb	bd	51.391
23478-PeCDF	31.271	1.000	2.350e5	1.508e5	0.786	1.559	1.550	3022	2812	3.42e6	2.23e6	1131.6	792.3	NO	bb	bb	48.980
123478-HxCDF	34.903	1.001	2.903e5	2.325e5	1.166	1.248	1.240	3142	2543	4.30e6	3.42e6	1370.1	1344.7	NO	bd	bd	48.245
234678-HxCDF	35.905	1.001	2.873e5	2.291e5	1.140	1.254	1.240	3142	2543	4.27e6	3.38e6	1358.7	1330.7	NO	bb	bb	50.224
123678-HxCDF	35.036	1.001	3.271e5	2.812e5	1.091	1.163	1.240	3142	2543	4.70e6	3.76e6	1497.0	1479.3	NO	db	db	47.992
123789-HxCDF	36.930	1.001	2.403e5	1.952e5	1.137	1.231	1.240	3142	2543	3.49e6	2.77e6	1110.7	1088.1	NO	bb	bb	49.077
1234678-HpCDF	38.769	1.000	2.051e5	2.017e5	1.003	1.017	1.050	2774	2508	3.29e6	3.29e6	1185.4	1309.8	NO	bb	bb	51.838
1234789-HpCDF	41.008	1.000	1.584e5	1.578e5	0.953	1.004	1.050	2774	2508	2.19e6	2.22e6	790.9	884.0	NO	bb	bb	48.461
OCDF	45.237	1.006	2.094e5	2.177e5	0.778	0.962	0.890	1876	1660	2.24e6	2.46e6	1194.3	1483.7	NO	bd	bb	103.506
2378-TCDD	26.424	1.001	6.583e4	8.225e4	1.149	0.800	0.770	1514	1206	9.92e5	1.24e6	654.9	1028.2	NO	bb	bb	9.815
12378-PeCDD	31.538	1.001	2.257e5	1.459e5	1.022	1.547	1.550	2000	2144	3.28e6	2.13e6	1638.2	994.7	NO	bb	bb	48.547
123478-HxCDD	36.016	1.000	2.316e5	1.815e5	0.996	1.276	1.240	2983	1710	3.62e6	3.01e6	1214.5	1762.3	NO	bd	bd	50.799
123678-HxCDD	36.139	1.001	2.694e5	2.159e5	1.001	1.248	1.240	2983	1710	3.76e6	3.05e6	1260.5	1785.9	NO	db	db	50.174
123789-HxCDD	36.518	1.011	2.330e5	1.844e5	0.907	1.263	1.240	2983	1710	3.29e6	2.69e6	1104.0	1571.7	NO	bd	bb	51.608
1234678-HpCDD	40.272	1.001	1.962e5	1.803e5	1.039	1.088	1.050	2922	2339	2.72e6	2.60e6	932.5	1113.0	NO	bd	bb	49.199
OCDD	44.999	1.000	2.234e5	2.618e5	0.920	0.853	0.890	1774	1393	2.65e6	3.06e6	1496.5	2199.2	NO	bb	bb	99.422
13C-2378-TCDF	25.760	1.007	7.988e5	1.054e6	1.620	0.758	0.770	2799	1492	1.21e7	1.60e7	4320.8	10737.9	NO	bb	bb	96.925
13C-12378-PeCDF	29.923	1.169	6.425e5	4.290e5	1.240	1.498	1.550	3398	4585	8.78e6	5.86e6	2583.4	1278.4	NO	bd	bd	73.193
13C-23478-PeCDF	31.259	1.222	6.035e5	3.982e5	1.118	1.515	1.550	3398	4585	8.73e6	5.79e6	2568.3	1261.6	NO	bb	bb	75.943
13C-123478-HxCDF	34.880	0.955	3.186e5	6.107e5	1.168	0.522	0.510	2913	2215	4.74e6	9.25e6	1627.4	4175.4	NO	bd	bd	92.972
13C-123678-HxCDF	35.014	0.959	3.885e5	7.735e5	1.386	0.502	0.510	2913	2215	5.29e6	1.03e7	1816.0	4636.7	NO	dd	db	97.958
13C-234678-HxCDF	35.883	0.983	3.009e5	6.013e5	1.129	0.500	0.510	2913	2215	4.56e6	8.94e6	1567.0	4037.6	NO	bb	bb	93.371
13C-123789-HxCDF	36.908	1.011	2.634e5	5.171e5	0.932	0.509	0.510	2913	2215	3.83e6	7.41e6	1313.2	3346.2	NO	bb	bb	97.906
13C-1234678-HpCDF	38.757	1.062	2.395e5	5.428e5	0.895	0.441	0.440	2666	4327	3.79e6	8.70e6	1422.6	2009.5	NO	bb	bb	102.148
13C-1234789-HpCDF	40.997	1.123	1.971e5	4.875e5	0.770	0.404	0.440	2666	4327	2.64e6	6.15e6	990.0	1422.1	NO	bb	bb	103.953
13C-1234-TCDD	25.591	0.000	5.239e5	6.562e5	1.000	0.798	0.770	2541	1448	8.13e6	1.01e7	3200.8	6994.1	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	5.859e5	7.277e5	1.152	0.805	0.770	2541	1448	8.48e6	1.06e7	3338.5	7327.1	NO	bb	bb	96.583
13C-12378-PeCDD	31.515	1.232	4.640e5	2.850e5	0.829	1.628	1.550	1690	813	6.82e6	4.16e6	4037.7	5122.1	NO	bb	bb	76.570
13C-123478-HxCDD	36.005	0.986	4.566e5	3.601e5	0.995	1.268	1.240	2230	1571	7.33e6	5.72e6	3288.3	3642.7	NO	bd	bd	95.938
13C-123678-HxCDD	36.117	0.989	5.277e5	4.388e5	1.157	1.203	1.240	2230	1571	7.53e6	5.98e6	3378.3	3806.0	NO	db	db	97.660
13C-1234678-HpCDD	40.250	1.102	3.788e5	3.578e5	0.840	1.059	1.050	1327	2781	5.06e6	4.73e6	3813.0	1700.4	NO	bd	bb	102.476
13C-OCDD	44.981	1.232	5.015e5	5.594e5	0.767	0.896	0.890	2228	1562	5.65e6	6.37e6	2536.4	4080.5	NO	bb	bb	161.563
13C-123789-HxCDD	36.507	0.000	4.814e5	3.742e5	1.000	1.287	1.240	2230	1571	7.02e6	5.48e6	3149.1	3490.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	1.324e5		1.288			2249		1.92e6		853.0			bb		8.714

Dataset: T:\Autospec\Processed Data Batch\230303IHICV.qld
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Printed: Monday, March 06, 2023 14:47:19 Pacific Standard Time

ID: ICVCW, Name: 23030310, Date: 03-Mar-2023, Time: 16:36:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.271	0.865	6.666e4	8.755e4	0.802	0.761	0.770	1163	2029	1.09e6	1.45e6	933.7	713.4	NO	bb	bb	10.382
1289-TCDF	27.272	1.059	5.306e4	7.400e4	0.678	0.717	0.770	1163	2029	8.00e5	1.11e6	688.3	549.0	NO	bb	db	10.112
13468-PECDF	27.130	0.907	5.428e5	3.536e5	1.246	1.535	1.550	921	1306	8.56e6	5.56e6	9287.8	4254.6	NO	bb	bb	67.124
12389-PECDF	32.307	1.080	2.363e5	1.551e5	0.496	1.524	1.550	3022	2812	3.29e6	2.19e6	1088.1	777.6	NO	bb	bb	73.589
123468-HXCDF	33.231	0.953	3.102e5	2.472e5	1.169	1.255	1.240	3142	2543	4.60e6	3.67e6	1465.3	1443.2	NO	bb	bb	51.304
1368-TCDD	23.557	0.892	6.641e4	8.365e4	1.015	0.794	0.770	1514	1206	1.07e6	1.32e6	704.3	1092.4	NO	bb	bb	11.251
1289-TCDD	27.017	1.023	6.055e4	8.062e4	0.909	0.751	0.770	1514	1206	8.59e5	1.12e6	567.6	932.6	NO	bd	bd	11.826
12479-PECDD	28.819	0.914	4.776e5	3.067e5	2.301	1.557	1.550	2000	2144	4.46e6	2.89e6	2227.8	1348.6	NO	bb	bb	45.504
12389-PECDD	31.928	1.013	2.675e5	1.746e5	1.184	1.532	1.550	2000	2144	3.96e6	2.51e6	1980.6	1171.6	NO	bb	bb	49.870
124679-HXCDD	34.011	0.945	2.545e5	2.054e5	1.115	1.239	1.240	2983	1710	3.72e6	3.05e6	1245.7	1780.9	NO	bb	bb	50.484
1234679-HPCDD	39.225	0.975	2.082e5	2.022e5	1.137	1.029	1.050	2922	2339	3.21e6	3.09e6	1099.8	1322.5	NO	bb	bb	49.010
Total-tetrafurans			1.731e5		0.727			1163		2.72e6							30.332
Total-penta1			5.428e5					921		8.56e6							67.124
Total-pentafurans			7.375e5		0.654			3022		1.06e7							184.995
Total-hexafurans			1.455e6		1.141			3142		2.14e7							246.841
Total-heptafurans			3.635e5		0.978			2774		5.48e6							100.299
Total-Furans			3.482e6		0.922			1163		5.10e7							733.097
Total-tetradioxins			3.292e5		1.024			1514		4.53e6							56.345
Total-pentadioxins			9.708e5		1.502			2000		1.17e7							143.922
Total-hexadioxins			9.885e5		1.005			2983		1.44e7							203.065
Total-heptadioxins			4.044e5		1.088			2922		5.94e6							98.208
Total-Dioxins			2.916e6		1.130			1514		3.92e7							600.962
Total-TEQ			6.398e6					1514		9.02e7							1334.059
FUNCTION1 PFK			0.000e0					539943		0.00e0							
FUNCTION2 PFK			2.253e6					228820		1.84e6							0.000
FUNCTION3 PFK			3.977e4					386595		8.75e5							0.000
FUNCTION4 PFK			7.296e4					280107		2.70e6							
FUNCTION5 PFK			1.323e3					209307		1.46e5							
FUNCTION1 HXCD...			6.633e2					708		9.34e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.152e2					1165		9.44e3							0.000
FUNCTION3 OCDPE			5.246e2					459		6.83e3							0.000
FUNCTION4 NCDPE			4.889e2					641		6.04e3							0.000
FUNCTION5 DCDPE			0.000e0					644		0.00e0							

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: ICVCW, Name: 23030310, Date: 03-Mar-2023, Time: 16:36:24, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.306e4	7.400e4	0.678	0.72	0.77	688.3	YES	NO	bb	db	10.112
2	2378-TCDF	25.77	5.338e4	7.452e4	0.702	0.72	0.77	718.7	YES	NO	bb	bb	9.838
3	1368-TCDF	22.27	6.666e4	8.755e4	0.802	0.76	0.77	933.7	YES	NO	bb	bb	10.382

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.13	5.428e5	3.536e5	1.246	1.54	1.55	9287.8	YES	NO	bb	bb	67.124

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.31	2.363e5	1.551e5	0.496	1.52	1.55	1088.1	YES	NO	bb	bb	73.589
2	23478-PeCDF	31.27	2.350e5	1.508e5	0.786	1.56	1.55	1131.6	YES	NO	bb	bb	48.980
3	12378-PeCDF	29.93	2.214e5	1.526e5	0.679	1.45	1.55	1073.8	YES	NO	bb	bd	51.391
4	Total-pentafurans	28.79	4.479e4	3.002e4	0.654	1.49	1.55	225.2	YES	NO	bb	bb	11.035

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.90	2.903e5	2.325e5	1.166	1.25	1.24	1370.1	YES	NO	bd	bd	48.245
2	123468-HXCDF	33.23	3.102e5	2.472e5	1.169	1.26	1.24	1465.3	YES	NO	bb	bb	51.304
3	123789-HxCDF	36.93	2.403e5	1.952e5	1.137	1.23	1.24	1110.7	YES	NO	bb	bb	49.077
4	234678-HxCDF	35.91	2.873e5	2.291e5	1.140	1.25	1.24	1358.7	YES	NO	bb	bb	50.224
5	123678-HxCDF	35.04	3.271e5	2.812e5	1.091	1.16	1.24	1497.0	YES	NO	db	db	47.992

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.77	2.051e5	2.017e5	1.003	1.02	1.05	1185.4	YES	NO	bb	bb	51.838
2	1234789-HpCDF	41.01	1.584e5	1.578e5	0.953	1.00	1.05	790.9	YES	NO	bb	bb	48.461

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.306e4	7.400e4	0.678	0.72	0.77	688.3	YES	NO	bb	db	10.112
2	2378-TCDF	25.77	5.338e4	7.452e4	0.702	0.72	0.77	718.7	YES	NO	bb	bb	9.838
3	1368-TCDF	22.27	6.666e4	8.755e4	0.802	0.76	0.77	933.7	YES	NO	bb	bb	10.382
4	12389-PECDF	32.31	2.363e5	1.551e5	0.496	1.52	1.55	1088.1	YES	NO	bb	bb	73.589
5	23478-PeCDF	31.27	2.350e5	1.508e5	0.786	1.56	1.55	1131.6	YES	NO	bb	bb	48.980
6	12378-PeCDF	29.93	2.214e5	1.526e5	0.679	1.45	1.55	1073.8	YES	NO	bb	bd	51.391
7	Total-pentafurans	28.79	4.479e4	3.002e4	0.654	1.49	1.55	225.2	YES	NO	bb	bb	11.035
8	123478-HxCDF	34.90	2.903e5	2.325e5	1.166	1.25	1.24	1370.1	YES	NO	bd	bd	48.245
9	123468-HXCDF	33.23	3.102e5	2.472e5	1.169	1.26	1.24	1465.3	YES	NO	bb	bb	51.304
10	123789-HxCDF	36.93	2.403e5	1.952e5	1.137	1.23	1.24	1110.7	YES	NO	bb	bb	49.077
11	234678-HxCDF	35.91	2.873e5	2.291e5	1.140	1.25	1.24	1358.7	YES	NO	bb	bb	50.224
12	123678-HxCDF	35.04	3.271e5	2.812e5	1.091	1.16	1.24	1497.0	YES	NO	db	db	47.992
13	1234678-HpCDF	38.77	2.051e5	2.017e5	1.003	1.02	1.05	1185.4	YES	NO	bb	bb	51.838
14	1234789-HpCDF	41.01	1.584e5	1.578e5	0.953	1.00	1.05	790.9	YES	NO	bb	bb	48.461
15	OCDF	45.24	2.094e5	2.177e5	0.778	0.96	0.89	1194.3	YES	NO	bd	bb	103.506
16	13468-PECDF	27.13	5.428e5	3.536e5	1.246	1.54	1.55	9287.8	YES	NO	bb	bb	67.124

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.60	3.327e4	3.983e4	1.024	0.84	0.77	333.8	YES	NO	bd	bb	5.433
2	Total-tetradioxins	25.04	8.004e2	1.202e3	1.024	0.67	0.77	7.4	YES	NO	bb	db	0.149
3	Total-tetradioxins	24.74	2.704e3	4.097e3	1.024	0.66	0.77	17.7	YES	NO	bb	bd	0.506
4	1368-TCDD	23.56	6.641e4	8.365e4	1.015	0.79	0.77	704.3	YES	NO	bb	bb	11.251
5	1289-TCDD	27.02	6.055e4	8.062e4	0.909	0.75	0.77	567.6	YES	NO	bd	bd	11.826
6	Total-tetradioxins	26.76	1.054e2	1.391e2	1.024	0.76	0.77	2.1	NO	NO	bb	bb	0.018
7	2378-TCDD	26.42	6.583e4	8.225e4	1.149	0.80	0.77	654.9	YES	NO	bb	bb	9.815
8	Total-tetradioxins	26.10	9.949e4	1.339e5	1.024	0.74	0.77	703.4	YES	NO	bb	bb	17.347

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.93	2.675e5	1.746e5	1.184	1.53	1.55	1980.6	YES	NO	bb	bb	49.870
2	12378-PeCDD	31.54	2.257e5	1.459e5	1.022	1.55	1.55	1638.2	YES	NO	bb	bb	48.547
3	12479-PECDD	28.82	4.776e5	3.067e5	2.301	1.56	1.55	2227.8	YES	NO	bb	bb	45.504

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.01	2.545e5	2.054e5	1.115	1.24	1.24	1245.7	YES	NO	bb	bb	50.484
2	123789-HxCDD	36.52	2.330e5	1.844e5	0.907	1.26	1.24	1104.0	YES	NO	bd	bb	51.608
3	123678-HxCDD	36.14	2.694e5	2.159e5	1.001	1.25	1.24	1260.5	YES	NO	db	db	50.174
4	123478-HxCDD	36.02	2.316e5	1.815e5	0.996	1.28	1.24	1214.5	YES	NO	bd	bd	50.799

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.23	2.082e5	2.022e5	1.137	1.03	1.05	1099.8	YES	NO	bb	bb	49.010
2	1234678-HpCDD	40.27	1.962e5	1.803e5	1.039	1.09	1.05	932.5	YES	NO	bd	bb	49.199

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.60	3.327e4	3.983e4	1.024	0.84	0.77	333.8	YES	NO	bd	bb	5.433
2	Total-tetradioxins	25.04	8.004e2	1.202e3	1.024	0.67	0.77	7.4	YES	NO	bb	db	0.149
3	Total-tetradioxins	24.74	2.704e3	4.097e3	1.024	0.66	0.77	17.7	YES	NO	bb	bd	0.506
4	1368-TCDD	23.56	6.641e4	8.365e4	1.015	0.79	0.77	704.3	YES	NO	bb	bb	11.251
5	1289-TCDD	27.02	6.055e4	8.062e4	0.909	0.75	0.77	567.6	YES	NO	bd	bd	11.826
6	Total-tetradioxins	26.76	1.054e2	1.391e2	1.024	0.76	0.77	2.1	NO	NO	bb	bb	0.018
7	2378-TCDD	26.42	6.583e4	8.225e4	1.149	0.80	0.77	654.9	YES	NO	bb	bb	9.815
8	Total-tetradioxins	26.10	9.949e4	1.339e5	1.024	0.74	0.77	703.4	YES	NO	bb	bb	17.347
9	12389-PECDD	31.93	2.675e5	1.746e5	1.184	1.53	1.55	1980.6	YES	NO	bb	bb	49.870
10	12378-PeCDD	31.54	2.257e5	1.459e5	1.022	1.55	1.55	1638.2	YES	NO	bb	bb	48.547
11	12479-PECDD	28.82	4.776e5	3.067e5	2.301	1.56	1.55	2227.8	YES	NO	bb	bb	45.504
12	124679-HXCDD	34.01	2.545e5	2.054e5	1.115	1.24	1.24	1245.7	YES	NO	bb	bb	50.484
13	123789-HxCDD	36.52	2.330e5	1.844e5	0.907	1.26	1.24	1104.0	YES	NO	bd	bb	51.608
14	123678-HxCDD	36.14	2.694e5	2.159e5	1.001	1.25	1.24	1260.5	YES	NO	db	db	50.174
15	123478-HxCDD	36.02	2.316e5	1.815e5	0.996	1.28	1.24	1214.5	YES	NO	bd	bd	50.799
16	1234679-HPCDD	39.23	2.082e5	2.022e5	1.137	1.03	1.05	1099.8	YES	NO	bb	bb	49.010
17	1234678-HpCDD	40.27	1.962e5	1.803e5	1.039	1.09	1.05	932.5	YES	NO	bd	bb	49.199
18	OCDD	45.00	2.234e5	2.618e5	0.920	0.85	0.89	1496.5	YES	NO	bb	bb	99.422

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Printed: Monday, March 06, 2023 14:47:19 Pacific Standard Time

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.306e4	7.400e4	0.678	0.72	0.77	688.3	YES	NO	bb	db	10.112
2	2378-TCDF	25.77	5.338e4	7.452e4	0.702	0.72	0.77	718.7	YES	NO	bb	bb	9.838
3	1368-TCDF	22.27	6.666e4	8.755e4	0.802	0.76	0.77	933.7	YES	NO	bb	bb	10.382
4	12389-PECDF	32.31	2.363e5	1.551e5	0.496	1.52	1.55	1088.1	YES	NO	bb	bb	73.589
5	23478-PeCDF	31.27	2.350e5	1.508e5	0.786	1.56	1.55	1131.6	YES	NO	bb	bb	48.980
6	12378-PeCDF	29.93	2.214e5	1.526e5	0.679	1.45	1.55	1073.8	YES	NO	bb	bd	51.391
7	Total-pentafurans	28.79	4.479e4	3.002e4	0.654	1.49	1.55	225.2	YES	NO	bb	bb	11.035
8	123478-HxCDF	34.90	2.903e5	2.325e5	1.166	1.25	1.24	1370.1	YES	NO	bd	bd	48.245
9	123468-HXCDF	33.23	3.102e5	2.472e5	1.169	1.26	1.24	1465.3	YES	NO	bb	bb	51.304
10	123789-HxCDF	36.93	2.403e5	1.952e5	1.137	1.23	1.24	1110.7	YES	NO	bb	bb	49.077
11	234678-HxCDF	35.91	2.873e5	2.291e5	1.140	1.25	1.24	1358.7	YES	NO	bb	bb	50.224
12	123678-HxCDF	35.04	3.271e5	2.812e5	1.091	1.16	1.24	1497.0	YES	NO	db	db	47.992
13	1234678-HpCDF	38.77	2.051e5	2.017e5	1.003	1.02	1.05	1185.4	YES	NO	bb	bb	51.838
14	1234789-HpCDF	41.01	1.584e5	1.578e5	0.953	1.00	1.05	790.9	YES	NO	bb	bb	48.461
15	OCDF	45.24	2.094e5	2.177e5	0.778	0.96	0.89	1194.3	YES	NO	bd	bb	103.506
16	13468-PECDF	27.13	5.428e5	3.536e5	1.246	1.54	1.55	9287.8	YES	NO	bb	bb	67.124
17	Total-tetradioxins	25.60	3.327e4	3.983e4	1.024	0.84	0.77	333.8	YES	NO	bd	bb	5.433
18	Total-tetradioxins	25.04	8.004e2	1.202e3	1.024	0.67	0.77	7.4	YES	NO	bb	db	0.149
19	Total-tetradioxins	24.74	2.704e3	4.097e3	1.024	0.66	0.77	17.7	YES	NO	bb	bd	0.506
20	1368-TCDD	23.56	6.641e4	8.365e4	1.015	0.79	0.77	704.3	YES	NO	bb	bb	11.251
21	1289-TCDD	27.02	6.055e4	8.062e4	0.909	0.75	0.77	567.6	YES	NO	bd	bd	11.826
22	Total-tetradioxins	26.76	1.054e2	1.391e2	1.024	0.76	0.77	2.1	NO	NO	bb	bb	0.018
23	2378-TCDD	26.42	6.583e4	8.225e4	1.149	0.80	0.77	654.9	YES	NO	bb	bb	9.815
24	Total-tetradioxins	26.10	9.949e4	1.339e5	1.024	0.74	0.77	703.4	YES	NO	bb	bb	17.347
25	12389-PECDD	31.93	2.675e5	1.746e5	1.184	1.53	1.55	1980.6	YES	NO	bb	bb	49.870
26	12378-PeCDD	31.54	2.257e5	1.459e5	1.022	1.55	1.55	1638.2	YES	NO	bb	bb	48.547
27	12479-PECDD	28.82	4.776e5	3.067e5	2.301	1.56	1.55	2227.8	YES	NO	bb	bb	45.504
28	124679-HXCDD	34.01	2.545e5	2.054e5	1.115	1.24	1.24	1245.7	YES	NO	bb	bb	50.484
29	123789-HxCDD	36.52	2.330e5	1.844e5	0.907	1.26	1.24	1104.0	YES	NO	bd	bb	51.608
30	123678-HxCDD	36.14	2.694e5	2.159e5	1.001	1.25	1.24	1260.5	YES	NO	db	db	50.174
31	123478-HxCDD	36.02	2.316e5	1.815e5	0.996	1.28	1.24	1214.5	YES	NO	bd	bd	50.799
32	1234679-HPCDD	39.23	2.082e5	2.022e5	1.137	1.03	1.05	1099.8	YES	NO	bb	bb	49.010
33	1234678-HpCDD	40.27	1.962e5	1.803e5	1.039	1.09	1.05	932.5	YES	NO	bd	bb	49.199
34	OCDD	45.00	2.234e5	2.618e5	0.920	0.85	0.89	1496.5	YES	NO	bb	bb	99.422

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.14	2.253e6					8.0	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.08	3.977e4					2.3	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.32	4.162e3					0.8	NO		bb		
2	FUNCTION4 PFK	40.68	1.340e4					1.2	NO		bb		
3	FUNCTION4 PFK	40.50	1.024e4					1.3	NO		bb		
4	FUNCTION4 PFK	40.07	1.056e4					1.2	NO		bb		
5	FUNCTION4 PFK	39.50	1.007e4					1.4	NO		bb		
6	FUNCTION4 PFK	42.14	1.085e4					1.0	NO		bb		
7	FUNCTION4 PFK	42.10	6.400e3					1.1	NO		bb		
8	FUNCTION4 PFK	41.87	1.885e3					0.6	NO		bb		
9	FUNCTION4 PFK	41.61	5.389e3					0.9	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.23	1.323e3					0.7	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.55	1.589e2					2.0	NO		db		0.000
2	FUNCTION1 HXCD...	26.42	1.755e2					3.2	YES		bd		0.000
3	FUNCTION1 HXCD...	25.59	9.854e1					1.9	NO		bb		0.000
4	FUNCTION1 HXCD...	23.87	7.096e1					1.9	NO		bb		0.000
5	FUNCTION1 HXCD...	23.56	8.003e1					2.4	NO		bb		0.000
6	FUNCTION1 HXCD...	22.40	7.940e1					1.8	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.33	1.101e2					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.89	7.875e1					1.7	NO		bb		0.000
3	FUNCTION2 HPCD...	31.17	3.263e2					4.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.51	1.586e2					5.0	YES		bb		0.000
2	FUNCTION3 OCDPE	36.13	1.909e2					4.9	YES		db		0.000
3	FUNCTION3 OCDPE	35.99	1.751e2					5.1	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.06	1.247e2					2.2	NO		db		0.000
2	FUNCTION4 NCDPE	40.94	7.187e1					1.7	NO		bd		0.000
3	FUNCTION4 NCDPE	40.37	7.003e1					1.7	NO		db		0.000
4	FUNCTION4 NCDPE	40.26	2.223e2					3.8	YES		bd		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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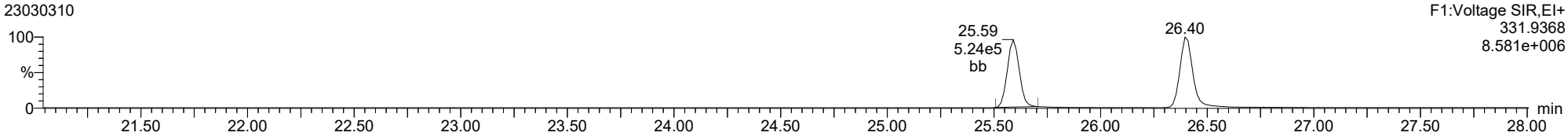

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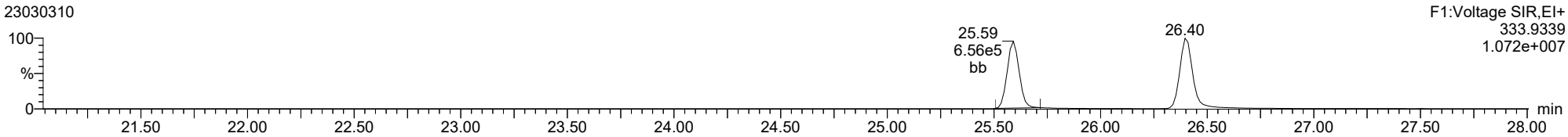

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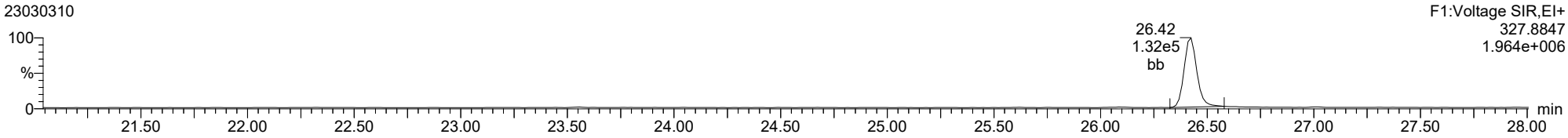

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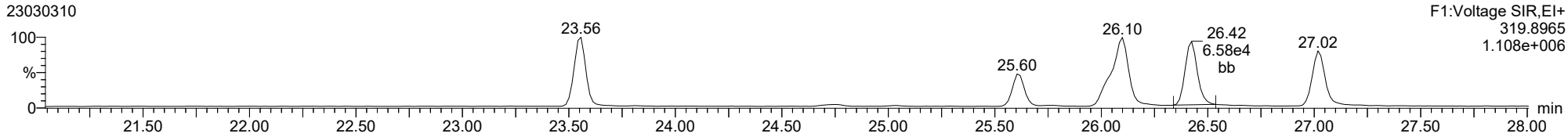
2378-TCDD



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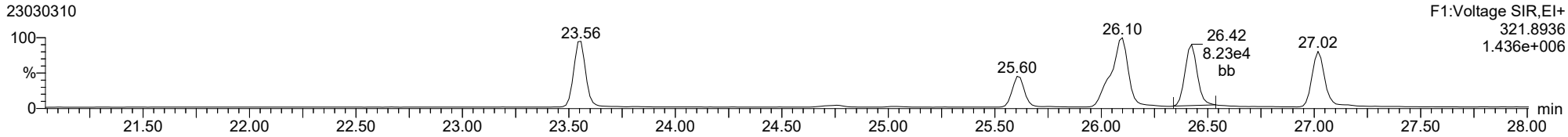

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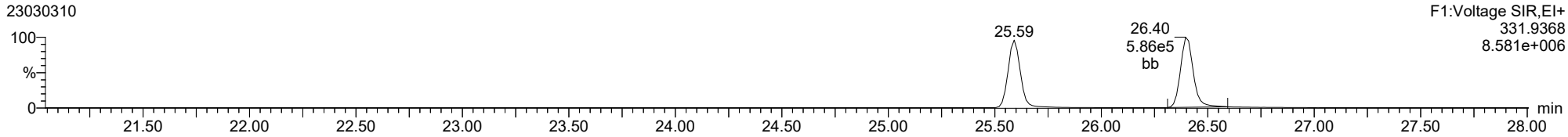
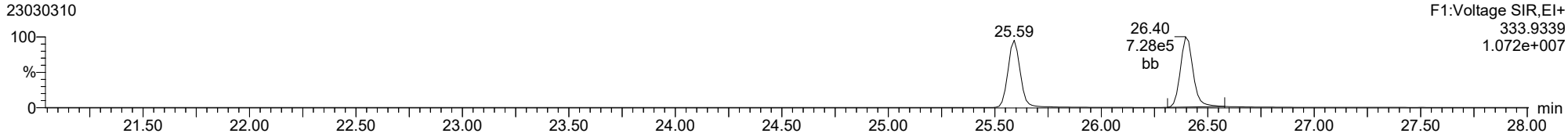
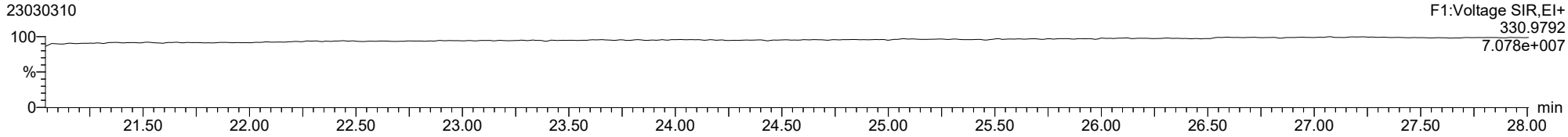


13C-2378-TCDD



FUNCTION1 PFK



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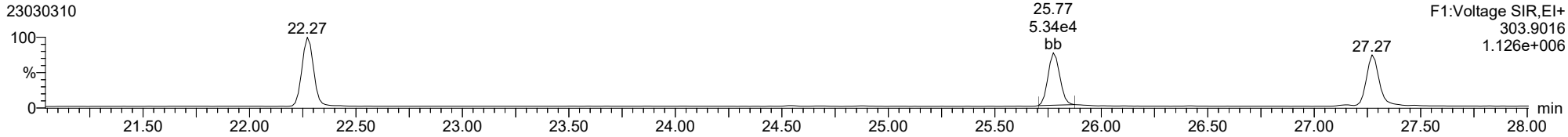
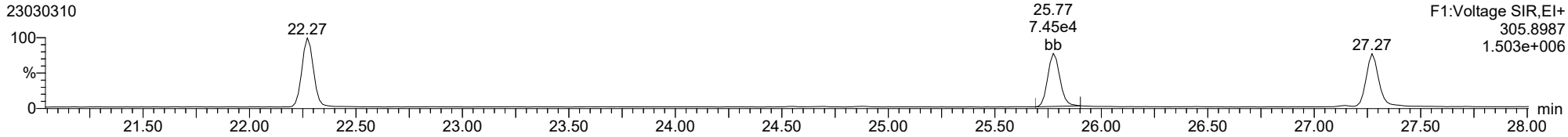
2378-TCDF



2378-TCDF



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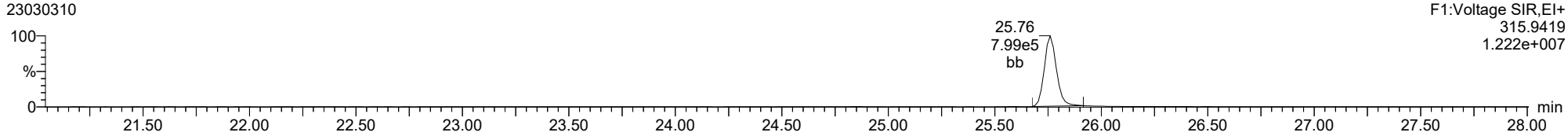

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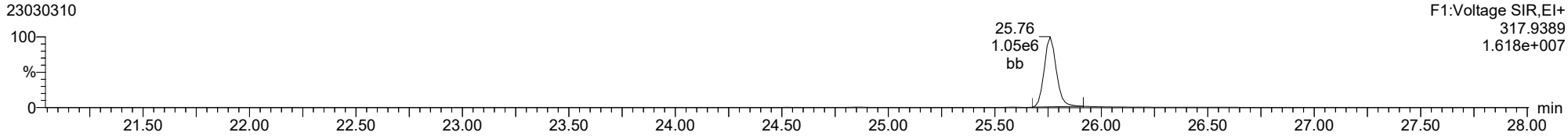
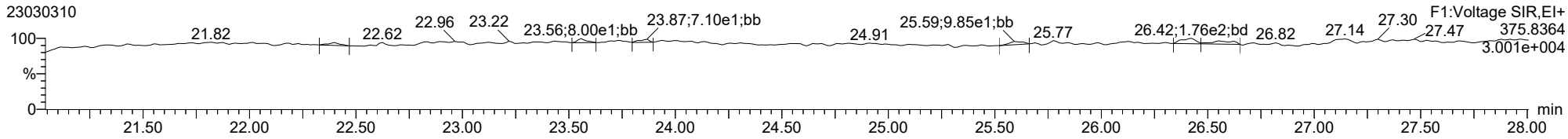


FUNCTION1 HXCDPE



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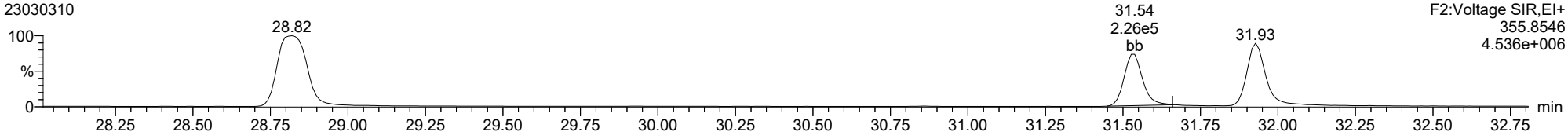
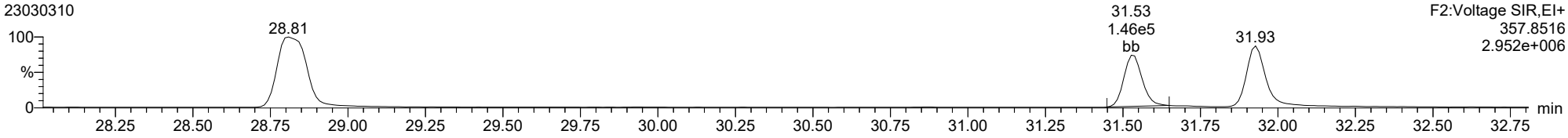
12378-PeCDD



12378-PeCDD



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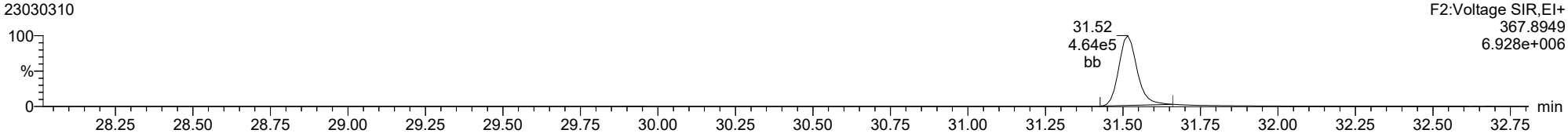

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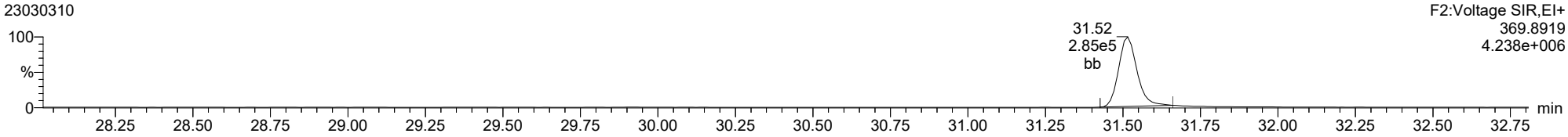
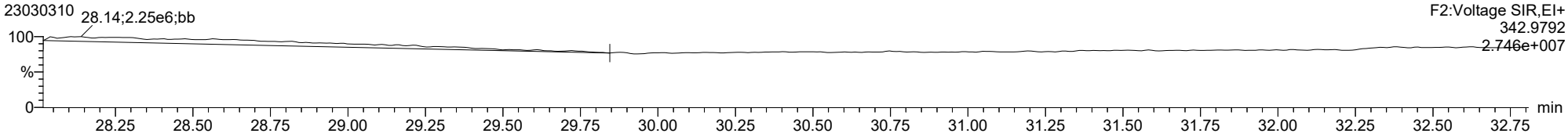


FUNCTION2 PFK



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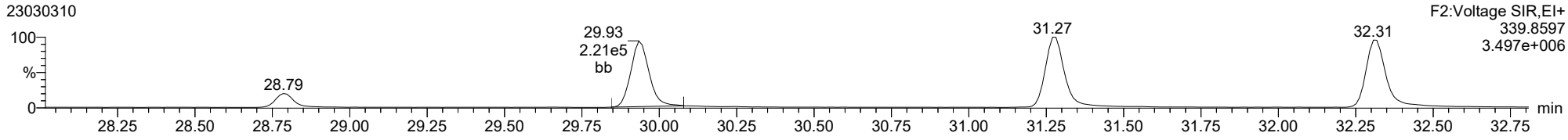
12378-PeCDF



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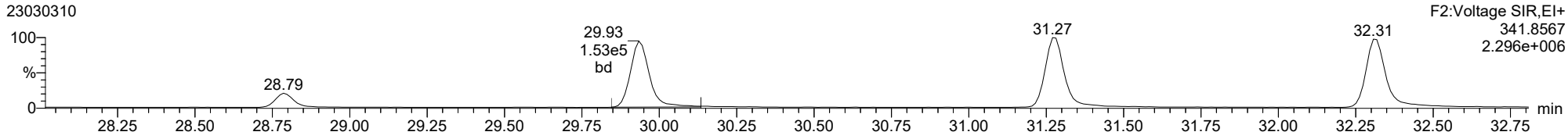

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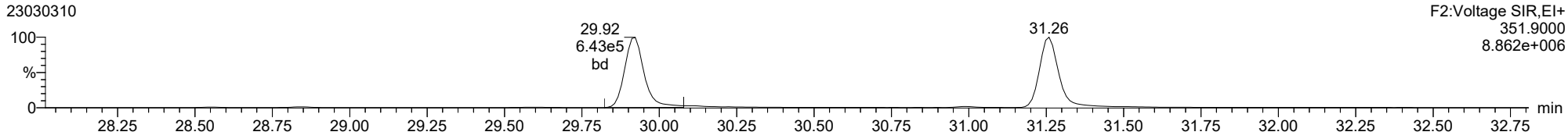

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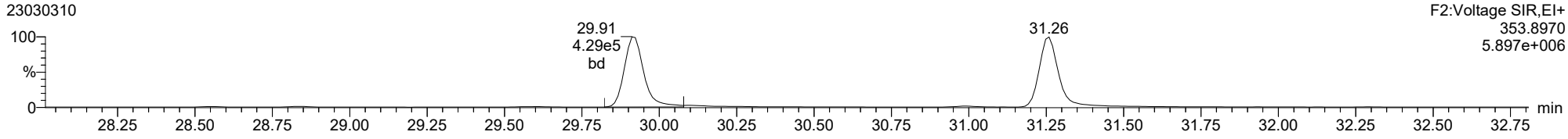
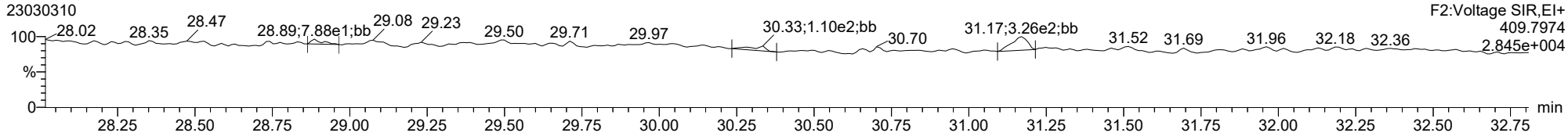


FUNCTION2 HPCDPE



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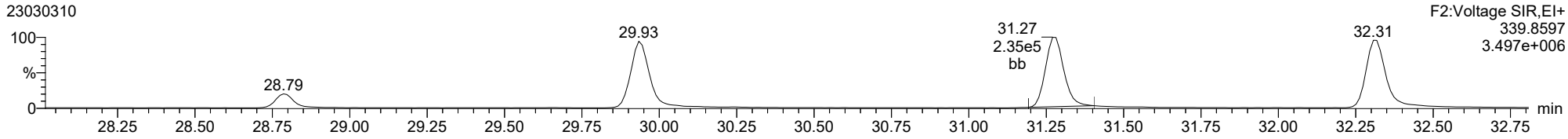
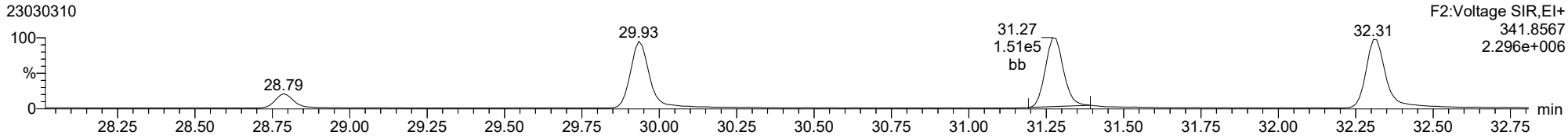
23478-PeCDF



23478-PeCDF



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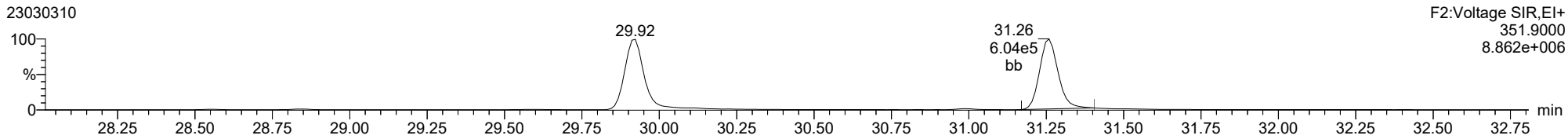

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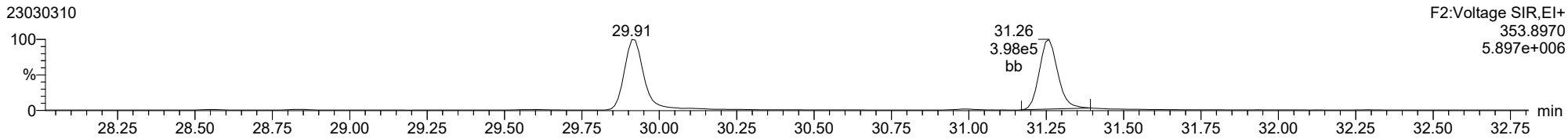
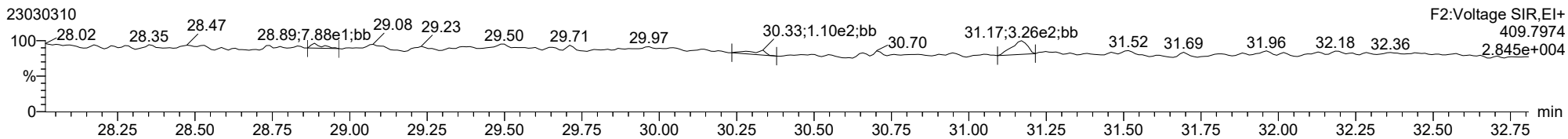


FUNCTION2 HPCDPE



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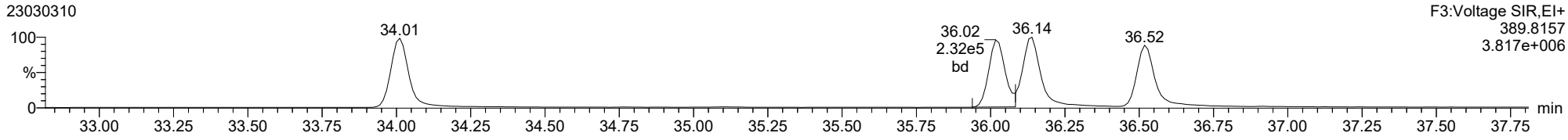
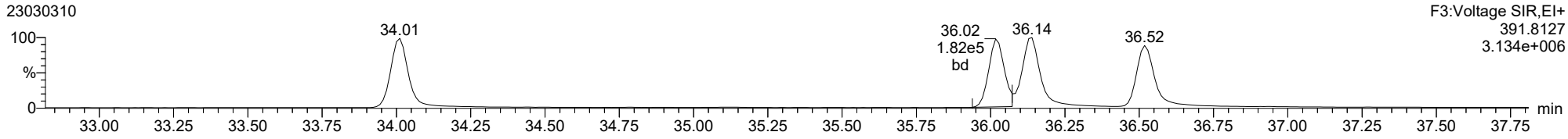
123478-HxCDD



123478-HxCDD



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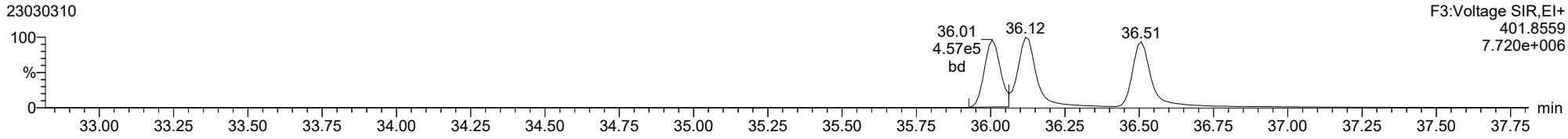

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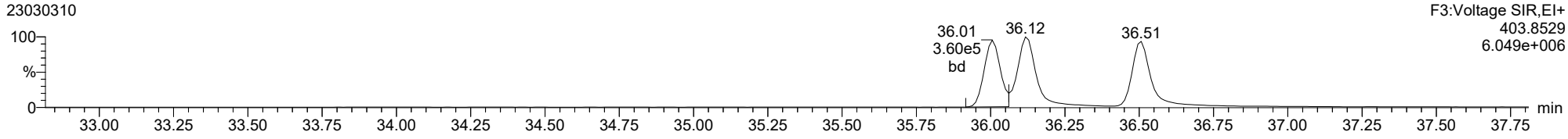
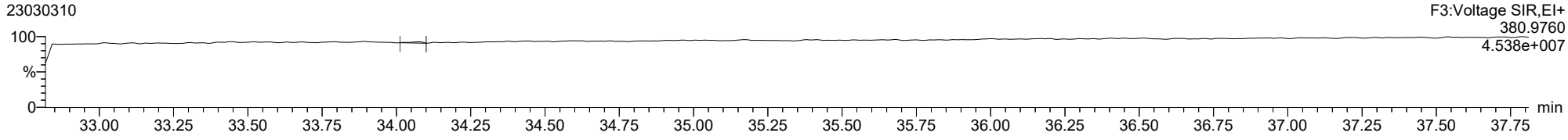


FUNCTION3 PFK



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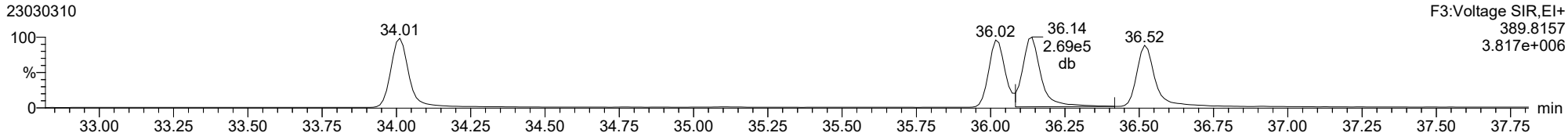

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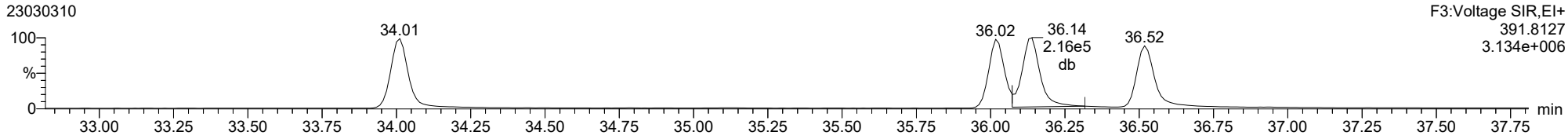

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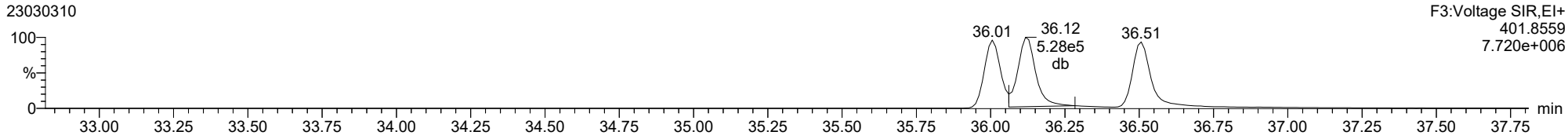

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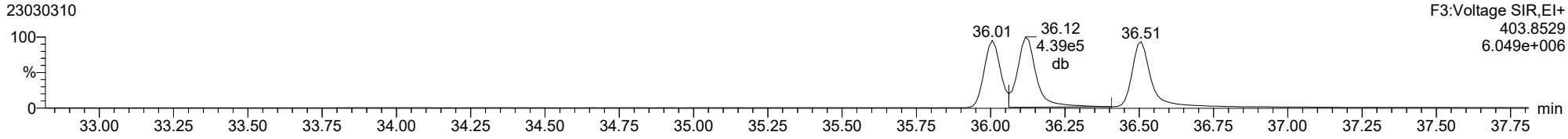

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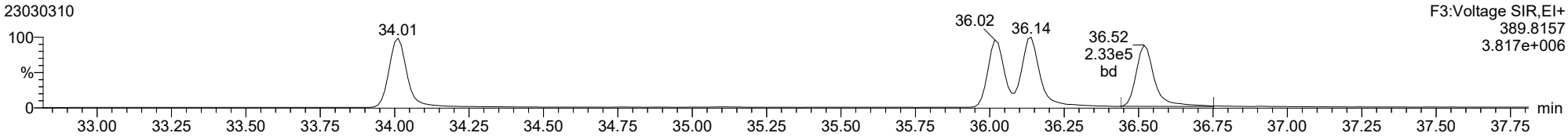
123789-HxCDD



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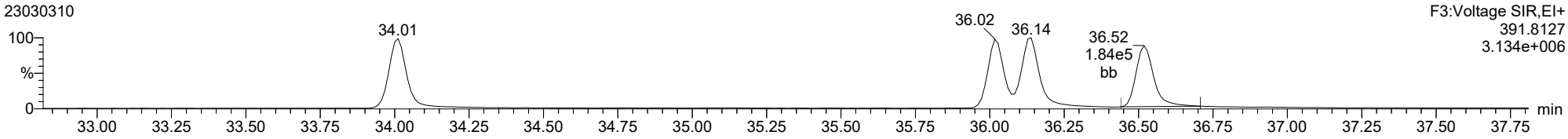

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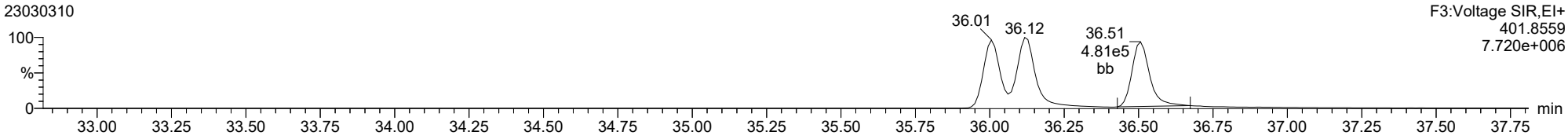

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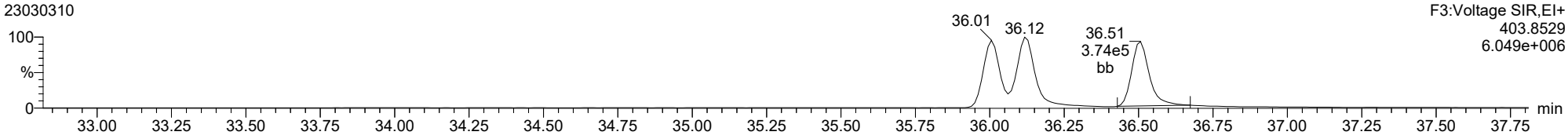

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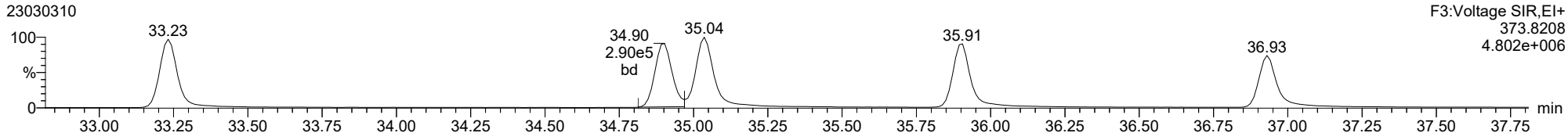
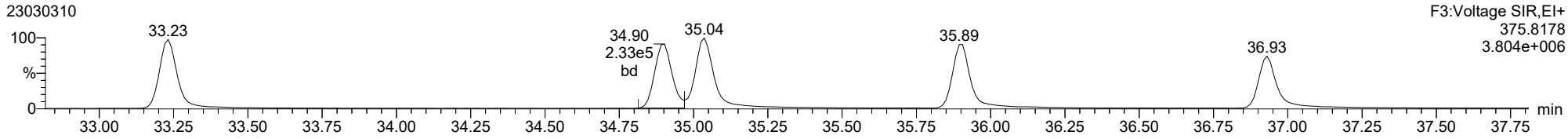


123478-HxCDF



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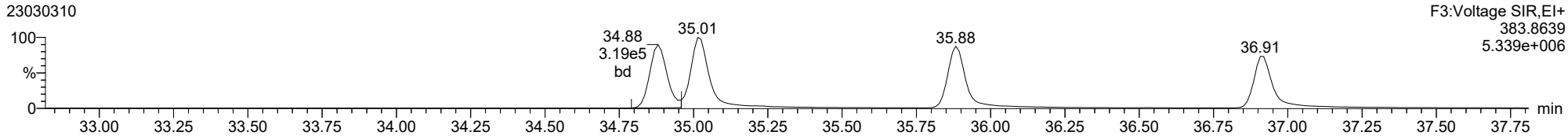

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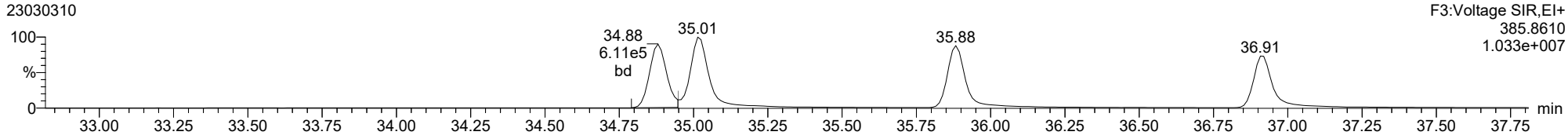
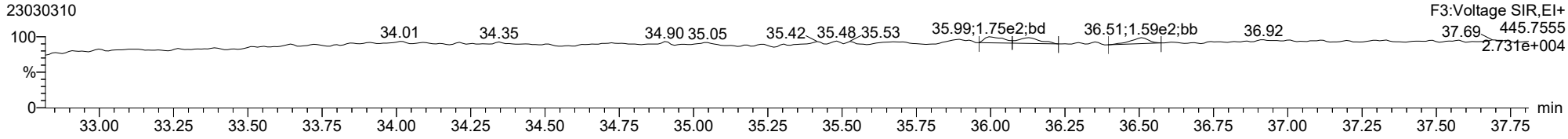


FUNCTION3 OCDPE



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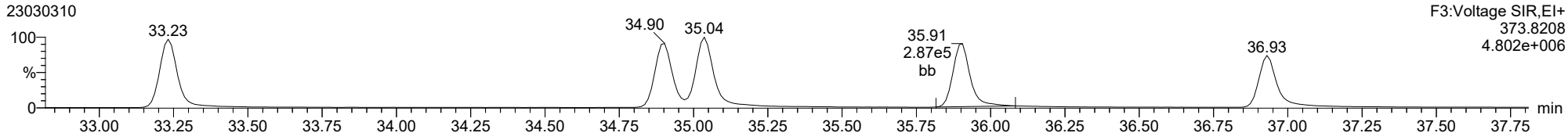
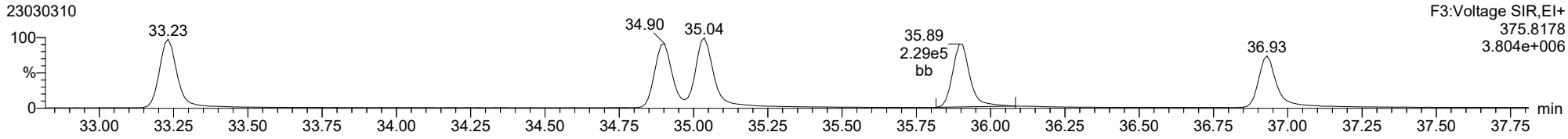
234678-HxCDF



234678-HxCDF



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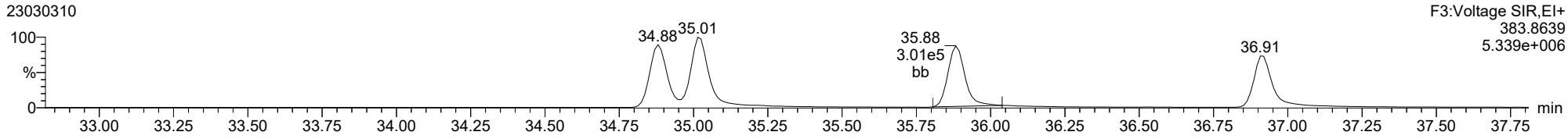

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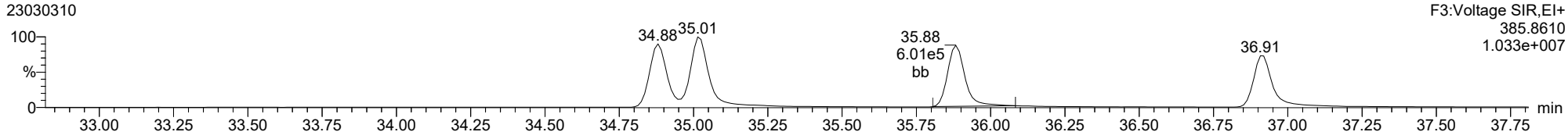
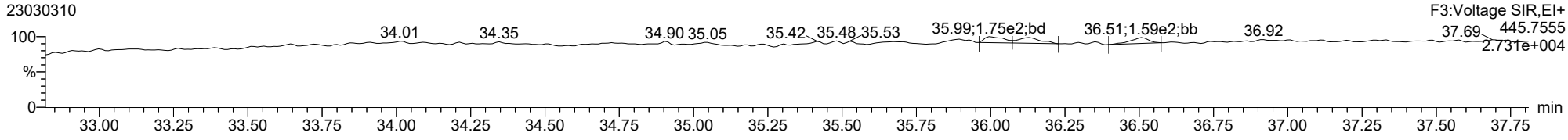


FUNCTION3 OCDPE



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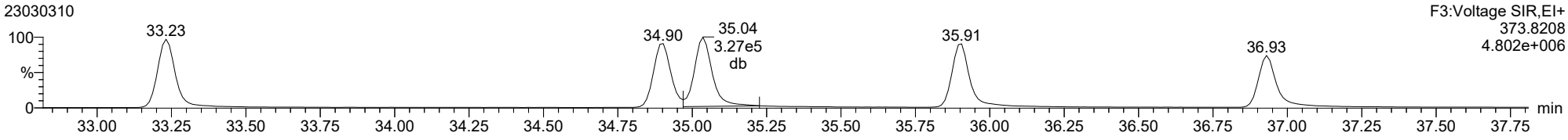
123678-HxCDF



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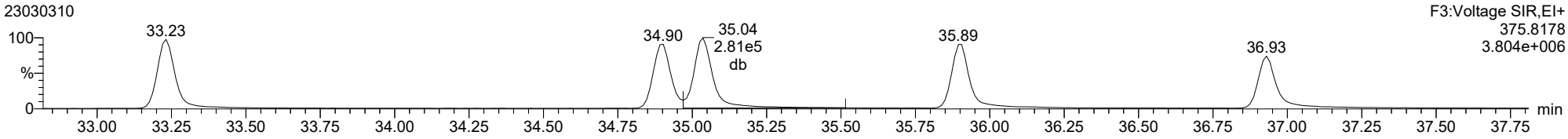

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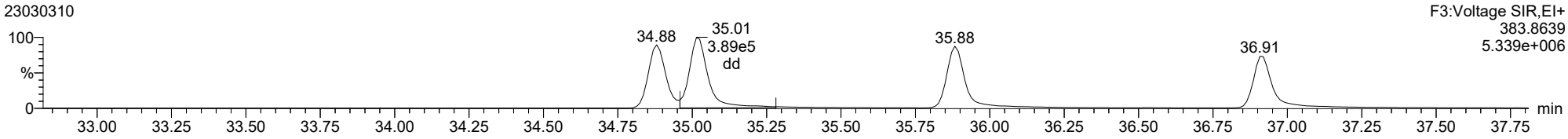

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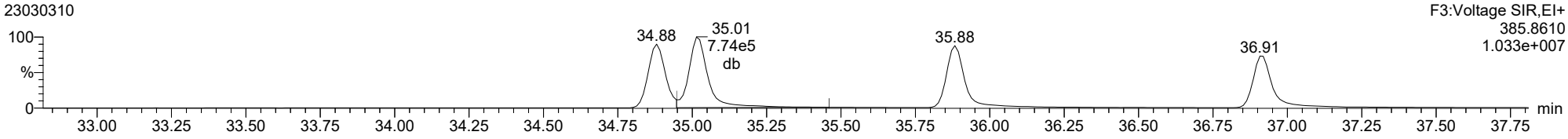
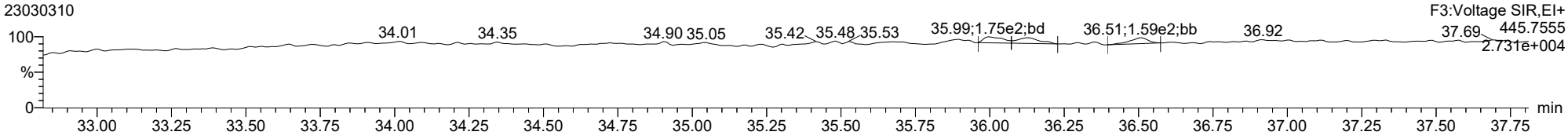


FUNCTION3 OCDPE



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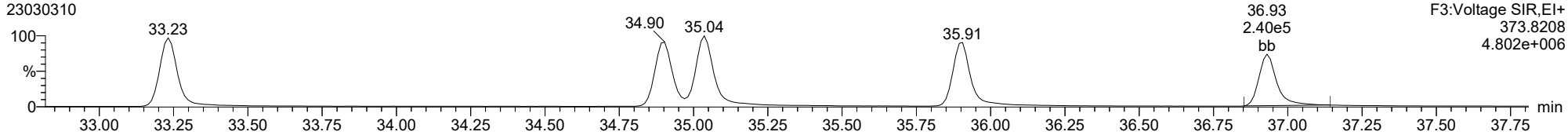

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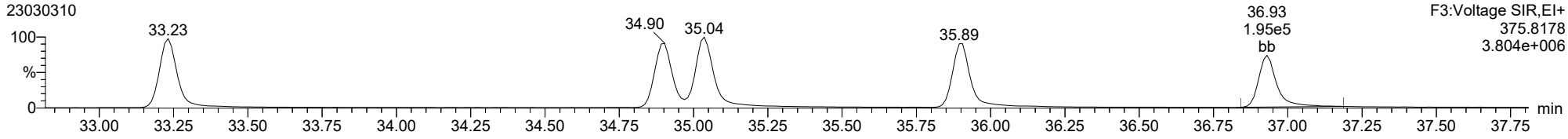

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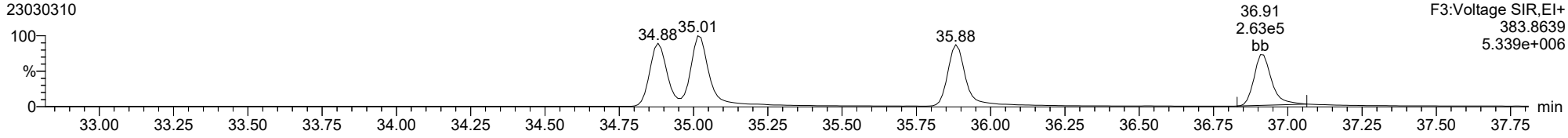

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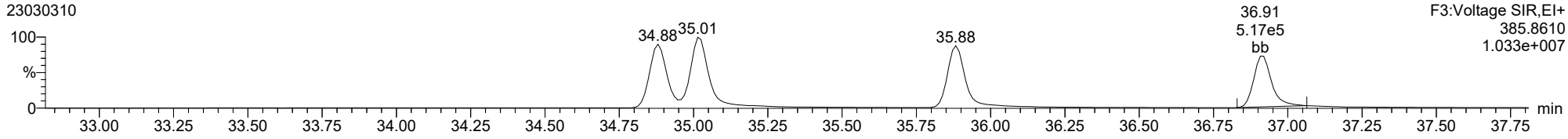
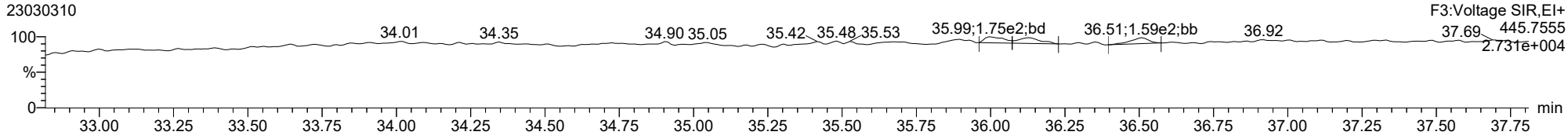


FUNCTION3 OCDPE



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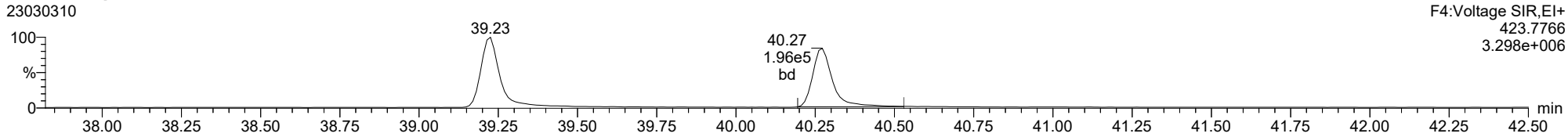

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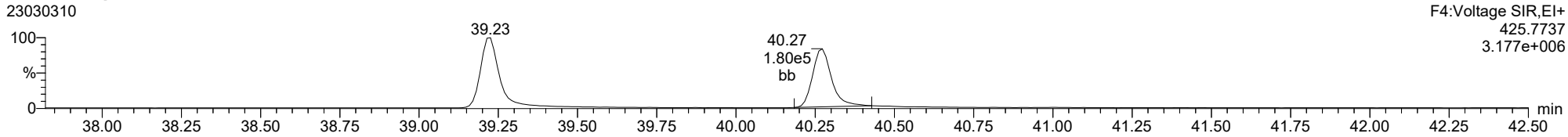

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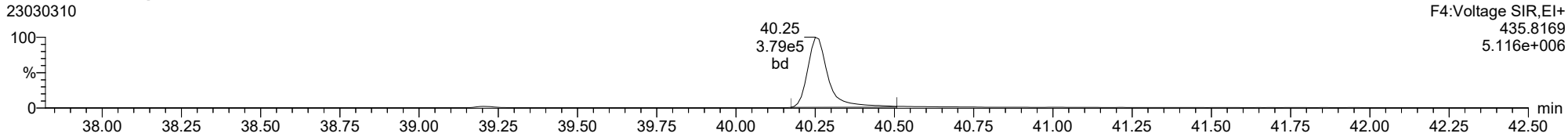

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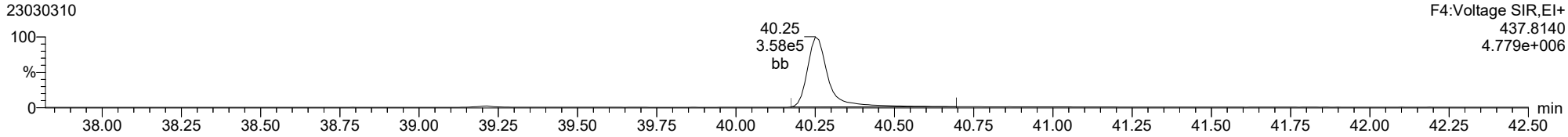
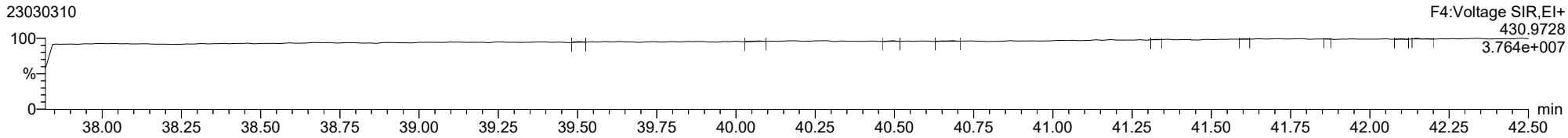


FUNCTION4 PFK



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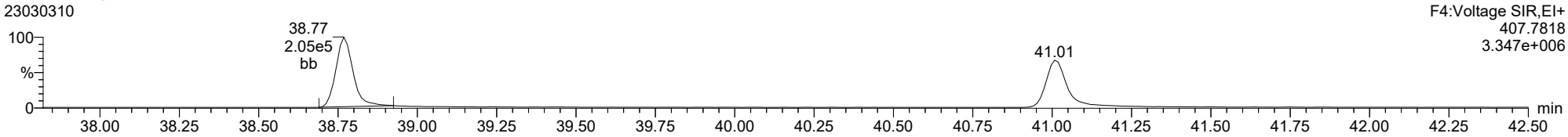

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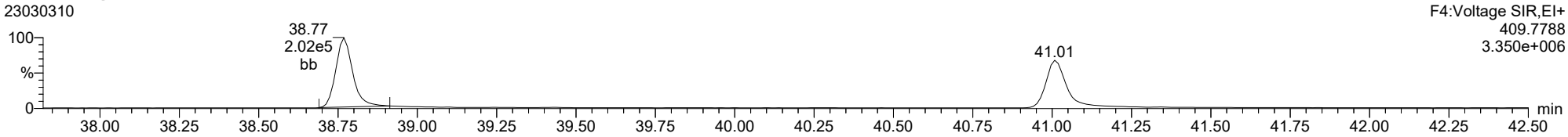

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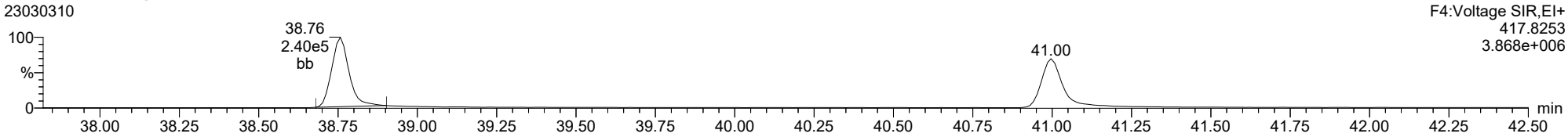

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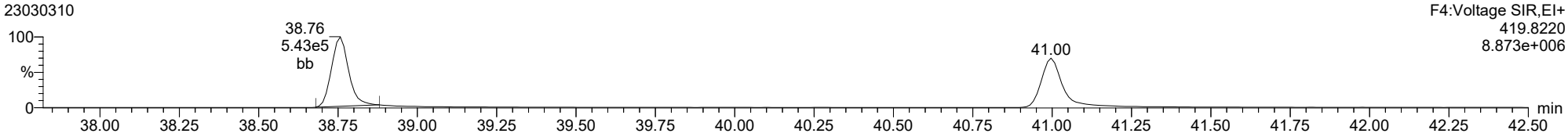
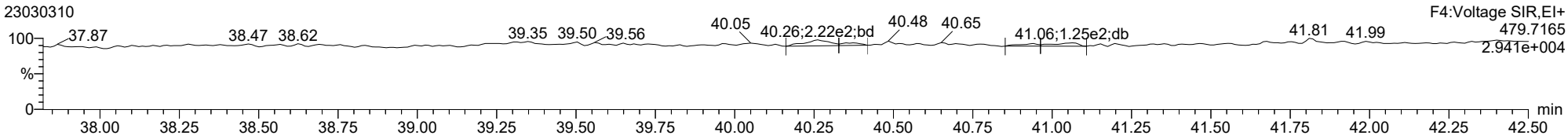


FUNCTION4 NCDPE



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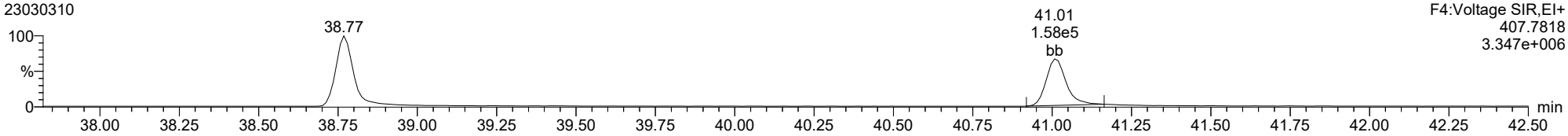
1234789-HpCDF



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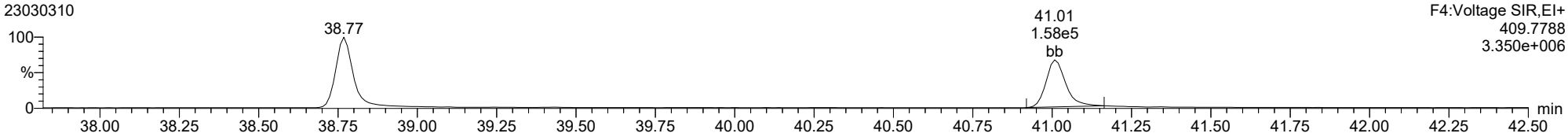

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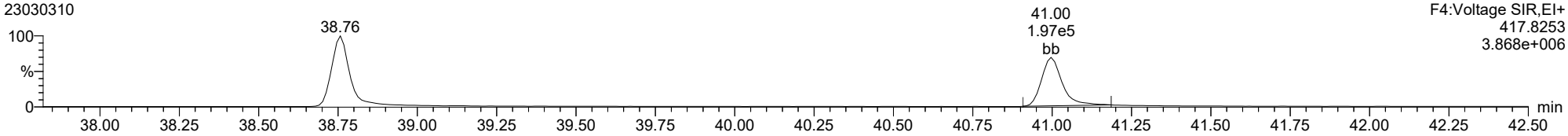

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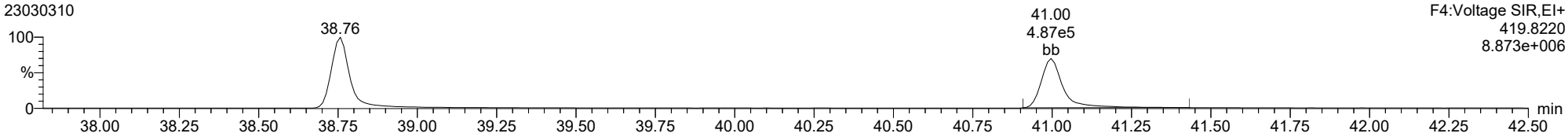
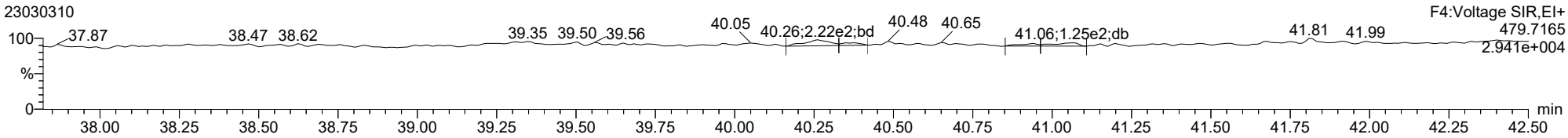


FUNCTION4 NCDPE



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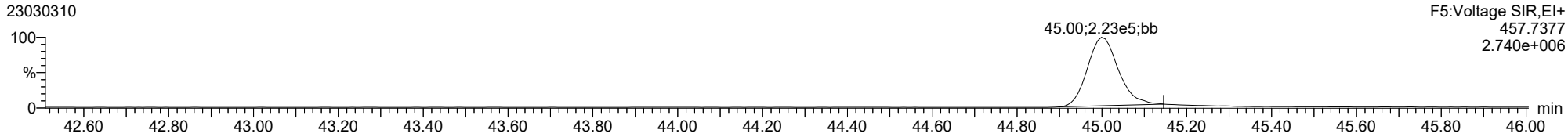
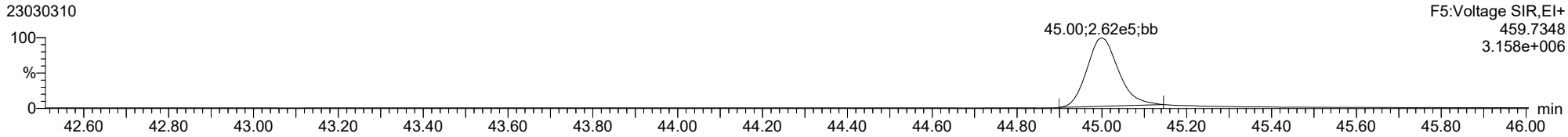
OCDD



OCDD



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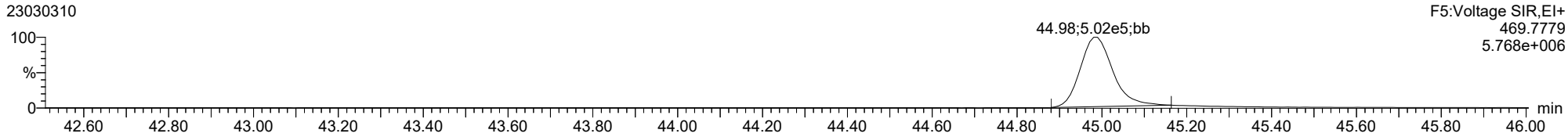
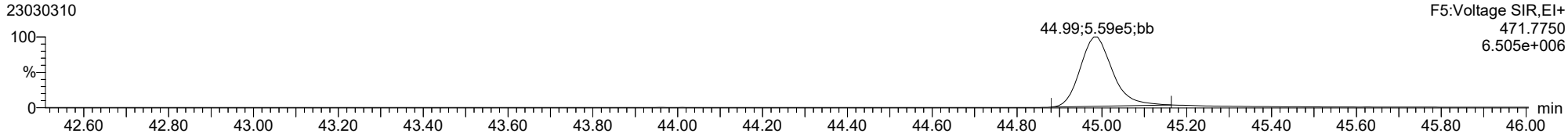
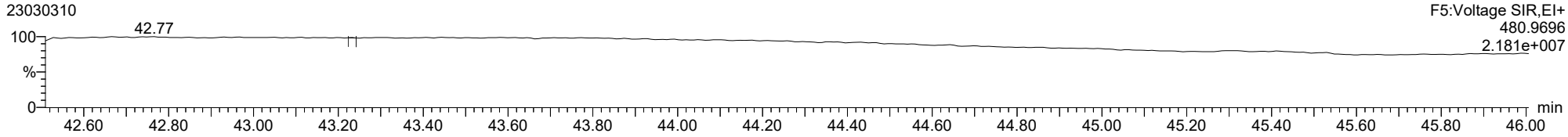


13C-OCDD



FUNCTION5 PFK



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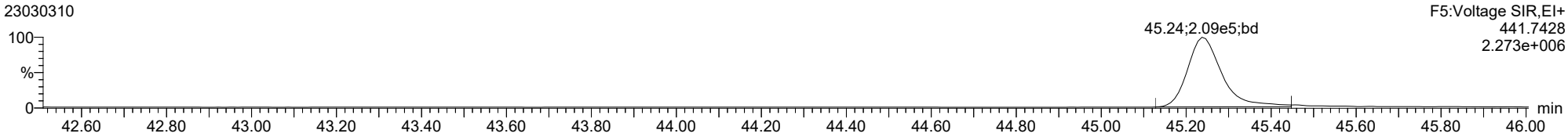
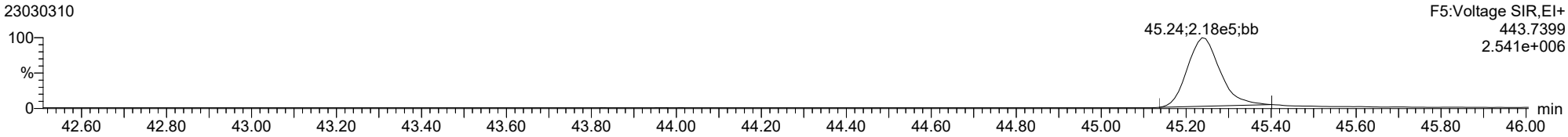
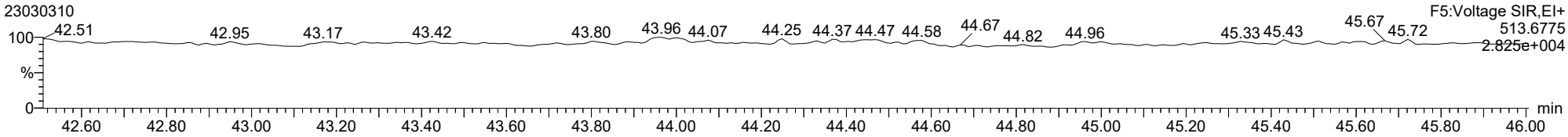
OCDF



OCDF



FUNCTION5 DCDPE



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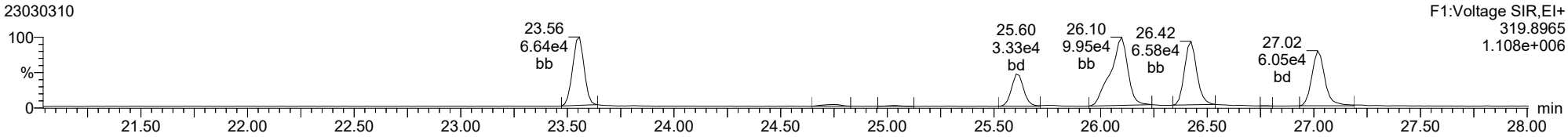
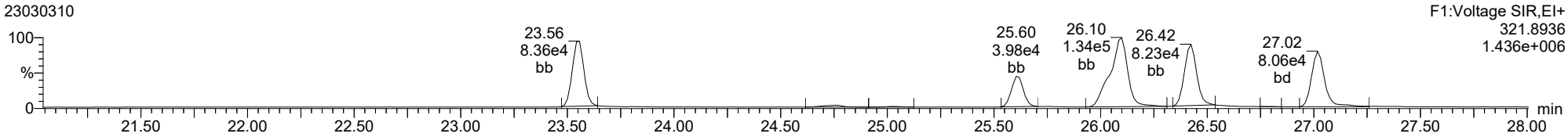
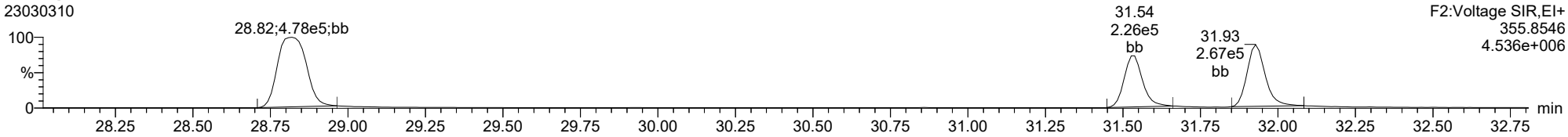
Total-tetradioxins



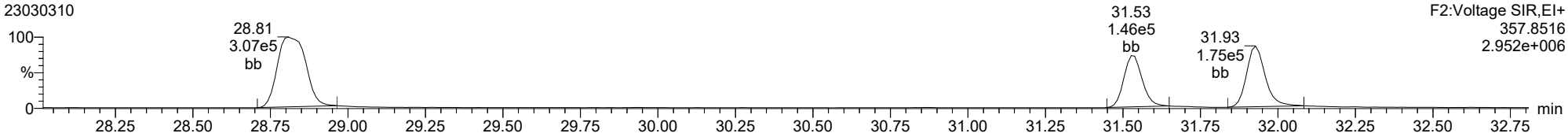
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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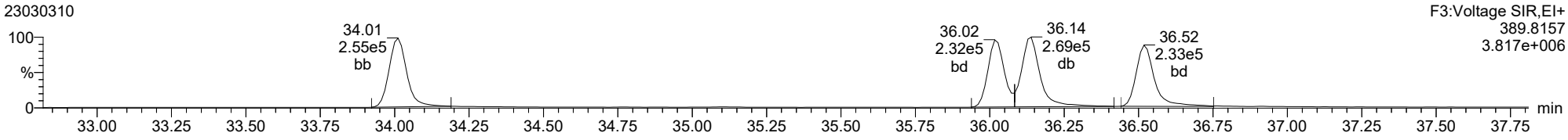
Total-hexadioxins



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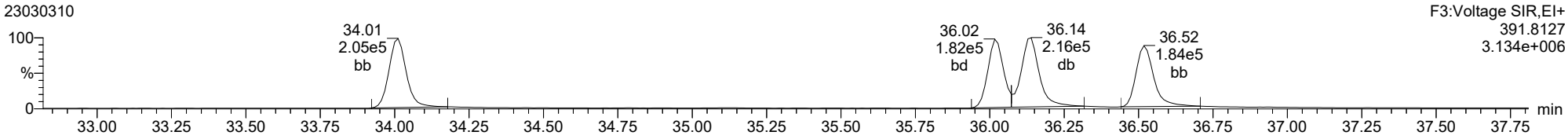
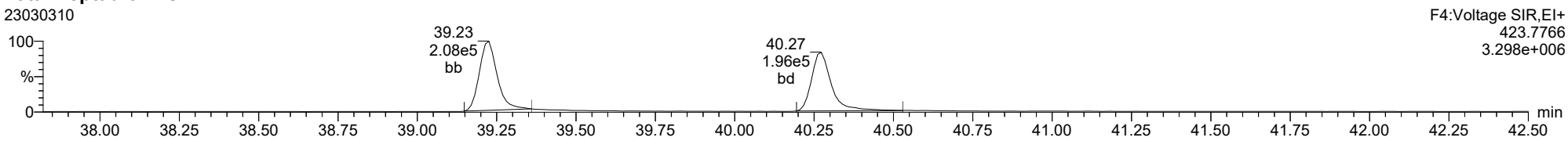
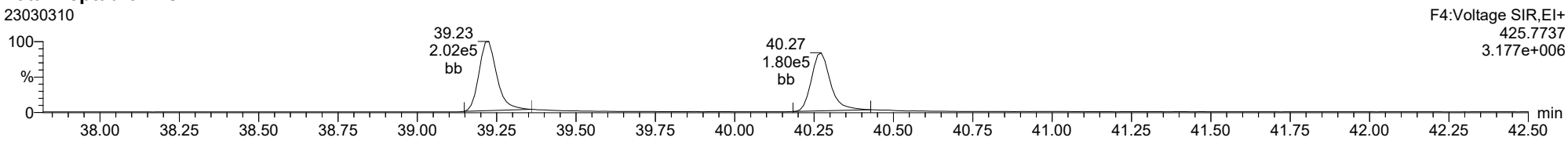


Total-heptadioxins



Total-heptadioxins



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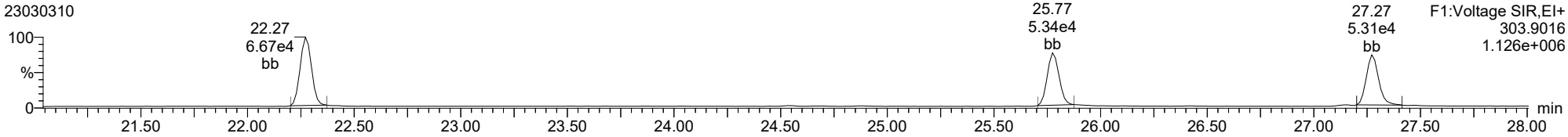
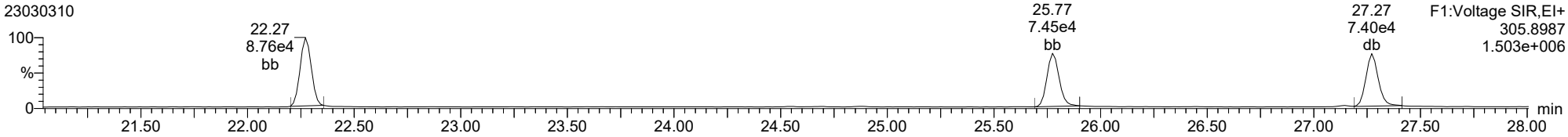
Total-tetrafurans



Total-tetrafurans



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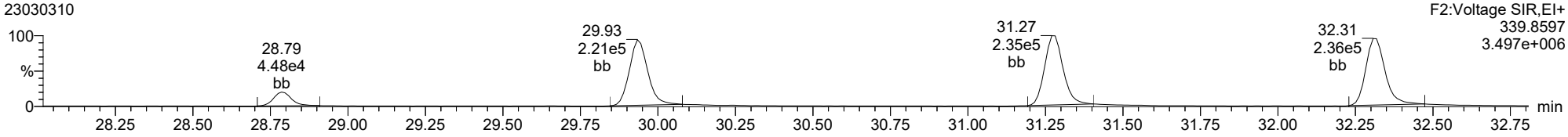

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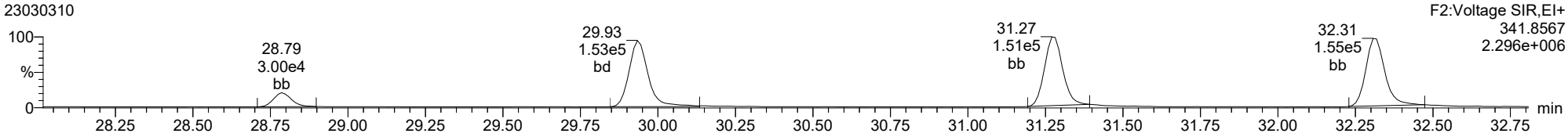

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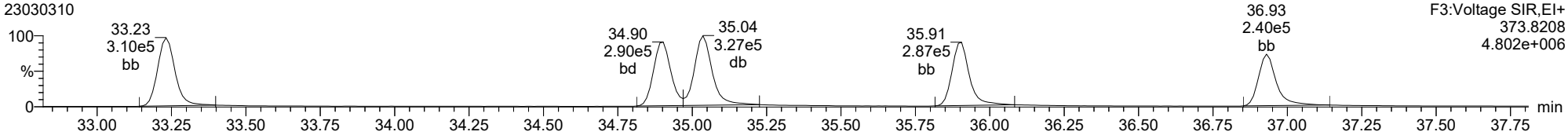
Total-hexafurans



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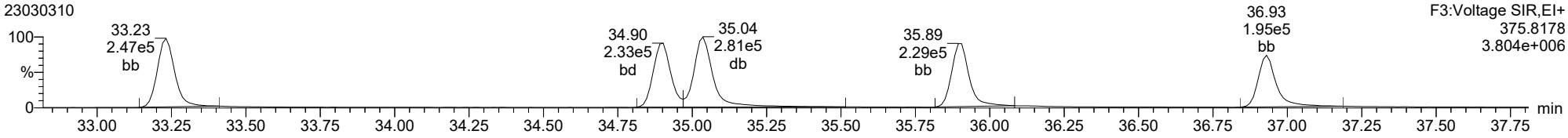

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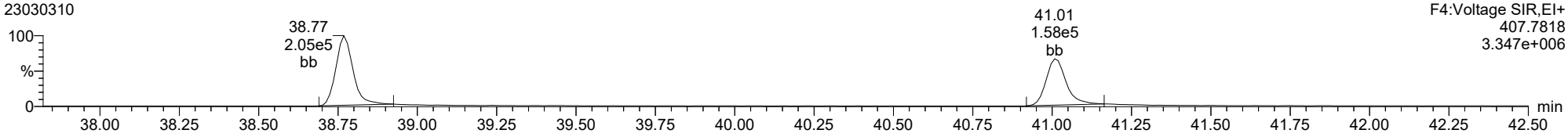

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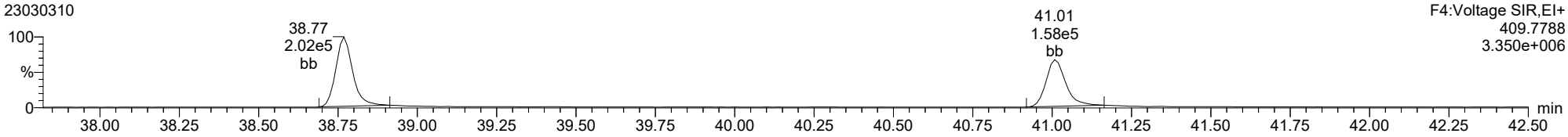

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Last Altered: Monday, March 06, 2023 11:49:27 Pacific Standard Time
Printed: Monday, March 06, 2023 14:47:33 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
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ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.774	1.000	4.131e4	5.488e4	0.702	0.753	0.770	1493	2220	6.02e5	8.13e5	403.0	366.2	NO	bb	bb	10.126
12378-PeCDF	29.934	1.000	2.094e5	1.387e5	0.679	1.510	1.550	3237	2768	3.10e6	2.08e6	956.2	750.8	NO	bb	bb	47.721
23478-PeCDF	31.282	1.001	2.189e5	1.466e5	0.786	1.493	1.550	3237	2768	3.25e6	2.13e6	1004.6	769.0	NO	bb	bb	48.580
123478-HxCDF	34.903	1.001	2.702e5	2.168e5	1.166	1.247	1.240	2948	2161	4.14e6	3.34e6	1404.3	1544.7	NO	bd	bd	47.304
234678-HxCDF	35.905	1.001	2.808e5	2.345e5	1.140	1.198	1.240	2948	2161	4.05e6	3.23e6	1375.6	1495.3	NO	bb	bd	52.050
123678-HxCDF	35.036	1.000	3.125e5	2.496e5	1.091	1.252	1.240	2948	2161	4.44e6	3.55e6	1506.3	1641.4	NO	db	db	51.387
123789-HxCDF	36.931	1.000	2.304e5	1.857e5	1.137	1.240	1.240	2948	2161	3.37e6	2.68e6	1143.7	1240.6	NO	bb	bb	48.904
1234678-HpCDF	38.769	1.000	1.725e5	1.737e5	1.003	0.993	1.050	2044	2260	2.71e6	2.74e6	1326.3	1210.9	NO	bb	bb	47.690
1234789-HpCDF	41.008	1.000	1.395e5	1.236e5	0.953	1.128	1.050	2044	2260	1.71e6	1.64e6	836.3	725.6	NO	bd	bb	53.601
OCDF	45.237	1.005	1.863e5	1.970e5	0.778	0.946	0.890	1162	1746	2.03e6	2.27e6	1745.6	1302.8	NO	bd	bb	95.021
2378-TCDD	26.424	1.001	4.111e4	5.488e4	1.149	0.749	0.770	1210	797	6.31e5	8.06e5	521.2	1010.5	NO	bb	bb	9.017
12378-PeCDD	31.538	1.001	2.212e5	1.442e5	1.022	1.534	1.550	2794	1649	3.14e6	2.05e6	1124.1	1244.9	NO	bb	bb	50.849
123478-HxCDD	36.017	1.000	2.147e5	1.744e5	0.996	1.231	1.240	3133	1871	3.31e6	2.68e6	1055.8	1434.4	NO	bd	bd	50.696
123678-HxCDD	36.139	1.001	2.532e5	2.091e5	1.001	1.211	1.240	3133	1871	3.49e6	2.85e6	1112.6	1520.4	NO	db	db	51.126
123789-HxCDD	36.518	1.011	2.114e5	1.814e5	0.907	1.166	1.240	3133	1871	3.08e6	2.54e6	982.1	1355.5	NO	bb	bd	51.723
1234678-HpCDD	40.273	1.000	1.700e5	1.663e5	1.039	1.022	1.050	1948	2105	2.22e6	2.15e6	1138.4	1022.1	NO	bd	bd	52.721
OCDD	45.000	1.000	2.152e5	2.483e5	0.920	0.867	0.890	885	1554	2.46e6	2.84e6	2785.0	1828.9	NO	bb	bb	97.150
13C-2378-TCDF	25.760	1.007	5.853e5	7.688e5	1.620	0.761	0.770	1921	2018	8.54e6	1.13e7	4445.5	5599.2	NO	bb	bb	89.420
13C-12378-PeCDF	29.923	1.169	6.466e5	4.272e5	1.240	1.513	1.550	2442	3390	8.85e6	5.90e6	3622.7	1739.1	NO	bb	bd	92.612
13C-23478-PeCDF	31.259	1.222	5.702e5	3.869e5	1.118	1.474	1.550	2442	3390	8.42e6	5.62e6	3447.3	1659.1	NO	bb	bb	91.616
13C-123478-HxCDF	34.881	0.955	2.992e5	5.837e5	1.168	0.513	0.510	2430	2952	4.46e6	8.67e6	1835.4	2935.2	NO	bd	bd	95.179
13C-123678-HxCDF	35.025	0.959	3.347e5	6.682e5	1.386	0.501	0.510	2430	2952	4.76e6	9.19e6	1958.9	3111.9	NO	db	db	91.102
13C-234678-HxCDF	35.883	0.983	2.956e5	5.730e5	1.129	0.516	0.510	2430	2952	4.27e6	8.35e6	1756.5	2829.2	NO	bb	bb	96.885
13C-123789-HxCDF	36.919	1.011	2.519e5	4.965e5	0.932	0.507	0.510	2430	2952	3.69e6	7.15e6	1518.9	2421.6	NO	bb	bb	101.167
13C-1234678-HpCDF	38.758	1.062	2.307e5	4.931e5	0.895	0.468	0.440	2487	3339	3.35e6	7.56e6	1347.2	2263.7	NO	bd	bb	101.839
13C-1234789-HpCDF	40.997	1.123	1.602e5	3.548e5	0.770	0.452	0.440	2487	3339	2.05e6	4.72e6	823.7	1413.6	NO	bb	bb	84.268
13C-1234-TCDD	25.591	0.000	4.152e5	5.195e5	1.000	0.799	0.770	2224	1360	6.53e6	8.14e6	2938.6	5984.1	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	4.083e5	5.184e5	1.152	0.788	0.770	2224	1360	5.76e6	7.36e6	2588.5	5411.0	NO	bb	bb	86.032
13C-12378-PeCDD	31.516	1.232	4.323e5	2.709e5	0.829	1.595	1.550	1217	913	6.32e6	3.99e6	5187.9	4362.9	NO	bb	bb	90.774
13C-123478-HxCDD	36.006	0.986	4.338e5	3.372e5	0.995	1.286	1.240	3851	1371	6.85e6	5.33e6	1778.6	3884.7	NO	bd	bd	97.589
13C-123678-HxCDD	36.117	0.989	5.114e5	3.919e5	1.157	1.305	1.240	3851	1371	7.20e6	5.65e6	1870.4	4120.3	NO	db	db	98.370
13C-1234678-HpCDD	40.262	1.103	3.166e5	2.972e5	0.840	1.065	1.050	1699	1520	4.20e6	3.95e6	2473.2	2598.3	NO	bb	bb	92.030
13C-OCDD	44.990	1.232	5.160e5	5.214e5	0.767	0.990	0.890	2001	1870	5.29e6	5.84e6	2645.0	3123.1	NO	bd	bb	170.247
13C-123789-HxCDD	36.507	0.000	4.452e5	3.487e5	1.000	1.277	1.240	3851	1371	6.49e6	5.07e6	1686.5	3694.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	9.071e4		1.288			1721		1.34e6		776.4			bb		7.536

Dataset: T:\Autospec\Processed Data Batch\230303IHICV.qld
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Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.271	0.865	5.764e4	7.805e4	0.802	0.738	0.770	1493	2220	9.22e5	1.25e6	617.6	564.2	NO	bb	bb	12.503
1289-TCDF	27.272	1.059	3.446e4	4.665e4	0.678	0.739	0.770	1493	2220	5.07e5	6.62e5	339.5	298.3	NO	bb	db	8.835
13468-PECDF	27.130	0.907	3.611e5	2.330e5	1.246	1.550	1.550	743	1090	5.44e6	3.55e6	7323.2	3255.0	NO	bb	bb	44.390
12389-PECDF	32.318	1.080	2.101e5	1.516e5	0.496	1.387	1.550	3237	2768	2.95e6	1.97e6	910.6	713.0	NO	bb	bd	67.866
123468-HXCDF	33.231	0.953	2.880e5	2.384e5	1.169	1.208	1.240	2948	2161	4.12e6	3.25e6	1397.4	1503.0	NO	bb	bb	51.002
1368-TCDD	23.557	0.892	5.668e4	7.180e4	1.015	0.789	0.770	1210	797	9.15e5	1.16e6	755.8	1460.4	NO	bb	bb	13.654
1289-TCDD	27.017	1.023	3.648e4	4.783e4	0.909	0.763	0.770	1210	797	5.40e5	6.90e5	445.8	865.4	NO	bb	bb	10.012
12479-PECDD	28.819	0.914	3.593e5	2.367e5	2.301	1.518	1.550	2794	1649	3.42e6	2.21e6	1224.5	1341.7	NO	bb	bb	36.832
12389-PECDD	31.928	1.013	2.423e5	1.700e5	1.184	1.426	1.550	2794	1649	3.48e6	2.31e6	1246.0	1399.4	NO	bb	bd	49.543
124679-HXCDD	34.011	0.945	2.330e5	1.909e5	1.115	1.220	1.240	3133	1871	3.38e6	2.76e6	1078.1	1473.6	NO	bb	bb	49.292
1234679-HPCDD	39.225	0.974	2.020e5	1.832e5	1.137	1.103	1.050	1948	2105	2.83e6	2.72e6	1451.0	1293.3	NO	bd	bb	55.196
Total-tetrafurans			1.346e5		0.727			1493		2.05e6							31.724
Total-penta1			3.611e5					743		5.44e6							44.390
Total-pentafurans			6.730e5		0.654			3237		9.80e6							172.856
Total-hexafurans			1.382e6		1.141			2948		2.01e7							250.647
Total-heptafurans			3.120e5		0.978			2044		4.42e6							101.291
Total-Furans			3.049e6		0.922			1493		4.39e7							695.930
Total-tetradioxins			2.249e5		1.024			1210		3.13e6							54.516
Total-pentadioxins			8.229e5		1.502			2794		1.00e7							137.223
Total-hexadioxins			9.123e5		1.005			3133		1.32e7							202.837
Total-heptadioxins			3.720e5		1.088			1948		5.04e6							107.918
Total-Dioxins			2.547e6		1.130			1210		3.39e7							599.643
Total-TEQ			5.596e6					1210		7.78e7							1295.573
FUNCTION1 PFK			7.521e6					557945		8.00e6							
FUNCTION2 PFK			4.110e5					226700		1.13e7							0.000
FUNCTION3 PFK			8.443e6					414812		2.82e6							0.000
FUNCTION4 PFK			2.598e7					304689		2.22e7							
FUNCTION5 PFK			7.163e4					189891		2.74e6							
FUNCTION1 HXCD...			3.794e2					593		5.61e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.042e2					818		1.73e4							0.000
FUNCTION3 OCDPE			9.563e1					429		1.87e3							0.000
FUNCTION4 NCDPE			0.000e0					545		0.00e0							
FUNCTION5 DCDPE			0.000e0					542		0.00e0							

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.446e4	4.665e4	0.678	0.74	0.77	339.5	YES	NO	bb	db	8.835
2	2378-TCDF	25.77	4.131e4	5.488e4	0.702	0.75	0.77	403.0	YES	NO	bb	bb	10.126
3	Total-tetrafurans	24.86	6.389e2	7.978e2	0.727	0.80	0.77	6.2	YES	NO	bb	bb	0.146
4	Total-tetrafurans	24.55	5.238e2	5.981e2	0.727	0.88	0.77	6.0	YES	NO	bb	bb	0.114
5	1368-TCDF	22.27	5.764e4	7.805e4	0.802	0.74	0.77	617.6	YES	NO	bb	bb	12.503

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.13	3.611e5	2.330e5	1.246	1.55	1.55	7323.2	YES	NO	bb	bb	44.390

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.32	2.101e5	1.516e5	0.496	1.39	1.55	910.6	YES	NO	bb	bd	67.866
2	23478-PeCDF	31.28	2.189e5	1.466e5	0.786	1.49	1.55	1004.6	YES	NO	bb	bb	48.580
3	12378-PeCDF	29.93	2.094e5	1.387e5	0.679	1.51	1.55	956.2	YES	NO	bb	bb	47.721
4	Total-pentafurans	28.80	3.458e4	2.311e4	0.654	1.50	1.55	155.8	YES	NO	bb	bb	8.688

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.90	2.702e5	2.168e5	1.166	1.25	1.24	1404.3	YES	NO	bd	bd	47.304
2	123468-HXCDF	33.23	2.880e5	2.384e5	1.169	1.21	1.24	1397.4	YES	NO	bb	bb	51.002
3	123789-HxCDF	36.93	2.304e5	1.857e5	1.137	1.24	1.24	1143.7	YES	NO	bb	bb	48.904
4	234678-HxCDF	35.91	2.808e5	2.345e5	1.140	1.20	1.24	1375.6	YES	NO	bb	bd	52.050
5	123678-HxCDF	35.04	3.125e5	2.496e5	1.091	1.25	1.24	1506.3	YES	NO	db	db	51.387

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.01	1.395e5	1.236e5	0.953	1.13	1.05	836.3	YES	NO	bd	bb	53.601
2	1234678-HpCDF	38.77	1.725e5	1.737e5	1.003	0.99	1.05	1326.3	YES	NO	bb	bb	47.690

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.446e4	4.665e4	0.678	0.74	0.77	339.5	YES	NO	bb	db	8.835
2	2378-TCDF	25.77	4.131e4	5.488e4	0.702	0.75	0.77	403.0	YES	NO	bb	bb	10.126
3	Total-tetrafurans	24.86	6.389e2	7.978e2	0.727	0.80	0.77	6.2	YES	NO	bb	bb	0.146
4	Total-tetrafurans	24.55	5.238e2	5.981e2	0.727	0.88	0.77	6.0	YES	NO	bb	bb	0.114
5	1368-TCDF	22.27	5.764e4	7.805e4	0.802	0.74	0.77	617.6	YES	NO	bb	bb	12.503
6	12389-PECDF	32.32	2.101e5	1.516e5	0.496	1.39	1.55	910.6	YES	NO	bb	bd	67.866
7	23478-PeCDF	31.28	2.189e5	1.466e5	0.786	1.49	1.55	1004.6	YES	NO	bb	bb	48.580
8	12378-PeCDF	29.93	2.094e5	1.387e5	0.679	1.51	1.55	956.2	YES	NO	bb	bb	47.721
9	Total-pentafurans	28.80	3.458e4	2.311e4	0.654	1.50	1.55	155.8	YES	NO	bb	bb	8.688
10	123478-HxCDF	34.90	2.702e5	2.168e5	1.166	1.25	1.24	1404.3	YES	NO	bd	bd	47.304
11	123468-HXCDF	33.23	2.880e5	2.384e5	1.169	1.21	1.24	1397.4	YES	NO	bb	bb	51.002
12	123789-HxCDF	36.93	2.304e5	1.857e5	1.137	1.24	1.24	1143.7	YES	NO	bb	bb	48.904
13	234678-HxCDF	35.91	2.808e5	2.345e5	1.140	1.20	1.24	1375.6	YES	NO	bb	bd	52.050
14	123678-HxCDF	35.04	3.125e5	2.496e5	1.091	1.25	1.24	1506.3	YES	NO	db	db	51.387
15	1234789-HpCDF	41.01	1.395e5	1.236e5	0.953	1.13	1.05	836.3	YES	NO	bd	bb	53.601
16	1234678-HpCDF	38.77	1.725e5	1.737e5	1.003	0.99	1.05	1326.3	YES	NO	bb	bb	47.690
17	OCDF	45.24	1.863e5	1.970e5	0.778	0.95	0.89	1745.6	YES	NO	bd	bb	95.021
18	13468-PECDF	27.13	3.611e5	2.330e5	1.246	1.55	1.55	7323.2	YES	NO	bb	bb	44.390

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.668e4	7.180e4	1.015	0.79	0.77	755.8	YES	NO	bb	bb	13.654
2	1289-TCDD	27.02	3.648e4	4.783e4	0.909	0.76	0.77	445.8	YES	NO	bb	bb	10.012
3	2378-TCDD	26.42	4.111e4	5.488e4	1.149	0.75	0.77	521.2	YES	NO	bb	bb	9.017
4	Total-tetradioxins	26.10	6.719e4	8.697e4	1.024	0.77	0.77	561.8	YES	NO	bb	bb	16.242
5	Total-tetradioxins	25.60	2.343e4	2.963e4	1.024	0.79	0.77	301.6	YES	NO	bb	bb	5.591

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.93	2.423e5	1.700e5	1.184	1.43	1.55	1246.0	YES	NO	bb	bd	49.543
2	12378-PeCDD	31.54	2.212e5	1.442e5	1.022	1.53	1.55	1124.1	YES	NO	bb	bb	50.849
3	12479-PECDD	28.82	3.593e5	2.367e5	2.301	1.52	1.55	1224.5	YES	NO	bb	bb	36.832

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.01	2.330e5	1.909e5	1.115	1.22	1.24	1078.1	YES	NO	bb	bb	49.292
2	123789-HxCDD	36.52	2.114e5	1.814e5	0.907	1.17	1.24	982.1	YES	NO	bb	bd	51.723
3	123678-HxCDD	36.14	2.532e5	2.091e5	1.001	1.21	1.24	1112.6	YES	NO	db	db	51.126
4	123478-HxCDD	36.02	2.147e5	1.744e5	0.996	1.23	1.24	1055.8	YES	NO	bd	bd	50.696

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	1.700e5	1.663e5	1.039	1.02	1.05	1138.4	YES	NO	bd	bd	52.721
2	1234679-HPCDD	39.23	2.020e5	1.832e5	1.137	1.10	1.05	1451.0	YES	NO	bd	bb	55.196

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.668e4	7.180e4	1.015	0.79	0.77	755.8	YES	NO	bb	bb	13.654
2	1289-TCDD	27.02	3.648e4	4.783e4	0.909	0.76	0.77	445.8	YES	NO	bb	bb	10.012
3	2378-TCDD	26.42	4.111e4	5.488e4	1.149	0.75	0.77	521.2	YES	NO	bb	bb	9.017
4	Total-tetradioxins	26.10	6.719e4	8.697e4	1.024	0.77	0.77	561.8	YES	NO	bb	bb	16.242
5	Total-tetradioxins	25.60	2.343e4	2.963e4	1.024	0.79	0.77	301.6	YES	NO	bb	bb	5.591
6	12389-PECDD	31.93	2.423e5	1.700e5	1.184	1.43	1.55	1246.0	YES	NO	bb	bd	49.543
7	12378-PeCDD	31.54	2.212e5	1.442e5	1.022	1.53	1.55	1124.1	YES	NO	bb	bb	50.849
8	12479-PECDD	28.82	3.593e5	2.367e5	2.301	1.52	1.55	1224.5	YES	NO	bb	bb	36.832
9	124679-HXCDD	34.01	2.330e5	1.909e5	1.115	1.22	1.24	1078.1	YES	NO	bb	bb	49.292
10	123789-HxCDD	36.52	2.114e5	1.814e5	0.907	1.17	1.24	982.1	YES	NO	bb	bd	51.723
11	123678-HxCDD	36.14	2.532e5	2.091e5	1.001	1.21	1.24	1112.6	YES	NO	db	db	51.126
12	123478-HxCDD	36.02	2.147e5	1.744e5	0.996	1.23	1.24	1055.8	YES	NO	bd	bd	50.696
13	1234678-HpCDD	40.27	1.700e5	1.663e5	1.039	1.02	1.05	1138.4	YES	NO	bd	bd	52.721
14	1234679-HPCDD	39.23	2.020e5	1.832e5	1.137	1.10	1.05	1451.0	YES	NO	bd	bb	55.196
15	OCDD	45.00	2.152e5	2.483e5	0.920	0.87	0.89	2785.0	YES	NO	bb	bb	97.150

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.446e4	4.665e4	0.678	0.74	0.77	339.5	YES	NO	bb	db	8.835
2	2378-TCDF	25.77	4.131e4	5.488e4	0.702	0.75	0.77	403.0	YES	NO	bb	bb	10.126
3	Total-tetrafurans	24.86	6.389e2	7.978e2	0.727	0.80	0.77	6.2	YES	NO	bb	bb	0.146
4	Total-tetrafurans	24.55	5.238e2	5.981e2	0.727	0.88	0.77	6.0	YES	NO	bb	bb	0.114
5	1368-TCDF	22.27	5.764e4	7.805e4	0.802	0.74	0.77	617.6	YES	NO	bb	bb	12.503
6	12389-PECDF	32.32	2.101e5	1.516e5	0.496	1.39	1.55	910.6	YES	NO	bb	bd	67.866
7	23478-PeCDF	31.28	2.189e5	1.466e5	0.786	1.49	1.55	1004.6	YES	NO	bb	bb	48.580
8	12378-PeCDF	29.93	2.094e5	1.387e5	0.679	1.51	1.55	956.2	YES	NO	bb	bb	47.721
9	Total-pentafurans	28.80	3.458e4	2.311e4	0.654	1.50	1.55	155.8	YES	NO	bb	bb	8.688
10	123478-HxCDF	34.90	2.702e5	2.168e5	1.166	1.25	1.24	1404.3	YES	NO	bd	bd	47.304
11	123468-HXCDF	33.23	2.880e5	2.384e5	1.169	1.21	1.24	1397.4	YES	NO	bb	bb	51.002
12	123789-HxCDF	36.93	2.304e5	1.857e5	1.137	1.24	1.24	1143.7	YES	NO	bb	bb	48.904
13	234678-HxCDF	35.91	2.808e5	2.345e5	1.140	1.20	1.24	1375.6	YES	NO	bb	bd	52.050
14	123678-HxCDF	35.04	3.125e5	2.496e5	1.091	1.25	1.24	1506.3	YES	NO	db	db	51.387
15	1234789-HpCDF	41.01	1.395e5	1.236e5	0.953	1.13	1.05	836.3	YES	NO	bd	bb	53.601
16	1234678-HpCDF	38.77	1.725e5	1.737e5	1.003	0.99	1.05	1326.3	YES	NO	bb	bb	47.690
17	OCDF	45.24	1.863e5	1.970e5	0.778	0.95	0.89	1745.6	YES	NO	bd	bb	95.021
18	13468-PECDF	27.13	3.611e5	2.330e5	1.246	1.55	1.55	7323.2	YES	NO	bb	bb	44.390
19	1368-TCDD	23.56	5.668e4	7.180e4	1.015	0.79	0.77	755.8	YES	NO	bb	bb	13.654
20	1289-TCDD	27.02	3.648e4	4.783e4	0.909	0.76	0.77	445.8	YES	NO	bb	bb	10.012
21	2378-TCDD	26.42	4.111e4	5.488e4	1.149	0.75	0.77	521.2	YES	NO	bb	bb	9.017
22	Total-tetradioxins	26.10	6.719e4	8.697e4	1.024	0.77	0.77	561.8	YES	NO	bb	bb	16.242
23	Total-tetradioxins	25.60	2.343e4	2.963e4	1.024	0.79	0.77	301.6	YES	NO	bb	bb	5.591
24	12389-PECDD	31.93	2.423e5	1.700e5	1.184	1.43	1.55	1246.0	YES	NO	bb	bd	49.543
25	12378-PeCDD	31.54	2.212e5	1.442e5	1.022	1.53	1.55	1124.1	YES	NO	bb	bb	50.849
26	12479-PECDD	28.82	3.593e5	2.367e5	2.301	1.52	1.55	1224.5	YES	NO	bb	bb	36.832
27	124679-HXCDD	34.01	2.330e5	1.909e5	1.115	1.22	1.24	1078.1	YES	NO	bb	bb	49.292
28	123789-HxCDD	36.52	2.114e5	1.814e5	0.907	1.17	1.24	982.1	YES	NO	bb	bd	51.723
29	123678-HxCDD	36.14	2.532e5	2.091e5	1.001	1.21	1.24	1112.6	YES	NO	db	db	51.126
30	123478-HxCDD	36.02	2.147e5	1.744e5	0.996	1.23	1.24	1055.8	YES	NO	bd	bd	50.696
31	1234678-HpCDD	40.27	1.700e5	1.663e5	1.039	1.02	1.05	1138.4	YES	NO	bd	bd	52.721
32	1234679-HPCDD	39.23	2.020e5	1.832e5	1.137	1.10	1.05	1451.0	YES	NO	bd	bb	55.196
33	OCDD	45.00	2.152e5	2.483e5	0.920	0.87	0.89	2785.0	YES	NO	bb	bb	97.150

ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.45	3.397e6					9.1	YES		db		
2	FUNCTION1 PFK	22.00	4.124e6					5.2	YES		bd		

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Printed: Monday, March 06, 2023 14:47:33 Pacific Standard Time

ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.25	2.674e4					2.5	NO		db		0.000
2	FUNCTION2 PFK	28.20	5.558e3					1.1	NO		dd		0.000
3	FUNCTION2 PFK	28.15	1.333e4					1.7	NO		bd		0.000
4	FUNCTION2 PFK	28.11	4.408e3					0.8	NO		bb		0.000
5	FUNCTION2 PFK	30.52	5.287e3					0.9	NO		bd		0.000
6	FUNCTION2 PFK	30.38	1.568e4					1.4	NO		bb		0.000
7	FUNCTION2 PFK	30.23	2.380e4					1.5	NO		db		0.000
8	FUNCTION2 PFK	30.10	2.694e4					1.7	NO		bd		0.000
9	FUNCTION2 PFK	29.99	2.076e3					0.5	NO		bb		0.000
10	FUNCTION2 PFK	29.89	7.421e3					1.2	NO		bb		0.000
11	FUNCTION2 PFK	29.80	6.022e3					0.5	NO		bb		0.000
12	FUNCTION2 PFK	29.62	1.101e4					1.2	NO		bb		0.000
13	FUNCTION2 PFK	29.52	2.200e4					2.0	NO		bb		0.000
14	FUNCTION2 PFK	29.42	7.036e3					1.0	NO		bb		0.000
15	FUNCTION2 PFK	29.29	2.309e4					2.2	NO		bb		0.000
16	FUNCTION2 PFK	29.03	1.036e4					1.7	NO		db		0.000
17	FUNCTION2 PFK	29.00	8.382e3					1.3	NO		bd		0.000
18	FUNCTION2 PFK	28.80	5.680e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	28.70	1.413e4					1.3	NO		bb		0.000
20	FUNCTION2 PFK	28.60	2.690e3					0.7	NO		bb		0.000
21	FUNCTION2 PFK	32.35	9.362e3					1.3	NO		bd		0.000
22	FUNCTION2 PFK	32.28	5.282e3					0.9	NO		bb		0.000
23	FUNCTION2 PFK	31.94	5.478e3					0.6	NO		bb		0.000
24	FUNCTION2 PFK	31.86	9.539e3					1.3	NO		bb		0.000
25	FUNCTION2 PFK	31.70	8.598e3					0.9	NO		bb		0.000
26	FUNCTION2 PFK	31.56	1.164e4					1.5	NO		bb		0.000
27	FUNCTION2 PFK	31.44	9.870e3					1.2	NO		bb		0.000
28	FUNCTION2 PFK	31.37	5.651e3					1.2	NO		bb		0.000
29	FUNCTION2 PFK	31.16	3.906e3					0.7	NO		db		0.000
30	FUNCTION2 PFK	31.10	5.259e3					1.0	NO		bd		0.000
31	FUNCTION2 PFK	31.00	2.220e3					0.5	NO		bb		0.000
32	FUNCTION2 PFK	30.93	4.197e3					0.6	NO		bb		0.000
33	FUNCTION2 PFK	30.84	1.813e4					1.7	NO		bb		0.000
34	FUNCTION2 PFK	30.68	6.046e3					1.3	NO		db		0.000
35	FUNCTION2 PFK	30.64	6.706e3					1.2	NO		dd		0.000
36	FUNCTION2 PFK	30.58	1.475e4					1.4	NO		dd		0.000
37	FUNCTION2 PFK	32.74	9.704e3					1.1	NO		bb		0.000

ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	32.61	1.975e3					0.6	NO		bb		0.000
39	FUNCTION2 PFK	32.55	1.171e3					0.5	NO		bb		0.000
40	FUNCTION2 PFK	32.51	7.325e3					1.0	NO		db		0.000
41	FUNCTION2 PFK	32.45	9.340e3					1.3	NO		dd		0.000
42	FUNCTION2 PFK	32.41	1.322e4					1.9	NO		dd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.70	5.175e4					1.9	NO		bb		0.000
2	FUNCTION3 PFK	35.52	3.681e5					3.3	YES		bb		0.000
3	FUNCTION3 PFK	34.42	8.023e6					1.5	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.67	5.668e6					23.1	YES		db		
2	FUNCTION4 PFK	39.84	1.814e7					26.9	YES		dd		
3	FUNCTION4 PFK	38.09	2.173e6					22.8	YES		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.82	4.953e3					1.4	NO		bb		
2	FUNCTION5 PFK	45.79	4.078e3					1.3	NO		db		
3	FUNCTION5 PFK	45.76	2.296e3					0.8	NO		bd		
4	FUNCTION5 PFK	45.37	1.499e4					1.8	NO		bb		
5	FUNCTION5 PFK	45.31	3.040e3					1.0	NO		bb		
6	FUNCTION5 PFK	44.94	1.866e3					0.7	NO		bb		
7	FUNCTION5 PFK	44.62	4.342e3					1.3	NO		bb		
8	FUNCTION5 PFK	43.85	4.909e3					1.2	NO		bb		
9	FUNCTION5 PFK	43.55	9.698e3					1.7	NO		bb		
10	FUNCTION5 PFK	43.31	1.818e4					2.2	NO		bb		
11	FUNCTION5 PFK	43.18	3.274e3					1.0	NO		bb		

ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.14	7.703e1					2.6	NO		bb		0.000
2	FUNCTION1 HXCD...	25.58	1.369e2					3.0	NO		bb		0.000
3	FUNCTION1 HXCD...	24.29	7.654e1					1.4	NO		bb		0.000
4	FUNCTION1 HXCD...	23.49	8.895e1					2.4	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.41	1.026e2					2.4	NO		db		0.000
2	FUNCTION2 HPCD...	32.32	1.299e2					2.2	NO		bd		0.000
3	FUNCTION2 HPCD...	31.19	1.035e2					3.9	YES		db		0.000
4	FUNCTION2 HPCD...	31.15	2.274e2					6.9	YES		bd		0.000
5	FUNCTION2 HPCD...	29.21	1.504e2					2.9	NO		bb		0.000
6	FUNCTION2 HPCD...	28.77	9.035e1					2.8	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.51	9.563e1					4.4	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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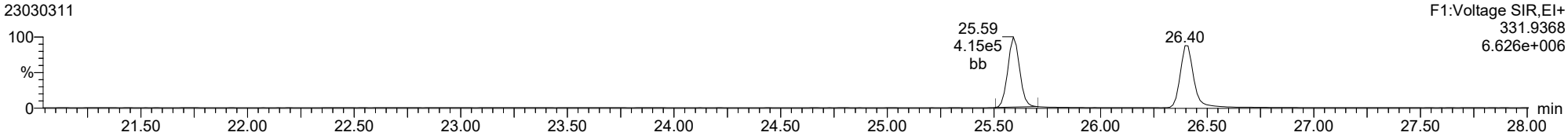
13C-1234-TCDD



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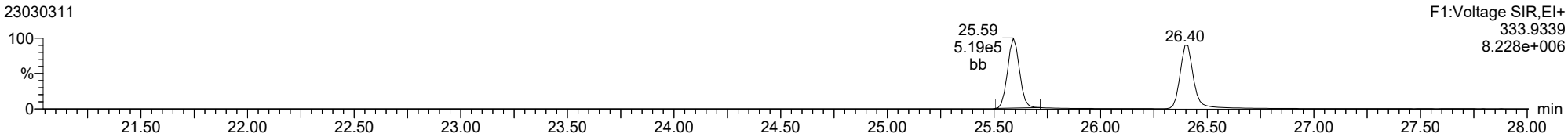

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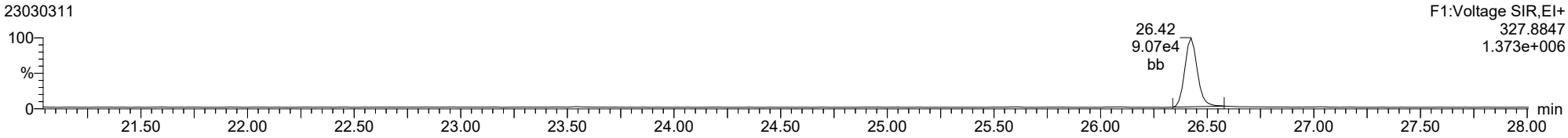

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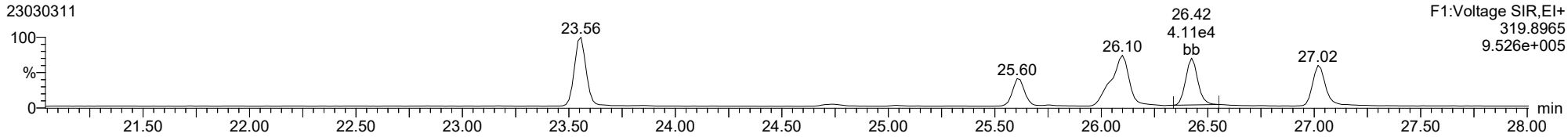

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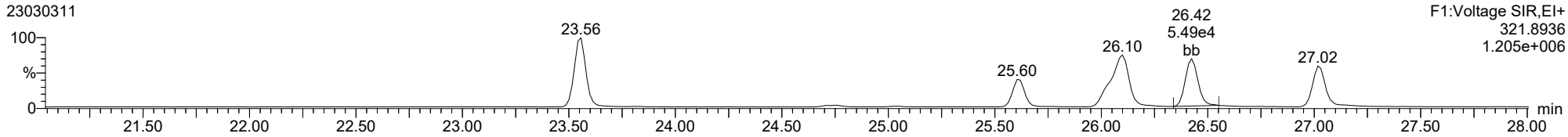

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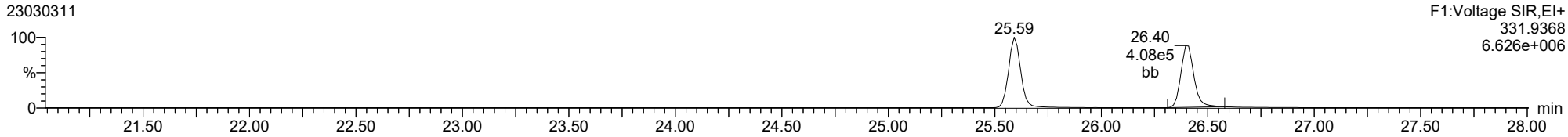

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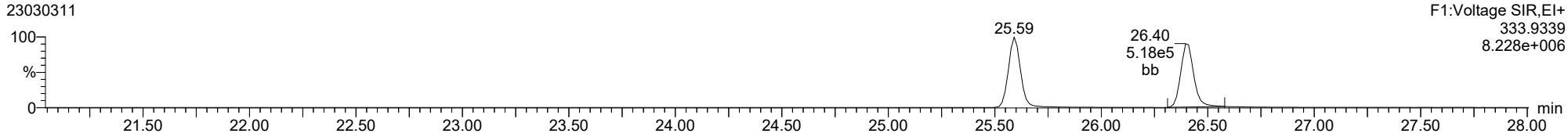

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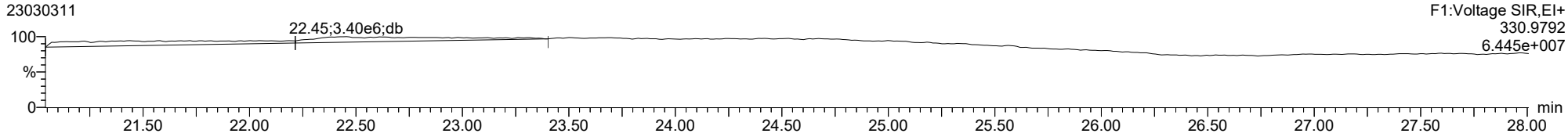

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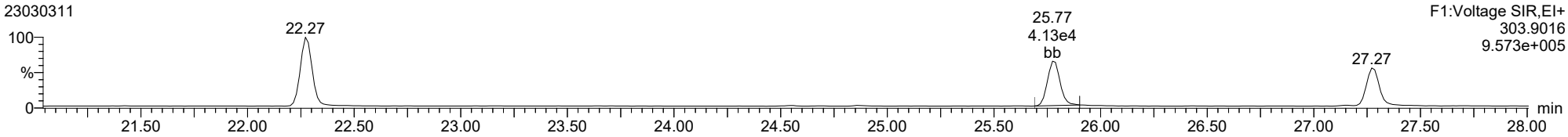

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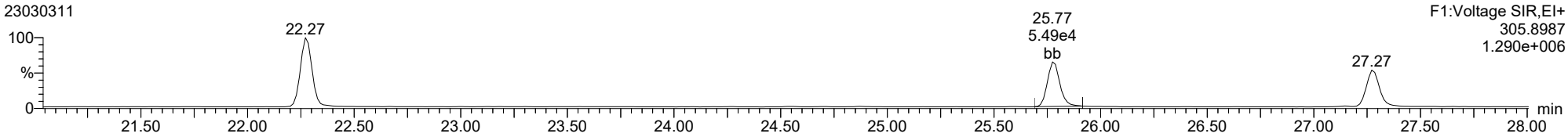

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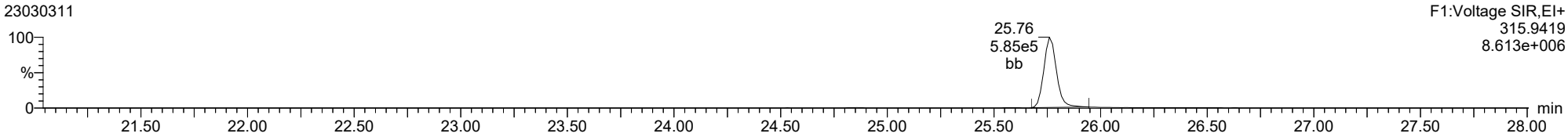

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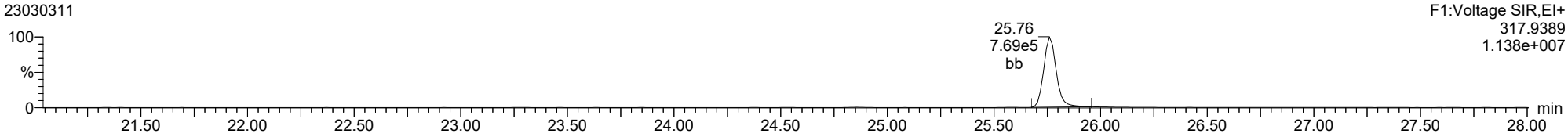

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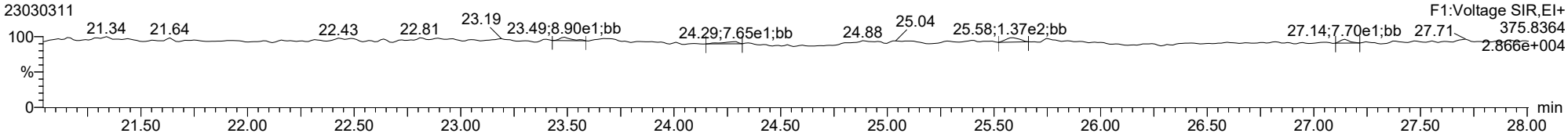

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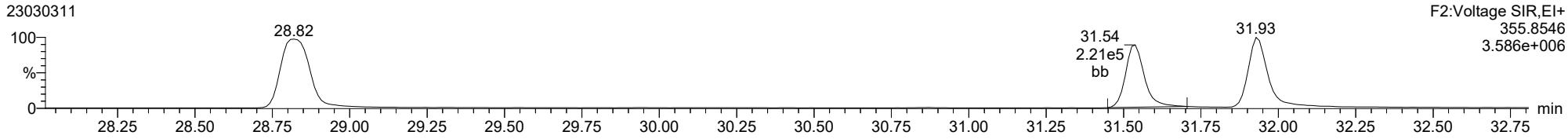

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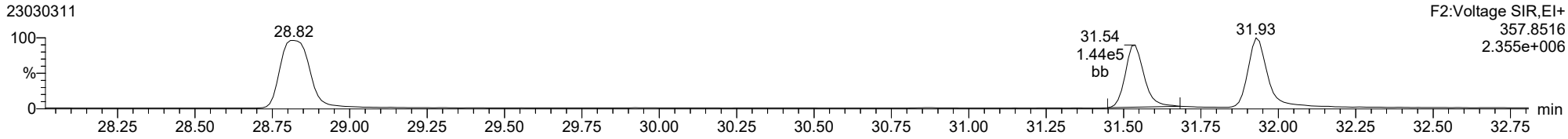

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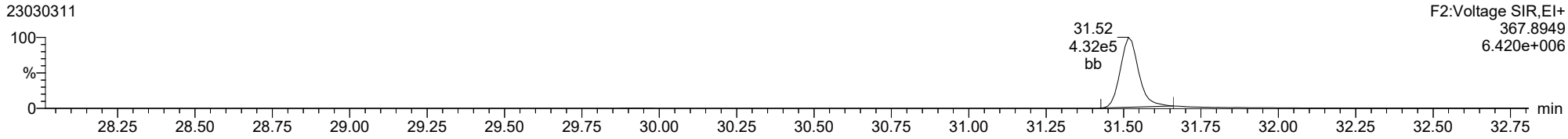

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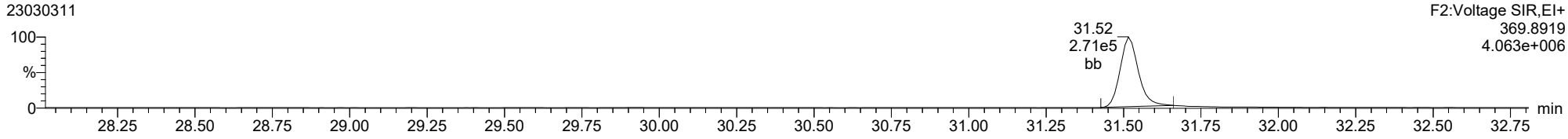
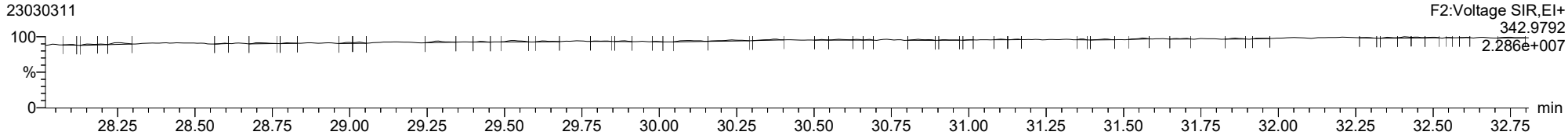


FUNCTION2 PFK



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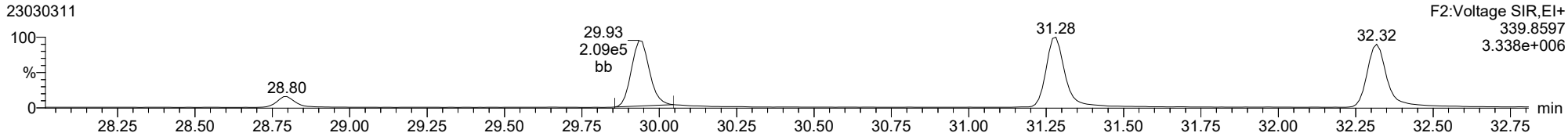
12378-PeCDF



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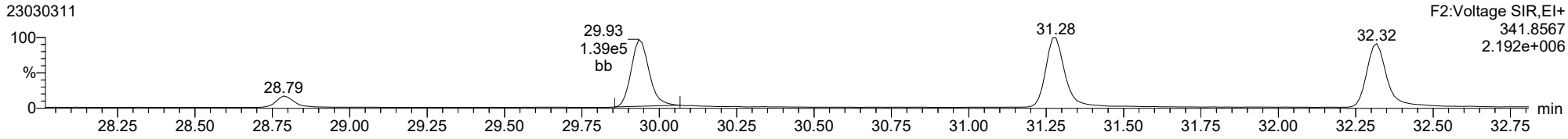

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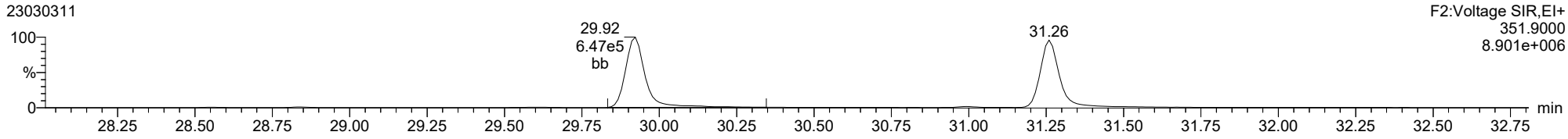

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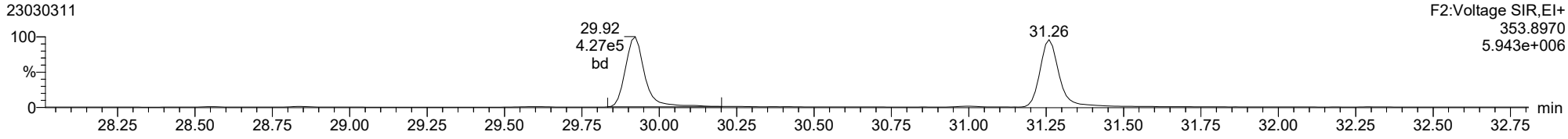

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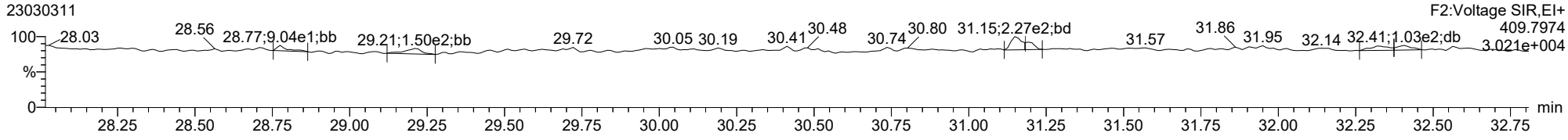

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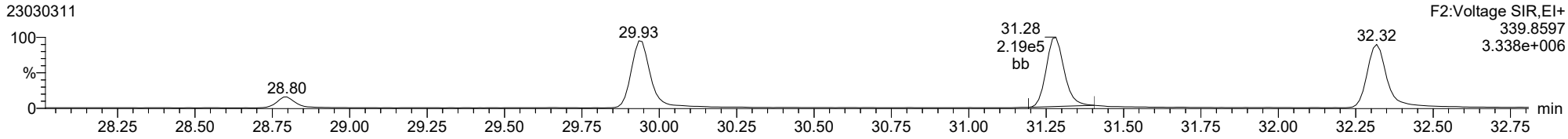
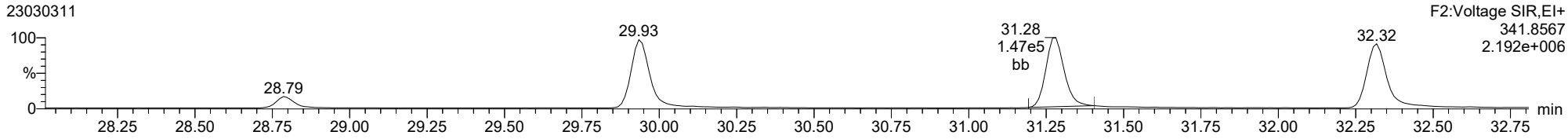
23478-PeCDF



23478-PeCDF



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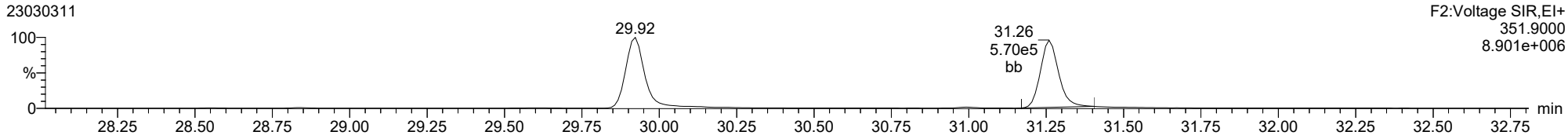

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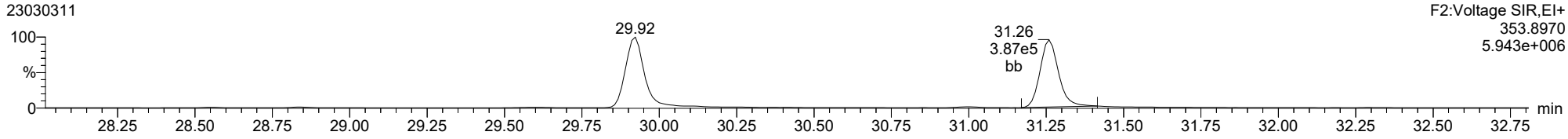

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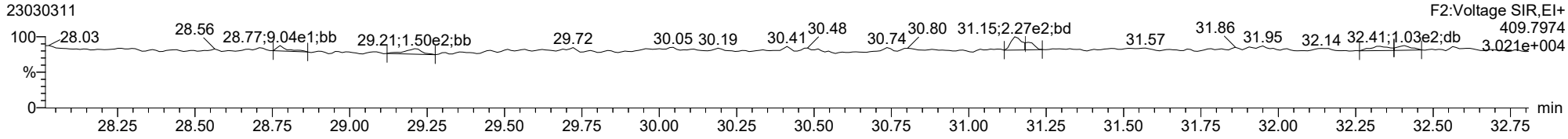

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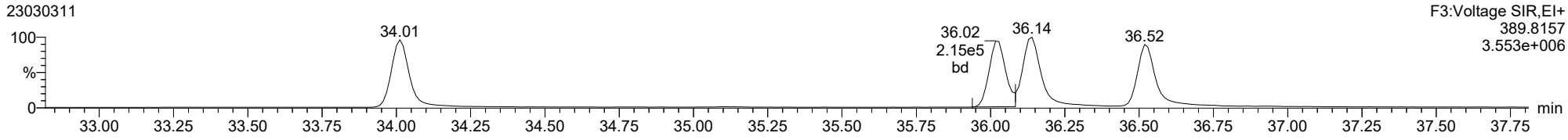

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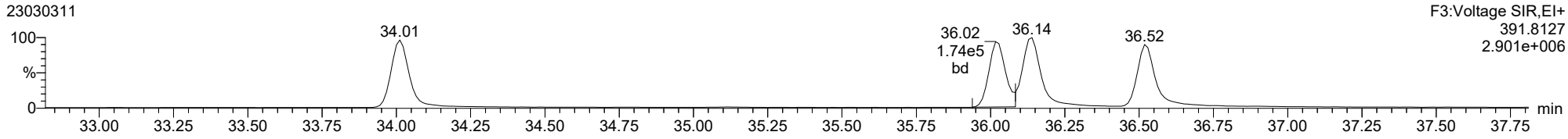

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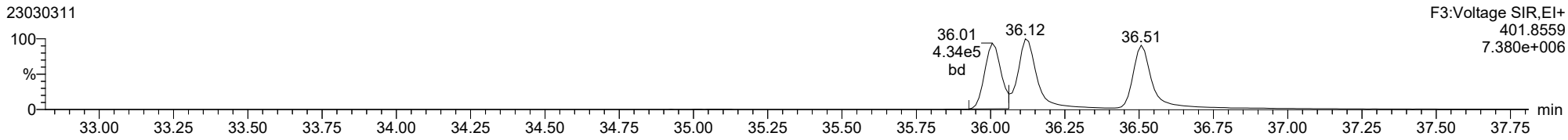

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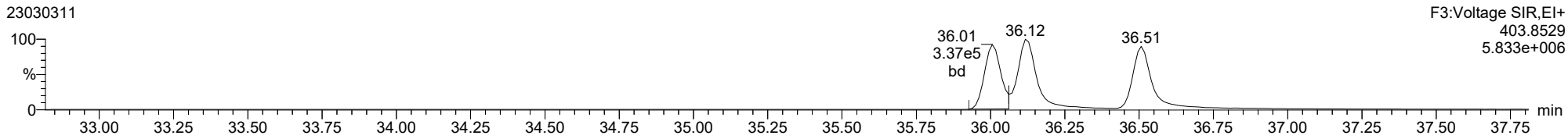

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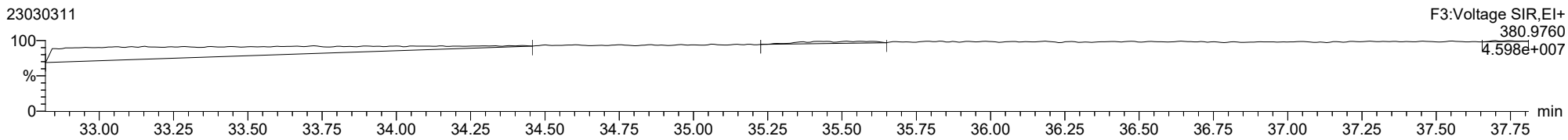

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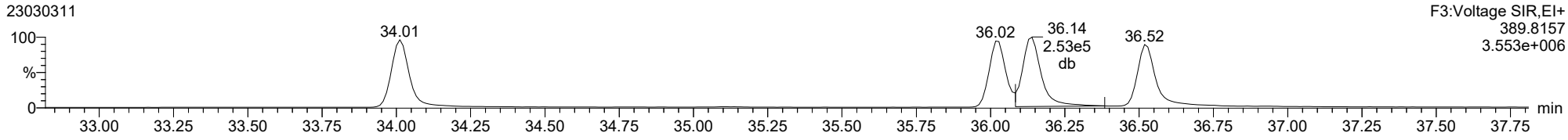
123678-HxCDD



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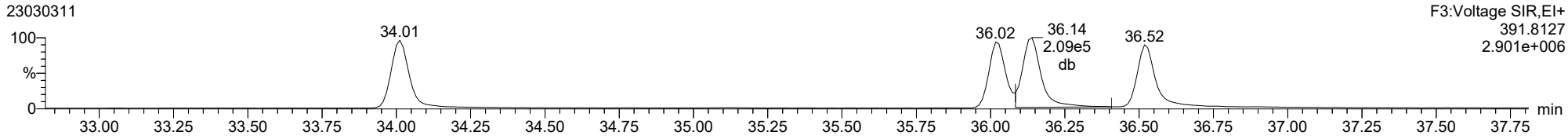

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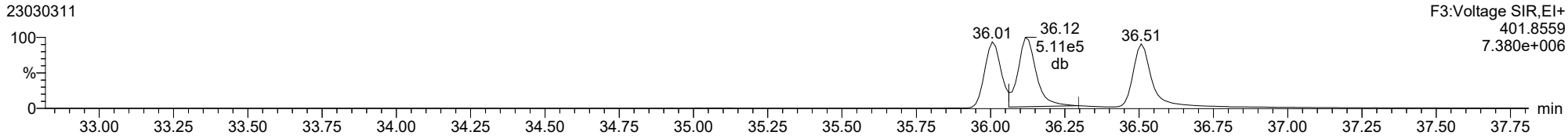

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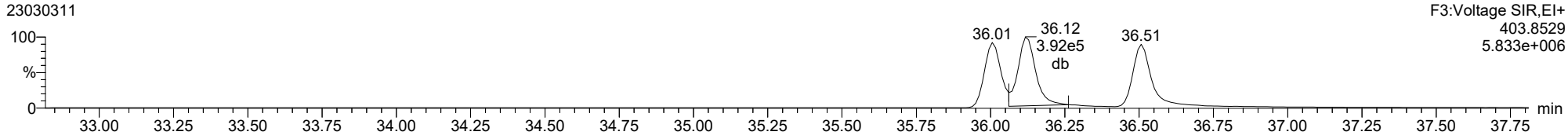

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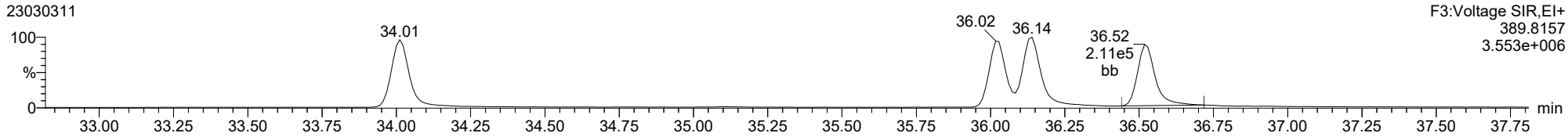

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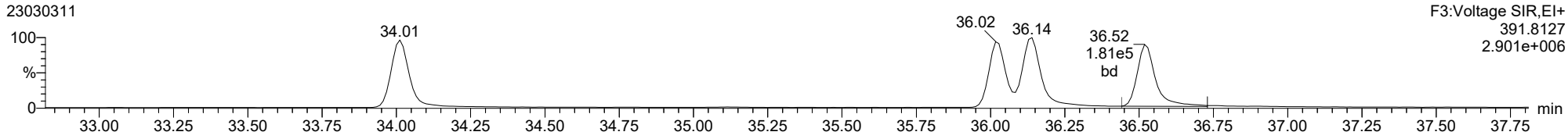

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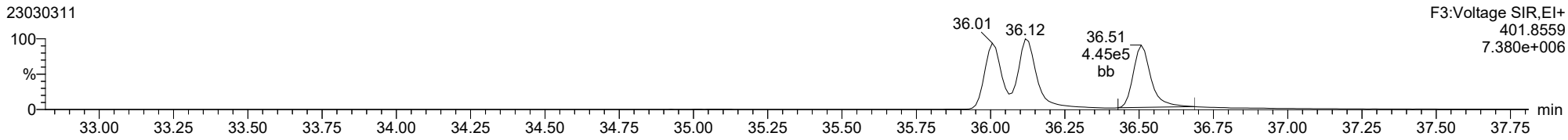

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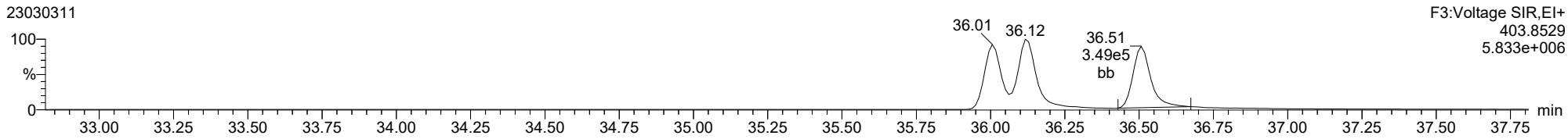

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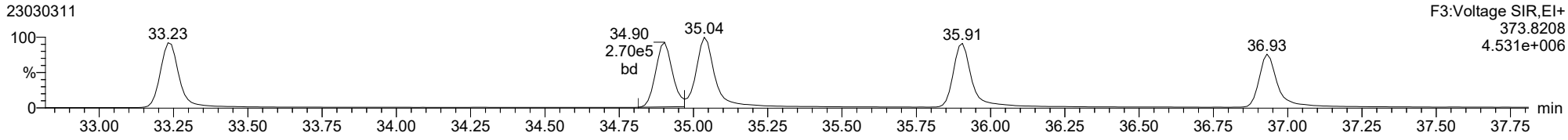

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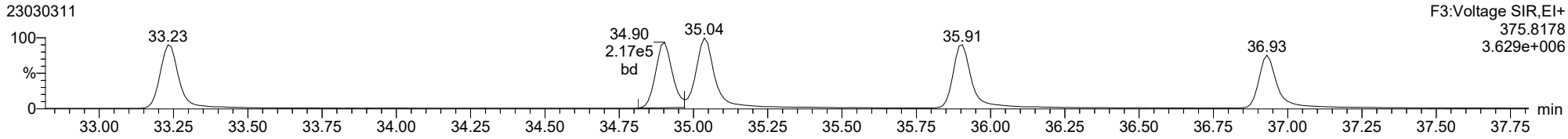

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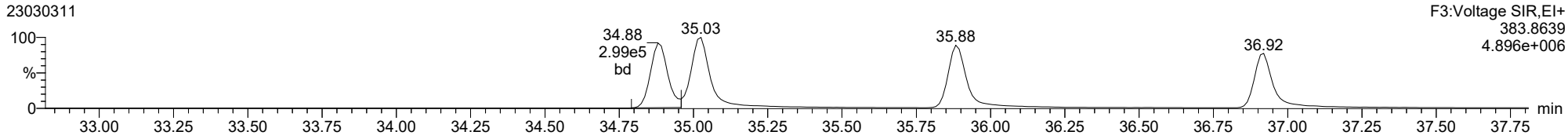

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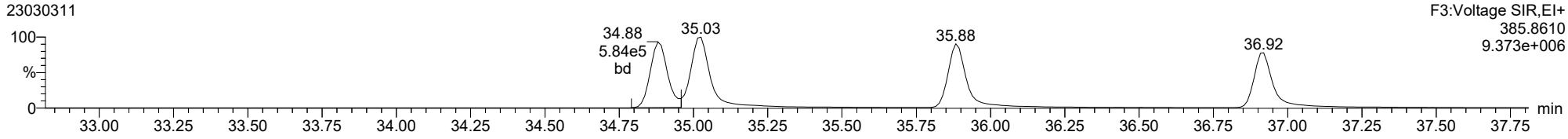
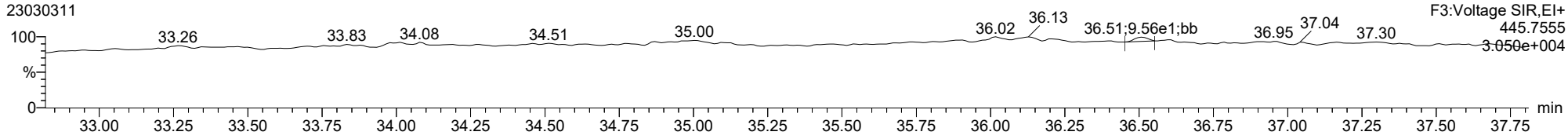


FUNCTION3 OCDPE



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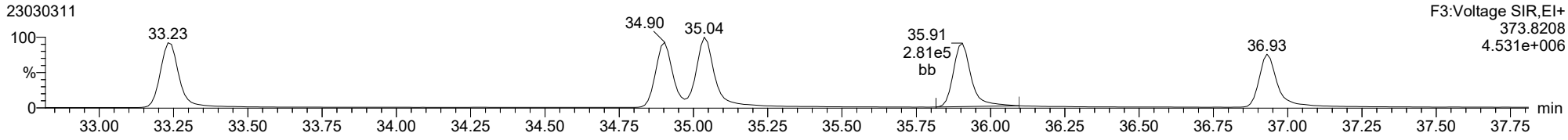
234678-HxCDF



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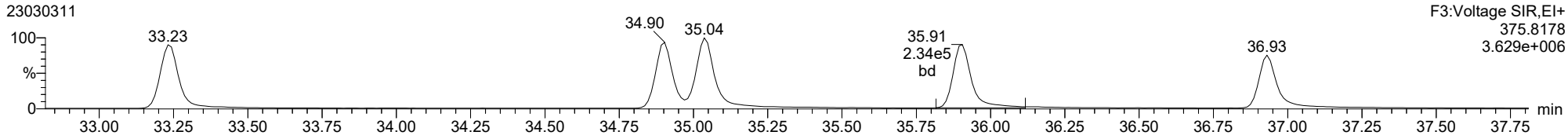

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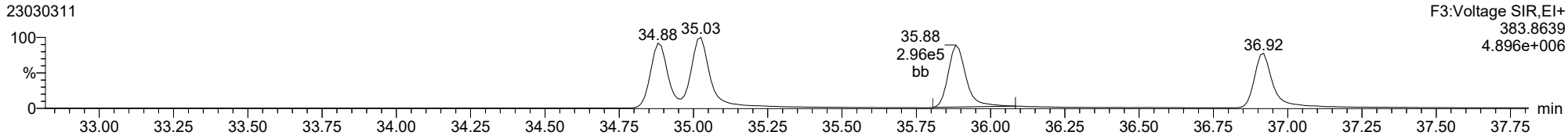

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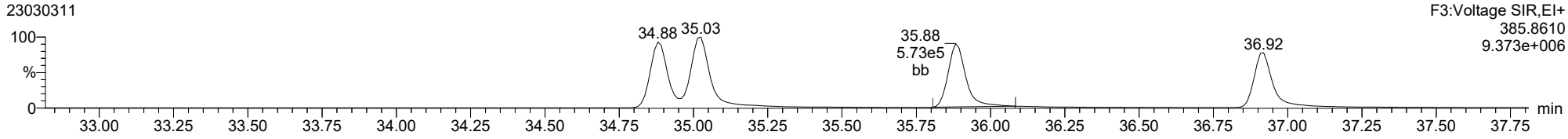

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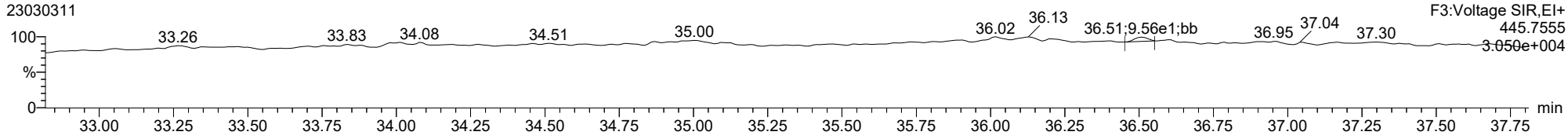

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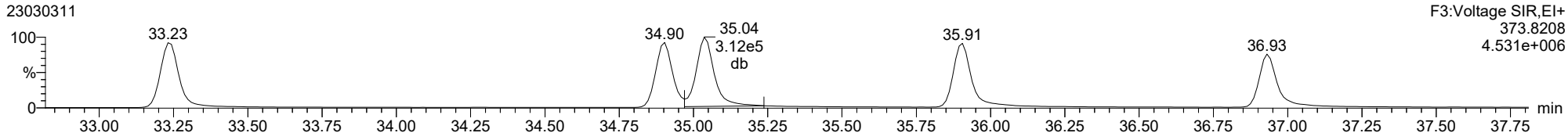

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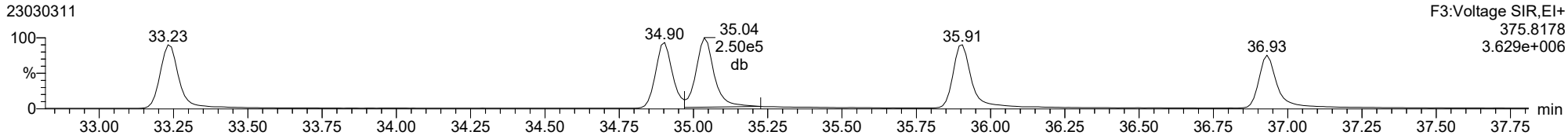

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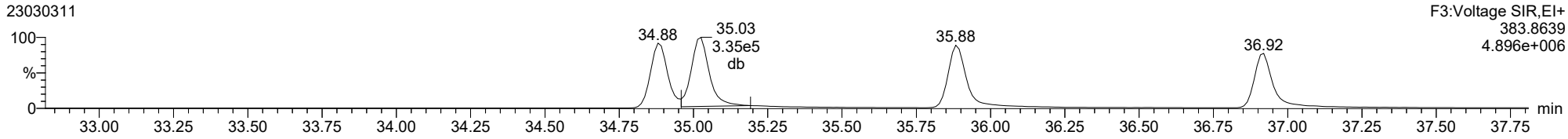

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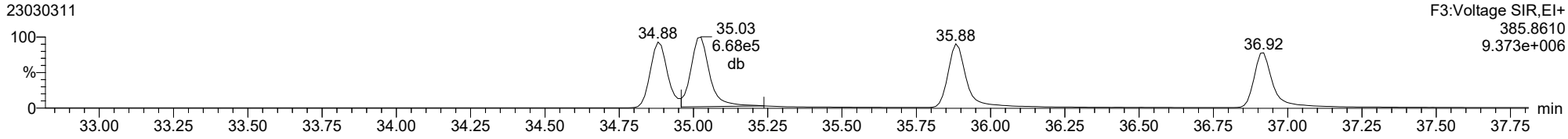
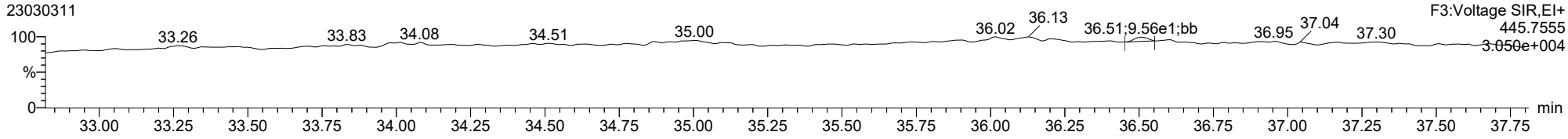


FUNCTION3 OCDPE



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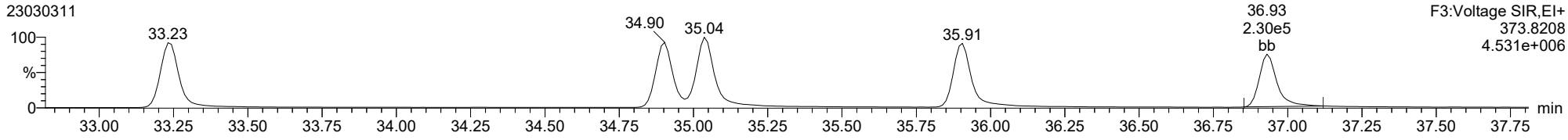

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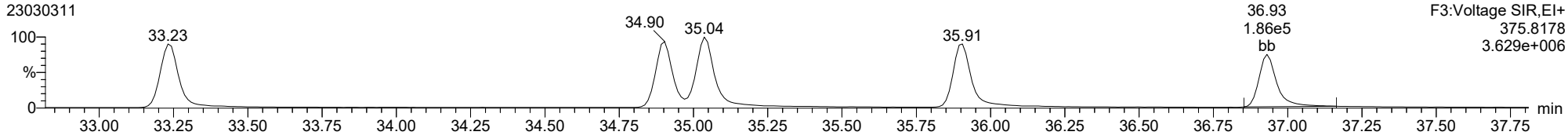

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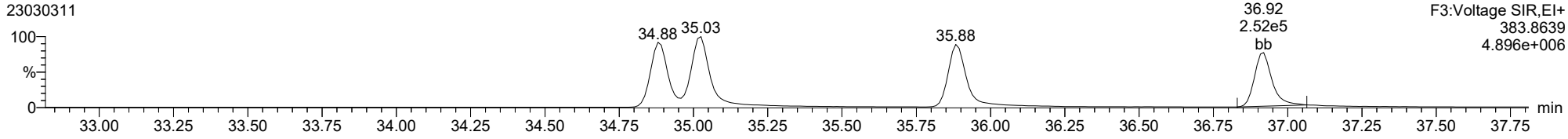

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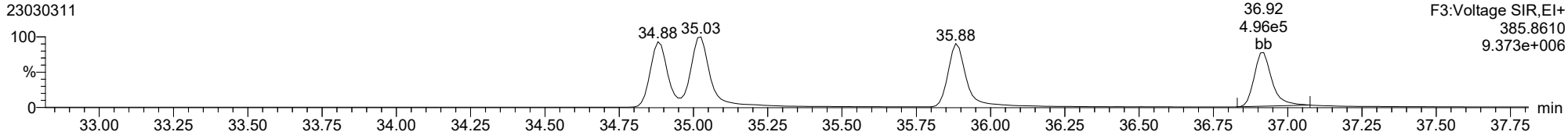

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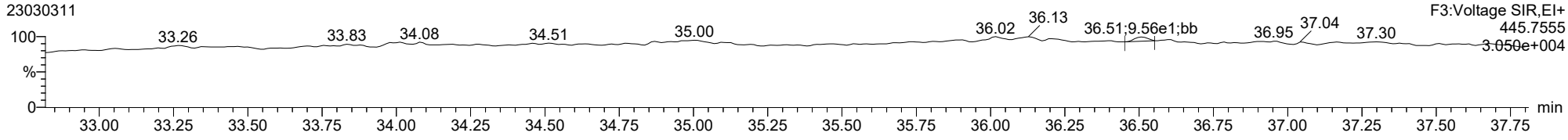

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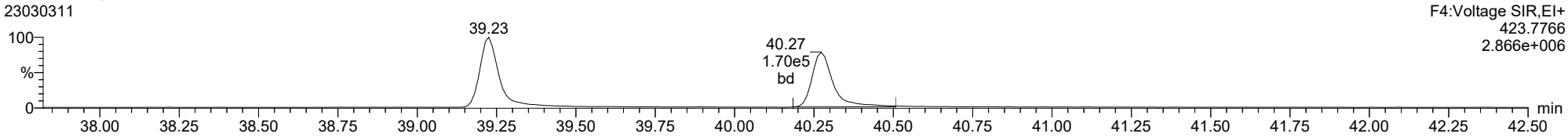
1234678-HpCDD



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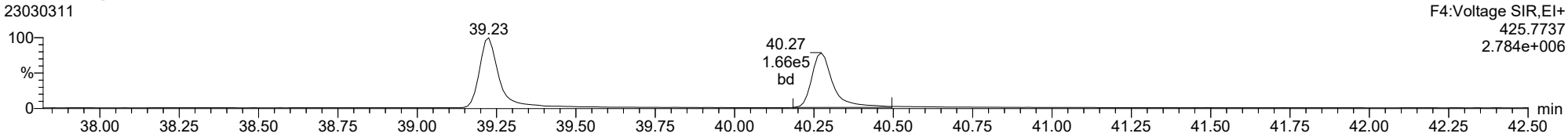

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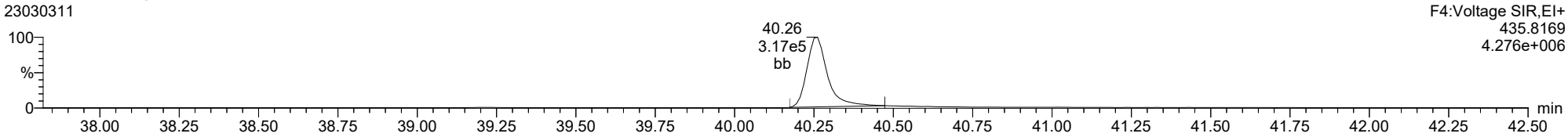

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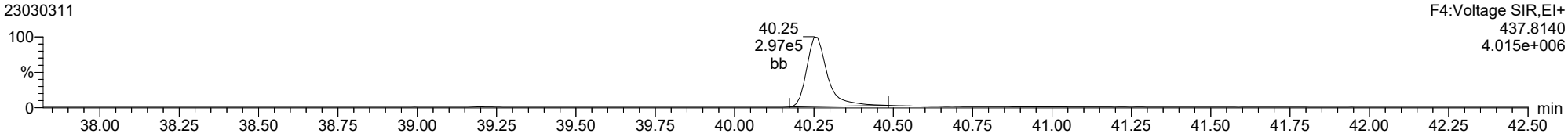
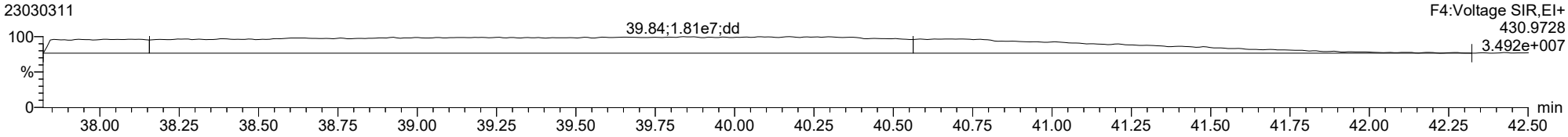


FUNCTION4 PFK



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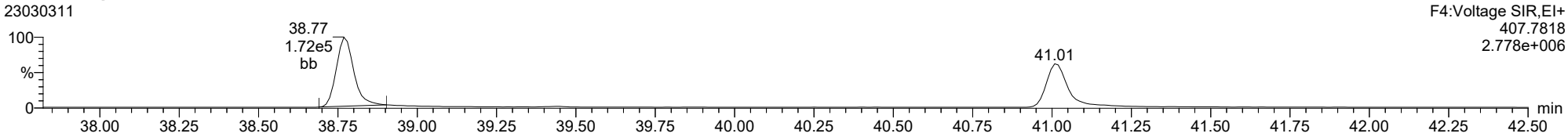
1234678-HpCDF



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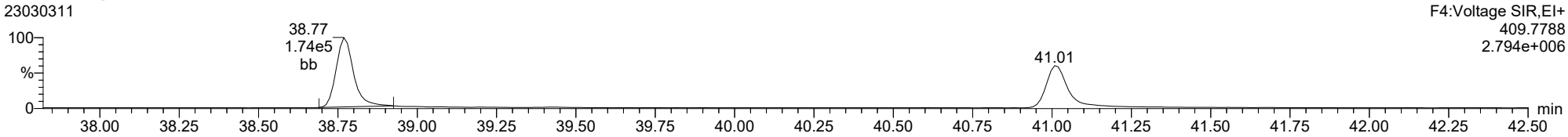

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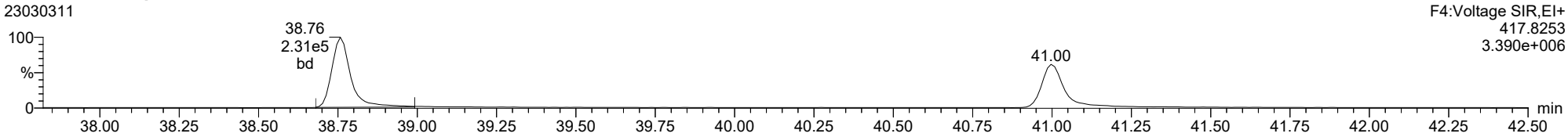

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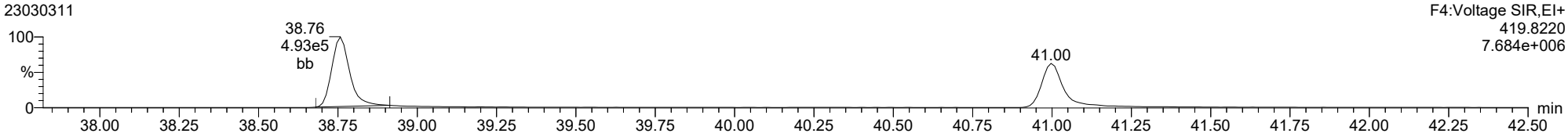
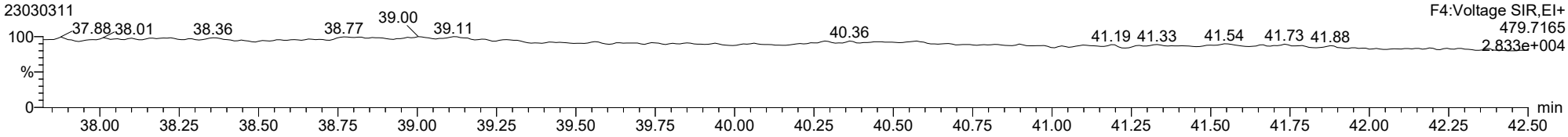


FUNCTION4 NCDPE



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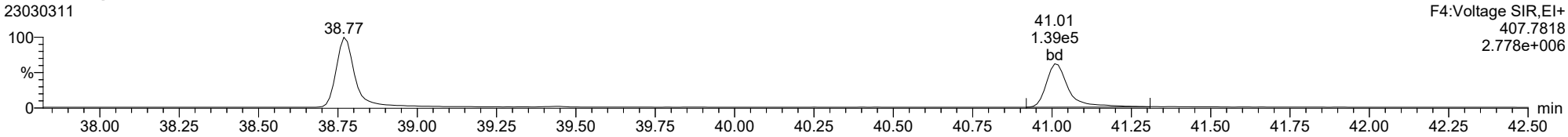
1234789-HpCDF



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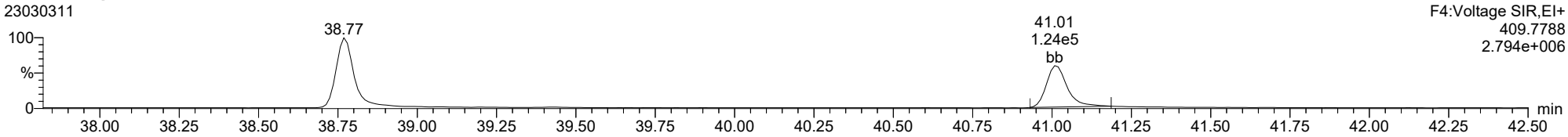

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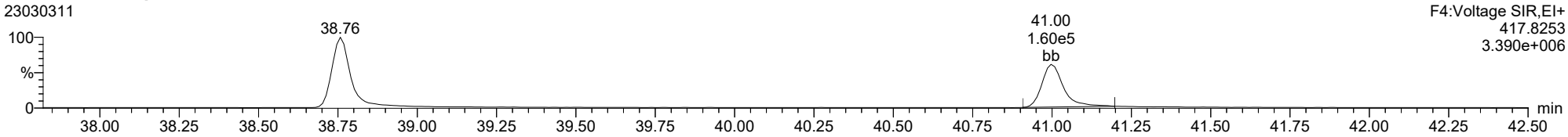

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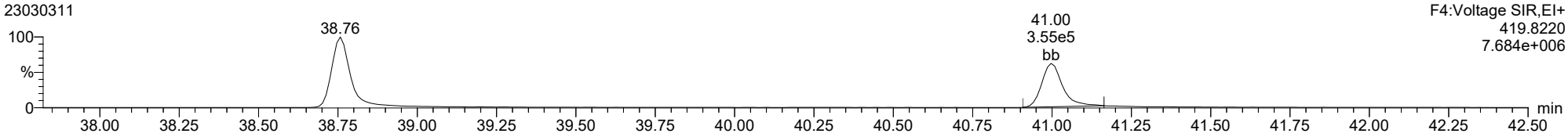
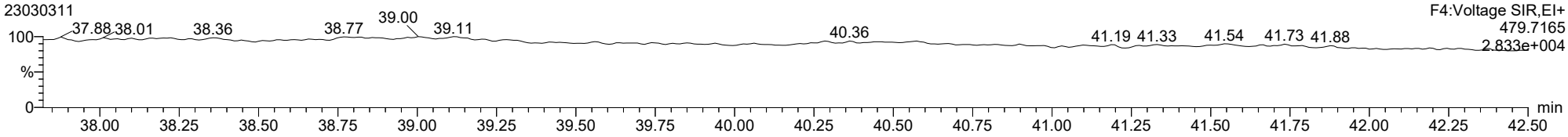


FUNCTION4 NCDPE



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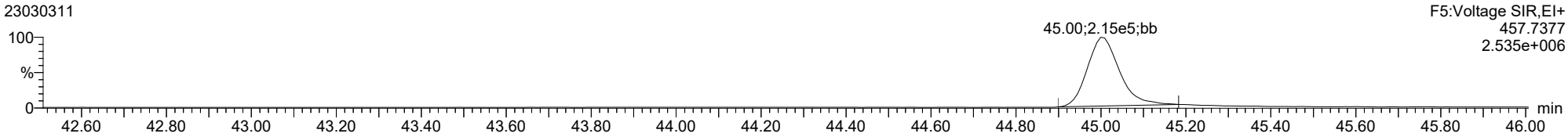
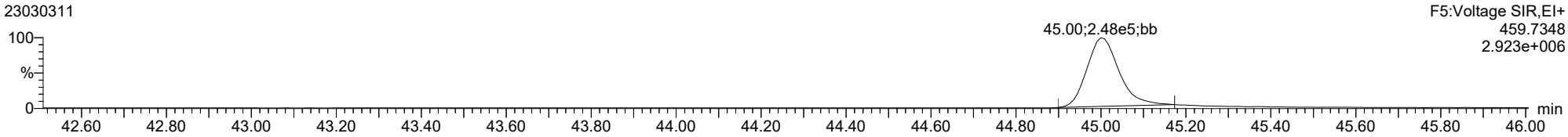
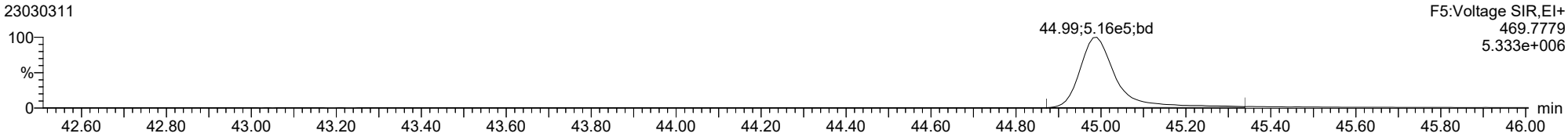
OCDD



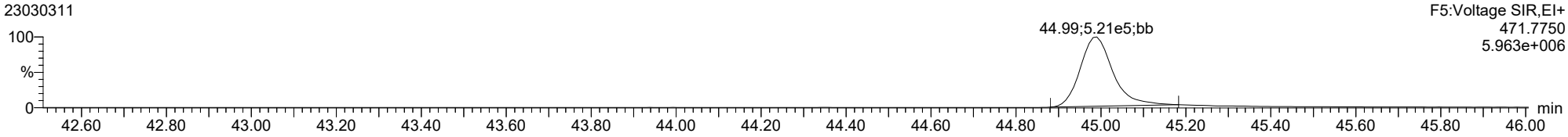
OCDD



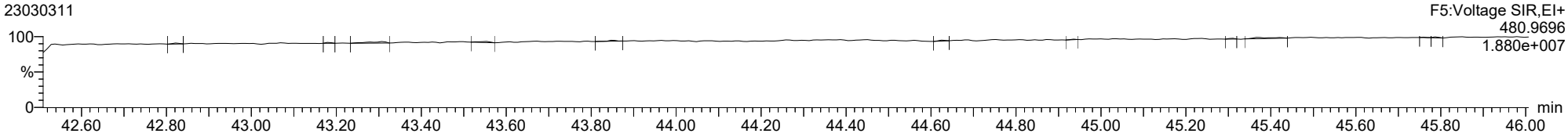
13C-OCDD



13C-OCDD



FUNCTION5 PFK



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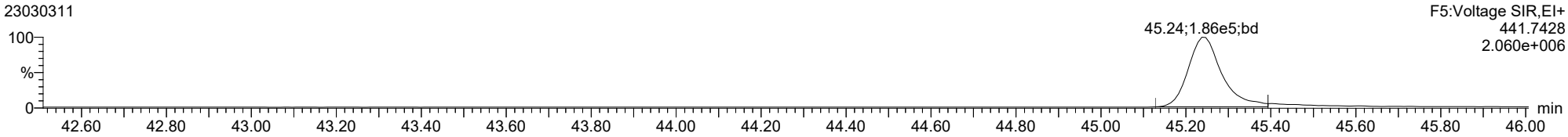
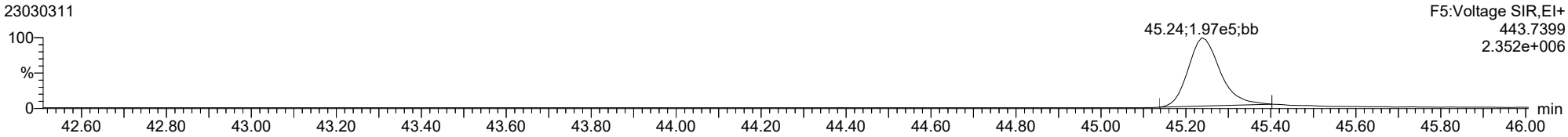
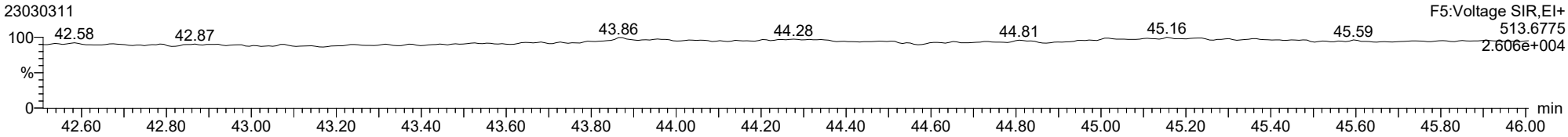
OCDF



OCDF

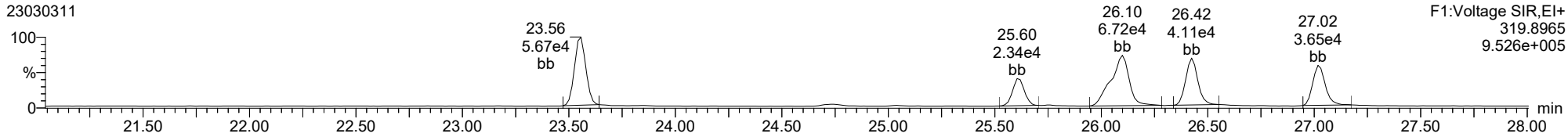


FUNCTION5 DCDPE

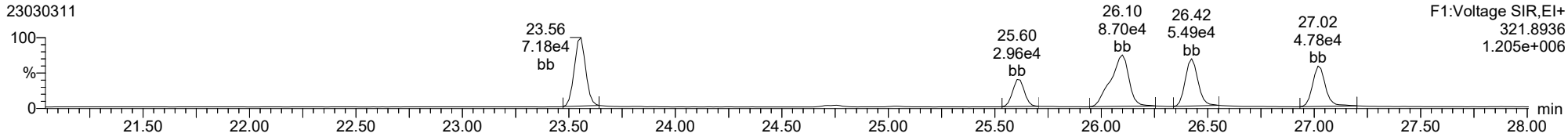


ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

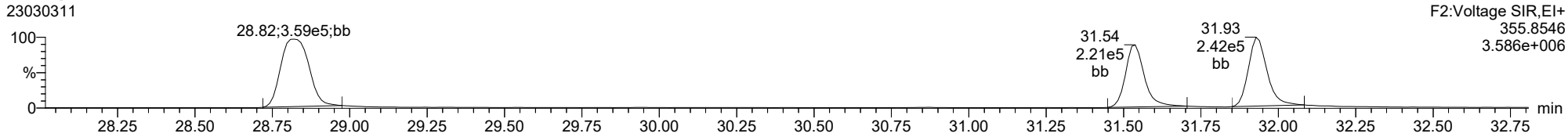
Total-tetradioxins



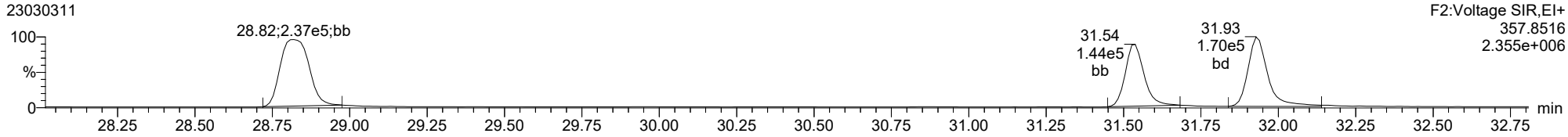
Total-tetradioxins



Total-pentadioxins

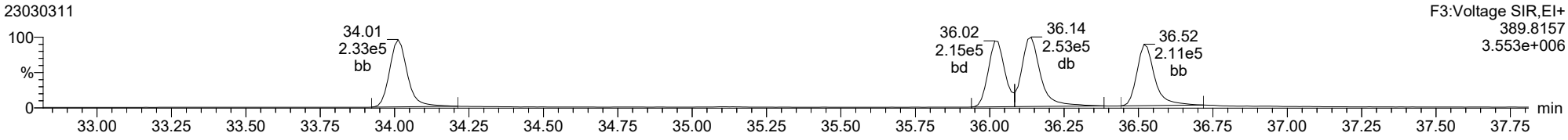


Total-pentadioxins

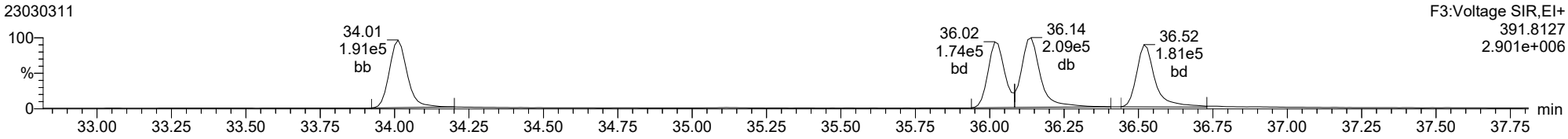


ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

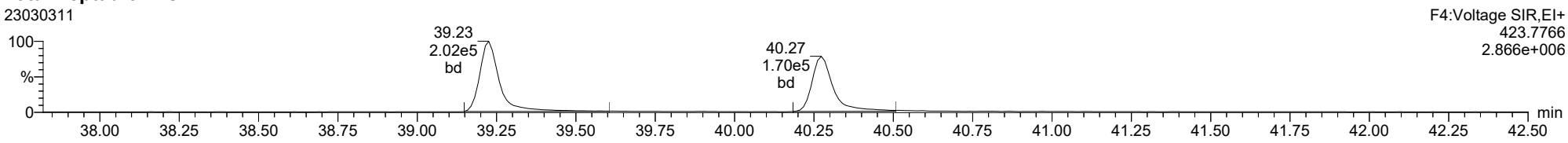
Total-hexadioxins



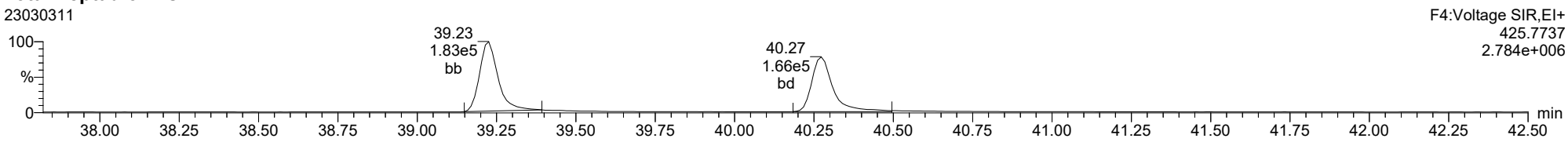
Total-hexadioxins



Total-heptadioxins

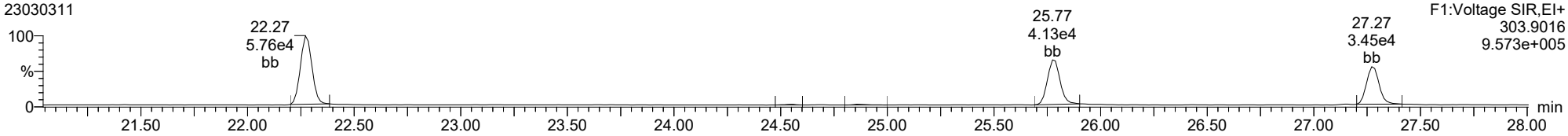


Total-heptadioxins

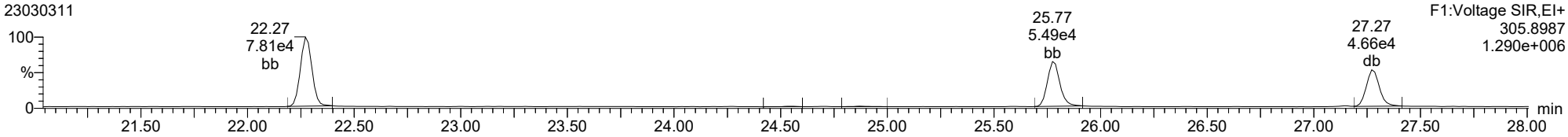


ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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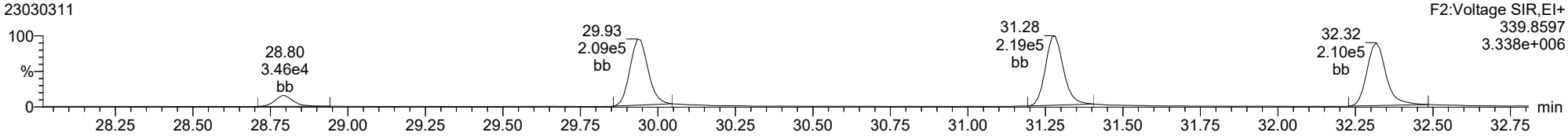

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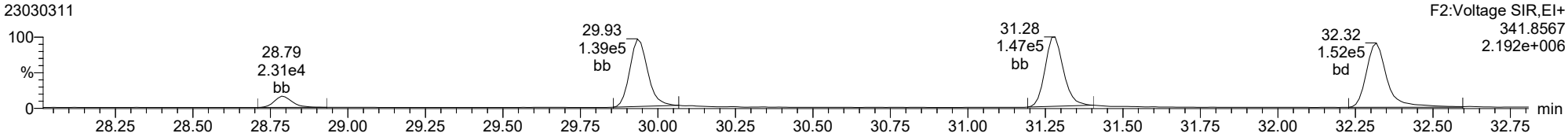

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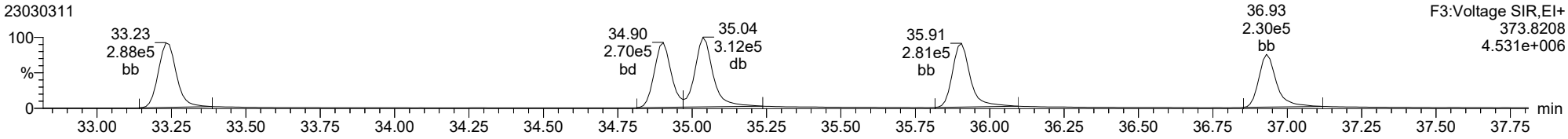
Total-hexafurans



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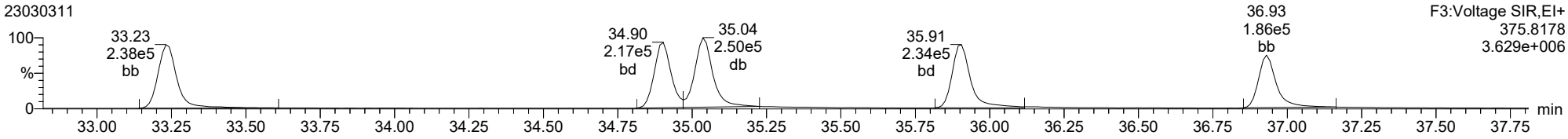

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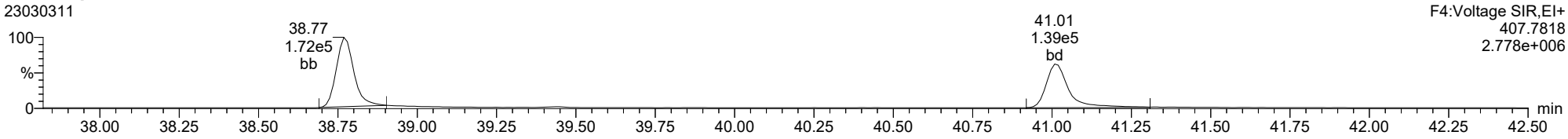

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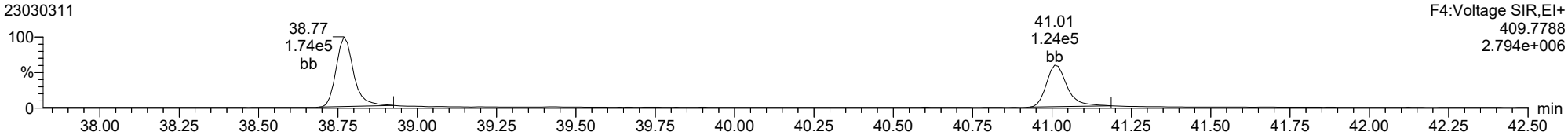
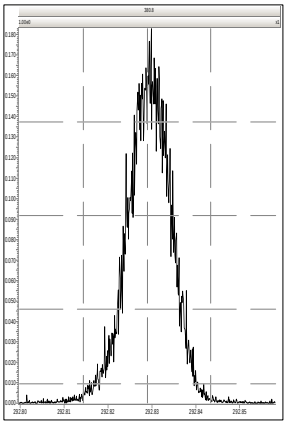
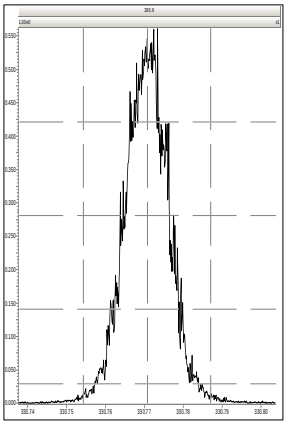


Printed: Friday, March 03, 2023 18:18:18 Pacific Standard Time

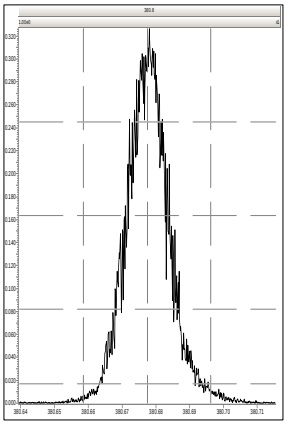
M 292.9824 R 13158



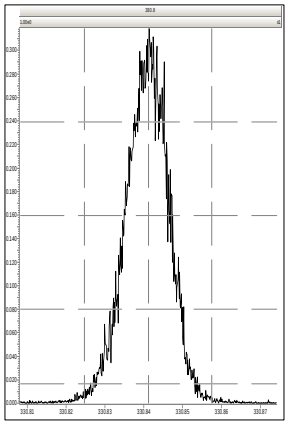
M 330.9792 R 12771



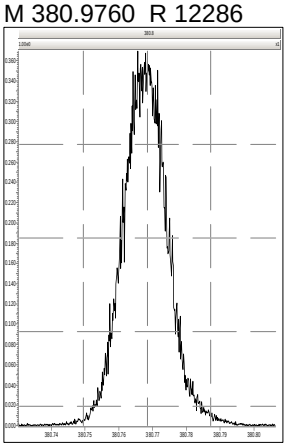
M 380.9760 R 12507



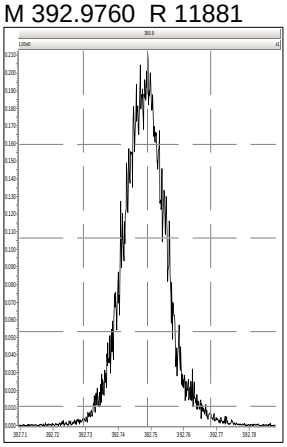
M 330.9792 R 13122



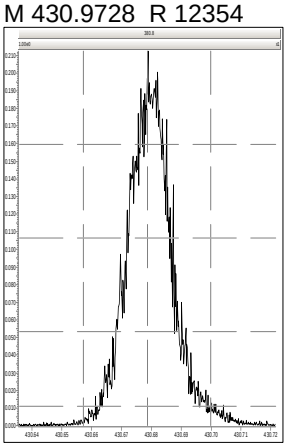
M 380.9760 R 12286



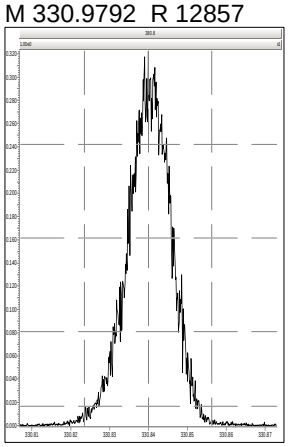
M 392.9760 R 11881



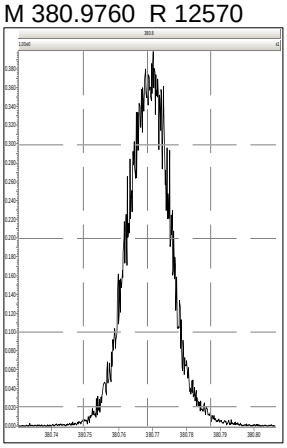
M 430.9728 R 12354



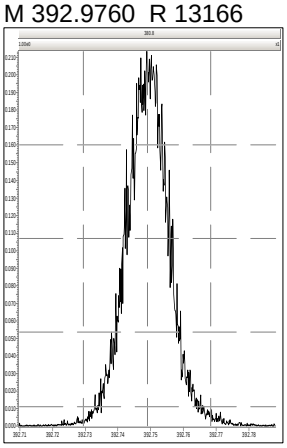
M 330.9792 R 12857



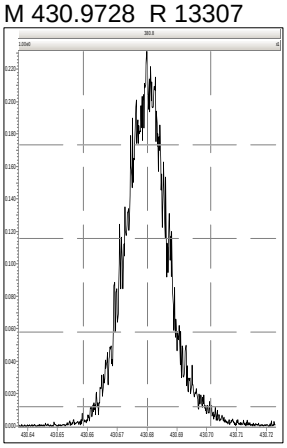
M 380.9760 R 12570



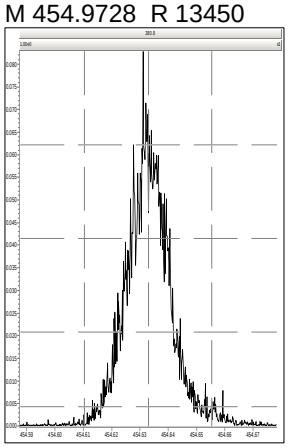
M 392.9760 R 13166



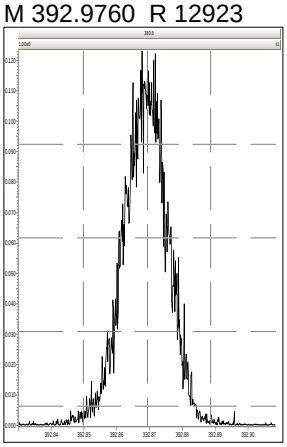
M 430.9728 R 13307



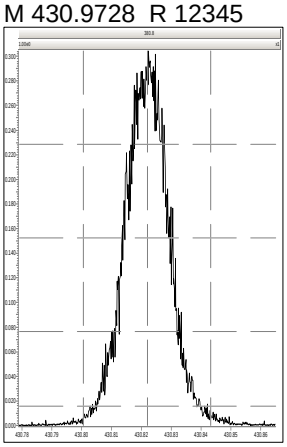
M 454.9728 R 13450



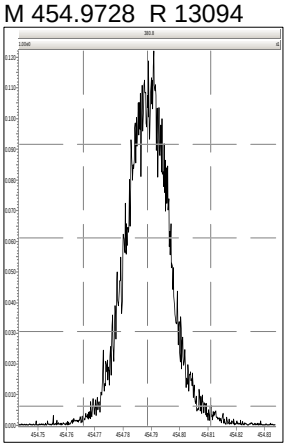
M 392.9760 R 12923



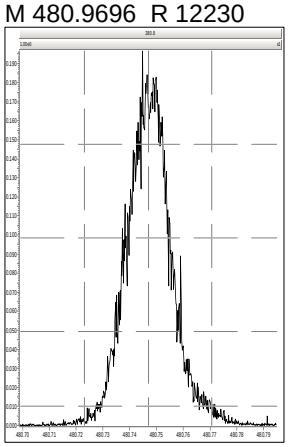
M 430.9728 R 12345



M 454.9728 R 13094

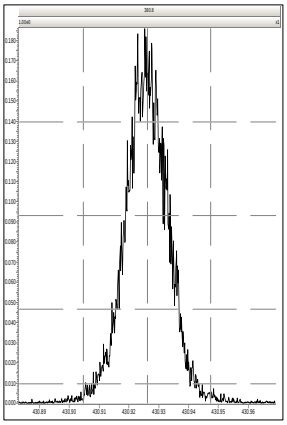


M 480.9696 R 12230

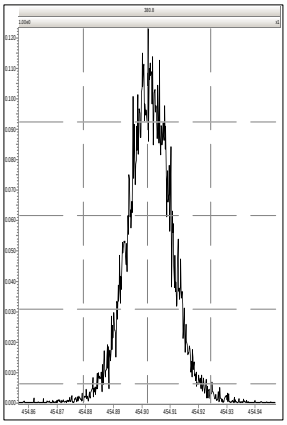


Printed: Friday, March 03, 2023 18:18:18 Pacific Standard Time

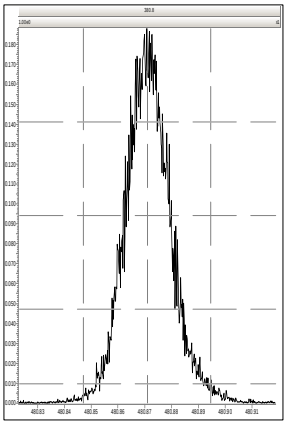
M 430.9728 R 12854



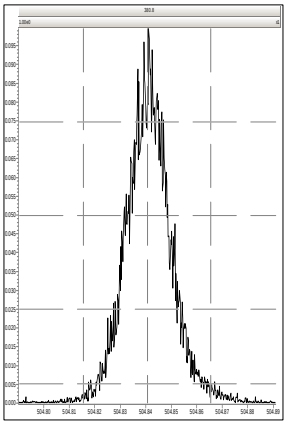
M 454.9728 R 13400



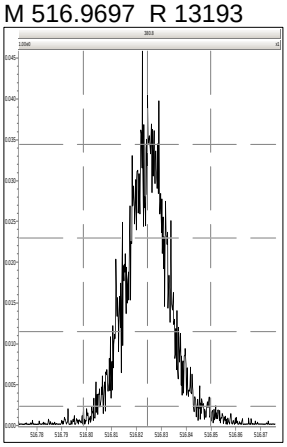
M 480.9696 R 11904

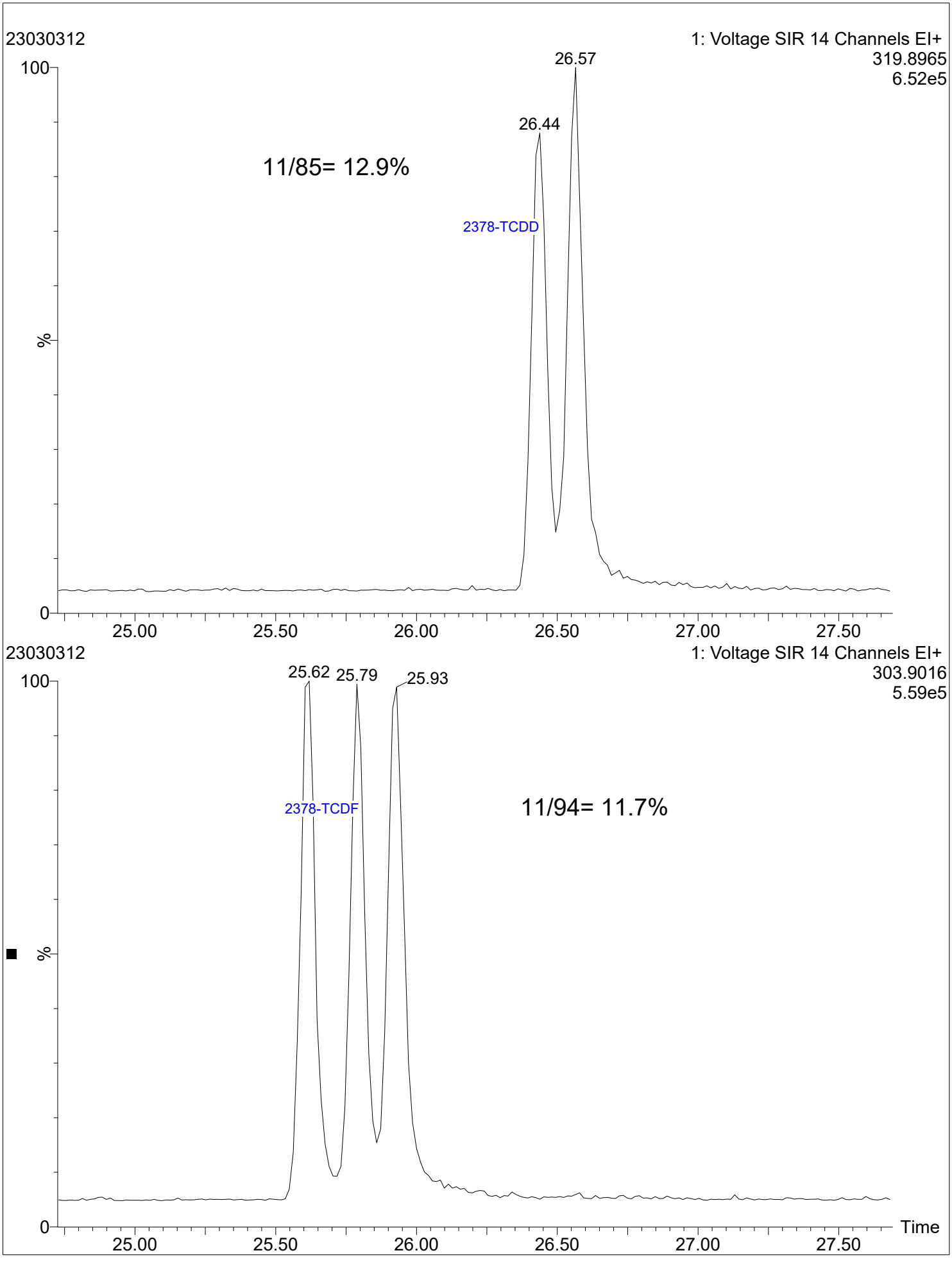


M 504.9696 R 12168



M 516.9697 R 13193




23030312
1: Voltage SIR 14 Channels EI+
319.8965
6.52e5
26.57
26.44
11/85= 12.9%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00
27.50
23030312
1: Voltage SIR 14 Channels EI+
303.9016
5.59e5
25.62
25.79
25.93
2378-TCDF
11/94= 11.7%
100
%
0
Time
25.00
25.50
26.00
26.50
27.00
27.50

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GC00015
Laboratory ID: SLC0045-SCV1
Sequence: SLC0045
Sequence Name: ICVCW
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
2,3,7,8-TCDF	10.000	9.84	-1.6	
2,3,7,8-TCDD	10.000	9.81	-1.9	
1,2,3,7,8-PeCDF	50.000	51.4	2.8	
2,3,4,7,8-PeCDF	50.000	49.0	-2.0	
1,2,3,7,8-PeCDD	50.000	48.5	-2.9	
1,2,3,4,7,8-HxCDF	50.000	48.2	-3.5	
1,2,3,6,7,8-HxCDF	50.000	48.0	-4.0	
2,3,4,6,7,8-HxCDF	50.000	50.2	0.4	
1,2,3,7,8,9-HxCDF	50.000	49.1	-1.8	
1,2,3,4,7,8-HxCDD	50.000	50.8	1.6	
1,2,3,6,7,8-HxCDD	50.000	50.2	0.3	
1,2,3,7,8,9-HxCDD	50.000	51.6	3.2	
1,2,3,4,6,7,8-HpCDF	50.000	51.8	3.7	
1,2,3,4,7,8,9-HpCDF	50.000	48.5	-3.1	
1,2,3,4,6,7,8-HpCDD	50.000	49.2	-1.6	
OCDF	100.00	104	3.5	
OCDD	100.00	99.4	-0.6	
13C12-2,3,7,8-TCDF	100.00	96.9	-3.1	
13C12-2,3,7,8-TCDD	100.00	96.6	-3.4	
13C12-1,2,3,7,8-PeCDF	100.00	73.2	-26.8	
13C12-2,3,4,7,8-PeCDF	100.00	75.9	-24.1	
13C12-1,2,3,7,8-PeCDD	100.00	76.6	-23.4	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.0	-7.0	
13C12-1,2,3,6,7,8-HxCDF	100.00	98.0	-2.0	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-1,2,3,7,8,9-HxCDF	100.00	97.9	-2.1	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.9	-4.1	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.7	-2.3	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	2.1	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	104	4.0	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	102	2.5	
13C12-OCDD	200.00	162	-19.2	
37Cl4-2,3,7,8-TCDD	10.000	8.71	-12.9	

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Anchor QEA, LLC
Calibration: GC00015
Sequence: SLC0045

SDG: 23B0494
Project: AOC4 UR Phase 3
Laboratory ID: SLC0045-SCV1
Sequence Name: ICVCW
Standard ID: H008219

* Indicates values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GC00015
Laboratory ID: SLC0045-SCV1
Sequence: SLC0045
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
OCDF	100.00	104	3.5	
OCDD	100.00	99.4	-0.6	
13C12-2,3,7,8-TCDF	100.00	96.9	-3.1	
13C12-2,3,7,8-TCDD	100.00	96.6	-3.4	
13C12-1,2,3,7,8-PeCDF	100.00	73.2	-26.8	
13C12-2,3,4,7,8-PeCDF	100.00	75.9	-24.1	
13C12-1,2,3,7,8-PeCDD	100.00	76.6	-23.4	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.0	-7.0	
13C12-1,2,3,6,7,8-HxCDF	100.00	98.0	-2.0	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-1,2,3,7,8,9-HxCDF	100.00	97.9	-2.1	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.9	-4.1	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.7	-2.3	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	2.1	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	104	4.0	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	102	2.5	
13C12-OCDD	200.00	162	-19.2	
37Cl4-2,3,7,8-TCDD	10.000	8.71	-12.9	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030302	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-ICV1	Injection Time:	09:51
Sequence Name:	CS3W1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.55	0.7015272	0.6699659		-4.5	+/-16
2,3,7,8-TCDD	A	10.000	9.45	1.1486620	1.0855020		-5.5	+/-22
1,2,3,7,8-PeCDF	A	50.000	49.6	0.6792300	0.6743560		-0.7	+/-18
2,3,4,7,8-PeCDF	A	50.000	47.5	0.7861704	0.7472986		-4.9	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.7	1.0218450	1.0147700		-0.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.1	1.1660380	1.0988190		-5.8	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.6	1.0907410	1.0813380		-0.9	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	49.3	1.1396990	1.1246750		-1.3	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.0	1.1370930	1.0679460		-6.1	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	50.1	0.9955689	0.9966266		0.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	49.6	1.0009380	0.9938861		-0.7	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	54.2	0.9071139	0.9838286		8.5	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.5	1.0029930	0.9526502		-5.0	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	50.2	0.9531152	0.9573187		0.4	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	47.6	1.0390130	0.9895371		-4.8	+/-14
OCDF	A	100.00	88.6	0.7778078	0.6890651		-11.4	+/-37
OCDD	A	100.00	98.4	0.9199537	0.9055309		-1.6	+/-21
13C12-2,3,7,8-TCDF	A	100.00	94.0	1.6201960	1.5232274		-6.0	+/-29
13C12-2,3,7,8-TCDD	A	100.00	102	1.1524090	1.1727116		1.8	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	92.2	1.2404520	1.1438587		-7.8	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	87.6	1.1177860	0.9791895		-12.4	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	84.3	0.8288129	0.6985475		-15.7	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	84.0	1.1683050	0.9815313		-16.0	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	74.6	1.3864660	1.0348865		-25.4	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	88.7	1.1292560	1.0010969		-11.3	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	99.9	0.9317541	0.9305560		-0.1	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	93.5	0.9950393	0.9299453		-6.5	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	86.9	1.1566890	1.0052205		-13.1	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	95.3	0.8952017	0.8530837		-4.7	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	98.7	0.7697516	0.7594900		-1.3	+/-23

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030302	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-ICV1	Injection Time:	09:51
Sequence Name:	CS3W1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	105	0.8401226	0.8828452		5.1	+/-28
13C12-OCDD	A	200.00	214	0.7674714	0.8220320		7.1	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.05	1.2878040	1.1649542		-9.5	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23032102	Calibration Date:	03/03/2023
Sequence:	SLC0322	Injection Date:	03/21/23
Lab Sample ID:	SLC0322-ICV1	Injection Time:	10:35
Sequence Name:	CS3A3		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	11.3	0.7015272	0.7949797		13.3	+/-16
2,3,7,8-TCDD	A	10.000	9.51	1.1486620	1.0923480		-4.9	+/-22
1,2,3,7,8-PeCDF	A	50.000	54.2	0.6792300	0.7366900		8.5	+/-18
2,3,4,7,8-PeCDF	A	50.000	55.8	0.7861704	0.8769493		11.5	+/-18
1,2,3,7,8-PeCDD	A	50.000	54.3	1.0218450	1.1087530		8.5	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	45.2	1.1660380	1.0533790		-9.7	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	47.6	1.0907410	1.0391780		-4.7	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.1	1.1396990	1.0740490		-5.8	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	51.3	1.1370930	1.1660590		2.5	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.6	0.9955689	0.9474582		-4.8	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.7	1.0009380	0.9544660		-4.6	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	49.0	0.9071139	0.8893674		-2.0	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	50.8	1.0029930	1.0184100		1.5	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	50.1	0.9531152	0.9550437		0.2	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	55.4	1.0390130	1.1513660		10.8	+/-14
OCDF	A	100.00	116	0.7778078	0.9022406		16.0	+/-37
OCDD	A	100.00	96.8	0.9199537	0.8902547		-3.2	+/-21
13C12-2,3,7,8-TCDF	A	100.00	95.5	1.6201960	1.5467221		-4.5	+/-29
13C12-2,3,7,8-TCDD	A	100.00	98.7	1.1524090	1.1376055		-1.3	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	107	1.2404520	1.3304934		7.3	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	102	1.1177860	1.1448435		2.4	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	90.3	0.8288129	0.7482361		-9.7	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	85.5	1.1683050	0.9986797		-14.5	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	90.0	1.3864660	1.2481645		-10.0	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	91.7	1.1292560	1.0358583		-8.3	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	85.1	0.9317541	0.7932645		-14.9	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	95.2	0.9950393	0.9473080		-4.8	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	101	1.1566890	1.1667295		0.9	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	104	0.8952017	0.9346711		4.4	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	99.0	0.7697516	0.7618435		-1.0	+/-23

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23032102	Calibration Date:	03/03/2023
Sequence:	SLC0322	Injection Date:	03/21/23
Lab Sample ID:	SLC0322-ICV1	Injection Time:	10:35
Sequence Name:	CS3A3		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	83.9	0.8401226	0.7052390		-16.1	+/-18
13C12-OCDD	A	200.00	213	0.7674714	0.8191599		6.7	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	8.28	1.2878040	1.0664726		-17.2	+/-21

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:46:43 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3A3, Name: 23032102, Date: 21-Mar-2023, Time: 10:35:07, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.760	1.001	2.430e4	3.084e4	0.702	0.788	0.770	760	1089	3.63e5	4.75e5	477.4	436.2	NO	bb	bb	11.332
12378-PeCDF	29.913	1.001	1.321e5	8.765e4	0.679	1.508	1.550	1358	1638	1.91e6	1.29e6	1404.0	786.8	NO	bb	bb	54.230
23478-PeCDF	31.250	1.001	1.352e5	8.993e4	0.786	1.503	1.550	1358	1638	1.93e6	1.27e6	1421.6	776.8	NO	bb	bb	55.773
123478-HxCDF	34.870	1.001	1.139e5	9.296e4	1.166	1.225	1.240	1579	1791	1.71e6	1.39e6	1084.0	774.2	NO	bd	bd	45.169
234678-HxCDF	35.873	1.001	1.218e5	9.691e4	1.140	1.257	1.240	1579	1791	1.65e6	1.33e6	1046.7	741.7	NO	bd	bd	47.120
123678-HxCDF	35.004	1.000	1.411e5	1.139e5	1.091	1.238	1.240	1579	1791	1.77e6	1.46e6	1120.5	815.9	NO	dd	db	47.636
123789-HxCDF	36.898	1.000	1.023e5	7.956e4	1.137	1.286	1.240	1579	1791	1.33e6	1.05e6	840.0	588.5	NO	bb	bd	51.274
1234678-HpCDF	38.737	1.000	9.295e4	9.422e4	1.003	0.987	1.050	1752	1297	1.49e6	1.48e6	847.7	1140.1	NO	bb	bb	50.769
1234789-HpCDF	40.965	1.000	7.204e4	7.102e4	0.953	1.014	1.050	1752	1297	9.72e5	9.76e5	554.4	752.1	NO	bb	bb	50.101
OCDF	45.184	1.005	1.431e5	1.476e5	0.778	0.970	0.890	1320	1593	1.42e6	1.53e6	1072.9	963.7	NO	bd	bb	115.998
2378-TCDD	26.410	1.001	2.513e4	3.060e4	1.149	0.821	0.770	1177	742	3.55e5	4.31e5	301.9	581.4	NO	bd	bd	9.510
12378-PeCDD	31.506	1.000	1.142e5	7.185e4	1.022	1.589	1.550	1876	1235	1.63e6	1.02e6	868.7	827.5	NO	bb	bb	54.252
123478-HxCDD	35.996	1.001	9.698e4	7.950e4	0.996	1.220	1.240	1634	1974	1.49e6	1.22e6	909.2	617.5	NO	bd	bd	47.584
123678-HxCDD	36.107	1.000	1.215e5	9.744e4	1.001	1.247	1.240	1634	1974	1.66e6	1.37e6	1018.2	696.6	NO	db	db	47.679
123789-HxCDD	36.486	1.011	1.043e5	8.055e4	0.907	1.295	1.240	1634	1974	1.39e6	1.15e6	847.6	584.4	NO	bd	bb	49.022
1234678-HpCDD	40.229	1.000	8.178e4	7.787e4	1.039	1.050	1.050	1630	1789	1.05e6	9.95e5	646.6	556.0	NO	bd	bd	55.407
OCDD	44.946	1.000	1.339e5	1.529e5	0.920	0.875	0.890	1166	2249	1.53e6	1.72e6	1311.1	766.5	NO	bb	bb	96.772
13C-2378-TCDF	25.746	1.007	3.043e5	3.894e5	1.620	0.781	0.770	1706	1281	4.42e6	5.72e6	2593.0	4465.1	NO	bb	bb	95.465
13C-12378-PeCDF	29.890	1.169	3.629e5	2.338e5	1.240	1.552	1.550	2290	2265	4.96e6	3.23e6	2165.4	1426.7	NO	bb	bd	107.259
13C-23478-PeCDF	31.227	1.221	3.064e5	2.070e5	1.118	1.480	1.550	2290	2265	4.41e6	2.89e6	1924.6	1274.5	NO	bb	bb	102.421
13C-123478-HxCDF	34.848	0.955	1.321e5	2.607e5	1.168	0.507	0.510	1559	1055	1.93e6	3.84e6	1239.8	3635.0	NO	bd	bd	85.481
13C-123678-HxCDF	34.993	0.959	1.634e5	3.274e5	1.386	0.499	0.510	1559	1055	2.18e6	4.25e6	1401.1	4028.5	NO	dd	db	90.025
13C-234678-HxCDF	35.851	0.983	1.350e5	2.724e5	1.129	0.496	0.510	1559	1055	1.87e6	3.71e6	1199.7	3513.4	NO	bb	bb	91.729
13C-123789-HxCDF	36.887	1.011	1.029e5	2.091e5	0.932	0.492	0.510	1559	1055	1.53e6	3.10e6	981.1	2942.3	NO	bb	bb	85.137
13C-1234678-HpCDF	38.725	1.062	1.201e5	2.475e5	0.895	0.485	0.440	1631	2810	1.75e6	3.82e6	1072.0	1358.8	NO	bb	bb	104.409
13C-1234789-HpCDF	40.954	1.123	8.997e4	2.096e5	0.770	0.429	0.440	1631	2810	1.13e6	2.60e6	691.6	924.4	NO	bb	bb	98.973
13C-1234-TCDD	25.576	0.000	1.991e5	2.494e5	1.000	0.799	0.770	1378	850	3.03e6	3.85e6	2200.8	4528.2	NO	bb	bb	100.000
13C-2378-TCDD	26.382	1.031	2.240e5	2.862e5	1.152	0.783	0.770	1378	850	3.23e6	4.15e6	2341.5	4879.7	NO	bb	bb	98.715
13C-12378-PeCDD	31.495	1.231	2.057e5	1.299e5	0.829	1.584	1.550	1109	977	2.89e6	1.80e6	2606.5	1843.3	NO	bb	bb	90.278
13C-123478-HxCDD	35.973	0.986	2.081e5	1.644e5	0.995	1.266	1.240	1622	886	3.11e6	2.47e6	1916.5	2783.2	NO	bd	bd	95.203
13C-123678-HxCDD	36.096	0.990	2.575e5	2.013e5	1.157	1.279	1.240	1622	886	3.48e6	2.73e6	2144.1	3086.7	NO	db	db	100.868
13C-1234678-HpCDD	40.218	1.103	1.439e5	1.335e5	0.840	1.078	1.050	1615	1726	1.83e6	1.70e6	1134.8	985.4	NO	bb	bb	83.945
13C-OCDD	44.937	1.232	3.107e5	3.336e5	0.767	0.931	0.890	1894	1363	3.04e6	3.34e6	1605.0	2453.0	NO	bd	bd	213.470
13C-123789-HxCDD	36.475	0.000	2.120e5	1.813e5	1.000	1.169	1.240	1622	886	3.05e6	2.45e6	1877.2	2767.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.410	1.033	4.783e4		1.288			1188		6.91e5		581.5			bb		8.281

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:46:43 Pacific Daylight Time

ID: CS3A3, Name: 23032102, Date: 21-Mar-2023, Time: 10:35:07, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.271	0.865	2.747e4	3.864e4	0.802	0.711	0.770	760	1089	4.38e5	6.17e5	575.8	566.8	NO	bb	bb	11.892
1289-TCDF	27.257	1.059	2.219e4	2.935e4	0.678	0.756	0.770	760	1089	3.15e5	4.38e5	414.9	401.9	NO	db	bb	10.961
13468-PECDF	27.116	0.907	2.102e5	1.372e5	1.246	1.533	1.550	897	724	3.24e6	2.11e6	3614.6	2919.0	NO	bb	bb	46.713
12389-PECDF	32.286	1.080	1.235e5	8.671e4	0.496	1.424	1.550	1358	1638	1.70e6	1.14e6	1253.1	692.9	NO	bb	bd	70.975
123468-HXCDF	33.199	0.953	1.381e5	1.100e5	1.169	1.256	1.240	1579	1791	1.86e6	1.46e6	1175.3	814.2	NO	bd	bb	54.036
1368-TCDD	23.542	0.892	2.431e4	2.990e4	1.015	0.813	0.770	1177	742	3.70e5	4.66e5	314.4	627.7	NO	bd	bd	10.464
1289-TCDD	27.003	1.024	1.980e4	2.603e4	0.909	0.761	0.770	1177	742	2.77e5	3.62e5	235.3	487.8	NO	bb	bb	9.885
12479-PECDD	28.809	0.915	1.998e5	1.299e5	2.301	1.538	1.550	1876	1235	1.89e6	1.21e6	1007.9	979.9	NO	bb	bb	42.685
12389-PECDD	31.907	1.013	1.273e5	8.012e4	1.184	1.588	1.550	1876	1235	1.71e6	1.11e6	912.1	897.8	NO	bb	bb	52.217
124679-HXCDD	33.979	0.945	1.181e5	9.928e4	1.115	1.190	1.240	1634	1974	1.69e6	1.39e6	1031.6	704.5	NO	bb	bd	52.321
1234679-HPCDD	39.193	0.975	9.617e4	8.267e4	1.137	1.163	1.050	1630	1789	1.29e6	1.21e6	789.1	678.4	NO	bd	bb	56.723
Total-tetrafurans			7.447e4		0.727			760		1.13e6							34.416
Total-penta1			2.102e5					897		3.24e6							46.713
Total-pentafurans			4.130e5		0.654			1358		5.85e6							191.083
Total-hexafurans			6.173e5		1.141			1579		8.32e6							245.235
Total-heptafurans			1.650e5		0.978			1752		2.46e6							100.870
Total-Furans			1.623e6		0.922			760		2.24e7							734.315
Total-tetradioxins			1.173e5		1.024			1177		1.56e6							50.536
Total-pentadioxins			4.412e5		1.502			1876		5.23e6							149.155
Total-hexadioxins			4.409e5		1.005			1634		6.22e6							196.605
Total-heptadioxins			1.780e5		1.088			1630		2.34e6							112.130
Total-Dioxins			1.311e6		1.130			1177		1.69e7							605.198
Total-TEQ			2.934e6					1177		3.93e7							1339.513
FUNCTION1 PFK			3.396e7					300837		1.34e6							
FUNCTION2 PFK			2.075e5					270056		6.60e6							0.000
FUNCTION3 PFK			1.060e6					330677		1.26e6							0.000
FUNCTION4 PFK			0.000e0					204587		0.00e0							
FUNCTION5 PFK			1.277e5					140368		3.96e6							
FUNCTION1 HXCD...			3.060e2					537		2.85e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.538e2					552		9.17e3							0.000
FUNCTION3 OCDPE			2.468e2					717		3.15e3							0.000
FUNCTION4 NCDPE			8.336e1					660		1.51e3							0.000
FUNCTION5 DCDPE			1.561e2					636		5.75e3							0.000

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.26	2.219e4	2.935e4	0.678	0.76	0.77	414.9	YES	NO	db	bb	10.961
2	Total-tetrafurans	27.12	2.570e2	3.600e2	0.727	0.71	0.77	7.5	YES	NO	bd	bb	0.122
3	2378-TCDF	25.76	2.430e4	3.084e4	0.702	0.79	0.77	477.4	YES	NO	bb	bb	11.332
4	Total-tetrafurans	24.55	2.494e2	2.983e2	0.727	0.84	0.77	5.9	YES	NO	bb	bd	0.109
5	1368-TCDF	22.27	2.747e4	3.864e4	0.802	0.71	0.77	575.8	YES	NO	bb	bb	11.892

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.12	2.102e5	1.372e5	1.246	1.53	1.55	3614.6	YES	NO	bb	bb	46.713

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.29	1.235e5	8.671e4	0.496	1.42	1.55	1253.1	YES	NO	bb	bd	70.975
2	23478-PeCDF	31.25	1.352e5	8.993e4	0.786	1.50	1.55	1421.6	YES	NO	bb	bb	55.773
3	12378-PeCDF	29.91	1.321e5	8.765e4	0.679	1.51	1.55	1404.0	YES	NO	bb	bb	54.230
4	Total-pentafurans	28.76	2.221e4	1.447e4	0.654	1.54	1.55	226.7	YES	NO	bd	bb	10.105

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.90	1.023e5	7.956e4	1.137	1.29	1.24	840.0	YES	NO	bb	bd	51.274
2	234678-HxCDF	35.87	1.218e5	9.691e4	1.140	1.26	1.24	1046.7	YES	NO	bd	bd	47.120
3	123678-HxCDF	35.00	1.411e5	1.139e5	1.091	1.24	1.24	1120.5	YES	NO	dd	db	47.636
4	123478-HxCDF	34.87	1.139e5	9.296e4	1.166	1.23	1.24	1084.0	YES	NO	bd	bd	45.169
5	123468-HXCDF	33.20	1.381e5	1.100e5	1.169	1.26	1.24	1175.3	YES	NO	bd	bb	54.036

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.96	7.204e4	7.102e4	0.953	1.01	1.05	554.4	YES	NO	bb	bb	50.101
2	1234678-HpCDF	38.74	9.295e4	9.422e4	1.003	0.99	1.05	847.7	YES	NO	bb	bb	50.769

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.26	2.219e4	2.935e4	0.678	0.76	0.77	414.9	YES	NO	db	bb	10.961
2	Total-tetrafurans	27.12	2.570e2	3.600e2	0.727	0.71	0.77	7.5	YES	NO	bd	bb	0.122
3	2378-TCDF	25.76	2.430e4	3.084e4	0.702	0.79	0.77	477.4	YES	NO	bb	bb	11.332
4	Total-tetrafurans	24.55	2.494e2	2.983e2	0.727	0.84	0.77	5.9	YES	NO	bb	bd	0.109
5	1368-TCDF	22.27	2.747e4	3.864e4	0.802	0.71	0.77	575.8	YES	NO	bb	bb	11.892
6	12389-PECDF	32.29	1.235e5	8.671e4	0.496	1.42	1.55	1253.1	YES	NO	bb	bd	70.975
7	23478-PeCDF	31.25	1.352e5	8.993e4	0.786	1.50	1.55	1421.6	YES	NO	bb	bb	55.773
8	12378-PeCDF	29.91	1.321e5	8.765e4	0.679	1.51	1.55	1404.0	YES	NO	bb	bb	54.230
9	Total-pentafurans	28.76	2.221e4	1.447e4	0.654	1.54	1.55	226.7	YES	NO	bd	bb	10.105
10	123789-HxCDF	36.90	1.023e5	7.956e4	1.137	1.29	1.24	840.0	YES	NO	bb	bd	51.274
11	234678-HxCDF	35.87	1.218e5	9.691e4	1.140	1.26	1.24	1046.7	YES	NO	bd	bd	47.120
12	123678-HxCDF	35.00	1.411e5	1.139e5	1.091	1.24	1.24	1120.5	YES	NO	dd	db	47.636
13	123478-HxCDF	34.87	1.139e5	9.296e4	1.166	1.23	1.24	1084.0	YES	NO	bd	bd	45.169
14	123468-HXCDF	33.20	1.381e5	1.100e5	1.169	1.26	1.24	1175.3	YES	NO	bd	bb	54.036
15	1234789-HpCDF	40.96	7.204e4	7.102e4	0.953	1.01	1.05	554.4	YES	NO	bb	bb	50.101
16	1234678-HpCDF	38.74	9.295e4	9.422e4	1.003	0.99	1.05	847.7	YES	NO	bb	bb	50.769
17	OCDF	45.18	1.431e5	1.476e5	0.778	0.97	0.89	1072.9	YES	NO	bd	bb	115.998
18	13468-PECDF	27.12	2.102e5	1.372e5	1.246	1.53	1.55	3614.6	YES	NO	bb	bb	46.713

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	27.00	1.980e4	2.603e4	0.909	0.76	0.77	235.3	YES	NO	bb	bb	9.885
2	2378-TCDD	26.41	2.513e4	3.060e4	1.149	0.82	0.77	301.9	YES	NO	bd	bd	9.510
3	Total-tetradioxins	26.08	3.477e4	4.425e4	1.024	0.79	0.77	311.5	YES	NO	bd	bb	15.122
4	Total-tetradioxins	25.59	1.206e4	1.425e4	1.024	0.85	0.77	150.8	YES	NO	bb	bb	5.036
5	Total-tetradioxins	24.73	9.268e2	1.129e3	1.024	0.82	0.77	8.8	YES	NO	bb	bb	0.393
6	Total-tetradioxins	23.83	2.817e2	3.738e2	1.024	0.75	0.77	3.1	YES	NO	db	db	0.125
7	1368-TCDD	23.54	2.431e4	2.990e4	1.015	0.81	0.77	314.4	YES	NO	bd	bd	10.464

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.91	1.273e5	8.012e4	1.184	1.59	1.55	912.1	YES	NO	bb	bb	52.217
2	12378-PeCDD	31.51	1.142e5	7.185e4	1.022	1.59	1.55	868.7	YES	NO	bb	bb	54.252
3	12479-PECDD	28.81	1.998e5	1.299e5	2.301	1.54	1.55	1007.9	YES	NO	bb	bb	42.685

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.49	1.043e5	8.055e4	0.907	1.29	1.24	847.6	YES	NO	bd	bb	49.022
2	123678-HxCDD	36.11	1.215e5	9.744e4	1.001	1.25	1.24	1018.2	YES	NO	db	db	47.679
3	123478-HxCDD	36.00	9.698e4	7.950e4	0.996	1.22	1.24	909.2	YES	NO	bd	bd	47.584
4	124679-HXCDD	33.98	1.181e5	9.928e4	1.115	1.19	1.24	1031.6	YES	NO	bb	bd	52.321

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.19	9.617e4	8.267e4	1.137	1.16	1.05	789.1	YES	NO	bd	bb	56.723
2	1234678-HpCDD	40.23	8.178e4	7.787e4	1.039	1.05	1.05	646.6	YES	NO	bd	bd	55.407

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	27.00	1.980e4	2.603e4	0.909	0.76	0.77	235.3	YES	NO	bb	bb	9.885
2	2378-TCDD	26.41	2.513e4	3.060e4	1.149	0.82	0.77	301.9	YES	NO	bd	bd	9.510
3	Total-tetradioxins	26.08	3.477e4	4.425e4	1.024	0.79	0.77	311.5	YES	NO	bd	bb	15.122
4	Total-tetradioxins	25.59	1.206e4	1.425e4	1.024	0.85	0.77	150.8	YES	NO	bb	bb	5.036
5	Total-tetradioxins	24.73	9.268e2	1.129e3	1.024	0.82	0.77	8.8	YES	NO	bb	bb	0.393
6	Total-tetradioxins	23.83	2.817e2	3.738e2	1.024	0.75	0.77	3.1	YES	NO	db	db	0.125
7	1368-TCDD	23.54	2.431e4	2.990e4	1.015	0.81	0.77	314.4	YES	NO	bd	bd	10.464
8	12389-PECDD	31.91	1.273e5	8.012e4	1.184	1.59	1.55	912.1	YES	NO	bb	bb	52.217
9	12378-PeCDD	31.51	1.142e5	7.185e4	1.022	1.59	1.55	868.7	YES	NO	bb	bb	54.252
10	12479-PECDD	28.81	1.998e5	1.299e5	2.301	1.54	1.55	1007.9	YES	NO	bb	bb	42.685
11	123789-HxCDD	36.49	1.043e5	8.055e4	0.907	1.29	1.24	847.6	YES	NO	bd	bb	49.022
12	123678-HxCDD	36.11	1.215e5	9.744e4	1.001	1.25	1.24	1018.2	YES	NO	db	db	47.679
13	123478-HxCDD	36.00	9.698e4	7.950e4	0.996	1.22	1.24	909.2	YES	NO	bd	bd	47.584
14	124679-HXCDD	33.98	1.181e5	9.928e4	1.115	1.19	1.24	1031.6	YES	NO	bb	bd	52.321
15	1234679-HPCDD	39.19	9.617e4	8.267e4	1.137	1.16	1.05	789.1	YES	NO	bd	bb	56.723
16	1234678-HpCDD	40.23	8.178e4	7.787e4	1.039	1.05	1.05	646.6	YES	NO	bd	bd	55.407
17	OCDD	44.95	1.339e5	1.529e5	0.920	0.88	0.89	1311.1	YES	NO	bb	bb	96.772

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.26	2.219e4	2.935e4	0.678	0.76	0.77	414.9	YES	NO	db	bb	10.961
2	Total-tetrafurans	27.12	2.570e2	3.600e2	0.727	0.71	0.77	7.5	YES	NO	bd	bb	0.122
3	2378-TCDF	25.76	2.430e4	3.084e4	0.702	0.79	0.77	477.4	YES	NO	bb	bb	11.332
4	Total-tetrafurans	24.55	2.494e2	2.983e2	0.727	0.84	0.77	5.9	YES	NO	bb	bd	0.109
5	1368-TCDF	22.27	2.747e4	3.864e4	0.802	0.71	0.77	575.8	YES	NO	bb	bb	11.892
6	12389-PECDF	32.29	1.235e5	8.671e4	0.496	1.42	1.55	1253.1	YES	NO	bb	bd	70.975
7	23478-PeCDF	31.25	1.352e5	8.993e4	0.786	1.50	1.55	1421.6	YES	NO	bb	bb	55.773
8	12378-PeCDF	29.91	1.321e5	8.765e4	0.679	1.51	1.55	1404.0	YES	NO	bb	bb	54.230
9	Total-pentafurans	28.76	2.221e4	1.447e4	0.654	1.54	1.55	226.7	YES	NO	bd	bb	10.105
10	123789-HxCDF	36.90	1.023e5	7.956e4	1.137	1.29	1.24	840.0	YES	NO	bb	bd	51.274
11	234678-HxCDF	35.87	1.218e5	9.691e4	1.140	1.26	1.24	1046.7	YES	NO	bd	bd	47.120
12	123678-HxCDF	35.00	1.411e5	1.139e5	1.091	1.24	1.24	1120.5	YES	NO	dd	db	47.636
13	123478-HxCDF	34.87	1.139e5	9.296e4	1.166	1.23	1.24	1084.0	YES	NO	bd	bd	45.169
14	123468-HXCDF	33.20	1.381e5	1.100e5	1.169	1.26	1.24	1175.3	YES	NO	bd	bb	54.036
15	1234789-HpCDF	40.96	7.204e4	7.102e4	0.953	1.01	1.05	554.4	YES	NO	bb	bb	50.101
16	1234678-HpCDF	38.74	9.295e4	9.422e4	1.003	0.99	1.05	847.7	YES	NO	bb	bb	50.769
17	OCDF	45.18	1.431e5	1.476e5	0.778	0.97	0.89	1072.9	YES	NO	bd	bb	115.998
18	13468-PECDF	27.12	2.102e5	1.372e5	1.246	1.53	1.55	3614.6	YES	NO	bb	bb	46.713
19	1289-TCDD	27.00	1.980e4	2.603e4	0.909	0.76	0.77	235.3	YES	NO	bb	bb	9.885
20	2378-TCDD	26.41	2.513e4	3.060e4	1.149	0.82	0.77	301.9	YES	NO	bd	bd	9.510
21	Total-tetradioxins	26.08	3.477e4	4.425e4	1.024	0.79	0.77	311.5	YES	NO	bd	bb	15.122
22	Total-tetradioxins	25.59	1.206e4	1.425e4	1.024	0.85	0.77	150.8	YES	NO	bb	bb	5.036
23	Total-tetradioxins	24.73	9.268e2	1.129e3	1.024	0.82	0.77	8.8	YES	NO	bb	bb	0.393
24	Total-tetradioxins	23.83	2.817e2	3.738e2	1.024	0.75	0.77	3.1	YES	NO	db	db	0.125
25	1368-TCDD	23.54	2.431e4	2.990e4	1.015	0.81	0.77	314.4	YES	NO	bd	bd	10.464
26	12389-PECDD	31.91	1.273e5	8.012e4	1.184	1.59	1.55	912.1	YES	NO	bb	bb	52.217
27	12378-PeCDD	31.51	1.142e5	7.185e4	1.022	1.59	1.55	868.7	YES	NO	bb	bb	54.252
28	12479-PECDD	28.81	1.998e5	1.299e5	2.301	1.54	1.55	1007.9	YES	NO	bb	bb	42.685
29	123789-HxCDD	36.49	1.043e5	8.055e4	0.907	1.29	1.24	847.6	YES	NO	bd	bb	49.022
30	123678-HxCDD	36.11	1.215e5	9.744e4	1.001	1.25	1.24	1018.2	YES	NO	db	db	47.679
31	123478-HxCDD	36.00	9.698e4	7.950e4	0.996	1.22	1.24	909.2	YES	NO	bd	bd	47.584
32	124679-HXCDD	33.98	1.181e5	9.928e4	1.115	1.19	1.24	1031.6	YES	NO	bb	bd	52.321
33	1234679-HPCDD	39.19	9.617e4	8.267e4	1.137	1.16	1.05	789.1	YES	NO	bd	bb	56.723
34	1234678-HpCDD	40.23	8.178e4	7.787e4	1.039	1.05	1.05	646.6	YES	NO	bd	bd	55.407
35	OCDD	44.95	1.339e5	1.529e5	0.920	0.88	0.89	1311.1	YES	NO	bb	bb	96.772

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.68	1.011e5					3.8	YES		bb		
2	FUNCTION1 PFK	23.40	3.386e7					0.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.05	2.525e4					2.5	NO		bb		0.000
2	FUNCTION2 PFK	32.19	1.090e4					1.1	NO		bb		0.000
3	FUNCTION2 PFK	32.05	1.919e4					1.9	NO		bb		0.000
4	FUNCTION2 PFK	31.72	2.074e4					1.9	NO		bb		0.000
5	FUNCTION2 PFK	31.49	8.176e3					1.2	NO		bb		0.000
6	FUNCTION2 PFK	31.26	4.571e3					0.7	NO		bb		0.000
7	FUNCTION2 PFK	30.95	1.462e3					0.5	NO		bb		0.000
8	FUNCTION2 PFK	30.46	1.507e4					1.2	NO		bb		0.000
9	FUNCTION2 PFK	30.36	3.136e3					0.7	NO		bb		0.000
10	FUNCTION2 PFK	29.89	1.069e4					1.5	NO		bb		0.000
11	FUNCTION2 PFK	29.61	8.114e3					1.1	NO		bb		0.000
12	FUNCTION2 PFK	29.42	1.697e4					2.0	NO		db		0.000
13	FUNCTION2 PFK	29.37	8.813e3					1.3	NO		dd		0.000
14	FUNCTION2 PFK	29.32	1.682e4					1.4	NO		bd		0.000
15	FUNCTION2 PFK	29.14	5.034e3					0.8	NO		bb		0.000
16	FUNCTION2 PFK	28.69	8.290e3					1.3	NO		bb		0.000
17	FUNCTION2 PFK	28.15	7.330e3					0.9	NO		bb		0.000
18	FUNCTION2 PFK	32.61	1.549e4					1.9	NO		bb		0.000
19	FUNCTION2 PFK	32.24	1.485e3					0.5	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.64	9.428e4					1.0	NO		bb		0.000
2	FUNCTION3 PFK	33.66	9.659e5					2.8	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.47	3.993e3					1.4	NO		bb		
2	FUNCTION5 PFK	44.42	8.017e3					1.7	NO		bb		
3	FUNCTION5 PFK	43.35	9.334e2					0.5	NO		bb		
4	FUNCTION5 PFK	42.99	3.312e3					1.2	NO		db		
5	FUNCTION5 PFK	42.92	4.343e3					1.1	NO		bd		
6	FUNCTION5 PFK	42.87	3.464e3					1.1	NO		bb		
7	FUNCTION5 PFK	42.69	9.534e3					1.7	NO		db		
8	FUNCTION5 PFK	42.63	1.098e4					2.3	NO		dd		
9	FUNCTION5 PFK	42.59	3.169e4					2.7	NO		bd		
10	FUNCTION5 PFK	45.86	4.711e2					0.4	NO		bb		
11	FUNCTION5 PFK	45.75	3.709e3					1.4	NO		bb		
12	FUNCTION5 PFK	45.63	5.780e3					1.4	NO		bb		
13	FUNCTION5 PFK	45.59	1.807e3					0.9	NO		bb		
14	FUNCTION5 PFK	45.52	4.029e3					0.8	NO		db		
15	FUNCTION5 PFK	45.46	2.702e3					0.9	NO		bd		
16	FUNCTION5 PFK	45.30	1.828e3					0.6	NO		bb		
17	FUNCTION5 PFK	45.17	4.525e3					1.2	NO		bb		
18	FUNCTION5 PFK	44.95	8.748e3					2.0	NO		db		
19	FUNCTION5 PFK	44.92	6.622e3					1.6	NO		bd		
20	FUNCTION5 PFK	44.85	5.315e3					1.7	NO		bb		
21	FUNCTION5 PFK	44.78	5.855e3					1.6	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.08	1.856e2					3.4	YES		bb		0.000
2	FUNCTION1 HXCD...	25.60	1.204e2					1.9	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.27	8.950e1					3.0	NO		db		0.000
2	FUNCTION2 HPCD...	31.15	2.041e2					6.6	YES		dd		0.000
3	FUNCTION2 HPCD...	31.12	1.602e2					7.0	YES		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.51	1.443e2					1.9	NO		bb		0.000
2	FUNCTION3 OCDPE	33.71	1.026e2					2.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.41	8.336e1					2.3	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.23	8.017e1					5.7	YES		bb		0.000
2	FUNCTION5 DCDPE	45.10	7.593e1					3.3	YES		bb		0.000

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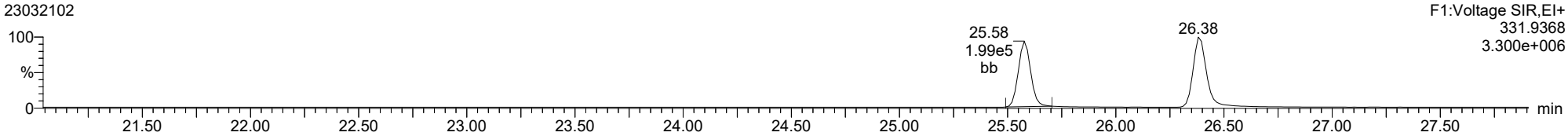

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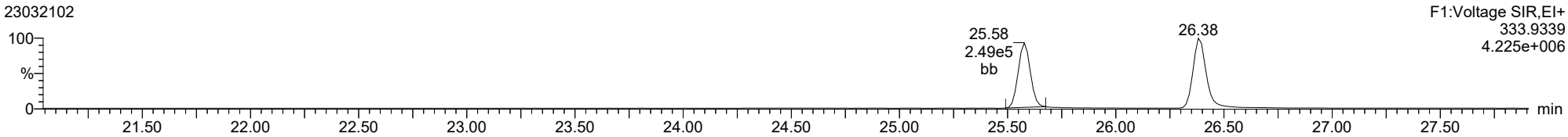

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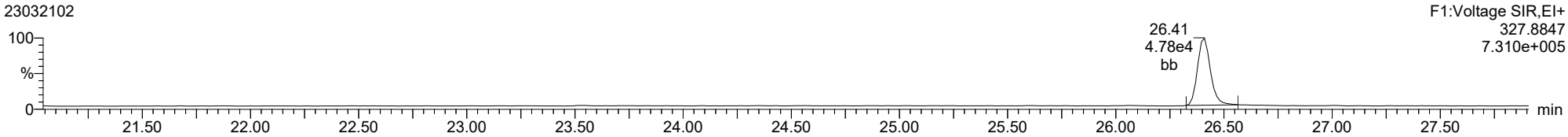

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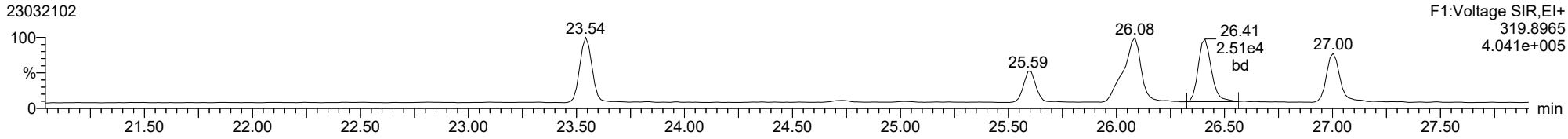

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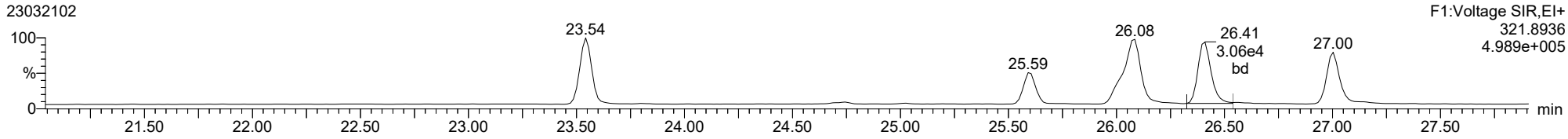

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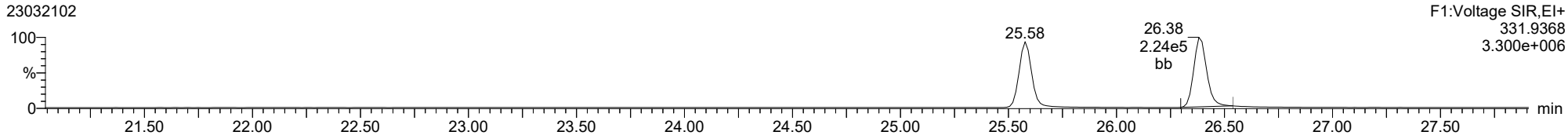

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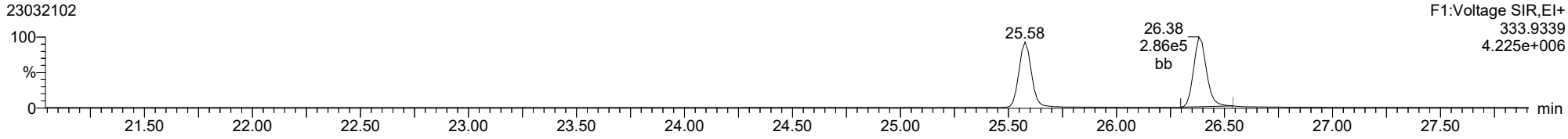

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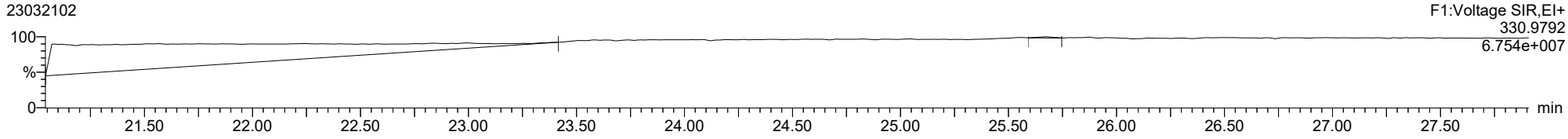

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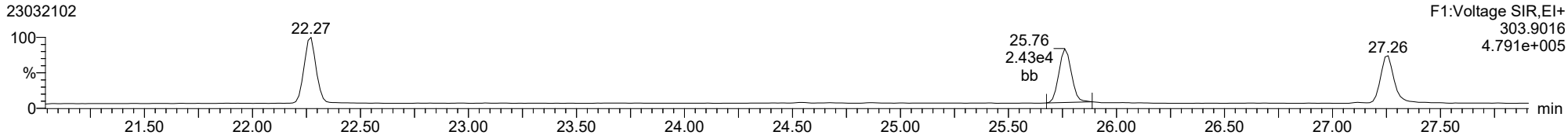

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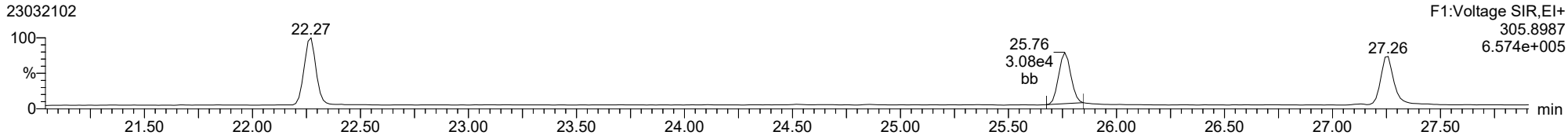

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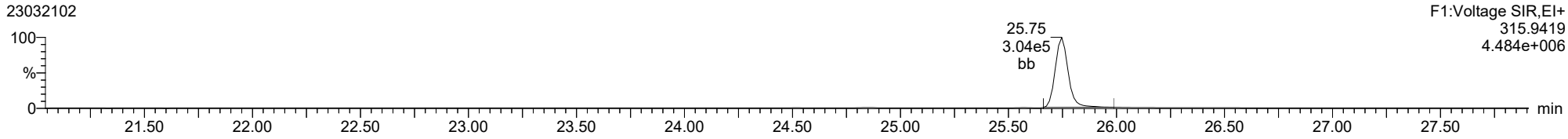

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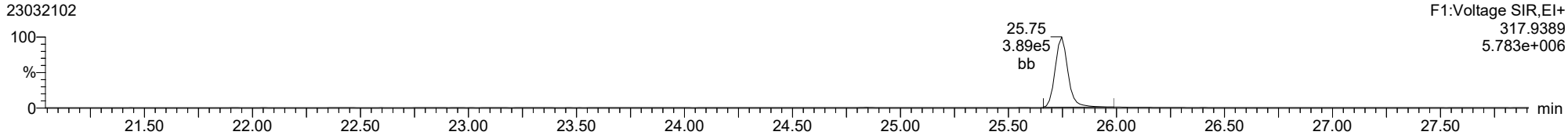
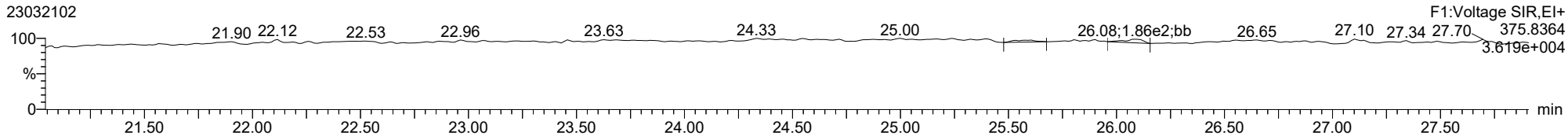


FUNCTION1 HXCDPE



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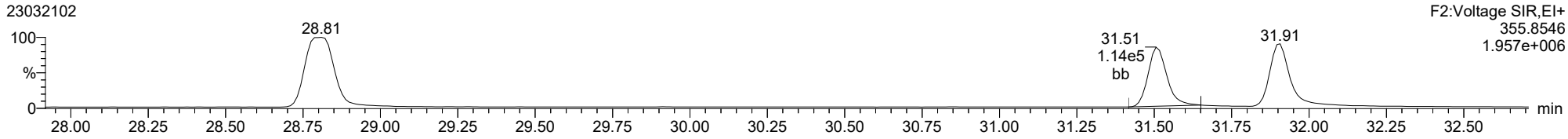
12378-PeCDD



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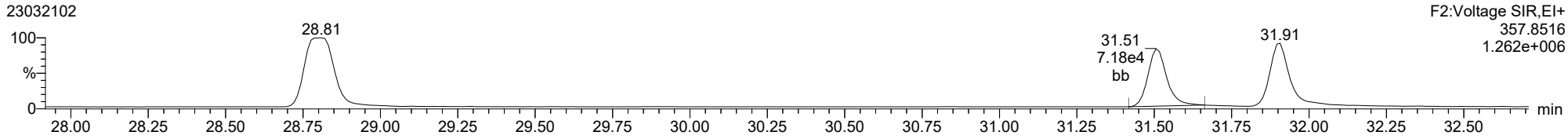

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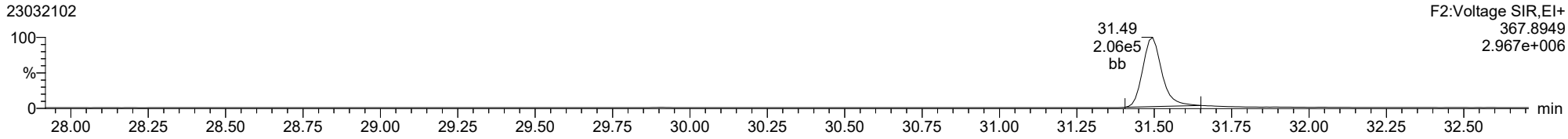

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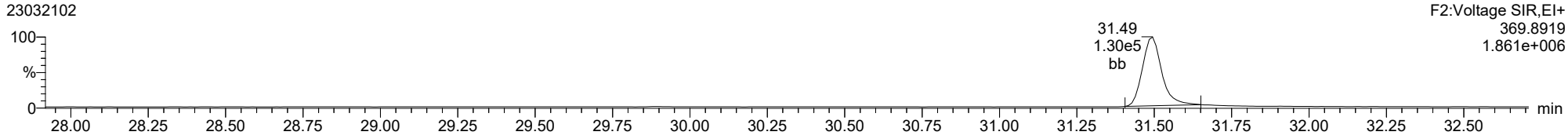
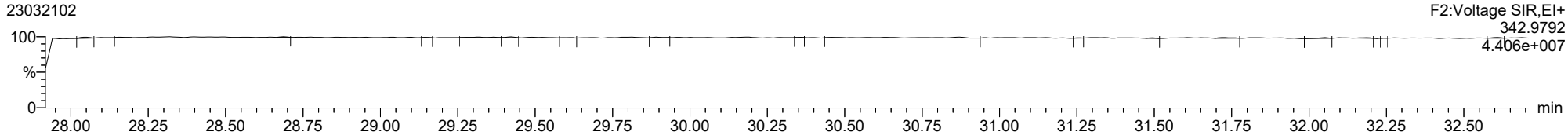


FUNCTION2 PFK



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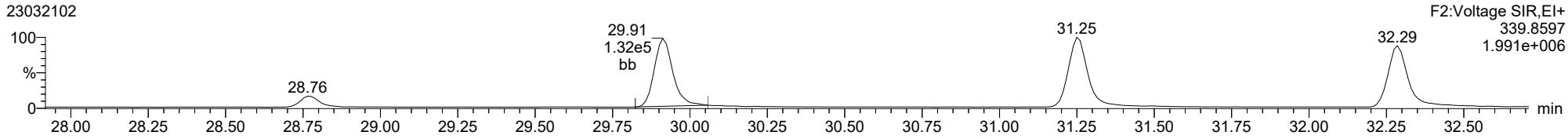

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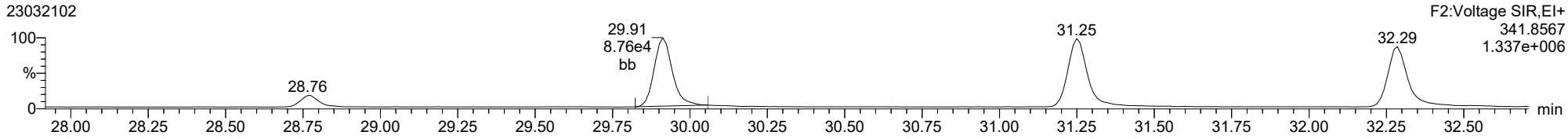

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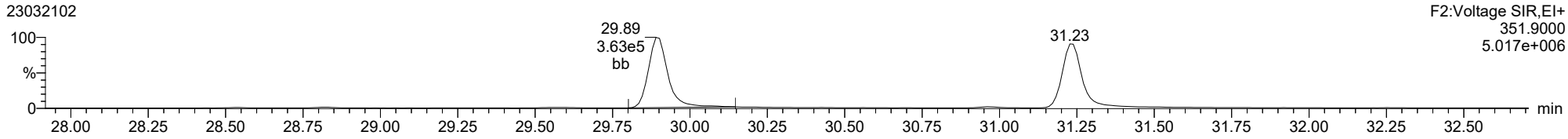

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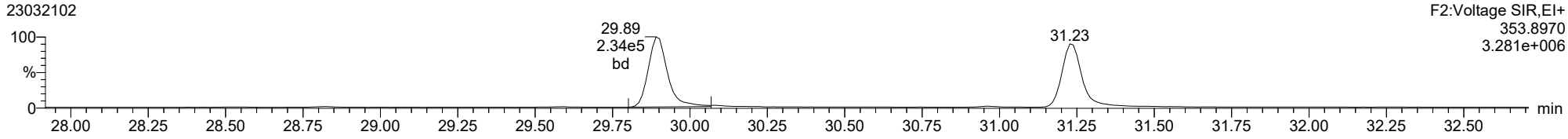
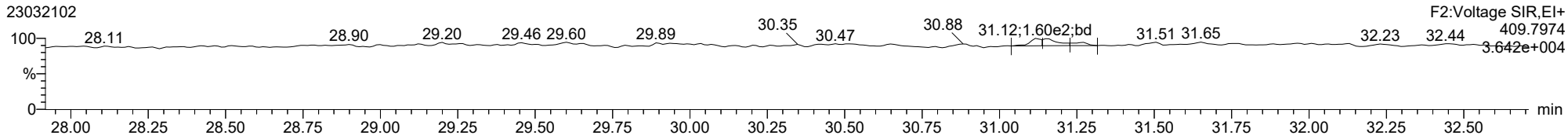


FUNCTION2 HPCDPE



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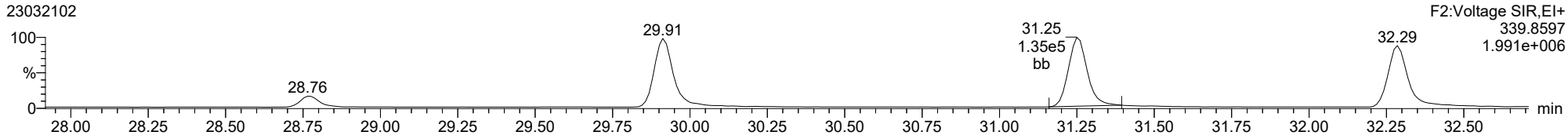
23478-PeCDF



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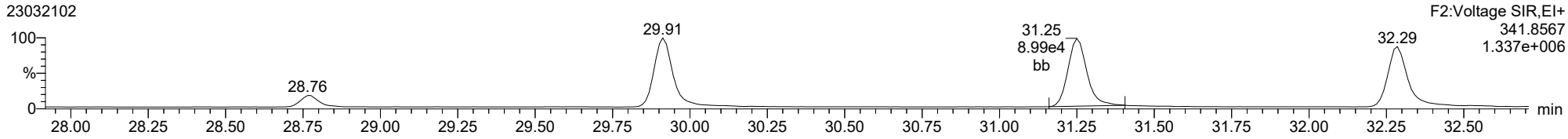

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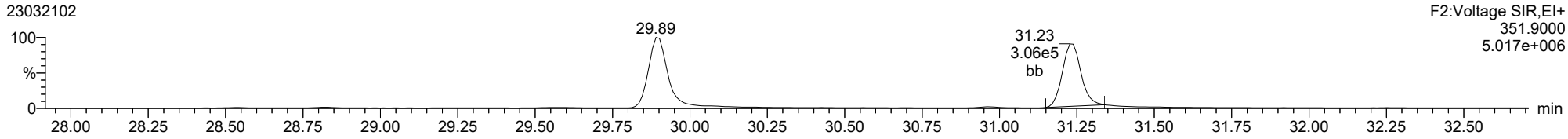

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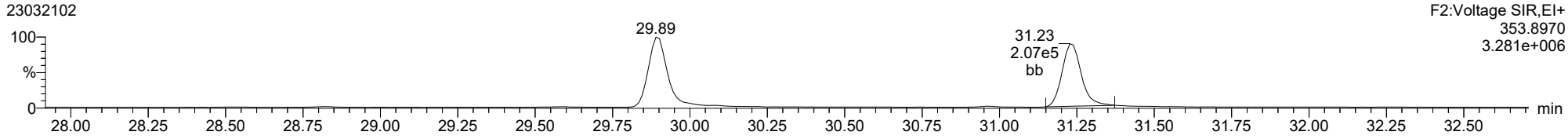

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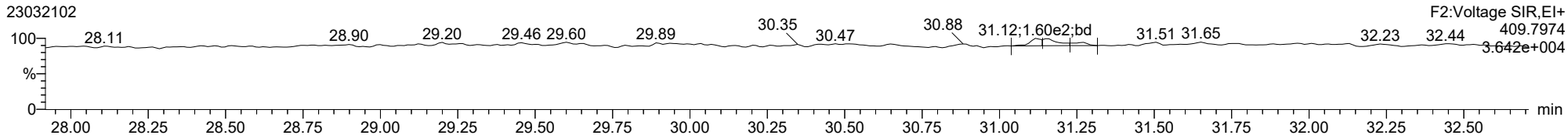

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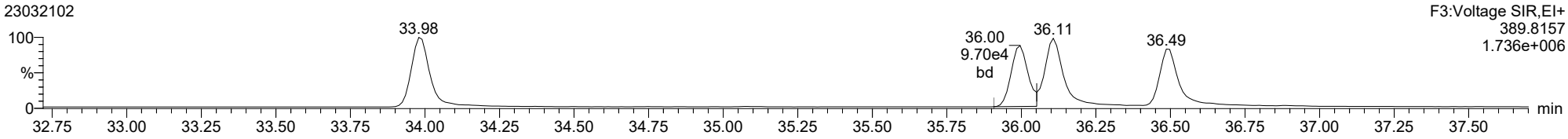
123478-HxCDD



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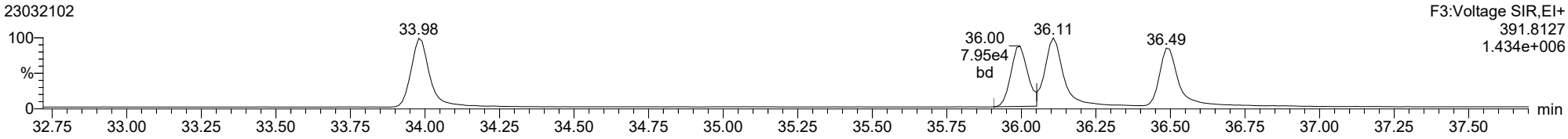

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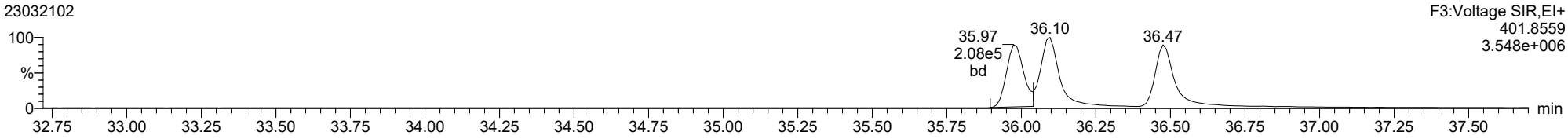

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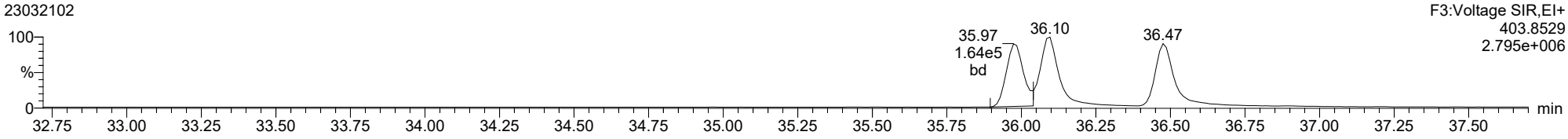

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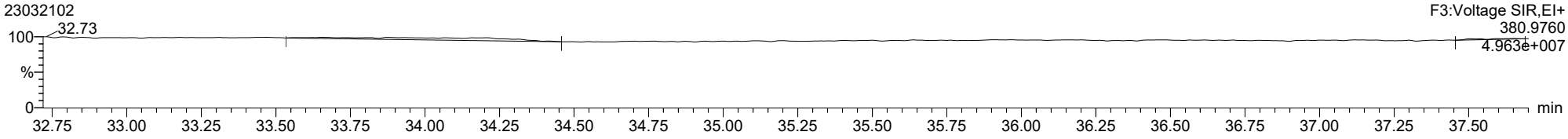

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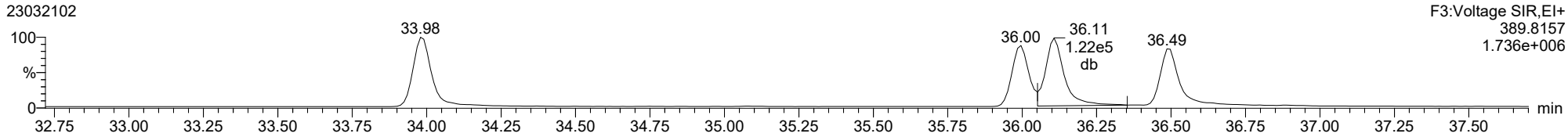
123678-HxCDD



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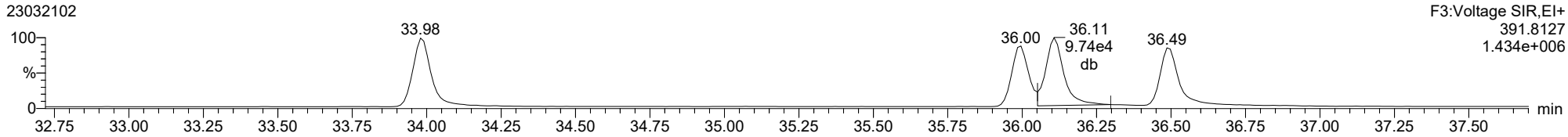

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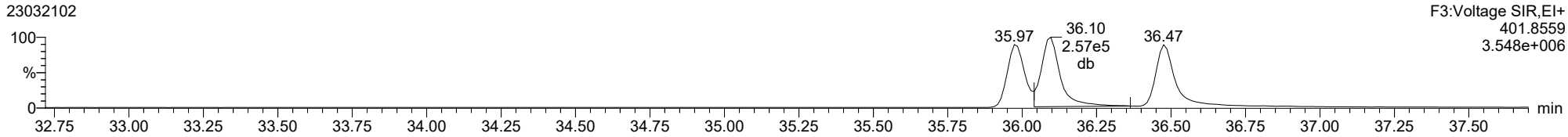

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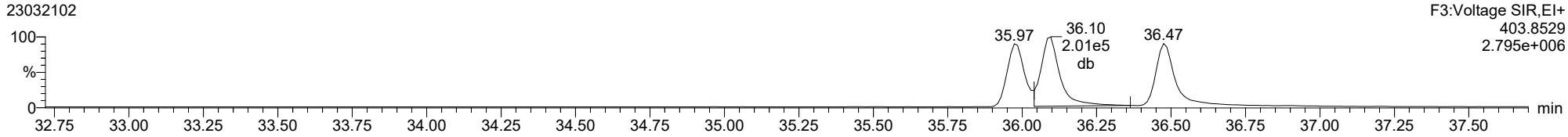

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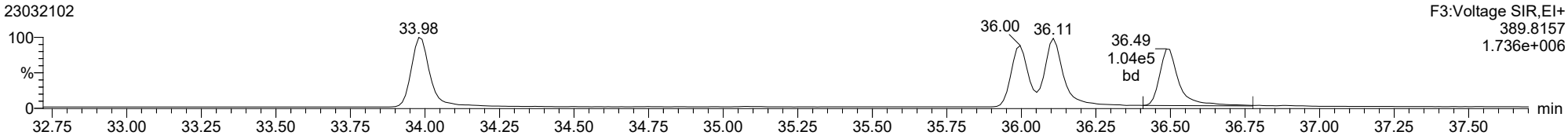

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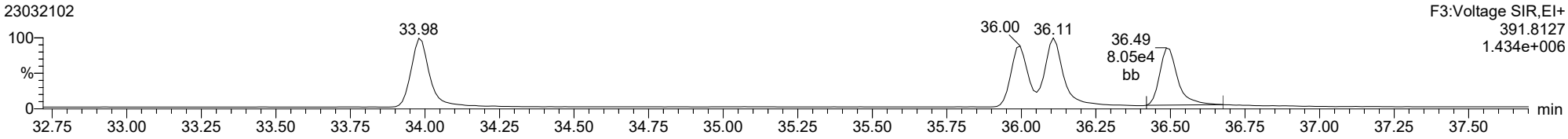

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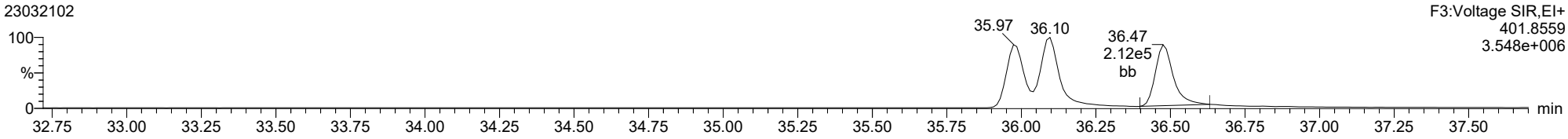

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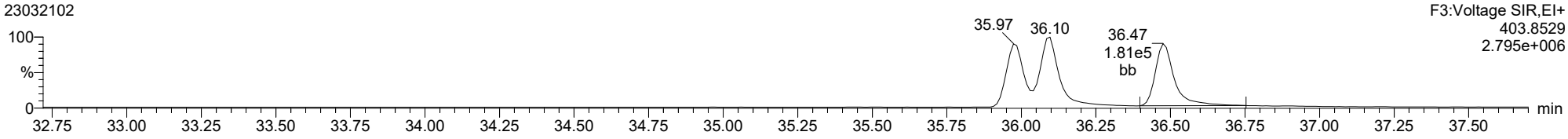

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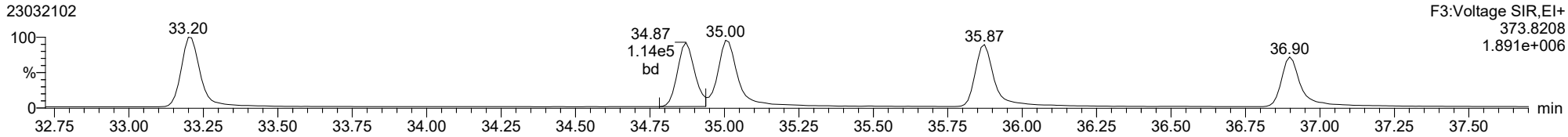

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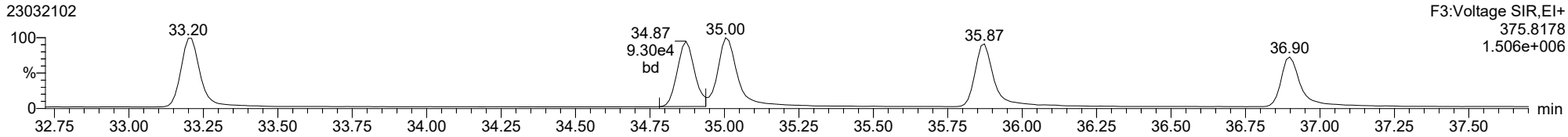

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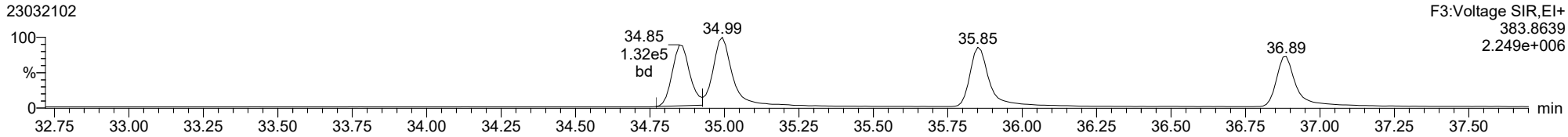

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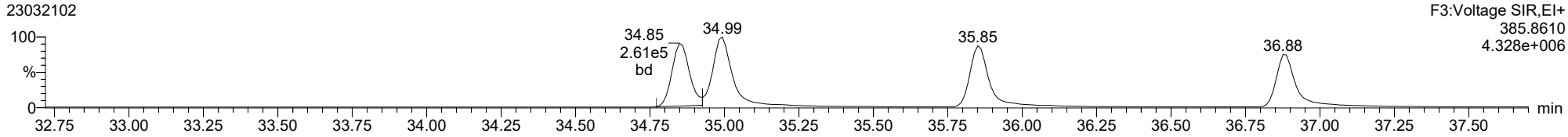

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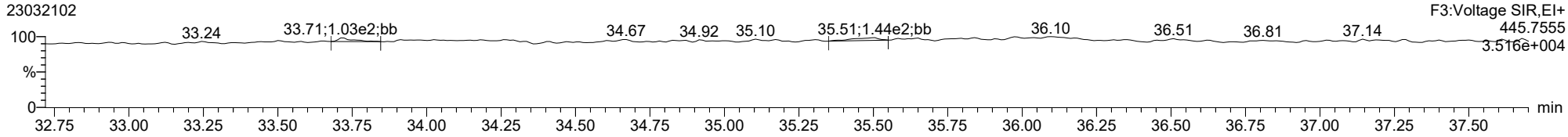

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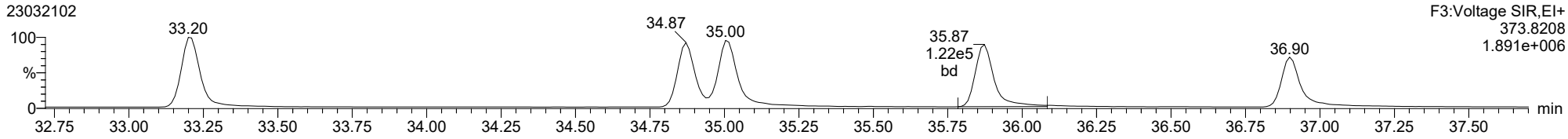

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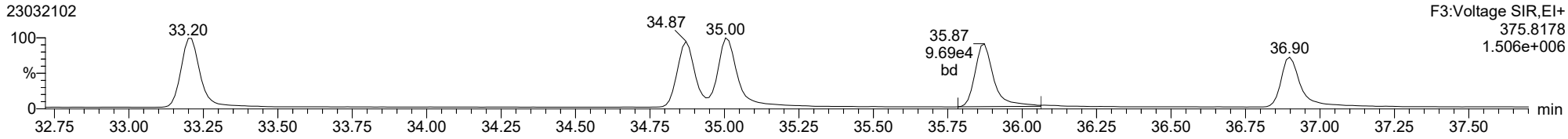

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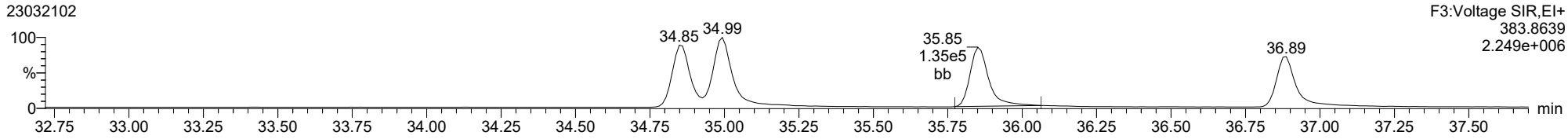

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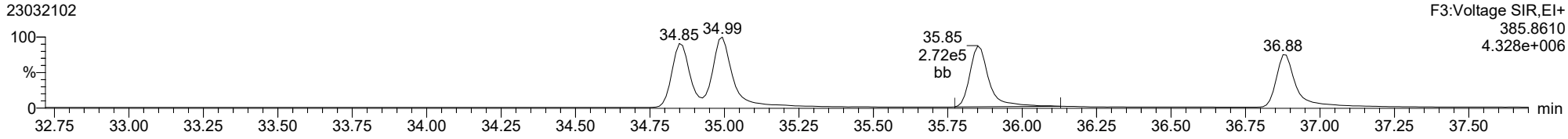

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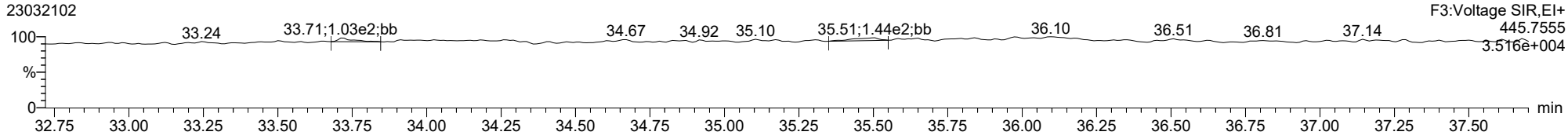

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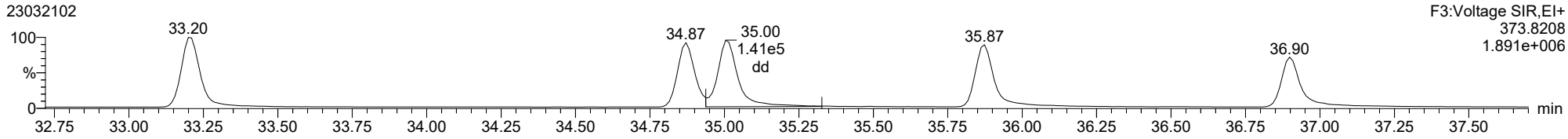

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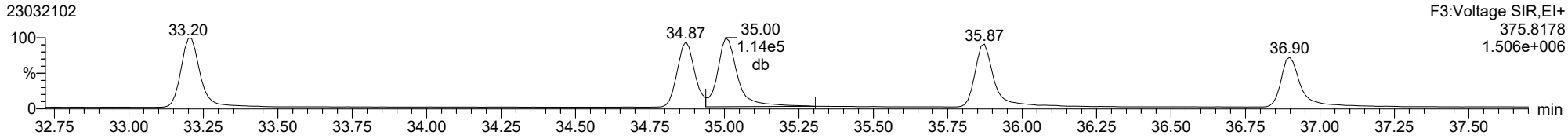

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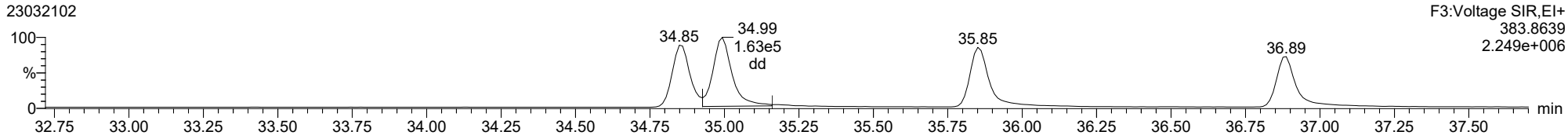

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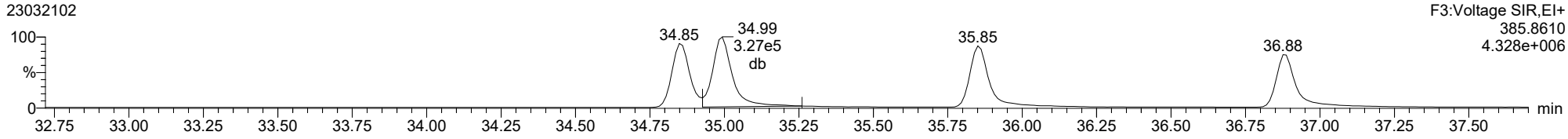

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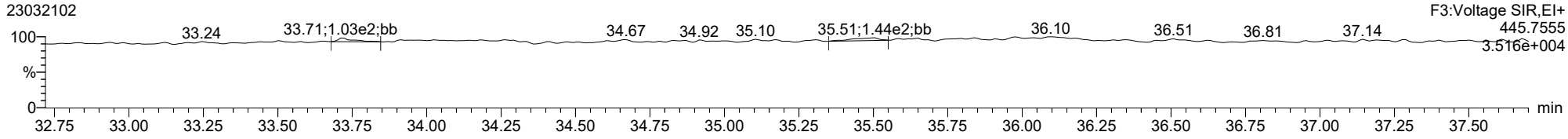

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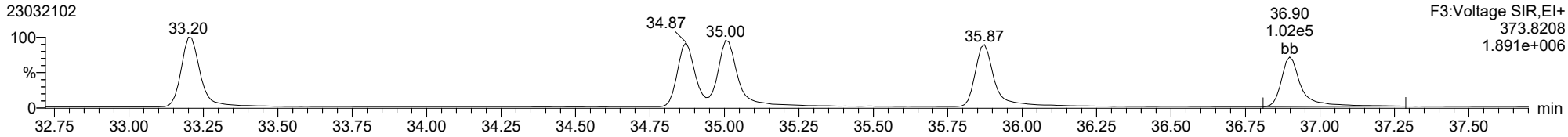

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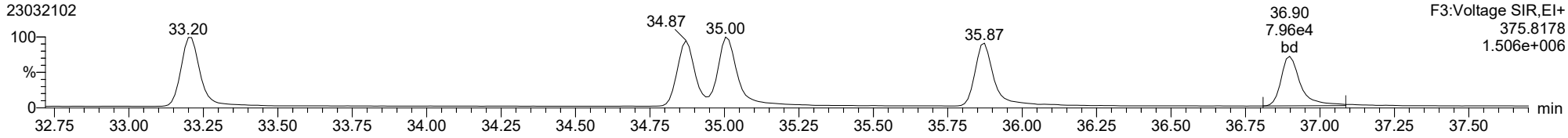

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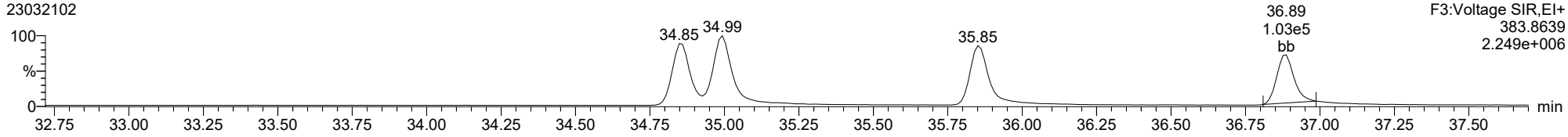

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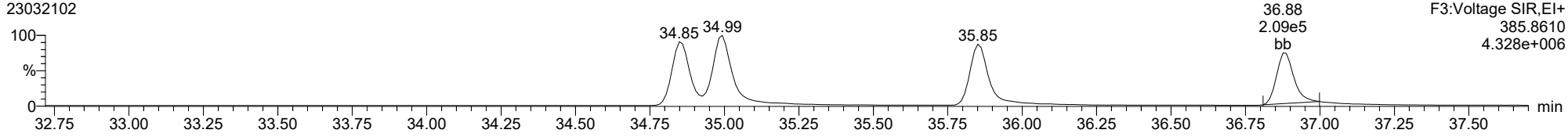

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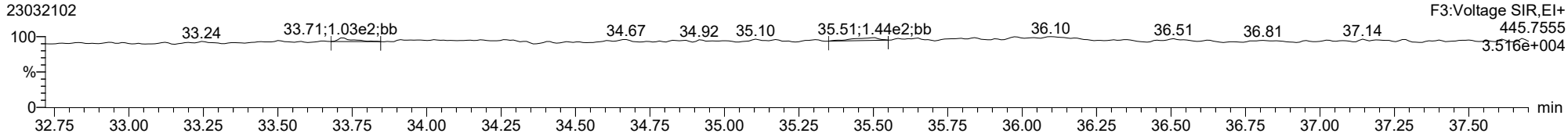

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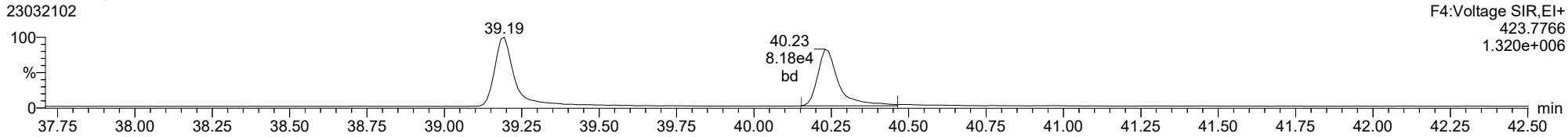

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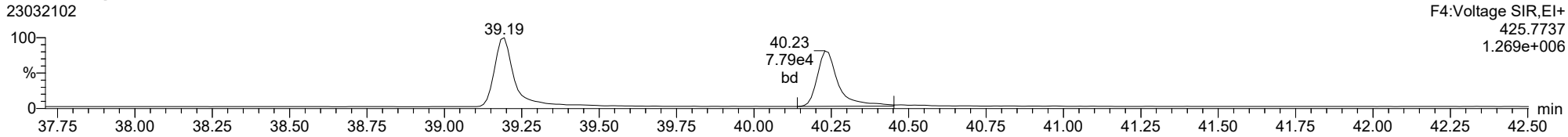

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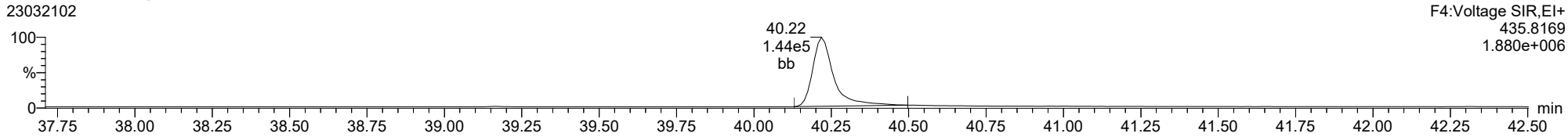

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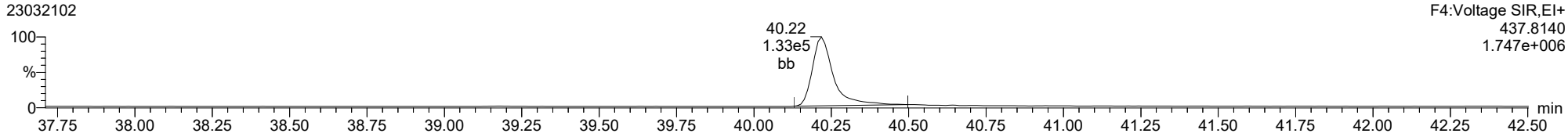
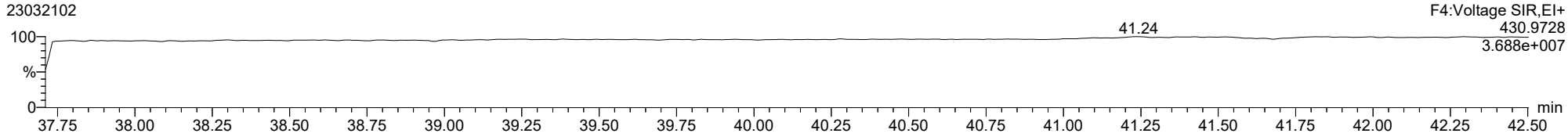


FUNCTION4 PFK



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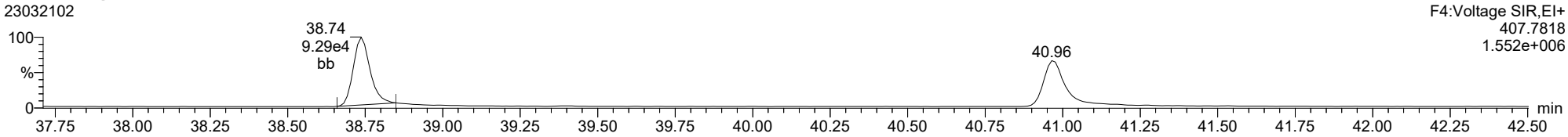

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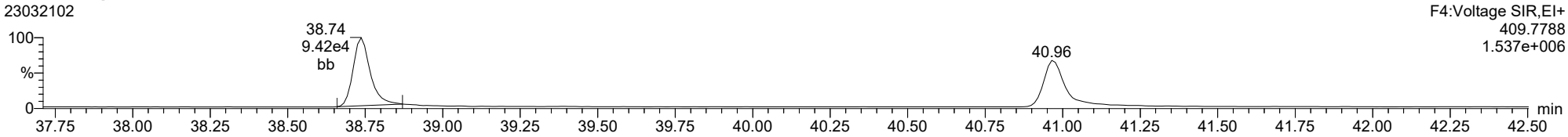

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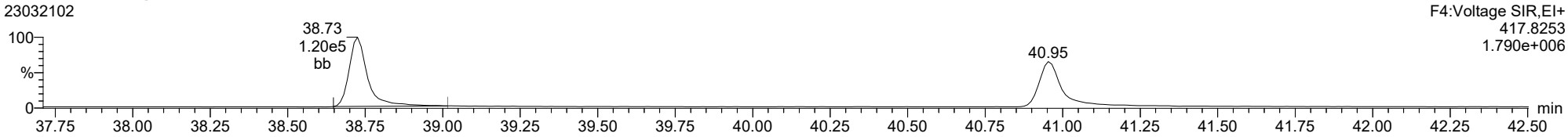

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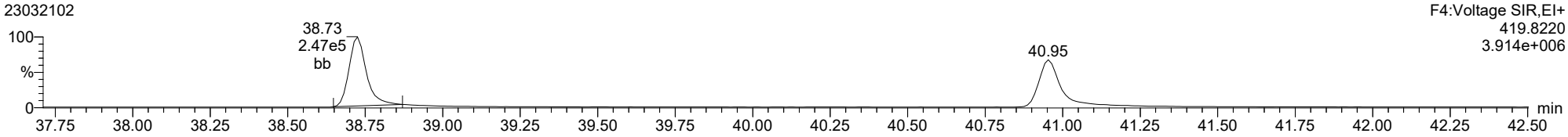

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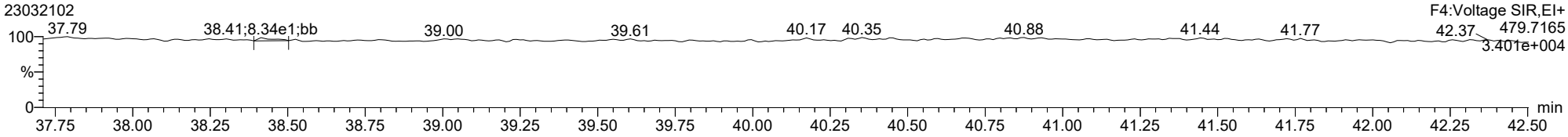

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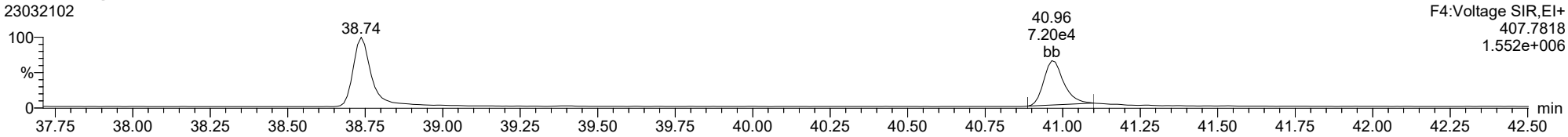

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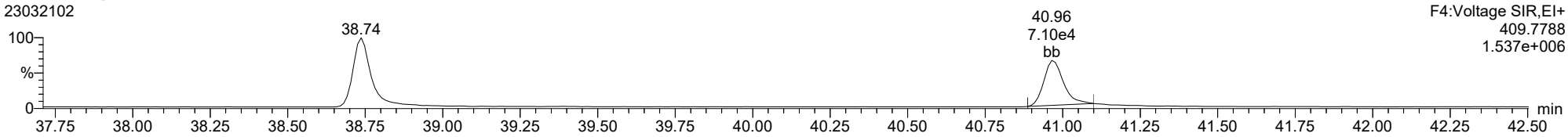

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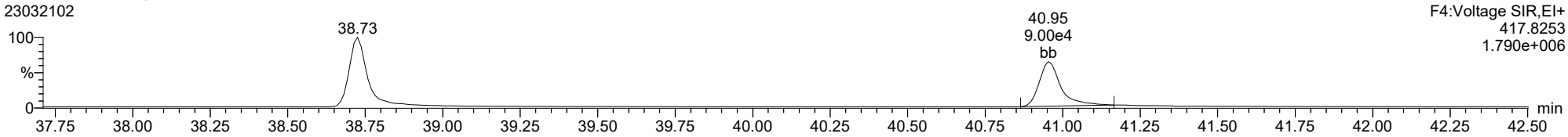

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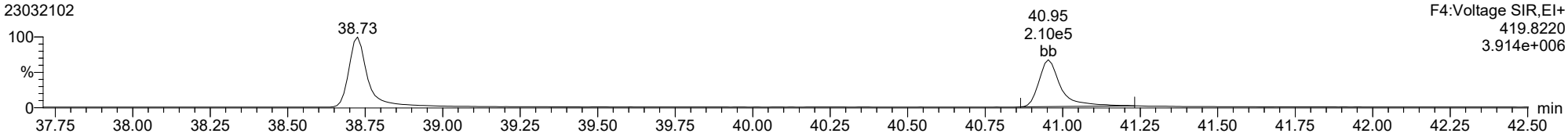

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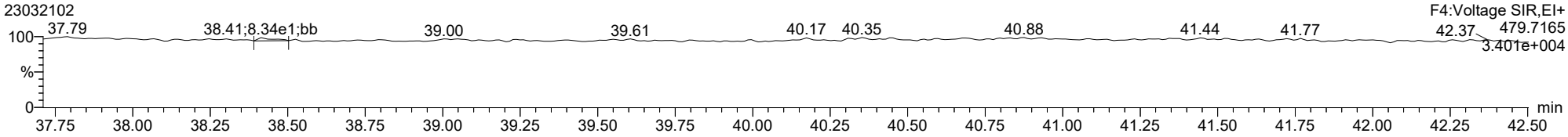

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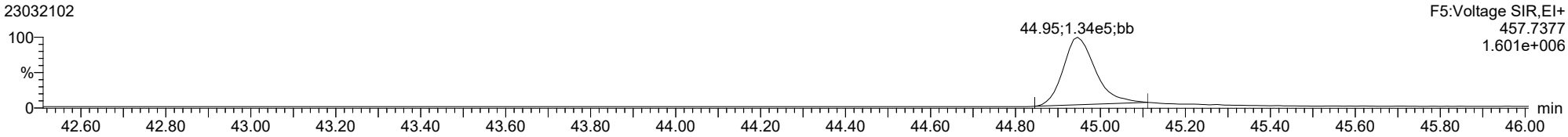

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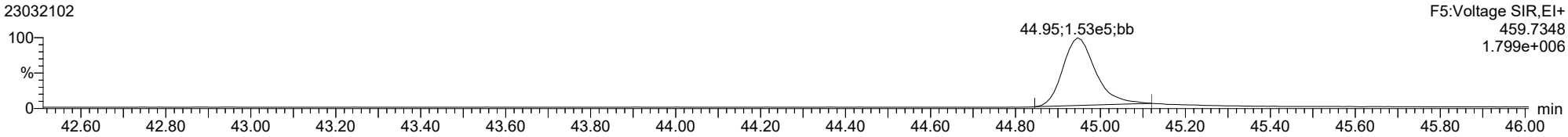

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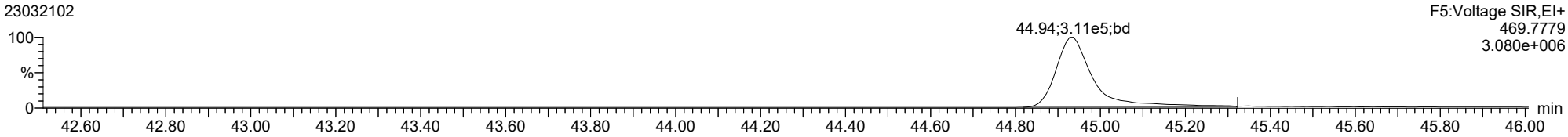

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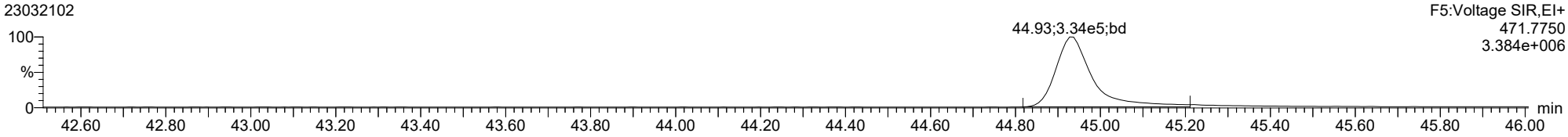
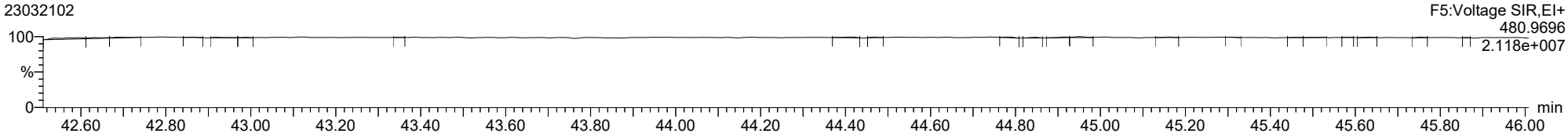


FUNCTION5 PFK



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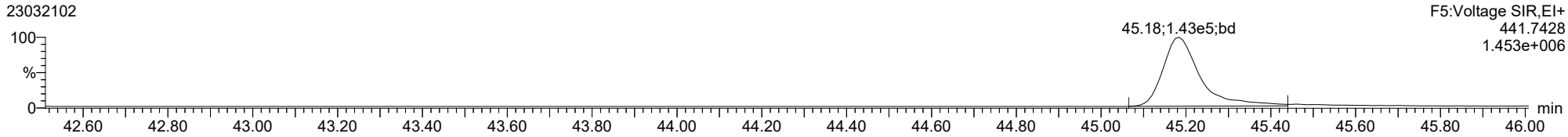

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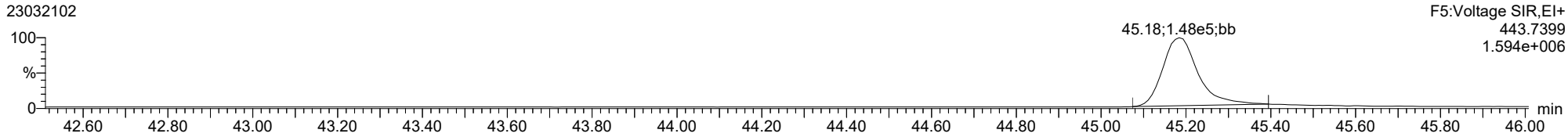

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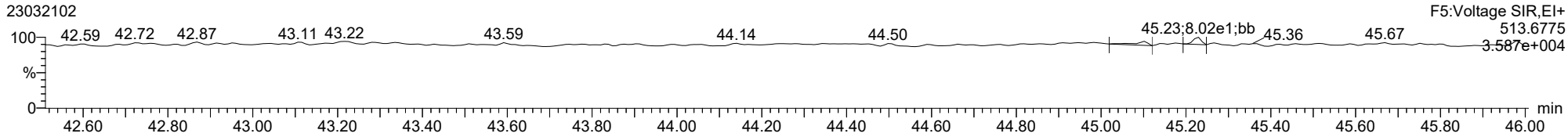

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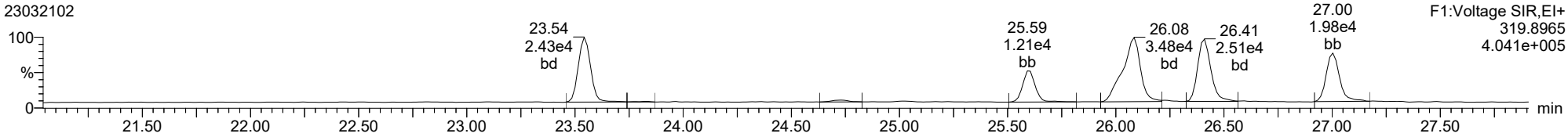
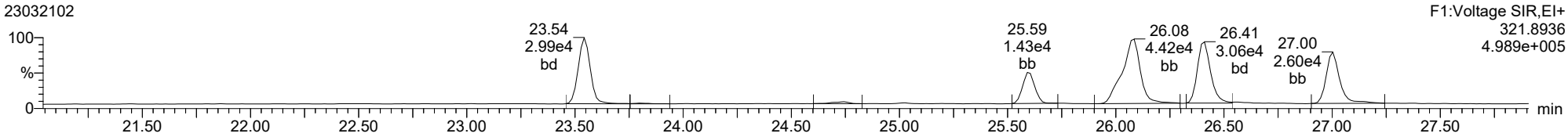


Total-tetradioxins



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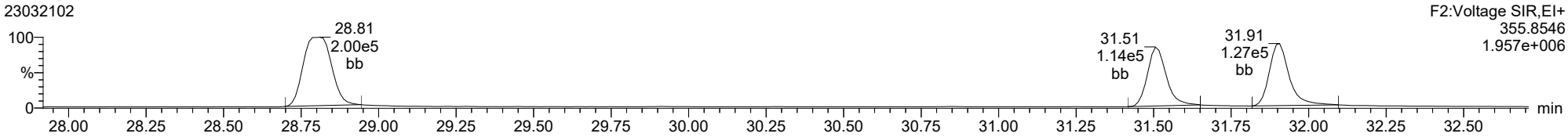

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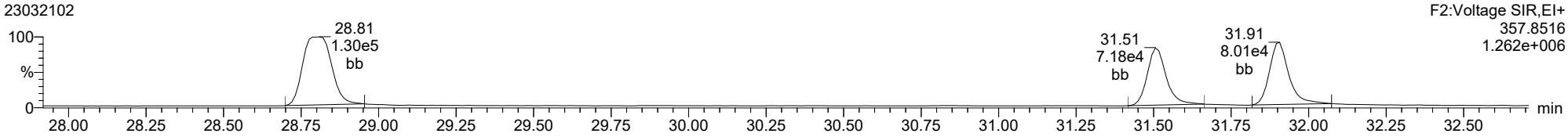

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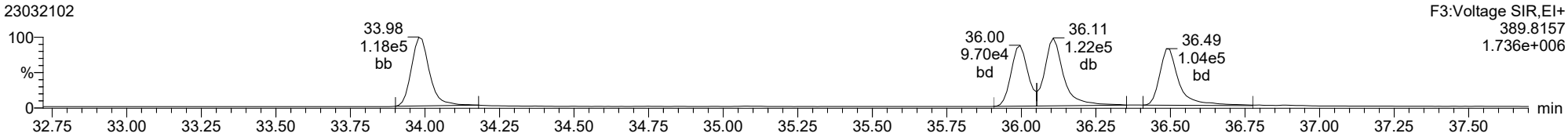

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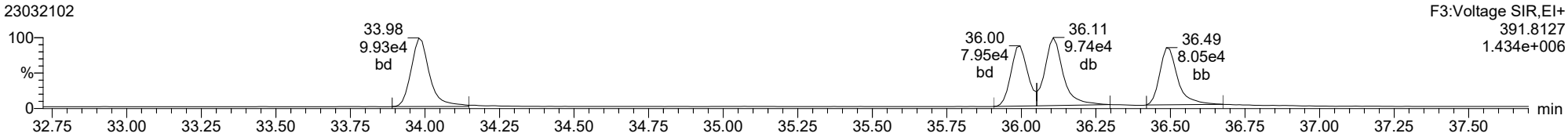

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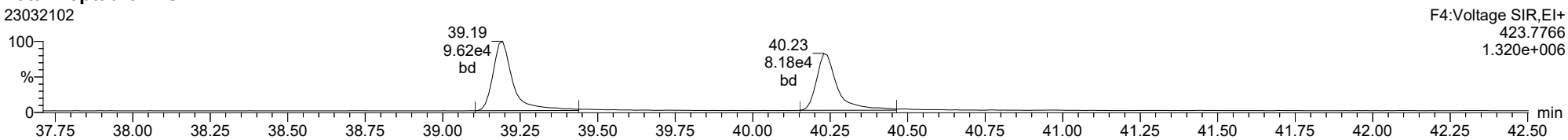
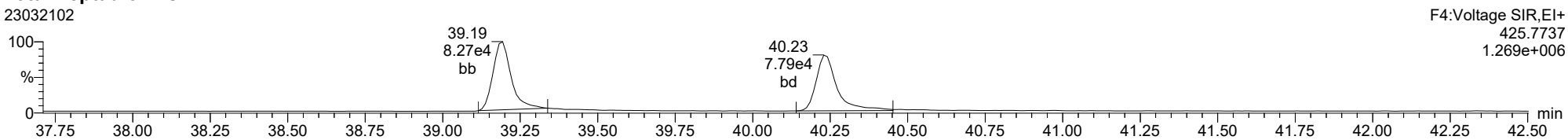
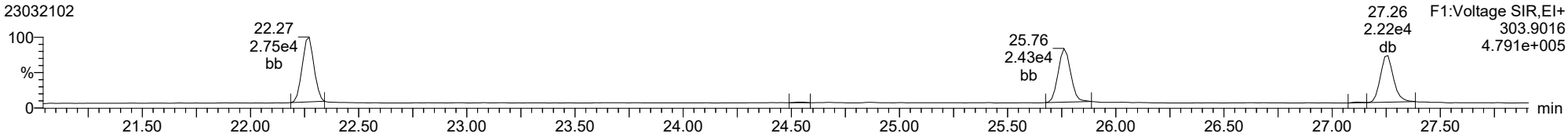


Total-heptadioxins

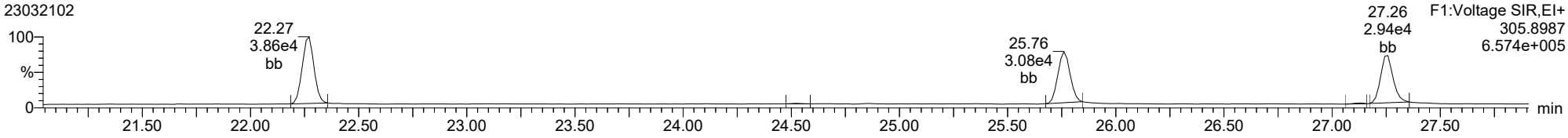


ID: CS3A3, Name: 23032102, Date: 21-Mar-2023, Time: 10:35:07, Conditions: AUTOSPEC01, User: pk

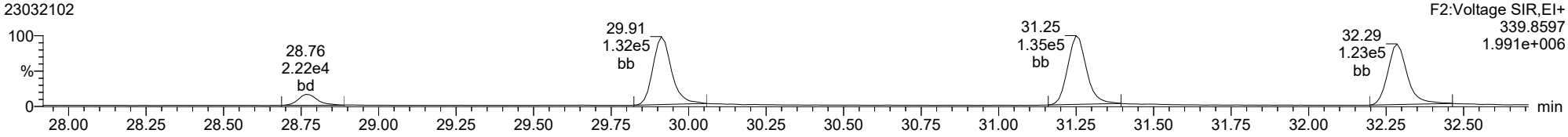
Total-tetrafurans



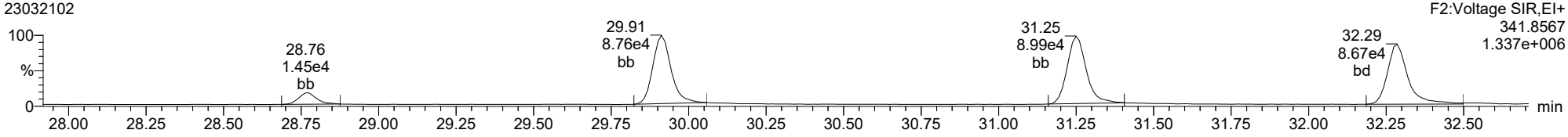
Total-tetrafurans



Total-pentafurans

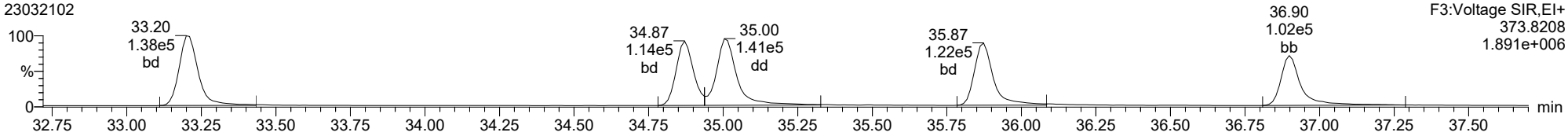


Total-pentafurans

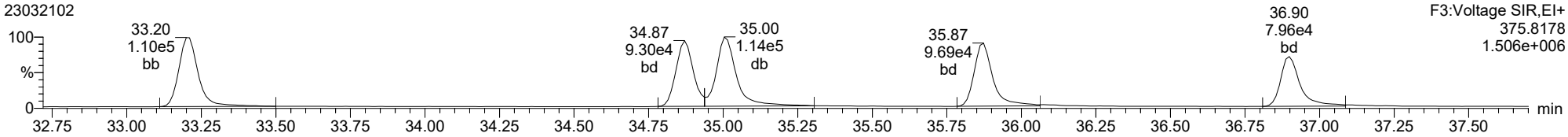


ID: CS3A3, Name: 23032102, Date: 21-Mar-2023, Time: 10:35:07, Conditions: AUTOSPEC01, User: pk

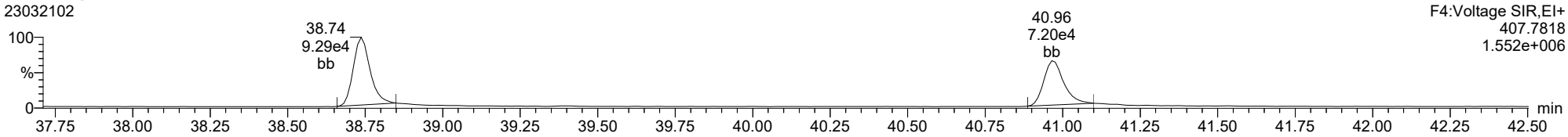
Total-hexafurans



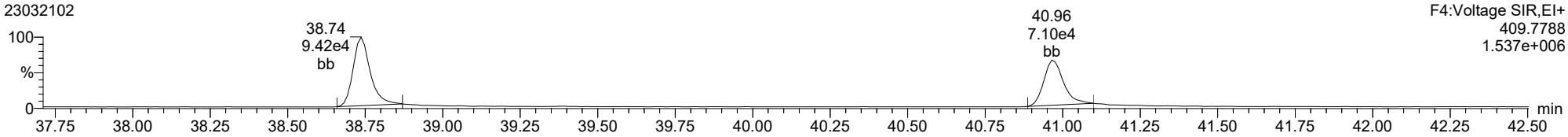
Total-hexafurans



Total-heptafurans

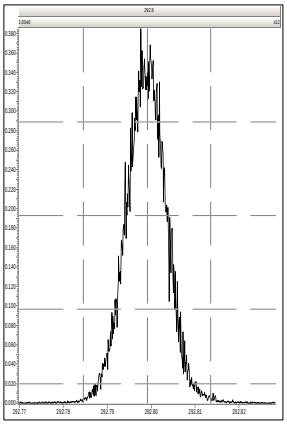


Total-heptafurans

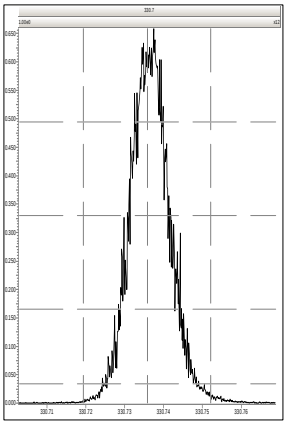


Printed: Tuesday, March 21, 2023 10:34:09 Pacific Daylight Time

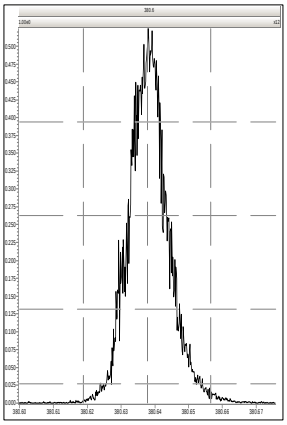
M 292.9824 R 13850



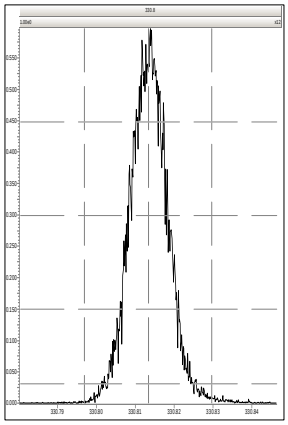
M 330.9792 R 14164



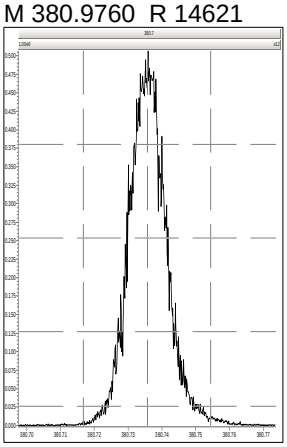
M 380.9760 R 13700



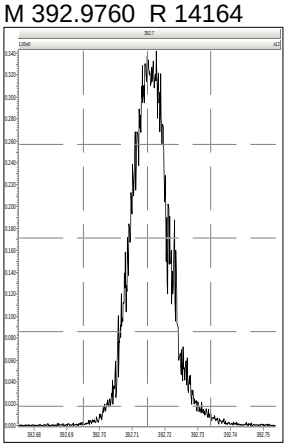
M 330.9792 R 14925



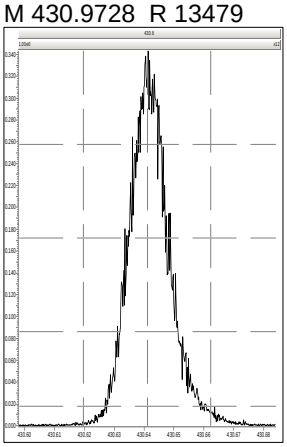
M 380.9760 R 14621



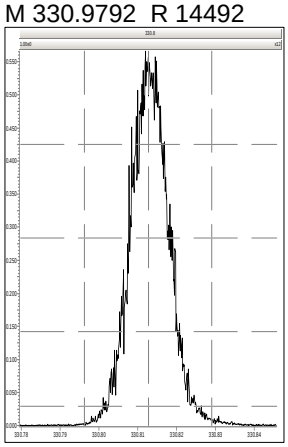
M 392.9760 R 14164



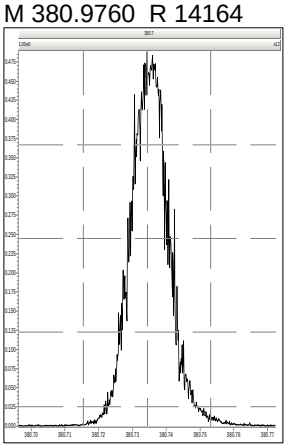
M 430.9728 R 13479



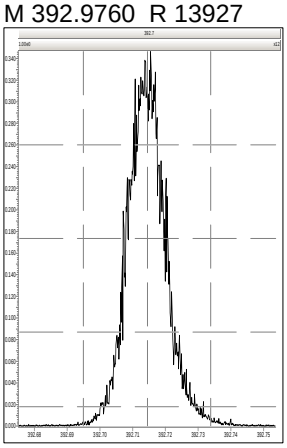
M 330.9792 R 14492



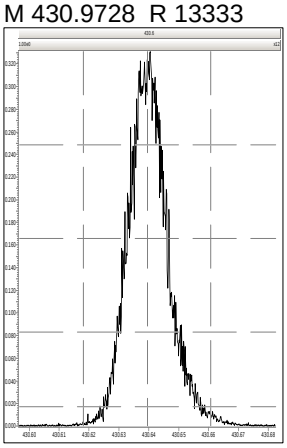
M 380.9760 R 14164



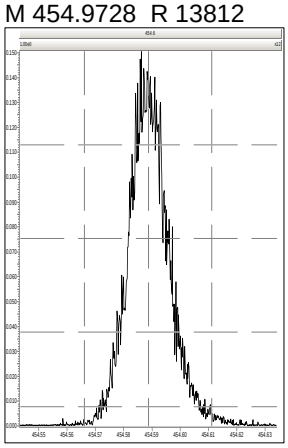
M 392.9760 R 13927



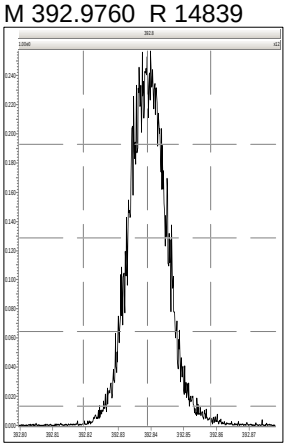
M 430.9728 R 13333



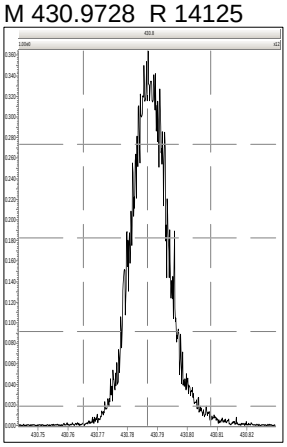
M 454.9728 R 13812



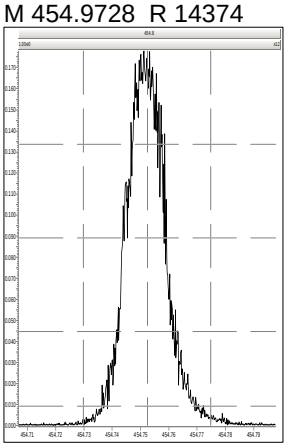
M 392.9760 R 14839



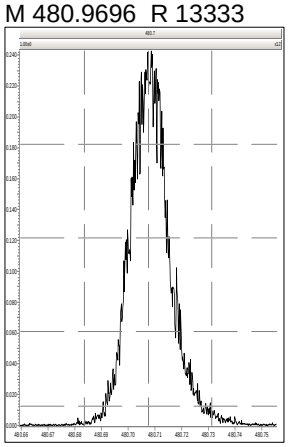
M 430.9728 R 14125



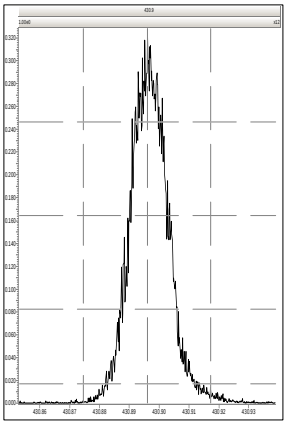
M 454.9728 R 14374



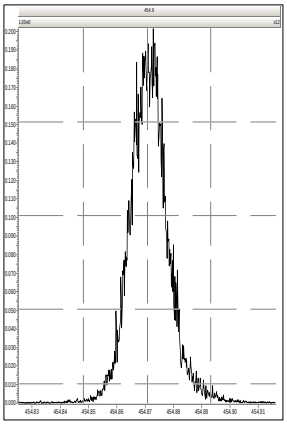
M 480.9696 R 13333



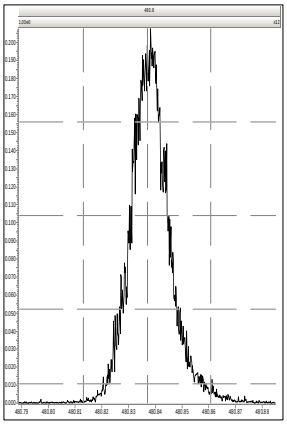
M 430.9728 R 14748



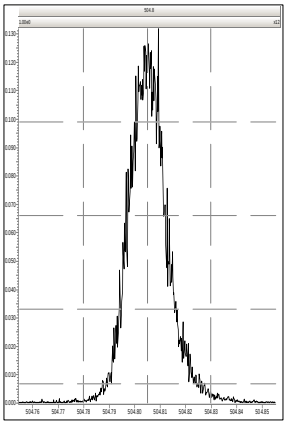
M 454.9728 R 14621



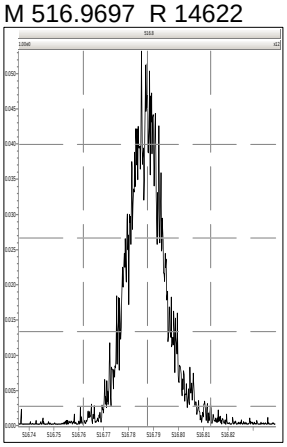
M 480.9696 R 13229

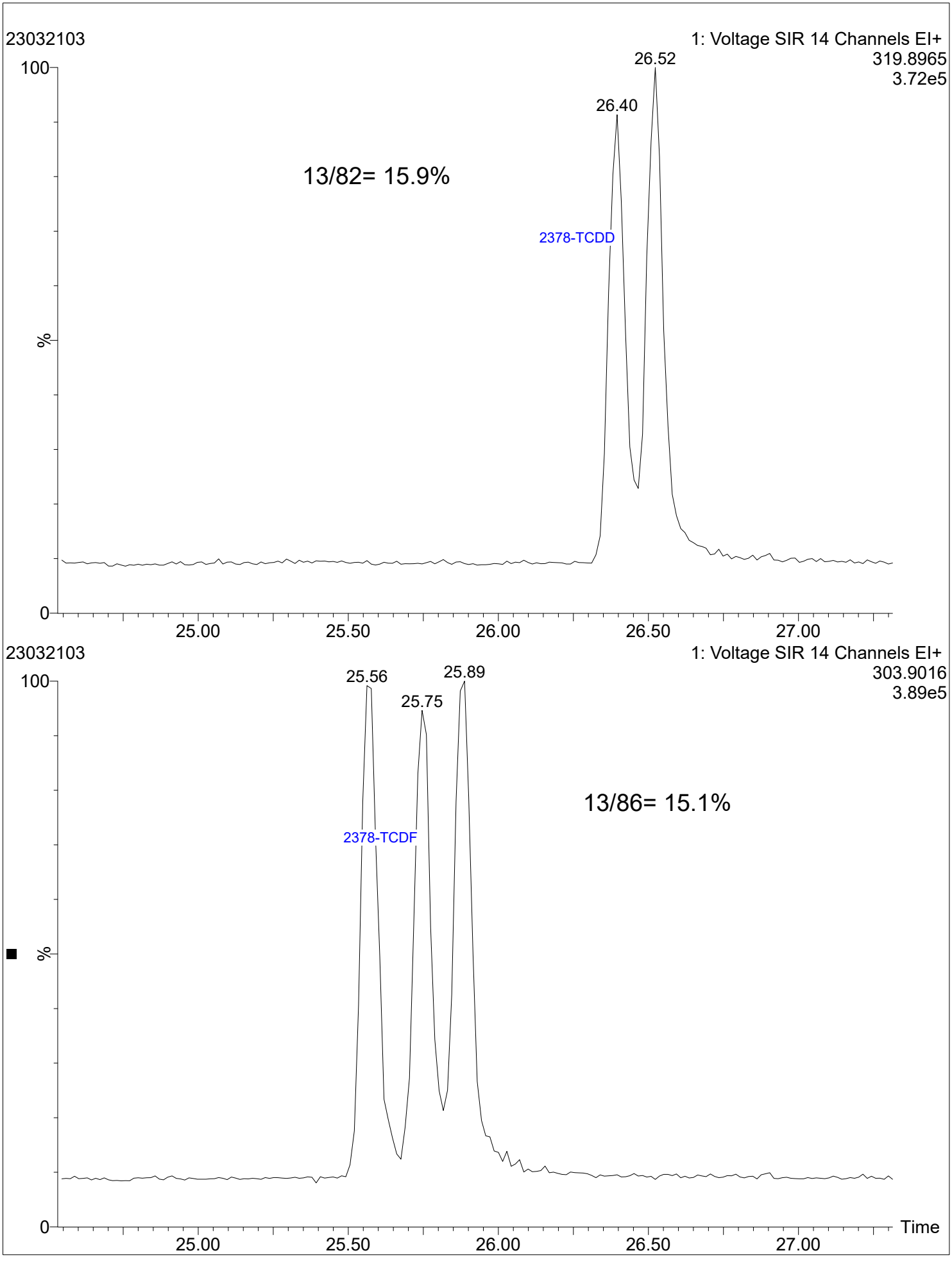


M 504.9696 R 14051



M 516.9697 R 14622




23032103
1: Voltage SIR 14 Channels EI+
319.8965
3.72e5
26.52
26.40
13/82= 15.9%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00
23032103
1: Voltage SIR 14 Channels EI+
303.9016
3.89e5
25.56
25.89
25.75
13/86= 15.1%
2378-TCDF
100
%
0
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030311	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-CCV1	Injection Time:	17:25
Sequence Name:	CS3V4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	10.1	0.7015272	0.7103909		1.3	+/-16
2,3,7,8-TCDD	A	10.000	9.02	1.1486620	1.0358000		-9.8	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.7	0.6792300	0.6482723		-4.6	+/-18
2,3,4,7,8-PeCDF	A	50.000	48.6	0.7861704	0.7638484		-2.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	50.8	1.0218450	1.0391930		1.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.3	1.1660380	1.1031690		-5.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	51.4	1.0907410	1.1209930		2.8	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	52.1	1.1396990	1.1864330		4.1	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.9	1.1370930	1.1121660		-2.2	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	50.7	0.9955689	1.0094320		1.4	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	51.1	1.0009380	1.0234880		2.3	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.7	0.9071139	0.9383686		3.4	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.7	1.0029930	0.9566603		-4.6	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	53.6	0.9531152	1.0217610		7.2	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	52.7	1.0390130	1.0955650		5.4	+/-14
OCDF	A	100.00	95.0	0.7778078	0.7390842		-5.0	+/-37
OCDD	A	100.00	97.1	0.9199537	0.8937318		-2.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	89.4	1.6201960	1.4487738		-10.6	+/-29
13C12-2,3,7,8-TCDD	A	100.00	86.0	1.1524090	0.9914363		-14.0	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	92.6	1.2404520	1.1488109		-7.4	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	91.6	1.1177860	1.0240744		-8.4	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	90.8	0.8288129	0.7523463		-9.2	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	95.2	1.1683050	1.1119828		-4.8	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	91.1	1.3864660	1.2630996		-8.9	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	96.9	1.1292560	1.0940819		-3.1	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	101	0.9317541	0.9426254		1.2	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	97.6	0.9950393	0.9710534		-2.4	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	98.4	1.1566890	1.1378328		-1.6	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	102	0.8952017	0.9116661		1.8	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	84.3	0.7697516	0.6486548		-15.7	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	92.0	0.8401226	0.7731635		-8.0	+/-28
13C12-OCDD	A	200.00	170	0.7674714	0.6532994		-14.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	7.54	1.2878040	0.9705402		-24.6	

* Values outside of QC limits

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030310	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-SCV1	Injection Time:	16:36
Sequence Name:	ICVCW		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.84	0.7015272	0.6901560		-1.6	
2,3,7,8-TCDD	A	10.000	9.81	1.1486620	1.1273700		-1.9	
1,2,3,7,8-PeCDF	A	50.000	51.4	0.6792300	0.6981249		2.8	
2,3,4,7,8-PeCDF	A	50.000	49.0	0.7861704	0.7701368		-2.0	
1,2,3,7,8-PeCDD	A	50.000	48.5	1.0218450	0.9921504		-2.9	
1,2,3,4,7,8-HxCDF	A	50.000	48.2	1.1660380	1.1251100		-3.5	
1,2,3,6,7,8-HxCDF	A	50.000	48.0	1.0907410	1.0469270		-4.0	
2,3,4,6,7,8-HxCDF	A	50.000	50.2	1.1396990	1.1448090		0.4	
1,2,3,7,8,9-HxCDF	A	50.000	49.1	1.1370930	1.1161010		-1.8	
1,2,3,4,7,8-HxCDD	A	50.000	50.8	0.9955689	1.0114830		1.6	
1,2,3,6,7,8-HxCDD	A	50.000	50.2	1.0009380	1.0044310		0.3	
1,2,3,7,8,9-HxCDD	A	50.000	51.6	0.9071139	8347.938		3.2	
1,2,3,4,6,7,8-HpCDF	A	50.000	51.8	1.0029930	1.0398620		3.7	
1,2,3,4,7,8,9-HpCDF	A	50.000	48.5	0.9531152	0.9237809		-3.1	
1,2,3,4,6,7,8-HpCDD	A	50.000	49.2	1.0390130	1.0223590		-1.6	
OCDF	A	100.00	104	0.7778078	0.8050743		3.5	
OCDD	A	100.00	99.4	0.9199537	0.9146365		-0.6	
13C12-2,3,7,8-TCDF	A	100.00	96.9	1.6201960	1.5703703		-3.1	
13C12-2,3,7,8-TCDD	A	100.00	96.6	1.1524090	1.1130294		-3.4	
13C12-1,2,3,7,8-PeCDF	A	100.00	73.2	1.2404520	0.9079224		-26.8	
13C12-2,3,4,7,8-PeCDF	A	100.00	75.9	1.1177860	0.8488817		-24.1	
13C12-1,2,3,7,8-PeCDD	A	100.00	76.6	0.8288129	0.6346243		-23.4	
13C12-1,2,3,4,7,8-HxCDF	A	100.00	93.0	1.1683050	1.0861993		-7.0	
13C12-1,2,3,6,7,8-HxCDF	A	100.00	98.0	1.3864660	1.3581552		-2.0	
13C12-2,3,4,6,7,8-HxCDF	A	100.00	93.4	1.1292560	1.0544008		-6.6	
13C12-1,2,3,7,8,9-HxCDF	A	100.00	97.9	0.9317541	0.9122440		-2.1	
13C12-1,2,3,4,7,8-HxCDD	A	100.00	95.9	0.9950393	0.9546162		-4.1	
13C12-1,2,3,6,7,8-HxCDD	A	100.00	97.7	1.1566890	1.1296183		-2.3	
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	102	0.8952017	0.9144345		2.1	
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	104	0.7697516	0.8001798		4.0	
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	102	0.8401226	0.8609226		2.5	
13C12-OCDD	A	200.00	162	0.7674714	0.6199758		-19.2	
37Cl4-2,3,7,8-TCDD	A	10.000	8.71	1.2878040	1.1221835		-12.9	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23032114	Calibration Date:	03/03/2023
Sequence:	SLC0322	Injection Date:	03/21/23
Lab Sample ID:	SLC0322-CCV1	Injection Time:	20:57
Sequence Name:	CS3A4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	10.7	0.7015272	0.7472477		6.5	+/-16
2,3,7,8-TCDD	A	10.000	9.02	1.1486620	1.0364030		-9.8	+/-22
1,2,3,7,8-PeCDF	A	50.000	51.0	0.6792300	0.6923578		1.9	+/-18
2,3,4,7,8-PeCDF	A	50.000	50.0	0.7861704	0.7860459		-0.02	+/-18
1,2,3,7,8-PeCDD	A	50.000	52.8	1.0218450	1.0790190		5.6	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	45.1	1.1660380	1.0508140		-9.9	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	46.0	1.0907410	1.0044470		-7.9	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.5	1.1396990	1.0823080		-5.0	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.1	1.1370930	1.0938670		-3.8	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	51.5	0.9955689	1.0261010		3.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.9	1.0009380	0.9785233		-2.2	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	54.0	0.9071139	0.9788969		7.9	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	48.9	1.0029930	0.9812922		-2.2	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	49.6	0.9531152	0.9459311		-0.8	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	52.9	1.0390130	1.0998760		5.9	+/-14
OCDF	A	100.00	99.5	0.7778078	0.7736272		-0.5	+/-37
OCDD	A	100.00	106	0.9199537	0.9764582		6.1	+/-21
13C12-2,3,7,8-TCDF	A	100.00	86.6	1.6201960	1.4029194		-13.4	+/-29
13C12-2,3,7,8-TCDD	A	100.00	95.2	1.1524090	1.0972997		-4.8	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	91.7	1.2404520	1.1370210		-8.3	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	96.4	1.1177860	1.0780883		-3.6	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	88.7	0.8288129	0.7353507		-11.3	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	90.2	1.1683050	1.0534092		-9.8	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	86.0	1.3864660	1.1920201		-14.0	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	90.8	1.1292560	1.0252862		-9.2	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	91.3	0.9317541	0.8506867		-8.7	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	94.8	0.9950393	0.9431648		-5.2	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	92.0	1.1566890	1.0645815		-8.0	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	87.0	0.8952017	0.7784956		-13.0	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	87.1	0.7697516	0.6703208		-12.9	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	78.7	0.8401226	0.6615896		-21.3	+/-18
13C12-OCDD	A	200.00	182	0.7674714	0.7002727		-8.8	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	7.89	1.2878040	1.0163316		-21.1	+/-21

* Values outside of QC limits

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:49:42 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3A4, Name: 23032114, Date: 21-Mar-2023, Time: 20:57:16, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.718	1.001	2.578e4	3.278e4	0.702	0.786	0.770	828	1305	3.89e5	4.86e5	469.9	372.1	NO	bb	bb	10.652
12378-PeCDF	29.879	1.001	1.318e5	8.807e4	0.679	1.497	1.550	1483	1607	1.95e6	1.30e6	1315.2	807.8	NO	bb	bb	50.966
23478-PeCDF	31.216	1.001	1.406e5	9.610e4	0.786	1.463	1.550	1483	1607	2.07e6	1.45e6	1394.5	903.8	NO	bb	bb	49.992
123478-HxCDF	34.837	1.001	1.535e5	1.243e5	1.166	1.234	1.240	1533	1414	2.41e6	1.91e6	1574.5	1347.8	NO	MM	MM	45.059
234678-HxCDF	35.840	1.001	1.539e5	1.245e5	1.140	1.236	1.240	1533	1414	2.35e6	1.88e6	1529.6	1331.6	NO	bb	bd	47.482
123678-HxCDF	34.971	1.000	1.659e5	1.346e5	1.091	1.233	1.240	1533	1414	2.44e6	1.96e6	1593.0	1389.0	NO	db	db	46.044
123789-HxCDF	36.864	1.001	1.285e5	1.050e5	1.137	1.224	1.240	1533	1414	1.91e6	1.61e6	1243.7	1136.9	NO	bd	bd	48.099
1234678-HpCDF	38.703	1.000	9.513e4	9.657e4	1.003	0.985	1.050	1223	1380	1.59e6	1.62e6	1299.5	1176.8	NO	bb	bb	48.918
1234789-HpCDF	40.931	1.000	7.859e4	8.052e4	0.953	0.976	1.050	1223	1380	1.16e6	1.18e6	947.4	852.6	NO	bb	bb	49.623
OCDF	45.138	1.006	1.273e5	1.445e5	0.778	0.881	0.890	1354	919	1.48e6	1.69e6	1093.4	1843.8	NO	bb	bb	99.462
2378-TCDD	26.368	1.001	2.828e4	3.525e4	1.149	0.802	0.770	1006	1051	4.27e5	5.20e5	424.4	495.1	NO	bb	bd	9.023
12378-PeCDD	31.472	1.001	1.347e5	8.696e4	1.022	1.549	1.550	1332	1058	2.03e6	1.29e6	1522.8	1220.0	NO	bb	bb	52.798
123478-HxCDD	35.951	1.000	1.338e5	1.090e5	0.996	1.227	1.240	1475	1575	2.15e6	1.76e6	1456.8	1119.4	NO	bd	bd	51.533
123678-HxCDD	36.074	1.001	1.431e5	1.183e5	1.001	1.210	1.240	1475	1575	2.18e6	1.77e6	1475.9	1123.1	NO	db	db	48.880
123789-HxCDD	36.452	1.011	1.334e5	1.132e5	0.907	1.178	1.240	1475	1575	2.15e6	1.75e6	1454.1	1108.2	NO	bb	bd	53.957
1234678-HpCDD	40.196	1.000	9.524e4	8.736e4	1.039	1.090	1.050	1114	1630	1.42e6	1.33e6	1270.2	815.2	NO	bd	bb	52.929
OCDD	44.900	1.000	1.593e5	1.839e5	0.920	0.867	0.890	817	748	1.90e6	2.19e6	2329.1	2930.5	NO	bb	bb	106.142
13C-2378-TCDF	25.704	1.007	3.400e5	4.438e5	1.620	0.766	0.770	1284	1056	4.95e6	6.54e6	3854.0	6190.9	NO	bb	bb	86.590
13C-12378-PeCDF	29.857	1.169	3.794e5	2.558e5	1.240	1.484	1.550	1706	2046	5.64e6	3.71e6	3305.3	1812.4	NO	bb	bd	91.662
13C-23478-PeCDF	31.194	1.222	3.625e5	2.398e5	1.118	1.512	1.550	1706	2046	5.49e6	3.65e6	3215.3	1785.6	NO	bb	bb	96.449
13C-123478-HxCDF	34.814	0.955	1.770e5	3.517e5	1.168	0.503	0.510	1323	2603	2.84e6	5.59e6	2149.4	2147.1	NO	bd	bd	90.166
13C-123678-HxCDF	34.959	0.959	2.030e5	3.953e5	1.386	0.513	0.510	1323	2603	2.89e6	5.67e6	2182.5	2178.1	NO	dd	dd	85.975
13C-234678-HxCDF	35.817	0.983	1.734e5	3.412e5	1.129	0.508	0.510	1323	2603	2.77e6	5.44e6	2092.6	2090.8	NO	bb	bb	90.793
13C-123789-HxCDF	36.842	1.011	1.423e5	2.847e5	0.932	0.500	0.510	1323	2603	2.26e6	4.48e6	1708.6	1719.1	NO	bb	bb	91.299
13C-1234678-HpCDF	38.692	1.062	1.194e5	2.713e5	0.895	0.440	0.440	1184	1411	2.01e6	4.51e6	1699.9	3199.9	NO	bb	bb	86.963
13C-1234789-HpCDF	40.920	1.123	1.020e5	2.345e5	0.770	0.435	0.440	1184	1411	1.43e6	3.22e6	1204.7	2283.9	NO	bb	bd	87.083
13C-1234-TCDD	25.534	0.000	2.454e5	3.133e5	1.000	0.783	0.770	1293	883	3.83e6	4.88e6	2959.8	5523.0	NO	bb	bb	100.000
13C-2378-TCDD	26.339	1.031	2.662e5	3.469e5	1.152	0.767	0.770	1293	883	3.98e6	5.22e6	3080.1	5910.0	NO	bb	bb	95.218
13C-12378-PeCDD	31.450	1.232	2.545e5	1.563e5	0.829	1.628	1.550	931	999	3.90e6	2.41e6	4191.6	2414.4	NO	bb	bb	88.723
13C-123478-HxCDD	35.940	0.986	2.660e5	2.074e5	0.995	1.283	1.240	1391	1416	4.44e6	3.42e6	3188.9	2414.0	NO	bd	bd	94.787
13C-123678-HxCDD	36.051	0.989	2.974e5	2.369e5	1.157	1.255	1.240	1391	1416	4.41e6	3.49e6	3167.6	2463.4	NO	dd	db	92.037
13C-1234678-HpCDD	40.185	1.103	1.715e5	1.605e5	0.840	1.068	1.050	855	1284	2.55e6	2.40e6	2989.0	1866.4	NO	bb	bb	78.749
13C-OCDD	44.882	1.232	3.342e5	3.687e5	0.767	0.906	0.890	1359	1460	3.95e6	4.34e6	2907.7	2975.2	NO	bb	bb	182.488
13C-123789-HxCDD	36.441	0.000	2.800e5	2.219e5	1.000	1.262	1.240	1391	1416	4.48e6	3.54e6	3224.5	2498.0	NO	bb	bb	100.000
37CL-2378-TCDD	26.368	1.033	5.678e4		1.288			1257		8.58e5		682.6			bb		7.892

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:49:42 Pacific Daylight Time

ID: CS3A4, Name: 23032114, Date: 21-Mar-2023, Time: 20:57:16, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.229	0.865	3.302e4	4.461e4	0.802	0.740	0.770	828	1305	5.44e5	7.31e5	657.2	560.2	NO	bb	bb	12.358
1289-TCDF	27.215	1.059	2.479e4	3.382e4	0.678	0.733	0.770	828	1305	3.76e5	5.14e5	453.9	394.2	NO	db	db	11.031
13468-PECDF	27.074	0.907	2.582e5	1.665e5	1.246	1.551	1.550	655	1009	4.01e6	2.62e6	6119.0	2597.8	NO	bb	bb	53.645
12389-PECDF	32.252	1.080	1.260e5	8.425e4	0.496	1.495	1.550	1483	1607	1.81e6	1.24e6	1219.6	769.9	NO	bb	bb	66.664
123468-HXCDF	33.166	0.953	1.753e5	1.412e5	1.169	1.242	1.240	1533	1414	2.58e6	2.10e6	1685.5	1487.7	NO	bb	bb	51.206
1368-TCDD	23.500	0.892	2.870e4	3.512e4	1.015	0.817	0.770	1006	1051	4.65e5	5.58e5	462.5	530.9	NO	bb	bd	10.252
1289-TCDD	26.961	1.024	2.387e4	3.014e4	0.909	0.792	0.770	1006	1051	3.58e5	4.50e5	355.5	428.5	NO	bb	bb	9.695
12479-PECDD	28.754	0.914	2.268e5	1.451e5	2.301	1.564	1.550	1332	1058	2.22e6	1.40e6	1663.9	1321.9	NO	bb	bb	39.331
12389-PECDD	31.862	1.013	1.484e5	9.931e4	1.184	1.494	1.550	1332	1058	2.30e6	1.50e6	1723.1	1420.0	NO	bb	bb	50.937
124679-HXCDD	33.946	0.945	1.475e5	1.200e5	1.115	1.229	1.240	1475	1575	2.25e6	1.84e6	1528.0	1169.1	NO	bb	bb	50.672
1234679-HPCDD	39.148	0.974	1.012e5	9.534e4	1.137	1.061	1.050	1114	1630	1.65e6	1.54e6	1478.4	944.4	NO	bb	bb	52.065
Total-tetrafurans			8.426e4		0.727			828		1.32e6							34.311
Total-penta1			2.582e5					655		4.01e6							53.645
Total-pentafurans			4.204e5		0.654			1483		6.17e6							176.933
Total-hexafurans			7.771e5		1.141			1533		1.17e7							237.891
Total-heptafurans			1.744e5		0.978			1223		2.76e6							98.918
Total-Furans			1.842e6		0.922			828		2.74e7							701.161
Total-tetradioxins			1.378e5		1.024			1006		1.91e6							49.621
Total-pentadioxins			5.104e5		1.502			1332		6.55e6							143.217
Total-hexadioxins			5.579e5		1.005			1475		8.73e6							205.071
Total-heptadioxins			1.964e5		1.088			1114		3.06e6							104.994
Total-Dioxins			1.562e6		1.130			1006		2.22e7							609.045
Total-TEQ			3.403e6					1006		4.96e7							1310.206
FUNCTION1 PFK			2.471e4					430862		8.02e5							
FUNCTION2 PFK			0.000e0					215877		0.00e0							
FUNCTION3 PFK			2.849e7					329576		2.15e7							0.000
FUNCTION4 PFK			2.828e4					215898		6.82e5							
FUNCTION5 PFK			7.101e6					160030		6.54e5							
FUNCTION1 HXCD...			6.185e2					617		6.33e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.941e2					675		5.75e3							0.000
FUNCTION3 OCDPE			1.293e2					659		2.48e3							0.000
FUNCTION4 NCDPE			7.154e1					650		1.23e3							0.000
FUNCTION5 DCDPE			1.063e2					447		2.08e3							0.000

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3A4, Name: 23032114, Date: 21-Mar-2023, Time: 20:57:16, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.22	2.479e4	3.382e4	0.678	0.73	0.77	453.9	YES	NO	db	db	11.031
2	Total-tetrafurans	27.09	3.955e2	5.472e2	0.727	0.72	0.77	9.1	YES	NO	bd	bd	0.165
3	2378-TCDF	25.72	2.578e4	3.278e4	0.702	0.79	0.77	469.9	YES	NO	bb	bb	10.652
4	Total-tetrafurans	24.83	2.632e2	3.354e2	0.727	0.78	0.77	4.8	YES	NO	bb	bb	0.105
5	1368-TCDF	22.23	3.302e4	4.461e4	0.802	0.74	0.77	657.2	YES	NO	bb	bb	12.358

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.07	2.582e5	1.665e5	1.246	1.55	1.55	6119.0	YES	NO	bb	bb	53.645

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.25	1.260e5	8.425e4	0.496	1.50	1.55	1219.6	YES	NO	bb	bb	66.664
2	23478-PeCDF	31.22	1.406e5	9.610e4	0.786	1.46	1.55	1394.5	YES	NO	bb	bb	49.992
3	12378-PeCDF	29.88	1.318e5	8.807e4	0.679	1.50	1.55	1315.2	YES	NO	bb	bb	50.966
4	Total-pentafurans	29.59	1.917e2	1.238e2	0.654	1.55	1.55	2.8	NO	NO	bb	bb	0.078
5	Total-pentafurans	28.73	2.179e4	1.556e4	0.654	1.40	1.55	228.4	YES	NO	bb	bb	9.232

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.97	1.659e5	1.346e5	1.091	1.23	1.24	1593.0	YES	NO	db	db	46.044
2	123478-HxCDF	34.84	1.535e5	1.243e5	1.166	1.23	1.24	1574.5	YES	NO	MM	MM	45.059
3	123468-HXCDF	33.17	1.753e5	1.412e5	1.169	1.24	1.24	1685.5	YES	NO	bb	bb	51.206
4	123789-HxCDF	36.86	1.285e5	1.050e5	1.137	1.22	1.24	1243.7	YES	NO	bd	bd	48.099
5	234678-HxCDF	35.84	1.539e5	1.245e5	1.140	1.24	1.24	1529.6	YES	NO	bb	bd	47.482

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.93	7.859e4	8.052e4	0.953	0.98	1.05	947.4	YES	NO	bb	bb	49.623
2	Total-heptafurans	39.36	6.541e2	6.856e2	0.978	0.95	1.05	7.4	YES	NO	bb	bb	0.377
3	1234678-HpCDF	38.70	9.513e4	9.657e4	1.003	0.99	1.05	1299.5	YES	NO	bb	bb	48.918

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.22	2.479e4	3.382e4	0.678	0.73	0.77	453.9	YES	NO	db	db	11.031
2	Total-tetrafurans	27.09	3.955e2	5.472e2	0.727	0.72	0.77	9.1	YES	NO	bd	bd	0.165
3	2378-TCDF	25.72	2.578e4	3.278e4	0.702	0.79	0.77	469.9	YES	NO	bb	bb	10.652
4	Total-tetrafurans	24.83	2.632e2	3.354e2	0.727	0.78	0.77	4.8	YES	NO	bb	bb	0.105
5	1368-TCDF	22.23	3.302e4	4.461e4	0.802	0.74	0.77	657.2	YES	NO	bb	bb	12.358
6	12389-PECDF	32.25	1.260e5	8.425e4	0.496	1.50	1.55	1219.6	YES	NO	bb	bb	66.664
7	23478-PeCDF	31.22	1.406e5	9.610e4	0.786	1.46	1.55	1394.5	YES	NO	bb	bb	49.992
8	12378-PeCDF	29.88	1.318e5	8.807e4	0.679	1.50	1.55	1315.2	YES	NO	bb	bb	50.966
9	Total-pentafurans	29.59	1.917e2	1.238e2	0.654	1.55	1.55	2.8	NO	NO	bb	bb	0.078
10	Total-pentafurans	28.73	2.179e4	1.556e4	0.654	1.40	1.55	228.4	YES	NO	bb	bb	9.232
11	123678-HxCDF	34.97	1.659e5	1.346e5	1.091	1.23	1.24	1593.0	YES	NO	db	db	46.044
12	123478-HxCDF	34.84	1.535e5	1.243e5	1.166	1.23	1.24	1574.5	YES	NO	MM	MM	45.059
13	123468-HXCDF	33.17	1.753e5	1.412e5	1.169	1.24	1.24	1685.5	YES	NO	bb	bb	51.206
14	123789-HxCDF	36.86	1.285e5	1.050e5	1.137	1.22	1.24	1243.7	YES	NO	bd	bd	48.099
15	234678-HxCDF	35.84	1.539e5	1.245e5	1.140	1.24	1.24	1529.6	YES	NO	bb	bd	47.482
16	1234789-HpCDF	40.93	7.859e4	8.052e4	0.953	0.98	1.05	947.4	YES	NO	bb	bb	49.623
17	Total-heptafurans	39.36	6.541e2	6.856e2	0.978	0.95	1.05	7.4	YES	NO	bb	bb	0.377
18	1234678-HpCDF	38.70	9.513e4	9.657e4	1.003	0.99	1.05	1299.5	YES	NO	bb	bb	48.918
19	OCDF	45.14	1.273e5	1.445e5	0.778	0.88	0.89	1093.4	YES	NO	bb	bb	99.462
20	13468-PECDF	27.07	2.582e5	1.665e5	1.246	1.55	1.55	6119.0	YES	NO	bb	bb	53.645

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.96	2.387e4	3.014e4	0.909	0.79	0.77	355.5	YES	NO	bb	bb	9.695
2	2378-TCDD	26.37	2.828e4	3.525e4	1.149	0.80	0.77	424.4	YES	NO	bb	bd	9.023
3	Total-tetradioxins	26.04	4.223e4	5.401e4	1.024	0.78	0.77	438.7	YES	NO	bb	bb	15.327
4	Total-tetradioxins	25.56	1.335e4	1.718e4	1.024	0.78	0.77	208.4	YES	NO	bd	bb	4.863
5	Total-tetradioxins	24.70	1.338e3	1.553e3	1.024	0.86	0.77	12.9	YES	NO	bb	bd	0.460
6	1368-TCDD	23.50	2.870e4	3.512e4	1.015	0.82	0.77	462.5	YES	NO	bb	bd	10.252

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.86	1.484e5	9.931e4	1.184	1.49	1.55	1723.1	YES	NO	bb	bb	50.937
2	12378-PeCDD	31.47	1.347e5	8.696e4	1.022	1.55	1.55	1522.8	YES	NO	bb	bb	52.798
3	Total-pentadioxins	30.80	5.347e2	4.017e2	1.502	1.33	1.55	6.4	YES	NO	bb	bb	0.152
4	12479-PECDD	28.75	2.268e5	1.451e5	2.301	1.56	1.55	1663.9	YES	NO	bb	bb	39.331

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.45	1.334e5	1.132e5	0.907	1.18	1.24	1454.1	YES	NO	bb	bd	53.957
2	123678-HxCDD	36.07	1.431e5	1.183e5	1.001	1.21	1.24	1475.9	YES	NO	db	db	48.880
3	123478-HxCDD	35.95	1.338e5	1.090e5	0.996	1.23	1.24	1456.8	YES	NO	bd	bd	51.533
4	Total-hexadioxins	34.12	7.487e1	7.102e1	1.005	1.05	1.24	0.0	NO	NO	bb	bb	0.029
5	124679-HXCDD	33.95	1.475e5	1.200e5	1.115	1.23	1.24	1528.0	YES	NO	bb	bb	50.672

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.20	9.524e4	8.736e4	1.039	1.09	1.05	1270.2	YES	NO	bd	bb	52.929
2	1234679-HPCDD	39.15	1.012e5	9.534e4	1.137	1.06	1.05	1478.4	YES	NO	bb	bb	52.065

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.96	2.387e4	3.014e4	0.909	0.79	0.77	355.5	YES	NO	bb	bb	9.695
2	2378-TCDD	26.37	2.828e4	3.525e4	1.149	0.80	0.77	424.4	YES	NO	bb	bd	9.023
3	Total-tetradioxins	26.04	4.223e4	5.401e4	1.024	0.78	0.77	438.7	YES	NO	bb	bb	15.327
4	Total-tetradioxins	25.56	1.335e4	1.718e4	1.024	0.78	0.77	208.4	YES	NO	bd	bb	4.863
5	Total-tetradioxins	24.70	1.338e3	1.553e3	1.024	0.86	0.77	12.9	YES	NO	bb	bd	0.460
6	1368-TCDD	23.50	2.870e4	3.512e4	1.015	0.82	0.77	462.5	YES	NO	bb	bd	10.252
7	12389-PECDD	31.86	1.484e5	9.931e4	1.184	1.49	1.55	1723.1	YES	NO	bb	bb	50.937
8	12378-PeCDD	31.47	1.347e5	8.696e4	1.022	1.55	1.55	1522.8	YES	NO	bb	bb	52.798
9	Total-pentadioxins	30.80	5.347e2	4.017e2	1.502	1.33	1.55	6.4	YES	NO	bb	bb	0.152
10	12479-PECDD	28.75	2.268e5	1.451e5	2.301	1.56	1.55	1663.9	YES	NO	bb	bb	39.331
11	123789-HxCDD	36.45	1.334e5	1.132e5	0.907	1.18	1.24	1454.1	YES	NO	bb	bd	53.957
12	123678-HxCDD	36.07	1.431e5	1.183e5	1.001	1.21	1.24	1475.9	YES	NO	db	db	48.880
13	123478-HxCDD	35.95	1.338e5	1.090e5	0.996	1.23	1.24	1456.8	YES	NO	bd	bd	51.533
14	Total-hexadioxins	34.12	7.487e1	7.102e1	1.005	1.05	1.24	0.0	NO	NO	bb	bb	0.029
15	124679-HXCDD	33.95	1.475e5	1.200e5	1.115	1.23	1.24	1528.0	YES	NO	bb	bb	50.672
16	1234678-HpCDD	40.20	9.524e4	8.736e4	1.039	1.09	1.05	1270.2	YES	NO	bd	bb	52.929
17	1234679-HPCDD	39.15	1.012e5	9.534e4	1.137	1.06	1.05	1478.4	YES	NO	bb	bb	52.065
18	OCDD	44.90	1.593e5	1.839e5	0.920	0.87	0.89	2329.1	YES	NO	bb	bb	106.142

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.22	2.479e4	3.382e4	0.678	0.73	0.77	453.9	YES	NO	db	db	11.031
2	Total-tetrafurans	27.09	3.955e2	5.472e2	0.727	0.72	0.77	9.1	YES	NO	bd	bd	0.165
3	2378-TCDF	25.72	2.578e4	3.278e4	0.702	0.79	0.77	469.9	YES	NO	bb	bb	10.652
4	Total-tetrafurans	24.83	2.632e2	3.354e2	0.727	0.78	0.77	4.8	YES	NO	bb	bb	0.105
5	1368-TCDF	22.23	3.302e4	4.461e4	0.802	0.74	0.77	657.2	YES	NO	bb	bb	12.358
6	12389-PECDF	32.25	1.260e5	8.425e4	0.496	1.50	1.55	1219.6	YES	NO	bb	bb	66.664
7	23478-PeCDF	31.22	1.406e5	9.610e4	0.786	1.46	1.55	1394.5	YES	NO	bb	bb	49.992
8	12378-PeCDF	29.88	1.318e5	8.807e4	0.679	1.50	1.55	1315.2	YES	NO	bb	bb	50.966
9	Total-pentafurans	29.59	1.917e2	1.238e2	0.654	1.55	1.55	2.8	NO	NO	bb	bb	0.078
10	Total-pentafurans	28.73	2.179e4	1.556e4	0.654	1.40	1.55	228.4	YES	NO	bb	bb	9.232
11	123678-HxCDF	34.97	1.659e5	1.346e5	1.091	1.23	1.24	1593.0	YES	NO	db	db	46.044
12	123478-HxCDF	34.84	1.535e5	1.243e5	1.166	1.23	1.24	1574.5	YES	NO	MM	MM	45.059
13	123468-HXCDF	33.17	1.753e5	1.412e5	1.169	1.24	1.24	1685.5	YES	NO	bb	bb	51.206
14	123789-HxCDF	36.86	1.285e5	1.050e5	1.137	1.22	1.24	1243.7	YES	NO	bd	bd	48.099
15	234678-HxCDF	35.84	1.539e5	1.245e5	1.140	1.24	1.24	1529.6	YES	NO	bb	bd	47.482
16	1234789-HpCDF	40.93	7.859e4	8.052e4	0.953	0.98	1.05	947.4	YES	NO	bb	bb	49.623
17	Total-heptafurans	39.36	6.541e2	6.856e2	0.978	0.95	1.05	7.4	YES	NO	bb	bb	0.377
18	1234678-HpCDF	38.70	9.513e4	9.657e4	1.003	0.99	1.05	1299.5	YES	NO	bb	bb	48.918
19	OCDF	45.14	1.273e5	1.445e5	0.778	0.88	0.89	1093.4	YES	NO	bb	bb	99.462
20	13468-PECDF	27.07	2.582e5	1.665e5	1.246	1.55	1.55	6119.0	YES	NO	bb	bb	53.645
21	1289-TCDD	26.96	2.387e4	3.014e4	0.909	0.79	0.77	355.5	YES	NO	bb	bb	9.695
22	2378-TCDD	26.37	2.828e4	3.525e4	1.149	0.80	0.77	424.4	YES	NO	bb	bd	9.023
23	Total-tetradioxins	26.04	4.223e4	5.401e4	1.024	0.78	0.77	438.7	YES	NO	bb	bb	15.327
24	Total-tetradioxins	25.56	1.335e4	1.718e4	1.024	0.78	0.77	208.4	YES	NO	bd	bb	4.863
25	Total-tetradioxins	24.70	1.338e3	1.553e3	1.024	0.86	0.77	12.9	YES	NO	bb	bd	0.460
26	1368-TCDD	23.50	2.870e4	3.512e4	1.015	0.82	0.77	462.5	YES	NO	bb	bd	10.252
27	12389-PECDD	31.86	1.484e5	9.931e4	1.184	1.49	1.55	1723.1	YES	NO	bb	bb	50.937
28	12378-PeCDD	31.47	1.347e5	8.696e4	1.022	1.55	1.55	1522.8	YES	NO	bb	bb	52.798
29	Total-pentadioxins	30.80	5.347e2	4.017e2	1.502	1.33	1.55	6.4	YES	NO	bb	bb	0.152
30	12479-PECDD	28.75	2.268e5	1.451e5	2.301	1.56	1.55	1663.9	YES	NO	bb	bb	39.331
31	123789-HxCDD	36.45	1.334e5	1.132e5	0.907	1.18	1.24	1454.1	YES	NO	bb	bd	53.957
32	123678-HxCDD	36.07	1.431e5	1.183e5	1.001	1.21	1.24	1475.9	YES	NO	db	db	48.880
33	123478-HxCDD	35.95	1.338e5	1.090e5	0.996	1.23	1.24	1456.8	YES	NO	bd	bd	51.533
34	Total-hexadioxins	34.12	7.487e1	7.102e1	1.005	1.05	1.24	0.0	NO	NO	bb	bb	0.029
35	124679-HXCDD	33.95	1.475e5	1.200e5	1.115	1.23	1.24	1528.0	YES	NO	bb	bb	50.672
36	1234678-HpCDD	40.20	9.524e4	8.736e4	1.039	1.09	1.05	1270.2	YES	NO	bd	bb	52.929
37	1234679-HPCDD	39.15	1.012e5	9.534e4	1.137	1.06	1.05	1478.4	YES	NO	bb	bb	52.065

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	OCDD	44.90	1.593e5	1.839e5	0.920	0.87	0.89	2329.1	YES	NO	bb	bb	106.142

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.17	2.471e4					1.9	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.18	2.849e7					65.2	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.58	2.635e4					2.4	NO		bb		
2	FUNCTION4 PFK	40.06	1.925e3					0.8	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.98	1.249e4					1.4	NO		bb		
2	FUNCTION5 PFK	43.94	7.089e6					2.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.58	9.834e1					1.9	NO		bb		0.000
2	FUNCTION1 HXCD...	27.10	1.083e2					2.2	NO		bb		0.000
3	FUNCTION1 HXCD...	21.34	2.093e2					2.0	NO		db		0.000
4	FUNCTION1 HXCD...	21.11	2.026e2					4.2	YES		bd		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.10	2.238e2					6.0	YES		bb		0.000
2	FUNCTION2 HPCD...	30.21	7.025e1					2.6	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.45	1.293e2					3.8	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.33	7.154e1					1.9	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	42.75	1.063e2					4.7	YES		bb		0.000

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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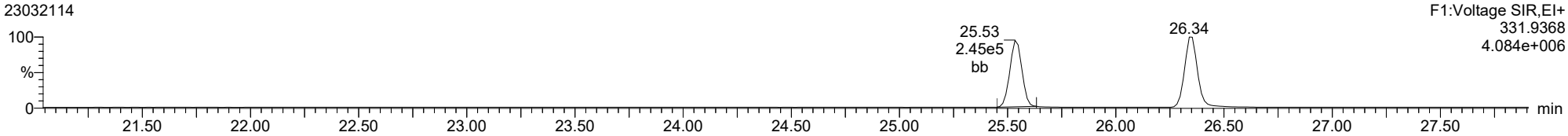
13C-1234-TCDD



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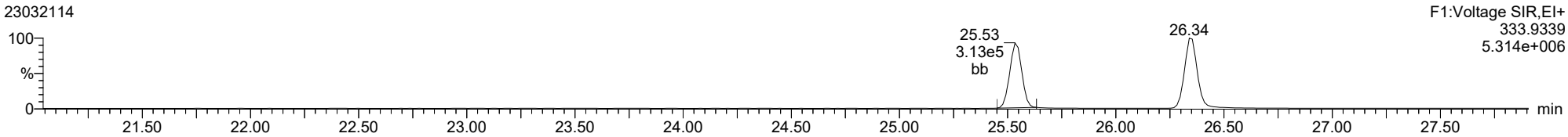

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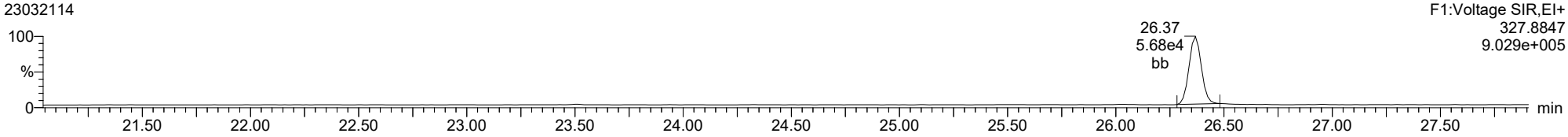

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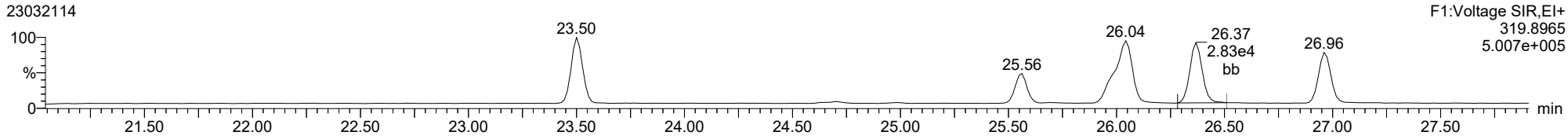

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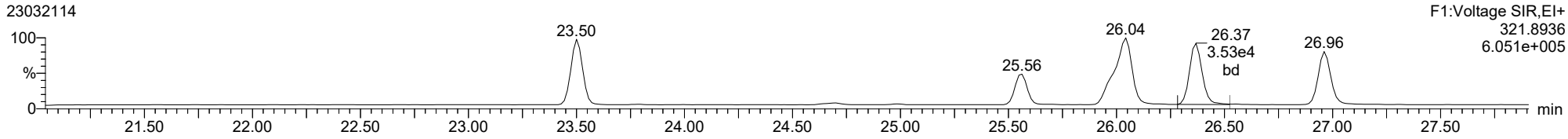

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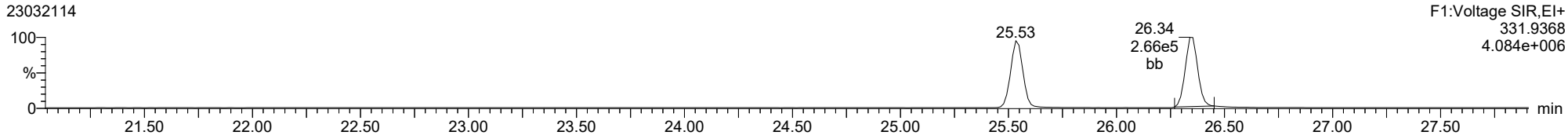
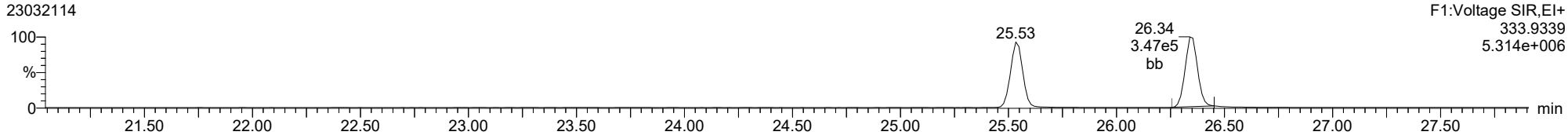


13C-2378-TCDD



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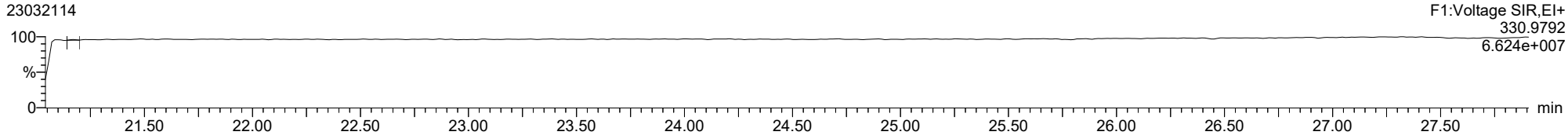

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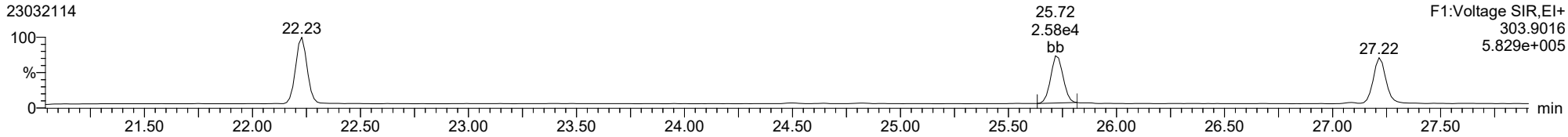
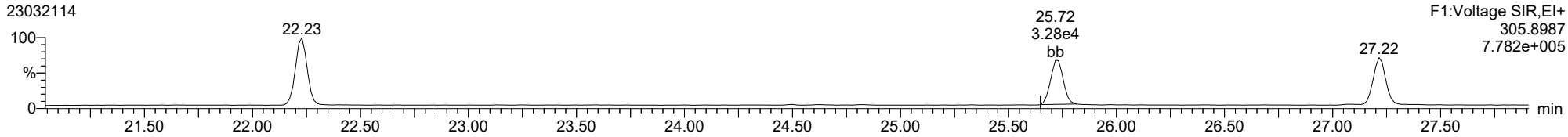
2378-TCDF



2378-TCDF



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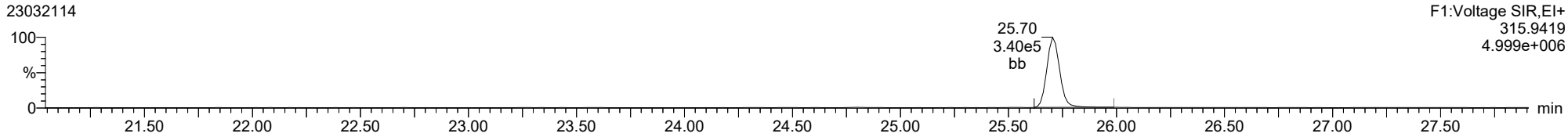

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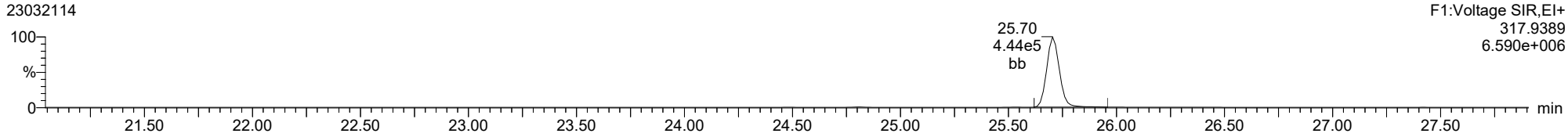

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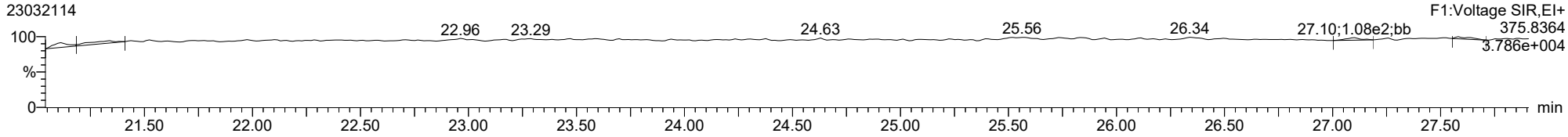

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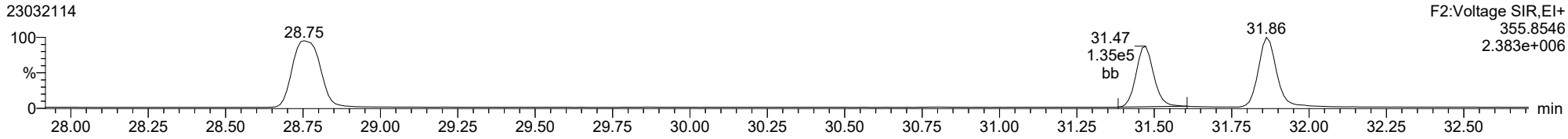
12378-PeCDD



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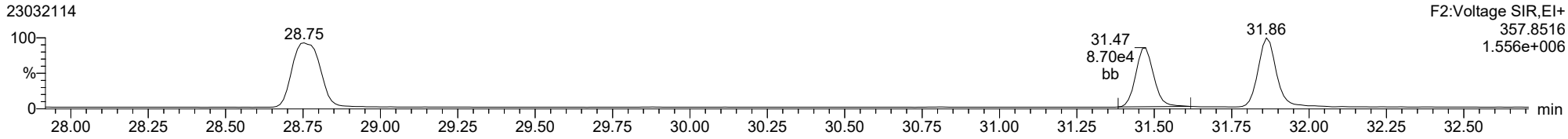

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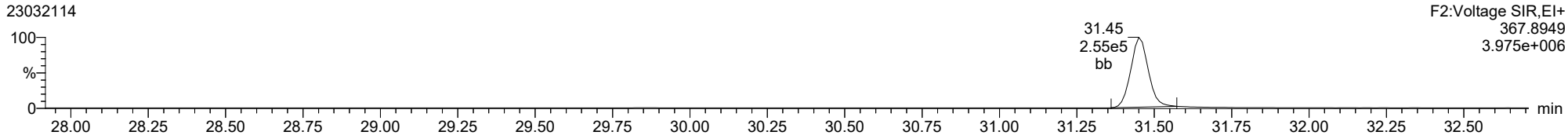

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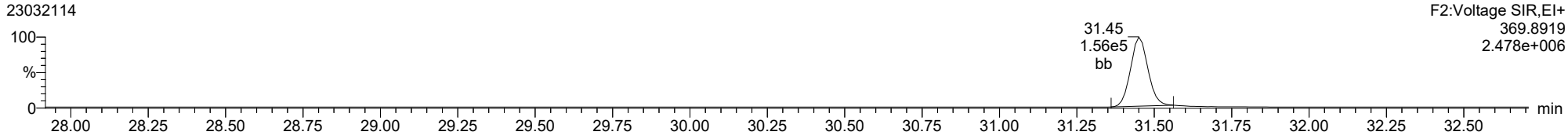

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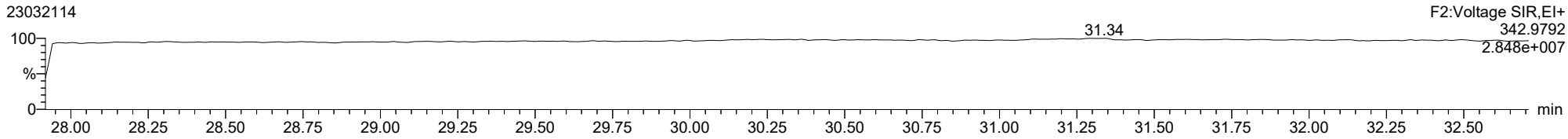

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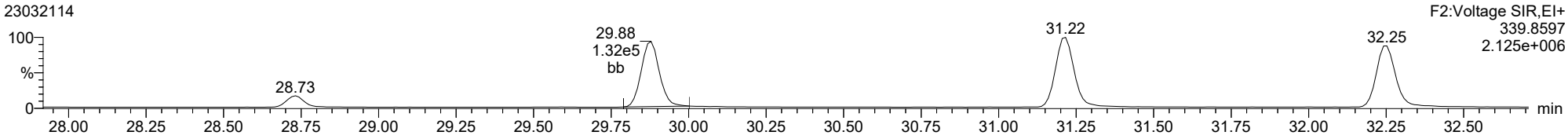

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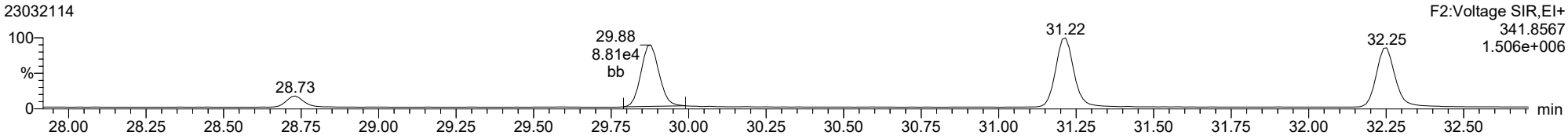

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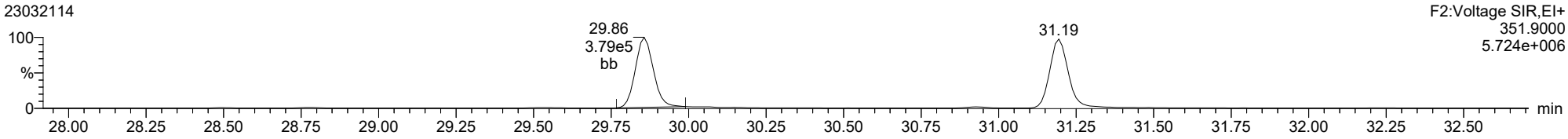

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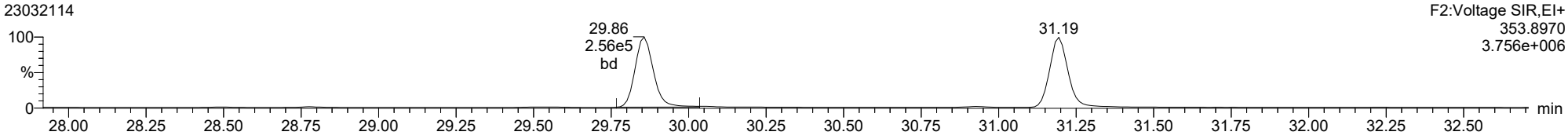
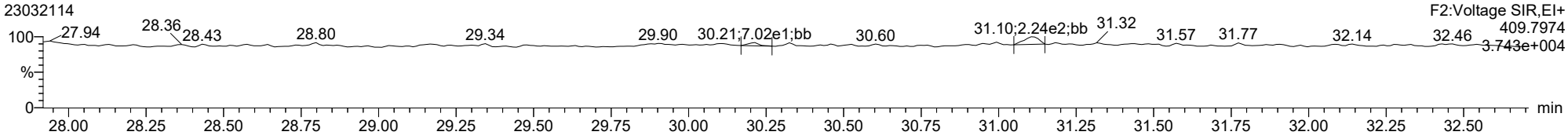


FUNCTION2 HPCDPE



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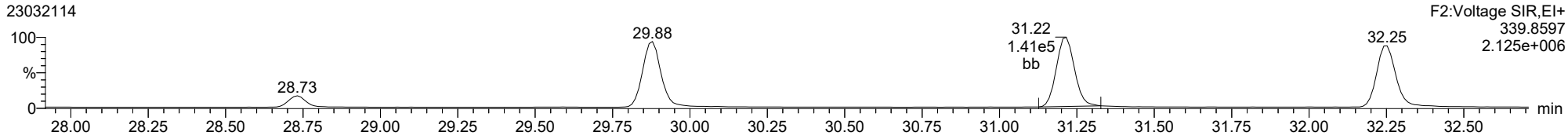
23478-PeCDF



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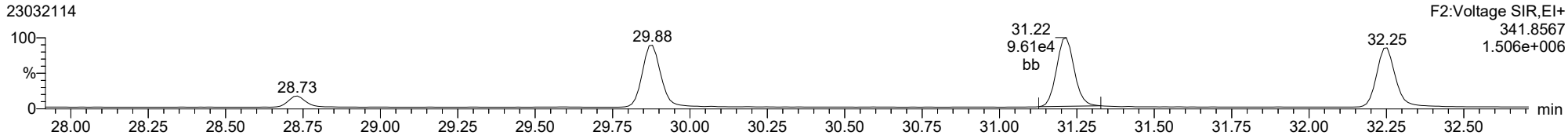

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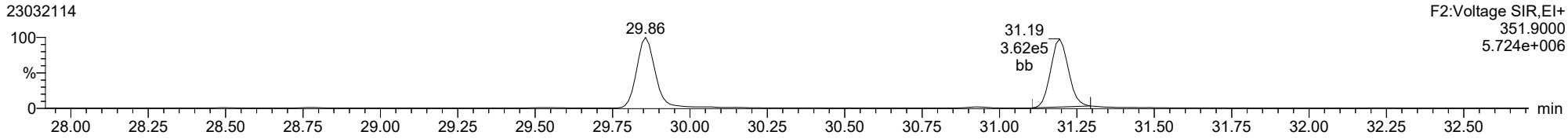

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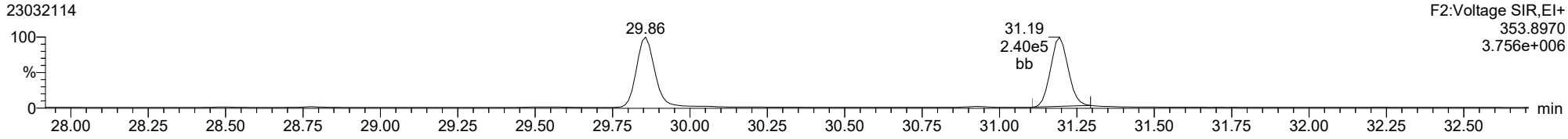
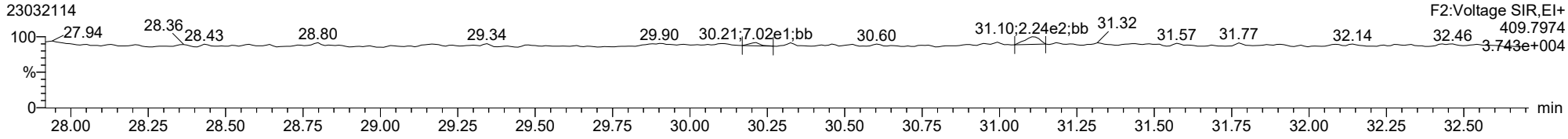


FUNCTION2 HPCDPE



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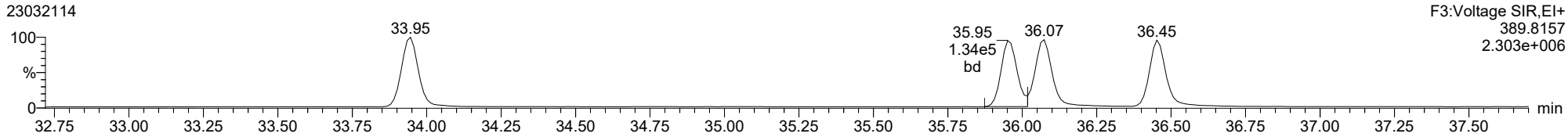
123478-HxCDD



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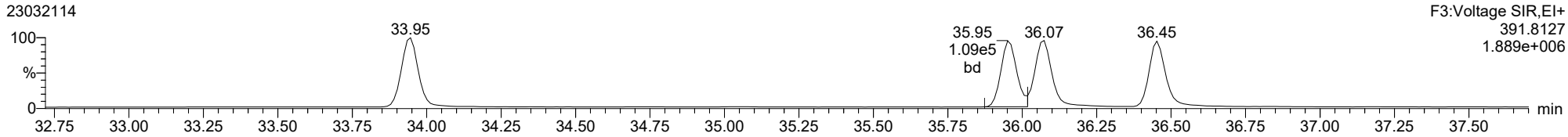

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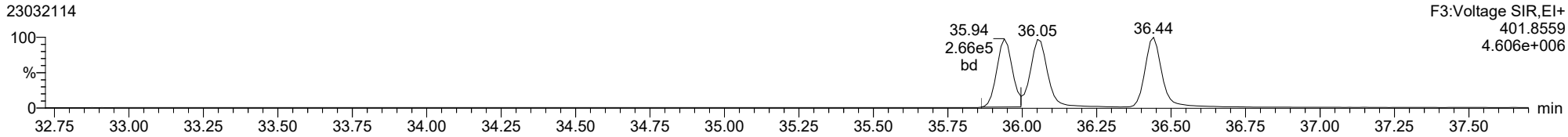

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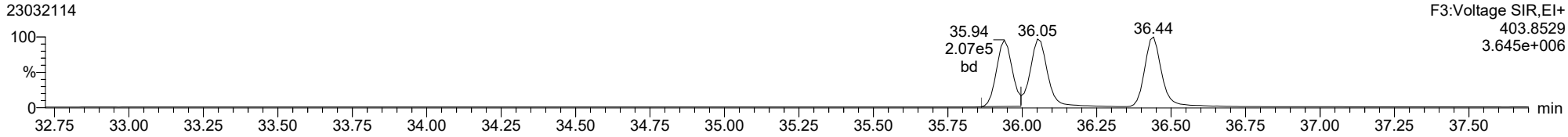
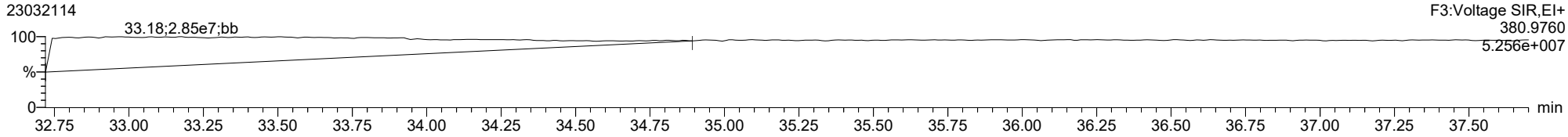


FUNCTION3 PFK



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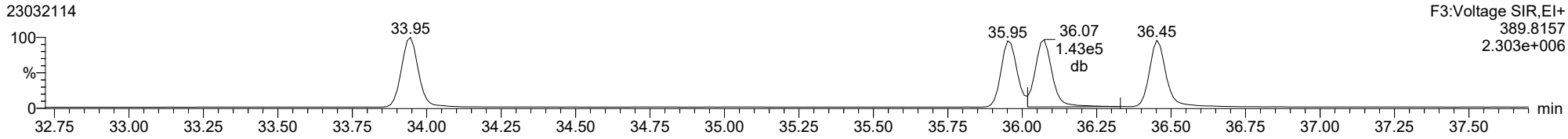
ID: CS3A4, Name: 23032114, Date: 21-Mar-2023, Time: 20:57:16, Conditions: AUTOSPEC01, User: pk

123678-HxCDD



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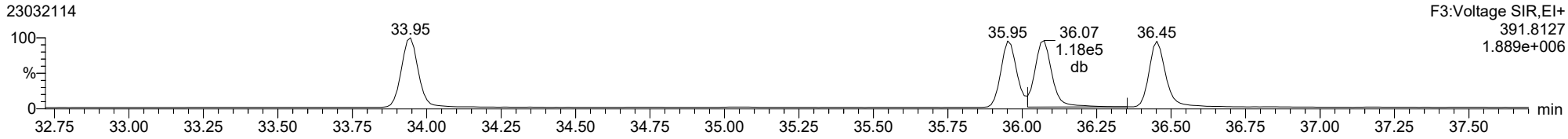

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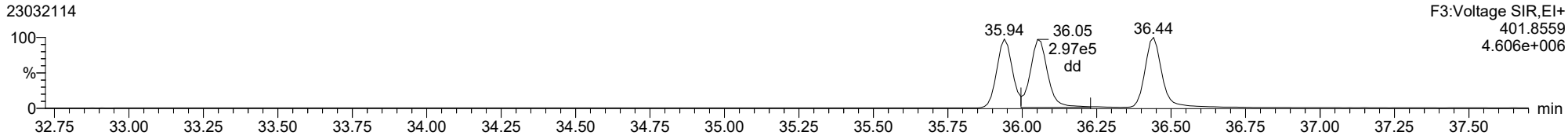

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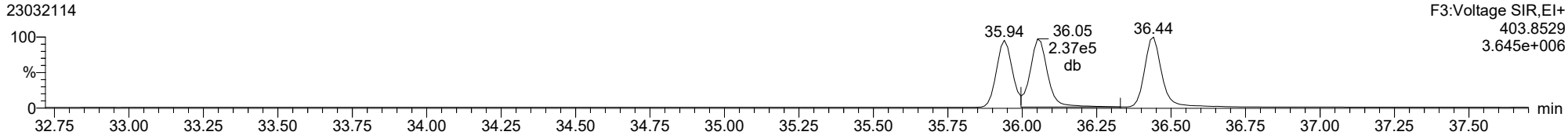

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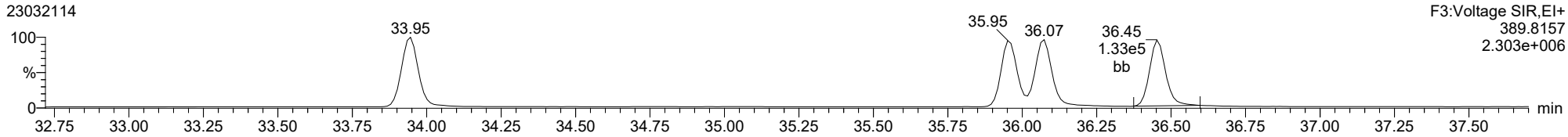
123789-HxCDD



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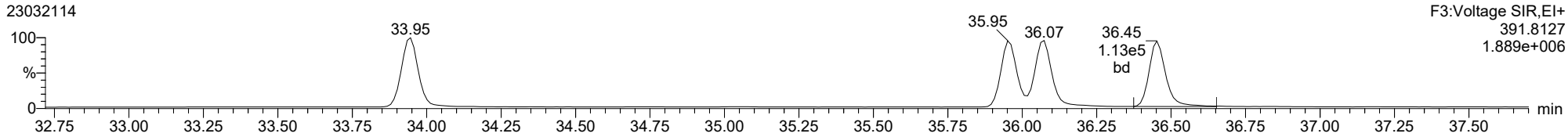

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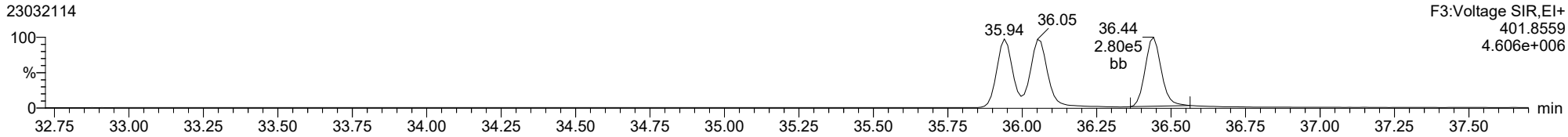

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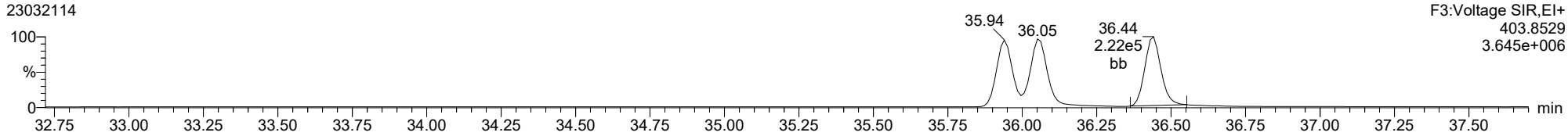

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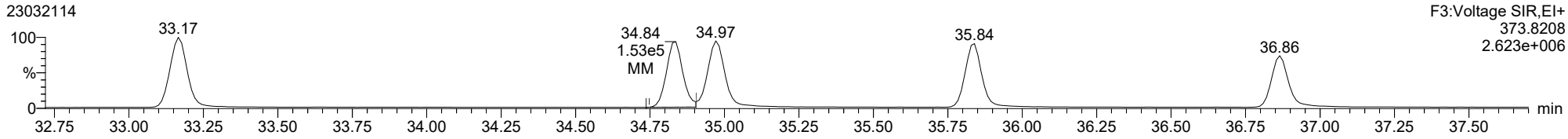

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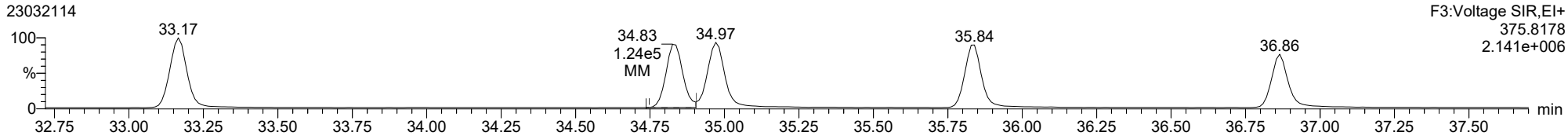

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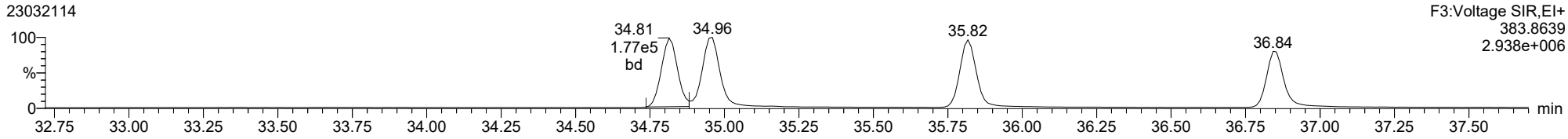

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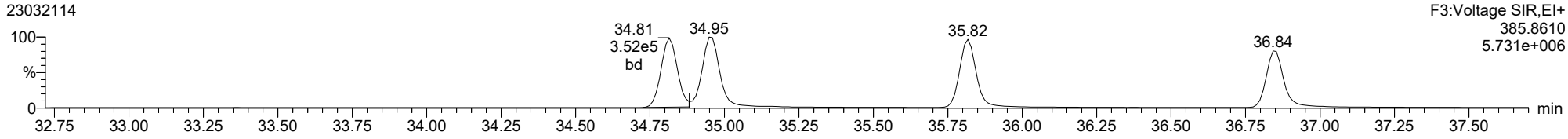
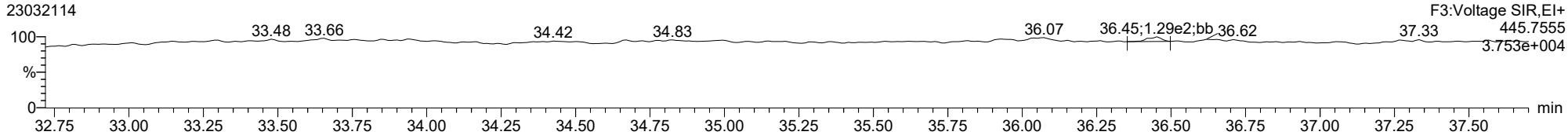


FUNCTION3 OCDPE



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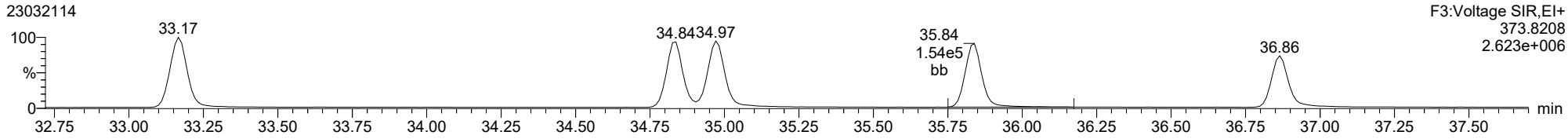
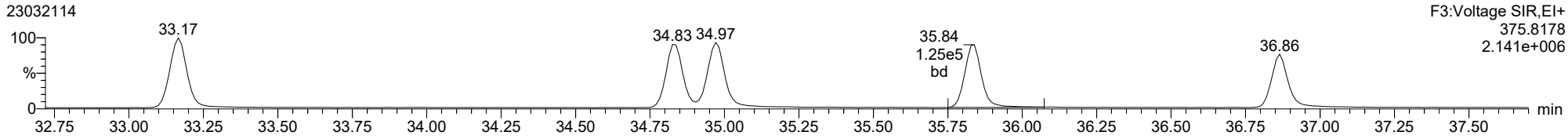
234678-HxCDF



234678-HxCDF



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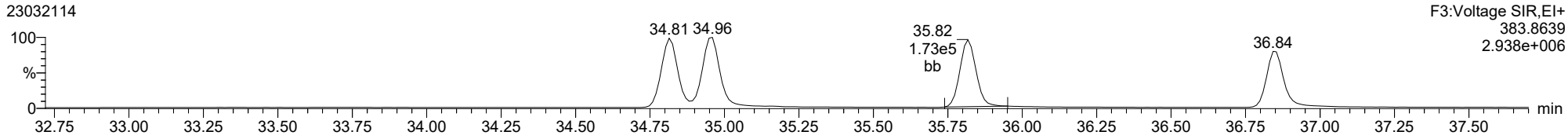

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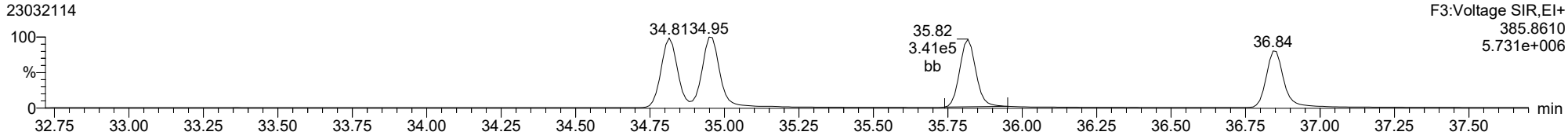
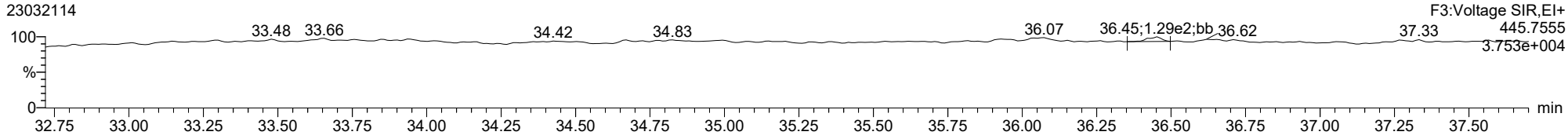


FUNCTION3 OCDPE



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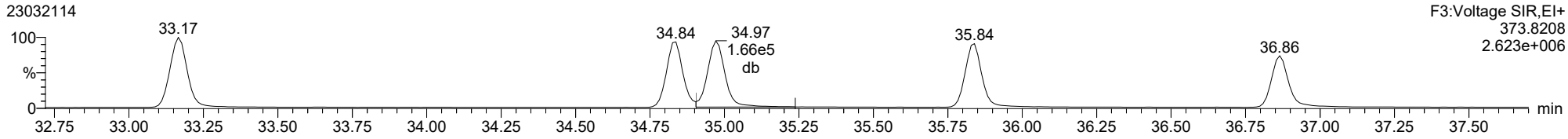

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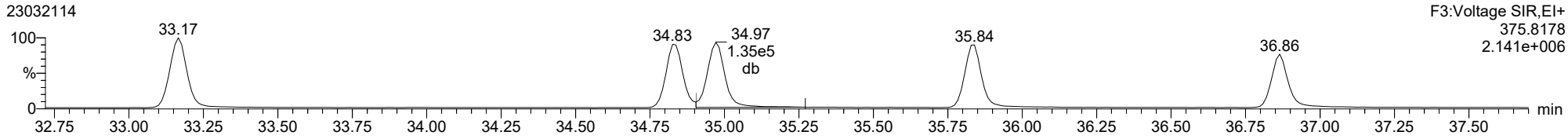

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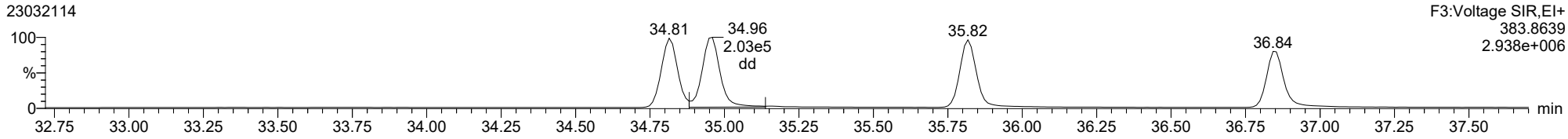

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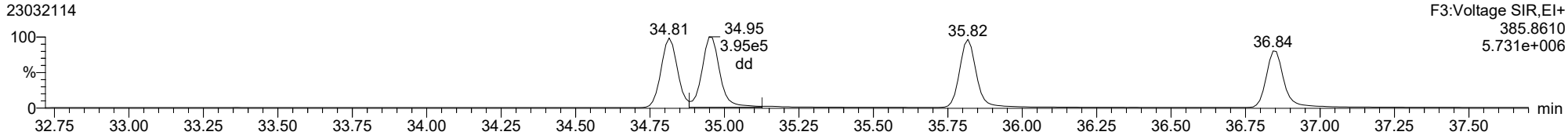
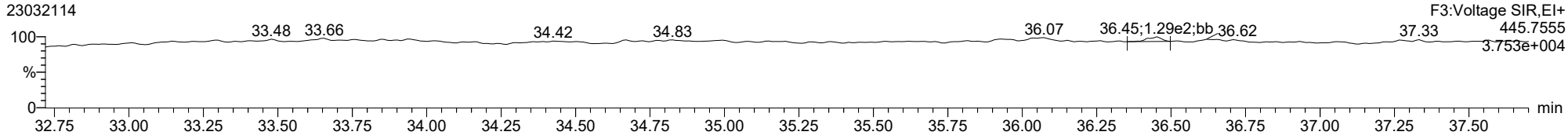


FUNCTION3 OCDPE



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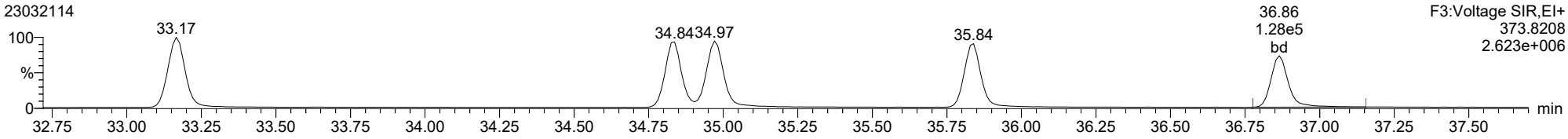

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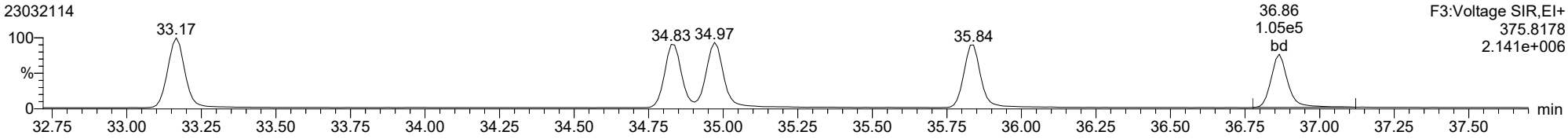

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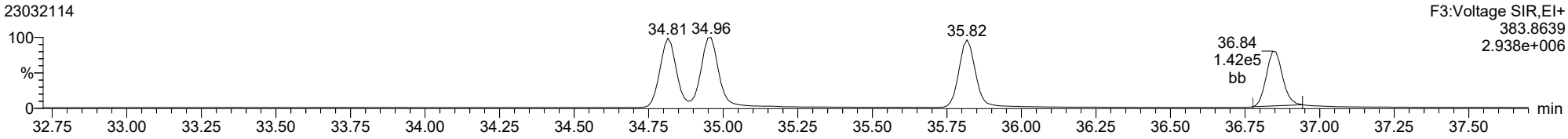

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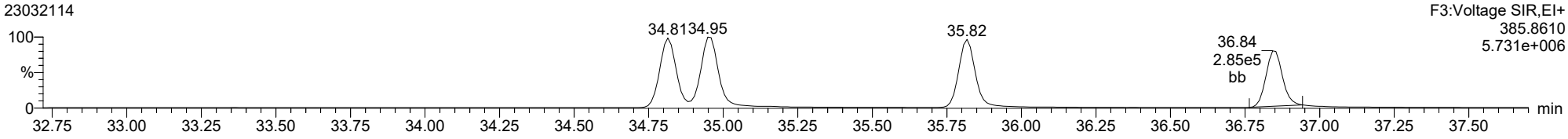

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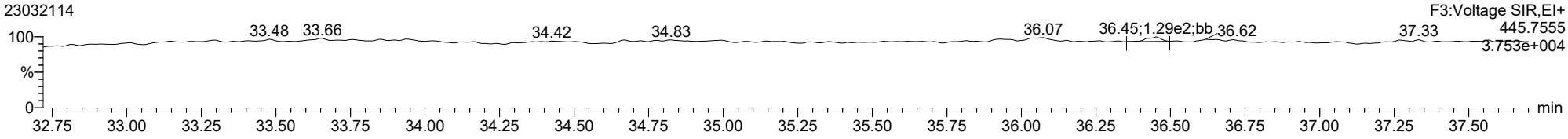

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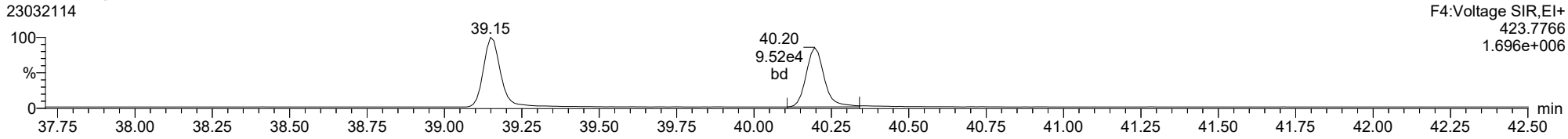

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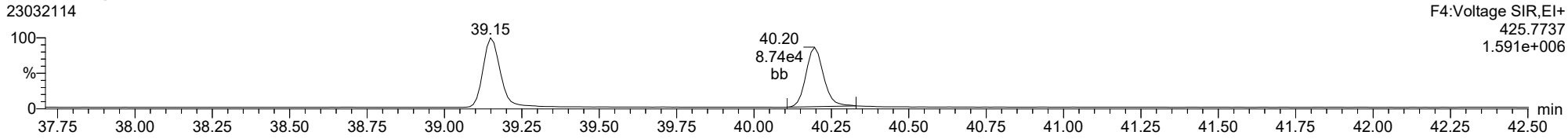

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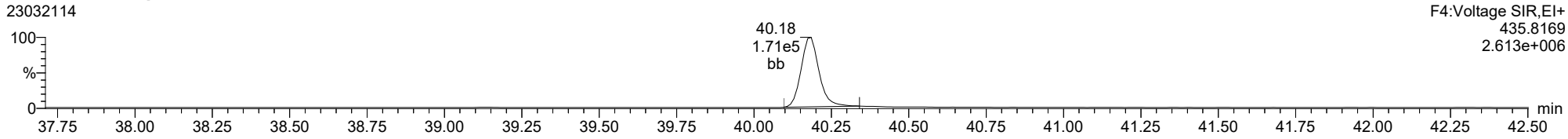

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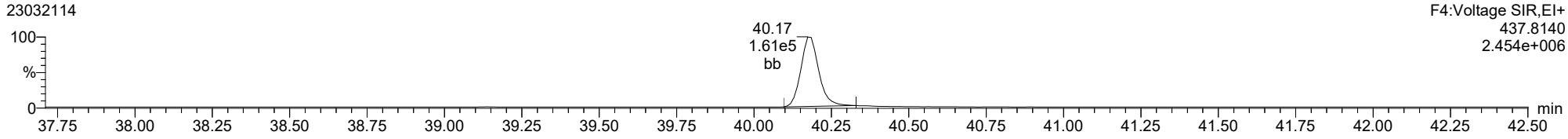
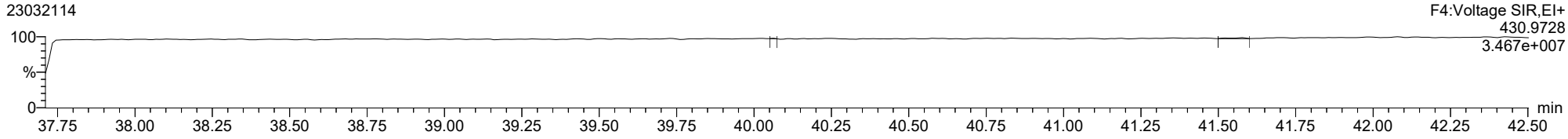


FUNCTION4 PFK



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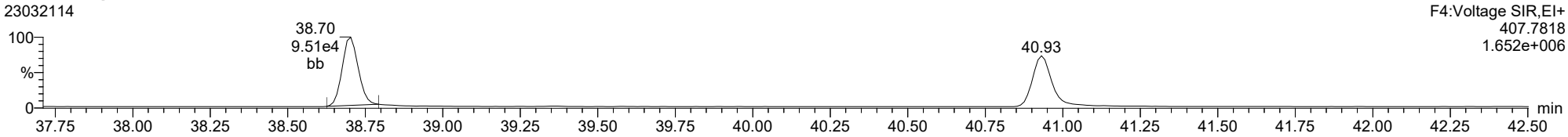

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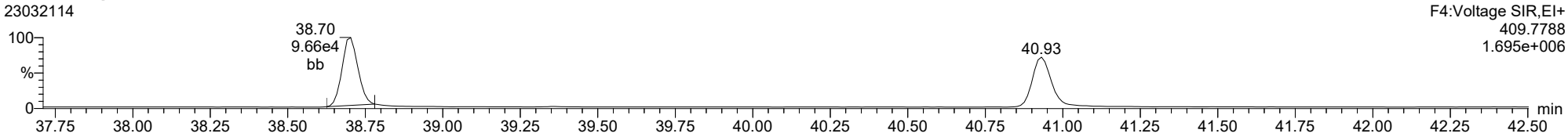

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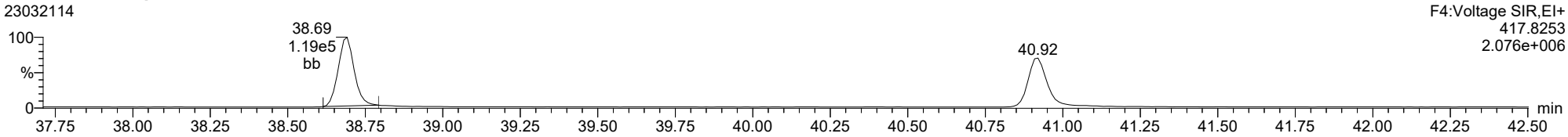

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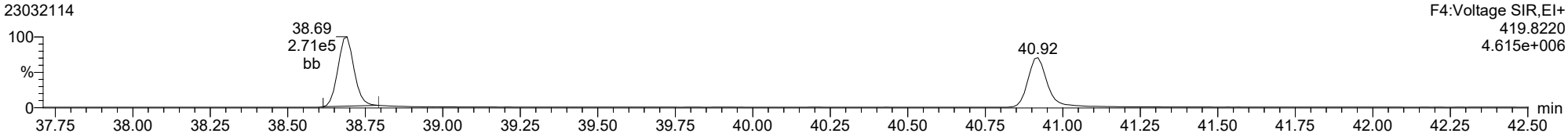

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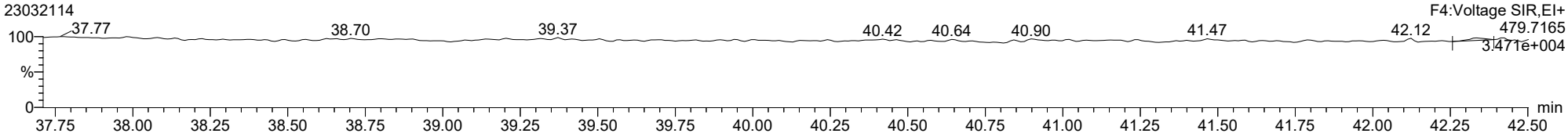

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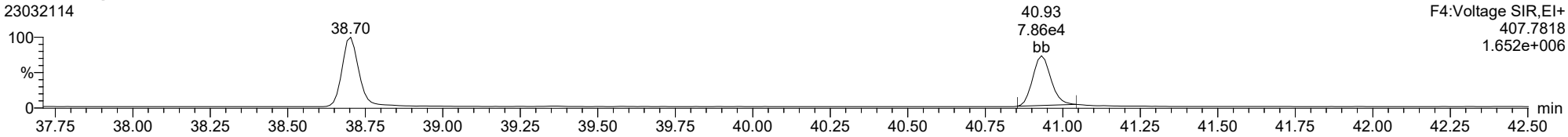

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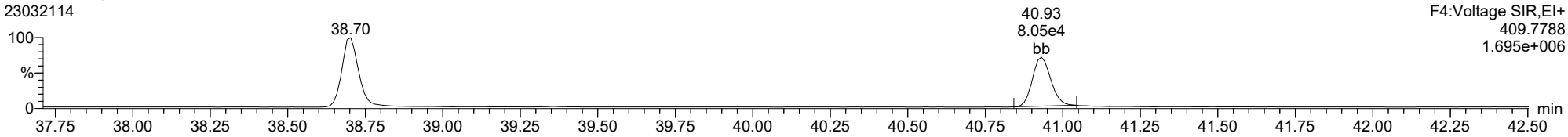

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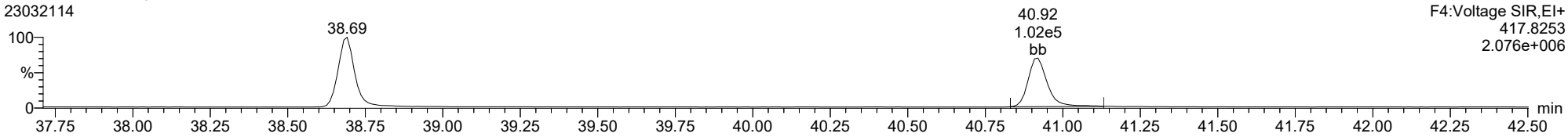

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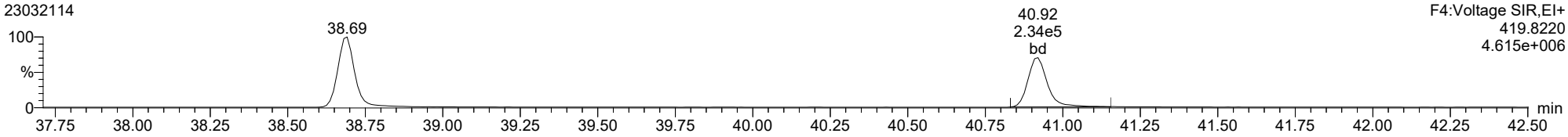

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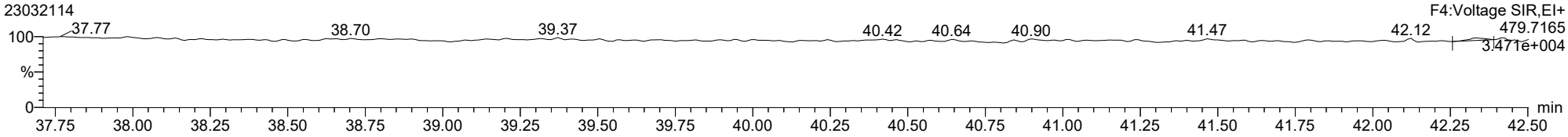

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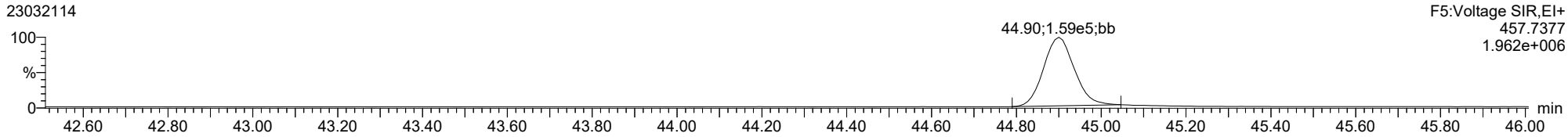

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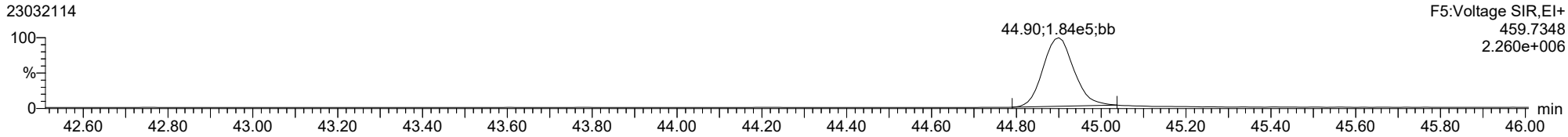

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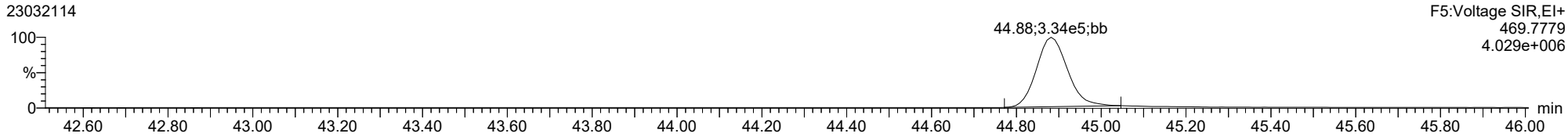

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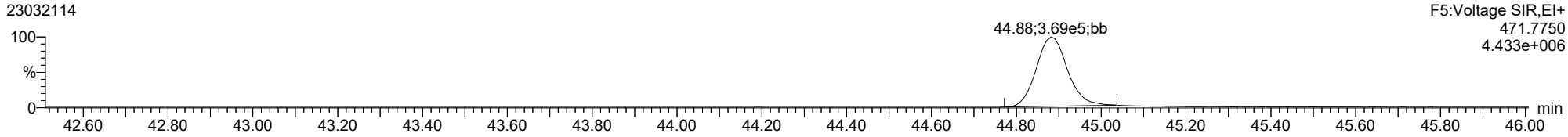

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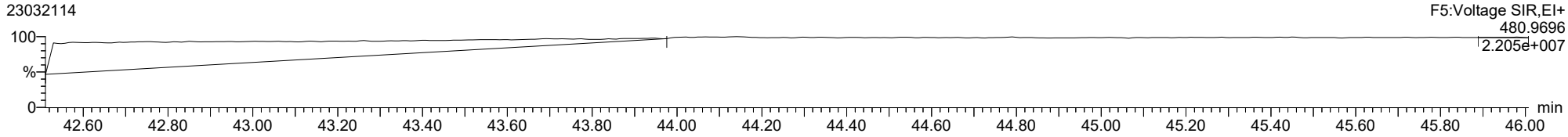

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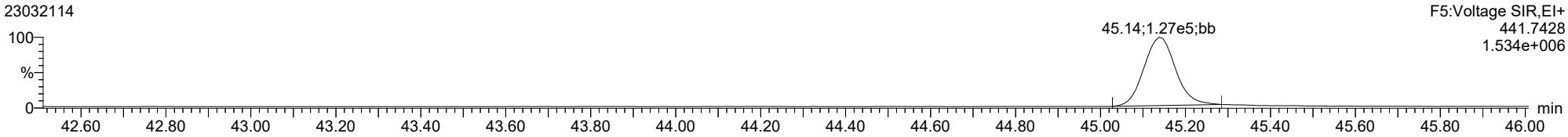

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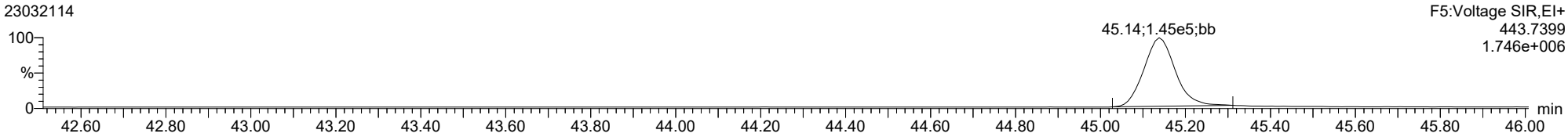
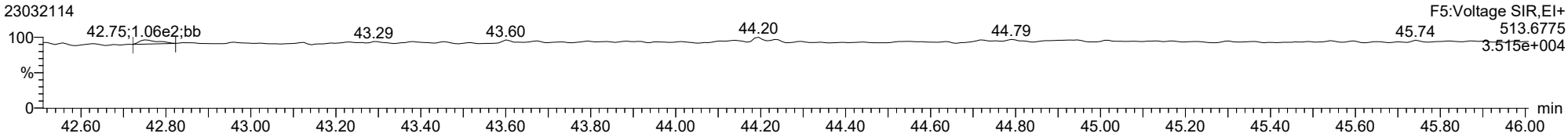


FUNCTION5 DCDPE



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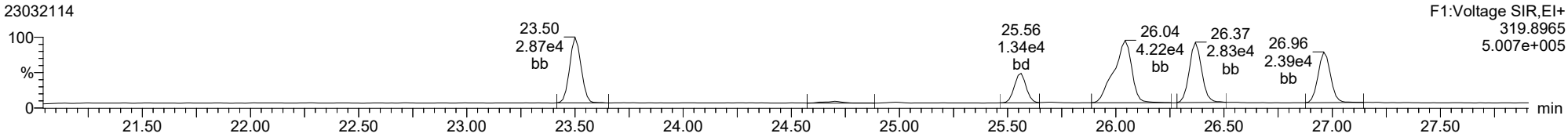
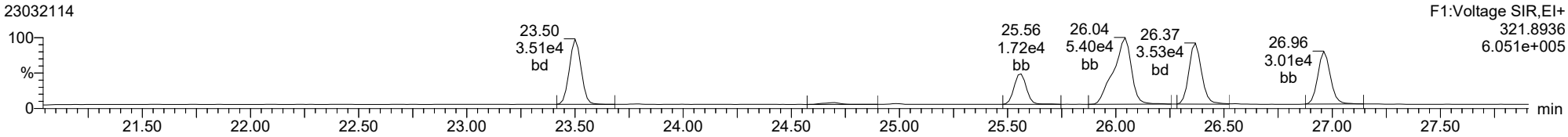
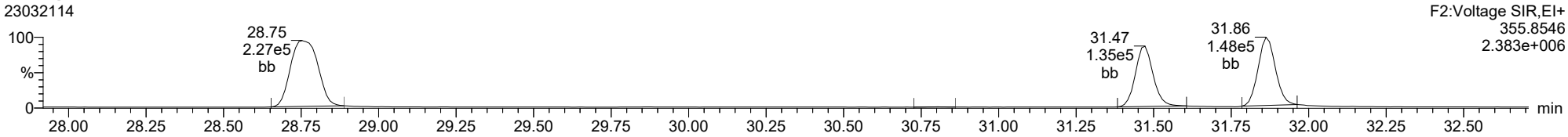


Total-tetradioxins



Total-pentadioxins



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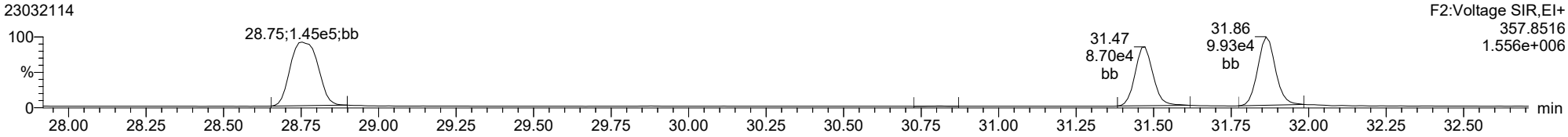

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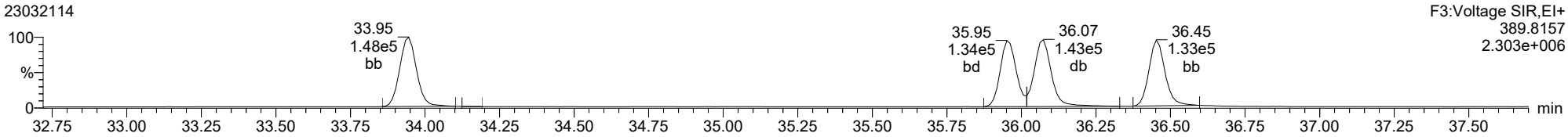

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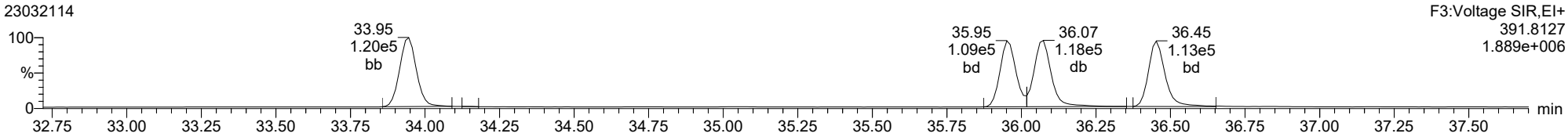

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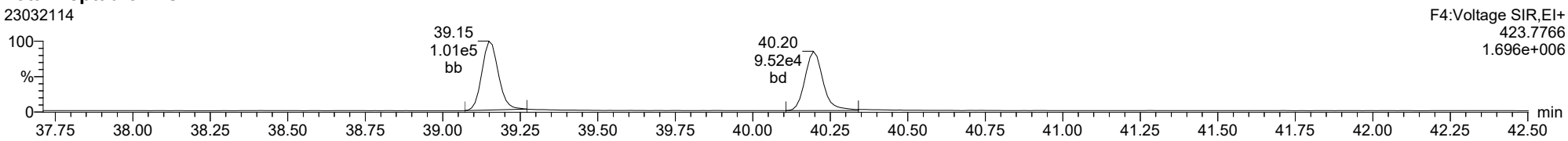

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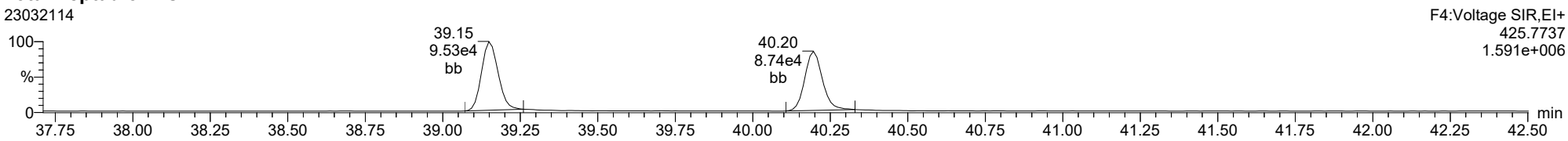

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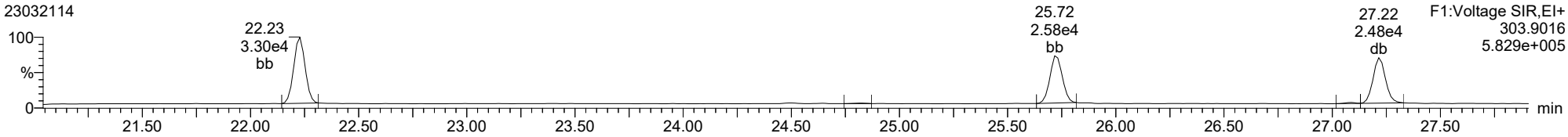
Total-tetrafurans



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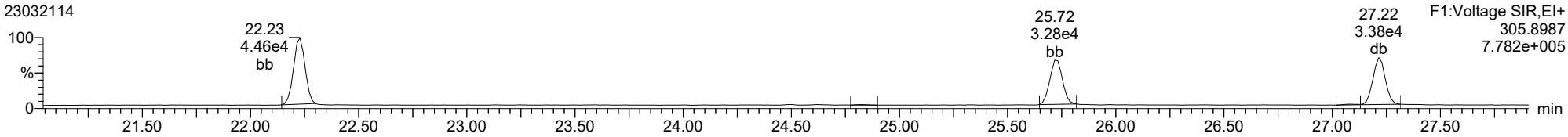

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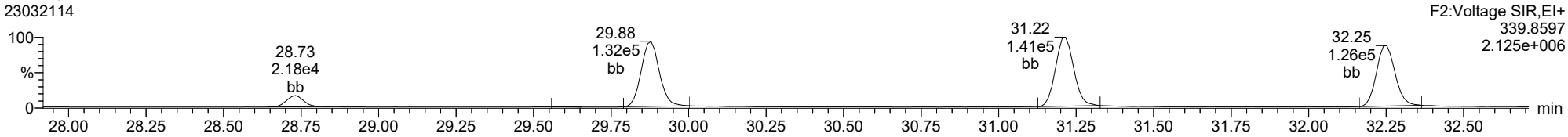

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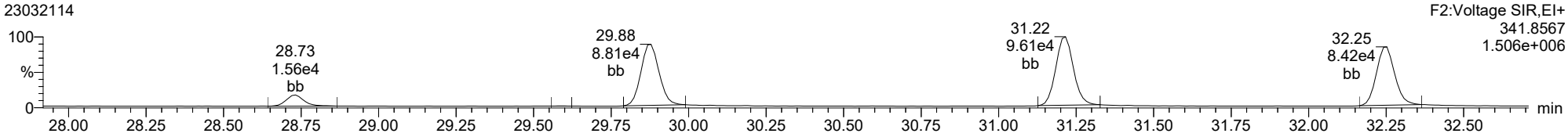

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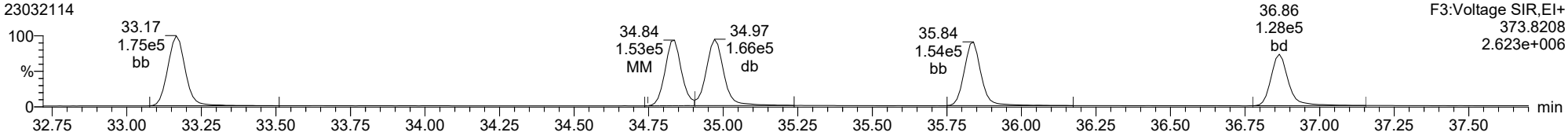

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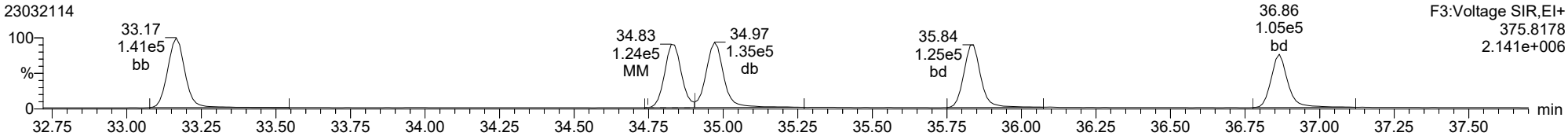

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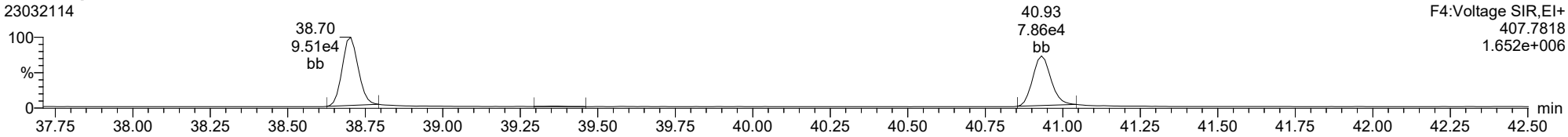

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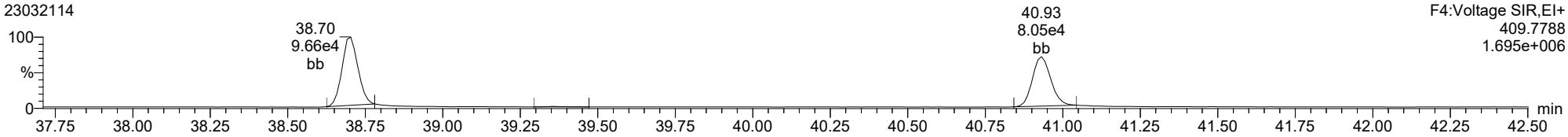

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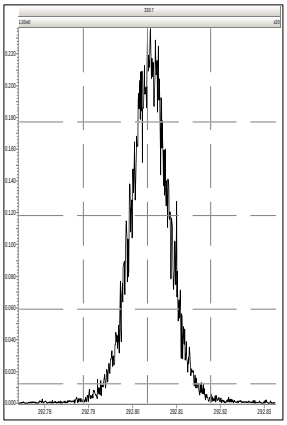

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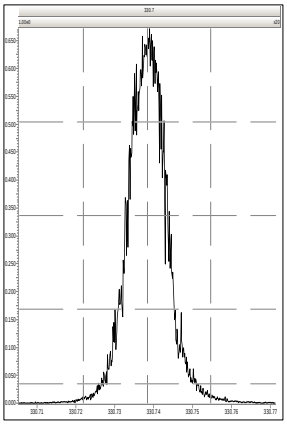

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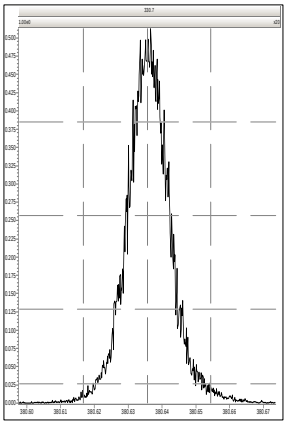

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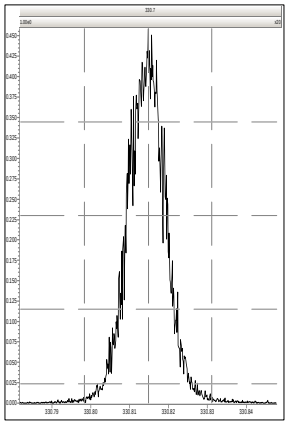

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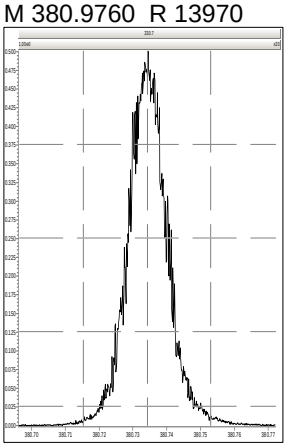

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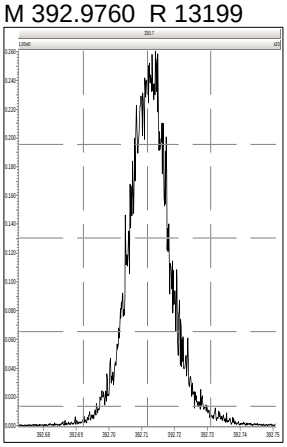

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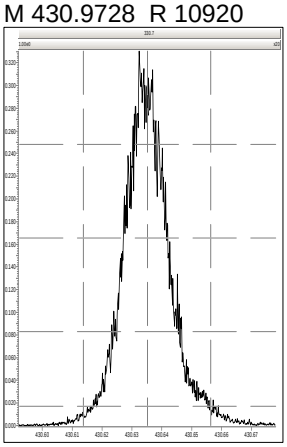

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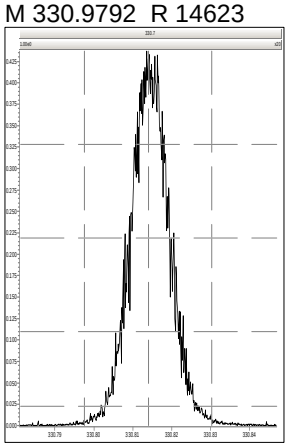

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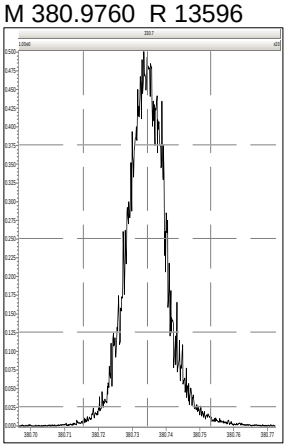

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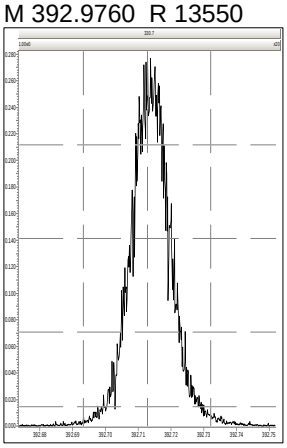

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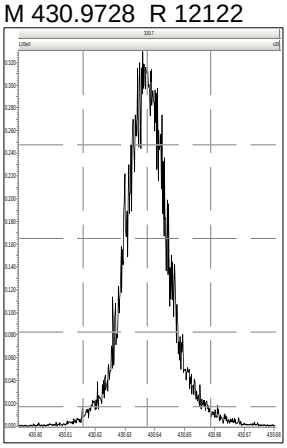

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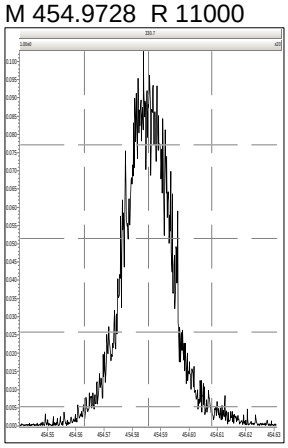

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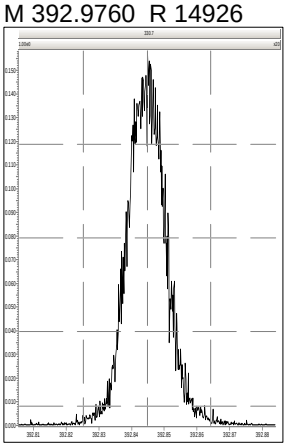
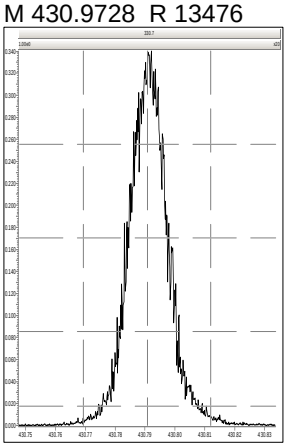
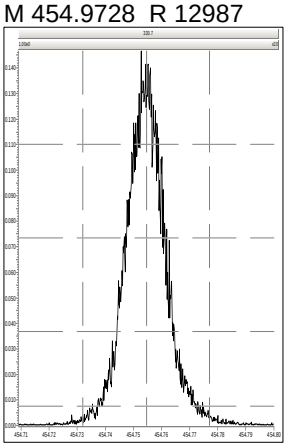


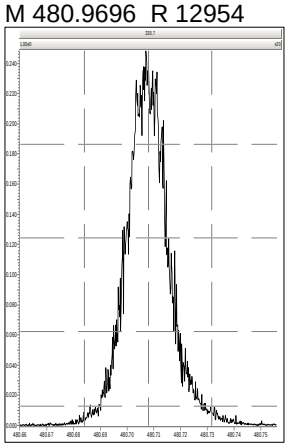
M 430.9728 R 13476



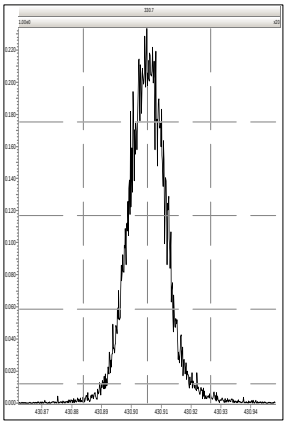
M 454.9728 R 12987



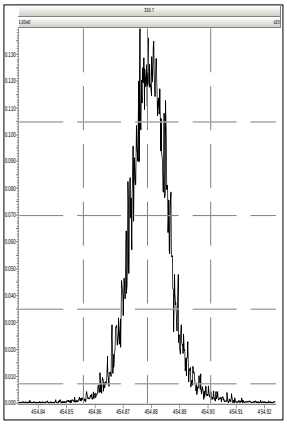
M 480.9696 R 12954



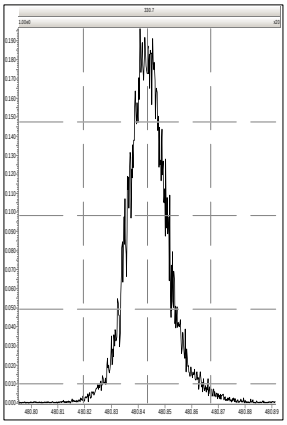
M 430.9728 R 15728



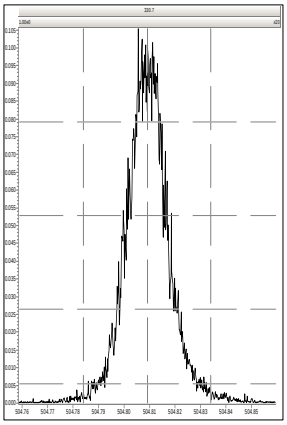
M 454.9728 R 14507



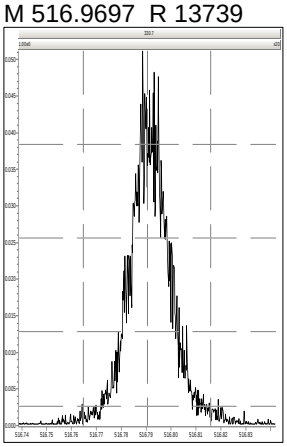
M 480.9696 R 13298

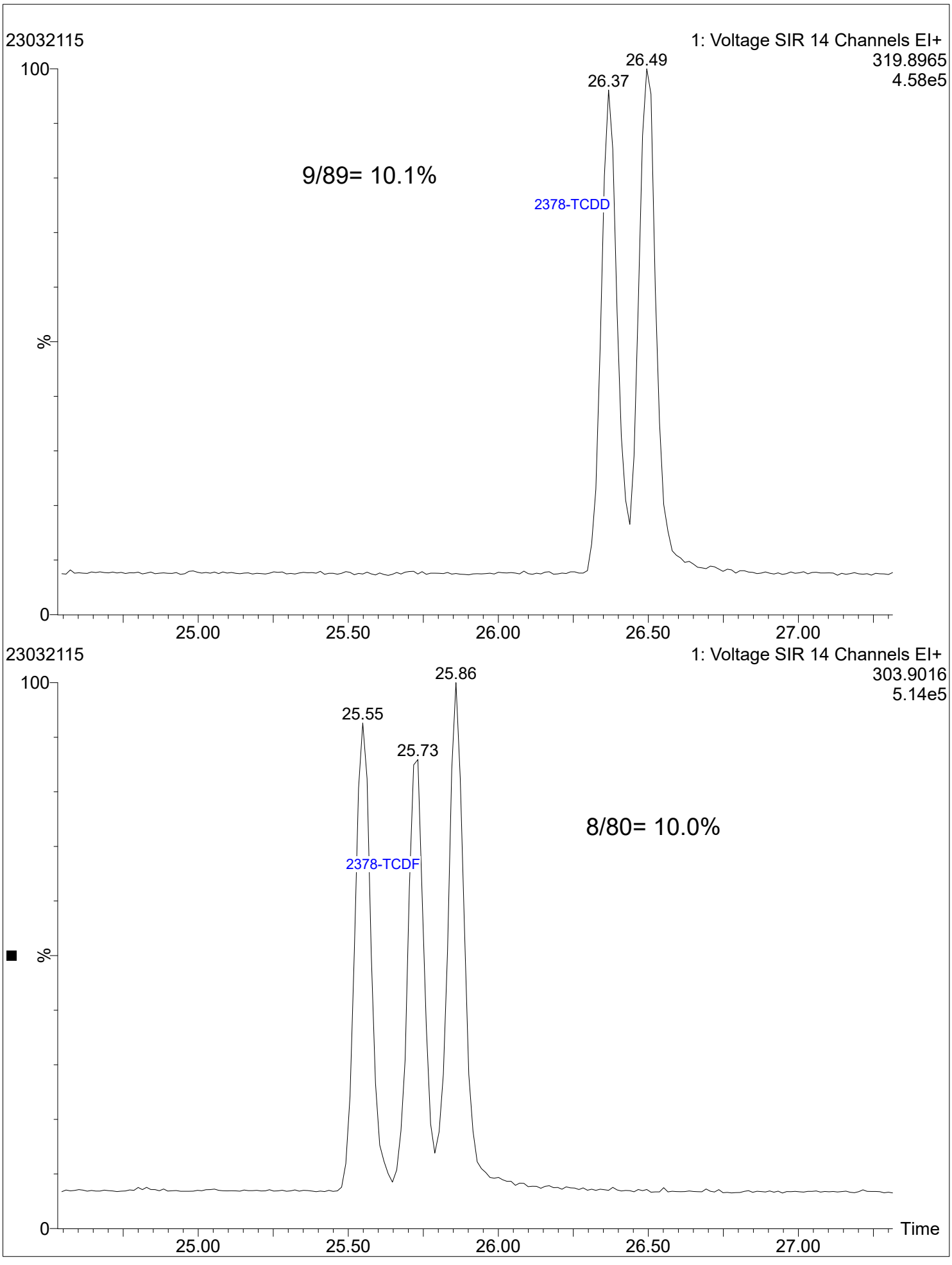


M 504.9696 R 13532



M 516.9697 R 13739




23032115
1: Voltage SIR 14 Channels EI+
319.8965
4.58e5
100
26.49
26.37
9/89= 10.1%
2378-TCDD
%
0
25.00
25.50
26.00
26.50
27.00
23032115
1: Voltage SIR 14 Channels EI+
303.9016
5.14e5
100
25.86
25.55
25.73
8/80= 10.0%
2378-TCDF
%
0
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23032121	Calibration Date:	03/03/2023
Sequence:	SLC0322	Injection Date:	03/22/23
Lab Sample ID:	SLC0322-CCV2	Injection Time:	02:46
Sequence Name:	CS3A5		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	10.6	0.7015272	0.7418158		5.7	+/-16
2,3,7,8-TCDD	A	10.000	9.14	1.1486620	1.0493720		-8.6	+/-22
1,2,3,7,8-PeCDF	A	50.000	49.3	0.6792300	0.6700477		-1.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	48.8	0.7861704	0.7668788		-2.5	+/-18
1,2,3,7,8-PeCDD	A	50.000	50.4	1.0218450	1.0293850		0.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	45.1	1.1660380	1.0514930		-9.8	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	44.8	1.0907410	0.9771885		-10.4	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	44.9	1.1396990	1.0244550		-10.1	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.9	1.1370930	1.1129260		-2.1	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.4	0.9955689	0.9628353		-3.3	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.9	1.0009380	0.9795301		-2.1	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.5	0.9071139	0.9334501		2.9	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.0	1.0029930	0.9436417		-5.9	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	50.8	0.9531152	0.9674175		1.5	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	51.0	1.0390130	1.0600520		2.0	+/-14
OCDF	A	100.00	101	0.7778078	0.7871119		1.2	+/-37
OCDD	A	100.00	103	0.9199537	0.9496975		3.2	+/-21
13C12-2,3,7,8-TCDF	A	100.00	86.9	1.6201960	1.4081908		-13.1	+/-29
13C12-2,3,7,8-TCDD	A	100.00	95.8	1.1524090	1.1035672		-4.2	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	95.4	1.2404520	1.1830350		-4.6	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	98.9	1.1177860	1.1057570		-1.1	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	93.6	0.8288129	0.7756092		-6.4	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	105	1.1683050	1.2242789		4.8	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	103	1.3864660	1.4287469		3.0	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	101	1.1292560	1.1417658		1.1	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	92.3	0.9317541	0.8597065		-7.7	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	100	0.9950393	0.9967984		0.2	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	99.7	1.1566890	1.1528281		-0.3	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	93.9	0.8952017	0.8406077		-6.1	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	102	0.7697516	0.7828011		1.7	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	90.6	0.8401226	0.7609343		-9.4	+/-18
13C12-OCDD	A	200.00	209	0.7674714	0.8015583		4.4	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	8.09	1.2878040	1.0413652		-19.1	+/-21

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:51:26 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3A5, Name: 23032121, Date: 22-Mar-2023, Time: 02:46:36, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.718	1.001	2.150e4	2.866e4	0.702	0.750	0.770	592	1508	3.11e5	4.29e5	524.7	284.2	NO	bb	bb	10.574
12378-PeCDF	29.857	1.000	1.134e5	7.698e4	0.679	1.473	1.550	1456	1233	1.67e6	1.16e6	1146.7	939.0	NO	bb	bb	49.324
23478-PeCDF	31.194	1.000	1.203e5	8.335e4	0.786	1.443	1.550	1456	1233	1.79e6	1.22e6	1228.4	990.7	NO	bb	bb	48.773
123478-HxCDF	34.826	1.001	1.453e5	1.173e5	1.166	1.238	1.240	1725	1473	2.17e6	1.75e6	1257.2	1185.6	NO	MM	MM	45.088
234678-HxCDF	35.818	1.000	1.336e5	1.050e5	1.140	1.273	1.240	1725	1473	1.91e6	1.59e6	1109.3	1077.5	NO	bb	bb	44.944
123678-HxCDF	34.960	1.001	1.569e5	1.279e5	1.091	1.227	1.240	1725	1473	2.21e6	1.81e6	1280.8	1226.5	NO	db	db	44.795
123789-HxCDF	36.854	1.001	1.082e5	8.700e4	1.137	1.244	1.240	1725	1473	1.49e6	1.18e6	863.4	803.3	NO	bb	bd	48.937
1234678-HpCDF	38.692	1.000	8.007e4	8.177e4	1.003	0.979	1.050	1187	1221	1.32e6	1.31e6	1113.7	1071.2	NO	bb	bb	47.041
1234789-HpCDF	40.920	1.000	7.638e4	7.812e4	0.953	0.978	1.050	1187	1221	1.08e6	1.12e6	907.8	915.5	NO	bb	bb	50.750
OCDF	45.120	1.006	1.216e5	1.358e5	0.778	0.895	0.890	850	911	1.42e6	1.60e6	1670.1	1752.1	NO	bb	bb	101.196
2378-TCDD	26.353	1.000	2.461e4	3.101e4	1.149	0.794	0.770	986	711	3.67e5	4.67e5	372.6	656.7	NO	bb	bb	9.136
12378-PeCDD	31.450	1.000	1.165e5	7.519e4	1.022	1.549	1.550	1286	939	1.69e6	1.09e6	1315.3	1159.2	NO	bb	bb	50.369
123478-HxCDD	35.940	1.000	1.085e5	8.730e4	0.996	1.243	1.240	1820	1340	1.77e6	1.41e6	972.2	1053.1	NO	bd	bd	48.356
123678-HxCDD	36.063	1.001	1.266e5	1.038e5	1.001	1.220	1.240	1820	1340	1.75e6	1.45e6	959.3	1082.0	NO	db	dd	48.931
123789-HxCDD	36.442	1.011	1.106e5	9.409e4	0.907	1.175	1.240	1820	1340	1.61e6	1.35e6	887.3	1006.2	NO	bd	bd	51.452
1234678-HpCDD	40.185	1.001	8.112e4	8.345e4	1.039	0.972	1.050	1284	1195	1.20e6	1.18e6	937.1	987.7	NO	bb	bb	51.012
OCDD	44.882	1.000	1.433e5	1.674e5	0.920	0.856	0.890	680	673	1.69e6	1.99e6	2492.5	2961.3	NO	bb	bb	103.233
13C-2378-TCDF	25.690	1.007	2.987e5	3.775e5	1.620	0.791	0.770	1149	872	4.38e6	5.48e6	3811.1	6283.9	NO	bb	bb	86.915
13C-12378-PeCDF	29.846	1.169	3.414e5	2.268e5	1.240	1.505	1.550	1106	1529	4.88e6	3.22e6	4411.6	2107.3	NO	bd	bd	95.371
13C-23478-PeCDF	31.183	1.222	3.202e5	2.108e5	1.118	1.519	1.550	1106	1529	4.84e6	3.22e6	4377.7	2104.7	NO	bb	bb	98.924
13C-123478-HxCDF	34.804	0.955	1.671e5	3.325e5	1.168	0.502	0.510	1426	2276	2.54e6	5.05e6	1783.5	2217.8	NO	bd	bd	104.791
13C-123678-HxCDF	34.937	0.959	1.960e5	3.869e5	1.386	0.507	0.510	1426	2276	2.65e6	5.27e6	1856.4	2316.2	NO	db	db	103.050
13C-234678-HxCDF	35.806	0.983	1.555e5	3.104e5	1.129	0.501	0.510	1426	2276	2.28e6	4.49e6	1601.5	1974.3	NO	bd	bb	101.108
13C-123789-HxCDF	36.831	1.011	1.183e5	2.325e5	0.932	0.509	0.510	1426	2276	1.78e6	3.57e6	1251.8	1566.9	NO	bb	bb	92.268
13C-1234678-HpCDF	38.681	1.062	1.046e5	2.385e5	0.895	0.438	0.440	1356	1943	1.67e6	3.73e6	1233.1	1921.4	NO	bb	bb	93.901
13C-1234789-HpCDF	40.898	1.123	9.789e4	2.215e5	0.770	0.442	0.440	1356	1943	1.40e6	3.08e6	1030.5	1583.0	NO	bb	bb	101.695
13C-1234-TCDD	25.520	0.000	2.112e5	2.690e5	1.000	0.785	0.770	1086	780	3.29e6	4.16e6	3030.1	5336.6	NO	bb	bb	100.000
13C-2378-TCDD	26.339	1.032	2.314e5	2.985e5	1.152	0.775	0.770	1086	780	3.45e6	4.41e6	3174.6	5658.0	NO	bb	bb	95.762
13C-12378-PeCDD	31.439	1.232	2.292e5	1.433e5	0.829	1.599	1.550	964	699	3.33e6	2.10e6	3453.7	3001.7	NO	bb	bb	93.581
13C-123478-HxCDD	35.929	0.986	2.284e5	1.783e5	0.995	1.281	1.240	1747	1205	3.68e6	2.85e6	2105.6	2363.8	NO	bd	bd	100.177
13C-123678-HxCDD	36.040	0.989	2.608e5	2.096e5	1.157	1.245	1.240	1747	1205	3.68e6	2.99e6	2108.5	2479.3	NO	db	db	99.666
13C-1234678-HpCDD	40.162	1.102	1.623e5	1.482e5	0.840	1.095	1.050	1240	932	2.38e6	2.17e6	1918.6	2330.8	NO	bd	bb	90.574
13C-OCDD	44.863	1.232	3.094e5	3.447e5	0.767	0.898	0.890	1161	929	3.65e6	4.02e6	3138.7	4333.6	NO	bb	bb	208.883
13C-123789-HxCDD	36.430	0.000	2.311e5	1.770e5	1.000	1.306	1.240	1747	1205	3.44e6	2.66e6	1970.1	2210.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.353	1.033	5.001e4		1.288			1173		7.50e5		639.7			bb		8.086

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:51:26 Pacific Daylight Time

ID: CS3A5, Name: 23032121, Date: 22-Mar-2023, Time: 02:46:36, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.215	0.865	2.624e4	3.663e4	0.802	0.717	0.770	592	1508	4.36e5	6.00e5	735.7	397.8	NO	bb	bb	11.599
1289-TCDF	27.201	1.059	1.924e4	2.811e4	0.678	0.684	0.770	592	1508	2.89e5	4.22e5	487.7	279.8	NO	db	db	10.328
13468-PECDF	27.060	0.907	2.290e5	1.509e5	1.246	1.517	1.550	399	828	3.52e6	2.36e6	8809.7	2848.0	NO	bb	bb	53.645
12389-PECDF	32.230	1.080	1.069e5	7.164e4	0.496	1.492	1.550	1456	1233	1.52e6	1.04e6	1045.5	846.6	NO	bb	bb	63.307
123468-HXCDF	33.155	0.953	1.580e5	1.262e5	1.169	1.253	1.240	1725	1473	2.27e6	1.81e6	1314.2	1226.4	NO	bd	bd	48.656
1368-TCDD	23.486	0.892	2.423e4	2.980e4	1.015	0.813	0.770	986	711	3.87e5	4.74e5	392.1	667.2	NO	bd	bb	10.039
1289-TCDD	26.947	1.023	2.143e4	2.705e4	0.909	0.792	0.770	986	711	3.15e5	3.87e5	319.1	545.3	NO	bd	bb	10.067
12479-PECDD	28.732	0.914	1.985e5	1.250e5	2.301	1.587	1.550	1286	939	1.88e6	1.23e6	1459.4	1307.5	NO	bb	bb	37.738
12389-PECDD	31.851	1.013	1.306e5	8.423e4	1.184	1.551	1.550	1286	939	1.91e6	1.21e6	1486.5	1291.8	NO	bb	bb	48.734
124679-HXCDD	33.935	0.945	1.400e5	1.138e5	1.115	1.230	1.240	1820	1340	2.07e6	1.68e6	1135.7	1256.8	NO	bb	bb	55.929
1234679-HPCDD	39.138	0.975	9.386e4	8.476e4	1.137	1.107	1.050	1284	1195	1.40e6	1.34e6	1092.1	1119.0	NO	bd	bb	50.604
Total-tetrafurans			6.746e4		0.727			592		1.04e6							32.733
Total-penta1			2.290e5					399		3.52e6							53.645
Total-pentafurans			3.589e5		0.654			1456		5.26e6							170.071
Total-hexafurans			7.021e5		1.141			1725		1.00e7							232.420
Total-heptafurans			1.570e5		0.978			1187		2.41e6							98.154
Total-Furans			1.636e6		0.922			592		2.37e7							688.219
Total-tetradioxins			1.184e5		1.024			986		1.63e6							49.465
Total-pentadioxins			4.460e5		1.502			1286		5.49e6							136.961
Total-hexadioxins			4.857e5		1.005			1820		7.20e6							204.668
Total-heptadioxins			1.750e5		1.088			1284		2.61e6							101.616
Total-Dioxins			1.368e6		1.130			986		1.86e7							595.944
Total-TEQ			3.005e6					986		4.23e7							1284.163
FUNCTION1 PFK			3.739e4					302170		7.52e5							
FUNCTION2 PFK			1.724e5					151404		5.25e6							0.000
FUNCTION3 PFK			4.402e7					260253		1.49e7							0.000
FUNCTION4 PFK			0.000e0					184986		0.00e0							
FUNCTION5 PFK			7.982e4					136781		3.14e6							
FUNCTION1 HXCD...			3.438e2					420		3.56e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.450e2					704		4.89e3							0.000
FUNCTION3 OCDPE			7.723e2					378		1.51e4							0.000
FUNCTION4 NCDPE			1.611e2					363		3.23e3							0.000
FUNCTION5 DCDPE			0.000e0					393		0.00e0							

Method: T:\Autospec\Methods\Dioxin230321.mdb 21 Mar 2023 13:24:48
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	1.924e4	2.811e4	0.678	0.68	0.77	487.7	YES	NO	db	db	10.328
2	2378-TCDF	25.72	2.150e4	2.866e4	0.702	0.75	0.77	524.7	YES	NO	bb	bb	10.574
3	Total-tetrafurans	24.63	1.978e2	2.652e2	0.727	0.75	0.77	4.9	NO	NO	dd	dd	0.094
4	Total-tetrafurans	24.47	2.720e2	4.029e2	0.727	0.68	0.77	6.1	YES	NO	bd	bd	0.137
5	1368-TCDF	22.21	2.624e4	3.663e4	0.802	0.72	0.77	735.7	YES	NO	bb	bb	11.599

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.06	2.290e5	1.509e5	1.246	1.52	1.55	8809.7	YES	NO	bb	bb	53.645

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.23	1.069e5	7.164e4	0.496	1.49	1.55	1045.5	YES	NO	bb	bb	63.307
2	23478-PeCDF	31.19	1.203e5	8.335e4	0.786	1.44	1.55	1228.4	YES	NO	bb	bb	48.773
3	12378-PeCDF	29.86	1.134e5	7.698e4	0.679	1.47	1.55	1146.7	YES	NO	bb	bb	49.324
4	Total-pentafurans	28.72	1.844e4	1.271e4	0.654	1.45	1.55	193.4	YES	NO	bb	bb	8.667

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.85	1.082e5	8.700e4	1.137	1.24	1.24	863.4	YES	NO	bb	bd	48.937
2	234678-HxCDF	35.82	1.336e5	1.050e5	1.140	1.27	1.24	1109.3	YES	NO	bb	bb	44.944
3	123678-HxCDF	34.96	1.569e5	1.279e5	1.091	1.23	1.24	1280.8	YES	NO	db	db	44.795
4	123478-HxCDF	34.83	1.453e5	1.173e5	1.166	1.24	1.24	1257.2	YES	NO	MM	MM	45.088
5	123468-HXCDF	33.15	1.580e5	1.262e5	1.169	1.25	1.24	1314.2	YES	NO	bd	bd	48.656

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.92	7.638e4	7.812e4	0.953	0.98	1.05	907.8	YES	NO	bb	bb	50.750
2	Total-heptafurans	39.35	5.911e2	5.835e2	0.978	1.01	1.05	8.3	YES	NO	db	bb	0.363
3	1234678-HpCDF	38.69	8.007e4	8.177e4	1.003	0.98	1.05	1113.7	YES	NO	bb	bb	47.041

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	1.924e4	2.811e4	0.678	0.68	0.77	487.7	YES	NO	db	db	10.328
2	2378-TCDF	25.72	2.150e4	2.866e4	0.702	0.75	0.77	524.7	YES	NO	bb	bb	10.574
3	Total-tetrafurans	24.63	1.978e2	2.652e2	0.727	0.75	0.77	4.9	NO	NO	dd	dd	0.094
4	Total-tetrafurans	24.47	2.720e2	4.029e2	0.727	0.68	0.77	6.1	YES	NO	bd	bd	0.137
5	1368-TCDF	22.21	2.624e4	3.663e4	0.802	0.72	0.77	735.7	YES	NO	bb	bb	11.599
6	12389-PECDF	32.23	1.069e5	7.164e4	0.496	1.49	1.55	1045.5	YES	NO	bb	bb	63.307
7	23478-PeCDF	31.19	1.203e5	8.335e4	0.786	1.44	1.55	1228.4	YES	NO	bb	bb	48.773
8	12378-PeCDF	29.86	1.134e5	7.698e4	0.679	1.47	1.55	1146.7	YES	NO	bb	bb	49.324
9	Total-pentafurans	28.72	1.844e4	1.271e4	0.654	1.45	1.55	193.4	YES	NO	bb	bb	8.667
10	123789-HxCDF	36.85	1.082e5	8.700e4	1.137	1.24	1.24	863.4	YES	NO	bb	bd	48.937
11	234678-HxCDF	35.82	1.336e5	1.050e5	1.140	1.27	1.24	1109.3	YES	NO	bb	bb	44.944
12	123678-HxCDF	34.96	1.569e5	1.279e5	1.091	1.23	1.24	1280.8	YES	NO	db	db	44.795
13	123478-HxCDF	34.83	1.453e5	1.173e5	1.166	1.24	1.24	1257.2	YES	NO	MM	MM	45.088
14	123468-HXCDF	33.15	1.580e5	1.262e5	1.169	1.25	1.24	1314.2	YES	NO	bd	bd	48.656
15	1234789-HpCDF	40.92	7.638e4	7.812e4	0.953	0.98	1.05	907.8	YES	NO	bb	bb	50.750
16	Total-heptafurans	39.35	5.911e2	5.835e2	0.978	1.01	1.05	8.3	YES	NO	db	bb	0.363
17	1234678-HpCDF	38.69	8.007e4	8.177e4	1.003	0.98	1.05	1113.7	YES	NO	bb	bb	47.041
18	OCDF	45.12	1.216e5	1.358e5	0.778	0.90	0.89	1670.1	YES	NO	bb	bb	101.196
19	13468-PECDF	27.06	2.290e5	1.509e5	1.246	1.52	1.55	8809.7	YES	NO	bb	bb	53.645

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.95	2.143e4	2.705e4	0.909	0.79	0.77	319.1	YES	NO	bd	bb	10.067
2	2378-TCDD	26.35	2.461e4	3.101e4	1.149	0.79	0.77	372.6	YES	NO	bb	bb	9.136
3	Total-tetradioxins	26.03	3.633e4	4.548e4	1.024	0.80	0.77	384.2	YES	NO	bb	bb	15.072
4	Total-tetradioxins	25.55	1.093e4	1.494e4	1.024	0.73	0.77	173.8	YES	NO	bb	bb	4.766
5	Total-tetradioxins	24.69	8.962e2	1.194e3	1.024	0.75	0.77	9.4	YES	NO	bb	bb	0.385
6	1368-TCDD	23.49	2.423e4	2.980e4	1.015	0.81	0.77	392.1	YES	NO	bd	bb	10.039

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.85	1.306e5	8.423e4	1.184	1.55	1.55	1486.5	YES	NO	bb	bb	48.734
2	12378-PeCDD	31.45	1.165e5	7.519e4	1.022	1.55	1.55	1315.3	YES	NO	bb	bb	50.369
3	Total-pentadioxins	30.78	4.223e2	2.540e2	1.502	1.66	1.55	5.2	YES	NO	bb	bb	0.121
4	12479-PECDD	28.73	1.985e5	1.250e5	2.301	1.59	1.55	1459.4	YES	NO	bb	bb	37.738

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.44	1.106e5	9.409e4	0.907	1.18	1.24	887.3	YES	NO	bd	bd	51.452
2	123678-HxCDD	36.06	1.266e5	1.038e5	1.001	1.22	1.24	959.3	YES	NO	db	dd	48.931
3	123478-HxCDD	35.94	1.085e5	8.730e4	0.996	1.24	1.24	972.2	YES	NO	bd	bd	48.356
4	124679-HXCDD	33.93	1.400e5	1.138e5	1.115	1.23	1.24	1135.7	YES	NO	bb	bb	55.929

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	8.112e4	8.345e4	1.039	0.97	1.05	937.1	YES	NO	bb	bb	51.012
2	1234679-HPCDD	39.14	9.386e4	8.476e4	1.137	1.11	1.05	1092.1	YES	NO	bd	bb	50.604

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.95	2.143e4	2.705e4	0.909	0.79	0.77	319.1	YES	NO	bd	bb	10.067
2	2378-TCDD	26.35	2.461e4	3.101e4	1.149	0.79	0.77	372.6	YES	NO	bb	bb	9.136
3	Total-tetradioxins	26.03	3.633e4	4.548e4	1.024	0.80	0.77	384.2	YES	NO	bb	bb	15.072
4	Total-tetradioxins	25.55	1.093e4	1.494e4	1.024	0.73	0.77	173.8	YES	NO	bb	bb	4.766
5	Total-tetradioxins	24.69	8.962e2	1.194e3	1.024	0.75	0.77	9.4	YES	NO	bb	bb	0.385
6	1368-TCDD	23.49	2.423e4	2.980e4	1.015	0.81	0.77	392.1	YES	NO	bd	bb	10.039
7	12389-PECDD	31.85	1.306e5	8.423e4	1.184	1.55	1.55	1486.5	YES	NO	bb	bb	48.734
8	12378-PeCDD	31.45	1.165e5	7.519e4	1.022	1.55	1.55	1315.3	YES	NO	bb	bb	50.369
9	Total-pentadioxins	30.78	4.223e2	2.540e2	1.502	1.66	1.55	5.2	YES	NO	bb	bb	0.121
10	12479-PECDD	28.73	1.985e5	1.250e5	2.301	1.59	1.55	1459.4	YES	NO	bb	bb	37.738
11	123789-HxCDD	36.44	1.106e5	9.409e4	0.907	1.18	1.24	887.3	YES	NO	bd	bd	51.452
12	123678-HxCDD	36.06	1.266e5	1.038e5	1.001	1.22	1.24	959.3	YES	NO	db	dd	48.931
13	123478-HxCDD	35.94	1.085e5	8.730e4	0.996	1.24	1.24	972.2	YES	NO	bd	bd	48.356
14	124679-HXCDD	33.93	1.400e5	1.138e5	1.115	1.23	1.24	1135.7	YES	NO	bb	bb	55.929
15	1234678-HpCDD	40.18	8.112e4	8.345e4	1.039	0.97	1.05	937.1	YES	NO	bb	bb	51.012
16	1234679-HPCDD	39.14	9.386e4	8.476e4	1.137	1.11	1.05	1092.1	YES	NO	bd	bb	50.604
17	OCDD	44.88	1.433e5	1.674e5	0.920	0.86	0.89	2492.5	YES	NO	bb	bb	103.233

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	1.924e4	2.811e4	0.678	0.68	0.77	487.7	YES	NO	db	db	10.328
2	2378-TCDF	25.72	2.150e4	2.866e4	0.702	0.75	0.77	524.7	YES	NO	bb	bb	10.574
3	Total-tetrafurans	24.63	1.978e2	2.652e2	0.727	0.75	0.77	4.9	NO	NO	dd	dd	0.094
4	Total-tetrafurans	24.47	2.720e2	4.029e2	0.727	0.68	0.77	6.1	YES	NO	bd	bd	0.137
5	1368-TCDF	22.21	2.624e4	3.663e4	0.802	0.72	0.77	735.7	YES	NO	bb	bb	11.599
6	12389-PECDF	32.23	1.069e5	7.164e4	0.496	1.49	1.55	1045.5	YES	NO	bb	bb	63.307
7	23478-PeCDF	31.19	1.203e5	8.335e4	0.786	1.44	1.55	1228.4	YES	NO	bb	bb	48.773
8	12378-PeCDF	29.86	1.134e5	7.698e4	0.679	1.47	1.55	1146.7	YES	NO	bb	bb	49.324
9	Total-pentafurans	28.72	1.844e4	1.271e4	0.654	1.45	1.55	193.4	YES	NO	bb	bb	8.667
10	123789-HxCDF	36.85	1.082e5	8.700e4	1.137	1.24	1.24	863.4	YES	NO	bb	bd	48.937
11	234678-HxCDF	35.82	1.336e5	1.050e5	1.140	1.27	1.24	1109.3	YES	NO	bb	bb	44.944
12	123678-HxCDF	34.96	1.569e5	1.279e5	1.091	1.23	1.24	1280.8	YES	NO	db	db	44.795
13	123478-HxCDF	34.83	1.453e5	1.173e5	1.166	1.24	1.24	1257.2	YES	NO	MM	MM	45.088
14	123468-HXCDF	33.15	1.580e5	1.262e5	1.169	1.25	1.24	1314.2	YES	NO	bd	bd	48.656
15	1234789-HpCDF	40.92	7.638e4	7.812e4	0.953	0.98	1.05	907.8	YES	NO	bb	bb	50.750
16	Total-heptafurans	39.35	5.911e2	5.835e2	0.978	1.01	1.05	8.3	YES	NO	db	bb	0.363
17	1234678-HpCDF	38.69	8.007e4	8.177e4	1.003	0.98	1.05	1113.7	YES	NO	bb	bb	47.041
18	OCDF	45.12	1.216e5	1.358e5	0.778	0.90	0.89	1670.1	YES	NO	bb	bb	101.196
19	13468-PECDF	27.06	2.290e5	1.509e5	1.246	1.52	1.55	8809.7	YES	NO	bb	bb	53.645
20	1289-TCDD	26.95	2.143e4	2.705e4	0.909	0.79	0.77	319.1	YES	NO	bd	bb	10.067
21	2378-TCDD	26.35	2.461e4	3.101e4	1.149	0.79	0.77	372.6	YES	NO	bb	bb	9.136
22	Total-tetradioxins	26.03	3.633e4	4.548e4	1.024	0.80	0.77	384.2	YES	NO	bb	bb	15.072
23	Total-tetradioxins	25.55	1.093e4	1.494e4	1.024	0.73	0.77	173.8	YES	NO	bb	bb	4.766
24	Total-tetradioxins	24.69	8.962e2	1.194e3	1.024	0.75	0.77	9.4	YES	NO	bb	bb	0.385
25	1368-TCDD	23.49	2.423e4	2.980e4	1.015	0.81	0.77	392.1	YES	NO	bd	bb	10.039
26	12389-PECDD	31.85	1.306e5	8.423e4	1.184	1.55	1.55	1486.5	YES	NO	bb	bb	48.734
27	12378-PeCDD	31.45	1.165e5	7.519e4	1.022	1.55	1.55	1315.3	YES	NO	bb	bb	50.369
28	Total-pentadioxins	30.78	4.223e2	2.540e2	1.502	1.66	1.55	5.2	YES	NO	bb	bb	0.121
29	12479-PECDD	28.73	1.985e5	1.250e5	2.301	1.59	1.55	1459.4	YES	NO	bb	bb	37.738
30	123789-HxCDD	36.44	1.106e5	9.409e4	0.907	1.18	1.24	887.3	YES	NO	bd	bd	51.452
31	123678-HxCDD	36.06	1.266e5	1.038e5	1.001	1.22	1.24	959.3	YES	NO	db	dd	48.931
32	123478-HxCDD	35.94	1.085e5	8.730e4	0.996	1.24	1.24	972.2	YES	NO	bd	bd	48.356
33	124679-HXCDD	33.93	1.400e5	1.138e5	1.115	1.23	1.24	1135.7	YES	NO	bb	bb	55.929
34	1234678-HpCDD	40.18	8.112e4	8.345e4	1.039	0.97	1.05	937.1	YES	NO	bb	bb	51.012
35	1234679-HPCDD	39.14	9.386e4	8.476e4	1.137	1.11	1.05	1092.1	YES	NO	bd	bb	50.604
36	OCDD	44.88	1.433e5	1.674e5	0.920	0.86	0.89	2492.5	YES	NO	bb	bb	103.233

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:51:26 Pacific Daylight Time

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.23	3.739e4					2.5	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.97	1.105e4					1.7	NO		db		0.000
2	FUNCTION2 PFK	28.92	3.793e3					0.9	NO		bd		0.000
3	FUNCTION2 PFK	28.76	7.502e3					1.3	NO		bb		0.000
4	FUNCTION2 PFK	28.48	9.104e2					0.5	NO		bb		0.000
5	FUNCTION2 PFK	28.43	6.038e3					1.4	NO		bb		0.000
6	FUNCTION2 PFK	28.36	2.454e3					0.8	NO		bb		0.000
7	FUNCTION2 PFK	28.14	3.805e3					0.8	NO		bb		0.000
8	FUNCTION2 PFK	28.09	7.754e3					1.4	NO		db		0.000
9	FUNCTION2 PFK	28.03	1.707e3					0.7	NO		bd		0.000
10	FUNCTION2 PFK	27.99	1.935e3					1.1	NO		bb		0.000
11	FUNCTION2 PFK	31.64	5.597e3					1.5	NO		bb		0.000
12	FUNCTION2 PFK	31.45	9.208e3					1.9	NO		db		0.000
13	FUNCTION2 PFK	31.42	1.249e4					2.3	NO		bd		0.000
14	FUNCTION2 PFK	31.33	3.765e3					1.0	NO		bb		0.000
15	FUNCTION2 PFK	31.14	7.028e3					1.6	NO		bb		0.000
16	FUNCTION2 PFK	30.74	7.874e3					1.5	NO		bb		0.000
17	FUNCTION2 PFK	30.68	3.963e3					1.1	NO		db		0.000
18	FUNCTION2 PFK	30.65	3.057e3					0.8	NO		bd		0.000
19	FUNCTION2 PFK	30.46	1.051e4					1.5	NO		bb		0.000
20	FUNCTION2 PFK	30.04	3.937e3					0.8	NO		bb		0.000
21	FUNCTION2 PFK	29.87	4.400e3					1.2	NO		db		0.000
22	FUNCTION2 PFK	29.76	1.555e4					1.5	NO		bd		0.000
23	FUNCTION2 PFK	29.46	7.615e3					1.7	NO		bb		0.000
24	FUNCTION2 PFK	29.26	1.384e3					0.6	NO		bb		0.000
25	FUNCTION2 PFK	29.19	1.695e4					1.9	NO		bb		0.000
26	FUNCTION2 PFK	29.07	7.082e3					1.6	NO		bb		0.000
27	FUNCTION2 PFK	32.60	1.693e3					0.6	NO		bb		0.000
28	FUNCTION2 PFK	32.54	3.358e3					0.9	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.88	4.402e7					57.4	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.66	7.979e3					1.3	NO		bb		
2	FUNCTION5 PFK	44.28	6.204e3					1.9	NO		db		
3	FUNCTION5 PFK	44.22	7.994e3					1.8	NO		bd		
4	FUNCTION5 PFK	43.90	1.714e3					0.9	NO		bb		
5	FUNCTION5 PFK	43.71	2.805e3					0.5	NO		bb		
6	FUNCTION5 PFK	43.55	4.442e3					0.8	NO		bb		
7	FUNCTION5 PFK	43.30	5.253e2					0.4	NO		bb		
8	FUNCTION5 PFK	43.24	1.610e3					0.8	NO		bb		
9	FUNCTION5 PFK	42.99	3.769e3					1.4	NO		bb		
10	FUNCTION5 PFK	42.57	3.751e3					1.2	NO		bb		
11	FUNCTION5 PFK	45.92	6.083e3					1.5	NO		db		
12	FUNCTION5 PFK	45.86	5.487e3					1.7	NO		dd		
13	FUNCTION5 PFK	45.82	2.059e3					0.8	NO		bd		
14	FUNCTION5 PFK	45.79	6.802e3					1.6	NO		bb		
15	FUNCTION5 PFK	45.63	1.586e3					0.7	NO		bb		
16	FUNCTION5 PFK	45.43	7.784e3					1.9	NO		bb		
17	FUNCTION5 PFK	45.07	2.801e3					1.1	NO		db		
18	FUNCTION5 PFK	45.05	7.368e2					0.5	NO		bd		
19	FUNCTION5 PFK	45.01	2.650e3					1.1	NO		bb		
20	FUNCTION5 PFK	44.89	3.040e3					1.1	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.21	1.329e2					3.7	YES		db		0.000
2	FUNCTION1 HXCD...	21.13	2.109e2					4.8	YES		bd		0.000

ID: CS3A5, Name: 23032121, Date: 22-Mar-2023, Time: 02:46:36, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.05	8.025e1					1.9	NO		bb		0.000
2	FUNCTION2 HPCD...	31.10	2.648e2					5.0	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.96	1.520e2					7.9	YES		bb		0.000
2	FUNCTION3 OCDPE	35.36	1.587e2					5.5	YES		bb		0.000
3	FUNCTION3 OCDPE	33.98	1.441e2					6.0	YES		db		0.000
4	FUNCTION3 OCDPE	33.92	1.207e2					6.7	YES		dd		0.000
5	FUNCTION3 OCDPE	33.86	1.072e2					7.4	YES		dd		0.000
6	FUNCTION3 OCDPE	33.81	8.951e1					6.4	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.10	1.611e2					8.9	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
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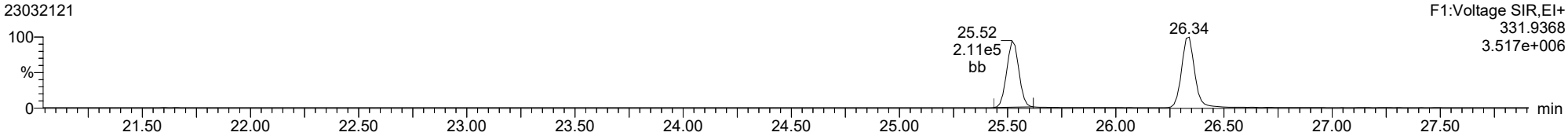
ID: CS3A5, Name: 23032121, Date: 22-Mar-2023, Time: 02:46:36, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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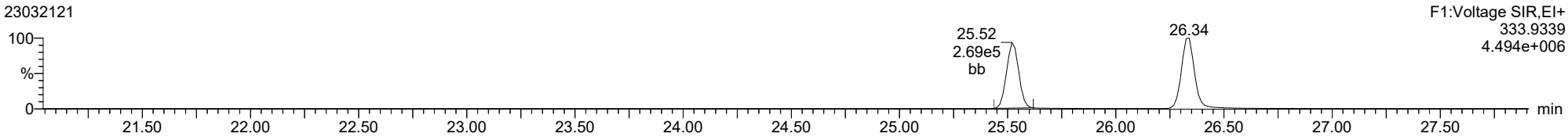
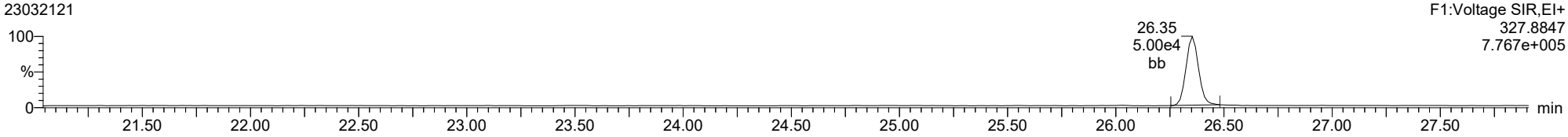


37CL-2378-TCDD



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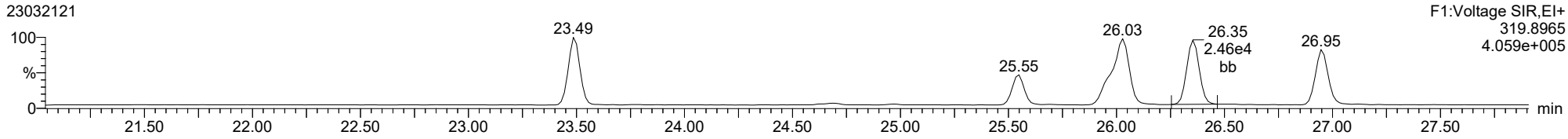

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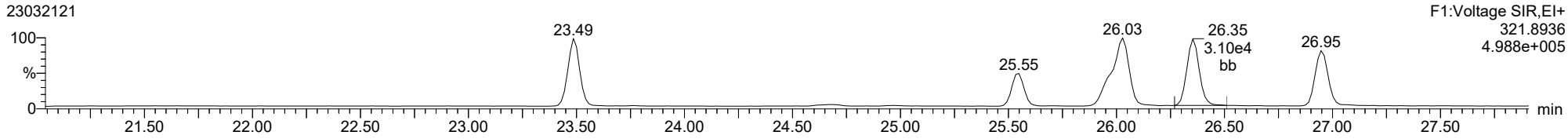

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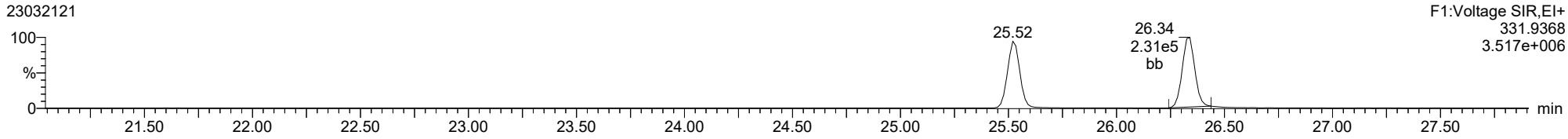

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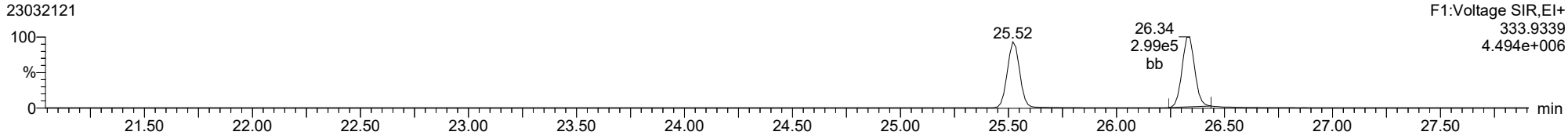

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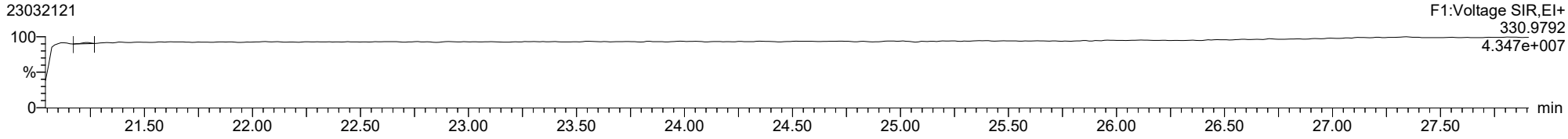

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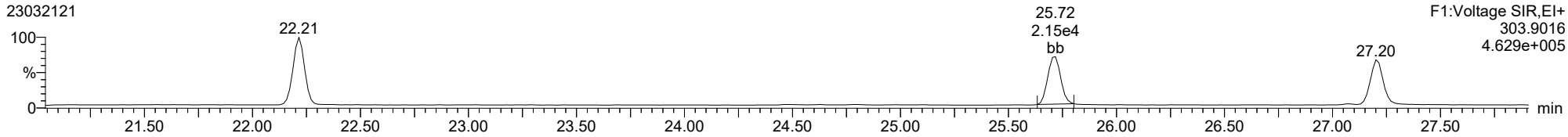

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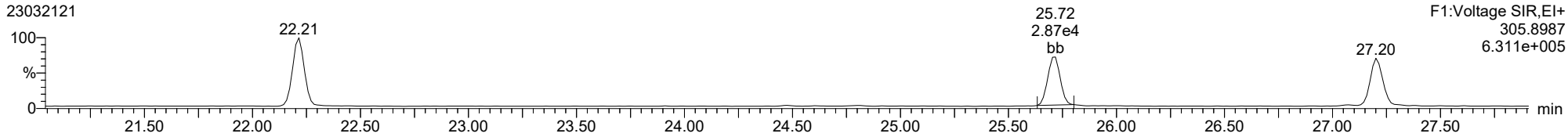

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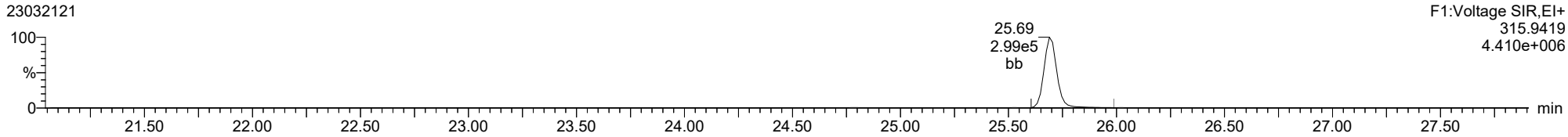

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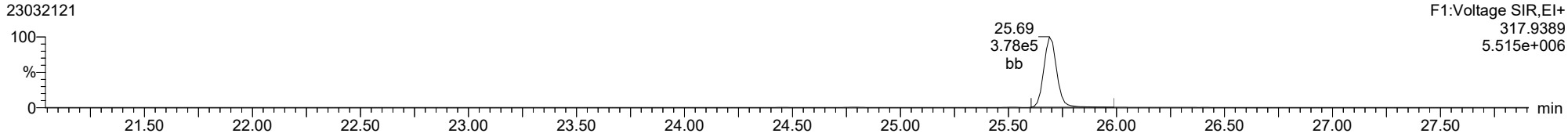
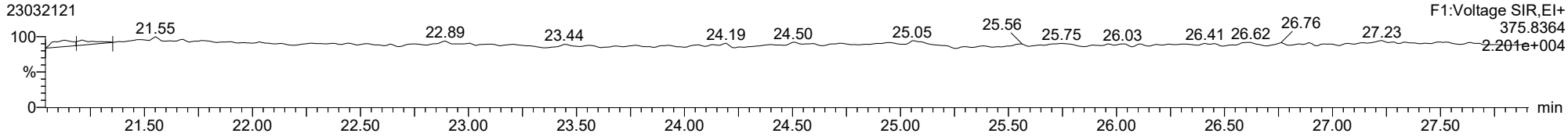


FUNCTION1 HXCDPE



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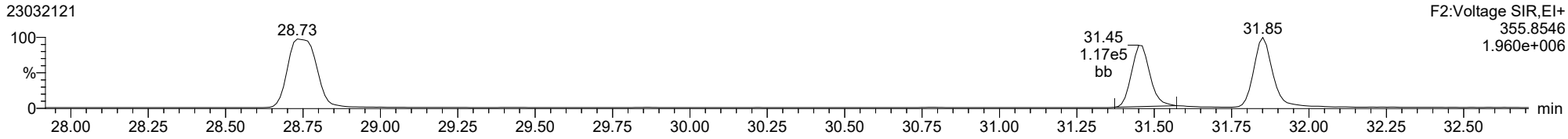
12378-PeCDD



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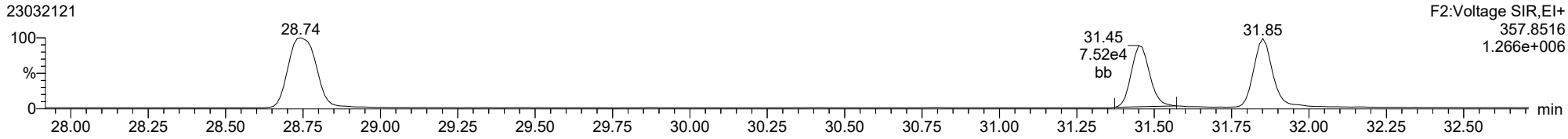

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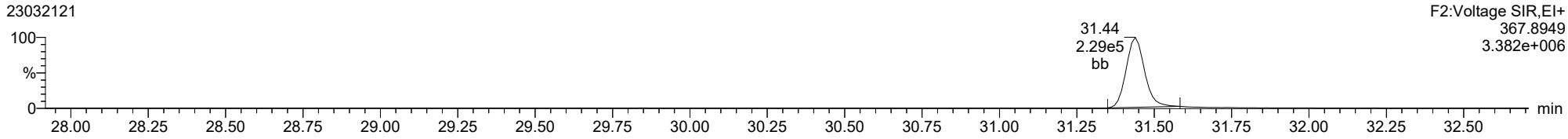

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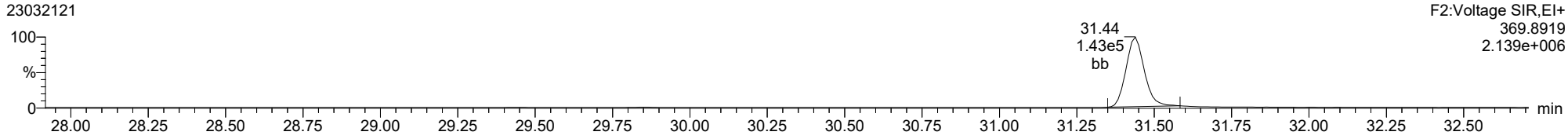
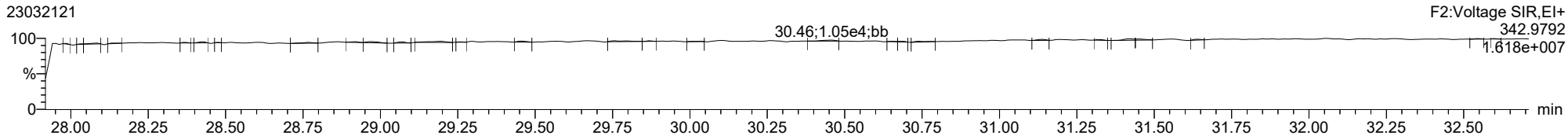


FUNCTION2 PFK



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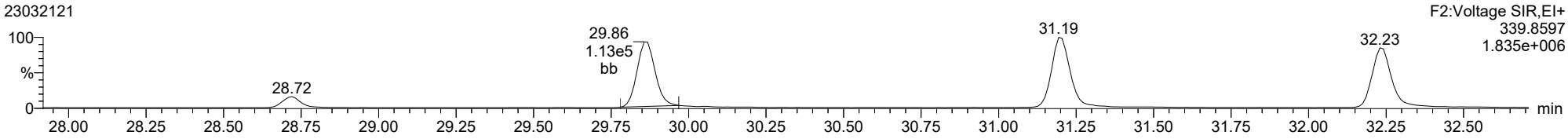

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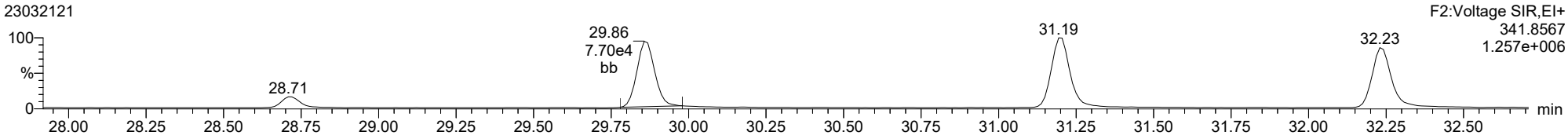

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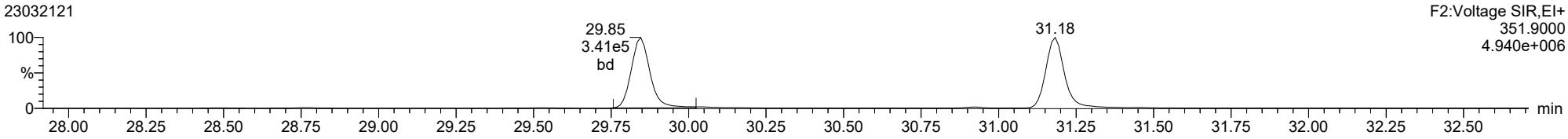

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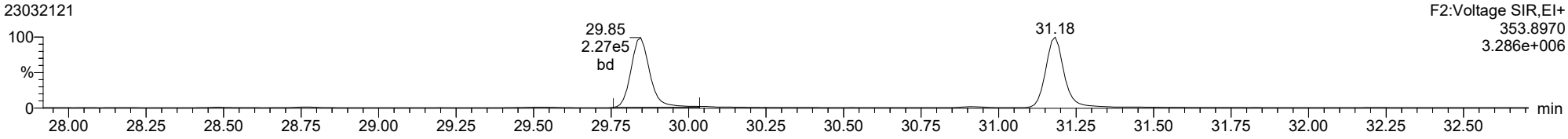
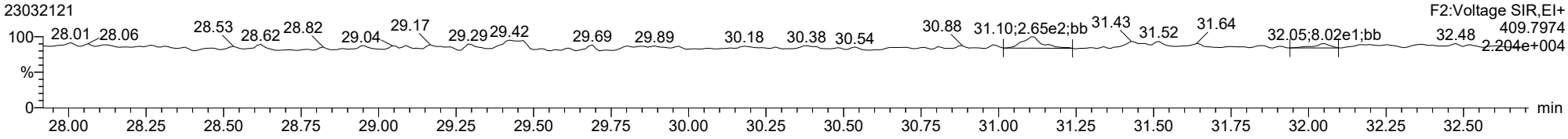


FUNCTION2 HPCDPE



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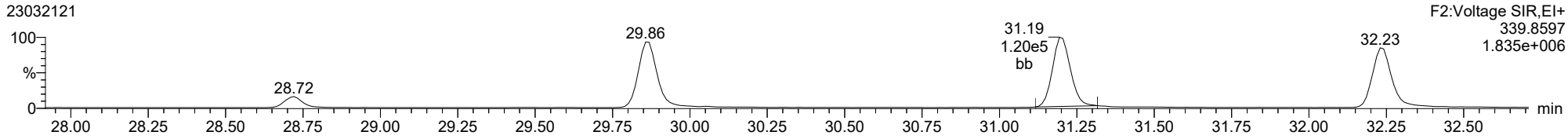
23478-PeCDF



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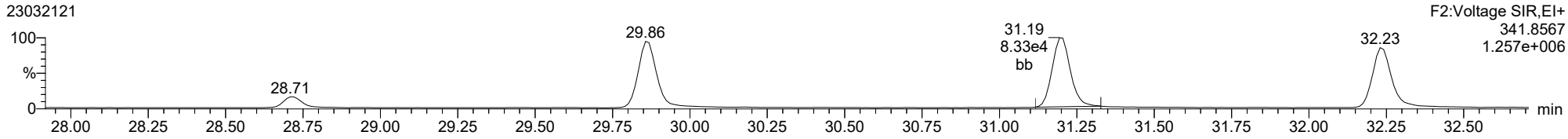

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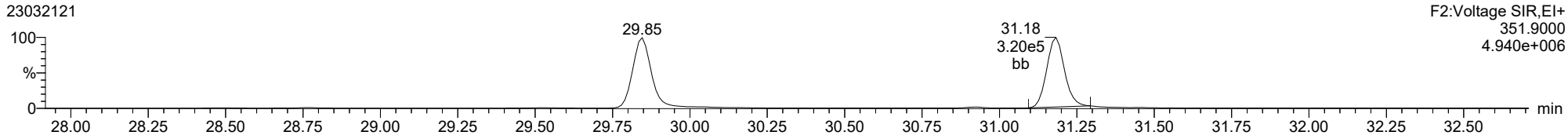

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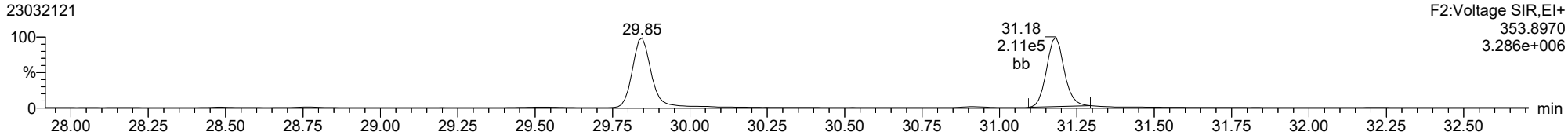
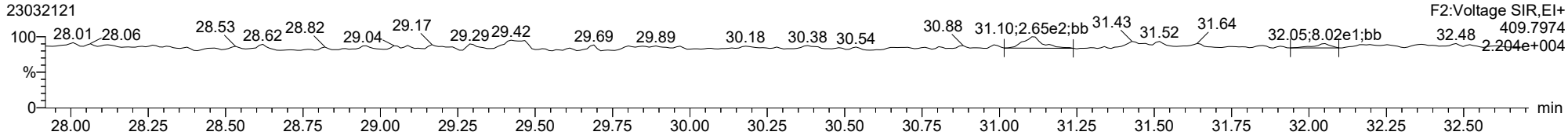


FUNCTION2 HPCDPE



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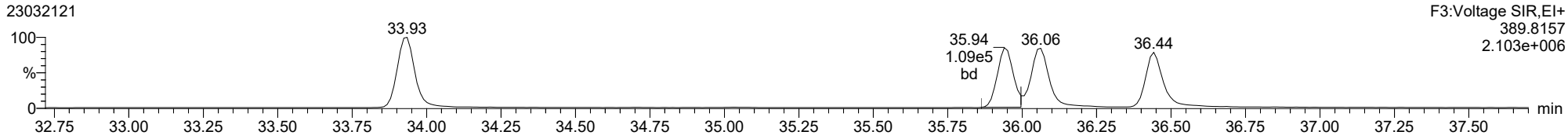
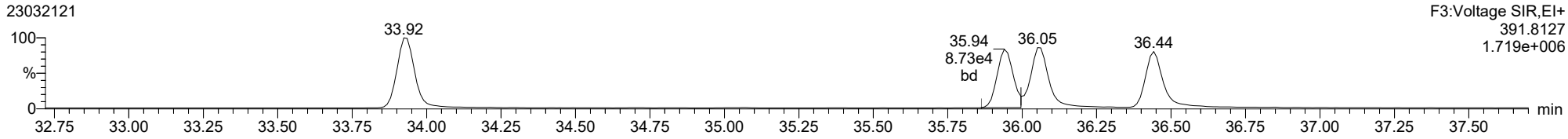
123478-HxCDD



123478-HxCDD



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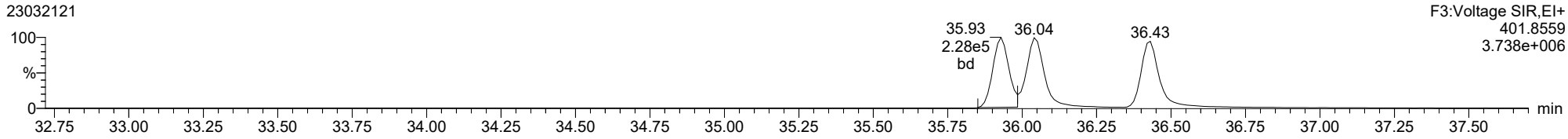

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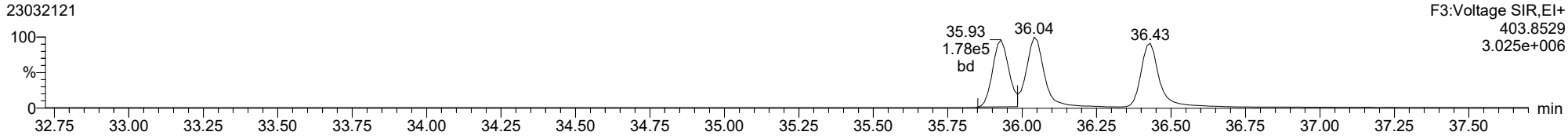

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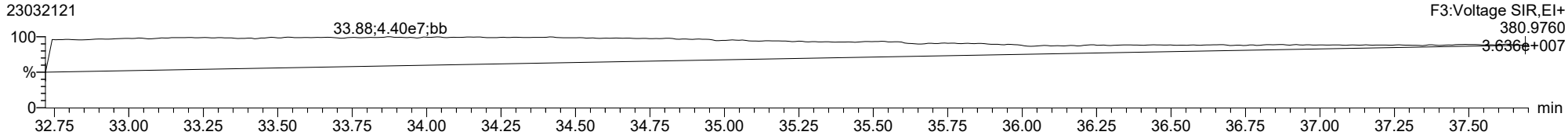

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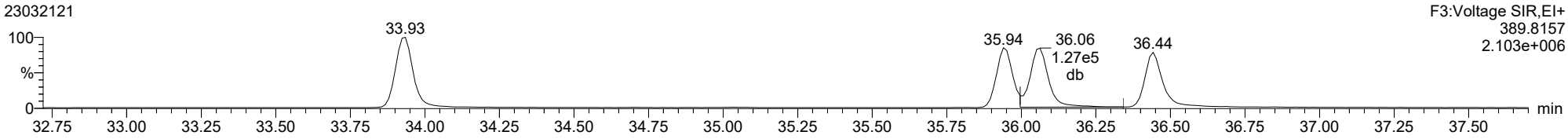

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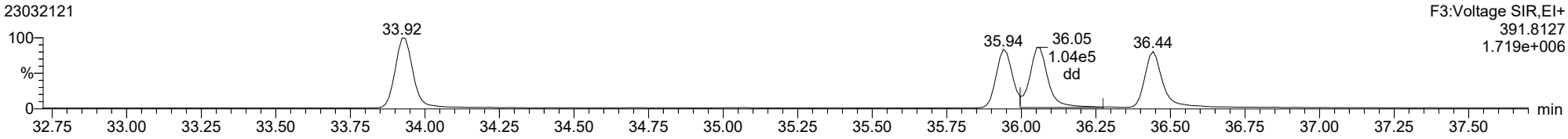

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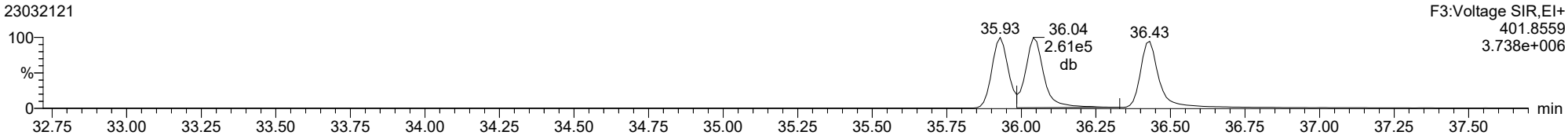

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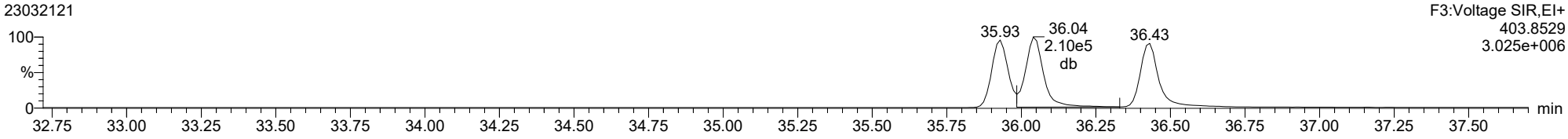

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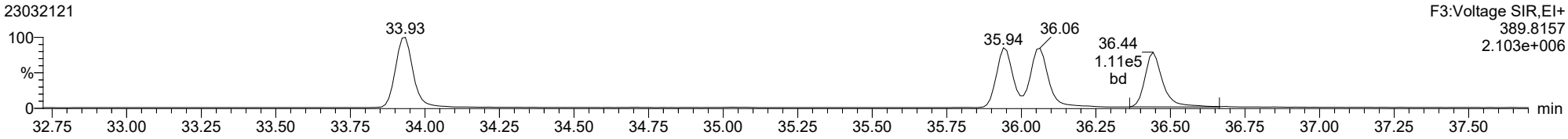

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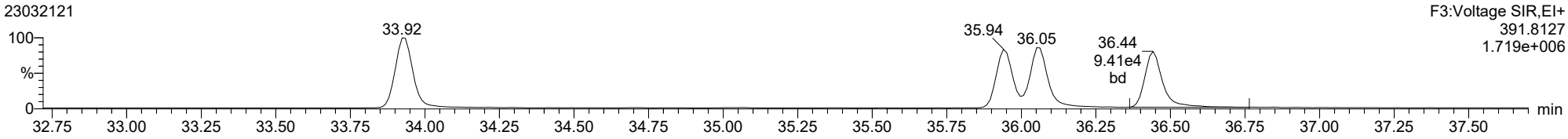

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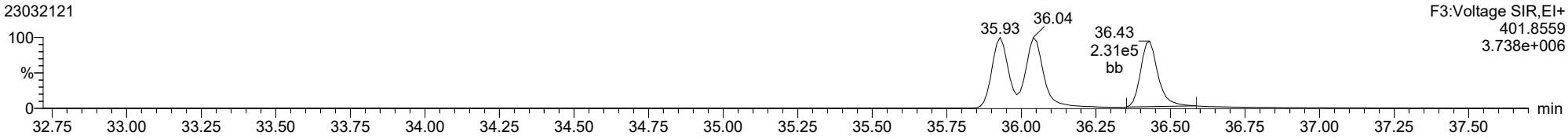

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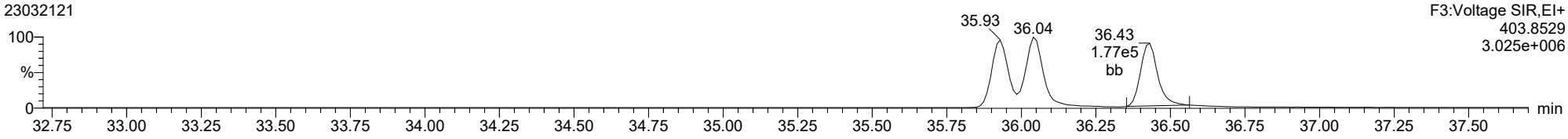

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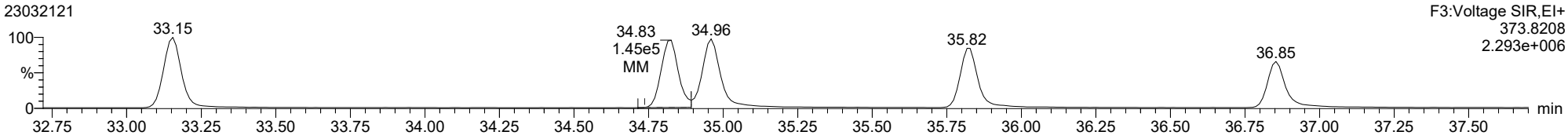

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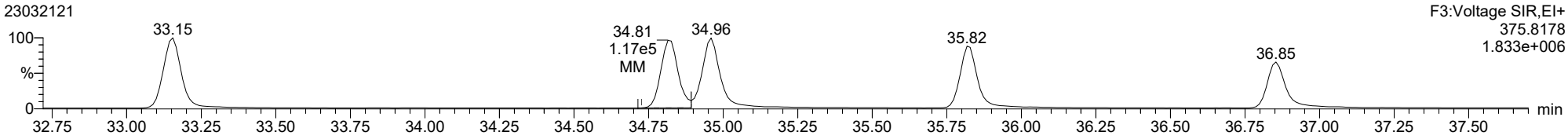

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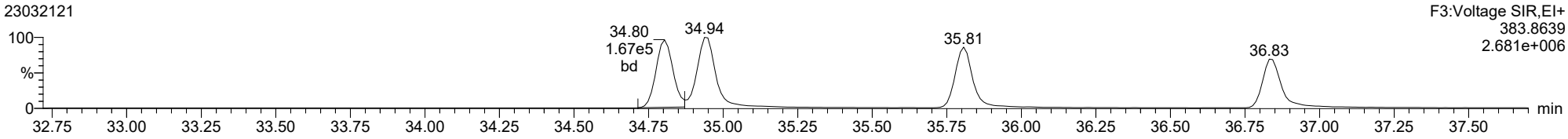

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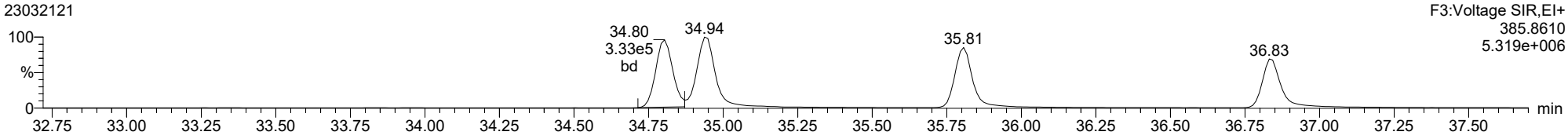
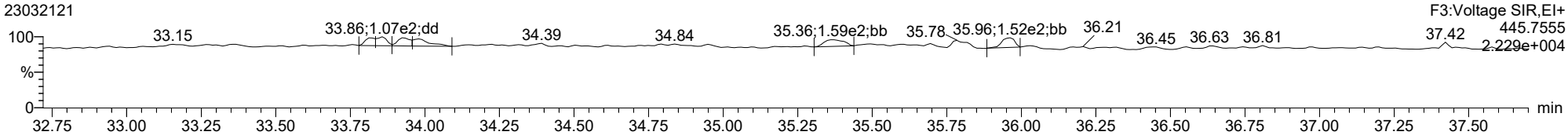


FUNCTION3 OCDPE



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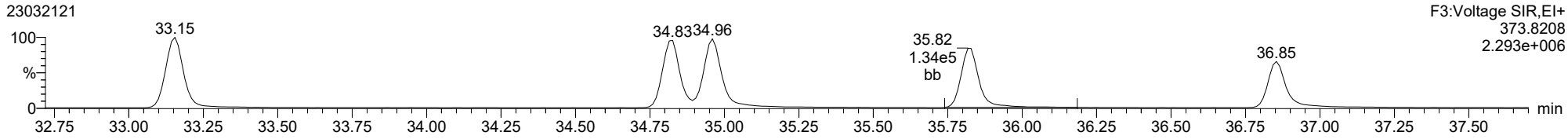
234678-HxCDF



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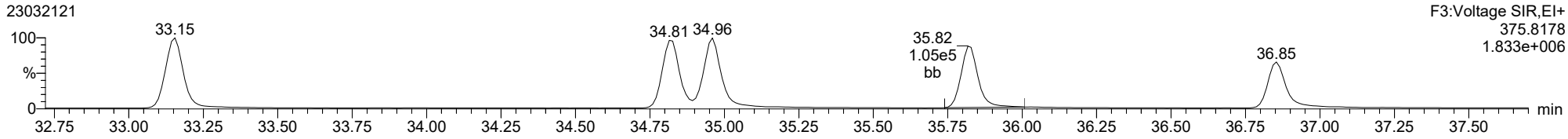

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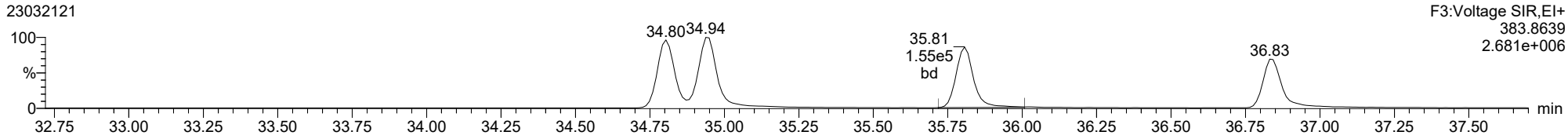

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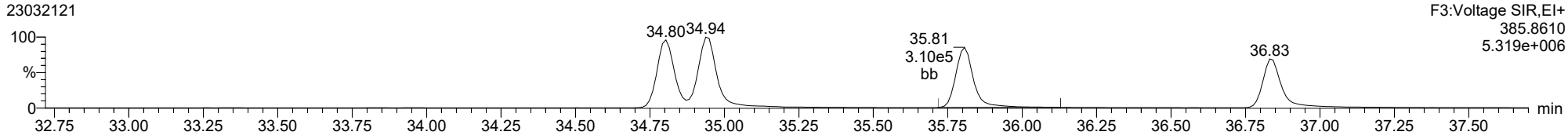

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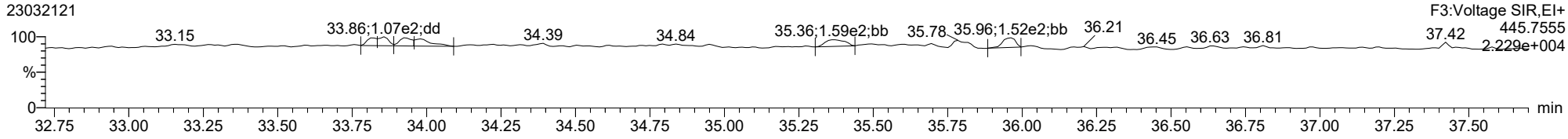

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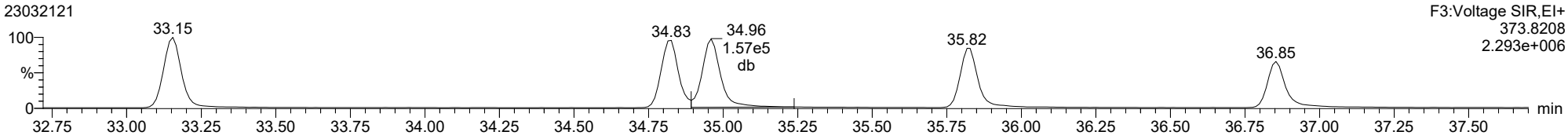

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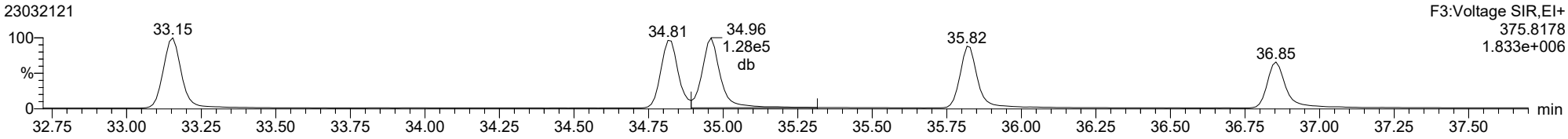

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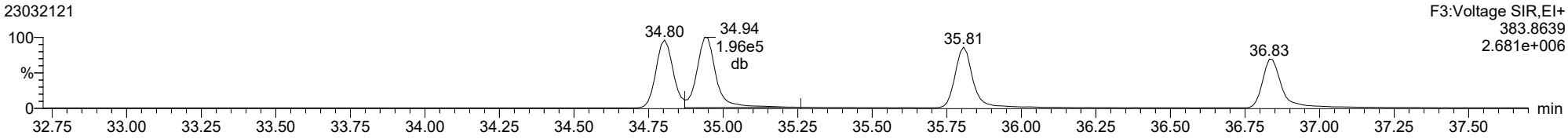

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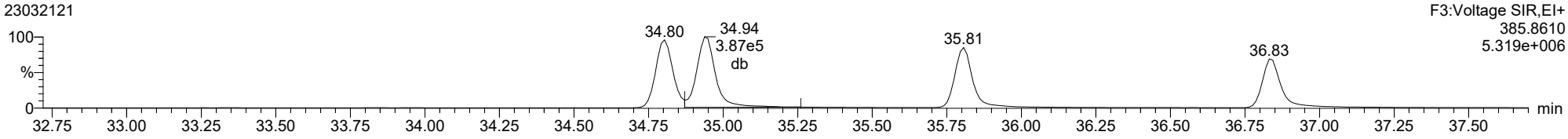

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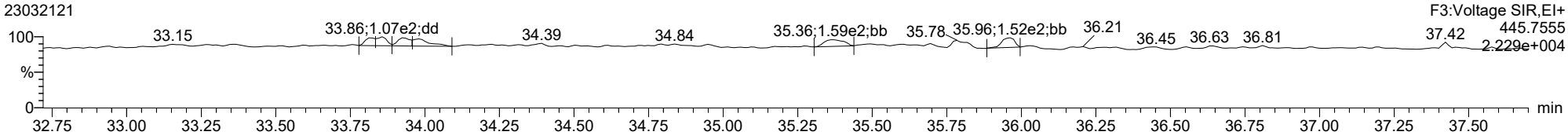

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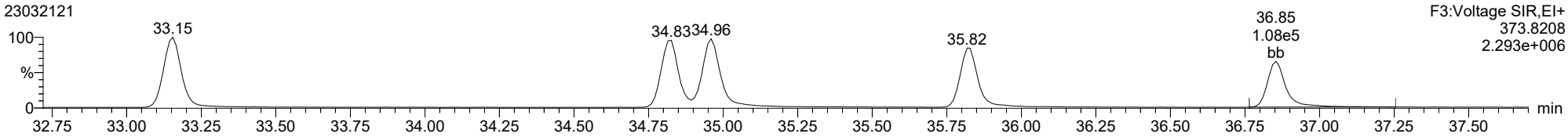

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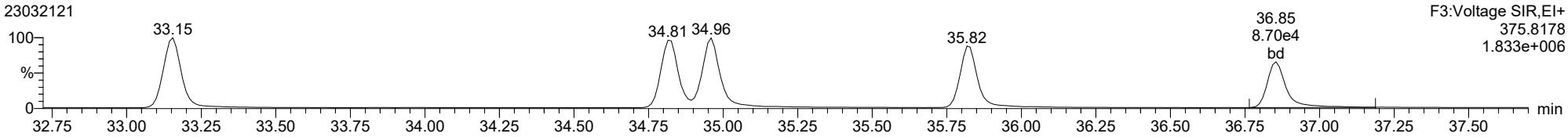

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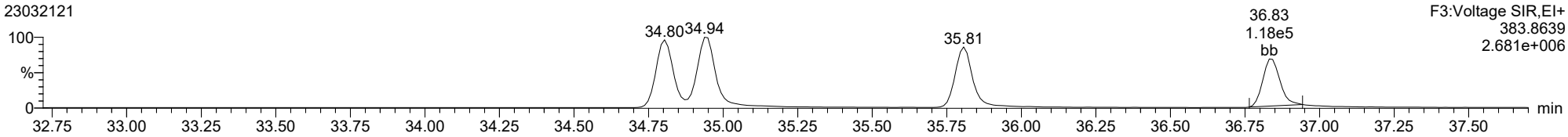

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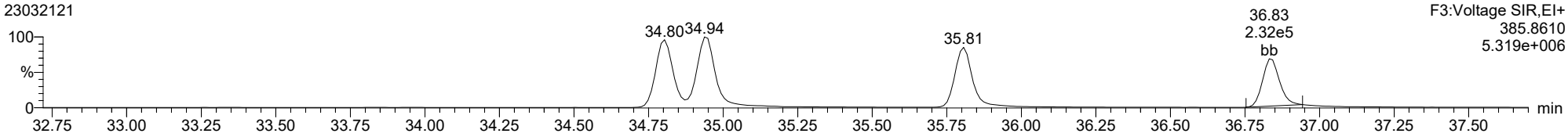

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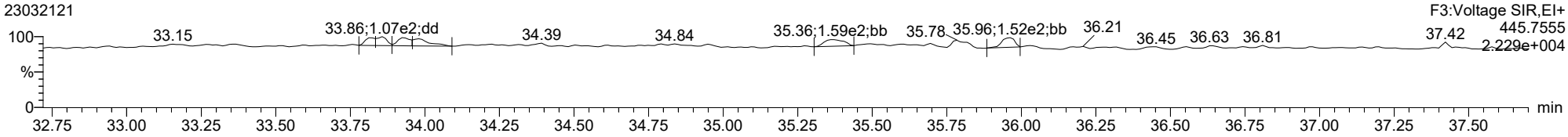

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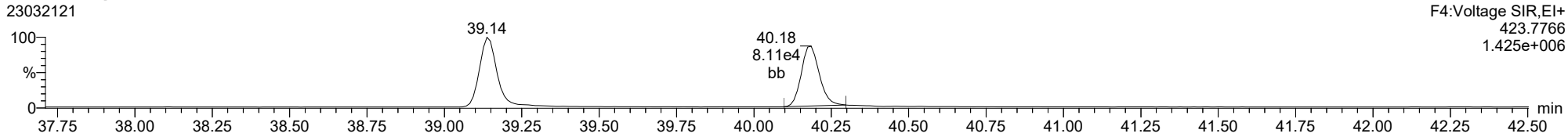

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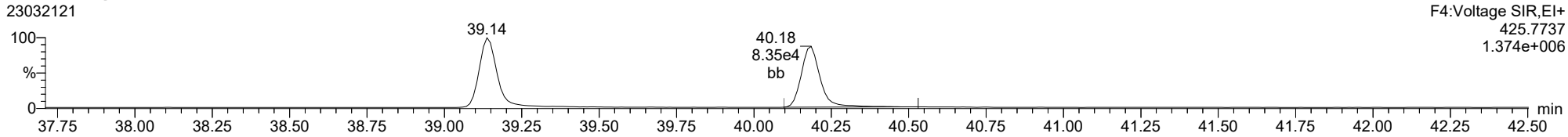

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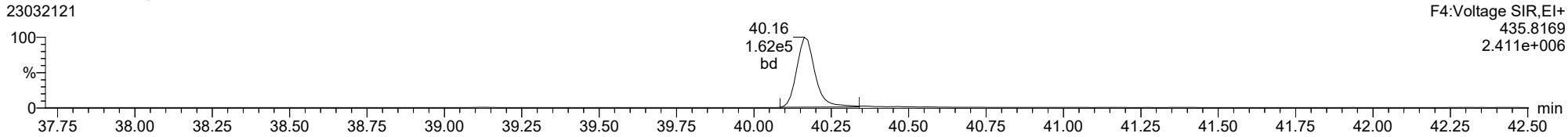

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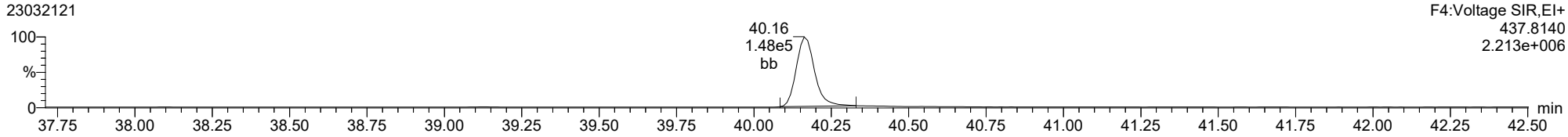
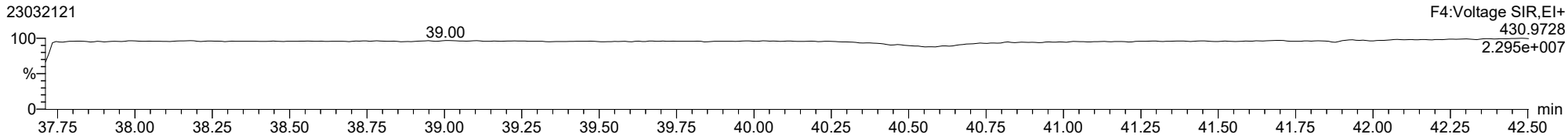


FUNCTION4 PFK



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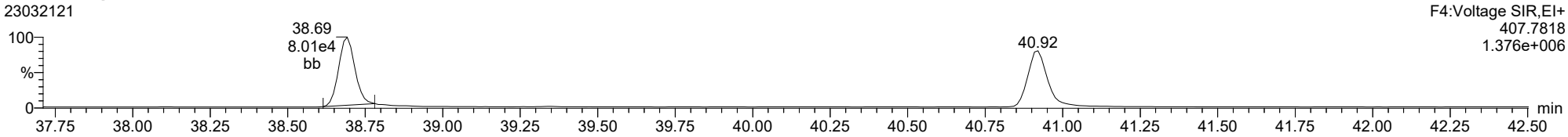

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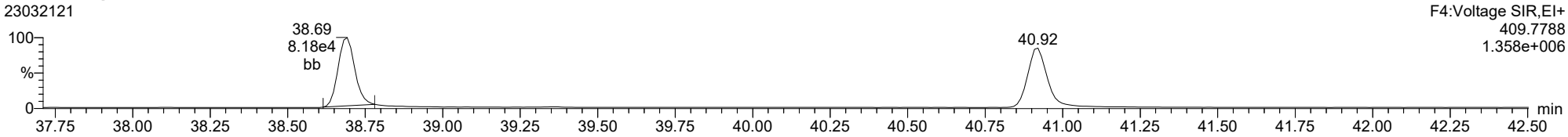

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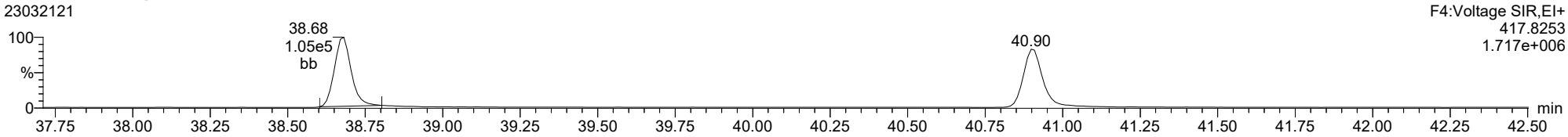

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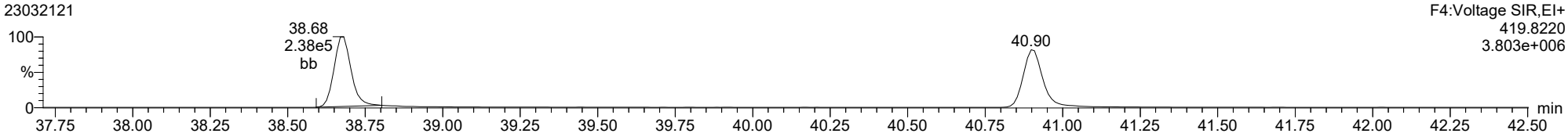
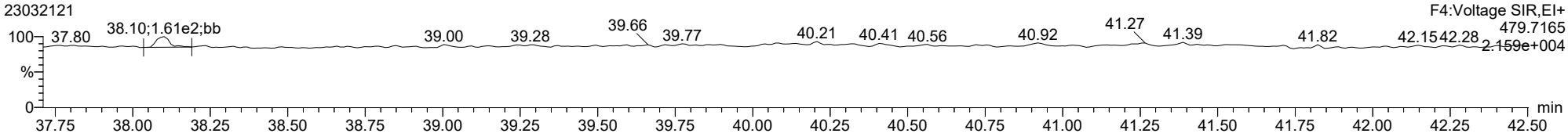


FUNCTION4 NCDPE



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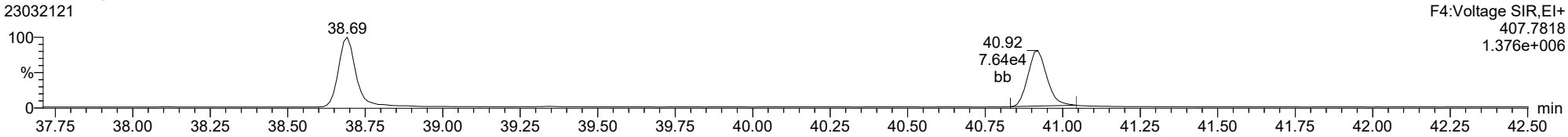

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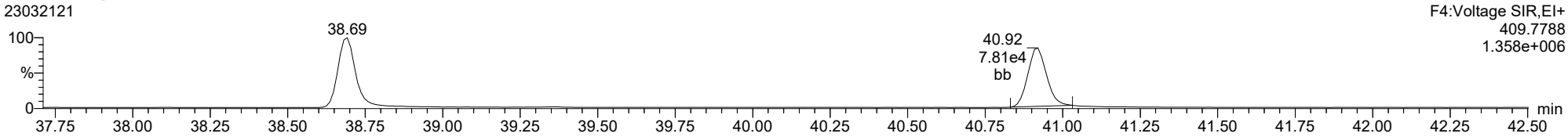

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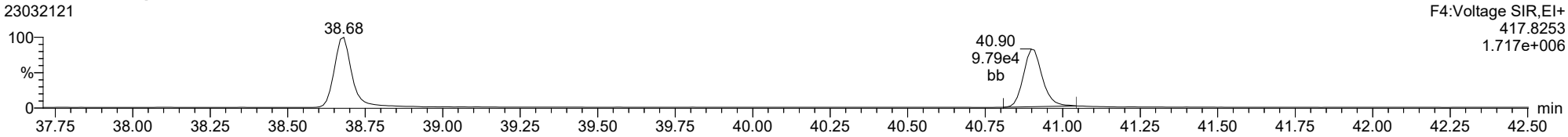

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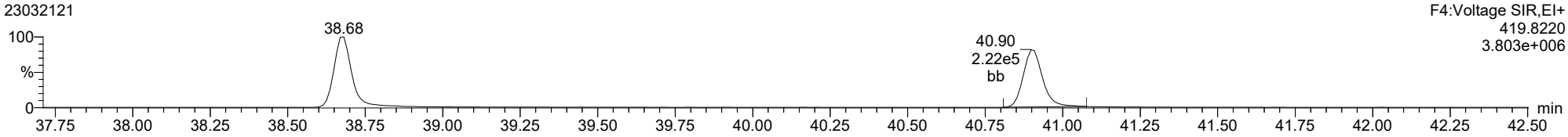

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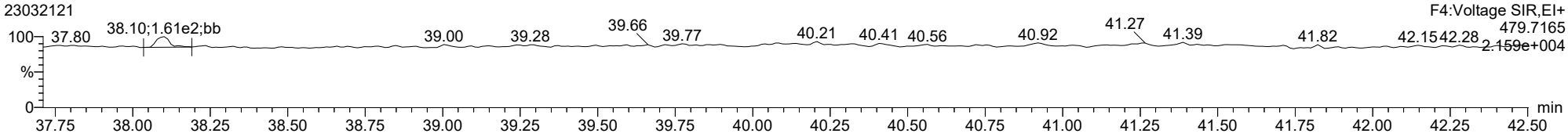

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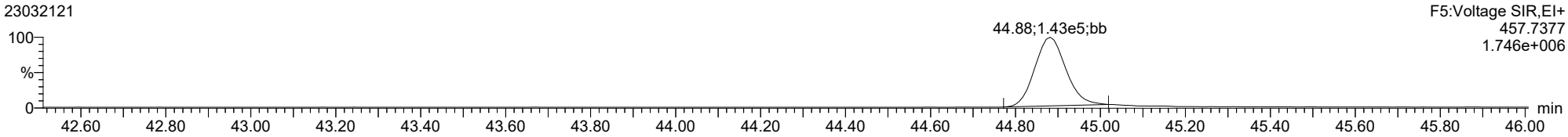

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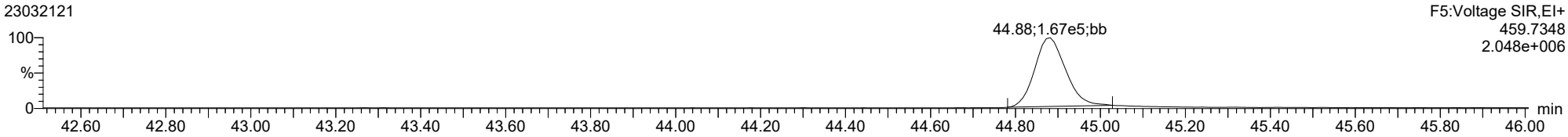

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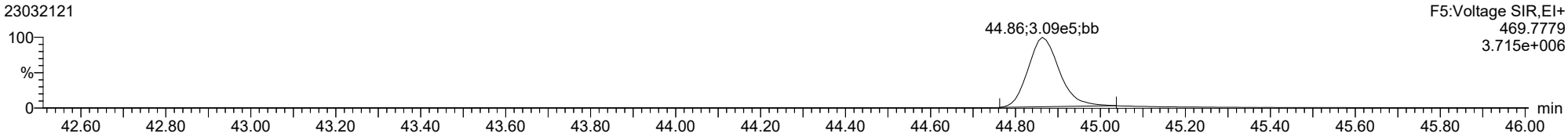

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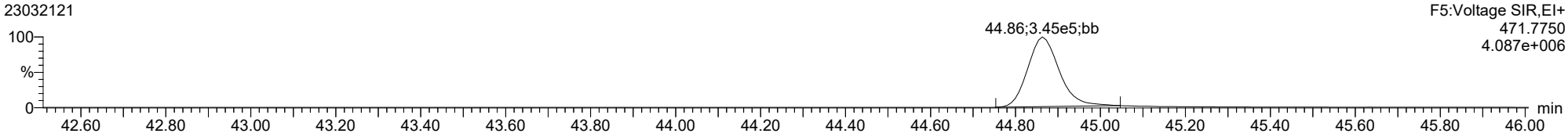

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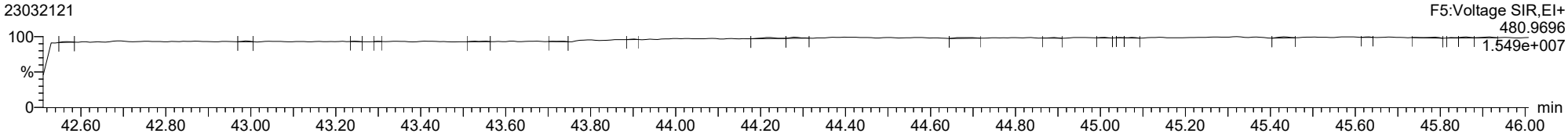

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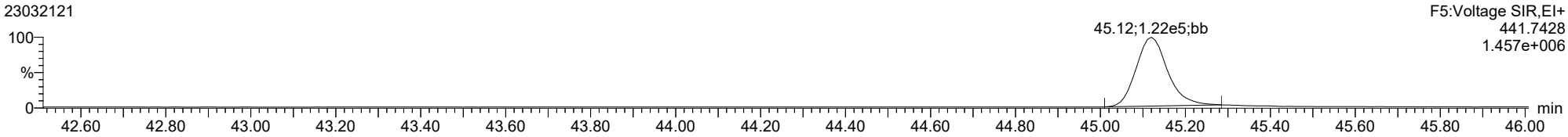

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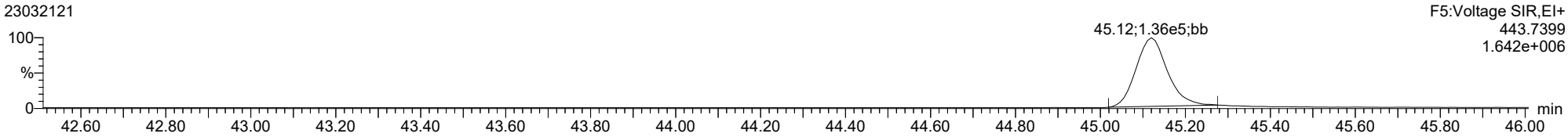

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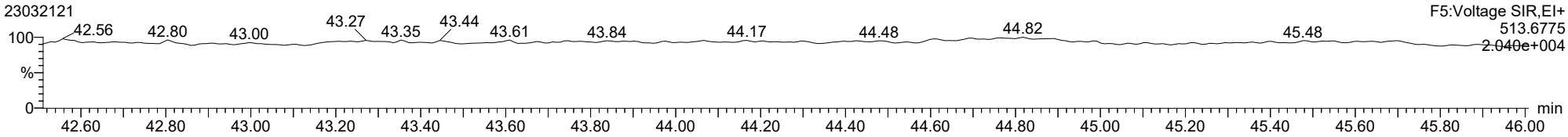

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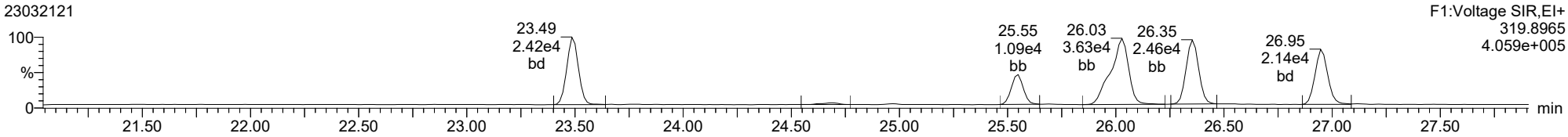
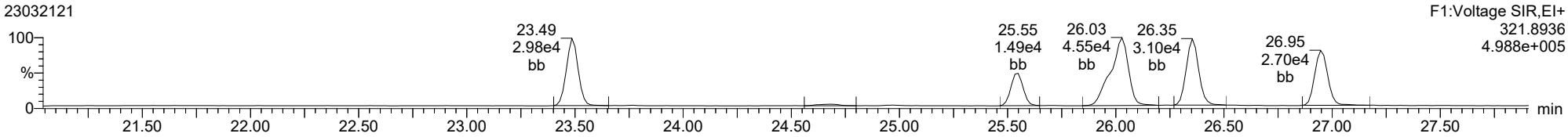
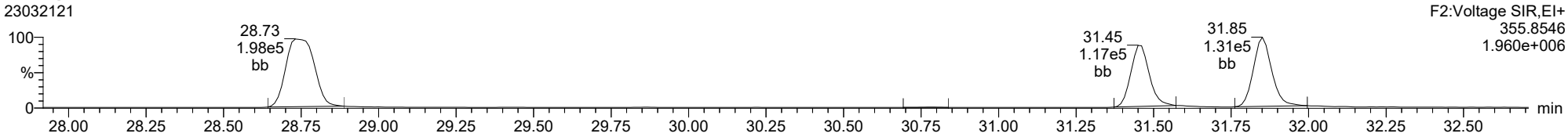


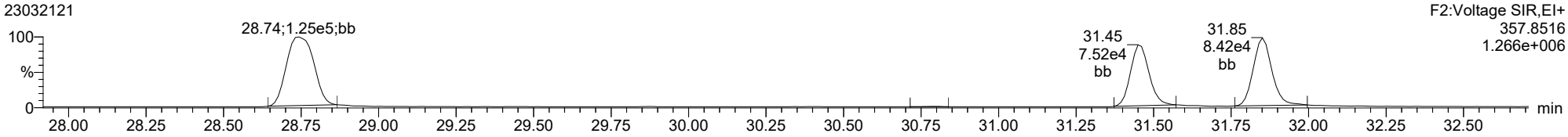
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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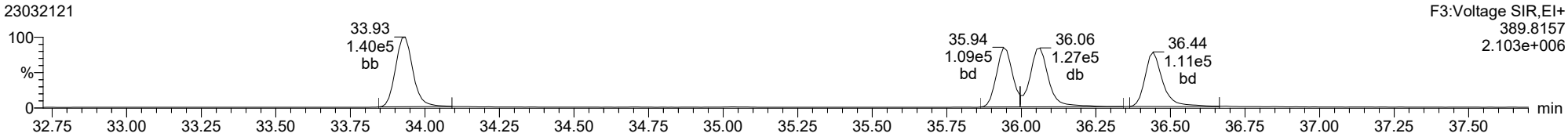

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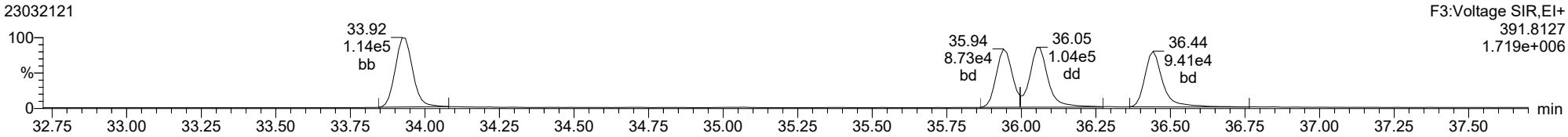

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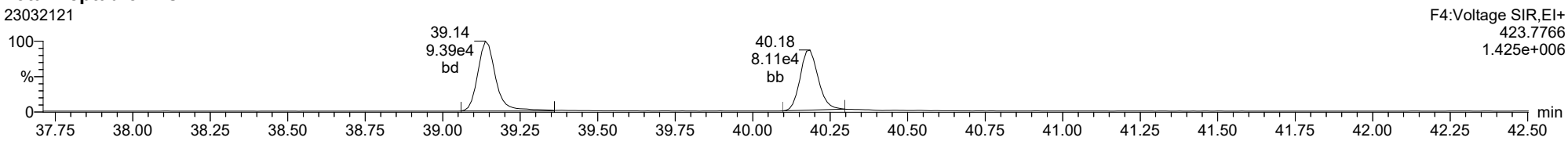
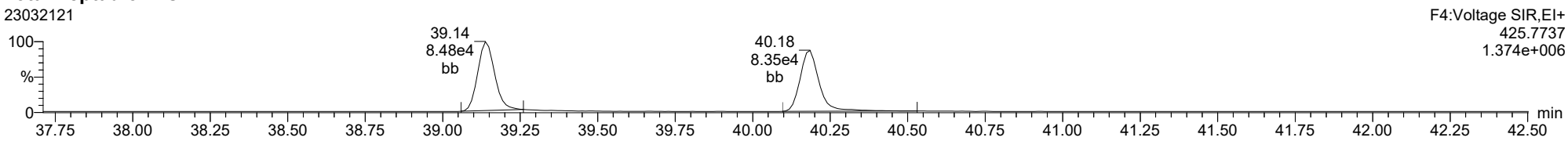


Total-heptadioxins



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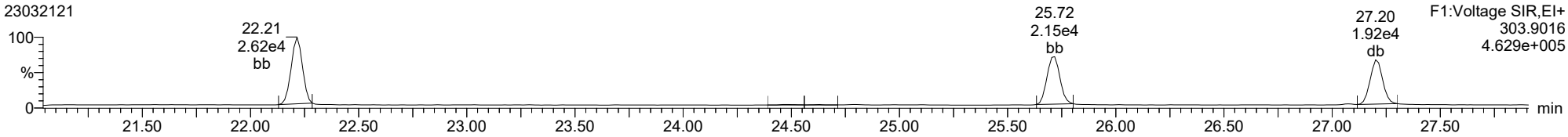
Total-tetrafurans



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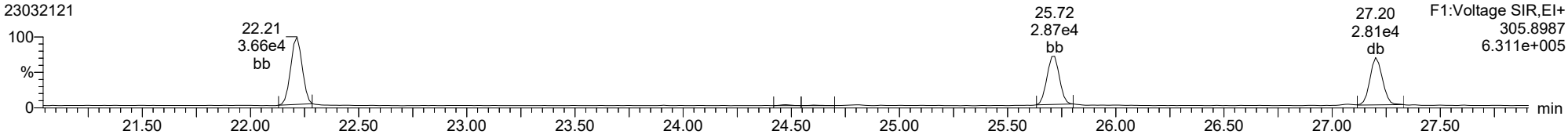

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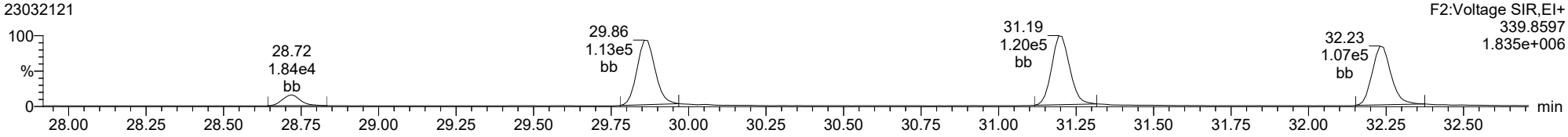

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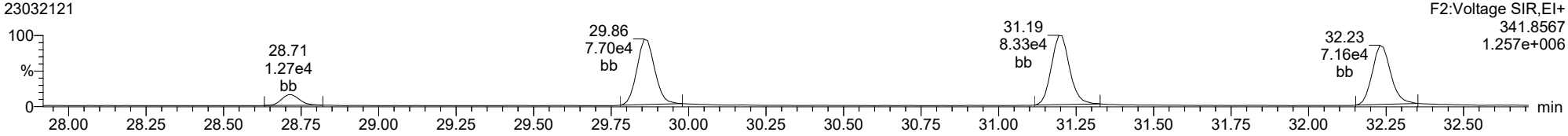

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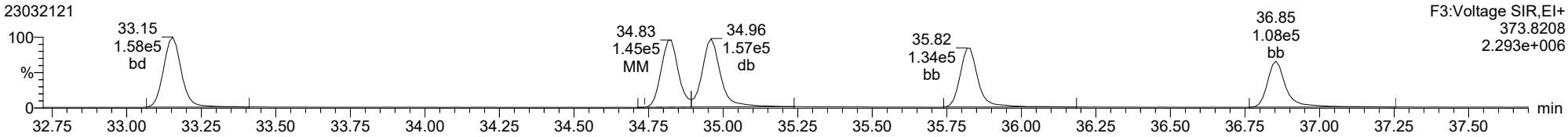

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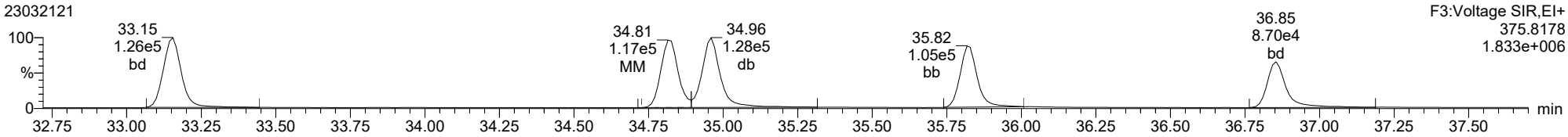

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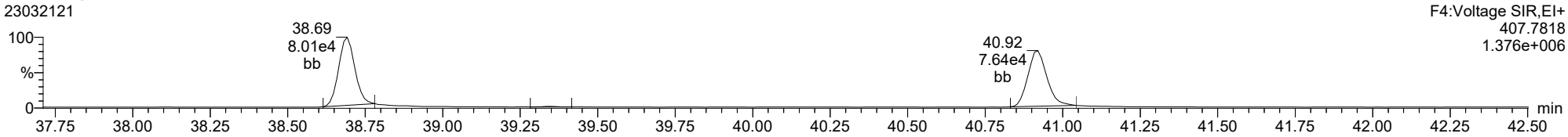
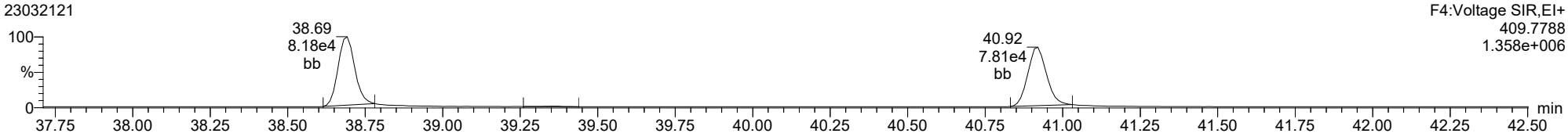
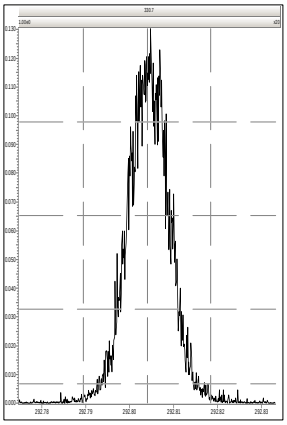


Total-heptafurans

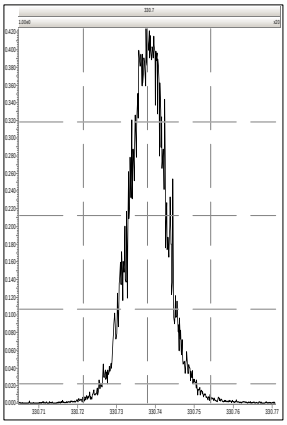


Printed: Wednesday, March 22, 2023 03:39:26 Pacific Daylight Time

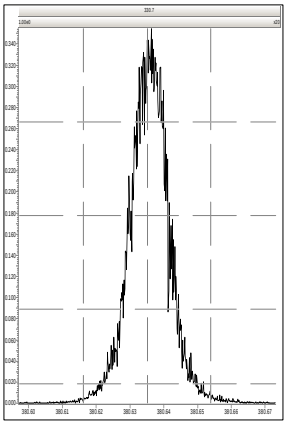
M 292.9824 R 14250



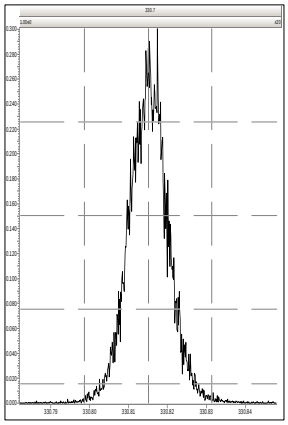
M 330.9792 R 14398



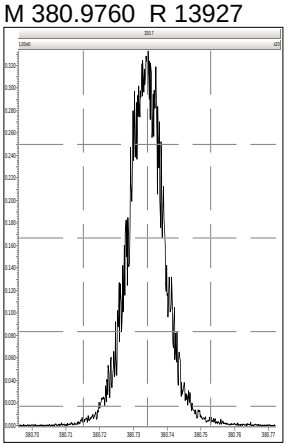
M 380.9760 R 14226



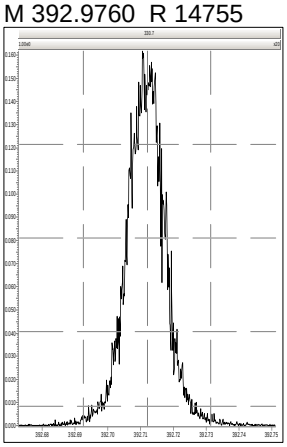
M 330.9792 R 14367



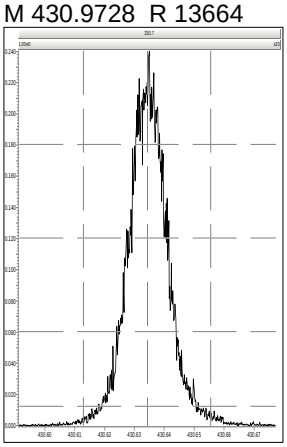
M 380.9760 R 13927



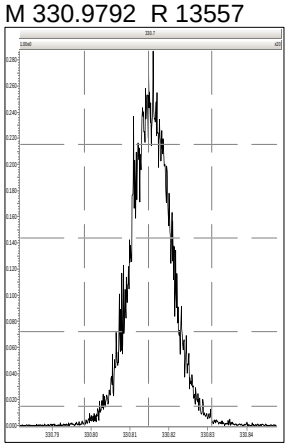
M 392.9760 R 14755



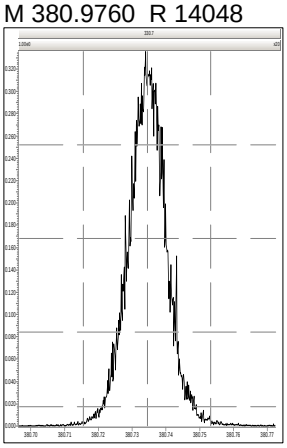
M 430.9728 R 13664



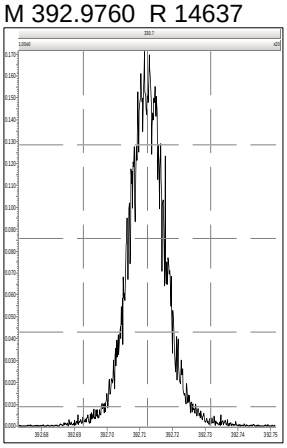
M 330.9792 R 13557



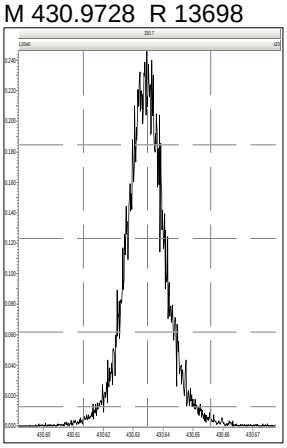
M 380.9760 R 14048



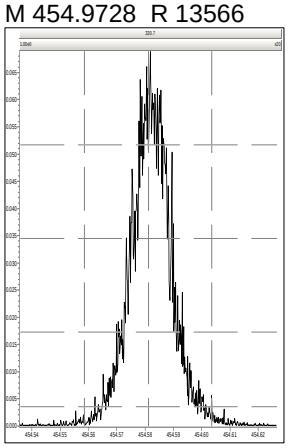
M 392.9760 R 14637



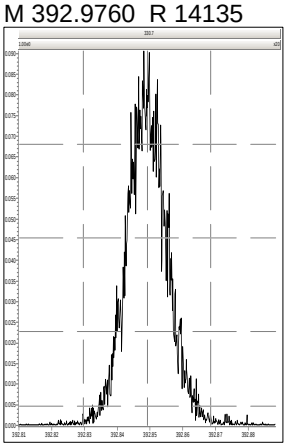
M 430.9728 R 13698



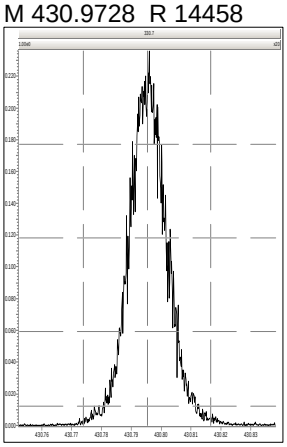
M 454.9728 R 13566



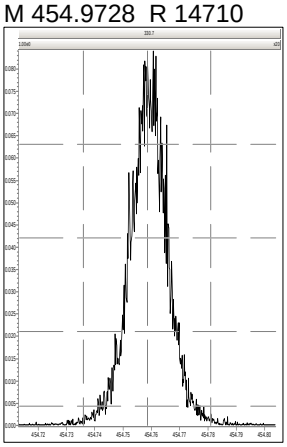
M 392.9760 R 14135



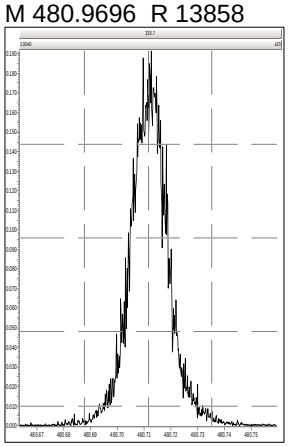
M 430.9728 R 14458



M 454.9728 R 14710

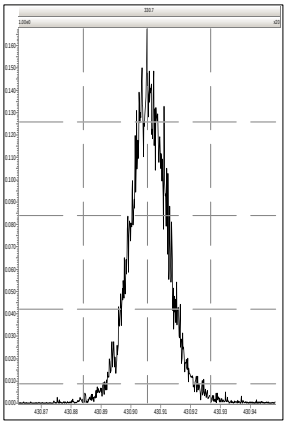


M 480.9696 R 13858

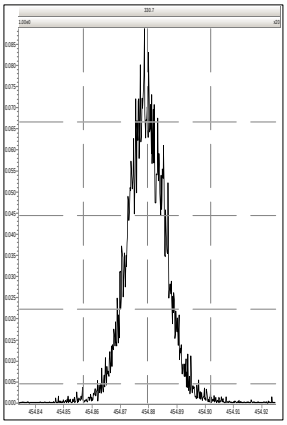


Printed: Wednesday, March 22, 2023 03:39:26 Pacific Daylight Time

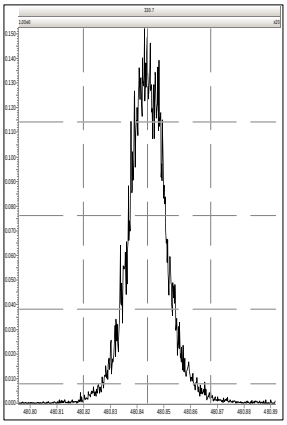
M 430.9728 R 14928



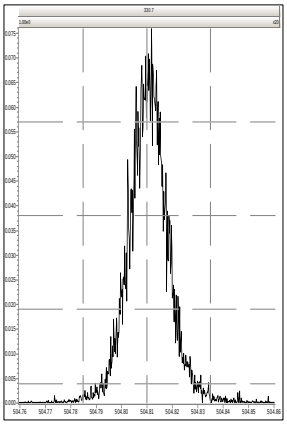
M 454.9728 R 15808



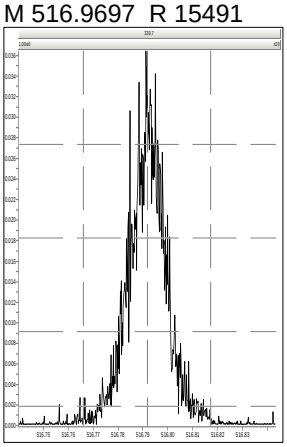
M 480.9696 R 13826

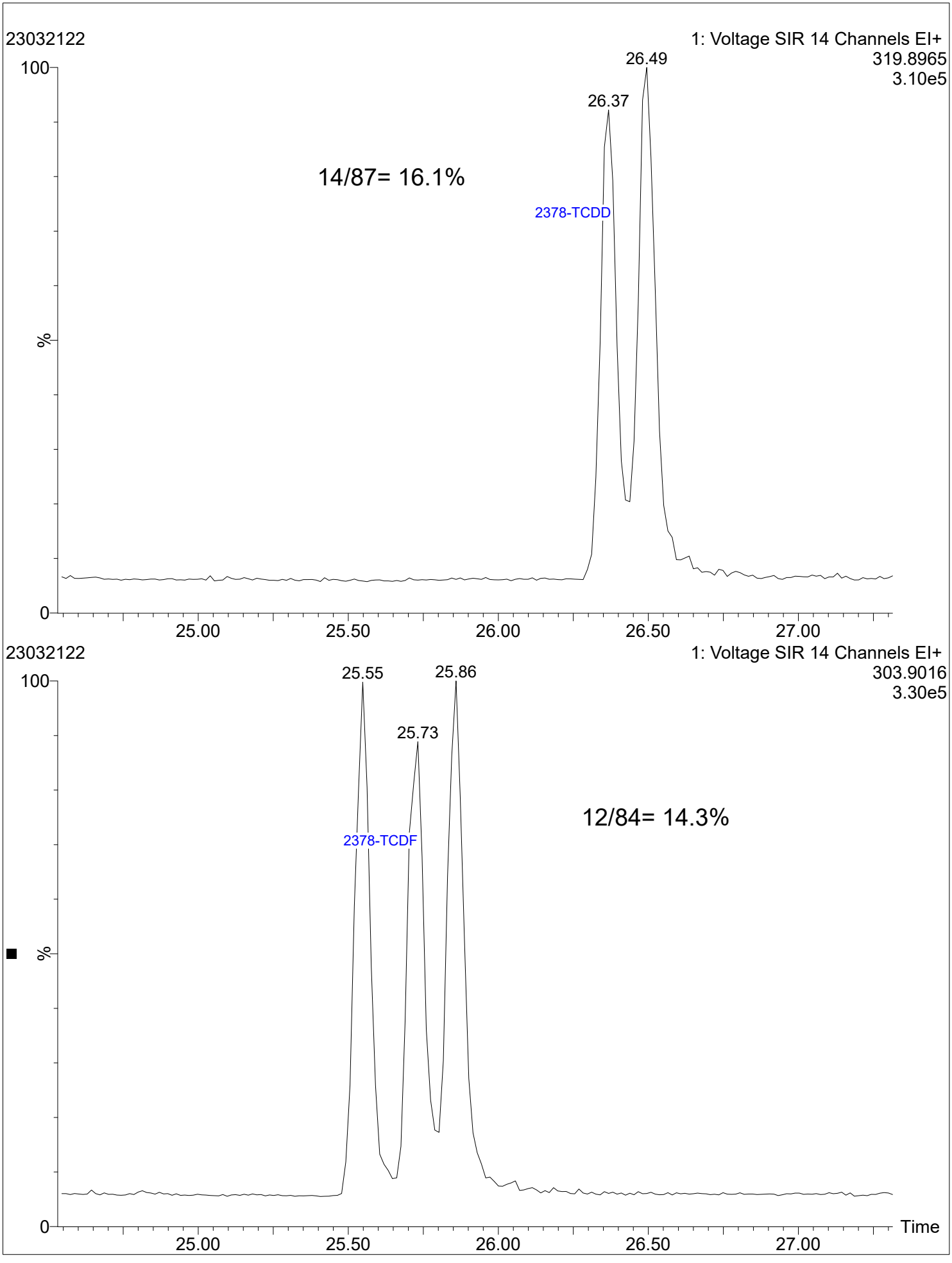


M 504.9696 R 14792



M 516.9697 R 15491




23032122
1: Voltage SIR 14 Channels EI+
319.8965
3.10e5
26.49
26.37
14/87= 16.1%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00
23032122
1: Voltage SIR 14 Channels EI+
303.9016
3.30e5
25.55
25.86
25.73
12/84= 14.3%
2378-TCDF
100
%
0
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC SDG: 23B0494

Instrument .ID: AUTOSPEC01 Lab File ID: 23030303

Date Analyzed: 03/03/23 Time Analyzed: 10:39

Lab Sample ID: SLC0045-RES1 Sequence: SLC0045

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 8.8

3467-TCDF/2378-TCDF: 8.2

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLC0045-ICV1	CS3W1	23030302	03/03/2023	09:51
SLC0045-RES1	ISCW1	23030303	03/03/2023	10:39
SLC0045-CAL1	CSLCW	23030304	03/03/2023	11:28
SLC0045-CAL2	CS1CW	23030305	03/03/2023	12:23
SLC0045-CAL3	CS2CW	23030306	03/03/2023	13:16
SLC0045-CAL4	CS3CW	23030307	03/03/2023	14:06
SLC0045-CAL5	CS4CW	23030308	03/03/2023	14:59
SLC0045-CAL6	CS5CW	23030309	03/03/2023	15:47
SLC0045-SCV1	ICVCW	23030310	03/03/2023	16:36
SLC0045-CCV1	CS3V4	23030311	03/03/2023	17:25
SLC0045-RES2	ISCV4	23030312	03/03/2023	18:18

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23B0494
Instrument .ID: AUTOSPEC01
Lab File ID: 23030312
Date Analyzed: 03/03/23
Time Analyzed: 18:18
Lab Sample ID: SLC0045-RES2
Sequence: SLC0045

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 12.9

3467-TCDF/2378-TCDF: 11.7

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLC0045-ICV1	CS3W1	23030302	03/03/2023	09:51
SLC0045-RES1	ISCW1	23030303	03/03/2023	10:39
SLC0045-CAL1	CSLCW	23030304	03/03/2023	11:28
SLC0045-CAL2	CS1CW	23030305	03/03/2023	12:23
SLC0045-CAL3	CS2CW	23030306	03/03/2023	13:16
SLC0045-CAL4	CS3CW	23030307	03/03/2023	14:06
SLC0045-CAL5	CS4CW	23030308	03/03/2023	14:59
SLC0045-CAL6	CS5CW	23030309	03/03/2023	15:47
SLC0045-SCV1	ICVCW	23030310	03/03/2023	16:36
SLC0045-CCV1	CS3V4	23030311	03/03/2023	17:25
SLC0045-RES2	ISCV4	23030312	03/03/2023	18:18

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23B0494
Instrument .ID: AUTOSPEC01
Lab File ID: 23032103
Date Analyzed: 03/21/23
Time Analyzed: 11:32
Lab Sample ID: SLC0322-RES1
Sequence: SLC0322

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 15.9

3467-TCDF/2378-TCDF: 15.1

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLC0322-ICV1	CS3A3	23032102	03/21/2023	10:35
SLC0322-RES1	ISCA3	23032103	03/21/2023	11:32
BLB0709-BLK1	DBLK03	23032108	03/21/2023	16:04
BLB0709-BS1	DLCS03	23032109	03/21/2023	16:52
BLB0709-SRM1	Reference	23032110	03/21/2023	17:41
BLB0709-DUP1	Duplicate	23032111	03/21/2023	18:30
23B0494-01	LDW21-IT635A	23032112	03/21/2023	19:19
23B0494-02	LDW21-IT635B	23032113	03/21/2023	20:08
SLC0322-CCV1	CS3A4	23032114	03/21/2023	20:57
SLC0322-RES2	ISCA4	23032115	03/21/2023	21:50
SLC0322-CCV2	CS3A5	23032121	03/22/2023	02:46
SLC0322-RES3	ISCA5	23032122	03/22/2023	03:39

Analytical Resources, LLC
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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23B0494
Instrument .ID: AUTOSPEC01
Lab File ID: 23032115
Date Analyzed: 03/21/23
Time Analyzed: 21:50
Lab Sample ID: SLC0322-RES2
Sequence: SLC0322

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 10.1

3467-TCDF/2378-TCDF: 10

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLC0322-ICV1	CS3A3	23032102	03/21/2023	10:35
SLC0322-RES1	ISCA3	23032103	03/21/2023	11:32
BLB0709-BLK1	DBLK03	23032108	03/21/2023	16:04
BLB0709-BS1	DLCS03	23032109	03/21/2023	16:52
BLB0709-SRM1	Reference	23032110	03/21/2023	17:41
BLB0709-DUP1	Duplicate	23032111	03/21/2023	18:30
23B0494-01	LDW21-IT635A	23032112	03/21/2023	19:19
23B0494-02	LDW21-IT635B	23032113	03/21/2023	20:08
SLC0322-CCV1	CS3A4	23032114	03/21/2023	20:57
SLC0322-RES2	ISCA4	23032115	03/21/2023	21:50
SLC0322-CCV2	CS3A5	23032121	03/22/2023	02:46
SLC0322-RES3	ISCA5	23032122	03/22/2023	03:39

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23B0494
Instrument .ID: AUTOSPEC01
Lab File ID: 23032122
Date Analyzed: 03/22/23
Time Analyzed: 03:39
Lab Sample ID: SLC0322-RES3
Sequence: SLC0322

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 16.1

3467-TCDF/2378-TCDF: 14.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLC0322-ICV1	CS3A3	23032102	03/21/2023	10:35
SLC0322-RES1	ISCA3	23032103	03/21/2023	11:32
BLB0709-BLK1	DBLK03	23032108	03/21/2023	16:04
BLB0709-BS1	DLCS03	23032109	03/21/2023	16:52
BLB0709-SRM1	Reference	23032110	03/21/2023	17:41
BLB0709-DUP1	Duplicate	23032111	03/21/2023	18:30
23B0494-01	LDW21-IT635A	23032112	03/21/2023	19:19
23B0494-02	LDW21-IT635B	23032113	03/21/2023	20:08
SLC0322-CCV1	CS3A4	23032114	03/21/2023	20:57
SLC0322-RES2	ISCA4	23032115	03/21/2023	21:50
SLC0322-CCV2	CS3A5	23032121	03/22/2023	02:46
SLC0322-RES3	ISCA5	23032122	03/22/2023	03:39

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0045	Instrument:	AUTOSPEC01
		Calibration:	GC00015

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3W1	SLC0045-ICV1	23030302	NA	03/03/23 09:51
ISCW1	SLC0045-RES1	23030303	NA	03/03/23 10:39
CSLCW	SLC0045-CAL1	23030304	NA	03/03/23 11:28
CS1CW	SLC0045-CAL2	23030305	NA	03/03/23 12:23
CS2CW	SLC0045-CAL3	23030306	NA	03/03/23 13:16
CS3CW	SLC0045-CAL4	23030307	NA	03/03/23 14:06
CS4CW	SLC0045-CAL5	23030308	NA	03/03/23 14:59
CS5CW	SLC0045-CAL6	23030309	NA	03/03/23 15:47
ICVCW	SLC0045-SCV1	23030310	NA	03/03/23 16:36
CS3V4	SLC0045-CCV1	23030311	NA	03/03/23 17:25
ISCV4	SLC0045-RES2	23030312	NA	03/03/23 18:18

ANALYSIS SEQUENCE

SLC0045

Instrument: AUTOSPEC01 HRGCMS Column ID: K2310
Calibration ID: GC00015 Tune File: FEB0923_1-5
EM Voltage: 350 Resolution check times : 9:51, 18:18

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLC0045-ICV1	CS3W1	QC		1	K009821		03/03/2023 09:51	23030302	PK	
SLC0045-RES1	ISCW1	QC		2	L002084		03/03/2023 10:39	23030303	PK	
SLC0045-CAL1	CSLCW	QC		3	I005460		03/03/2023 11:28	23030304	PK	
SLC0045-CAL2	CS1CW	QC		4	I005456		03/03/2023 12:23	23030305	PK	
SLC0045-CAL3	CS2CW	QC		5	I005457		03/03/2023 13:16	23030306	PK	
SLC0045-CAL4	CS3CW	QC		6	K009821		03/03/2023 14:06	23030307	PK	
SLC0045-CAL5	CS4CW	QC		7	I005458		03/03/2023 14:59	23030308	PK	
SLC0045-CAL6	CS5CW	QC		8	I005459		03/03/2023 15:47	23030309	PK	
SLC0045-SCV1	ICVCW	QC		9	H008219		03/03/2023 16:36	23030310	PK	
SLC0045-CCV1	CS3V4	QC		10	K009821		03/03/2023 17:25	23030311	PK	
SLC0045-RES2	ISCV4	QC		11	L002084		03/03/2023 18:18	23030312	PK	

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 10:58:44 Pacific Standard Time

3/6/23 PK

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Calibrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:23030304, Compound:TD, RT:26.410	1
Peak deleted	Sample:23030304, Compound:OD, RT:44.990	1
Peak deleted	Sample:23030304, Compound:TF, RT:25.774	1
Pre modification peak	Sample:23030305, Compound:TF, RT:25.774	2
Peak modified	Sample:23030305, Compound:TF, RT:25.774	2
Pre modification peak	Sample:23030304, Compound:HPD, RT:40.261	1
Peak modified	Sample:23030304, Compound:HPD, RT:40.261	1
Peak deleted	Sample:23030308, Compound:PF, RT:32.328	5
Peak deleted	Sample:23030309, Compound:PF, RT:32.307	6
Peak deleted	Sample:23030309, Compound:HF, RT:33.220	6
Peak deleted	Sample:23030309, Compound:TD, RT:27.017	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.995	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.917	6
Peak deleted	Sample:23030308, Compound:HD, RT:34.000	5
Peak deleted	Sample:23030308, Compound:HPD, RT:39.225	5
Peak deleted	Sample:23030309, Compound:HPD, RT:39.214	6
Pre modification peak	Sample:23030305, Compound:OF, RT:45.237	2
Peak modified	Sample:23030305, Compound:OF, RT:45.237	2
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230303ICIH.qld'	

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ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
		Calibration:	GC00015

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3A3	SLC0322-ICV1	23032102	NA	03/21/23 10:35
ISCA3	SLC0322-RES1	23032103	NA	03/21/23 11:32
Blank	BLB0709-BLK1	23032108	Solid	03/21/23 16:04
LCS	BLB0709-BS1	23032109	Solid	03/21/23 16:52
Reference	BLB0709-SRM1	23032110	Solid	03/21/23 17:41
LDW21-IT635A	BLB0709-DUP1	23032111	Solid	03/21/23 18:30
LDW21-IT635A	23B0494-01	23032112	Solid	03/21/23 19:19
LDW21-IT635B	23B0494-02	23032113	Solid	03/21/23 20:08
CS3A4	SLC0322-CCV1	23032114	NA	03/21/23 20:57
ISCA4	SLC0322-RES2	23032115	NA	03/21/23 21:50
CS3A5	SLC0322-CCV2	23032121	NA	03/22/23 02:46
ISCA5	SLC0322-RES3	23032122	NA	03/22/23 03:39

ANALYSIS SEQUENCE

SLC0322

Instrument: AUTOSPEC01 HRGCMS Column ID: K2311
Calibration ID: GC00015 Tune File: MAR2023_1-5
EM Voltage: 345 Resolution check times : 10:34, 21:50, 03:39

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLC0322-ICV1	CS3A3	QC		1	K009821		03/21/2023 10:35	23032102	PK	
SLC0322-RES1	ISCA3	QC		2	L002084		03/21/2023 11:32	23032103	PK	
BLB0331-BLK1	Blank	QC		3		K011414	03/21/2023 12:21	23032104	PK	
BLB0331-BS1	LCS	QC		4		K011414	03/21/2023 13:09	23032105	PK	
BLB0331-BSD1	LCS Dup	QC		5		K011414	03/21/2023 14:22	23032106	PK	
23B0128-01	Stormwater Sample	8290 Dioxin	A 01	6		K011414	03/21/2023 15:12	23032107	PK	
BLB0709-BLK1	DBLK03	QC		7		K011414	03/21/2023 16:04	23032108	PK	
BLB0709-BS1	DLCS03	QC		8		K011414	03/21/2023 16:52	23032109	PK	
BLB0709-SRM1	Reference	QC		9		K011414	03/21/2023 17:41	23032110	PK	
BLB0709-DUP1	Duplicate	QC		10		K011414	03/21/2023 18:30	23032111	PK	
23B0494-01	LDW21-IT635A	1613B Dioxin	B 01	11		K011414	03/21/2023 19:19	23032112	PK	
23B0494-02	LDW21-IT635B	1613B Dioxin	B 01	12		K011414	03/21/2023 20:08	23032113	PK	
SLC0322-CCV1	CS3A4	QC		13	K009821		03/21/2023 20:57	23032114	PK	
SLC0322-RES2	ISCA4	QC		14	L002084		03/21/2023 21:50	23032115	PK	
23B0506-01	S0-B4-4-6-0223	8290 Dioxin	A	15		K011414	03/21/2023 22:41	23032116	PK	
23B0506-02	S0-B6-4-6-0223	8290 Dioxin	A	16		K011414	03/21/2023 23:30	23032117	PK	
23B0506-03	S0-B8-6-8-0223	8290 Dioxin	A 01	17		K011414	03/22/2023 00:19	23032118	PK	
23B0506-04	S0-B10-8-10-0223	8290 Dioxin	A 01	18		K011414	03/22/2023 01:08	23032119	PK	
23B0506-05	S0-B12-2-4-0223	8290 Dioxin	A 01	19		K011414	03/22/2023 01:57	23032120	PK	
SLC0322-CCV2	CS3A5	QC		20	K009821		03/22/2023 02:46	23032121	PK	
SLC0322-RES3	ISCA5	QC		21	K003933		03/22/2023 03:39	23032122	PK	

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:16:21 Pacific Daylight Time 3/22/23 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak added	Sample:23032117, Compound:13C-123789-HxCDD, RT:36.553	16
Peak added	Sample:23032117, Compound:13C-123789-HxCDD, RT:36.553	16
Pre modification peak	Sample:23032117, Compound:13C-12378-PeCDD, RT:31.695	16
Peak modified	Sample:23032117, Compound:13C-12378-PeCDD, RT:31.695	16
Pre modification peak	Sample:23032117, Compound:13C-12378-PeCDD, RT:31.695	16
Peak modified	Sample:23032117, Compound:13C-12378-PeCDD, RT:31.695	16
Pre modification peak	Sample:23032117, Compound:13C-123789-HxCDF, RT:36.909	16
Peak modified	Sample:23032117, Compound:13C-123789-HxCDF, RT:36.909	16
Pre modification peak	Sample:23032117, Compound:13C-123789-HxCDF, RT:36.909	16
Peak modified	Sample:23032117, Compound:13C-123789-HxCDF, RT:36.909	16
Peak added	Sample:23032118, Compound:13C-123789-HxCDD, RT:36.653	17
Peak added	Sample:23032118, Compound:13C-123789-HxCDD, RT:36.653	17
Pre modification peak	Sample:23032118, Compound:13C-123478-HxCDD, RT:36.140	17
Peak modified	Sample:23032118, Compound:13C-123478-HxCDD, RT:36.140	17
Pre modification peak	Sample:23032118, Compound:13C-123478-HxCDD, RT:36.140	17
Peak modified	Sample:23032118, Compound:13C-123478-HxCDD, RT:36.140	17
Peak added	Sample:23032118, Compound:13C-12378-PeCDD, RT:31.840	17
Peak added	Sample:23032118, Compound:13C-12378-PeCDD, RT:31.851	17
Peak added	Sample:23032118, Compound:13C-2378-TCDD, RT:26.466	17
Peak added	Sample:23032118, Compound:13C-2378-TCDD, RT:26.466	17
Peak added	Sample:23032118, Compound:13C-1234-TCDD, RT:25.647	17
Peak added	Sample:23032118, Compound:13C-1234-TCDD, RT:25.647	17
Pre modification peak	Sample:23032118, Compound:13C-123478-HxCDF, RT:34.982	17
Peak modified	Sample:23032118, Compound:13C-123478-HxCDF, RT:34.982	17
Pre modification peak	Sample:23032118, Compound:13C-123478-HxCDF, RT:34.982	17
Peak modified	Sample:23032118, Compound:13C-123478-HxCDF, RT:34.982	17
Peak added	Sample:23032118, Compound:13C-23478-PeCDF, RT:31.517	17
Peak added	Sample:23032118, Compound:13C-23478-PeCDF, RT:31.517	17
Peak deleted	Sample:23032122, Compound:13C-123789-HxCDD, RT:36.419	21
Peak deleted	Sample:23032103, Compound:13C-1234-TCDD, RT:25.393	2
Peak deleted	Sample:23032104, Compound:HD, RT:36.453	3
Peak deleted	Sample:23032107, Compound:HF, RT:34.971	6
Pre modification peak	Sample:23032110, Compound:TF, RT:25.732	9
Peak modified	Sample:23032110, Compound:TF, RT:25.732	9
Pre modification peak	Sample:23032110, Compound:PF, RT:31.205	9
Peak modified	Sample:23032110, Compound:PF, RT:31.205	9
Pre modification peak	Sample:23032110, Compound:PF, RT:31.227	9
Peak modified	Sample:23032110, Compound:PF, RT:31.227	9
Pre modification peak	Sample:23032112, Compound:HF, RT:34.971	11
Peak modified	Sample:23032112, Compound:HF, RT:34.971	11
Pre modification peak	Sample:23032114, Compound:HF, RT:34.826	13
Peak modified	Sample:23032114, Compound:HF, RT:34.826	13
Pre modification peak	Sample:23032114, Compound:HF, RT:34.837	13
Peak modified	Sample:23032114, Compound:HF, RT:34.837	13
Pre modification peak	Sample:23032117, Compound:HD, RT:36.096	16
Peak modified	Sample:23032117, Compound:HD, RT:36.096	16
Pre modification peak	Sample:23032117, Compound:HD, RT:36.063	16
Peak modified	Sample:23032117, Compound:HD, RT:36.063	16
Peak added	Sample:23032117, Compound:HD, RT:36.063	16
Peak added	Sample:23032117, Compound:HD, RT:36.063	16
Peak added	Sample:23032117, Compound:HD, RT:36.063	16

Dataset: T:\Autospec\Processed Data Batch\230321.qld
Last Altered: Wednesday, March 22, 2023 11:15:51 Pacific Daylight Time
Printed: Wednesday, March 22, 2023 11:16:21 Pacific Daylight Time

Event	Details	Sample ID
Peak added	Sample:23032117, Compound:HD, RT:36.063	16
Peak modified	Sample:23032117, Compound:HD, RT:36.063	16
Pre modification peak	Sample:23032117, Compound:HD, RT:36.564	16
Peak modified	Sample:23032117, Compound:HD, RT:36.564	16
Peak deleted	Sample:23032119, Compound:HD, RT:36.453	18
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230321.qld'	
Peak deleted	Sample:23032104, Compound:TD, RT:25.704	3
Peak deleted	Sample:23032105, Compound:PF, RT:32.263	4
Peak deleted	Sample:23032105, Compound:PF, RT:31.606	4
Peak deleted	Sample:23032106, Compound:HF, RT:36.252	5
Peak deleted	Sample:23032106, Compound:HF, RT:35.617	5
Peak deleted	Sample:23032106, Compound:HD, RT:36.853	5
Peak deleted	Sample:23032106, Compound:HPD, RT:40.541	5
Peak deleted	Sample:23032109, Compound:HD, RT:36.854	8
Peak deleted	Sample:23032110, Compound:TF, RT:25.195	9
Peak deleted	Sample:23032110, Compound:HD, RT:36.954	9
Peak deleted	Sample:23032112, Compound:HD, RT:34.158	11
Peak deleted	Sample:23032113, Compound:HPD, RT:40.575	12
Peak deleted	Sample:23032116, Compound:TD, RT:24.178	15
Peak deleted	Sample:23032118, Compound:PF, RT:32.208	17
Peak deleted	Sample:23032118, Compound:PF, RT:32.085	17
Peak deleted	Sample:23032118, Compound:HF, RT:33.099	17
Peak deleted	Sample:23032118, Compound:TD, RT:26.594	17
Peak deleted	Sample:23032118, Compound:TD, RT:24.602	17
Peak deleted	Sample:23032118, Compound:HD, RT:35.951	17
Pre modification peak	Sample:23032121, Compound:HF, RT:34.815	20
Peak modified	Sample:23032121, Compound:HF, RT:34.815	20
Pre modification peak	Sample:23032121, Compound:HF, RT:34.826	20
Peak modified	Sample:23032121, Compound:HF, RT:34.826	20
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230321.qld'	

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0045	Instrument:	AUTOSPEC01
Sample ID:	SLC0045-ICV1	Calibration:	GC00015
File ID:	23030302	Analyzed:	03/03/23 09:51

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	94.0	71 - 129	25.7745	25.76487	0.0096	N/A	
13C12-2,3,7,8-TCDD	100.00	102	82 - 118	26.4242	26.40287	0.0213	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	92.2	76 - 124	29.9337	29.92235	0.0114	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	87.6	77 - 123	31.2707	31.2611	0.0096	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	84.3	62 - 138	31.5268	31.5192	0.0076	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	84.0	76 - 124	34.8915	34.88393	0.0076	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	74.6	70 - 130	35.0363	35.02318	0.0131	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.7	73 - 127	35.8942	35.88653	0.0077	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	99.9	74 - 126	36.9303	36.91718	0.0131	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	93.5	85 - 115	36.0167	36.00728	0.0094	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	86.9	85 - 115	36.1393	36.12053	0.0188	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	95.3	78 - 122	38.7685	38.7593	0.0092	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	98.7	77 - 123	41.008	40.99867	0.0093	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	105	72 - 128	40.2615	40.25773	0.0038	N/A	
13C12-OCDD	200.00	107	48 - 152	44.9993	44.98705	0.0122	N/A	
37Cl4-2,3,7,8-TCDD	10.000	90.5	0 - 200	26.4383	26.42402	0.0143	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0045	Instrument:	AUTOSPEC01
Sample ID:	SLC0045-SCV1	Calibration:	GC00015
File ID:	23030310	Analyzed:	03/03/23 16:36

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	96.9	0 - 200	25.7602	25.76487	-0.0047	N/A	
13C12-2,3,7,8-TCDD	100.00	96.6	0 - 200	26.3958	26.40287	-0.0071	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	73.2	0 - 200	29.9225	29.92235	0.0001	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	75.9	0 - 200	31.2593	31.2611	-0.0018	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	76.6	0 - 200	31.5155	31.5192	-0.0037	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.0	0 - 200	34.8802	34.88393	-0.0037	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	98.0	0 - 200	35.014	35.02318	-0.0092	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.4	0 - 200	35.8828	35.88653	-0.0037	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	97.9	0 - 200	36.9078	36.91718	-0.0094	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.9	0 - 200	36.0053	36.00728	-0.0020	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.7	0 - 200	36.1168	36.12053	-0.0037	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	0 - 200	38.7573	38.7593	-0.0020	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	104	0 - 200	40.9967	40.99867	-0.0020	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	102	0 - 200	40.2502	40.25773	-0.0075	N/A	
13C12-OCDD	200.00	80.8	0 - 200	44.9807	44.98705	-0.0064	N/A	
37Cl4-2,3,7,8-TCDD	10.000	87.1	0 - 200	26.4242	26.42402	0.0002	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0045	Instrument:	AUTOSPEC01
Sample ID:	SLC0045-CCV1	Calibration:	GC00015
File ID:	23030311	Analyzed:	03/03/23 17:25

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	89.4	71 - 129	25.7602	25.76487	-0.0047	N/A	
13C12-2,3,7,8-TCDD	100.00	86.0	82 - 118	26.3958	26.40287	-0.0071	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	92.6	76 - 124	29.9225	29.92235	0.0001	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	91.6	77 - 123	31.2593	31.2611	-0.0018	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	90.8	62 - 138	31.5157	31.5192	-0.0035	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.2	76 - 124	34.8805	34.88393	-0.0034	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	91.1	70 - 130	35.0253	35.02318	0.0021	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	96.9	73 - 127	35.883	35.88653	-0.0035	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	101	74 - 126	36.9193	36.91718	0.0021	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	97.6	85 - 115	36.0057	36.00728	-0.0016	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	98.4	85 - 115	36.117	36.12053	-0.0035	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	78 - 122	38.7577	38.7593	-0.0016	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	84.3	77 - 123	40.997	40.99867	-0.0017	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	92.0	72 - 128	40.2617	40.25773	0.0040	N/A	
13C12-OCDD	200.00	85.1	48 - 152	44.9903	44.98705	0.0032	N/A	
37Cl4-2,3,7,8-TCDD	10.000	75.4	0 - 200	26.424	26.42402	0.0000	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	SLC0322-ICV1	Calibration:	GC00015
File ID:	23032102	Analyzed:	03/21/23 10:35

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	95.5	71 - 129	25.746	25.76487	-0.0189	N/A	
13C12-2,3,7,8-TCDD	100.00	98.7	82 - 118	26.3817	26.40287	-0.0212	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	107	76 - 124	29.8903	29.92235	-0.0321	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	102	77 - 123	31.2272	31.2611	-0.0339	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	90.3	62 - 138	31.4947	31.5192	-0.0245	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	85.5	76 - 124	34.8482	34.88393	-0.0357	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	90.0	70 - 130	34.993	35.02318	-0.0302	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	91.7	73 - 127	35.8508	35.88653	-0.0357	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	85.1	74 - 126	36.887	36.91718	-0.0302	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.2	85 - 115	35.9735	36.00728	-0.0338	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	101	85 - 115	36.096	36.12053	-0.0245	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	104	78 - 122	38.7255	38.7593	-0.0338	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	99.0	77 - 123	40.9537	40.99867	-0.0450	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	83.9	82 - 118	40.2183	40.25773	-0.0394	N/A	
13C12-OCDD	200.00	107	48 - 152	44.9368	44.98705	-0.0503	N/A	
37Cl4-2,3,7,8-TCDD	10.000	82.8	79 - 121	26.4098	26.42402	-0.0142	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	BLB0709-BLK1	Calibration:	GC00015
File ID:	23032108	Analyzed:	03/21/23 16:04

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	84.4	24 - 169	25.7318	25.76487	-0.0331	N/A	
13C12-2,3,7,8-TCDD	100.00	91.6	25 - 164	26.3675	26.40287	-0.0354	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	109	24 - 185	29.8793	29.92235	-0.0431	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	108	21 - 178	31.2162	31.2611	-0.0449	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	106	25 - 181	31.4725	31.5192	-0.0467	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	108	26 - 152	34.837	34.88393	-0.0469	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	113	26 - 123	34.9708	35.02318	-0.0524	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	104	28 - 136	35.8398	35.88653	-0.0467	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	95.7	29 - 147	36.8648	36.91718	-0.0524	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	109	32 - 141	35.9625	36.00728	-0.0448	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	114	28 - 130	36.0738	36.12053	-0.0467	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	96.2	28 - 143	38.7032	38.7593	-0.0561	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	90.4	26 - 138	40.9313	40.99867	-0.0674	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	85.9	23 - 140	40.196	40.25773	-0.0617	N/A	
13C12-OCDD	200.00	90.7	17 - 157	44.9	44.98705	-0.0871	N/A	
37Cl4-2,3,7,8-TCDD	79.920	70.7	35 - 197	26.3817	26.42402	-0.0423	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	BLB0709-BS1	Calibration:	GC00015
File ID:	23032109	Analyzed:	03/21/23 16:52

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	49.1	24 - 169	25.7178	25.76487	-0.0471	N/A	
13C12-2,3,7,8-TCDD	100.00	63.8	25 - 164	26.3675	26.40287	-0.0354	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	98.7	24 - 185	29.8682	29.92235	-0.0541	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	93.7	21 - 178	31.205	31.2611	-0.0561	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	95.1	25 - 181	31.4612	31.5192	-0.0580	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	101	26 - 152	34.826	34.88393	-0.0579	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	107	26 - 123	34.9597	35.02318	-0.0635	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	108	28 - 136	35.8287	35.88653	-0.0578	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	94.5	29 - 147	36.8537	36.91718	-0.0635	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	106	32 - 141	35.9513	36.00728	-0.0560	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	114	28 - 130	36.0627	36.12053	-0.0578	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	108	28 - 143	38.6922	38.7593	-0.0671	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	96.5	26 - 138	40.9205	40.99867	-0.0782	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	87.9	23 - 140	40.185	40.25773	-0.0727	N/A	
13C12-OCDD	200.00	100	17 - 157	44.8912	44.98705	-0.0959	N/A	
37Cl4-2,3,7,8-TCDD	79.920	50.0	35 - 197	26.3817	26.42402	-0.0423	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	BLB0709-SRM1	Calibration:	GC00015
File ID:	23032110	Analyzed:	03/21/23 17:41

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	73.6	24 - 169	25.7178	25.76487	-0.0471	N/A	
13C12-2,3,7,8-TCDD	100.00	85.7	25 - 164	26.3533	26.40287	-0.0496	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	95.0	24 - 185	29.8682	29.92235	-0.0541	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	96.4	21 - 178	31.205	31.2611	-0.0561	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	87.3	25 - 181	31.4612	31.5192	-0.0580	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	85.0	26 - 152	34.8258	34.88393	-0.0581	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	80.8	26 - 123	34.9707	35.02318	-0.0525	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	89.4	28 - 136	35.8508	35.88653	-0.0357	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	87.7	29 - 147	36.8535	36.91718	-0.0637	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	94.5	32 - 141	35.9733	36.00728	-0.0340	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	93.0	28 - 130	36.0848	36.12053	-0.0357	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	82.1	28 - 143	38.703	38.7593	-0.0563	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	92.6	26 - 138	40.9202	40.99867	-0.0785	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	84.0	23 - 140	40.1848	40.25773	-0.0729	N/A	
13C12-OCDD	200.00	84.5	17 - 157	44.9	44.98705	-0.0871	N/A	
37Cl4-2,3,7,8-TCDD	80.000	68.2	35 - 197	26.3817	26.42402	-0.0423	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	BLB0709-DUP1	Calibration:	GC00015
File ID:	23032111	Analyzed:	03/21/23 18:30

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	68.7	24 - 169	25.7318	25.76487	-0.0331	N/A	
13C12-2,3,7,8-TCDD	100.00	83.5	25 - 164	26.3673	26.40287	-0.0356	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	92.1	24 - 185	29.879	29.92235	-0.0434	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	94.4	21 - 178	31.2158	31.2611	-0.0453	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	91.5	25 - 181	31.4722	31.5192	-0.0470	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	82.8	26 - 152	34.8367	34.88393	-0.0472	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	76.9	26 - 123	34.9815	35.02318	-0.0417	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.3	28 - 136	35.8393	35.88653	-0.0472	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	92.9	29 - 147	36.8643	36.91718	-0.0529	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	94.9	32 - 141	35.973	36.00728	-0.0343	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	89.1	28 - 130	36.0845	36.12053	-0.0360	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	78.9	28 - 143	38.7138	38.7593	-0.0455	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	83.1	26 - 138	40.9422	40.99867	-0.0565	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	78.5	23 - 140	40.1957	40.25773	-0.0620	N/A	
13C12-OCDD	200.00	74.9	17 - 157	44.9178	44.98705	-0.0693	N/A	
37Cl4-2,3,7,8-TCDD	79.906	66.7	35 - 197	26.3815	26.42402	-0.0425	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	23B0494-01	Calibration:	GC00015
File ID:	23032112	Analyzed:	03/21/23 19:19

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	44.1	24 - 169	25.7037	25.76487	-0.0612	N/A	
13C12-2,3,7,8-TCDD	100.00	50.7	25 - 164	26.3393	26.40287	-0.0636	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	48.7	24 - 185	29.857	29.92235	-0.0654	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	50.6	21 - 178	31.194	31.2611	-0.0671	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	48.0	25 - 181	31.4503	31.5192	-0.0689	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	46.3	26 - 152	34.815	34.88393	-0.0689	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	41.6	26 - 123	34.9487	35.02318	-0.0745	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	46.8	28 - 136	35.8178	35.88653	-0.0687	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	48.4	29 - 147	36.8428	36.91718	-0.0744	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	51.6	32 - 141	35.9403	36.00728	-0.0670	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	48.0	28 - 130	36.0518	36.12053	-0.0687	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	42.9	28 - 143	38.6813	38.7593	-0.0780	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	41.0	26 - 138	40.9095	40.99867	-0.0892	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	39.8	23 - 140	40.1742	40.25773	-0.0835	N/A	
13C12-OCDD	200.00	39.9	17 - 157	44.8823	44.98705	-0.1048	N/A	
37Cl4-2,3,7,8-TCDD	79.906	70.6	35 - 197	26.3677	26.42402	-0.0563	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	23B0494-02	Calibration:	GC00015
File ID:	23032113	Analyzed:	03/21/23 20:08

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	91.4	24 - 169	25.732	25.76487	-0.0329	N/A	
13C12-2,3,7,8-TCDD	100.00	102	25 - 164	26.3675	26.40287	-0.0354	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	103	24 - 185	29.8793	29.92235	-0.0431	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	112	21 - 178	31.2163	31.2611	-0.0448	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	107	25 - 181	31.4725	31.5192	-0.0467	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	87.0	26 - 152	34.8372	34.88393	-0.0467	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	81.9	26 - 123	34.9708	35.02318	-0.0524	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	87.3	28 - 136	35.84	35.88653	-0.0465	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	93.3	29 - 147	36.8648	36.91718	-0.0524	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	92.2	32 - 141	35.9625	36.00728	-0.0448	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	90.2	28 - 130	36.085	36.12053	-0.0355	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	73.0	28 - 143	38.7032	38.7593	-0.0561	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	79.3	26 - 138	40.9425	40.99867	-0.0562	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	70.3	23 - 140	40.1963	40.25773	-0.0614	N/A	
13C12-OCDD	200.00	77.3	17 - 157	44.9185	44.98705	-0.0686	N/A	
37Cl4-2,3,7,8-TCDD	79.929	83.0	35 - 197	26.3817	26.42402	-0.0423	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	SLC0322-CCV1	Calibration:	GC00015
File ID:	23032114	Analyzed:	03/21/23 20:57

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	86.6	71 - 129	25.7035	25.76487	-0.0614	N/A	
13C12-2,3,7,8-TCDD	100.00	95.2	82 - 118	26.3392	26.40287	-0.0637	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	91.7	76 - 124	29.8568	29.92235	-0.0656	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	96.4	77 - 123	31.1938	31.2611	-0.0673	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	88.7	62 - 138	31.45	31.5192	-0.0692	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	90.2	76 - 124	34.8145	34.88393	-0.0694	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	86.0	70 - 130	34.9593	35.02318	-0.0639	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	90.8	73 - 127	35.8173	35.88653	-0.0692	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	91.3	74 - 126	36.8422	36.91718	-0.0750	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	94.8	85 - 115	35.9398	36.00728	-0.0675	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	92.0	85 - 115	36.0513	36.12053	-0.0692	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	87.0	78 - 122	38.6917	38.7593	-0.0676	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	87.1	77 - 123	40.92	40.99867	-0.0787	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	78.7	72 - 118	40.1847	40.25773	-0.0730	N/A	
13C12-OCDD	200.00	91.2	48 - 152	44.8817	44.98705	-0.1054	N/A	
37Cl4-2,3,7,8-TCDD	10.000	78.9	35 - 121	26.3675	26.42402	-0.0565	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0322	Instrument:	AUTOSPEC01
Sample ID:	SLC0322-CCV2	Calibration:	GC00015
File ID:	23032121	Analyzed:	03/22/23 02:46

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	86.9	71 - 129	25.6895	25.76487	-0.0754	N/A	
13C12-2,3,7,8-TCDD	100.00	95.8	82 - 118	26.3393	26.40287	-0.0636	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	95.4	76 - 124	29.8457	29.92235	-0.0767	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	98.9	77 - 123	31.1827	31.2611	-0.0784	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	93.6	62 - 138	31.4388	31.5192	-0.0804	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	105	76 - 124	34.8037	34.88393	-0.0802	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	103	70 - 130	34.9373	35.02318	-0.0859	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	101	73 - 127	35.8063	35.88653	-0.0802	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	92.3	74 - 126	36.8313	36.91718	-0.0859	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	100	85 - 115	35.9288	36.00728	-0.0785	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.7	85 - 115	36.0403	36.12053	-0.0802	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	93.9	78 - 122	38.6808	38.7593	-0.0785	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	102	77 - 123	40.898	40.99867	-0.1007	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	90.6	82 - 118	40.1625	40.25773	-0.0952	N/A	
13C12-OCDD	200.00	104	48 - 152	44.8635	44.98705	-0.1236	N/A	
37Cl4-2,3,7,8-TCDD	10.000	80.9	79 - 121	26.3533	26.42402	-0.0707	N/A	

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LDW21-IT635A 23B0494-01	07/16/21 12:56	02/24/23 08:41	02/28/23 06:55	591	365	03/21/23 19:19	22	365	*
LDW21-IT635B 23B0494-02	07/16/21 12:56	02/24/23 08:41	02/28/23 06:55	591	365	03/21/23 20:08	22	365	*
Duplicate BLB0709-DUP1	07/16/21 12:56	02/24/23 08:41	02/28/23 06:55	591	365	03/21/23 18:30	21	365	*

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	0.058	1.00	ng/kg
2,3,7,8-TCDD	0.150	1.00	ng/kg
1,2,3,7,8-PeCDF	0.240	1.00	ng/kg
2,3,4,7,8-PeCDF	0.220	1.00	ng/kg
1,2,3,7,8-PeCDD	0.170	1.00	ng/kg
1,2,3,4,7,8-HxCDF	0.280	1.00	ng/kg
1,2,3,6,7,8-HxCDF	0.200	1.00	ng/kg
2,3,4,6,7,8-HxCDF	0.170	1.00	ng/kg
1,2,3,7,8,9-HxCDF	0.190	1.00	ng/kg
1,2,3,4,7,8-HxCDD	0.170	1.00	ng/kg
1,2,3,6,7,8-HxCDD	0.180	1.00	ng/kg
1,2,3,7,8,9-HxCDD	0.220	1.00	ng/kg
1,2,3,4,6,7,8-HpCDF	0.210	1.00	ng/kg
1,2,3,4,7,8,9-HpCDF	0.240	1.00	ng/kg
1,2,3,4,6,7,8-HpCDD	0.560	2.50	ng/kg
OCDF	1.10	2.50	ng/kg
OCDD	4.60	10.0	ng/kg
Total TCDF		1.00	ng/kg
Total TCDD		1.00	ng/kg
Total PeCDF		1.00	ng/kg
Total PeCDD		1.00	ng/kg
Total HxCDF		1.00	ng/kg
Total HxCDD		1.00	ng/kg
Total HpCDF		1.00	ng/kg
Total HpCDD		1.00	ng/kg

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT0918
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/24/2018
LAST TESTED: (mm/dd/yyyy)	10/29/2018
EXPIRY DATE: (mm/dd/yyyy)	10/29/2025
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native and $^{13}C_{12}$-labelled chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

CS3WT was designed and prepared to be used as a HRMS calibration standard according to U.S. EPA Method 1613B.

It is to be used for calibration verification in place of EPA-1613CS3 (Lot: 13CS30918). It also contains the PCDD and PCDF window defining congeners for a DB-5 (or equivalent) capillary column as well as the TCDD isomers required to test and confirm the resolution of 2,3,7,8-TCDD.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS10918
EPA-1613CS2	13CS20918
EPA-1613CS3	13CS30918
EPA-1613CS4	13CS40918
EPA-1613CS5	13CS50918
EPA-1613CSL	13CSL0918
EPA-1613CS0.5	13CS0.50918

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)	
Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)	
Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

WD – Window Definer

Certified By: _____ **Date:** 10/30/2018
(mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

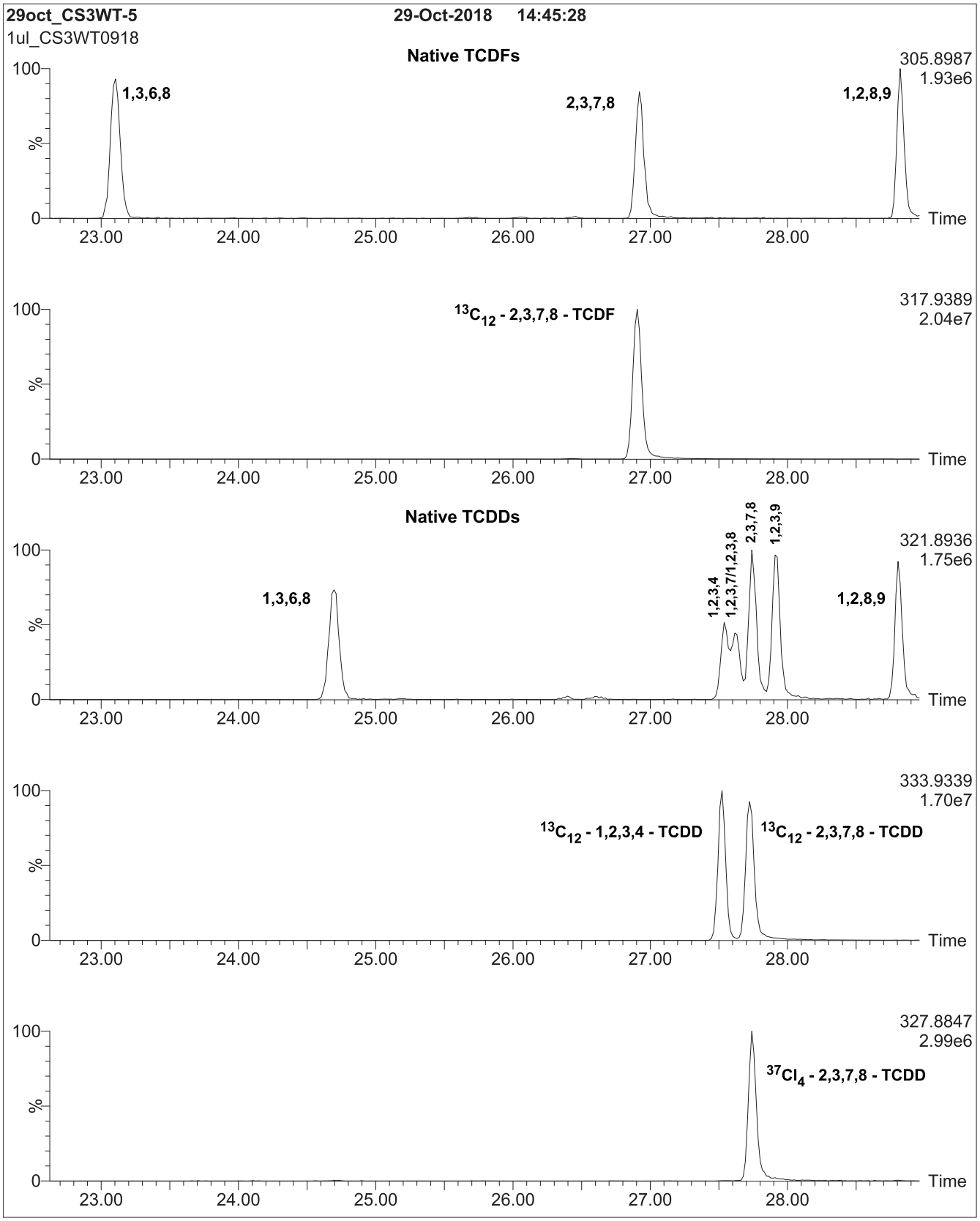


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

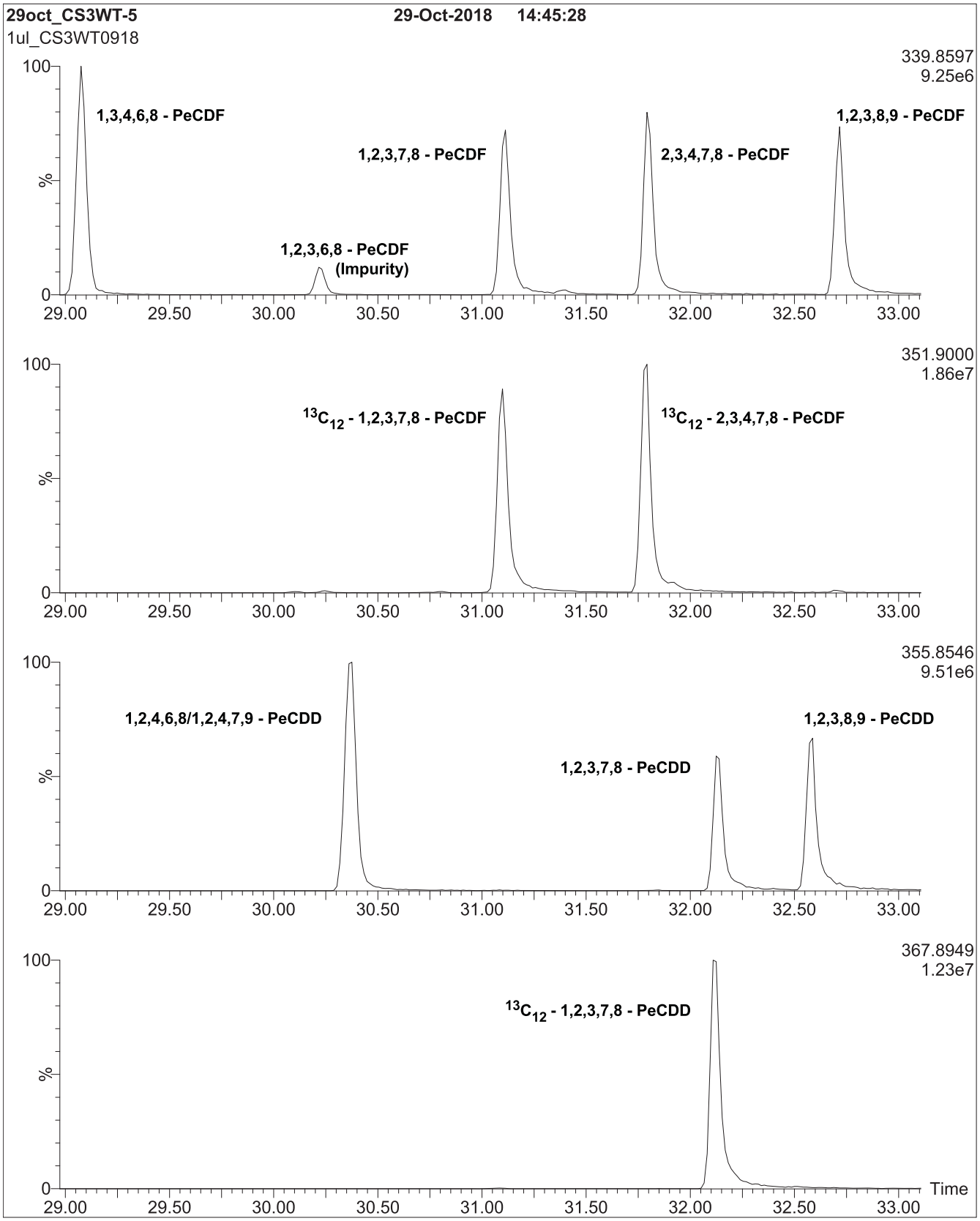


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

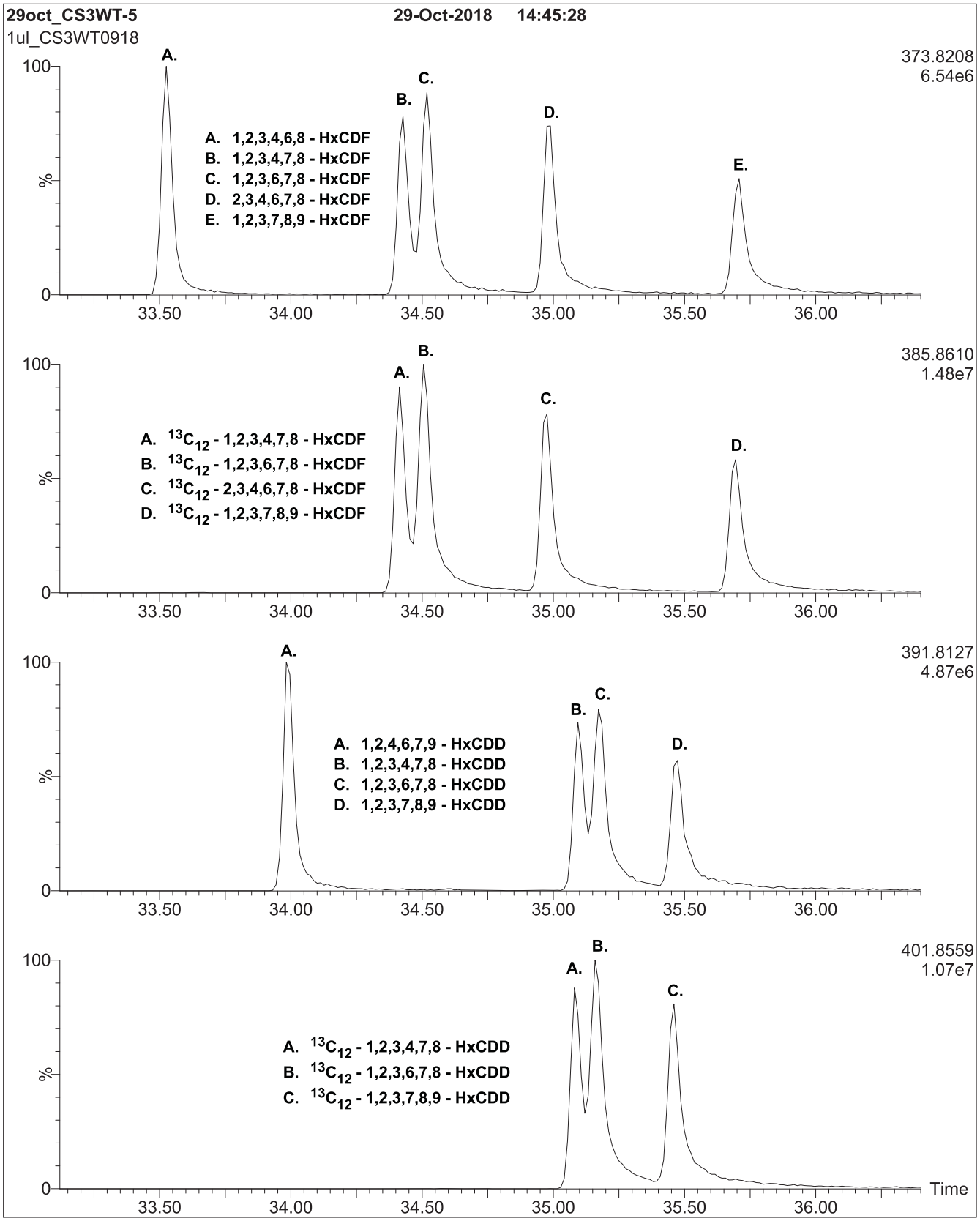


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

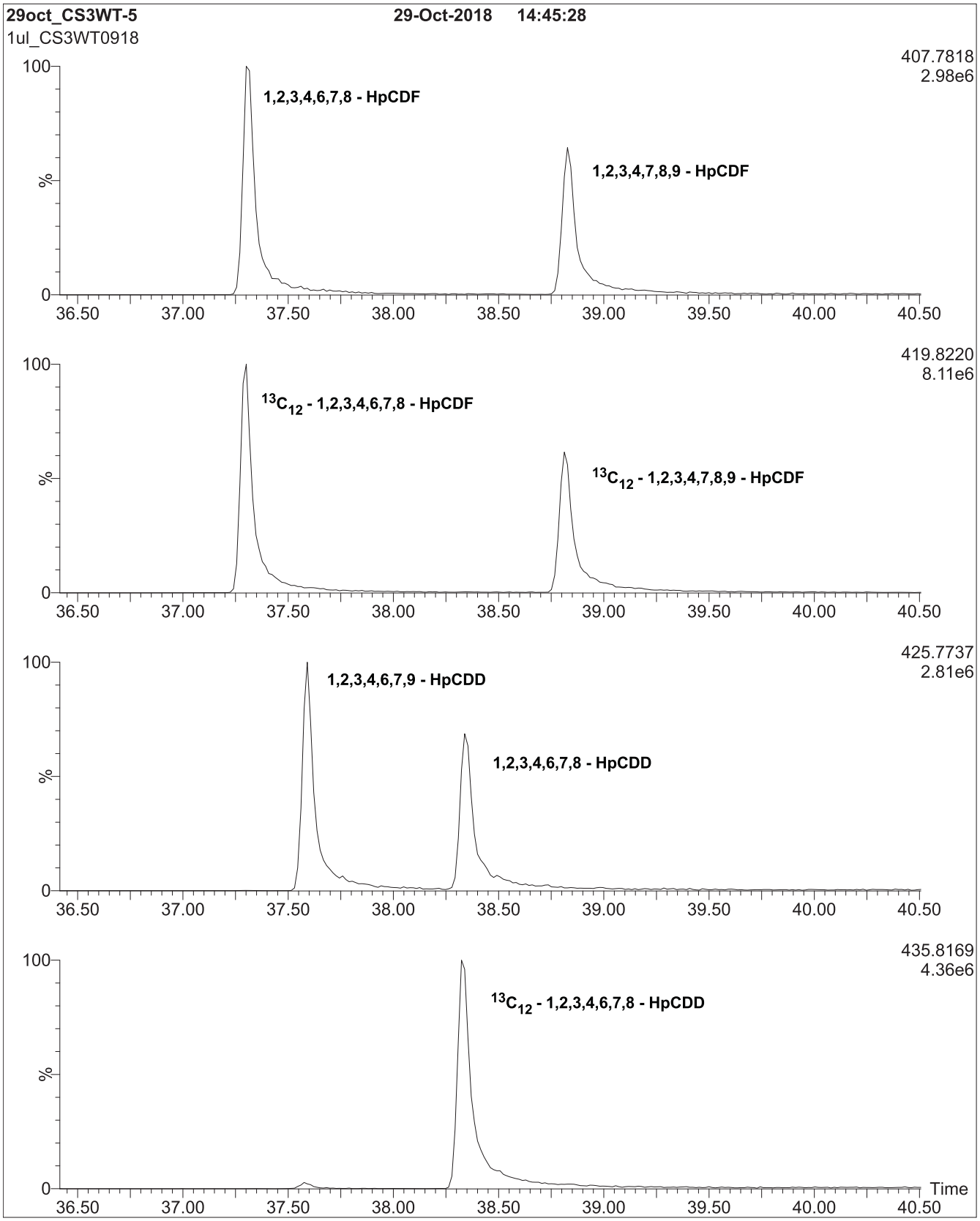
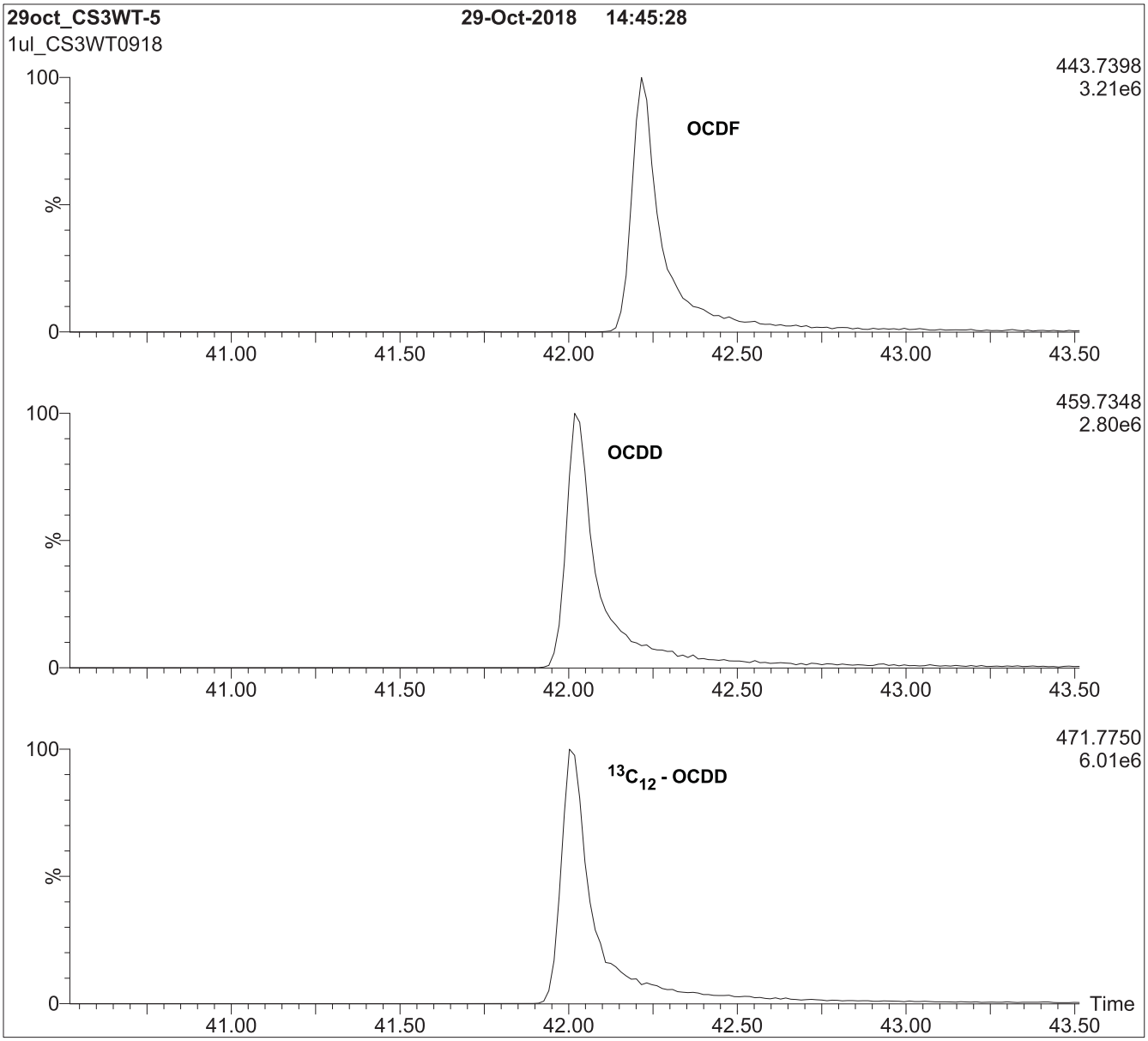


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005456
1613 CS1 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By:  **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

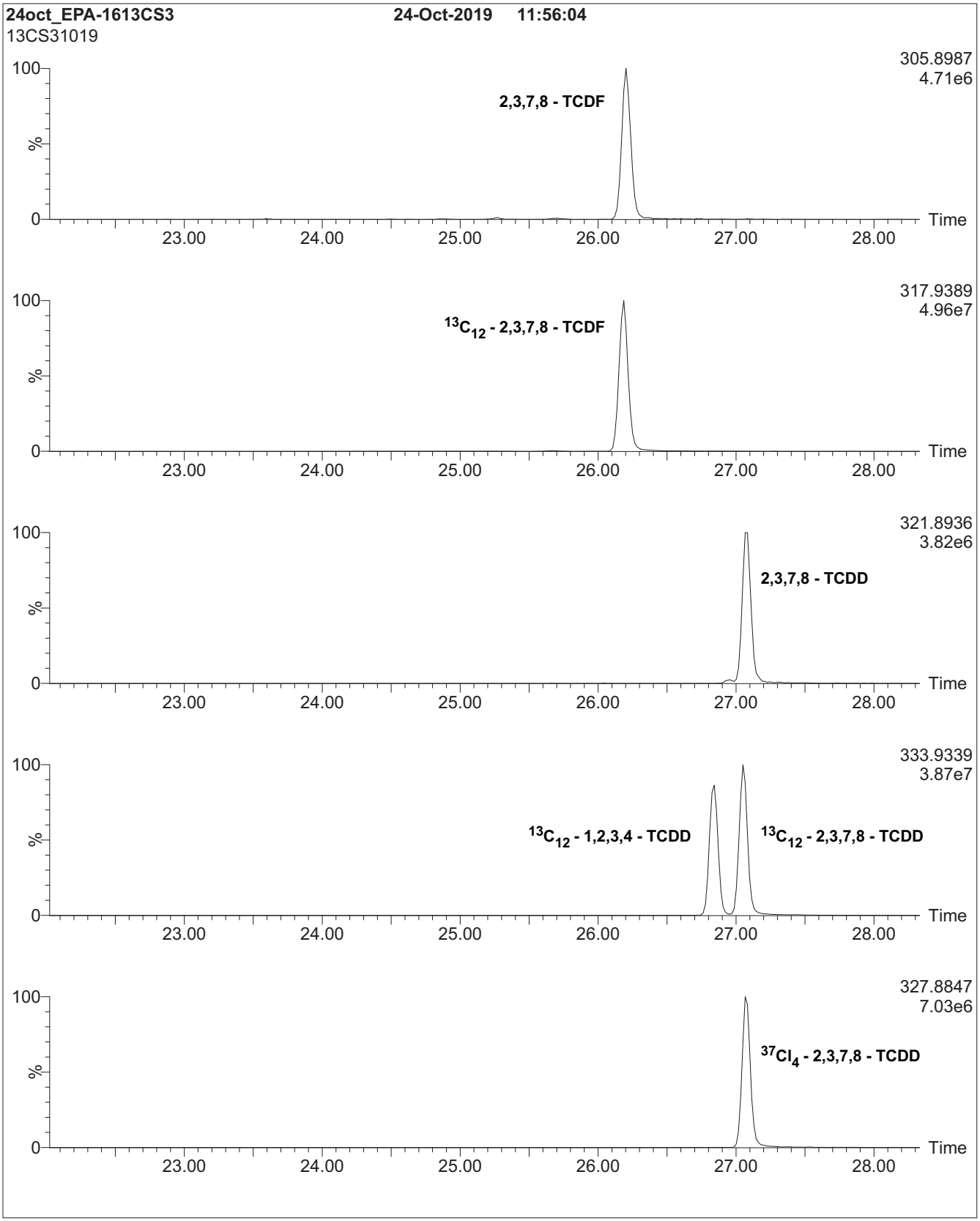


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

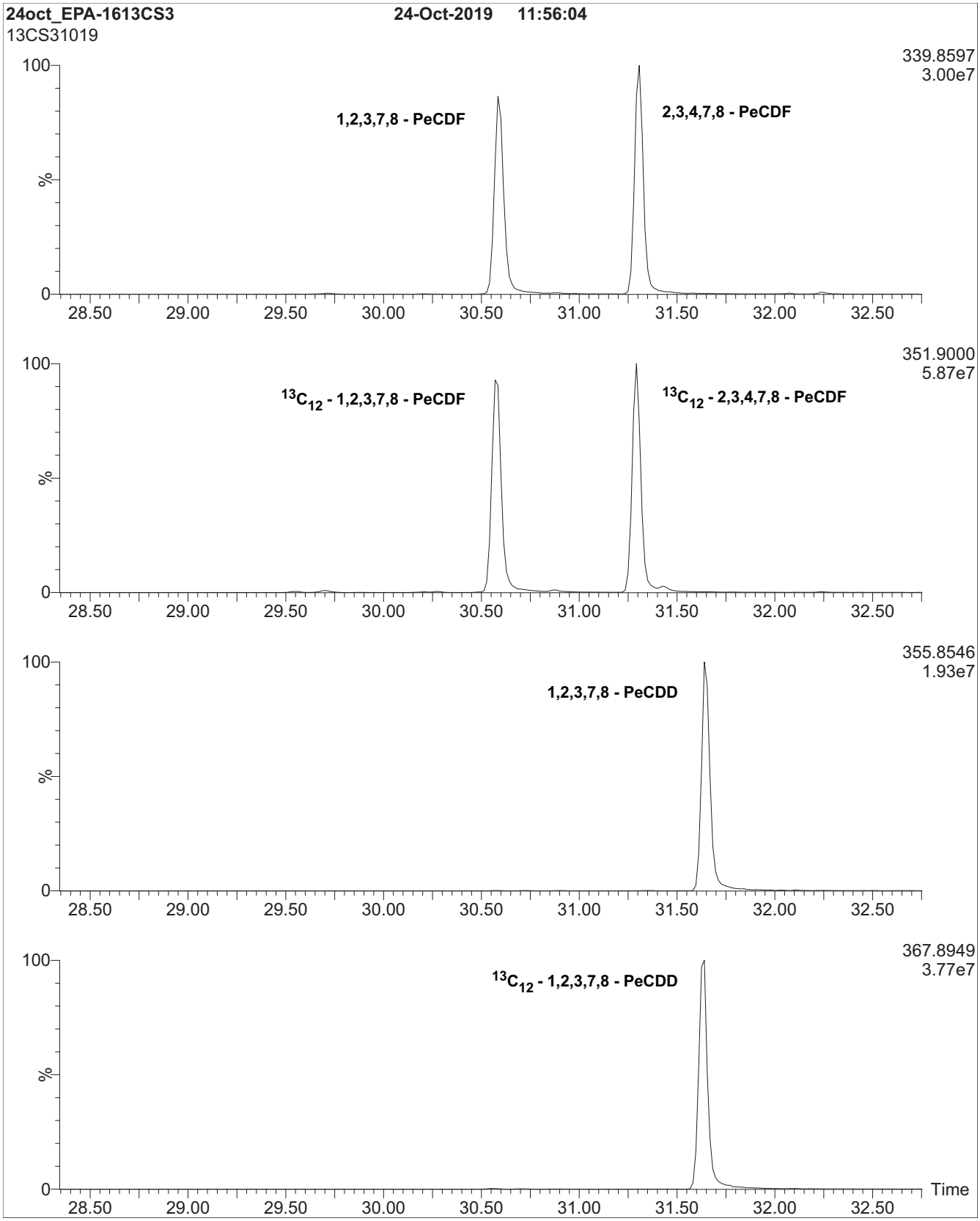


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

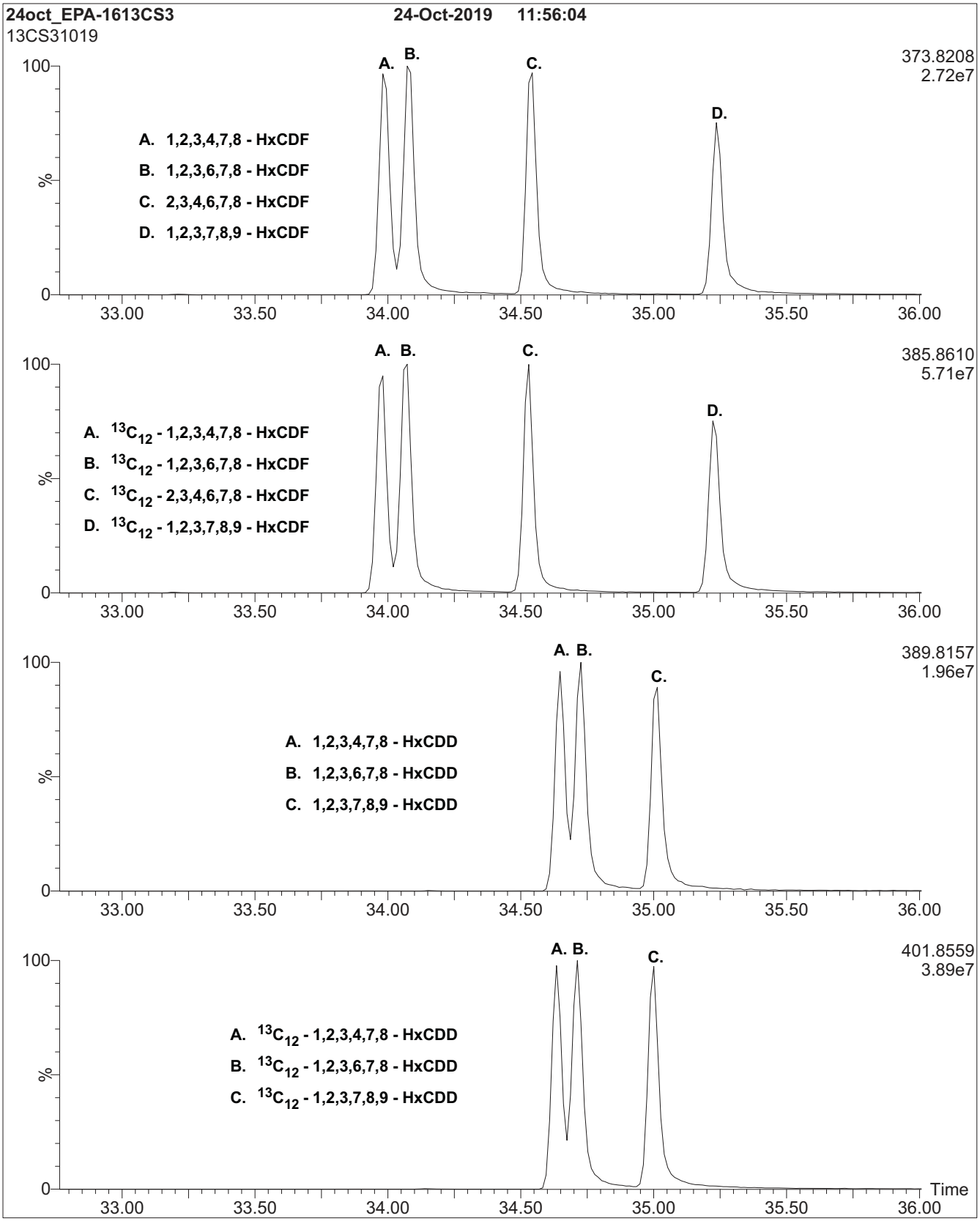


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

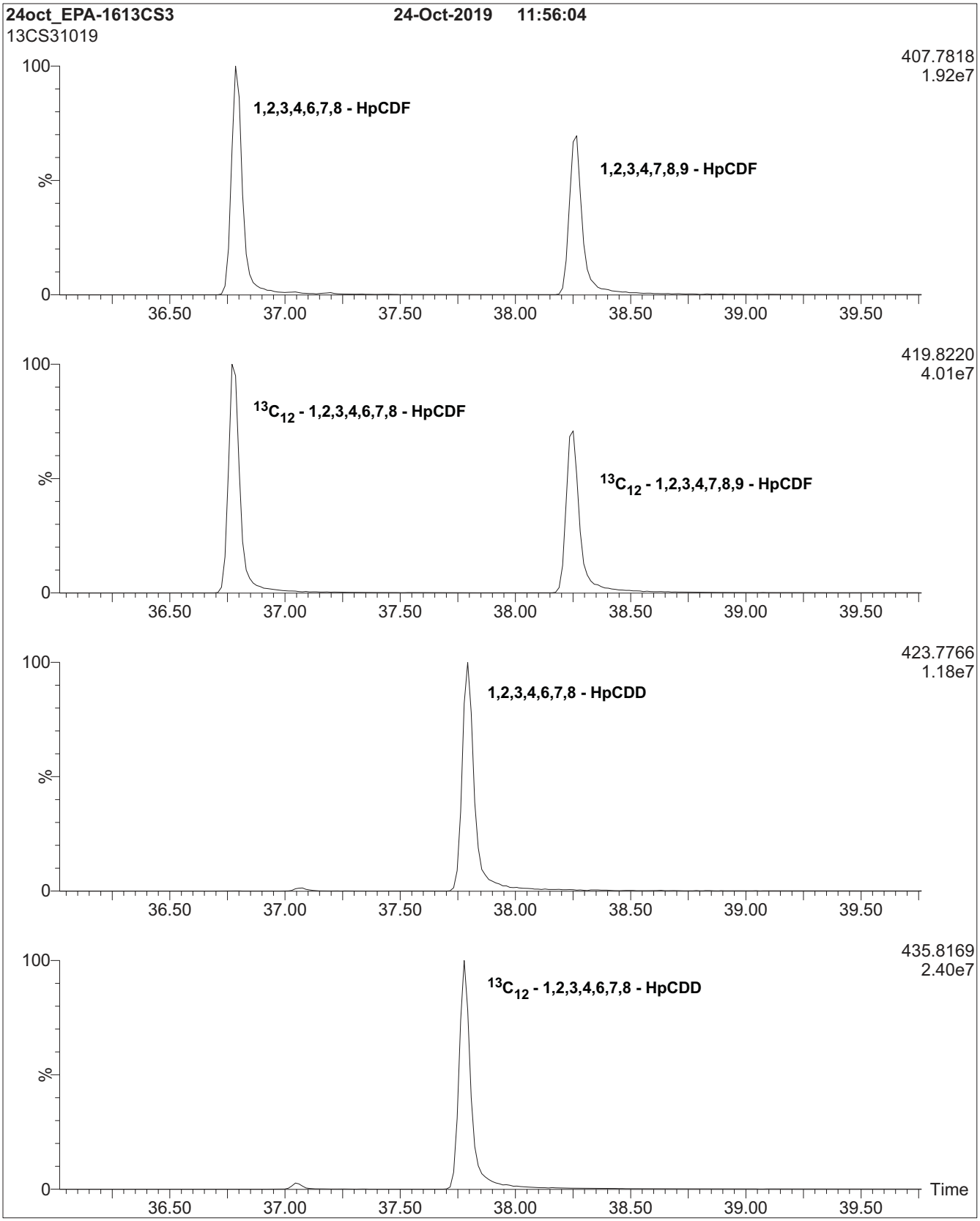
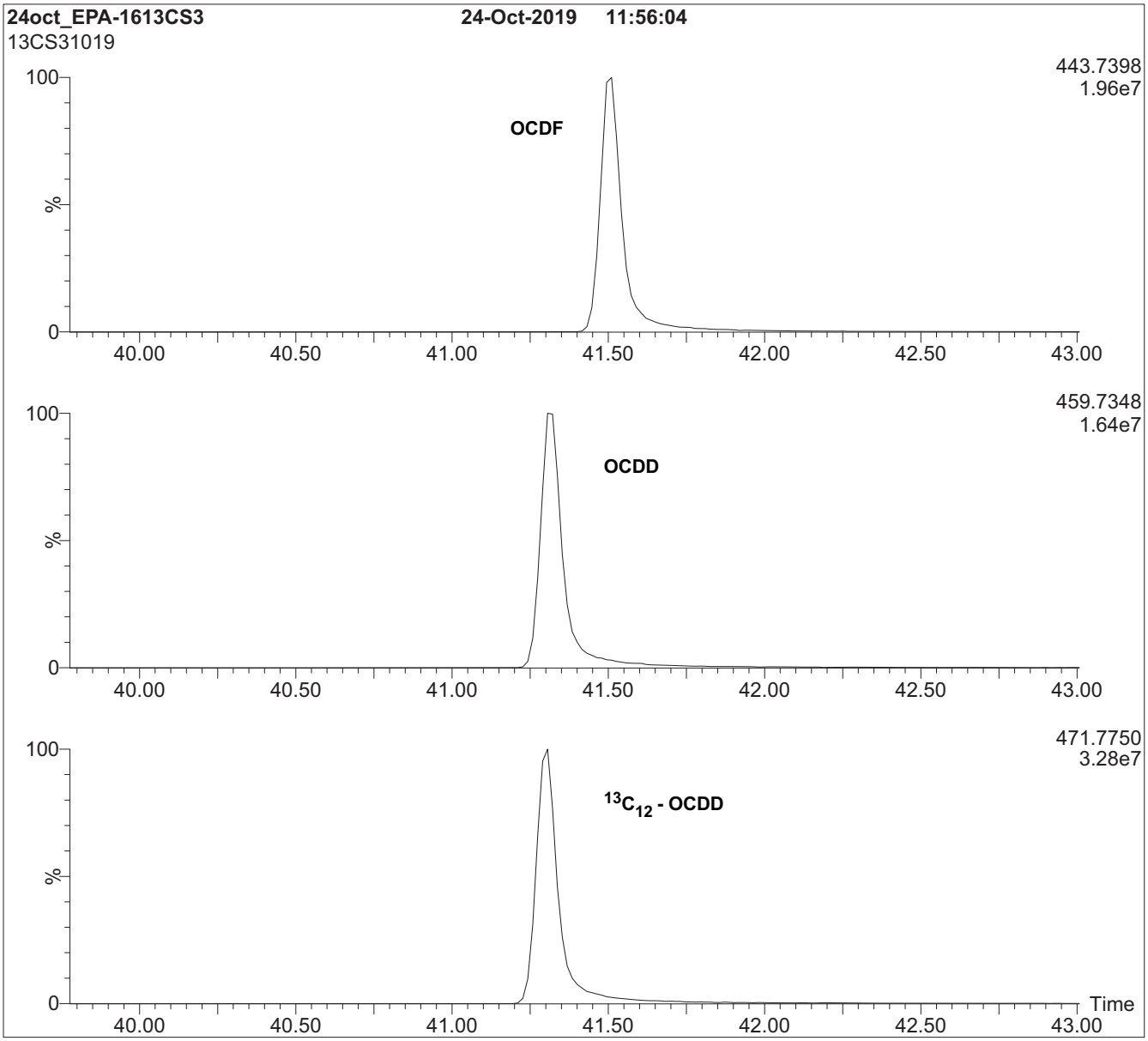


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005457
1613 CS2 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)
B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

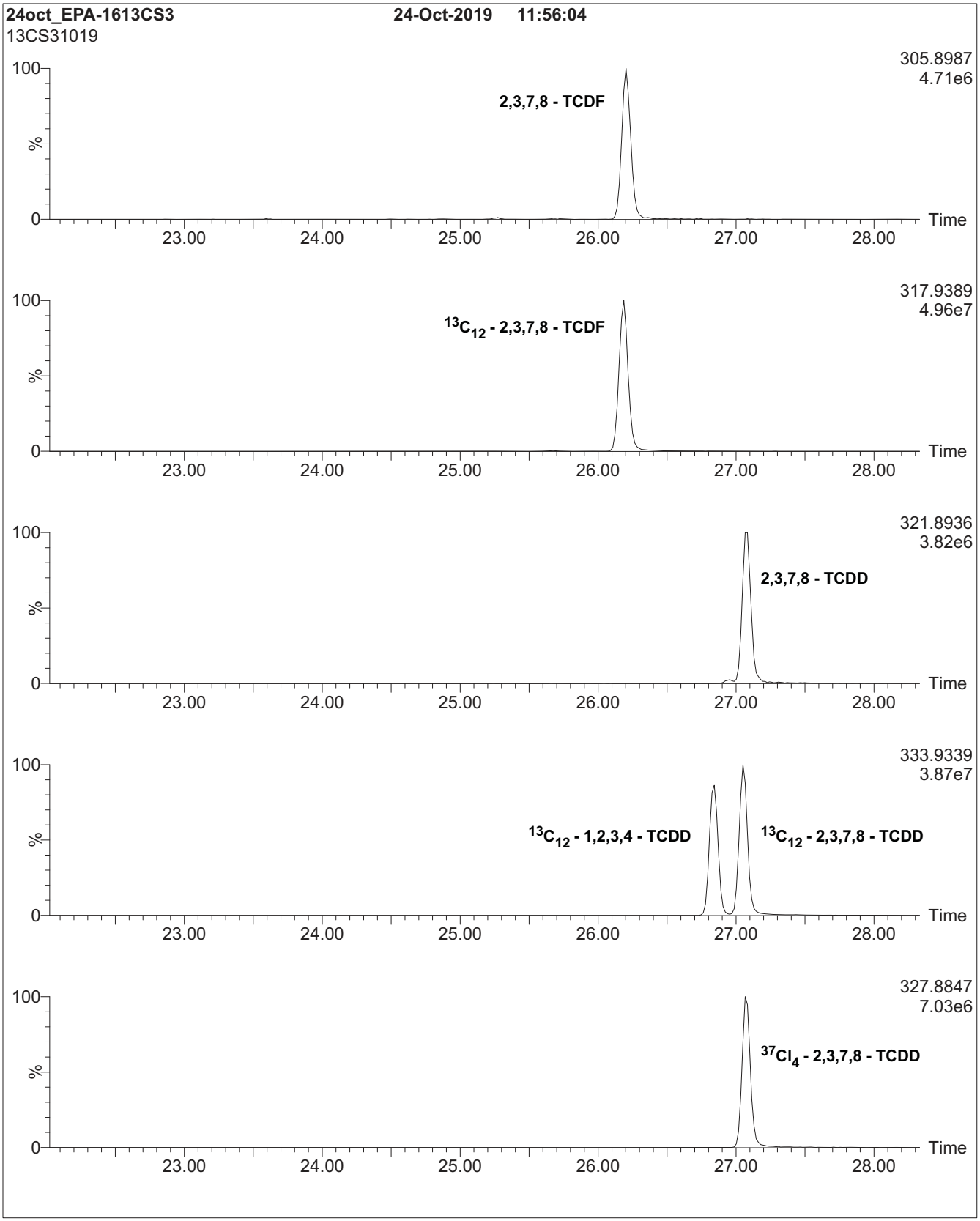


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

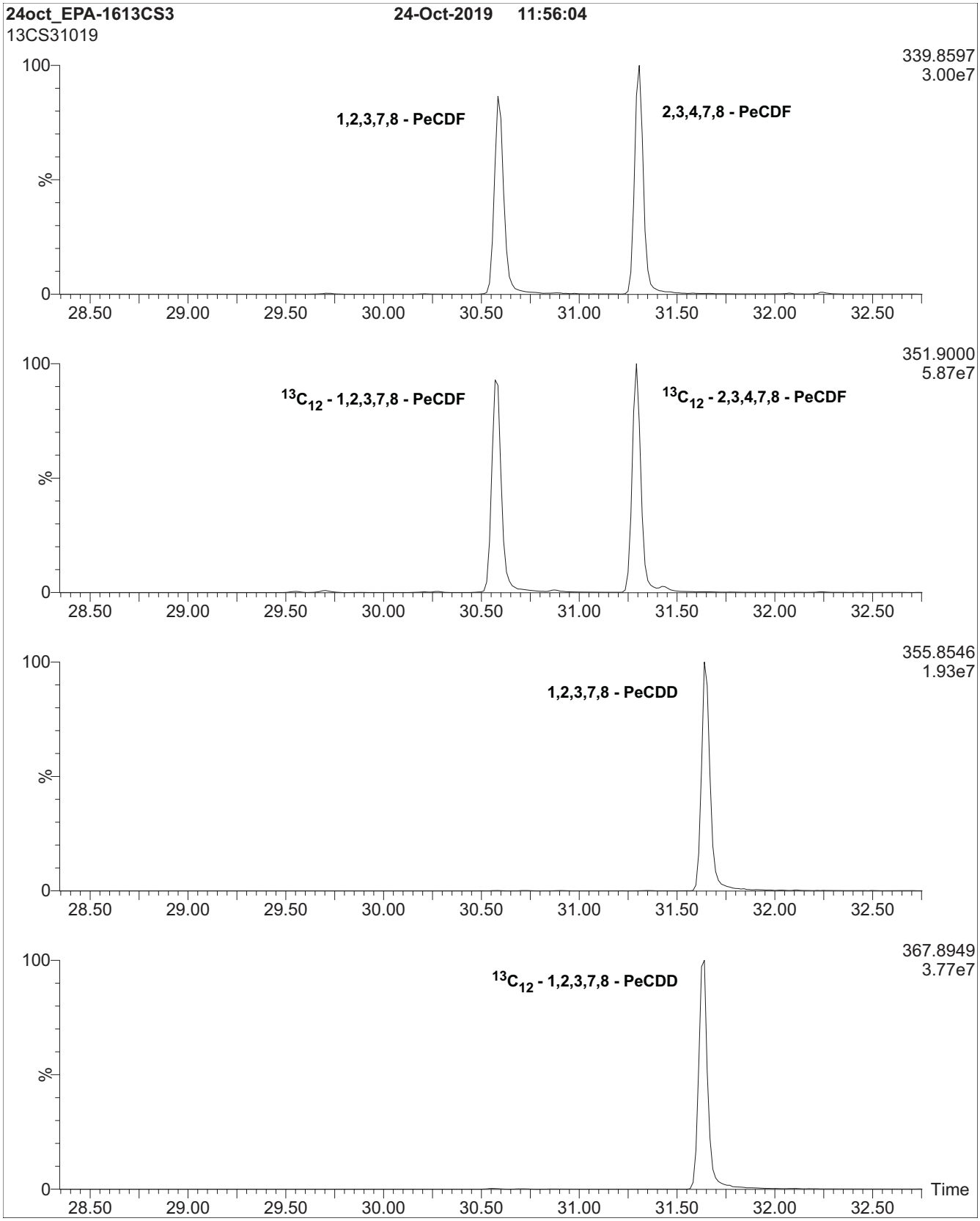


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

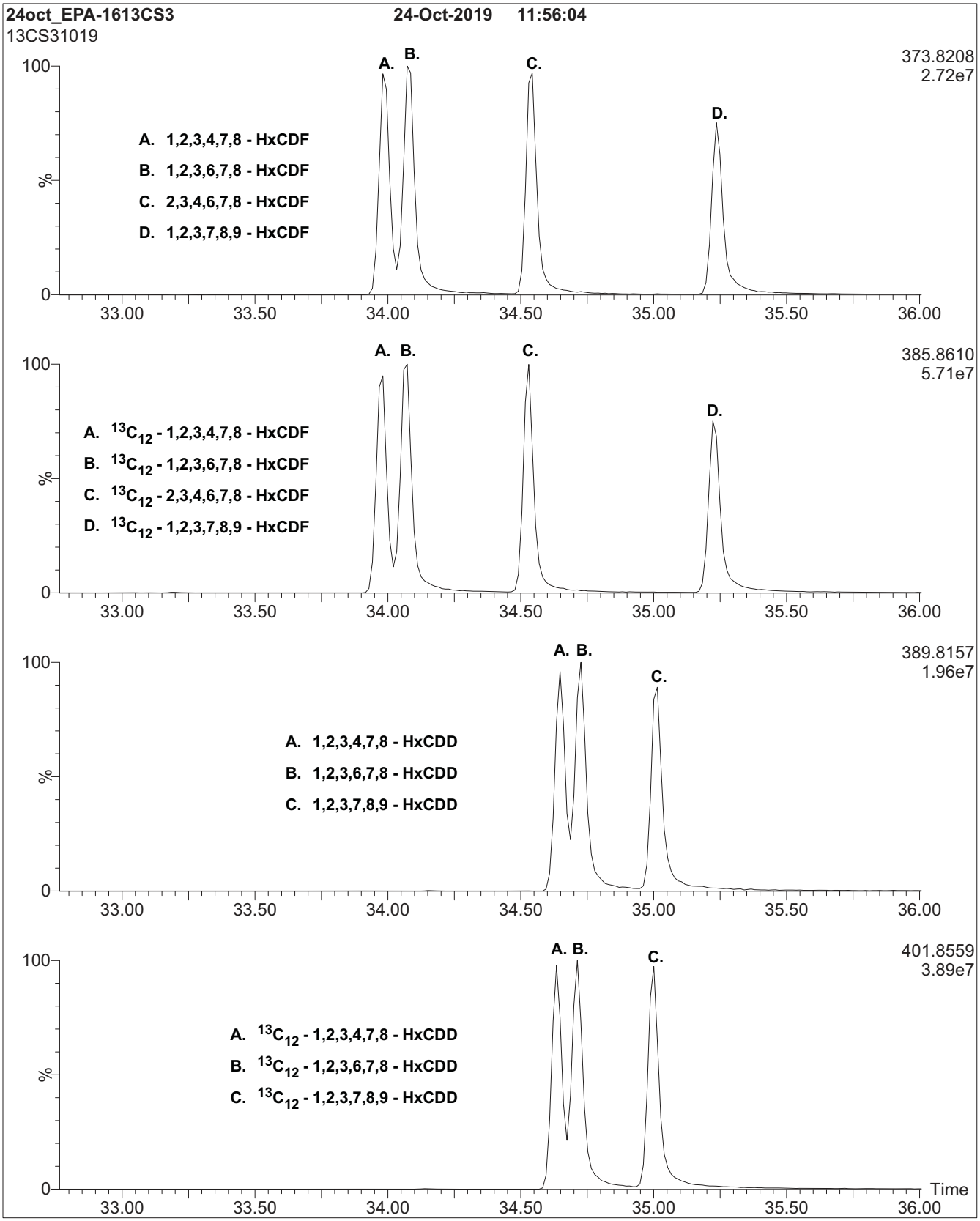


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

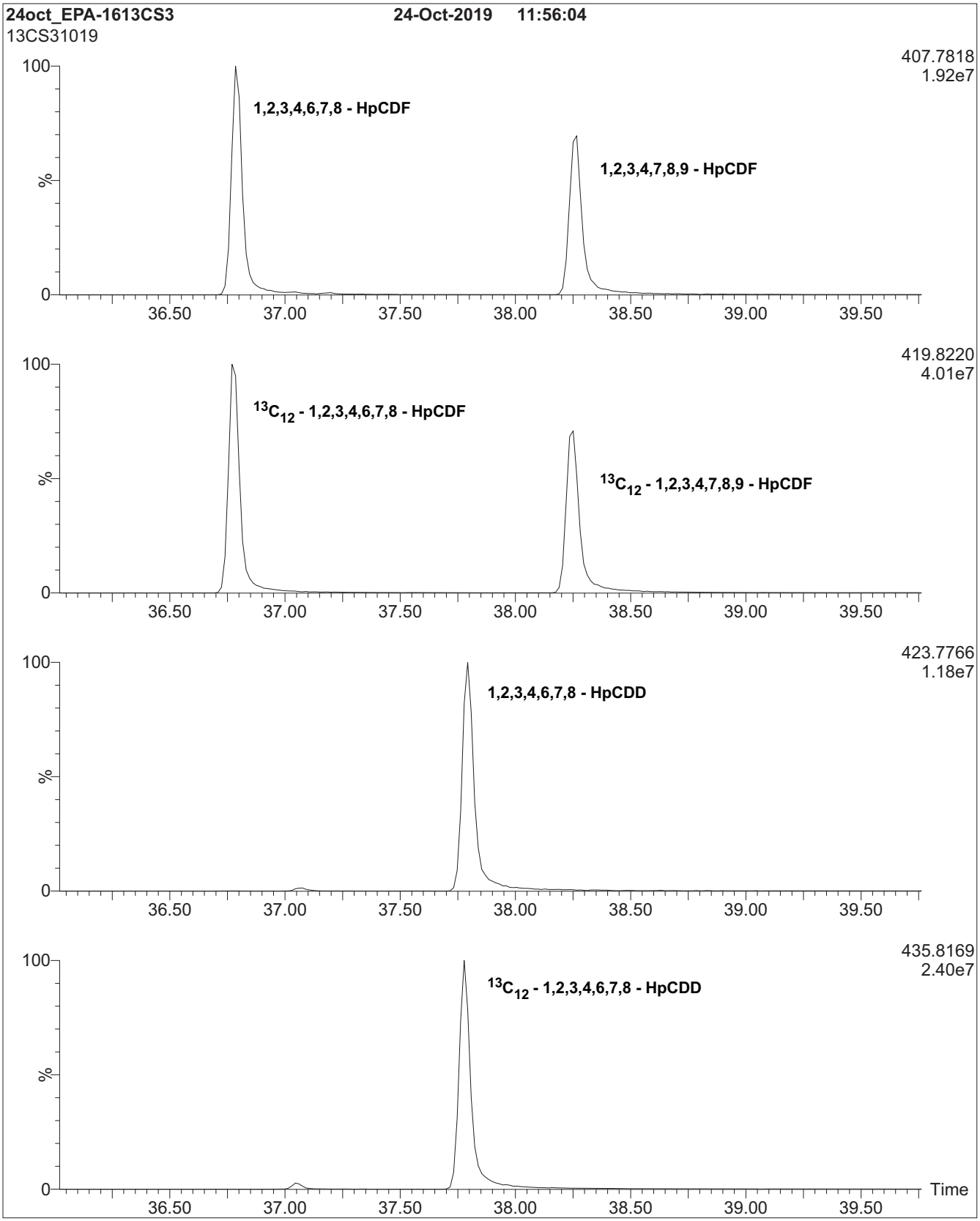
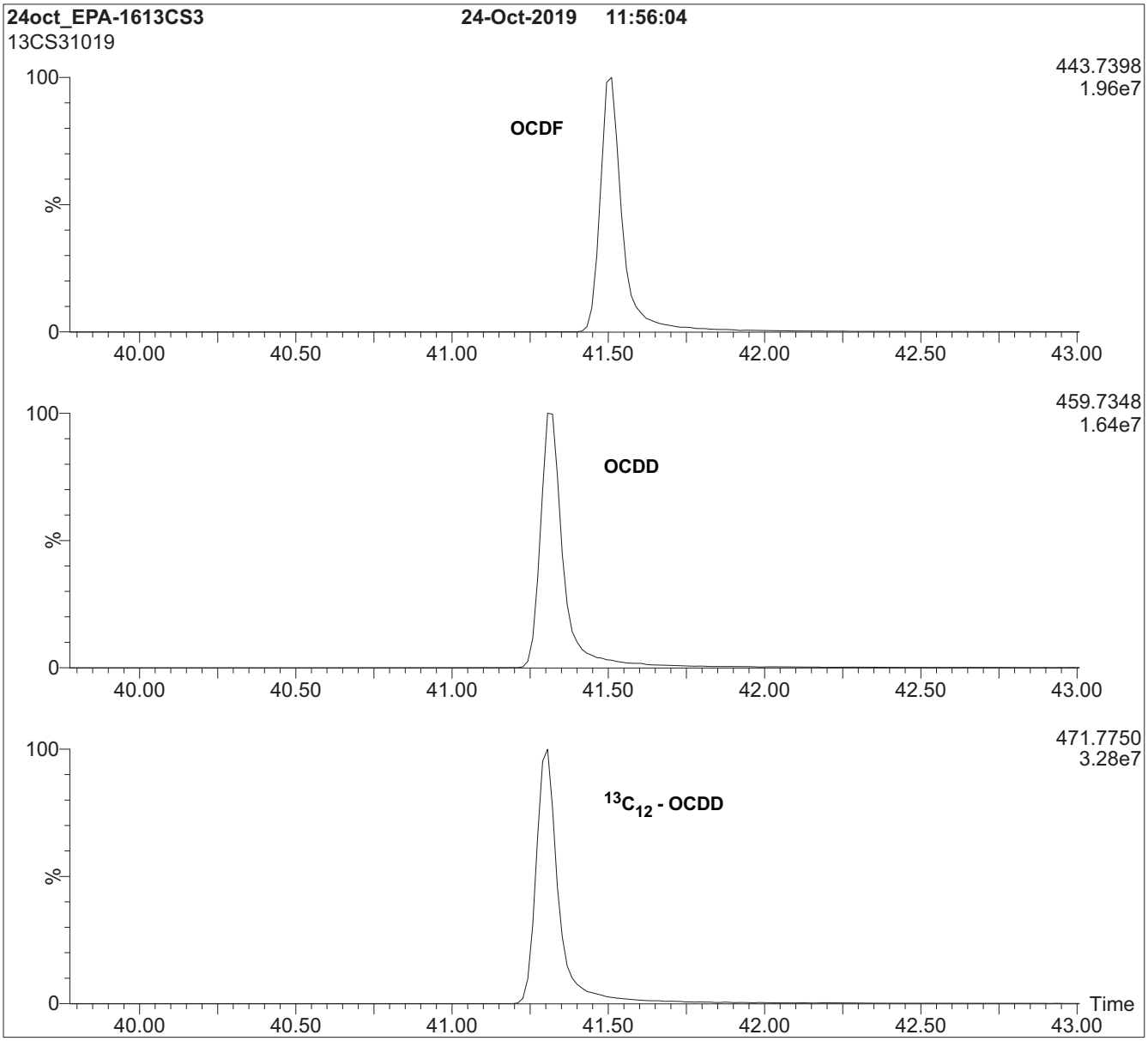


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005458
1613 CS4 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By:  **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

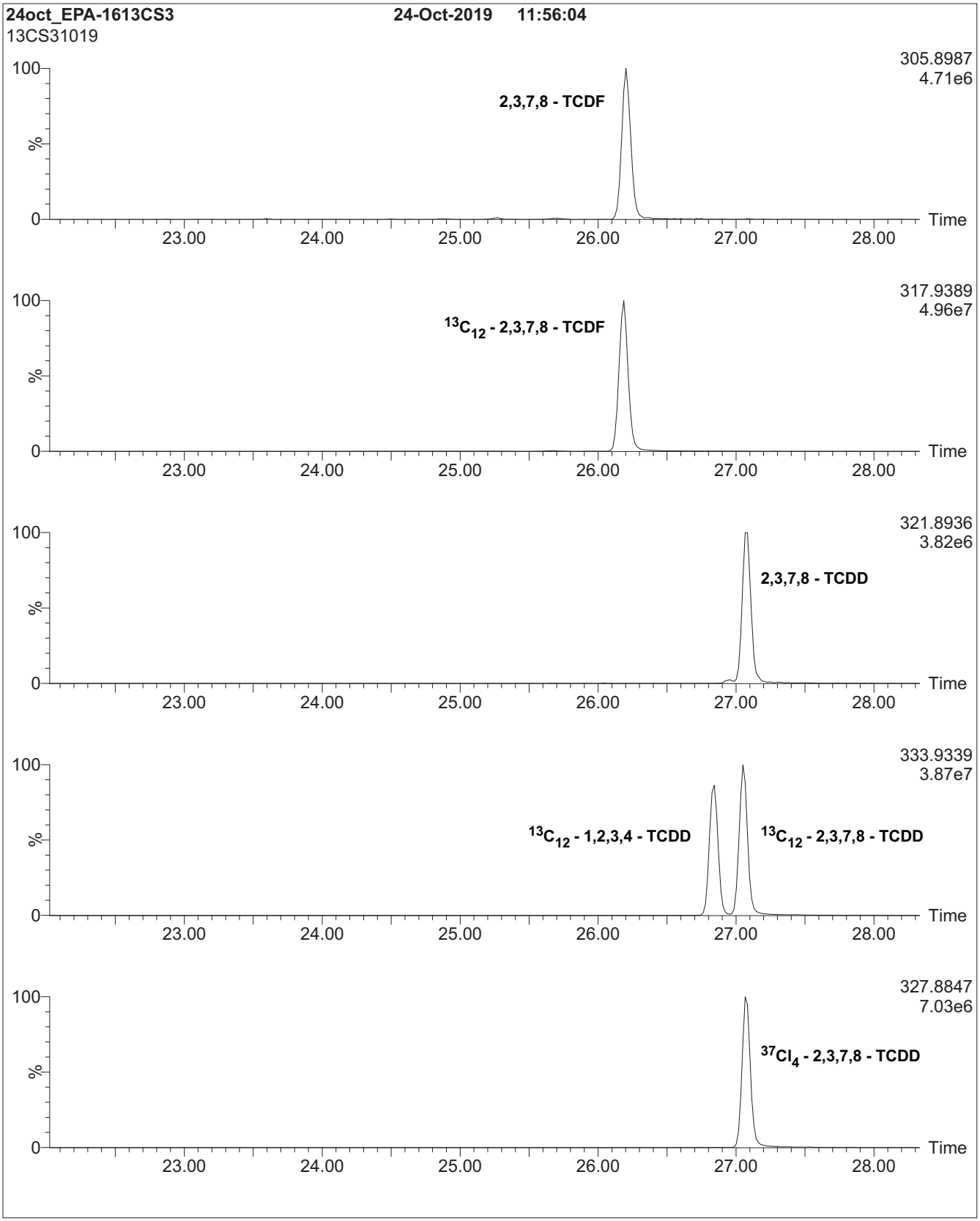


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

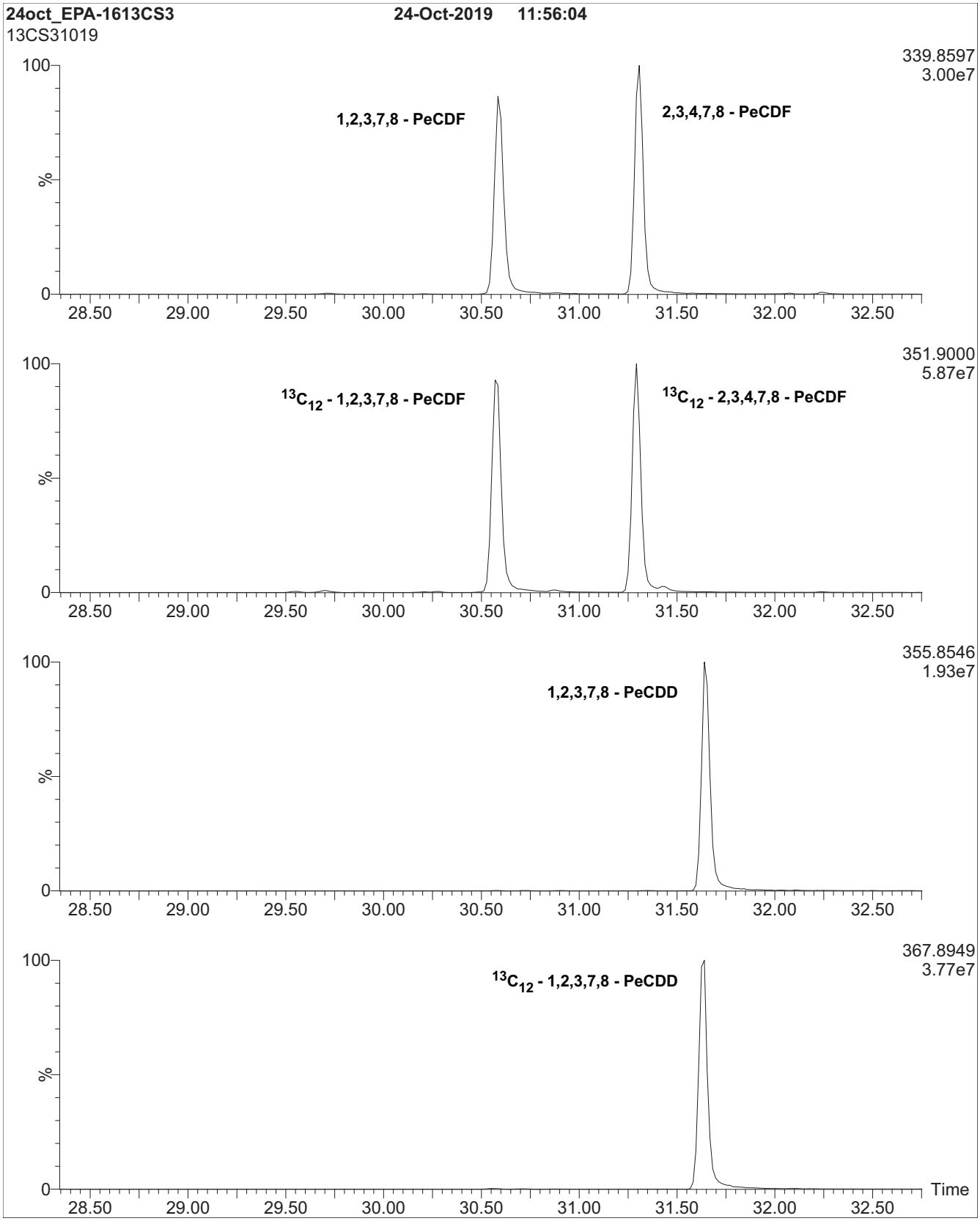


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

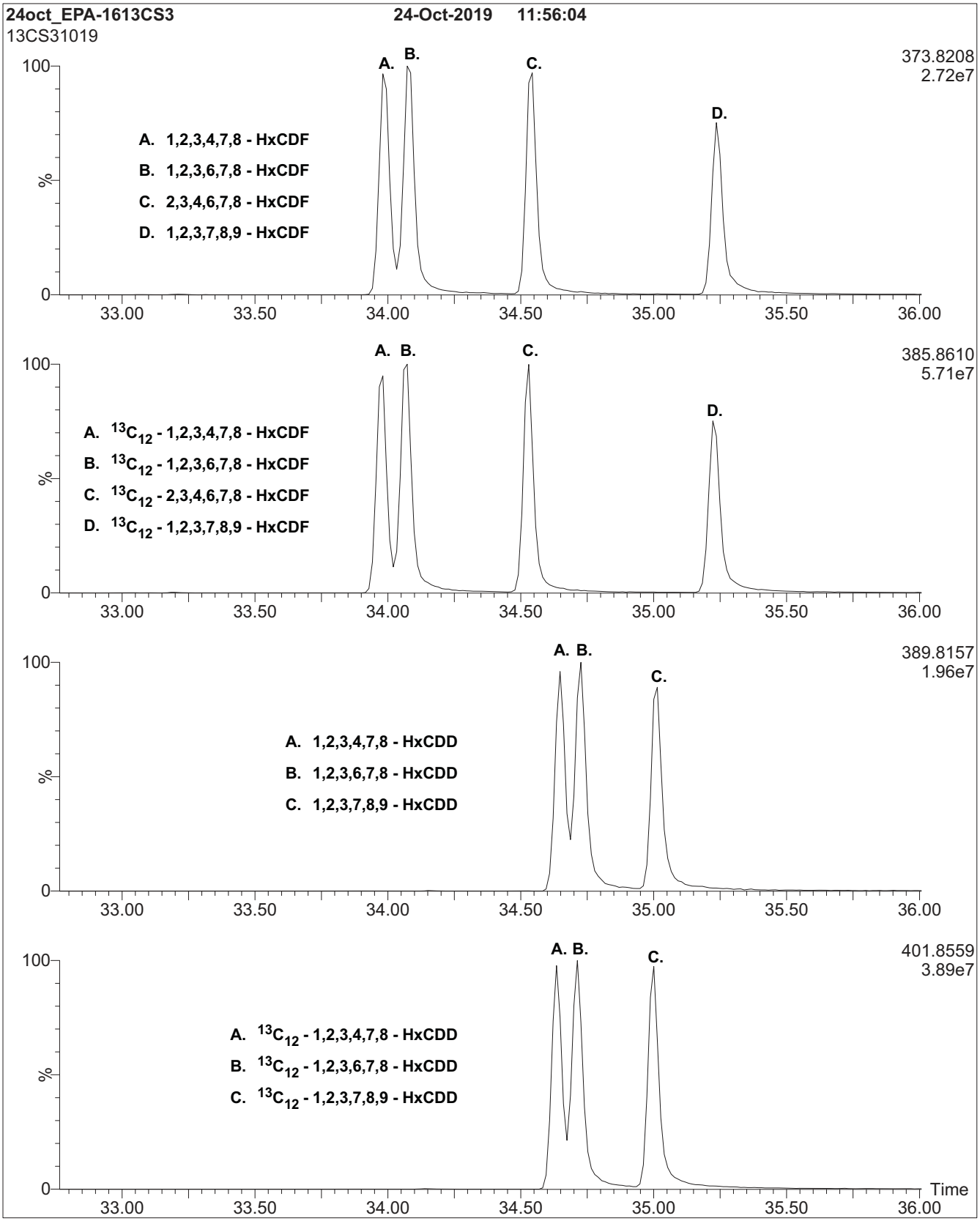


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

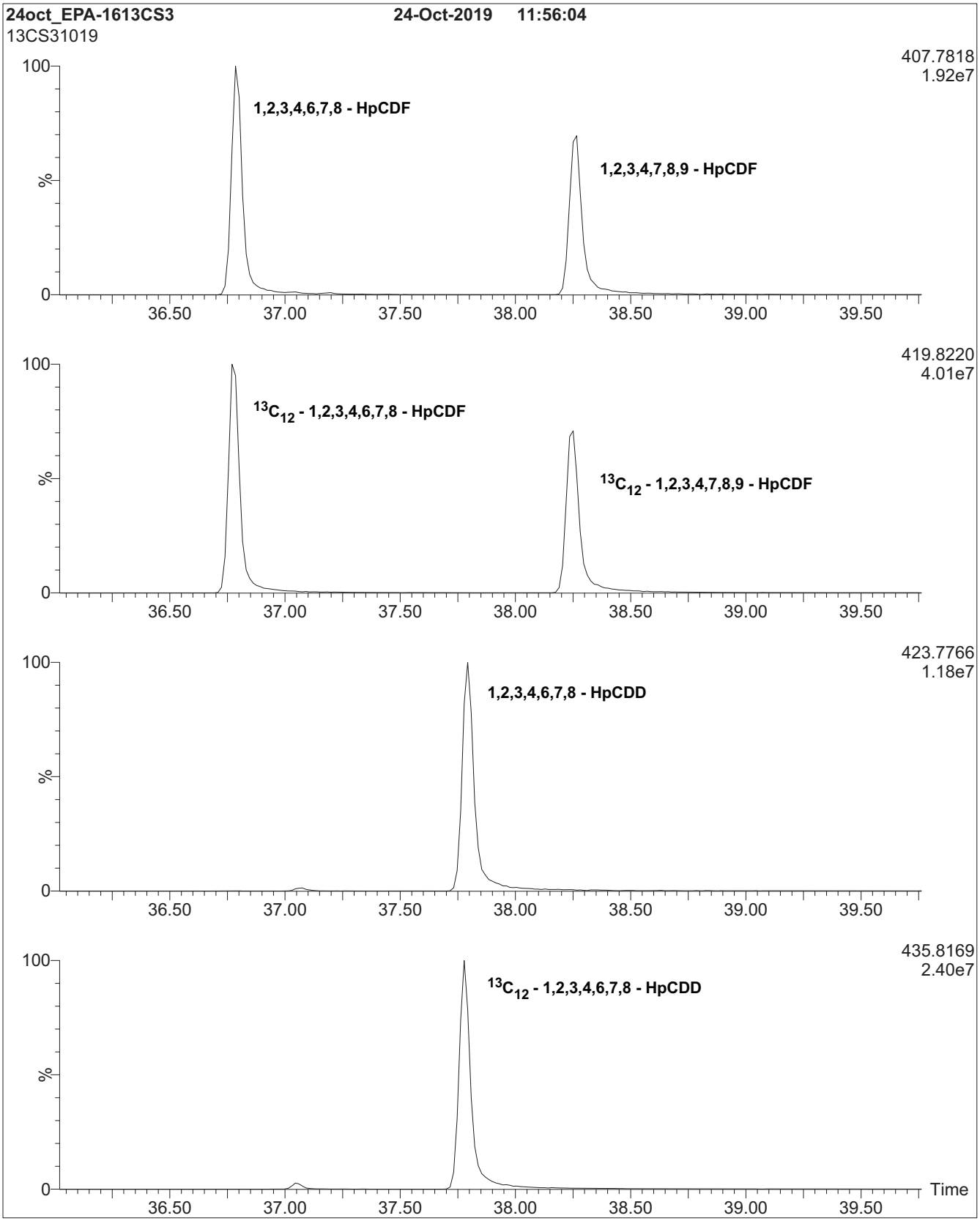
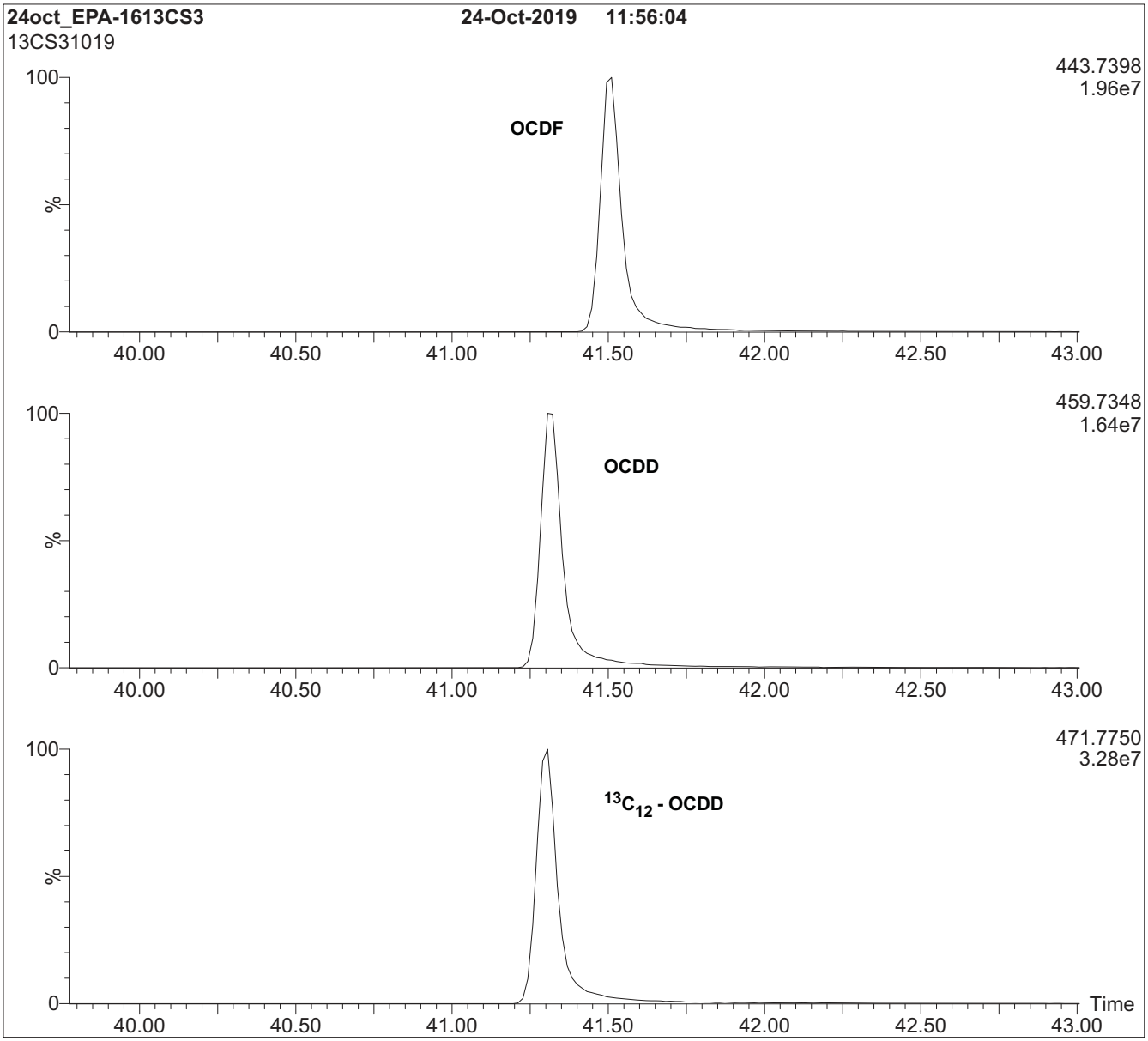


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005459
1613 CS5 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)
B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

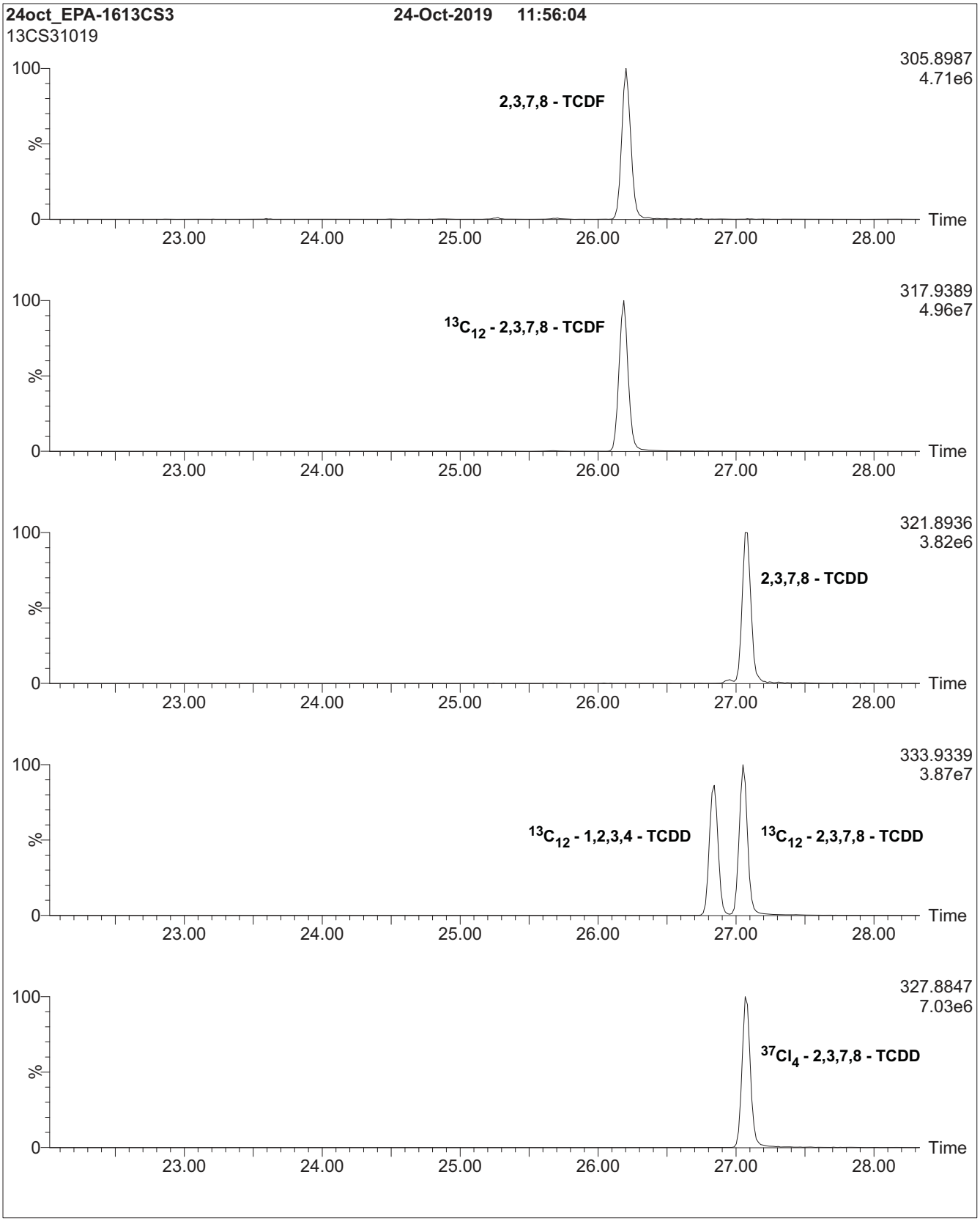


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

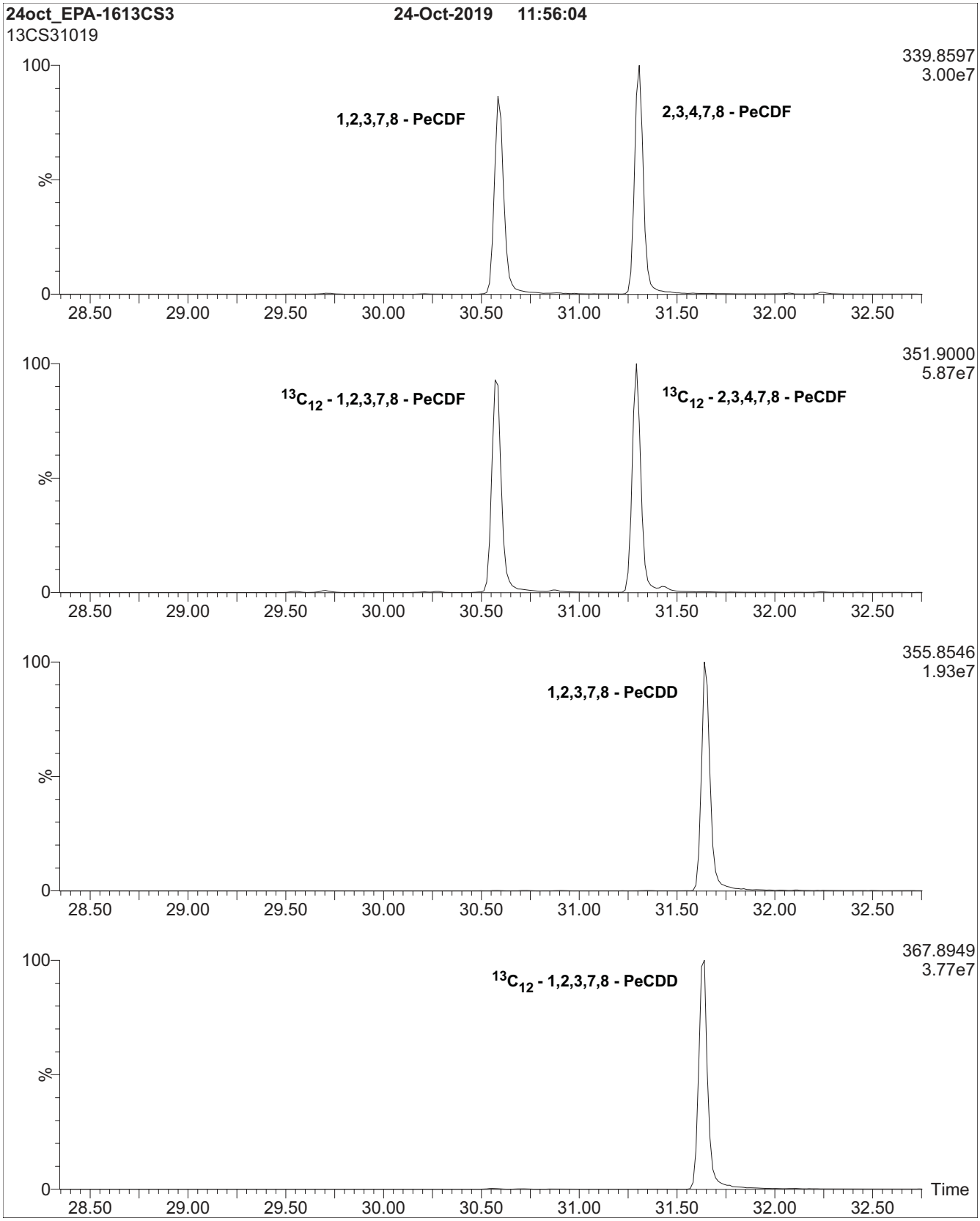


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

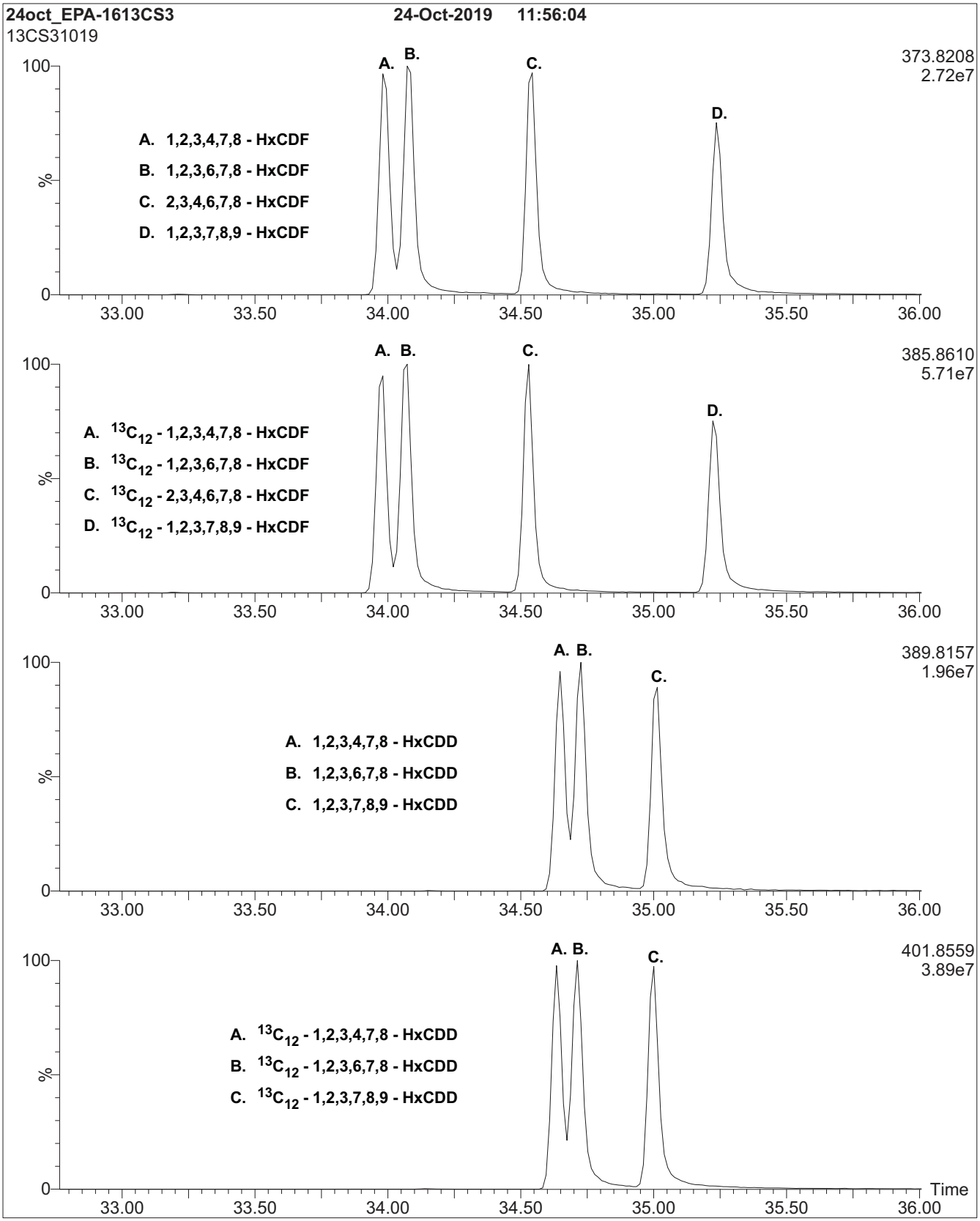


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

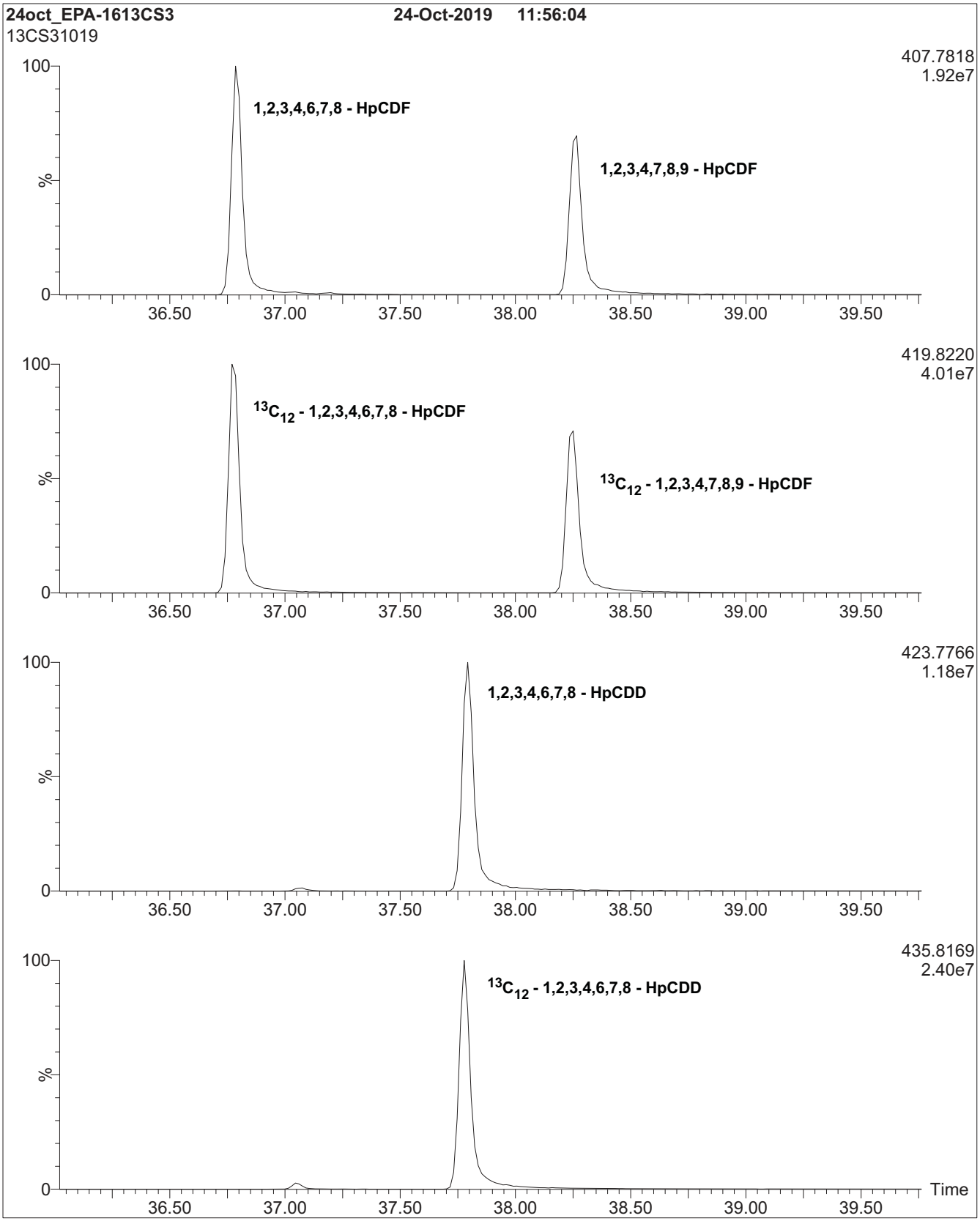
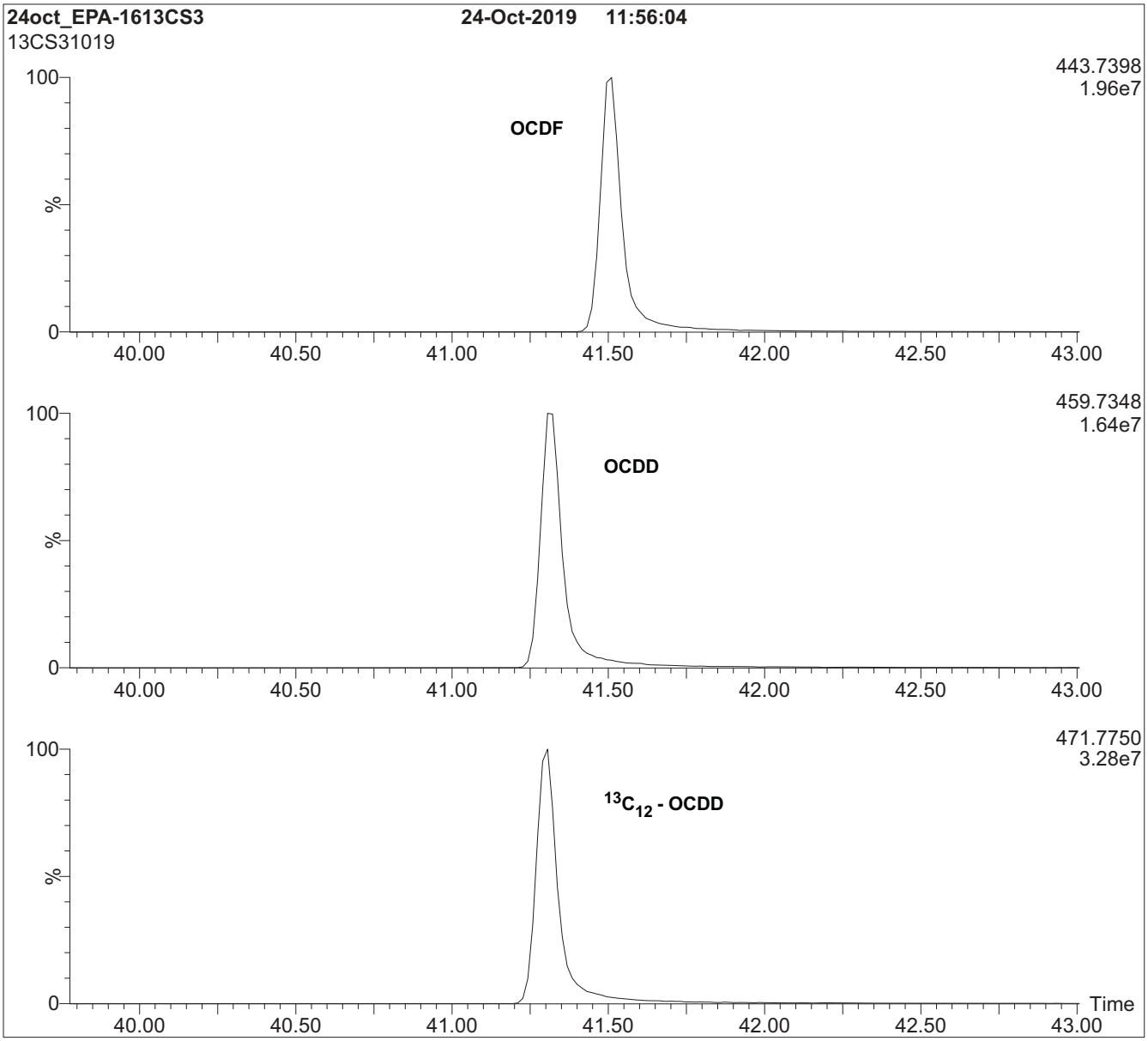


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005460
1613 CSL CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)
B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

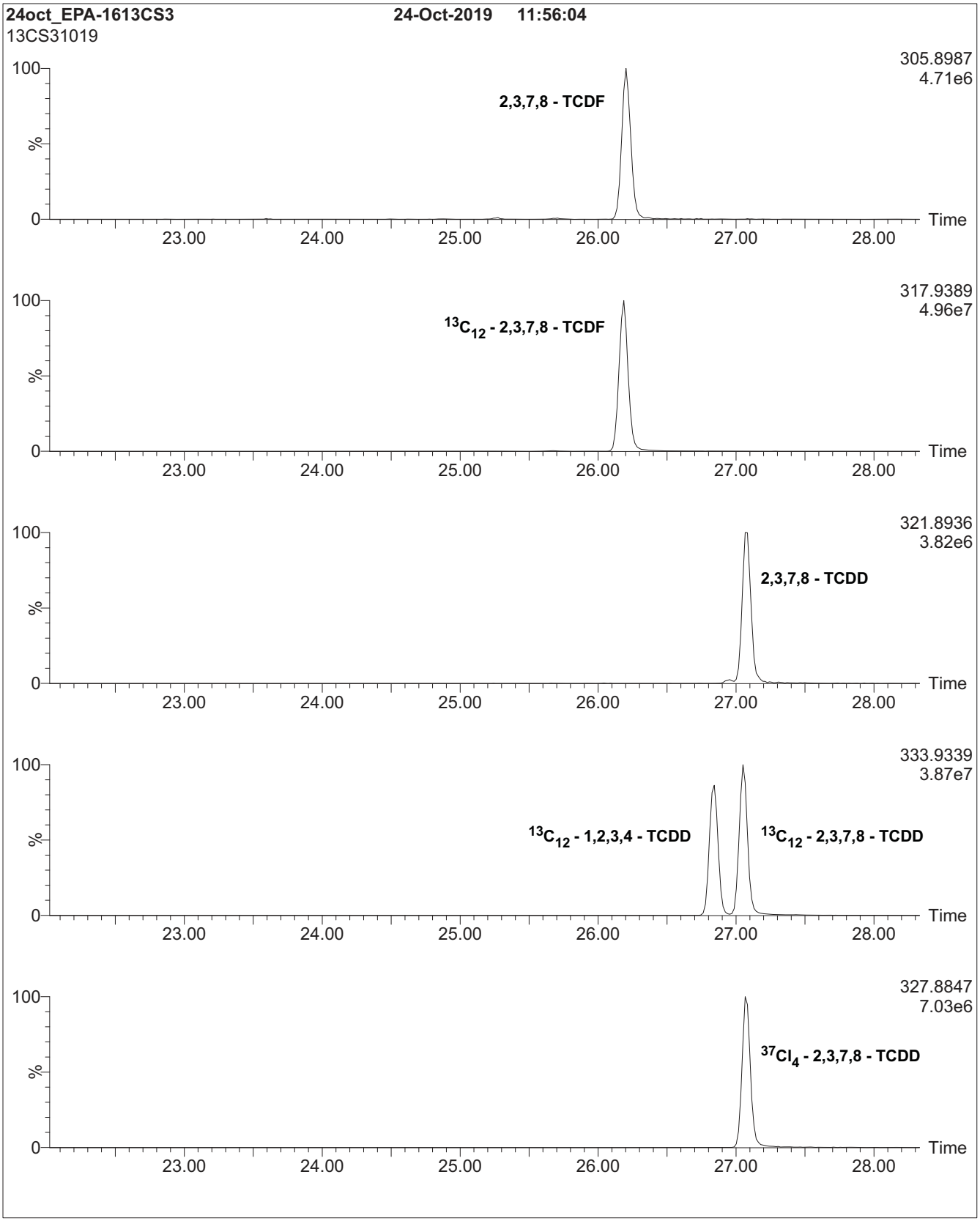


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

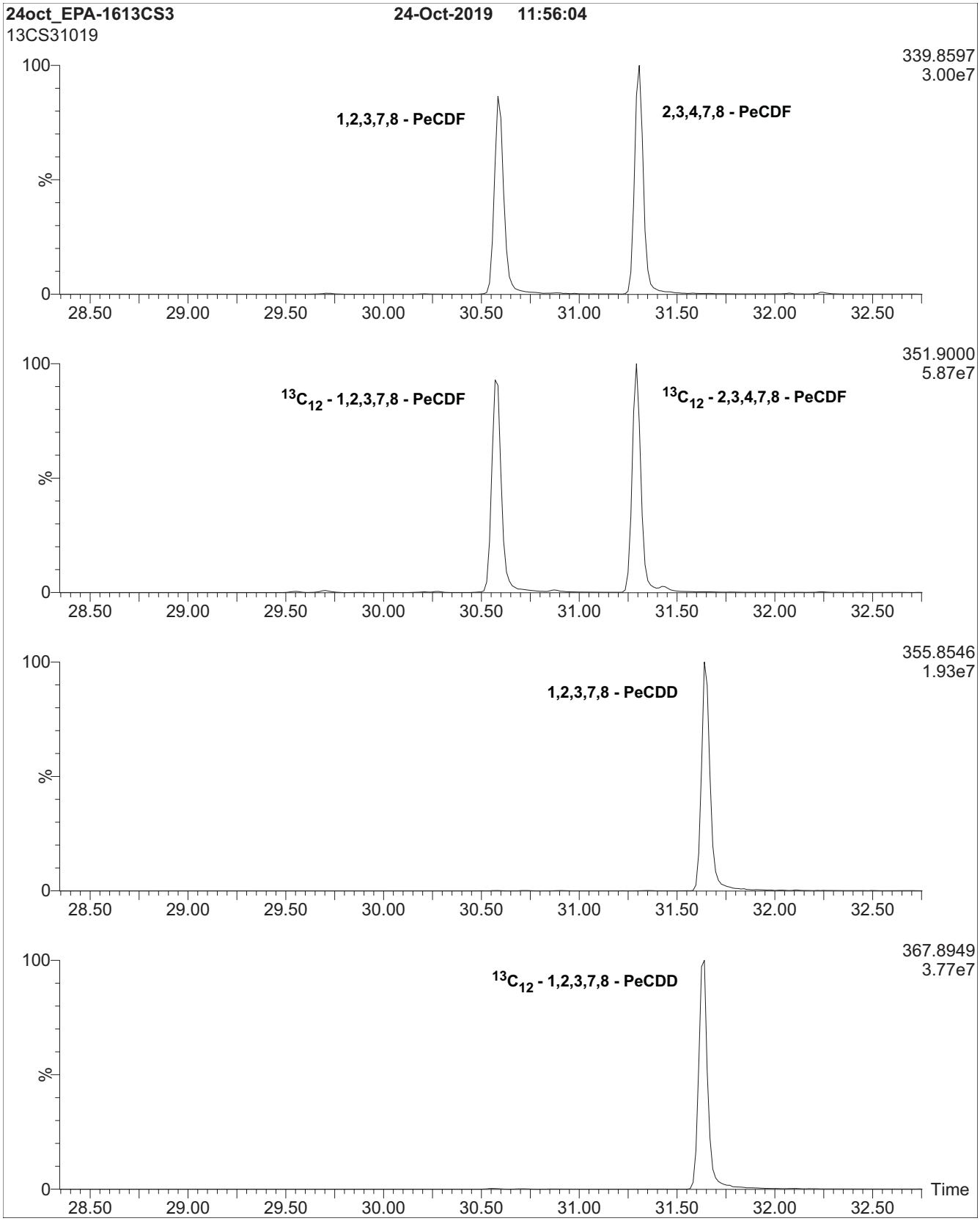


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

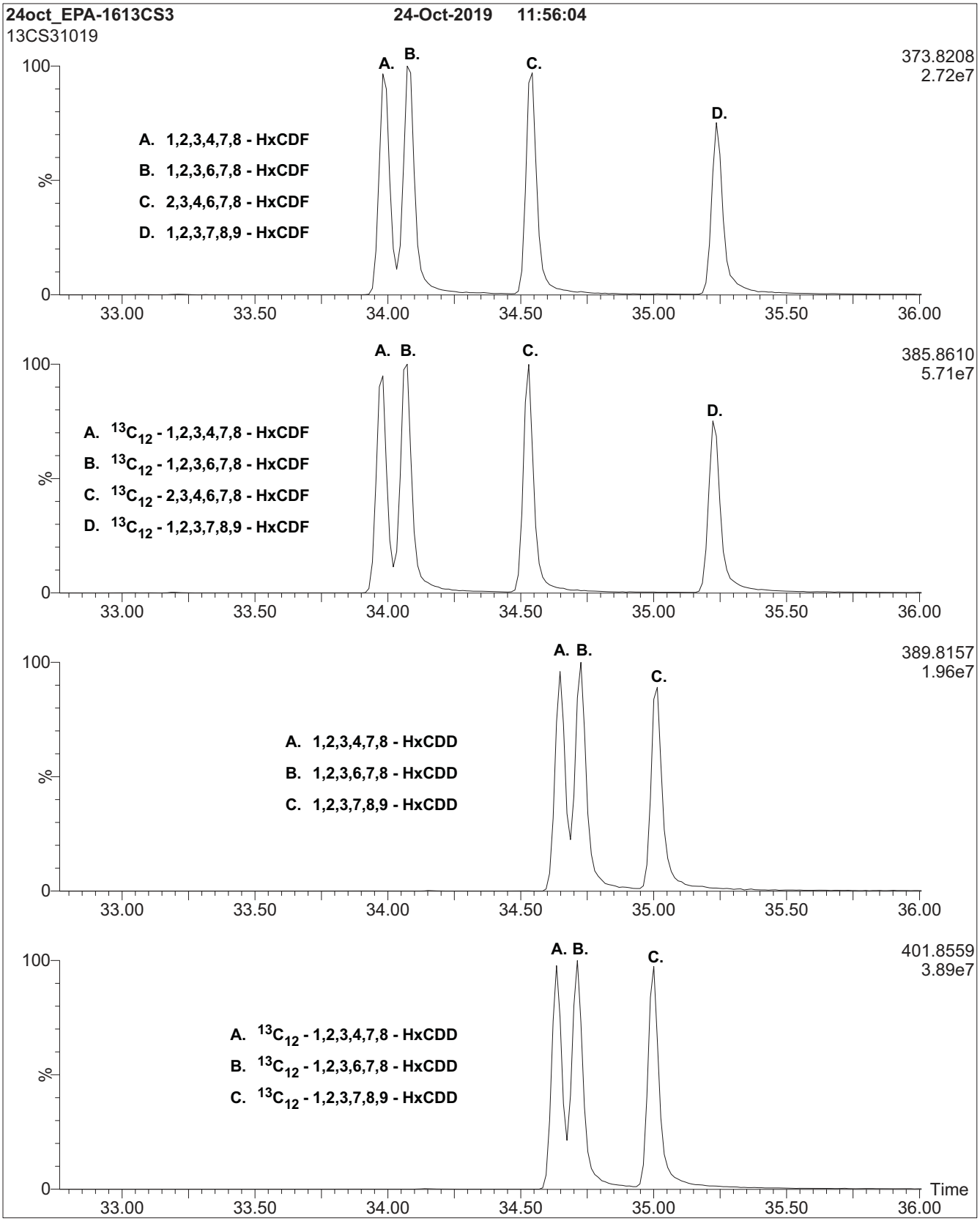


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

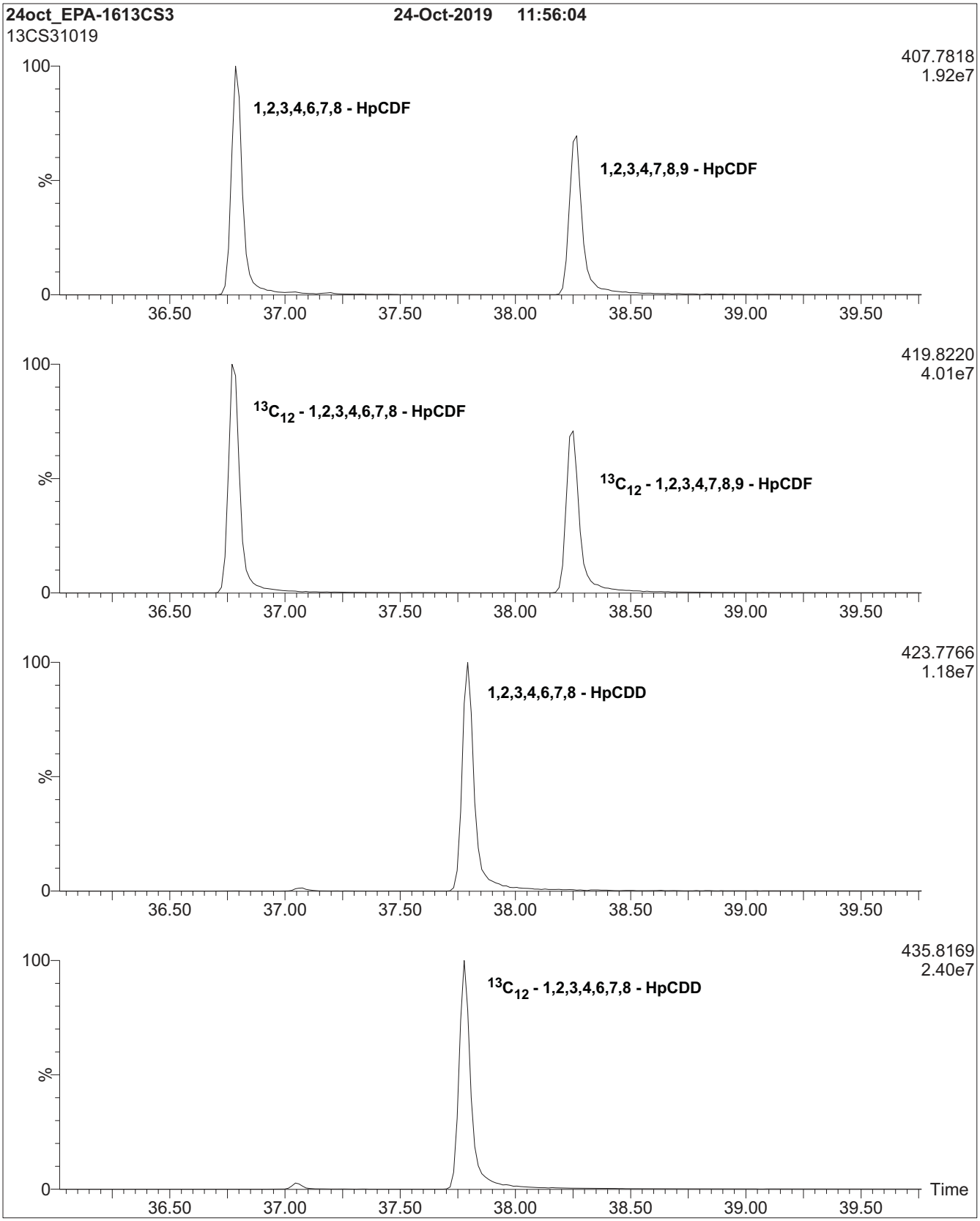
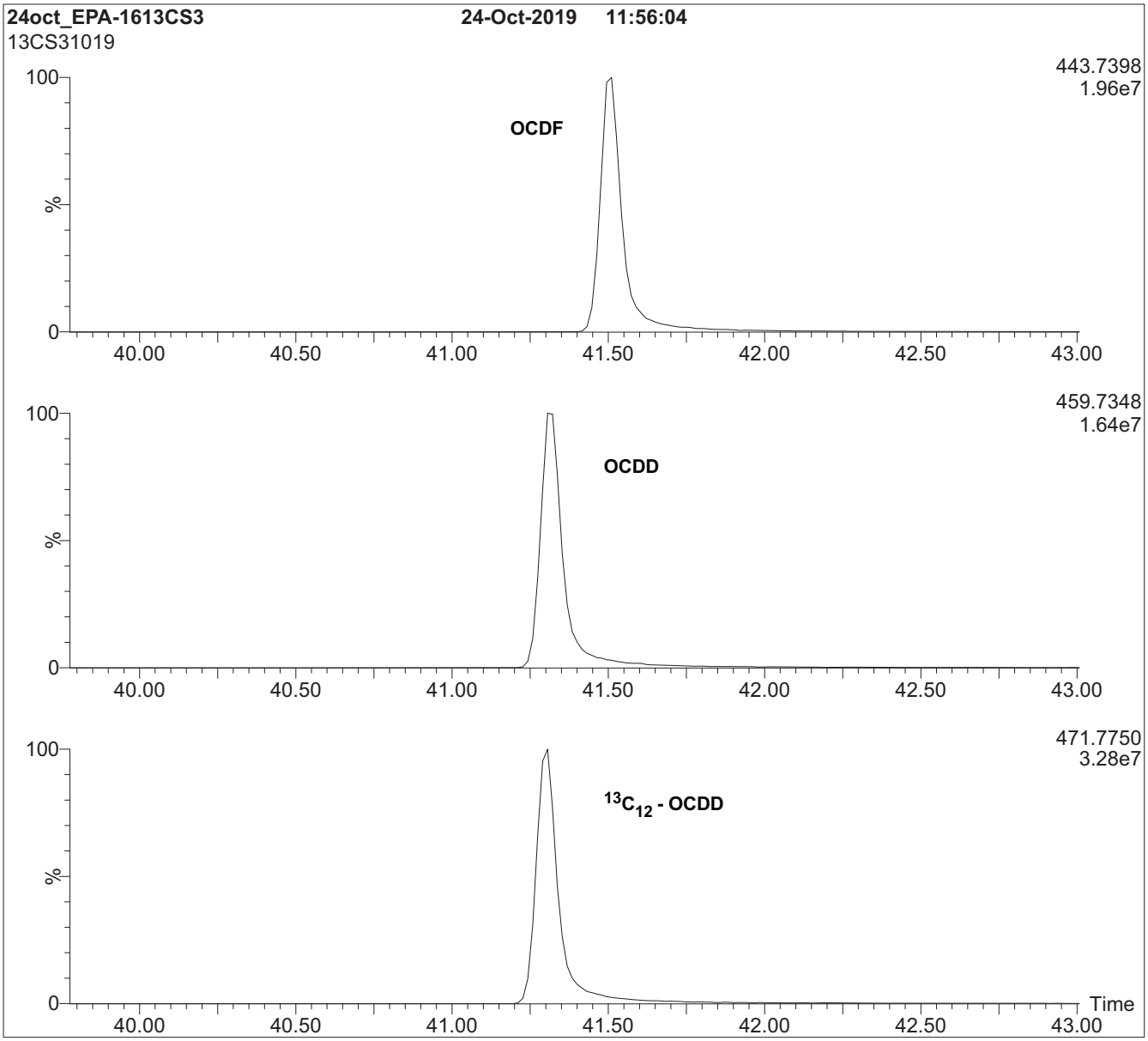


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Recd. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

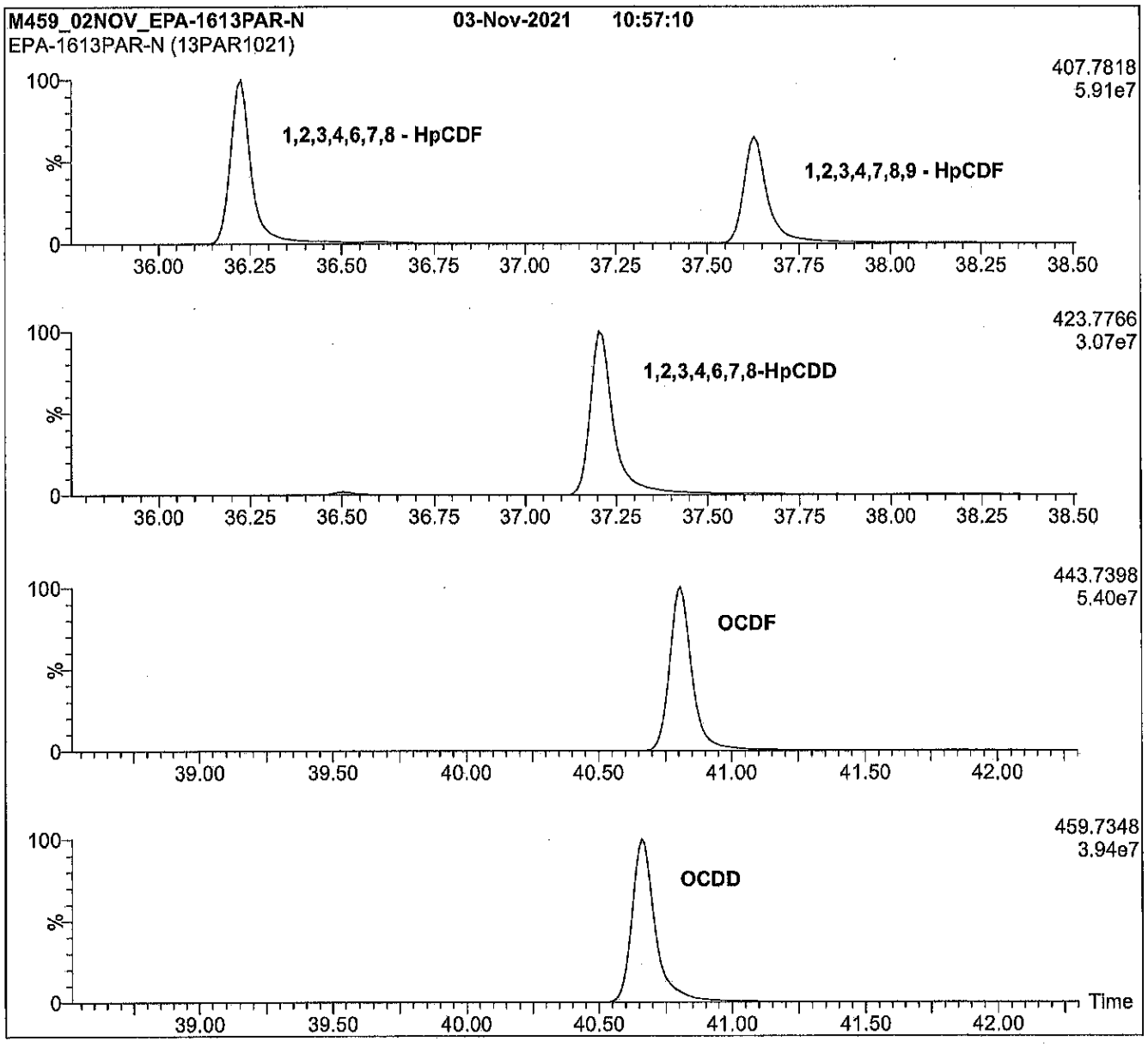
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
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12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**

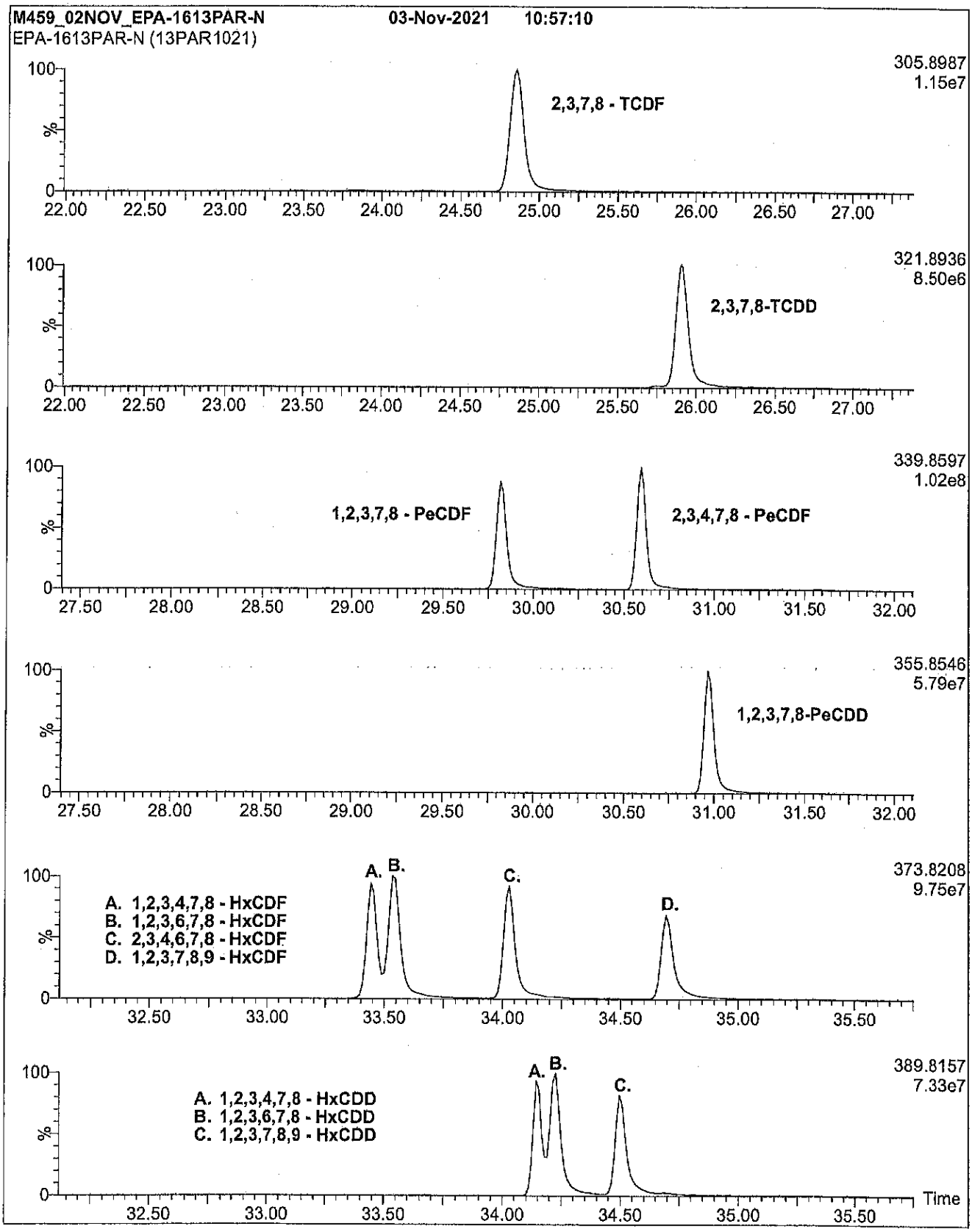
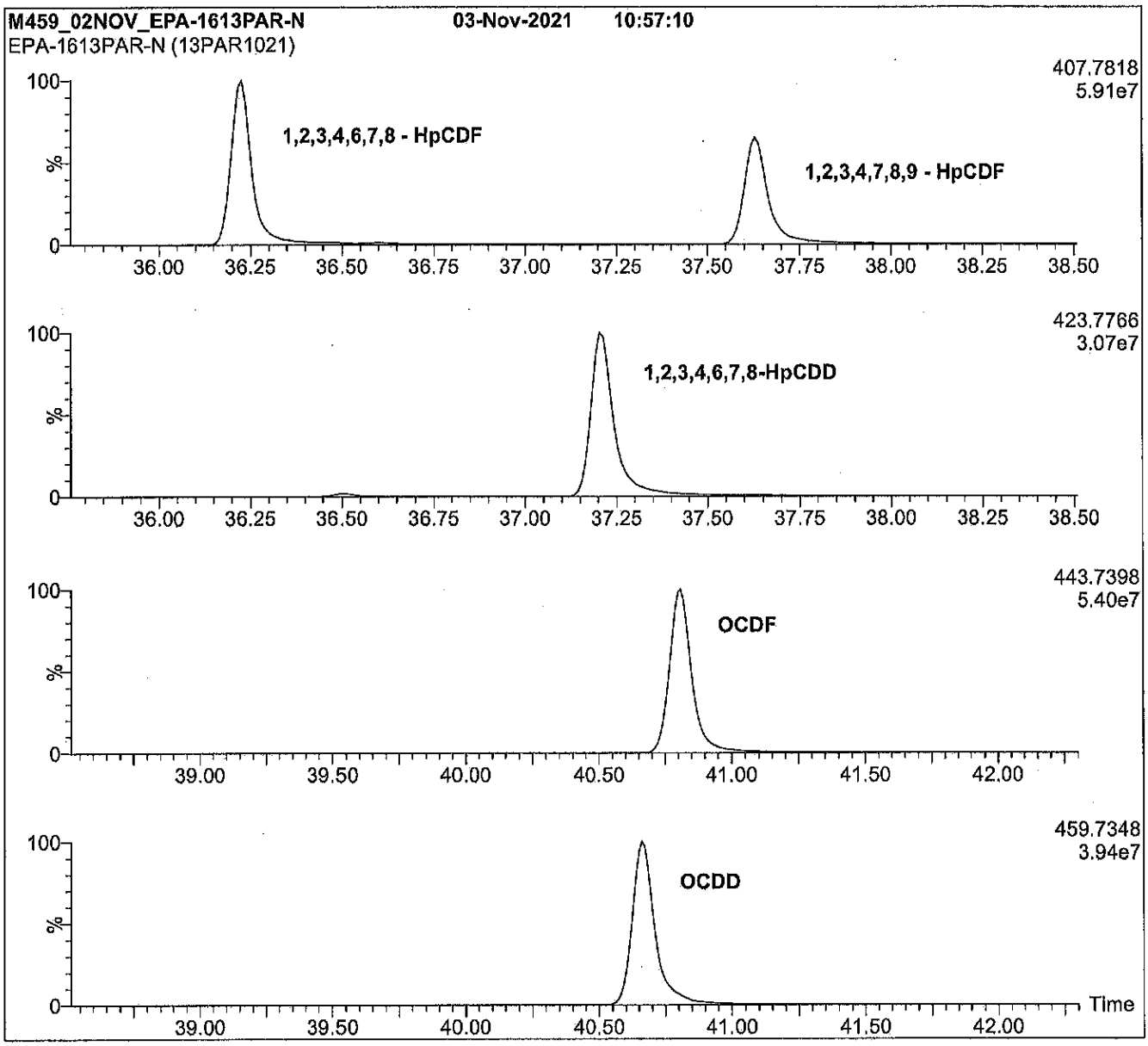


Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1021
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION: K003104

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: **EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)**

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

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Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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INTENDED USE:

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HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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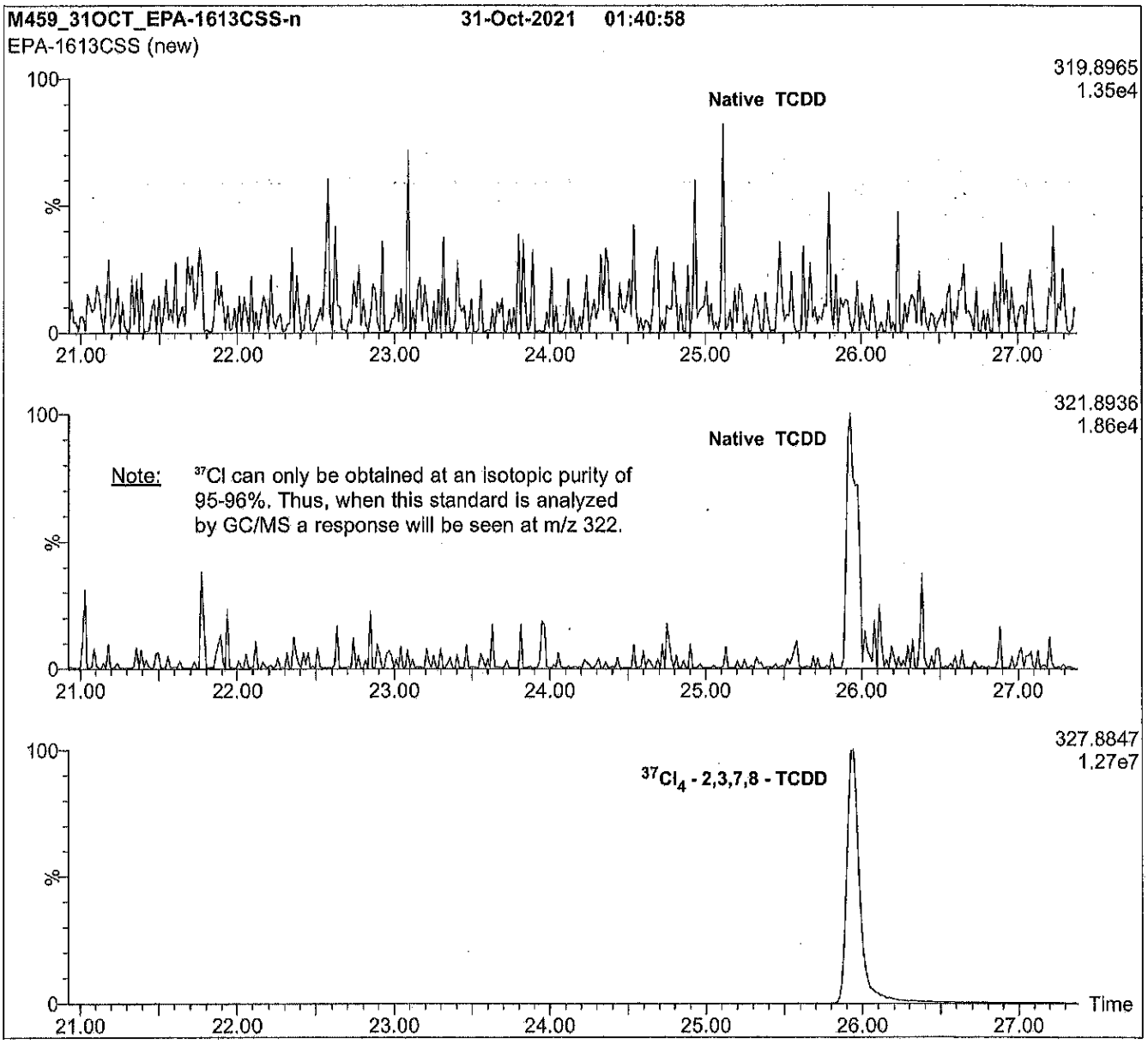
Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION: K3105

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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INTENDED USE:

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HANDLING:

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SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

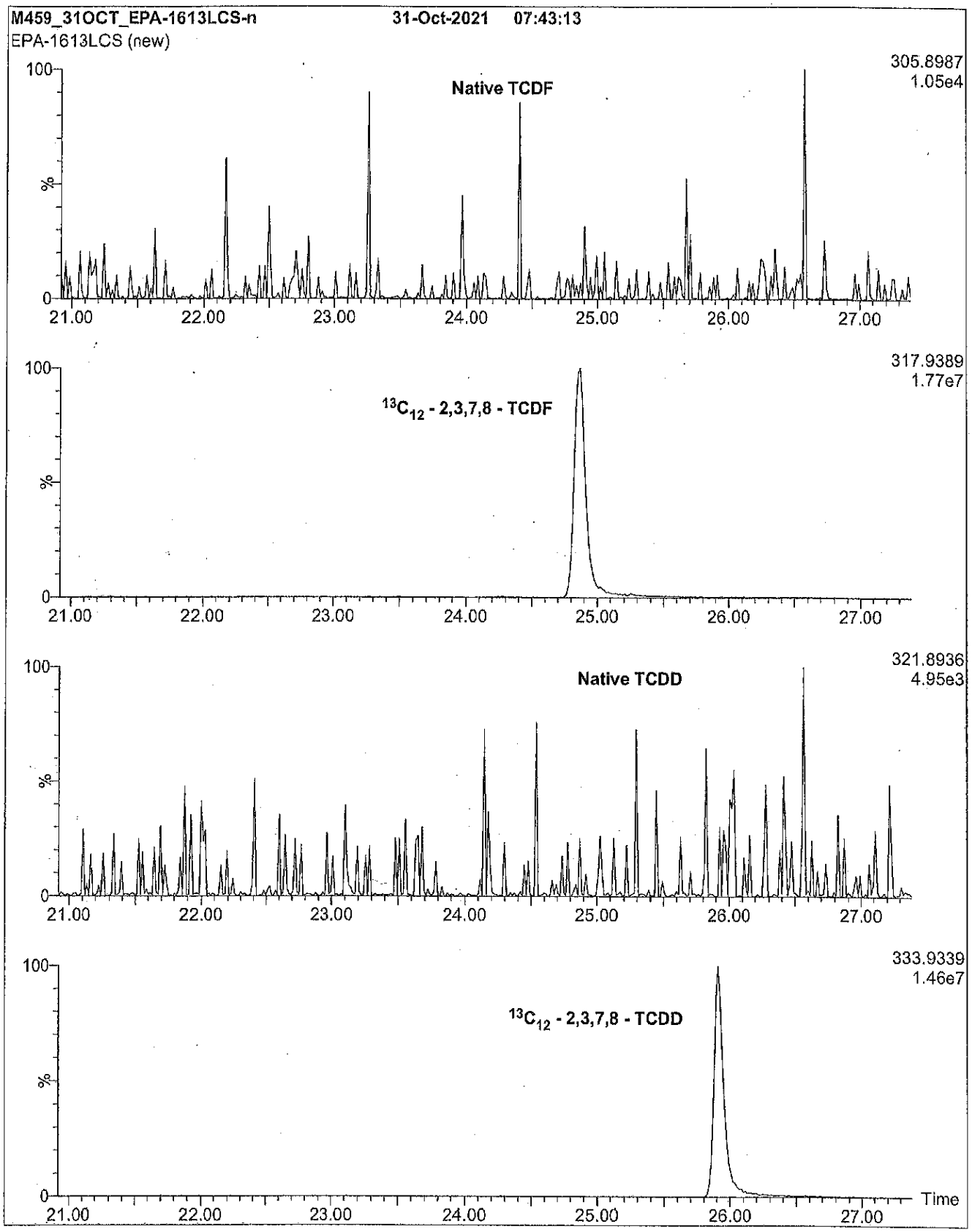


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

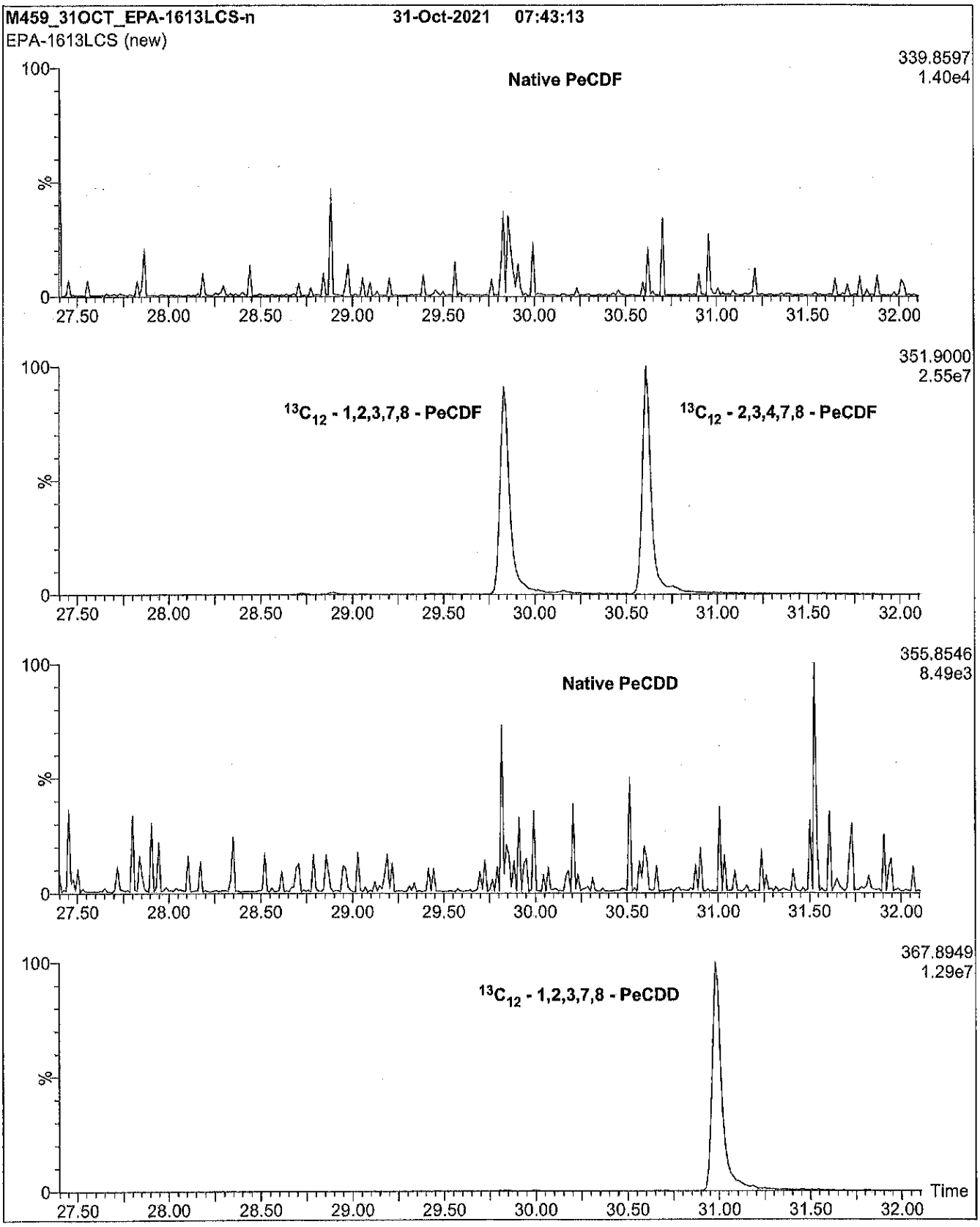


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

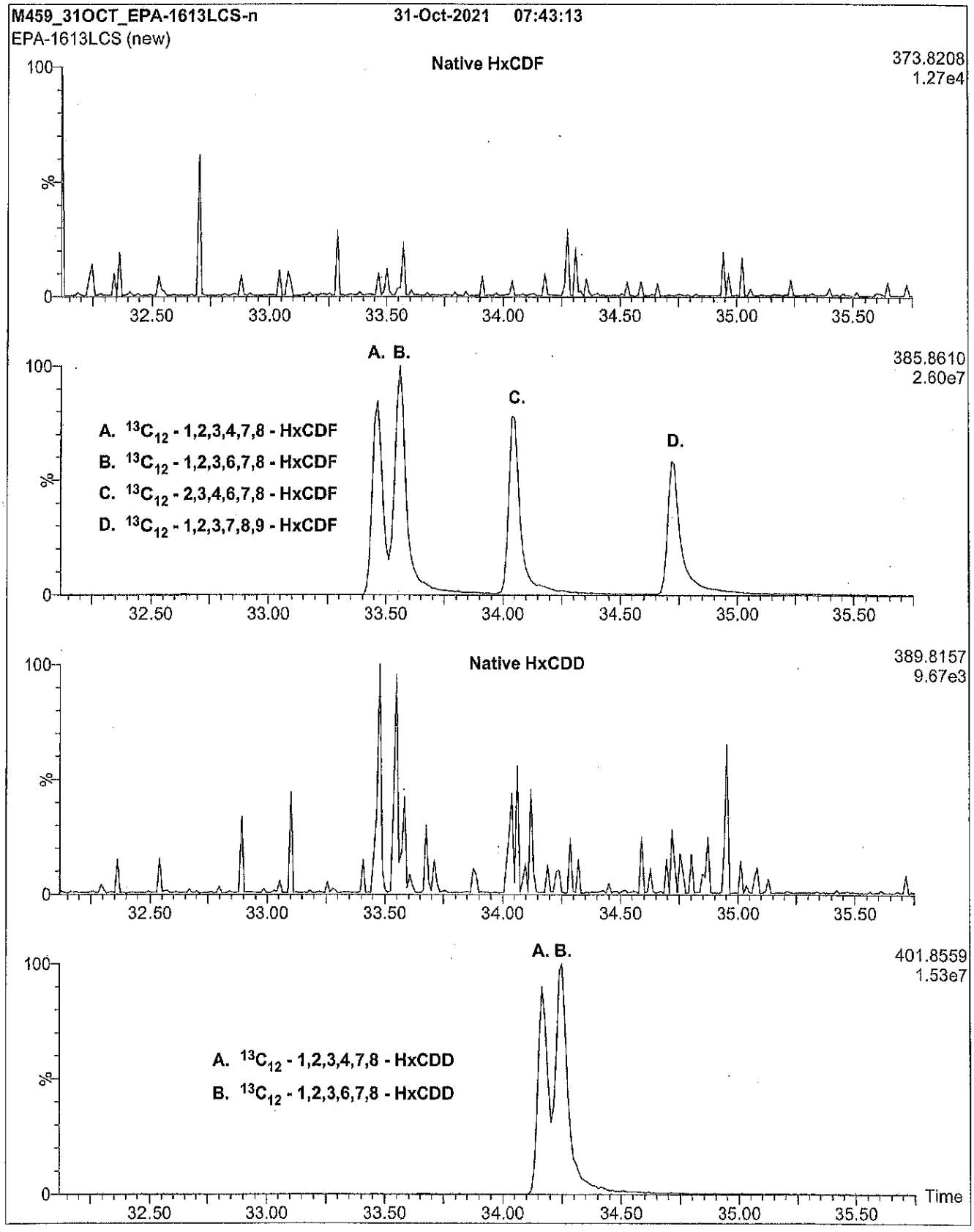


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

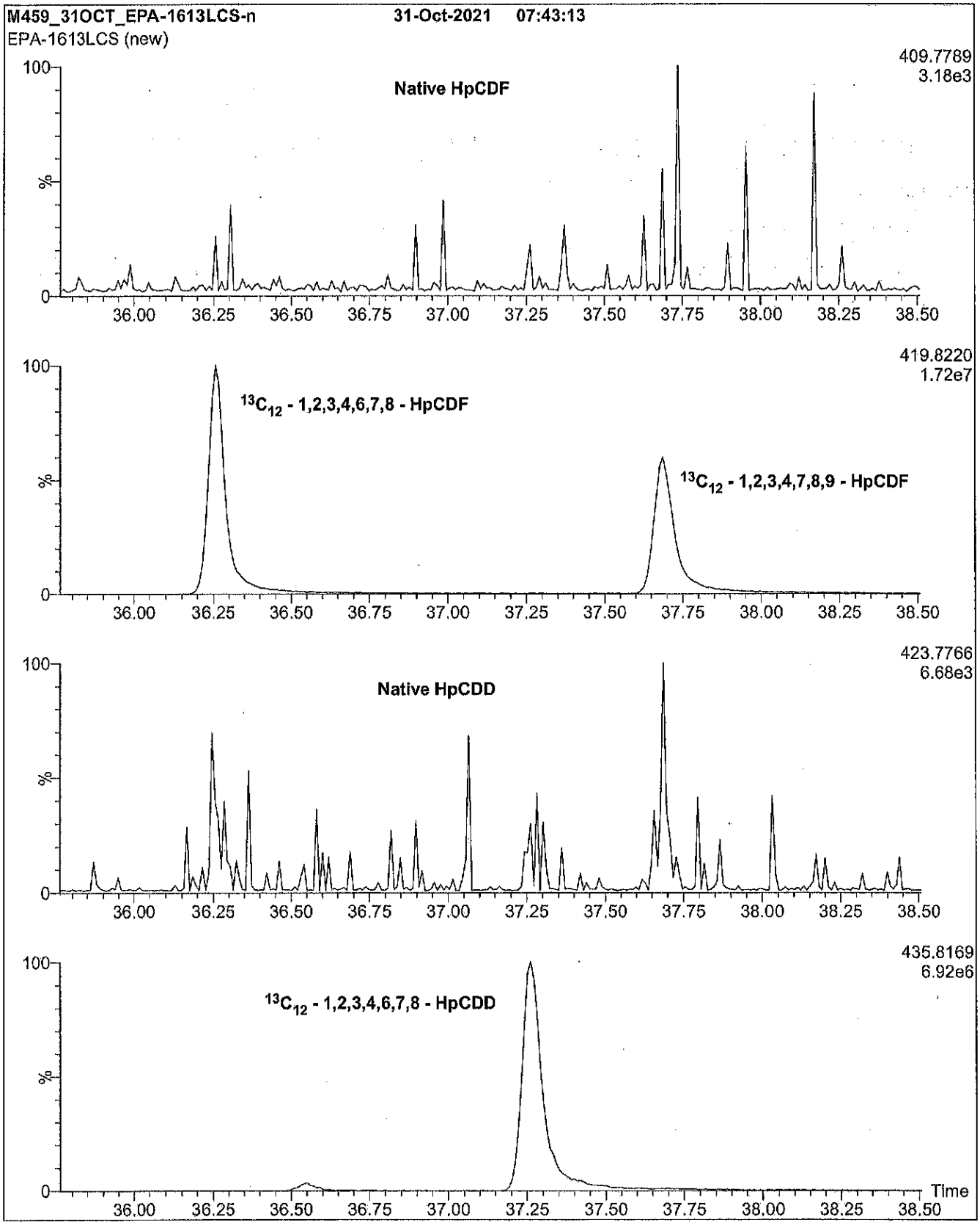
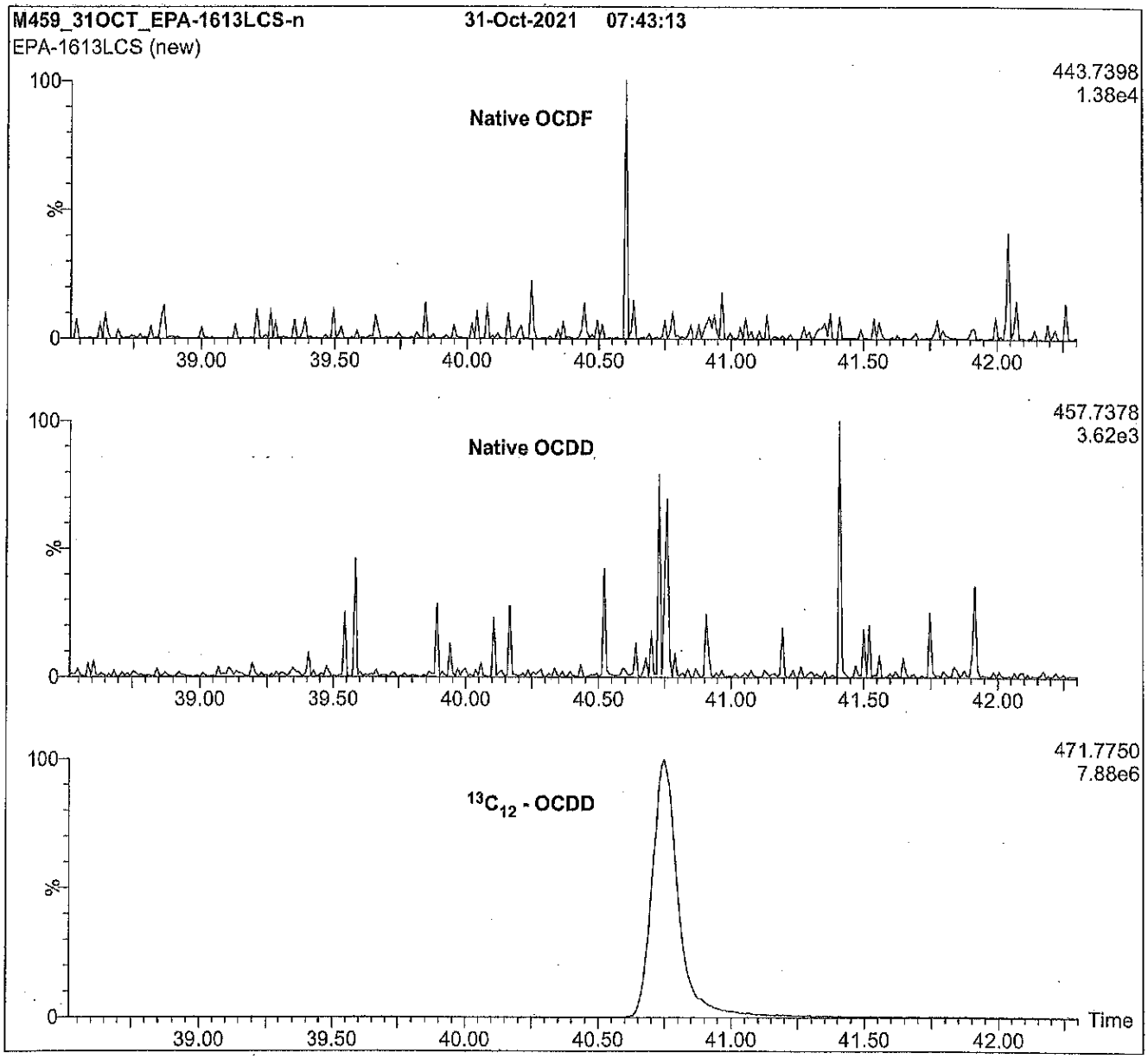


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

K9821

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

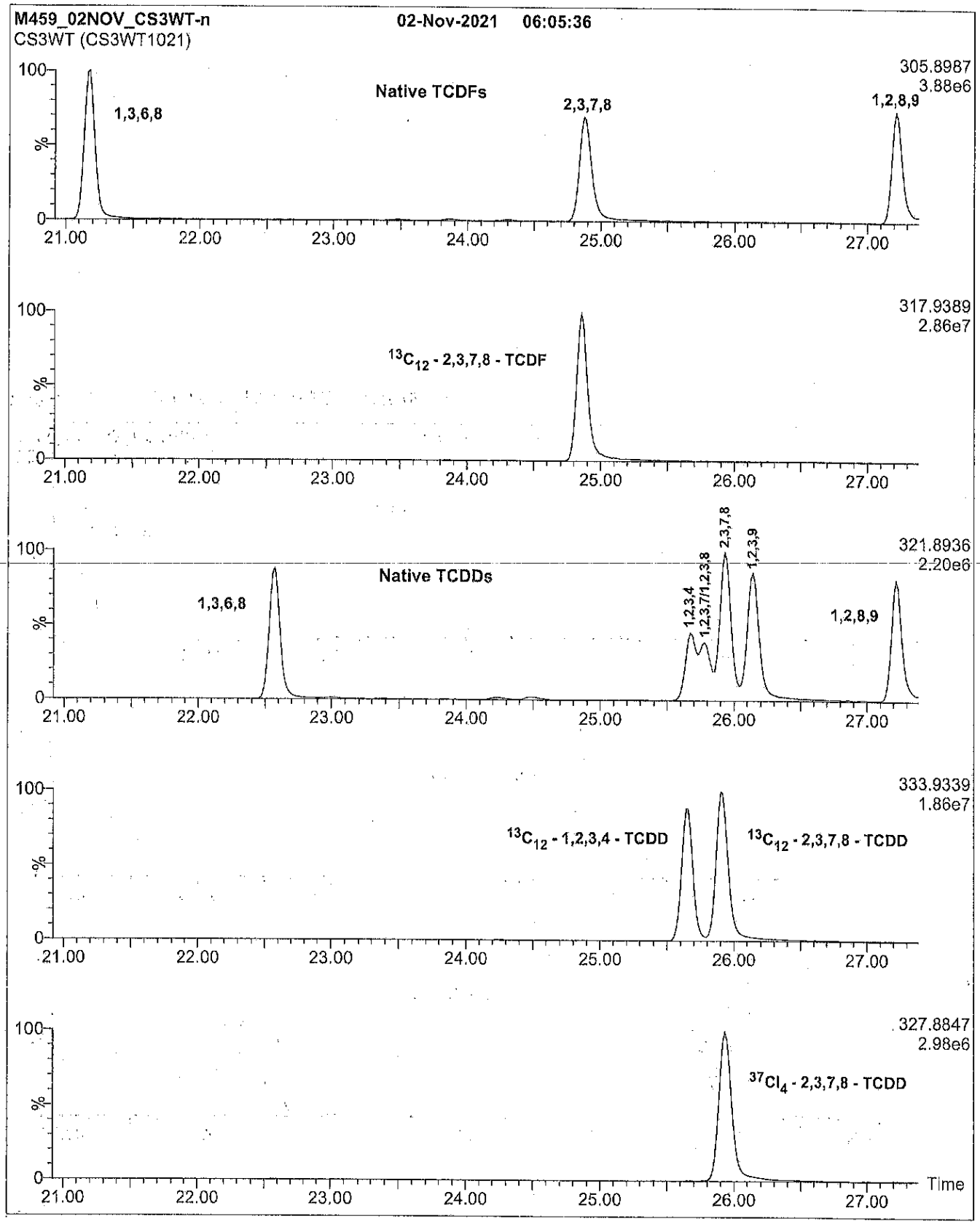


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

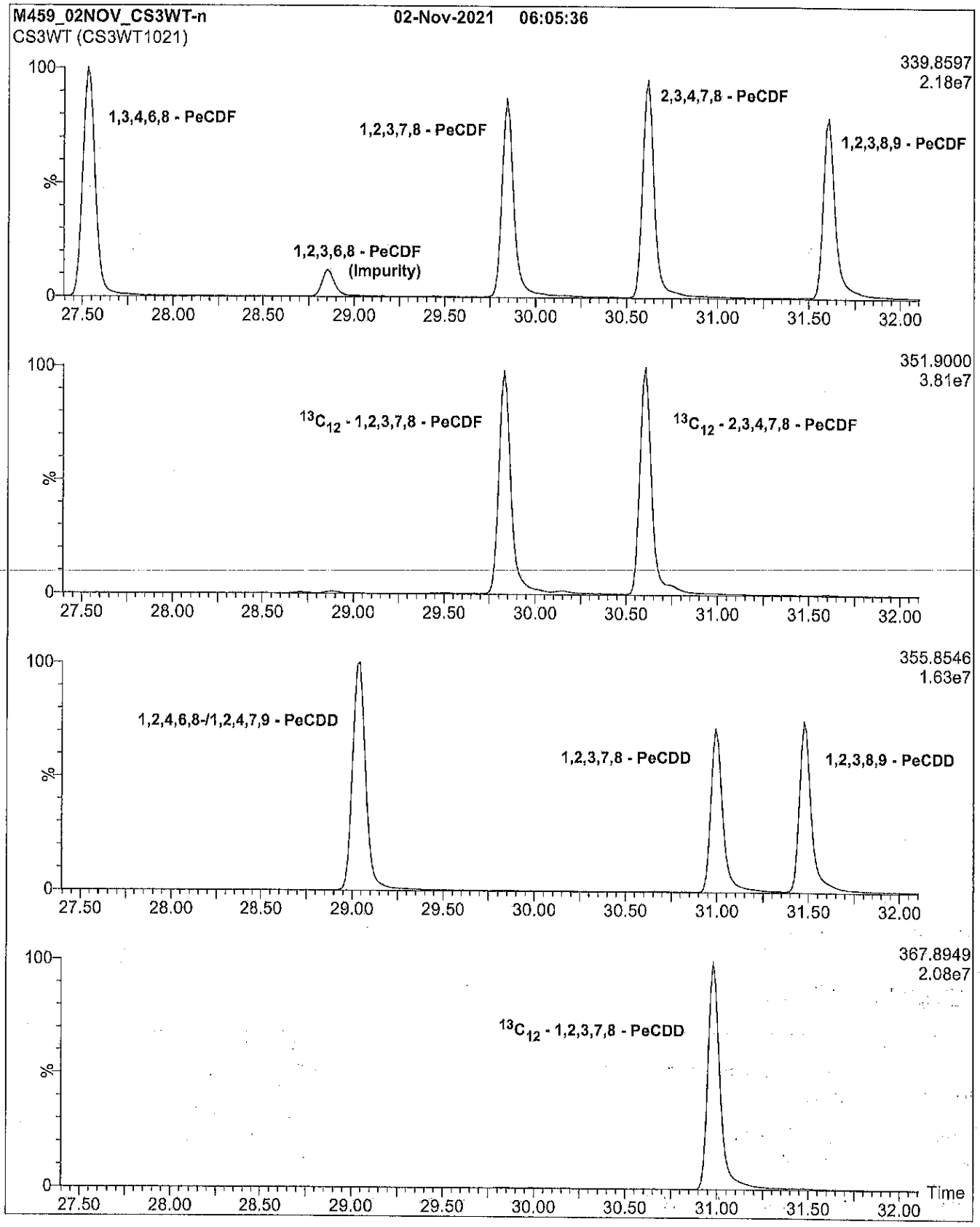


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

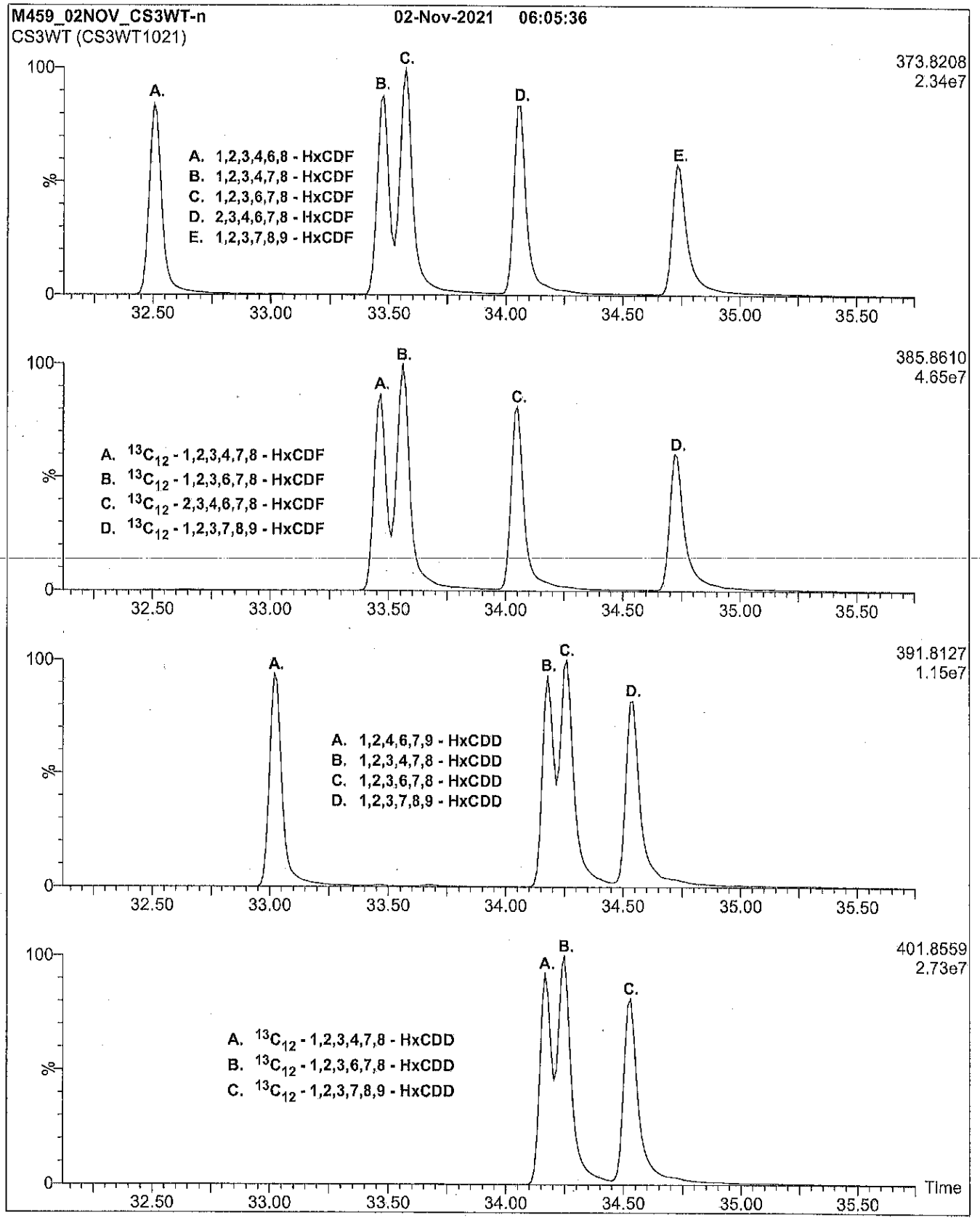


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

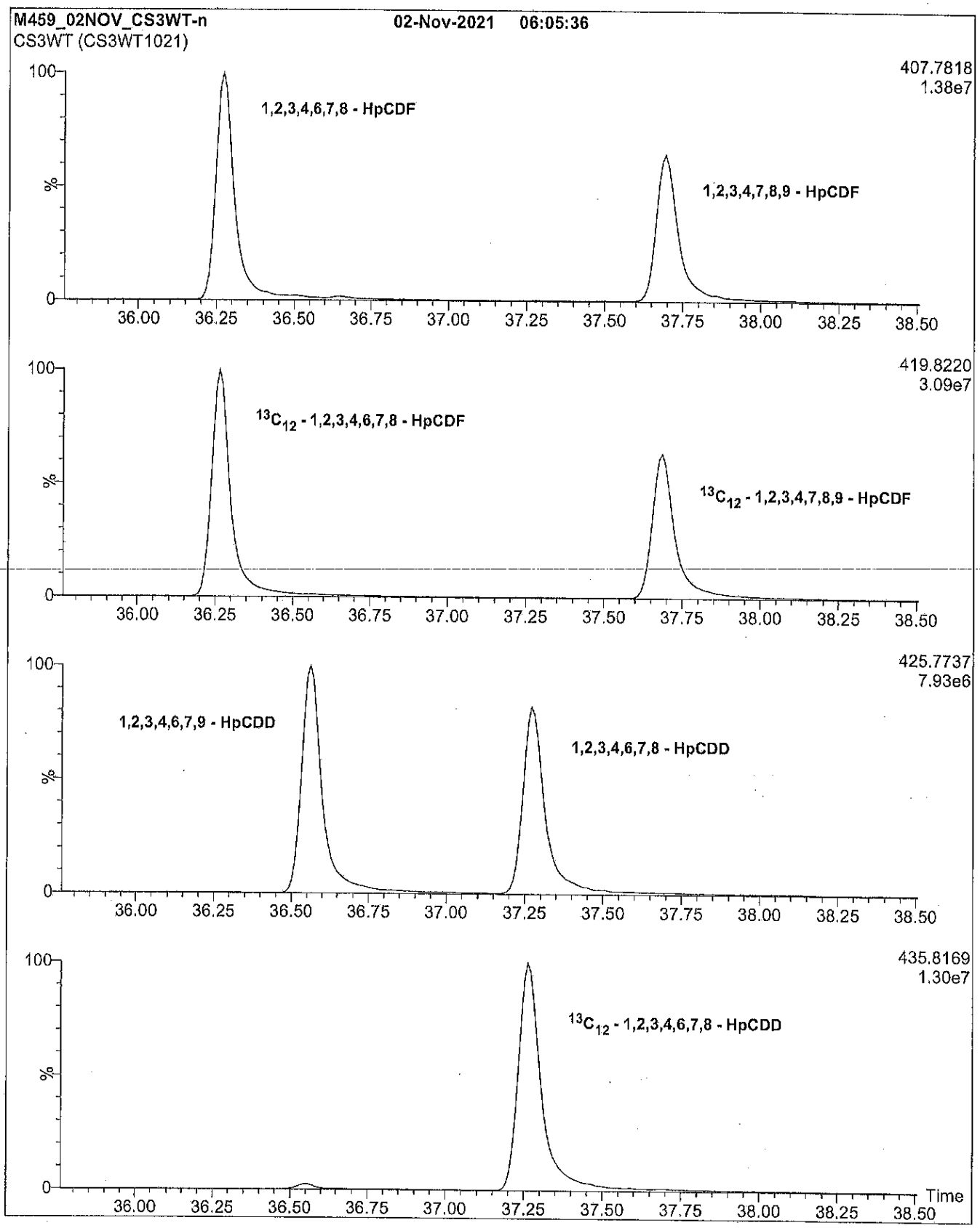
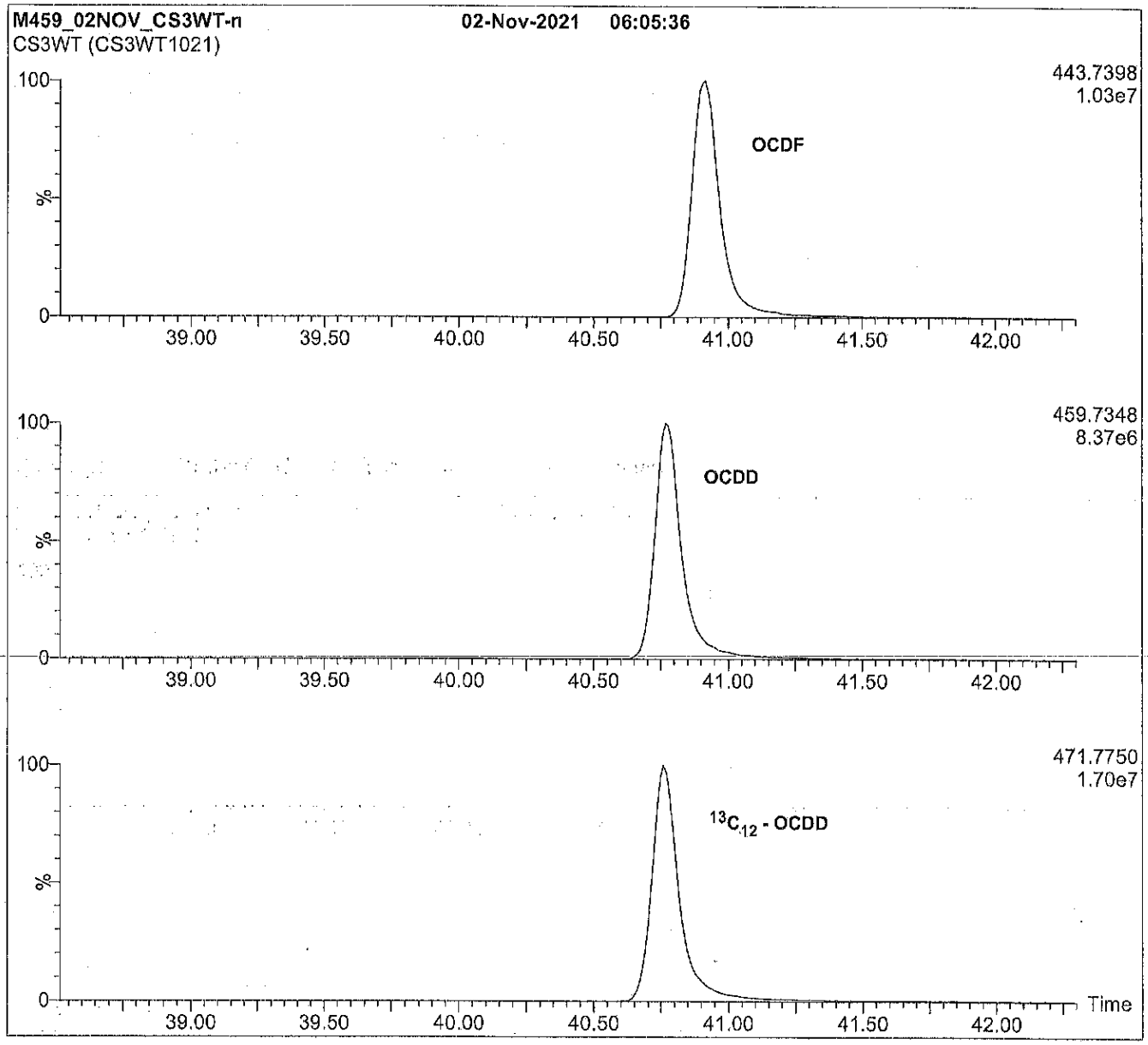


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

K 9985 JK Reed 10/27/22

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots, x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

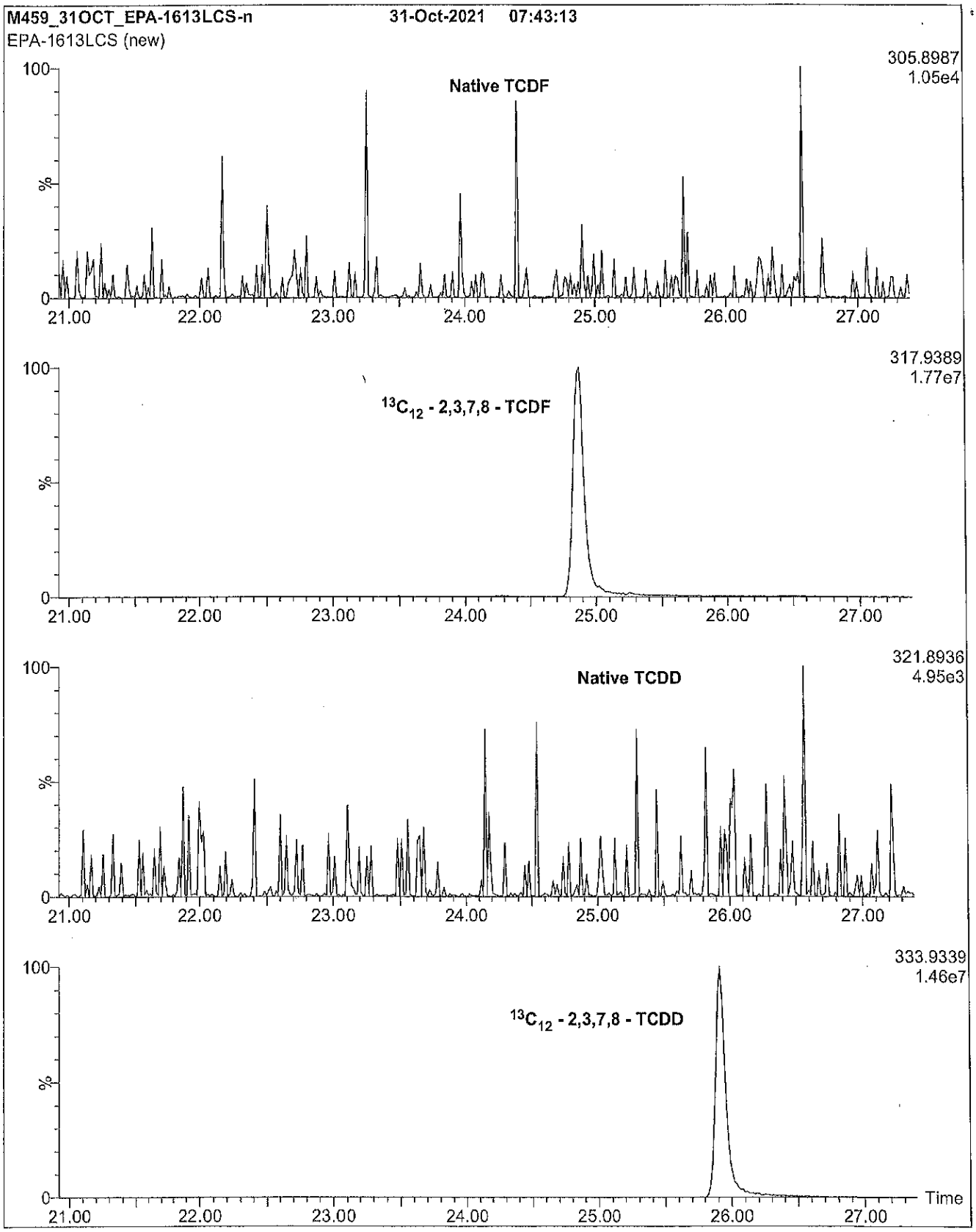


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)

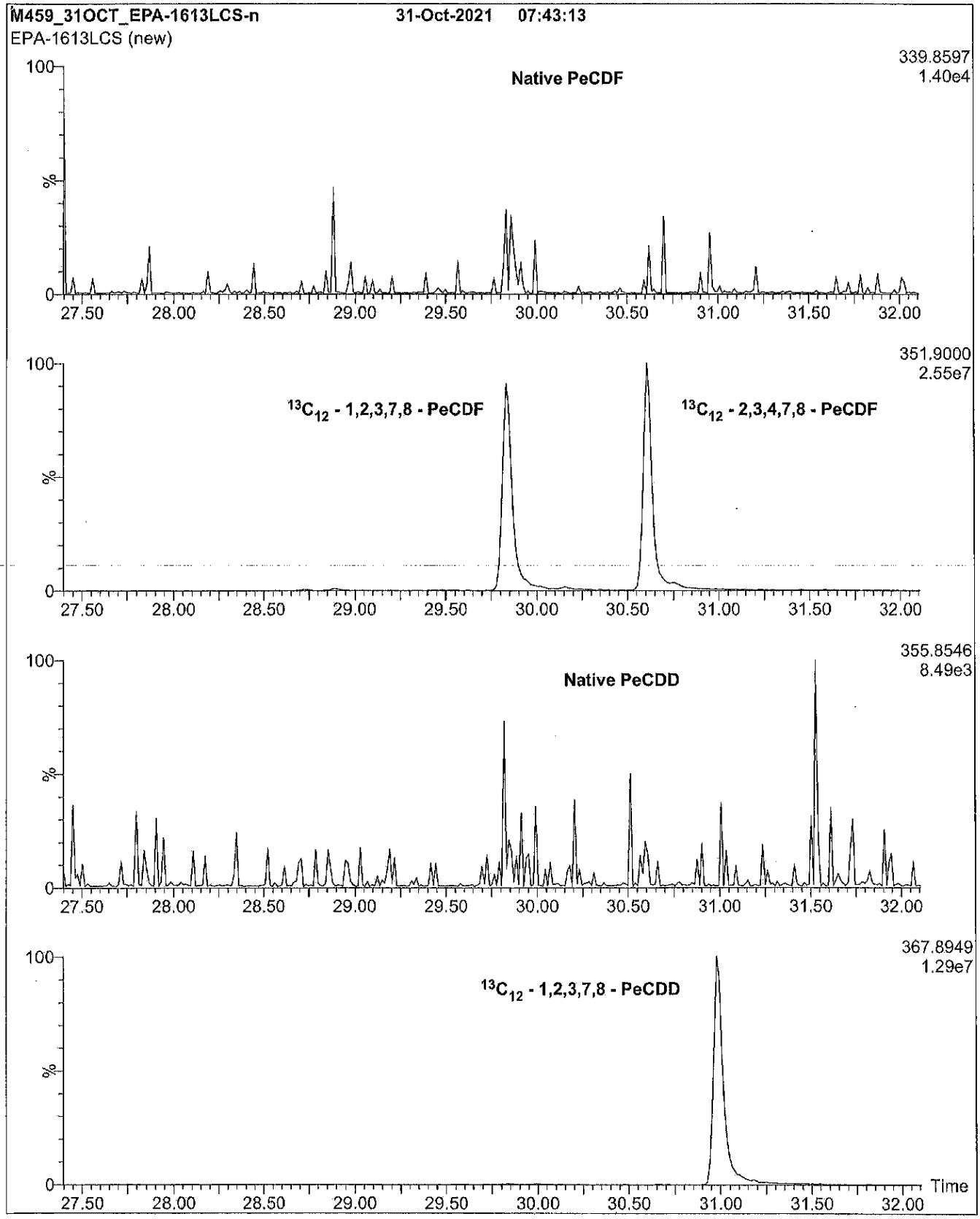


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

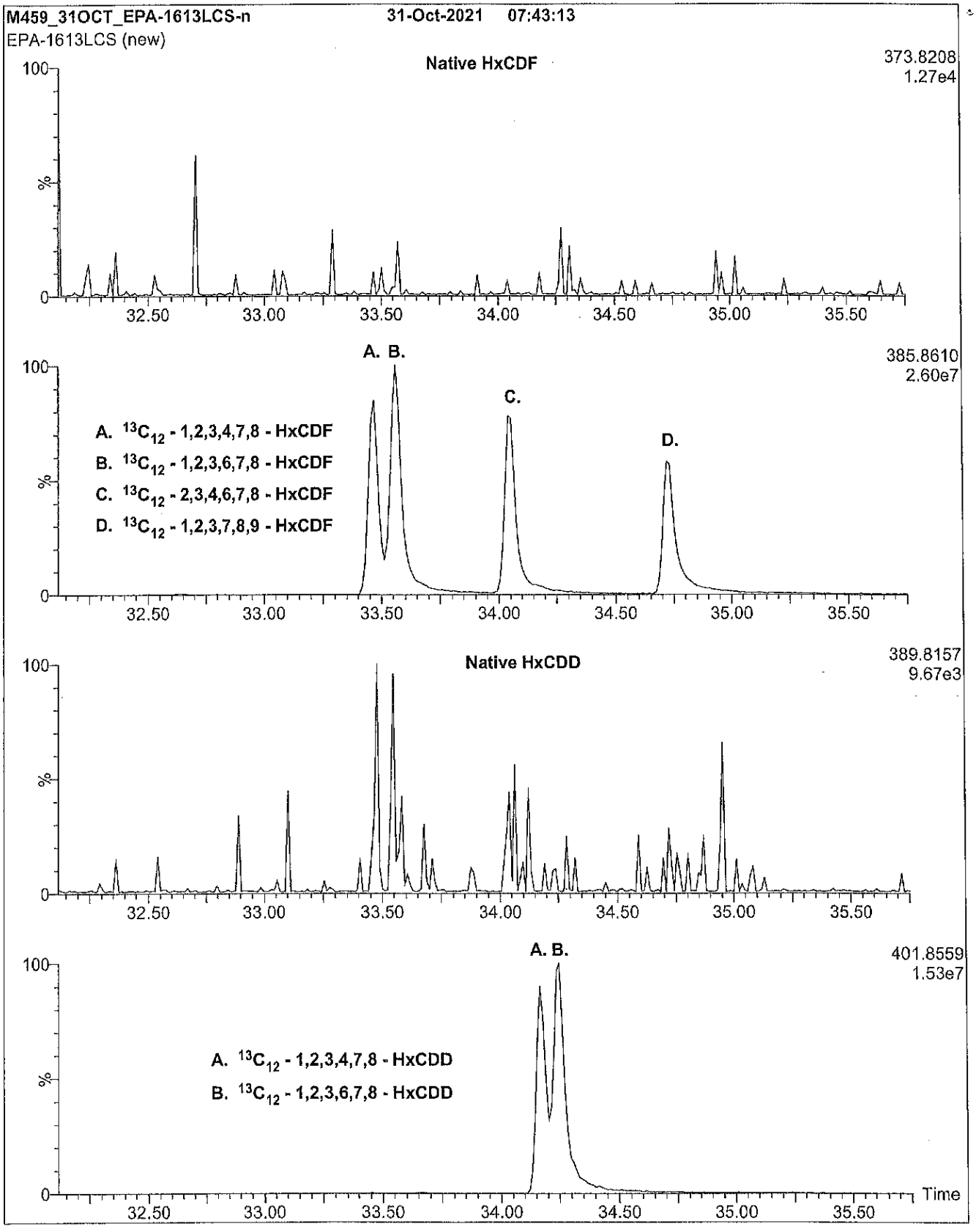


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

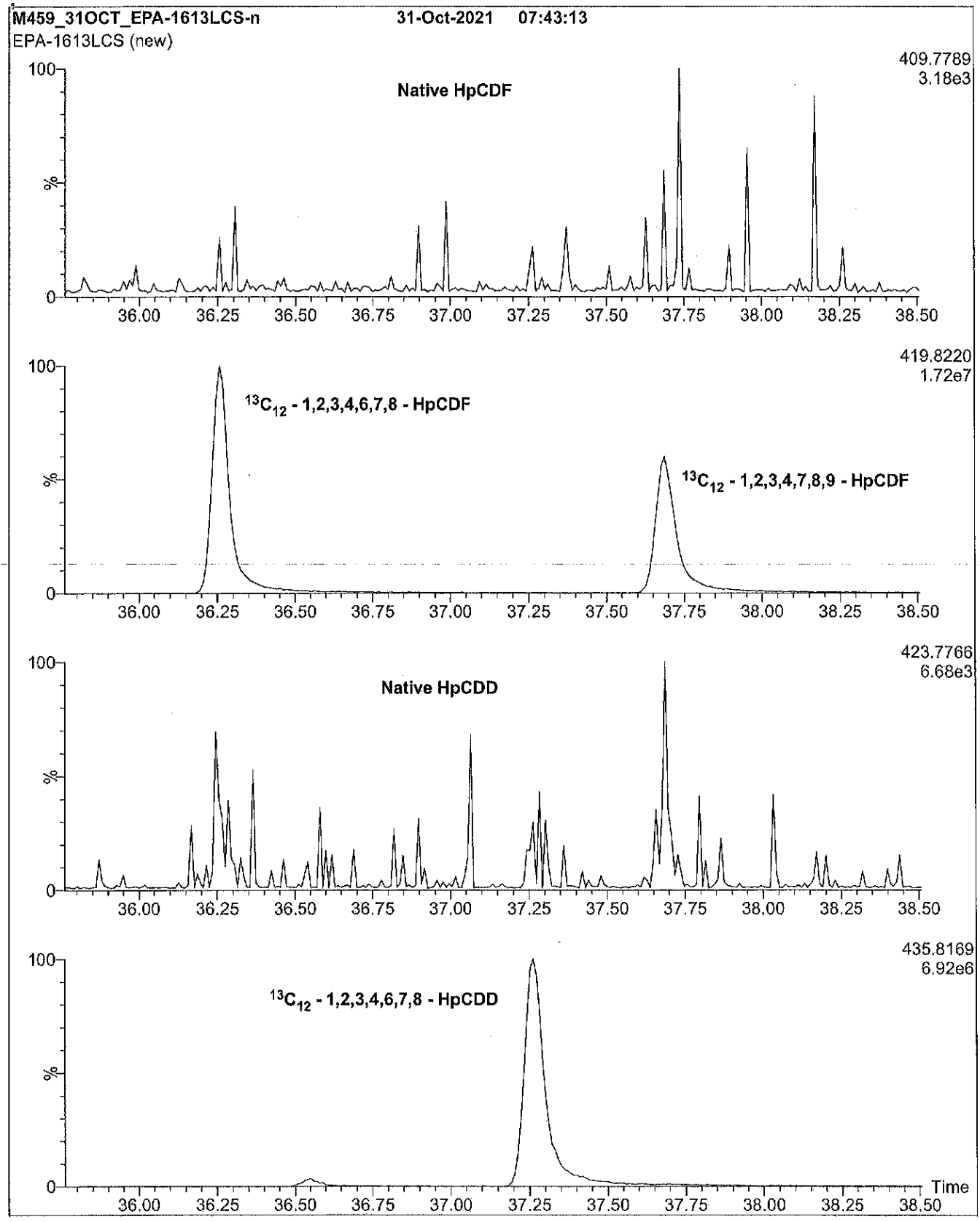
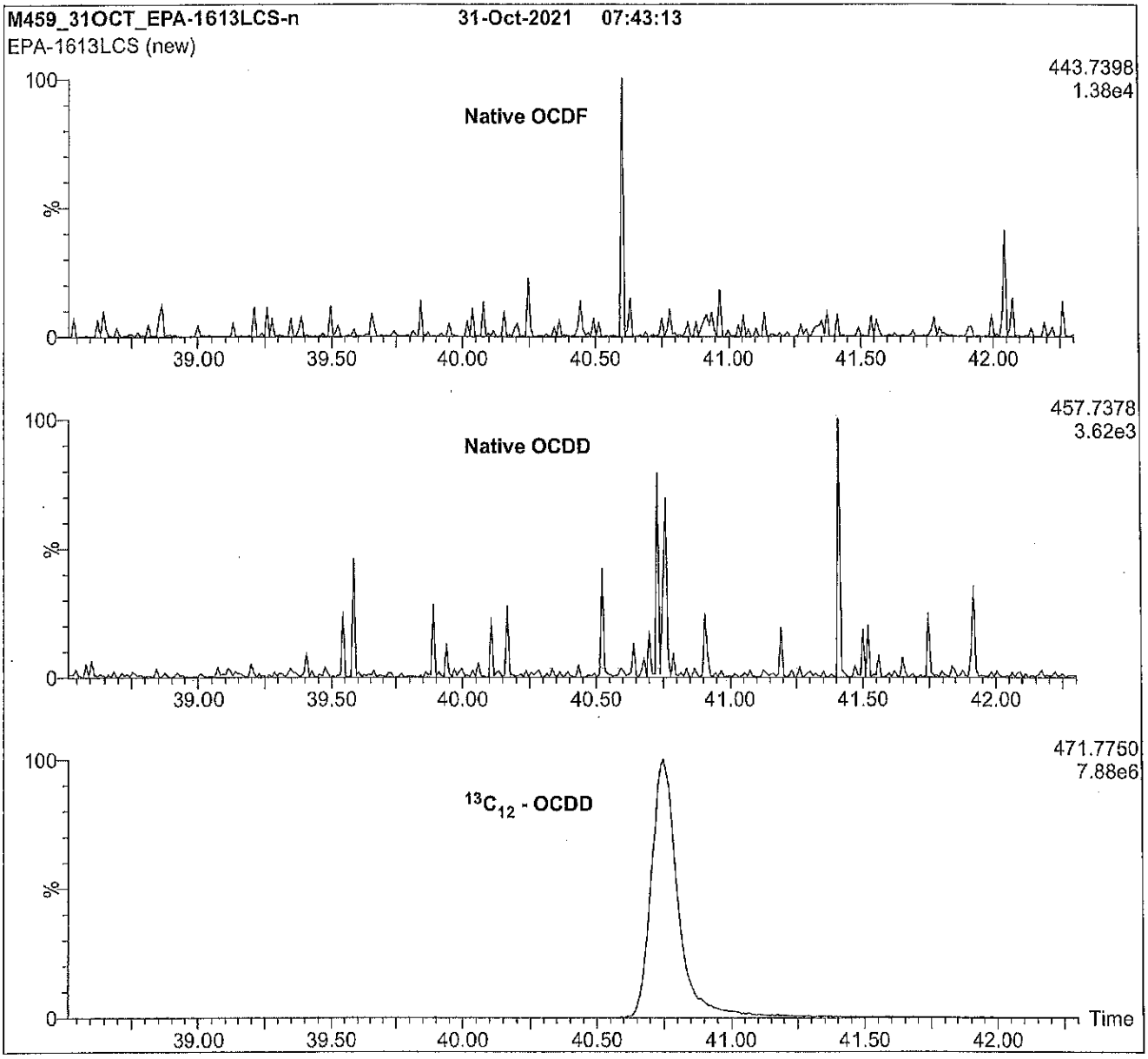


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1021
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

K 9986
Recd. 10/27/22 JR

DESCRIPTION:

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: **EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)**

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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QUALITY MANAGEMENT:

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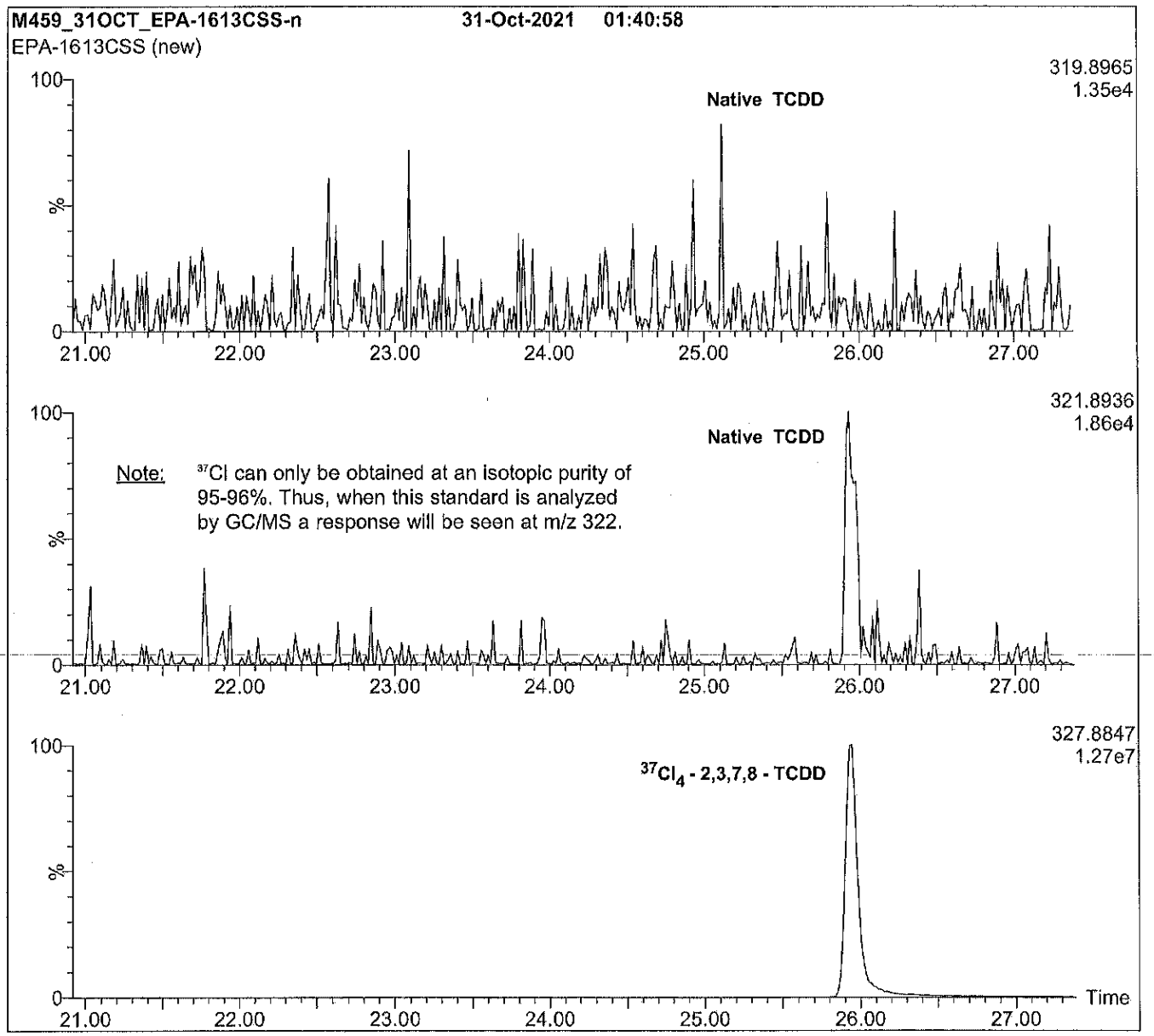
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Recipient Copy

CHAIN-OF-CUSTODY RECORD

COC No. 15600

Order Number: CB015015 Date Shipped: 1/31/2023 AirBill No(s): 633163298570

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. B
LAS VEGAS, NV 89120
PHONE: 1-702-895-8712

To: SUE DUNNIHOO
ANALYTICAL RESOURCES INC.
4611 S. 134TH PLACE SUITE 100
TUKWILA WA 98168
250-695-6207

Sample ID	Qty	Description/Remarks	→ Catalogue Number
PSRM0172 - L&&1373	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0173 - L&&1374	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0174 - ~~L&&1374~~ JS 2/1&6/23 L&&1375	1	PUGET SOUND SEDIMENT RM	PS-SRM

01/31/2023

PUGET SOUND SRM FOR THE DUWAMISH AOC5 PROJECT

Please use the enclosed Sample Preparation Instructions. If catalogue number(s) are listed at the top of the Sample Preparation Instructions use the Sample Preparation Instructions with catalogue number(s) matching the catalogue number(s) of each of the samples listed above.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	01/31/2023 (1400)	Jacob Shafter	02/06/23 1415
Custody Seal(s): Present/Absent	Remarks:		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

Report No. 00, 9/11/2014 *SMP Version 3.3*

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: L002084 **Printed: 3/2/2023 8:59:18AM**

Description:	Dioxin ISC Mix	Expires:	24-Feb-2024
Standard Type:	Other	Prepared:	24-Feb-2023
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	24-Feb-2023 11:19 by PK
Vendor:	NA	Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Analyte	CAS Number	Concentration	Units
2,3,7,8-TCDF	51207-31-9	10	ug/mL
2,3,7,8-TCDD	1746-01-6	10	ug/mL

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 6020B UCT-KED

Total Metals

LDW22-IT789M

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-05 A	SDG:	23B0494
Sampled:	12/08/22 08:17	Prepared:	03/20/23 17:25	File ID:	XDT_m2230321-084
% Solids:	81.61	Preparation:	SWN EPA 3050B	Analyzed:	03/21/23 20:44
Batch:	BLC0184	Sequence:	SLC0332	Initial/Final:	1.027 g Wet / 50 mL
Instrument:	ICPMS2			Calibration:	GC00061

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	33.6	20	0.05	0.24	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 6020B UCT-KED

Total Metals

LDW22-IT789N

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-06 A	SDG:	23B0494
Sampled:	12/08/22 08:17	Prepared:	03/20/23 17:25	File ID:	XDT_m2230321-085
% Solids:	74.04	Preparation:	SWN EPA 3050B	Analyzed:	03/21/23 20:49
Batch:	BLC0184	Sequence:	SLC0332	Initial/Final:	1.072 g Wet / 50 mL
Instrument:	ICPMS2			Calibration:	GC00061

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	2.79	20	0.05	0.25	

PREPARATION BATCH SUMMARY

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Batch: BLC0184 Batch Matrix: Solid
Preparation: SWN EPA 3050B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW22-IT789M	23B0494-05	XDT_m2230321-084	03/20/23 17:25	
LDW22-IT789N	23B0494-06	XDT_m2230321-085	03/20/23 17:25	
Blank	BLC0184-BLK1	XDT_m2230321-042	03/20/23 17:25	
LCS	BLC0184-BS1	XDT_m2230321-043	03/20/23 17:25	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Digestion Log

Analyst: PAR Date: 03/20/23 Time: 1205-1740 Balance ID: BALID

Matrix: SOIL Block ID: 3 Block Temp: 92 Thermometer: 20-4

ARI Sample ID	Btl #	pH<2	Prep Code: SWN Initial Wt (g) Vol (mL)	Prep Code: SWN Final Vol (mL)	Prep Code: Initial Wt (g) Vol (mL)	Prep Code: Final Vol (mL)	Comments
23A87-01	D		1.053	50			
-02			1.038				
-03			1.060				
-04			1.080				
-05			1.077				
-06			1.060				
-07			1.032				
-08			1.065				
-09			1.024				
-10			1.072				
-11			1.058				
-12			1.048				
-13			1.037				
-14			1.026				
-15			1.049				
23A100-01			1.040				
-02			1.043				
-03			1.036				
23B494-05	A		1.027				
-06			1.072				
BLC184-blk	—		—				23A87-01
-bs	—		—				
-dup	—		1.054				
-MS	—		1.055				
-MSD	—		1.056				
-SRM	—		1.001				

Chemical/Reagent ID:

HNO_3: L2678 1:1 HNO_3: L2316 HCl: — H_2O_2: E110560

Tube Lot#: 2210117 Boiling Chip Lot#: — (DoD Only)

Form I

METHOD BLANK DATA SHEET

EPA 6020B UCT-KED

Total Metals

Blank

Laboratory: Analytical Resources, LLC | SDG: 23B0494

Client: Anchor QEA, LLC | Project: AOC4 UR Phase 3

Batch: BLC0184 | Laboratory ID: BLC0184-BLK1 | Prepared: 03/20/23 17:25

Matrix: Solid | Preparation: SWN EPA 3050B | Analyzed: 03/21/23 17:23

Sequence: SLC0332 | Calibration: GC00061 | Instrument: ICPMS2

CAS NO.	Analyte	Concentration (mg/kg wet)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic-75a	ND	20	0.04	0.20	U

LCS / LCS DUPLICATE RECOVERY

EPA 6020B UCT-KED

Total Metals

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Matrix:	Solid	Analyzed:	03/21/23 17:27
Batch:	BLC0184	Laboratory ID:	BLC0184-BS1
Preparation:	SWN EPA 3050B	Sequence Name:	LCS
Initial/Final:	1 g / 50 mL		

COMPOUND	SPIKE ADDED (mg/kg wet)	LCS CONCENTRATION (mg/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Arsenic-75a	25.0	24.7		98.9	80 - 120

* Indicates values outside of QC limits

INITIAL CALIBRATION DATA

EPA 6020B UCT-KED

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	GC00061	Instrument:	ICPMS2
Calibration Date:	03/21/2023 13:58		

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF
Arsenic-75a	0	0	0.2	250	10	216.1	20	213.8	50	206.7	100	209.72

INITIAL CALIBRATION DATA

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC

Instrument: ICPMS2

Calibration: GC00061

Calibration Date: 3/21/2023

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Arsenic-75a	182.72	49.7	0.9999		0.998	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ICP/MS 02 SAMPLE RUN LOG

PE Nexlon ICP-MS Serial No. 81DN1050201

Analysis Date: 3/21/23 **Analyst:** MS **Sequence:** SLCΦ332 **Cal:** GCΦΦC61

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep Code	Dilution	Comments
		SEQ-CAL1	L2923		
		-CAL2	L27Φ9		
		-CAL3	L271Φ		
		-CAL4	L2711		
		-CAL5	L2985		
		-CAL6	L2713		
		-IBL1	—		
		-ICV1	LΦ243		
		-ICB1	L2923		
		-CCV1	L2985		
		-CCB1	L2923		
		-CRL1	L27Φ9		
		-IFA1	L2581		V^{-1}, Co^{57}↑
		-IFB1	L2744		V^{-1}↑/Zn^{67}↓
		-HCV1	L2745		
		-HCV2	L2746		Tb sl. noisy - %R + Analytes OK
		-IBL2&3	—		
		-CCV2			
		-CCB2			
		BLCΦ537-BLK1	REN		
		-BS1			
		23CΦ461-Φ1		2	
	✓	23CΦ124-Φ1			Sc↑
		23CΦ130-Φ1			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ICP/MS 02 SAMPLE RUN LOG

PE Nexlon ICP-MS Serial No. 81DN1050201

Analysis Date: 3/21/23 **Analyst:** MS **Sequence:** — **Cal:** —

All corrections made by analyst unless otherwise noted. MS 3/21/23

Edit Label	Delete Data	ARI Sample ID	Prep Code	Dilution	Comments
		23CΦ124-Φ1	REN	5	Mn, V only
	✓	23CΦΦ98-Φ1	↓	200	
	✓	BLCΦ488-DUP2	↓	↓	VL
	✓	↓ -MS2	↓	↓	
		SEQ-IBL4			
		-CCV3			
		-CCB3			
	✓	-CAL1			Mn, Mo, V Removed
		-CCV4			
		↓ -CCB4			
		BLCΦ184-BLK1	SWN	20	
		↓ -BS1	↓	↓	
		23CΦΦ39-12	↓	↓	Sc↑ - Not Needed As only
		23ACΦ361-Φ1	REN	100	Zn only
		23AΦΦ87-Φ1	SWN	20	
		BLCΦ184-DUP1	↓	↓	Zn RPD↑
		-MS1	↓	↓	Ag %R↓
		-MSD1	↓	↓	↓
		↓ -PS1	↓	↓	60 mL K7409
		SEQ-IBL5			
		-CCV5			
		↓ -CCB5			
		23CΦ197-Φ1	REN	10	
		23CΦ1ΦΦ-Φ4	↓	↓	Zn only

Analytical Resources, Incorporated
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ICP/MS 02 SAMPLE RUN LOG

PE Nexlon ICP-MS Serial No. 81DN1050201

Analysis Date: 3/21/23 **Analyst:** MS **Sequence:** — **Cal:** —

All corrections made by analyst unless otherwise noted. MS 3/21/23

Edit Label	Delete Data	ARI Sample ID	Prep Code	Dilution	Comments
		23CΦ11Φ-Φ2	REN	5	Zn only
		23CΦ167-Φ1	↓	100	↓
		23AΦΦ87-~~Φ~~Φ2	SWN	20	
		-Φ3			
		-Φ4			
		-Φ5			
		-Φ6			
		SEQ-IBL6			
		-CCV6			
		-CCB6			
		23AΦΦ87-Φ7	SWN	20	Sc? No Cr
		-Φ8			
		-Φ9			
		-1Φ			Sc? No Cr
		-11			In sl. no. 3y/ Tb no. 3y No Ag, Pb
		-12			
		-13			
		-14			
		-15			
		SEQ-IBL7			
		-CCV7			
		-CCB7			
	✓	-CAL1			
		-CCV8			

Analytical Resources, Incorporated
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ICP/MS 02 SAMPLE RUN LOG

PE Nexion ICP-MS Serial No. 81DN1050201

Analysis Date: 3/24/23 **Analyst:** MS **Sequence:** ——— **Cal:** ———

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep Code	Dilution	Comments
		SEQ-CCB8			
		23AΦ1ΦΦ-Φ1	SLWN	20	Sc↑/In-↑sl. noisy-%R+Analytes OK No Cr
		-Φ2	↓	↓	↓ ↓
		-Φ3	↓	↓	↓ ↓
		23BΦ494-Φ5	↓	↓	
		-Φ6	↓	↓	
		23C172-11	REN		
		BLCΦ537-DUP1	↓		
		-MS1	↓		Sc, Tb sl. noisy-%R + Analytes OK
		-MSD1	↓		
		SEQ-IBL9			
		-CCV9			
		-CCB9			
		23CΦ172-Φ2	REN		
		-Φ3	↓		
		-Φ4	↓		Sc↑-Not Needed / Gesl. noisy-%R + Analytes OK
		-Φ5	↓		
		-Φ6	↓		
		-Φ7	↓		
		-Φ8	↓		Sc↑-Not Needed
		-Φ9	↓		
		-1Φ	↓		Sc↑-Not Needed
		SEQ-IBLA			
		-CCVA			

Analytical Resources, Incorporated
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ICP/MS 02 SAMPLE RUN LOG

PE Nexlon ICP-MS Serial No. 81DN1050201

Analysis Date: 3/21/23 **Analyst:** MB **Sequence:** ——— **Cal:** ———

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep Code	Dilution	Comments
		SEQ-CCIBA			
		23C0172-12	REN		
		-13			
		-14			
		-15			
		-16			SCI - Not needed
		-17			
		-19			
		-20			
		-21			
		SEQ-IBLB			
		-CCVB			
		-CCBB			
		Rinse/DI			
			MB 3/21/23		

Performance Check Report

Sample ID: STD Performance Check
Sample Date/Time: Tuesday, March 21, 2023 13:03:22
Sample Description:
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\STD Performance Check.mth
Dataset File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\DataSet\Default\STD Performance Check.5489
MassCal File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Conditions File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Dual Detector Mode: Pulse
Acq. Dead Time (ns): 35
Current Dead Time (ns): 35
Torch Z position (mm): 0.00

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Net Intens. SD	Net Intens. RSD	Mode
	Be	9.0	4617.2	4617.214	226.100	4.9	Standard
	In	114.9	70285.7	70285.736	1442.312	2.1	Standard
	U	238.1	54555.1	54555.119	732.429	1.3	Standard
⌈	CeO	155.9	1135.2	0.017	0.001	5.4	Standard
| >	Ce	139.9	65614.3	65614.339	137.274	0.2	Standard
⌊	Ce++	70.0	1695.2	0.026	0.000	1.0	Standard
	Bkgd	220.0	0.2	0.200	0.274	136.9	Standard

Current Conditions File Data

Current Value	Description
1.04	Nebulizer Gas Flow STD/KED [NEB]
1.20	Auxiliary Gas Flow
18.00	Plasma Gas Flow
-11.25	Deflector Voltage
1600.00	ICP RF Power
-1712.00	Analog Stage Voltage
1600.00	Pulse Stage Voltage
0.00	Quadrupole Rod Offset STD [QRO]
-8.00	Cell Rod Offset STD [CRO]
12.00	Discriminator Threshold
-4.00	Cell Entrance/Exit Voltage STD
0.00	RPa
0.25	RPq
1.04	DRC Mode NEB
-10.00	DRC Mode QRO
-3.00	DRC Mode CRO
-7.00	DRC Mode Cell Entrance/Exit Voltage
0.60	Cell Gas A
0.00	Cell Gas B
250.00	Axial Field Voltage
-16.50	KED Mode CRO
-12.00	KED Mode QRO
-4.00	KED Mode Cell Entrance Voltage
-39.00	KED Mode Cell Exit Voltage
0.00	KED Cell Gas A
5.00	KED Cell Gas B
0.00	KED RPa
0.25	KED RPq
475.00	KED Mode Axial Field Voltage

Performance Check Report

Sample ID: STD Performance Check
Sample Date/Time: Tuesday, March 21, 2023 13:12:11
Sample Description:
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\STD Performance Check.mth
Dataset File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\DataSet\Default\STD Performance Check.5495
MassCal File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Conditions File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Dual Detector Mode: Pulse
Acq. Dead Time (ns): 35
Current Dead Time (ns): 35
Torch Z position (mm): 0.00

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Net Intens. SD	Net Intens. RSD	Mode
	Be	9.0	5001.3	5001.342	22.292	0.4	Standard
	In	114.9	71893.9	71893.924	448.844	0.6	Standard
	U	238.1	55433.1	55433.146	444.350	0.8	Standard
⌈	CeO	155.9	1218.3	0.018	0.001	3.1	Standard
| >	Ce	139.9	68266.0	68265.990	380.532	0.6	Standard
⌊	Ce++	70.0	1785.2	0.026	0.001	2.3	Standard
	Bkgd	220.0	0.2	0.233	0.149	63.9	Standard

Current Conditions File Data

Current Value	Description
1.04	Nebulizer Gas Flow STD/KED [NEB]
1.20	Auxiliary Gas Flow
18.00	Plasma Gas Flow
-11.25	Deflector Voltage
1600.00	ICP RF Power
-1712.00	Analog Stage Voltage
1600.00	Pulse Stage Voltage
0.00	Quadrupole Rod Offset STD [QRO]
-8.00	Cell Rod Offset STD [CRO]
12.00	Discriminator Threshold
-4.00	Cell Entrance/Exit Voltage STD
0.00	RPa
0.25	RPq
1.04	DRC Mode NEB
-10.00	DRC Mode QRO
-3.00	DRC Mode CRO
-7.00	DRC Mode Cell Entrance/Exit Voltage
0.60	Cell Gas A
0.00	Cell Gas B
250.00	Axial Field Voltage
-16.50	KED Mode CRO
-12.00	KED Mode QRO
-4.00	KED Mode Cell Entrance Voltage
-39.00	KED Mode Cell Exit Voltage
0.00	KED Cell Gas A
5.00	KED Cell Gas B
0.00	KED RPa
0.25	KED RPq
475.00	KED Mode Axial Field Voltage

SmartTune Wizard - Summary

Optimization Summary

SmartTune file: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Wizard\SmartTune\ARIdaily_UCT.swz

Start Time: 3/21/2023 1:03:09 PM
End Time: 3/21/2023 1:14:15 PM

STD Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9): 4617.21
Obtained Intensity (In 115): 70285.74
Obtained Intensity (U 238): 54555.12
Obtained Intensity (Bkgd 220): 0.20
Obtained Formula (Ce++ 70 / Ce 140): 0.026 (=1695.23 / 65614.34)
Obtained Formula (CeO 156 / Ce 140): 0.017 (=1135.18 / 65614.34)
Obtained RSD (Be 9): 0.0490
Obtained RSD (In 115): 0.0205
Obtained RSD (U 238): 0.0134

Torch Alignment - [Passed]

Vertical	Horizontal	Intensity
0.81 mm	0.00 mm	69502.66

Nebulizer Gas Flow STD/KED [NEB] - [Passed] Optimum value(s): 1.04
Obtained Intensity (In 115): 68348.11
Obtained Formula (CeO 156 / Ce 140): 0.0198 (=1242.05 / 62794.71)

Mass Calibration and Resolution - [Passed] Optimum value(s): N/A
Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.704)
Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.725)
Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.7/0.700)
Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.716)

QID STD/DRC - Optimum value(s): Correlation Coefficient = 0.991; Intercept = -11.82

KED Mode QID - Optimum value(s): Correlation Coefficient = 1.000; Intercept = -12.44

STD Performance Check - [Passed] Optimum value(s): N/A
Obtained Intensity (Be 9): 5001.34
Obtained Intensity (In 115): 71893.92
Obtained Intensity (U 238): 55433.15
Obtained Intensity (Bkgd 220): 0.23
Obtained Formula (Ce++ 70 / Ce 140): 0.026 (=1785.24 / 68265.99)
Obtained Formula (CeO 156 / Ce 140): 0.018 (=1218.32 / 68265.99)
Obtained RSD (Be 9): 0.0045
Obtained RSD (In 115): 0.0062
Obtained RSD (U 238): 0.0080

SmartTune Wizard - Details

Optimization Details

SmartTune file: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Wizard\SmartTune\ARIdaily_UCT.swz

Optimization Status

Start Time: 3/21/2023 1:03:09 PM

STD Performance Check
	Optimization Settings:
		Method: STD Performance Check.mth.
		Intensity Criterion: Be 9 > 2000
		Intensity Criterion: In 115 > 40000
		Intensity Criterion: U 238 > 30000
		Intensity Criterion: Bkgd 220 <= 1
		Formula Criterion: Ce++ 70 / Ce 140 <= 0.03
		Formula Criterion: CeO 156 / Ce 140 <= 0.025
		RSD Criterion: Be 9.0122 < 0.05
		RSD Criterion: In 114.904 < 0.05
		RSD Criterion: U 238.05 < 0.05

	Optimization Results:
	Initial Try
		Obtained Intensity (Be 9): 4617.21
		Obtained Intensity (In 115): 70285.74
		Obtained Intensity (U 238): 54555.12
		Obtained Intensity (Bkgd 220): 0.20
		Obtained Formula (Ce++ 70 / Ce 140): 0.026 (=1695.23 / 65614.34)
		Obtained Formula (CeO 156 / Ce 140): 0.017 (=1135.18 / 65614.34)
		Obtained RSD (Be 9): 0.0490
		Obtained RSD (In 115): 0.0205
		Obtained RSD (U 238): 0.0134

[Passed] Optimum value(s): N/A

Torch Alignment
	Optimization Settings:
		Method: Torch Alignment.mth.
		Intensity Criterion: In 115 Maximum

	Optimization Results:
		Vertical	Horizontal	Intensity
[Passed]	0.81 mm	0.00 mm	69502.66

Nebulizer Gas Flow STD/KED [NEB]
	Optimization Settings:
		Method: Optimize.mth.
			Initial Try - Start/End/Step: 1/1.1/0.01.
		Intensity Criterion: In 115 Maximum
		Formula Criterion: CeO 156 / Ce 140 <= 0.025

	Optimization Results:
	Initial Try

		Obtained Intensity (In 115): 68348.11
		Obtained Formula (CeO 156 / Ce 140): 0.0198 (=1242.05 / 62794.71)
[Passed] Optimum value(s): 1.04

Mass Calibration and Resolution
Optimization Settings:
Method: Tuning.mth.
MassCal File: Default.tun
Iterations: 6
Target accuracy (+/- amu): 0.05 for Mass Cal. and 0.03 for Resolution
Peak height (%) for Res. Opt.: 10

Optimization Results:
Initial Try
Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.704)
Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.725)
Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.7/0.700)
Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.716)
[Passed] Optimum value(s): N/A

QID STD/DRC
Optimization Settings:
Method: QID Calibration.mth.
Initial Try - Start/End/Step: -20/0/0.5.

Optimization Results:
Initial Try

Optimum value(s): Correlation Coefficient = 0.991; Intercept = -11.82

Analyte	Mass	Points	DAC	MaxIntensity
Li	7	41	-12.5	19273
Mg	24	41	-13	33479.2
In	115	41	-9.5	70517.6
Ce	140	41	-7.5	67237.9
Pb	208	41	-7	33034.1
U	238	41	-7	55571.9

KED Mode QID
Optimization Settings:
Method: QID Calibration.mth.
Initial Try - Start/End/Step: -20/0/0.5.

Optimization Results:
Initial Try

Optimum value(s): Correlation Coefficient = 1.000; Intercept = -12.44

Analyte	Mass	Points	DAC	MaxIntensity
Li	7	41	-12.5	13234.1
Mg	24	41	-12.5	20294.4
In	115	41	-9	42475.1
Ce	140	41	-8	52805.4
Pb	208	41	-5.5	28267.9
U	238	41	-5	44023.7

STD Performance Check
Optimization Settings:
Method: STD Performance Check.mth.
Intensity Criterion: Be 9 > 2000
Intensity Criterion: In 115 > 40000

```
            Intensity Criterion: U 238 > 30000
            Intensity Criterion: Bkgd 220 <= 1
            Formula Criterion: Ce++ 70 / Ce 140 <= 0.03
            Formula Criterion: CeO 156 / Ce 140 <= 0.025
            RSD Criterion: Be 9.0122 < 0.05
            RSD Criterion: In 114.904 < 0.05
            RSD Criterion: U 238.05 < 0.05

       Optimization Results:
       Initial Try
            Obtained Intensity (Be 9): 5001.34
            Obtained Intensity (In 115): 71893.92
            Obtained Intensity (U 238): 55433.15
            Obtained Intensity (Bkgd 220): 0.23
            Obtained Formula (Ce++ 70 / Ce 140): 0.026 (=1785.24 / 68265.99)
            Obtained Formula (CeO 156 / Ce 140): 0.018 (=1218.32 / 68265.99)
            Obtained RSD (Be 9): 0.0045
            Obtained RSD (In 115): 0.0062
            Obtained RSD (U 238): 0.0080

[Passed]  Optimum value(s): N/A

End Time: 3/21/2023 1:14:15 PM
```

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 13:58:36
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L				21260	0	Standard
Cl	**37**		ug/L				3214376	0	Standard
Sc	**45**		ug/L				492227	1	Standard
V	**51**		ug/L				6507	0	Standard
V-1	**51**		ug/L				306	7	Standard
Cr	**52**		ug/L				19241	1	Standard
Cr	**53**		ug/L				191	7	Standard
Mn	**55**		ug/L				720	5	Standard
Ge	**72**		ug/L				28932	1	KED
Ni	**60**		ug/L				7	25	KED
Ni	**62**		ug/L				3	91	KED
Cu	**63**		ug/L				72	6	KED
Cu	**65**		ug/L				34	11	KED
Zn	**66**		ug/L				27	15	KED
Zn	**67**		ug/L				6	17	KED
As	**75**		ug/L				4	40	KED
Y	**89**		ug/L				318208	1	Standard
Kr	**83**		ug/L				61	11	Standard
In-1	**115**		ug/L				8822	4	KED
Mo	**98**		ug/L				7	43	KED
Cd	**111**		ug/L				0	86	KED
Cd	**114**		ug/L				2	39	KED
In	**115**		ug/L				459745	1	Standard
Ag	**107**		ug/L				38	24	Standard
Tb	**159**		ug/L				682842	2	Standard
Pb	**208**		ug/L				162	21	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL2
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:03:10
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	22678	1	Standard
	Cl	**37**		ug/L			3214376	3269225	1	Standard
⎡>	**Sc**	**45**		ug/L			492227	516531	2	Standard
⎢	**V**	**51**	**0.200**	ug/L	0.006	2	6507	10885	3	Standard
⎢	**V-1**	**51**	**0.200**	ug/L	0.001	0	306	4705	2	Standard
⎢	**Cr**	**52**	**0.500**	ug/L	0.035	6	19241	29142	4	Standard
⎢	**Cr**	**53**	**0.500**	ug/L	0.016	3	191	1316	4	Standard
⎣	**Mn**	**55**	**0.500**	ug/L	0.006	1	720	14705	2	Standard
⎡>	**Ge**	**72**		ug/L			28932	29870	0	KED
⎢	**Ni**	**60**	**0.500**	ug/L	0.018	3	7	500	4	KED
⎢	**Ni**	**62**	**0.500**	ug/L	0.167	33	3	84	32	KED
⎢	**Cu**	**63**	**0.500**	ug/L	0.023	4	72	1774	3	KED
⎢	**Cu**	**65**	**0.500**	ug/L	0.064	12	34	825	12	KED
⎢	**Zn**	**66**	**6.000**	ug/L	0.212	3	27	2706	3	KED
⎢	**Zn**	**67**	**6.000**	ug/L	0.243	4	6	415	3	KED
⎣	**As**	**75**	**0.200**	ug/L	0.009	4	4	50	4	KED
	Y	**89**		ug/L			318208	322693	1	Standard
	Kr	**83**		ug/L			61	62	6	Standard
⎡>	**In-1**	**115**		ug/L			8822	8605	1	KED
⎢	**Mo**	**98**	**0.200**	ug/L	0.028	13	7	207	11	KED
⎢	**Cd**	**111**	**0.100**	ug/L	0.013	12	0	28	13	KED
⎣	**Cd**	**114**	**0.100**	ug/L	0.014	13	2	74	11	KED
⎡>	**In**	**115**		ug/L			459745	473168	3	Standard
⎣	**Ag**	**107**	**0.200**	ug/L	0.009	4	38	3545	1	Standard
⎡>	**Tb**	**159**		ug/L			682842	710238	1	Standard
⎣	**Pb**	**208**	**0.100**	ug/L	0.001	1	162	4689	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL3
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:07:45
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	28809	0	Standard
	Cl	**37**		ug/L			3214376	3266140	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	514749	0	Standard
|	**V**	**51**	**10.000**	ug/L	0.051	0	6507	226836	0	Standard
|	**V-1**	**51**	**10.000**	ug/L	0.068	0	306	223721	0	Standard
|	**Cr**	**52**	**10.002**	ug/L	0.014	0	19241	214332	0	Standard
|	**Cr**	**53**	**10.001**	ug/L	0.077	0	191	23223	0	Standard
⌊	**Mn**	**55**	**10.001**	ug/L	0.120	1	720	289329	0	Standard
⌈>	**Ge**	**72**		ug/L			28932	29647	1	KED
|	**Ni**	**60**	**10.003**	ug/L	0.260	2	7	10948	2	KED
|	**Ni**	**62**	**10.002**	ug/L	0.385	3	3	1753	3	KED
|	**Cu**	**63**	**9.999**	ug/L	0.374	3	72	32713	4	KED
|	**Cu**	**65**	**10.002**	ug/L	0.090	0	34	16785	0	KED
|	**Zn**	**66**	**10.079**	ug/L	0.160	1	27	4594	1	KED
|	**Zn**	**67**	**10.295**	ug/L	0.756	7	6	765	7	KED
⌊	**As**	**75**	**10.000**	ug/L	0.173	1	4	2161	1	KED
	Y	**89**		ug/L			318208	334773	2	Standard
	Kr	**83**		ug/L			61	56	29	Standard
⌈>	**In-1**	**115**		ug/L			8822	9009	0	KED
|	**Mo**	**98**	**10.000**	ug/L	0.114	1	7	10301	0	KED
|	**Cd**	**111**	**10.000**	ug/L	0.093	0	0	2727	0	KED
⌊	**Cd**	**114**	**10.000**	ug/L	0.257	2	2	6835	2	KED
⌈>	**In**	**115**		ug/L			459745	483869	0	Standard
⌊	**Ag**	**107**	**10.000**	ug/L	0.128	1	38	182967	1	Standard
⌈>	**Tb**	**159**		ug/L			682842	716451	1	Standard
⌊	**Pb**	**208**	**10.000**	ug/L	0.133	1	162	455765	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL4
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:12:33
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	29516	1	Standard
	Cl	**37**		ug/L			3214376	3331496	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	510351	1	Standard
|	**V**	**51**	**20.086**	ug/L	0.195	0	6507	452554	1	Standard
|	**V-1**	**51**	**20.029**	ug/L	0.158	0	306	446507	1	Standard
|	**Cr**	**52**	**20.037**	ug/L	0.072	0	19241	408601	1	Standard
|	**Cr**	**53**	**19.855**	ug/L	0.072	0	191	44237	0	Standard
⌊	**Mn**	**55**	**19.969**	ug/L	0.064	0	720	568476	0	Standard
⌈>	**Ge**	**72**		ug/L			28932	30062	0	KED
|	**Ni**	**60**	**19.776**	ug/L	0.279	1	7	21004	0	KED
|	**Ni**	**62**	**19.881**	ug/L	0.556	2	3	3450	3	KED
|	**Cu**	**63**	**19.892**	ug/L	0.156	0	72	64502	0	KED
|	**Cu**	**65**	**19.761**	ug/L	0.281	1	34	32064	1	KED
|	**Zn**	**66**	**19.861**	ug/L	0.395	1	27	8969	2	KED
|	**Zn**	**67**	**20.046**	ug/L	0.645	3	6	1516	3	KED
⌊	**As**	**75**	**19.905**	ug/L	0.441	2	4	4276	1	KED
	Y	**89**		ug/L			318208	335354	0	Standard
	Kr	**83**		ug/L			61	50	5	Standard
⌈>	**In-1**	**115**		ug/L			8822	8900	1	KED
|	**Mo**	**98**	**19.958**	ug/L	0.531	2	7	20127	1	KED
|	**Cd**	**111**	**20.018**	ug/L	0.335	1	0	5414	3	KED
⌊	**Cd**	**114**	**19.920**	ug/L	0.449	2	2	13233	1	KED
⌈>	**In**	**115**		ug/L			459745	470856	0	Standard
⌊	**Ag**	**107**	**19.947**	ug/L	0.128	0	38	351419	0	Standard
⌈>	**Tb**	**159**		ug/L			682842	710712	0	Standard
⌊	**Pb**	**208**	**19.926**	ug/L	0.246	1	162	887762	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL5
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:17:32
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	19435	1	Standard
	Cl	**37**		ug/L			3214376	3354758	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	504935	1	Standard
|	**V**	**51**	**49.820**	ug/L	1.151	2	6507	1081430	3	Standard
|	**V-1**	**51**	**49.866**	ug/L	1.109	2	306	1084918	2	Standard
|	**Cr**	**52**	**49.734**	ug/L	0.756	1	19241	949541	2	Standard
|	**Cr**	**53**	**49.883**	ug/L	0.514	1	191	108413	2	Standard
⌊	**Mn**	**55**	**49.695**	ug/L	0.227	0	720	1357246	1	Standard
⌈>	**Ge**	**72**		ug/L			28932	29110	1	KED
|	**Ni**	**60**	**49.979**	ug/L	1.308	2	7	51269	1	KED
|	**Ni**	**62**	**50.105**	ug/L	0.867	1	3	8503	1	KED
|	**Cu**	**63**	**49.738**	ug/L	1.241	2	72	152052	1	KED
|	**Cu**	**65**	**49.719**	ug/L	0.814	1	34	75931	2	KED
|	**Zn**	**66**	**49.781**	ug/L	1.965	3	27	21283	2	KED
|	**Zn**	**67**	**49.809**	ug/L	0.302	0	6	3575	2	KED
⌊	**As**	**75**	**49.952**	ug/L	1.267	2	4	10335	1	KED
	Y	**89**		ug/L			318208	324699	2	Standard
	Kr	**83**		ug/L			61	62	24	Standard
⌈>	**In-1**	**115**		ug/L			8822	8608	0	KED
|	**Mo**	**98**	**50.239**	ug/L	0.749	1	7	50202	0	KED
|	**Cd**	**111**	**49.972**	ug/L	1.254	2	0	13031	1	KED
⌊	**Cd**	**114**	**49.940**	ug/L	0.921	1	2	31897	1	KED
⌈>	**In**	**115**		ug/L			459745	462598	0	Standard
⌊	**Ag**	**107**	**49.725**	ug/L	0.266	0	38	837573	0	Standard
⌈>	**Tb**	**159**		ug/L			682842	710659	0	Standard
⌊	**Pb**	**208**	**49.752**	ug/L	0.502	1	162	2162345	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL6
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:24:10
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	24621	0	Standard
	Cl	**37**		ug/L			3214376	3337639	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	490005	1	Standard
|	**V**	**51**	**101.110**	ug/L	1.076	1	6507	2204162	0	Standard
|	**V-1**	**51**	**101.068**	ug/L	1.115	1	306	2212019	0	Standard
|	**Cr**	**52**	**100.796**	ug/L	1.279	1	19241	1897428	1	Standard
|	**Cr**	**53**	**100.667**	ug/L	0.445	0	191	216921	1	Standard
⌊	**Mn**	**55**	**100.512**	ug/L	0.749	0	720	2709354	0	Standard
⌈>	**Ge**	**72**		ug/L			28932	28788	1	KED
|	**Ni**	**60**	**100.344**	ug/L	2.273	2	7	103002	2	KED
|	**Ni**	**62**	**100.059**	ug/L	3.023	3	3	16821	2	KED
|	**Cu**	**63**	**99.890**	ug/L	1.330	1	72	300900	1	KED
|	**Cu**	**65**	**99.983**	ug/L	0.020	0	34	150896	1	KED
|	**Zn**	**66**	**99.466**	ug/L	3.823	3	27	41311	2	KED
|	**Zn**	**67**	**99.907**	ug/L	2.903	2	6	7062	1	KED
⌊	**As**	**75**	**100.565**	ug/L	0.895	0	4	20972	0	KED
	Y	**89**		ug/L			318208	321957	1	Standard
	Kr	**83**		ug/L			61	58	14	Standard
⌈>	**In-1**	**115**		ug/L			8822	8710	3	KED
|	**Mo**	**98**	**99.961**	ug/L	5.555	5	7	100812	1	KED
|	**Cd**	**111**	**99.393**	ug/L	3.749	3	0	25684	0	KED
⌊	**Cd**	**114**	**99.397**	ug/L	3.974	3	2	62914	0	KED
⌈>	**In**	**115**		ug/L			459745	460331	0	Standard
⌊	**Ag**	**107**	**99.767**	ug/L	1.351	1	38	1659247	1	Standard
⌈>	**Tb**	**159**		ug/L			682842	693542	0	Standard
⌊	**Pb**	**208**	**100.401**	ug/L	0.807	0	162	4316152	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:31:29
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	21153	0	Standard
	Cl	**37**		ug/L			3214376	3311776	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	475421	2	Standard
|	**V**	**51**	**0.012**	ug/L	0.014	116	6507	6539	2	Standard
|	**V-1**	**51**	**-0.001**	ug/L	0.001	72	306	266	5	Standard
|	**Cr**	**52**	**0.036**	ug/L	0.041	114	19241	19217	1	Standard
|	**Cr**	**53**	**-0.009**	ug/L	0.004	45	191	165	7	Standard
⌊	**Mn**	**55**	**0.003**	ug/L	0.001	34	720	769	5	Standard
⌈>	**Ge**	**72**		ug/L			28932	29148	2	KED
|	**Ni**	**60**	**0.004**	ug/L	0.004	92	7	12	32	KED
|	**Ni**	**62**	**0.007**	ug/L	0.023	328	3	4	89	KED
|	**Cu**	**63**	**-0.002**	ug/L	0.003	141	72	67	12	KED
|	**Cu**	**65**	**-0.001**	ug/L	0.006	573	34	33	29	KED
|	**Zn**	**66**	**0.066**	ug/L	0.005	8	27	55	5	KED
|	**Zn**	**67**	**0.000**	ug/L	0.082	32727	6	6	91	KED
⌊	**As**	**75**	**0.007**	ug/L	0.010	143	4	5	39	KED
	Y	**89**		ug/L			318208	312123	1	Standard
	Kr	**83**		ug/L			61	50	40	Standard
⌈>	**In-1**	**115**		ug/L			8822	8043	11	KED
|	**Mo**	**98**	**0.069**	ug/L	0.017	24	7	70	17	KED
|	**Cd**	**111**	**0.013**	ug/L	0.009	71	0	3	66	KED
⌊	**Cd**	**114**	**0.018**	ug/L	0.010	56	2	13	51	KED
⌈>	**In**	**115**		ug/L			459745	457251	0	Standard
⌊	**Ag**	**107**	**0.021**	ug/L	0.003	13	38	388	11	Standard
⌈>	**Tb**	**159**		ug/L			682842	671072	0	Standard
⌊	**Pb**	**208**	**0.002**	ug/L	0.001	30	162	260	11	Standard

Sample Information

Sample Date/Time: Tuesday, March 21, 2023 14:24:10
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED
Mass Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Conditions File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

Calibration

Analyte	Mass	**r Corr Coef**	Slope	Std 1 Conc	Std 2 Conc	Std 3 Conc	Std 4 Conc	Std 5 Conc
C	13							
Cl	37							
Sc	45							
V	51	**0.9998**	0.044	0.20	10	20	50	100
V-1	51	**0.9998**	0.045	0.20	10	20	50	100
Cr	52	**0.9999**	0.038	0.50	10	20	50	100
Cr	53	**0.9999**	0.004	0.50	10	20	50	100
Mn	55	**0.9999**	0.055	0.50	10	20	50	100
Ge	72							
Ni	60	**1.0000**	0.036	0.50	10	20	50	100
Ni	62	**1.0000**	0.006	0.50	10	20	50	100
Cu	63	**1.0000**	0.105	0.50	10	20	50	100
Cu	65	**1.0000**	0.052	0.50	10	20	50	100
Zn	66	**0.9999**	0.014	6.00	10	20	50	100
Zn	67	**1.0000**	0.002	6.00	10	20	50	100
As	75	**0.9999**	0.007	0.20	10	20	50	100
Y	89							
Kr	83							
In-1	115							
Mo	98	**1.0000**	0.116	0.20	10	20	50	100
Cd	111	**0.9999**	0.030	0.10	10	20	50	100
Cd	114	**0.9999**	0.073	0.10	10	20	50	100
In	115							
Ag	107	**1.0000**	0.036	0.20	10	20	50	100
Tb	159							
Pb	208	**1.0000**	0.062	0.10	10	20	50	100

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-ICV1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:38:48
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	23805	2	Standard
	Cl	**37**		ug/L			3214376	3321107	1	Standard
⎡>	**Sc**	**45**		ug/L			492227	507055	1	Standard
⎢	**V**	**51**	**49.263**	ug/L	0.425	0	6507	1114819	1	Standard
⎢	**V-1**	**51**	**49.522**	ug/L	0.666	1	306	1121847	2	Standard
⎢	**Cr**	**52**	**48.994**	ug/L	1.053	2	19241	964534	2	Standard
⎢	**Cr**	**53**	**49.843**	ug/L	0.236	0	191	111239	1	Standard
⎣	**Mn**	**55**	**49.067**	ug/L	0.596	1	720	1368986	1	Standard
⎡>	**Ge**	**72**		ug/L			28932	30072	1	KED
⎢	**Ni**	**60**	**50.260**	ug/L	0.755	1	7	53894	1	KED
⎢	**Ni**	**62**	**49.077**	ug/L	1.043	2	3	8621	1	KED
⎢	**Cu**	**63**	**49.273**	ug/L	1.169	2	72	155072	1	KED
⎢	**Cu**	**65**	**50.580**	ug/L	0.336	0	34	79763	1	KED
⎢	**Zn**	**66**	**49.257**	ug/L	1.495	3	27	21388	2	KED
⎢	**Zn**	**67**	**48.617**	ug/L	1.349	2	6	3593	2	KED
⎣	**As**	**75**	**45.989**	ug/L	1.086	2	4	10020	1	KED
	Y	**89**		ug/L			318208	317460	0	Standard
	Kr	**83**		ug/L			61	60	15	Standard
⎡>	**In-1**	**115**		ug/L			8822	9042	2	KED
⎢	**Mo**	**98**	**47.595**	ug/L	1.673	3	7	49873	1	KED
⎢	**Cd**	**111**	**49.706**	ug/L	1.462	2	0	13340	0	KED
⎣	**Cd**	**114**	**49.158**	ug/L	0.581	1	2	32329	1	KED
⎡>	**In**	**115**		ug/L			459745	465389	1	Standard
⎣	**Ag**	**107**	**51.802**	ug/L	1.027	1	38	870950	1	Standard
⎡>	**Tb**	**159**		ug/L			682842	715981	1	Standard
⎣	**Pb**	**208**	**49.591**	ug/L	0.417	0	162	2200935	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-ICB1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:46:06
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	20239	1	Standard
	Cl	**37**		ug/L			3214376	3228385	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	470651	3	Standard
|	**V**	**51**	**0.012**	ug/L	0.003	24	6507	6473	3	Standard
|	**V-1**	**51**	**-0.000**	ug/L	0.001	186	306	283	3	Standard
|	**Cr**	**52**	**0.026**	ug/L	0.016	61	19241	18866	3	Standard
|	**Cr**	**53**	**-0.015**	ug/L	0.006	43	191	152	7	Standard
⌊	**Mn**	**55**	**-0.003**	ug/L	0.000	7	720	608	4	Standard
⌈>	**Ge**	**72**		ug/L			28932	28517	0	KED
|	**Ni**	**60**	**0.000**	ug/L	0.003	3391	7	7	43	KED
|	**Ni**	**62**	**-0.004**	ug/L	0.017	479	3	2	114	KED
|	**Cu**	**63**	**-0.009**	ug/L	0.003	33	72	45	18	KED
|	**Cu**	**65**	**-0.008**	ug/L	0.004	50	34	22	25	KED
|	**Zn**	**66**	**-0.016**	ug/L	0.009	55	27	20	18	KED
|	**Zn**	**67**	**0.001**	ug/L	0.042	3000	6	6	45	KED
⌊	**As**	**75**	**-0.001**	ug/L	0.008	623	4	3	38	KED
	Y	**89**		ug/L			318208	300752	5	Standard
	Kr	**83**		ug/L			61	62	10	Standard
⌈>	**In-1**	**115**		ug/L			8822	8636	2	KED
|	**Mo**	**98**	**0.012**	ug/L	0.005	37	7	19	23	KED
|	**Cd**	**111**	**0.006**	ug/L	0.006	91	0	2	65	KED
⌊	**Cd**	**114**	**0.001**	ug/L	0.003	215	2	3	52	KED
⌈>	**In**	**115**		ug/L			459745	439726	1	Standard
⌊	**Ag**	**107**	**0.012**	ug/L	0.001	7	38	233	4	Standard
⌈>	**Tb**	**159**		ug/L			682842	664496	0	Standard
⌊	**Pb**	**208**	**-0.001**	ug/L	0.000	63	162	128	14	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:50:41
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	18798	2	Standard
	Cl	**37**		ug/L			3214376	3369761	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	491867	0	Standard
|	**V**	**51**	**48.938**	ug/L	0.289	0	6507	1074311	0	Standard
|	**V-1**	**51**	**49.068**	ug/L	0.451	0	306	1078172	0	Standard
|	**Cr**	**52**	**49.685**	ug/L	0.910	1	19241	948674	2	Standard
|	**Cr**	**53**	**50.090**	ug/L	0.716	1	191	108435	0	Standard
⌊	**Mn**	**55**	**49.938**	ug/L	1.060	2	720	1351518	1	Standard
⌈>	**Ge**	**72**		ug/L			28932	27925	4	KED
|	**Ni**	**60**	**51.302**	ug/L	3.573	6	7	50977	2	KED
|	**Ni**	**62**	**51.146**	ug/L	2.795	5	3	8331	2	KED
|	**Cu**	**63**	**52.178**	ug/L	2.985	5	72	152251	2	KED
|	**Cu**	**65**	**51.606**	ug/L	2.623	5	34	75448	0	KED
|	**Zn**	**66**	**51.431**	ug/L	3.408	6	27	20700	3	KED
|	**Zn**	**67**	**50.964**	ug/L	2.913	5	6	3493	3	KED
⌊	**As**	**75**	**50.144**	ug/L	1.841	3	4	10135	2	KED
	Y	**89**		ug/L			318208	319096	2	Standard
	Kr	**83**		ug/L			61	60	9	Standard
⌈>	**In-1**	**115**		ug/L			8822	8413	1	KED
|	**Mo**	**98**	**50.653**	ug/L	0.861	1	7	49402	1	KED
|	**Cd**	**111**	**50.533**	ug/L	1.128	2	0	12623	2	KED
⌊	**Cd**	**114**	**50.997**	ug/L	1.707	3	2	31198	2	KED
⌈>	**In**	**115**		ug/L			459745	460880	0	Standard
⌊	**Ag**	**107**	**49.888**	ug/L	1.089	2	38	830634	1	Standard
⌈>	**Tb**	**159**		ug/L			682842	698210	1	Standard
⌊	**Pb**	**208**	**49.797**	ug/L	1.340	2	162	2154568	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 14:57:39
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	20079	0	Standard
	Cl	**37**		ug/L			3214376	3286606	2	Standard
⎡>	**Sc**	**45**		ug/L			492227	472632	1	Standard
⎢	**V**	**51**	**0.025**	ug/L	0.014	57	6507	6764	4	Standard
⎢	**V-1**	**51**	**0.002**	ug/L	0.007	450	306	328	47	Standard
⎢	**Cr**	**52**	**0.064**	ug/L	0.027	42	19241	19626	2	Standard
⎢	**Cr**	**53**	**-0.012**	ug/L	0.008	71	191	159	11	Standard
⎣	**Mn**	**55**	**-0.001**	ug/L	0.007	717	720	668	27	Standard
⎡>	**Ge**	**72**		ug/L			28932	28814	1	KED
⎢	**Ni**	**60**	**-0.006**	ug/L	0.001	17	7	1	86	KED
⎢	**Ni**	**62**	**0.015**	ug/L	0.021	132	3	5	57	KED
⎢	**Cu**	**63**	**-0.005**	ug/L	0.002	41	72	56	10	KED
⎢	**Cu**	**65**	**0.002**	ug/L	0.006	265	34	38	22	KED
⎢	**Zn**	**66**	**-0.032**	ug/L	0.006	19	27	14	15	KED
⎢	**Zn**	**67**	**-0.018**	ug/L	0.031	172	6	5	43	KED
⎣	**As**	**75**	**0.001**	ug/L	0.012	1236	4	4	54	KED
	Y	**89**		ug/L			318208	306338	1	Standard
	Kr	**83**		ug/L			61	47	14	Standard
⎡>	**In-1**	**115**		ug/L			8822	8739	1	KED
⎢	**Mo**	**98**	**0.032**	ug/L	0.003	10	7	39	7	KED
⎢	**Cd**	**111**	**0.001**	ug/L	0.000	3	0	0		KED
⎣	**Cd**	**114**	**0.003**	ug/L	0.005	132	2	5	57	KED
⎡>	**In**	**115**		ug/L			459745	452333	0	Standard
⎣	**Ag**	**107**	**0.016**	ug/L	0.005	30	38	304	27	Standard
⎡>	**Tb**	**159**		ug/L			682842	665705	1	Standard
⎣	**Pb**	**208**	**0.002**	ug/L	0.005	212	162	250	78	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CRL1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:02:14
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	22853	1	Standard
	Cl	**37**		ug/L			3214376	3264768	0	Standard
⌈>	**Sc**	**45**		ug/L			492227	476972	1	Standard
|	**V**	**51**	**0.207**	ug/L	0.018	8	6507	10690	2	Standard
|	**V-1**	**51**	**0.196**	ug/L	0.011	5	306	4471	3	Standard
|	**Cr**	**52**	**0.532**	ug/L	0.042	7	19241	28287	1	Standard
|	**Cr**	**53**	**0.488**	ug/L	0.018	3	191	1207	1	Standard
⌊	**Mn**	**55**	**0.504**	ug/L	0.003	0	720	13927	1	Standard
⌈>	**Ge**	**72**		ug/L			28932	29429	1	KED
|	**Ni**	**60**	**0.490**	ug/L	0.033	6	7	521	7	KED
|	**Ni**	**62**	**0.480**	ug/L	0.121	25	3	85	23	KED
|	**Cu**	**63**	**0.530**	ug/L	0.033	6	72	1704	4	KED
|	**Cu**	**65**	**0.516**	ug/L	0.020	3	34	831	2	KED
|	**Zn**	**66**	**6.289**	ug/L	0.123	1	27	2697	2	KED
|	**Zn**	**67**	**5.368**	ug/L	0.340	6	6	394	7	KED
⌊	**As**	**75**	**0.195**	ug/L	0.019	9	4	45	7	KED
	Y	**89**		ug/L			318208	308577	1	Standard
	Kr	**83**		ug/L			61	58	17	Standard
⌈>	**In-1**	**115**		ug/L			8822	8880	0	KED
|	**Mo**	**98**	**0.197**	ug/L	0.024	11	7	210	11	KED
|	**Cd**	**111**	**0.101**	ug/L	0.015	14	0	27	14	KED
⌊	**Cd**	**114**	**0.078**	ug/L	0.005	6	2	53	6	KED
⌈>	**In**	**115**		ug/L			459745	448062	0	Standard
⌊	**Ag**	**107**	**0.219**	ug/L	0.009	3	38	3581	3	Standard
⌈>	**Tb**	**159**		ug/L			682842	673546	1	Standard
⌊	**Pb**	**208**	**0.107**	ug/L	0.001	1	162	4622	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IFA1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:06:48
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	83933	1	Standard
	Cl	**37**		ug/L			3214376	8564721	1	Standard
>	**Sc**	**45**		ug/L			492227	525720	2	Standard
	V	**51**	**0.091**	ug/L	0.011	12	6507	9076	4	Standard
	V-1	**51**	**1.068**	ug/L	0.037	3	306	25390	1	Standard
	Cr	**52**	**0.878**	ug/L	0.034	3	19241	38109	3	Standard
	Cr	**53**	**4.036**	ug/L	0.160	3	191	9523	2	Standard
	Mn	**55**	**0.078**	ug/L	0.003	3	720	3018	1	Standard
>	**Ge**	**72**		ug/L			28932	28589	1	KED
	Ni	**60**	**0.087**	ug/L	0.020	22	7	96	19	KED
	Ni	**62**	**0.118**	ug/L	0.040	33	3	22	28	KED
	Cu	**63**	**0.079**	ug/L	0.006	7	72	307	4	KED
	Cu	**65**	**0.085**	ug/L	0.018	20	34	161	16	KED
	Zn	**66**	**2.907**	ug/L	0.025	0	27	1226	2	KED
	Zn	**67**	**2.534**	ug/L	0.165	6	6	184	7	KED
	As	**75**	**0.032**	ug/L	0.003	10	4	10	5	KED
	Y	**89**		ug/L			318208	328552	0	Standard
	Kr	**83**		ug/L			61	80	6	Standard
>	**In-1**	**115**		ug/L			8822	8629	2	KED
	Mo	**98**	**392.508**	ug/L	9.514	2	7	392535	1	KED
	Cd	**111**	**0.061**	ug/L	0.031	50	0	16	46	KED
	Cd	**114**	**0.033**	ug/L	0.005	16	2	23	12	KED
>	**In**	**115**		ug/L			459745	449118	1	Standard
	Ag	**107**	**0.014**	ug/L	0.002	11	38	269	8	Standard
>	**Tb**	**159**		ug/L			682842	688700	0	Standard
	Pb	**208**	**0.039**	ug/L	0.001	2	162	1823	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IFB1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:11:22
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	87225	1	Standard
	Cl	**37**		ug/L			3214376	8737305	1	Standard
>	**Sc**	**45**		ug/L			492227	529009	2	Standard
	V	**51**	**-0.140**	ug/L	0.032	22	6507	3690	18	Standard
	V-1	**51**	**1.122**	ug/L	0.043	3	306	26833	1	Standard
	Cr	**52**	**20.161**	ug/L	0.445	2	19241	426154	0	Standard
	Cr	**53**	**23.821**	ug/L	0.512	2	191	55556	0	Standard
	Mn	**55**	**19.777**	ug/L	0.511	2	720	575973	0	Standard
>	**Ge**	**72**		ug/L			28932	28257	2	KED
	Ni	**60**	**20.568**	ug/L	0.799	3	7	20717	2	KED
	Ni	**62**	**20.557**	ug/L	0.510	2	3	3394	0	KED
	Cu	**63**	**20.053**	ug/L	0.347	1	72	59330	0	KED
	Cu	**65**	**19.673**	ug/L	0.207	1	34	29165	1	KED
	Zn	**66**	**18.943**	ug/L	0.692	3	27	7741	1	KED
	Zn	**67**	**15.962**	ug/L	0.495	3	6	1112	1	KED
	As	**75**	**19.173**	ug/L	0.495	2	4	3926	0	KED
	Y	**89**		ug/L			318208	338809	1	Standard
	Kr	**83**		ug/L			61	76	10	Standard
>	**In-1**	**115**		ug/L			8822	8399	1	KED
	Mo	**98**	**404.795**	ug/L	5.576	1	7	394123	0	KED
	Cd	**111**	**18.972**	ug/L	0.344	1	0	4731	0	KED
	Cd	**114**	**19.013**	ug/L	0.325	1	2	11616	0	KED
>	**In**	**115**		ug/L			459745	448845	1	Standard
	Ag	**107**	**19.722**	ug/L	0.297	1	38	319815	0	Standard
>	**Tb**	**159**		ug/L			682842	684929	1	Standard
	Pb	**208**	**0.037**	ug/L	0.001	2	162	1732	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-HCV1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:15:56
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	23555	3	Standard
	Cl	**37**		ug/L			3214376	3434372	0	Standard
⌈>	**Sc**	**45**		ug/L			492227	501932	1	Standard
|	**V**	**51**	**192.600**	ug/L	4.787	2	6507	4294479	1	Standard
|	**V-1**	**51**	**191.941**	ug/L	4.143	2	306	4302643	1	Standard
|	**Cr**	**52**	**195.399**	ug/L	5.393	2	19241	3748947	2	Standard
|	**Cr**	**53**	**193.194**	ug/L	3.596	1	191	426241	1	Standard
⌊	**Mn**	**55**	**191.609**	ug/L	2.471	1	720	5290295	1	Standard
⌈>	**Ge**	**72**		ug/L			28932	27949	1	KED
|	**Ni**	**60**	**198.134**	ug/L	4.500	2	7	197393	0	KED
|	**Ni**	**62**	**197.200**	ug/L	3.002	1	3	32187	1	KED
|	**Cu**	**63**	**190.571**	ug/L	2.137	1	72	557233	1	KED
|	**Cu**	**65**	**190.433**	ug/L	2.955	1	34	278952	0	KED
|	**Zn**	**66**	**191.587**	ug/L	1.865	0	27	77245	1	KED
|	**Zn**	**67**	**184.586**	ug/L	4.719	2	6	12662	1	KED
⌊	**As**	**75**	**191.933**	ug/L	2.719	1	4	38853	0	KED
	Y	**89**		ug/L			318208	314158	2	Standard
	Kr	**83**		ug/L			61	71	8	Standard
⌈>	**In-1**	**115**		ug/L			8822	8260	0	KED
|	**Mo**	**98**	**201.135**	ug/L	2.432	1	7	192601	0	KED
|	**Cd**	**111**	**195.559**	ug/L	1.338	0	0	47965	0	KED
⌊	**Cd**	**114**	**196.406**	ug/L	1.976	1	2	118010	1	KED
⌈>	**In**	**115**		ug/L			459745	437473	1	Standard
⌊	**Ag**	**107**	**200.102**	ug/L	2.212	1	38	3162772	1	Standard
⌈>	**Tb**	**159**		ug/L			682842	663083	1	Standard
⌊	**Pb**	**208**	**201.517**	ug/L	2.268	1	162	8282424	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-HCV2
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:20:30
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	24015	4	Standard
	Cl	**37**		ug/L			3214376	3420689	0	Standard
⌈>	**Sc**	**45**		ug/L			492227	485037	5	Standard
|	**V**	**51**	**299.331**	ug/L	9.318	3	6507	6439975	3	Standard
|	**V-1**	**51**	**299.773**	ug/L	11.674	3	306	6484604	2	Standard
|	**Cr**	**52**	**297.255**	ug/L	3.078	1	19241	5500651	5	Standard
|	**Cr**	**53**	**298.738**	ug/L	13.077	4	191	635845	2	Standard
⌊	**Mn**	**55**	**295.127**	ug/L	6.674	2	720	7867098	3	Standard
⌈>	**Ge**	**72**		ug/L			28932	26439	2	KED
|	**Ni**	**60**	**297.817**	ug/L	12.165	4	7	280534	1	KED
|	**Ni**	**62**	**298.564**	ug/L	7.287	2	3	46081	0	KED
|	**Cu**	**63**	**292.280**	ug/L	3.784	1	72	808312	1	KED
|	**Cu**	**65**	**289.779**	ug/L	6.641	2	34	401426	0	KED
|	**Zn**	**66**	**282.949**	ug/L	8.393	2	27	107850	0	KED
|	**Zn**	**67**	**272.590**	ug/L	6.488	2	6	17682	1	KED
⌊	**As**	**75**	**292.054**	ug/L	7.895	2	4	55905	0	KED
	Y	**89**		ug/L			318208	305839	3	Standard
	Kr	**83**		ug/L			61	78	5	Standard
⌈>	**In-1**	**115**		ug/L			8822	7966	0	KED
|	**Mo**	**98**	**307.152**	ug/L	0.915	0	7	283667	0	KED
|	**Cd**	**111**	**287.136**	ug/L	3.480	1	0	67917	0	KED
⌊	**Cd**	**114**	**291.694**	ug/L	1.173	0	2	169014	0	KED
⌈>	**In**	**115**		ug/L			459745	419337	3	Standard
⌊	**Ag**	**107**	**307.104**	ug/L	4.002	1	38	4652666	3	Standard
⌈>	**Tb**	**159**		ug/L			682842	636220	6	Standard
⌊	**Pb**	**208**	**313.154**	ug/L	8.663	2	162	12335381	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL2
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:27:48
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	24238	1	Standard
	Cl	**37**		ug/L			3214376	3453178	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	491994	1	Standard
|	**V**	**51**	**0.020**	ug/L	0.005	22	6507	6951	3	Standard
|	**V-1**	**51**	**0.030**	ug/L	0.000	1	306	972	1	Standard
|	**Cr**	**52**	**0.067**	ug/L	0.026	38	19241	20497	4	Standard
|	**Cr**	**53**	**0.099**	ug/L	0.016	15	191	404	9	Standard
⌊	**Mn**	**55**	**0.004**	ug/L	0.000	4	720	837	2	Standard
⌈>	**Ge**	**72**		ug/L			28932	28836	2	KED
|	**Ni**	**60**	**-0.003**	ug/L	0.006	197	7	4	137	KED
|	**Ni**	**62**	**0.023**	ug/L	0.029	126	3	6	68	KED
|	**Cu**	**63**	**-0.002**	ug/L	0.000	11	72	64	2	KED
|	**Cu**	**65**	**0.001**	ug/L	0.009	628	34	36	35	KED
|	**Zn**	**66**	**0.016**	ug/L	0.014	91	27	34	16	KED
|	**Zn**	**67**	**-0.044**	ug/L	0.016	36	6	3	34	KED
⌊	**As**	**75**	**0.012**	ug/L	0.010	86	4	6	34	KED
	Y	**89**		ug/L			318208	319416	1	Standard
	Kr	**83**		ug/L			61	60	14	Standard
⌈>	**In-1**	**115**		ug/L			8822	8901	2	KED
|	**Mo**	**98**	**0.100**	ug/L	0.008	7	7	111	4	KED
|	**Cd**	**111**	**0.001**	ug/L	0.006	523	0	0	173	KED
⌊	**Cd**	**114**	**-0.002**	ug/L	0.000	4	2	1	1	KED
⌈>	**In**	**115**		ug/L			459745	464116	1	Standard
⌊	**Ag**	**107**	**0.044**	ug/L	0.003	5	38	771	4	Standard
⌈>	**Tb**	**159**		ug/L			682842	681713	1	Standard
⌊	**Pb**	**208**	**0.005**	ug/L	0.001	19	162	352	9	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL3
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:34:18
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	22042	1	Standard
	Cl	**37**		ug/L			3214376	3459817	2	Standard
⎡>	**Sc**	**45**		ug/L			492227	492222	1	Standard
⎢	**V**	**51**	**0.007**	ug/L	0.002	36	6507	6650	1	Standard
⎢	**V-1**	**51**	**0.020**	ug/L	0.001	3	306	750	2	Standard
⎢	**Cr**	**52**	**0.033**	ug/L	0.005	15	19241	19866	1	Standard
⎢	**Cr**	**53**	**0.077**	ug/L	0.009	11	191	358	4	Standard
⎣	**Mn**	**55**	**0.010**	ug/L	0.001	11	720	991	3	Standard
⎡>	**Ge**	**72**		ug/L			28932	29390	0	KED
⎢	**Ni**	**60**	**0.000**	ug/L	0.003	567	7	8	35	KED
⎢	**Ni**	**62**	**0.029**	ug/L	0.013	44	3	8	26	KED
⎢	**Cu**	**63**	**-0.002**	ug/L	0.000	19	72	67	1	KED
⎢	**Cu**	**65**	**-0.000**	ug/L	0.004	1264	34	34	19	KED
⎢	**Zn**	**66**	**-0.003**	ug/L	0.023	905	27	27	35	KED
⎢	**Zn**	**67**	**-0.028**	ug/L	0.016	55	6	4	24	KED
⎣	**As**	**75**	**-0.002**	ug/L	0.001	65	4	3	6	KED
	Y	**89**		ug/L			318208	312623	0	Standard
	Kr	**83**		ug/L			61	58	11	Standard
⎡>	**In-1**	**115**		ug/L			8822	8978	2	KED
⎢	**Mo**	**98**	**0.021**	ug/L	0.005	22	7	29	16	KED
⎢	**Cd**	**111**	**0.002**	ug/L	0.005	237	0	1	114	KED
⎣	**Cd**	**114**	**-0.001**	ug/L	0.002	317	2	2	46	KED
⎡>	**In**	**115**		ug/L			459745	454316	1	Standard
⎣	**Ag**	**107**	**0.021**	ug/L	0.003	13	38	377	13	Standard
⎡>	**Tb**	**159**		ug/L			682842	673863	0	Standard
⎣	**Pb**	**208**	**0.001**	ug/L	0.000	42	162	188	6	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV2
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:40:47
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	19875	1	Standard
	Cl	**37**		ug/L			3214376	3569972	0	Standard
⌈>	**Sc**	**45**		ug/L			492227	527371	1	Standard
|	**V**	**51**	**48.483**	ug/L	0.839	1	6507	1141327	2	Standard
|	**V-1**	**51**	**48.583**	ug/L	0.783	1	306	1144673	2	Standard
|	**Cr**	**52**	**48.550**	ug/L	0.630	1	19241	994344	2	Standard
|	**Cr**	**53**	**48.875**	ug/L	1.357	2	191	113430	1	Standard
⌊	**Mn**	**55**	**49.580**	ug/L	0.233	0	720	1438759	1	Standard
⌈>	**Ge**	**72**		ug/L			28932	29971	2	KED
|	**Ni**	**60**	**50.463**	ug/L	0.816	1	7	53944	4	KED
|	**Ni**	**62**	**48.584**	ug/L	1.963	4	3	8509	5	KED
|	**Cu**	**63**	**50.040**	ug/L	0.831	1	72	156988	3	KED
|	**Cu**	**65**	**50.249**	ug/L	1.482	2	34	78999	5	KED
|	**Zn**	**66**	**51.967**	ug/L	0.210	0	27	22489	2	KED
|	**Zn**	**67**	**48.997**	ug/L	0.850	1	6	3608	1	KED
⌊	**As**	**75**	**49.105**	ug/L	0.577	1	4	10665	3	KED
	Y	**89**		ug/L			318208	337922	2	Standard
	Kr	**83**		ug/L			61	64	2	Standard
⌈>	**In-1**	**115**		ug/L			8822	8821	0	KED
|	**Mo**	**98**	**49.116**	ug/L	0.358	0	7	50234	0	KED
|	**Cd**	**111**	**49.839**	ug/L	0.371	0	0	13055	1	KED
⌊	**Cd**	**114**	**51.293**	ug/L	1.518	2	2	32910	2	KED
⌈>	**In**	**115**		ug/L			459745	481633	0	Standard
⌊	**Ag**	**107**	**50.652**	ug/L	0.326	0	38	881447	0	Standard
⌈>	**Tb**	**159**		ug/L			682842	720649	1	Standard
⌊	**Pb**	**208**	**50.349**	ug/L	0.885	1	162	2248795	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB2
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:48:05
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	20064	4	Standard
	Cl	**37**		ug/L			3214376	3480544	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	496416	0	Standard
|	**V**	**51**	**0.034**	ug/L	0.049	142	6507	7323	14	Standard
|	**V-1**	**51**	**0.041**	ug/L	0.039	94	306	1214	70	Standard
|	**Cr**	**52**	**0.037**	ug/L	0.054	144	19241	20104	5	Standard
|	**Cr**	**53**	**0.058**	ug/L	0.022	38	191	318	15	Standard
⌊	**Mn**	**55**	**0.028**	ug/L	0.026	91	720	1502	47	Standard
⌈>	**Ge**	**72**		ug/L			28932	28863	0	KED
|	**Ni**	**60**	**0.109**	ug/L	0.018	16	7	120	15	KED
|	**Ni**	**62**	**0.068**	ug/L	0.032	47	3	14	37	KED
|	**Cu**	**63**	**0.100**	ug/L	0.001	0	72	373	0	KED
|	**Cu**	**65**	**0.085**	ug/L	0.010	11	34	163	9	KED
|	**Zn**	**66**	**0.107**	ug/L	0.023	21	27	72	13	KED
|	**Zn**	**67**	**0.108**	ug/L	0.133	123	6	13	67	KED
⌊	**As**	**75**	**0.092**	ug/L	0.006	6	4	23	5	KED
	Y	**89**		ug/L			318208	315169	2	Standard
	Kr	**83**		ug/L			61	53	25	Standard
⌈>	**In-1**	**115**		ug/L			8822	9006	4	KED
|	**Mo**	**98**	**0.037**	ug/L	0.009	23	7	46	16	KED
|	**Cd**	**111**	**-0.000**	ug/L	0.002	7044	0	0	86	KED
⌊	**Cd**	**114**	**-0.003**	ug/L	0.003	130	2	1	184	KED
⌈>	**In**	**115**		ug/L			459745	461120	0	Standard
⌊	**Ag**	**107**	**0.041**	ug/L	0.027	67	38	718	64	Standard
⌈>	**Tb**	**159**		ug/L			682842	683628	1	Standard
⌊	**Pb**	**208**	**0.031**	ug/L	0.043	141	162	1462	125	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:53:22
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	27054	2	Standard
	Cl	**37**		ug/L			3214376	3472467	0	Standard
>	**Sc**	**45**		ug/L			492227	499395	1	Standard
	V	**51**	**0.020**	ug/L	0.008	37	6507	7047	1	Standard
	V-1	**51**	**0.017**	ug/L	0.001	6	306	683	2	Standard
	[redacted]	**52**	[redacted]	ug/L	0.032	31	19241	21427	1	Standard
	Cr	**53**	**0.088**	ug/L	0.012	13	191	386	5	Standard
	Mn	**55**	**0.293**	ug/L	0.008	2	720	8784	0	Standard
>	**Ge**	**72**		ug/L			28932	29507	4	KED
	[redacted]	**60**	[redacted]	ug/L	0.011	35	7	40	33	KED
	Ni	**62**	**0.015**	ug/L	0.012	81	3	5	33	KED
	[redacted]	**63**	[redacted]	ug/L	0.008	19	72	205	9	KED
	Cu	**65**	**0.045**	ug/L	0.013	28	34	105	17	KED
	[redacted]	**66**	[redacted]	ug/L	0.038	3	27	492	6	KED
	Zn	**67**	**0.921**	ug/L	0.257	27	6	73	29	KED
	[redacted]	**75**	[redacted]	ug/L	0.008	166	4	3	49	KED
	Y	**89**		ug/L			318208	320579	1	Standard
	Kr	**83**		ug/L			61	53	29	Standard
>	**In-1**	**115**		ug/L			8822	8253	7	KED
	Mo	**98**	**0.036**	ug/L	0.011	29	7	41	27	KED
	[redacted]	**111**	[redacted]	ug/L	0.002	74	0	1	43	KED
	Cd	**114**	**-0.001**	ug/L	0.005	386	2	2	147	KED
>	**In**	**115**		ug/L			459745	469404	1	Standard
	Ag	**107**	**0.009**	ug/L	0.001	8	38	198	5	Standard
>	**Tb**	**159**		ug/L			682842	695908	1	Standard
	[redacted]	**208**	[redacted]	ug/L	0.001	5	162	723	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 15:57:56
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	26798	2	Standard
	Cl	**37**		ug/L			3214376	3342618	0	Standard
⌈>	**Sc**	**45**		ug/L			492227	495118	1	Standard
|	**V**	**51**	**25.326**	ug/L	0.284	1	6507	562831	2	Standard
|	**V-1**	**51**	**25.524**	ug/L	0.215	0	306	564749	2	Standard
|	[redacted]	**52**	[redacted]	ug/L	0.672	2	19241	501560	1	Standard
|	**Cr**	**53**	**26.251**	ug/L	0.380	1	191	57289	0	Standard
⌊	**Mn**	**55**	**26.630**	ug/L	0.318	1	720	725960	2	Standard
⌈>	**Ge**	**72**		ug/L			28932	29883	1	KED
|	[redacted]	**60**	[redacted]	ug/L	0.276	1	7	28120	0	KED
|	**Ni**	**62**	**26.607**	ug/L	0.465	1	3	4645	0	KED
|	[redacted]	**63**	[redacted]	ug/L	0.646	2	72	84366	1	KED
|	**Cu**	**65**	**26.700**	ug/L	0.481	1	34	41847	0	KED
|	[redacted]	**66**	[redacted]	ug/L	3.510	3	27	38391	2	KED
|	**Zn**	**67**	**82.110**	ug/L	3.029	3	6	6024	2	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.571	2	4	5569	0	KED
	Y	**89**		ug/L			318208	319928	3	Standard
	Kr	**83**		ug/L			61	64	5	Standard
⌈>	**In-1**	**115**		ug/L			8822	8852	1	KED
|	**Mo**	**98**	**0.023**	ug/L	0.008	32	7	31	24	KED
|	[redacted]	**111**	[redacted]	ug/L	0.516	1	0	7065	0	KED
⌊	**Cd**	**114**	**27.002**	ug/L	0.351	1	2	17386	0	KED
⌈>	**In**	**115**		ug/L			459745	461411	2	Standard
⌊	**Ag**	**107**	**27.432**	ug/L	0.887	3	38	457076	0	Standard
⌈>	**Tb**	**159**		ug/L			682842	692936	2	Standard
⌊	[redacted]	**208**	[redacted]	ug/L	0.635	2	162	1138834	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 16:02:30
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			21260	721724	1	Standard
Cl	37		ug/L			3214376	3965362	2	Standard
> Sc	45		ug/L			492227	559219	1	Standard
V	51	1.010	ug/L	0.024	2	6507	32448	0	Standard
V-1	51	0.040	ug/L	0.001	3	306	1351	0	Standard
Cr	52	4.242	ug/L	0.076	1	19241	112061	0	Standard
[redacted]	[redacted]	[redacted]	ug/L	0.016	1	191	2718	1	Standard
Mn	55	159.803	ug/L	1.971	1	720	4915472	1	Standard
> Ge	72		ug/L			28932	26888	2	KED
[redacted]	60	[redacted]	ug/L	0.714	3	7	18822	2	KED
Ni	62	20.260	ug/L	0.250	1	3	3183	1	KED
[redacted]	63	[redacted]	ug/L	0.176	2	72	18809	1	KED
Cu	65	6.575	ug/L	0.065	0	34	9298	2	KED
[redacted]	66	[redacted]	ug/L	0.288	2	27	4483	2	KED
Zn	67	12.099	ug/L	0.710	5	6	803	5	KED
As	75	0.085	ug/L	0.031	36	4	20	27	KED
Y	89		ug/L			318208	336893	1	Standard
Kr	83		ug/L			61	85	9	Standard
> In-1	115		ug/L			8822	8050	1	KED
Mo	98	0.509	ug/L	0.036	7	7	482	8	KED
[redacted]	111	[redacted]	ug/L	0.023	47	0	12	44	KED
Cd	114	0.051	ug/L	0.018	34	2	32	33	KED
> In	115		ug/L			459745	446383	0	Standard
Ag	107	0.018	ug/L	0.001	7	38	320	6	Standard
> Tb	159		ug/L			682842	695007	1	Standard
[redacted]	208	[redacted]	ug/L	0.005	1	162	15555	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: 23C0124-01
Sample Dil Factor: 2
Comments:
DEL
Sample Date/Time: Tuesday, March 21, 2023 16:08:45
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L			21260	36573	1	Standard
Cl	**37**		ug/L			3214376	4961437	4	Standard
Sc	**45**		ug/L			492227	617177	1	Standard
V	**51**	**3.857**	ug/L	0.071	1	6507	113745	1	Standard
V-1	**51**	**4.154**	ug/L	0.060	1	306	114883	1	Standard
Cr	**52**	**0.327**	ug/L	0.041	12	19241	31797	2	Standard
Cr	**53**	**1.371**	ug/L	0.027	1	191	3957	1	Standard
Mn	**55**	**4.535**	ug/L	0.010	0	720	154859	2	Standard
Ge	**72**		ug/L			28932	26746	1	KED
Ni	**60**	**8.444**	ug/L	0.118	1	7	8058	1	KED
Ni	**62**	**8.492**	ug/L	0.716	8	3	1328	7	KED
Cu	**63**	**0.607**	ug/L	0.021	3	72	1766	3	KED
Cu	**65**	**0.596**	ug/L	0.029	4	34	867	4	KED
Zn	**66**	**98.567**	ug/L	1.989	2	27	38040	1	KED
Zn	**67**	**86.136**	ug/L	2.689	3	6	5658	3	KED
As	**75**	**0.386**	ug/L	0.009	2	4	78	2	KED
Y	**89**		ug/L			318208	333370	1	Standard
Kr	**83**		ug/L			61	62	13	Standard
In-1	**115**		ug/L			8822	8019	3	KED
Mo	**98**	**33.710**	ug/L	0.880	2	7	31325	0	KED
Cd	**111**	**6.669**	ug/L	0.253	3	0	1587	1	KED
Cd	**114**	**7.003**	ug/L	0.360	5	2	4082	1	KED
In	**115**		ug/L			459745	439946	1	Standard
Ag	**107**	**0.010**	ug/L	0.001	10	38	196	9	Standard
Tb	**159**		ug/L			682842	681383	1	Standard
Pb	**208**	**0.007**	ug/L	0.001	7	162	453	4	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 16:14:27
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			21260	37963	1	Standard
Cl	37		ug/L			3214376	3818680	0	Standard
> Sc	45		ug/L			492227	552838	1	Standard
V	51	0.368	ug/L	0.005	1	6507	16333	1	Standard
V-1	51	0.430	ug/L	0.012	2	306	10951	3	Standard
[redacted]	52	[redacted]	ug/L	0.018	4	19241	30854	0	Standard
Cr	53	0.638	ug/L	0.030	4	191	1765	3	Standard
Mn	55	0.425	ug/L	0.011	2	720	13724	2	Standard
> Ge	72		ug/L			28932	28596	0	KED
[redacted]	60	[redacted]	ug/L	0.005	4	7	121	4	KED
Ni	62	0.107	ug/L	0.049	46	3	20	39	KED
[redacted]	63	[redacted]	ug/L	0.226	5	72	12807	4	KED
Cu	65	4.215	ug/L	0.117	2	34	6351	2	KED
[redacted]	66	[redacted]	ug/L	0.032	2	27	671	2	KED
Zn	67	1.214	ug/L	0.225	18	6	91	17	KED
As	75	0.026	ug/L	0.006	22	4	9	12	KED
Y	89		ug/L			318208	349384	0	Standard
Kr	83		ug/L			61	56	1	Standard
> In-1	115		ug/L			8822	7709	13	KED
[redacted]	98	[redacted]	ug/L	0.033	16	7	182	12	KED
[redacted]	111	[redacted]	ug/L	0.006	78	0	2	65	KED
Cd	114	-0.002	ug/L	0.003	190	2	1	112	KED
> In	115		ug/L			459745	460507	1	Standard
Ag	107	0.006	ug/L	0.001	19	38	135	13	Standard
> Tb	159		ug/L			682842	697042	0	Standard
Pb	208	0.011	ug/L	0.001	5	162	643	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 16:20:35
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L			21260	26825	1	Standard
Cl	**37**		ug/L			3214376	4061259	0	Standard
Sc	**45**		ug/L			492227	544065	2	Standard
[redacted]	**51**	[redacted]	ug/L	0.061	3	6507	48160	1	Standard
V-1	**51**	**1.845**	ug/L	0.060	3	306	45153	1	Standard
Cr	**52**	**0.175**	ug/L	0.022	12	19241	24880	2	Standard
Cr	**53**	**0.686**	ug/L	0.017	2	191	1849	0	Standard
[redacted]	**55**	[redacted]	ug/L	0.035	1	720	62434	2	Standard
Ge	**72**		ug/L			28932	28425	0	KED
Ni	**60**	**3.312**	ug/L	0.026	0	7	3364	0	KED
Ni	**62**	**3.382**	ug/L	0.124	3	3	564	3	KED
Cu	**63**	**0.245**	ug/L	0.015	6	72	800	4	KED
Cu	**65**	**0.254**	ug/L	0.017	6	34	412	6	KED
Zn	**66**	**42.012**	ug/L	0.317	0	27	17249	1	KED
Zn	**67**	**37.763**	ug/L	0.772	2	6	2640	2	KED
As	**75**	**0.155**	ug/L	0.016	10	4	36	9	KED
Y	**89**		ug/L			318208	325389	0	Standard
Kr	**83**		ug/L			61	62	21	Standard
In-1	**115**		ug/L			8822	8846	2	KED
Mo	**98**	**12.684**	ug/L	0.529	4	7	13004	1	KED
Cd	**111**	**2.893**	ug/L	0.096	3	0	760	1	KED
Cd	**114**	**2.773**	ug/L	0.147	5	2	1787	6	KED
In	**115**		ug/L			459745	444923	1	Standard
Ag	**107**	**0.006**	ug/L	0.002	35	38	130	24	Standard
Tb	**159**		ug/L			682842	688983	1	Standard
Pb	**208**	**0.010**	ug/L	0.000	3	162	571	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:

DEL

Sample Date/Time: Tuesday, March 21, 2023 16:25:34
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L			21260	29080	2	Standard
Cl	**37**		ug/L			3214376	3812878	1	Standard
Sc	**45**		ug/L			492227	540329	1	Standard
[redacted]	**51**	[redacted]	ug/L	0.091	53	6507	3014	70	Standard
V-1	**51**	**0.033**	ug/L	0.001	4	306	1137	1	Standard
Cr	**52**	**16.887**	ug/L	0.377	2	19241	368050	0	Standard
Cr	**53**	**17.178**	ug/L	0.111	0	191	40989	1	Standard
Mn	**55**	**2.789**	ug/L	0.014	0	720	83683	1	Standard
Ge	**72**		ug/L			28932	29716	3	KED
Ni	**60**	**0.149**	ug/L	0.001	0	7	165	3	KED
Ni	**62**	**0.124**	ug/L	0.012	10	3	24	7	KED
Cu	**63**	**0.294**	ug/L	0.023	7	72	987	4	KED
Cu	**65**	**0.294**	ug/L	0.019	6	34	493	3	KED
Zn	**66**	**22.177**	ug/L	0.633	2	27	9526	0	KED
Zn	**67**	**19.254**	ug/L	0.575	2	6	1409	0	KED
As	**75**	**0.011**	ug/L	0.008	73	4	6	28	KED
Y	**89**		ug/L			318208	337794	1	Standard
Kr	**83**		ug/L			61	62	15	Standard
In-1	**115**		ug/L			8822	8833	0	KED
Mo	**98**	**0.018**	ug/L	0.006	35	7	25	25	KED
Cd	**111**	**0.116**	ug/L	0.042	36	0	31	34	KED
Cd	**114**	**0.095**	ug/L	0.001	1	2	63	1	KED
In	**115**		ug/L			459745	473899	0	Standard
Ag	**107**	**0.009**	ug/L	0.001	15	38	191	12	Standard
Tb	**159**		ug/L			682842	715413	0	Standard
Pb	**208**	**0.029**	ug/L	0.002	5	162	1437	5	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: BLC0488-DUP2
Sample Dil Factor: 200
Comments:

DEL

Sample Date/Time: Tuesday, March 21, 2023 16:31:28
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	27809	3	Standard
	Cl	**37**		ug/L			3214376	3714876	0	Standard
⌈>	**Sc**	**45**		ug/L			492227	526891	1	Standard
|	**V**	**51**	**-0.246**	ug/L	0.133	54	6507	1236	252	Standard
|	**V-1**	**51**	**0.028**	ug/L	0.001	3	306	982	3	Standard
|	**Cr**	**52**	**17.657**	ug/L	0.452	2	19241	374422	3	Standard
|	**Cr**	**53**	**18.154**	ug/L	0.175	0	191	42228	1	Standard
⌊	**Mn**	**55**	**2.956**	ug/L	0.053	1	720	86448	2	Standard
⌈>	**Ge**	**72**		ug/L			28932	29025	1	KED
|	**Ni**	**60**	**0.132**	ug/L	0.018	13	7	144	13	KED
|	**Ni**	**62**	**0.117**	ug/L	0.042	36	3	22	30	KED
|	**Cu**	**63**	**0.298**	ug/L	0.015	4	72	976	5	KED
|	**Cu**	**65**	**0.325**	ug/L	0.019	5	34	528	4	KED
|	**Zn**	**66**	**23.334**	ug/L	0.830	3	27	9792	2	KED
|	**Zn**	**67**	**20.316**	ug/L	0.165	0	6	1453	2	KED
⌊	**As**	**75**	**0.024**	ug/L	0.012	50	4	9	26	KED
	Y	**89**		ug/L			318208	330581	3	Standard
	Kr	**83**		ug/L			61	59	6	Standard
⌈>	**In-1**	**115**		ug/L			8822	8950	1	KED
|	**Mo**	**98**	**0.016**	ug/L	0.005	30	7	24	20	KED
|	**Cd**	**111**	**0.109**	ug/L	0.035	32	0	29	30	KED
⌊	**Cd**	**114**	**0.125**	ug/L	0.024	19	2	84	18	KED
⌈>	**In**	**115**		ug/L			459745	478033	1	Standard
⌊	**Ag**	**107**	**0.008**	ug/L	0.001	15	38	182	11	Standard
⌈>	**Tb**	**159**		ug/L			682842	702147	2	Standard
⌊	**Pb**	**208**	**0.030**	ug/L	0.001	3	162	1467	4	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: BLC0488-MS2
Sample Dil Factor: 200
DEL
Comments:
Sample Date/Time: Tuesday, March 21, 2023 16:36:02
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	28059	3	Standard
	Cl	**37**		ug/L			3214376	3659387	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	513202	3	Standard
|	**V**	**51**	**-0.124**	ug/L	0.145	117	6507	4027	86	Standard
|	**V-1**	**51**	**0.134**	ug/L	0.004	2	306	3386	0	Standard
|	**Cr**	**52**	**16.517**	ug/L	0.136	0	19241	342390	2	Standard
|	**Cr**	**53**	**16.990**	ug/L	0.528	3	191	38485	0	Standard
⌊	**Mn**	**55**	**2.844**	ug/L	0.069	2	720	80995	1	Standard
⌈>	**Ge**	**72**		ug/L			28932	29276	4	KED
|	**Ni**	**60**	**0.251**	ug/L	0.012	4	7	269	2	KED
|	**Ni**	**62**	**0.220**	ug/L	0.046	21	3	40	15	KED
|	**Cu**	**63**	**0.393**	ug/L	0.007	1	72	1274	2	KED
|	**Cu**	**65**	**0.409**	ug/L	0.009	2	34	662	4	KED
|	**Zn**	**66**	**22.102**	ug/L	0.936	4	27	9349	1	KED
|	**Zn**	**67**	**19.210**	ug/L	0.837	4	6	1384	1	KED
⌊	**As**	**75**	**0.151**	ug/L	0.030	19	4	36	13	KED
	Y	**89**		ug/L			318208	327594	2	Standard
	Kr	**83**		ug/L			61	48	19	Standard
⌈>	**In-1**	**115**		ug/L			8822	8901	0	KED
|	**Mo**	**98**	**0.130**	ug/L	0.015	11	7	141	9	KED
|	**Cd**	**111**	**0.225**	ug/L	0.072	32	0	60	31	KED
⌊	**Cd**	**114**	**0.256**	ug/L	0.024	9	2	168	9	KED
⌈>	**In**	**115**		ug/L			459745	467480	1	Standard
⌊	**Ag**	**107**	**0.126**	ug/L	0.004	3	38	2165	4	Standard
⌈>	**Tb**	**159**		ug/L			682842	688848	2	Standard
⌊	**Pb**	**208**	**0.150**	ug/L	0.003	2	162	6553	4	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL4
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 16:43:37
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	22082	2	Standard
	Cl	**37**		ug/L			3214376	3682283	1	Standard
⌈>	**Sc**	**45**		ug/L			492227	501138	4	Standard
|	**V**	**51**	**0.015**	ug/L	0.005	33	6507	6949	2	Standard
|	**V-1**	**51**	**0.007**	ug/L	0.001	21	306	466	5	Standard
|	**Cr**	**52**	**0.047**	ug/L	0.013	27	19241	20471	3	Standard
|	**Cr**	**53**	**0.021**	ug/L	0.002	8	191	240	4	Standard
⌊	**Mn**	**55**	**0.007**	ug/L	0.001	17	720	934	5	Standard
⌈>	**Ge**	**72**		ug/L			28932	28222	2	KED
|	**Ni**	**60**	**-0.001**	ug/L	0.001	81	7	6	17	KED
|	**Ni**	**62**	**-0.003**	ug/L	0.018	554	3	2	114	KED
|	**Cu**	**63**	**-0.002**	ug/L	0.004	228	72	66	16	KED
|	**Cu**	**65**	**-0.003**	ug/L	0.001	26	34	29	3	KED
|	**Zn**	**66**	**0.054**	ug/L	0.013	24	27	49	13	KED
|	**Zn**	**67**	**0.049**	ug/L	0.076	155	6	9	52	KED
⌊	**As**	**75**	**-0.002**	ug/L	0.009	511	4	3	45	KED
	Y	**89**		ug/L			318208	318748	5	Standard
	Kr	**83**		ug/L			61	43	30	Standard
⌈>	**In-1**	**115**		ug/L			8822	8903	0	KED
|	**Mo**	**98**	**-0.003**	ug/L	0.003	96	7	4	71	KED
|	**Cd**	**111**	**0.001**	ug/L	0.004	306	0	0	100	KED
⌊	**Cd**	**114**	**-0.003**	ug/L	0.002	64	2	1	90	KED
⌈>	**In**	**115**		ug/L			459745	465726	1	Standard
⌊	**Ag**	**107**	**0.002**	ug/L	0.001	49	38	79	24	Standard
⌈>	**Tb**	**159**		ug/L			682842	682963	2	Standard
⌊	**Pb**	**208**	**0.001**	ug/L	0.000	43	162	194	6	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV3
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 16:49:16
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	20015	2	Standard
	Cl	**37**		ug/L			3214376	3533654	0	Standard
⎡>	**Sc**	**45**		ug/L			492227	502864	1	Standard
⎢	**V**	**51**	**49.014**	ug/L	0.973	1	6507	1100084	2	Standard
⎢	**V-1**	**51**	**49.070**	ug/L	0.776	1	306	1102349	1	Standard
⎢	**Cr**	**52**	**49.860**	ug/L	0.973	1	19241	973274	2	Standard
⎢	**Cr**	**53**	**50.023**	ug/L	0.881	1	191	110704	0	Standard
⎣	**Mn**	**55**	**50.631**	ug/L	0.242	0	720	1401023	1	Standard
⎡>	**Ge**	**72**		ug/L			28932	30046	1	KED
⎢	**Ni**	**60**	**50.788**	ug/L	0.772	1	7	54410	1	KED
⎢	**Ni**	**62**	**50.983**	ug/L	1.691	3	3	8948	3	KED
⎢	**Cu**	**63**	**50.954**	ug/L	0.952	1	72	160257	3	KED
⎢	**Cu**	**65**	**50.415**	ug/L	1.205	2	34	79429	2	KED
⎢	**Zn**	**66**	**51.439**	ug/L	1.131	2	27	22315	2	KED
⎢	**Zn**	**67**	**49.528**	ug/L	1.635	3	6	3656	2	KED
⎣	**As**	**75**	**48.518**	ug/L	0.274	0	4	10562	1	KED
	Y	**89**		ug/L			318208	328254	1	Standard
	Kr	**83**		ug/L			61	50	11	Standard
⎡>	**In-1**	**115**		ug/L			8822	8890	0	KED
⎢	**Mo**	**98**	**47.631**	ug/L	0.405	0	7	49094	0	KED
⎢	**Cd**	**111**	**50.334**	ug/L	0.399	0	0	13287	0	KED
⎣	**Cd**	**114**	**49.132**	ug/L	0.977	1	2	31769	1	KED
⎡>	**In**	**115**		ug/L			459745	455117	1	Standard
⎣	**Ag**	**107**	**51.041**	ug/L	0.949	1	38	839200	1	Standard
⎡>	**Tb**	**159**		ug/L			682842	699797	1	Standard
⎣	**Pb**	**208**	**51.067**	ug/L	0.713	1	162	2215154	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB3
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 16:57:45
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			21260	20703	0	Standard
	Cl	**37**		ug/L			3214376	3485640	0	Standard
⎡>	**Sc**	**45**		ug/L			492227	510628	2	Standard
⎢	**V**	**51**	**0.006**	ug/L	0.010	166	6507	6877	1	Standard
⎢	**V-1**	**51**	**0.003**	ug/L	0.001	26	306	384	3	Standard
⎢	**Cr**	**52**	**0.013**	ug/L	0.025	201	19241	20198	0	Standard
⎢	**Cr**	**53**	**0.003**	ug/L	0.007	225	191	205	9	Standard
⎣	**Mn**	**55**	**-0.003**	ug/L	0.000	12	720	653	4	Standard
⎡>	**Ge**	**72**		ug/L			28932	28675	1	KED
⎢	**Ni**	**60**	**-0.005**	ug/L	0.001	21	7	2	43	KED
⎢	**Ni**	**62**	**0.004**	ug/L	0.012	288	3	3	50	KED
⎢	**Cu**	**63**	**-0.009**	ug/L	0.000	3	72	44	2	KED
⎢	**Cu**	**65**	**-0.007**	ug/L	0.002	28	34	23	12	KED
⎢	**Zn**	**66**	**0.001**	ug/L	0.025	4853	27	27	37	KED
⎢	**Zn**	**67**	**-0.063**	ug/L	0.027	43	6	1	100	KED
⎣	**As**	**75**	**0.002**	ug/L	0.005	273	4	4	21	KED
	Y	**89**		ug/L			318208	324295	1	Standard
	Kr	**83**		ug/L			61	62	19	Standard
⎡>	**In-1**	**115**		ug/L			8822	8659	1	KED
⎢	**Mo**	**98**	**0.018**	ug/L	0.004	23	7	25	15	KED
⎢	**Cd**	**111**	**0.005**	ug/L	0.004	74	0	1	50	KED
⎣	**Cd**	**114**	**0.000**	ug/L	0.002	379	2	3	34	KED
⎡>	**In**	**115**		ug/L			459745	464041	0	Standard
⎣	**Ag**	**107**	**0.012**	ug/L	0.001	6	38	238	5	Standard
⎡>	**Tb**	**159**		ug/L			682842	689400	1	Standard
⎣	**Pb**	**208**	**-0.001**	ug/L	0.000	36	162	126	9	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:06:33
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L				20133	2	Standard
	Cl	**37**		ug/L				3440554	0	Standard
⎡>	**Sc**	**45**		ug/L				491887	1	Standard
⎢	**Cr**	**52**		ug/L				19545	1	Standard
⎣	**Cr**	**53**		ug/L				190	3	Standard
⎡>	**Ge**	**72**		ug/L				29858	1	KED
⎢	**Ni**	**60**		ug/L				1	173	KED
⎢	**Ni**	**62**		ug/L				1	100	KED
⎢	**Cu**	**63**		ug/L				48	13	KED
⎢	**Cu**	**65**		ug/L				27	24	KED
⎢	**Zn**	**66**		ug/L				21	33	KED
⎢	**Zn**	**67**		ug/L				6	56	KED
⎣	**As**	**75**		ug/L				4	43	KED
	Y	**89**		ug/L				316901	1	Standard
	Kr	**83**		ug/L				53	23	Standard
⎡>	**In-1**	**115**		ug/L				8796	3	KED
⎢	**Cd**	**111**		ug/L				1	50	KED
⎣	**Cd**	**114**		ug/L				2	176	KED
⎡>	**In**	**115**		ug/L				456918	1	Standard
⎣	**Ag**	**107**		ug/L				112	25	Standard
⎡>	**Tb**	**159**		ug/L				674964	0	Standard
⎣	**Pb**	**208**		ug/L				93	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV4
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:10:58
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File:

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	20284	1	Standard
	Cl	**37**		ug/L			3440554	3608969	1	Standard
⎡>	**Sc**	**45**		ug/L			491887	525359	1	Standard
⎢	**Cr**	**52**	**48.329**	ug/L	1.011	2	19545	986330	1	Standard
⎣	**Cr**	**53**	**48.641**	ug/L	1.118	2	190	112481	2	Standard
⎡>	**Ge**	**72**		ug/L			29858	29698	0	KED
⎢	**Ni**	**60**	**50.887**	ug/L	1.394	2	1	53883	2	KED
⎢	**Ni**	**62**	**49.996**	ug/L	2.651	5	1	8673	5	KED
⎢	**Cu**	**63**	**51.175**	ug/L	0.548	1	48	159040	1	KED
⎢	**Cu**	**65**	**50.513**	ug/L	0.870	1	27	78656	2	KED
⎢	**Zn**	**66**	**51.591**	ug/L	2.763	5	21	22116	5	KED
⎢	**Zn**	**67**	**50.321**	ug/L	1.395	2	6	3674	3	KED
⎣	**As**	**75**	**49.282**	ug/L	0.545	1	4	10605	1	KED
	Y	**89**		ug/L			316901	328963	2	Standard
	Kr	**83**		ug/L			53	55	10	Standard
⎡>	**In-1**	**115**		ug/L			8796	8739	1	KED
⎢	**Cd**	**111**	**50.472**	ug/L	1.012	2	1	13097	1	KED
⎣	**Cd**	**114**	**50.261**	ug/L	0.965	1	2	31944	0	KED
⎡>	**In**	**115**		ug/L			456918	472919	1	Standard
⎣	**Ag**	**107**	**51.244**	ug/L	1.714	3	112	875543	2	Standard
⎡>	**Tb**	**159**		ug/L			674964	730226	1	Standard
⎣	**Pb**	**208**	**50.211**	ug/L	0.768	1	93	2272404	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB4
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:18:07
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	21020	3	Standard
	Cl	**37**		ug/L			3440554	3513084	2	Standard
⌈>	**Sc**	**45**		ug/L			491887	502617	0	Standard
|	**Cr**	**52**	**0.021**	ug/L	0.063	302	19545	20361	5	Standard
⌊	**Cr**	**53**	**-0.008**	ug/L	0.004	48	190	177	4	Standard
⌈>	**Ge**	**72**		ug/L			29858	29667	1	KED
|	**Ni**	**60**	**0.007**	ug/L	0.005	69	1	8	53	KED
|	**Ni**	**62**	**-0.004**	ug/L	0.006	176	1	1	86	KED
|	**Cu**	**63**	**0.003**	ug/L	0.004	155	48	56	22	KED
|	**Cu**	**65**	**0.002**	ug/L	0.004	250	27	29	22	KED
|	**Zn**	**66**	**-0.010**	ug/L	0.005	48	21	17	11	KED
|	**Zn**	**67**	**-0.061**	ug/L	0.039	64	6	2	114	KED
⌊	**As**	**75**	**0.008**	ug/L	0.007	88	4	6	22	KED
	Y	**89**		ug/L			316901	320979	1	Standard
	Kr	**83**		ug/L			53	57	8	Standard
⌈>	**In-1**	**115**		ug/L			8796	8948	4	KED
|	**Cd**	**111**	**-0.000**	ug/L	0.000	323	1	1		KED
⌊	**Cd**	**114**	**-0.003**	ug/L	0.002	54	2	0	188	KED
⌈>	**In**	**115**		ug/L			456918	465291	0	Standard
⌊	**Ag**	**107**	**0.009**	ug/L	0.003	30	112	266	17	Standard
⌈>	**Tb**	**159**		ug/L			674964	682837	1	Standard
⌊	**Pb**	**208**	**0.002**	ug/L	0.001	27	93	196	15	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:23:19
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	25532	2	Standard
Cl	37		ug/L			3440554	3427877	1	Standard
Sc	45		ug/L			491887	511143	2	Standard
[redacted]	52	[redacted]	ug/L	0.024	99	19545	20792	4	Standard
Cr	53	0.014	ug/L	0.006	43	190	229	3	Standard
Ge	72		ug/L			29858	29129	1	KED
Ni	60	0.021	ug/L	0.005	23	1	24	19	KED
Ni	62	0.019	ug/L	0.006	33	1	5	21	KED
[redacted]	63	[redacted]	ug/L	0.002	19	48	86	7	KED
Cu	65	0.003	ug/L	0.007	253	27	30	31	KED
[redacted]	66	[redacted]	ug/L	0.032	18	21	93	16	KED
Zn	67	0.109	ug/L	0.033	30	6	14	15	KED
[redacted]	75	[redacted]	ug/L	0.002	33	4	3	17	KED
Y	89		ug/L			316901	334342	2	Standard
Kr	83		ug/L			53	48	29	Standard
In-1	115		ug/L			8796	8935	1	KED
[redacted]	111	[redacted]	ug/L	0.000	1	1	0		KED
Cd	114	0.000	ug/L	0.004	3850	2	2	88	KED
In	115		ug/L			456918	473431	1	Standard
[redacted]	107	[redacted]	ug/L	0.001	69	112	140	12	Standard
Tb	159		ug/L			674964	702292	3	Standard
[redacted]	208	[redacted]	ug/L	0.001	9	93	436	9	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:27:44
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	25788	3	Standard
Cl	37		ug/L			3440554	3477564	1	Standard
Sc	45		ug/L			491887	496690	2	Standard
[redacted]	52	[redacted]	ug/L	0.537	2	19545	491016	4	Standard
Cr	53	25.515	ug/L	0.733	2	190	55898	5	Standard
Ge	72		ug/L			29858	29444	5	KED
Ni	60	26.785	ug/L	0.249	0	1	28111	4	KED
Ni	62	26.964	ug/L	1.604	5	1	4639	8	KED
[redacted]	63	[redacted]	ug/L	0.250	0	48	83413	4	KED
Cu	65	26.978	ug/L	1.018	3	27	41673	7	KED
[redacted]	66	[redacted]	ug/L	0.556	0	21	34663	5	KED
Zn	67	73.814	ug/L	1.609	2	6	5337	4	KED
[redacted]	75	[redacted]	ug/L	0.188	0	4	5279	5	KED
Y	89		ug/L			316901	320457	5	Standard
Kr	83		ug/L			53	54	29	Standard
In-1	115		ug/L			8796	8899	0	KED
[redacted]	111	[redacted]	ug/L	0.676	2	1	6843	2	KED
Cd	114	25.411	ug/L	0.231	0	2	16449	0	KED
In	115		ug/L			456918	462709	3	Standard
[redacted]	107	[redacted]	ug/L	0.598	2	112	429352	1	Standard
Tb	159		ug/L			674964	680450	1	Standard
[redacted]	208	[redacted]	ug/L	0.310	1	93	1140484	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:32:07
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	31708	3	Standard
Cl	37		ug/L			3440554	3495207	3	Standard
> Sc	45		ug/L			491887	807862	3	Standard
Cr	52	15.472	ug/L	0.369	2	19545	507207	0	Standard
Cr	53	15.991	ug/L	0.230	1	190	57070	3	Standard
> Ge	72		ug/L			29858	29974	1	KED
Ni	60	20.809	ug/L	0.325	1	1	22238	1	KED
Ni	62	20.250	ug/L	0.228	1	1	3547	2	KED
Cu	63	37.449	ug/L	1.004	2	48	117456	1	KED
Cu	65	36.613	ug/L	0.161	0	27	57549	1	KED
Zn	66	101.824	ug/L	1.127	1	21	44037	1	KED
Zn	67	101.104	ug/L	3.309	3	6	7445	4	KED
[redacted]	75	[redacted]	ug/L	0.008	0	4	746	1	KED
Y	89		ug/L			316901	907535	4	Standard
Kr	83		ug/L			53	149	9	Standard
> In-1	115		ug/L			8796	9074	1	KED
Cd	111	0.251	ug/L	0.028	11	1	69	10	KED
Cd	114	0.264	ug/L	0.040	15	2	176	14	KED
> In	115		ug/L			456918	473843	1	Standard
Ag	107	0.362	ug/L	0.013	3	112	6316	3	Standard
> Tb	159		ug/L			674964	750541	1	Standard
Pb	208	22.038	ug/L	0.199	0	93	1025284	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:36:25
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	37805	2	Standard
	Cl	**37**		ug/L			3440554	3341847	0	Standard
⌈>	**Sc**	**45**		ug/L			491887	487647	1	Standard
|	**Cr**	**52**	**1.222**	ug/L	0.035	2	19545	42038	2	Standard
⌊	**Cr**	**53**	**1.134**	ug/L	0.018	1	190	2618	1	Standard
⌈>	**Ge**	**72**		ug/L			29858	30608	0	KED
|	**Ni**	**60**	**0.085**	ug/L	0.011	13	1	94	13	KED
|	**Ni**	**62**	**0.106**	ug/L	0.010	9	1	20	9	KED
|	**Cu**	**63**	**0.381**	ug/L	0.012	3	48	1268	3	KED
|	**Cu**	**65**	**0.373**	ug/L	0.018	4	27	626	4	KED
|	[redacted]	**66**	[redacted]	ug/L	0.886	1	21	28875	1	KED
|	**Zn**	**67**	**59.646**	ug/L	1.253	2	6	4486	1	KED
⌊	**As**	**75**	**-0.003**	ug/L	0.003	76	4	4	13	KED
	Y	**89**		ug/L			316901	315971	3	Standard
	Kr	**83**		ug/L			53	53	13	Standard
⌈>	**In-1**	**115**		ug/L			8796	8812	0	KED
|	**Cd**	**111**	**0.189**	ug/L	0.039	20	1	51	19	KED
⌊	**Cd**	**114**	**0.183**	ug/L	0.034	18	2	119	17	KED
⌈>	**In**	**115**		ug/L			456918	459332	2	Standard
⌊	**Ag**	**107**	**0.001**	ug/L	0.001	116	112	123	12	Standard
⌈>	**Tb**	**159**		ug/L			674964	691308	2	Standard
⌊	**Pb**	**208**	**0.023**	ug/L	0.003	11	93	1091	8	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:43:43
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	31569	0	Standard
Cl	37		ug/L			3440554	3437718	1	Standard
> Sc	45		ug/L			491887	577186	1	Standard
[redacted]	52	[redacted]	ug/L	0.286	2	19545	240059	4	Standard
Cr	53	10.264	ug/L	0.093	0	190	26257	2	Standard
> Ge	72		ug/L			29858	29477	0	KED
Ni	60	9.245	ug/L	0.084	0	1	9718	1	KED
Ni	62	9.059	ug/L	0.217	2	1	1561	2	KED
[redacted]	63	[redacted]	ug/L	0.939	3	48	91521	2	KED
Cu	65	29.352	ug/L	0.459	1	27	45370	0	KED
[redacted]	66	[redacted]	ug/L	0.961	1	21	30964	1	KED
Zn	67	67.132	ug/L	0.724	1	6	4862	1	KED
[redacted]	75	[redacted]	ug/L	0.104	0	4	2404	0	KED
Y	89		ug/L			316901	501555	3	Standard
Kr	83		ug/L			53	86	21	Standard
> In-1	115		ug/L			8796	9027	1	KED
[redacted]	111	[redacted]	ug/L	0.023	31	1	21	29	KED
Cd	114	0.095	ug/L	0.009	9	2	64	10	KED
> In	115		ug/L			456918	468704	1	Standard
[redacted]	107	[redacted]	ug/L	0.001	0	112	1476	1	Standard
> Tb	159		ug/L			674964	710707	1	Standard
[redacted]	208	[redacted]	ug/L	0.297	1	93	1030342	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:48:21
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	32373	4	Standard
Cl	37		ug/L			3440554	3491077	2	Standard
> Sc	45		ug/L			491887	590293	1	Standard
[redacted]	52	[redacted]	ug/L	0.252	2	19545	245244	3	Standard
Cr	53	**10.273**	ug/L	0.036	0	190	26873	1	Standard
> Ge	72		ug/L			29858	29605	1	KED
Ni	60	**9.083**	ug/L	0.081	0	1	9588	1	KED
Ni	62	**9.115**	ug/L	0.293	3	1	1577	3	KED
[redacted]	63	[redacted]	ug/L	0.375	1	48	106115	2	KED
Cu	65	**34.119**	ug/L	0.766	2	27	52962	1	KED
[redacted]	66	[redacted]	ug/L	0.445	0	21	38610	0	KED
Zn	67	**84.238**	ug/L	1.428	1	6	6125	1	KED
[redacted]	75	[redacted]	ug/L	0.475	3	4	2728	2	KED
Y	89		ug/L			316901	512155	0	Standard
Kr	83		ug/L			53	75	22	Standard
> In-1	115		ug/L			8796	9076	3	KED
[redacted]	111	[redacted]	ug/L	0.008	7	1	29	9	KED
Cd	114	**0.078**	ug/L	0.014	17	2	54	13	KED
> In	115		ug/L			456918	475371	1	Standard
[redacted]	107	[redacted]	ug/L	0.005	5	112	1450	4	Standard
> Tb	159		ug/L			674964	727197	1	Standard
[redacted]	208	[redacted]	ug/L	0.674	2	93	1169584	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:52:45
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	31292	1	Standard
Cl	37		ug/L			3440554	3502251	1	Standard
> Sc	45		ug/L			491887	605206	1	Standard
[redacted]	52	[redacted]	ug/L	0.205	0	19545	758276	1	Standard
Cr	53	32.814	ug/L	0.411	1	190	87483	0	Standard
> Ge	72		ug/L			29858	29940	1	KED
Ni	60	34.906	ug/L	0.563	1	1	37258	0	KED
Ni	62	35.028	ug/L	0.564	1	1	6127	2	KED
[redacted]	63	[redacted]	ug/L	1.341	2	48	176639	1	KED
Cu	65	56.538	ug/L	1.269	2	27	88754	2	KED
[redacted]	66	[redacted]	ug/L	2.207	1	21	66890	0	KED
Zn	67	145.076	ug/L	5.410	3	6	10661	2	KED
[redacted]	75	[redacted]	ug/L	0.186	0	4	7508	1	KED
Y	89		ug/L			316901	525807	2	Standard
Kr	83		ug/L			53	83	8	Standard
> In-1	115		ug/L			8796	8935	3	KED
[redacted]	111	[redacted]	ug/L	0.572	2	1	6840	1	KED
Cd	114	25.579	ug/L	0.913	3	2	16615	1	KED
> In	115		ug/L			456918	474838	2	Standard
[redacted]	107	[redacted]	ug/L	0.501	4	112	183405	4	Standard
> Tb	159		ug/L			674964	723263	1	Standard
[redacted]	208	[redacted]	ug/L	0.758	1	93	2250022	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 17:57:09
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	31437	3	Standard
Cl	37		ug/L			3440554	3448735	1	Standard
> Sc	45		ug/L			491887	594711	3	Standard
[redacted]	52	[redacted]	ug/L	0.844	2	19545	765140	2	Standard
Cr	53	32.724	ug/L	0.711	2	190	85695	1	Standard
> Ge	72		ug/L			29858	30243	2	KED
Ni	60	34.481	ug/L	0.186	0	1	37179	1	KED
Ni	62	34.484	ug/L	0.412	1	1	6091	1	KED
[redacted]	63	[redacted]	ug/L	0.707	1	48	182815	3	KED
Cu	65	57.671	ug/L	1.424	2	27	91412	0	KED
[redacted]	66	[redacted]	ug/L	2.561	1	21	74085	2	KED
Zn	67	156.119	ug/L	1.202	0	6	11592	2	KED
[redacted]	75	[redacted]	ug/L	0.532	1	4	7810	0	KED
Y	89		ug/L			316901	507011	2	Standard
Kr	83		ug/L			53	82	15	Standard
> In-1	115		ug/L			8796	8876	2	KED
[redacted]	111	[redacted]	ug/L	0.257	0	1	6861	2	KED
Cd	114	25.972	ug/L	0.576	2	2	16767	1	KED
> In	115		ug/L			456918	477478	1	Standard
[redacted]	107	[redacted]	ug/L	0.434	3	112	188700	2	Standard
> Tb	159		ug/L			674964	725681	1	Standard
[redacted]	208	[redacted]	ug/L	0.676	1	93	2362933	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:01:27
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	32552	1	Standard
	Cl	**37**		ug/L			3440554	3404785	0	Standard
⌈>	**Sc**	**45**		ug/L			491887	571226	2	Standard
|	**Cr**	**52**	**30.116**	ug/L	0.859	2	19545	676631	0	Standard
⌊	**Cr**	**53**	**30.065**	ug/L	0.948	3	190	75641	0	Standard
⌈>	**Ge**	**72**		ug/L			29858	29819	0	KED
|	**Ni**	**60**	**32.313**	ug/L	0.457	1	1	34353	0	KED
|	**Ni**	**62**	**32.436**	ug/L	0.556	1	1	5650	1	KED
|	**Cu**	**63**	**52.500**	ug/L	0.869	1	48	163808	1	KED
|	**Cu**	**65**	**51.450**	ug/L	0.301	0	27	80435	0	KED
|	**Zn**	**66**	**141.923**	ug/L	4.213	2	21	61043	2	KED
|	**Zn**	**67**	**129.486**	ug/L	3.135	2	6	9479	1	KED
⌊	**As**	**75**	**32.424**	ug/L	0.398	1	4	7008	1	KED
	Y	**89**		ug/L			316901	499870	1	Standard
	Kr	**83**		ug/L			53	91	13	Standard
⌈>	**In-1**	**115**		ug/L			8796	8988	0	KED
|	**Cd**	**111**	**22.750**	ug/L	0.288	1	1	6074	1	KED
⌊	**Cd**	**114**	**22.889**	ug/L	0.227	0	2	14966	0	KED
⌈>	**In**	**115**		ug/L			456918	459946	0	Standard
⌊	[redacted]	**107**	[redacted]	ug/L	0.093	0	112	390226	0	Standard
⌈>	**Tb**	**159**		ug/L			674964	704761	1	Standard
⌊	**Pb**	**208**	**47.025**	ug/L	0.925	1	93	2054084	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL5
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:05:52
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	21619	2	Standard
	Cl	**37**		ug/L			3440554	3400093	1	Standard
⎡>	**Sc**	**45**		ug/L			491887	490034	1	Standard
⎢	**Cr**	**52**	**-0.002**	ug/L	0.004	174	19545	19429	1	Standard
⎣	**Cr**	**53**	**-0.016**	ug/L	0.005	32	190	155	7	Standard
⎡>	**Ge**	**72**		ug/L			29858	29362	0	KED
⎢	**Ni**	**60**	**0.013**	ug/L	0.013	96	1	15	85	KED
⎢	**Ni**	**62**	**0.004**	ug/L	0.006	164	1	2	43	KED
⎢	**Cu**	**63**	**0.015**	ug/L	0.019	129	48	93	63	KED
⎢	**Cu**	**65**	**0.012**	ug/L	0.010	78	27	45	32	KED
⎢	**Zn**	**66**	**0.025**	ug/L	0.036	146	21	31	48	KED
⎢	**Zn**	**67**	**-0.051**	ug/L	0.015	29	6	3	34	KED
⎣	**As**	**75**	**0.013**	ug/L	0.011	85	4	7	32	KED
	Y	**89**		ug/L			316901	308349	2	Standard
	Kr	**83**		ug/L			53	52	12	Standard
⎡>	**In-1**	**115**		ug/L			8796	8896	0	KED
⎢	**Cd**	**111**	**0.001**	ug/L	0.002	185	1	2	24	KED
⎣	**Cd**	**114**	**-0.003**	ug/L	0.002	53	2	0	181	KED
⎡>	**In**	**115**		ug/L			456918	455958	0	Standard
⎣	**Ag**	**107**	**0.006**	ug/L	0.002	33	112	206	15	Standard
⎡>	**Tb**	**159**		ug/L			674964	679866	1	Standard
⎣	**Pb**	**208**	**0.008**	ug/L	0.003	36	93	422	29	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV5
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:10:17
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	20724	2	Standard
	Cl	**37**		ug/L			3440554	3465162	1	Standard
⎡>	**Sc**	**45**		ug/L			491887	517185	0	Standard
⎢	**Cr**	**52**	**49.072**	ug/L	0.473	0	19545	985717	0	Standard
⎣	**Cr**	**53**	**49.671**	ug/L	0.569	1	190	113069	0	Standard
⎡>	**Ge**	**72**		ug/L			29858	29890	1	KED
⎢	**Ni**	**60**	**49.215**	ug/L	1.805	3	1	52440	3	KED
⎢	**Ni**	**62**	**49.202**	ug/L	1.190	2	1	8587	0	KED
⎢	**Cu**	**63**	**50.759**	ug/L	1.426	2	48	158733	2	KED
⎢	**Cu**	**65**	**50.029**	ug/L	0.333	0	27	78398	1	KED
⎢	**Zn**	**66**	**49.941**	ug/L	1.691	3	21	21541	2	KED
⎢	**Zn**	**67**	**49.815**	ug/L	3.040	6	6	3658	4	KED
⎣	**As**	**75**	**48.897**	ug/L	1.065	2	4	10588	1	KED
	Y	**89**		ug/L			316901	337370	3	Standard
	Kr	**83**		ug/L			53	60	14	Standard
⎡>	**In-1**	**115**		ug/L			8796	8613	3	KED
⎢	**Cd**	**111**	**51.218**	ug/L	1.210	2	1	13093	1	KED
⎣	**Cd**	**114**	**50.734**	ug/L	1.604	3	2	31767	2	KED
⎡>	**In**	**115**		ug/L			456918	476154	1	Standard
⎣	**Ag**	**107**	**49.617**	ug/L	1.274	2	112	853675	2	Standard
⎡>	**Tb**	**159**		ug/L			674964	727595	2	Standard
⎣	**Pb**	**208**	**49.331**	ug/L	1.059	2	93	2224233	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB5
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:17:26
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	20219	2	Standard
	Cl	**37**		ug/L			3440554	3391350	0	Standard
⎡>	**Sc**	**45**		ug/L			491887	497552	1	Standard
⎢	**Cr**	**52**	**0.003**	ug/L	0.006	211	19545	19826	1	Standard
⎣	**Cr**	**53**	**-0.012**	ug/L	0.008	63	190	166	10	Standard
⎡>	**Ge**	**72**		ug/L			29858	29112	1	KED
⎢	**Ni**	**60**	**0.002**	ug/L	0.005	260	1	3	132	KED
⎢	**Ni**	**62**	**-0.004**	ug/L	0.006	182	1	1	86	KED
⎢	**Cu**	**63**	**0.003**	ug/L	0.004	133	48	57	24	KED
⎢	**Cu**	**65**	**-0.001**	ug/L	0.007	570	27	24	40	KED
⎢	**Zn**	**66**	**-0.011**	ug/L	0.013	120	21	16	33	KED
⎢	**Zn**	**67**	**-0.016**	ug/L	0.045	289	6	5	57	KED
⎣	**As**	**75**	**0.009**	ug/L	0.008	88	4	6	25	KED
	Y	**89**		ug/L			316901	315621	2	Standard
	Kr	**83**		ug/L			53	50	15	Standard
⎡>	**In-1**	**115**		ug/L			8796	9165	1	KED
⎢	**Cd**	**111**	**-0.004**	ug/L	0.004	93	1	0	100	KED
⎣	**Cd**	**114**	**-0.000**	ug/L	0.004	1965	2	2	114	KED
⎡>	**In**	**115**		ug/L			456918	459627	0	Standard
⎣	**Ag**	**107**	**0.006**	ug/L	0.002	33	112	214	15	Standard
⎡>	**Tb**	**159**		ug/L			674964	687929	0	Standard
⎣	**Pb**	**208**	**0.003**	ug/L	0.000	4	93	234	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:21:51
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	50063	3	Standard
	Cl	**37**		ug/L			3440554	12483991	1	Standard
>	**Sc**	**45**		ug/L			491887	491088	1	Standard
	Cr	**52**	**0.511**	ug/L	0.024	4	19545	29054	2	Standard
	Cr	**53**	**10.406**	ug/L	0.170	1	190	22643	1	Standard
>	**Ge**	**72**		ug/L			29858	26752	0	KED
	Ni	**60**	**0.245**	ug/L	0.019	7	1	234	7	KED
	Ni	**62**	**0.326**	ug/L	0.076	23	1	52	23	KED
	[redacted]	**63**	[redacted]	ug/L	0.110	2	48	14840	1	KED
	Cu	**65**	**5.342**	ug/L	0.043	0	27	7514	1	KED
	[redacted]	**66**	[redacted]	ug/L	0.163	1	21	3961	1	KED
	Zn	**67**	**8.784**	ug/L	0.445	5	6	582	5	KED
	[redacted]	**75**	[redacted]	ug/L	0.058	1	4	695	1	KED
	Y	**89**		ug/L			316901	310267	3	Standard
	Kr	**83**		ug/L			53	68	13	Standard
>	**In-1**	**115**		ug/L			8796	8263	1	KED
	Cd	**111**	**0.253**	ug/L	0.019	7	1	63	5	KED
	Cd	**114**	**0.266**	ug/L	0.019	7	2	162	5	KED
>	**In**	**115**		ug/L			456918	424321	1	Standard
	Ag	**107**	**0.073**	ug/L	0.001	1	112	1226	3	Standard
>	**Tb**	**159**		ug/L			674964	670151	1	Standard
	Pb	**208**	**0.031**	ug/L	0.001	4	93	1359	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:28:59
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	29164	2	Standard
	Cl	**37**		ug/L			3440554	3582740	1	Standard
⌈>	**Sc**	**45**		ug/L			491887	497317	1	Standard
|	**Cr**	**52**	**1.083**	ug/L	0.043	3	19545	40232	2	Standard
⌊	**Cr**	**53**	**1.584**	ug/L	0.041	2	190	3652	1	Standard
⌈>	**Ge**	**72**		ug/L			29858	29829	3	KED
|	**Ni**	**60**	**1.234**	ug/L	0.038	3	1	1313	0	KED
|	**Ni**	**62**	**1.282**	ug/L	0.076	5	1	225	8	KED
|	**Cu**	**63**	**12.724**	ug/L	0.628	4	48	39711	1	KED
|	**Cu**	**65**	**12.557**	ug/L	0.235	1	27	19652	1	KED
|	**Zn**	**66**	**100.338**	ug/L	4.462	4	21	43141	1	KED
|	[redacted]	[redacted]	[redacted]	ug/L	3.696	3	6	6767	0	KED
⌊	**As**	**75**	**0.111**	ug/L	0.030	26	4	28	19	KED
	Y	**89**		ug/L			316901	323455	2	Standard
	Kr	**83**		ug/L			53	48	29	Standard
⌈>	**In-1**	**115**		ug/L			8796	8982	0	KED
|	**Cd**	**111**	**0.503**	ug/L	0.033	6	1	136	7	KED
⌊	**Cd**	**114**	**0.449**	ug/L	0.027	6	2	296	6	KED
⌈>	**In**	**115**		ug/L			456918	460588	2	Standard
⌊	**Ag**	**107**	**0.003**	ug/L	0.002	69	112	159	22	Standard
⌈>	**Tb**	**159**		ug/L			674964	692217	0	Standard
⌊	**Pb**	**208**	**1.118**	ug/L	0.019	1	93	48079	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:33:18
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	24583	1	Standard
	Cl	**37**		ug/L			3440554	3396565	1	Standard
⌈>	**Sc**	**45**		ug/L			491887	468817	4	Standard
|	**Cr**	**52**	**0.132**	ug/L	0.041	31	19545	20960	1	Standard
⌊	**Cr**	**53**	**0.277**	ug/L	0.029	10	190	750	7	Standard
⌈>	**Ge**	**72**		ug/L			29858	29466	0	KED
|	**Ni**	**60**	**0.035**	ug/L	0.004	10	1	38	10	KED
|	**Ni**	**62**	**0.048**	ug/L	0.032	66	1	10	54	KED
|	**Cu**	**63**	**0.166**	ug/L	0.031	18	48	561	16	KED
|	**Cu**	**65**	**0.165**	ug/L	0.004	2	27	282	2	KED
|	**Zn**	**66**	**64.901**	ug/L	1.564	2	21	27599	2	KED
|	[redacted]	[redacted]	[redacted]	ug/L	0.816	1	6	4192	1	KED
⌊	**As**	**75**	**0.014**	ug/L	0.013	88	4	7	34	KED
	Y	**89**		ug/L			316901	300862	3	Standard
	Kr	**83**		ug/L			53	43	15	Standard
⌈>	**In-1**	**115**		ug/L			8796	8808	1	KED
|	**Cd**	**111**	**0.012**	ug/L	0.009	75	1	5	47	KED
⌊	**Cd**	**114**	**0.016**	ug/L	0.003	17	2	12	14	KED
⌈>	**In**	**115**		ug/L			456918	445318	3	Standard
⌊	**Ag**	**107**	**-0.002**	ug/L	0.000	16	112	69	5	Standard
⌈>	**Tb**	**159**		ug/L			674964	655985	3	Standard
⌊	**Pb**	**208**	**0.236**	ug/L	0.009	3	93	9684	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:37:36
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	34861	1	Standard
	Cl	**37**		ug/L			3440554	3383980	2	Standard
>	**Sc**	**45**		ug/L			491887	489015	2	Standard
	Cr	**52**	**0.809**	ug/L	0.098	12	19545	34445	3	Standard
	Cr	**53**	**0.898**	ug/L	0.050	5	190	2117	3	Standard
>	**Ge**	**72**		ug/L			29858	29752	0	KED
	Ni	**60**	**0.104**	ug/L	0.002	2	1	112	1	KED
	Ni	**62**	**0.135**	ug/L	0.013	9	1	25	8	KED
	Cu	**63**	**0.245**	ug/L	0.020	8	48	812	7	KED
	Cu	**65**	**0.234**	ug/L	0.025	10	27	391	10	KED
	Zn	**66**	**55.764**	ug/L	0.158	0	21	23947	0	KED
	[redacted]	[redacted]	[redacted]	ug/L	1.687	3	6	3533	3	KED
	As	**75**	**0.002**	ug/L	0.007	436	4	5	28	KED
	Y	**89**		ug/L			316901	309619	2	Standard
	Kr	**83**		ug/L			53	43	23	Standard
>	**In-1**	**115**		ug/L			8796	9040	1	KED
	Cd	**111**	**0.157**	ug/L	0.031	19	1	44	18	KED
	Cd	**114**	**0.163**	ug/L	0.016	9	2	109	9	KED
>	**In**	**115**		ug/L			456918	457442	0	Standard
	Ag	**107**	**-0.003**	ug/L	0.000	14	112	57	13	Standard
>	**Tb**	**159**		ug/L			674964	676101	1	Standard
	Pb	**208**	**0.014**	ug/L	0.001	4	93	691	4	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:41:54
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	29242	2	Standard
Cl	37		ug/L			3440554	3320976	1	Standard
> Sc	45		ug/L			491887	559123	1	Standard
[redacted]	52	[redacted]	ug/L	0.241	2	19545	259197	0	Standard
Cr	53	11.452	ug/L	0.095	0	190	28354	2	Standard
> Ge	72		ug/L			29858	29415	1	KED
Ni	60	8.830	ug/L	0.235	2	1	9261	2	KED
Ni	62	8.750	ug/L	0.187	2	1	1504	1	KED
[redacted]	63	[redacted]	ug/L	0.234	0	48	98825	1	KED
Cu	65	31.762	ug/L	0.248	0	27	48997	2	KED
[redacted]	66	[redacted]	ug/L	1.112	2	21	17509	1	KED
Zn	67	37.660	ug/L	2.190	5	6	2725	6	KED
[redacted]	75	[redacted]	ug/L	0.241	3	4	1533	2	KED
Y	89		ug/L			316901	486800	1	Standard
Kr	83		ug/L			53	76	8	Standard
> In-1	115		ug/L			8796	8821	1	KED
[redacted]	111	[redacted]	ug/L	0.017	43	1	12	35	KED
Cd	114	0.021	ug/L	0.018	86	2	15	70	KED
> In	115		ug/L			456918	461542	1	Standard
[redacted]	107	[redacted]	ug/L	0.002	4	112	725	5	Standard
> Tb	159		ug/L			674964	711548	1	Standard
[redacted]	208	[redacted]	ug/L	0.484	1	93	2093512	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:46:19
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	29974	2	Standard
Cl	37		ug/L			3440554	3297936	1	Standard
> Sc	45		ug/L			491887	566384	2	Standard
[redacted]	52	[redacted]	ug/L	0.392	2	19545	305824	1	Standard
Cr	53	13.697	ug/L	0.100	0	190	34302	1	Standard
> Ge	72		ug/L			29858	30572	1	KED
Ni	60	11.344	ug/L	0.387	3	1	12365	3	KED
Ni	62	11.606	ug/L	0.349	3	1	2073	2	KED
[redacted]	63	[redacted]	ug/L	0.144	0	48	71945	1	KED
Cu	65	22.157	ug/L	0.275	1	27	35531	1	KED
[redacted]	66	[redacted]	ug/L	1.579	2	21	25958	1	KED
Zn	67	53.881	ug/L	2.567	4	6	4048	4	KED
[redacted]	75	[redacted]	ug/L	0.094	1	4	1171	1	KED
Y	89		ug/L			316901	499860	3	Standard
Kr	83		ug/L			53	82	13	Standard
> In-1	115		ug/L			8796	9120	2	KED
[redacted]	111	[redacted]	ug/L	0.029	23	1	35	20	KED
Cd	114	0.086	ug/L	0.004	4	2	59	6	KED
> In	115		ug/L			456918	465888	1	Standard
[redacted]	107	[redacted]	ug/L	0.003	5	112	979	6	Standard
> Tb	159		ug/L			674964	703798	0	Standard
[redacted]	208	[redacted]	ug/L	0.310	0	93	3631198	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:50:43
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L			20133	28730	1	Standard
Cl	**37**		ug/L			3440554	3317252	0	Standard
Sc	**45**		ug/L			491887	572697	2	Standard
[redacted]	**52**	[redacted]	ug/L	0.390	2	19545	339990	2	Standard
Cr	**53**	**15.057**	ug/L	0.140	0	190	38110	2	Standard
Ge	**72**		ug/L			29858	30447	0	KED
Ni	**60**	**10.871**	ug/L	0.128	1	1	11802	1	KED
Ni	**62**	**10.764**	ug/L	0.294	2	1	1915	2	KED
[redacted]	**63**	[redacted]	ug/L	0.547	1	48	96277	1	KED
Cu	**65**	**30.446**	ug/L	0.247	0	27	48613	0	KED
Zn	**66**	**98.367**	ug/L	2.086	2	21	43210	1	KED
[redacted]	[redacted]	[redacted]	ug/L	3.346	3	6	6693	4	KED
[redacted]	**75**	[redacted]	ug/L	0.128	2	4	1182	1	KED
Y	**89**		ug/L			316901	515381	2	Standard
Kr	**83**		ug/L			53	76	5	Standard
In-1	**115**		ug/L			8796	9153	2	KED
[redacted]	**111**	[redacted]	ug/L	0.020	20	1	27	19	KED
Cd	**114**	**0.095**	ug/L	0.012	13	2	65	9	KED
In	**115**		ug/L			456918	452164	1	Standard
[redacted]	**107**	[redacted]	ug/L	0.000	0	112	2573	1	Standard
Tb	**159**		ug/L			674964	705337	0	Standard
[redacted]	**208**	[redacted]	ug/L	1.078	2	93	2262630	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:55:07
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	29097	2	Standard
Cl	37		ug/L			3440554	3338540	1	Standard
> Sc	45		ug/L			491887	574455	2	Standard
[redacted]	52	[redacted]	ug/L	0.264	1	19545	315592	1	Standard
Cr	53	13.836	ug/L	0.163	1	190	35140	2	Standard
> Ge	72		ug/L			29858	29997	1	KED
Ni	60	12.043	ug/L	0.082	0	1	12881	1	KED
Ni	62	12.246	ug/L	0.624	5	1	2148	6	KED
[redacted]	63	[redacted]	ug/L	0.605	2	48	88292	0	KED
Cu	65	27.605	ug/L	0.430	1	27	43425	1	KED
[redacted]	66	[redacted]	ug/L	1.235	1	21	28208	1	KED
Zn	67	62.098	ug/L	0.918	1	6	4577	2	KED
[redacted]	75	[redacted]	ug/L	0.183	2	4	1785	1	KED
Y	89		ug/L			316901	591996	2	Standard
Kr	83		ug/L			53	78	10	Standard
> In-1	115		ug/L			8796	9226	2	KED
[redacted]	111	[redacted]	ug/L	0.013	11	1	32	11	KED
Cd	114	0.108	ug/L	0.007	6	2	75	8	KED
> In	115		ug/L			456918	453409	0	Standard
[redacted]	107	[redacted]	ug/L	0.002	2	112	1443	2	Standard
> Tb	159		ug/L			674964	701701	0	Standard
[redacted]	208	[redacted]	ug/L	0.160	0	93	704357	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 18:59:32
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	26810	3	Standard
Cl	37		ug/L			3440554	3439260	0	Standard
Sc	45		ug/L			491887	526280	0	Standard
[redacted]	52	[redacted]	ug/L	0.148	1	19545	194737	1	Standard
Cr	53	8.953	ug/L	0.247	2	190	20906	2	Standard
Ge	72		ug/L			29858	28355	1	KED
Ni	60	9.818	ug/L	0.312	3	1	9927	3	KED
Ni	62	9.808	ug/L	0.539	5	1	1626	5	KED
[redacted]	63	[redacted]	ug/L	0.609	2	48	70232	2	KED
Cu	65	23.910	ug/L	0.475	1	27	35555	1	KED
[redacted]	66	[redacted]	ug/L	0.859	1	21	20474	1	KED
Zn	67	45.770	ug/L	1.762	3	6	3190	3	KED
[redacted]	75	[redacted]	ug/L	0.125	2	4	989	1	KED
Y	89		ug/L			316901	445254	0	Standard
Kr	83		ug/L			53	85	9	Standard
In-1	115		ug/L			8796	8706	0	KED
[redacted]	111	[redacted]	ug/L	0.018	15	1	32	14	KED
Cd	114	0.128	ug/L	0.020	15	2	83	15	KED
In	115		ug/L			456918	440153	1	Standard
[redacted]	107	[redacted]	ug/L	0.003	6	112	1022	4	Standard
Tb	159		ug/L			674964	676372	2	Standard
[redacted]	208	[redacted]	ug/L	0.167	1	93	443128	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL6
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:03:57
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	21400	2	Standard
	Cl	**37**		ug/L			3440554	3527381	2	Standard
⎡>	**Sc**	**45**		ug/L			491887	461664	2	Standard
⎢	**Cr**	**52**	**0.011**	ug/L	0.007	60	19545	18547	3	Standard
⎣	**Cr**	**53**	**0.002**	ug/L	0.003	135	190	183	4	Standard
⎡>	**Ge**	**72**		ug/L			29858	29033	1	KED
⎢	**Ni**	**60**	**0.007**	ug/L	0.004	54	1	8	44	KED
⎢	**Ni**	**62**	**0.011**	ug/L	0.011	97	1	3	50	KED
⎢	**Cu**	**63**	**0.015**	ug/L	0.007	44	48	94	22	KED
⎢	**Cu**	**65**	**0.012**	ug/L	0.011	95	27	44	38	KED
⎢	**Zn**	**66**	**0.036**	ug/L	0.024	66	21	36	29	KED
⎢	**Zn**	**67**	**0.002**	ug/L	0.066	2810	6	6	68	KED
⎣	**As**	**75**	**0.000**	ug/L	0.012	2309	4	4	52	KED
	Y	**89**		ug/L			316901	287564	3	Standard
	Kr	**83**		ug/L			53	53	10	Standard
⎡>	**In-1**	**115**		ug/L			8796	8660	4	KED
⎢	**Cd**	**111**	**-0.001**	ug/L	0.008	662	1	1	124	KED
⎣	**Cd**	**114**	**-0.003**	ug/L	0.002	64	2	0	225	KED
⎡>	**In**	**115**		ug/L			456918	450205	3	Standard
⎣	**Ag**	**107**	**-0.005**	ug/L	0.001	10	112	32	25	Standard
⎡>	**Tb**	**159**		ug/L			674964	666660	3	Standard
⎣	**Pb**	**208**	**0.002**	ug/L	0.000	7	93	175	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV6
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:08:22
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	19589	2	Standard
	Cl	**37**		ug/L			3440554	3294003	0	Standard
⌈>	**Sc**	**45**		ug/L			491887	479364	0	Standard
|	**Cr**	**52**	**48.746**	ug/L	0.158	0	19545	907716	0	Standard
⌊	**Cr**	**53**	**49.050**	ug/L	0.193	0	190	103497	0	Standard
⌈>	**Ge**	**72**		ug/L			29858	29635	2	KED
|	**Ni**	**60**	**48.552**	ug/L	1.440	2	1	51282	1	KED
|	**Ni**	**62**	**48.938**	ug/L	2.281	4	1	8466	2	KED
|	**Cu**	**63**	**49.097**	ug/L	0.982	2	48	152218	0	KED
|	**Cu**	**65**	**49.060**	ug/L	1.218	2	27	76209	1	KED
|	**Zn**	**66**	**49.838**	ug/L	0.959	1	21	21315	1	KED
|	**Zn**	**67**	**49.976**	ug/L	1.711	3	6	3639	1	KED
⌊	**As**	**75**	**48.588**	ug/L	1.574	3	4	10429	1	KED
	Y	**89**		ug/L			316901	307651	1	Standard
	Kr	**83**		ug/L			53	55	12	Standard
⌈>	**In-1**	**115**		ug/L			8796	8918	1	KED
|	**Cd**	**111**	**49.734**	ug/L	0.228	0	1	13171	0	KED
⌊	**Cd**	**114**	**49.892**	ug/L	0.393	0	2	32365	1	KED
⌈>	**In**	**115**		ug/L			456918	444764	1	Standard
⌊	**Ag**	**107**	**50.786**	ug/L	0.873	1	112	816107	0	Standard
⌈>	**Tb**	**159**		ug/L			674964	691912	1	Standard
⌊	**Pb**	**208**	**49.749**	ug/L	0.553	1	93	2133514	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB6
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:15:30
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	19751	3	Standard
	Cl	**37**		ug/L			3440554	3336854	1	Standard
⎡>	**Sc**	**45**		ug/L			491887	475642	2	Standard
⎢	**Cr**	**52**	**0.014**	ug/L	0.018	130	19545	19154	3	Standard
⎣	**Cr**	**53**	**0.001**	ug/L	0.006	980	190	185	5	Standard
⎡>	**Ge**	**72**		ug/L			29858	29918	1	KED
⎢	**Ni**	**60**	**0.003**	ug/L	0.001	32	1	5	21	KED
⎢	**Ni**	**62**	**0.011**	ug/L	0.011	99	1	3	50	KED
⎢	**Cu**	**63**	**-0.001**	ug/L	0.006	768	48	46	40	KED
⎢	**Cu**	**65**	**-0.000**	ug/L	0.005	1077	27	26	25	KED
⎢	**Zn**	**66**	**0.012**	ug/L	0.001	8	21	26	0	KED
⎢	**Zn**	**67**	**-0.043**	ug/L	0.046	107	6	3	86	KED
⎣	**As**	**75**	**0.002**	ug/L	0.006	268	4	5	24	KED
	Y	**89**		ug/L			316901	306893	1	Standard
	Kr	**83**		ug/L			53	50	7	Standard
⎡>	**In-1**	**115**		ug/L			8796	9066	0	KED
⎢	**Cd**	**111**	**-0.005**	ug/L	0.004	84	1	0	173	KED
⎣	**Cd**	**114**	**-0.001**	ug/L	0.000	7	2	1	2	KED
⎡>	**In**	**115**		ug/L			456918	458895	0	Standard
⎣	**Ag**	**107**	**0.005**	ug/L	0.001	19	112	197	8	Standard
⎡>	**Tb**	**159**		ug/L			674964	672433	0	Standard
⎣	**Pb**	**208**	**0.002**	ug/L	0.001	33	93	181	15	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:19:56
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	33553	2	Standard
Cl	37		ug/L			3440554	3235351	2	Standard
> Sc	45		ug/L			491887	625952	2	Standard
Cr	52	24.192	ug/L	0.181	0	19545	600744	2	Standard
Cr	53	24.801	ug/L	0.307	1	190	68441	1	Standard
> Ge	72		ug/L			29858	29168	1	KED
Ni	60	15.373	ug/L	0.168	1	1	15988	1	KED
Ni	62	15.559	ug/L	0.250	1	1	2652	2	KED
[redacted]	63	[redacted]	ug/L	0.428	1	48	115605	0	KED
Cu	65	38.518	ug/L	0.558	1	27	58909	1	KED
Zn	66	95.031	ug/L	2.800	2	21	39984	1	KED
[redacted]	[redacted]	[redacted]	ug/L	1.880	2	6	6137	3	KED
[redacted]	75	[redacted]	ug/L	0.184	2	4	1652	1	KED
Y	89		ug/L			316901	643053	2	Standard
Kr	83		ug/L			53	109	1	Standard
> In-1	115		ug/L			8796	9278	1	KED
[redacted]	111	[redacted]	ug/L	0.072	12	1	156	11	KED
Cd	114	0.576	ug/L	0.053	9	2	390	7	KED
> In	115		ug/L			456918	455853	1	Standard
[redacted]	107	[redacted]	ug/L	0.021	3	112	9261	3	Standard
> Tb	159		ug/L			674964	700386	0	Standard
[redacted]	208	[redacted]	ug/L	0.369	1	93	1327586	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:24:20
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	32535	1	Standard
Cl	37		ug/L			3440554	3255738	1	Standard
> Sc	45		ug/L			491887	588974	1	Standard
[redacted]	52	[redacted]	ug/L	0.425	3	19545	302328	1	Standard
Cr	53	13.030	ug/L	0.409	3	190	33934	1	Standard
> Ge	72		ug/L			29858	29668	0	KED
Ni	60	11.524	ug/L	0.132	1	1	12191	1	KED
Ni	62	11.521	ug/L	0.235	2	1	1998	2	KED
[redacted]	63	[redacted]	ug/L	0.421	1	48	116986	0	KED
Cu	65	37.255	ug/L	1.290	3	27	57948	2	KED
Zn	66	68.654	ug/L	1.378	2	21	29392	1	KED
[redacted]	[redacted]	[redacted]	ug/L	0.815	1	6	4462	1	KED
[redacted]	75	[redacted]	ug/L	0.090	1	4	1358	1	KED
Y	89		ug/L			316901	546015	1	Standard
Kr	83		ug/L			53	90	30	Standard
> In-1	115		ug/L			8796	9432	0	KED
[redacted]	111	[redacted]	ug/L	0.020	17	1	35	16	KED
Cd	114	0.132	ug/L	0.016	11	2	93	11	KED
> In	115		ug/L			456918	474359	2	Standard
[redacted]	107	[redacted]	ug/L	0.007	7	112	1811	4	Standard
> Tb	159		ug/L			674964	699685	0	Standard
[redacted]	208	[redacted]	ug/L	0.153	0	93	756735	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:28:44
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L			20133	27691	1	Standard
Cl	**37**		ug/L			3440554	3344369	1	Standard
Sc	**45**		ug/L			491887	563827	1	Standard
[redacted]	**52**	[redacted]	ug/L	0.374	2	19545	364349	1	Standard
Cr	**53**	**16.554**	ug/L	0.276	1	190	41224	1	Standard
Ge	**72**		ug/L			29858	30163	0	KED
Ni	**60**	**10.808**	ug/L	0.422	3	1	11623	3	KED
Ni	**62**	**10.714**	ug/L	0.218	2	1	1889	1	KED
[redacted]	**63**	[redacted]	ug/L	0.644	1	48	179369	0	KED
Cu	**65**	**56.496**	ug/L	0.559	0	27	89340	0	KED
Zn	**66**	**123.938**	ug/L	0.785	0	21	53931	0	KED
[redacted]	[redacted]	[redacted]	ug/L	2.437	2	6	8274	2	KED
[redacted]	**75**	[redacted]	ug/L	0.128	1	4	1614	1	KED
Y	**89**		ug/L			316901	488756	1	Standard
Kr	**83**		ug/L			53	78	2	Standard
In-1	**115**		ug/L			8796	9133	2	KED
[redacted]	**111**	[redacted]	ug/L	0.032	30	1	30	25	KED
Cd	**114**	**0.100**	ug/L	0.014	14	2	69	15	KED
In	**115**		ug/L			456918	461214	0	Standard
[redacted]	**107**	[redacted]	ug/L	0.001	0	112	1144	1	Standard
Tb	**159**		ug/L			674964	715663	0	Standard
[redacted]	**208**	[redacted]	ug/L	0.364	0	93	2166355	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:33:08
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	28205	0	Standard
Cl	37		ug/L			3440554	3313815	2	Standard
> Sc	45		ug/L			491887	617417	1	Standard
Cr	52	13.569	ug/L	0.218	1	19545	343085	0	Standard
Cr	53	13.672	ug/L	0.137	1	190	37325	0	Standard
> Ge	72		ug/L			29858	30034	3	KED
Ni	60	12.864	ug/L	0.504	3	1	13763	0	KED
Ni	62	13.350	ug/L	0.738	5	1	2341	3	KED
Cu	63	26.359	ug/L	0.506	1	48	82829	2	KED
[redacted]	[redacted]	[redacted]	ug/L	0.645	2	27	40559	1	KED
[redacted]	66	[redacted]	ug/L	0.690	1	21	23488	2	KED
Zn	67	49.681	ug/L	1.870	3	6	3665	2	KED
[redacted]	75	[redacted]	ug/L	0.107	1	4	1182	2	KED
Y	89		ug/L			316901	577289	1	Standard
Kr	83		ug/L			53	88	5	Standard
> In-1	115		ug/L			8796	9100	1	KED
[redacted]	111	[redacted]	ug/L	0.034	21	1	44	22	KED
Cd	114	0.125	ug/L	0.020	15	2	85	16	KED
> In	115		ug/L			456918	469735	2	Standard
[redacted]	107	[redacted]	ug/L	0.007	6	112	1992	3	Standard
> Tb	159		ug/L			674964	729126	2	Standard
[redacted]	208	[redacted]	ug/L	0.132	1	93	503432	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:37:33
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	28363	2	Standard
Cl	37		ug/L			3440554	3258508	3	Standard
> Sc	45		ug/L			491887	559102	5	Standard
[redacted]	52	[redacted]	ug/L	0.496	3	19545	308209	2	Standard
Cr	53	13.804	ug/L	0.770	5	190	34054	1	Standard
> Ge	72		ug/L			29858	29785	2	KED
Ni	60	13.523	ug/L	0.325	2	1	14359	1	KED
Ni	62	14.045	ug/L	0.347	2	1	2445	3	KED
[redacted]	63	[redacted]	ug/L	0.415	1	48	78376	0	KED
Cu	65	25.248	ug/L	0.485	1	27	39432	0	KED
[redacted]	66	[redacted]	ug/L	2.829	4	21	25123	3	KED
Zn	67	53.383	ug/L	0.168	0	6	3908	2	KED
[redacted]	75	[redacted]	ug/L	0.228	4	4	1187	3	KED
Y	89		ug/L			316901	532869	6	Standard
Kr	83		ug/L			53	92	18	Standard
> In-1	115		ug/L			8796	9032	1	KED
[redacted]	111	[redacted]	ug/L	0.025	17	1	40	17	KED
Cd	114	0.146	ug/L	0.020	13	2	98	13	KED
> In	115		ug/L			456918	433398	7	Standard
Ag	107	0.136	ug/L	0.004	2	112	2233	8	Standard
> Tb	159		ug/L			674964	681467	8	Standard
Pb	208	10.934	ug/L	0.740	6	93	460148	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:41:57
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	32008	3	Standard
Cl	37		ug/L			3440554	3259802	1	Standard
> Sc	45		ug/L			491887	597150	2	Standard
[redacted]	52	[redacted]	ug/L	0.290	2	19545	305203	0	Standard
Cr	53	12.988	ug/L	0.299	2	190	34298	0	Standard
> Ge	72		ug/L			29858	29882	1	KED
Ni	60	11.788	ug/L	0.120	1	1	12559	0	KED
Ni	62	11.874	ug/L	0.186	1	1	2073	0	KED
Cu	63	27.707	ug/L	0.543	1	48	86655	1	KED
[redacted]	[redacted]	[redacted]	ug/L	0.515	1	27	42305	1	KED
[redacted]	66	[redacted]	ug/L	0.369	0	21	22223	0	KED
Zn	67	48.374	ug/L	1.835	3	6	3553	3	KED
[redacted]	75	[redacted]	ug/L	0.128	2	4	1239	1	KED
Y	89		ug/L			316901	557818	1	Standard
Kr	83		ug/L			53	88	32	Standard
> In-1	115		ug/L			8796	9096	1	KED
[redacted]	111	[redacted]	ug/L	0.019	12	1	44	11	KED
Cd	114	0.156	ug/L	0.003	1	2	105	3	KED
> In	115		ug/L			456918	454639	0	Standard
[redacted]	107	[redacted]	ug/L	0.002	2	112	1944	1	Standard
> Tb	159		ug/L			674964	698425	0	Standard
[redacted]	208	[redacted]	ug/L	0.131	1	93	494322	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:46:21
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	31689	1	Standard
Cl	37		ug/L			3440554	3235325	0	Standard
Sc	45		ug/L			491887	576672	1	Standard
[redacted]	52	[redacted]	ug/L	0.257	2	19545	288149	2	Standard
Cr	53	12.301	ug/L	0.311	2	190	31385	1	Standard
Ge	72		ug/L			29858	29974	1	KED
Ni	60	10.920	ug/L	0.420	3	1	11666	2	KED
Ni	62	11.148	ug/L	0.088	0	1	1953	1	KED
[redacted]	63	[redacted]	ug/L	0.319	1	48	74895	1	KED
Cu	65	23.742	ug/L	1.179	4	27	37304	3	KED
[redacted]	66	[redacted]	ug/L	1.754	3	21	20909	1	KED
Zn	67	46.632	ug/L	0.822	1	6	3435	0	KED
[redacted]	75	[redacted]	ug/L	0.053	0	4	1327	1	KED
Y	89		ug/L			316901	539009	2	Standard
Kr	83		ug/L			53	82	15	Standard
In-1	115		ug/L			8796	8905	1	KED
[redacted]	111	[redacted]	ug/L	0.026	15	1	45	14	KED
Cd	114	0.125	ug/L	0.005	4	2	83	5	KED
In	115		ug/L			456918	460624	0	Standard
[redacted]	107	[redacted]	ug/L	0.005	5	112	1735	4	Standard
Tb	159		ug/L			674964	713005	1	Standard
[redacted]	208	[redacted]	ug/L	0.058	0	93	446958	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:50:46
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	27922	1	Standard
Cl	37		ug/L			3440554	3238069	2	Standard
> Sc	45		ug/L			491887	571078	1	Standard
[redacted]	52	[redacted]	ug/L	0.054	0	19545	330605	1	Standard
Cr	53	14.636	ug/L	0.032	0	190	36945	1	Standard
> Ge	72		ug/L			29858	30098	1	KED
Ni	60	15.030	ug/L	0.333	2	1	16133	3	KED
Ni	62	14.963	ug/L	0.517	3	1	2632	4	KED
[redacted]	63	[redacted]	ug/L	2.374	2	48	265725	1	KED
Cu	65	83.135	ug/L	1.202	1	27	131167	1	KED
Zn	66	232.774	ug/L	1.897	0	21	101055	1	KED
[redacted]	[redacted]	[redacted]	ug/L	0.241	0	6	15607	1	KED
[redacted]	75	[redacted]	ug/L	0.324	0	4	7164	2	KED
Y	89		ug/L			316901	531927	1	Standard
Kr	83		ug/L			53	93	7	Standard
> In-1	115		ug/L			8796	9437	1	KED
[redacted]	111	[redacted]	ug/L	0.043	23	1	52	22	KED
Cd	114	0.197	ug/L	0.008	3	2	137	5	KED
> In	115		ug/L			456918	471348	2	Standard
[redacted]	107	[redacted]	ug/L	0.004	2	112	2734	4	Standard
> Tb	159		ug/L			674964	706326	1	Standard
[redacted]	208	[redacted]	ug/L	0.810	2	93	1753790	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:55:10
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			20133	28081	1	Standard
Cl	37		ug/L			3440554	3205215	0	Standard
> Sc	45		ug/L			491887	567020	3	Standard
[redacted]	52	[redacted]	ug/L	0.482	4	19545	278933	0	Standard
Cr	53	11.999	ug/L	0.525	4	190	30087	1	Standard
> Ge	72		ug/L			29858	29761	0	KED
Ni	60	11.453	ug/L	0.076	0	1	12153	0	KED
Ni	62	11.642	ug/L	0.385	3	1	2025	3	KED
[redacted]	63	[redacted]	ug/L	0.194	0	48	61749	1	KED
Cu	65	19.701	ug/L	0.311	1	27	30754	0	KED
[redacted]	66	[redacted]	ug/L	0.771	1	21	20256	0	KED
Zn	67	51.326	ug/L	2.123	4	6	3756	5	KED
[redacted]	75	[redacted]	ug/L	0.029	0	4	1131	0	KED
Y	89		ug/L			316901	542812	1	Standard
Kr	83		ug/L			53	72	6	Standard
> In-1	115		ug/L			8796	9126	2	KED
[redacted]	111	[redacted]	ug/L	0.022	17	1	36	16	KED
Cd	114	0.108	ug/L	0.022	20	2	73	19	KED
> In	115		ug/L			456918	446329	1	Standard
[redacted]	107	[redacted]	ug/L	0.004	4	112	1509	4	Standard
> Tb	159		ug/L			674964	687671	3	Standard
[redacted]	208	[redacted]	ug/L	0.271	2	93	492241	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL7
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 19:59:35
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	20659	7	Standard
	Cl	**37**		ug/L			3440554	3167891	0	Standard
⎡>	**Sc**	**45**		ug/L			491887	458607	2	Standard
⎢	**Cr**	**52**	**-0.013**	ug/L	0.038	285	19545	17982	3	Standard
⎣	**Cr**	**53**	**-0.007**	ug/L	0.004	60	190	164	4	Standard
⎡>	**Ge**	**72**		ug/L			29858	28758	2	KED
⎢	**Ni**	**60**	**0.002**	ug/L	0.007	329	1	3	173	KED
⎢	**Ni**	**62**	**0.004**	ug/L	0.007	159	1	2	43	KED
⎢	**Cu**	**63**	**0.007**	ug/L	0.004	59	48	68	18	KED
⎢	**Cu**	**65**	**0.001**	ug/L	0.004	422	27	27	25	KED
⎢	**Zn**	**66**	**0.011**	ug/L	0.011	100	21	25	17	KED
⎢	**Zn**	**67**	**-0.059**	ug/L	0.042	70	6	2	114	KED
⎣	**As**	**75**	**0.002**	ug/L	0.007	448	4	4	31	KED
	Y	**89**		ug/L			316901	295449	2	Standard
	Kr	**83**		ug/L			53	53	11	Standard
⎡>	**In-1**	**115**		ug/L			8796	9016	3	KED
⎢	**Cd**	**111**	**-0.006**	ug/L	0.002	35	1	0	173	KED
⎣	**Cd**	**114**	**-0.000**	ug/L	0.002	1316	2	2	48	KED
⎡>	**In**	**115**		ug/L			456918	438295	1	Standard
⎣	**Ag**	**107**	**-0.005**	ug/L	0.001	12	112	29	32	Standard
⎡>	**Tb**	**159**		ug/L			674964	651755	1	Standard
⎣	**Pb**	**208**	**0.002**	ug/L	0.001	33	93	160	13	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV7
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:04:00
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	19429	2	Standard
	Cl	**37**		ug/L			3440554	3341206	0	Standard
⌈>	**Sc**	**45**		ug/L			491887	483899	1	Standard
|	**Cr**	**52**	**48.006**	ug/L	0.269	0	19545	902669	1	Standard
⌊	**Cr**	**53**	**48.663**	ug/L	0.275	0	190	103649	0	Standard
⌈>	**Ge**	**72**		ug/L			29858	29565	0	KED
|	**Ni**	**60**	**48.506**	ug/L	1.080	2	1	51134	2	KED
|	**Ni**	**62**	**50.074**	ug/L	0.920	1	1	8647	1	KED
|	**Cu**	**63**	**49.673**	ug/L	0.822	1	48	153672	0	KED
|	**Cu**	**65**	**49.719**	ug/L	0.330	0	27	77070	0	KED
|	**Zn**	**66**	**49.736**	ug/L	0.522	1	21	21226	0	KED
|	**Zn**	**67**	**48.334**	ug/L	1.516	3	6	3512	2	KED
⌊	**As**	**75**	**49.228**	ug/L	0.512	1	4	10547	1	KED
	Y	**89**		ug/L			316901	318501	1	Standard
	Kr	**83**		ug/L			53	54	10	Standard
⌈>	**In-1**	**115**		ug/L			8796	9002	2	KED
|	**Cd**	**111**	**49.422**	ug/L	1.025	2	1	13208	0	KED
⌊	**Cd**	**114**	**48.947**	ug/L	1.436	2	2	32037	1	KED
⌈>	**In**	**115**		ug/L			456918	458292	0	Standard
⌊	**Ag**	**107**	**48.863**	ug/L	1.486	3	112	809047	2	Standard
⌈>	**Tb**	**159**		ug/L			674964	694088	1	Standard
⌊	**Pb**	**208**	**49.729**	ug/L	0.484	0	93	2139391	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB7
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:11:09
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			20133	19664	2	Standard
	Cl	**37**		ug/L			3440554	3153450	0	Standard
⌈>	**Sc**	**45**		ug/L			491887	447267	3	Standard
|	**Cr**	**52**	**0.016**	ug/L	0.013	85	19545	18035	3	Standard
⌊	**Cr**	**53**	**-0.003**	ug/L	0.004	164	190	168	7	Standard
⌈>	**Ge**	**72**		ug/L			29858	28521	2	KED
|	**Ni**	**60**	**0.002**	ug/L	0.004	188	1	3	100	KED
|	**Ni**	**62**	**0.008**	ug/L	0.006	78	1	3	34	KED
|	**Cu**	**63**	**0.001**	ug/L	0.002	174	48	50	13	KED
|	**Cu**	**65**	**-0.009**	ug/L	0.001	17	27	13	14	KED
|	**Zn**	**66**	**0.001**	ug/L	0.017	1929	21	20	32	KED
|	**Zn**	**67**	**-0.050**	ug/L	0.015	30	6	3	34	KED
⌊	**As**	**75**	**-0.004**	ug/L	0.009	250	4	3	50	KED
	Y	**89**		ug/L			316901	285077	3	Standard
	Kr	**83**		ug/L			53	52	30	Standard
⌈>	**In-1**	**115**		ug/L			8796	8893	2	KED
|	**Cd**	**111**	**0.001**	ug/L	0.002	188	1	2	24	KED
⌊	**Cd**	**114**	**0.001**	ug/L	0.003	383	2	3	71	KED
⌈>	**In**	**115**		ug/L			456918	428228	4	Standard
⌊	**Ag**	**107**	**0.004**	ug/L	0.002	38	112	172	12	Standard
⌈>	**Tb**	**159**		ug/L			674964	640864	3	Standard
⌊	**Pb**	**208**	**0.002**	ug/L	0.000	24	93	166	14	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CAL1
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:15:33
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L				19529	0	Standard
	Cl	**37**		ug/L				3211762	1	Standard
⎡>	**Sc**	**45**		ug/L				457131	2	Standard
⎢	**Cr**	**52**		ug/L				18465	2	Standard
⎣	**Cr**	**53**		ug/L				153	2	Standard
⎡>	**Ge**	**72**		ug/L				29045	3	KED
⎢	**Ni**	**60**		ug/L				2	114	KED
⎢	**Ni**	**62**		ug/L				3	69	KED
⎢	**Cu**	**63**		ug/L				58	10	KED
⎢	**Cu**	**65**		ug/L				22	42	KED
⎢	**Zn**	**66**		ug/L				16	29	KED
⎢	**Zn**	**67**		ug/L				6	45	KED
⎣	**As**	**75**		ug/L				4	39	KED
	Y	**89**		ug/L				294759	3	Standard
	Kr	**83**		ug/L				45	10	Standard
⎡>	**In-1**	**115**		ug/L				8598	0	KED
⎢	**Cd**	**111**		ug/L				0	173	KED
⎣	**Cd**	**114**		ug/L				1	90	KED
⎡>	**In**	**115**		ug/L				435980	2	Standard
⎣	**Ag**	**107**		ug/L				92	16	Standard
⎡>	**Tb**	**159**		ug/L				663193	4	Standard
⎣	**Pb**	**208**		ug/L				150	19	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV8
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:19:58
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19136	1	Standard
	Cl	**37**		ug/L			3211762	3287494	2	Standard
⌈>	**Sc**	**45**		ug/L			457131	481348	3	Standard
|	**Cr**	**52**	**48.239**	ug/L	0.831	1	18465	902320	2	Standard
⌊	**Cr**	**53**	**48.882**	ug/L	1.003	2	153	103536	3	Standard
⌈>	**Ge**	**72**		ug/L			29045	29020	0	KED
|	**Ni**	**60**	**48.825**	ug/L	1.277	2	2	50519	2	KED
|	**Ni**	**62**	**48.008**	ug/L	1.368	2	3	8138	2	KED
|	**Cu**	**63**	**50.111**	ug/L	0.398	0	58	152188	0	KED
|	**Cu**	**65**	**48.715**	ug/L	0.401	0	22	74118	0	KED
|	**Zn**	**66**	**49.993**	ug/L	0.826	1	16	20937	1	KED
|	**Zn**	**67**	**49.411**	ug/L	0.974	1	6	3524	2	KED
⌊	**As**	**75**	**48.677**	ug/L	0.772	1	4	10236	1	KED
	Y	**89**		ug/L			294759	308430	3	Standard
	Kr	**83**		ug/L			45	57	33	Standard
⌈>	**In-1**	**115**		ug/L			8598	9163	1	KED
|	**Cd**	**111**	**49.823**	ug/L	0.224	0	0	13556	1	KED
⌊	**Cd**	**114**	**49.904**	ug/L	1.057	2	1	33254	1	KED
⌈>	**In**	**115**		ug/L			435980	453395	0	Standard
⌊	**Ag**	**107**	**49.835**	ug/L	0.749	1	92	816431	1	Standard
⌈>	**Tb**	**159**		ug/L			663193	697018	2	Standard
⌊	**Pb**	**208**	**49.470**	ug/L	1.247	2	150	2136790	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB8
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:27:07
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19354	2	Standard
	Cl	**37**		ug/L			3211762	3242604	2	Standard
⎡>	**Sc**	**45**		ug/L			457131	450277	3	Standard
⎢	**Cr**	**52**	**0.016**	ug/L	0.025	156	18465	18450	1	Standard
⎣	**Cr**	**53**	**-0.001**	ug/L	0.005	493	153	148	7	Standard
⎡>	**Ge**	**72**		ug/L			29045	28238	0	KED
⎢	**Ni**	**60**	**0.005**	ug/L	0.003	64	2	7	43	KED
⎢	**Ni**	**62**	**0.001**	ug/L	0.013	2538	3	3	69	KED
⎢	**Cu**	**63**	**-0.004**	ug/L	0.001	32	58	44	8	KED
⎢	**Cu**	**65**	**0.004**	ug/L	0.004	96	22	27	20	KED
⎢	**Zn**	**66**	**0.020**	ug/L	0.010	50	16	24	16	KED
⎢	**Zn**	**67**	**-0.043**	ug/L	0.016	36	6	3	34	KED
⎣	**As**	**75**	**-0.006**	ug/L	0.004	63	4	3	19	KED
	Y	**89**		ug/L			294759	302240	2	Standard
	Kr	**83**		ug/L			45	40	10	Standard
⎡>	**In-1**	**115**		ug/L			8598	8356	3	KED
⎢	**Cd**	**111**	**0.003**	ug/L	0.009	331	0	1	173	KED
⎣	**Cd**	**114**	**0.002**	ug/L	0.002	92	1	2	47	KED
⎡>	**In**	**115**		ug/L			435980	442499	1	Standard
⎣	**Ag**	**107**	**0.005**	ug/L	0.001	20	92	173	9	Standard
⎡>	**Tb**	**159**		ug/L			663193	659247	2	Standard
⎣	**Pb**	**208**	**0.001**	ug/L	0.001	98	150	187	20	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:31:32
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			19529	29115	0	Standard
Cl	37		ug/L			3211762	3151620	2	Standard
Sc	45		ug/L			457131	587240	3	Standard
Cr	52	12.943	ug/L	0.080	0	18465	312741	3	Standard
Cr	53	13.252	ug/L	0.162	1	153	34380	2	Standard
Ge	72		ug/L			29045	30635	1	KED
Ni	60	12.141	ug/L	0.230	1	2	13263	2	KED
Ni	62	12.487	ug/L	0.128	1	3	2237	2	KED
[redacted]	63	[redacted]	ug/L	0.755	2	58	82671	1	KED
Cu	65	25.650	ug/L	0.399	1	22	41203	1	KED
[redacted]	66	[redacted]	ug/L	0.867	1	16	23998	2	KED
Zn	67	50.550	ug/L	0.438	0	6	3806	2	KED
[redacted]	75	[redacted]	ug/L	0.105	2	4	1101	2	KED
Y	89		ug/L			294759	545071	4	Standard
Kr	83		ug/L			45	99	2	Standard
In-1	115		ug/L			8598	9017	6	KED
[redacted]	111	[redacted]	ug/L	0.042	25	0	46	28	KED
Cd	114	0.149	ug/L	0.010	6	1	99	12	KED
In	115		ug/L			435980	454843	1	Standard
[redacted]	107	[redacted]	ug/L	0.003	2	92	1917	3	Standard
Tb	159		ug/L			663193	704662	0	Standard
[redacted]	208	[redacted]	ug/L	0.039	0	150	500812	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:35:57
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			19529	30903	4	Standard
Cl	37		ug/L			3211762	3138852	0	Standard
> Sc	45		ug/L			457131	591822	2	Standard
Cr	52	12.426	ug/L	0.081	0	18465	303572	2	Standard
Cr	53	12.814	ug/L	0.566	4	153	33496	2	Standard
> Ge	72		ug/L			29045	29840	2	KED
Ni	60	11.951	ug/L	0.227	1	2	12720	4	KED
Ni	62	12.059	ug/L	0.653	5	3	2103	3	KED
[redacted]	63	[redacted]	ug/L	0.333	1	58	82209	1	KED
Cu	65	26.185	ug/L	0.299	1	22	40972	1	KED
[redacted]	66	[redacted]	ug/L	0.651	1	16	23134	3	KED
Zn	67	49.189	ug/L	0.868	1	6	3607	1	KED
[redacted]	75	[redacted]	ug/L	0.097	2	4	1040	2	KED
Y	89		ug/L			294759	540274	0	Standard
Kr	83		ug/L			45	83	17	Standard
> In-1	115		ug/L			8598	9137	1	KED
[redacted]	111	[redacted]	ug/L	0.018	11	0	44	11	KED
Cd	114	0.166	ug/L	0.018	10	1	111	11	KED
> In	115		ug/L			435980	447992	1	Standard
[redacted]	107	[redacted]	ug/L	0.001	0	92	1862	0	Standard
> Tb	159		ug/L			663193	707459	1	Standard
[redacted]	208	[redacted]	ug/L	0.154	1	150	486588	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:40:21
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			19529	31697	4	Standard
Cl	37		ug/L			3211762	3270165	2	Standard
> Sc	45		ug/L			457131	601253	3	Standard
Cr	52	12.242	ug/L	0.285	2	18465	304095	2	Standard
Cr	53	12.573	ug/L	0.342	2	153	33398	1	Standard
> Ge	72		ug/L			29045	30389	1	KED
Ni	60	12.143	ug/L	0.486	4	2	13158	3	KED
Ni	62	11.982	ug/L	0.082	0	3	2129	0	KED
[redacted]	63	[redacted]	ug/L	0.280	1	58	81469	0	KED
Cu	65	25.583	ug/L	0.210	0	22	40771	1	KED
[redacted]	66	[redacted]	ug/L	1.336	2	16	23070	2	KED
Zn	67	49.691	ug/L	2.032	4	6	3712	4	KED
[redacted]	75	[redacted]	ug/L	0.116	1	4	1510	1	KED
Y	89		ug/L			294759	552241	3	Standard
Kr	83		ug/L			45	99	19	Standard
> In-1	115		ug/L			8598	8915	1	KED
[redacted]	111	[redacted]	ug/L	0.018	11	0	42	12	KED
Cd	114	0.109	ug/L	0.014	13	1	71	12	KED
> In	115		ug/L			435980	460433	1	Standard
[redacted]	107	[redacted]	ug/L	0.005	4	92	1838	5	Standard
> Tb	159		ug/L			663193	710865	0	Standard
[redacted]	208	[redacted]	ug/L	0.083	0	150	486547	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:44:45
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	24300	2	Standard
	Cl	**37**		ug/L			3211762	3185847	0	Standard
>	**Sc**	**45**		ug/L			457131	528992	1	Standard
	Cr	**52**	**7.451**	ug/L	0.165	2	18465	171234	0	Standard
	Cr	**53**	**7.776**	ug/L	0.178	2	153	18247	1	Standard
>	**Ge**	**72**		ug/L			29045	30365	0	KED
	Ni	**60**	**5.518**	ug/L	0.086	1	2	5976	1	KED
	Ni	**62**	**5.799**	ug/L	0.224	3	3	1031	4	KED
	Cu	**63**	**6.893**	ug/L	0.003	0	58	21956	0	KED
	Cu	**65**	**6.990**	ug/L	0.180	2	22	11147	2	KED
	Zn	**66**	**15.805**	ug/L	0.230	1	16	6938	1	KED
	Zn	**67**	**15.214**	ug/L	0.893	5	6	1140	6	KED
	[redacted]	**75**	[redacted]	ug/L	0.522	1	4	6193	2	KED
	Y	**89**		ug/L			294759	444141	1	Standard
	Kr	**83**		ug/L			45	78	12	Standard
>	**In-1**	**115**		ug/L			8598	9163	0	KED
	Cd	**111**	**0.014**	ug/L	0.005	38	0	4	32	KED
	Cd	**114**	**0.014**	ug/L	0.012	85	1	10	75	KED
>	**In**	**115**		ug/L			435980	458591	0	Standard
	Ag	**107**	**0.016**	ug/L	0.003	15	92	368	11	Standard
>	**Tb**	**159**		ug/L			663193	703044	1	Standard
	Pb	**208**	**0.875**	ug/L	0.012	1	150	38286	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor: [redacted]
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:49:09
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	26020	1	Standard
	Cl	**37**		ug/L			3211762	3328059	1	Standard
⌈>	**Sc**	**45**		ug/L			457131	544922	2	Standard
⎢	**Cr**	**52**	**6.552**	ug/L	0.120	1	18465	157826	4	Standard
⌊	**Cr**	**53**	**6.659**	ug/L	0.052	0	153	16128	3	Standard
⌈>	**Ge**	**72**		ug/L			29045	30119	0	KED
⎢	**Ni**	**60**	**5.524**	ug/L	0.052	0	2	5933	0	KED
⎢	**Ni**	**62**	**5.511**	ug/L	0.169	3	3	972	3	KED
⎢	**Cu**	**63**	**7.996**	ug/L	0.130	1	58	25256	1	KED
⎢	**Cu**	**65**	**7.878**	ug/L	0.255	3	22	12460	3	KED
⎢	**Zn**	**66**	**13.436**	ug/L	0.599	4	16	5852	4	KED
⎢	**Zn**	**67**	**13.226**	ug/L	0.665	5	6	984	5	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.097	4	4	488	4	KED
	Y	**89**		ug/L			294759	450188	3	Standard
	Kr	**83**		ug/L			45	66	13	Standard
⌈>	**In-1**	**115**		ug/L			8598	9085	2	KED
⎢	**Cd**	**111**	**0.015**	ug/L	0.003	22	0	4	20	KED
⌊	**Cd**	**114**	**0.013**	ug/L	0.003	23	1	9	17	KED
⌈>	**In**	**115**		ug/L			435980	468289	3	Standard
⌊	**Ag**	**107**	**0.018**	ug/L	0.001	7	92	409	9	Standard
⌈>	**Tb**	**159**		ug/L			663193	716377	1	Standard
⌊	**Pb**	**208**	**0.924**	ug/L	0.015	1	150	41166	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:53:28
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L			19529	30511	2	Standard
Cl	**37**		ug/L			3211762	3186853	2	Standard
Sc	**45**		ug/L			457131	541613	1	Standard
[redacted]	**52**	[redacted]	ug/L	0.017	26	18465	20535	3	Standard
Cr	**53**	**0.165**	ug/L	0.008	4	153	573	4	Standard
Ge	**72**		ug/L			29045	29458	1	KED
[redacted]	**60**	[redacted]	ug/L	0.014	13	2	114	11	KED
Ni	**62**	**0.125**	ug/L	0.010	7	3	24	7	KED
[redacted]	**63**	[redacted]	ug/L	0.015	4	58	1005	3	KED
Cu	**65**	**0.300**	ug/L	0.037	12	22	485	11	KED
[redacted]	**66**	[redacted]	ug/L	0.044	3	16	604	2	KED
Zn	**67**	**3.196**	ug/L	0.024	0	6	237	1	KED
[redacted]	**75**	[redacted]	ug/L	0.033	5	4	144	5	KED
Y	**89**		ug/L			294759	311686	0	Standard
Kr	**83**		ug/L			45	52	5	Standard
In-1	**115**		ug/L			8598	8755	1	KED
[redacted]	**111**	[redacted]	ug/L	0.009	125	0	2	94	KED
Cd	**114**	**0.005**	ug/L	0.006	125	1	4	90	KED
In	**115**		ug/L			435980	444128	0	Standard
Ag	**107**	**-0.002**	ug/L	0.001	33	92	65	14	Standard
Tb	**159**		ug/L			663193	673323	1	Standard
[redacted]	**208**	[redacted]	ug/L	0.001	3	150	1557	4	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 20:57:46
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	**13**		ug/L			19529	29107	2	Standard
Cl	**37**		ug/L			3211762	3110572	1	Standard
Sc	**45**		ug/L			457131	551357	1	Standard
[redacted]	**52**	[redacted]	ug/L	0.018	19	18465	20352	0	Standard
Cr	**53**	**0.135**	ug/L	0.011	7	153	512	3	Standard
Ge	**72**		ug/L			29045	28710	1	KED
[redacted]	**60**	[redacted]	ug/L	0.021	17	2	126	17	KED
Ni	**62**	**0.114**	ug/L	0.036	31	3	22	27	KED
[redacted]	**63**	[redacted]	ug/L	0.029	10	58	899	8	KED
Cu	**65**	**0.286**	ug/L	0.014	5	22	451	3	KED
[redacted]	**66**	[redacted]	ug/L	0.113	8	16	544	7	KED
Zn	**67**	**3.417**	ug/L	0.287	8	6	246	8	KED
[redacted]	**75**	[redacted]	ug/L	0.019	3	4	133	1	KED
Y	**89**		ug/L			294759	316483	0	Standard
Kr	**83**		ug/L			45	45	40	Standard
In-1	**115**		ug/L			8598	8454	1	KED
[redacted]	**111**	[redacted]	ug/L	0.006	91	0	2	65	KED
Cd	**114**	**0.004**	ug/L	0.006	157	1	3	106	KED
In	**115**		ug/L			435980	440716	3	Standard
Ag	**107**	**-0.003**	ug/L	0.000	11	92	43	14	Standard
Tb	**159**		ug/L			663193	678440	1	Standard
[redacted]	**208**	[redacted]	ug/L	0.002	5	150	1507	6	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:02:34
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28577	3	Standard
	Cl	**37**		ug/L			3211762	3043216	2	Standard
>	**Sc**	**45**		ug/L			457131	521913	6	Standard
	[redacted]	**52**	[redacted]	ug/L	0.401	1	18465	465989	5	Standard
	Cr	**53**	**23.074**	ug/L	0.970	4	153	52989	2	Standard
>	**Ge**	**72**		ug/L			29045	28750	0	KED
	[redacted]	**60**	[redacted]	ug/L	1.097	4	2	26716	3	KED
	Ni	**62**	**26.905**	ug/L	0.811	3	3	4520	2	KED
	[redacted]	**63**	[redacted]	ug/L	0.470	1	58	80121	1	KED
	Cu	**65**	**26.554**	ug/L	0.058	0	22	40035	0	KED
	[redacted]	**66**	[redacted]	ug/L	1.365	1	16	34899	1	KED
	Zn	**67**	**80.347**	ug/L	2.336	2	6	5674	3	KED
	[redacted]	**75**	[redacted]	ug/L	0.303	1	4	5362	0	KED
	Y	**89**		ug/L			294759	294505	5	Standard
	Kr	**83**		ug/L			45	46	2	Standard
>	**In-1**	**115**		ug/L			8598	9016	1	KED
	[redacted]	**111**	[redacted]	ug/L	0.667	2	0	6735	1	KED
	Cd	**114**	**25.090**	ug/L	0.051	0	1	16455	1	KED
>	**In**	**115**		ug/L			435980	422751	5	Standard
	Ag	**107**	**26.720**	ug/L	0.944	3	92	407661	2	Standard
>	**Tb**	**159**		ug/L			663193	653592	6	Standard
	[redacted]	**208**	[redacted]	ug/L	1.412	5	150	1082998	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:08:23
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			19529	28833	0	Standard
Cl	37		ug/L			3211762	3074163	0	Standard
> Sc	45		ug/L			457131	567109	0	Standard
[redacted]	52	[redacted]	ug/L	0.480	2	18465	485238	2	Standard
Cr	53	21.561	ug/L	0.419	1	153	53918	2	Standard
> Ge	72		ug/L			29045	28812	1	KED
[redacted]	60	[redacted]	ug/L	0.758	2	2	26928	1	KED
Ni	62	25.705	ug/L	0.859	3	3	4327	2	KED
[redacted]	63	[redacted]	ug/L	0.257	1	58	77166	1	KED
Cu	65	25.407	ug/L	0.653	2	22	38379	1	KED
[redacted]	66	[redacted]	ug/L	2.046	2	16	34868	1	KED
Zn	67	79.314	ug/L	2.118	2	6	5615	4	KED
[redacted]	75	[redacted]	ug/L	0.449	1	4	5326	1	KED
Y	89		ug/L			294759	312971	2	Standard
Kr	83		ug/L			45	58	12	Standard
> In-1	115		ug/L			8598	8874	0	KED
[redacted]	111	[redacted]	ug/L	0.345	1	0	6656	2	KED
Cd	114	25.126	ug/L	0.379	1	1	16218	0	KED
> In	115		ug/L			435980	449822	1	Standard
Ag	107	25.690	ug/L	0.171	0	92	417630	2	Standard
> Tb	159		ug/L			663193	692999	2	Standard
[redacted]	208	[redacted]	ug/L	0.360	1	150	1111021	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBL9
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:12:42
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	20765	2	Standard
	Cl	**37**		ug/L			3211762	3079077	1	Standard
⎡>	**Sc**	**45**		ug/L			457131	460007	1	Standard
⎢	**Cr**	**52**	**-0.050**	ug/L	0.013	25	18465	17709	0	Standard
⎣	**Cr**	**53**	**0.002**	ug/L	0.006	252	153	158	6	Standard
⎡>	**Ge**	**72**		ug/L			29045	28472	4	KED
⎢	**Ni**	**60**	**0.033**	ug/L	0.056	170	2	36	159	KED
⎢	**Ni**	**62**	**0.026**	ug/L	0.068	261	3	7	152	KED
⎢	**Cu**	**63**	**0.038**	ug/L	0.065	172	58	172	115	KED
⎢	**Cu**	**65**	**0.041**	ug/L	0.052	125	22	83	94	KED
⎢	**Zn**	**66**	**0.132**	ug/L	0.170	129	16	71	101	KED
⎢	**Zn**	**67**	**0.117**	ug/L	0.238	204	6	14	116	KED
⎣	**As**	**75**	**0.023**	ug/L	0.045	195	4	9	97	KED
	Y	**89**		ug/L			294759	292576	1	Standard
	Kr	**83**		ug/L			45	46	37	Standard
⎡>	**In-1**	**115**		ug/L			8598	8573	0	KED
⎢	**Cd**	**111**	**0.002**	ug/L	0.006	229	0	1	114	KED
⎣	**Cd**	**114**	**0.001**	ug/L	0.003	305	1	1	106	KED
⎡>	**In**	**115**		ug/L			435980	432657	2	Standard
⎣	**Ag**	**107**	**0.008**	ug/L	0.002	25	92	212	15	Standard
⎡>	**Tb**	**159**		ug/L			663193	643593	0	Standard
⎣	**Pb**	**208**	**0.001**	ug/L	0.000	28	150	203	7	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCV9
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:17:07
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19878	2	Standard
	Cl	**37**		ug/L			3211762	3224595	1	Standard
⌈>	**Sc**	**45**		ug/L			457131	471913	0	Standard
|	**Cr**	**52**	**48.011**	ug/L	0.170	0	18465	880719	0	Standard
⌊	**Cr**	**53**	**48.609**	ug/L	0.611	1	153	100949	1	Standard
⌈>	**Ge**	**72**		ug/L			29045	28900	0	KED
|	**Ni**	**60**	**48.228**	ug/L	1.141	2	2	49702	3	KED
|	**Ni**	**62**	**49.718**	ug/L	0.121	0	3	8394	0	KED
|	**Cu**	**63**	**49.070**	ug/L	0.900	1	58	148424	2	KED
|	**Cu**	**65**	**48.948**	ug/L	1.034	2	22	74158	1	KED
|	**Zn**	**66**	**49.585**	ug/L	0.338	0	16	20682	1	KED
|	**Zn**	**67**	**48.525**	ug/L	3.388	6	6	3448	7	KED
⌊	**As**	**75**	**48.837**	ug/L	0.941	1	4	10227	1	KED
	Y	**89**		ug/L			294759	298978	2	Standard
	Kr	**83**		ug/L			45	46	16	Standard
⌈>	**In-1**	**115**		ug/L			8598	8732	1	KED
|	**Cd**	**111**	**49.505**	ug/L	0.802	1	0	12834	1	KED
⌊	**Cd**	**114**	**49.438**	ug/L	0.976	1	1	31398	2	KED
⌈>	**In**	**115**		ug/L			435980	437654	0	Standard
⌊	**Ag**	**107**	**50.175**	ug/L	0.874	1	92	793411	1	Standard
⌈>	**Tb**	**159**		ug/L			663193	671322	1	Standard
⌊	**Pb**	**208**	**50.787**	ug/L	0.917	1	150	2113194	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCB9
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:24:16
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19863	0	Standard
	Cl	**37**		ug/L			3211762	3223498	1	Standard
⎡>	**Sc**	**45**		ug/L			457131	445506	1	Standard
⎢	**Cr**	**52**	**-0.022**	ug/L	0.017	77	18465	17631	2	Standard
⎣	**Cr**	**53**	**-0.002**	ug/L	0.009	391	153	144	11	Standard
⎡>	**Ge**	**72**		ug/L			29045	28217	1	KED
⎢	**Ni**	**60**	**0.003**	ug/L	0.002	60	2	5	33	KED
⎢	**Ni**	**62**	**-0.015**	ug/L	0.007	44	3	0	173	KED
⎢	**Cu**	**63**	**-0.004**	ug/L	0.003	77	58	43	24	KED
⎢	**Cu**	**65**	**-0.001**	ug/L	0.003	219	22	19	22	KED
⎢	**Zn**	**66**	**0.017**	ug/L	0.017	99	16	22	30	KED
⎢	**Zn**	**67**	**-0.025**	ug/L	0.063	248	6	4	98	KED
⎣	**As**	**75**	**-0.005**	ug/L	0.018	326	4	3	96	KED
	Y	**89**		ug/L			294759	283991	1	Standard
	Kr	**83**		ug/L			45	50	20	Standard
⎡>	**In-1**	**115**		ug/L			8598	8588	1	KED
⎢	**Cd**	**111**	**0.005**	ug/L	0.004	73	0	1	50	KED
⎣	**Cd**	**114**	**-0.001**	ug/L	0.002	160	1	0	198	KED
⎡>	**In**	**115**		ug/L			435980	428145	0	Standard
⎣	**Ag**	**107**	**0.007**	ug/L	0.001	17	92	191	8	Standard
⎡>	**Tb**	**159**		ug/L			663193	644174	0	Standard
⎣	**Pb**	**208**	**0.000**	ug/L	0.000	66	150	162	6	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:28:41
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	29484	1	Standard
	Cl	**37**		ug/L			3211762	3291324	0	Standard
⌈>	**Sc**	**45**		ug/L			457131	537678	2	Standard
|	**Cr**	**52**	**0.086**	ug/L	0.029	33	18465	23471	1	Standard
⌊	**Cr**	**53**	**0.632**	ug/L	0.036	5	153	1671	4	Standard
⌈>	**Ge**	**72**		ug/L			29045	28593	1	KED
|	**Ni**	**60**	**1.774**	ug/L	0.059	3	2	1810	2	KED
|	**Ni**	**62**	**1.796**	ug/L	0.127	7	3	302	6	KED
|	**Cu**	**63**	**0.826**	ug/L	0.010	1	58	2527	1	KED
|	**Cu**	**65**	**0.760**	ug/L	0.040	5	22	1160	5	KED
|	**Zn**	**66**	**3.377**	ug/L	0.100	2	16	1408	3	KED
|	**Zn**	**67**	**5.741**	ug/L	0.241	4	6	408	2	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.060	6	4	209	4	KED
	Y	**89**		ug/L			294759	318818	0	Standard
	Kr	**83**		ug/L			45	41	27	Standard
⌈>	**In-1**	**115**		ug/L			8598	8714	1	KED
|	**Cd**	**111**	**0.075**	ug/L	0.021	27	0	20	26	KED
⌊	**Cd**	**114**	**0.057**	ug/L	0.019	32	1	37	30	KED
⌈>	**In**	**115**		ug/L			435980	445489	2	Standard
⌊	**Ag**	**107**	**0.003**	ug/L	0.001	47	92	140	13	Standard
⌈>	**Tb**	**159**		ug/L			663193	687652	1	Standard
⌊	**Pb**	**208**	**0.126**	ug/L	0.004	3	150	5545	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:33:05
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28638	2	Standard
	Cl	**37**		ug/L			3211762	3157501	1	Standard
⌈>	**Sc**	**45**		ug/L			457131	526465	2	Standard
|	**Cr**	**52**	**0.194**	ug/L	0.026	13	18465	25146	3	Standard
⌊	**Cr**	**53**	**0.479**	ug/L	0.011	2	153	1284	1	Standard
⌈>	**Ge**	**72**		ug/L			29045	28738	1	KED
|	**Ni**	**60**	**4.520**	ug/L	0.095	2	2	4635	3	KED
|	**Ni**	**62**	**4.183**	ug/L	0.167	3	3	705	5	KED
|	**Cu**	**63**	**1.056**	ug/L	0.033	3	58	3232	4	KED
|	**Cu**	**65**	**1.098**	ug/L	0.028	2	22	1675	2	KED
|	**Zn**	**66**	**1.673**	ug/L	0.074	4	16	709	5	KED
|	**Zn**	**67**	**2.741**	ug/L	0.406	14	6	199	13	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.012	1	4	138	0	KED
	Y	**89**		ug/L			294759	319357	5	Standard
	Kr	**83**		ug/L			45	51	24	Standard
⌈>	**In-1**	**115**		ug/L			8598	8726	2	KED
|	**Cd**	**111**	**0.020**	ug/L	0.007	36	0	5	33	KED
⌊	**Cd**	**114**	**0.012**	ug/L	0.006	52	1	8	43	KED
⌈>	**In**	**115**		ug/L			435980	443735	3	Standard
⌊	**Ag**	**107**	**0.000**	ug/L	0.000	204	92	97	9	Standard
⌈>	**Tb**	**159**		ug/L			663193	678366	2	Standard
⌊	**Pb**	**208**	**0.096**	ug/L	0.002	1	150	4190	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:37:29
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	13		ug/L			19529	31041	2	Standard
	Cl	37		ug/L			3211762	3877607	0	Standard
>	Sc	45		ug/L			457131	588396	0	Standard
	Cr	52	-0.005	ug/L	0.008	142	18465	23650	1	Standard
	Cr	53	0.577	ug/L	0.012	2	153	1689	2	Standard
>	Ge	72		ug/L			29045	25448	6	KED
	Ni	60	62.255	ug/L	2.503	4	2	56400	3	KED
	Ni	62	61.547	ug/L	2.786	4	3	9134	3	KED
	Cu	63	37.464	ug/L	2.500	6	58	99495	0	KED
	Cu	65	38.105	ug/L	1.827	4	22	50736	2	KED
	Zn	66	3.306	ug/L	0.419	12	16	1221	5	KED
	Zn	67	13.148	ug/L	0.405	3	6	825	3	KED
	[redacted]	75	[redacted]	ug/L	0.062	10	4	110	7	KED
	Y	89		ug/L			294759	452891	2	Standard
	Kr	83		ug/L			45	98	22	Standard
>	In-1	115		ug/L			8598	8336	0	KED
	Cd	111	0.160	ug/L	0.021	13	0	40	13	KED
	Cd	114	0.148	ug/L	0.017	11	1	91	11	KED
>	In	115		ug/L			435980	407896	0	Standard
	Ag	107	0.001	ug/L	0.000	47	92	99	6	Standard
>	Tb	159		ug/L			663193	656150	0	Standard
	Pb	208	0.216	ug/L	0.000	0	150	8937	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:41:54
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	29094	1	Standard
	Cl	**37**		ug/L			3211762	3136866	2	Standard
⌈>	**Sc**	**45**		ug/L			457131	537457	0	Standard
|	**Cr**	**52**	**0.502**	ug/L	0.005	1	18465	31980	0	Standard
⌊	**Cr**	**53**	**0.736**	ug/L	0.012	1	153	1917	1	Standard
⌈>	**Ge**	**72**		ug/L			29045	29019	0	KED
|	**Ni**	**60**	**0.376**	ug/L	0.005	1	2	391	1	KED
|	**Ni**	**62**	**0.386**	ug/L	0.037	9	3	68	9	KED
|	**Cu**	**63**	**0.455**	ug/L	0.019	4	58	1441	4	KED
|	**Cu**	**65**	**0.485**	ug/L	0.026	5	22	760	5	KED
|	**Zn**	**66**	**1.106**	ug/L	0.115	10	16	479	9	KED
|	**Zn**	**67**	**2.114**	ug/L	0.354	16	6	156	15	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.040	4	4	180	4	KED
	Y	**89**		ug/L			294759	305478	2	Standard
	Kr	**83**		ug/L			45	45	38	Standard
⌈>	**In-1**	**115**		ug/L			8598	8590	0	KED
|	**Cd**	**111**	**0.005**	ug/L	0.006	130	0	1	86	KED
⌊	**Cd**	**114**	**0.007**	ug/L	0.006	91	1	5	71	KED
⌈>	**In**	**115**		ug/L			435980	439763	2	Standard
⌊	**Ag**	**107**	**-0.001**	ug/L	0.001	186	92	84	15	Standard
⌈>	**Tb**	**159**		ug/L			663193	671874	1	Standard
⌊	**Pb**	**208**	**0.093**	ug/L	0.004	4	150	4035	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:46:18
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28522	3	Standard
	Cl	**37**		ug/L			3211762	3127404	3	Standard
⌈>	**Sc**	**45**		ug/L			457131	537351	3	Standard
|	**Cr**	**52**	**0.550**	ug/L	0.029	5	18465	32933	2	Standard
⌊	**Cr**	**53**	**0.795**	ug/L	0.033	4	153	2056	2	Standard
⌈>	**Ge**	**72**		ug/L			29045	29133	0	KED
|	**Ni**	**60**	**0.379**	ug/L	0.056	14	2	396	14	KED
|	**Ni**	**62**	**0.354**	ug/L	0.008	2	3	63	1	KED
|	**Cu**	**63**	**0.515**	ug/L	0.008	1	58	1626	0	KED
|	**Cu**	**65**	**0.505**	ug/L	0.039	7	22	793	7	KED
|	**Zn**	**66**	**1.083**	ug/L	0.064	5	16	471	6	KED
|	**Zn**	**67**	**2.254**	ug/L	0.454	20	6	167	19	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.046	5	4	182	5	KED
	Y	**89**		ug/L			294759	309606	2	Standard
	Kr	**83**		ug/L			45	45	6	Standard
⌈>	**In-1**	**115**		ug/L			8598	8720	2	KED
|	**Cd**	**111**	**0.007**	ug/L	0.002	31	0	2	21	KED
⌊	**Cd**	**114**	**0.005**	ug/L	0.005	108	1	4	77	KED
⌈>	**In**	**115**		ug/L			435980	445432	1	Standard
⌊	**Ag**	**107**	**-0.001**	ug/L	0.000	14	92	72	5	Standard
⌈>	**Tb**	**159**		ug/L			663193	681296	1	Standard
⌊	**Pb**	**208**	**0.101**	ug/L	0.002	1	150	4400	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:50:42
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	27992	2	Standard
	Cl	**37**		ug/L			3211762	3192185	1	Standard
>	**Sc**	**45**		ug/L			457131	514250	1	Standard
	Cr	**52**	**0.185**	ug/L	0.035	18	18465	24386	1	Standard
	Cr	**53**	**0.376**	ug/L	0.016	4	153	1021	2	Standard
>	**Ge**	**72**		ug/L			29045	28035	0	KED
	Ni	**60**	**2.511**	ug/L	0.133	5	2	2511	4	KED
	Ni	**62**	**2.370**	ug/L	0.140	5	3	391	6	KED
	Cu	**63**	**0.750**	ug/L	0.019	2	58	2254	2	KED
	Cu	**65**	**0.734**	ug/L	0.020	2	22	1099	3	KED
	Zn	**66**	**3.284**	ug/L	0.058	1	16	1343	1	KED
	Zn	**67**	**7.118**	ug/L	0.403	5	6	495	6	KED
	[redacted]	**75**	[redacted]	ug/L	0.036	5	4	148	4	KED
	Y	**89**		ug/L			294759	305448	3	Standard
	Kr	**83**		ug/L			45	55	16	Standard
>	**In-1**	**115**		ug/L			8598	9239	0	KED
	Cd	**111**	**0.038**	ug/L	0.011	29	0	11	27	KED
	Cd	**114**	**0.040**	ug/L	0.006	15	1	27	14	KED
>	**In**	**115**		ug/L			435980	436283	0	Standard
	Ag	**107**	**-0.003**	ug/L	0.001	22	92	50	19	Standard
>	**Tb**	**159**		ug/L			663193	676129	0	Standard
	Pb	**208**	**0.217**	ug/L	0.007	3	150	9253	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:55:01
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	13		ug/L			19529	32957	2	Standard
	Cl	37		ug/L			3211762	3215774	2	Standard
>	Sc	45		ug/L			457131	631900	3	Standard
	Cr	52	0.051	ug/L	0.034	66	18465	26725	1	Standard
	Cr	53	0.427	ug/L	0.030	7	153	1395	5	Standard
>	Ge	72		ug/L			29045	25453	0	KED
	Ni	60	4.646	ug/L	0.096	2	2	4218	2	KED
	Ni	62	4.467	ug/L	0.144	3	3	666	2	KED
	Cu	63	1.161	ug/L	0.002	0	58	3142	0	KED
	Cu	65	1.096	ug/L	0.034	3	22	1481	3	KED
	Zn	66	5.876	ug/L	0.097	1	16	2171	2	KED
	Zn	67	15.594	ug/L	0.843	5	6	979	6	KED
	[redacted]	75	[redacted]	ug/L	0.383	0	4	11499	1	KED
	Y	89		ug/L			294759	292724	3	Standard
	Kr	83		ug/L			45	59	19	Standard
>	In-1	115		ug/L			8598	7746	3	KED
	Cd	111	0.128	ug/L	0.040	31	0	29	27	KED
	Cd	114	0.121	ug/L	0.043	35	1	68	31	KED
>	In	115		ug/L			435980	388485	3	Standard
	Ag	107	0.000	ug/L	0.001	676	92	83	13	Standard
>	Tb	159		ug/L			663193	604704	1	Standard
	Pb	208	0.263	ug/L	0.005	1	150	10007	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 21:59:49
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	29010	1	Standard
	Cl	**37**		ug/L			3211762	3124320	1	Standard
⌈>	**Sc**	**45**		ug/L			457131	540940	3	Standard
|	**Cr**	**52**	**-0.042**	ug/L	0.026	61	18465	20997	5	Standard
⌊	**Cr**	**53**	**0.199**	ug/L	0.015	7	153	654	4	Standard
⌈>	**Ge**	**72**		ug/L			29045	29236	2	KED
|	**Ni**	**60**	**0.194**	ug/L	0.008	4	2	204	5	KED
|	**Ni**	**62**	**0.194**	ug/L	0.024	12	3	36	9	KED
|	**Cu**	**63**	**0.121**	ug/L	0.002	1	58	429	3	KED
|	**Cu**	**65**	**0.112**	ug/L	0.014	12	22	194	8	KED
|	**Zn**	**66**	**0.828**	ug/L	0.078	9	16	365	6	KED
|	**Zn**	**67**	**3.168**	ug/L	0.184	5	6	233	6	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.023	3	4	139	2	KED
	Y	**89**		ug/L			294759	302722	6	Standard
	Kr	**83**		ug/L			45	58	23	Standard
⌈>	**In-1**	**115**		ug/L			8598	8928	1	KED
|	**Cd**	**111**	**0.015**	ug/L	0.009	61	0	4	52	KED
⌊	**Cd**	**114**	**0.011**	ug/L	0.001	13	1	8	10	KED
⌈>	**In**	**115**		ug/L			435980	432882	3	Standard
⌊	**Ag**	**107**	**-0.003**	ug/L	0.001	21	92	45	18	Standard
⌈>	**Tb**	**159**		ug/L			663193	668191	3	Standard
⌊	**Pb**	**208**	**0.020**	ug/L	0.002	7	150	993	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:05:37
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			19529	35326	3	Standard
Cl	37		ug/L			3211762	3309776	2	Standard
> Sc	45		ug/L			457131	607363	2	Standard
Cr	52	-0.010	ug/L	0.009	93	18465	24303	3	Standard
Cr	53	0.333	ug/L	0.008	2	153	1093	3	Standard
> Ge	72		ug/L			29045	25650	0	KED
Ni	60	148.163	ug/L	3.283	2	2	135492	1	KED
Ni	62	148.181	ug/L	1.741	1	3	22200	1	KED
Cu	63	0.300	ug/L	0.008	2	58	856	2	KED
Cu	65	0.307	ug/L	0.015	4	22	432	4	KED
Zn	66	1.394	ug/L	0.029	2	16	530	1	KED
Zn	67	11.249	ug/L	1.070	9	6	713	9	KED
[redacted]	75	[redacted]	ug/L	0.493	0	4	13602	0	KED
Y	89		ug/L			294759	289650	2	Standard
Kr	83		ug/L			45	45	21	Standard
> In-1	115		ug/L			8598	8042	1	KED
Cd	111	0.008	ug/L	0.002	27	0	2	21	KED
Cd	114	0.008	ug/L	0.013	161	1	5	129	KED
> In	115		ug/L			435980	399023	2	Standard
Ag	107	-0.002	ug/L	0.001	30	92	56	12	Standard
> Tb	159		ug/L			663193	609848	0	Standard
Pb	208	0.033	ug/L	0.001	2	150	1388	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBLA
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:09:57
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	20878	2	Standard
	Cl	**37**		ug/L			3211762	3302066	2	Standard
⎡>	**Sc**	**45**		ug/L			457131	430198	3	Standard
⎢	**Cr**	**52**	**0.014**	ug/L	0.021	150	18465	17597	1	Standard
⎣	**Cr**	**53**	**-0.016**	ug/L	0.003	17	153	114	5	Standard
⎡>	**Ge**	**72**		ug/L			29045	29411	0	KED
⎢	**Ni**	**60**	**0.004**	ug/L	0.006	151	2	6	95	KED
⎢	**Ni**	**62**	**-0.004**	ug/L	0.006	159	3	2	43	KED
⎢	**Cu**	**63**	**0.003**	ug/L	0.005	196	58	67	23	KED
⎢	**Cu**	**65**	**0.003**	ug/L	0.003	84	22	27	14	KED
⎢	**Zn**	**66**	**0.031**	ug/L	0.019	60	16	29	26	KED
⎢	**Zn**	**67**	**-0.001**	ug/L	0.031	3051	6	6	34	KED
⎣	**As**	**75**	**-0.005**	ug/L	0.005	95	4	3	24	KED
	Y	**89**		ug/L			294759	283314	3	Standard
	Kr	**83**		ug/L			45	47	31	Standard
⎡>	**In-1**	**115**		ug/L			8598	9025	2	KED
⎢	**Cd**	**111**	**-0.001**	ug/L	0.002	160	0	0	173	KED
⎣	**Cd**	**114**	**0.002**	ug/L	0.001	79	1	2	41	KED
⎡>	**In**	**115**		ug/L			435980	432866	2	Standard
⎣	**Ag**	**107**	**-0.004**	ug/L	0.001	13	92	29	29	Standard
⎡>	**Tb**	**159**		ug/L			663193	639640	1	Standard
⎣	**Pb**	**208**	**-0.001**	ug/L	0.000	15	150	102	6	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCVA
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:14:22
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19322	5	Standard
	Cl	**37**		ug/L			3211762	3174333	1	Standard
⎡>	**Sc**	**45**		ug/L			457131	458281	3	Standard
⎢	**Cr**	**52**	**48.700**	ug/L	0.145	0	18465	867234	3	Standard
⎣	**Cr**	**53**	**49.708**	ug/L	1.536	3	153	100176	1	Standard
⎡>	**Ge**	**72**		ug/L			29045	30065	2	KED
⎢	**Ni**	**60**	**48.576**	ug/L	0.883	1	2	52077	3	KED
⎢	**Ni**	**62**	**48.120**	ug/L	1.311	2	3	8455	5	KED
⎢	**Cu**	**63**	**49.667**	ug/L	1.062	2	58	156239	1	KED
⎢	**Cu**	**65**	**47.792**	ug/L	0.693	1	22	75318	1	KED
⎢	**Zn**	**66**	**49.783**	ug/L	0.434	0	16	21602	2	KED
⎢	**Zn**	**67**	**48.199**	ug/L	0.854	1	6	3561	2	KED
⎣	**As**	**75**	**49.315**	ug/L	0.279	0	4	10744	2	KED
	Y	**89**		ug/L			294759	294303	2	Standard
	Kr	**83**		ug/L			45	42	18	Standard
⎡>	**In-1**	**115**		ug/L			8598	9199	2	KED
⎢	**Cd**	**111**	**49.524**	ug/L	1.089	2	0	13523	0	KED
⎣	**Cd**	**114**	**49.474**	ug/L	0.731	1	1	33095	0	KED
⎡>	**In**	**115**		ug/L			435980	450527	1	Standard
⎣	**Ag**	**107**	**48.546**	ug/L	1.430	2	92	790048	1	Standard
⎡>	**Tb**	**159**		ug/L			663193	679913	1	Standard
⎣	**Pb**	**208**	**50.033**	ug/L	0.568	1	150	2108528	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCBA
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:21:31
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19977	1	Standard
	Cl	**37**		ug/L			3211762	3251556	2	Standard
⎡>	**Sc**	**45**		ug/L			457131	462248	2	Standard
⎢	**Cr**	**52**	**-0.004**	ug/L	0.024	529	18465	18586	0	Standard
⎣	**Cr**	**53**	**-0.011**	ug/L	0.003	27	153	132	6	Standard
⎡>	**Ge**	**72**		ug/L			29045	26551	11	KED
⎢	**Ni**	**60**	**0.007**	ug/L	0.006	94	2	8	58	KED
⎢	**Ni**	**62**	**-0.011**	ug/L	0.013	117	3	1	173	KED
⎢	**Cu**	**63**	**-0.003**	ug/L	0.005	170	58	43	19	KED
⎢	**Cu**	**65**	**0.007**	ug/L	0.005	64	22	29	9	KED
⎢	**Zn**	**66**	**0.019**	ug/L	0.039	203	16	21	58	KED
⎢	**Zn**	**67**	**-0.060**	ug/L	0.004	6	6	1		KED
⎣	**As**	**75**	**0.001**	ug/L	0.009	1006	4	4	36	KED
	Y	**89**		ug/L			294759	289952	4	Standard
	Kr	**83**		ug/L			45	52	7	Standard
⎡>	**In-1**	**115**		ug/L			8598	8638	1	KED
⎢	**Cd**	**111**	**0.004**	ug/L	0.002	58	0	1	34	KED
⎣	**Cd**	**114**	**0.001**	ug/L	0.003	303	1	1	101	KED
⎡>	**In**	**115**		ug/L			435980	446562	2	Standard
⎣	**Ag**	**107**	**0.006**	ug/L	0.001	12	92	198	8	Standard
⎡>	**Tb**	**159**		ug/L			663193	676617	2	Standard
⎣	**Pb**	**208**	**0.000**	ug/L	0.001	316	150	160	14	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:25:56
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28237	0	Standard
	Cl	**37**		ug/L			3211762	5880211	2	Standard
>	**Sc**	**45**		ug/L			457131	551491	1	Standard
	Cr	**52**	**-0.020**	ug/L	0.041	202	18465	21850	2	Standard
	Cr	**53**	**1.094**	ug/L	0.041	3	153	2834	2	Standard
>	**Ge**	**72**		ug/L			29045	28666	1	KED
	Ni	**60**	**0.697**	ug/L	0.025	3	2	714	2	KED
	Ni	**62**	**0.671**	ug/L	0.056	8	3	115	9	KED
	Cu	**63**	**0.231**	ug/L	0.006	2	58	751	3	KED
	Cu	**65**	**0.232**	ug/L	0.022	9	22	370	7	KED
	Zn	**66**	**1.126**	ug/L	0.048	4	16	481	5	KED
	Zn	**67**	**8.342**	ug/L	0.890	10	6	592	9	KED
	[redacted]	**75**	[redacted]	ug/L	0.249	3	4	1351	2	KED
	Y	**89**		ug/L			294759	296699	0	Standard
	Kr	**83**		ug/L			45	56	27	Standard
>	**In-1**	**115**		ug/L			8598	8911	1	KED
	Cd	**111**	**0.013**	ug/L	0.007	57	0	4	48	KED
	Cd	**114**	**0.012**	ug/L	0.007	60	1	8	53	KED
>	**In**	**115**		ug/L			435980	429177	0	Standard
	Ag	**107**	**0.001**	ug/L	0.000	8	92	113	1	Standard
>	**Tb**	**159**		ug/L			663193	665584	0	Standard
	Pb	**208**	**0.033**	ug/L	0.001	2	150	1519	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:30:20
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	25397	4	Standard
	Cl	**37**		ug/L			3211762	3162258	2	Standard
>	**Sc**	**45**		ug/L			457131	450918	1	Standard
	Cr	**52**	**0.139**	ug/L	0.015	10	18465	20590	1	Standard
	Cr	**53**	**0.248**	ug/L	0.004	1	153	641	2	Standard
>	**Ge**	**72**		ug/L			29045	28997	3	KED
	Ni	**60**	**0.026**	ug/L	0.005	18	2	29	19	KED
	Ni	**62**	**-0.004**	ug/L	0.017	460	3	2	114	KED
	Cu	**63**	**0.021**	ug/L	0.006	27	58	120	11	KED
	Cu	**65**	**0.032**	ug/L	0.015	45	22	70	29	KED
	Zn	**66**	**0.626**	ug/L	0.101	16	16	277	12	KED
	Zn	**67**	**0.609**	ug/L	0.112	18	6	49	13	KED
	[redacted]	**75**	[redacted]	ug/L	0.004	106	4	4	17	KED
	Y	**89**		ug/L			294759	289342	2	Standard
	Kr	**83**		ug/L			45	45	8	Standard
>	**In-1**	**115**		ug/L			8598	8670	0	KED
	Cd	**111**	**-0.000**	ug/L	0.002	8298	0	0	86	KED
	Cd	**114**	**0.003**	ug/L	0.002	46	1	3	29	KED
>	**In**	**115**		ug/L			435980	446524	1	Standard
	Ag	**107**	**-0.002**	ug/L	0.000	16	92	55	10	Standard
>	**Tb**	**159**		ug/L			663193	667826	1	Standard
	Pb	**208**	**0.024**	ug/L	0.002	8	150	1125	5	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:34:44
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28499	2	Standard
	Cl	**37**		ug/L			3211762	3159448	1	Standard
⌈>	**Sc**	**45**		ug/L			457131	565031	1	Standard
|	**Cr**	**52**	**-0.044**	ug/L	0.014	31	18465	21887	0	Standard
⌊	**Cr**	**53**	**0.299**	ug/L	0.012	3	153	932	1	Standard
⌈>	**Ge**	**72**		ug/L			29045	29002	1	KED
|	**Ni**	**60**	**0.404**	ug/L	0.025	6	2	420	5	KED
|	**Ni**	**62**	**0.383**	ug/L	0.053	13	3	67	12	KED
|	**Cu**	**63**	**0.250**	ug/L	0.019	7	58	815	7	KED
|	**Cu**	**65**	**0.248**	ug/L	0.014	5	22	399	4	KED
|	**Zn**	**66**	**1.129**	ug/L	0.039	3	16	488	4	KED
|	**Zn**	**67**	**2.237**	ug/L	0.277	12	6	165	13	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.026	3	4	161	2	KED
	Y	**89**		ug/L			294759	310374	0	Standard
	Kr	**83**		ug/L			45	45	21	Standard
⌈>	**In-1**	**115**		ug/L			8598	8824	2	KED
|	**Cd**	**111**	**0.012**	ug/L	0.008	62	0	3	50	KED
⌊	**Cd**	**114**	**0.016**	ug/L	0.013	84	1	11	76	KED
⌈>	**In**	**115**		ug/L			435980	447364	1	Standard
⌊	**Ag**	**107**	**-0.002**	ug/L	0.000	24	92	67	10	Standard
⌈>	**Tb**	**159**		ug/L			663193	684585	1	Standard
⌊	**Pb**	**208**	**0.036**	ug/L	0.002	5	150	1698	5	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:39:09
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28261	4	Standard
	Cl	**37**		ug/L			3211762	3180606	2	Standard
>	**Sc**	**45**		ug/L			457131	514764	3	Standard
	Cr	**52**	**0.001**	ug/L	0.014	1610	18465	20806	3	Standard
	Cr	**53**	**0.293**	ug/L	0.013	4	153	834	1	Standard
>	**Ge**	**72**		ug/L			29045	29058	0	KED
	Ni	**60**	**1.443**	ug/L	0.042	2	2	1497	3	KED
	Ni	**62**	**1.426**	ug/L	0.072	5	3	245	4	KED
	Cu	**63**	**0.397**	ug/L	0.006	1	58	1264	1	KED
	Cu	**65**	**0.373**	ug/L	0.033	8	22	590	8	KED
	Zn	**66**	**2.691**	ug/L	0.099	3	16	1144	3	KED
	Zn	**67**	**4.427**	ug/L	0.328	7	6	321	6	KED
	[redacted]	**75**	[redacted]	ug/L	0.055	2	4	442	2	KED
	Y	**89**		ug/L			294759	308909	3	Standard
	Kr	**83**		ug/L			45	61	15	Standard
>	**In-1**	**115**		ug/L			8598	8823	1	KED
	Cd	**111**	**0.103**	ug/L	0.013	12	0	27	11	KED
	Cd	**114**	**0.084**	ug/L	0.024	28	1	55	27	KED
>	**In**	**115**		ug/L			435980	445199	2	Standard
	Ag	**107**	**-0.002**	ug/L	0.001	21	92	55	14	Standard
>	**Tb**	**159**		ug/L			663193	681941	1	Standard
	Pb	**208**	**0.031**	ug/L	0.001	2	150	1460	1	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:43:33
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
C	13		ug/L			19529	33004	1	Standard
Cl	37		ug/L			3211762	3888780	1	Standard
> Sc	45		ug/L			457131	573648	3	Standard
Cr	52	0.054	ug/L	0.049	91	18465	24333	1	Standard
Cr	53	0.589	ug/L	0.003	0	153	1675	2	Standard
> Ge	72		ug/L			29045	25025	1	KED
Ni	60	26.220	ug/L	0.449	1	2	23393	0	KED
Ni	62	26.659	ug/L	0.581	2	3	3898	1	KED
Cu	63	7.574	ug/L	0.215	2	58	19874	2	KED
Cu	65	7.453	ug/L	0.114	1	22	9795	1	KED
Zn	66	2.201	ug/L	0.148	6	16	808	5	KED
Zn	67	9.968	ug/L	1.075	10	6	617	9	KED
[redacted]	75	[redacted]	ug/L	0.059	10	4	109	10	KED
Y	89		ug/L			294759	349757	1	Standard
Kr	83		ug/L			45	73	9	Standard
> In-1	115		ug/L			8598	7952	1	KED
Cd	111	0.043	ug/L	0.010	22	0	10	22	KED
Cd	114	0.037	ug/L	0.016	43	1	22	41	KED
> In	115		ug/L			435980	390839	1	Standard
Ag	107	0.006	ug/L	0.001	15	92	168	6	Standard
> Tb	159		ug/L			663193	631129	0	Standard
Pb	208	0.165	ug/L	0.001	0	150	6598	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:47:58
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	29818	4	Standard
	Cl	**37**		ug/L			3211762	3153345	3	Standard
⌈>	**Sc**	**45**		ug/L			457131	505737	1	Standard
⎢	**Cr**	**52**	**0.189**	ug/L	0.020	10	18465	24058	0	Standard
⌊	**Cr**	**53**	**0.521**	ug/L	0.011	2	153	1327	3	Standard
⌈>	**Ge**	**72**		ug/L			29045	28730	1	KED
⎢	**Ni**	**60**	**0.220**	ug/L	0.013	5	2	227	4	KED
⎢	**Ni**	**62**	**0.212**	ug/L	0.041	19	3	38	17	KED
⎢	**Cu**	**63**	**1.359**	ug/L	0.070	5	58	4141	3	KED
⎢	**Cu**	**65**	**1.318**	ug/L	0.007	0	22	2007	1	KED
⎢	**Zn**	**66**	**1.956**	ug/L	0.032	1	16	826	1	KED
⎢	**Zn**	**67**	**1.559**	ug/L	0.302	19	6	116	18	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.008	6	4	30	4	KED
	Y	**89**		ug/L			294759	304477	5	Standard
	Kr	**83**		ug/L			45	53	10	Standard
⌈>	**In-1**	**115**		ug/L			8598	8758	1	KED
⎢	**Cd**	**111**	**0.008**	ug/L	0.010	114	0	2	88	KED
⌊	**Cd**	**114**	**0.014**	ug/L	0.001	4	1	10	3	KED
⌈>	**In**	**115**		ug/L			435980	446609	3	Standard
⌊	**Ag**	**107**	**0.001**	ug/L	0.001	141	92	110	22	Standard
⌈>	**Tb**	**159**		ug/L			663193	685666	0	Standard
⌊	**Pb**	**208**	**0.113**	ug/L	0.004	3	150	4945	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:52:16
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28017	3	Standard
	Cl	**37**		ug/L			3211762	3094393	1	Standard
>	**Sc**	**45**		ug/L			457131	504315	1	Standard
	Cr	**52**	**0.253**	ug/L	0.026	10	18465	25213	1	Standard
	Cr	**53**	**0.560**	ug/L	0.022	3	153	1408	4	Standard
>	**Ge**	**72**		ug/L			29045	28385	1	KED
	Ni	**60**	**0.225**	ug/L	0.015	6	2	230	4	KED
	Ni	**62**	**0.337**	ug/L	0.038	11	3	59	11	KED
	Cu	**63**	**0.103**	ug/L	0.009	8	58	363	8	KED
	Cu	**65**	**0.098**	ug/L	0.016	16	22	166	12	KED
	Zn	**66**	**0.632**	ug/L	0.101	16	16	274	15	KED
	Zn	**67**	**1.622**	ug/L	0.349	21	6	119	21	KED
	[redacted]	**75**	[redacted]	ug/L	0.008	0	4	195	1	KED
	Y	**89**		ug/L			294759	298470	1	Standard
	Kr	**83**		ug/L			45	41	26	Standard
>	**In-1**	**115**		ug/L			8598	8664	2	KED
	Cd	**111**	**0.004**	ug/L	0.002	56	0	1	34	KED
	Cd	**114**	**0.004**	ug/L	0.006	146	1	3	101	KED
>	**In**	**115**		ug/L			435980	434805	1	Standard
	Ag	**107**	**-0.003**	ug/L	0.000	8	92	45	7	Standard
>	**Tb**	**159**		ug/L			663193	671000	0	Standard
	Pb	**208**	**0.032**	ug/L	0.001	3	150	1468	2	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 22:57:04
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28533	1	Standard
	Cl	**37**		ug/L			3211762	3106429	0	Standard
⌈>	**Sc**	**45**		ug/L			457131	510406	0	Standard
|	**Cr**	**52**	**0.209**	ug/L	0.038	18	18465	24663	2	Standard
⌊	**Cr**	**53**	**0.418**	ug/L	0.029	6	153	1107	5	Standard
⌈>	**Ge**	**72**		ug/L			29045	28252	2	KED
|	**Ni**	**60**	**0.419**	ug/L	0.006	1	2	424	4	KED
|	**Ni**	**62**	**0.474**	ug/L	0.074	15	3	81	14	KED
|	**Cu**	**63**	**1.180**	ug/L	0.009	0	58	3545	3	KED
|	**Cu**	**65**	**1.100**	ug/L	0.075	6	22	1649	5	KED
|	**Zn**	**66**	**2.551**	ug/L	0.110	4	16	1055	5	KED
|	**Zn**	**67**	**3.672**	ug/L	0.437	11	6	260	9	KED
⌊	[redacted]	**75**	[redacted]	ug/L	0.063	9	4	145	11	KED
	Y	**89**		ug/L			294759	300969	1	Standard
	Kr	**83**		ug/L			45	43	30	Standard
⌈>	**In-1**	**115**		ug/L			8598	8693	1	KED
|	**Cd**	**111**	**0.016**	ug/L	0.007	46	0	4	40	KED
⌊	**Cd**	**114**	**0.004**	ug/L	0.005	121	1	3	83	KED
⌈>	**In**	**115**		ug/L			435980	438139	0	Standard
⌊	**Ag**	**107**	**-0.002**	ug/L	0.001	55	92	60	29	Standard
⌈>	**Tb**	**159**		ug/L			663193	676029	0	Standard
⌊	**Pb**	**208**	**0.101**	ug/L	0.004	3	150	4369	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: [redacted]
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:02:53
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	30410	0	Standard
	Cl	**37**		ug/L			3211762	3265879	4	Standard
>	**Sc**	**45**		ug/L			457131	561046	4	Standard
	Cr	**52**	**0.044**	ug/L	0.014	30	18465	23608	4	Standard
	Cr	**53**	**0.386**	ug/L	0.012	3	153	1138	6	Standard
>	**Ge**	**72**		ug/L			29045	26919	2	KED
	Ni	**60**	**3.454**	ug/L	0.040	1	2	3317	1	KED
	Ni	**62**	**3.352**	ug/L	0.092	2	3	530	4	KED
	Cu	**63**	**1.218**	ug/L	0.046	3	58	3482	4	KED
	Cu	**65**	**1.229**	ug/L	0.011	0	22	1755	1	KED
	Zn	**66**	**1.456**	ug/L	0.063	4	16	580	4	KED
	Zn	**67**	**5.855**	ug/L	0.242	4	6	392	2	KED
	[redacted]	**75**	[redacted]	ug/L	0.028	3	4	150	2	KED
	Y	**89**		ug/L			294759	300673	5	Standard
	Kr	**83**		ug/L			45	51	16	Standard
>	**In-1**	**115**		ug/L			8598	8217	2	KED
	Cd	**111**	**0.014**	ug/L	0.010	68	0	4	58	KED
	Cd	**114**	**0.014**	ug/L	0.005	35	1	9	29	KED
>	**In**	**115**		ug/L			435980	425030	3	Standard
	Ag	**107**	**-0.003**	ug/L	0.001	21	92	38	27	Standard
>	**Tb**	**159**		ug/L			663193	675481	2	Standard
	Pb	**208**	**0.055**	ug/L	0.001	2	150	2461	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-IBLB
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:07:12
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19500	3	Standard
	Cl	**37**		ug/L			3211762	3168113	0	Standard
⎡>	**Sc**	**45**		ug/L			457131	434397	0	Standard
⎢	**Cr**	**52**	**0.018**	ug/L	0.036	199	18465	17840	2	Standard
⎣	**Cr**	**53**	**0.039**	ug/L	0.011	27	153	220	9	Standard
⎡>	**Ge**	**72**		ug/L			29045	28305	1	KED
⎢	**Ni**	**60**	**0.001**	ug/L	0.002	143	2	3	50	KED
⎢	**Ni**	**62**	**-0.015**	ug/L	0.007	43	3	0	173	KED
⎢	**Cu**	**63**	**-0.004**	ug/L	0.002	52	58	45	12	KED
⎢	**Cu**	**65**	**0.006**	ug/L	0.002	38	22	30	12	KED
⎢	**Zn**	**66**	**0.037**	ug/L	0.026	69	16	31	33	KED
⎢	**Zn**	**67**	**-0.006**	ug/L	0.055	876	6	5	66	KED
⎣	**As**	**75**	**-0.000**	ug/L	0.006	2955	4	4	26	KED
	Y	**89**		ug/L			294759	282175	1	Standard
	Kr	**83**		ug/L			45	51	7	Standard
⎡>	**In-1**	**115**		ug/L			8598	8668	2	KED
⎢	**Cd**	**111**	**0.006**	ug/L	0.004	68	0	2	49	KED
⎣	**Cd**	**114**	**0.001**	ug/L	0.003	300	1	1	108	KED
⎡>	**In**	**115**		ug/L			435980	429263	1	Standard
⎣	**Ag**	**107**	**-0.004**	ug/L	0.000	2	92	25	4	Standard
⎡>	**Tb**	**159**		ug/L			663193	641664	0	Standard
⎣	**Pb**	**208**	**-0.001**	ug/L	0.000	69	150	117	15	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCVB
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:11:37
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19947	4	Standard
	Cl	**37**		ug/L			3211762	3267460	0	Standard
⎡>	**Sc**	**45**		ug/L			457131	458202	1	Standard
⎢	**Cr**	**52**	**47.872**	ug/L	0.268	0	18465	852666	0	Standard
⎣	**Cr**	**53**	**49.435**	ug/L	1.165	2	153	99687	3	Standard
⎡>	**Ge**	**72**		ug/L			29045	29157	1	KED
⎢	**Ni**	**60**	**47.360**	ug/L	1.197	2	2	49226	1	KED
⎢	**Ni**	**62**	**48.279**	ug/L	0.173	0	3	8223	1	KED
⎢	**Cu**	**63**	**48.918**	ug/L	0.730	1	58	149253	0	KED
⎢	**Cu**	**65**	**47.936**	ug/L	0.253	0	22	73281	1	KED
⎢	**Zn**	**66**	**48.192**	ug/L	0.916	1	16	20277	0	KED
⎢	**Zn**	**67**	**49.403**	ug/L	0.871	1	6	3540	2	KED
⎣	**As**	**75**	**47.784**	ug/L	0.654	1	4	10095	0	KED
	Y	**89**		ug/L			294759	301138	2	Standard
	Kr	**83**		ug/L			45	51	16	Standard
⎡>	**In-1**	**115**		ug/L			8598	8948	1	KED
⎢	**Cd**	**111**	**49.627**	ug/L	1.330	2	0	13184	1	KED
⎣	**Cd**	**114**	**49.343**	ug/L	0.316	0	1	32117	1	KED
⎡>	**In**	**115**		ug/L			435980	450345	1	Standard
⎣	**Ag**	**107**	**49.750**	ug/L	1.560	3	92	809733	4	Standard
⎡>	**Tb**	**159**		ug/L			663193	692235	2	Standard
⎣	**Pb**	**208**	**48.968**	ug/L	1.086	2	150	2100366	0	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: SEQ-CCBB
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:18:46
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19467	3	Standard
	Cl	**37**		ug/L			3211762	3165800	1	Standard
⎡>	**Sc**	**45**		ug/L			457131	431336	0	Standard
⎢	**Cr**	**52**	**-0.003**	ug/L	0.032	1048	18465	17371	2	Standard
⎣	**Cr**	**53**	**0.032**	ug/L	0.006	19	153	204	5	Standard
⎡>	**Ge**	**72**		ug/L			29045	28003	1	KED
⎢	**Ni**	**60**	**0.001**	ug/L	0.005	373	2	3	132	KED
⎢	**Ni**	**62**	**0.001**	ug/L	0.007	967	3	3	34	KED
⎢	**Cu**	**63**	**-0.004**	ug/L	0.003	79	58	45	19	KED
⎢	**Cu**	**65**	**0.002**	ug/L	0.003	145	22	24	16	KED
⎢	**Zn**	**66**	**0.027**	ug/L	0.018	66	16	26	25	KED
⎢	**Zn**	**67**	**-0.043**	ug/L	0.015	36	6	3	34	KED
⎣	**As**	**75**	**0.012**	ug/L	0.002	14	4	7	6	KED
	Y	**89**		ug/L			294759	278304	2	Standard
	Kr	**83**		ug/L			45	44	13	Standard
⎡>	**In-1**	**115**		ug/L			8598	8599	4	KED
⎢	**Cd**	**111**	**0.009**	ug/L	0.004	40	0	2	33	KED
⎣	**Cd**	**114**	**0.002**	ug/L	0.002	95	1	2	45	KED
⎡>	**In**	**115**		ug/L			435980	429160	1	Standard
⎣	**Ag**	**107**	**0.006**	ug/L	0.002	26	92	186	12	Standard
⎡>	**Tb**	**159**		ug/L			663193	641962	1	Standard
⎣	**Pb**	**208**	**0.000**	ug/L	0.001	173	150	159	15	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: RINSE
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:23:10
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	28156	5	Standard
	Cl	**37**		ug/L			3211762	3381235	1	Standard
⎡>	**Sc**	**45**		ug/L			457131	524432	0	Standard
⎢	**Cr**	**52**	**0.075**	ug/L	0.033	43	18465	22683	3	Standard
⎣	**Cr**	**53**	**0.023**	ug/L	0.001	5	153	227	0	Standard
⎡>	**Ge**	**72**		ug/L			29045	29413	1	KED
⎢	**Ni**	**60**	**0.004**	ug/L	0.003	67	2	6	41	KED
⎢	**Ni**	**62**	**-0.000**	ug/L	0.017	17573	3	3	91	KED
⎢	**Cu**	**63**	**0.003**	ug/L	0.004	170	58	67	21	KED
⎢	**Cu**	**65**	**0.007**	ug/L	0.003	47	22	33	16	KED
⎢	**Zn**	**66**	**0.008**	ug/L	0.006	73	16	20	14	KED
⎢	**Zn**	**67**	**-0.009**	ug/L	0.054	573	6	5	66	KED
⎣	**As**	**75**	**-0.001**	ug/L	0.007	640	4	4	30	KED
	Y	**89**		ug/L			294759	332831	2	Standard
	Kr	**83**		ug/L			45	59	25	Standard
⎡>	**In-1**	**115**		ug/L			8598	9393	0	KED
⎢	**Cd**	**111**	**0.001**	ug/L	0.003	368	0	0	100	KED
⎣	**Cd**	**114**	**-0.000**	ug/L	0.002	842	1	1	94	KED
⎡>	**In**	**115**		ug/L			435980	486444	0	Standard
⎣	**Ag**	**107**	**0.003**	ug/L	0.002	49	92	162	17	Standard
⎡>	**Tb**	**159**		ug/L			663193	740928	1	Standard
⎣	**Pb**	**208**	**0.000**	ug/L	0.000	31	150	181	3	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: RINSE
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:27:35
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	27690	1	Standard
	Cl	**37**		ug/L			3211762	3373930	3	Standard
⎡>	**Sc**	**45**		ug/L			457131	504029	2	Standard
⎢	**Cr**	**52**	**0.080**	ug/L	0.011	14	18465	21889	1	Standard
⎣	**Cr**	**53**	**0.020**	ug/L	0.005	23	153	213	4	Standard
⎡>	**Ge**	**72**		ug/L			29045	30119	3	KED
⎢	**Ni**	**60**	**0.006**	ug/L	0.007	108	2	9	80	KED
⎢	**Ni**	**62**	**-0.004**	ug/L	0.006	152	3	2	43	KED
⎢	**Cu**	**63**	**0.003**	ug/L	0.004	152	58	69	16	KED
⎢	**Cu**	**65**	**0.005**	ug/L	0.003	55	22	30	10	KED
⎢	**Zn**	**66**	**0.008**	ug/L	0.026	334	16	20	53	KED
⎢	**Zn**	**67**	**-0.046**	ug/L	0.014	30	6	3	34	KED
⎣	**As**	**75**	**-0.007**	ug/L	0.007	107	4	3	45	KED
	Y	**89**		ug/L			294759	323468	2	Standard
	Kr	**83**		ug/L			45	46	4	Standard
⎡>	**In-1**	**115**		ug/L			8598	9679	1	KED
⎢	**Cd**	**111**	**0.006**	ug/L	0.005	78	0	2	57	KED
⎣	**Cd**	**114**	**-0.000**	ug/L	0.002	792	1	1	94	KED
⎡>	**In**	**115**		ug/L			435980	471233	0	Standard
⎣	**Ag**	**107**	**-0.001**	ug/L	0.000	33	92	81	7	Standard
⎡>	**Tb**	**159**		ug/L			663193	727646	0	Standard
⎣	**Pb**	**208**	**-0.001**	ug/L	0.000	37	150	137	6	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: RINSE
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:32:00
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	27785	0	Standard
	Cl	**37**		ug/L			3211762	3331496	2	Standard
⌈>	**Sc**	**45**		ug/L			457131	507094	2	Standard
⎢	**Cr**	**52**	**0.063**	ug/L	0.025	40	18465	21690	1	Standard
⌊	**Cr**	**53**	**0.021**	ug/L	0.008	38	153	215	7	Standard
⌈>	**Ge**	**72**		ug/L			29045	29689	1	KED
⎢	**Ni**	**60**	**0.001**	ug/L	0.002	159	2	3	50	KED
⎢	**Ni**	**62**	**0.003**	ug/L	0.011	335	3	3	50	KED
⎢	**Cu**	**63**	**0.003**	ug/L	0.002	60	58	68	7	KED
⎢	**Cu**	**65**	**0.004**	ug/L	0.008	196	22	29	44	KED
⎢	**Zn**	**66**	**0.013**	ug/L	0.025	199	16	22	47	KED
⎢	**Zn**	**67**	**-0.010**	ug/L	0.047	452	6	5	57	KED
⌊	**As**	**75**	**-0.009**	ug/L	0.005	52	4	3	31	KED
	Y	**89**		ug/L			294759	328328	1	Standard
	Kr	**83**		ug/L			45	50	32	Standard
⌈>	**In-1**	**115**		ug/L			8598	9484	1	KED
⎢	**Cd**	**111**	**0.003**	ug/L	0.005	162	0	1	91	KED
⌊	**Cd**	**114**	**0.001**	ug/L	0.000	16	1	1	4	KED
⌈>	**In**	**115**		ug/L			435980	470042	1	Standard
⌊	**Ag**	**107**	**-0.003**	ug/L	0.000	15	92	52	15	Standard
⌈>	**Tb**	**159**		ug/L			663193	713847	0	Standard
⌊	**Pb**	**208**	**-0.001**	ug/L	0.000	38	150	138	6	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: DI
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:36:24
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	18667	4	Standard
	Cl	**37**		ug/L			3211762	2875978	3	Standard
⎡>	**Sc**	**45**		ug/L			457131	384333	2	Standard
⎢	**Cr**	**52**	**0.016**	ug/L	0.026	166	18465	15748	0	Standard
⎣	**Cr**	**53**	**0.009**	ug/L	0.004	50	153	143	6	Standard
⎡>	**Ge**	**72**		ug/L			29045	26870	1	KED
⎢	**Ni**	**60**	**0.002**	ug/L	0.003	140	2	4	65	KED
⎢	**Ni**	**62**	**-0.007**	ug/L	0.012	177	3	1	100	KED
⎢	**Cu**	**63**	**-0.008**	ug/L	0.004	48	58	33	31	KED
⎢	**Cu**	**65**	**-0.006**	ug/L	0.000	2	22	11	0	KED
⎢	**Zn**	**66**	**0.029**	ug/L	0.016	55	16	26	25	KED
⎢	**Zn**	**67**	**-0.050**	ug/L	0.017	34	6	2	43	KED
⎣	**As**	**75**	**-0.005**	ug/L	0.001	28	4	3	7	KED
	Y	**89**		ug/L			294759	256771	3	Standard
	Kr	**83**		ug/L			45	50	13	Standard
⎡>	**In-1**	**115**		ug/L			8598	7945	3	KED
⎢	**Cd**	**111**	**0.008**	ug/L	0.008	101	0	2	78	KED
⎣	**Cd**	**114**	**0.002**	ug/L	0.002	86	1	2	45	KED
⎡>	**In**	**115**		ug/L			435980	400291	2	Standard
⎣	**Ag**	**107**	**-0.004**	ug/L	0.000	7	92	20	24	Standard
⎡>	**Tb**	**159**		ug/L			663193	594142	2	Standard
⎣	**Pb**	**208**	**-0.002**	ug/L	0.000	10	150	52	18	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: DI
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:40:49
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19292	1	Standard
	Cl	**37**		ug/L			3211762	3010127	1	Standard
⎡>	**Sc**	**45**		ug/L			457131	407215	1	Standard
⎢	**Cr**	**52**	**0.020**	ug/L	0.041	202	18465	16757	1	Standard
⎣	**Cr**	**53**	**0.013**	ug/L	0.006	43	153	159	4	Standard
⎡>	**Ge**	**72**		ug/L			29045	26481	2	KED
⎢	**Ni**	**60**	**0.003**	ug/L	0.002	74	2	5	43	KED
⎢	**Ni**	**62**	**0.015**	ug/L	0.048	321	3	5	141	KED
⎢	**Cu**	**63**	**-0.006**	ug/L	0.002	24	58	36	9	KED
⎢	**Cu**	**65**	**-0.005**	ug/L	0.003	68	22	13	34	KED
⎢	**Zn**	**66**	**0.014**	ug/L	0.025	182	16	20	48	KED
⎢	**Zn**	**67**	**-0.030**	ug/L	0.030	100	6	3	50	KED
⎣	**As**	**75**	**-0.006**	ug/L	0.013	226	4	3	75	KED
	Y	**89**		ug/L			294759	262322	0	Standard
	Kr	**83**		ug/L			45	50	22	Standard
⎡>	**In-1**	**115**		ug/L			8598	8448	2	KED
⎢	**Cd**	**111**	**0.006**	ug/L	0.006	88	0	2	65	KED
⎣	**Cd**	**114**	**-0.002**	ug/L	0.000	6	1	0	114	KED
⎡>	**In**	**115**		ug/L			435980	417027	1	Standard
⎣	**Ag**	**107**	**-0.005**	ug/L	0.000	3	92	14	15	Standard
⎡>	**Tb**	**159**		ug/L			663193	626740	2	Standard
⎣	**Pb**	**208**	**-0.003**	ug/L	0.000	4	150	39	12	Standard

ICP-MS Quantitative Analysis - Summary Report

Sample ID: DI
Sample Dil Factor:
Comments:
Sample Date/Time: Tuesday, March 21, 2023 23:45:14
Number of Replicates: 3
Method File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Method\200.8_DailyMethod_KED+UCT.mth
Tuning File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\MassCal\Default.tun
Optimization File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\Conditions\Default.dac
Calibration File: C:\Users\metals\Documents\PerkinElmer Syngistix\ICPMS_metals\System\032123A.cal

	Analyte	Mass	Conc. Mean	Units	Conc. SD	Conc. RSD	Blank Intens.	Meas. Intens.	Intens. RSD	Mode
	C	**13**		ug/L			19529	19254	1	Standard
	Cl	**37**		ug/L			3211762	2873024	1	Standard
⎡>	**Sc**	**45**		ug/L			457131	383803	1	Standard
⎢	**Cr**	**52**	**-0.004**	ug/L	0.021	593	18465	15450	2	Standard
⎣	**Cr**	**53**	**0.016**	ug/L	0.001	8	153	155	2	Standard
⎡>	**Ge**	**72**		ug/L			29045	27360	1	KED
⎢	**Ni**	**60**	**0.001**	ug/L	0.001	142	2	3	34	KED
⎢	**Ni**	**62**	**0.001**	ug/L	0.014	1110	3	3	69	KED
⎢	**Cu**	**63**	**-0.007**	ug/L	0.003	40	58	34	25	KED
⎢	**Cu**	**65**	**0.001**	ug/L	0.004	266	22	22	22	KED
⎢	**Zn**	**66**	**-0.009**	ug/L	0.007	83	16	12	24	KED
⎢	**Zn**	**67**	**-0.022**	ug/L	0.044	197	6	4	65	KED
⎣	**As**	**75**	**-0.003**	ug/L	0.004	104	4	3	18	KED
	Y	**89**		ug/L			294759	256373	3	Standard
	Kr	**83**		ug/L			45	40	31	Standard
⎡>	**In-1**	**115**		ug/L			8598	8337	4	KED
⎢	**Cd**	**111**	**0.009**	ug/L	0.004	44	0	2	33	KED
⎣	**Cd**	**114**	**0.000**	ug/L	0.002	1140	1	1	90	KED
⎡>	**In**	**115**		ug/L			435980	397066	0	Standard
⎣	**Ag**	**107**	**-0.005**	ug/L	0.000	3	92	12	24	Standard
⎡>	**Tb**	**159**		ug/L			663193	595774	0	Standard
⎣	**Pb**	**208**	**-0.002**	ug/L	0.000	7	150	43	15	Standard

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: ICPMS2
Calibration: GC00061
Control Limt: +/- 10.00%
Sequence: SLC0332

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SLC0332-ICV1	Arsenic-75a	50.000	46.0	92.0	ug/L	PA 6020B UCT-KE
SLC0332-CCV1	Arsenic-75a	50.000	50.1	100	ug/L	PA 6020B UCT-KE
SLC0332-CCV2	Arsenic-75a	50.000	49.1	98.2	ug/L	PA 6020B UCT-KE
SLC0332-CCV3	Arsenic-75a	50.000	48.5	97.0	ug/L	PA 6020B UCT-KE
SLC0332-CCV4	Arsenic-75a	50.000	49.3	98.6	ug/L	PA 6020B UCT-KE
SLC0332-CCV5	Arsenic-75a	50.000	48.9	97.8	ug/L	PA 6020B UCT-KE
SLC0332-CCV6	Arsenic-75a	50.000	48.6	97.2	ug/L	PA 6020B UCT-KE
SLC0332-CCV7	Arsenic-75a	50.000	49.2	98.5	ug/L	PA 6020B UCT-KE
SLC0332-CCV8	Arsenic-75a	50.000	48.7	97.4	ug/L	PA 6020B UCT-KE
SLC0332-CCV9	Arsenic-75a	50.000	48.8	97.7	ug/L	PA 6020B UCT-KE
SLC0332-CCVA	Arsenic-75a	50.000	49.3	98.6	ug/L	PA 6020B UCT-KE
SLC0332-CCVB	Arsenic-75a	50.000	47.8	95.6	ug/L	PA 6020B UCT-KE

* Values outside of QC limits

INSTRUMENT BLANKS
EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
Client: Anchor QEA, LLC
Instrument ID: ICPMS2
Sequence: SLC0332

SDG: 23B0494
Project: AOC4 UR Phase 3
Calibration: GC00061
Date Analyzed: 03/21/23 14:31

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SLC0332-IBL1	Arsenic-75a	0.00700	0.0373	0.200	ug/L	
SLC0332-ICB1	Arsenic-75a	-0.00100	0.0373	0.200	ug/L	
SLC0332-CCB1	Arsenic-75a	0.00100	0.0373	0.200	ug/L	
SLC0332-IBL2	Arsenic-75a	0.0120	0.0373	0.200	ug/L	
SLC0332-IBL3	Arsenic-75a	-0.00200	0.0373	0.200	ug/L	
SLC0332-CCB2	Arsenic-75a	0.0920	0.0373	0.200	ug/L	
SLC0332-IBL4	Arsenic-75a	-0.00200	0.0373	0.200	ug/L	
SLC0332-CCB3	Arsenic-75a	0.00200	0.0373	0.200	ug/L	
SLC0332-IBL5	Arsenic-75a	0.0130	0.0373	0.200	ug/L	
SLC0332-CCB5	Arsenic-75a	0.00900	0.0373	0.200	ug/L	
SLC0332-IBL6	Arsenic-75a	0.00	0.0373	0.200	ug/L	
SLC0332-CCB6	Arsenic-75a	0.00200	0.0373	0.200	ug/L	
SLC0332-IBL7	Arsenic-75a	0.00200	0.0373	0.200	ug/L	
SLC0332-CCB7	Arsenic-75a	-0.00400	0.0373	0.200	ug/L	
SLC0332-CCB8	Arsenic-75a	-0.00600	0.0373	0.200	ug/L	
SLC0332-IBL9	Arsenic-75a	0.0230	0.0373	0.200	ug/L	
SLC0332-CCB9	Arsenic-75a	-0.00500	0.0373	0.200	ug/L	
SLC0332-IBLA	Arsenic-75a	-0.00500	0.0373	0.200	ug/L	
SLC0332-CCBA	Arsenic-75a	0.00100	0.0373	0.200	ug/L	
SLC0332-IBLB	Arsenic-75a	0.00	0.0373	0.200	ug/L	
SLC0332-CCBB	Arsenic-75a	0.0120	0.0373	0.200	ug/L	

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6020B UCT-KED

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0332	Instrument:	ICPMS2
		Calibration:	GC00061

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CAL 0	SLC0332-CAL1	XDT_m2230321-006	NA	03/21/23 13:58
CAL 1 - LOW CHECK	SLC0332-CAL2	XDT_m2230321-007	NA	03/21/23 14:03
CAL 2	SLC0332-CAL3	XDT_m2230321-008	NA	03/21/23 14:07
CAL 3	SLC0332-CAL4	XDT_m2230321-009	NA	03/21/23 14:12
CAL 4	SLC0332-CAL5	XDT_m2230321-010	NA	03/21/23 14:17
CAL 5	SLC0332-CAL6	XDT_m2230321-011	NA	03/21/23 14:24
RINSE	SLC0332-IBL1	XDT_m2230321-012	NA	03/21/23 14:31
Initial Cal Check	SLC0332-ICV1	XDT_m2230321-014	NA	03/21/23 14:38
Initial Cal Blank	SLC0332-ICB1	XDT_m2230321-015	NA	03/21/23 14:46
Calibration Check	SLC0332-CCV1	XDT_m2230321-016	NA	03/21/23 14:50
Calibration Blank	SLC0332-CCB1	XDT_m2230321-017	NA	03/21/23 14:57
Instrument RL Check	SLC0332-CRL1	XDT_m2230321-018	NA	03/21/23 15:02
Interference Check A	SLC0332-IFA1	XDT_m2230321-019	NA	03/21/23 15:06
Interference Check B	SLC0332-IFB1	XDT_m2230321-020	NA	03/21/23 15:11
LR200	SLC0332-HCV1	XDT_m2230321-021	NA	03/21/23 15:15
LR300	SLC0332-HCV2	XDT_m2230321-022	NA	03/21/23 15:20
Instrument Blank	SLC0332-IBL2	XDT_m2230321-023	NA	03/21/23 15:27
Instrument Blank	SLC0332-IBL3	XDT_m2230321-024	NA	03/21/23 15:34
Calibration Check	SLC0332-CCV2	XDT_m2230321-025	NA	03/21/23 15:40
Calibration Blank	SLC0332-CCB2	XDT_m2230321-026	NA	03/21/23 15:48
ZZZZZ	BLC0537-BLK1	XDT_m2230321-027	Water	03/21/23 15:53
ZZZZZ	BLC0537-BS1	XDT_m2230321-028	Water	03/21/23 15:57
Instrument Blank	SLC0332-IBL4	XDT_m2230321-036	NA	03/21/23 16:43
Calibration Check	SLC0332-CCV3	XDT_m2230321-037	NA	03/21/23 16:49
Calibration Blank	SLC0332-CCB3	XDT_m2230321-038	NA	03/21/23 16:57
Calibration Check	SLC0332-CCV4	XDT_m2230321-040	NA	03/21/23 17:10
Blank	BLC0184-BLK1	XDT_m2230321-042	Solid	03/21/23 17:23
LCS	BLC0184-BS1	XDT_m2230321-043	Solid	03/21/23 17:27
ZZZZZ	23C0039-12	XDT_m2230321-044	Solid	03/21/23 17:32

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLC0332
Instrument: ICPMS2
Calibration: GC00061

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	23A0087-01	XDT_m2230321-046	Solid	03/21/23 17:43
ZZZZZ	23A0087-01	XDT_m2230321-046	Solid	03/21/23 17:43
ZZZZZ	23A0087-01	XDT_m2230321-046	Solid	03/21/23 17:43
ZZZZZ	23A0087-01	XDT_m2230321-046	Solid	03/21/23 17:43
Instrument Blank	SLC0332-IBL5	XDT_m2230321-051	NA	03/21/23 18:05
Calibration Check	SLC0332-CCV5	XDT_m2230321-052	NA	03/21/23 18:10
Calibration Blank	SLC0332-CCB5	XDT_m2230321-053	NA	03/21/23 18:17
ZZZZZ	23A0087-02	XDT_m2230321-058	Solid	03/21/23 18:41
ZZZZZ	23A0087-02	XDT_m2230321-058	Solid	03/21/23 18:41
ZZZZZ	23A0087-02	XDT_m2230321-058	Solid	03/21/23 18:41
ZZZZZ	23A0087-02	XDT_m2230321-058	Solid	03/21/23 18:41
ZZZZZ	23A0087-03	XDT_m2230321-059	Solid	03/21/23 18:46
ZZZZZ	23A0087-03	XDT_m2230321-059	Solid	03/21/23 18:46
ZZZZZ	23A0087-03	XDT_m2230321-059	Solid	03/21/23 18:46
ZZZZZ	23A0087-03	XDT_m2230321-059	Solid	03/21/23 18:46
ZZZZZ	23A0087-04	XDT_m2230321-060	Solid	03/21/23 18:50
ZZZZZ	23A0087-04	XDT_m2230321-060	Solid	03/21/23 18:50
ZZZZZ	23A0087-04	XDT_m2230321-060	Solid	03/21/23 18:50
ZZZZZ	23A0087-04	XDT_m2230321-060	Solid	03/21/23 18:50
ZZZZZ	23A0087-05	XDT_m2230321-061	Solid	03/21/23 18:55
ZZZZZ	23A0087-05	XDT_m2230321-061	Solid	03/21/23 18:55
ZZZZZ	23A0087-05	XDT_m2230321-061	Solid	03/21/23 18:55
ZZZZZ	23A0087-05	XDT_m2230321-061	Solid	03/21/23 18:55
ZZZZZ	23A0087-06	XDT_m2230321-062	Solid	03/21/23 18:59
ZZZZZ	23A0087-06	XDT_m2230321-062	Solid	03/21/23 18:59
ZZZZZ	23A0087-06	XDT_m2230321-062	Solid	03/21/23 18:59
ZZZZZ	23A0087-06	XDT_m2230321-062	Solid	03/21/23 18:59
Instrument Blank	SLC0332-IBL6	XDT_m2230321-063	NA	03/21/23 19:03
Calibration Check	SLC0332-CCV6	XDT_m2230321-064	NA	03/21/23 19:08

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Sequence: SLC0332
Instrument: ICPMS2
Calibration: GC00061

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Calibration Blank	SLC0332-CCB6	XDT_m2230321-065	NA	03/21/23 19:15
ZZZZZ	23A0087-07	XDT_m2230321-066	Solid	03/21/23 19:19
ZZZZZ	23A0087-07	XDT_m2230321-066	Solid	03/21/23 19:19
ZZZZZ	23A0087-07	XDT_m2230321-066	Solid	03/21/23 19:19
ZZZZZ	23A0087-07	XDT_m2230321-066	Solid	03/21/23 19:19
ZZZZZ	23A0087-08	XDT_m2230321-067	Solid	03/21/23 19:24
ZZZZZ	23A0087-08	XDT_m2230321-067	Solid	03/21/23 19:24
ZZZZZ	23A0087-08	XDT_m2230321-067	Solid	03/21/23 19:24
ZZZZZ	23A0087-08	XDT_m2230321-067	Solid	03/21/23 19:24
ZZZZZ	23A0087-09	XDT_m2230321-068	Solid	03/21/23 19:28
ZZZZZ	23A0087-09	XDT_m2230321-068	Solid	03/21/23 19:28
ZZZZZ	23A0087-09	XDT_m2230321-068	Solid	03/21/23 19:28
ZZZZZ	23A0087-09	XDT_m2230321-068	Solid	03/21/23 19:28
ZZZZZ	23A0087-10	XDT_m2230321-069	Solid	03/21/23 19:33
ZZZZZ	23A0087-10	XDT_m2230321-069	Solid	03/21/23 19:33
ZZZZZ	23A0087-10	XDT_m2230321-069	Solid	03/21/23 19:33
ZZZZZ	23A0087-10	XDT_m2230321-069	Solid	03/21/23 19:33
ZZZZZ	23A0087-11	XDT_m2230321-070	Solid	03/21/23 19:37
ZZZZZ	23A0087-11	XDT_m2230321-070	Solid	03/21/23 19:37
ZZZZZ	23A0087-11	XDT_m2230321-070	Solid	03/21/23 19:37
ZZZZZ	23A0087-11	XDT_m2230321-070	Solid	03/21/23 19:37
ZZZZZ	23A0087-12	XDT_m2230321-071	Solid	03/21/23 19:41
ZZZZZ	23A0087-12	XDT_m2230321-071	Solid	03/21/23 19:41
ZZZZZ	23A0087-12	XDT_m2230321-071	Solid	03/21/23 19:41
ZZZZZ	23A0087-12	XDT_m2230321-071	Solid	03/21/23 19:41
ZZZZZ	23A0087-13	XDT_m2230321-072	Solid	03/21/23 19:46
ZZZZZ	23A0087-13	XDT_m2230321-072	Solid	03/21/23 19:46
ZZZZZ	23A0087-13	XDT_m2230321-072	Solid	03/21/23 19:46
ZZZZZ	23A0087-13	XDT_m2230321-072	Solid	03/21/23 19:46

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
Client: Anchor QEA, LLC
Sequence: SLC0332
SDG: 23B0494
Project: AOC4 UR Phase 3
Instrument: ICPMS2
Calibration: GC00061

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	23A0087-14	XDT_m2230321-073	Solid	03/21/23 19:50
ZZZZZ	23A0087-14	XDT_m2230321-073	Solid	03/21/23 19:50
ZZZZZ	23A0087-14	XDT_m2230321-073	Solid	03/21/23 19:50
ZZZZZ	23A0087-14	XDT_m2230321-073	Solid	03/21/23 19:50
ZZZZZ	23A0087-15	XDT_m2230321-074	Solid	03/21/23 19:55
ZZZZZ	23A0087-15	XDT_m2230321-074	Solid	03/21/23 19:55
ZZZZZ	23A0087-15	XDT_m2230321-074	Solid	03/21/23 19:55
ZZZZZ	23A0087-15	XDT_m2230321-074	Solid	03/21/23 19:55
Instrument Blank	SLC0332-IBL7	XDT_m2230321-075	NA	03/21/23 19:59
Calibration Check	SLC0332-CCV7	XDT_m2230321-076	NA	03/21/23 20:04
Calibration Blank	SLC0332-CCB7	XDT_m2230321-077	NA	03/21/23 20:11
Calibration Check	SLC0332-CCV8	XDT_m2230321-079	NA	03/21/23 20:19
Calibration Blank	SLC0332-CCB8	XDT_m2230321-080	NA	03/21/23 20:27
ZZZZZ	23A0100-01	XDT_m2230321-081	Solid	03/21/23 20:31
ZZZZZ	23A0100-01	XDT_m2230321-081	Solid	03/21/23 20:31
ZZZZZ	23A0100-01	XDT_m2230321-081	Solid	03/21/23 20:31
ZZZZZ	23A0100-01	XDT_m2230321-081	Solid	03/21/23 20:31
ZZZZZ	23A0100-02	XDT_m2230321-082	Solid	03/21/23 20:35
ZZZZZ	23A0100-02	XDT_m2230321-082	Solid	03/21/23 20:35
ZZZZZ	23A0100-02	XDT_m2230321-082	Solid	03/21/23 20:35
ZZZZZ	23A0100-02	XDT_m2230321-082	Solid	03/21/23 20:35
ZZZZZ	23A0100-03	XDT_m2230321-083	Solid	03/21/23 20:40
ZZZZZ	23A0100-03	XDT_m2230321-083	Solid	03/21/23 20:40
ZZZZZ	23A0100-03	XDT_m2230321-083	Solid	03/21/23 20:40
ZZZZZ	23A0100-03	XDT_m2230321-083	Solid	03/21/23 20:40
LDW22-IT789M	23B0494-05	XDT_m2230321-084	Solid	03/21/23 20:44
LDW22-IT789N	23B0494-06	XDT_m2230321-085	Solid	03/21/23 20:49
ZZZZZ	23C0172-11	XDT_m2230321-086	Water	03/21/23 20:53
ZZZZZ	BLC0537-DUP1	XDT_m2230321-087	Water	03/21/23 20:57

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
Client: Anchor QEA, LLC
Sequence: SLC0332
SDG: 23B0494
Project: AOC4 UR Phase 3
Instrument: ICPMS2
Calibration: GC00061

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	BLC0537-MS1	XDT_m2230321-088	Water	03/21/23 21:02
ZZZZZ	BLC0537-MSD1	XDT_m2230321-089	Water	03/21/23 21:08
Instrument Blank	SLC0332-IBL9	XDT_m2230321-090	NA	03/21/23 21:12
Calibration Check	SLC0332-CCV9	XDT_m2230321-091	NA	03/21/23 21:17
Calibration Blank	SLC0332-CCB9	XDT_m2230321-092	NA	03/21/23 21:24
ZZZZZ	23C0172-02	XDT_m2230321-093	Water	03/21/23 21:28
ZZZZZ	23C0172-03	XDT_m2230321-094	Water	03/21/23 21:33
ZZZZZ	23C0172-04	XDT_m2230321-095	Water	03/21/23 21:37
ZZZZZ	23C0172-05	XDT_m2230321-096	Water	03/21/23 21:41
ZZZZZ	23C0172-06	XDT_m2230321-097	Water	03/21/23 21:46
ZZZZZ	23C0172-07	XDT_m2230321-098	Water	03/21/23 21:50
ZZZZZ	23C0172-08	XDT_m2230321-099	Water	03/21/23 21:55
ZZZZZ	23C0172-09	XDT_m2230321-100	Water	03/21/23 21:59
ZZZZZ	23C0172-10	XDT_m2230321-101	Water	03/21/23 22:05
Instrument Blank	SLC0332-IBLA	XDT_m2230321-102	NA	03/21/23 22:09
Calibration Check	SLC0332-CCVA	XDT_m2230321-103	NA	03/21/23 22:14
Calibration Blank	SLC0332-CCBA	XDT_m2230321-104	NA	03/21/23 22:21
ZZZZZ	23C0172-12	XDT_m2230321-105	Water	03/21/23 22:25
ZZZZZ	23C0172-13	XDT_m2230321-106	Water	03/21/23 22:30
ZZZZZ	23C0172-14	XDT_m2230321-107	Water	03/21/23 22:34
ZZZZZ	23C0172-15	XDT_m2230321-108	Water	03/21/23 22:39
ZZZZZ	23C0172-16	XDT_m2230321-109	Water	03/21/23 22:43
ZZZZZ	23C0172-17	XDT_m2230321-110	Water	03/21/23 22:47
ZZZZZ	23C0172-19	XDT_m2230321-111	Water	03/21/23 22:52
ZZZZZ	23C0172-20	XDT_m2230321-112	Water	03/21/23 22:57
ZZZZZ	23C0172-21	XDT_m2230321-113	Water	03/21/23 23:02
Instrument Blank	SLC0332-IBLB	XDT_m2230321-114	NA	03/21/23 23:07
Calibration Check	SLC0332-CCVB	XDT_m2230321-115	NA	03/21/23 23:11
Calibration Blank	SLC0332-CCBB	XDT_m2230321-116	NA	03/21/23 23:18

ICP INTERFERENCE CHECK SAMPLE

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: ICPMS2
Calibration: GC00061
Sequence: SLC0332
Standard ID: L002581

Lab Sample ID	Analyte	True	Found	%R	Units
SLC0332-IFA1	Arsenic-75a	0	0.0320		ug/L

* Indicates %R outside of QC limits

NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: ICPMS2
Calibration: GC00061
Sequence: SLC0332
Standard ID: L002581

Lab Sample ID	Analyte	True	Found	%R	Units
SLC0332-IFB1	Arsenic-75a	20.000	19.173	95.9	ug/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

DETECTION LEVEL STANDARD
EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: ICPMS2
Calibration: GC00061
Sequence: SLC0332
Lab Sample ID: SLC0332-CRL1

Analyte	True	Found	%R	Units	QC Limts
Arsenic-75a	0.20000	0.195	97.5	ug/L	50 - 150

* Values outside of QC limits

HIGH-CONCENTRATION CALIBRATION VERIFICATION

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GC00061
Laboratory ID: SLC0332-HCV1
Sequence: SLC0332
Standard ID: L002745

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Arsenic-75a	200.00	192	-4.0	10.00

* Values outside of QC limits

HIGH-CONCENTRATION CALIBRATION VERIFICATION

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: GC00061
Laboratory ID: SLC0332-HCV2
Sequence: SLC0332
Standard ID: L002746

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Arsenic-75a	300.00	292	-2.6	10.00

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC SDG: 23B0494

Client: Anchor QEA, LLC Project: AOC4 UR Phase 3

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LDW22-IT789M 23B0494-05	12/08/22 08:17	02/24/23 08:41	03/20/23 17:25	102	365	03/21/23 20:44	104	365	
LDW22-IT789N 23B0494-06	12/08/22 08:17	02/24/23 08:41	03/20/23 17:25	102	365	03/21/23 20:49	104	365	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 6020B UCT-KED

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Instrument: ICPMS2

Analyte	MDL	RL	Units
Arsenic-75a	0.04	0.20	mg/kg

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCU10
Lot Number:	P2-CU682108
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Copper
Starting Material:	Cu Metal
Starting Material Lot#:	2095
Starting Material Purity:	99.9996%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10013 ± 30 µg/mL

Density: 1.032 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9977 ± 50 µg/mL**
ICP Assay NIST SRM 3114 Lot Number: 121207

Assay Method #2 **10024 ± 26 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **10007 ± 46 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.007542	M	Eu	<	0.000942	O	Na		0.001434	M	Se	<	0.016971	M	Zn	<	0.005657
O	Al	<	0.000609	O	Fe		0.008700	M	Nb	<	0.000942	O	Si		0.003052	M	Zr	<	0.000942
M	As	<	0.010371	M	Ga	<	0.000942	M	Nd	<	0.000942	M	Sm	<	0.000942				
M	Au	<	0.001885	M	Gd	<	0.000942	M	Ni		0.003781	M	Sn	<	0.005657				
O	B		0.003663	M	Ge	<	0.005657	M	Os	<	0.000942	M	Sr	<	0.000942				
M	Ba		0.004253	M	Hf	<	0.000942	O	P	<	0.031668	M	Ta	<	0.000942				
M	Be	<	0.000942	O	Hg	<	0.007064	M	Pb		0.005789	M	Tb	<	0.000942				
M	Bi	<	0.000942	M	Ho	<	0.000942	M	Pd	<	0.000942	M	Te	<	0.004714				
O	Ca		0.002304	M	In	<	0.000942	M	Pr	<	0.000942	M	Th	<	0.000942				
M	Cd	<	0.000942	M	Ir	<	0.000942	M	Pt	<	0.000942	O	Ti	<	0.002801				
M	Ce	<	0.000942	O	K		0.000763	M	Rb	<	0.000942	M	Tl	<	0.000942				
M	Co		0.001890	M	La	<	0.000942	M	Re	<	0.000942	M	Tm	<	0.000942				
M	Cr	<	0.005657	O	Li	<	0.000243	i	Rh	<		M	U	<	0.000942				
M	Cs	<	0.000942	M	Lu	<	0.000942	M	Ru	<	0.039588	M	V	<	0.003771				
s	Cu	<		O	Mg		0.000320	O	S		0.007174	M	W	<	0.005657				
M	Dy	<	0.000942	O	Mn		0.000793	M	Sb	<	0.001885	M	Y	<	0.000942				
M	Er	<	0.000942	M	Mo	<	0.005657	M	Sc	<	0.000942	M	Yb	<	0.000942				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 63.55 +2 6 $Cu(H_2O)_6^{2+}$

Chemical Compatibility -Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Cu Containing Samples (Preparation and Solution) -Metal (soluble in HNO_3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO_3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 63 amu	10 ppt	n/a	40Ar23Na 47Ti16O, 14N12C37Cl, 16O12C35Cl, 23Na40Ca
ICP-OES 219.958 nm	0.01/.002 µg/mL	1	Th, Ta, Nb, U, Hf
ICP-OES 224.700 nm	0.01/.001 µg/mL	1	Pb, Ir, Ni, W
ICP-OES 324.754 nm	0.06/.001 µg/mL		Nb, U, Th, Mo, Hf

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 24, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 24, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Manager, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGPB10
Lot Number:	S2-PB713228
Matrix:	0.5% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Lead
Starting Material:	Lead Nitrate
Starting Material Lot#:	2343
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10042 ± 31 µg/mL

Density: 1.015 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10024 ± 41 µg/mL**
ICP Assay NIST SRM 3128 Lot Number: 101026

Assay Method #2 **10054 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000310	M	Eu	<	0.000310	M	Na		0.001470	M	Se	<	0.009100	O	Zn		0.006155
O	Al		0.017098	O	Fe		0.002496	M	Nb	<	0.000310	O	Si		0.003761	O	Zr	<	0.001700
M	As	<	0.003100	M	Ga	<	0.000310	M	Nd	<	0.000310	M	Sm	<	0.000310				
M	Au	<	0.000910	M	Gd	<	0.000310	O	Ni		0.001709	M	Sn	<	0.001300				
O	B	<	0.005600	M	Ge	<	0.002200	M	Os	<	0.000310	O	Sr		0.000444				
O	Ba		0.007865	M	Hf	<	0.000310	O	P	<	0.038000	M	Ta	<	0.000310				
O	Be	<	0.000320	M	Hg	<	0.002200	s	Pb	<		M	Tb	<	0.000610				
M	Bi	<	0.028000	M	Ho	<	0.000310	M	Pd	<	0.000610	M	Te	<	0.000310				
O	Ca		0.019834	M	In	<	0.000310	M	Pr	<	0.000310	M	Th	<	0.000310				
O	Cd	<	0.000630	M	Ir	<	0.000310	M	Pt	<	0.000910	O	Ti		0.005129				
M	Ce		0.004787	O	K		0.008207	M	Rb	<	0.006700	M	Tl	<	0.016000				
M	Co	<	0.000610	M	La	<	0.001900	M	Re	<	0.000310	M	Tm	<	0.000310				
O	Cr	<	0.001500	O	Li	<	0.000110	O	Rh	<	0.007700	M	U	<	0.000310				
M	Cs	<	0.006100	M	Lu	<	0.000310	M	Ru	<	0.001300	M	V	<	0.001600				
M	Cu	<	0.001600	O	Mg		0.003317	O	S	<	0.052000	M	W	<	0.000910				
M	Dy	<	0.000310	O	Mn	<	0.001600	O	Sb	<	0.015000	M	Y	<	0.000310				
M	Er	<	0.000310	M	Mo	<	0.000610	O	Sc	<	0.000630	M	Yb	<	0.000310				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 207.20 +2 6 $Pb(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, HF and HNO_3. Avoid H_2SO_4. Stable with most metals and inorganic anions forming insoluble carbonate, borate, sulfate, sulfite, sulfide, phosphate, oxalate, chromate, tannate, iodate, and cyanide in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO_3 / LDPE container.

Pb Containing Samples (Preparation and Solution) -Metal (Best dissolved in 1:1 H_2O / HNO_3); Oxides (The many different Pb oxides are soluble in HNO_3 with the exception of PbO_2 which is soluble in HCl or HF); Ores and Alloys (Best attacked using 1:1 H_2O / HNO_3); Organic Matrices (Dry ash and dissolve in dilute HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 208 amu	5 ppt	n/a	192Pt16O, 192Os16O
ICP-OES 168.215 nm	0.03 / 0.003 µg/mL	1	Co
ICP-OES 217.000 nm	0.09 / 0.03 µg/mL	1	W, Ir, Hf, Sb, Th
ICP-OES 220.353 nm	0.04 / 0.006 µg/mL	1	Bi, Nb

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 10, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 10, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

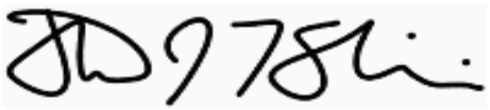
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGZN10
Lot Number:	S2-ZN711249
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Zinc
Starting Material:	Zinc Metal
Starting Material Lot#:	2349
Starting Material Purity:	99.9988%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9992 ± 30 µg/mL

Density: 1.029 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9981 ± 56 µg/mL**
ICP Assay NIST SRM 3168a Lot Number: 120629

Assay Method #2 **9987 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **10002 ± 32 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.002000	M	Eu	<	0.000500	O	Na		0.008713	M	Se	<	0.048000	s	Zn	<
O	Al	<	0.011000	O	Fe		0.015467	M	Nb	<	0.000500	O	Si		0.007842	M	Zr	< 0.000500
O	As	<	0.012000	M	Ga	<	0.004900	M	Nd	<	0.000500	M	Sm	<	0.000500			
M	Au	<	0.006500	M	Gd	<	0.000500	O	Ni		0.003049	M	Sn		0.002614			
O	B	<	0.019000	M	Ge	<	0.009100	M	Os	<	0.000500	M	Sr	<	0.000500			
M	Ba	<	0.000500	M	Hf	<	0.000500	O	P	<	0.059000	M	Ta	<	0.000500			
O	Be	<	0.000230	O	Hg	<	0.003800	M	Pb		0.016774	M	Tb	<	0.000500			
M	Bi	<	0.002400	M	Ho	<	0.000500	M	Pd	<	0.001000	M	Te	<	0.017000			
O	Ca		0.052283	M	In	<	0.003500	M	Pr	<	0.000500	M	Th	<	0.000500			
O	Cd		0.000588	M	Ir	<	0.001000	M	Pt	<	0.000500	M	Ti	<	0.002000			
M	Ce	<	0.000500	O	K		0.017209	M	Rb	<	0.002500	M	Tl	<	0.000500			
M	Co		0.000653	M	La	<	0.000500	M	Re	<	0.000500	M	Tm	<	0.000500			
O	Cr		0.001089	O	Li	<	0.000230	M	Rh	<	0.000500	M	U	<	0.000500			
M	Cs	<	0.000500	M	Lu	<	0.000500	M	Ru	<	0.005000	M	V	<	0.000500			
O	Cu		0.001938	O	Mg		0.000871	O	S	<	0.048000	M	W	<	0.001000			
M	Dy	<	0.000500	O	Mn		0.000172	M	Sb	<	0.004300	M	Y	<	0.000500			
M	Er	<	0.000500	M	Mo	<	0.001500	O	Sc	<	0.000900	M	Yb	<	0.000500			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 65.39 +2 4 Zn(OH)(aq)1+
Chemical Compatibility -Stable in HCl, HNO3, H2SO4 ,HF, H3PO4. Avoid basic media forming insoluble carbonate and hydroxide. Stable with most metals and inorganic anions in acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.
Zn Containing Samples (Preparation and Solution) -Metal (soluble in HNO3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO3); Organic based (dry ash at 4500C and dissolve ash in HCl) (sulfuric/peroxide acid digestion)
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 66 amu	7 ppt	N/A	50Ti16O,50Cr16O, 50V16O, 34S16O2, 32S16O18O, 32S17O2, 33S16O17O, 32S34S, 33S2
ICP-OES 202.548 nm	0.004/0.0002 µg/mL	1	Nb, Cu, Co, Hf
ICP-OES 206.200 nm	0.006/0.0006 µg/mL	1	Sb, Ta, Bi, Os
ICP-OES 213.856 nm	0.002/0.0004 µg/mL	1	Ni, Cu, V

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 22, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 22, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

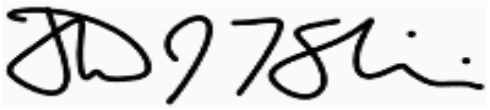
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSE10
Lot Number:	S2-SE711004
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Selenium
Starting Material:	Se Metal
Starting Material Lot#:	1962
Starting Material Purity:	99.9991%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9955 ± 61 µg/mL

Density: 1.035 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9955 ± 50 µg/mL**
ICP Assay NIST SRM 3149 Lot Number: 100901

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.002242	M	Eu	<	0.000373	O	Na		0.013654	s	Se	<		O	Zn		0.002374
M	Al		0.004450	M	Fe		0.008478	O	Nb	<	0.002975	O	Si		0.006249	M	Zr	<	0.001868
O	As	<	0.022040	M	Ga	<	0.000373	M	Nd	<	0.000373	M	Sm	<	0.000373				
M	Au	<	0.000373	M	Gd	<	0.000373	O	Ni		0.001843	M	Sn		0.000847				
O	B	<	0.007714	M	Ge	<	0.002616	M	Os	<	0.000373	M	Sr	<	0.001121				
M	Ba	<	0.001495	M	Hf	<	0.000373	O	P	<	0.022040	M	Ta	<	0.000373				
M	Be	<	0.001495	M	Hg	<	0.002240	M	Pb		0.006358	M	Tb	<	0.006353				
M	Bi	<	0.000373	M	Ho	<	0.000373	M	Pd	<	0.000373	M	Te	<	0.012707				
O	Ca		0.006530	M	In	<	0.000373	M	Pr	<	0.001495	M	Th	<	0.002990				
M	Cd		0.001165	M	Ir	<	0.000373	M	Pt	<	0.000373	M	Ti	<	0.003363				
M	Ce	<	0.000373	O	K		0.001999	M	Rb	<	0.001868	M	Tl		0.008584				
M	Co	<	0.000373	M	La	<	0.001121	M	Re	<	0.000373	M	Tm	<	0.000373				
M	Cr		0.002861	O	Li		0.000062	M	Rh	<	0.000373	M	U	<	0.000373				
M	Cs	<	0.001121	M	Lu	<	0.000373	M	Ru	<	0.001493	M	V	<	0.000747				
M	Cu	<	0.000747	O	Mg		0.001156	O	S		0.024591	M	W	<	0.002242				
M	Dy	<	0.000373	M	Mn	<	0.000373	M	Sb	<	0.002242	M	Y	<	0.000373				
M	Er	<	0.000373	O	Mo	<	0.003195	M	Sc	<	0.001121	M	Yb	<	0.000373				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 78.96 +4 6 H_2SeO_3

Chemical Compatibility -Soluble in HCl, HNO_3,H_3PO_4, H_2SO_4 and HF aqueous matrices and water. It is stable with most inorganic anions but many cationic metals form the insoluble selenites under pH neutral conditions. When fluorinated and/or under acidic conditions precipitation is typically not a problem at moderate to low concentrations.

Stability - 2-100 ppb levels stable for months alone or mixed with other elements at equivalent levels in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Se Containing Samples (Preparation and Solution) -Metal (soluble in HNO_3); Oxides (readily soluble in water); Minerals and alloys (acid digestion with HNO_3or HNO_3 / HF); Organic Matrices (acid digestion with hot concentrated H_2SO_4 accompanied by the careful dropwise addition of H_2O_2 until clear).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 82 amu	200 ppt	N/A	12C35Cl2
ICP-OES 196.026 nm	0.08/0.006 µg/mL	1	Fe
ICP-OES 203.985 nm	0.2/0.05 µg/mL	1	Sb, Ir, Cr, Ta
ICP-OES 206.279 nm	0.3/0.16 µg/mL	1	Cr, Pt

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 17, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 17, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation

Certificate Approved By:

Michael Booth
Director, Technical

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMO10
Lot Number:	S2-MO706255
Matrix:	H2O tr. NH4OH
Value / Analyte(s):	10 000 µg/mL ea: Molybdenum
Starting Material:	Ammonium Molybdate
Starting Material Lot#:	2361
Starting Material Purity:	99.9893%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10026 ± 47 µg/mL

Density: 1.011 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10032 ± 68 µg/mL**
ICP Assay NIST SRM 3134 Lot Number: 130418

Assay Method #2 **10020 ± 65 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000590	M	Eu	<	0.000300	M	Na		0.008739	M	Se	<	0.008000	M	Zn		0.005942
M	Al		0.005592	M	Fe	<	0.006500	M	Nb	<	0.029000	i	Si	<		M	Zr	<	0.001800
M	As	<	0.002100	M	Ga	<	0.000300	i	Nd	<		M	Sm	<	0.000300				
M	Au	<	0.000300	M	Gd	<	0.000300	M	Ni	<	0.008000	M	Sn	<	0.008900				
M	B	<	0.003300	M	Ge	<	0.000300	M	Os	<	0.000590	M	Sr		0.001747				
M	Ba		0.016778	M	Hf	<	0.001800	i	P	<		M	Ta	<	0.004200				
M	Be	<	0.000890	M	Hg	<	0.003300	M	Pb	<	0.000300	M	Tb	<	0.000300				
M	Bi	<	0.000890	M	Ho	<	0.000300	M	Pd	<	0.001800	M	Te	<	0.021000				
O	Ca		0.062920	M	In	<	0.032000	M	Pr	<	0.013000	M	Th	<	0.000300				
O	Cd	<	0.026000	M	Ir	<	0.000300	M	Pt	<	0.000300	O	Ti	<	0.032000				
M	Ce	<	0.008300	M	K		1.293372	M	Rb		0.045442	M	Tl		0.012584				
M	Co		0.005942	M	La	<	0.000300	M	Re	<	0.000300	M	Tm	<	0.000300				
M	Cr		0.005243	O	Li		0.000594	M	Rh	<	0.000300	M	U	<	0.005300				
M	Cs		0.005243	M	Lu	<	0.000300	M	Ru	<	0.079000	M	V	<	0.000890				
M	Cu		0.022371	M	Mg		0.005592	i	S	<		M	W		0.873900				
M	Dy	<	0.000300	M	Mn	<	0.005900	M	Sb		0.015031	M	Y	<	0.000300				
M	Er	<	0.000300	s	Mo	<		M	Sc	<	0.001200	M	Yb	<	0.000300				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 95.94 +6 6,7,8,9 [MoO4]-2(chemical form as received)

Chemical Compatibility -Mo is received in a NH4OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO4]-2 is soluble in concentrated HCl [MoOCl5]-2, dilute HF / HNO3 [MoOF5]-2 and basic media [MoO4]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO4]-2 chemical form.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF5]-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the [MoO4]-2 chemically stable for years in 1% NH4OH in a LDPE container.

Mo Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO3 or hot dilute HCl); Oxide (soluble in HF or NH4OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or HCl).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 95 amu	3 ppt	n/a	40Ar39K16O,79Br16O,190Os2+,190Pt2+
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	Ir, Ta

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 04, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **July 04, 2025**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGTL10
Lot Number:	T2-TL714687
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Thallium
Starting Material:	TlNO3
Starting Material Lot#:	2118
Starting Material Purity:	99.9998%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10030 ± 42 µg/mL

Density: 1.036 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10040 ± 43 µg/mL**
ICP Assay NIST SRM 3158 Lot Number: 151215

Assay Method #2 **10010 ± 65 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL(

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000200	M	Eu	<	0.000200	O	Na		0.002489	M	Se	<	0.011019	O	Zn		0.002298
O	Al	<	0.004184	O	Fe	<	0.002824	M	Nb	<	0.000200	O	Si		0.003760	M	Zr	<	0.000200
M	As	<	0.002003	M	Ga	<	0.000200	M	Nd	<	0.000200	M	Sm	<	0.000200				
O	Au	<	0.002824	M	Gd	<	0.000200	M	Ni		0.001724	M	Sn	<	0.000601				
O	B	<	0.004184	M	Ge	<	0.000801	M	Os	<	0.000198	O	Sr	<	0.000313				
M	Ba	<	0.000400	M	Hf	<	0.000200	O	P	<	0.010460	M	Ta	<	0.000200				
O	Be	<	0.000104	M	Hg	<	0.000794	M	Pb		0.000811	M	Tb	<	0.000200				
M	Bi	<	0.005209	M	Ho	<	0.000200	M	Pd	<	0.000400	M	Te	<	0.005008				
O	Ca		0.002436	M	In	<	0.000200	M	Pr	<	0.000200	M	Th	<	0.000200				
M	Cd		0.001318	M	Ir	<	0.000198	M	Pt	<	0.000801	O	Ti	<	0.001255				
M	Ce	<	0.000200	O	K		0.006175	M	Rb	<	0.000200	s	Tl	<					
M	Co	<	0.000601	M	La	<	0.000200	M	Re	<	0.000200	M	Tm	<	0.000200				
M	Cr	<	0.000801	O	Li	<	0.000177	M	Rh	<	0.000200	M	U	<	0.000200				
M	Cs	<	0.003606	M	Lu	<	0.000200	M	Ru	<	0.000397	M	V	<	0.002203				
M	Cu	<	0.001001	O	Mg		0.000529	O	S	<	0.015690	M	W	<	0.000601				
M	Dy	<	0.000200	M	Mn	<	0.000801	M	Sb	<	0.000400	M	Y	<	0.000200				
M	Er	<	0.000200	M	Mo	<	0.001202	O	Sc	<	0.000711	M	Yb	<	0.000200				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 204.38 +1 6 Tl(H2O)61+
Chemical Compatibility - Soluble in HCl, HNO3, and H2SO4. Stable with most metals and inorganic anions. The sulfite, thiocyanate and oxalate are moderately soluble; the phosphate and arsenite are slightly soluble and the sulfide is insoluble.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.
Tl Containing Samples)Preparation and Solution) -Metal (Best dissolved in HNO3 which forms chiefly the Tl1+ ion.); Oxide (The thallous oxide is readily soluble in water. The thallic oxide requires high levels of acid); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in HCl).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 205 amu	2 ppt	N/A	189Os16O
ICP-OES 190.864 nm	0.04 / 0.004 µg/mL	1	V, Ti
ICP-OES 276.787 nm	0.1 / 0.01 µg/mL	1	Ta, V, Fe, Cr
ICP-OES 351.924 nm	0.2 / 0.02 µg/mL	1	Th, Ce, Zr

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 08, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **February 08, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

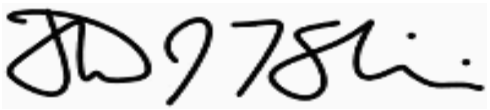
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCD10
Lot Number:	S2-CD710508
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Cadmium
Starting Material:	Cd Metal
Starting Material Lot#:	1953
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10008 ± 30 µg/mL

Density: 1.029 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10010 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **10011 ± 30 µg/mL**
ICP Assay NIST SRM 3108 Lot Number: 130116

Assay Method #3 **10003 ± 30 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	<	0.003200	O	Eu	<	0.002500	O	Na		0.005499	M	Se	<	0.005700	O	Zn	<	0.001100
O	Al		0.008903	O	Fe		0.000602	M	Nb	<	0.000400	O	Si		0.016758	O	Zr	<	0.002600
M	As	<	0.003600	M	Ga	<	0.001200	M	Nd	<	0.000800	M	Sm	<	0.000400				
M	Au	<	0.000810	M	Gd	<	0.000400	M	Ni	<	0.003600	M	Sn	<	0.003200				
O	B		0.004189	O	Ge	<	0.012000	M	Os	<	0.000810	O	Sr	<	0.000330				
M	Ba	<	0.002400	M	Hf	<	0.000400	O	P	<	0.022000	M	Ta	<	0.000800				
M	Be	<	0.000400	M	Hg	<	0.001700	M	Pb	<	0.002400	M	Tb	<	0.000400				
M	Bi	<	0.000400	M	Ho	<	0.000400	M	Pd	<	0.001200	M	Te	<	0.008000				
O	Ca		0.011259	O	In	<	0.013000	M	Pr	<	0.000400	M	Th	<	0.000400				
s	Cd	<		M	Ir	<	0.000410	M	Pt	<	0.000400	O	Ti		0.000602				
M	Ce	<	0.000400	O	K		0.005237	M	Rb	<	0.004400	M	Tl		0.000523				
M	Co	<	0.000400	M	La	<	0.000400	M	Re	<	0.000400	M	Tm	<	0.000400				
O	Cr	<	0.005100	O	Li	<	0.000054	M	Rh	<	0.000400	M	U	<	0.000400				
M	Cs	<	0.002400	M	Lu	<	0.000400	M	Ru	<	0.002500	M	V	<	0.002000				
O	Cu	<	0.004800	O	Mg		0.000288	O	S	<	0.022000	M	W	<	0.000400				
M	Dy	<	0.000400	O	Mn	<	0.000860	O	Sb	<	0.018000	M	Y	<	0.000400				
M	Er	<	0.000400	M	Mo	<	0.001600	O	Sc	<	0.000430	M	Yb	<	0.000400				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 112.41 +2 4 Cd2(OH) (aq)3+ and Cd(OH)(aq)

Chemical Compatibility -Stable in HCl, HNO3, H2SO4 , and HF. Avoid basic media forming insoluble carbonate and hydroxide.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5 % HNO3 / LDPE container.

Cd Containing Samples (Preparation and Solution) -Metal (soluble in HNO3); Oxides (soluble in HCl or HNO3); Ores (dissolve in HCl /HNO3 then take to fumes with H2SO4. The silica and lead sulfate are filtered off after the addition of water); Organic based (dry ash at 450°C and dissolve ash in HCl), (sulfuric / peroxide acid digestion).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 111 amu	11 ppt	n/a	95Mo16O
ICP-OES 214.438 nm	0.003 / 0.0003 µg/mL	1	Pt, Ir
ICP-OES 226.502 nm	0.003 / 0.0003 µg/mL	1	Ir
ICP-OES 228.802 nm	0.003 / 0.0003 µg/mL	1	Co, Ir, As, Pt

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 01, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 01, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMN10
Lot Number:	S2-MN704240
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Manganese
Starting Material:	Mn Metal
Starting Material Lot#:	2275
Starting Material Purity:	99.9909%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10011 ± 30 µg/mL

Density: 1.035 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9989 ± 69 µg/mL**
ICP Assay NIST SRM 3132 Lot Number: 050429

Assay Method #2 **10011 ± 25 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **10024 ± 47 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.001500	M	Eu	<	0.000730	O	Na		0.176097	M	Se	<	0.006600	M	Zn		0.009925
O	Al		0.004322	M	Fe	<	0.650000	M	Nb	<	0.000730	O	Si		0.097654	M	Zr	<	0.000730
M	As	<	0.008000	M	Ga		0.004322	M	Nd	<	0.001500	M	Sm	<	0.000730				
M	Au	<	0.000730	M	Gd	<	0.000730	M	Ni		0.024013	M	Sn	<	0.002200				
M	B		0.068838	M	Ge	<	0.004400	M	Os	<	0.000730	O	Sr		0.000928				
M	Ba	<	0.001500	M	Hf	<	0.000730	i	P	<		M	Ta	<	0.000730				
M	Be	<	0.000730	M	Hg	<	0.002200	M	Pb		0.007364	M	Tb	<	0.000730				
M	Bi	<	0.003000	M	Ho	<	0.000730	M	Pd	<	0.000730	M	Te	<	0.019000				
O	Ca		0.062434	M	In	<	0.003000	M	Pr	<	0.000730	M	Th	<	0.000730				
M	Cd	<	0.001500	M	Ir	<	0.000730	M	Pt	<	0.000730	O	Ti	<	0.006500				
M	Ce	<	0.007300	O	K		0.006403	M	Rb	<	0.006600	M	Tl	<	0.000730				
O	Co		0.014728	M	La	<	0.003000	M	Re	<	0.000730	M	Tm	<	0.000730				
O	Cr		0.272151	O	Li		0.000416	M	Rh	<	0.003000	M	U	<	0.001500				
M	Cs	<	0.000730	M	Lu	<	0.000730	M	Ru	<	0.004400	M	V	<	0.000730				
O	Cu		0.007684	O	Mg		0.320177	i	S	<		M	W	<	0.004400				
M	Dy	<	0.001500	s	Mn	<		M	Sb	<	0.021000	O	Y		0.001360				
M	Er	<	0.001500	M	Mo		0.010245	O	Sc	<	0.004100	M	Yb	<	0.000730				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 54.94 +2 6 $Mn(H_2O)_6^{2+}$

Chemical Compatibility -Stable in HCl, HNO_3, H_2SO_4 ,HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5 % HNO_3/LDPE container.

Mn Containing Samples (Preparation and Solution) -Metal (Soluble in dilute acids); Oxides (Soluble in dilute acids); Ores (Dissolve with HCl. If silica is present add HF and then fume off silica by adding H_2SO_4 and heat to SO_3 fumes - dense white fumes).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 55 amu	10 ppt	n/a	40Ar14N1H,39K16O,37Cl18O,40Ar15N,38Ar17O,36Ar18O1H ,38Ar16O1H,37Cl17O1H,23Na32S
ICP-OES 257.610 nm	0.0014 / 0.00002 µg/mL	1	Ce, W, Re
ICP-OES 259.373 nm	0.0016 / 0.00002 µg/mL	1	U, Ta, Mo, Fe, Nb
ICP-OES 260.569 nm	0.0021 / 0.00002 µg/mL	1	Co

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 17, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 17, 2025**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSB10
Lot Number:	R2-SB688559
Matrix:	3% (v/v) HNO3 3% (w/v) tartaric acid
Value / Analyte(s):	10 000 µg/mL ea: Antimony
Starting Material:	Antimony Metal
Starting Material Lot#:	1857
Starting Material Purity:	99.9894%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10003 ± 47 µg/mL

Density: 1.061 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10003 ± 41 µg/mL**
ICP Assay NIST SRM 3102a Lot Number: 140911

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$
w_i = the weighting factors for each method calculated using the inverse square of the variance:
$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2
$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with
$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2
$u_{char\ a}$ = the errors from characterization
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000200	M	Eu	<	0.000300	O	Na		0.140000	M	Se	<	0.007300	O	Zn		0.005000
M	Al		0.003200	O	Fe		0.060000	M	Nb	<	0.000100	O	Si		0.150000	O	Zr	<	0.006300
M	As	<	0.004400	M	Ga	<	0.000400	M	Nd	<	0.000100	M	Sm	<	0.000100				
M	Au	<	0.000210	M	Gd	<	0.000100	O	Ni		0.004800	M	Sn	<	0.001800				
M	B	<	0.011000	M	Ge	<	0.000600	M	Os	<	0.000110	O	Sr		0.000750				
O	Ba	<	0.004900	M	Hf	<	0.000100	O	P		0.540000	M	Ta		0.003300				
M	Be	<	0.000400	M	Hg	<	0.000110	M	Pb	<	0.000400	M	Tb	<	0.000100				
M	Bi	<	0.000200	M	Ho	<	0.000100	M	Pd	<	0.000210	M	Te	<	0.000600				
O	Ca		0.110000	M	In	<	0.000100	M	Pr	<	0.001600	M	Th	<	0.000100				
M	Cd	<	0.000200	M	Ir	<	0.000110	M	Pt	<	0.000600	M	Ti	<	0.002800				
M	Ce		0.006500	O	K		0.020000	M	Rb	<	0.001000	M	Tl	<	0.000100				
M	Co	<	0.000200	O	La	<	0.016000	M	Re	<	0.000100	M	Tm	<	0.000100				
M	Cr		0.006900	O	Li	<	0.000430	M	Rh	<	0.000300	M	U	<	0.000100				
M	Cs	<	0.000200	M	Lu	<	0.000100	M	Ru	<	0.000310	M	V	<	0.000800				
M	Cu	<	0.000600	O	Mg		0.021000	n	S	<		M	W	<	0.000200				
M	Dy	<	0.000100	O	Mn		0.001900	s	Sb	<		M	Y	<	0.000100				
M	Er	<	0.000100	M	Mo	<	0.000500	O	Sc	<	0.002300	M	Yb	<	0.000100				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 121.75 +3 6 Sb(O)C4H4O6-1

Chemical Compatibility -Stable in conc. HCl, dilute or conc. HF. Stable in dilute HNO3 as the fluoride or tartrate complex. Avoid basic media. Stable with most metals and inorganic anions in acidic media as the tartrate provided the acidity is not too high or the acid is oxidizing causing loss of the stabilizing tartrate ion. The fluoride complex of antimony is stable in strong acid but you should only mix with other metals that are fluorinated.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-2% HNO3 / LDPE container.

Sb Containing Samples (Preparation and Solution) -Metal and alloys (Soluble in H2O / HF / HNO3 mixture); Oxides (Soluble in HCl and tartaric acid or H2O / HF / HNO3 mixtures); Ores (fusion with Na2CO3 in Pt0 followed by dissolving the fuseate in a H2O / HF / HNO3 mixture); Organic based (sulfuric acid / hydrogen peroxide digestion)

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 121 amu	5 ppt	N/A	105Pd16O, 89Y16O2
ICP-OES 206.833 nm	0.03/0.003 µg/mL	1	Ta, Cr, Ge, Hf
ICP-OES 217.581 nm	0.05/0.005 µg/mL	1	Nb, W, Re, Fe
ICP-OES 231.147 nm	0.06/0.006 µg/mL	1	Ni, Co, Pt

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 30, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 30, 2024**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Manager, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGAS10
Lot Number:	T2-AS718260
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Arsenic
Starting Material:	As Metal
Starting Material Lot#:	2208
Starting Material Purity:	99.9971%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10060 ± 40 µg/mL

Density: 1.037 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10062 ± 46 µg/mL**
ICP Assay NIST SRM 3103a Lot Number: 100818

Assay Method #2 **10055 ± 76 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	< 0.003200	M	Eu	< 0.000530	O	Na	0.032544	M	Se	< 0.006300	O	Zn	0.001952			
M	Al	0.007593	O	Fe	0.001475	O	Nb	< 0.012000	O	Si	0.238658	O	Zr	< 0.004100			
s	As	<	M	Ga	< 0.000530	M	Nd	< 0.000530	M	Sm	< 0.000530						
M	Au	< 0.003100	M	Gd	< 0.000530	M	Ni	< 0.002100	M	Sn	< 0.000530						
M	B	0.026035	M	Ge	< 0.001600	M	Os	< 0.000520	M	Sr	< 0.000530						
M	Ba	< 0.000530	M	Hf	< 0.000530	O	P	< 0.043000	M	Ta	< 0.000530						
O	Be	< 0.000360	M	Hg	< 0.001600	M	Pb	< 0.002100	M	Tb	< 0.000530						
M	Bi	< 0.000530	M	Ho	< 0.000530	M	Pd	< 0.001100	M	Te	< 0.004700						
O	Ca	0.004339	M	In	< 0.023000	M	Pr	< 0.005300	M	Th	< 0.000530						
M	Cd	< 0.001100	M	Ir	< 0.000520	M	Pt	< 0.000530	O	Ti	< 0.002300						
M	Ce	< 0.000530	O	K	0.002061	M	Rb	< 0.000530	M	Tl	< 0.000530						
M	Co	< 0.000530	M	La	< 0.001100	M	Re	< 0.000530	M	Tm	< 0.000530						
O	Cr	< 0.001800	O	Li	< 0.000120	M	Rh	< 0.000530	M	U	< 0.000530						
M	Cs	< 0.005300	M	Lu	< 0.000530	M	Ru	< 0.000520	M	V	< 0.002700						
M	Cu	< 0.001600	O	Mg	0.000154	O	S	0.028205	M	W	< 0.012000						
M	Dy	< 0.000530	O	Mn	0.000154	M	Sb	< 0.000530	M	Y	< 0.000530						
M	Er	< 0.000530	M	Mo	< 0.000530	O	Sc	< 0.001700	M	Yb	< 0.000530						

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 74.92 ; mix of +3 and +5 ; 6 ; H3AsO4 and HAsO2

Chemical Compatibility - Arsenic has no cationic chemistry. It is soluble in HCl, HNO3,H3PO4, H2SO4 and HF aqueous matrices water and NH4OH . It is stable with most inorganic anions (forms arsenate when boiled with chromate) but many cationic metals form the insoluble arsenates under pH neutral conditions. When fluorinated and / or under acidic conditions arsenate formation is typically not a problem at moderate to low concentrations.

Stability - 2-100 ppb levels stable for months alone or mixed with other elements at equivalent levels in 1% HNO3 / LDPE container.

As Containing Samples (Preparation and Solution) - Metal (soluble in 1:1 H2O / HNO3); Oxides (the oxide exists in crystalline and amorphous forms where the amorphic form is more water soluble. The oxides typically dissolve in dilute acidic solutions when boiled); Minerals (one gram of powered sample is fused in a Ni crucible with 10 grams of a 1:1 mix of K2CO3 and KNO3 and the melt extracted with hot water); Organic Matrices (0.2 to 0.5 grams of sample are fused with 15 grams of a 1:1 Na2CO3 / Na2O2 mix in a Ni crucible. The fuseate is extracted with water and acidified with HNO3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 75 amu	20 ppt	N/A	40Ar35Cl, 59Co16O, 36Ar38Ar1H,8Ar37Cl,Ar39K, 150Nd2+,150Sm2+
ICP-OES 189.042 nm	0.05/0.005 µg/mL	1	Cr
ICP-OES 193.696 nm	0.1/0.01 µg/mL	1	V, Ge
ICP-OES 228.812 nm	0.1/0.01 µg/mL	1	Cd, Pt, Ir, Co

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 10, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 10, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation

Certificate Approved By:

Michael Booth
Director, Technical

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGBA10
Lot Number:	R2-BA692576
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Barium
Starting Material:	Barium Nitrate
Starting Material Lot#:	1969
Starting Material Purity:	99.9982%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL

Density: 1.025 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1	**10018 ± 50 µg/mL** ICP Assay NIST SRM 3104a Lot Number: 140909
Assay Method #2	**10023 ± 31 µg/mL** Gravimetric NIST SRM Lot Number: See Sec. 4.2
Assay Method #3	**10023 ± 30 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000410	O	Eu	<	0.005200	O	Na		0.004610	M	Se	<	0.003700	O	Zn		0.000658
M	Al	<	0.003100	O	Fe		0.015707	M	Nb	<	0.000210	O	Si		0.005573	M	Zr	<	0.001300
M	As	<	0.001300	M	Ga	<	0.000210	M	Nd	<	0.000210	O	Sm	<	0.021000				
M	Au	<	0.001300	M	Gd	<	0.000210	M	Ni	<	0.000810	M	Sn	<	0.000410				
O	B	<	0.005200	M	Ge	<	0.002500	M	Os	<	0.000410	O	Sr		0.003850				
s	Ba	<		M	Hf	<	0.000810	O	P	<	0.026000	M	Ta	<	0.000410				
O	Be	<	0.000320	M	Hg	<	0.000210	M	Pb	<	0.002300	M	Tb	<	0.000210				
M	Bi	<	0.000210	M	Ho	<	0.000210	M	Pd	<	0.000210	M	Te	<	0.001900				
O	Ca		0.007093	M	In	<	0.000210	M	Pr	<	0.000210	M	Th	<	0.000210				
M	Cd	<	0.000210	M	Ir	<	0.000210	M	Pt	<	0.000210	M	Ti	<	0.002100				
M	Ce	<	0.001300	O	K		0.035467	M	Rb	<	0.002100	M	Tl	<	0.000210				
M	Co	<	0.000410	O	La	<	0.005200	M	Re	<	0.000210	M	Tm	<	0.000410				
M	Cr	<	0.001700	O	Li	<	0.000630	M	Rh	<	0.000210	M	U	<	0.000210				
M	Cs	<	0.003300	M	Lu	<	0.001700	M	Ru	<	0.000210	O	V	<	0.005200				
M	Cu	<	0.001300	O	Mg		0.000861	O	S		0.268539	M	W	<	0.000410				
M	Dy	<	0.000210	M	Mn	<	0.000410	M	Sb	<	0.001300	O	Y	<	0.005200				
M	Er	<	0.001300	M	Mo	<	0.000410	M	Sc	<	0.000410	M	Yb	<	0.001300				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 137.33 +2 6 $Ba(H_2O)_6^{+2}$
Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate, iodate, molybdate, sulfite and tungstate in neutral aqueous media.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1 -10,000 ppm solutions chemically stable for years in 1-3.5% HNO_3 / LDPE container.
Ba Containing Samples (Preparation and Solution) -Metal(is best dissolved in diluted HNO_3); Ores(Carbonate fusion in Pt0 followed by HCl dissolution. If sulfate is present dissolve the fuseate using HCl / tartaric acid to prevent $BaSO_4$ precipitate); Organic Matrices (dry ash and dissolve in dilute HCl.)
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 138 amu	1 ppt	N/A	122Sn16O, 122Te16O
ICP-OES 230.424 nm	0.004/0.0005 µg/mL	1	Mo, Ir, Co
ICP-OES 233.527 nm	0.004/0.0003 µg/mL	1	
ICP-OES 455.403 nm	0.002/0.0001 µg/mL	1	Zr, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 11, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 11, 2024**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Manager, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGBE10
Lot Number:	R2-BE692992
Matrix:	6% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Beryllium
Starting Material:	Beryllium Acetate
Starting Material Lot#:	2281
Starting Material Purity:	99.9998%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10032 ± 41 µg/mL

Density: 1.128 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10042 ± 67 µg/mL**
ICP Assay NIST SRM 3105a Lot Number: 090514

Assay Method #2 **10025 ± 51 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.001100	M	Eu	<	0.000270	O	Na		0.040962	M	Se	<	0.005000	M	Zn		0.013054
O	Al		0.016205	O	Fe		0.015754	M	Nb	<	0.000270	O	Si		0.024307	O	Zr	<	0.001900
M	As	<	0.002900	M	Ga	<	0.000270	M	Nd	<	0.000270	M	Sm	<	0.000270				
M	Au	<	0.000520	M	Gd	<	0.000270	M	Ni	<	0.003700	M	Sn	<	0.000790				
M	B	<	0.091000	M	Ge	<	0.000270	M	Os	<	0.000260	M	Sr		0.000630				
M	Ba		0.002700	M	Hf	<	0.000270	O	P	<	0.066000	M	Ta	<	0.000270				
s	Be	<		M	Hg	<	0.000520	M	Pb	<	0.000270	M	Tb	<	0.000270				
M	Bi	<	0.000530	M	Ho	<	0.000270	M	Pd	<	0.000520	M	Te	<	0.003700				
O	Ca		0.072022	M	In	<	0.000790	M	Pr	<	0.000270	M	Th	<	0.000270				
M	Cd	<	0.000790	M	Ir	<	0.000260	M	Pt	<	0.000270	O	Ti	<	0.000400				
M	Ce	<	0.000270	O	K		0.045014	M	Rb	<	0.000270	M	Tl	<	0.000790				
O	Co	<	0.003200	M	La	<	0.000270	M	Re	<	0.000270	M	Tm	<	0.000270				
O	Cr	<	0.001800	O	Li	<	0.000660	M	Rh	<	0.001100	M	U	<	0.000270				
M	Cs		0.001440	M	Lu	<	0.000270	M	Ru	<	0.000260	M	V	<	0.000790				
M	Cu	<	0.002100	O	Mg		0.016205	i	S	<		M	W	<	0.000530				
M	Dy	<	0.000270	M	Mn		0.001215	M	Sb	<	0.000270	M	Y	<	0.000270				
M	Er	<	0.000270	M	Mo	<	0.000530	O	Sc	<	0.000930	M	Yb	<	0.000270				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 9.01 +2 4 $Be(H_2O)_4^{+2}$

Chemical Compatibility -Soluble in HCl, HNO_3, H_2SO_4 and HF aqueous matrices. Stable with all metals and inorganic anions.

Stability - 2-100 ppb levels stable for months in 1 % HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 5-10 % HNO_3 / LDPE container.

Be Containing Samples (Preparation and Solution) - Meta l(is best dissolved in diluted H_2SO_4); BeO (boiling nitric, hydrochloric, or sulfuric acids or KHSO4 fusion); Ores (H_2SO_4/HF digestion or carbonate fusion in Pt0); Organic Matrices (sulfuric/peroxide digestion or nitric/sulfuric/perchloric acid decomposition, or dry ash and dissolution according to the BeO procedure above).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 9 amu	4 ppt	N/A	
ICP-OES 234.861 nm	0.0003/0.00016 µg/mL	1	Fe, Ta, Mo
ICP-OES 313.042 nm	0.0003/0.00009 µg/mL	1	V, Ce, U
ICP-OES 313.107 nm	0.0007/0.0005 µg/mL	1	Ce, Th, Tm

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION, PERIOD OF VALIDITY AND REVISION HISTORY

11.1 Certification Issue Date

May 13, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 13, 2024**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

11.4 Revision Status

- Revision 1 - Revised on Thursday, Jan 14, 2021 by utruong. Revision was made for the following reason: Modified Section 7 Chemical Form in Solution.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCO10
Lot Number:	R2-CO695285
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Cobalt
Starting Material:	Co Metal
Starting Material Lot#:	2326
Starting Material Purity:	99.9934%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10012 ± 31 µg/mL

Density: 1.056 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10031 ± 67 µg/mL**
ICP Assay NIST SRM 3113 Lot Number: 190630

Assay Method #2 **10019 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **10000 ± 35 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	0.014660	M	Eu	<	0.000590	O	Na	0.007534	M	Se	<	0.019000	M	Zn	0.003461	
M	Al	< 0.024000	M	Fe	0.050905	M	Nb	<	0.000590	O	Si	0.075340	M	Zr	<	0.001200	
i	As	<	M	Ga	<	0.000590	M	Nd	<	0.000590	M	Sm	<	0.000590			
M	Au	< 0.004100	M	Gd	<	0.000590	O	Ni	0.427608	M	Sn	<	0.001200				
M	B	< 0.031000	M	Ge	<	0.003000	M	Os	<	0.000590	O	Sr	<	0.000260			
M	Ba	< 0.000590	M	Hf	<	0.000590	n	P	<		M	Ta	<	0.001200			
O	Be	< 0.001300	M	Hg	<	0.001800	M	Pb	0.003257	M	Tb	<	0.000590				
M	Bi	< 0.003000	M	Ho	<	0.000590	M	Pd	<	0.000590	M	Te	<	0.005300			
O	Ca	0.010588	M	In	<	0.001200	M	Pr	<	0.000590	M	Th	<	0.000590			
M	Cd	< 0.004700	M	Ir	<	0.001200	M	Pt	<	0.002400	M	Ti	<	0.014000			
M	Ce	< 0.000590	O	K	0.008144	M	Rb	<	0.000590	M	Tl	0.002647					
s	Co	<	M	La	<	0.000590	M	Re	<	0.000590	M	Tm	<	0.000590			
M	Cr	< 0.021000	O	Li	<	0.000130	M	Rh	<	0.000590	M	U	<	0.000590			
M	Cs	< 0.002400	M	Lu	<	0.000590	M	Ru	<	0.007100	O	V	<	0.000880			
M	Cu	0.189369	O	Mg	0.001893	n	S	<		M	W	<	0.000590				
M	Dy	< 0.000590	M	Mn	<	0.001800	M	Sb	<	0.003600	M	Y	<	0.000590			
M	Er	< 0.000590	M	Mo	<	0.002400	O	Sc	<	0.001600	M	Yb	<	0.000590			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.93 +2 6 $Co(H_2O)_6^{2+}$

Chemical Compatibility -Stable in HCl, HNO_3, H_2SO_4 ,HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Co Containing Samples (Preparation and Solution) - Metal (soluble in HNO_3); Oxides (Soluble in HCl); Ores (dissolve in HCl / HNO_3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 59 amu	2 ppt	n/a	42Ca16O1H , 40Ar18O1H , 36Ar23Na, 43Ca16O, 24Mg35Cl
ICP-OES 228.616 nm	0.01/0.001 µg/mL	1	
ICP-OES 237.862 nm	0.01/0.002 µg/mL	1	W, Re, Al, Ta
ICP-OES 238.892 nm	0.01/0.002 µg/mL	1	Fe, W, Ta

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 04, 2020

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 04, 2024**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGAG10
Lot Number:	S2-AG712977
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Silver
Starting Material:	Ag Shot
Starting Material Lot#:	2289
Starting Material Purity:	99.9951%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10051 ± 30 µg/mL

Density: 1.056 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1	**10051 ± 52 µg/mL** ICP Assay NIST SRM 3151 Lot Number: 160729
Assay Method #2	**10051 ± 19 µg/mL** Volhard NIST SRM 999c Lot Number: 999c
Assay Method #3	**10049 ± 31 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

s	Ag	<		M	Eu	<	0.000260	O	Na		0.003811	M	Se	<	0.003900	O	Zn		0.048146
M	Al		0.002688	O	Fe		0.006419	M	Nb	<	0.000260	O	Si		0.005215	M	Zr	<	0.000260
M	As	<	0.001100	M	Ga	<	0.000260	M	Nd	<	0.000260	M	Sm	<	0.000260				
M	Au	<	0.000260	M	Gd	<	0.000260	O	Ni		0.001765	M	Sn		0.020060				
O	B	<	0.004300	M	Ge	<	0.002300	M	Os	<	0.001100	O	Sr	<	0.000110				
M	Ba	<	0.000520	M	Hf	<	0.000260	O	P	<	0.017000	M	Ta	<	0.000260				
O	Be	<	0.001100	M	Hg	<	0.000770	M	Pb	<	0.003600	M	Tb	<	0.000260				
M	Bi		0.004814	M	Ho	<	0.000260	M	Pd		0.044134	M	Te	<	0.009000				
O	Ca		0.005215	M	In		0.003691	M	Pr	<	0.000260	M	Th	<	0.000260				
M	Cd	<	0.000260	M	Ir	<	0.000520	M	Pt	<	0.001100	O	Ti	<	0.000440				
M	Ce	<	0.002100	O	K	<	0.008700	M	Rb	<	0.001100	M	Tl	<	0.004100				
O	Co	<	0.000330	M	La	<	0.000260	M	Re	<	0.000260	M	Tm	<	0.000260				
O	Cr	<	0.002500	O	Li	<	0.000110	M	Rh	<	0.000520	M	U	<	0.000260				
M	Cs	<	0.002600	M	Lu	<	0.000260	M	Ru	<	0.000260	M	V	<	0.000260				
O	Cu		0.357085	O	Mg		0.001203	O	S	<	0.017000	M	W	<	0.000260				
M	Dy	<	0.000260	O	Mn	<	0.000220	M	Sb	<	0.014000	M	Y	<	0.000260				
M	Er	<	0.000260	M	Mo	<	0.000260	O	Sc	<	0.000220	M	Yb	<	0.000260				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 107.87 +1 6 $Ag(H_2O)_6^+$

Chemical Compatibility -Stable in HNO_3, and HF. Avoid basic media. Ag forms more insoluble salts than any other metal. It also is subject to photochemical reduction to the metal in HCl media although 10 µg/mL solutions in 10% HCl [$AgCl_{x1-x}$] are commonly used in the analytical laboratory. The most common solubility problems exist with arsenate, arsenite , bromide, chloride, iodide, carbonate , chromate, cyanide, iodate, oxalate, oxide, sulfate, sulfide, tartrate, and thiocyanate in aqueous media. The addition of nitric acid renders many of these salts soluble.

Stability - 2-100 ppb levels stable for 75+ days when mixed with equivalent levels of all other elements including the precious metals (where chloride is present) when in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Ag Containing Samples (Preparation and Solution) -Metal (Soluble in HNO_3); Oxides (Soluble in HNO_3); Ores (Digestion with conc. HNO_3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 107 amu	1 ppt	N/A	91Zr16O
ICP-OES 243.779 nm	0.12/0.01 µg/mL	1	Mn, Th, Ni, Rh
ICP-OES 328.068 nm	0.007/0.0007 µg/mL	1	Ce, Rh, V
ICP-OES 338.289 nm	0.013/0.001 µg/mL	1	Ce, Cr, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 28, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 28, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation

Certificate Approved By:

Michael Booth
Director, Technical

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCR(3)10
Lot Number:	S2-CR709784
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Chromium
Starting Material:	Cr Metal
Starting Material Lot#:	2328
Starting Material Purity:	99.9951%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10027 ± 41 µg/mL

Density: 1.072 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10027 ± 40 µg/mL**
ICP Assay NIST SRM 3112a Lot Number: 170630

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.001700	M	Eu	<	0.003400	O	Na		0.090372	M	Se	<	0.012000	O	Zn	<	0.006100
M	Al		0.034916	O	Fe		0.246471	M	Nb	<	0.017000	n	Si	<		M	Zr	<	0.007800
M	As	<	0.028000	O	Ga	<	0.013000	M	Nd	<	0.013000	M	Sm	<	0.006900				
M	Au	<	0.001700	M	Gd	<	0.000560	M	Ni		0.016020	M	Sn		0.006983				
O	B	<	0.025000	O	Ge	<	0.014000	M	Os	<	0.000560	M	Sr		0.006367				
M	Ba	<	0.008900	M	Hf	<	0.000560	i	P	<		M	Ta	<	0.000560				
M	Be	<	0.013000	M	Hg	<	0.001700	M	Pb		0.010064	M	Tb	<	0.000560				
M	Bi	<	0.002300	M	Ho	<	0.000560	M	Pd	<	0.021000	M	Te	<	0.010000				
O	Ca		0.075995	M	In	<	0.000560	M	Pr	<	0.001700	M	Th	<	0.000560				
M	Cd	<	0.000560	M	Ir	<	0.000560	M	Pt	<	0.001200	O	Ti		0.013555				
M	Ce	<	0.001200	O	K		0.043132	i	Rb	<		M	Tl	<	0.000560				
M	Co	<	0.002600	M	La	<	0.001200	M	Re	<	0.001200	O	Tm	<	0.013000				
s	Cr	<		O	Li		0.000390	M	Rh	<	0.095000	M	U	<	0.000560				
M	Cs	<	0.007800	M	Lu	<	0.000560	M	Ru	<	0.087000	O	V		0.014993				
O	Cu		0.007599	O	Mg		0.000883	i	S	<		M	W	<	0.049000				
M	Dy	<	0.000560	M	Mn		0.008626	M	Sb	<	0.003400	M	Y	<	0.001700				
M	Er	<	0.019000	M	Mo	<	0.032000	M	Sc		0.003080	M	Yb	<	0.000560				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 52.00 +3 6 $Cr(H_2O)_6^{3+}$

Chemical Compatibility -Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

Cr3 Containing Samples (Preparation and Solution) -Metal (soluble in HCl); Oxides/Ores (Chrome ore/oxides are very difficult to dissolve. The following procedures [A-D] are commonly used: A. Fusion with $KHSO_4$ and extraction with hot KCl. The residue fused with Na_2CO_3 and $KClO_3$, 3:1. B. Fusion with $NaKSO_4$ and NaF 2:1, C. Fusion with magnesia or lime and sodium or potassium carbonates, 4:1. D. Fusion with Na_2O_2 or NaOH and KNO_3 or NaOH and Na_2O_2. Nickel, iron, copper, or silver crucibles should be used for D. Platinum may be used for A, <, C); Organic Matrices (ash at 4500C followed by one of the fusion methods above or sulfuric/hydrogen peroxide acid digestions may be applicable to non oxide containing samples).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 52 amu	40 ppt	N/A	36S16O, 36Ar16O - The 50Cr, 53Cr, 54Cr lines suffer from many more potential interferences from sulfur, chlorine and argon compounds of oxygen, nitrogen and carbon.
ICP-OES 205.552 nm	0.006/0.0008 µg/mL	1	Os
ICP-OES 276.654 nm	0.01/0.001 µg/mL	1	Cu, Ta, V
ICP-OES 284.325 nm	0.008/0.0007 µg/mL	1	

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

October 26, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **October 26, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGNI10
Lot Number:	P2-NI686384
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Nickel
Starting Material:	Ni Metal
Starting Material Lot#:	2277 and 2282
Starting Material Purity:	99.9992%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9979 ± 30 µg/mL

Density: 1.038 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9971 ± 54 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 120619

Assay Method #2 **9970 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **9993 ± 33 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag		0.002606	M	Eu	<	0.001100	O	Na		0.004965	O	Se	<	0.067000	M	Zn		0.006578
M	Al	<	0.013000	O	Fe		0.018618	M	Nb	<	0.001100	O	Si		0.010923	M	Zr	<	0.001100
O	As	<	0.067000	M	Ga	<	0.001100	M	Nd	<	0.001100	M	Sm	<	0.001100				
M	Au	<	0.002100	M	Gd	<	0.001100	s	Ni	<		M	Sn	<	0.016000				
M	B	<	0.017000	M	Ge	<	0.004200	M	Os		0.002110	O	Sr	<	0.000940				
M	Ba	<	0.001100	M	Hf	<	0.001100	i	P	<		M	Ta	<	0.001100				
O	Be	<	0.000410	M	Hg		0.014895	M	Pb		0.006578	M	Tb	<	0.001100				
M	Bi	<	0.004200	M	Ho	<	0.001100	M	Pd	<	0.001100	M	Te	<	0.015000				
O	Ca		0.003351	M	In	<	0.001100	M	Pr	<	0.001100	M	Th	<	0.001100				
M	Cd		0.001365	M	Ir		0.004716	M	Pt	<	0.001100	M	Ti	<	0.004200				
M	Ce	<	0.001100	O	K		0.004716	M	Rb	<	0.001100	M	Tl	<	0.001100				
O	Co		0.017377	M	La	<	0.001100	M	Re		0.001737	M	Tm	<	0.001100				
O	Cr	<	0.006700	O	Li	<	0.000140	M	Rh	<	0.006300	M	U	<	0.001100				
M	Cs	<	0.007300	M	Lu	<	0.001100	M	Ru	<	0.019000	M	V	<	0.002100				
M	Cu		0.004096	O	Mg		0.000372	i	S	<		M	W	<	0.006300				
M	Dy	<	0.001100	O	Mn	<	0.001900	M	Sb		0.005833	O	Y	<	0.000540				
M	Er	<	0.001100	M	Mo	<	0.008400	M	Sc	<	0.002100	M	Yb	<	0.001100				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 58.69 +2 6 Ni(H2O)62+

Chemical Compatibility -Stable in HCl, HNO3, H2SO4 ,HF, H3PO4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

Ni Containing Samples (Preparation and Solution) -Metal (Soluble in HNO3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO3).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 60 amu	100 ppt	n/a	43Ca16O1H , 44Ca16O, 23Na37Cl
ICP-OES 221.647 nm	0.01 / 0.0009 µg/mL	1	Si
ICP-OES 231.604 nm	0.02 / 0.002 µg/mL	1	Sb, Ta, Co
ICP-OES 232.003 nm	0.02 / 0.006 µg/mL	1	Cr, Re, Os, Nb, Ag, Pt, Fe

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 02, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 02, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Manager, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGV10
Lot Number:	S2-V711005
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Vanadium
Starting Material:	Vanadium Pentoxide
Starting Material Lot#:	1782
Starting Material Purity:	99.9877%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10014 ± 30 µg/mL

Density: 1.104 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10017 ± 42 µg/mL**
ICP Assay NIST SRM 3165 Lot Number: 160906

Assay Method #2 **10013 ± 30 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000110	M	Eu	<	0.000110	O	Na		0.120000	M	Se	<	0.009400	M	Zn	0.009400
O	Al		0.120000	O	Fe		0.460000	M	Nb	<	0.001300	O	Si		0.270000	M	Zr	< 0.002900
M	As	<	0.000210	M	Ga	<	0.009300	M	Nd	<	0.000610	M	Sm	<	0.000110			
M	Au	<	0.004700	M	Gd	<	0.000110	M	Ni		0.012000	M	Sn		0.003900			
M	B		0.051000	M	Ge	<	0.000410	M	Os	<	0.000110	O	Sr		0.007100			
M	Ba		0.003600	M	Hf	<	0.000110	O	P	<	0.034000	M	Ta	<	0.000110			
O	Be	<	0.000560	M	Hg	<	0.000410	M	Pb		0.001400	M	Tb	<	0.000110			
M	Bi	<	0.000210	M	Ho	<	0.000110	M	Pd	<	0.000410	M	Te	<	0.000110			
O	Ca		0.730000	M	In	<	0.000110	M	Pr	<	0.000110	M	Th	<	0.000210			
M	Cd	<	0.000610	M	Ir	<	0.000110	M	Pt	<	0.000110	M	Ti		0.017000			
M	Ce	<	0.000610	M	K		0.052000	M	Rb	<	0.000310	M	Tl	<	0.000110			
M	Co	<	0.001300	M	La	<	0.000410	M	Re		0.001700	M	Tm	<	0.000110			
O	Cr		0.170000	M	Li	<	0.000810	M	Rh	<	0.000110	M	U	<	0.000410			
M	Cs		0.005600	M	Lu	<	0.000110	M	Ru	<	0.000110	s	V	<				
M	Cu	<	0.001300	M	Mg		0.053000	i	S	<		M	W		0.002000			
M	Dy	<	0.000110	M	Mn		0.007900	M	Sb		0.078000	M	Y	<	0.000110			
M	Er	<	0.000110	M	Mo		0.094000	M	Sc	<	0.000410	M	Yb	<	0.000110			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 50.94 +5 6 $H_2V_{10}O_{28}^{4-}$

Chemical Compatibility -Soluble in HCl, HNO_3, H_2SO_4, HF, H_3PO_4 and strong basic media. Stable with most metals and inorganic anions in acidic media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.

V Containing Samples (Preparation and Solution) -Metal (Fusion with NaOH or KOH in Ni0 or Na_2CO_3 / KNO_3); Oxides (V_2O_3 - use HCl, V_2O_4 - use HCl or HNO_3, V_2O_5 - use concentrated acids); Ores (Na_2CO_3 / KNO_3 in Pt0 caution - nitrates attack Pto followed by water extraction of fuseate); Organic Matrices (Ash at 450 EC followed by dissolving according to V_2O_5 above) .

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 51 amu	4 ppt	N/A	34S16O1H, 35Cl16O, 38Ar13C, 36Ar15N, 36Ar14N1H, 37Cl14N,36S15N, 33S18O, 34S17O, 102Ru+2,02Pd+2
ICP-OES 290.882 nm	0.008 / 0.0008 µg/mL	1	Hf, Nb
ICP-OES 292.402 nm	0.006 / 0.001 µg/mL	1	Th
ICP-OES 309.311 nm	0.005 / 0.001 µg/mL	1	Mg, U, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 28, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 28, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

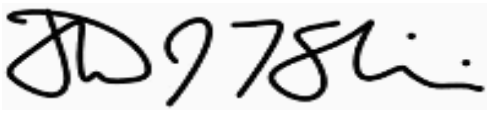
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGAL10
Lot Number:	T2-AL716102
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Aluminum
Starting Material:	Aluminum Nitrate Nonahydrate
Starting Material Lot#:	2460
Starting Material Purity:	99.9938%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10049 ± 31 µg/mL

Density: 1.087 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1	**10059 ± 40 µg/mL** ICP Assay NIST SRM 3101a Lot Number: 140903
Assay Method #2	**10044 ± 26 µg/mL** EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	**10049 ± 35 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.002100	M	Eu	<	0.002100	O	Na		0.352819	M	Se	<	0.005200	M	Zn	0.006018
s	Al	<		O	Fe		0.074714	M	Nb	<	0.000520	O	Si		0.017848	O	Zr	0.004358
M	As		0.008716	O	Ga		0.112072	M	Nd	<	0.000520	M	Sm	<	0.000520			
M	Au	<	0.008400	M	Gd	<	0.001100	O	Ni	<	0.006000	M	Sn		0.000747			
O	B	<	0.014000	M	Ge	<	0.005200	M	Os	<	0.000650	O	Sr		0.000518			
O	Ba		0.012867	M	Hf	<	0.004100	n	P	<		M	Ta	<	0.000520			
O	Be	<	0.000270	M	Hg	<	0.002000	M	Pb		0.002282	M	Tb	<	0.000520			
M	Bi		0.001930	M	Ho	<	0.000520	M	Pd	<	0.000520	M	Te	<	0.001100			
O	Ca		0.076790	M	In	<	0.002100	M	Pr	<	0.000520	M	Th	<	0.000520			
M	Cd	<	0.000520	M	Ir	<	0.000650	M	Pt	<	0.000520	O	Ti		0.001930			
M	Ce	<	0.001100	O	K		0.043583	M	Rb	<	0.000520	M	Tl	<	0.000520			
O	Co	<	0.005400	M	La	<	0.002100	M	Re	<	0.000520	M	Tm	<	0.000520			
O	Cr		0.006018	O	Li		0.000112	M	Rh	<	0.000520	M	U	<	0.000520			
M	Cs		0.000643	M	Lu	<	0.000520	M	Ru	<	0.002000	M	V		0.001286			
O	Cu	<	0.008300	O	Mg		0.068488	i	S	<		M	W	<	0.009800			
M	Dy	<	0.002100	O	Mn		0.000913	M	Sb	<	0.003100	M	Y	<	0.001100			
M	Er	<	0.000520	M	Mo		0.005396	O	Sc	<	0.000950	M	Yb	<	0.000520			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 26.98 +3 6 Al(H2O)6+3
Chemical Compatibility -Soluble in HCl, HNO3, v F and v 2SO4. Avoid neutral media. Soluble in strongly basic NaOH forming the Al(OH)4(H2O)21- species. Stable with most metals and inorganic anions. The phosphate is insoluble in water and only slightly soluble in acid.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.
Al Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO3); a- Al2O3 (Na2CO3 fusion in Pt0);
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 27 amu	30 ppt	N/A	12C15N, 13C14N, 1H12C14N, 11B16O, 54Cr2+, 54Fe2+
ICP-OES 167.078 nm	0.1/0.009 µg/mL	1	Fe
ICP-OES 394.401 nm	0.05/0.006 µg/mL	1	U, Ce
ICP-OES 396.152 nm	0.03/0.006 µg/mL	1	Mo, Zr, Ce

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 22, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **March 22, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

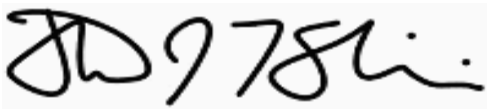
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGK10
Lot Number:	S2-K711973
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Potassium
Starting Material:	KNO3
Starting Material Lot#:	2313
Starting Material Purity:	99.9971%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9992 ± 30 µg/mL

Density: 1.024 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9987 ± 24 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

Assay Method #2 **10004 ± 84 µg/mL**
ICP Assay NIST SRM 3141a Lot Number: 140813

Assay Method #3 **10007 ± 45 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.001400	M	Eu	<	0.000660	O	Na		0.246220	M	Se	<	0.007900	O	Zn	0.018056
O	Al		0.001592	O	Fe		0.005909	M	Nb	<	0.000660	O	Si		0.011490	O	Zr	< 0.001600
M	As	<	0.005300	M	Ga	<	0.000660	M	Nd	<	0.000660	M	Sm	<	0.000660			
M	Au	<	0.002000	M	Gd	<	0.000660	O	Ni	<	0.004900	M	Sn	<	0.000660			
O	B	<	0.005600	M	Ge	<	0.002000	M	Os	<	0.003300	O	Sr		0.000055			
O	Ba	<	0.000860	M	Hf	<	0.000660	O	P	<	0.032000	M	Ta	<	0.000660			
O	Be	<	0.000082	M	Hg	<	0.002000	M	Pb	<	0.002300	M	Tb	<	0.000660			
M	Bi	<	0.006600	M	Ho	<	0.000660	M	Pd	<	0.000660	M	Te	<	0.017000			
O	Ca		0.031187	M	In	<	0.000660	M	Pr	<	0.000660	M	Th	<	0.000660			
O	Cd	<	0.000450	M	Ir	<	0.000660	M	Pt	<	0.002700	M	Ti	<	0.000660			
M	Ce	<	0.000660	s	K	<		M	Rb		0.476026	M	Tl	<	0.000660			
O	Co	<	0.000780	M	La	<	0.000660	M	Re	<	0.000660	M	Tm	<	0.000660			
O	Cr		0.000541	O	Li	<	0.000084	M	Rh	<	0.000660	M	U	<	0.000660			
M	Cs	<	0.000660	M	Lu	<	0.000660	M	Ru	<	0.000660	O	V	<	0.001100			
M	Cu	<	0.002700	O	Mg		0.006237	O	S		0.027905	M	W	<	0.000660			
M	Dy	<	0.000660	O	Mn		0.000476	M	Sb	<	0.000660	M	Y	<	0.000660			
M	Er	<	0.000660	M	Mo	<	0.000660	O	Sc	<	0.000340	O	Yb	<	0.000270			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 39.10 +1 (6) K+(aq)
Chemical Compatibility -Soluble in HCl, HNO3, H2SO4 and HF aqueous matrices. Avoid use of HClO4 due to insolubility of the perchlorate. Stable with all metals and inorganic anions except ClO4-.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.
K Containing Samples (Preparation and Solution) - Metal (Dissolves very rapidly in water); Ores (Sodium carbonate fusion in Pt0 followed by HCl dissolution-blank levels of K in sodium carbonate critical); Organic Matrices (Sulfuric/peroxide digestion)
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 39 amu	10 ppt	n/a	38ArH, 23Na16O, 78Se
ICP-OES 404.721 nm	1.1 / 0.05 µg/mL	1	U, Ce
ICP-OES 766.490 nm	0.4 / 0.001 µg/mL	1	2nd order radiation from R.E.s on some optical designs
ICP-OES 771.531 nm	1.0 / 0.03 µg/mL	1	2nd order radiation from R.E.s on some optical designs

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 10, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **December 10, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

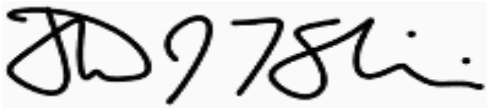
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	S2-MG704239
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Magnesium
Starting Material:	Magnesium Metal
Starting Material Lot#:	2168
Starting Material Purity:	99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10053 ± 30 µg/mL

Density: 1.053 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10022 ± 62 µg/mL**
ICP Assay NIST SRM 3131a Lot Number: 140110

Assay Method #2 **10078 ± 26 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **10033 ± 26 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag		0.002106	M	Eu	<	0.000910	O	Na		0.071075	O	Se	<	0.048000	O	Zn		0.003299
M	Al		0.003553	M	Fe		0.002538	M	Nb	<	0.000460	O	Si	<	0.032000	O	Zr	<	0.002700
M	As	<	0.001400	M	Ga	<	0.000460	M	Nd	<	0.000910	M	Sm	<	0.000460				
M	Au	<	0.001400	M	Gd	<	0.000460	O	Ni	<	0.001600	M	Sn	<	0.002300				
O	B		0.006853	M	Ge	<	0.001400	M	Os	<	0.000460	O	Sr		0.000279				
O	Ba		0.000964	M	Hf	<	0.000460	O	P		0.015230	M	Ta	<	0.000460				
O	Be	<	0.000120	M	Hg	<	0.000460	M	Pb	<	0.000460	M	Tb	<	0.000460				
M	Bi	<	0.000460	M	Ho	<	0.000460	M	Pd	<	0.003200	M	Te	<	0.007300				
O	Ca		0.053306	M	In	<	0.000460	M	Pr	<	0.000460	M	Th	<	0.000460				
O	Cd	<	0.000360	M	Ir	<	0.000460	M	Pt	<	0.001900	O	Ti	<	0.001700				
M	Ce	<	0.002300	M	K		0.048229	M	Rb		0.002411	M	Tl		0.003046				
M	Co	<	0.000910	M	La	<	0.002800	M	Re	<	0.000460	M	Tm	<	0.000460				
M	Cr	<	0.002300	O	Li		0.027922	M	Rh	<	0.000460	M	U	<	0.000460				
M	Cs		0.001040	M	Lu	<	0.000460	M	Ru	<	0.000460	M	V	<	0.000460				
O	Cu	<	0.003000	s	Mg	<		O	S	<	0.190000	M	W	<	0.000460				
M	Dy	<	0.000460	O	Mn		0.015230	M	Sb		0.020814	O	Y	<	0.000720				
M	Er	<	0.000460	M	Mo	<	0.000910	O	Sc	<	0.000480	M	Yb	<	0.000460				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 24.31 +2 6 Mg(H2O)6+2
Chemical Compatibility -Soluble in HCl, HNO3, and H2SO4 avoid HF, H3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicates, carbonates, hydroxides, oxides, and tungstates in neutral and slightly acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO3 / LDPE container.
Mg Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO3); Oxide (Readily soluble in above compatible aqueous acidic solutions); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Sulfuric / peroxide digestion or nitric / sulfuric / perchloric acid decomposition, or dry ash and dissolution in dilute HCl).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 24 amu	42 ppt	n/a	7Li17O, 48Ti+2 , 48Ca+2
ICP-OES 279.553 nm	0.0002 / 0.00003 µg/mL	1	Th
ICP-OES 280.270 nm	0.0003 / 0.00005 µg/mL	1	U, V
ICP-OES 285.213 nm	0.002 / 0.00003 µg/mL	1	U, Hf, Cr, Zr

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 23, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 23, 2025**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	T2-CA716103
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Calcium
Starting Material:	CaCO3
Starting Material Lot#:	2472
Starting Material Purity:	99.9950%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10005 ± 30 µg/mL

Density: 1.039 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10005 ± 45 µg/mL**
ICP Assay NIST SRM 3109a Lot Number: 130213

Assay Method #2 **10005 ± 25 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **10005 ± 31 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.001200	M	Eu	<	0.001200	O	Na		0.006112	M	Se	<	0.024000	M	Zn	0.005362
M	Al		0.065419	O	Fe		0.009115	M	Nb	<	0.001200	O	Si		0.139417	O	Zr	< 0.006700
O	As	<	0.013000	M	Ga	<	0.015000	M	Nd	<	0.020000	M	Sm	<	0.001200			
M	Au	<	0.017000	M	Gd	<	0.004800	O	Ni		0.000793	M	Sn	<	0.003600			
O	B		0.001179	M	Ge	<	0.003600	M	Os	<	0.001200	M	Sr		0.081505			
O	Ba		0.002788	M	Hf	<	0.001200	O	P	<	0.041000	M	Ta	<	0.001200			
O	Be	<	0.000410	M	Hg	<	0.004800	M	Pb		0.001608	M	Tb	<	0.001200			
M	Bi		0.001608	M	Ho	<	0.001200	M	Pd	<	0.001200	M	Te	<	0.003600			
s	Ca	<		M	In	<	0.001200	M	Pr		0.000257	M	Th	<	0.001200			
O	Cd	<	0.001300	M	Ir	<	0.001200	M	Pt	<	0.003600	O	Ti	<	0.001900			
M	Ce		0.001029	O	K		0.009759	M	Rb	<	0.001200	M	Tl	<	0.001200			
O	Co		0.000418	M	La		0.001823	M	Re	<	0.001200	M	Tm	<	0.001200			
O	Cr		0.003324	O	Li	<	0.007300	M	Rh	<	0.001200	M	U		0.002144			
M	Cs		0.007399	M	Lu		0.000128	M	Ru	<	0.001200	M	V		0.001286			
O	Cu	<	0.011000	M	Mg		1.286934	O	S		0.055767	O	W	<	0.024000			
M	Dy	<	0.002400	O	Mn		0.004611	M	Sb	<	0.009600	O	Y		0.000536			
M	Er	<	0.002400	M	Mo		0.003539	O	Sc	<	0.001400	M	Yb	<	0.001200			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 40.08 +2 6 Ca(H2O)6+2
Chemical Compatibility - Soluble in HCl and HNO3. Avoid H2SO4, vF, v3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate, and tungstate in neutral aqueous media.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-10% HNO3 / LDPE container.
Ca Containing Samples)Preparation and Solution) -Metal (best dissolved in diluted HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (dry ash and dissolution in dilute HCl. Do not heat when dissolving to avoid precipitation of SiO2). The oxide, hydroxide, carbonate, phosphate, and fluoride of calcium are soluble in % levels of HCl or HNO3. The sulfates (gypsum, anhydrite, etc.), certain silicates, and complex compounds require fusion with Na2CO3 followed by HCl / water dissolution. Note that contamination is a very real problem when analyzing for trace levels.
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 44 amu	1200 ppt	n/a	16O212C, 28Si16O, 88Sr
ICP-OES 393.366 nm	0.0002 / 0.00004 µg/mL	1	U, Ce
ICP-OES 396.847 nm	0.0005 / 0.00006 µg/mL	1	Th
ICP-OES 422.673 nm	0.01 / 0.001 µg/mL	1	Ge

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 14, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **March 14, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

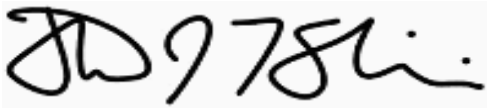
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGNA10
Lot Number:	T2-NA717221
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Sodium
Starting Material:	Na2CO3
Starting Material Lot#:	2358 and 2453
Starting Material Purity:	99.9977%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9977 ± 30 µg/mL

Density: 1.033 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9974 ± 18 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

Assay Method #2 **9977 ± 34 µg/mL**
ICP Assay NIST SRM 3152a Lot Number: 200413

Assay Method #3 **9987 ± 31 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000930	M	Eu	<	0.000930	s	Na	<		M	Se	<	0.003800	O	Zn	0.000138
M	Al		0.004409	O	Fe		0.002393	M	Nb	<	0.000930	O	Si		0.056696	O	Zr	< 0.003200
O	As	<	0.023000	M	Ga	<	0.000930	M	Nd	<	0.000930	M	Sm	<	0.000930			
O	Au	<	0.004100	M	Gd	<	0.000930	O	Ni	<	0.003000	M	Sn	<	0.002800			
O	B		0.001385	M	Ge	<	0.004700	M	Os	<	0.000930	O	Sr		0.000251			
M	Ba		0.004031	M	Hf	<	0.000930	O	P		0.010205	M	Ta	<	0.000930			
O	Be	<	0.000130	M	Hg	<	0.000930	M	Pb	<	0.000930	M	Tb	<	0.000930			
M	Bi	<	0.000930	M	Ho	<	0.000930	M	Pd	<	0.000930	M	Te	<	0.001900			
O	Ca		0.176388	M	In	<	0.000930	M	Pr	<	0.000930	M	Th		0.000352			
O	Cd	<	0.000860	M	Ir	<	0.000930	M	Pt	<	0.000930	O	Ti		0.000592			
M	Ce	<	0.001900	O	K		0.302380	M	Rb	<	0.000930	M	Tl	<	0.000930			
O	Co	<	0.001800	O	La	<	0.002100	M	Re	<	0.000930	M	Tm	<	0.000930			
M	Cr	<	0.002800	O	Li		0.000031	M	Rh	<	0.000930	M	U	<	0.000930			
M	Cs	<	0.000930	M	Lu	<	0.000930	M	Ru	<	0.001900	O	V	<	0.001600			
O	Cu	<	0.003900	O	Mg		0.026458	O	S		0.040317	O	W	<	0.028000			
M	Dy	<	0.000930	O	Mn	<	0.000740	M	Sb	<	0.000930	O	Y	<	0.000860			
M	Er	<	0.000930	O	Mo	<	0.003600	O	Sc	<	0.000610	O	Yb	<	0.000250			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 22.99 +1 (6) Na+(aq) largely ionic in nature

Chemical Compatibility -Soluble in HCl, HNO3, H2SO4 and HF aqueous matrices. Stable with all metals and inorganic anions.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.

Na Containing Samples (Preparation and Solution) - Metal (Dissolves very rapidly in water); Ores (Lithium carbonate fusion in graphite crucible followed by HCl dissolution - blank levels of Na in lithium carbonate critical); Organic Matrices (Sulfuric / peroxide digestion or nitric/sulfuric/perchloric acid decomposition).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 23 amu	310 ppt	n/a	46Ti+2 , 46Ca+2
ICP-OES 330.237 nm	2.0 / 0.09 µg/mL	1	Pd, Zn
ICP-OES 588.995 nm	0.03 / 0.006 µg/mL	1	2nd order radiation from R.E.s on some optical designs
ICP-OES 589.595 nm	0.07 / 0.00009 µg/mL	1	2nd order radiation from R.E.s on some optical designs

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 20, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 20, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

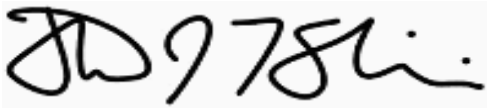
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGU1
Lot Number:	S2-U707914
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Uranium
Starting Material:	Uranyl Nitrate Hexahydrate
Starting Material Lot#:	P2-2322
Starting Material Purity:	99.9997%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 5 µg/mL

Density: 1.010 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **998 ± 5 µg/mL**
ICP Assay NIST SRM 3164 Lot Number: 080521

Assay Method #2 **1001 ± 6 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

Isotope	Atom %
Uranium 238U	99.8 ± 0.1
Uranium 235U	0.19 ± 0.05

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000270	M	Eu	<	0.000270	M	Na	<	0.011000	M	Se	<	0.009300	M	Zn	0.002358
M	Al	<	0.011000	M	Fe		0.003222	M	Nb	<	0.000270	M	Si	<	0.160000	M	Zr	< 0.001100
M	As	<	0.002400	M	Ga	<	0.000270	M	Nd	<	0.000270	M	Sm	<	0.000270			
M	Au	<	0.000270	M	Gd	<	0.000270	M	Ni	<	0.020000	M	Sn	<	0.011000			
M	B	<	0.000270	M	Ge	<	0.000800	M	Os	<	0.001900	M	Sr	<	0.000270			
M	Ba	<	0.003800	M	Hf	<	0.000270	i	P	<		M	Ta	<	0.000270			
M	Be	<	0.000270	M	Hg	<	0.000540	M	Pb	<	0.002200	M	Tb	<	0.000270			
M	Bi	<	0.000270	M	Ho	<	0.000270	M	Pd	<	0.000540	M	Te	<	0.003800			
M	Ca	<	0.140000	M	In	<	0.000270	M	Pr	<	0.000270	M	Th		0.000129			
M	Cd	<	0.000270	M	Ir	<	0.000270	M	Pt	<	0.000270	M	Ti	<	0.002700			
M	Ce	<	0.000540	O	K	<	0.250000	M	Rb	<	0.000800	M	Tl	<	0.000270			
M	Co	<	0.000800	M	La		0.000117	M	Re	<	0.064000	M	Tm	<	0.000270			
M	Cr		0.000943	M	Li	<	0.003000	M	Rh	<	0.000270	s	U	<				
M	Cs		0.000106	M	Lu	<	0.000270	M	Ru	<	0.000540	M	V	<	0.000540			
M	Cu	<	0.001100	M	Mg	<	0.003000	i	S	<		M	W	<	0.000540			
M	Dy	<	0.000270	M	Mn	<	0.006900	M	Sb	<	0.000270	M	Y	<	0.000270			
M	Er	<	0.000270	M	Mo	<	0.006400	M	Sc	<	0.000540	M	Yb	<	0.000270			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 238.03 +6 8 UO_2^{2+}(uranyl)
Chemical Compatibility - Soluble in HCl and HNO_3. Avoid H_3PO_4. H_2SO_4 and HF matrices should not be a problem depending upon [U]. Although the UO_2^{2+} ion is distinctly basic, any U^{+4} will precipitate in basic media. UO_2^{2+}salts are generally soluble in water and UO_2^{2+} is stable with most metals and inorganic anions. The uranyl phosphate is insoluble in water. UF_4 and UF_6 are water soluble.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO_3 / LDPE container.
U Containing Samples (Preparation and Solution) -Metal (Dissolves rapidly in HCl and HNO_3); Oxide (Soluble in HNO_3); Ores (Digest for 1-2 hours with 1 gram of ore to 30 mL 1:1 HNO_3. Silica insolubles are removed by filtration after bringing the sample to fumes with conc. H_2SO_4.)
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 238 amu	2 ppt	N/A	206Pb16O2
ICP-OES 263.553 nm	0.3 / 0.01 µg/mL	1	Ce, Ir, Th, Rh, W, Zr, Ta, Ti, V, Hf, Fe, Re, Ru
ICP-OES 367.007 nm	0.3 / 0.02 µg/mL	1	Th, Ce
ICP-OES 385.958 nm	0.3 / 0.01 µg/mL	1	Th, Fe

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 28, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 28, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Certificate of Analysis

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Refine your results. Redefine your industry.

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inorganicventures.com

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	AR-ICVMS-2
Lot Number:	T2-MEB719895
Matrix:	3% (v/v) HNO3 tr. HF
Value / Analyte(s):	2.5 µg/mL ea: Molybdenum, Antimony

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	**2.499 ± 0.015 µg/mL**	**Molybdenum, Mo**	**2.500 ± 0.017 µg/mL**

Density: 1.014 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
Sb	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 06, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 06, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

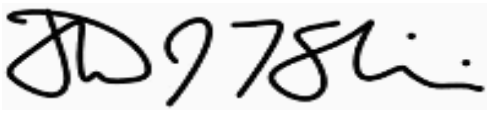
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	AR-ICVMS-3
Lot Number:	T2-MEB719896
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	250 µg/mL ea:

Aluminum, Calcium,
Iron, Potassium,
Magnesium, Sodium,

4 µg/mL ea:
Selenium,

2.5 µg/mL ea:

Thorium,	Thallium,
Uranium,	Vanadium,
Zinc,	Manganese,
Cadmium,	Cobalt,
Chromium,	Copper,
Arsenic,	Barium,
Beryllium,	Nickel,
Lead,	Silver

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	250.0 ± 0.9 µg/mL	Arsenic, As	2.500 ± 0.018 µg/mL
Barium, Ba	2.501 ± 0.013 µg/mL	Beryllium, Be	2.501 ± 0.015 µg/mL
Cadmium, Cd	2.501 ± 0.013 µg/mL	Calcium, Ca	250.0 ± 1.3 µg/mL
Chromium, Cr	2.500 ± 0.015 µg/mL	Cobalt, Co	2.500 ± 0.014 µg/mL
Copper, Cu	2.500 ± 0.014 µg/mL	Iron, Fe	250.0 ± 1.0 µg/mL
Lead, Pb	2.500 ± 0.013 µg/mL	Magnesium, Mg	250.0 ± 1.3 µg/mL
Manganese, Mn	2.500 ± 0.014 µg/mL	Nickel, Ni	2.500 ± 0.014 µg/mL
Potassium, K	250.0 ± 1.2 µg/mL	Selenium, Se	4.002 ± 0.024 µg/mL
Silver, Ag	2.501 ± 0.017 µg/mL	Sodium, Na	250.0 ± 1.2 µg/mL
Thallium, Tl	2.500 ± 0.017 µg/mL	Thorium, Th	2.499 ± 0.013 µg/mL
Uranium, U	2.501 ± 0.015 µg/mL	Vanadium, V	2.500 ± 0.014 µg/mL
Zinc, Zn	2.500 ± 0.014 µg/mL		

Density: 1.042 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Ag	Calculated		See Sec. 4.2
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
Ba	ICP Assay	3104a	140909
Ba	Calculated		See Sec. 4.2
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Cd	Calculated		See Sec. 4.2
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Co	Calculated		See Sec. 4.2
Cr	ICP Assay	3112a	170630
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Cu	Calculated		See Sec. 4.2
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Mn	Calculated		See Sec. 4.2
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Ni	Calculated		See Sec. 4.2
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Pb	Calculated		See Sec. 4.2
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Th	EDTA	928	928
Th	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
Tl	Calculated		See Sec. 4.2
U	ICP Assay	3164	080521
U	Calculated		See Sec. 4.2

V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928
Zn	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

Isotope	Atom %
Uranium 238U	99.8 ± 0.1
Uranium 235U	0.19 ± 0.05

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

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10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 06, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 06, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

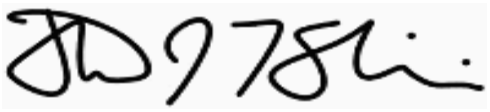
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	AR-6020ICS-0A10
Lot Number:	T2-MEB719898
Matrix:	1.4% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Chloride,
	200 µg/mL ea: Carbon,
	100 µg/mL ea: Calcium, Aluminum, Iron, Potassium, Magnesium, Sodium, Phosphorus, Sulfur,
	2 µg/mL ea: Titanium, Molybdenum

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	**100.0 ± 0.4 µg/mL**	**Calcium, Ca**	**100.0 ± 0.5 µg/mL**
Carbon, C	**200.1 ± 0.5 µg/mL**	**Chloride, Cl**	**1 000 ± 5 µg/mL**
Iron, Fe	**100.0 ± 0.5 µg/mL**	**Magnesium, Mg**	**100.0 ± 0.5 µg/mL**
Molybdenum, Mo	**2.001 ± 0.014 µg/mL**	**Phosphorus, P**	**100.0 ± 0.6 µg/mL**
Potassium, K	**100.0 ± 0.5 µg/mL**	**Sodium, Na**	**100.0 ± 0.5 µg/mL**
Sulfur, S	**100.0 ± 0.5 µg/mL**	**Titanium, Ti**	**2.001 ± 0.015 µg/mL**

Density: 1.009 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
C	Acidimetric	84L	84L
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cl	Acidimetric	84L	84L
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mo	ICP Assay	3134	130418
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
S	Acidimetric	84L	84L
S	ICP Assay	traceable to 3154	P2-S680745
Ti	ICP Assay	3162a	130925

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 07, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **June 07, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

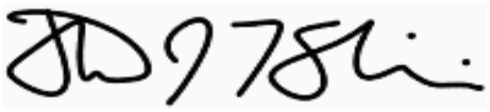
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT635A

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-01 C	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	02/24/23 14:09	File ID:	
% Solids:	58.74	Preparation:	No Prep Wet Chem	Analyzed:	02/24/23 14:12
Batch:	BLB0652	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	58.74	1	0.04	0.04	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT635B

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-02 C	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	02/24/23 14:09	File ID:	
% Solids:	67.23	Preparation:	No Prep Wet Chem	Analyzed:	02/24/23 14:12
Batch:	BLB0652	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	67.23	1	0.04	0.04	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT635C

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-03 B	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	02/24/23 14:09	File ID:	
% Solids:	60.38	Preparation:	No Prep Wet Chem	Analyzed:	02/24/23 14:12
Batch:	BLB0652	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	60.38	1	0.04	0.04	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT635D

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-04 B	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	02/24/23 14:09	File ID:	
% Solids:	38.64	Preparation:	No Prep Wet Chem	Analyzed:	02/24/23 14:12
Batch:	BLB0652	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	38.64	1	0.04	0.04	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW22-IT789M

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-05 A	SDG:	23B0494
Sampled:	12/08/22 08:17	Prepared:	02/24/23 14:09	File ID:	
% Solids:	81.61	Preparation:	No Prep Wet Chem	Analyzed:	02/24/23 14:12
Batch:	BLB0652	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	81.61	1	0.04	0.04	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW22-IT789N

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-06 A	SDG:	23B0494
Sampled:	12/08/22 08:17	Prepared:	02/24/23 14:09	File ID:	
% Solids:	74.04	Preparation:	No Prep Wet Chem	Analyzed:	02/24/23 14:12
Batch:	BLB0652	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	74.04	1	0.04	0.04	

PREPARATION BATCH SUMMARY

SM 2540 G-97

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Batch: BLB0652 Batch Matrix: Solid
Preparation: No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT635A	23B0494-01		02/24/23 14:09	
LDW21-IT635B	23B0494-02		02/24/23 14:09	
LDW21-IT635C	23B0494-03		02/24/23 14:09	
LDW21-IT635D	23B0494-04		02/24/23 14:09	
LDW22-IT789M	23B0494-05		02/24/23 14:09	
LDW22-IT789N	23B0494-06		02/24/23 14:09	
Blank	BLB0652-BLK1		02/24/23 14:09	
LDW21-IT635A	BLB0652-DUP1		02/24/23 14:09	
LDW21-IT635A	BLB0652-DUP2		02/24/23 14:09	

TOTAL SOLIDS/VOLATILE SOLIDS (TS / TVS) BENCHSHEET for Solid samples

Method: PSEP 1986, SM2540, EPA 160.1

(dry at 104 (12-24 hr) then combust at 550 (30 min))

Batch:	BLB0652
Date:	2/24/2023 14:12
Analyst:	UW

Instrumentation			
Drying Ovens:	12	**Analytical Balance:**	BAL2
Muffle Furnace:	2		

Batch drying time				**Oven Temps, °C**	
record times as mm/dd/yy hh:mm		TS (%) calculated as:		Start Temp	104
date/time in oven:	2/24/2023 14:40	Final dry wt (g) = (Dry Wt - Tare Wt)		Dry Cycle 1	105
date/time out:	2/27/2023 8:15	TS = (Final Dry Wt)/ (grams Sample-Tare)		Dry Cycle 2	
elapsed hrs =	65.6	> 24 hr		Dry Cycle 3	

TVS (mg/kg dry wt) calculated as:
Final ash wt (g) = (min ash wt - tare wt)
TVS (mg/kg) = [(Dry wt-Ash wt)/ (dry weight)] *1,000,000
if ash wt > dry wt, "Chk for Err"
if dry wt-ash wt < 0.001 g, "< (1/dry wt)*1,000,000

Balance Calibration Check

Record weights to 4 places										
	Cal Weight ID:	CV-02	CV-02	CV-02	CV-02	CV-02	CV-02	CV-02	CV-02	
	Date & Time:	2/24/23 14:14	2/24/23 14:22	2/27/23 9:20						
Cal Wt (g):	10.0000	10.0000	10.0000	10.0000						
		Cal OK!	Cal OK!	Cal OK!						

Sample ID	**Dish #**	**Tare Wt. (g)**	**Dish & Sample (g)**	**Dry Wt 104C (grams) 1**	**2**	**3**	**dry Wt (g)**	**TS (%)**	**Notes**	**ASH WT 550C (grams) 1**	**2**	**3**	**Ash Wt (g)**	**TVS (mg/kg)**	**(%)**	**Notes**
BLB0652-BLK1	1	0.8004	0.0000	0.8004			0.0000	0.00%								
23B0314-01	2	0.8058	5.9227	5.2886			4.4828	87.61%								
23B0314-02	3	0.8099	7.9666	7.3215			6.5116	90.99%								
23B0473-02	4	0.7894	5.1751	2.0005			1.2111	27.61%								
23B0473-03	5	0.8194	4.7836	3.3303			2.5109	63.34%								
23B0491-01	6	0.8128	5.9760	4.0186			3.2058	62.09%								
23B0491-02	7	0.8199	7.8400	5.0924			4.2725	60.86%								
23B0494-01	8	0.7683	7.9237	4.9714			4.2031	58.74%								
BLB0652-DUP1	9	0.8029	7.9641	5.0205			4.2176	58.90%	RPD=0.3							
BLB0652-DUP2	10	0.8080	8.1379	5.1166			4.3086	58.78%	RSD=0.1							
23B0494-02	11	0.7948	8.9900	6.3048			5.5100	67.23%								
23B0494-03	12	0.8295	8.5960	5.5187			4.6892	60.38%								
23B0494-04	13	0.7966	7.4336	3.3611			2.5645	38.64%								
23B0494-05	14	0.8084	8.0618	6.7277			5.9193	81.61%								
23B0494-06	15	0.8043	9.9075	7.5439			6.7396	74.04%								
23B0504-02	16	0.8035	6.0286	2.4453			1.6418	31.42%								
23B0504-03	17	0.7773	5.1041	3.5806			2.8033	64.79%								

NOTE: Do not enter data in blue shaded cells as they are calculated fields. Green shaded cells MAY be altered if a rewigh is called for.

TOTAL SOLIDS (TS) BENCHSHEET for Solid samples

Method: Total Solids, Metals Correction

dry at 104°C (12-24 hr)

Batch:	BLB0720
Date:	2/28/2023 14:14
Analyst:	ML

Instrumentation

Drying Oven:	7
Analytical Balance:	10

Batch drying time

record times as mm/dd/yy hh:mm

date/time in oven:	2/28/2023 15:55	
date/time out:	3/1/2023 15:52	
elapsed hrs =	24.0	OK

Temp in:	105	°C
Temp out:	104	°C

TS (%) calculated as:
Final dry wt (g) = (Dry Wt - Tare Wt)
TS = (Final Dry Wt)/ (grams Sample-Tare)

Sample ID	Tare Weight (g)	Tare + Sample Weight (g)	Tare + Sample Dry Weight @ 104°C (g) 1	2	3	dry Wt (g)	TS (%)	Notes
23B0261-10	1.0220	10.0080	7.3150			6.2930	70.03%	
23B0406-01	1.0290	10.0340	9.0830			8.0540	89.44%	
23B0410-01	0.9900	10.0190	5.5200			4.5300	50.17%	
23B0410-02	1.0350	10.0120	6.1570			5.1220	57.06%	
23B0410-03	1.0180	10.0440	6.6010			5.5830	61.85%	
23B0410-04	1.0110	10.0610	6.0690			5.0580	55.89%	
23B0410-05	1.0250	10.0330	6.0170			4.9920	55.42%	
23B0410-06	1.0110	10.0510	8.0300			7.0190	77.64%	
23B0410-07	1.0400	10.0670	8.1250			7.0850	78.49%	
23B0410-08	1.0150	10.0040	7.2210			6.2060	69.04%	
23B0410-09	1.0250	10.0250	7.0920			6.0670	67.41%	
23B0410-10	1.0300	10.0570	7.0710			6.0410	66.92%	
23B0410-11	1.0050	10.0310	5.9840			4.9790	55.16%	
23B0410-12	1.0150	10.0880	6.2800			5.2650	58.03%	
23B0410-13	1.0330	10.0690	6.1980			5.1650	57.16%	
23B0410-14	1.0130	10.0360	6.2190			5.2060	57.70%	
23B0410-15	1.0090	10.0990	6.2030			5.1940	57.14%	
23B0410-16	1.0340	10.0490	6.3250			5.2910	58.69%	
23B0410-17	0.9950	10.0400	6.6850			5.6900	62.91%	
23B0410-18	1.0010	10.0280	6.2720			5.2710	58.39%	
23B0410-19	1.0570	10.0050	6.3450			5.2880	59.10%	
23B0491-01	1.0220	10.0250	6.6780			5.6560	62.82%	
23B0491-02	1.0480	10.0200	6.6410			5.5930	62.34%	
23B0494-05	1.0390	10.0200	8.4950			7.4560	83.02%	
23B0494-06	1.0450	10.0980	7.7390			6.6940	73.94%	
23B0516-01	1.0320	10.0520	7.3740			6.3420	70.31%	
23B0517-01	1.0630	10.0840	4.5660			3.5030	38.83%	
23B0517-02	1.0560	10.0200	4.4850			3.4290	38.25%	

Form I

METHOD BLANK DATA SHEET

SM 2540 G-97

TotalAnalytes

Blank

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Batch: BLB0652
Laboratory ID: BLB0652-BLK1
Prepared: 02/24/23 14:09
Matrix: Solid
Preparation: No Prep Wet Chem
Analyzed: 02/24/23 14:12
Sequence:
Calibration:
Instrument: BAL2

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	ND	1	0.04	0.04	U

DUPLICATES

SM 2540 G-97

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Laboratory ID: BLB0652-DUP1
Batch: BLB0652
Lab Source ID: 23B0494-01
Preparation: No Prep Wet Chem
Initial/Final: 5 g / 5 g
Source Sample Name: LDW21-IT635A
% Solids: 58.74

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Total Solids	20	58.74	58.90	0.263	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

DUPLICATES

SM 2540 G-97

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Laboratory ID: BLB0652-DUP2
Batch: BLB0652
Lab Source ID: 23B0494-01
Preparation: No Prep Wet Chem
Initial/Final: 5 g / 5 g
Source Sample Name: LDW21-IT635A
% Solids: 58.74

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Total Solids	20	58.74	58.78	0.0696	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

HOLDING TIME SUMMARY

Analysis: SM 2540 G-97

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LDW21-IT635A 23B0494-01	07/16/21 12:56	02/24/23 08:41	02/24/23 14:09	588	180	02/24/23 14:12	588	180	*
LDW21-IT635B 23B0494-02	07/16/21 12:56	02/24/23 08:41	02/24/23 14:09	588	180	02/24/23 14:12	588	180	*
LDW21-IT635C 23B0494-03	07/16/21 12:56	02/24/23 08:41	02/24/23 14:09	588	180	02/24/23 14:12	588	180	*
LDW21-IT635D 23B0494-04	07/16/21 12:56	02/24/23 08:41	02/24/23 14:09	588	180	02/24/23 14:12	588	180	*
LDW22-IT789M 23B0494-05	12/08/22 08:17	02/24/23 08:41	02/24/23 14:09	78	180	02/24/23 14:12	78	180	
LDW22-IT789N 23B0494-06	12/08/22 08:17	02/24/23 08:41	02/24/23 14:09	78	180	02/24/23 14:12	78	180	
Duplicate BLB0652-DUP1	07/16/21 12:56	02/24/23 08:41	02/24/23 14:09	588	180	02/24/23 14:12	588	180	*
Duplicate BLB0652-DUP2	07/16/21 12:56	02/24/23 08:41	02/24/23 14:09	588	180	02/24/23 14:12	588	180	*

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

SM 2540 G-97

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids	0.04	0.04	%

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT635A

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-01 C	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	03/01/23 17:36	File ID:	CubeData_03062023@1641-021
% Solids:	58.74	Preparation:	No Prep Wet Chem	Analyzed:	03/03/23 03:23
Batch:	BLC0025	Sequence:	SLC0025	Initial/Final:	0.2624 g Wet / 0.2624 g
Instrument:	TOC Cube			Calibration:	FD00070

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.72	1	0.02	0.02	H

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT635B

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-02 C	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	03/01/23 17:36	File ID:	CubeData_03062023@1641-024
% Solids:	67.23	Preparation:	No Prep Wet Chem	Analyzed:	03/03/23 04:54
Batch:	BLC0025	Sequence:	SLC0025	Initial/Final:	0.3834 g Wet / 0.3834 g
Instrument:	TOC Cube			Calibration:	FD00070

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.80	1	0.02	0.02	H

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT635C

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-03 B	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	03/01/23 17:36	File ID:	CubeData_03062023@1641-025
% Solids:	60.38	Preparation:	No Prep Wet Chem	Analyzed:	03/03/23 05:25
Batch:	BLC0025	Sequence:	SLC0025	Initial/Final:	0.388 g Wet / 0.388 g
Instrument:	TOC Cube			Calibration:	FD00070

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	5.09	1	0.02	0.02	H

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT635D

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-04 B	SDG:	23B0494
Sampled:	07/16/21 12:56	Prepared:	03/01/23 17:36	File ID:	CubeData_03062023@1641-026
% Solids:	38.64	Preparation:	No Prep Wet Chem	Analyzed:	03/03/23 05:55
Batch:	BLC0025	Sequence:	SLC0025	Initial/Final:	0.756 g Wet / 0.756 g
Instrument:	TOC Cube			Calibration:	FD00070

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	4.52	1	0.02	0.02	H

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW22-IT789M

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-05 A	SDG:	23B0494
Sampled:	12/08/22 08:17	Prepared:	03/01/23 17:36	File ID:	CubeData_03062023@1641-029
% Solids:	81.61	Preparation:	No Prep Wet Chem	Analyzed:	03/03/23 07:26
Batch:	BLC0025	Sequence:	SLC0025	Initial/Final:	0.5213 g Wet / 0.5213 g
Instrument:	TOC Cube			Calibration:	FD00070

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	0.04	1	0.02	0.02	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW22-IT789N

Laboratory:	Analytical Resources, LLC				
Client:	Anchor QEA, LLC				
Project:	AOC4 UR Phase 3				
Matrix:	Sediment	Laboratory ID:	23B0494-06 A	SDG:	23B0494
Sampled:	12/08/22 08:17	Prepared:	03/01/23 17:36	File ID:	CubeData_03062023@1641-030
% Solids:	74.04	Preparation:	No Prep Wet Chem	Analyzed:	03/03/23 07:56
Batch:	BLC0025	Sequence:	SLC0025	Initial/Final:	0.6462 g Wet / 0.6462 g
Instrument:	TOC Cube			Calibration:	FD00070

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	0.34	1	0.02	0.02	

Analytical Resources, LLC
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 9060A m

Laboratory:	Analytical Resources, LLC			SDG:	23B0494
Client:	Anchor QEA, LLC			Project:	AOC4 UR Phase 3
Batch:	BLC0025	Batch Matrix:	Solid	Preparation:	No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT635A	23B0494-01	eData_03062023@1641-	03/01/23 17:36	
LDW21-IT635B	23B0494-02	eData_03062023@1641-	03/01/23 17:36	
LDW21-IT635C	23B0494-03	eData_03062023@1641-	03/01/23 17:36	
LDW21-IT635D	23B0494-04	eData_03062023@1641-	03/01/23 17:36	
LDW22-IT789M	23B0494-05	eData_03062023@1641-	03/01/23 17:36	
LDW22-IT789N	23B0494-06	eData_03062023@1641-	03/01/23 17:36	
Blank	BLC0025-BLK1	eData_03062023@1641-	03/01/23 17:36	
LCS	BLC0025-BS1	eData_03062023@1641-	03/01/23 17:36	
LDW21-IT635A	BLC0025-DUP3	eData_03062023@1641-	03/01/23 17:36	
MRL Check	BLC0025-MRL1	eData_03062023@1641-	03/01/23 17:36	
LDW21-IT635A	BLC0025-MS2	eData_03062023@1641-	03/01/23 17:36	
Reference	BLC0025-SRM1	eData_03062023@1641-	03/01/23 17:36	

Form I

METHOD BLANK DATA SHEET

EPA 9060A m

TotalAnalytes

Blank

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Batch: BLC0025
Laboratory ID: BLC0025-BLK1
Prepared: 03/01/23 17:36
Matrix: Solid
Preparation: No Prep Wet Chem
Analyzed: 03/02/23 20:19
Sequence: SLC0025
Calibration: FD00070
Instrument: TOC Cube

CAS NO.	Analyte	Concentration (% wet)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	ND	1	0.02	0.02	U

LCS / LCS DUPLICATE RECOVERY

EPA 9060A m

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Matrix:	Solid	Analyzed:	03/02/23 20:50
Batch:	BLC0025	Laboratory ID:	BLC0025-BS1
Preparation:	No Prep Wet Chem	Sequence Name:	LCS
Initial/Final:	0.0266 g / 0.0266 g		

COMPOUND	SPIKE ADDED (% wet)	LCS CONCENTRATION (% wet)	Q	LCS % REC. #	QC LIMITS REC.
Total Organic Carbon	44.4	44.3		99.7	80 - 120

* Indicates values outside of QC limits

LDW21-IT635A

DUPLICATES

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Laboratory ID: BLC0025-DUP3
Batch: BLC0025
Lab Source ID: 23B0494-01
Preparation: No Prep Wet Chem
Initial/Final: 0.3082 g / 0.3082 g
Source Sample Name: LDW21-IT635A
% Solids: 58.74

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Total Organic Carbon	20	1.72	1.59	7.81	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

MS / MS DUPLICATE RECOVERY
EPA 9060A m

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Matrix:	Solid	Analyzed:	03/03/23 04:24
Batch:	BLC0025	Laboratory ID:	BLC0025-MS2
Preparation:	No Prep Wet Chem	Sequence Name:	Matrix Spike
Initial/Final:	0.3629 g / 0.3629 g	Source Sample:	LDW21-IT635A

COMPOUND	SPIKE ADDED (% dry)	SAMPLE CONCENTRATION (% dry)	Q	MS CONCENTRATION (% dry)	Q	MS % REC. #	QC LIMITS REC.
Total Organic Carbon	1.56	1.72	H	3.31	H	102	75 - 125

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 9060A m

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SKD0371	Instrument:	TOC Cube
		Calibration:	FD00070

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Cal Standard	SKD0371-CAL1	CubeData_04272022@1136-001	NA	04/26/22 12:30
Cal Standard	SKD0371-CAL2	CubeData_04272022@1136-002	NA	04/26/22 13:00
Cal Standard	SKD0371-CAL3	CubeData_04272022@1136-003	NA	04/26/22 13:30
Cal Standard	SKD0371-CAL4	CubeData_04272022@1136-004	NA	04/26/22 14:00
Cal Standard	SKD0371-CAL5	CubeData_04272022@1136-005	NA	04/26/22 14:30
Cal Standard	SKD0371-CAL6	CubeData_04272022@1136-006	NA	04/26/22 15:00
Cal Standard	SKD0371-CAL7	CubeData_04272022@1136-007	NA	04/26/22 15:30
Cal Standard	SKD0371-CAL8	CubeData_04272022@1136-008	NA	04/26/22 16:00
Cal Standard	SKD0371-CAL9	CubeData_04272022@1136-009	NA	04/26/22 16:30
Cal Standard	SKD0371-CALA	CubeData_04272022@1136-010	NA	04/26/22 17:00
Cal Standard	SKD0371-CALB	CubeData_04272022@1136-011	NA	04/26/22 17:30
Cal Standard	SKD0371-CALC	CubeData_04272022@1136-012	NA	04/26/22 18:00
Cal Standard	SKD0371-CALD	CubeData_04272022@1136-013	NA	04/26/22 18:30
Cal Standard	SKD0371-CALE	CubeData_04272022@1136-014	NA	04/26/22 19:00
Cal Standard	SKD0371-CALF	CubeData_04272022@1136-015	NA	04/26/22 19:31
Cal Standard	SKD0371-CALG	CubeData_04272022@1136-016	NA	04/26/22 20:01
Cal Standard	SKD0371-CALH	CubeData_04272022@1136-017	NA	04/26/22 20:31
Cal Standard	SKD0371-CALI	CubeData_04272022@1136-018	NA	04/26/22 21:01
Cal Standard	SKD0371-CALJ	CubeData_04272022@1136-019	NA	04/26/22 21:31
Cal Standard	SKD0371-CALK	CubeData_04272022@1136-020	NA	04/26/22 22:01
Initial Cal Check	SKD0371-ICV1	CubeData_04272022@1136-027	NA	04/27/22 02:03
Initial Cal Blank	SKD0371-ICB1	CubeData_04272022@1136-028	NA	04/27/22 02:33
Cal Standard	SKD0371-CALL	CubeData_04272022@1136-021	NA	04/27/22 11:08
Cal Standard	SKD0371-CALM	CubeData_04272022@1136-022	NA	04/27/22 11:08
Cal Standard	SKD0371-CALN	CubeData_04272022@1136-023	NA	04/27/22 11:09
Cal Standard	SKD0371-CALO	CubeData_04272022@1136-024	NA	04/27/22 11:09

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

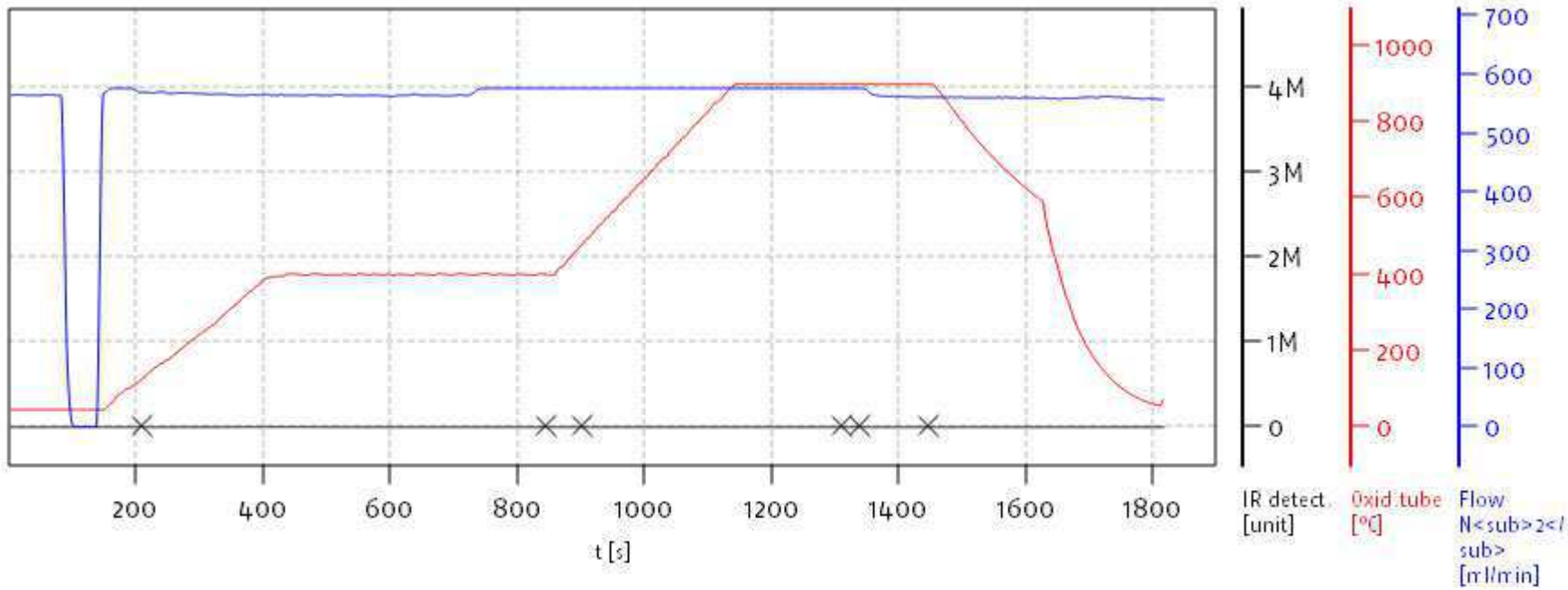
EPA 9060A m

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Sequence:	SLC0025	Instrument:	TOC Cube
		Calibration:	FD00070

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Initial Cal Check	SLC0025-ICV1	CubeData_03062023@1641-003	NA	03/02/23 18:18
Initial Cal Blank	SLC0025-ICB1	CubeData_03062023@1641-004	NA	03/02/23 18:48
MRL Check	BLC0025-MRL1	CubeData_03062023@1641-006	Solid	03/02/23 19:49
Blank	BLC0025-BLK1	CubeData_03062023@1641-007	Solid	03/02/23 20:19
LCS	BLC0025-BS1	CubeData_03062023@1641-008	Solid	03/02/23 20:50
Reference	BLC0025-SRM1	CubeData_03062023@1641-009	Solid	03/02/23 21:20
Calibration Check	SLC0025-CCV1	CubeData_03062023@1641-015	NA	03/03/23 00:21
Calibration Blank	SLC0025-CCB1	CubeData_03062023@1641-016	NA	03/03/23 00:52
LDW21-IT635A	23B0494-01	CubeData_03062023@1641-021	Solid	03/03/23 03:23
LDW21-IT635A	BLC0025-DUP3	CubeData_03062023@1641-022	Solid	03/03/23 03:54
LDW21-IT635A	BLC0025-MS2	CubeData_03062023@1641-023	Solid	03/03/23 04:24
LDW21-IT635B	23B0494-02	CubeData_03062023@1641-024	Solid	03/03/23 04:54
LDW21-IT635C	23B0494-03	CubeData_03062023@1641-025	Solid	03/03/23 05:25
LDW21-IT635D	23B0494-04	CubeData_03062023@1641-026	Solid	03/03/23 05:55
Calibration Check	SLC0025-CCV2	CubeData_03062023@1641-027	NA	03/03/23 06:25
Calibration Blank	SLC0025-CCB2	CubeData_03062023@1641-028	NA	03/03/23 06:56
LDW22-IT789M	23B0494-05	CubeData_03062023@1641-029	Solid	03/03/23 07:26
LDW22-IT789N	23B0494-06	CubeData_03062023@1641-030	Solid	03/03/23 07:56
Calibration Check	SLC0025-CCV3	CubeData_03062023@1641-031	NA	03/03/23 08:27
Calibration Blank	SLC0025-CCB3	CubeData_03062023@1641-032	NA	03/03/23 08:57

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
1	1	BLANK	1.00		CARBON	3/2/2023 4:47 PM	bl	0.000	14 884	0.000	0.000	1 809	5 184	0.000	0.000	1.0000	1.0000



Name:

Access: soliTOC superuser

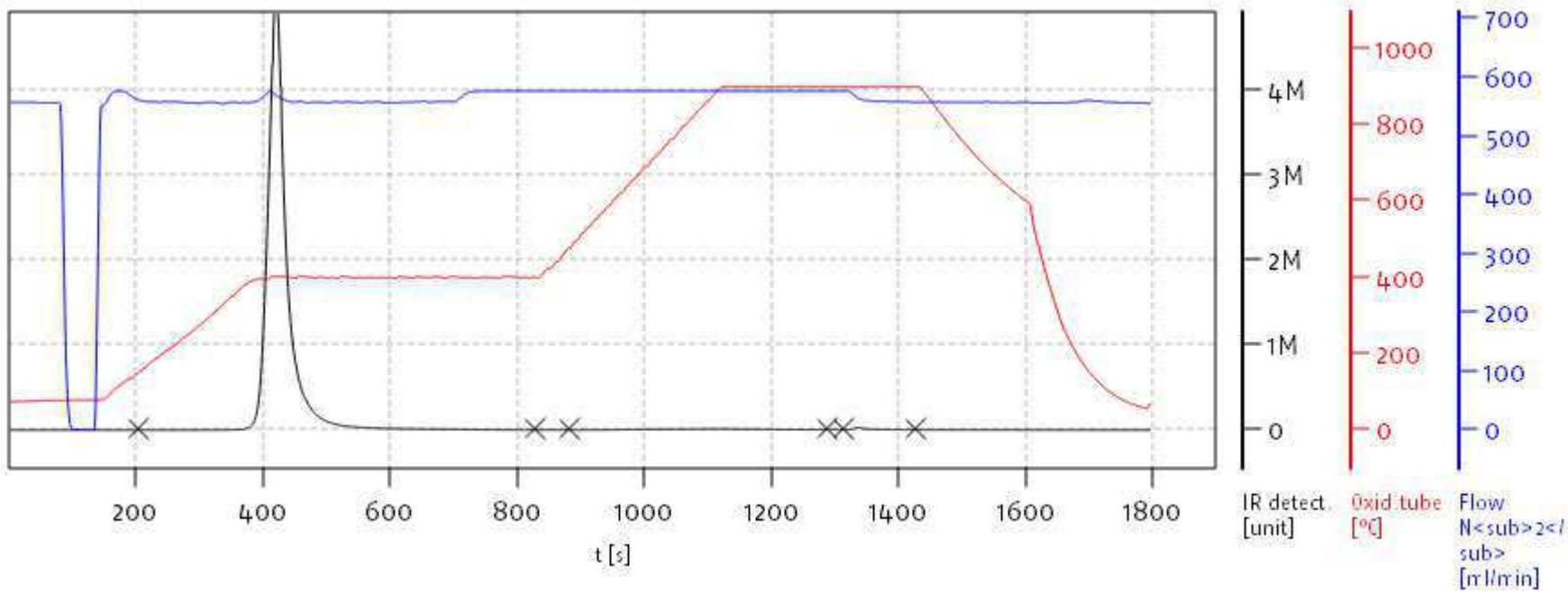
Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Document: 030123 CDE from: --.--.-- (modified)

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
2	2	Dfactor	22.20		CARBON	3/2/2023 5:17 PM	bl	44.515	6 501 819	45.103	0.069	36 430	110 975	44.446	0.589	0.9843	1.0000



Name:

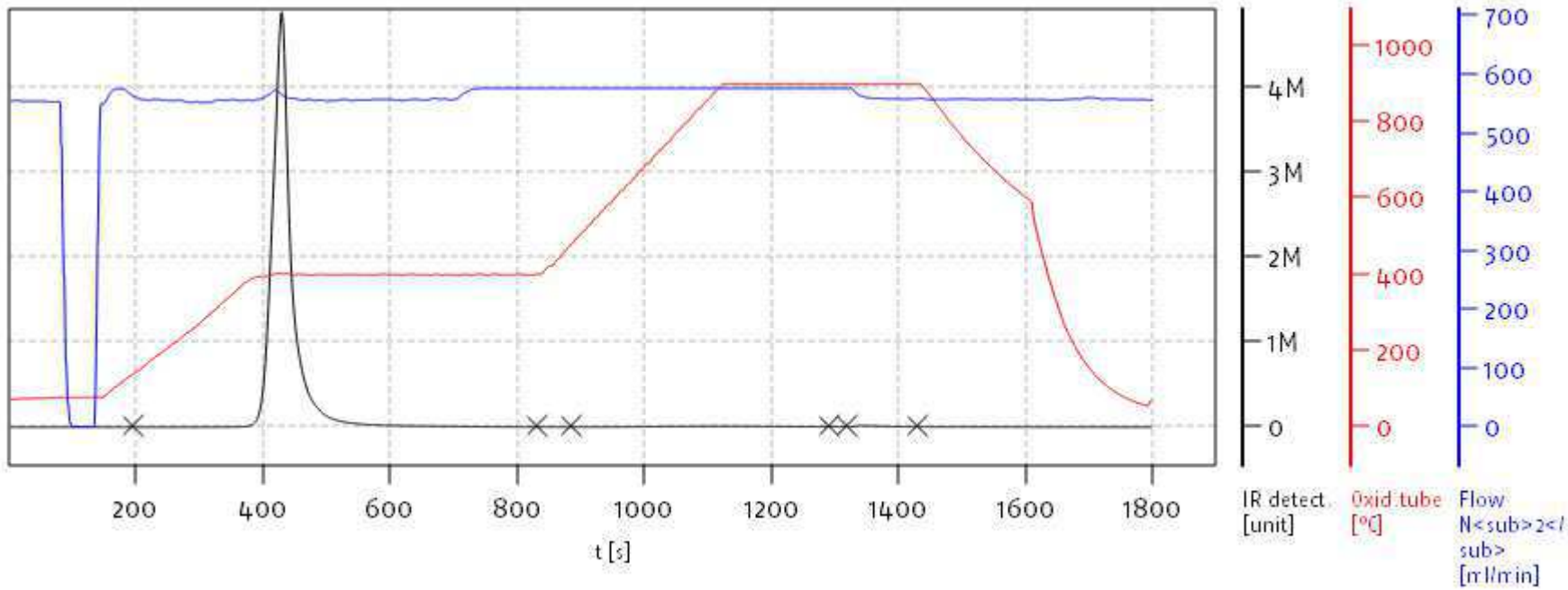
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
3	3	Dfactor	21.70		CARBON	3/2/2023 5:47 PM	bl	44.506	6 339 059	45.016	0.061	35 068	97 927	44.446	0.509	0.9870	1.0000



Name:

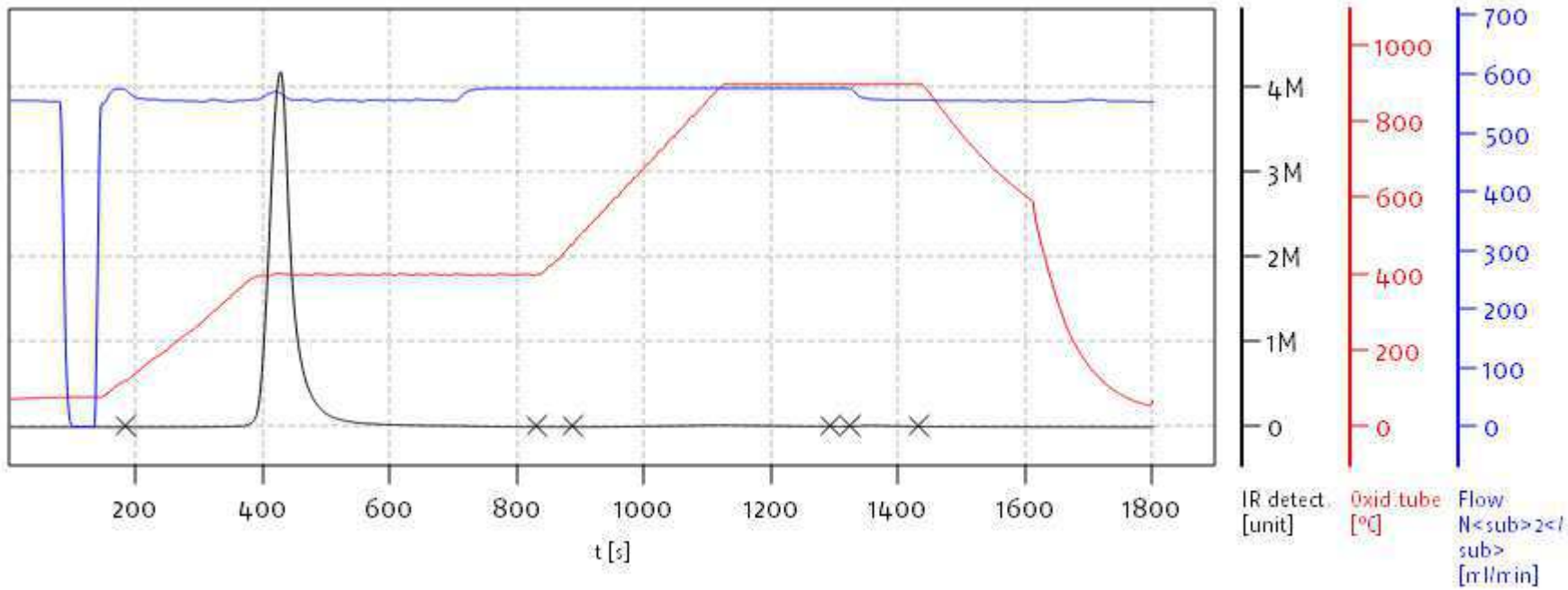
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
4	4	SLC0025-ICV1	23.80		CARBON	3/2/2023 6:18 PM	bl	43.232	6 750 481	44.206	0.125	45 682	176 342	43.107	0.974	0.9857	1.0000



Name:

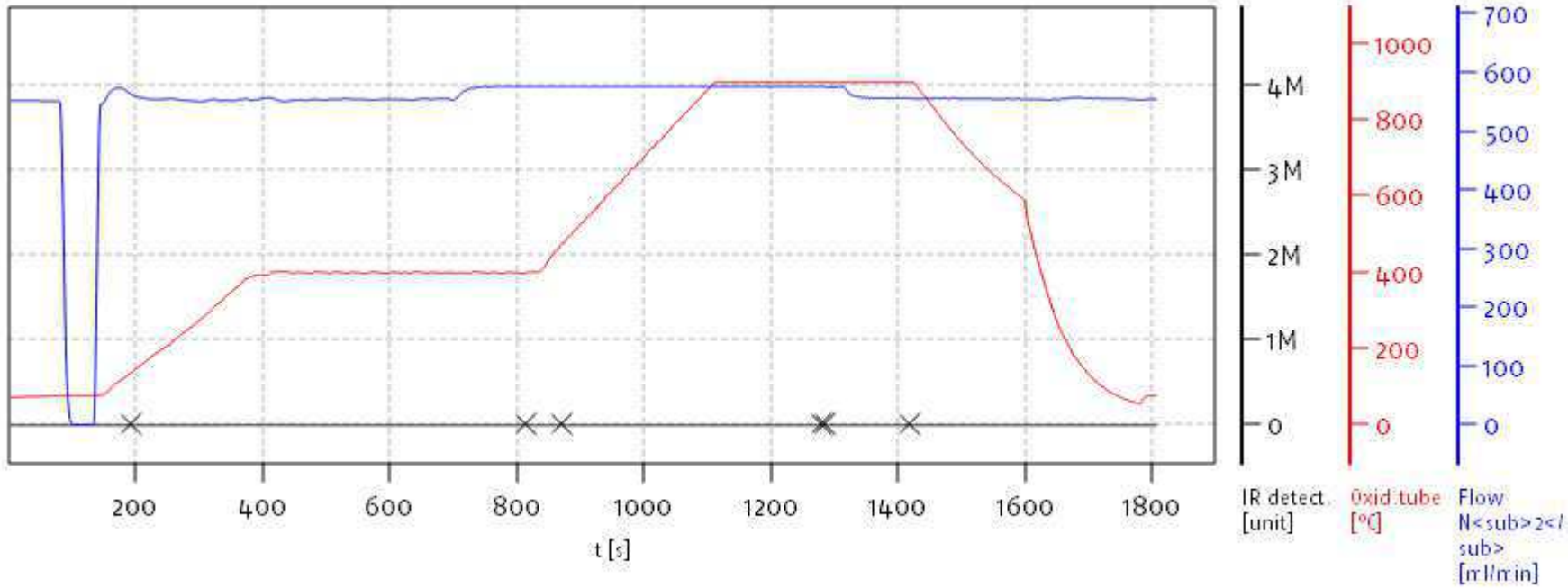
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
5	5	SLC0025-ICB1	502.50		CARBON	3/2/2023 6:48 PM	bl,C3u,C2u	0.000	5 190	0.000	0.000	1 640	687	0.000	0.000	0.9857	1.0000



Name:

Access: soliTOC superuser

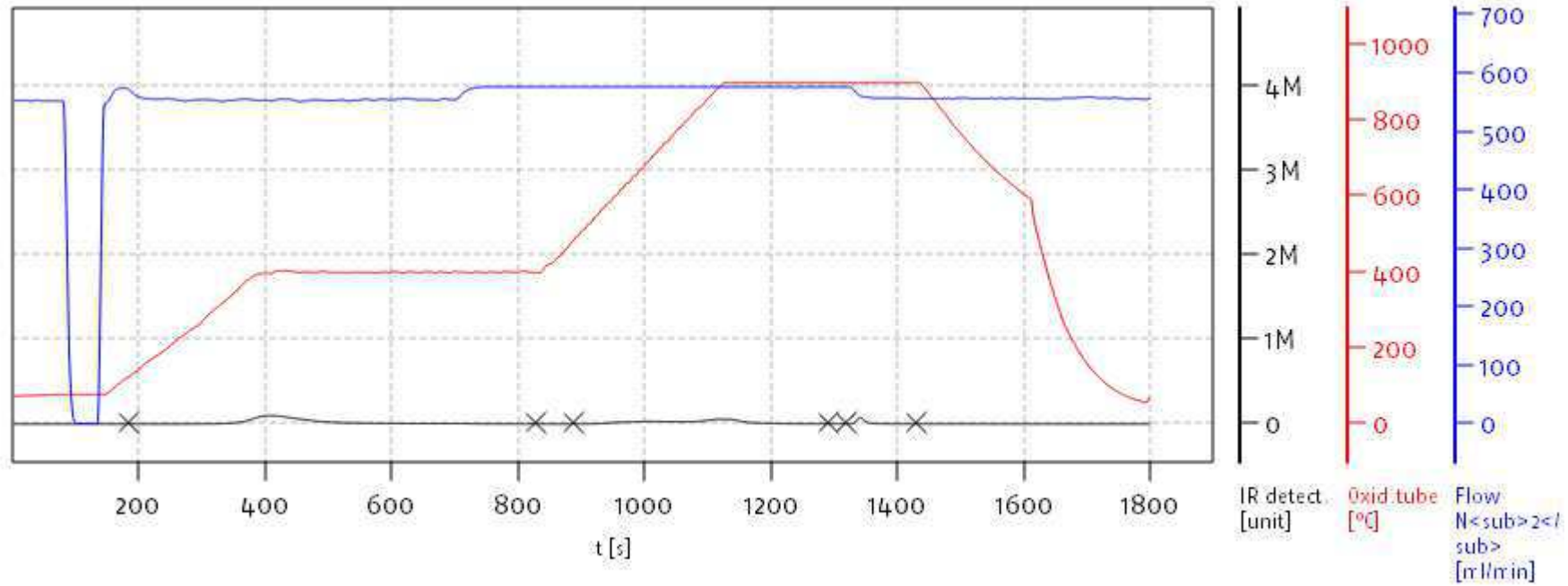
Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
6	6	23B0229-07RE1	145.00		CARBON	3/2/2023 7:19 PM	bl	0.435	417 669	0.727	0.023	48 219	299 854	0.412	0.292	0.9857	1.0000



Name:

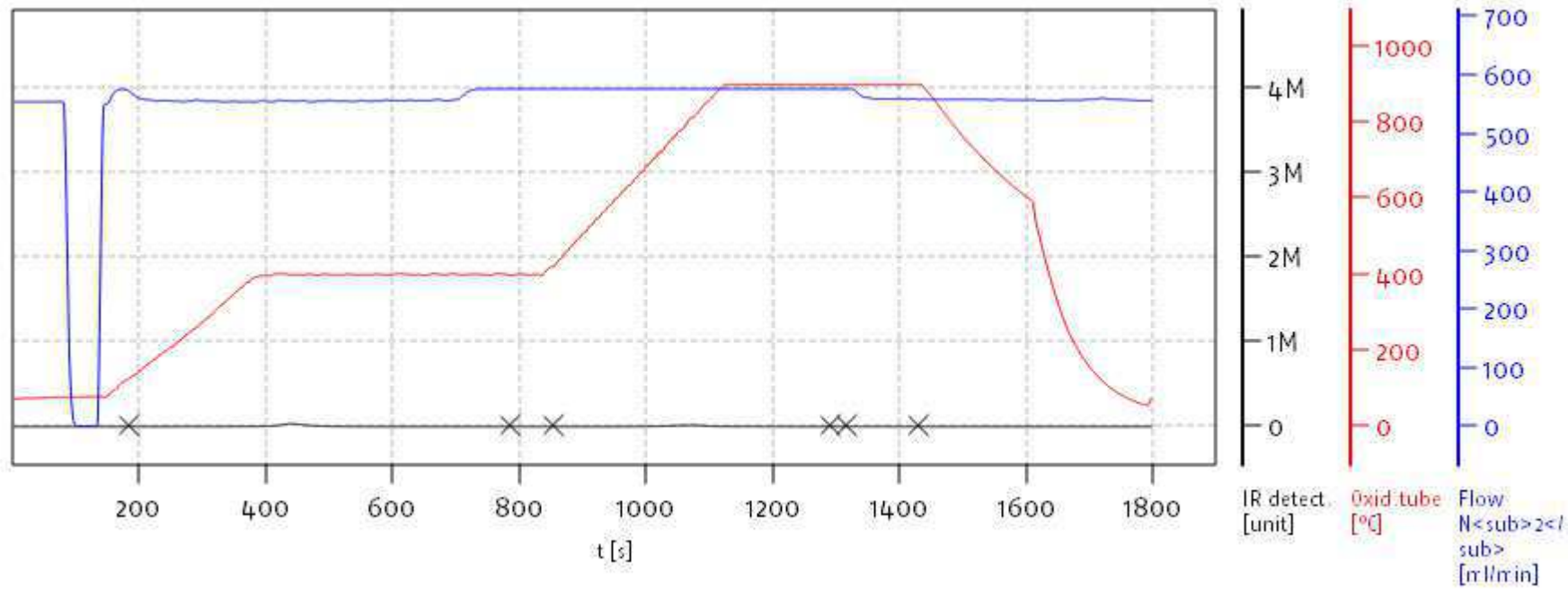
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
7	7	BLC0025-MRL1	505.60		CARBON	3/2/2023 7:49 PM	bl	0.015	75 908	0.022	0.000	3 461	48 537	0.015	0.007	0.9857	1.0000



Name:

Access: soliTOC superuser

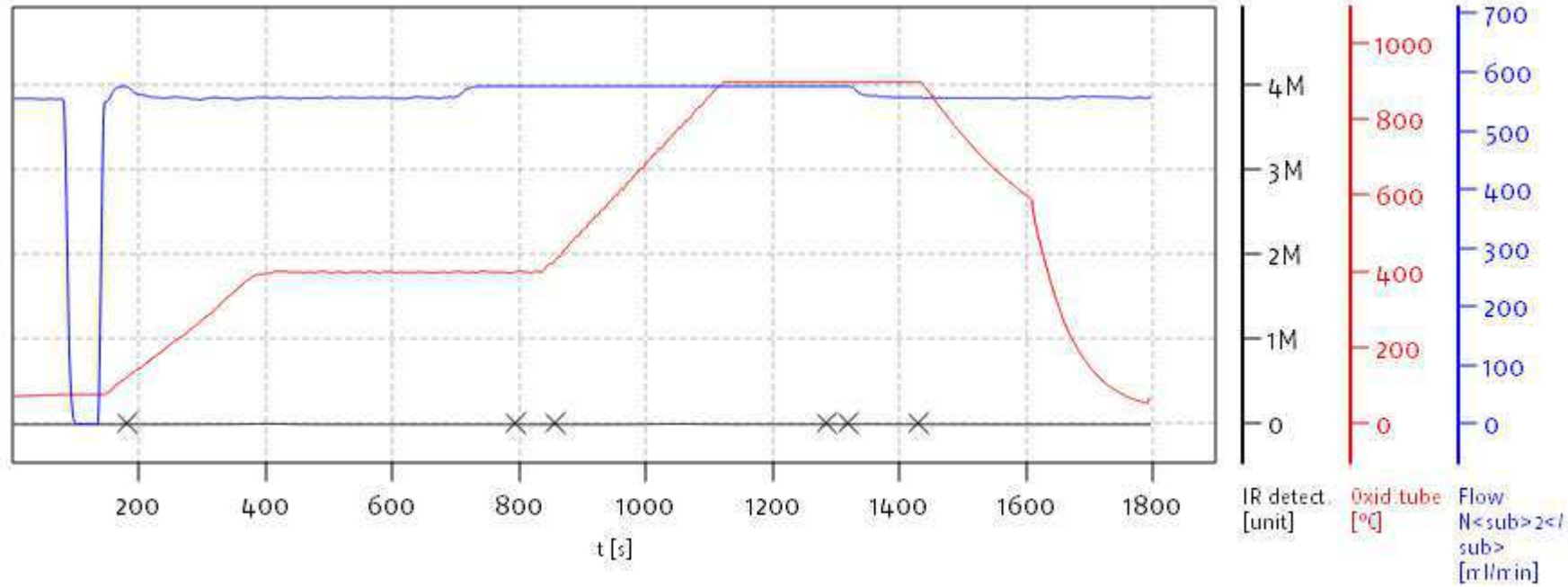
Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
8	8	BLC0025-BLK1	533.10		CARBON	3/2/2023 8:19 PM	bl	0.001	28 361	0.002	0.000	7 121	30 539	0.001	0.001	0.9857	1.0000



Name:

Access: soliTOC superuser

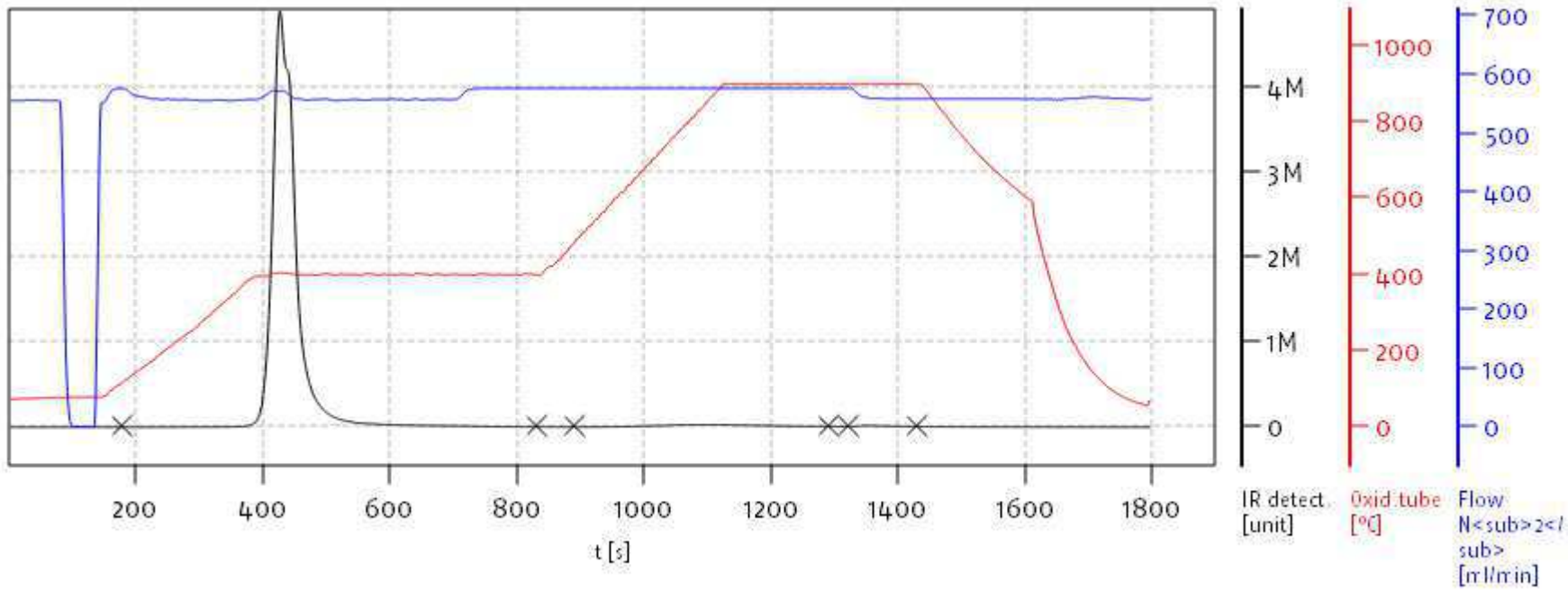
Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
9	9	BLC0025-BS1	26.60		CARBON	3/2/2023 8:50 PM	bl	44.297	7 731 807	45.428	0.098	43 337	220 932	44.199	1.131	0.9857	1.0000



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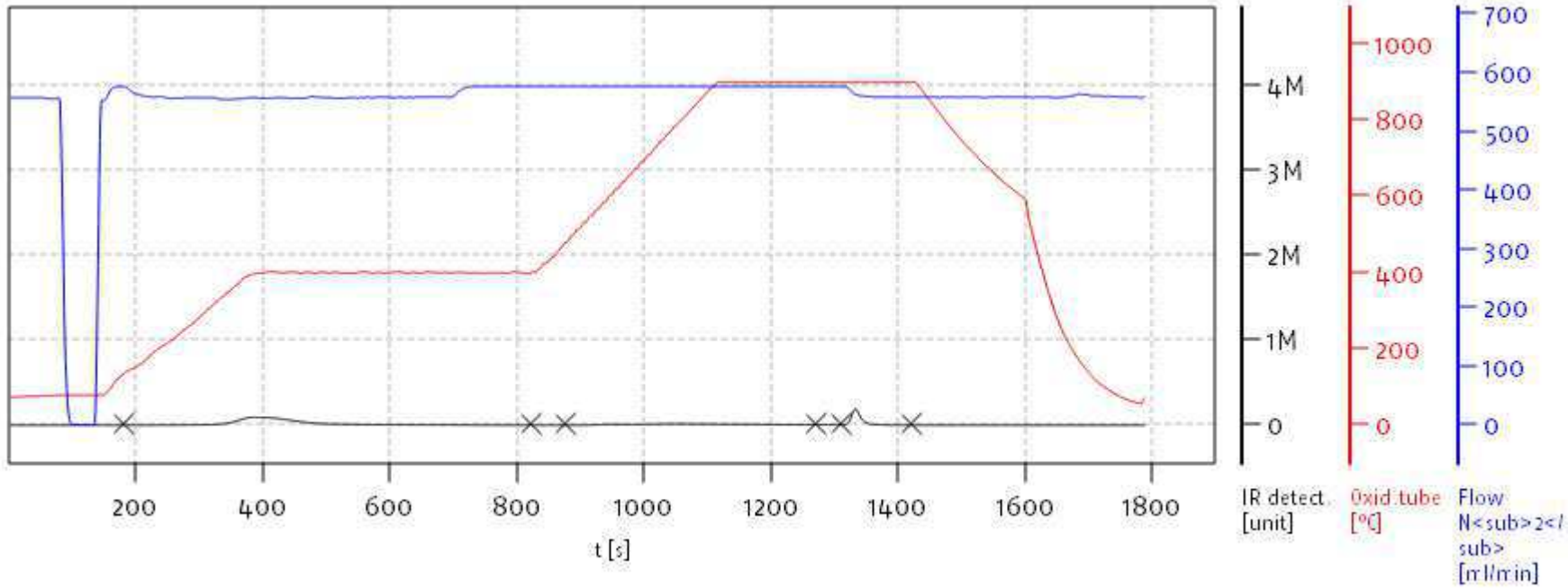
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
10	10	BLC0025-SRM1	31.10	0.0311	CARBON	3/2/2023 9:20 PM	bl	2.403	414 185	2.896	0.501	127 205	125 669	1.902	0.493	0.9857	1.0000



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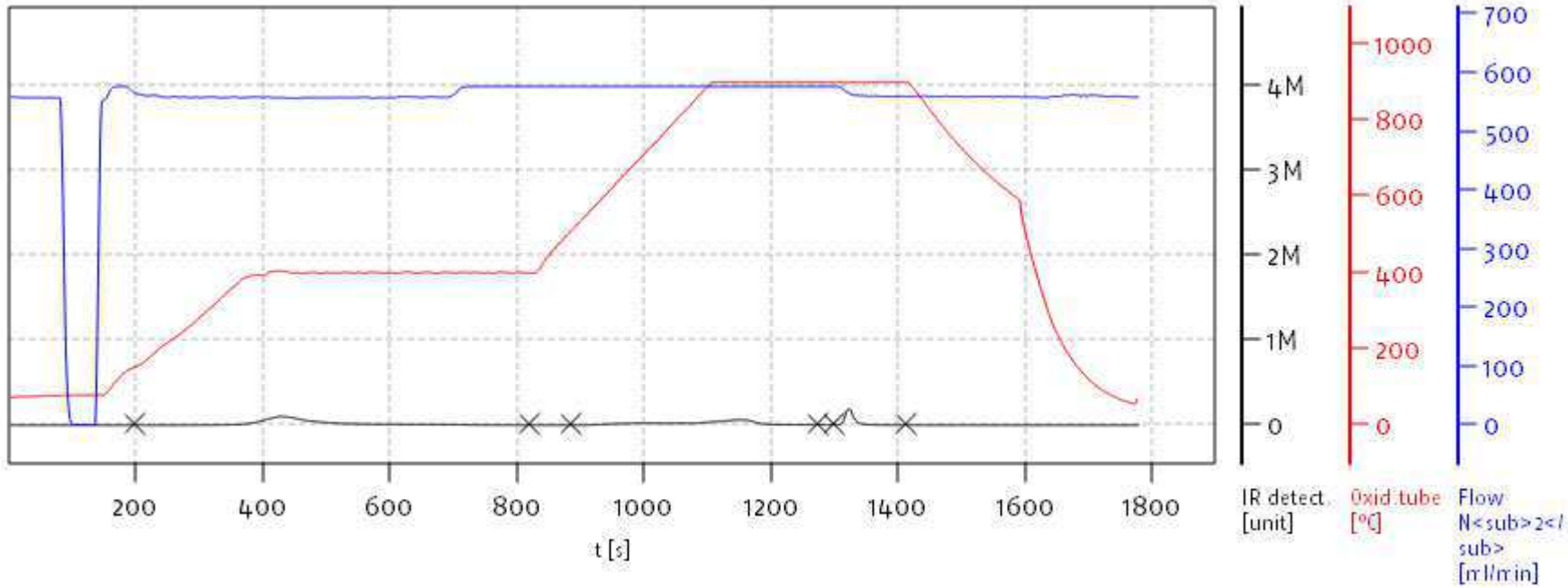
Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
11	11	23B0329-01	285.80		CARBON	3/2/2023 9:50 PM	bl	0.257	411 876	0.412	0.052	121 727	312 859	0.206	0.155	0.9857	1.0000



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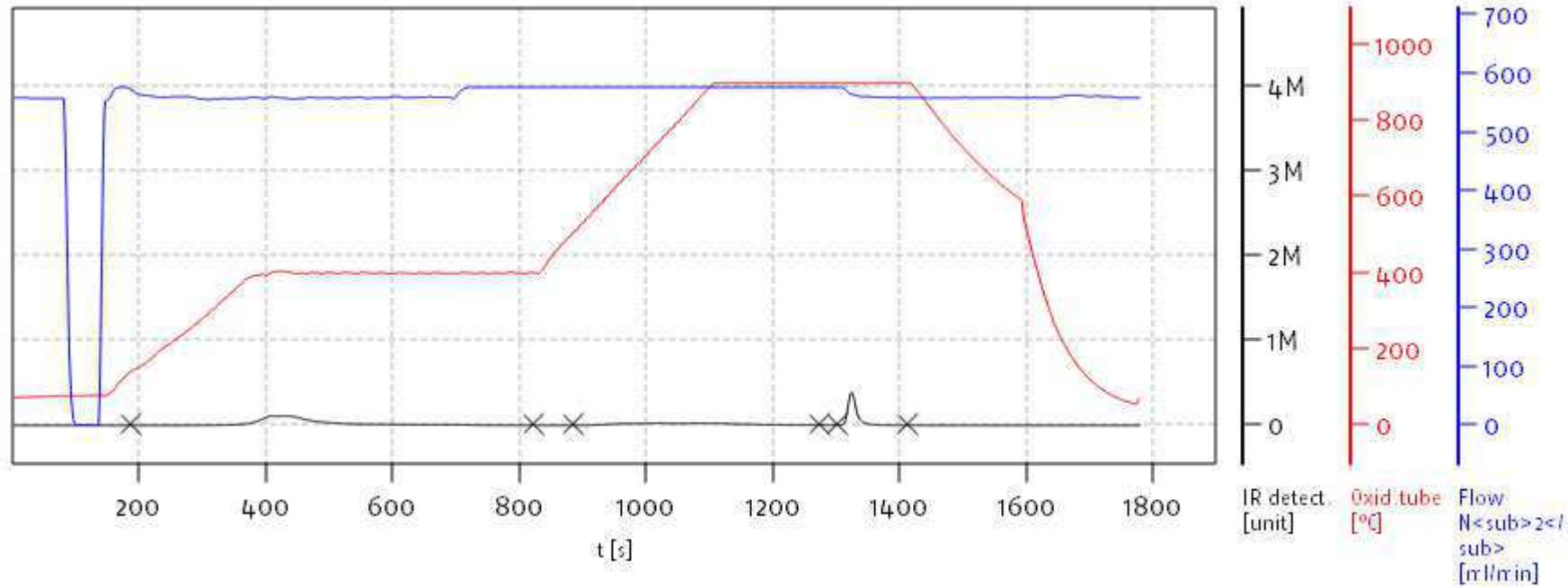
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
12	12	BLC0025-DUP1	228.90		CARBON	3/2/2023 10:20 PM	bl	0.448	486 701	0.575	0.141	235 095	214 195	0.307	0.127	0.9857	1.0000



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Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

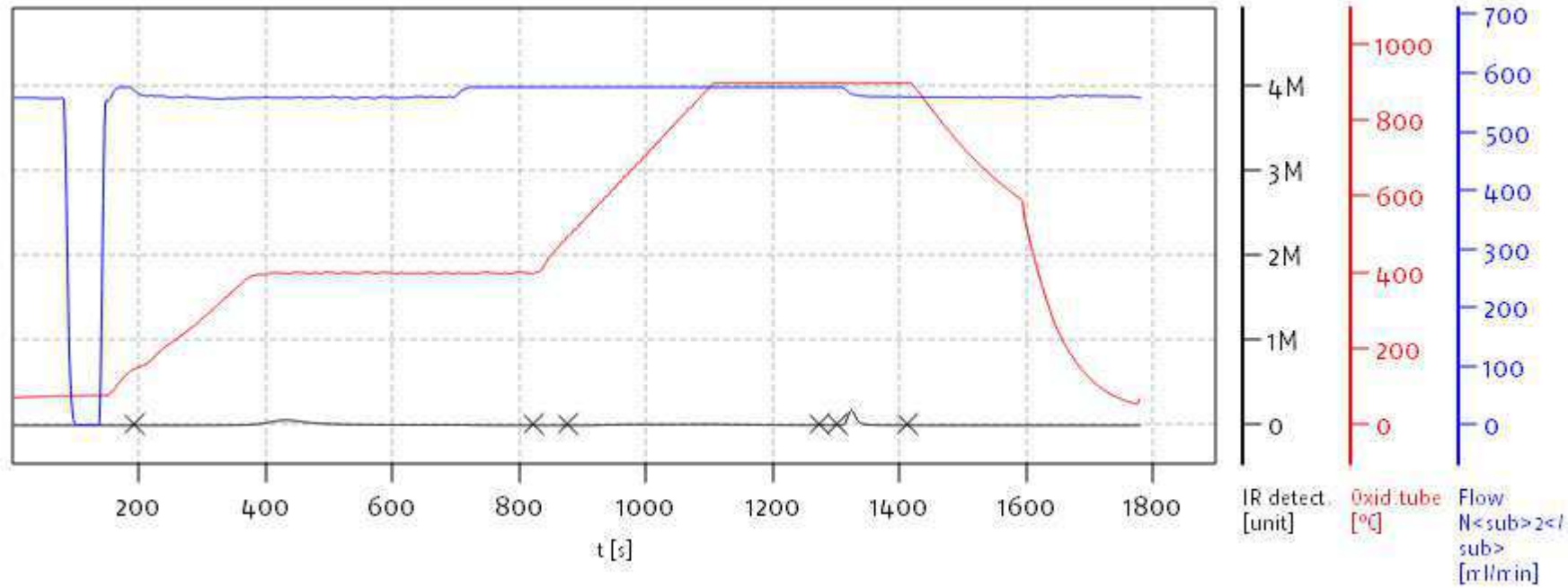
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 030123 CDE from: --.--.-- (modified)

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
13	13	BLC0025-DUP2	225.30		CARBON	3/2/2023 10:50 PM	bl	0.207	248 731	0.264	0.057	109 281	108 922	0.150	0.057	0.9857	1.0000



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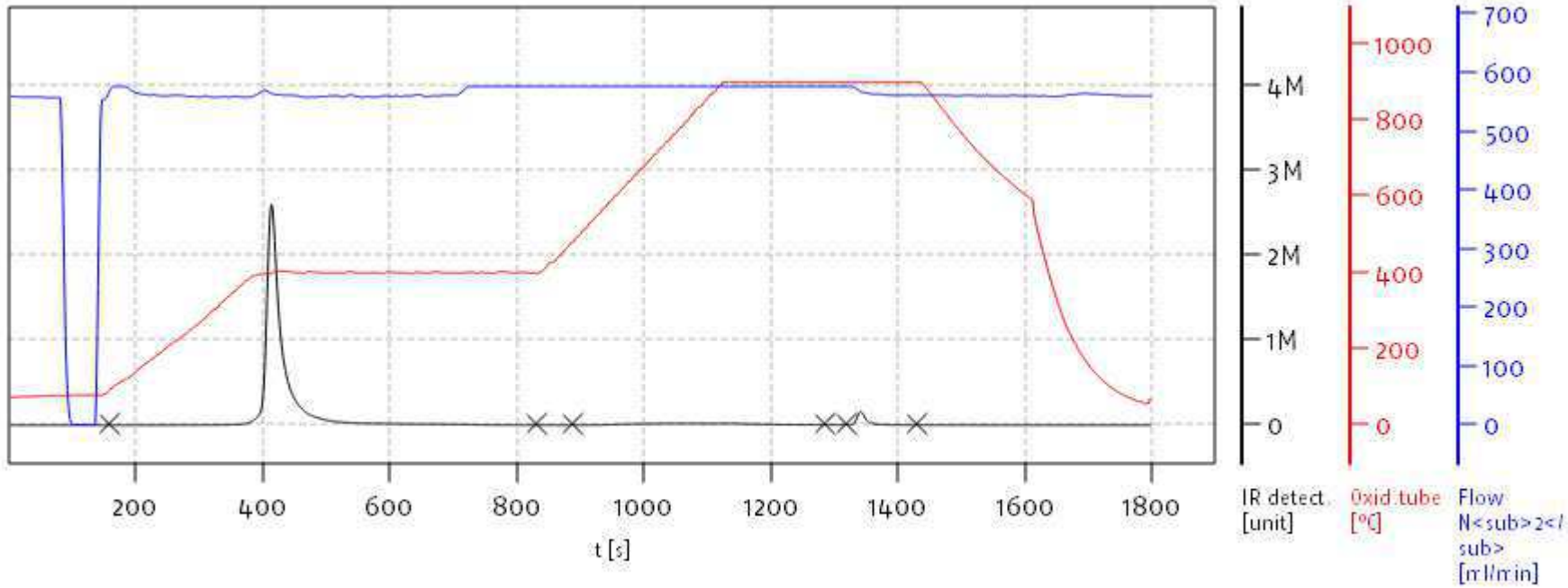
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
14	14	BLC0025-MS1	163.10	0.0086	CARBON	3/2/2023 11:21 PM	bl	2.663	2 794 061	2.802	0.074	104 293	173 172	2.589	0.139	0.9857	1.0000



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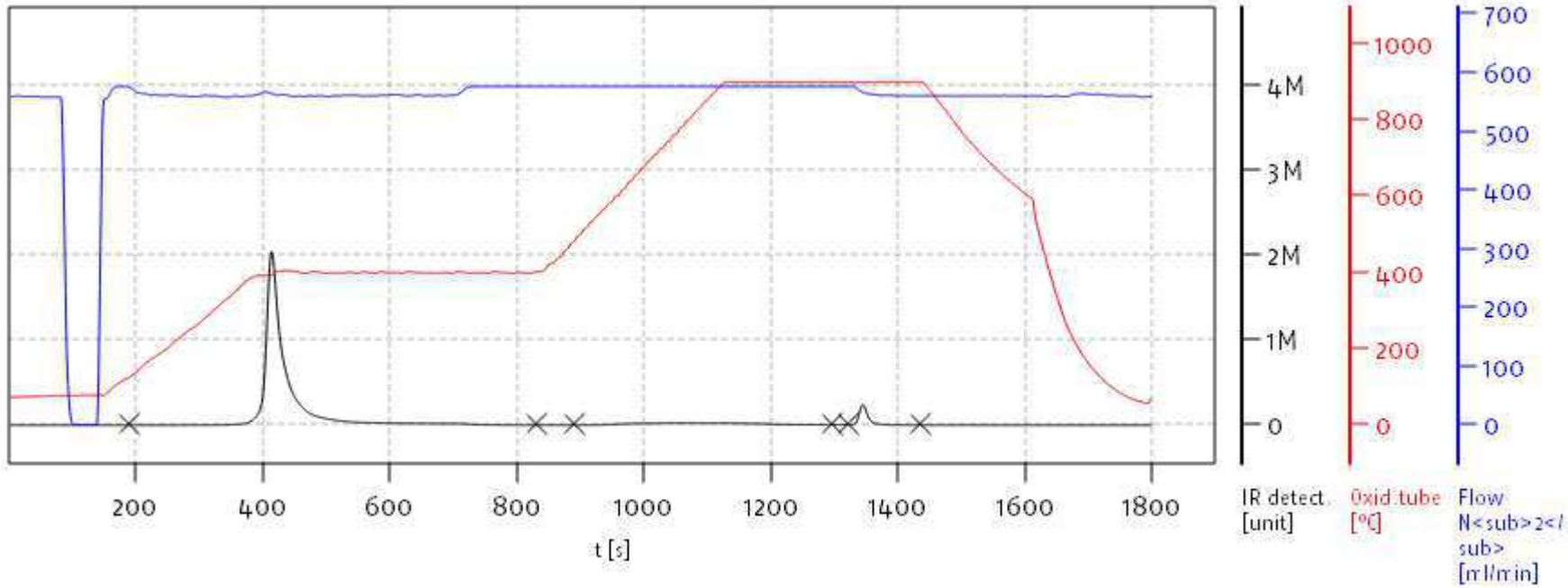
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
15	15	BLC0025-MSD1	161.90	0.0077	CARBON	3/2/2023 11:51 PM	bl	2.552	2 611 086	2.737	0.116	148 339	219 932	2.436	0.185	0.9857	1.0000



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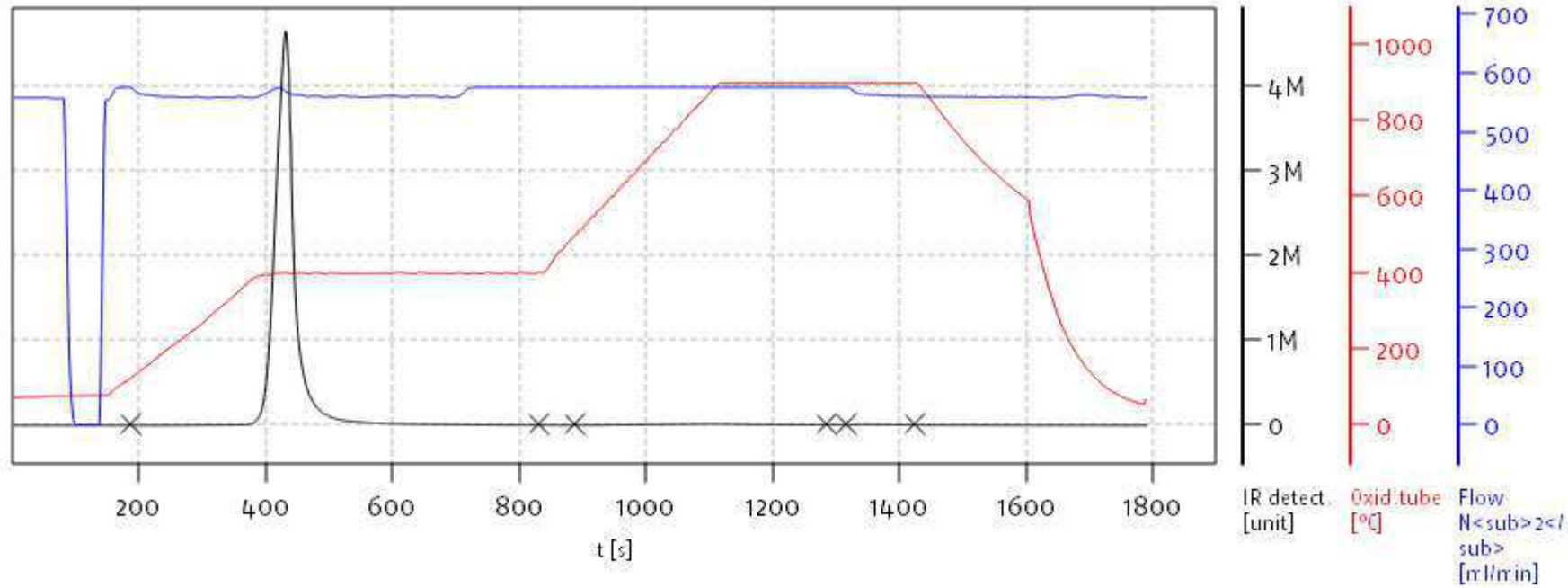
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
16	16	SLC0025-CCV1	21.40		CARBON	3/3/2023 12:21 AM	bl	43.756	6 161 247	44.605	0.016	28 717	143 818	43.741	0.848	0.9857	1.0000



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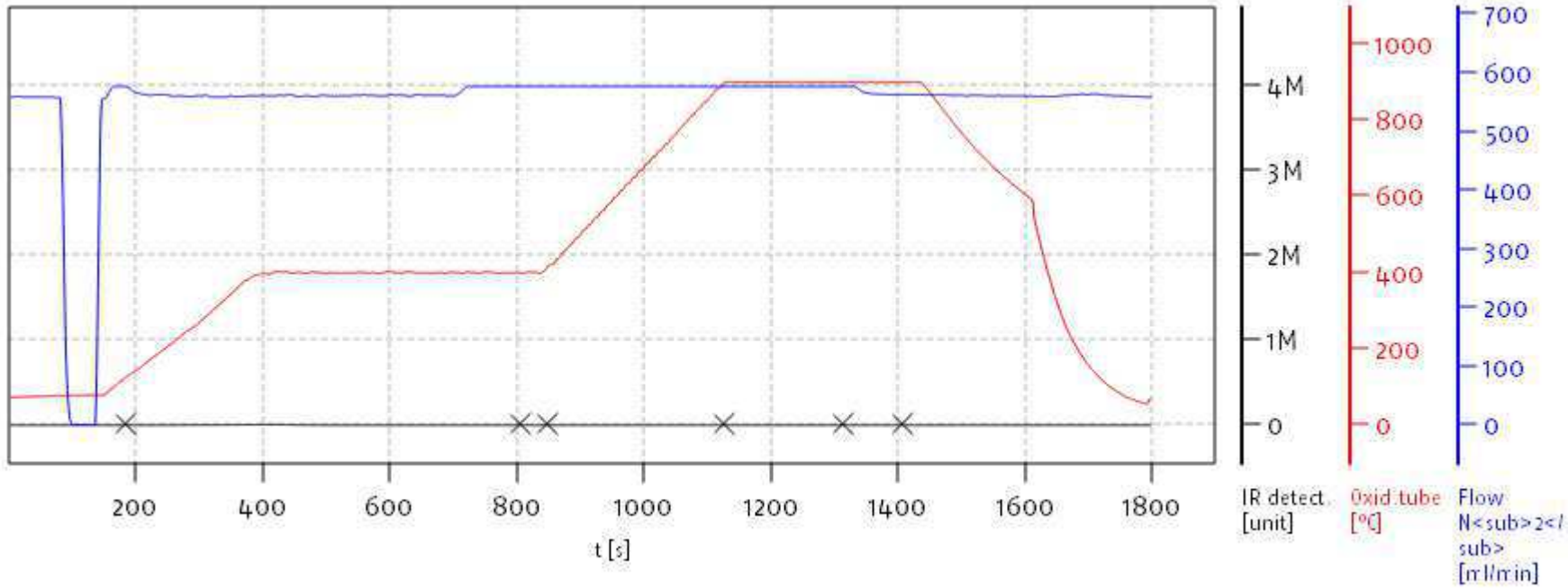
Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
17	17	SLC0025-CCB1	505.10		CARBON	3/3/2023 12:52 AM	bl,C2u	0.002	32 816	0.002	0.000	1 101	2 617	0.002	0.000	0.9857	1.0000



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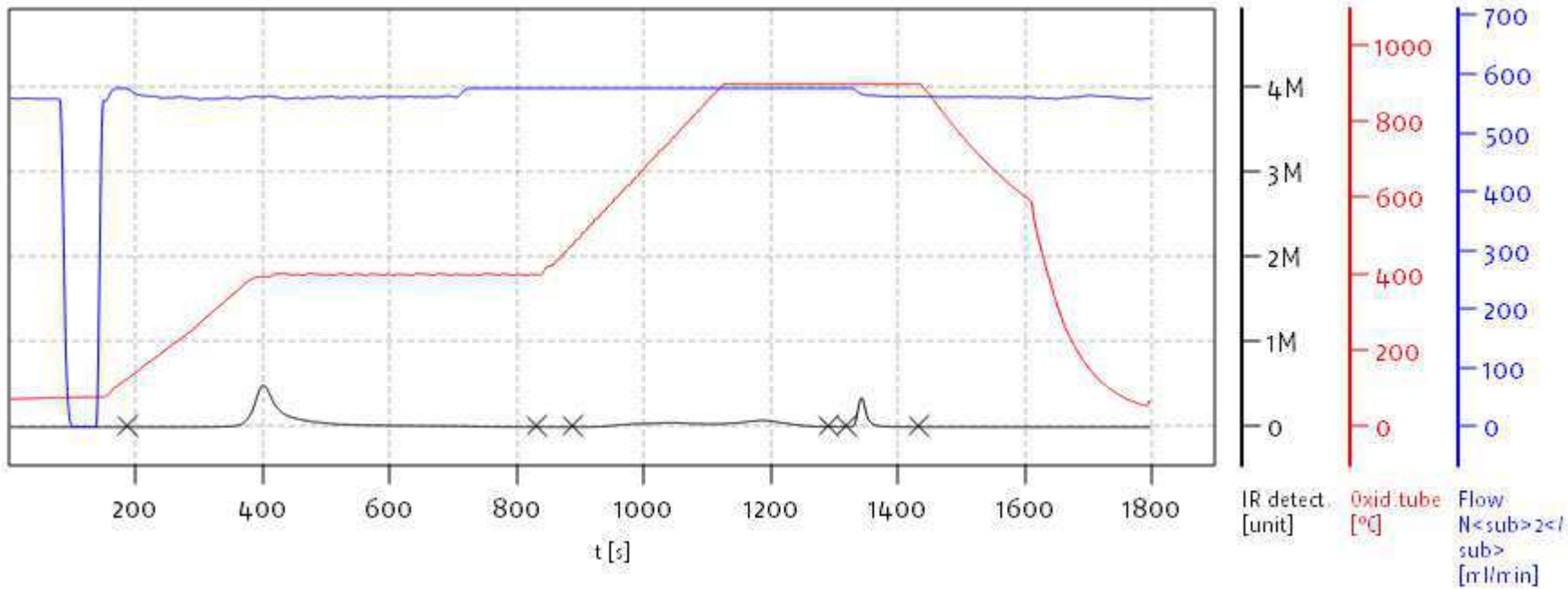
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
18	18	23B0329-02	286.50		CARBON	3/3/2023 1:22 AM	bl	0.667	1 092 829	0.942	0.099	209 987	536 274	0.568	0.275	0.9857	1.0000



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soliTOC V2.0.2 (31015f9) 2018-11-19
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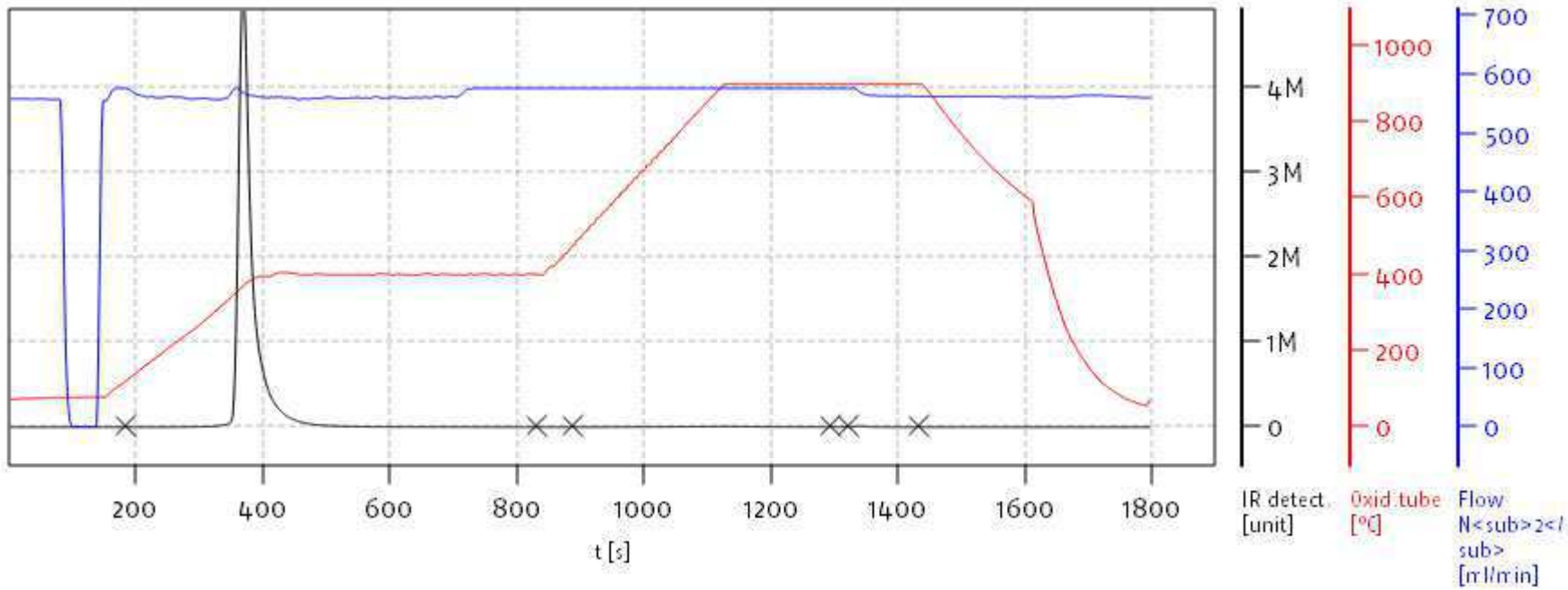
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
19	19	23B0368-01	47.30		CARBON	3/3/2023 1:52 AM	bl	15.632	4 872 516	15.728	0.000	11 212	55 625	15.632	0.095	0.9857	1.0000



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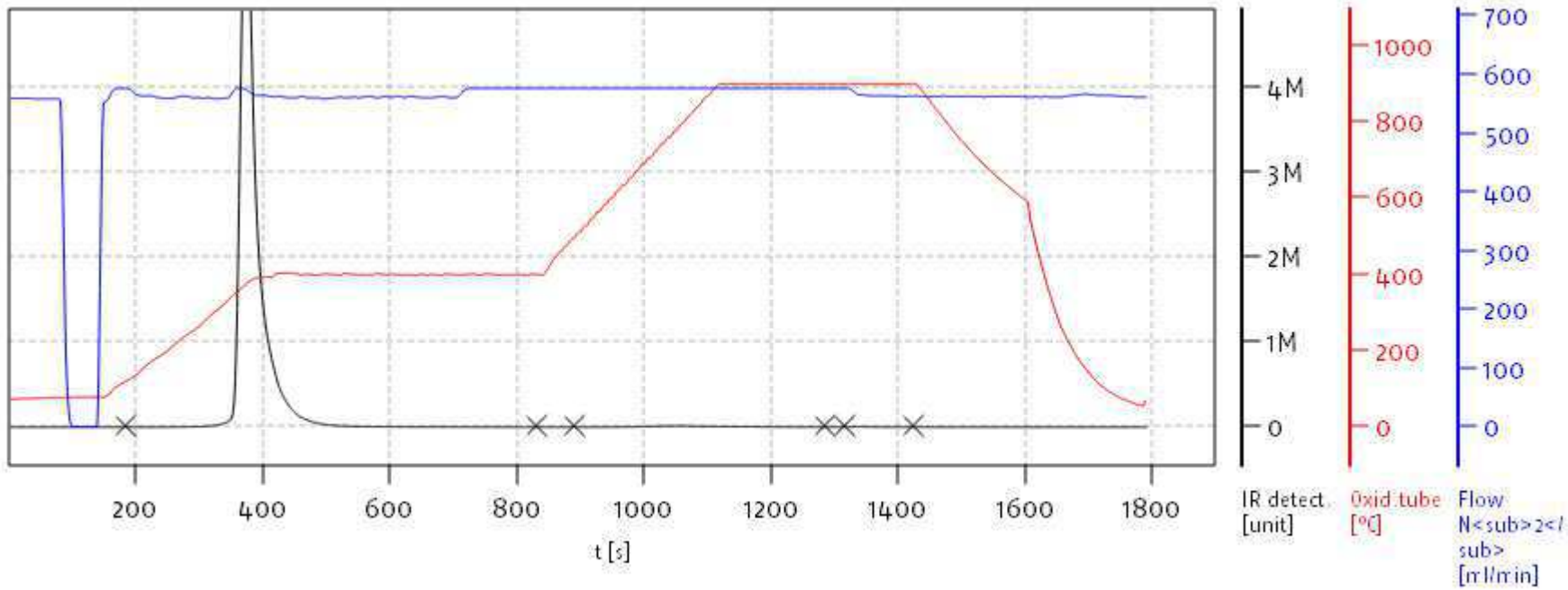
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
20	20	23B0491-01	151.70		CARBON	3/3/2023 2:22 AM	bl	7.458	7 441 727	7.509	0.000	8 291	76 478	7.458	0.051	0.9857	1.0000



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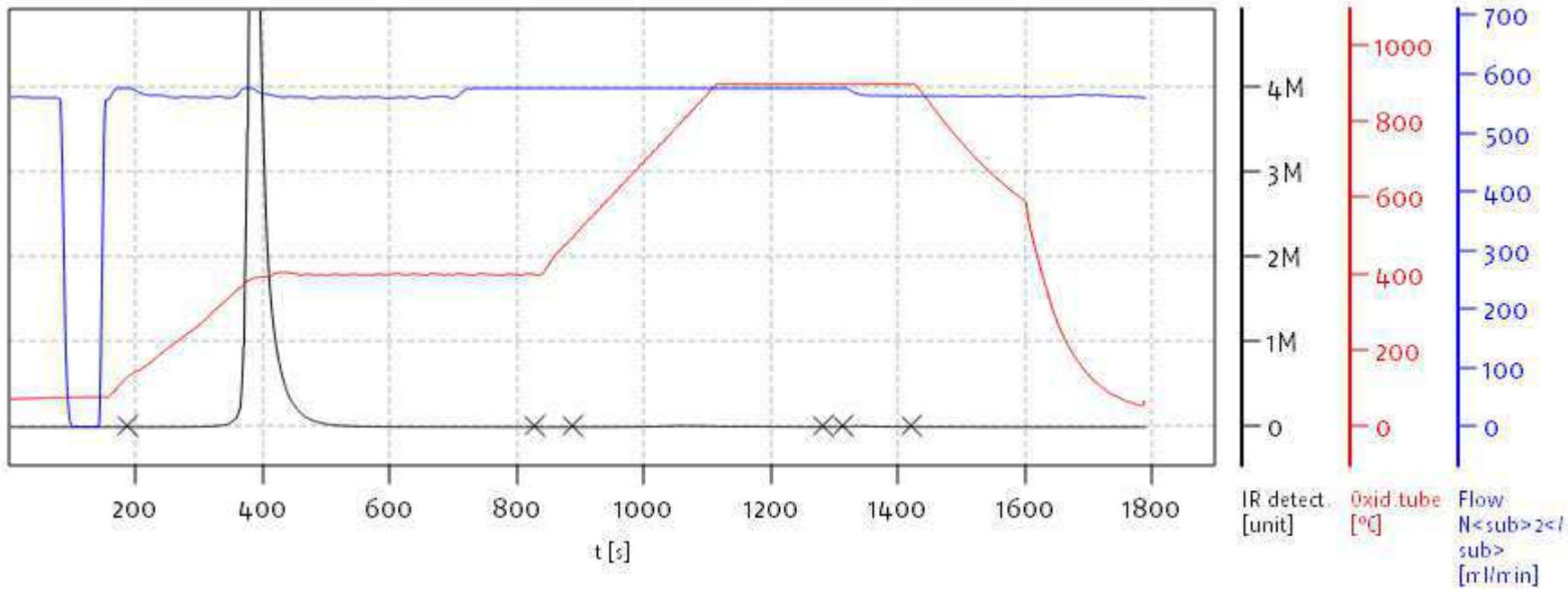
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
21	21	23B0491-02	217.30		CARBON	3/3/2023 2:53 AM	bl	5.677	8 110 803	5.716	0.000	22 630	81 744	5.677	0.039	0.9857	1.0000



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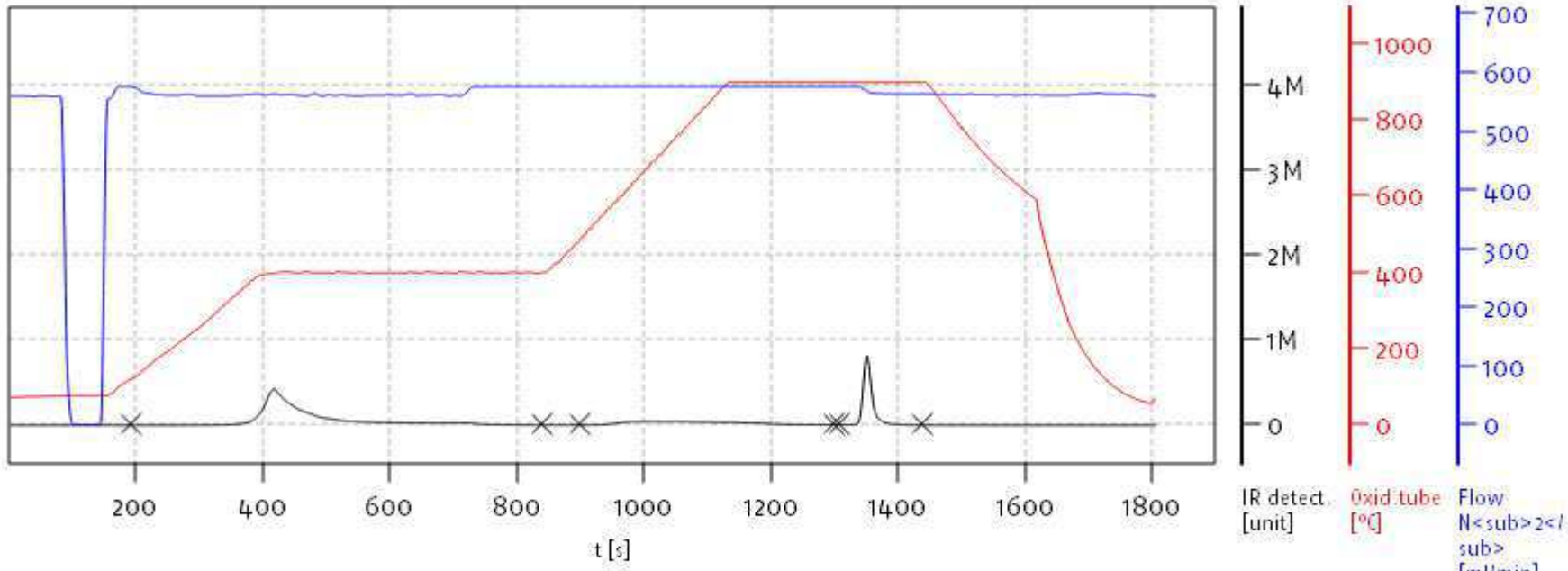
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
22	22	23B0494-01	262.40		CARBON	3/3/2023 3:23 AM	bl	1.011	1 281 083	1.216	0.282	503 895	373 715	0.730	0.205	0.9857	1.0000



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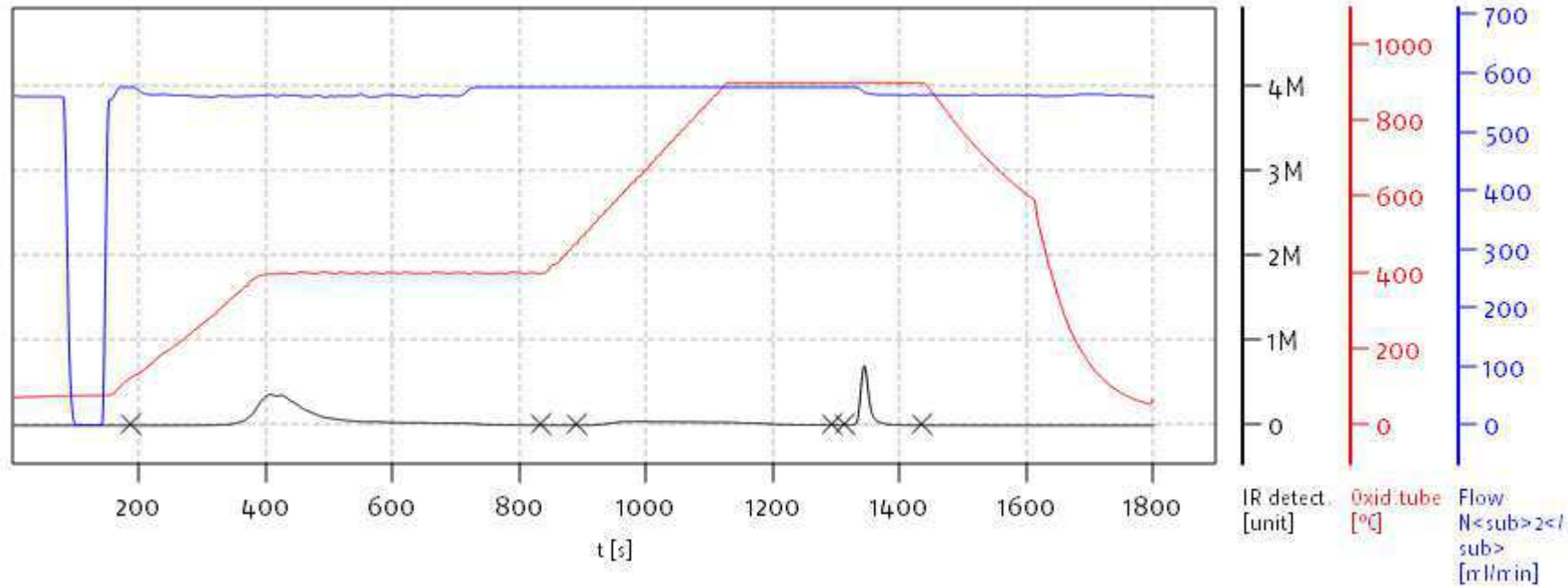
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
23	23	BLC0025-DUP3	308.20		CARBON	3/3/2023 3:54 AM	bl	0.935	1 519 704	1.118	0.196	417 007	390 494	0.739	0.183	0.9857	1.0000



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soliTOC V2.0.2 (31015f9) 2018-11-19
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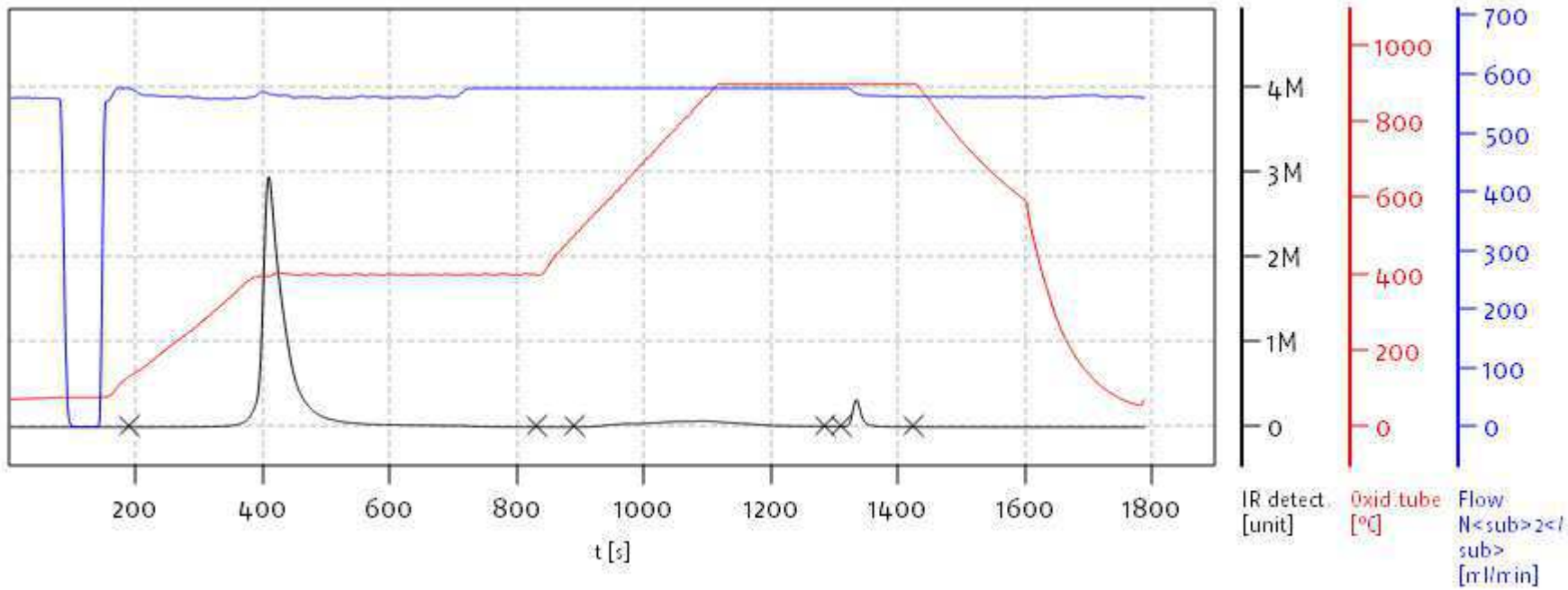
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 030123 CDE from: --.--.-- (modified)

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
24	24	BLC0025-MS2	362.90	0.0075	CARBON	3/3/2023 4:24 AM	bl	1.944	4 473 773	2.155	0.074	200 044	520 763	1.870	0.211	0.9857	1.0000



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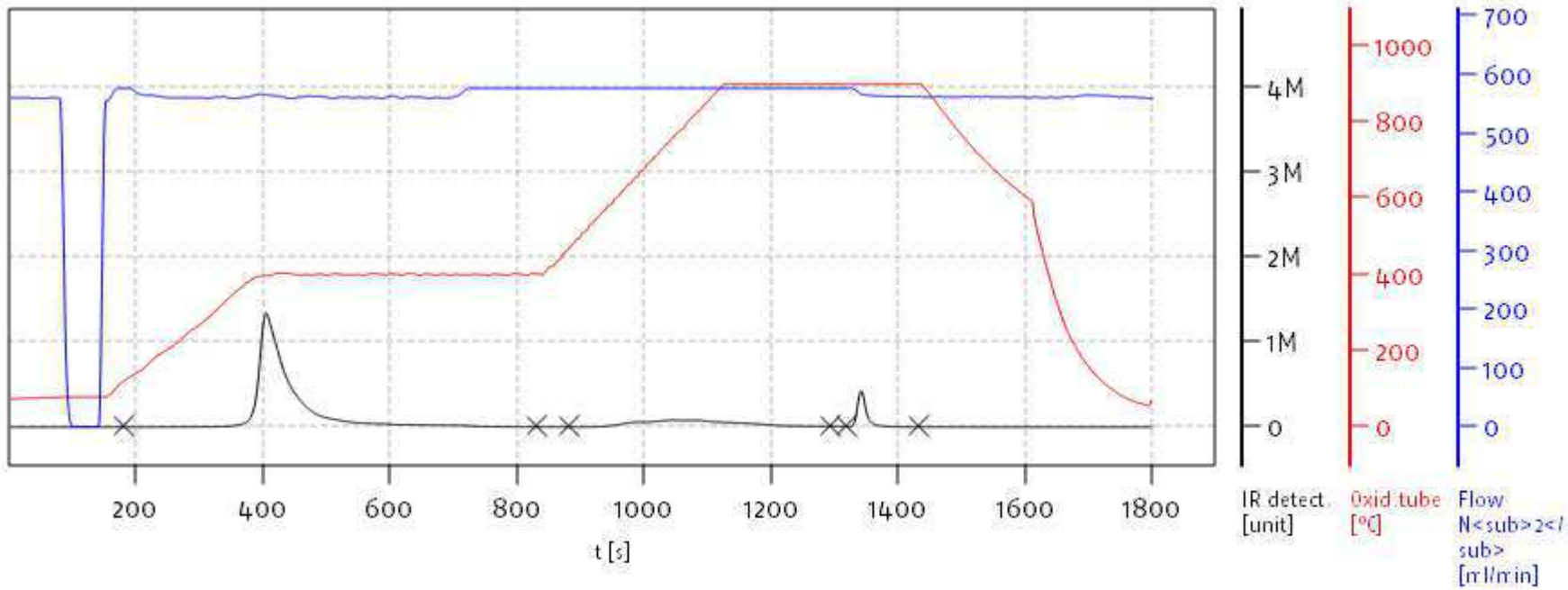
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
25	25	23B0494-02	383.40		CARBON	3/3/2023 4:54 AM	bl	1.208	2 821 178	1.440	0.096	264 986	600 559	1.112	0.232	0.9857	1.0000



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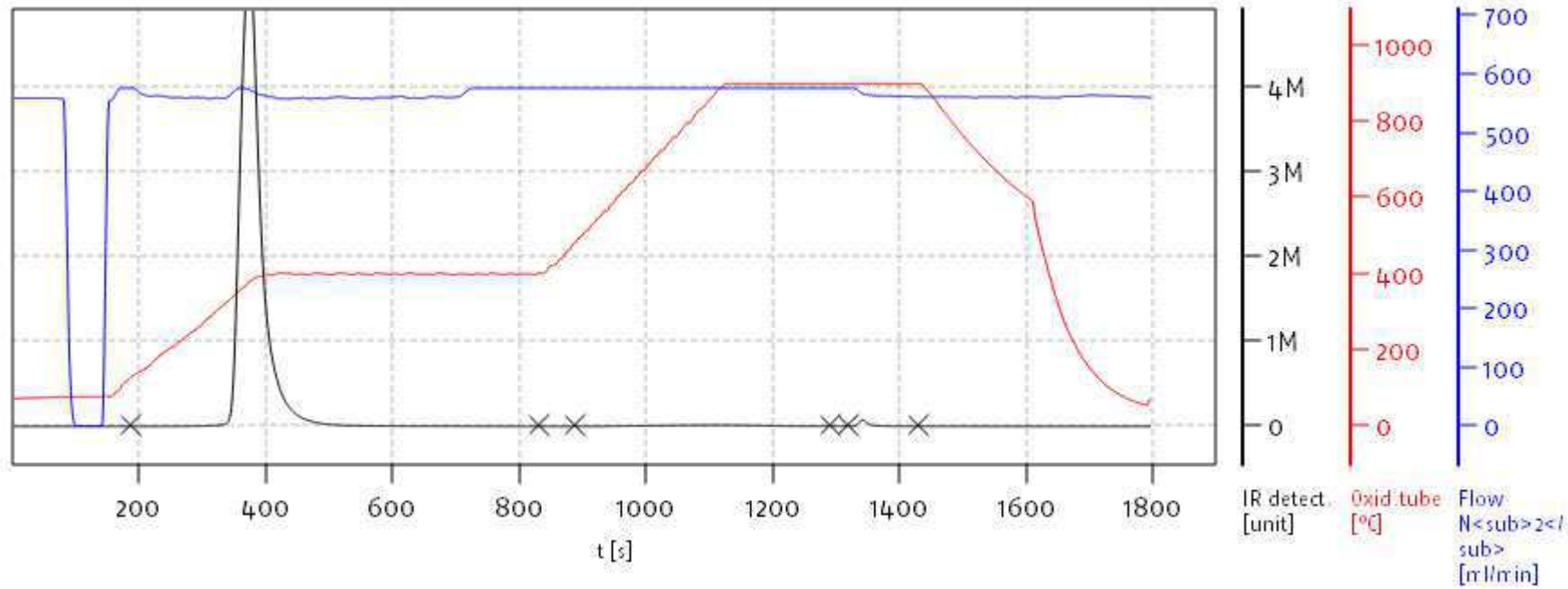
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
26	26	23B0494-03	388.00		CARBON	3/3/2023 5:25 AM	bl	3.071	7 806 676	3.104	0.011	54 601	110 273	3.060	0.033	0.9857	1.0000



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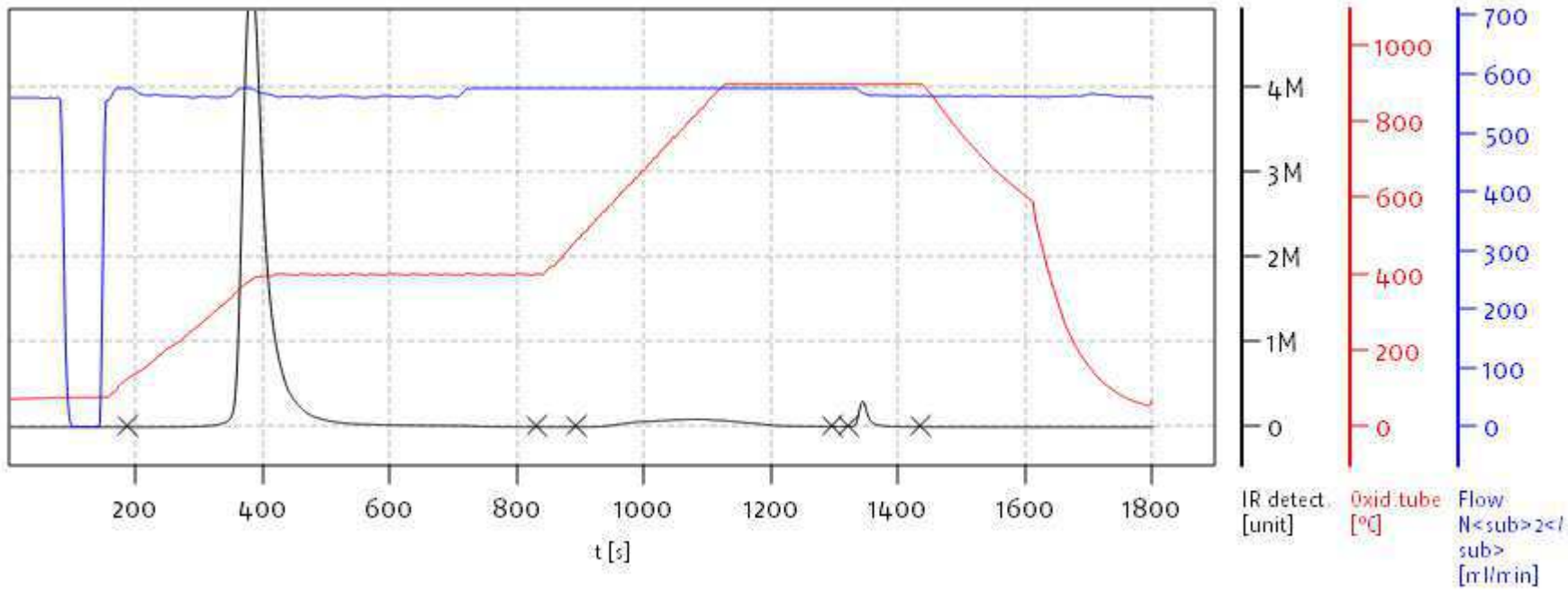
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
27	27	23B0494-04	756.00		CARBON	3/3/2023 5:55 AM	bl	1.746	8 501 368	1.877	0.036	200 834	664 609	1.710	0.131	0.9857	1.0000



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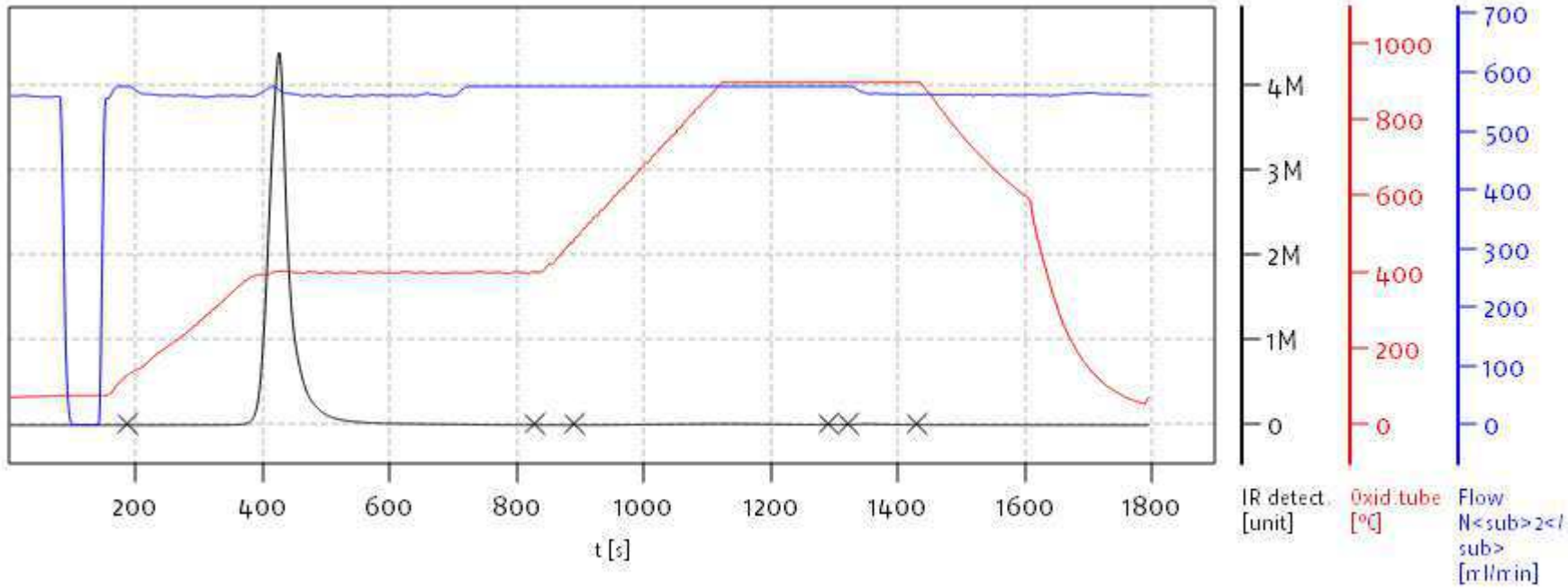
elementar
EXCELLENCE IN ELEMENTS

Document: 030123 CDE from: --.--.-- (modified)

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
28	28	SLC0025-CCV2	21.80		CARBON	3/3/2023 6:25 AM	bl	43.856	6 287 655	44.581	0.033	31 168	128 668	43.823	0.725	0.9857	1.0000



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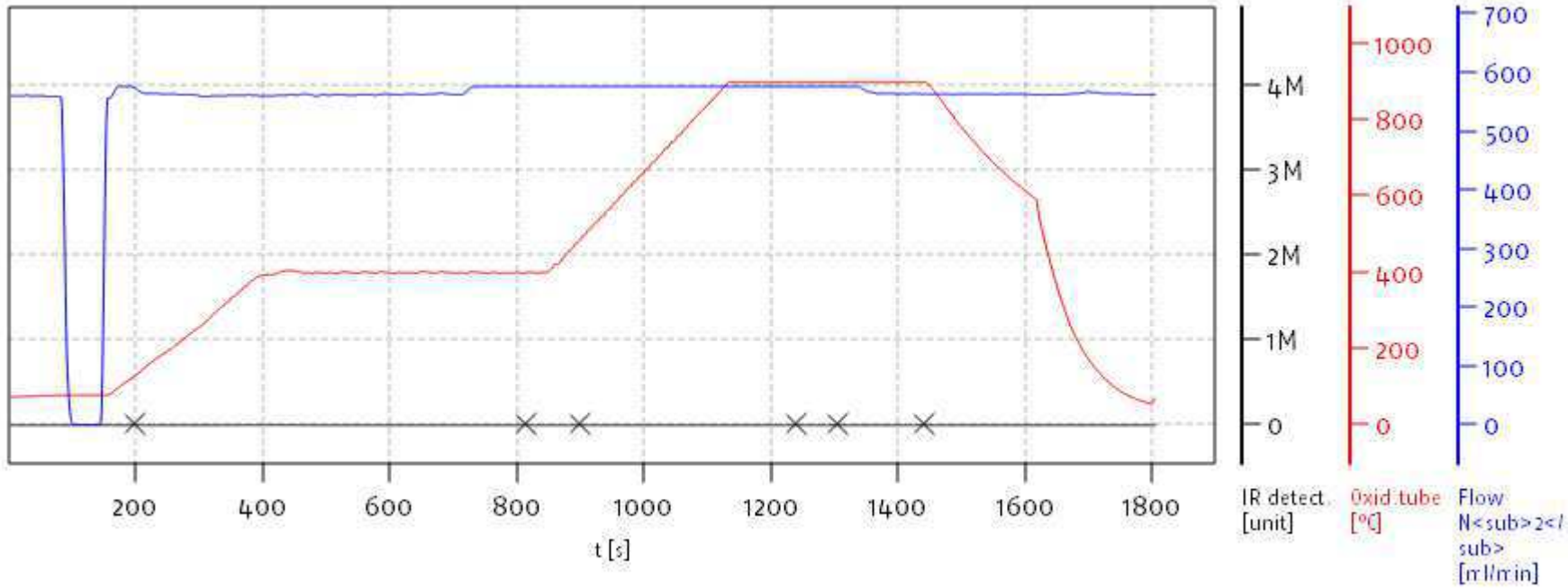
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
29	29	SLC0025-CCB2	506.70		CARBON	3/3/2023 6:56 AM	bl,C3u,C2u	0.000	6 673	0.000	0.000	1 144	794	0.000	0.000	0.9857	1.0000



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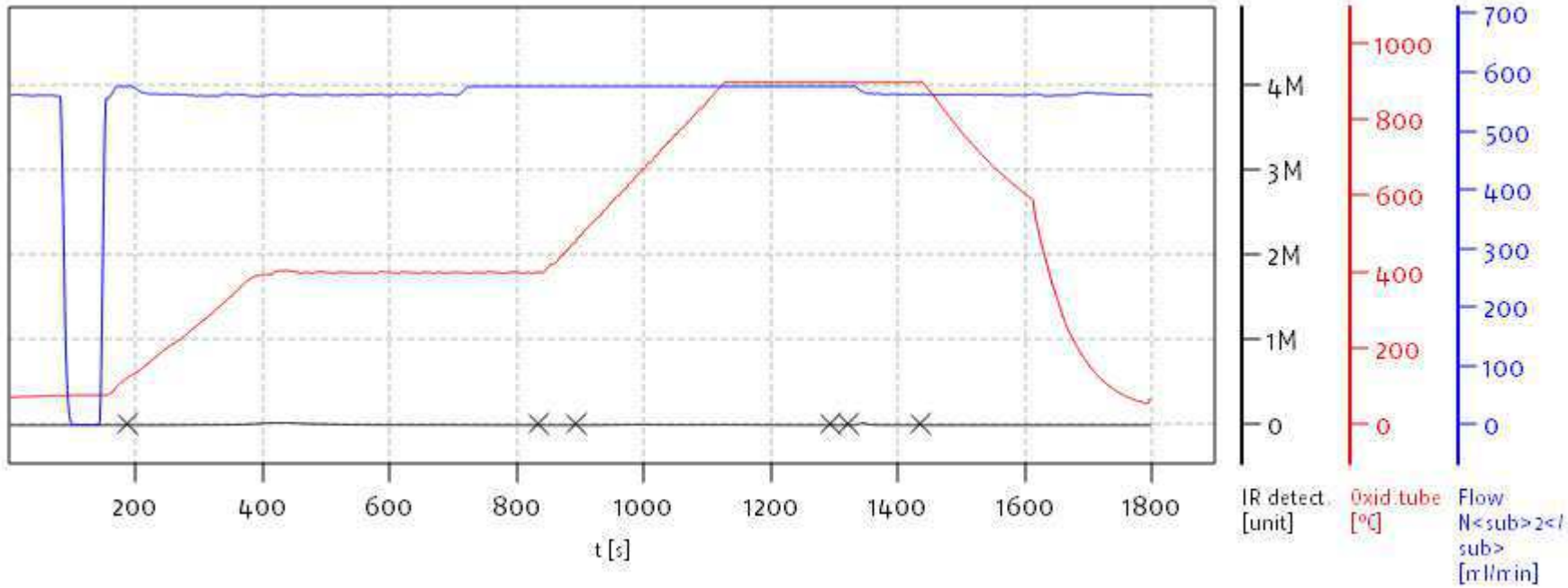
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
30	30	23B0494-05	521.30		CARBON	3/3/2023 7:26 AM	bl	0.035	147 811	0.040	0.000	15 453	41 592	0.035	0.004	0.9857	1.0000



Name:

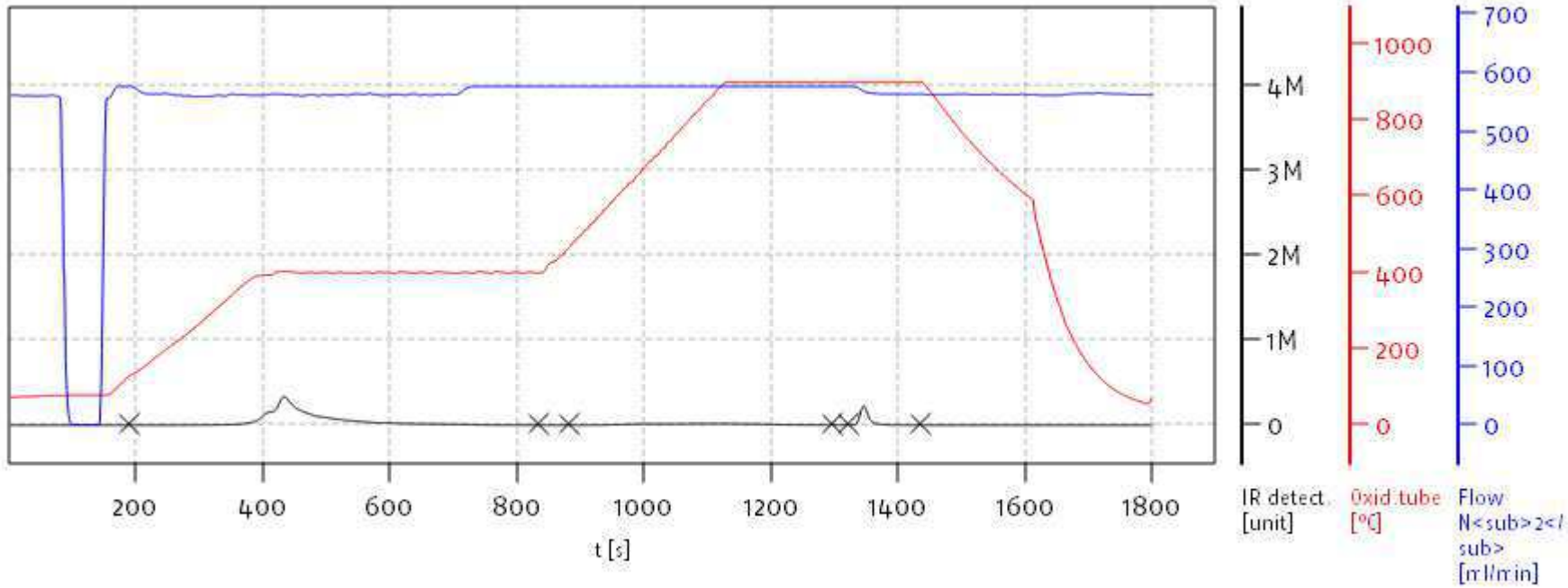
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
31	31	23B0494-06	646.20		CARBON	3/3/2023 7:56 AM	bl	0.255	995 392	0.283	0.026	135 230	142 983	0.229	0.028	0.9857	1.0000



Name:

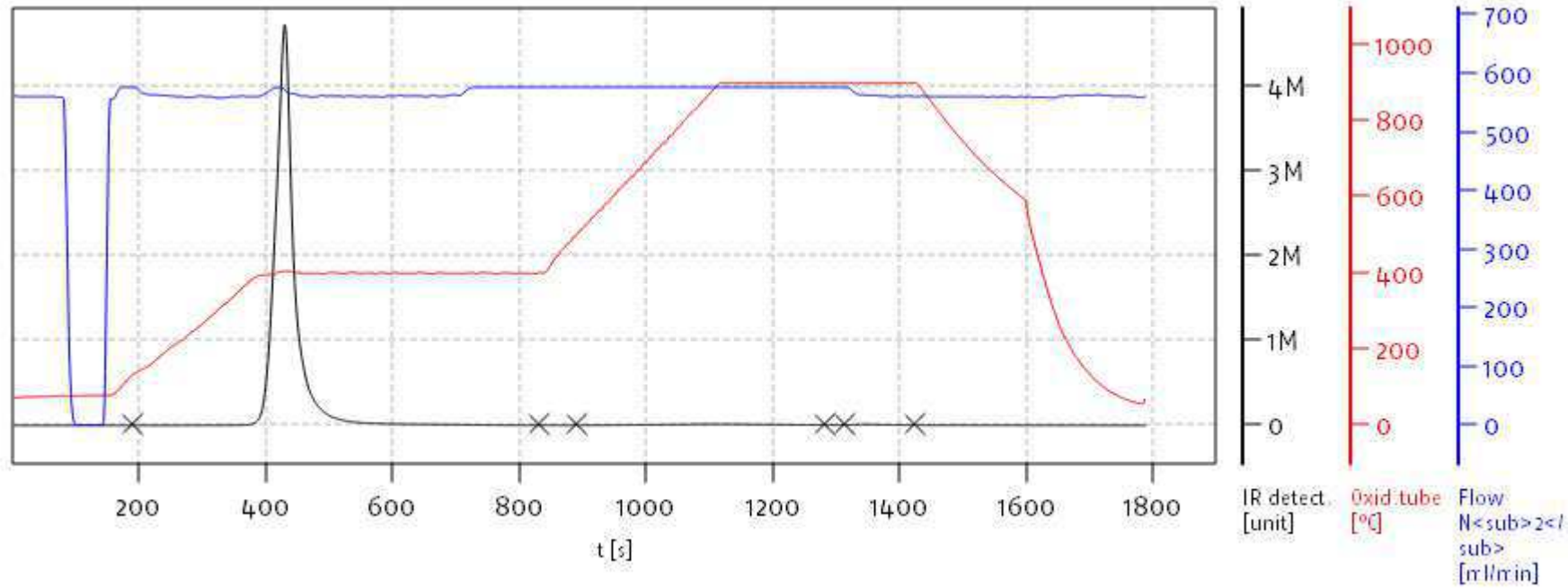
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
32	32	SLC0025-CCV3	21.40		CARBON	3/3/2023 8:27 AM	bl	43.375	6 107 080	44.055	0.021	29 384	120 540	43.354	0.680	0.9857	1.0000



Name:

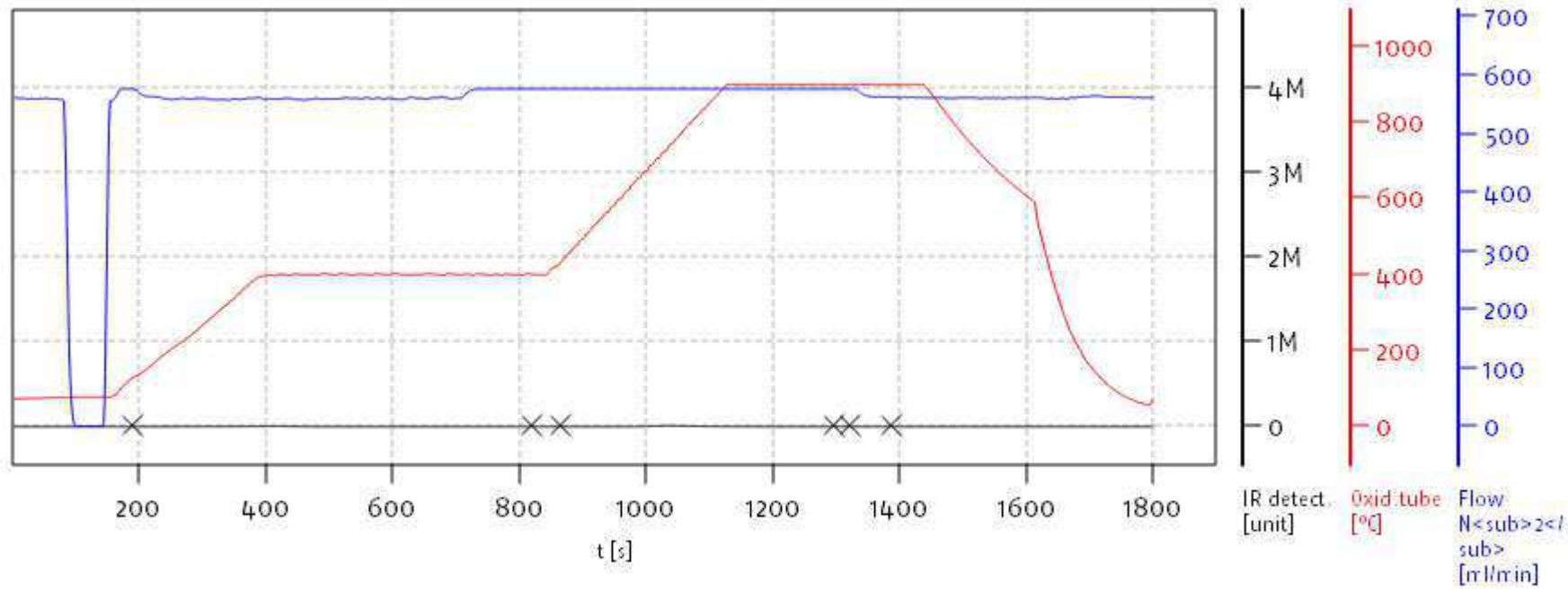
Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Method	Date Time	Info	TOC [%]	TOC400 Area	TC [%]	ROC [%]	ROC Area	TIC900 Area	TOC400 [%]	TIC900 [%]	TOC400 Factor	TIC900 Factor
33	33	SLC0025-CCB3	593.00		CARBON	3/3/2023 8:57 AM	bl,C2u	0.000	21 402	0.002	0.000	651	34 154	0.000	0.002	0.9857	1.0000



Name:

Access: soliTOC superuser

Date: Mon Mar 6 16:40:07 2023

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 030123 CDE from: --.--.-- (modified)

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	FD00070	Instrument:	TOC Cube
Calibration Date:	04/26/2022 11:29		

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF
Total Organic Carbon	0.0080973	1449743	0.014695	1300238	0.021293	1292913	0.02939	1293535	0.044385	2094063	0.05878	1400085
Total Carbon	0.0080973	1449743	0.014695	1300238	0.021293	1292913	0.02939	1293535	0.044385	2094063	0.05878	1400085
Total Inorganic Carbon	0.0080973	1449743	0.014695	1300238	0.021293	1292913	0.02939	1293535	0.044385	2094063	0.05878	1400085
% Soot	0.0080973	1449743	0.014695	1300238	0.021293	1292913	0.02939	1293535	0.044385	2094063	0.05878	1400085

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: FD00070
Instrument: TOC Cube
Calibration Date: 04/26/2022 11:29

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF
Total Organic Carbon	0.074075	1370638	0.08937	1351930	0.12056	2158544	0.14995	1559046	0.24	1346463	0.288	1430135
Total Carbon	0.074075	1370638	0.08937	1351930	0.12056	2158544	0.14995	1559046	0.24	1346463	0.288	1430135
Total Inorganic Carbon	0.074075	1370638	0.08937	1351930	0.12056	2158544	0.14995	1559046	0.24	1346463	0.288	1430135
% Soot	0.074075	1370638	0.08937	1351930	0.12056	2158544	0.14995	1559046	0.24	1346463	0.288	1430135

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: FD00070
Instrument: TOC Cube
Calibration Date: 04/26/2022 11:29

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF
Total Organic Carbon	0.414	1337053	0.606	1385937	0.894	1382774	1.188	1379790	1.5	1375927	1.818	1372882
Total Carbon	0.414	1337053	0.606	1385937	0.894	1382774	1.188	1379790	1.5	1375927	1.818	1372882
Total Inorganic Carbon	0.414	1337053	0.606	1385937	0.894	1382774	1.188	1379790	1.5	1375927	1.818	1372882
% Soot	0.414	1337053	0.606	1385937	0.894	1382774	1.188	1379790	1.5	1375927	1.818	1372882

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Calibration: FD00070
Instrument: TOC Cube
Calibration Date: 04/26/2022 11:29

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF	Conc	RF
Total Organic Carbon	2.49	1398606	2.982	1376871	4.188	1256057	4.818	1279542	5.406	1283358	7.2	1301408
Total Carbon	2.49	1398606	2.982	1376871	4.188	1256057	4.818	1279542	5.406	1283358	7.2	1301408
Total Inorganic Carbon	2.49	1398606	2.982	1376871	4.188	1256057	4.818	1279542	5.406	1283358	7.2	1301408
% Soot	2.49	1398606	2.982	1376871	4.188	1256057	4.818	1279542	5.406	1283358	7.2	1301408

INITIAL CALIBRATION DATA

EPA 9060A m

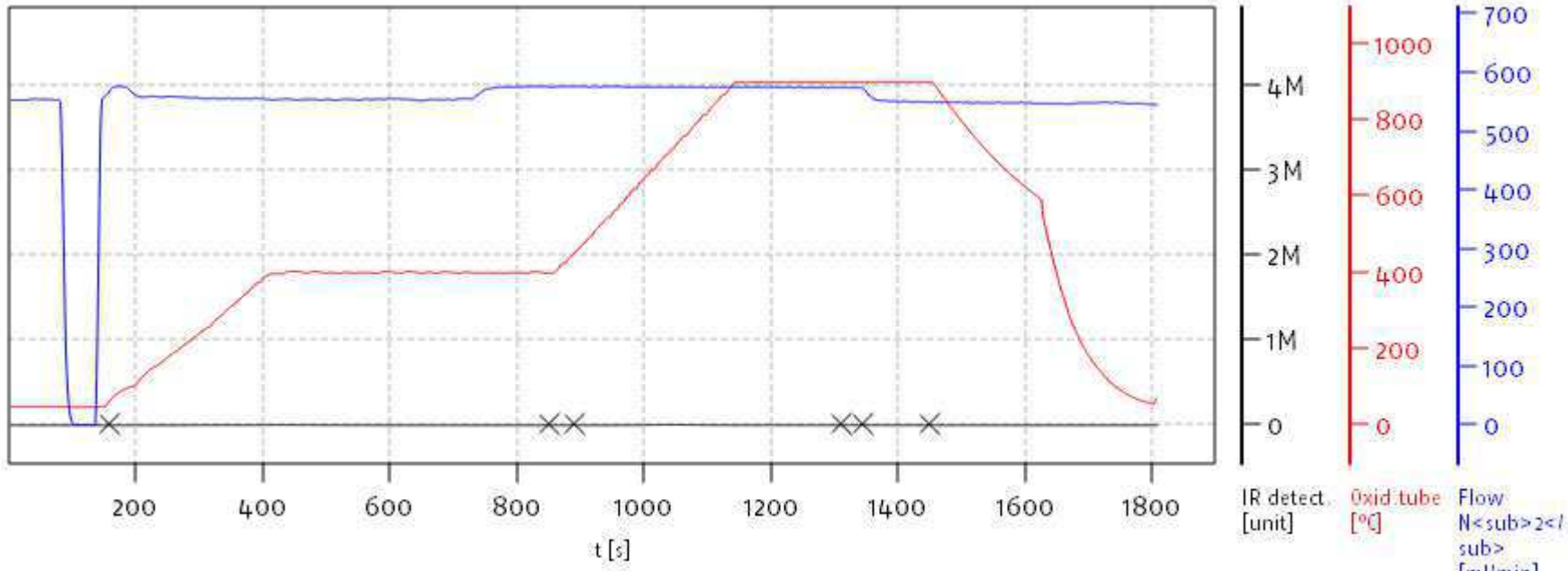
Laboratory:	Analytical Resources, LLC	SDG:	23B0494
Client:	Anchor QEA, LLC	Project:	AOC4 UR Phase 3
Calibration:	FD00070	Instrument:	TOC Cube
Calibration Date:	04/26/2022 11:29		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Total Organic Carbon	1424064	15.9	0.9988			
Total Carbon	1424064	15.9	0.9988			
Total Inorganic Carbon	1424064	15.9	0.9988			
% Soot	1424064	15.9	0.9988			

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
1	1	BLANK	1.00		1.00	CARBON	4/26/2022 11:29 AM	0.000	0.000	0.000	bl	29 049	30 612	3 899	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

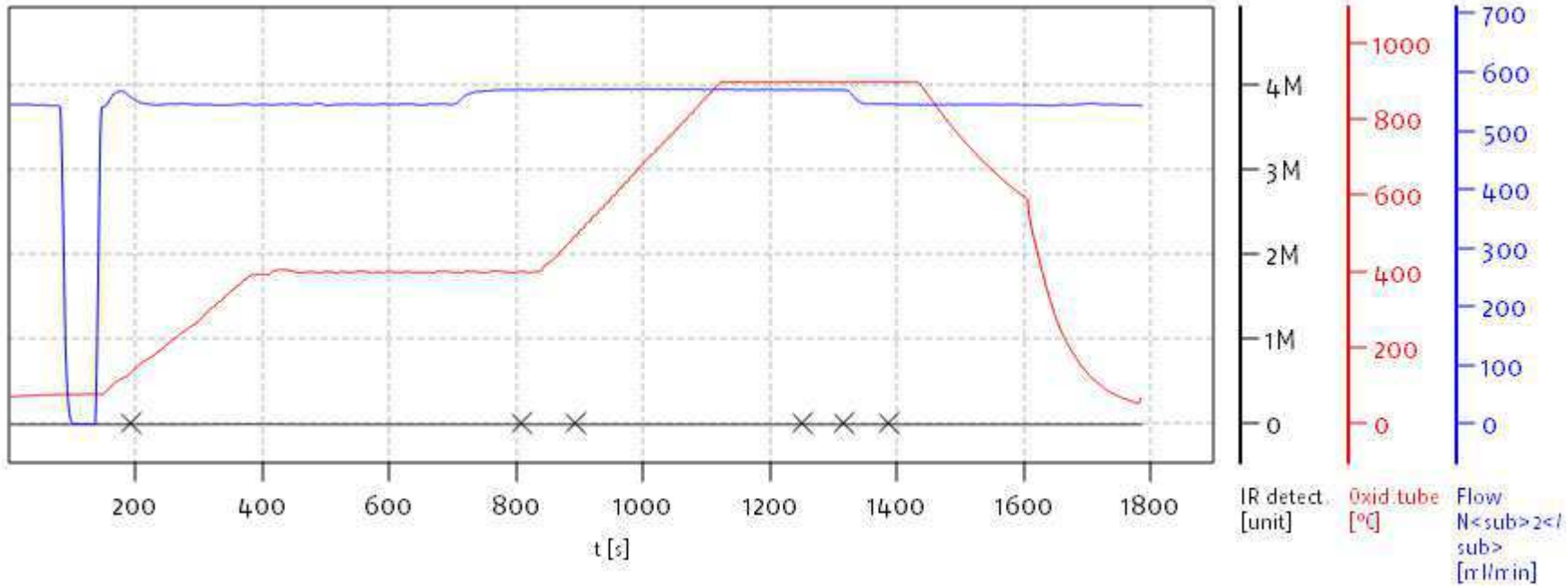
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 042622 DOE CALIBRATION from: 4/27/2022 11:05 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
2	2	BLANK	1.00		1.00	CARBON	4/26/2022 12:00 PM	0.000	0.000	0.000	bl	11 115	60	8	1.0000	1.0000



Name:

Access: soliTOC superuser

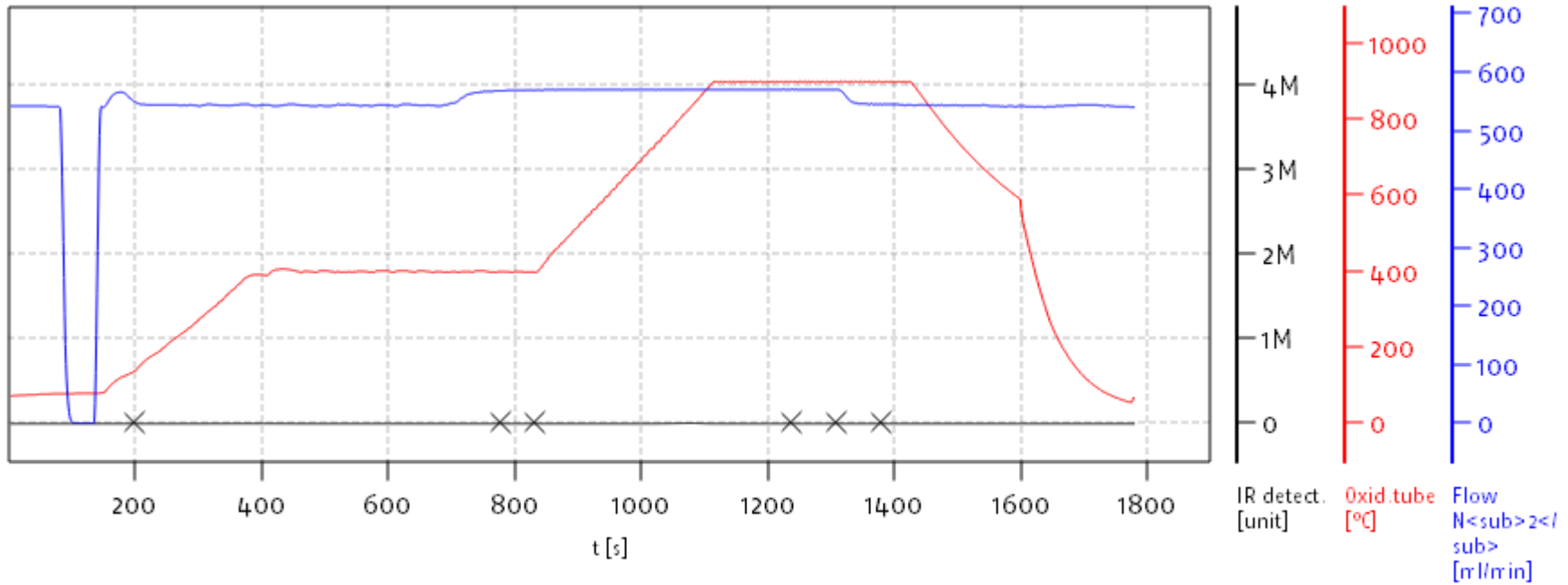
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
3	3	SEQ-CAL1	200.00	0.0027	1.00	CARBON	4/26/2022 12:30 PM	0.010	0.008	0.018	bl,C1u,C2u	7 294	11 739	22	1.0000	0.7425



Name:

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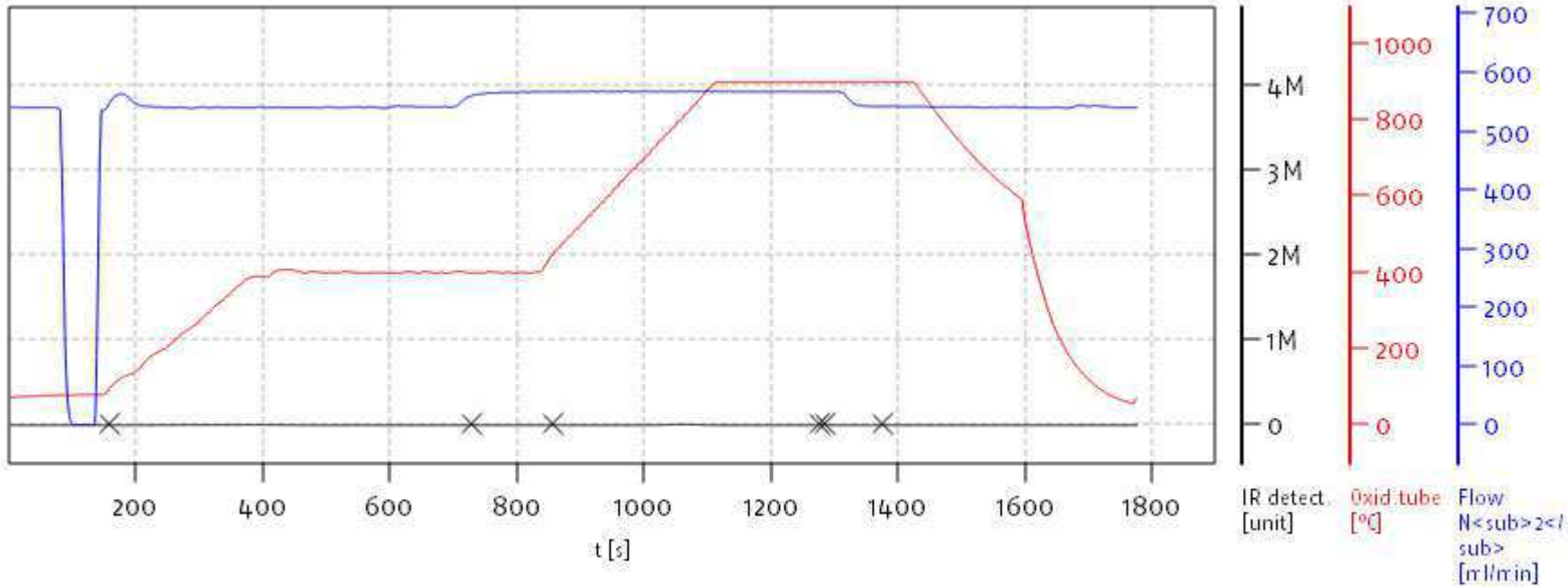
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
4	4	SEQ-CAL2	200.00	0.0049	1.00	CARBON	4/26/2022 1:00 PM	0.023	0.015	0.038	bl,C2u	23 296	19 107	47	1.0000	0.8936



Name:

Access: soliTOC superuser

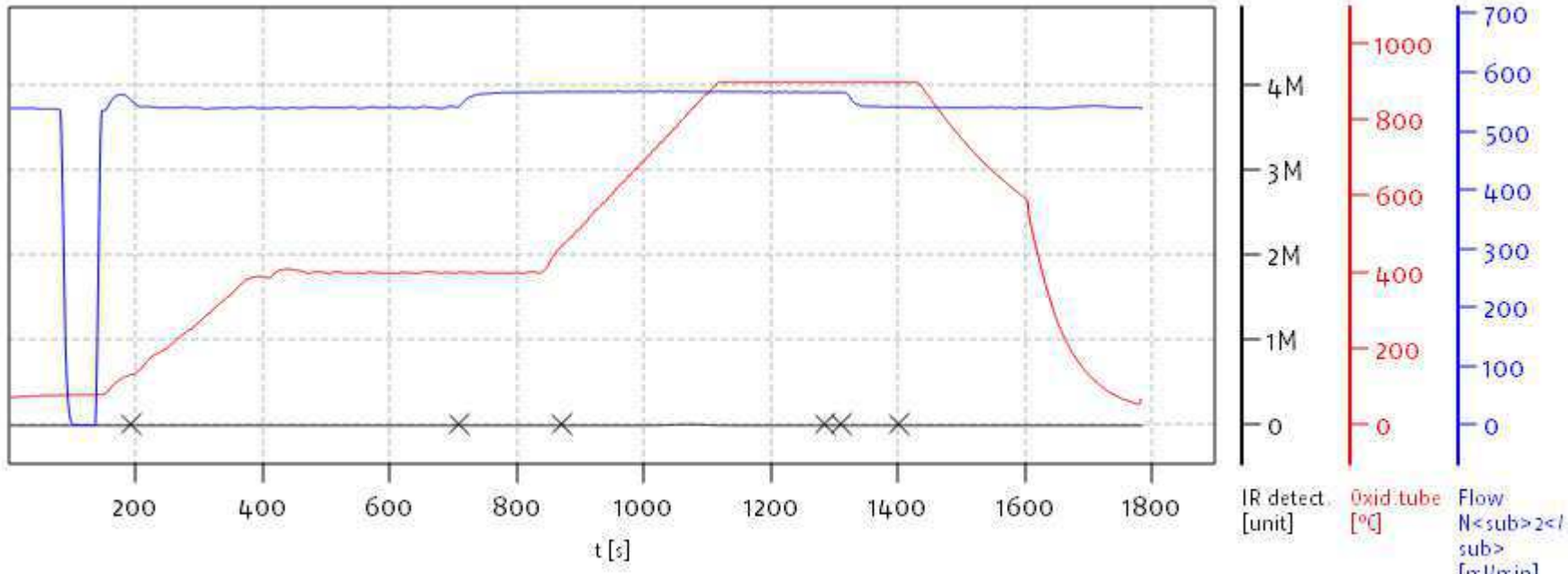
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
5	5	SEQ-CAL3	200.00	0.0071	1.00	CARBON	4/26/2022 1:30 PM	0.006	0.022	0.028	bl,C1u,C2u	2 319	27 530	170	1.0000	0.9343



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Access: soliTOC superuser

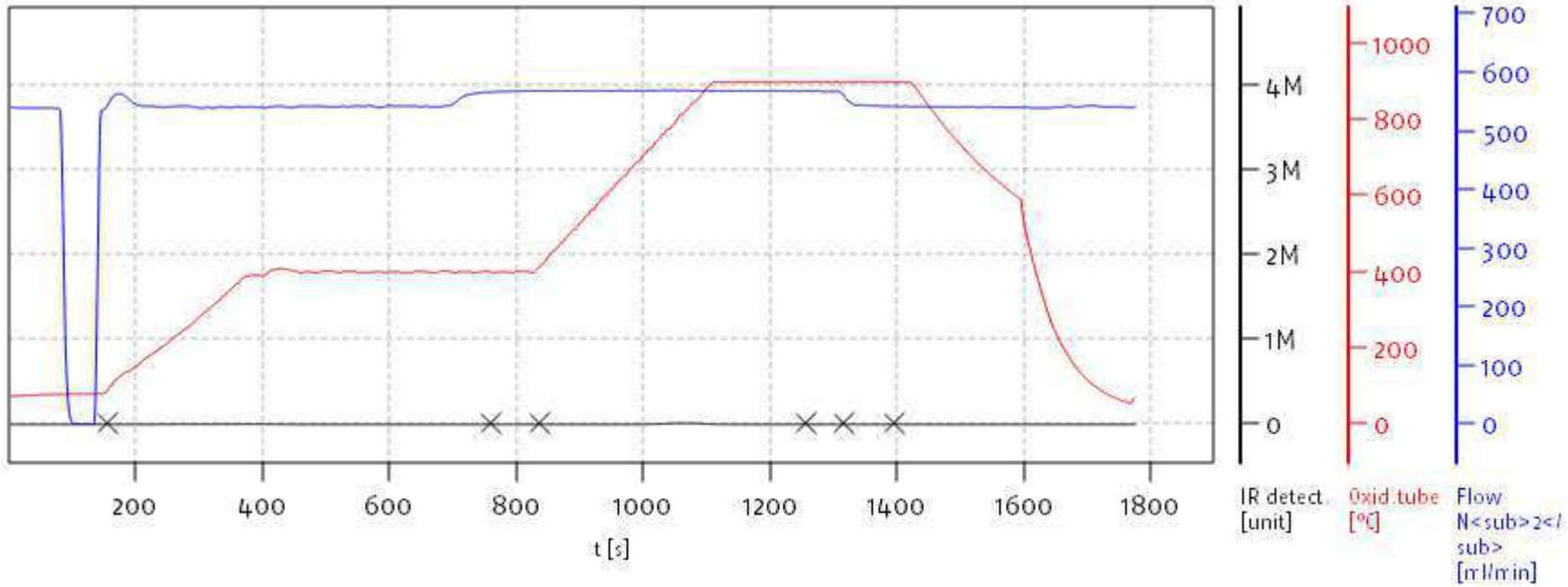
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
6	6	SEQ-CAL4	200.00	0.0098	1.00	CARBON	4/26/2022 2:00 PM	0.020	0.030	0.050	bl,C2u	19 746	38 017	109	1.0000	0.9461



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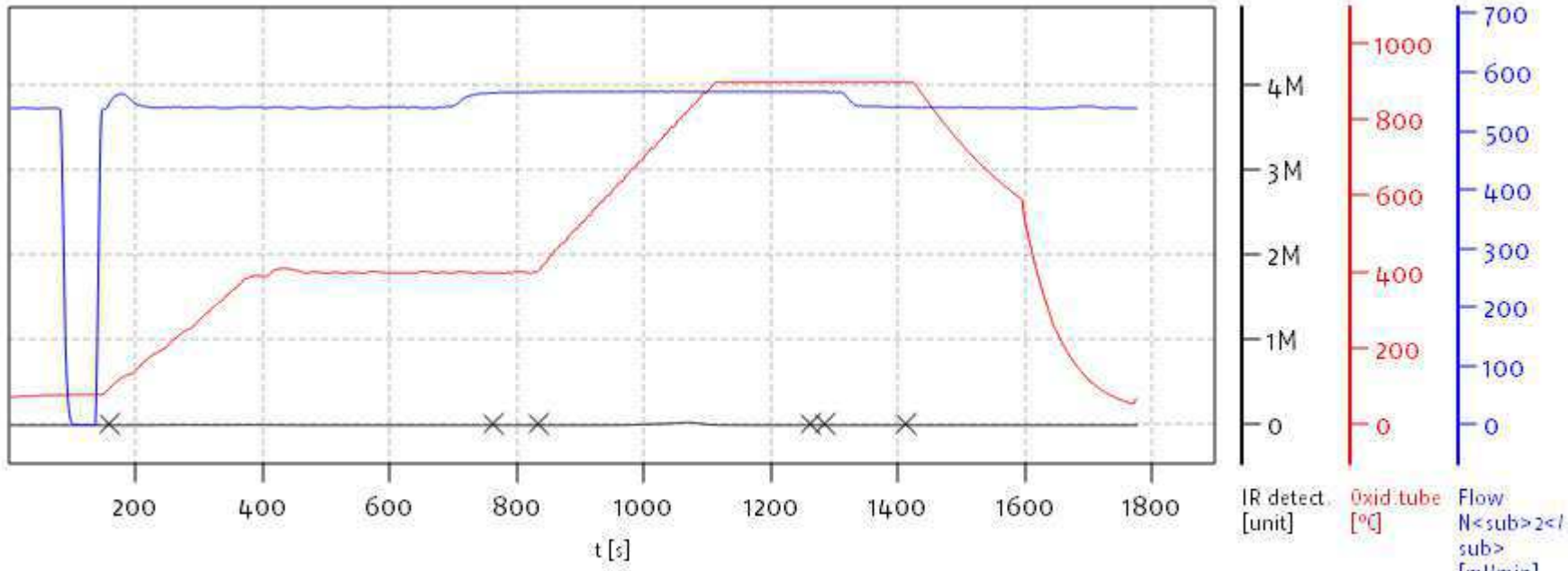
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	SEQ-CAL5	200.00	0.0148	1.00	CARBON	4/26/2022 2:30 PM	0.021	0.045	0.066	bl,C2u	20 951	92 945	236	1.0000	0.5975



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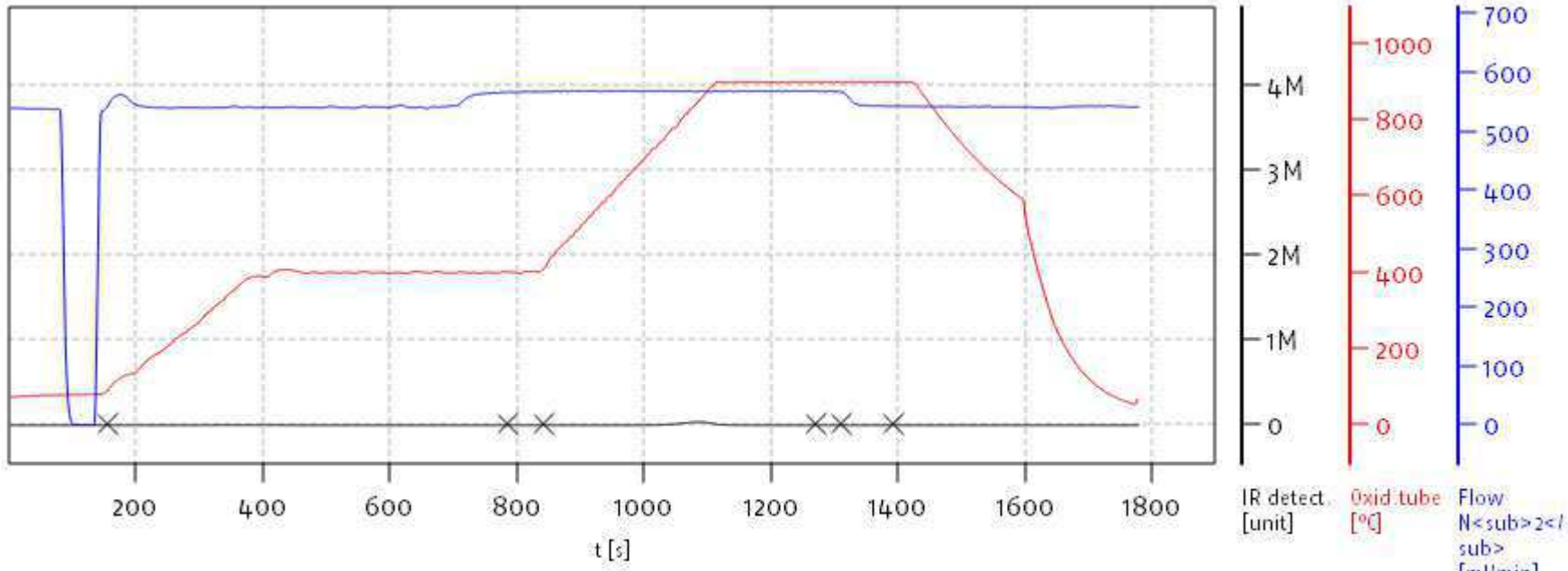
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	8	SEQ-CAL6	200.00	0.0196	1.00	CARBON	4/26/2022 3:00 PM	0.012	0.061	0.073	bl,C2u	10 118	82 297	59	1.0000	0.9144



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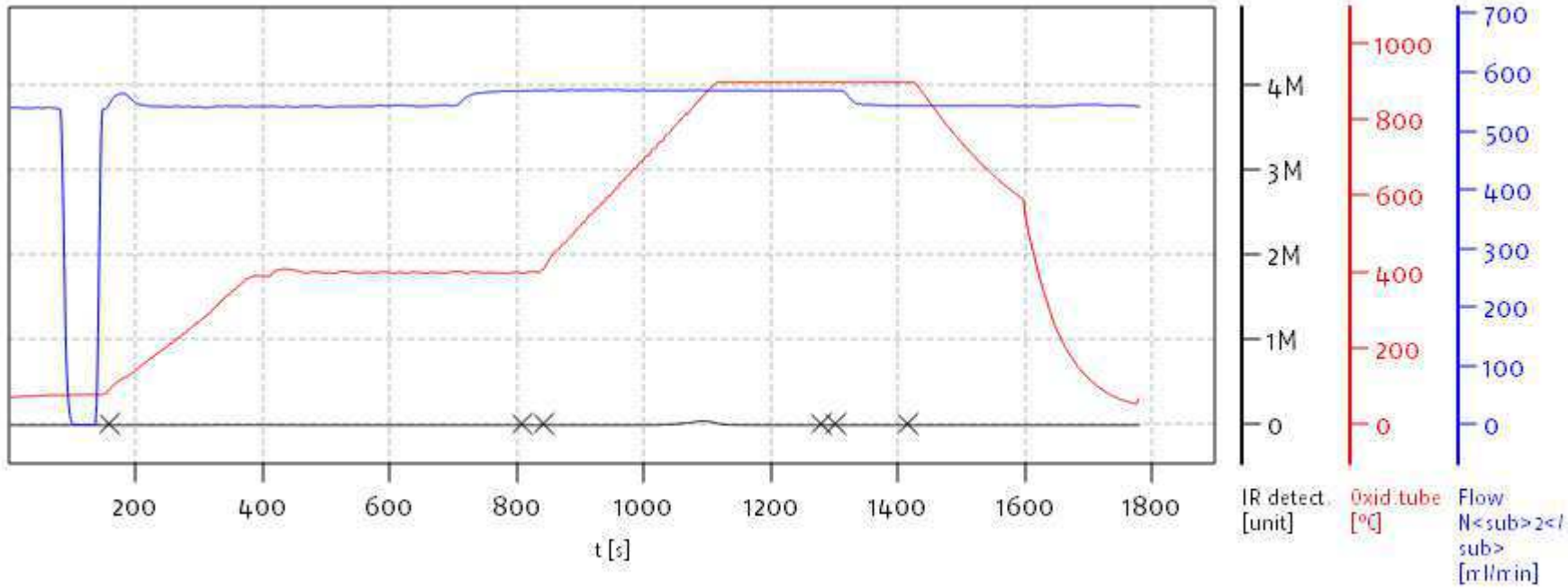
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
9	9	SEQ-CAL7	200.00	0.0247	1.00	CARBON	4/26/2022 3:30 PM	0.013	0.075	0.088	bl,C2u	10 555	101 530	292	1.0000	0.9173



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soliTOC V2.0.2 (31015f9) 2018-11-19
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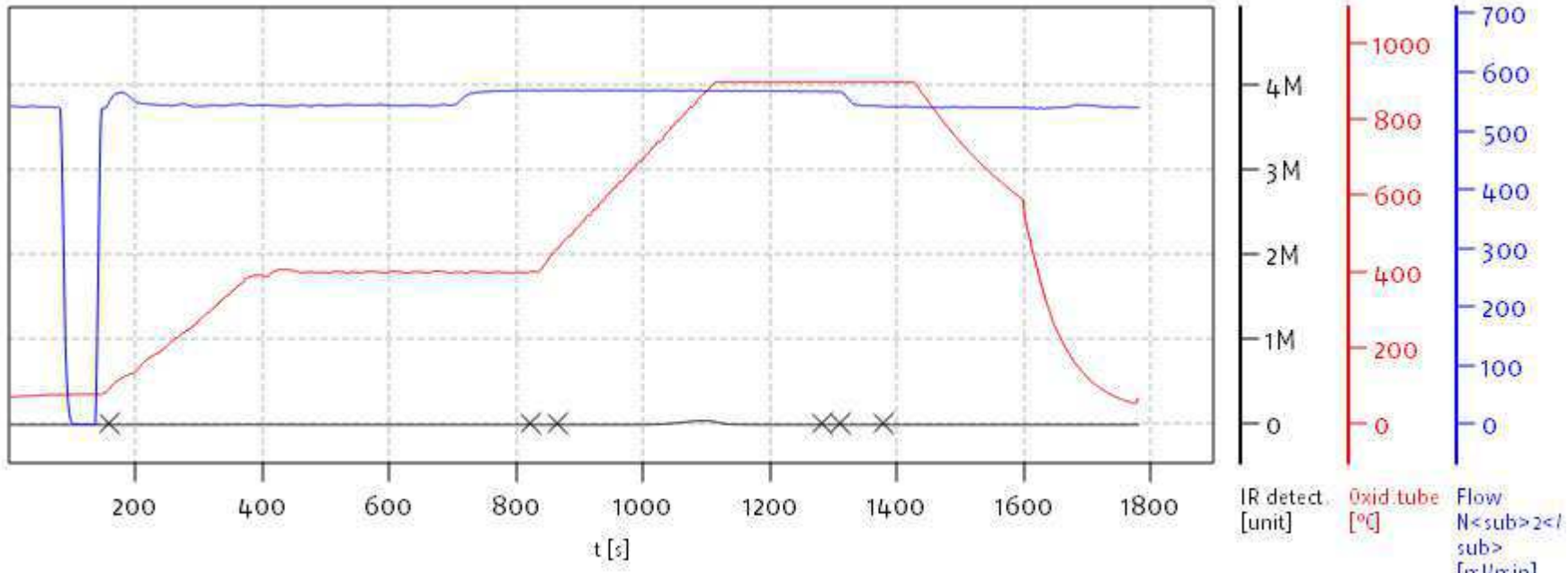
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
10	10	SEQ-CAL8	200.00	0.0298	1.00	CARBON	4/26/2022 4:00 PM	0.009	0.091	0.100	bl,C1u,C2u	6 668	120 822	116	1.0000	0.9312



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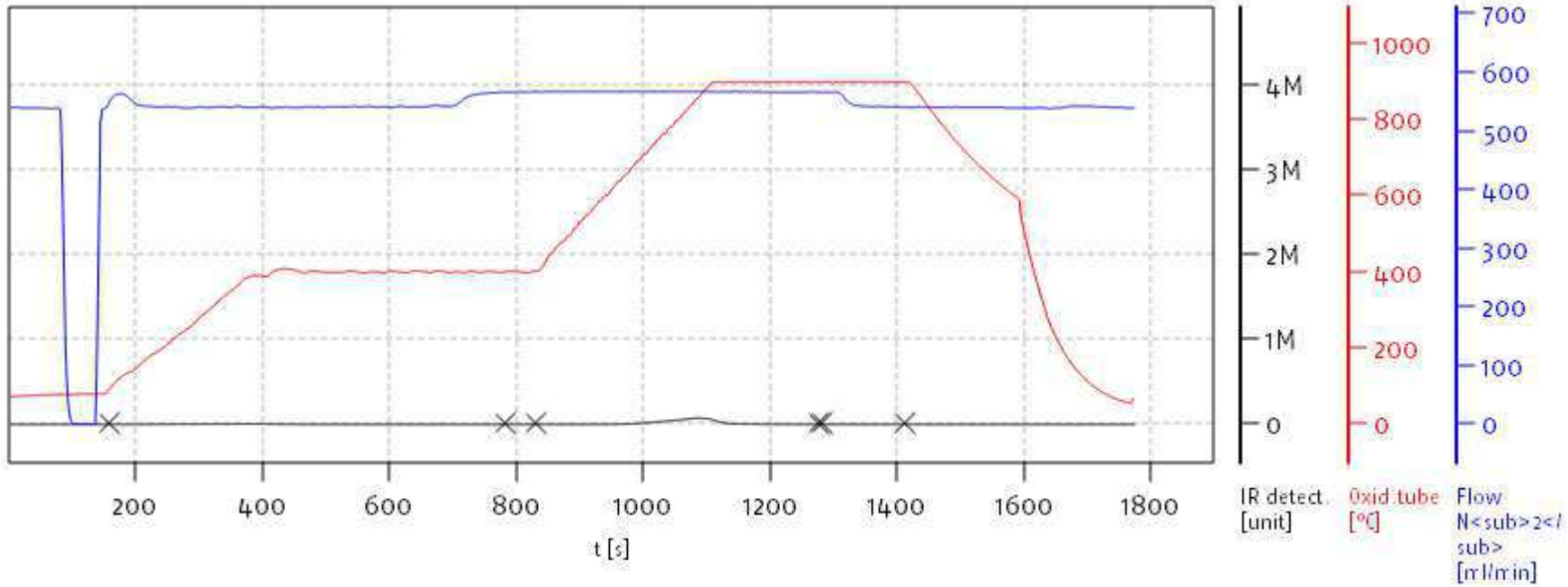
elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
11	11	SEQ-CAL9	200.00	0.0402	1.00	CARBON	4/26/2022 4:30 PM	0.031	0.120	0.151	bl,C2u	32 999	260 234	1 044	1.0000	0.5792



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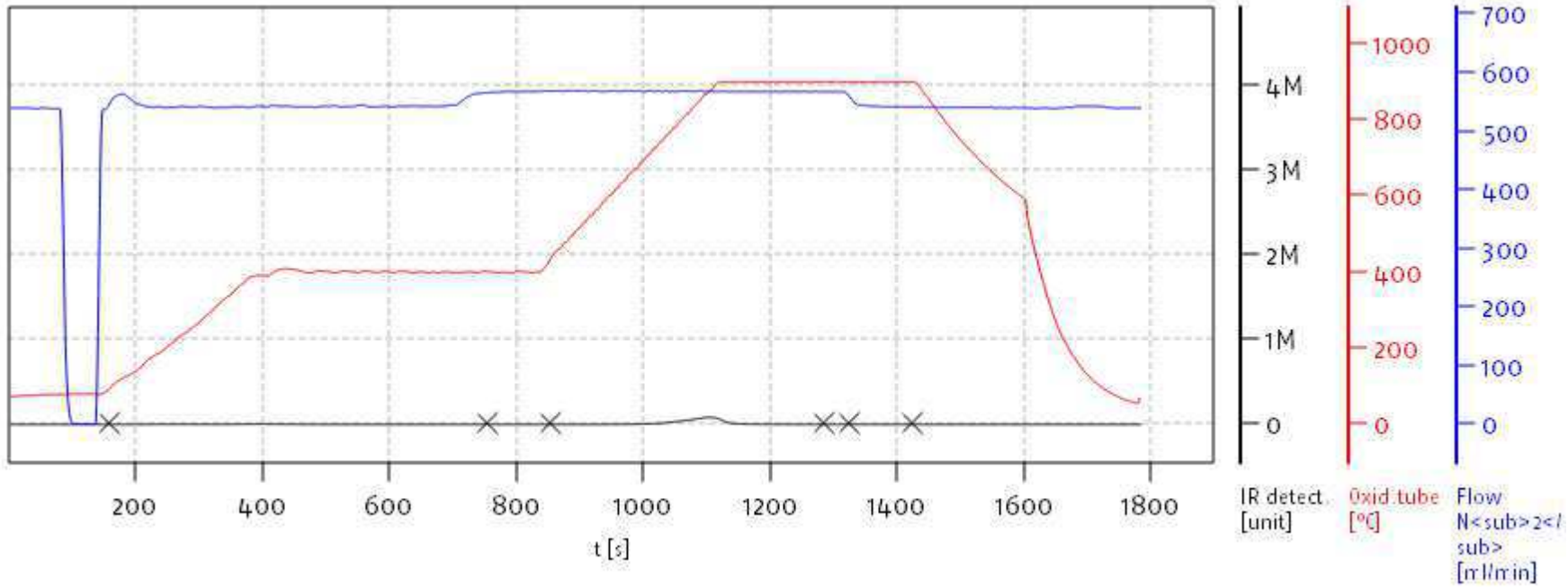
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
12	12	SEQ-CALA	200.00	0.0500	1.00	CARBON	4/26/2022 5:00 PM	0.021	0.151	0.172	bl,C2u	20 147	233 779	913	1.0000	0.8099



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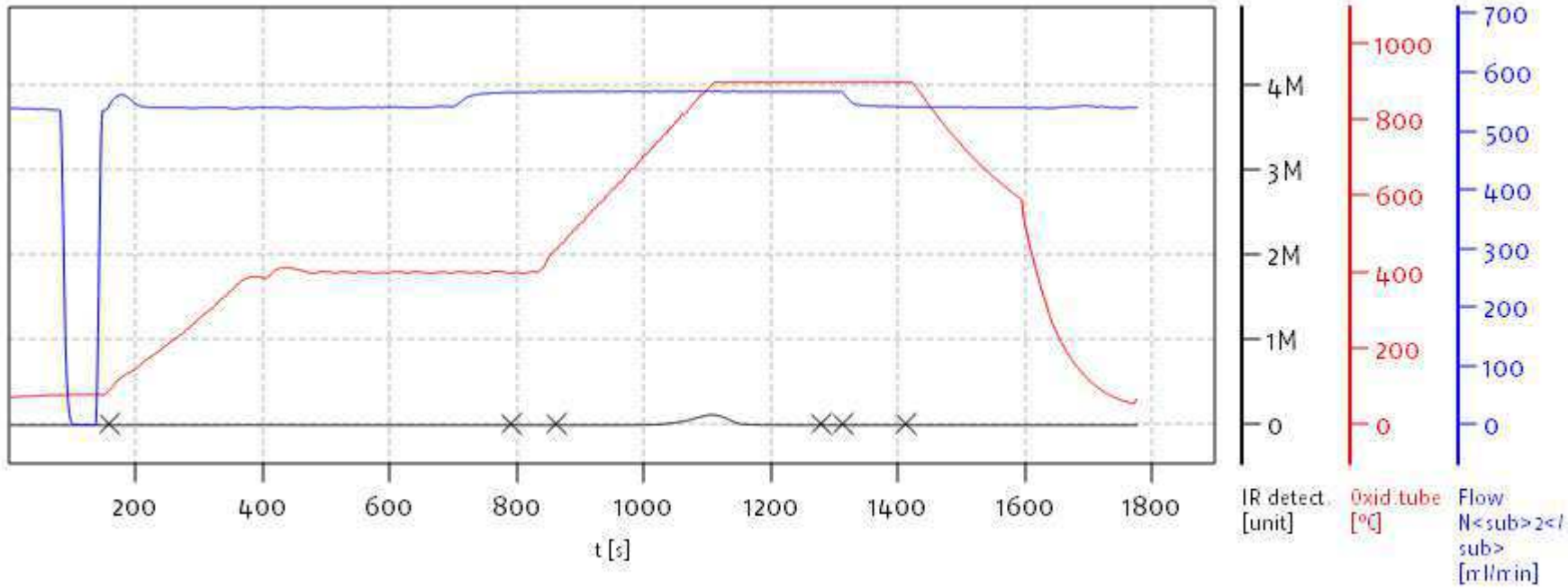
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
13	13	SEQ-CALB	200.00	0.0040	1.00	CARBON	4/26/2022 5:30 PM	0.010	0.258	0.268	bl,C1u,C2u	7 070	323 151	663	1.0000	1.0048



Name:

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Serial No: 0300.181017
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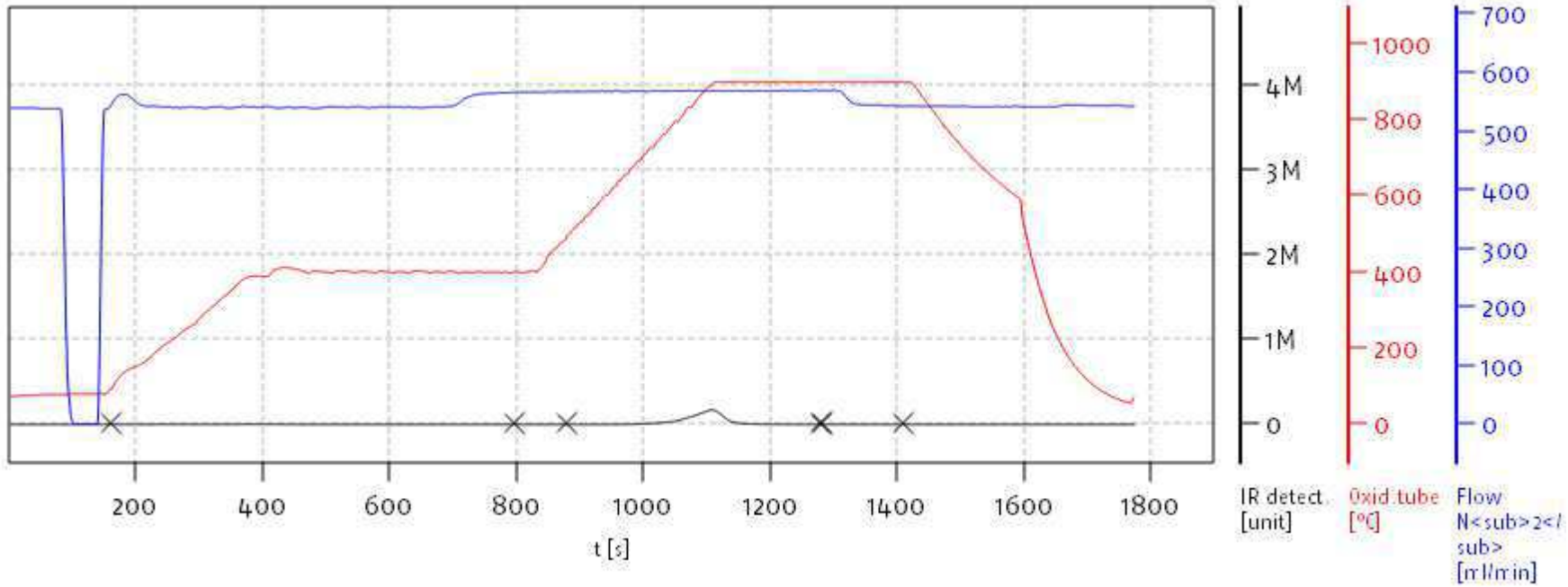
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
14	14	SEQ-CALC	200.00	0.0048	1.00	CARBON	4/26/2022 6:00 PM	0.015	0.324	0.339	bl,C2u	13 785	411 879	575	1.0000	0.9917



Name:

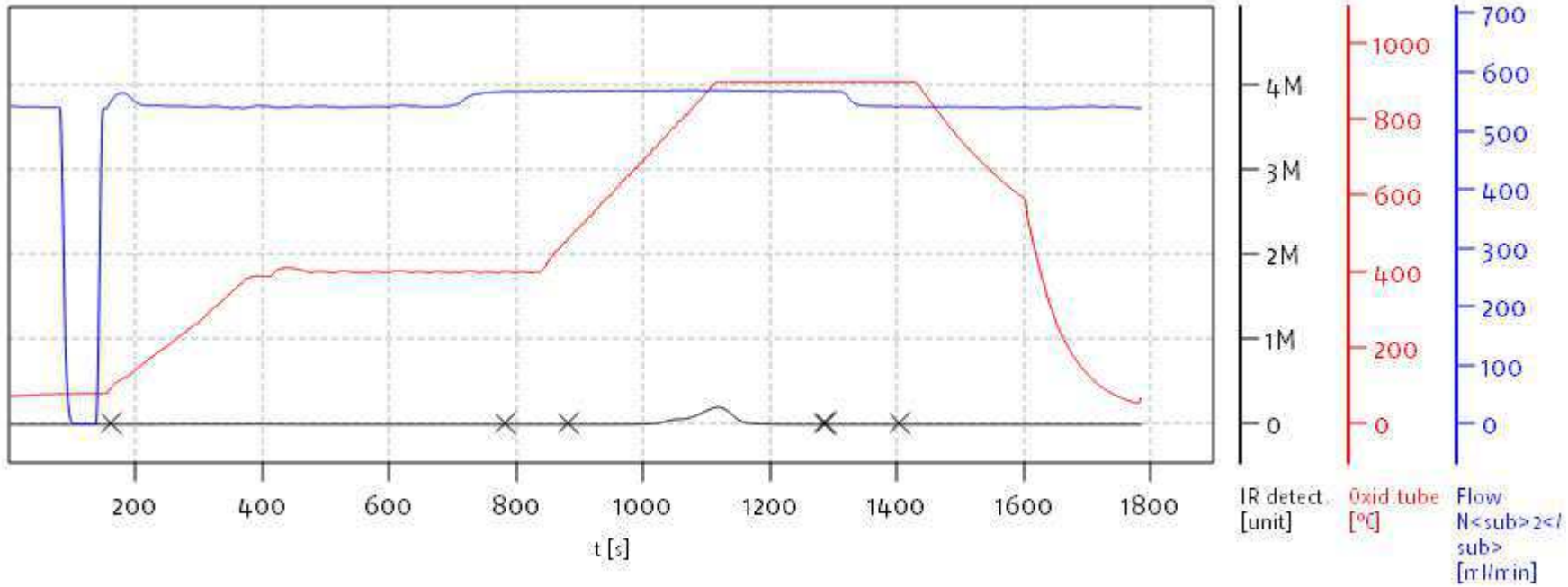
Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
15	15	SEQ-CALD	200.00	0.0069	1.00	CARBON	4/26/2022 6:30 PM	0.019	0.444	0.463	bl,C2u	18 465	553 540	263	1.0000	1.0129



Name:

Access: soliTOC superuser

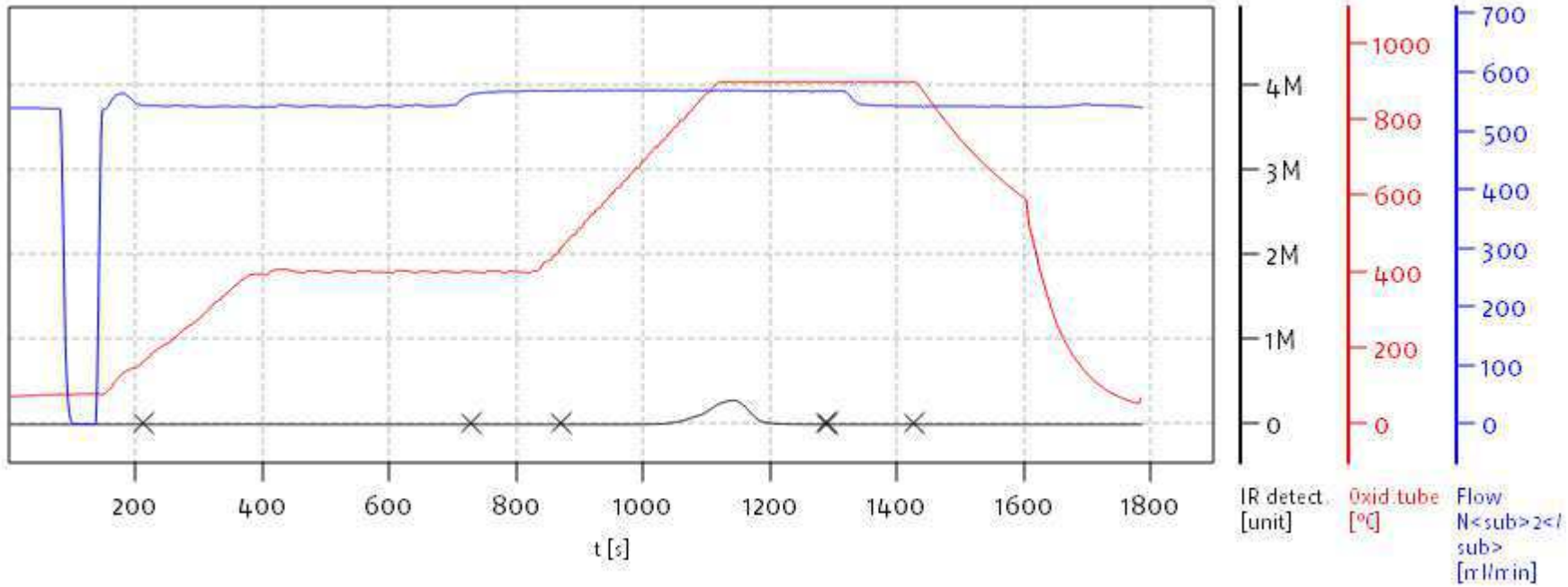
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
16	16	SEQ-CALE	200.00	0.0101	1.00	CARBON	4/26/2022 7:00 PM	0.009	0.600	0.609	bl,C1u,C2u	5 485	839 878	536	1.0000	0.9036



Name:

Access: soliTOC superuser

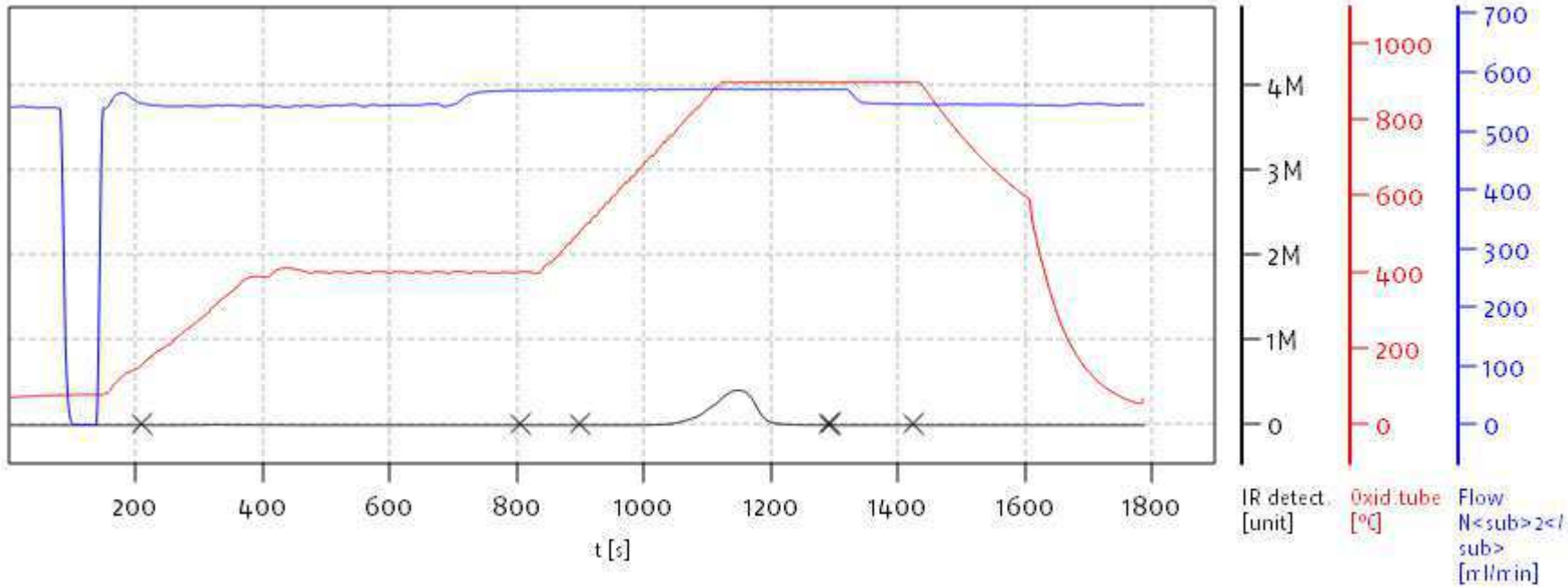
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
17	17	SEQ-CALF	200.00	0.0149	1.00	CARBON	4/26/2022 7:31 PM	0.019	0.906	0.925	bl,C2u	17 439	1 236 200	814	1.0000	0.9279



Name:

Access: soliTOC superuser

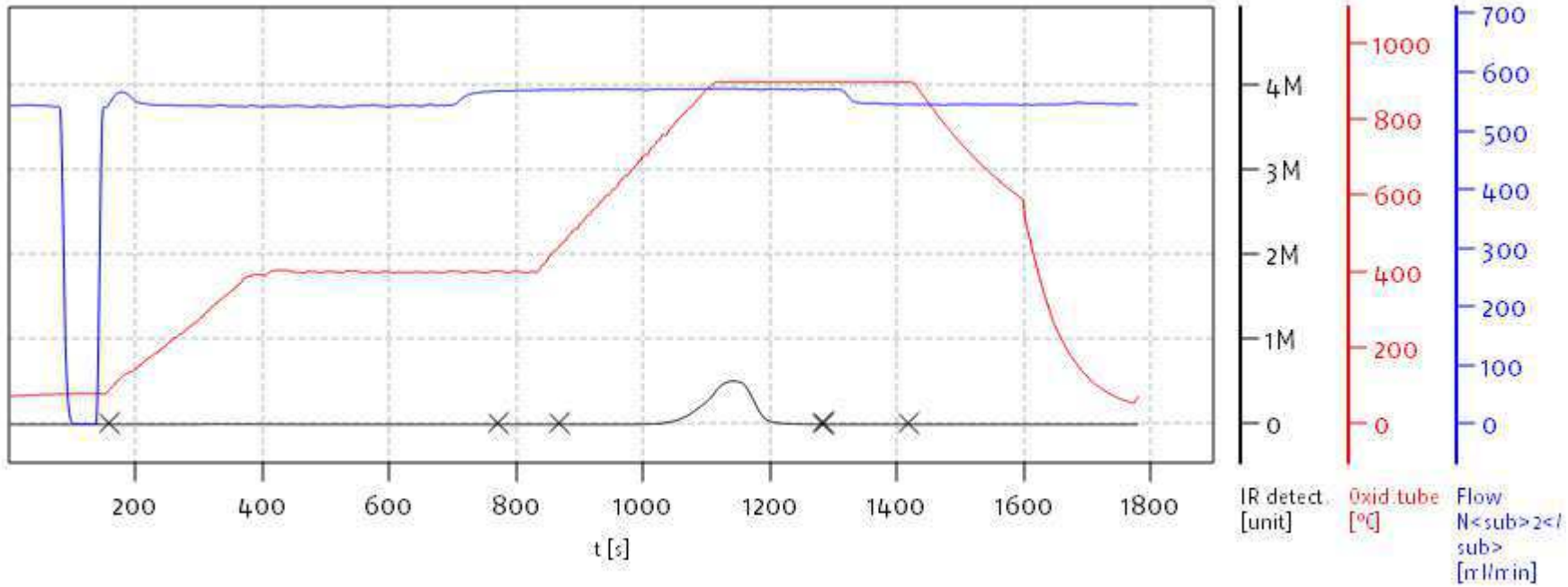
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
18	18	SEQ-CALG	200.00	0.0198	1.00	CARBON	4/26/2022 8:01 PM	0.015	1.206	1.221	bl,C2u	12 557	1 639 190	1 295	1.0000	0.9320



Name:

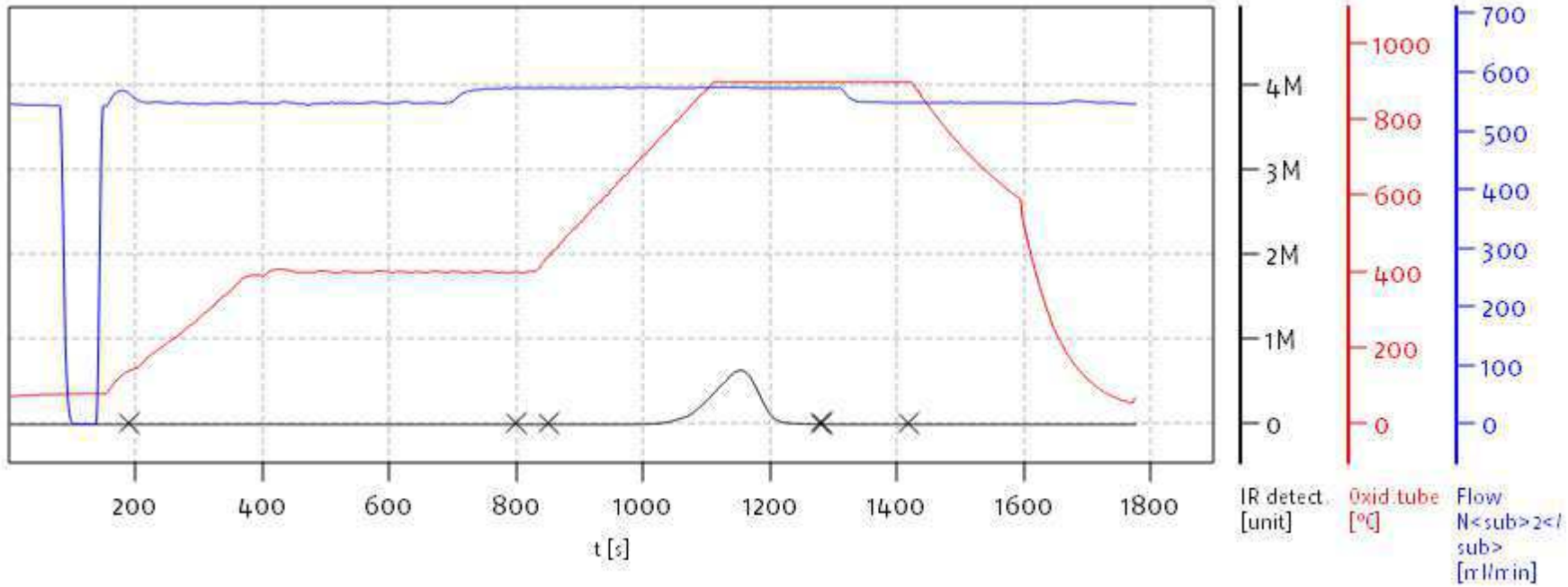
Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
19	19	SEQ-CALH	200.00	0.0250	1.00	CARBON	4/26/2022 8:31 PM	0.009	1.524	1.533	bl,C1u,C2u	4 029	2 063 890	2 225	1.0000	0.9357



Name:

Access: soliTOC superuser

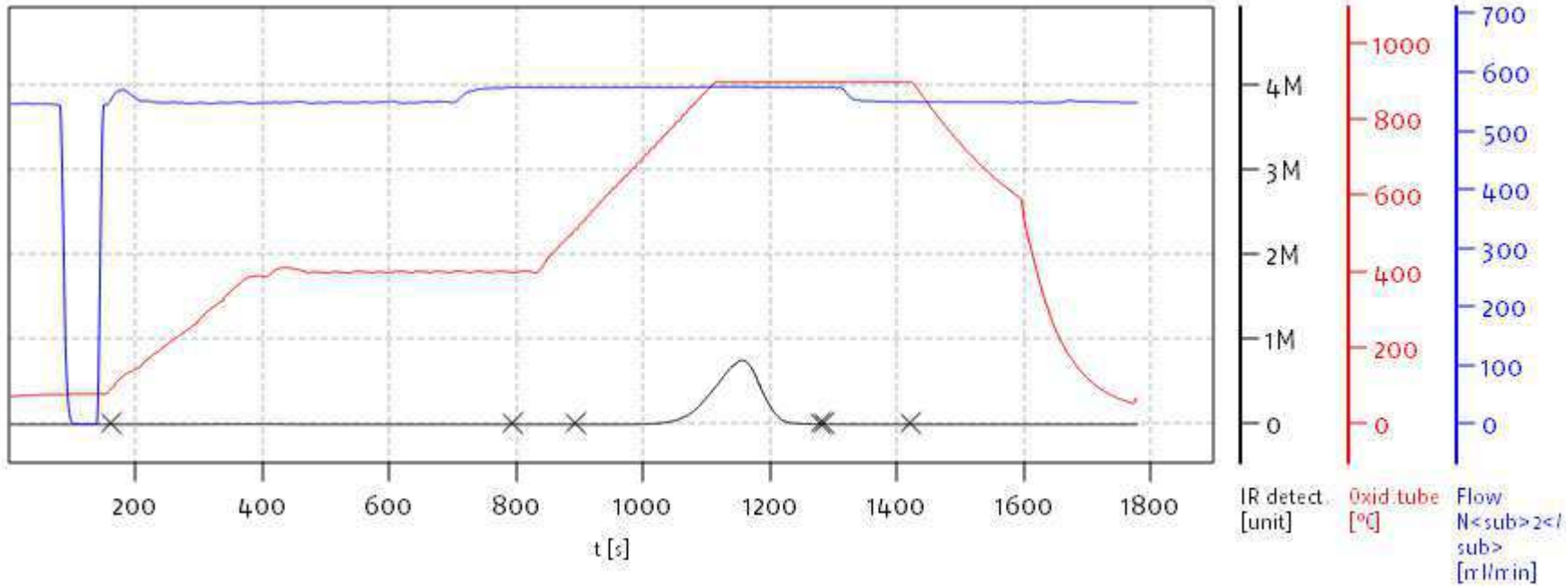
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
20	20	SEQ-CALI	200.00	0.0303	1.00	CARBON	4/26/2022 9:01 PM	0.017	1.800	1.817	bl,C2u	13 926	2 495 900	2 903	1.0000	0.9140



Name:

Access: soliTOC superuser

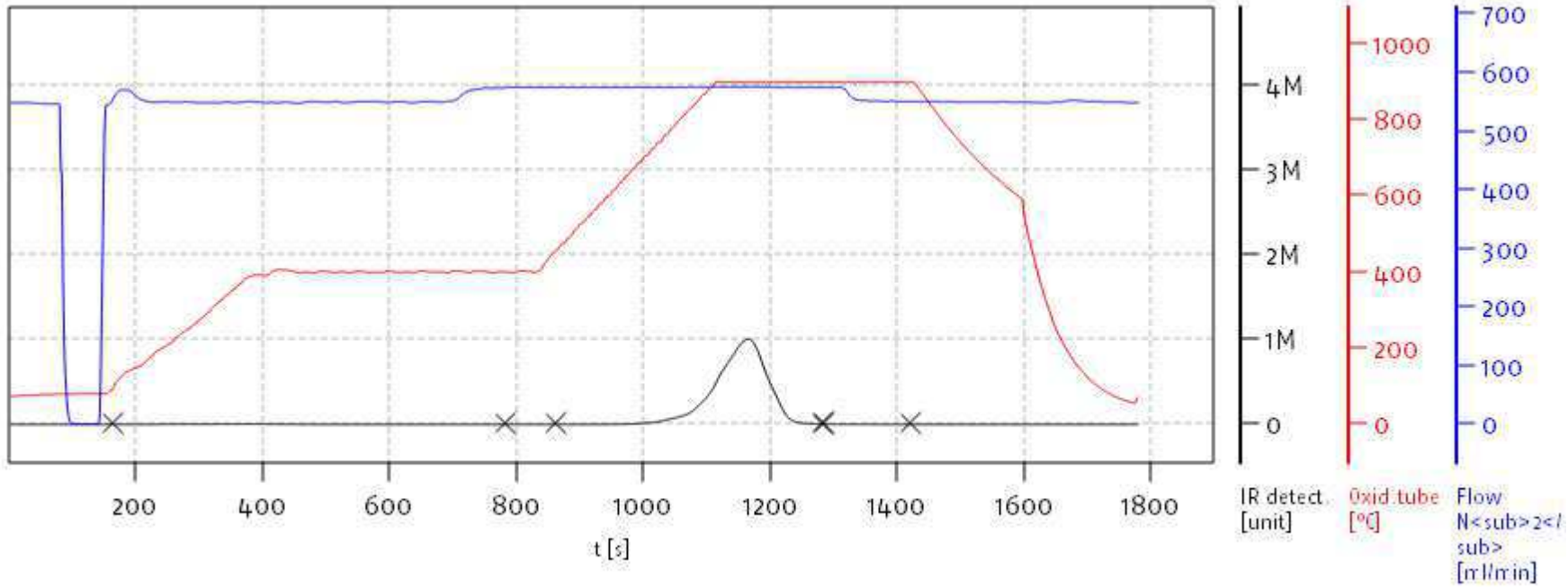
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
21	21	SEQ-CALJ	200.00	0.0415	1.00	CARBON	4/26/2022 9:31 PM	0.031	2.400	2.431	bl,C2u	28 786	3 482 530	5 351	1.0000	0.8737



Name:

Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

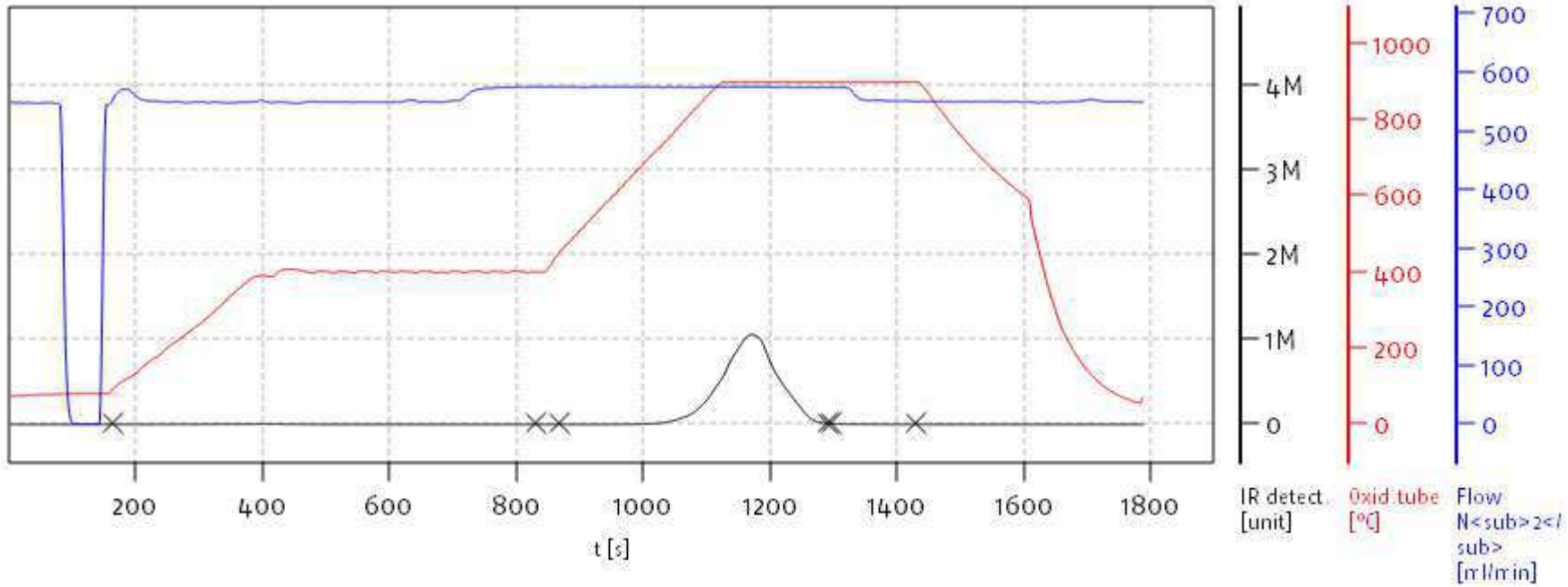
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 042622 DOE CALIBRATION from: 4/27/2022 11:05 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
22	22	SEQ-CALK	200.00	0.0497	1.00	CARBON	4/26/2022 10:01 PM	0.031	3.012	3.043	bl	23 732	4 105 830	9 736	1.0000	0.9301



Name:

Access: soliTOC superuser

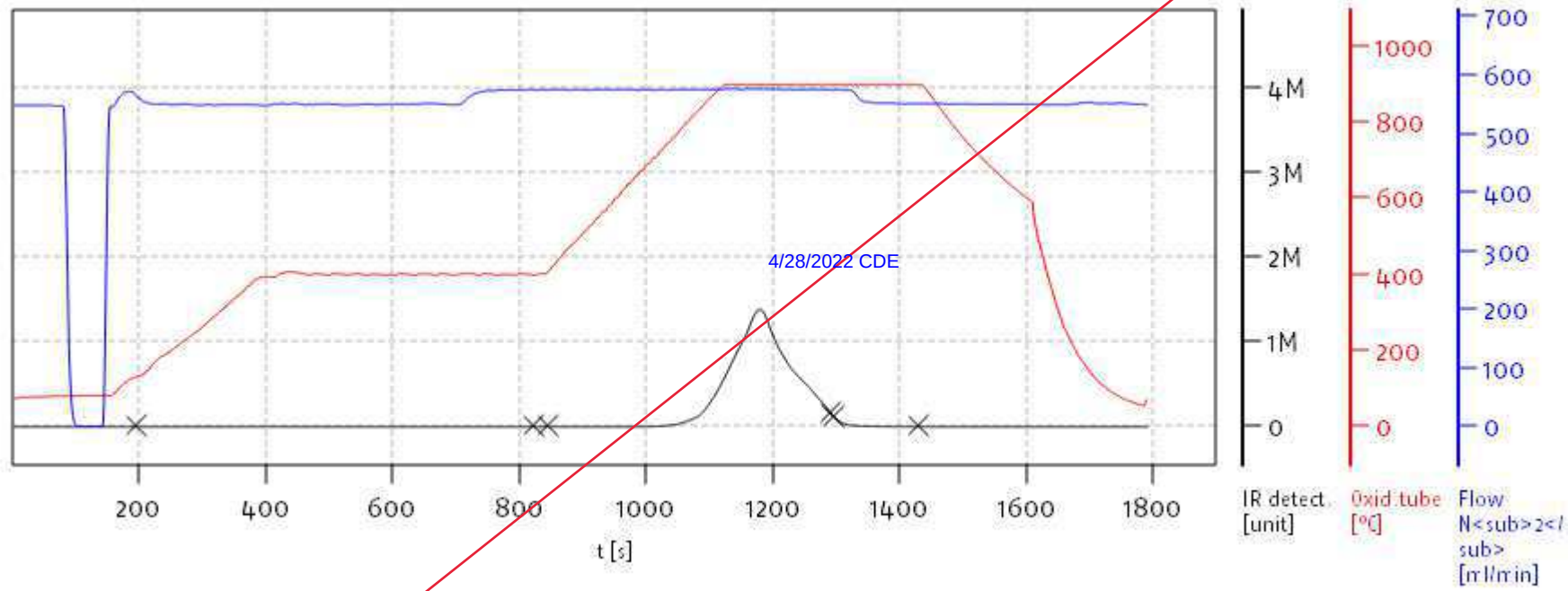
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	SEQ-CALL	200.00	0.0698	1.00	CARBON	4/26/2022 10:31 PM	0.005	3.805	3.810	bl,C1u	3 605	5 648 620	71 970	1.0000	0.9443



Name:

Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

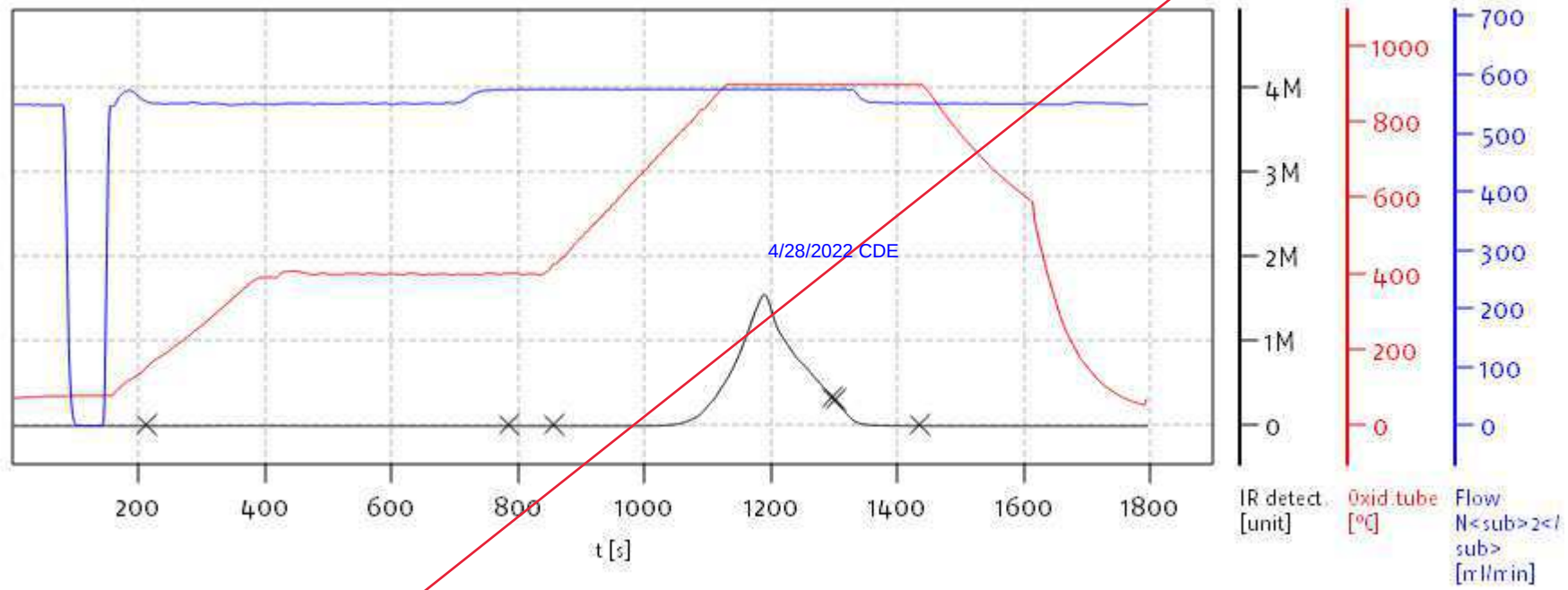
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	SEQ-CALM	200.00	0.0803	1.00	CARBON	4/26/2022 11:02 PM	0.010	4.637	4.647	bl	10 023	6 397 530	228 171	1.0000	0.9539



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Access: soliTOC superuser

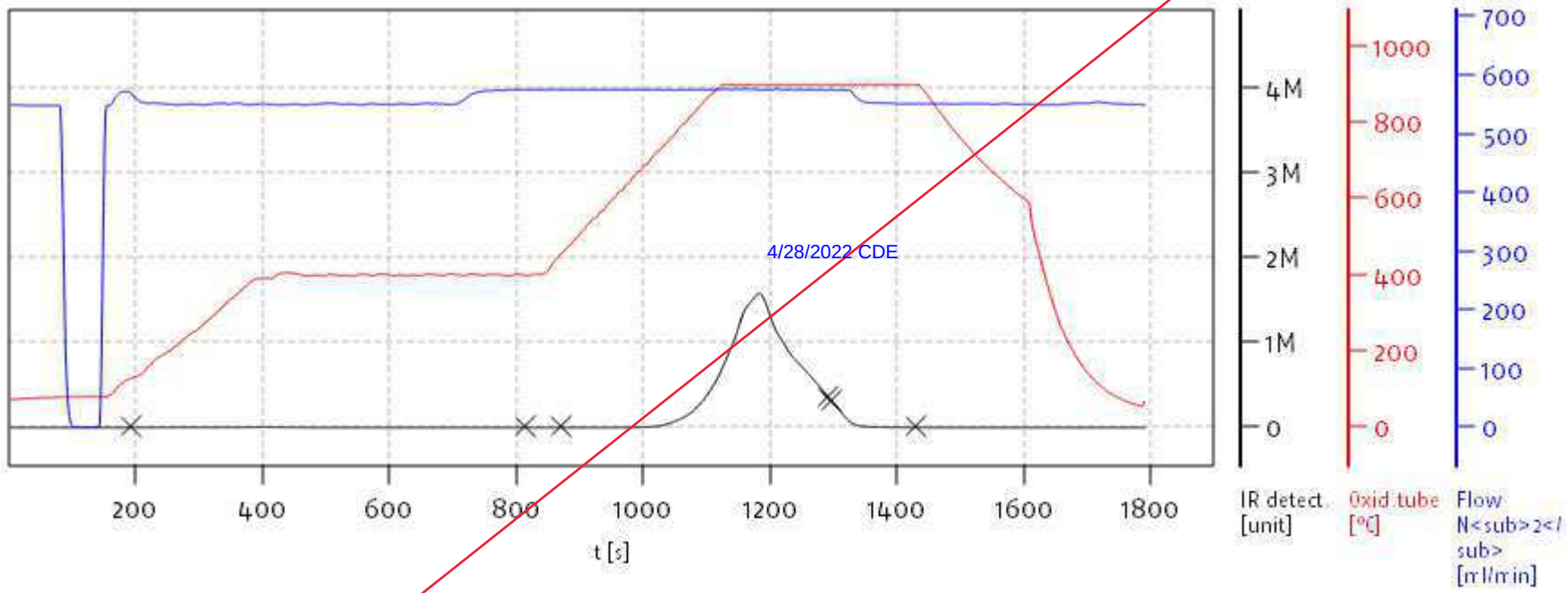
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	SEQ-CALN	200.00	0.0901	1.00	CARBON	4/26/2022 11:32 PM	0.020	5.219	5.239	bl	23 354	7 186 580	239 986	1.0000	0.9540



Name:

Access: soliTOC superuser

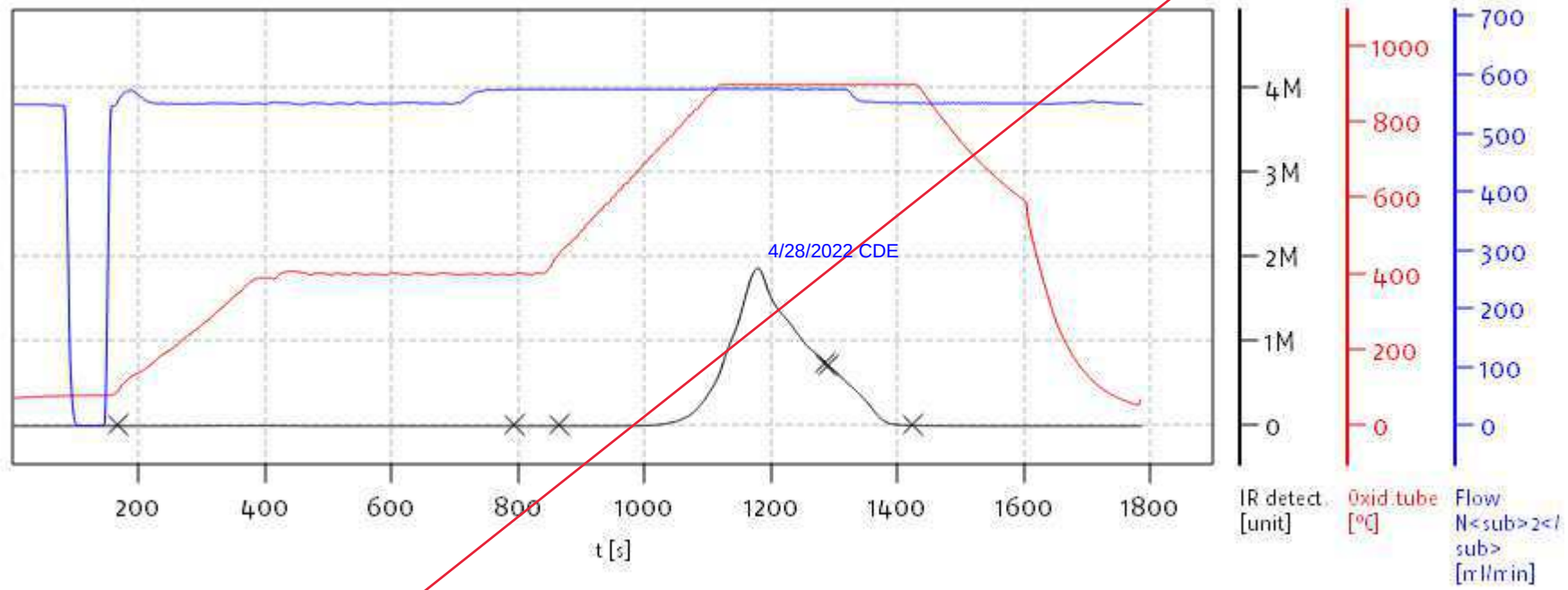
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	SEQ-CALO	200.00	0.1200	1.00	CARBON	4/27/2022 12:02 AM	0.019	7.915	7.934	bl,C3o	21 248	8 544 610	1 334 580	1.0000	1.0714



Name:

Access: soliTOC superuser

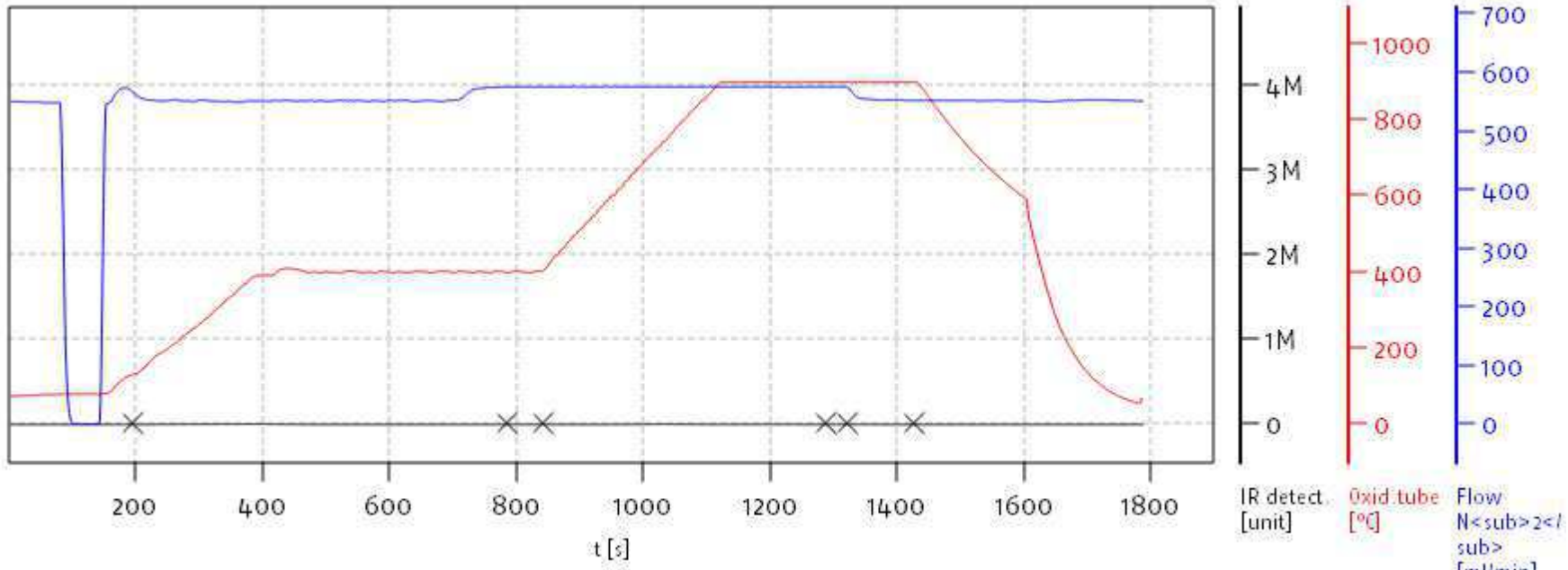
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
27	27	BLANK	1.00		1.00	CARBON	4/27/2022 12:32 AM	0.000	0.000	0.000	bl	29 766	19 596	1 205	1.0000	0.9007



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Access: soliTOC superuser

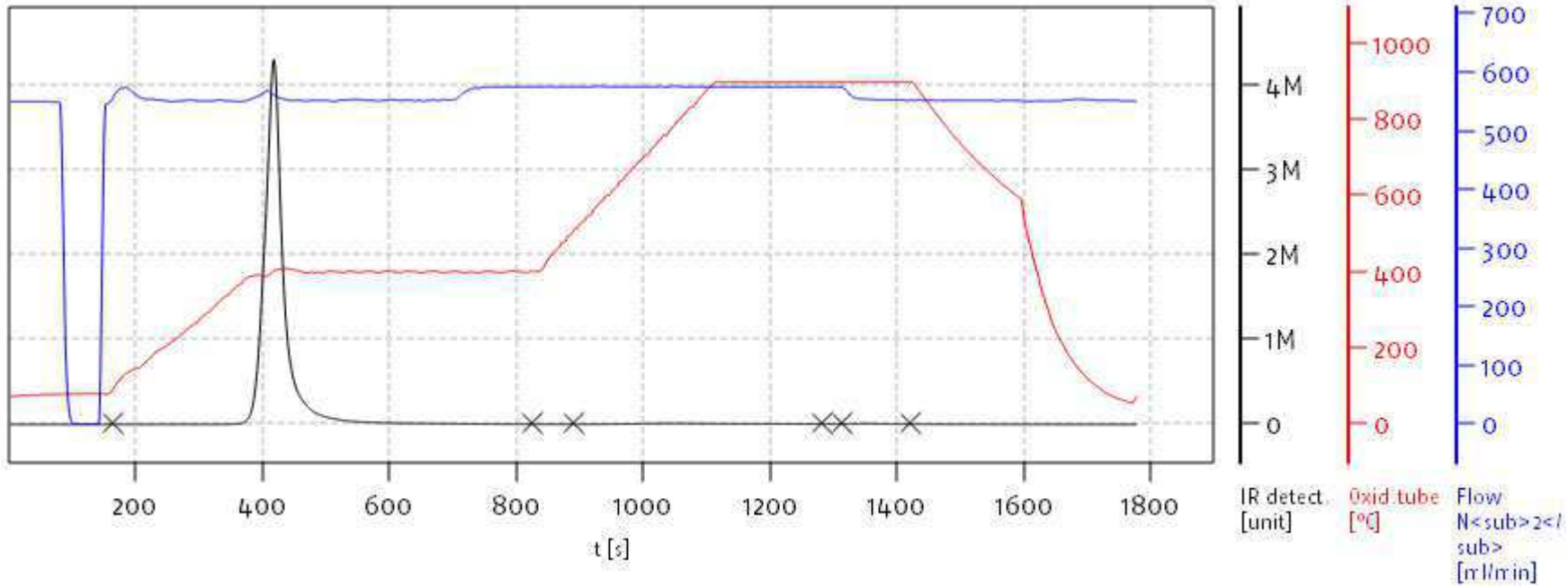
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
28	28	Dfactor	19.00		1.00	CARBON	4/27/2022 1:02 AM	44.678	0.893	45.571	bl	5 588 680	104 999	25 384	0.9581	1.0000



Name:

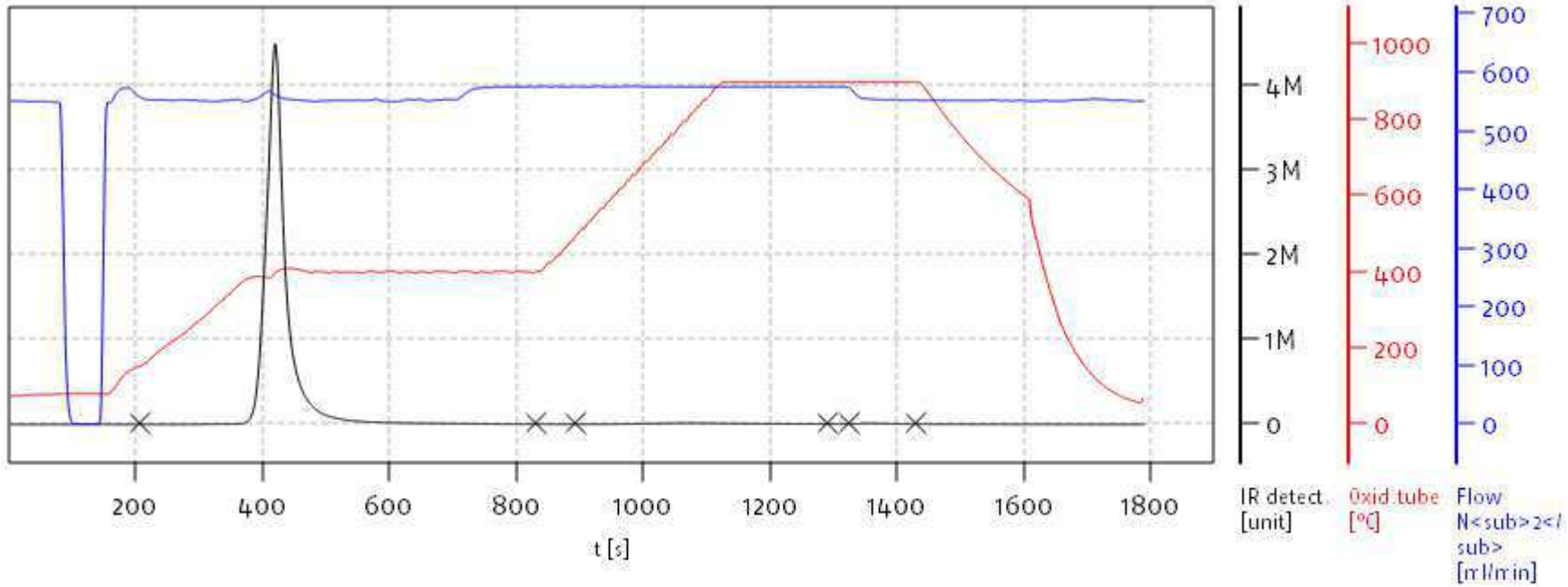
Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
29	29	Dfactor	20.80		1.00	CARBON	4/27/2022 1:32 AM	44.694	0.937	45.631	bl	6 076 750	120 961	30 224	0.9647	1.0000



Name:

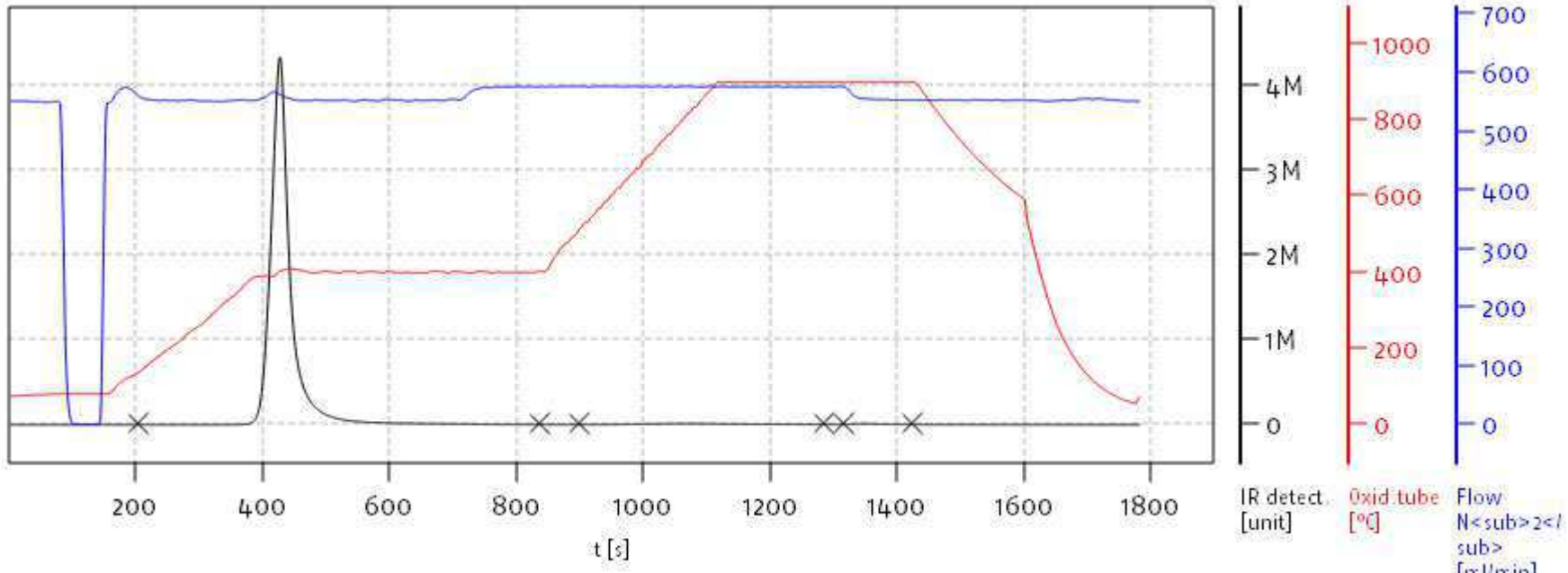
Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
30	30	SEQ-ICV1	19.40		1.00	CARBON	4/27/2022 2:03 AM	44.964	0.742	45.706	bl	5 722 450	98 735	27 054	0.9614	0.9007



Name:

Access: soliTOC superuser

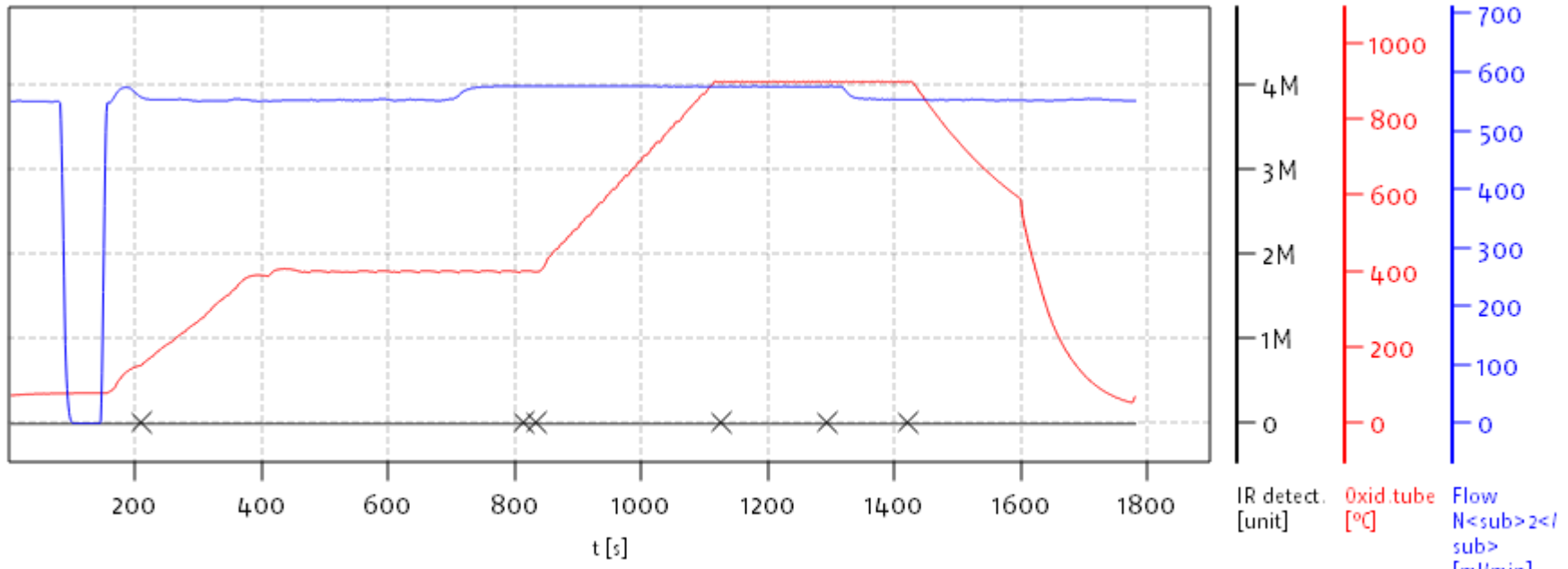
Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
31	31	SEQ-ICB1	501.10		1.00	CARBON	4/27/2022 2:33 AM	0.002	0.001	0.003	bl,C1u,C3u,C2u	2 158	225	165	0.9614	0.9007



Name:

Access: soliTOC superuser

Date: Wed Apr 27 11:07:12 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

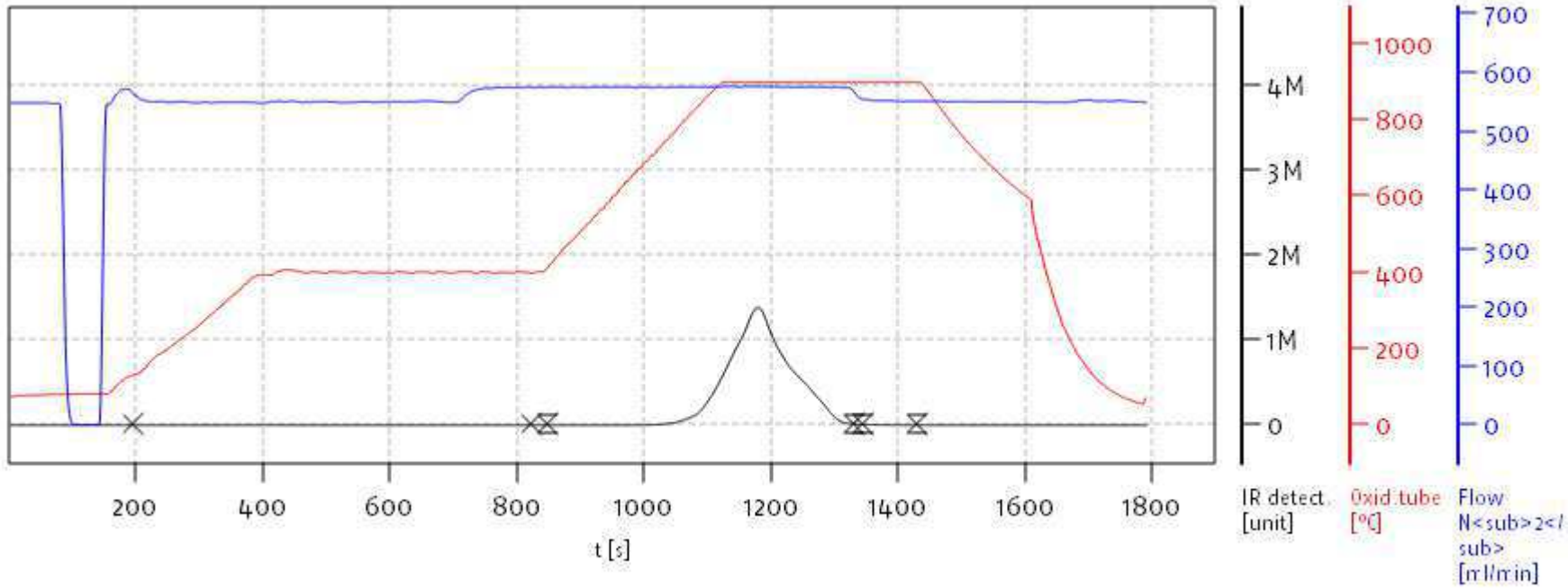
elementar
EXCELLENCE IN ELEMENTS

Document: 042622 DOE CALIBRATION from: 4/27/2022 11:05 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	SEQ-CALL	200.00	0.0698	1.00	CARBON	4/27/2022 11:08 AM	0.005	3.917	3.922	bl,C1u	3 605	**5 260 365**	**0**	1.0000	0.9443



Name:

Access: soliTOC superuser

Date: Wed Apr 27 11:10:16 2022

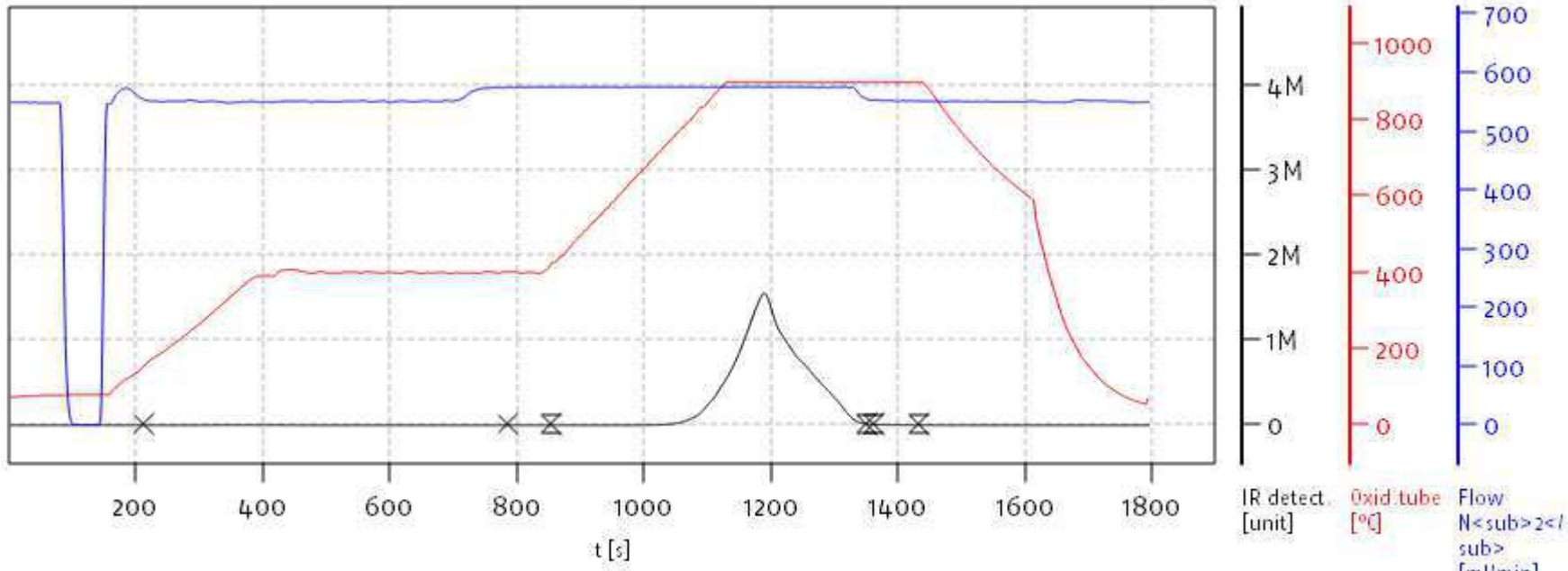
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 042622 DOE CALIBRATION from: --.--.-- (modified)

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	SEQ-CALM	200.00	0.0803	1.00	CARBON	4/27/2022 11:08 AM	0.010	4.637	4.647	bl	10 023	**6 164 833**	**0**	1.0000	0.9539



Name:

Access: soliTOC superuser

Date: Wed Apr 27 11:10:16 2022

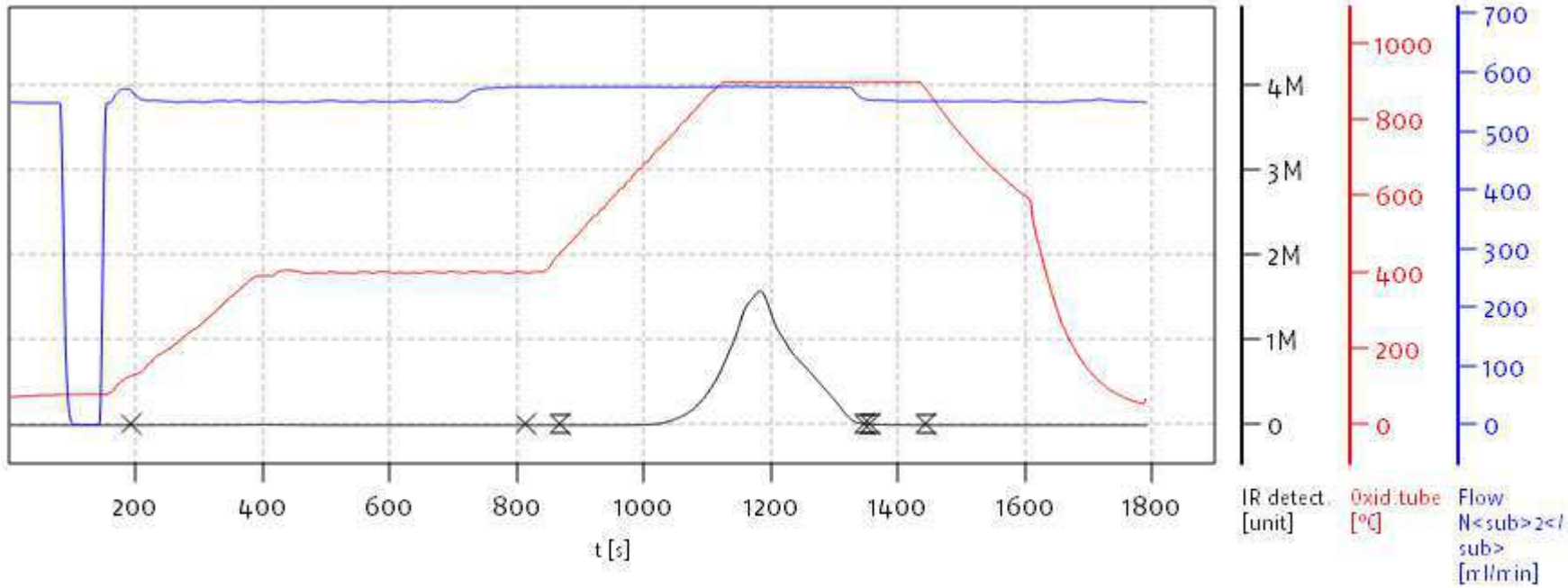
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 042622 DOE CALIBRATION from: --.--.-- (modified)

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	SEQ-CALN	200.00	0.0901	1.00	CARBON	4/27/2022 11:09 AM	0.020	5.219	5.239	bl	23 354	**6 937 833**	**0**	1.0000	0.9540



Name:

Access: soliTOC superuser

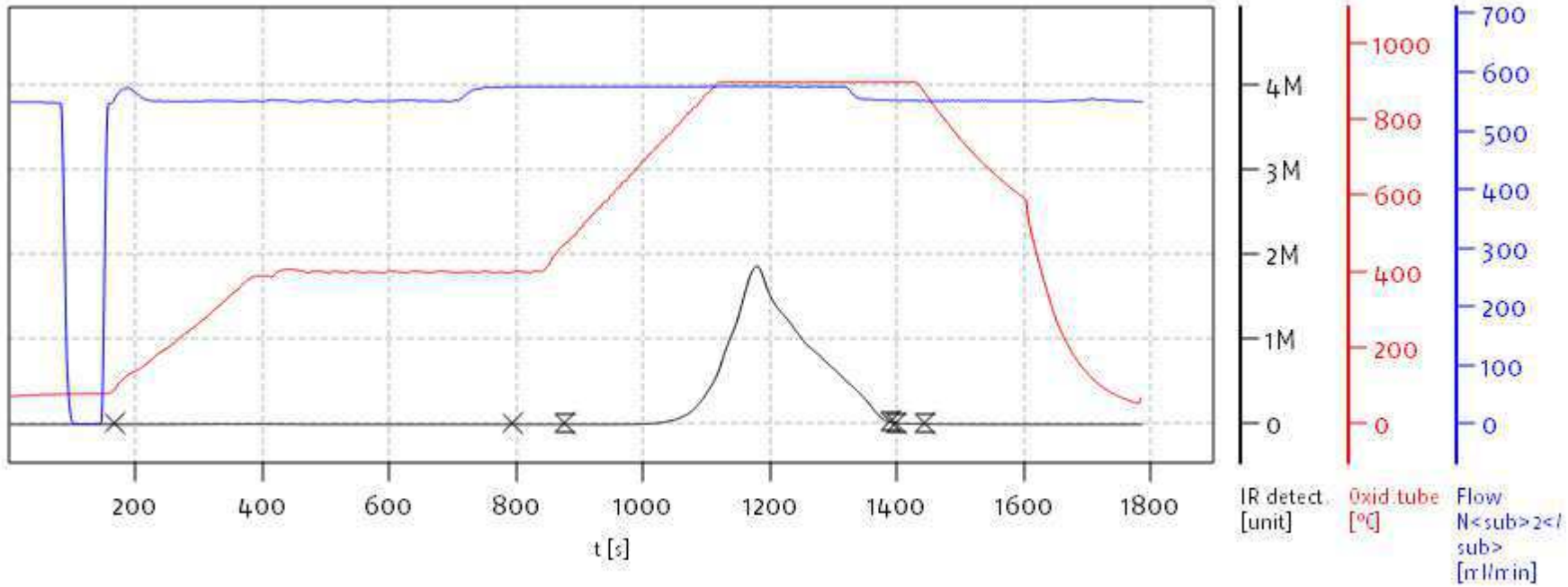
Date: Wed Apr 27 11:10:16 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: DOE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	SEQ-CALO	200.00	0.1200	1.00	CARBON	4/27/2022 11:09 AM	0.019	7.915	7.934	bl,C3o	21 248	9 370 139	0	1.0000	1.0714



Name:

Access: soliTOC superuser

Date: Wed Apr 27 11:10:16 2022

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

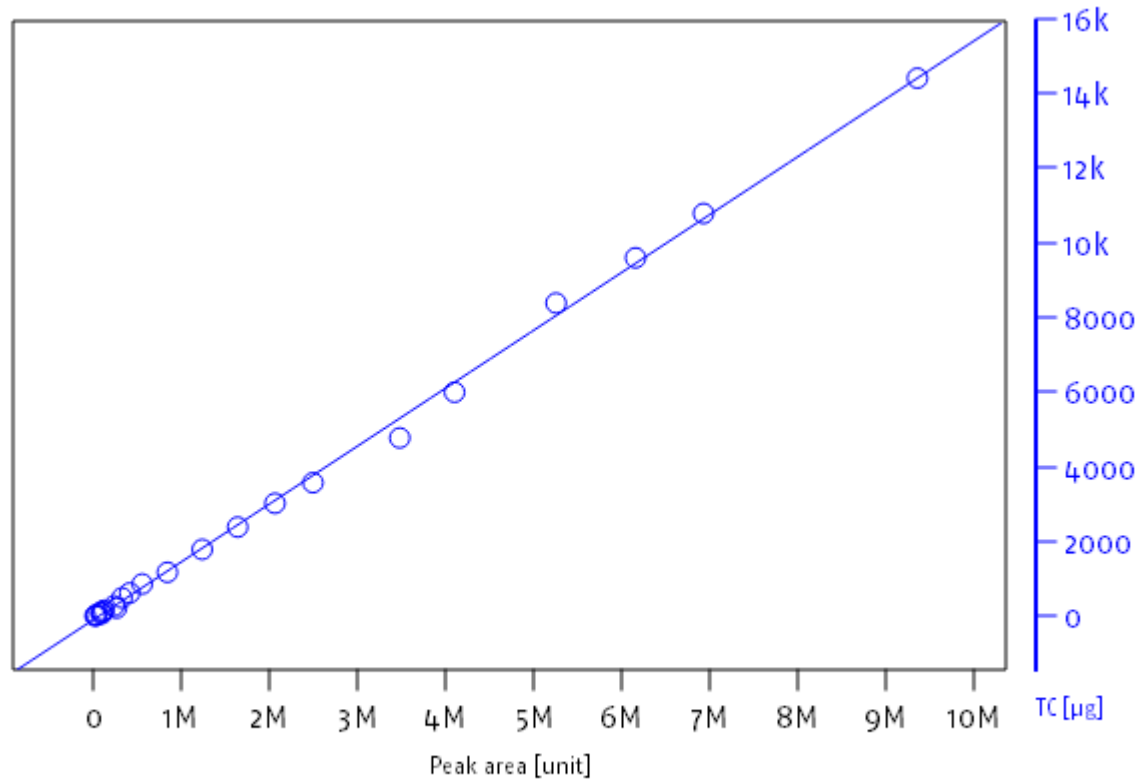
elementar
EXCELLENCE IN ELEMENTS

Document: 042622 DOE CALIBRATION from: --.--.-- (modified)

Calibration parameters TC, Whole range

a	-4.107546e-02
b	+1.548032e-06
c	+0.000000e+00
d	+0.000000e+00
e	+0.000000e+00
r	0.998372
r_old	0.998372
Proc.-SD	166.070255 µg

Calibration graph TC, Whole range



INSTRUMENT BLANKS
EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: TOC Cube
Calibration: FD00070
Sequence: SKD0371
Date Analyzed: 04/27/22 02:33

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SKD0371-ICB1	Total Organic Carbon	0.00	0.02	0.02	%	

INSTRUMENT BLANKS
EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: TOC Cube
Calibration: FD00070
Sequence: SLC0025
Date Analyzed: 03/02/23 18:48

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SLC0025-ICB1	Total Organic Carbon	0.00	0.02	0.02	%	
SLC0025-CCB1	Total Organic Carbon	0.002	0.02	0.02	%	
SLC0025-CCB2	Total Organic Carbon	0.00	0.02	0.02	%	
SLC0025-CCB3	Total Organic Carbon	0.00	0.02	0.02	%	

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: TOC Cube
Calibration: FD00070
Control Limt: +/- 10.00%
Sequence: SKD0371

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SKD0371-ICV1	Total Organic Carbon	44.446	43.7	98.3	%	EPA 9060A m
	Total Carbon	44.446	44.1	99.2	%	EPA 9060A m
	Total Inorganic Carbon	0.0000	0.40		%	EPA 9060A m
	% Soot	0.0000	0.004		%	EPA 9060A m

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Instrument ID: TOC Cube
Calibration: FD00070
Control Limt: +/- 10.00%
Sequence: SLC0025

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SLC0025-ICV1	Total Organic Carbon	44.446	43.2	97.3	%	EPA 9060A m
SLC0025-CCV1	Total Organic Carbon	44.446	43.8	98.4	%	EPA 9060A m
SLC0025-CCV2	Total Organic Carbon	44.446	43.9	98.7	%	EPA 9060A m
SLC0025-CCV3	Total Organic Carbon	44.446	43.4	97.6	%	EPA 9060A m

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Laboratory ID: BLC0025-SRM1
Batch: BLC0025
Initial/Final: 0.0311 g / 0.0311 g
Preparation: No Prep Wet Chem
Analyzed: 03/02/2023 21:20
Standard ID: L000790
Expires: 02/07/2023
Standard Lot#: NA
Description: 1941B - Organics in Marine Sediment (Conv

ANALYTE	TRUE (% wet)	FOUND (% wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
Total Organic Carbon	2.9900	2.40	0.02	0.02		80.4	80 - 120

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LDW21-IT635A 23B0494-01	07/16/21 12:56	02/24/23 08:41	03/01/23 17:36	593	180	03/03/23 03:23			*
LDW21-IT635B 23B0494-02	07/16/21 12:56	02/24/23 08:41	03/01/23 17:36	593	180	03/03/23 04:54			*
LDW21-IT635C 23B0494-03	07/16/21 12:56	02/24/23 08:41	03/01/23 17:36	593	180	03/03/23 05:25			*
LDW21-IT635D 23B0494-04	07/16/21 12:56	02/24/23 08:41	03/01/23 17:36	593	180	03/03/23 05:55			*
LDW22-IT789M 23B0494-05	12/08/22 08:17	02/24/23 08:41	03/01/23 17:36	83	180	03/03/23 07:26			
LDW22-IT789N 23B0494-06	12/08/22 08:17	02/24/23 08:41	03/01/23 17:36	83	180	03/03/23 07:56			
Duplicate BLC0025-DUP3	07/16/21 12:56	02/24/23 08:41	03/01/23 17:36	593	180	03/03/23 03:54			*
Matrix Spike BLC0025-MS2	07/16/21 12:56	02/24/23 08:41	03/01/23 17:36	593	180	03/03/23 04:24			*

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 9060A m

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Instrument: TOC Cube

Analyte	MDL	RL	Units
Total Organic Carbon	0.02	0.02	%

National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material® 1941b

Organics in Marine Sediment

This Standard Reference Material (SRM) is marine sediment collected at the mouth of the Baltimore (MD) Harbor. SRM 1941b is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, and chlorinated pesticides in marine sediment and similar matrices. Information values are also provided for total organic carbon (TOC), total carbon, hydrogen, and nitrogen. All of the constituents for which certified, reference, and information values are provided in SRM 1941b were naturally present in the sediment before processing. A unit of SRM 1941b consists of a bottle containing 50 g of radiation-sterilized, freeze-dried sediment.

Certified Mass Fraction Values: Certified mass fraction values for PAHs, PCB congeners, and chlorinated pesticides are provided in Table 1 through Table 3. The certified values for the PAHs, PCB congeners, and chlorinated pesticides are based on the agreement of results obtained at NIST from two or more chemically independent analytical techniques along with results from an interlaboratory comparison study [1]. A NIST certified value is a value for which NIST has the highest confidence in its accuracy in that all known or suspected sources of bias have been investigated or taken into account [1].

Reference Mass Fraction Values: Reference mass fraction values for additional PAHs (some in combination), additional PCB congeners, and additional chlorinated pesticides are provided in Table 4 through Table 7. Reference values for alkylated PAH groups are provided in Table 8 and for selected hopanes and steranes in Table 9. A reference value for total organic carbon is provided in Table 10. Reference values are noncertified values that are the best estimate of the true value; however, the values do not meet the NIST criteria for certification and are provided with associated uncertainties that may reflect only measurement precision, may not include all sources of uncertainty, or may reflect a lack of sufficient statistical agreement among multiple analytical methods [1].

Information Mass Fraction Values: Information mass fraction values are provided in Table 11 for carbon, hydrogen, and nitrogen. An information value is considered to be a value that will be of use to the SRM user, but insufficient information is available to assess the uncertainty associated with the value [1]. Information values cannot be used to establish metrological traceability.

Expiration of Certification: The certification of **SRM 1941b** is valid, within the measurement uncertainty specified, until **01 October 2020**, provided the SRM is handled and stored in accordance with the instructions given in this certificate (see "Instructions for Handling, Storage, and Use"). This certification is nullified if the SRM is damaged, contaminated, or otherwise modified.

Maintenance of SRM Certification: NIST will monitor this SRM over the period of its certification. If substantive technical changes occur that affect the certification before the expiration of this certificate, NIST will notify the purchaser. Registration (see attached sheet or register online) will facilitate notification.

Coordination of the technical measurements leading to the certification of this material was under the leadership of M.M. Schantz and S.A. Wise of the NIST Chemical Sciences Division.

Analytical measurements for the certification of SRM 1941b were performed at NIST by J.R. Kucklick, B.J. Porter, D.L. Poster, M.M. Schantz, P. Schubert, S. Tutschku, and L.L. Yu of the NIST Chemical Sciences Division.

Carlos A. Gonzalez, Chief
Chemical Sciences Division

Gaithersburg, MD 20899
Certificate Issue Date: 16 January 2015

Robert L. Watters, Jr., Director
Office of Reference Materials

Measurements for TOC were provided by a commercial laboratory and T.L. Wade of the Geochemical and Environmental Research Group, Texas A&M University (College Station, TX). The carbon, hydrogen, and nitrogen data were provided by a commercial laboratory. Results for the PAHs, PCBs, and chlorinated pesticides from 38 laboratories (see Appendix A) that participated in an interlaboratory comparison exercise coordinated by NIST were used. Results for the alkylated PAH groups, hopanes, and steranes from 33 laboratories (see Appendix B) that participated in another interlaboratory comparison exercise coordinated by NIST were also used.

Collection and preparation of SRM 1941b were performed by M.P. Cronise and C.N. Fales of the NIST Office of Reference Materials and B.J. Porter and M.M. Schantz of the NIST Chemical Sciences Division. The sediment material was collected with the assistance of G.G. Lauenstein, J. Collier, and J. Lewis (National Oceanic and Atmospheric Administration, Silver Spring, MD).

Consultation on the statistical design of the experimental work and evaluation of the data were provided by S.D. Leigh and J.H. Yen of the NIST Statistical Engineering Division.

Support aspects involved in the issuance of this SRM were coordinated through the NIST Office of Reference Materials.

INSTRUCTIONS FOR HANDLING, STORAGE, AND USE

Handling: This material is naturally occurring marine sediment from an urban area and may contain constituents of unknown toxicities; therefore, caution and care should be exercised during its handling and use.

Storage: SRM 1941b must be stored in its original bottle at temperatures less than 30 °C and away from direct sunlight.

Use: Prior to removal of subsamples for analysis, the contents of the bottle should be mixed. The mass fractions of constituents in SRM 1941b are reported on a dry-mass basis. The SRM, as received, contains a mass fraction of approximately 2.4 % moisture (see "Conversion to Dry-Mass Basis"). The sediment sample should be dried to a constant mass before weighing for analysis; or a separate subsample of the sediment should be removed from the bottle at the time of analysis and dried to determine the mass fraction on a dry-mass basis. If the constituents of interest are volatile, then the moisture must be determined with a separate subsample.

PREPARATION AND ANALYSIS[1]

Sample Collection and Preparation: The sediment used to prepare this SRM was collected from the Chesapeake Bay at the mouth of the Baltimore (MD) Harbor near the Francis Scott Key Bridge (39°12.3'N and 76°31.4'W). This location is very near the site where SRM 1941 and SRM 1941a were collected. The sediment was collected using a Kynar-coated modified Van Veen-type grab sampler. A total of approximately 3300 kg of wet sediment was collected from the site. The sediment was freeze-dried, sieved at 150 μm (100 % passing), homogenized in a cone blender, radiation sterilized (^{60}Co), and then packaged in screw-capped amber glass bottles each containing approximately 50 g.

Conversion to Dry-Mass Basis: The results for the constituents in SRM 1941b are reported on a dry-mass basis; however, the material "as received" contains residual moisture. The amount of moisture in SRM 1941b was determined by measuring the mass loss after freeze-drying subsamples of 1.1 g to 1.3 g for four days at 1 Pa with a –10 °C shelf temperature and a –50 °C condenser temperature. The moisture content in SRM 1941b at the time of the certification analyses was 2.39 % ± 0.08 % (95 % confidence level). Analytical results for the organic constituents were determined on an as-received basis and then converted to a dry-mass basis by dividing by the conversion factor of 0.9761 (gram dry mass per gram as-received mass).

Polycyclic Aromatic Hydrocarbons: The general approach used for the value assignment of the PAHs in SRM 1941b was similar to that reported in detail elsewhere [2]. The approach consisted of combining results from analyses using various combinations of different extraction techniques and solvents, clean-up/isolation procedures, and chromatographic separation and detection techniques: Soxhlet extraction and pressurized-fluid extraction (PFE) using dichloromethane (DCM) or a hexane/acetone mixture, cleanup of the extracts using solid-phase extraction (SPE) or normal-phase liquid chromatography (LC), followed by analysis using the following techniques: (1) reversed-phase liquid chromatography with fluorescence detection (LC-FL) analysis of the total PAH fraction, (2) reversed-phase

[1] Certain commercial equipment, instruments or materials are identified in this certificate to adequately specify the experimental procedure. Such identification does not imply recommendation or endorsement by the National Institute of Standards

LC-FL analysis of isomeric PAH fractions isolated by normal-phase LC (i.e., multidimensional LC), (3) gas chromatography/mass spectrometry (GC/MS) analysis of the PAH fraction on three stationary phases of different selectivity, i.e., a 5 % (all column compositions are given as mole fractions in %) phenyl-substituted methylpolysiloxane phase, a 50 % phenyl-substituted methylpolysiloxane phase, and a relatively non-polar proprietary phase.

Three sets of GC/MS results, designated as GC/MS (I), GC/MS (II), and GC/MS (III), were obtained using three columns with different selectivities for the separation of PAHs. For GC/MS (I) analyses, duplicate subsamples of approximately 1 g from ten bottles of SRM 1941b were extracted using PFE with DCM. Copper powder was added to the extract to remove elemental sulfur. The concentrated extract was passed through an aminopropyl SPE cartridge and eluted with 2 % DCM in hexane (all solvent concentrations are given as volume fractions in %). The processed extract was then analyzed by GC/MS using a 0.25 mm i.d. × 60 m fused silica capillary column with a 5 % phenyl-substituted methylpolysiloxane phase (0.25 μm film thickness; DB-5 MS, J&W Scientific, Folsom, CA). The GC/MS (II) analyses were performed using 5 g subsamples from six bottles of SRM 1941b. These samples were extracted using PFE with DCM. The high molecular mass compounds were removed from the extracts using size exclusion chromatography (SEC) with a preparative-scale divinylbenzene-polystyrene column (10 μm particle size with 10 nm diameter pores), and the sulfur was removed from the extracts by adding copper powder. The concentrated extract was passed through an aminopropyl SPE cartridge and eluted with 10 % DCM in hexane. The analysis was by GC/MS using a 0.25 mm i.d. × 60 m fused silica capillary column with a 50 % phenyl-substituted methylpolysiloxane phase (0.25 μm film thickness; DB-17 MS, J&W Scientific). For the GC/MS (III), 9 g subsamples from six bottles of SRM 1941b were Soxhlet-extracted for 18 h with 250 mL of a mixture of 50 % hexane/50 % acetone. Copper powder was added to the extract to remove elemental sulfur, and the concentrated extract was passed through a silica SPE cartridge and eluted with 10 % DCM in hexane. The processed extract was then analyzed by GC/MS using a 0.25 mm i.d. × 60 m fused silica capillary column with a relatively non-polar proprietary phase (0.25 μm film thickness; DB-XLB, J&W Scientific).

Two sets of LC-FL results, designated as LC-FL (total) and LC-FL (isomer), were used in the certification process. For the LC-FL (total), subsamples of approximately 1 g from six bottles of SRM 1941b were extracted using PFE with a mixture of 50 % hexane/50 % acetone. The extracts were concentrated and then processed through an aminopropylsilane SPE cartridge using 2 % DCM in hexane to obtain the total PAH fraction. For the LC-FL (isomer), a 5 g subsample from the six bottles was extracted using PFE with DCM and processed through an aminopropylsilane SPE cartridge using 10 % DCM in hexane; the PAH fraction was then fractionated further on a semi-preparative aminopropylsilane column (μBondapak NH_2, 9 mm i.d. × 30 cm, Waters Associates, Milford, MA) to isolate isomeric PAH fractions as described previously [3–6]. The total PAH fraction and the isomeric PAH fractions were analyzed using a 5 μm particle-size polymeric octadecylsilane (C_{18}) column (4.6 mm i.d. × 25 cm, Hypersil-PAH, Keystone Scientific, Inc., Bellefonte, PA) with wavelength-programmed fluorescence detection [4,5].

For the GC/MS and LC-FL measurements described above, selected perdeuterated PAHs were added to the sediment prior to solvent extraction for use as internal standards for quantification purposes.

In addition to the analyses performed at NIST, SRM 1941b was used in an interlaboratory comparison exercise in 1999 as part of the NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment [7]. Results from 38 laboratories that participated in this exercise were used as the sixth data set in the determination of the certified values for PAHs in SRM 1941b. The laboratories participating in this exercise used the analytical procedures routinely used in their laboratories to measure the analytes of interest.

Homogeneity Assessment for PAHs: The homogeneity of SRM 1941b was assessed by analyzing duplicate samples of approximately 1 g from ten bottles selected by stratified random sampling. Samples were extracted, processed, and analyzed as described above for GC/MS (I). No statistically significant differences among bottles were observed for the PAHs at this sample size.

PAH Isomers of Molecular Mass 300 and 302: For the determination of the molecular mass 300 and 302 isomers, three subsamples of approximately 5 g each were extracted using PFE with DCM. The extracts were then concentrated with a solvent change to hexane and passed through an aminopropyl SPE cartridge and eluted with 10 % DCM in hexane. The processed extract was then analyzed by GC/MS using a 0.25 mm i.d. × 60 m fused silica capillary column with a 50 % phenyl-substituted methylpolysiloxane phase (0.25 μm film thickness; DB-17MS, J&W Scientific). Perdeuterated dibenzo[*a,i*]pyrene was added to the sediment prior to extraction for use as an internal standard [8].

PCBs and Chlorinated Pesticides: The general approach used for the determination of PCBs and chlorinated pesticides in SRM 1941b consisted of combining results from analyses using various combinations of different extraction techniques and solvents, cleanup/isolation procedures, and chromatographic separation and detection techniques. Techniques and solvents included Soxhlet extraction and PFE using DCM or a hexane/acetone mixture.

clean-up/isolation using SPE or LC, followed by analysis using GC/MS and gas chromatography with electron capture detection (GC-ECD) on two columns with different selectivity for the separation of PCBs and chlorinated pesticides. The analytical methods are described in detail elsewhere [2].

Six sets of results were obtained and designated as GC-ECD (I) A and B, GC/MS (I) A and B, GC/MS (II), and Interlaboratory Comparison Exercise. For the GC-ECD (I) analyses, approximately 10 g subsamples from six bottles of SRM 1941b were extracted using PFE with DCM. Copper powder was added to the extract to remove elemental sulfur, and SEC, as described above, was used to remove the high molecular mass compounds. The concentrated extract was then fractionated on a semi-preparative aminopropylsilane column to isolate two fractions containing: (1) the PCBs and lower-polarity pesticides and (2) the more polar pesticides. GC-ECD analyses of the two fractions were performed on two columns of different selectivities for PCB separations: 0.25 mm × 60 m fused silica capillary column with a 5 % phenyl-substituted methylpolysiloxane phase (0.25 μm film thickness; DB-5, J&W Scientific), and a 0.25 mm × 60 m fused silica capillary column with a non-polar proprietary phase (0.25 μm film thickness; DB-XLB, J&W Scientific). The results from the 5 % phenyl phase are designated as GC-ECD (IA) and the results from the proprietary phase are designated as GC-ECD (IB). For the GC-ECD analyses, two PCB congeners that are not significantly present in the sediment extract (PCB 103 and PCB 198 [9,10]) and endosulfan I-d_4, 4,4'-DDE-d_8, 4,4'-DD-d_8, and 4,4'-DDT-d_8 were added to the sediment prior to extraction for use as internal standards for quantification purposes.

Two sets of results were obtained by GC/MS. For GC/MS (I), approximately 9 g subsamples from six bottles were Soxhlet- extracted with a mixture of 50 % hexane/50 % acetone for approximately 18 h. Copper powder was added to the extract to remove elemental sulfur, and the concentrated extract was passed through a silica SPE cartridge and eluted with 10 % DCM in hexane. The processed extract was then analyzed by GC/MS with two ionization modes, electron impact (EI) and negative ion chemical ionization (NICI). The GC/MS EI method, GC/MS (IA), used a 0.25 mm i.d. × 60 m fused silica capillary column with a relatively non-polar proprietary phase (0.25 μm film thickness; DB-XLB, J&W Scientific). The GC/MS NICI method, GC/MS (IB), used a 0.25 mm i.d. × 60 m fused silica capillary column with a 5 % phenyl-substituted methylpolysiloxane phase (0.25 μm film thickness; DB-5MS, J&W Scientific). The GC/MS (II) results were obtained in the same manner as the GC/MS (IA) analyses except that three subsamples were Soxhlet-extracted with DCM for approximately 18 h. For the GC/MS analyses, selected carbon-13 labeled PCB congeners and chlorinated pesticides were added to the sediment prior to extraction for use as internal standards for quantification purposes.

In addition to the analyses performed at NIST, SRM 1941b was used in an interlaboratory comparison exercise in 1999 as part of the NIST Intercomparison Exercise Program for Organic Contaminants in the Marine Environment [7]. Results from 38 laboratories that participated in this exercise were used as the sixth data set in the determination of the certified values for PCB congeners and chlorinated pesticides in SRM 1941b. The laboratories participating in this exercise used the analytical procedures routinely used in their laboratories to measure the analytes of interest.

The reference value for PCB 77 was determined from a separate fraction. The samples were extracted and processed as for GC-ECD (I) above. The first (PCB and lower-polarity pesticide) fraction from the semi-preparative aminopropylsilane column was further fractionated using a Cosmosil PYE (pyrenylethyl group bonded) column (5 μm particle size, 4.6 mm i.d. × 25 cm ; Phenomenex, Torrance, CA) [11]. Three fractions were collected: the first fraction contained the pesticides and multi-*ortho* PCBs, the second fraction contained the polychlorinated naphthalenes, non-*ortho* PCB congeners, and some mono-*ortho* PCB congeners, and the third fraction removed the residual planar compounds from the column. The second fraction was analyzed by GC/MS NICI using the same column as GC/MS (IB) above. Carbon-13 labeled PCB 77 was used as an internal standard for quantification purposes.

Alkylated PAH Groups, Hopanes, and Steranes: SRM 1941b was used in an interlaboratory comparison exercise in 2011 [12]. Results from 33 laboratories that participated in this exercise were used in the determination of the reference values for alkylated PAH groups, hopanes, and steranes in SRM 1941b. Note that not all laboratories returned data for each analyte. The laboratories participating in this exercise used the analytical procedures routinely used in their laboratories to measure the analytes of interest. For the alkylated PAHs, the majority of the laboratories (>90 %) used the parent PAH for determination of the response factor for the corresponding alkylated group.

Total Organic Carbon (TOC): Two laboratories provided results for TOC using similar procedures. Briefly, subsamples of approximately 200 mg were reacted with 6 mol/L hydrochloric acid and rinsed with deionized water prior to combustion in a gas fusion furnace. The carbon monoxide and carbon dioxide produced were measured and compared to a blank for calculation of the percent TOC. Each laboratory analyzed subsamples from three bottles of SRM 1941b. One of the laboratories also analyzed three subsamples from three bottles of SRM 1941b for carbon, hydrogen, and nitrogen.

Table 1. Certified Mass Fraction Values for PAHs in SRM 1941b

PAHs	Mass Fractions[a] (µg/kg)		
Naphthalene[b,c,d,e,f,g]	848	±	95[h]
Fluorene[b,c,d,e,f,g]	85	±	15[h]
Phenanthrene[b,c,d,e,f,g]	406	±	44[h]
Anthracene[b,c,d,e,f,g]	184	±	18[h]
3-Methylphenanthrene[b,c,d]	105	±	13[h]
2-Methylphenathrene[b,c,d]	128	±	14[h]
1-Methylphenanthrene[b,c,d,g]	73.2	±	5.9[h]
Fluoranthene[b,c,d,e,f,g]	651	±	50[h]
Pyrene[b,c,d,e,f,g]	581	±	39[h]
Benz[*a*]anthracene[b,c,d,e,f,g]	335	±	25[h]
Chrysene[d,f]	291	±	31[h]
Triphenylene[d,f]	108	±	5[i]
Benzo[*b*]fluoranthene[c,e]	453	±	21[h]
Benzo[*k*]fluoranthene[b,c,d,e]	225	±	18[h]
Benzo[*e*]pyrene[b,c,d,g]	325	±	25[h]
Benzo[*a*]pyrene[b,c,d,f,g]	358	±	17[h]
Perylene[b,c,d,f,g]	397	±	45[h]
Benzo[*ghi*]perylene[b,c,d,f,g]	307	±	45[h]
Indeno[1,2,3-*cd*]pyrene[b,c,d,f,g]	341	±	57[h]
Dibenz[*a,j*]anthracene[b,c,d,f]	48.9	±	4.6[h]
Dibenz[*a,c*]anthracene[c,f]	36.7	±	5.2[h]
Dibenz[*a,h*]anthracene[c,f]	53	±	10[h]
Benzo[*b*]chrysene[b,c,d,f]	53	±	12[h]
Picene[b,c,d]	46.6	±	4.7[h]

[a] Mass fractions reported on dry-mass basis; material as received contains approximately 2.4 % moisture.
[b] GC/MS (I) on 5 % phenyl-substituted methylpolysiloxane phase after PFE with DCM.
[c] GC/MS (II) on 50 % phenyl-substituted methylpolysiloxane phase after PFE with DCM.
[d] GC/MS (III) on a relatively non-polar proprietary phase after Soxhlet extraction with 50 % hexane/50 % acetone mixture.
[e] LC-FL (total) of total PAH fraction after PFE with DCM.
[f] LC-FL (isomer) of isomeric PAH fractions after PFE with DCM.
[g] 1999 Interlaboratory Comparison Study [7] with 21 to 29 laboratories submitting data for each PAH.
[h] Certified values are weighted means of the results from two to six analytical methods [13]. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2 (approximately 95 % confidence), calculated by combining a between-method variance incorporating inter-method bias with a pooled within-method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of the constituent listed and the values are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.
[i] The certified value is an unweighted mean of the results from two analytical methods. The uncertainty listed with the value is an expanded uncertainty about the mean, with coverage factor 2, calculated by combining a between-method variance [16] with a pooled, within-method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of the constituent listed and the value is metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.

Table 2. Certified Mass Fraction Values for PCB Congeners[a] in SRM 1941b

PCB Congeners			Mass Fractions[b] (µg/kg)		
PCB	8	(2,4'-Dichlorobiphenyl)[c,d,e,f,g]	1.65	±	0.19[h]
PCB	18	(2,2',5-Trichlorobiphenyl)[c,d,e,f,g]	2.39	±	0.29[h]
PCB	28	(2,4,4'-Trichlorobiphenyl)[c,d,e,f,g]	4.52	±	0.57[h]
PCB	31	(2,4',5-Trichlorobiphenyl)[c,e,f]	3.18	±	0.41[h]
PCB	44	(2,2'3,5'-Tetrachlorobiphenyl)[c,d,e,f,g]	3.85	±	0.20[i]
PCB	49	(2,2'4,5'-Tetrachlorobiphenyl)[c,d,e,f]	4.34	±	0.28[i]
PCB	52	(2,2',5,5'-Tetrachlorobiphenyl)[c,d,e,f,g]	5.24	±	0.28[i]
PCB	66	(2,3',4,4'-Tetrachlorobiphenyl)[c,e,f,g,j]	4.96	±	0.53[i]
PCB	87	(2,2',3,4,5'-Pentachlorobiphenyl)[c,d,f,j]	1.14	±	0.16[h]
PCB	95	(2,2',3,5',6-Pentachlorobiphenyl)[c,e,f,g]	3.93	±	0.62[i]
PCB	99	(2,2',4,4',5-Pentachlorobiphenyl)[c,d,e,f,g]	2.90	±	0.36[i]
PCB	101	(2,2',4,5,5'-Pentachlorobiphenyl)[c,e,f,g,j]	5.11	±	0.34[i]
PCB	105	(2,3,3',4,4'-Pentachlorobiphenyl)[c,d,e,f,g,j]	1.43	±	0.10[i]
PCB	110	(2,3,3',4',6-Pentachlorobiphenyl)[c,e,f,j]	4.62	±	0.36[i]
PCB	118	(2,3',4,4',5-Pentachlorobiphenyl)[c,d,e,f,g,j]	4.23	±	0.19[i]
PCB	128	(2,2',3,3',4,4'-Hexachlorobiphenyl)[c,d,e,f,g,j]	0.696	±	0.044[i]
PCB	138	(2,2',3,4,4',5'-Hexachlorobiphenyl)[c,e,f,j]	3.60	±	0.28[i]
PCB	149	(2,2',3,4',5',6-Hexachlorobiphenyl)[c,d,e,j]	4.35	±	0.26[h]
PCB	153	(2,2',4,4',5,5'-Hexachlorobiphenyl)[c,d,e,f,g,j]	5.47	±	0.32[i]
PCB	156	(2,3,3',4,4',5-Hexachlorobiphenyl)[c,d,e,f,j]	0.507	±	0.090[h]
PCB	170	(2,2',3,3',4,4',5-Heptachlorobiphenyl)[c,d,e,f,g,j]	1.35	±	0.09[i]
PCB	180	(2,2',3,4,4',5,5'-Heptachlorobiphenyl)[c,d,e,f,g,j]	3.24	±	0.51[i]
PCB	183	(2,2',3,4,4',5',6-Heptachlorobiphenyl)[c,d,e,j]	0.979	±	0.087[h]
PCB	187	(2,2',3,4',5,5',6-Heptachlorobiphenyl)[c,d,e,f,g,j]	2.17	±	0.22[i]
PCB	194	(2,2',3,3',4,4',5,5'-Octachlorobiphenyl)[c,d,e,j]	1.04	±	0.06[h]
PCB	195	(2,2',3,3',4,4',5,6-Octachlorbiphenyl)[c,e,g,j]	0.645	±	0.060[i]
PCB	201	(2,2',3,3',4,5',6,6'-Octachlorobiphenyl)[c,e,j]	0.777	±	0.034[h]
PCB	206	(2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl)[c,e,f,g,j]	2.42	±	0.19[i]
PCB	209	Decachlorobiphenyl[c,d,e,f,g,j]	4.86	±	0.45[i]

[a] PCB congeners are numbered according to the scheme proposed by Ballschmiter and Zell [9] and later revised by Schulte and Malisch [10] to conform to IUPAC rules, except PCB 201. Under the Ballschmiter and Zell numbering system, the IUPAC PCB 201 is listed as PCB 200.

[b] Mass fractions reported on dry-mass basis; material as received contains approximately 2.4 % moisture.

[c] GC/MS (IA) on a relatively non-polar proprietary phase after Soxhlet extraction with 50 % hexane/50 % acetone mixture.

[d] GC-ECD (IA) on 5 % phenyl-substituted methylpolysiloxane phase after PFE extraction with DCM.

[e] GC-ECD (IB) on a relatively non-polar proprietary phase; same extracts analyzed as in GC-ECD (IA).

[f] GC/MS (II) on a relatively non-polar proprietary phase after Soxhlet extraction with DCM.

[g] 1999 Interlaboratory Comparison Study [7] with 13 to 31 laboratories submitting data for each PCB congener.

[h] Certified values are unweighted means of the results from three to five analytical methods. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2, calculated by combining a between-method variance [16] with a pooled, within method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of the constituent listed and the values are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.

[i] Certified values are weighted means of the results from three to six analytical methods [13]. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2 (approximately 95 % confidence), calculated by combining a between-method variance incorporating inter-method bias with a pooled within-method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of the constituent listed and the values are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.

[j] GC/MS (IB) on 5 % phenyl-substituted methylpolysiloxane phase; same extracts analyzed as in GC/MS (IA).

Table 3. Certified Mass Fraction Values for Chlorinated Pesticides in SRM 1941b

Chlorinated Pesticides	Mass Fractions[a] (µg/kg)
Hexachlorobenzene[b,c,d,e]	5.83 ± 0.38[f]
cis-Chlordane[b,c,d,e,g]	0.85 ± 0.11[h]
trans-Chlordane[b,c,e]	0.566 ± 0.093[f]
cis-Nonachlor[b,e,g]	0.378 ± 0.053[h]
trans-Nonachlor[b,c,d,e,g]	0.438 ± 0.073[f]
4,4'-DDE[b,d,e,g]	3.22 ± 0.28[h]
4,4'-DDD[b,d,e,g]	4.66 ± 0.46[h]

[a] Mass fractions reported on dry-mass basis; material as received contains approximately 2.4 % moisture.
[b] GC/MS (IA) on a relatively non-polar proprietary phase after Soxhlet extraction with 50 % hexane/50 % acetone mixture.
[c] GC/MS (IB) on 5 % phenyl-substituted methylpolysiloxane phase; same extracts analyzed as in GC/MS (IA).
[d] GC/MS (II) on a relatively non-polar proprietary phase after Soxhlet extraction with DCM.
[e] 1999 Interlaboratory Comparison Study [7] with 13 to 31 laboratories submitting data for each pesticide.
[f] Certified values are unweighted means of the results from three to five analytical methods. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2, calculated by combining a between-method variance [16] with a pooled, within-method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of the constituent listed and the values are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.
[g] GC-ECD (IA) on 5 % phenyl-substituted methylpolysiloxane phase after PFE extraction with DCM.
[h] Certified values are weighted means of the results from three to five analytical methods [13]. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2 (approximately 95 % confidence), calculated by combining a between-method variance incorporating inter-method bias with a pooled within-method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of the chlorinated pesticides listed and the values listed are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.

Table 4. Reference Mass Fraction Values for PAHs in SRM 1941b

PAHs	Mass Fractions[a] (µg/kg)		
1-Methylnaphthalene[b,c,d,e]	127	±	14[f]
2-Methylnaphthalene[b,c,d,e]	276	±	53[f]
2,6-Dimethylnaphthalene[b,c,d,e]	75.9	±	4.5[f]
2,3,5-Trimethylnaphthalene[b,c,d,e]	25.5	±	5.1[f]
Biphenyl[b,c,d,e]	74.0	±	8.0[f]
Acenaphthylene[b,c,d,e]	53.3	±	6.4[f]
Acenaphthene[b,c,d,e]	38.4	±	5.2[f]
9-Methylphenanthrene[c]	63.5	±	2.5[g]
4-Methylphenanthrene and 9-Methylphenanthrene[b,d]	80.1	±	4.8[f]
2-Methylanthracene[c,d]	36	±	15[f]
8-Methylfluoranthene[b]	49.5	±	2.7[g]
7-Methylfluoranthene[b]	45.4	±	1.5[g]
1-Methylfluoranthene[b]	42.4	±	2.1[g]
3-Methylfluoranthene[b]	28.8	±	1.3[g]
2-Methylpyrene[b]	78.7	±	4.0[g]
4-Methylpyrene[b]	66.4	±	2.6[g]
1-Methylpyrene[b]	52.5	±	2.3[g]
Acephenanthrene[d]	30.5	±	1.9[g]
Benzo[*c*]phenanthrene[b,c,d]	58	±	15[f]
Benzo[*a*]fluoranthene[b,c,d]	73	±	18[f]
Benzo[*j*]fluoranthene[c]	217	±	5[g]
Indeno[1,2,3-*cd*]fluoranthene[d]	9.63	±	0.34[g]
Pentaphene[d]	25.3	±	1.0[g]

[a] Mass fractions reported on dry-mass basis; material as received contains approximately 2.4 % moisture.

[b] GC/MS (I) on 5 % phenyl-substituted methylpolysiloxane phase after PFE with DCM.

[c] GC/MS (II) on 50 % phenyl-substituted methylpolysiloxane phase after PFE with DCM.

[d] GC/MS (III) on a relatively non-polar proprietary phase after Soxhlet extraction with 50 % hexane/50 % acetone mixture.

[e] 1999 Interlaboratory Comparison Study [7] with 14 to 26 laboratories submitting data for each PAH.

[f] Reference values are weighted means of the results from two to four analytical methods [13]. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2 (approximately 95 % confidence), calculated by combining a between-method variance incorporating inter-method bias with a pooled within-method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of PAHs listed as determined by the methods indicted. The values are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.

[g] Reference values are the means of results obtained by NIST using one analytical technique. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the analyte mean, and the coverage factor, k, is determined from the Student's t-distribution for the associated degrees of freedom (19 for footnote b and 5 for footnotes c and d) and 95 % confidence level for each analyte. The measurand is the total mass fraction of the PAHs listed as determined by the method indicted. The values listed are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.

Table 5. Reference Mass Fraction Values for PAHs of Molecular Mass 300 and 302 in SRM 1941b

PAHs of Molecular Mass 300 and 302	Mass Fractions[a,b,c] (µg/kg)		
Coronene	72.6	±	4.7
Dibenzo[*b,e*]fluoranthene	10.3	±	0.3
Naphtho[1,2-*b*]fluoranthene	91.0	±	3.1
Naphtho[1,2-*k*]fluoranthene and Naphtho[2,3-*j*]fluoranthene	79.8	±	2.5
Naphtho[2,3-*b*]fluoranthene	23.5	±	0.3
Dibenzo[*b,k*]fluoranthene	95.6	±	3.1
Dibenzo[*a,k*]fluoranthene	26.6	±	0.4
Dibenzo[*j,l*]fluoranthene	63.8	±	1.8
Dibenzo[*a,l*]pyrene	11.1	±	1.0
Naphtho[2,3-*k*]fluoranthene	10.7	±	0.6
Naphtho[1,2-*a*]pyrene	16.7	±	1.4
Naphtho[2,3-*e*]pyrene	33.2	±	2.3
Dibenzo[*a,e*]pyrene	76.1	±	3.6
Naphtho[2,1-*a*]pyrene	59.2	±	1.8
Dibenzo[*e,i*]pyrene	35.0	±	2.4
Naphtho[2,3-*a*]pyrene	16.5	±	0.6
Benzo[*b*]perylene	38.2	±	1.2
Dibenzo[*a,i*]pyrene	25.5	±	1.0
Dibenzo[*a,h*]pyrene	6.94	±	0.29

[a] Mass fractions reported on dry-mass basis; material as received contains approximately 2.4 % moisture.

[b] Reference values are the means of results obtained by NIST using one analytical technique. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the analyte mean, and the coverage factor, k, is determined from the Student's t-distribution for two degrees of freedom and 95 % confidence level for each analyte. The measurand is the total mass fraction of the constituent listed as determined by the method indicted. The values are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.

[c] GC/MS on 50 % phenyl-substituted methylpolysiloxane phase after PFE with DCM [8].

Table 6. Reference Mass Fraction Values for PCB Congeners[a] in SRM 1941b

PCB Congeners			Mass Fractions[b,c] (µg/kg)		
PCB	45	(2,2',3,6-Tetrachlorobiphenyl)[d,e]	0.73	±	0.12
PCB	56	(2,3,3',4'-Tetrachlorobiphenyl)[d,f,g]	1.21	±	0.11
PCB	63	(2,3,4',5-Tetrachlorobiphenyl)[e,f,g]	0.213	±	0.040
PCB	70	(2,3',4',5-Tetrachlorobiphenyl)[e,f,g]	4.99	±	0.29
PCB	74	(2,4,4',5-Tetrachlorobiphenyl)[e,f,g]	2.04	±	0.15
PCB	77	(3,3',4,4'-Tetrachlorobiphenyl)[h]	0.31	±	0.03
PCB	107	(2,3,3',4',5-Pentachlorobiphenyl)[d,e,f,g]	0.628	±	0.028
PCB	132	(2,2',3,3',4,6'-Hexachlorobiphenyl)[d,f,g]	1.28	±	0.27
PCB	146	(2,2',3,4',5,5'-Hexachlorobiphenyl)[e,f,g]	1.22	±	0.12
PCB	158	(2,3,3',4,4',6-Hexachlorobiphenyl)[d,e,f,g]	0.65	±	0.15
PCB	163	(2,3,3',4',5,6-Hexachlorobiphenyl)[e,f,g]	1.28	±	0.06
PCB	174	(2,2',3,3',4,5,6'-Heptachlorobiphenyl)[d,e,f,g]	1.51	±	0.39
PCB	193	(2,3,3',4',5,5',6-Heptachlorobiphenyl)[d,e,f,g]	0.292	±	0.075

[a] PCB congeners are numbered according to the scheme proposed by Ballschmiter and Zell [9] and later revised by Schulte and Malisch [10] to conform with IUPAC rules, except PCB 107. Under the Ballschmiter and Zell numbering system, the IUPAC PCB 107 is listed as PCB 108.

[b] Mass fractions reported on dry-mass basis; material as received contains approximately 2.4 % moisture.

[c] For these PCB congeners except PCB 77, the reference values are unweighted means of the results from two to four analytical methods. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2, calculated by combining a between-method variance [16] with a pooled within-method variance following the ISO/JCGM Guide [14,15]. For PCB 77, the reference value is the mean of results obtained by NIST using one analytical technique. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the analyte mean, and the coverage factor, k, is determined from the Student's t-distribution corresponding to two degrees of freedom and 95 % confidence level for PCB 77. The measurand is the total mass fraction of the PCB Congeners listed as determined by the method or methods indicted. The values listed are metrologically traceable to the SI unit of mass, expressed as microgram per kilogram on a dry-mass basis.

[d] GC-ECD (IA) on 5 % phenyl-substituted methylpolysiloxane phase after PFE extraction with DCM.

[e] GC-ECD (IB) on a relatively non-polar proprietary phase; same extracts analyzed as in GC-ECD (IA).

[f] GC/MS (IA) on a relatively non-polar proprietary phase after Soxhlet extraction with 50 % hexane/50 % acetone mixture.

[g] GC/MS (IB) on 5 % phenyl-substituted methylpolysiloxane phase; same extracts analyzed as in GC/MS (IA).

[h] GC/MS NICI on a 5 % phenyl-substituted methylpolysiloxane phase; same extracts analyzed as in GC-ECD (I) fractionated using a PYE column.

Table 7. Reference Mass Fraction Values for Selected Chlorinated Pesticides in SRM 1941b

Chlorinated Pesticides	Mass Fractions[a,b] (µg/kg)		
2,4'-DDE[c,d]	0.38	±	0.12
4,4'-DDT[e,f]	1.12	±	0.42

[a] Mass Fractions reported on dry-mass basis; material as received contains approximately 2.4 % moisture.
[b] The reference values are unweighted means of the results from two analytical methods. The uncertainty listed with each value is an expanded uncertainty about the mean, with coverage factor 2, calculated by combining a between-method variance [16] with a pooled, within-method variance following the ISO/JCGM Guide [14,15]. The measurand is the total mass fraction of the chlorinated pesticides listed as determined by the methods indicted. The values listed are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.
[c] GC/MS (IB) on 5 % phenyl-substituted methylpolysiloxane phase; same extracts analyzed as in GC/MS (IA).
[d] GC-ECD (IB) on a relatively non-polar proprietary phase; same extracts analyzed as in GC-ECD (IA).
[e] GC/MS (II) on a relatively non-polar proprietary phase after Soxhlet extraction with DCM.
[f] 1999 Interlaboratory Comparison Study [7] with 10 laboratories submitting data for 4,4'-DDT.

Table 8. Reference Mass Fraction Values for Alkylated PAH Groups in SRM 1941b

Alkylated PAH Group	Mass Fraction[a,b] (µg/kg)		
C2-decalins	18	±	5
C4-decalins	41	±	4
C2-naphthalenes	187	±	53
C3-naphthalenes	158	±	42
C1-benzothiophenes	25	±	14
C2-benzothiophenes	20	±	11
C3-benzothiophenes	22	±	13
C4-benzothiophenes	18	±	5
C1-fluorenes	57	±	18
C2-fluorenes	122	±	43
C3-fluorenes	128	±	31
C1-phenanthrenes/anthracenes	313	±	99
C2-phenanthrenes/anthracenes	247	±	62
C3-phenanthrenes/anthracenes	165	±	46
C4-phenanthrenes/anthracenes	87	±	36
C1-dibenzothiophenes	54	±	13
C2-dibenzothiophenes	91	±	18
C3-dibenzothiophenes	84	±	15
C4-dibenzothiophenes	57	±	13
C1-fluoranthenes/pyrenes	252	±	48
C2-fluoranthenes/pyrenes	205	±	38
C3-fluoranthenes/pyrenes	102	±	22
C4-fluoranthenes/pyrenes	121	±	59
C1-benzanthraces/chrysenes/triphenylenes	208	±	43
C2-benzanthraces/chrysenes/triphenylenes	120	±	24
C3-benzanthraces/chrysenes/triphenylenes	73	±	31
C4-benzanthraces/chrysenes/triphenylenes	41	±	11

[a] The reference mass fraction value reported on a dry-mass basis is the median of results using one analytical technique. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the median, and the coverage factor, $k = 2$. The measurand is the total mass fraction of the alkylated PAH groups listed as determined by the interlaboratory study methods. The values listed are metrologically traceable to the SI unit of mass fraction, expressed as micrograms per kilogram on a dry-mass basis.
[b] Data from the interlaboratory study [12].

Table 9. Reference Mass Fraction Values for Hopanes and Steranes in SRM 1941b

Hopane or Sterane	Mass Fraction[a,b] (µg/kg)
17α(H)-22,29,30-Trisnorhopane	54 ± 18
17α(H)-21β(H)-30-Norhopane	137 ± 21
17α(H)-21β(H)-30-Hopane	215 ± 44
17α(H)-21β(H)-22R-Homohopane	44 ± 10
17α(H)-21β(H)-22S-Homohopane	48 ± 13
5α(H)-14α(H),17α(H)-Cholestane 20R	41 ± 11
5α(H)-14β(H),17β(H)-Cholestane 20R	27 ± 6
5α(H)-14β(H),17β(H)-24-Methylcholestane 20R	21 ± 8
5α(H)-14α(H),17α(H)-24-Ethylcholestane 20R	19 ± 5
5α(H)-14β(H),17β(H)-24-Ethylcholestane 20R	41 ± 9

[a] The reference mass fraction value reported on a dry-mass basis is the median of results using one analytical technique. The expanded uncertainty, U, is calculated as $U = ku_c$, where u_c is one standard deviation of the median, and the coverage factor, $k = 2$. The measurand is the total mass fraction of the constituent listed as determined by the methods used during the interlaboratory study. The values are metrologically traceable to the SI unit of mass, expressed as micrograms per kilogram on a dry-mass basis.
[b] Data from the interlaboratory study [12].

Table 10. Reference Mass Fraction Value for Total Organic Carbon in SRM 1941b

Total Organic Carbon (TOC)	2.99 % ± 0.24 %[a,b]

[a] Mass fraction is reported on a dry-mass basis; material as received contains approximately 2.4 % moisture.
[b] The reference value for total organic carbon is a weighted mean value from routine measurements made by two laboratories [21]. The uncertainty listed is an expanded uncertainty about the mean, with coverage factor 2 (approximately 95 % confidence), calculated by combining a between-method variance incorporating inter-method bias with a pooled within-method variance. The reporting follows the ISO/JCGM Guides [2]. The measurand is the total mass fraction of TOC listed as determined by the methods indicted. The values listed are metrologically traceable to the SI unit of mass, expressed as a percent on a dry-mass basis.

Table 11. Information Mass Fraction Values for Carbon, Hydrogen, and Nitrogen in SRM 1941b

Elements	Mass Fractions[a] (%)
Carbon	3.3
Hydrogen	1.2
Nitrogen	<0.5

[a] Mass fraction is reported on a dry-mass basis; material as received contains approximately 2.4 % moisture.

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Certificate Revision History: 16 January 2015 (Corrected IUPAC name for PCB-56 and PCB-107; editorial changes); 10 June 2014 (Units corrected from mg/kg to µg/kg in Tables 8 and 9; editorial changes); 10 April 2012 (Reference value added for alkylated PAH groups, hopanes, and steranes; extension of certification period; editorial changes); 16 August 2004 (Reference values for the butyl tins removed; editorial changes); 15 July 2002 (Original certificate date).

Users of this SRM should ensure that the Certificate of Analysis in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srminfo@nist.gov; or via the Internet at http://www.nist.gov/srm.

APPENDIX A

The laboratories listed below performed measurements that contributed to the certification of PAHs, PCBs, and chlorinated pesticides in SRM 1941b Organics in Marine Sediment.

Arthur D. Little, Inc; Cambridge, MA
Axys Analytical Services; Sidney, BC, Canada
B & B Laboratories; College Station, TX
Battelle Ocean Sciences; Duxbury, MA
Bedford Institute of Oceanography; Dartmouth, NS, Canada
California Department of Fish and Game; Rancho Cordova, CA
Central Contra Costa Sanitary District; Martinez, CA
Chesapeake Biological Laboratory; Solomons, MD
Centro de Investigacionies Energeticas Medioambientales y Tecnologicas; Madrid, Spain
City of Los Angeles Environmental Monitoring Division; Playa del Rey, CA
City of San Jose Environmental Services Department; San Jose, CA
Columbia Analytical Services; Kelso, WA
East Bay Municipal Utility District; Oakland, CA
Florida Department of Environmental Protection; Tallahassee, FL
Manchester Environmental Laboratory; Port Orchard, WA
Murray State University; Murray, KY
Massachusetts Water Resources Authority Central Lab; Winthrop, MA
National Research Council of Canada; Ottawa, Ontario, Canada
National Oceanic and Atmospheric Association (NOAA), National Marine Fisheries Service (NMFS), Auke Bay Laboratory; Juneau, AK
NOAA, National Ocean Service/Center for Coastal Environmental Health and Biomolecular Research; Charleston, SC
NOAA, NMFS, Sandy Hook Marine Laboratory; Highlands, NJ
NOAA, NMFS, Northwest Fisheries Science Center; Seattle, WA
Orange County Sanitation District; Fountain Valley, CA
Philip Analytical Services; Burlington, Ontario, Canada
Serv de Hidrografia Naval; Buenos Aires, Argentina
Skidaway Institute of Technology; Savannah, GA
Southwest Laboratory of Oklahoma; Broken Arrow, OK
Severn Trent Knoxville Laboratory; Knoxville, TN
Texas A&M University, Geochemical and Environmental Research Group; College Station, TX
Texas Parks and Wildlife Department; San Marcos, TX
University of California at Los Angeles, Institute of Geophysics and Planetary Physics; Los Angeles, CA
University of Connecticut, Environmental Research Institute; Storrs, CT
University of Rhode Island, Graduate School of Oceanography; Narragansett, RI
US Department of Agriculture, Environmental Chemistry Laboratory; Beltsville, MD
US Environmental Protection Agency, Atlantic Ecology Division; Narragansett, RI
US Geological Survey, National Water Quality Laboratory; Denver, CO
Woods Hole Group Environmental Lab; Raynham, MA
Wright State University; Dayton, OH

APPENDIX B

The laboratories listed below performed measurements that contributed to the certification of alkylated PAH groups, hopanes, and steranes in SRM 1941b Organics in Marine Sediment.

Alpha Analytical, Inc.; Mansfield, MA
Analytical Resources, Inc.; Tukwila, WA
Axys Analytical Services; Sydney, BC, Canada
Battelle Analytical & Environmental Chemistry Laboratory; Duxbury, MA
Center for Laboratory Sciences; Pasco, WA
Columbia Analytical Services; Jacksonville, FL
Columbia Analytical Services; Rochester, NY
Columbia Analytical Services, Kelso, WA
Florida Department of Environmental Protection; Tallahassee, FL
Florida International University; North Miami, FL
Michigan Department of Natural Resources and Environment; Lansing, MI
Mississippi State Chemical Laboratory; Mississippi State, MS
NIST; Charleston, SC
NIST; Gaithersburg, MD
NOAA/NCCOS/NOS; Charleston, SC
NOAA/NMFS/Alaska Fisheries Science Center; Juneau, AK
NY State Department of Health; Albany, NY
Pace Analytical Services, Inc. Minneapolis; Minneapolis, MN
RJ Lee Group, Inc; Monroeville, PA
TDI/B&B Laboratories, Inc.; College Station, TX
TestAmerica Laboratories; Mobile, AL
TestAmerica Laboratories; West Sacramento, CA
TestAmerica Laboratories; University Park, IL
TestAmerica Laboratories; Schriever, LA
TestAmerica Laboratories; Edison, NJ
TestAmerica Laboratories; Knoxville, TN
TestAmerica Laboratories; Pittsburgh, PA
TestAmerica Laboratories; South Burlington, VT
TestAmerica Laboratories; Tacoma, WA
US Army Engineer Research and Development Center; Vicksburg, MS
USGS Columbia Environmental Research Center; Columbia, MO
University of Iowa, State Hygienic Laboratory; Iowa City, IO
Washington State Public Health Laboratories; Shoreline, WA

NIST

Date of Issue:
31 March 2014

SAFETY DATA SHEET

1. Substance and Source Identification

Product Identifier

SRM Number: 1941b
SRM Name: Organics in Marine Sediment
Other Means of Identification: Not applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is marine sediment collected at the mouth of the Baltimore (MD) Harbor. SRM 1941b is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, and chlorinated pesticides in marine sediment and similar matrices. All of the constituents for which certified, reference, and information values are provided in SRM 1941b were naturally present in the sediment before processing. A unit of SRM 1941b consists of a bottle containing 50 g of radiation-sterilized, freeze-dried sediment.

Company Information

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

Telephone: 301-975-2200
FAX: 301-948-3730
E-mail: SRMMSDS@nist.gov
Website: http://www.nist.gov/srm

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

2. Hazards Identification

Classification

Physical Hazard: Not classified.
Health Hazard: Not classified.

Label Elements
Symbol
No Symbol/Pictogram

Signal Word
Not applicable.

Hazard Statement(s): Not applicable.

Precautionary Statement(s): Not applicable.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. Composition and Information on Hazardous Ingredients

Substance: Marine sediment

Other Designations: Sediment.

This material is naturally occurring marine sediment from an urban area. The material contains trace amounts of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, and should be handled with care. Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the Certificate of Analysis.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Marine Sediment	Not available	Not available	100

4. First Aid Measures

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Wash skin with soap and water.

Eye Contact: Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

Ingestion: If adverse effects occur after ingestion, seek medical treatment.

Most Important Symptoms/Effects, Acute and Delayed: May cause irritation.

Indication of any immediate medical attention and special treatment needed, if necessary: If any of the above symptoms are present, seek medical attention if needed.

5. Fire Fighting Measures

Fire and Explosion Hazards: Negligible fire hazard. Avoid generating dust. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media:
Suitable: Use extinguishing media appropriate for surrounding fire.
Unsuitable: None listed.

Specific Hazards Arising from the Chemical: None listed.

Special Protective Equipment and Precautions for Fire-Fighters: Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1 Fire = 0 Reactivity = 0

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Any accumulated material on surfaces should be removed and properly disposed of. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

Methods and Materials for Containment and Clean up: Collect spilled material in appropriate container for disposal. Keep out of water supplies and sewers. Keep unnecessary people away, isolate hazard area and deny entry.

7. Handling and Storage

Safe Handling Precautions: Minimize dust generation and accumulation on surfaces. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. See Section 8, "Exposure Controls and Personal Protection".

Storage: Store and handling in accordance with all current regulations and standards.

8. Exposure Controls and Personal Protection

Exposure Limits: No occupational exposure limits have been established for marine sediment. This material is a particulate matter and adequate inhalation/respiratory protection should be used to minimize exposure. The exposure limits for Particulates Not Otherwise Regulated (PNOR) are applicable.

OSHA (PEL): 15 mg/m^3 (TWA, total particulates not otherwise regulated)
OSHA (PEL) 5 mg/m^3 (TWA, respirable particulates not otherwise regulated)

NIOSH (REL): 10 mg/m^3 (TWA, total particulates not otherwise regulated, 8 h)
NIOSH (REL): 5 mg/m^3 (TWA, respirable particulates not otherwise regulated)

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Wear splash resistant safety goggles with a face shield. An eye wash station should be readily available near areas of use.

Skin and Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Descriptive Properties:

Appearance (physical state, color, etc.):	amorphous powder
Molecular Formula:	not applicable
Molar Mass (g/mol):	not applicable
Odor:	not available
Odor threshold:	not available
pH:	not available
Evaporation rate:	not applicable
Melting point/freezing point (°C):	not available
Specific Gravity (water=1)	not available
Vapor Pressure (mmHg):	not applicable
Vapor Density (air = 1):	not applicable
Viscosity (cP):	not applicable
Solubility(ies):	not available
Partition coefficient (n-octanol/water):	not available
Particle Size:	<150 µm

Thermal Stability Properties:

Autoignition Temperature (°C):	not available
Thermal Decomposition (°C):	not available
Initial boiling point and boiling range (°C):	not available
Explosive Limits, LEL (Volume %):	not available
Explosive Limits, UEL (Volume %):	not available
Flash Point (°C):	not available
Flammability (solid, gas):	not available

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: X Stable _____ Unstable

Possible Hazardous Reactions: None listed.

Conditions to Avoid: Avoid generating dust.

Incompatible Materials: None listed.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Thermal decomposition will produce oxides of carbon.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: __X__ Inhalation __X__ Skin _____ Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Generated dust may cause irritation if inhaled.

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: Generated dust may cause irritation.

Skin Contact: May cause mechanical irritation.

Eye Contact: May cause mechanical irritation.

Ingestion: No data available.

Numerical Measures of Toxicity:

Acute Toxicity: Not classified; no data available.

Skin Corrosion/Irritation: Not classified; no data available.

Serious Eye damage/ Eye irritation: Not classified; no data available.

Respiratory Sensitization: Not classified; no data available.

Skin Sensitization: Not classified; no data available.

Germ Cell Mutagenicity: Not classified; no data available.

Carcinogenicity: Not classified.

Listed as a Carcinogen/Potential Carcinogen _____ Yes __X__ No
Marine sediment is not listed by NTP, IARC or OSHA as a carcinogen.

Reproductive Toxicity: Not classified; no data available.

Specific Target Organ Toxicity, Single Exposure: Not classified; no data available.

Specific Target Organ Toxicity, Repeated Exposure: Not classified; no data available.

Aspiration Hazard: Not classified; no data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No data available.

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Not regulated by DOT or IATA.

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH:	No.
CHRONIC HEALTH:	No.
FIRE:	No.
REACTIVE:	No.
PRESSURE:	No.

State Regulations:
California Proposition 65: Not listed.

U.S. TSCA Inventory: Not listed.

TSCA 12(b), Export Notification: Not listed.

Canadian Regulations:
WHMIS Information: Not provided for this material.

16. OTHER INFORMATION

Issue Date: 31 March 2014

Sources: 29 CFR Occupational Health and Safety Office (OSHA) 1910.1000, *Limits for Air Contaminants*, Table Z-1; available at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9992 (accessed Mar 2014).

Center for Disease Control (CDC) NIOSH Pocket Guide to Chemical Hazards, *Particulates not otherwise regulated*; available at http://www.cdc.gov/niosh/npg/npgd0480.html (accessed Mar 2014).

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EC50	Effective Concentration, 50 %	RM	Reference Material
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration, 50 %	STEL	Short Term Exposure Limit
LD50	Lethal Dose, 50 %	TLV	Threshold Limit Value
LEL	Lower Explosive Limit	TPQ	Threshold Planning Quantity
MSDS	Material Safety Data Sheet	TSCA	Toxic Substances Control Act
NFPA	National Fire Protection Association	TWA	Time Weighted Average
NIOSH	National Institute for Occupational Safety and Health	UEL	Upper Explosive Limit
NIST	National Institute of Standards and Technology	WHMIS	Workplace Hazardous Materials Information System

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail SRMINFO@nist.gov; Internet at http://www.nist.gov/srm.

Bill to:	68455 DAVE MITCHELL ANALYTICAL RESOURCES INC 4611 S 134TH PLACE SUITE 100 TUKWILA, WA 98168-3240 1 (206)695-6205	Ship to:	68456 DAVE MITCHELL ANALYTICAL RESOURCES INC 4611 S 134TH PLACE SUITE 100 TUKWILA, WA 98168-3240 1 (206)695-6205

Ship via	UPS Ground	Description		Ship from	
Salesmen	MCMIDM2	Instructions		Blanket	
Contact	DAVE MITCHELL	Pro#		Truck#	

Order discrepancies (other than back ordered items) must be reported to our Customer Relations Department at 301-975-6776 within 5 days of receipt of shipment or this order will be considered complete. NIST SRMs/RMs are generally not returnable - with the exception of defective goods or shipments made in error by NIST. To return a SRM/RM, please call for instructions and a Return SRM/RM Authorization Number before shipment. Returns WILL NOT BE ACCEPTED without prior authorization.

Order	UOM	Ship	UOM	B/O	UOM	Item	Description
1	EACH	1	EACH	0	EACH	1941B	Organics in Marine Sediment
						Total qty:	1 / EACH
							NOT FOR HUMAN CONSUMPTION, LABORATORY USE ONLY.

9/21/16
04:04 PM

1700101

Picked by	
Packed by	
# of pieces	
Weight	

MP Biomedicals, LLC

29525 Fountain Parkway
Solon, Ohio 44139

Telephone: 440/337-1200
Toll Free: 800/854-0530

Fax: 440/337-1180
web: www.mpbio.com

Certificate of Analysis

Product Description: Microcrystalline Cellulose Powder_
Catalog Number: 191499_
Lot: Q9483_

Formula: $(C_6H_{10}O_5)n$	**Formula Weight:** N/A
CAS #: 9004-34-6	**Storage:** 15 - 30°C
Physical Description: White Powder	

Test	Specification	Result
Identity Test	Passes	Passes
Purity	97.0 - 102.0%	97.0 - 102.0%
Moisture	<5.0%	3.4%
Particle Size/Mesh +60 mesh +200 mesh	Wt % <8% >45%	 <1% 55%
pH	5 - 7	6.73
Residue on Ignition	<0.05%	<0.05%
Water Soluble Substances	<12.0 mg/5 g	4.5 mg/5 g
Heavy Metals	<10 ppm	<10 ppm

H001822
Microcrystalline Cellulose Powder (TOC)
Expires 11/30/2022
Prepared By Casey English 2/22/2019

Identification A & B: Passes
Bulk Density: 0.29 g/ml
Bulk Density (graduated cylinder): 0.31 g/ml
Conductivity: 18 µS/cm
Starch: Negative
Ether Soluble Substances: 0.01%
Total Aerobic microbial Count: 100 cfu/g
Total Mold and Yeast Count: 20 cfu/g
Staphylococcus aureus: Absent/1 g
Pseudomonas aeruginosa: Absent/1 g
E. coli: Absent/1 g
Salmonella: Absent/10 g
Particle size:

- 450 mesh: 77%
- d10: 37 um
- d50: 139 um
- d90: 271 um

TUP: <9/600 cm^2
Degree of brightness: >88%
Powder flow-angle of repose: <42°
Recommended Retest Date: 11/30/2022

07/26/2018 - *John Huang, PhD*
MP Biomedicals, LLC.
Quality Control Manager

MP Biomedicals, LLC

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Moisture	<5.0%	3.4%
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Identity Test	Passes	Passes
Purity	97.0 - 102.0%	97.0 - 102.0%
Moisture	<5.0%	3.4%
Particle Size/Mesh +60 mesh +200 mesh	Wt % <8% >45%	 <1% 55%
pH	5 - 7	6.73
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- d10: 37 um
- d50: 139 um
- d90: 271 um

TUP: <9/600 cm^2
Degree of brightness: >88%
Powder flow-angle of repose: <42°
Recommended Retest Date: 11/30/2022

07/26/2018 - *John Huang, PhD*
MP Biomedicals, LLC.
Quality Control Manager

HOLDING TIME SUMMARY

Analysis: ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LDW21-IT635A 23B0494-01	07/16/21 12:56	02/24/23 08:41	02/27/23 12:30	590	180	02/28/23 05:18	592	180	*
LDW21-IT635B 23B0494-02	07/16/21 12:56	02/24/23 08:41	02/27/23 12:30	590	180	02/28/23 05:18	592	180	*

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids		0.01	%

PREPARATION BATCH SUMMARY

ASTM D2216

Laboratory: Analytical Resources, LLC
SDG: 23B0494
Client: Anchor QEA, LLC
Project: AOC4 UR Phase 3
Batch: BLB0488
Batch Matrix: Solid
Preparation: No Prep-Organics

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT635A	23B0494-01		02/27/23 12:30	
LDW21-IT635B	23B0494-02		02/27/23 12:30	

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BLB0636
Date:	2/24/2023 10:14
Analyst:	YL
Drying Oven:	15
Analytical Balance:	B146462614

Instrumentation

Batch drying time			
Record times as mm/dd/yy hh:mm		Oven Temp, C	TS (%) calculated as:
Date/time in oven:	2/27/2023 13:45	98	Final dry wt (g) = (Dry Wt - Tare Wt)
Date/time out:	2/28/2023 6:13	107	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)
Elapsed hrs:	16.5		

Oven Temps, °C	
Start Temp:	98
End Temp:	107

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23B0494-01	0.8000	12.0600	7.4500	6.65	**59.06%**	Yes
23B0494-02	0.7800	11.5000	7.9400	7.16	**66.79%**	No
23B0494-03	0.8300	11.5200	7.4900	6.66	**62.30%**	No
23B0494-04	0.8300	11.2600	6.7200	5.89	**56.47%**	No

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLB0636
Date:	2/24/2023 10:14
Analyst:	YL
Drying Oven:	Φ15
Analytical Balance:	B1464626 14

Batch drying time			Oven Temp, C	TS (%) calculated as:	Oven Temps, °C	
Record times as mm/dd/yy hh:mm						
Date/time in oven:	02/27/23	13:45	98	Final dry wt (g) = (Dry Wt - Tare Wt)	Start Temp:	98
Date/time out:	2/28/23	6:13	107	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)	End Temp:	107
Elapsed hrs:	0.0					

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23B0494-01 A	Φ.8Φ	12.Φ6	7.45			No ~~Yes~~
23B0494-02 |	Φ.78	11.5Φ	7.94			No
23B0494-03 |	Φ.83	11.52	7.49			No
23B0494-04 L	Φ.83	11.26	6.72			No

T/S + Screens

No copies