Analytical Resources, Incorporated
Analytical Chemists and Consultants

07 July 2021

Cindy Fields
Anchor QEA, LLC
1201 3rd Ave, Suite 2600
Seattle, WA 98101

RE: Lower Duwamish AOC4

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)
21F0418	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.07.07 15:31:13 -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, Inc.

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.

Susan Dunnihoo, Director, Client Services

Cert# 100006-012

21F0418

1 of 1

CHAIN-OF-CUSTODY/TEST REQUEST FORM

№ 3877

Project/Client Name: Duwamish AOC4
Project Number: 180067-02.02
Contact Name: Amara Vandenvort
Sampled By: TD1SR/BQ/AV

Ship to: ARI
Attn: Sue Dunihoo
Shipping Date: 6/28/2021
Shipper: Hand Delivered
Airbill Number:
Form filled out by: Brandi Quinlisk
Turnaround requested: 1-week

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required) PCBs	TOC TS	Archive					Comments / Instructions [Jar tag number(s)]
6/28/2021	09:55	LDW21-SS696	3	Sediment	X	X	X					
6/28/2021	10:15	LDW21-SS695	3	Sediment	X	X	X					
6/28/2021	10:00	LDW21-IT696	3	Sediment	X	X	X					
6/28/2021	10:30	LDW21-IT695	3	Sediment	X	X	X					
6/28/2021	10:45	LDW21-SS693	3	Sediment	X	X	X					
6/28/2021	10:50	LDW21-IT693	3	Sediment	X	X	X					
6/28/2021	11:10	LDW21-SS691	3	Sediment	X	X	X					
6/28/2021	11:15	LDW21-IT691	3	Sediment	X	X	X					
6/28/2021	11:34	LDW21-SS692	3	Sediment	X	X	X					
6/28/2021	11:35	LDW21-IT692	3	Sediment	X	X	X					
		Total Number of Containers	30	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: 6/28/2021 12:50	Date/Time: 6/28/21 1250	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:

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Windward / Anchor

Project Name: Duwamish AOC4

COC No(s): _____ NA

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

Assigned ARI Job No: 21F0418

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 1250 | 19.5 | ____ | ____ | ____ | ____ | ____

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

Temp Gun ID#: DOO 5206

Cooler Accepted by: SC Date: 6/28/21 Time: 1250

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: Trash Bags			
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: 6/28/21 Time: 1452 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:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 21F0418

Cooler#: _____ **Temperature(°C):** 19.5

Sample ID	Bottle Count	Bottle Type
Samples received above 6°C		

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Completed by: SC Date: 6/28/21 Time: 1250

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Anchor QEA, LLC	Project:	Lower Duwamish AOC4	
1201 3rd Ave, Suite 2600	Project Number:	180067-02.02	**Reported:**
Seattle, WA 98101	Project Manager:	Cindy Fields	07/07/2021 15:23

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
21F0418-01	LDW21-SS696	Solid	06/28/21 09:55	06/28/21 12:50
21F0418-02	LDW21-SS695	Solid	06/28/21 10:15	06/28/21 12:50
21F0418-03	LDW21-IT696	Solid	06/28/21 10:00	06/28/21 12:50
21F0418-04	LDW21-IT695	Solid	06/28/21 10:30	06/28/21 12:50
21F0418-05	LDW21-SS693	Solid	06/28/21 10:45	06/28/21 12:50
21F0418-06	LDW21-IT693	Solid	06/28/21 10:50	06/28/21 12:50
21F0418-07	LDW21-SS691	Solid	06/28/21 11:10	06/28/21 12:50
21F0418-08	LDW21-IT691	Solid	06/28/21 11:15	06/28/21 12:50
21F0418-09	LDW21-SS692	Solid	06/28/21 11:34	06/28/21 12:50
21F0418-10	LDW21-IT692	Solid	06/28/21 11:35	06/28/21 12:50

Anchor QEA, LLC	Project: Lower Duwamish AOC4	
1201 3rd Ave, Suite 2600	Project Number: 180067-02.02	**Reported:**
Seattle WA, 98101	Project Manager: Cindy Fields	07-Jul-2021 15:23

Case Narrative

Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Work Order: 21F0418

Sample receipt

Samples as listed on the preceding page were received 28-Jun-2021 12:50 under ARI work order 21F0418. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) showed response at the detection limit. Associated sample results have been "B" flagged.

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

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

The batch matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits, but are not reported here as the parent sample is not within this project.

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
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, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-SS696

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-01 B	File ID:	07022120ECD7.D
Sampled:	06/28/21 09:55	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 18:33
% Solids:	22.56	Preparation:	EPA 3546 (Microwave)	Initial/Final:	10.02 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	22.1	8.6	22.1	U
11104-28-2	Aroclor 1221	1	1	22.1	8.6	22.1	U
11141-16-5	Aroclor 1232	1	1	22.1	8.6	22.1	U
53469-21-9	Aroclor 1242	1	1	22.1	8.6	22.1	U
12672-29-6	Aroclor 1248	1	1	22.1	8.6	22.1	U
11097-69-1	Aroclor 1254	2	1	23.1	8.6	22.1	
11096-82-5	Aroclor 1260	1	1	54.1	3.3	22.1	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*44.238*	*42.6*	*96.3*	*40 - 126*	
Tetrachlorometaxylene	*1*	*44.238*	*39.9*	*90.2*	*44 - 120*	
Decachlorobiphenyl	*2*	*44.238*	*41.0*	*92.7*	*40 - 126*	
Tetrachlorometaxylene	*2*	*44.238*	*36.0*	*81.5*	*44 - 120*	

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

Data file 1: /210702.b/07022120ECD7.D
Data file 2: /210702.b/210702.b/07022120ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-01
Client ID:
Injection Date: 02-JUL-2021 18:33
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.071	-0.003	132839	5.421	-0.003	290585	36.1	32.6	10.1	Tetrachloro-m-xylene
13.165	-0.004	147702	13.856	-0.005	586620	38.5	37.1	3.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	308431	4.0
Hexabromobiphenyl	470266	429881	-8.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	723301	1.6
Hexabromobiphenyl	867949	881945	1.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	ZB5 Col Peak#	RT	Shift	Area	Amount	ZB35 Col Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.659	-0.005	1136	11.9	1	7.065	-0.003	2377	6.4
Aroclor-1016	2	7.031	-0.002	2452	7.6	2	7.657	-0.000	7502	9.2
Aroclor-1016	3	7.176	-0.005	1617	12.3	3	7.863	-0.002	898	2.9
Aroclor-1016	4	7.287	-0.003	482	5.5	4	8.035	-0.002	1106	5.9
Total Col1Ave (4 peaks):					9.3	Total Col2Ave (4 peaks):				6.1 RPD = 42*
Corrected Ave (3 peaks):					8.3	Corrected Ave (3 peaks):				5.1 RPD = 49*
Aroclor-1221	1	4.050	0.028	454	19.9	1	4.648	-0.044	5064	107.6
Aroclor-1221	2	5.401	-0.055	3929	100.5	2	6.100	0.016	12038	108.9
Aroclor-1221	3	5.725	-0.005	425	4.3	3	6.422	0.001	2157	10.6
Total Col1Ave (3 peaks):					41.6	Total Col2Ave (3 peaks):				75.7 RPD = 58*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	---			0.0	1	4.648	-0.044	5064	170.1
Aroclor-1232	2	5.725	-0.006	425	5.0	2	6.100	0.015	12038	151.1
Aroclor-1232	3	7.031	0.004	2452	17.2	3	6.422	-0.000	2157	12.3
Aroclor-1232	4	8.594	-0.011	1233	20.9	4	7.657	-0.005	7502	20.5
Total Col1Ave (3 peaks):					17.1	Total Col2Ave (4 peaks):				88.5 RPD = 135*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				61.3
Aroclor-1242	1	6.659	-0.004	1136	13.3	1	7.065	-0.000	2377	7.4
Aroclor-1242	2	7.031	-0.001	2452	8.9	2	7.657	0.001	7502	10.8
Aroclor-1242	3	8.272	0.002	825	21.7	3	8.950	-0.003	3700	11.8
Aroclor-1242	4	8.594	-0.015	1233	14.5	4	9.027	-0.006	2774	10.0
Total Col1Ave (4 peaks):					14.6	Total Col2Ave (4 peaks):				10.0 RPD = 37
Corrected Ave (3 peaks):					12.2	Corrected Ave (3 peaks):				9.4 RPD = 26
Aroclor-1248	1	7.801	-0.002	880	6.8	1	8.119	0.003	3882	14.7
Aroclor-1248	2	7.968	-0.002	1198	7.5	2	8.525	-0.005	2297	6.4
Aroclor-1248	3	8.314	-0.005	642	4.0	3	8.950	-0.005	3700	7.2
Aroclor-1248	4	8.594	-0.015	1233	8.7	4	9.373	-0.010	3449	6.3
Total Col1Ave (4 peaks):					6.8	Total Col2Ave (4 peaks):				8.6 RPD = 24
Corrected Ave (3 peaks):					6.1	Corrected Ave (3 peaks):				6.6 RPD = 8
Aroclor-1254	1	8.672	-0.007	3236	12.4	1	9.246	-0.004	15793	28.8
Aroclor-1254	2	8.764	0.014	1352	14.2	2	9.327	-0.015	2489	7.7
Aroclor-1254	3	9.059	0.009	4891	30.6	3	9.769	-0.004	3390	8.2
Aroclor-1254	4	9.172	-0.008	5103	16.1	4	9.926	0.002	20906	22.8
Aroclor-1254	5	9.858	-0.013	5259	24.7	5	10.162	0.006	36128	36.8
Total Col1Ave (5 peaks):					19.6	Total Col2Ave (5 peaks):				20.9 RPD = 6
Corrected Ave (4 peaks):					16.9	Corrected Ave (4 peaks):				16.9 RPD = 0
Aroclor-1260	1	10.382	-0.006	8733	55.4	1	11.433	-0.004	29701	54.0
Aroclor-1260	2	10.698	-0.008	7725	47.7	2	11.684	-0.005	67584	47.1
Aroclor-1260	3	11.049	-0.005	17957	42.3	3	12.265	-0.006	31692	34.0
Aroclor-1260	4	11.449	-0.006	11397	52.7	4	12.978	-0.006	19036	47.5
Aroclor-1260	5	11.550	-0.010	3860	46.3	NS	---			----
Total Col1Ave (5 peaks):					48.9	Total Col2Ave (4 peaks):				45.6 RPD = 7
Corrected Ave (4 peaks):					47.2	Corrected Ave (3 peaks):				42.8 RPD = 10
Aroclor-1262	1	10.382	-0.010	8733	32.3	1	10.975	-0.014	37801	42.7
Aroclor-1262	2	11.449	-0.012	11397	65.3	2	11.684	-0.016	67584	38.6
Aroclor-1262	3	11.630	-0.006	9877	42.0	3	12.185	-0.023	55332	65.8
Aroclor-1262	4	12.269	-0.020	9783	52.6	4	12.978	-0.015	19036	25.0
Total Col1Ave (4 peaks):					48.1	Total Col2Ave (4 peaks):				43.0 RPD = 11
Corrected Ave (3 peaks):					42.3	Corrected Ave (3 peaks):				35.4 RPD = 18
Aroclor-1268	1	11.550	-0.015	3860	5.3	1	12.185	-0.022	55332	21.6
Aroclor-1268	2	11.630	-0.006	9877	13.5	2	12.265	-0.009	31692	11.3
Aroclor-1268	3	12.022	0.010	4940	8.6	3	12.656	-0.004	18700	7.6
Aroclor-1268	4	12.770	0.001	5144	2.9	4	13.445	0.020	16982	2.1
Total Col1Ave (4 peaks):					7.6	Total Col2Ave (4 peaks):				10.7 RPD = 34

Corrected Ave (3 peaks): 5.6 Corrected Ave (3 peaks): 7.0 RPD = 23

Total PCB Area Col1 (5.173 - 13.068) = 354405 Col1 Total PCB = 0.1 ppm*

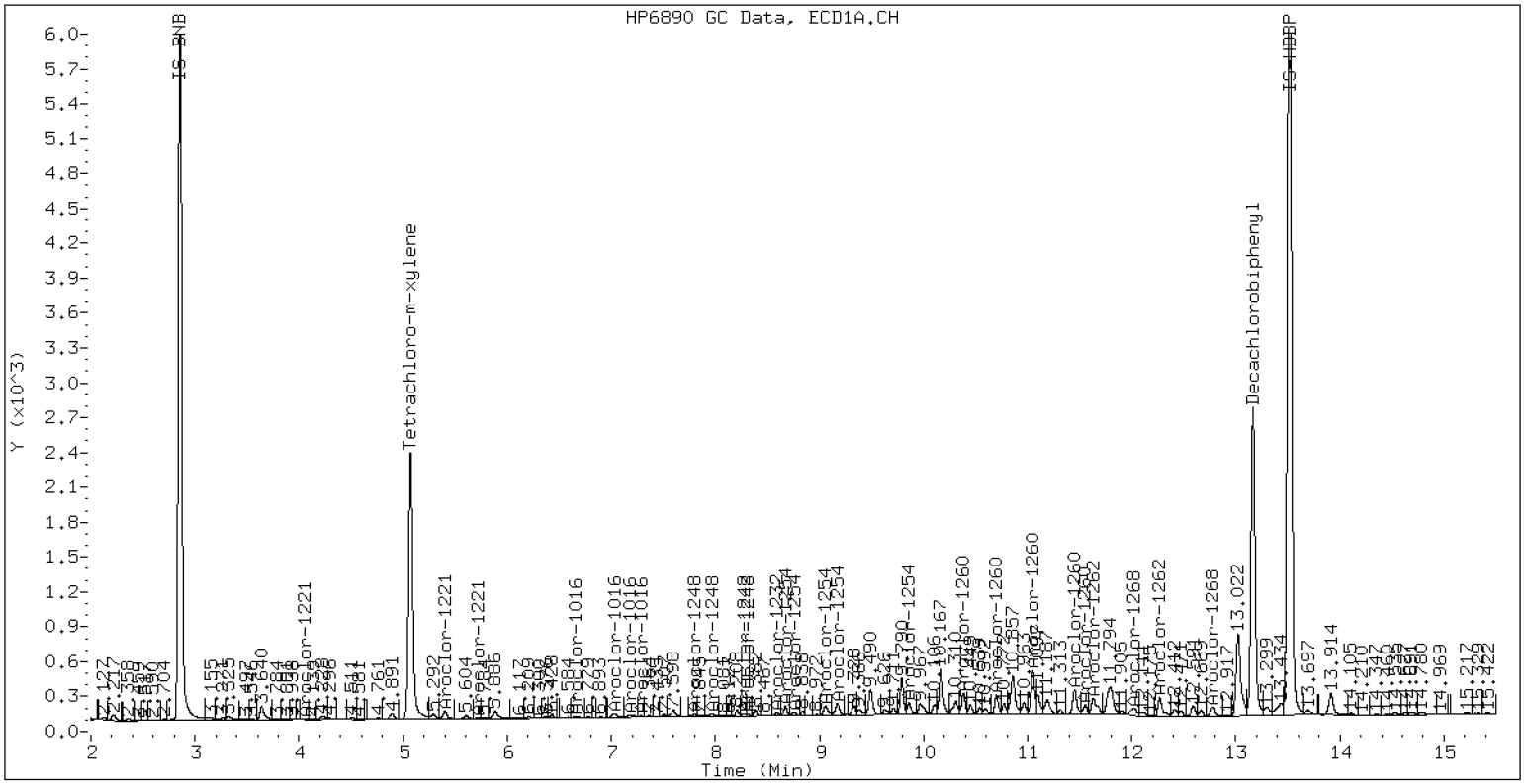
Total PCB Area Col2 (5.173 - 13.068) = 1118574 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

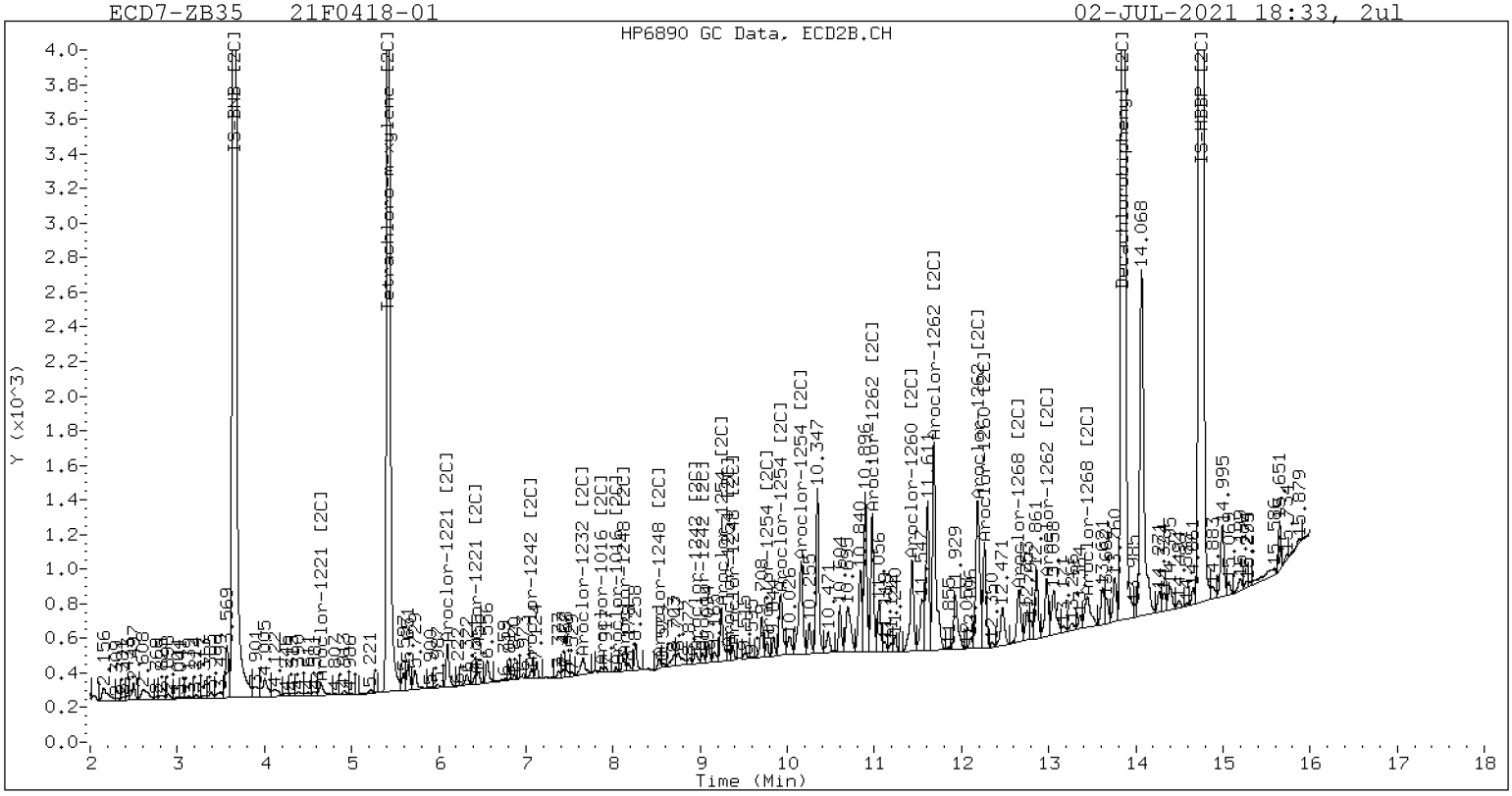
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-01 02-JUL-2021 18:33, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 21F0418-01 02-JUL-2021 18:33, 2ul

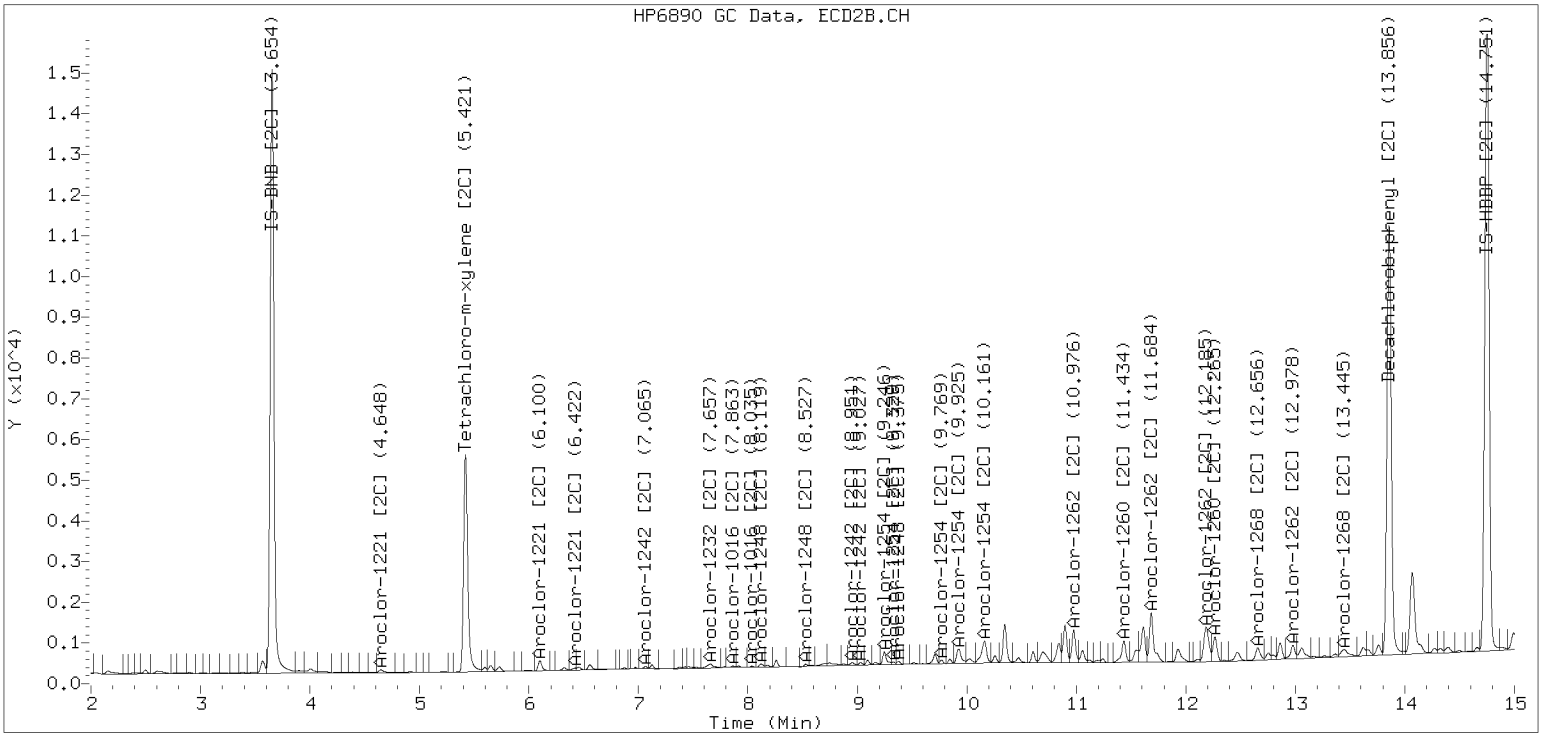


ZB-35 Manual Integration: YES

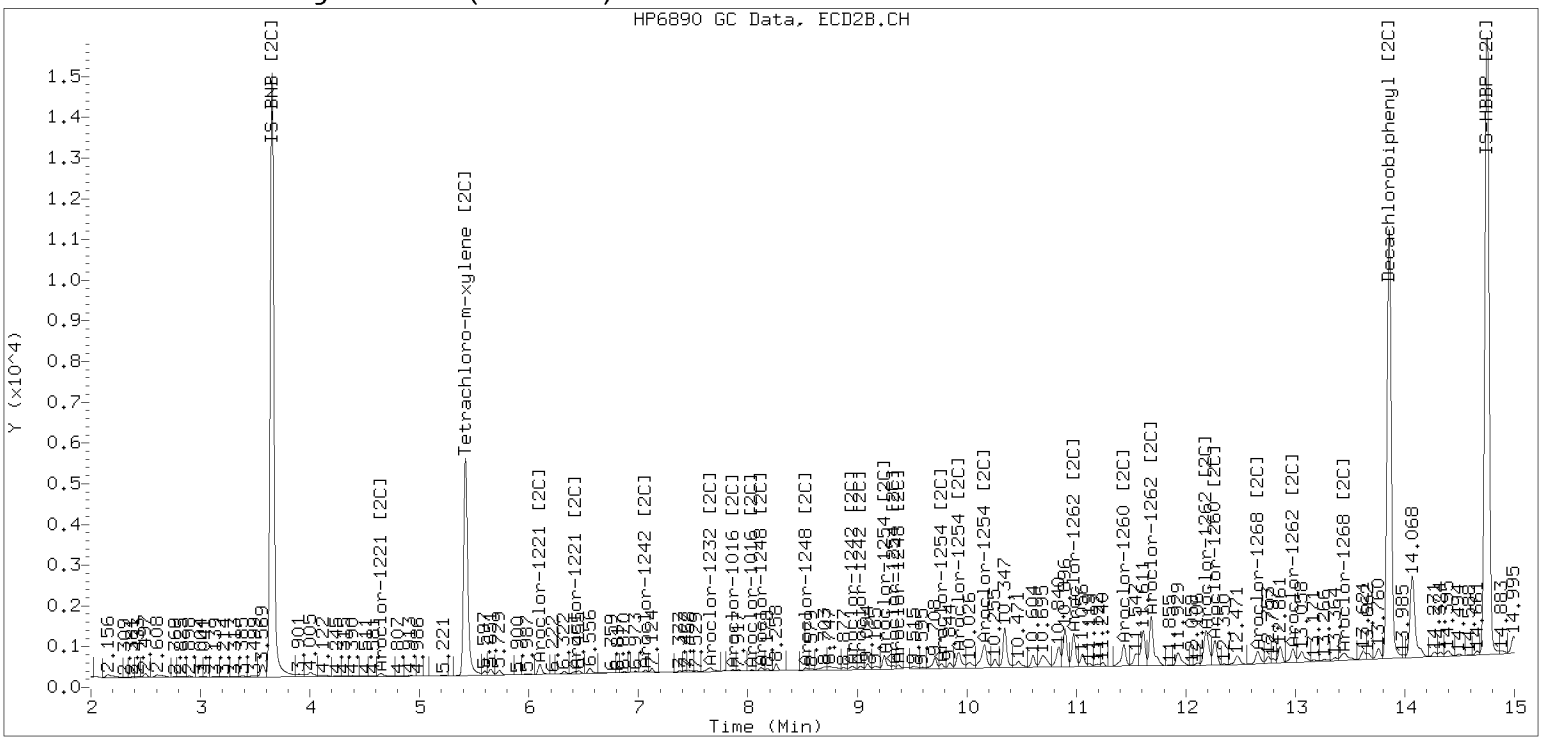
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/210702.b/210702.b/07022120.D Injection Date: 02-JUL-2021 18:3

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-SS695

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-02 B	File ID:	07022121ECD7.D
Sampled:	06/28/21 10:15	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 18:54
% Solids:	65.68	Preparation:	EPA 3546 (Microwave)	Initial/Final:	19.11 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	2	1	36.0	1.6	4.0	
11096-82-5	Aroclor 1260	1	1	86.7	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9672*	*7.35*	*92.3*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9672*	*7.35*	*92.3*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9672*	*7.77*	*97.5*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9672*	*6.53*	*82.0*	*44 - 120*	

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

Data file 1: /210702.b/07022121ECD7.D
Data file 2: /210702.b/210702.b/07022121ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-02
Client ID:
Injection Date: 02-JUL-2021 18:54
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.070	-0.003	133325	5.420	-0.003	282594	36.9	32.8	11.8	Tetrachloro-m-xylene
13.162	-0.006	116521	13.856	-0.005	544012	36.9	39.0	5.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	302512	2.0
Hexabromobiphenyl	470266	353964	-24.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	699025	-1.8
Hexabromobiphenyl	867949	777926	-10.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.720	0.057	1494	15.9	1	7.072	0.004	2472	6.9
Aroclor-1016	2	7.032	-0.001	1710	5.4	2	7.656	-0.002	7758	9.8
Aroclor-1016	3	7.134	-0.046	5299	41.2	3	7.837	-0.029	1061	3.6
Aroclor-1016	4	7.325	0.036	2206	25.7	4	8.053	0.016	7012	38.6
Total Col1Ave (4 peaks):				22.0		Total Col2Ave (4 peaks):			14.7	RPD = 40
Corrected Ave (3 peaks):				15.7		Corrected Ave (3 peaks):			6.7	RPD = 80*
Aroclor-1221	1	---			0.0	1	4.648	-0.044	17903	393.5
Aroclor-1221	2	5.398	-0.057	2180	56.9	2	6.093	0.009	18405	172.3
Aroclor-1221	3	5.717	-0.012	197	2.0	3	6.424	0.003	51149	259.7
Col1Ave: <3 Quant Peaks						Col2Ave: 275.1				
Aroclor-1232	1	---			0.0	1	4.648	-0.043	17903	622.2
Aroclor-1232	2	5.717	-0.014	197	2.4	2	6.093	0.008	18405	239.0
Aroclor-1232	3	7.032	0.005	1710	12.3	3	6.424	0.002	51149	302.9
Aroclor-1232	4	8.577	-0.028	43423	1036.9	4	7.656	-0.006	7758	21.9
Total Col1Ave (3 peaks):				350.5		Total Col2Ave (4 peaks):			296.5	RPD = 17
Corrected Ave: <3 Peaks						Corrected Ave (3 peaks):			187.8	
Aroclor-1242	1	6.720	0.057	1494	17.9	1	7.072	0.007	2472	8.0
Aroclor-1242	2	7.032	-0.000	1710	6.3	2	7.656	0.000	7758	11.6
Aroclor-1242	3	8.270	-0.000	3113	83.4	3	8.949	-0.004	17213	56.7
Aroclor-1242	4	8.577	-0.032	43423	521.3	4	9.025	-0.008	18656	69.9
Total Col1Ave (4 peaks):				157.2		Total Col2Ave (4 peaks):			36.5	RPD = 125*
Corrected Ave (3 peaks):				35.9		Corrected Ave (3 peaks):			25.4	RPD = 34
Aroclor-1248	1	7.798	-0.005	30028	237.9	1	8.115	-0.001	10120	39.7
Aroclor-1248	2	7.965	-0.006	2454	15.7	2	8.520	-0.010	11742	33.9
Aroclor-1248	3	8.310	-0.009	3601	23.0	3	8.949	-0.006	17213	34.5
Aroclor-1248	4	8.577	-0.031	43423	313.2	4	9.372	-0.011	145962	274.4
Total Col1Ave (4 peaks):				147.4		Total Col2Ave (4 peaks):			95.6	RPD = 43*
Corrected Ave (3 peaks):				92.2		Corrected Ave (3 peaks):			36.0	RPD = 88*
Aroclor-1254	1	8.667	-0.013	32770	128.1	1	9.245	-0.005	144101	272.3
Aroclor-1254	2	8.772	0.022	58310	626.1	2	9.372	0.030	145962	467.6
Aroclor-1254	3	9.087	0.037	161564	1030.6	3	9.766	-0.007	24517	61.6
Aroclor-1254	4	9.168	-0.012	45588	146.9	4	9.918	-0.005	151492	171.1
Aroclor-1254	5	9.855	-0.016	38083	182.0	5	10.159	0.004	207064	218.0
Total Col1Ave (5 peaks):				422.8		Total Col2Ave (5 peaks):			238.1	RPD = 56*
Corrected Ave (4 peaks):				270.8		Corrected Ave (4 peaks):			180.7	RPD = 40
				152.33						
Aroclor-1260	1	10.379	-0.009	58651	452.0	1	11.432	-0.005	194620	401.2
Aroclor-1260	2	10.697	-0.009	51138	383.3	2	11.683	-0.007	449326	355.0
Aroclor-1260	3	11.045	-0.009	141676	405.4	3	12.265	-0.007	289634	351.9
Aroclor-1260	4	11.445	-0.010	74055	415.7	4	12.977	-0.006	148568	420.0
Aroclor-1260	5	11.551	-0.009	35675	519.5	NS	---			----
Total Col1Ave (5 peaks):				435.2		Total Col2Ave (4 peaks):			382.0	RPD = 13
Corrected Ave (4 peaks):				414.1		Corrected Ave (3 peaks):			369.4	RPD = 11
Aroclor-1262	1	10.379	-0.012	58651	263.4	1	10.973	-0.016	186771	239.1
Aroclor-1262	2	11.445	-0.016	74055	515.6	2	11.683	-0.017	449326	290.7
Aroclor-1262	3	11.622	-0.014	39751	205.2	3	12.195	-0.013	159298	214.9
Aroclor-1262	4	12.269	-0.020	38370	250.6	4	12.977	-0.015	148568	221.0
Total Col1Ave (4 peaks):				300.7		Total Col2Ave (4 peaks):			241.4	RPD = 24
Corrected Ave (3 peaks):				239.7		Corrected Ave (3 peaks):			225.0	RPD = 6
Aroclor-1268	1	11.551	-0.015	35675	60.0	1	12.195	-0.013	159298	70.5
Aroclor-1268	2	11.622	-0.014	39751	66.0	2	12.265	-0.009	289634	117.6
Aroclor-1268	3	12.023	0.011	17956	38.0	3	12.647	-0.013	17335	8.0
Aroclor-1268	4	12.767	-0.010	13507	9.1	4	13.452	-0.021	42869	6.1
Total Col1Ave (4 peaks):				43.3		Total Col2Ave (4 peaks):			30.6	RPD = 16
Corrected Ave (3 peaks):				35.7		Corrected Ave (3 peaks):			28.2	RPD = 23

Total PCB Area Col1 (5.173 - 13.068) = 1765365 Col1 Total PCB = 0.7 ppm*

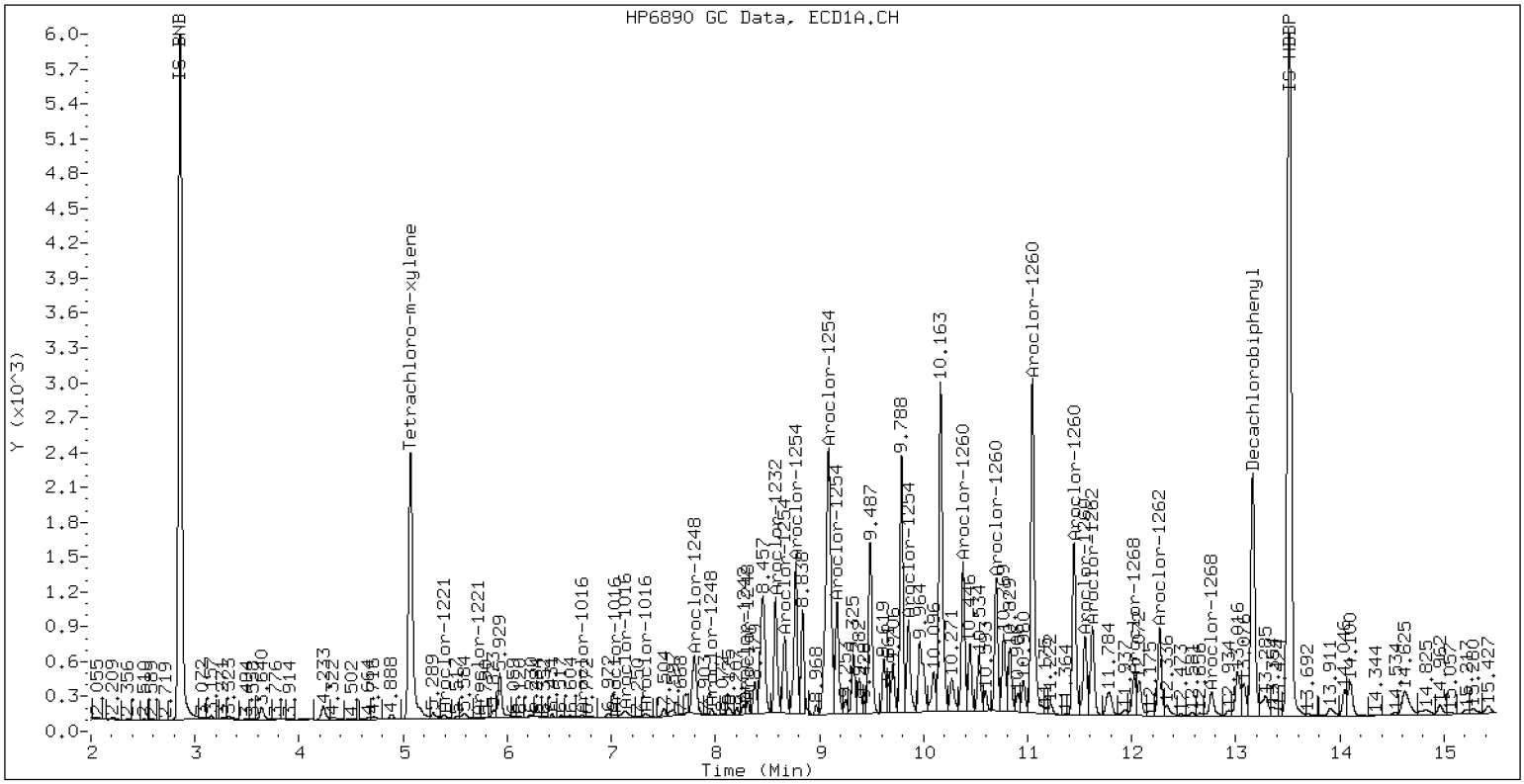
Total PCB Area Col2 (5.173 - 13.068) = 5217685 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

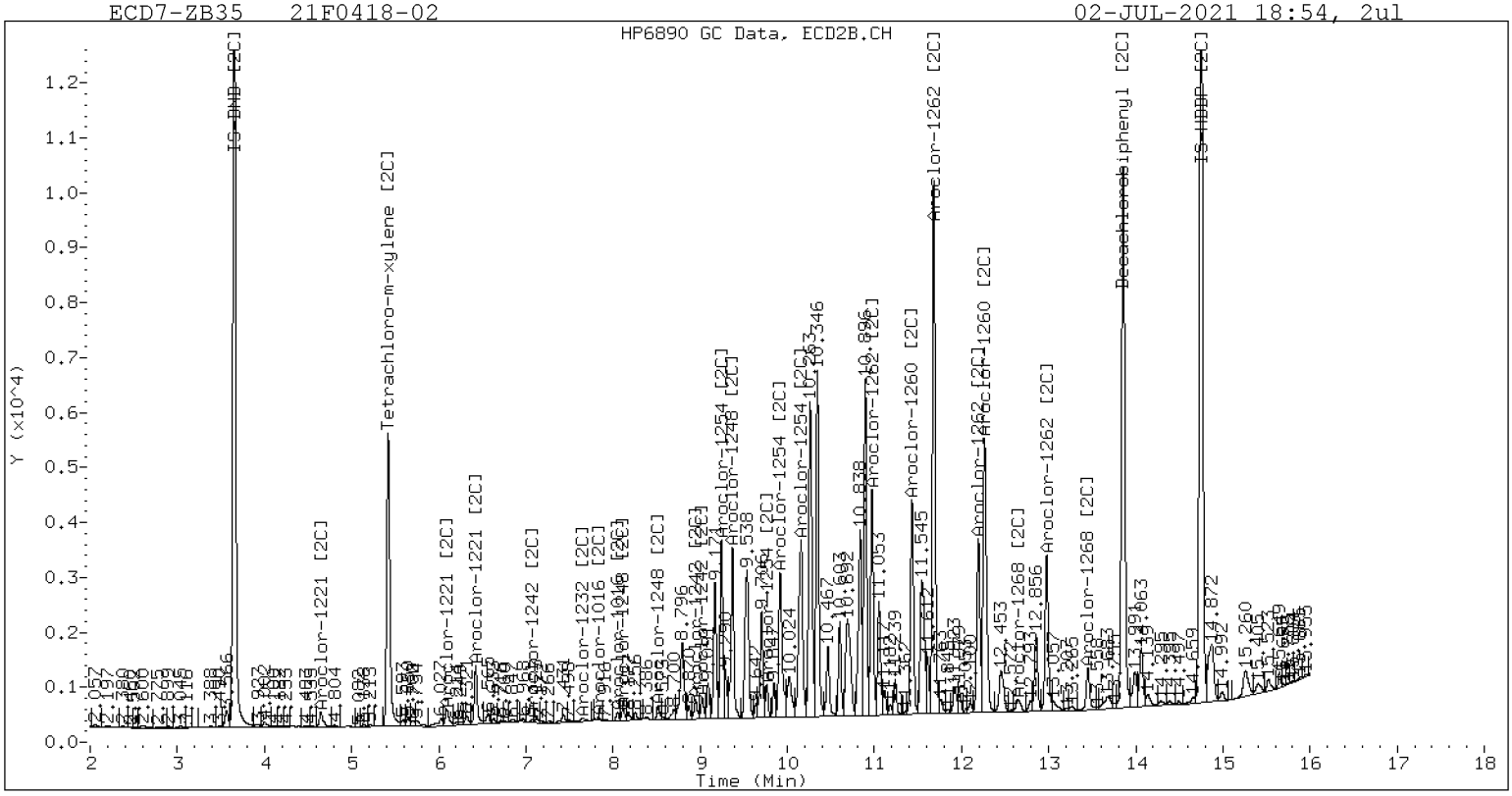
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-02 02-JUL-2021 18:54, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 21F0418-02 02-JUL-2021 18:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-IT696

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-03 B	File ID:	07022122ECD7.D
Sampled:	06/28/21 10:00	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 19:15
% Solids:	66.48	Preparation:	EPA 3546 (Microwave)	Initial/Final:	18.88 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	2	1	29.3	1.6	4.0	
11096-82-5	Aroclor 1260	1	1	39.6	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9672*	*7.44*	*93.4*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9672*	*7.28*	*91.4*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9672*	*7.14*	*89.6*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9672*	*6.70*	*84.1*	*44 - 120*	

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

Data file 1: /210702.b/07022122ECD7.D
Data file 2: /210702.b/210702.b/07022122ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-03
Client ID:
Injection Date: 02-JUL-2021 19:15
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.072	-0.002	135133	5.422	-0.001	296014	36.6	33.6	8.3	Tetrachloro-m-xylene
13.161	-0.007	109550	13.856	-0.005	485938	37.4	35.9	4.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	309629	4.4
Hexabromobiphenyl	470266	328753	-30.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	713893	0.3
Hexabromobiphenyl	867949	755891	-12.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	ZB5 Col Peak#	RT	Shift	Area	Amount	ZB35 Col Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.718	0.054	959	10.0	1	7.122	0.055	5611	15.3
Aroclor-1016	2	7.032	-0.002	2880	8.9	2	7.656	-0.002	10679	13.2
Aroclor-1016	3	7.241	0.061	600	4.6	3	7.838	-0.028	4672	15.4
Aroclor-1016	4	7.325	0.036	5194	59.1	4	8.040	0.004	2008	10.8
Total Col1Ave (4 peaks):					20.6	Total Col2Ave (4 peaks):				13.7 RPD = 40*
Corrected Ave (3 peaks):					7.8	Corrected Ave (3 peaks):				13.1 RPD = 51*
Aroclor-1221	1	---			0.0	1	4.649	-0.044	11253	242.2
Aroclor-1221	2	5.401	-0.055	1685	42.9	2	6.096	0.012	10330	94.7
Aroclor-1221	3	5.724	-0.006	286	2.9	3	6.425	0.003	15154	75.3
Col1Ave: <3 Quant Peaks						Col2Ave: 137.4				
Aroclor-1232	1	---			0.0	1	4.649	-0.043	11253	382.9
Aroclor-1232	2	5.724	-0.007	286	3.4	2	6.096	0.012	10330	131.3
Aroclor-1232	3	7.032	0.005	2880	20.2	3	6.425	0.002	15154	87.9
Aroclor-1232	4	8.577	-0.029	63630	1484.6	4	7.656	-0.006	10679	29.6
Total Col1Ave (3 peaks):					502.7	Total Col2Ave (4 peaks):				157.9 RPD = 104*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				82.9
Aroclor-1242	1	6.718	0.055	959	11.2	1	7.122	0.057	5611	17.7
Aroclor-1242	2	7.032	-0.001	2880	10.4	2	7.656	0.000	10679	15.6
Aroclor-1242	3	8.263	-0.007	2767	72.5	3	8.948	-0.005	21582	69.6
Aroclor-1242	4	8.577	-0.033	63630	746.3	4	9.024	-0.008	24972	91.6
Total Col1Ave (4 peaks):					210.1	Total Col2Ave (4 peaks):				48.6 RPD = 125*
Corrected Ave (3 peaks):					31.4	Corrected Ave (3 peaks):				34.3 RPD = 9
Aroclor-1248	1	7.798	-0.005	8803	68.1	1	8.115	-0.001	13138	50.5
Aroclor-1248	2	7.962	-0.008	4094	25.5	2	8.522	-0.008	15664	44.3
Aroclor-1248	3	8.309	-0.010	5461	34.0	3	8.948	-0.007	21582	42.4
Aroclor-1248	4	8.577	-0.032	63630	448.5	4	9.373	-0.011	161691	297.6
Total Col1Ave (4 peaks):					144.0	Total Col2Ave (4 peaks):				108.7 RPD = 28
Corrected Ave (3 peaks):					42.6	Corrected Ave (3 peaks):				45.7 RPD = 7
Aroclor-1254	1	8.665	-0.014	31814	121.5	1	9.246	-0.004	128097	237.0
Aroclor-1254	2	8.772	0.022	63769	668.9	2	9.373	0.030	161691	507.2
Aroclor-1254	3	9.055	0.006	51980	324.0	3	9.765	-0.007	24363	59.9
Aroclor-1254	4	9.169	-0.011	51310	161.5	4	9.915	-0.009	114667	126.8
Aroclor-1254	5	9.854	-0.017	27309	127.5	5	10.157	0.002	159221	164.2
Total Col1Ave (5 peaks):					280.7	Total Col2Ave (5 peaks):				219.0 RPD = 25
Corrected Ave (4 peaks):					183.6	Corrected Ave (4 peaks):				147.0 RPD = 22
					136.83					
Aroclor-1260	1	10.377	-0.011	25387	210.7	1	11.433	-0.005	94008	199.4
Aroclor-1260	2	10.696	-0.010	23677	191.1	2	11.680	-0.009	181716	147.8
Aroclor-1260	3	11.044	-0.010	58858	181.3	3	12.262	-0.009	111347	139.2
Aroclor-1260	4	11.444	-0.011	28393	171.6	4	12.976	-0.007	56894	165.5
Aroclor-1260	5	11.550	-0.009	15238	238.9	NS	---			----
Total Col1Ave (5 peaks):					198.7	Total Col2Ave (4 peaks):				163.0 RPD = 20
Corrected Ave (4 peaks):					188.7	Corrected Ave (3 peaks):				150.8 RPD = 22
Aroclor-1262	1	10.377	-0.014	25387	122.8	1	10.972	-0.017	86359	113.8
Aroclor-1262	2	11.444	-0.018	28393	212.8	2	11.680	-0.019	181716	121.0
Aroclor-1262	3	11.620	-0.016	18750	104.2	3	12.191	-0.017	74291	103.1
Aroclor-1262	4	12.268	-0.021	15105	106.2	4	12.976	-0.017	56894	87.1
Total Col1Ave (4 peaks):					136.5	Total Col2Ave (4 peaks):				106.3 RPD = 25
Corrected Ave (3 peaks):					111.1	Corrected Ave (3 peaks):				101.3 RPD = 9
Aroclor-1268	1	11.550	-0.015	15238	27.6	1	12.191	-0.016	74291	33.8
Aroclor-1268	2	11.620	-0.016	18750	33.5	2	12.262	-0.012	111347	46.5
Aroclor-1268	3	12.021	0.009	10687	24.3	3	12.645	-0.015	10262	4.9
Aroclor-1268	4	12.765	-0.012	7555	5.5	4	13.451	-0.021	23620	3.5
Total Col1Ave (4 peaks):					22.7	Total Col2Ave (4 peaks):				22.2 RPD = 2
Corrected Ave (3 peaks):					19.1	Corrected Ave (3 peaks):				14.1 RPD = 31

Total PCB Area Col1 (5.173 - 13.068) = 1111002 Col1 Total PCB = 0.4 ppm*

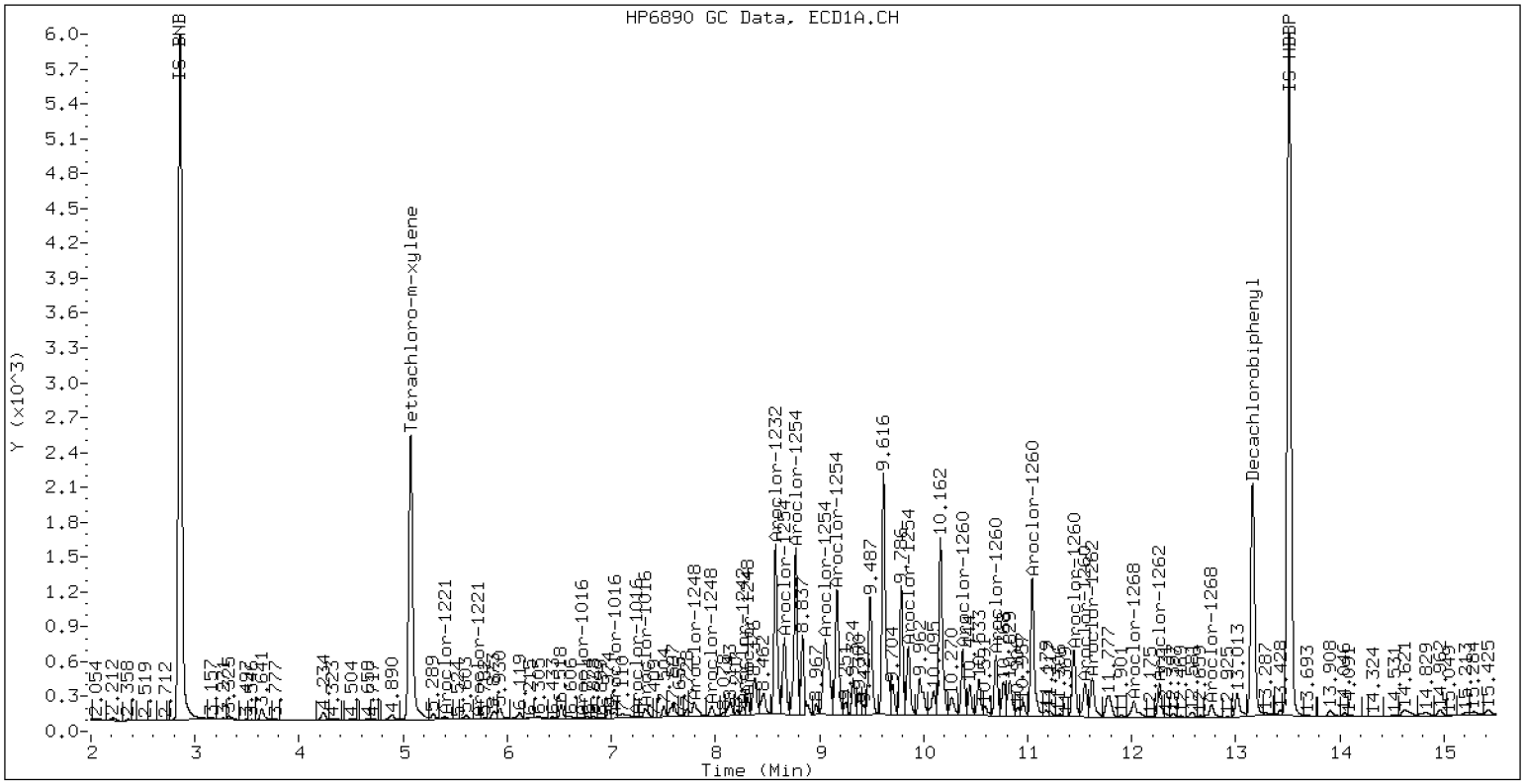
Total PCB Area Col2 (5.173 - 13.068) = 3326330 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

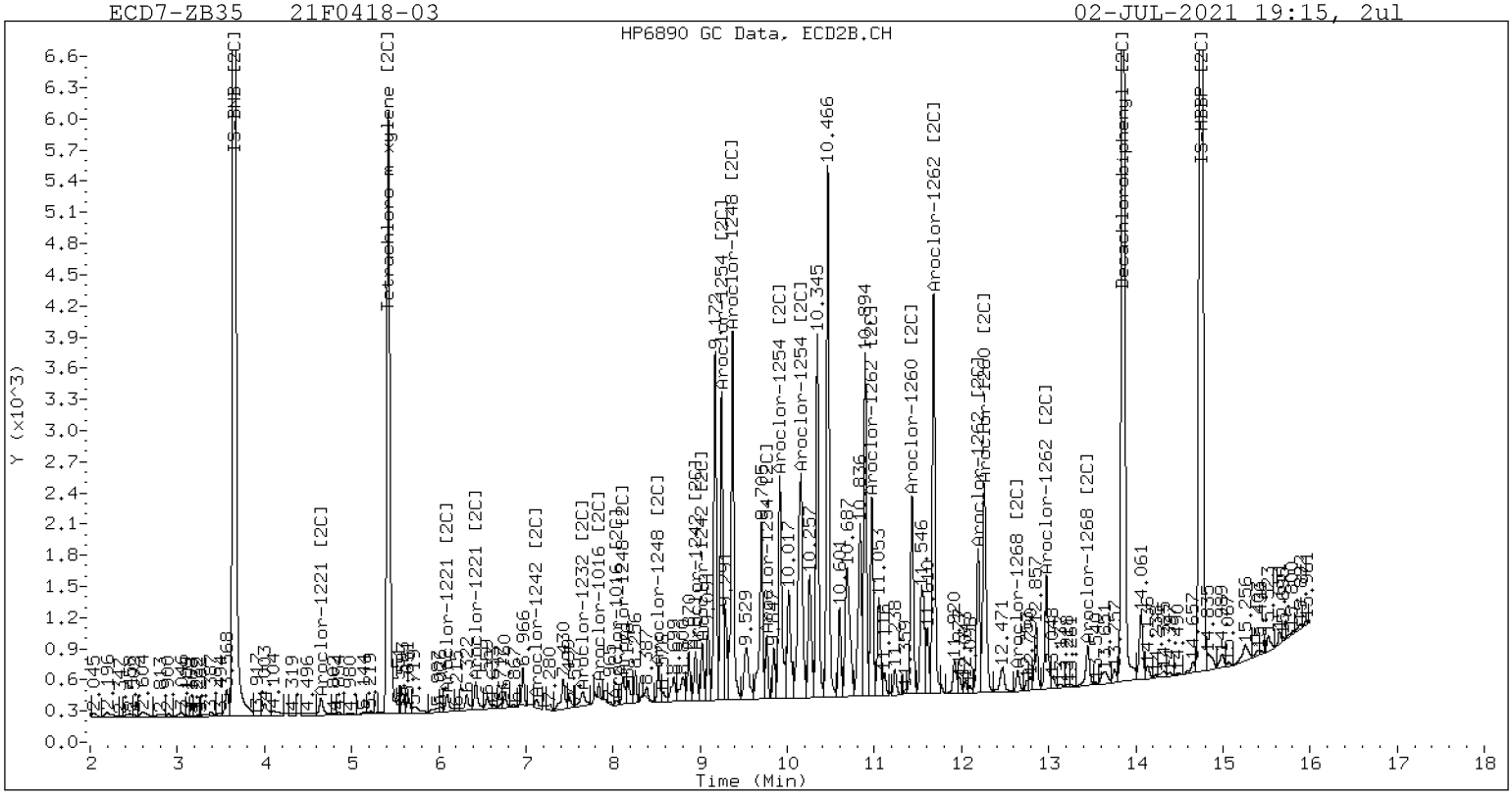
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-03 02-JUL-2021 19:15, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 21F0418-03 02-JUL-2021 19:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-IT695

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-04 B	File ID:	07022123ECD7.D
Sampled:	06/28/21 10:30	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 19:36
% Solids:	77.86	Preparation:	EPA 3546 (Microwave)	Initial/Final:	16.06 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	2	1	1.8	1.6	4.0	J
11096-82-5	Aroclor 1260	2	1	2.8	0.6	4.0	J

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9972*	*7.60*	*95.0*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9972*	*6.84*	*85.5*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9972*	*7.06*	*88.3*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9972*	*6.16*	*77.0*	*44 - 120*	

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

Data file 1: /210702.b/07022123ECD7.D
Data file 2: /210702.b/210702.b/07022123ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-04
Client ID:
Injection Date: 02-JUL-2021 19:36
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.070	-0.003	122266	5.420	-0.003	265026	34.2	30.8	10.4	Tetrachloro-m-xylene
13.165	-0.003	127889	13.858	-0.003	513144	38.0	35.3	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	299362	1.0
Hexabromobiphenyl	470266	377574	-19.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	697697	-2.0
Hexabromobiphenyl	867949	810750	-6.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.720	0.056	1417	15.3	1	7.056	-0.011	827	2.3
Aroclor-1016	2	7.081	0.048	510	1.6	2	7.623	-0.034	2599	3.3
Aroclor-1016	3	7.166	-0.014	304	2.4	3	7.917	0.052	1663	5.6
Aroclor-1016	4	7.206	-0.083	254	3.0	4	8.126	0.089	1442	8.0
Total Col1Ave (4 peaks):				5.6		Total Col2Ave (4 peaks):			4.8	RPD = 15
Corrected Ave (3 peaks):				2.3		Corrected Ave (3 peaks):			3.7	RPD = 46*
Aroclor-1221	1	4.110	0.087	729	32.9	1	4.649	-0.044	8076	177.8
Aroclor-1221	2	5.396	-0.059	2037	53.7	2	6.099	0.015	10561	99.0
Aroclor-1221	3	5.720	-0.010	444	4.6	3	6.423	0.002	9555	48.6
Total Col1Ave (3 peaks):				30.4		Total Col2Ave (3 peaks):			108.5	RPD = 112*
Corrected Ave. < 3 Peaks						Corrected Ave. < 3 Peaks				
Aroclor-1232	1	---			0.0	1	4.649	-0.043	8076	281.2
Aroclor-1232	2	5.720	-0.011	444	5.4	2	6.099	0.014	10561	137.4
Aroclor-1232	3	7.081	0.054	510	3.7	3	6.423	0.001	9555	56.7
Aroclor-1232	4	8.577	-0.028	1166	28.1	4	7.623	-0.039	2599	7.4
Total Col1Ave (3 peaks):				12.4		Total Col2Ave (4 peaks):			120.7	RPD = 163*
Corrected Ave. < 3 Peaks						Corrected Ave (3 peaks):			87.2	
Aroclor-1242	1	6.608	-0.055	1322	16.0	1	7.056	-0.009	827	2.7
Aroclor-1242	2	7.081	0.048	510	1.9	2	7.623	-0.032	2599	3.9
Aroclor-1242	3	8.273	0.003	472	12.8	3	8.950	-0.002	2228	7.4
Aroclor-1242	4	8.577	-0.033	1166	14.1	4	9.023	-0.010	890	3.3
Total Col1Ave (4 peaks):				11.2		Total Col2Ave (4 peaks):			4.3	RPD = 89*
Corrected Ave (3 peaks):				9.6		Corrected Ave (3 peaks):			3.3	RPD = 98*
Aroclor-1248	1	7.810	0.006	499	4.0	1	8.126	0.010	1442	5.7
Aroclor-1248	2	7.970	0.000	810	5.2	2	8.568	0.038	1725	5.0
Aroclor-1248	3	8.310	-0.009	480	3.1	3	8.950	-0.005	2228	4.5
Aroclor-1248	4	8.577	-0.032	1166	8.5	4	9.370	-0.013	6630	12.5
Total Col1Ave (4 peaks):				5.2		Total Col2Ave (4 peaks):			6.9	RPD = 28
Corrected Ave (3 peaks):				4.1		Corrected Ave (3 peaks):			5.0	RPD = 21
Aroclor-1254	1	8.668	-0.012	1399	5.5	1	9.247	-0.003	9147	17.3
Aroclor-1254	2	8.772	0.022	1299	14.1	2	9.370	0.028	6630	21.3
Aroclor-1254	3	9.056	0.007	1524	9.8	3	9.764	-0.008	1398	3.5
Aroclor-1254	4	9.171	-0.009	1860	6.1	4	9.914	-0.009	4521	5.1
Aroclor-1254	5	9.858	-0.013	1494	7.2	5	10.158	0.003	10154	10.7
Total Col1Ave (5 peaks):				8.5		Total Col2Ave (5 peaks):			11.6	RPD = 30
Corrected Ave (4 peaks):				7.2		Corrected Ave (4 peaks):			9.2	RPD = 25
Aroclor-1260	1	10.383	-0.005	1918	13.9	1	11.436	-0.001	6869	13.6
Aroclor-1260	2	10.700	-0.006	1399	9.8	2	11.683	-0.006	16150	12.2
Aroclor-1260	3	11.048	-0.006	3255	8.7	3	12.267	-0.005	10510	12.3
Aroclor-1260	4	11.449	-0.006	2063	10.9	4	12.979	-0.004	6736	18.3
Aroclor-1260	5	11.554	-0.006	1263	17.2	NS	---			----
Total Col1Ave (5 peaks):				12.1		Total Col2Ave (4 peaks):			14.1	RPD = 15
Corrected Ave (4 peaks):				10.8		Corrected Ave (3 peaks):			12.7	RPD = 16
Aroclor-1262	1	10.383	-0.009	1918	8.1	1	10.973	-0.015	6502	8.0
Aroclor-1262	2	11.449	-0.012	2063	13.5	2	11.683	-0.017	16150	10.0
Aroclor-1262	3	11.627	-0.009	1981	9.6	3	12.182	-0.026	41853	54.2
Aroclor-1262	4	12.265	-0.023	4702	28.8	4	12.979	-0.014	6736	9.6
Total Col1Ave (4 peaks):				15.0		Total Col2Ave (4 peaks):			20.5	RPD = 31
Corrected Ave (3 peaks):				10.4		Corrected Ave (3 peaks):			9.2	RPD = 12
Aroclor-1268	1	11.554	-0.012	1263	2.0	1	12.182	-0.025	41853	17.8
Aroclor-1268	2	11.627	-0.009	1981	3.1	2	12.267	-0.008	10510	4.1
Aroclor-1268	3	12.022	0.010	1249	2.5	3	12.647	-0.013	5762	2.6
Aroclor-1268	4	12.768	-0.009	1572	1.0	4	13.427	-0.045	16070	2.2
Total Col1Ave (4 peaks):				2.1		Total Col2Ave (4 peaks):			6.7	RPD = 103*

Corrected Ave (3 peaks): 1.8 Corrected Ave (3 peaks): 3.0 RPD = 47*

Total PCB Area Col1 (5.173 - 13.068) = 136851 Col1 Total PCB = 0.1 ppm*

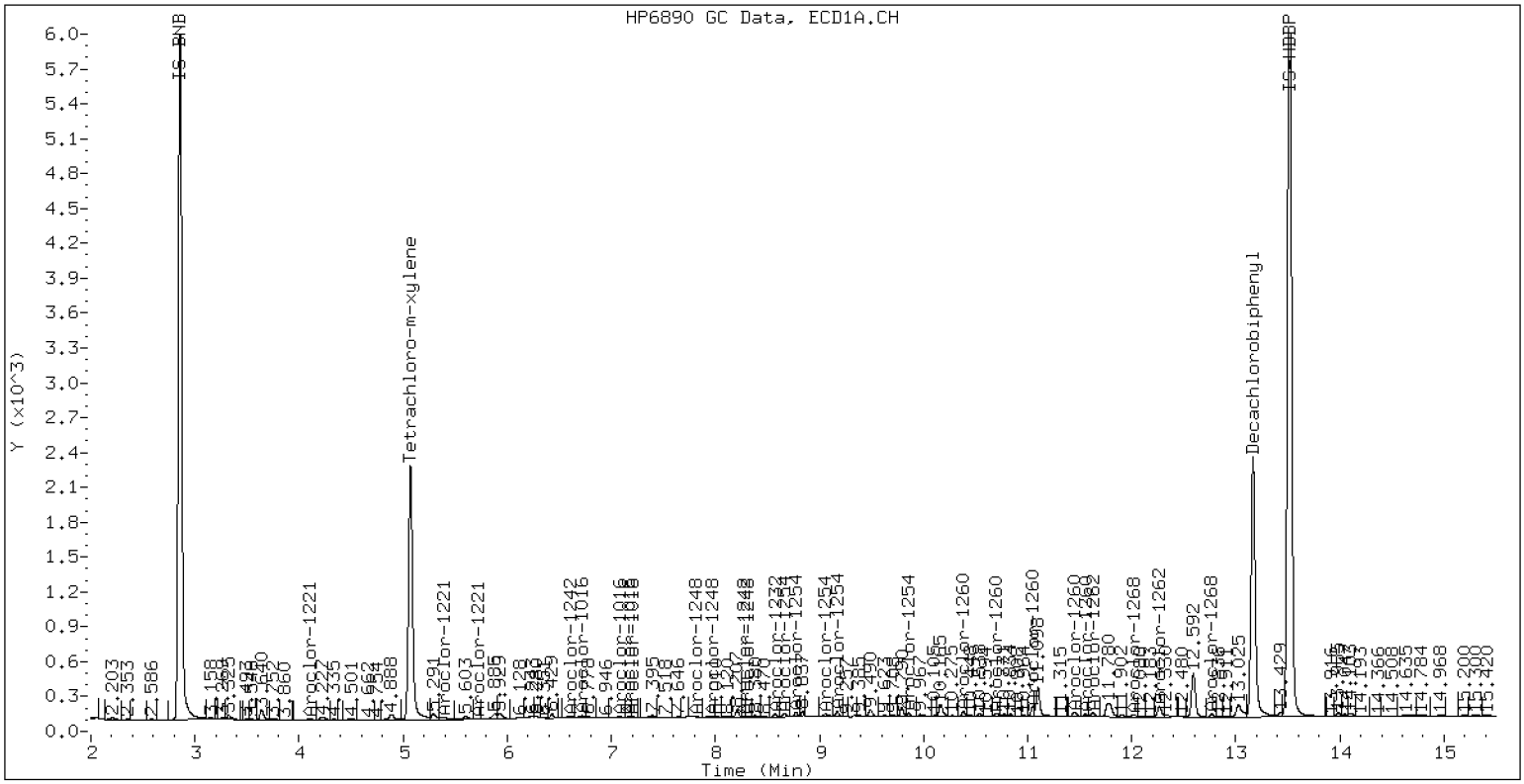
Total PCB Area Col2 (5.173 - 13.068) = 662783 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

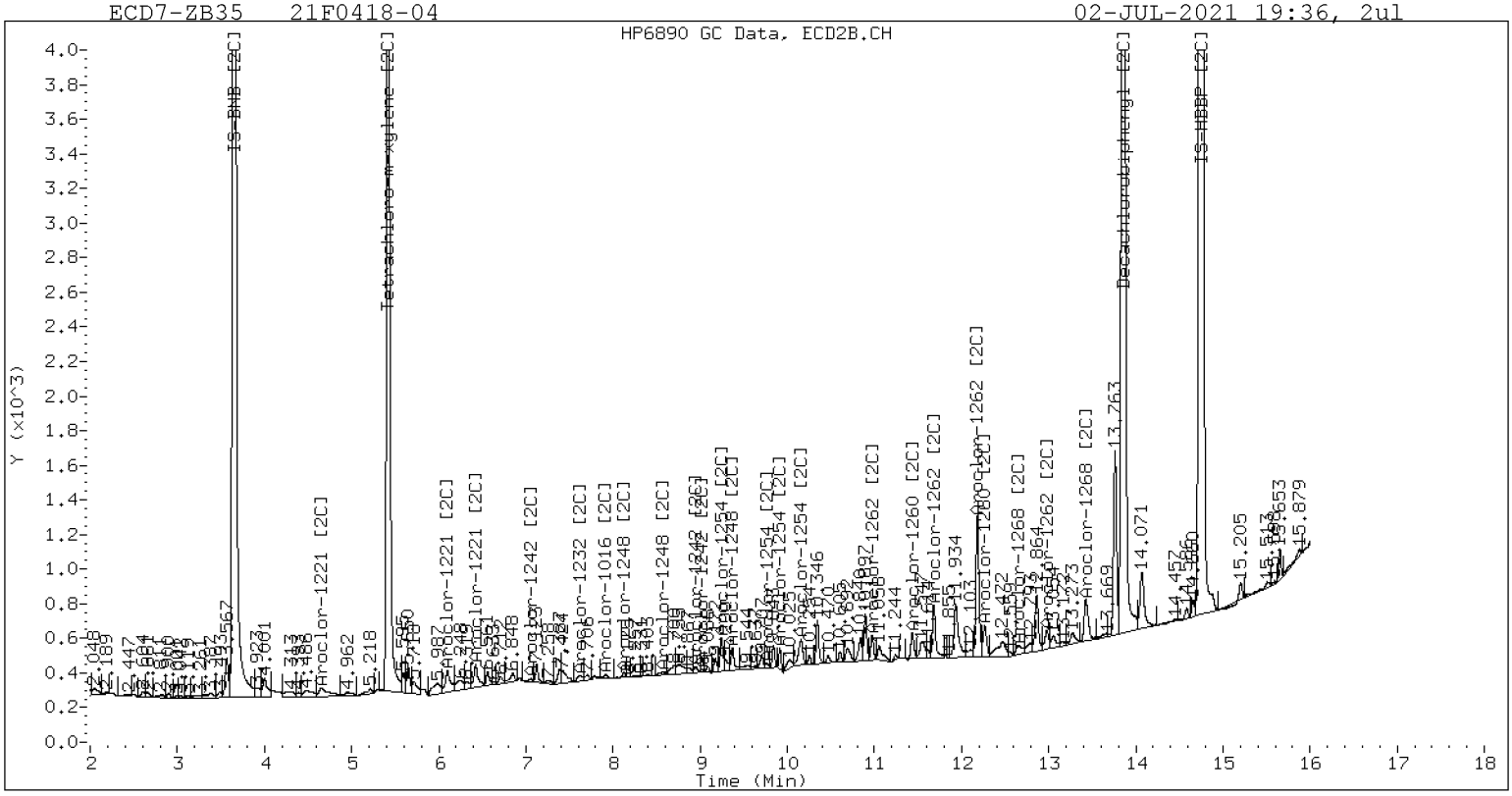
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-04 02-JUL-2021 19:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 21F0418-04 02-JUL-2021 19:36, 2ul

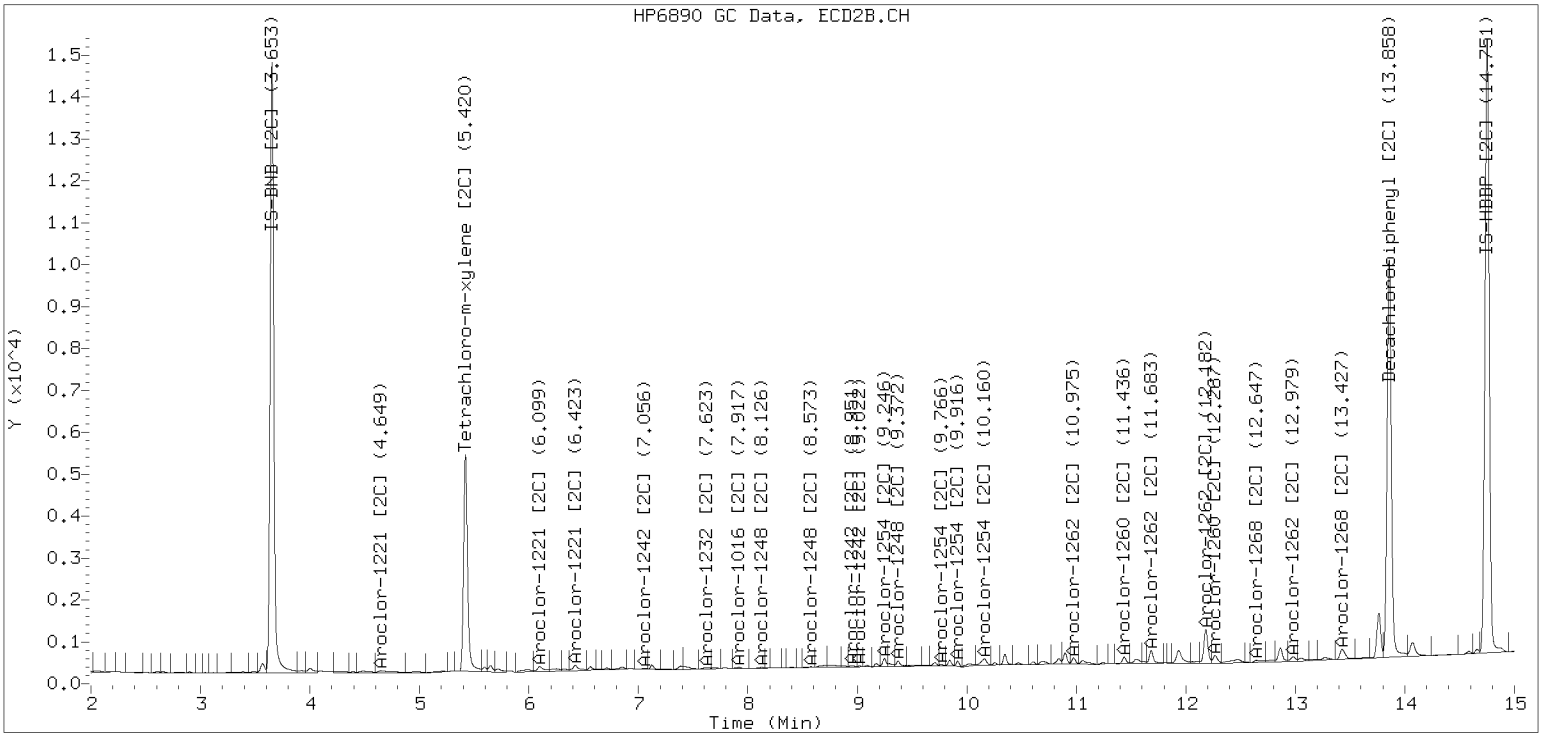


ZB-35 Manual Integration: YES

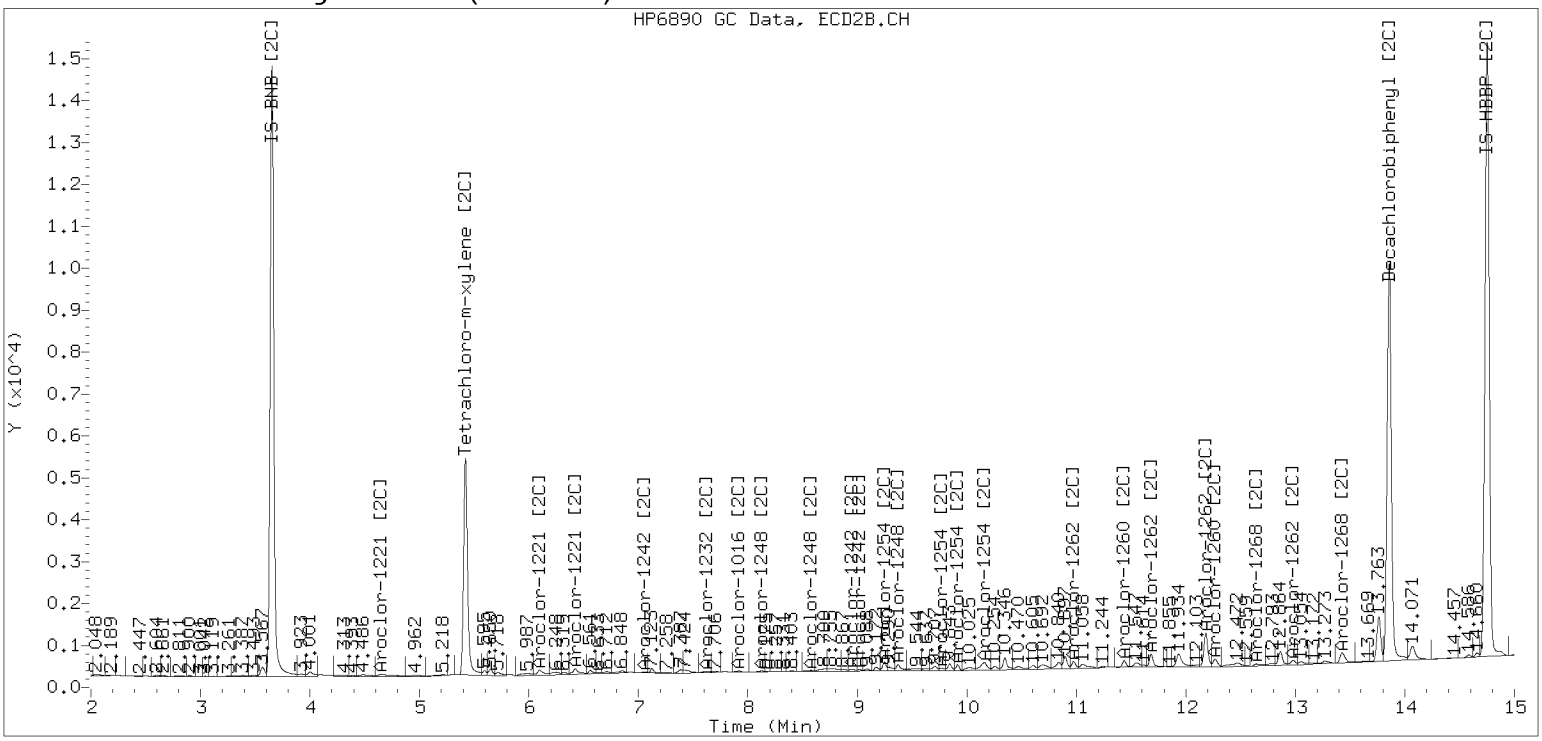
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/210702.b/210702.b/07022123.D Injection Date: 02-JUL-2021 19:3

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-SS693

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-05 B	File ID:	07022124ECD7.D
Sampled:	06/28/21 10:45	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 19:57
% Solids:	57.05	Preparation:	EPA 3546 (Microwave)	Initial/Final:	21.96 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	132	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9820*	*7.19*	*90.1*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9820*	*6.32*	*79.2*	*44 - 120*	

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

Data file 1: /210702.b/07022124ECD7.D
Data file 2: /210702.b/210702.b/07022124ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-05
Client ID:
Injection Date: 02-JUL-2021 19:57
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.071	-0.002	116317	5.421	-0.002	256876	31.7	28.9	9.0	Tetrachloro-m-xylene
13.163	-0.005	126997	13.858	-0.003	474714	36.0	31.3	14.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	307640	3.8
Hexabromobiphenyl	470266	395335	-15.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	719948	1.1
Hexabromobiphenyl	867949	845553	-2.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	ZB5 Col Peak#	RT	Shift	Area	Amount	ZB35 Col Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.719	0.056	1406	14.7	1	7.062	-0.006	2223	6.0
Aroclor-1016	2	7.032	-0.002	1698	5.3	2	7.659	0.002	4733	5.8
Aroclor-1016	3	7.175	-0.005	1142	8.7	3	7.917	0.052	1225	4.0
Aroclor-1016	4	7.285	-0.005	224	2.6	4	8.035	-0.002	1004	5.4
Total Col1Ave (4 peaks):				7.8		Total Col2Ave (4 peaks):			5.3	RPD = 39
Corrected Ave (3 peaks):				5.5		Corrected Ave (3 peaks):			5.1	RPD = 9
Aroclor-1221	1	---			0.0	1	4.648	-0.044	18221	388.8
Aroclor-1221	2	5.397	-0.058	1994	51.1	2	6.099	0.015	9676	87.9
Aroclor-1221	3	5.722	-0.007	196	2.0	3	6.423	0.002	6848	33.8
Col1Ave: <3 Quant Peaks						Col2Ave: 170.2				
Aroclor-1232	1	---			0.0	1	4.648	-0.044	18221	614.8
Aroclor-1232	2	5.722	-0.009	196	2.3	2	6.099	0.014	9676	122.0
Aroclor-1232	3	7.032	0.005	1698	12.0	3	6.423	0.001	6848	39.4
Aroclor-1232	4	8.593	-0.012	7347	172.5	4	7.659	-0.003	4733	13.0
Total Col1Ave (3 peaks):				62.3		Total Col2Ave (4 peaks):			197.3	RPD = 104*
Corrected Ave: <3 Peaks						Corrected Ave (3 peaks):			58.1	
Aroclor-1242	1	6.719	0.056	1406	16.6	1	7.062	-0.003	2223	7.0
Aroclor-1242	2	7.032	-0.001	1698	6.2	2	7.659	0.004	4733	6.8
Aroclor-1242	3	8.262	-0.008	1624	42.8	3	8.948	-0.004	9332	29.9
Aroclor-1242	4	8.593	-0.017	7347	86.7	4	9.024	-0.008	9622	35.0
Total Col1Ave (4 peaks):				38.1		Total Col2Ave (4 peaks):			19.7	RPD = 64*
Corrected Ave (3 peaks):				21.8		Corrected Ave (3 peaks):			14.6	RPD = 40*
Aroclor-1248	1	7.799	-0.005	1277	9.9	1	8.113	-0.003	7764	29.6
Aroclor-1248	2	7.965	-0.006	2486	15.6	2	8.527	-0.002	4645	13.0
Aroclor-1248	3	8.310	-0.009	2635	16.5	3	8.948	-0.006	9332	18.2
Aroclor-1248	4	8.593	-0.016	7347	52.1	4	9.374	-0.009	10189	18.6
Total Col1Ave (4 peaks):				23.6		Total Col2Ave (4 peaks):			19.8	RPD = 17
Corrected Ave (3 peaks):				14.0		Corrected Ave (3 peaks):			16.6	RPD = 17
Aroclor-1254	1	8.670	-0.010	26628	102.4	1	9.243	-0.007	79259	145.4
Aroclor-1254	2	8.743	-0.007	5366	56.7	2	9.331	-0.011	7738	24.1
Aroclor-1254	3	9.047	-0.003	18259	114.5	3	9.766	-0.007	20954	51.1
Aroclor-1254	4	9.167	-0.013	41056	130.1	4	9.926	0.003	198370	217.5
Aroclor-1254	5	9.854	-0.017	46740	219.7	5	10.163	0.007	296701	303.3
Total Col1Ave (5 peaks):				124.7		Total Col2Ave (5 peaks):			148.3	RPD = 17
Corrected Ave (4 peaks):				100.9		Corrected Ave (4 peaks):			109.5	RPD = 8
Aroclor-1260	1	10.380	-0.008	98130	677.1	1	11.433	-0.005	302138	573.0
Aroclor-1260	2	10.698	-0.008	98542	661.3	2	11.685	-0.005	758848	551.7
Aroclor-1260	3	11.047	-0.007	247435	633.9	3	12.266	-0.006	479053	535.6
Aroclor-1260	4	11.447	-0.008	128460	645.7	4	12.978	-0.005	246322	640.7
Aroclor-1260	5	11.552	-0.007	52059	678.7	NS	---			----
Total Col1Ave (5 peaks):				659.4		Total Col2Ave (4 peaks):			575.2	RPD = 14
Corrected Ave (4 peaks):				654.5		Corrected Ave (3 peaks):			553.4	RPD = 17
Aroclor-1262	1	10.380	-0.011	98130	394.6	1	10.975	-0.014	298669	351.8
Aroclor-1262	2	11.447	-0.014	128460	800.8	2	11.685	-0.015	758848	451.7
Aroclor-1262	3	11.626	-0.010	140072	647.4	3	12.195	-0.013	276906	343.7
Aroclor-1262	4	12.272	-0.017	54425	318.2	4	12.978	-0.015	246322	337.0
Total Col1Ave (4 peaks):				540.3		Total Col2Ave (4 peaks):			271.1	RPD = 37
Corrected Ave (3 peaks):				453.4		Corrected Ave (3 peaks):			344.2	RPD = 27
Aroclor-1268	1	11.552	-0.013	52059	78.4	1	12.195	-0.012	276906	112.7
Aroclor-1268	2	11.626	-0.010	140072	208.2	2	12.266	-0.009	479053	178.9
Aroclor-1268	3	12.025	0.013	38520	72.9	3	12.643	-0.017	10091	4.3
Aroclor-1268	4	12.766	-0.011	17496	10.6	4	13.452	-0.020	53541	7.0
Total Col1Ave (4 peaks):				92.5		Total Col2Ave (4 peaks):			75.8	RPD = 20
Corrected Ave (3 peaks):				54.0		Corrected Ave (3 peaks):			41.4	RPD = 26

Total PCB Area Col1 (5.173 - 13.068) = 2570632 Col1 Total PCB = 0.9 ppm*

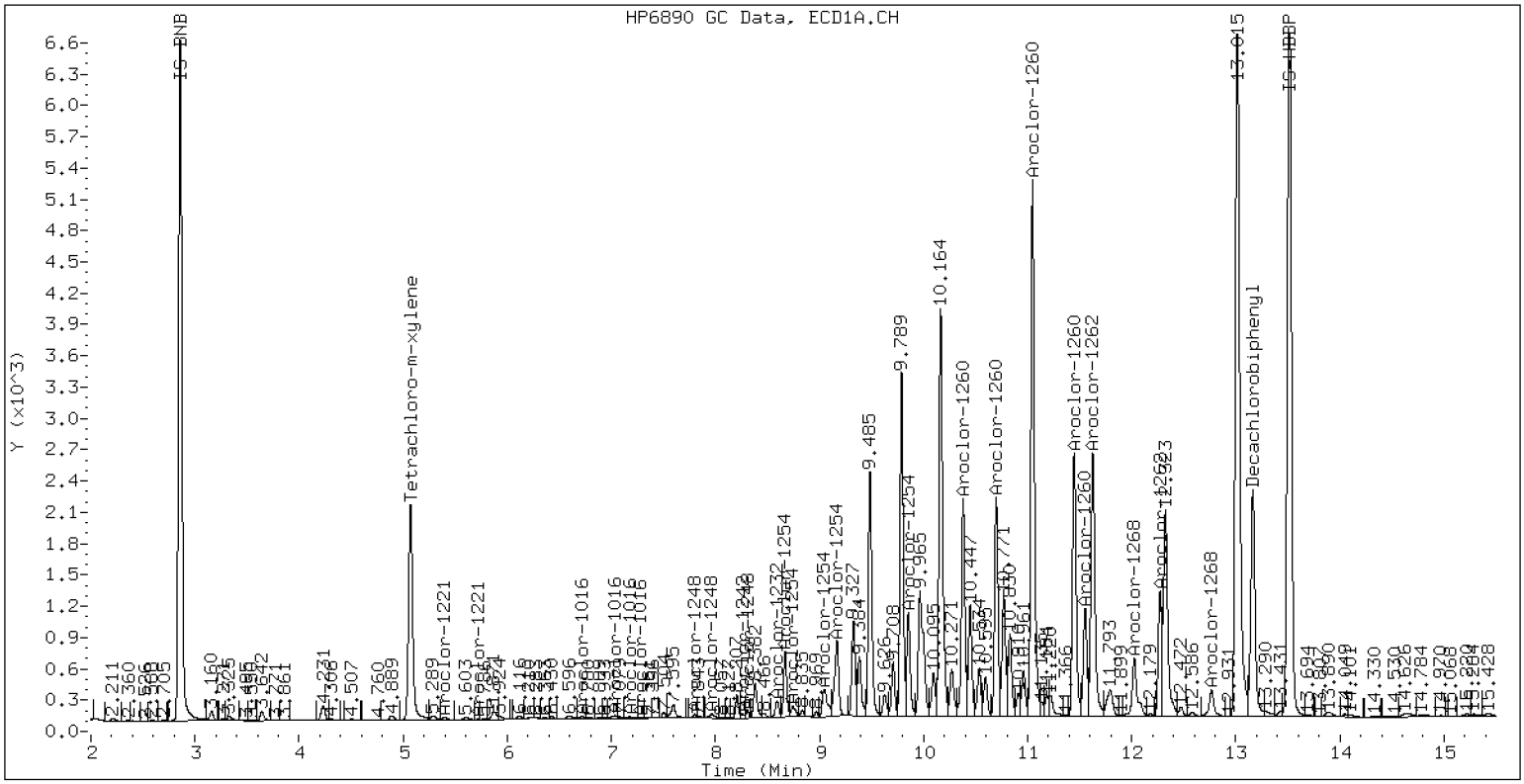
Total PCB Area Col2 (5.173 - 13.068) = 5994802 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-05 02-JUL-2021 19:57, 2ul



ZB-5 Manual Integration: NO

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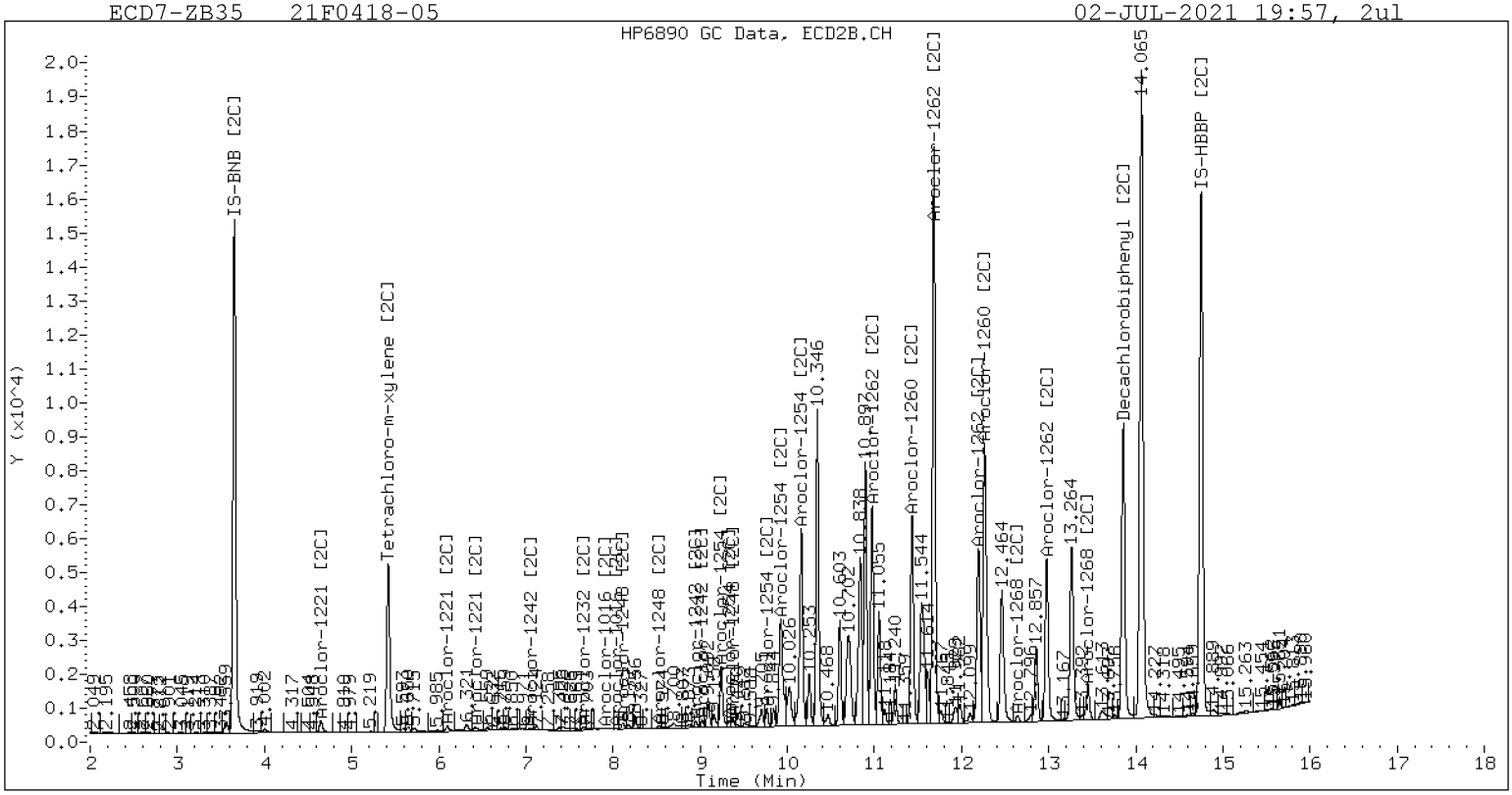


ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-IT693

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-06 B	File ID:	07022125ECD7.D
Sampled:	06/28/21 10:50	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 20:17
% Solids:	73.12	Preparation:	EPA 3546 (Microwave)	Initial/Final:	17.15 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	9.9	1.6	4.0	
11096-82-5	Aroclor 1260	1	1	40.2	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9744*	*8.24*	*103*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9744*	*6.61*	*82.9*	*44 - 120*	

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

Data file 1: /210702.b/07022125ECD7.D
Data file 2: /210702.b/210702.b/07022125ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-06
Client ID:
Injection Date: 02-JUL-2021 20:17
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.070	-0.003	124296	5.420	-0.003	274520	33.2	30.5	8.3	Tetrachloro-m-xylene
13.166	-0.002	165282	13.857	-0.003	566830	41.3	35.5	15.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	313982	5.9
Hexabromobiphenyl	470266	448489	-4.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	729614	2.5
Hexabromobiphenyl	867949	889914	2.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.712	0.048	538	5.5	1	7.063	-0.005	1107	2.9
Aroclor-1016	2	7.032	-0.001	1210	3.7	2	7.653	-0.004	5098	6.2
Aroclor-1016	3	7.173	-0.007	1187	8.9	3	7.918	0.053	490	1.6
Aroclor-1016	4	7.287	-0.003	279	3.1	4	8.035	-0.002	607	3.2
Total Col1Ave (4 peaks):					5.3	Total Col2Ave (4 peaks):				3.5 RPD = 42*
Corrected Ave (3 peaks):					4.1	Corrected Ave (3 peaks):				2.6 RPD = 46*
Aroclor-1221	1	4.083	0.061	293	12.6	1	4.647	-0.045	6703	141.1
Aroclor-1221	2	5.399	-0.056	2087	52.4	2	6.098	0.014	9100	81.6
Aroclor-1221	3	5.723	-0.006	383	3.8	3	6.423	0.002	9287	45.2
Total Col1Ave (3 peaks):					23.0	Total Col2Ave (3 peaks):				89.3 RPD = 118*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	---			0.0	1	4.647	-0.045	6703	223.2
Aroclor-1232	2	5.723	-0.008	383	4.4	2	6.098	0.013	9100	113.2
Aroclor-1232	3	7.032	0.005	1210	8.4	3	6.423	0.001	9287	52.7
Aroclor-1232	4	8.595	-0.010	4229	97.3	4	7.653	-0.009	5098	13.8
Total Col1Ave (3 peaks):					36.7	Total Col2Ave (4 peaks):				100.7 RPD = 93*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				59.9
Aroclor-1242	1	6.712	0.049	538	6.2	1	7.063	-0.003	1107	3.4
Aroclor-1242	2	7.032	-0.000	1210	4.3	2	7.653	-0.002	5098	7.3
Aroclor-1242	3	8.266	-0.004	914	23.6	3	8.950	-0.003	9161	28.9
Aroclor-1242	4	8.595	-0.014	4229	48.9	4	9.026	-0.006	7463	26.8
Total Col1Ave (4 peaks):					20.8	Total Col2Ave (4 peaks):				16.6 RPD = 22
Corrected Ave (3 peaks):					11.4	Corrected Ave (3 peaks):				12.5 RPD = 9
Aroclor-1248	1	7.801	-0.003	1444	11.0	1	8.115	-0.001	5782	21.7
Aroclor-1248	2	7.967	-0.003	1673	10.3	2	8.529	-0.001	3299	9.1
Aroclor-1248	3	8.313	-0.006	2358	14.5	3	8.950	-0.005	9161	17.6
Aroclor-1248	4	8.595	-0.014	4229	29.4	4	9.375	-0.009	12184	21.9
Total Col1Ave (4 peaks):					16.3	Total Col2Ave (4 peaks):				17.6 RPD = 8
Corrected Ave (3 peaks):					11.9	Corrected Ave (3 peaks):				16.1 RPD = 30
Aroclor-1254	1	8.672	-0.007	11097	41.8	1	9.245	-0.005	35900	65.0
Aroclor-1254	2	8.747	-0.003	4404	45.6	2	9.332	-0.010	7557	23.2
Aroclor-1254	3	9.050	0.001	8549	52.5	3	9.768	-0.004	11992	28.8
Aroclor-1254	4	9.172	-0.008	19189	59.6	4	9.922	-0.002	74407	80.5
Aroclor-1254	5	9.860	-0.011	20596	94.9	5	10.163	0.007	116100	117.1
Total Col1Ave (5 peaks):					58.9	Total Col2Ave (5 peaks):				62.9 RPD = 7
Corrected Ave (4 peaks):					49.9	Corrected Ave (4 peaks):				49.4 RPD = 1
Aroclor-1260	1	10.384	-0.004	34083	207.3	1	11.436	-0.002	113094	203.8
Aroclor-1260	2	10.701	-0.005	33109	195.9	2	11.685	-0.004	260766	180.1
Aroclor-1260	3	11.050	-0.004	88004	198.7	3	12.267	-0.005	166896	177.3
Aroclor-1260	4	11.450	-0.005	44412	196.8	4	12.979	-0.004	82465	203.8
Aroclor-1260	5	11.554	-0.005	18134	208.4	NS	---			----
Total Col1Ave (5 peaks):					201.4	Total Col2Ave (4 peaks):				191.2 RPD = 5
Corrected Ave (4 peaks):					199.7	Corrected Ave (3 peaks):				187.1 RPD = 7
Aroclor-1262	1	10.384	-0.008	34083	120.8	1	10.976	-0.013	104177	116.6
Aroclor-1262	2	11.450	-0.011	44412	244.0	2	11.685	-0.014	260766	147.5
Aroclor-1262	3	11.632	-0.004	64171	261.4	3	12.195	-0.013	111310	131.3
Aroclor-1262	4	12.275	-0.014	17269	89.0	4	12.979	-0.014	82465	107.2
Total Col1Ave (4 peaks):					178.8	Total Col2Ave (4 peaks):				125.6 RPD = 35
Corrected Ave (3 peaks):					151.3	Corrected Ave (3 peaks):				118.4 RPD = 24
Aroclor-1268	1	11.554	-0.011	18134	24.1	1	12.195	-0.013	111310	43.1
Aroclor-1268	2	11.632	-0.004	64171	84.1	2	12.267	-0.008	166896	59.2
Aroclor-1268	3	12.028	0.016	10447	17.4	3	12.646	-0.014	5526	2.2
Aroclor-1268	4	12.769	-0.008	6247	3.3	4	13.453	-0.019	23112	2.9
Total Col1Ave (4 peaks):					32.2	Total Col2Ave (4 peaks):				26.9 RPD = 18

Corrected Ave (3 peaks): 14.9 Corrected Ave (3 peaks): 16.1 RPD = 7

Total PCB Area Col1 (5.173 - 13.068) = 1252022 Col1 Total PCB = 0.5 ppm*

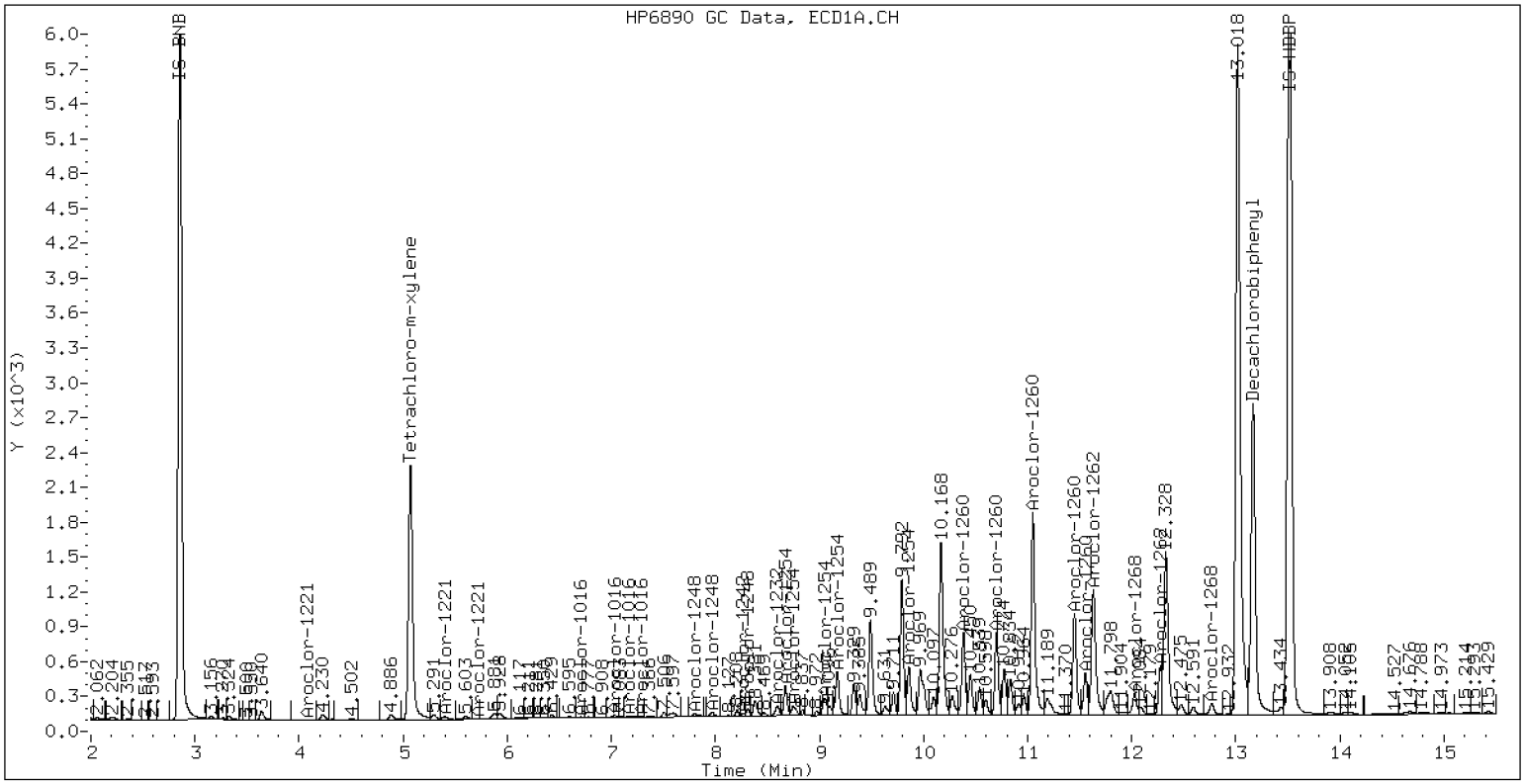
Total PCB Area Col2 (5.173 - 13.068) = 2566784 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

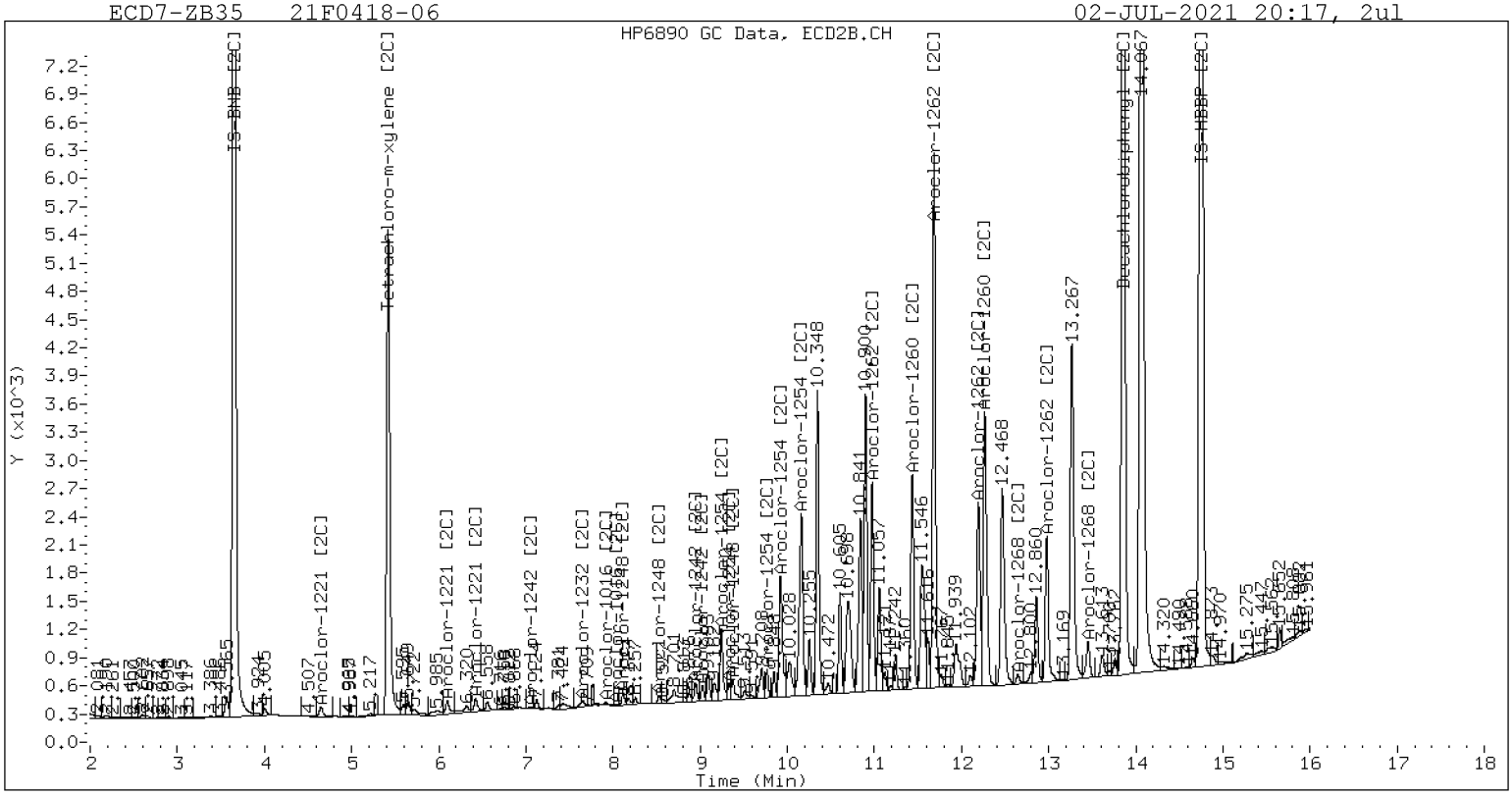
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-06 02-JUL-2021 20:17, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 21F0418-06 02-JUL-2021 20:17, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-SS691

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-07 B	File ID:	07022126ECD7.D
Sampled:	06/28/21 11:10	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 20:38
% Solids:	65.34	Preparation:	EPA 3546 (Microwave)	Initial/Final:	19.13 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	104	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*8.0003*	*8.07*	*101*	*40 - 126*	
Tetrachlorometaxylene	*1*	*8.0003*	*6.94*	*86.7*	*44 - 120*	

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

Data file 1: /210702.b/07022126ECD7.D
Data file 2: /210702.b/210702.b/07022126ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-07
Client ID:
Injection Date: 02-JUL-2021 20:38
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.070	-0.003	128228	5.421	-0.003	284209	34.7	32.4	6.8	Tetrachloro-m-xylene
13.163	-0.005	140361	13.855	-0.005	526119	40.4	34.7	15.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	309512	4.4
Hexabromobiphenyl	470266	390000	-17.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	711514	-0.1
Hexabromobiphenyl	867949	846464	-2.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.654	-0.010	498	5.2	1	7.065	-0.003	2260	6.2
Aroclor-1016	2	7.030	-0.004	3724	11.5	2	7.657	-0.000	7770	9.6
Aroclor-1016	3	7.172	-0.008	1861	14.1	3	7.864	-0.001	16	0.1
Aroclor-1016	4	7.286	-0.003	588	6.7	4	8.034	-0.002	1910	10.3
Total Col1Ave (4 peaks):					9.4	Total Col2Ave (4 peaks):				6.5 RPD = 36
Corrected Ave (3 peaks):					7.8	Corrected Ave (3 peaks):				5.3 RPD = 38
Aroclor-1221	1	---			0.0	1	4.648	-0.044	14443	311.9
Aroclor-1221	2	5.398	-0.057	2117	54.0	2	6.097	0.013	10494	96.5
Aroclor-1221	3	5.716	-0.014	315	3.2	3	6.423	0.002	10158	50.7
Col1Ave: <3 Quant Peaks						Col2Ave: 153.0				
Aroclor-1232	1	---			0.0	1	4.648	-0.043	14443	493.1
Aroclor-1232	2	5.716	-0.015	315	3.7	2	6.097	0.012	10494	133.9
Aroclor-1232	3	7.030	0.003	3724	26.1	3	6.423	0.001	10158	59.1
Aroclor-1232	4	8.594	-0.011	9785	228.4	4	7.657	-0.005	7770	21.6
Total Col1Ave (3 peaks):					86.1	Total Col2Ave (4 peaks):				176.9 RPD = 69*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				71.5
Aroclor-1242	1	6.654	-0.009	498	5.8	1	7.065	-0.001	2260	7.2
Aroclor-1242	2	7.030	-0.003	3724	13.4	2	7.657	0.001	7770	11.4
Aroclor-1242	3	8.263	-0.007	2479	65.0	3	8.948	-0.005	17590	56.9
Aroclor-1242	4	8.594	-0.016	9785	114.8	4	9.024	-0.008	22026	81.1
Total Col1Ave (4 peaks):					49.8	Total Col2Ave (4 peaks):				39.1 RPD = 24
Corrected Ave (3 peaks):					28.1	Corrected Ave (3 peaks):				25.2 RPD = 11
Aroclor-1248	1	7.799	-0.004	2043	15.8	1	8.114	-0.002	9158	35.3
Aroclor-1248	2	7.965	-0.005	3700	23.1	2	8.526	-0.004	6217	17.6
Aroclor-1248	3	8.309	-0.010	5075	31.6	3	8.948	-0.007	17590	34.6
Aroclor-1248	4	8.594	-0.015	9785	69.0	4	9.374	-0.009	23253	42.9
Total Col1Ave (4 peaks):					34.9	Total Col2Ave (4 peaks):				32.6 RPD = 7
Corrected Ave (3 peaks):					23.5	Corrected Ave (3 peaks):				29.2 RPD = 22
Aroclor-1254	1	8.668	-0.011	17966	68.7	1	9.244	-0.006	76642	142.3
Aroclor-1254	2	8.745	-0.005	9463	99.3	2	9.334	-0.008	12850	40.4
Aroclor-1254	3	9.055	0.006	26223	163.5	3	9.766	-0.007	20723	51.1
Aroclor-1254	4	9.169	-0.011	41531	130.8	4	9.923	-0.001	190146	211.0
Aroclor-1254	5	9.856	-0.015	47332	221.1	5	10.161	0.006	266009	275.2
Total Col1Ave (5 peaks):					136.7	Total Col2Ave (5 peaks):				144.0 RPD = 5
Corrected Ave (4 peaks):					115.6	Corrected Ave (4 peaks):				111.2 RPD = 4
Aroclor-1260	1	10.379	-0.009	79960	559.3	1	11.434	-0.004	258243	489.2
Aroclor-1260	2	10.698	-0.009	72424	492.7	2	11.683	-0.006	592663	430.4
Aroclor-1260	3	11.048	-0.006	207645	539.2	3	12.266	-0.006	355059	396.5
Aroclor-1260	4	11.447	-0.008	99530	507.1	4	12.977	-0.006	163016	423.5
Aroclor-1260	5	11.552	-0.008	37914	501.1	NS	---			----
Total Col1Ave (5 peaks):					519.9	Total Col2Ave (4 peaks):				434.9 RPD = 18
Corrected Ave (4 peaks):					510.0	Corrected Ave (3 peaks):				416.8 RPD = 20
Aroclor-1262	1	10.379	-0.012	79960	326.0	1	10.974	-0.015	251994	296.5
Aroclor-1262	2	11.447	-0.014	99530	629.0	2	11.683	-0.016	592663	352.4
Aroclor-1262	3	11.625	-0.011	135283	633.8	3	12.192	-0.016	273917	339.6
Aroclor-1262	4	12.270	-0.018	38537	228.4	4	12.977	-0.016	163016	222.8
Total Col1Ave (4 peaks):					454.3	Total Col2Ave (4 peaks):				302.8 RPD = 40*
Corrected Ave (3 peaks):					394.4	Corrected Ave (3 peaks):				286.3 RPD = 32
Aroclor-1268	1	11.552	-0.014	37914	57.9	1	12.192	-0.015	273917	111.4
Aroclor-1268	2	11.625	-0.011	135283	203.9	2	12.266	-0.009	355059	132.5
Aroclor-1268	3	12.025	0.013	20859	40.0	3	12.646	-0.014	14663	6.2
Aroclor-1268	4	12.768	-0.009	14392	8.8	4	13.448	-0.024	56692	7.5
Total Col1Ave (4 peaks):					77.6	Total Col2Ave (4 peaks):				64.4 RPD = 19
Corrected Ave (3 peaks):					35.6	Corrected Ave (3 peaks):				41.7 RPD = 16

Total PCB Area Col1 (5.173 - 13.068) = 2509412 Col1 Total PCB = 0.9 ppm*

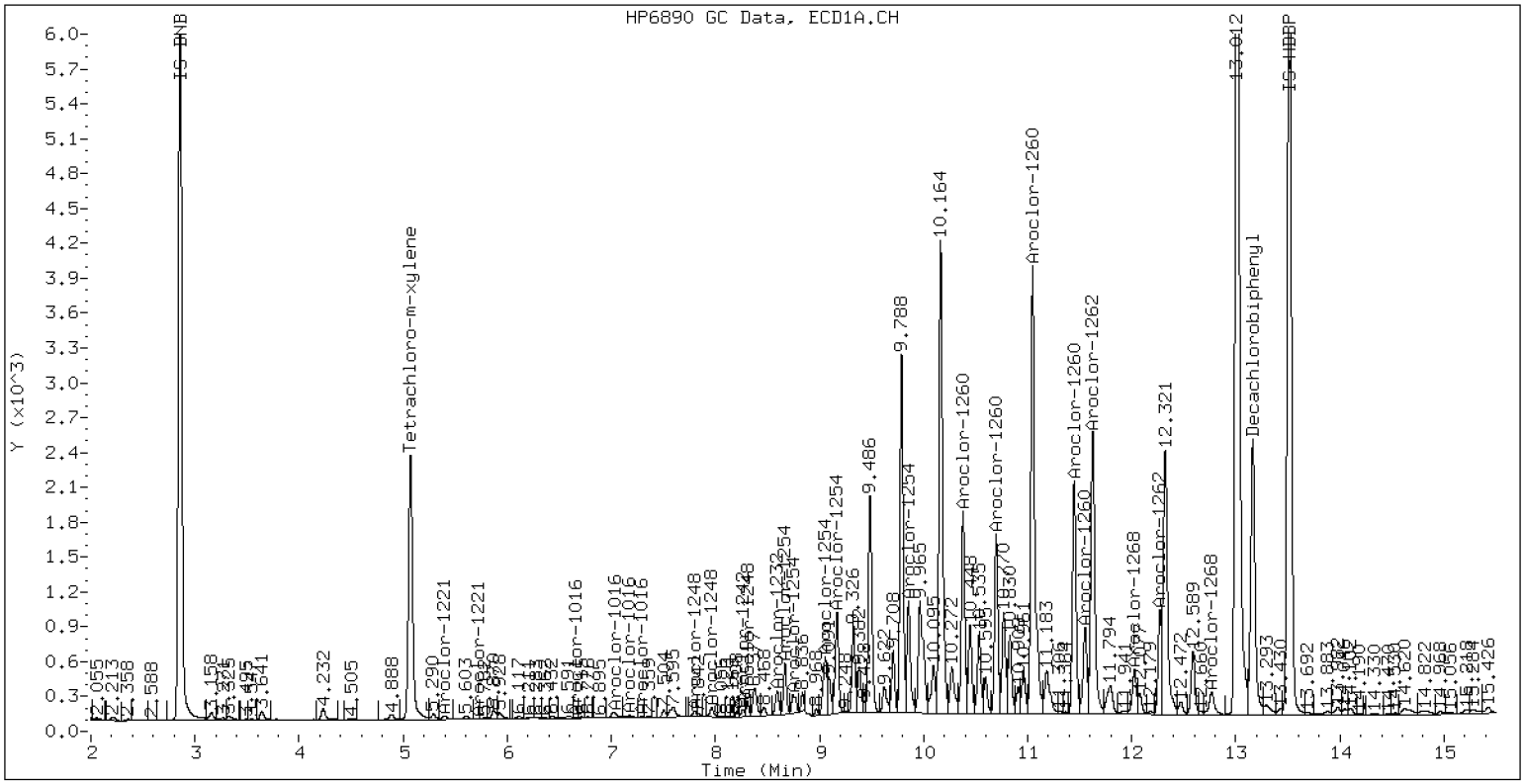
Total PCB Area Col2 (5.173 - 13.068) = 5487196 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

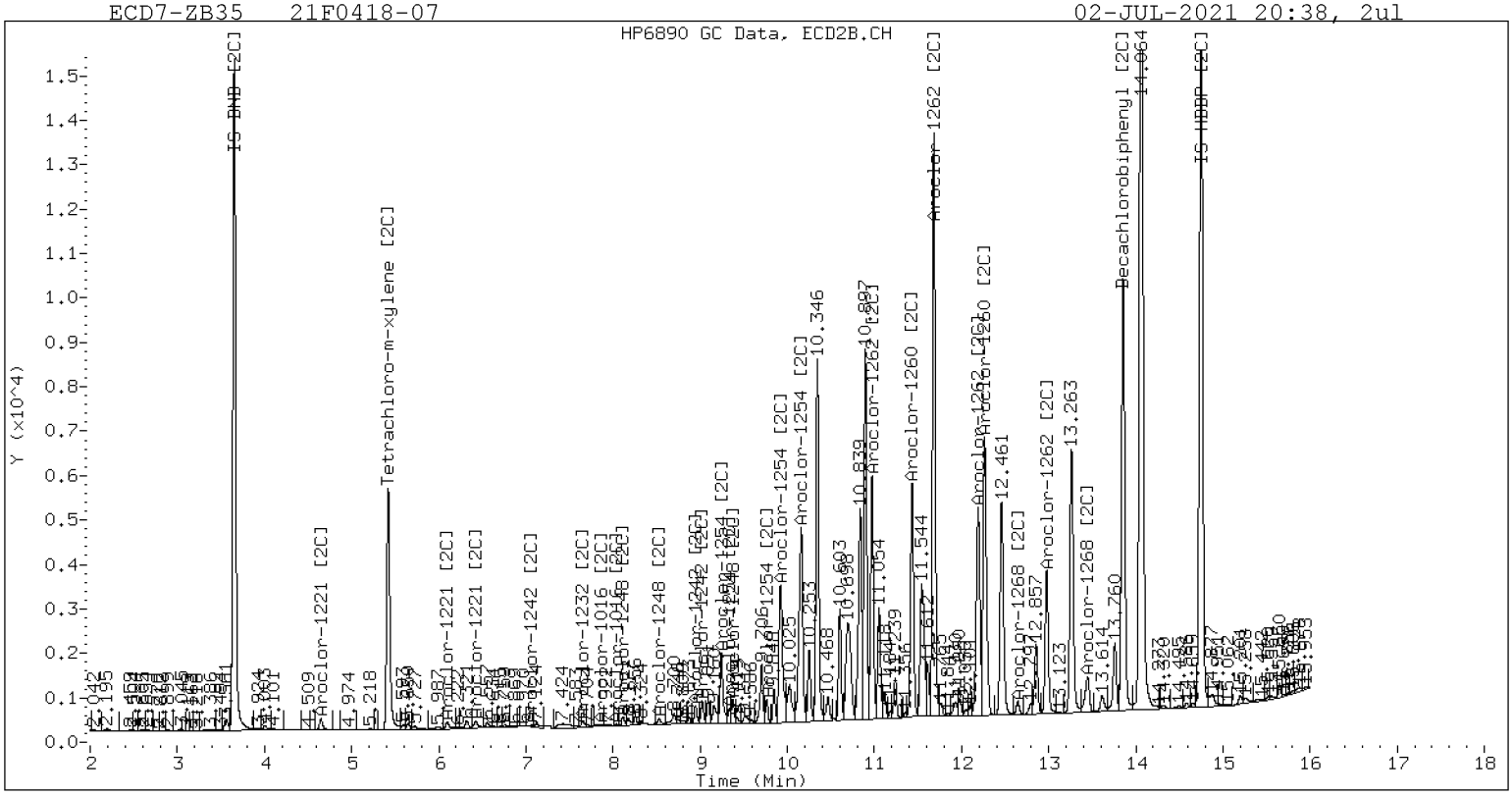
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-07 02-JUL-2021 20:38, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 21F0418-07 02-JUL-2021 20:38, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-IT691

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-08 B	File ID:	07022129ECD7.D
Sampled:	06/28/21 11:15	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 21:41
% Solids:	76.41	Preparation:	EPA 3546 (Microwave)	Initial/Final:	16.46 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	43.2	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9510*	*7.69*	*96.7*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9510*	*6.83*	*85.9*	*44 - 120*	

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

Data file 1: /210702.b/07022129ECD7.D
Data file 2: /210702.b/210702.b/07022129ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-08
Client ID:
Injection Date: 02-JUL-2021 21:41
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.070	-0.003	127678	5.421	-0.002	289713	34.4	32.0	7.1	Tetrachloro-m-xylene
13.166	-0.002	159837	13.858	-0.003	593995	38.7	35.8	7.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	311064	4.9
Hexabromobiphenyl	470266	463289	-1.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	734330	3.1
Hexabromobiphenyl	867949	925062	6.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.721	0.058	163	1.7	1	7.066	-0.002	1756	4.6
Aroclor-1016	2	7.032	-0.001	1037	3.2	2	7.659	0.002	5715	6.9
Aroclor-1016	3	7.173	-0.007	1114	8.4	3	7.916	0.051	1691	5.4
Aroclor-1016	4	7.288	-0.002	128	1.4	4	8.037	0.001	901	4.7
Total Col1Ave (4 peaks):					3.7	Total Col2Ave (4 peaks):				5.4 RPD = 38
Corrected Ave (3 peaks):					2.1	Corrected Ave (3 peaks):				4.9 RPD = 80*
Aroclor-1221	1	---			0.0	1	4.647	-0.045	4497	94.1
Aroclor-1221	2	5.398	-0.057	1009	25.6	2	6.096	0.012	6338	56.5
Aroclor-1221	3	5.720	-0.010	211	2.1	3	6.424	0.002	7662	37.0
Col1Ave: <3 Quant Peaks						Col2Ave: 62.5				
Aroclor-1232	1	---			0.0	1	4.647	-0.044	4497	148.8
Aroclor-1232	2	5.720	-0.011	211	2.5	2	6.096	0.012	6338	78.3
Aroclor-1232	3	7.032	0.005	1037	7.2	3	6.424	0.001	7662	43.2
Aroclor-1232	4	8.596	-0.009	2400	55.7	4	7.659	-0.002	5715	15.4
Total Col1Ave (3 peaks):					21.8	Total Col2Ave (4 peaks):				71.4 RPD = 106*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				45.6
Aroclor-1242	1	6.721	0.058	163	1.9	1	7.066	0.000	1756	5.4
Aroclor-1242	2	7.032	-0.000	1037	3.7	2	7.659	0.004	5715	8.1
Aroclor-1242	3	8.266	-0.004	964	25.1	3	8.951	-0.001	5957	18.7
Aroclor-1242	4	8.596	-0.013	2400	28.0	4	9.027	-0.005	5769	20.6
Total Col1Ave (4 peaks):					14.7	Total Col2Ave (4 peaks):				13.2 RPD = 11
Corrected Ave (3 peaks):					10.2	Corrected Ave (3 peaks):				10.7 RPD = 5
Aroclor-1248	1	7.801	-0.003	1692	13.0	1	8.122	0.006	3528	13.2
Aroclor-1248	2	7.967	-0.003	1596	9.9	2	8.532	0.002	2799	7.7
Aroclor-1248	3	8.311	-0.008	1372	8.5	3	8.951	-0.003	5957	11.4
Aroclor-1248	4	8.596	-0.013	2400	16.8	4	9.379	-0.004	7959	14.2
Total Col1Ave (4 peaks):					12.1	Total Col2Ave (4 peaks):				11.6 RPD = 4
Corrected Ave (3 peaks):					10.5	Corrected Ave (3 peaks):				10.7 RPD = 2
Aroclor-1254	1	8.671	-0.008	5128	19.5	1	9.246	-0.004	24552	44.2
Aroclor-1254	2	8.748	-0.002	1390	14.5	2	9.379	0.037	7959	24.3
Aroclor-1254	3	9.088	0.039	8468	52.5	3	9.768	-0.005	5315	12.7
Aroclor-1254	4	9.172	-0.008	10563	33.1	4	9.931	0.007	58598	63.0
Aroclor-1254	5	9.858	-0.013	14185	65.9	5	10.164	0.009	91809	92.0
Total Col1Ave (5 peaks):					37.1	Total Col2Ave (5 peaks):				47.2 RPD = 24
Corrected Ave (4 peaks):					29.9	Corrected Ave (4 peaks):				36.0 RPD = 19
Aroclor-1260	1	10.384	-0.004	35959	211.7	1	11.435	-0.003	114838	199.1
Aroclor-1260	2	10.701	-0.005	35248	201.9	2	11.685	-0.004	301039	200.0
Aroclor-1260	3	11.050	-0.004	101231	221.3	3	12.268	-0.004	200167	204.5
Aroclor-1260	4	11.451	-0.004	51472	220.8	4	12.980	-0.003	102211	243.0
Aroclor-1260	5	11.555	-0.004	20817	231.6	NS	---			----
Total Col1Ave (5 peaks):					217.5	Total Col2Ave (4 peaks):				211.7 RPD = 3
Corrected Ave (4 peaks):					213.9	Corrected Ave (3 peaks):				201.2 RPD = 6
Aroclor-1262	1	10.384	-0.007	35959	123.4	1	10.977	-0.012	113000	121.6
Aroclor-1262	2	11.451	-0.010	51472	273.8	2	11.685	-0.015	301039	163.8
Aroclor-1262	3	11.630	-0.005	37048	146.1	3	12.197	-0.011	112426	127.6
Aroclor-1262	4	12.275	-0.014	24562	122.5	4	12.980	-0.013	102211	127.8
Total Col1Ave (4 peaks):					166.5	Total Col2Ave (4 peaks):				135.2 RPD = 21
Corrected Ave (3 peaks):					130.7	Corrected Ave (3 peaks):				125.7 RPD = 4
Aroclor-1268	1	11.555	-0.010	20817	26.8	1	12.197	-0.010	112426	41.8
Aroclor-1268	2	11.630	-0.005	37048	47.0	2	12.268	-0.007	200167	68.3
Aroclor-1268	3	12.028	0.016	13576	21.9	3	12.651	-0.009	8513	3.3
Aroclor-1268	4	12.769	-0.008	6958	3.6	4	13.454	-0.018	23802	2.9
Total Col1Ave (4 peaks):					24.8	Total Col2Ave (4 peaks):				29.1 RPD = 16
Corrected Ave (3 peaks):					17.4	Corrected Ave (3 peaks):				16.0 RPD = 8

Total PCB Area Col1 (5.173 - 13.068) = 840454 Col1 Total PCB = 0.3 ppm*

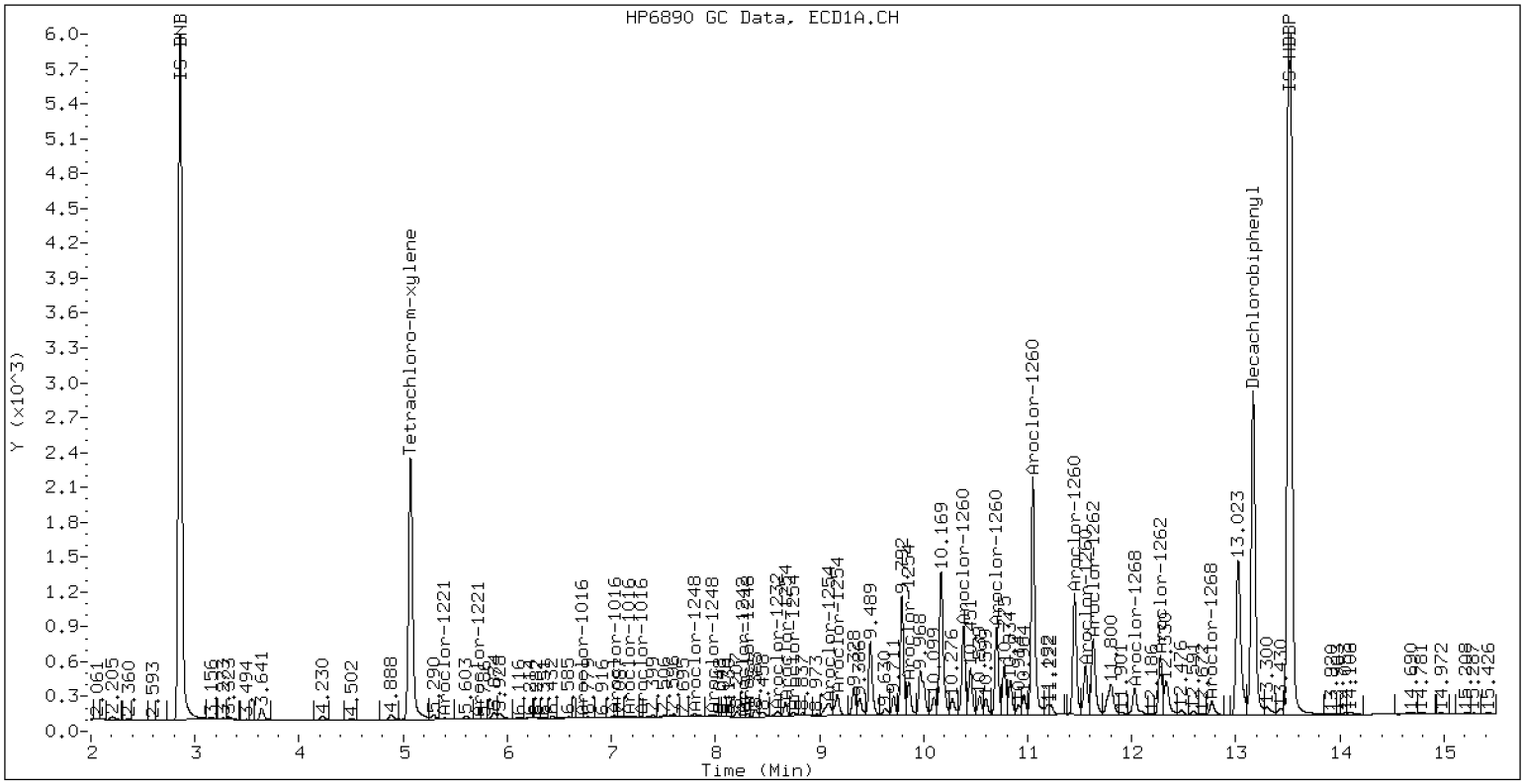
Total PCB Area Col2 (5.173 - 13.068) = 2510632 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

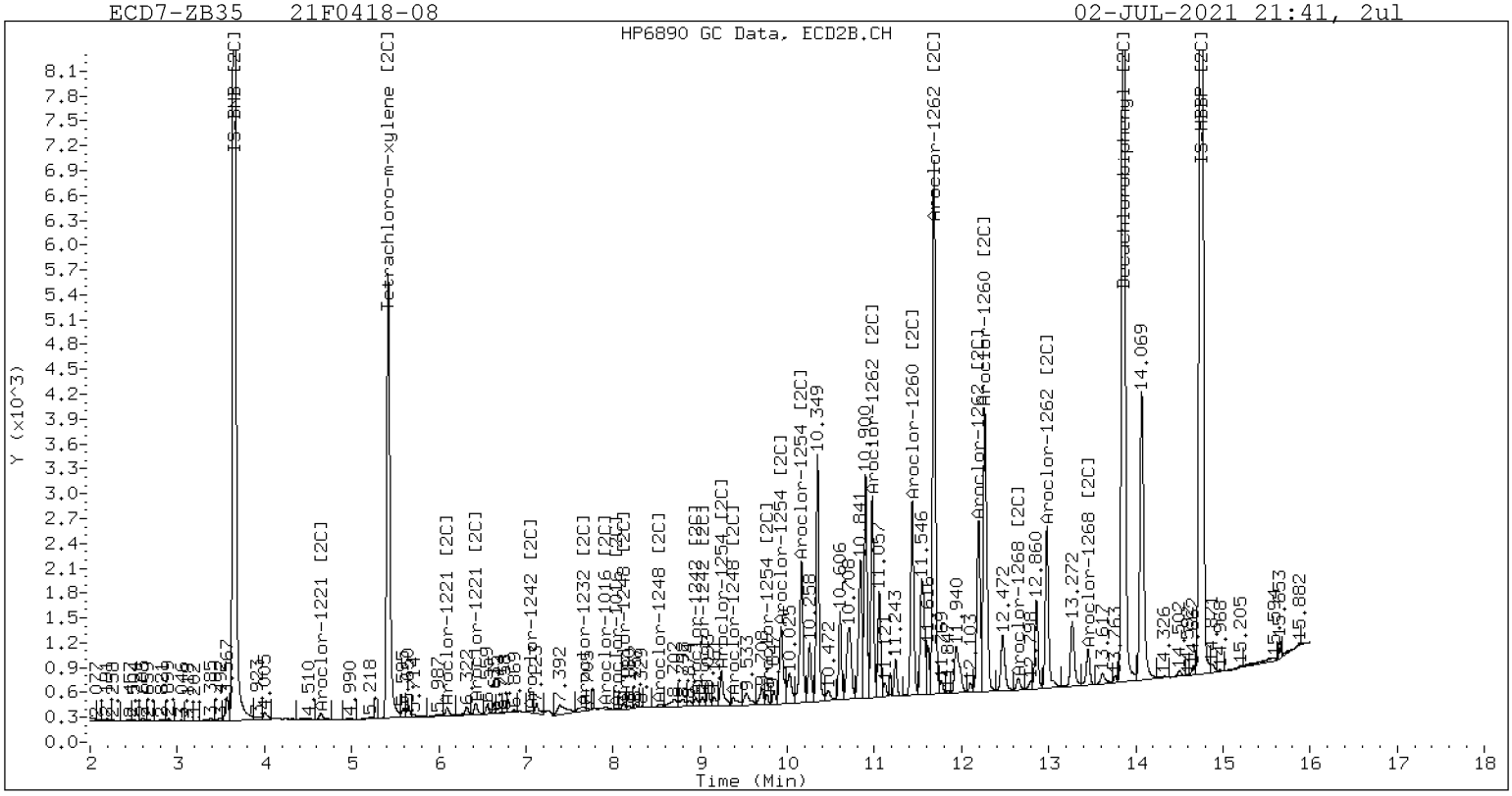
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-08 02-JUL-2021 21:41, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 21F0418-08 02-JUL-2021 21:41, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS692

Dual Column

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-09 B	File ID:	07022130ECD7.D
Sampled:	06/28/21 11:34	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 22:01
% Solids:	57.47	Preparation:	EPA 3546 (Microwave)	Initial/Final:	21.78 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	39.7	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9892*	*7.24*	*90.6*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9892*	*5.86*	*73.3*	*44 - 120*	

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

Data file 1: /210702.b/07022130ECD7.D
Data file 2: /210702.b/210702.b/07022130ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-09
Client ID:
Injection Date: 02-JUL-2021 22:01
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.070	-0.003	110671	5.420	-0.003	243735	29.3	27.0	8.2	Tetrachloro-m-xylene
13.163	-0.005	136898	13.857	-0.004	498280	36.2	30.3	17.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	316087	6.6
Hexabromobiphenyl	470266	423829	-9.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	731974	2.8
Hexabromobiphenyl	867949	916381	5.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.721	0.057	1049	10.7	1	7.062	-0.006	2052	5.4
Aroclor-1016	2	7.030	-0.003	2072	6.3	2	7.661	0.004	7945	9.6
Aroclor-1016	3	7.174	-0.006	1185	8.8	3	7.920	0.055	780	2.5
Aroclor-1016	4	7.286	-0.003	489	5.4	4	8.034	-0.003	1089	5.7
Total Col1Ave (4 peaks):					7.8	Total Col2Ave (4 peaks):				5.8 RPD = 29
Corrected Ave (3 peaks):					6.8	Corrected Ave (3 peaks):				4.6 RPD = 40*
Aroclor-1221	1	4.048	0.026	136	5.8	1	4.647	-0.045	9968	209.2
Aroclor-1221	2	5.399	-0.057	1733	43.3	2	6.099	0.015	9157	81.8
Aroclor-1221	3	5.720	-0.010	301	3.0	3	6.423	0.001	6632	32.2
Total Col1Ave (3 peaks):					17.3	Total Col2Ave (3 peaks):				107.7 RPD = 145*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	---			0.0	1	4.647	-0.044	9968	330.8
Aroclor-1232	2	5.720	-0.011	301	3.5	2	6.099	0.014	9157	113.6
Aroclor-1232	3	7.030	0.003	2072	14.2	3	6.423	0.000	6632	37.5
Aroclor-1232	4	8.591	-0.014	5554	126.9	4	7.661	-0.001	7945	21.5
Total Col1Ave (3 peaks):					48.2	Total Col2Ave (4 peaks):				125.8 RPD = 89*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				57.5
Aroclor-1242	1	6.721	0.058	1049	12.0	1	7.062	-0.003	2052	6.3
Aroclor-1242	2	7.030	-0.003	2072	7.3	2	7.661	0.005	7945	11.3
Aroclor-1242	3	8.262	-0.008	1903	48.8	3	8.948	-0.004	9975	31.4
Aroclor-1242	4	8.591	-0.018	5554	63.8	4	9.025	-0.007	9744	34.9
Total Col1Ave (4 peaks):					33.0	Total Col2Ave (4 peaks):				21.0 RPD = 45*
Corrected Ave (3 peaks):					22.7	Corrected Ave (3 peaks):				16.3 RPD = 33
Aroclor-1248	1	7.800	-0.004	1625	12.3	1	8.115	-0.002	6589	24.7
Aroclor-1248	2	7.965	-0.005	6048	37.0	2	8.528	-0.002	4435	12.2
Aroclor-1248	3	8.310	-0.009	3177	19.4	3	8.948	-0.006	9975	19.1
Aroclor-1248	4	8.591	-0.017	5554	38.3	4	9.375	-0.009	12641	22.7
Total Col1Ave (4 peaks):					26.8	Total Col2Ave (4 peaks):				19.7 RPD = 31
Corrected Ave (3 peaks):					22.9	Corrected Ave (3 peaks):				18.0 RPD = 24
Aroclor-1254	1	8.670	-0.010	10601	39.7	1	9.244	-0.006	39149	70.6
Aroclor-1254	2	8.744	-0.006	4199	43.1	2	9.331	-0.011	6572	20.1
Aroclor-1254	3	9.054	0.005	13005	79.4	3	9.767	-0.006	11060	26.5
Aroclor-1254	4	9.168	-0.012	20143	62.1	4	9.922	-0.001	76561	82.6
Aroclor-1254	5	9.855	-0.016	18309	83.8	5	10.161	0.006	122816	123.5
Total Col1Ave (5 peaks):					61.6	Total Col2Ave (5 peaks):				64.7 RPD = 5
Corrected Ave (4 peaks):					56.1	Corrected Ave (4 peaks):				50.0 RPD = 12
Aroclor-1260	1	10.380	-0.008	32747	210.8	1	11.433	-0.004	108026	189.0
Aroclor-1260	2	10.698	-0.008	31417	196.7	2	11.683	-0.006	246125	165.1
Aroclor-1260	3	11.047	-0.007	76059	181.8	3	12.266	-0.006	158658	163.7
Aroclor-1260	4	11.448	-0.007	42571	199.6	4	12.978	-0.005	82170	197.2
Aroclor-1260	5	11.552	-0.008	16916	205.7	NS	---			----
Total Col1Ave (5 peaks):					198.9	Total Col2Ave (4 peaks):				178.7 RPD = 11
Corrected Ave (4 peaks):					195.9	Corrected Ave (3 peaks):				172.6 RPD = 13
Aroclor-1262	1	10.380	-0.011	32747	122.8	1	10.975	-0.014	101597	110.4
Aroclor-1262	2	11.448	-0.014	42571	247.5	2	11.683	-0.017	246125	135.2
Aroclor-1262	3	11.627	-0.009	103051	444.3	3	12.184	-0.024	187530	214.8
Aroclor-1262	4	12.270	-0.019	22556	123.0	4	12.978	-0.015	82170	103.7
Total Col1Ave (4 peaks):					234.4	Total Col2Ave (4 peaks):				141.0 RPD = 50*
Corrected Ave (3 peaks):					164.5	Corrected Ave (3 peaks):				116.4 RPD = 34
Aroclor-1268	1	11.552	-0.014	16916	23.8	1	12.184	-0.023	187530	70.4
Aroclor-1268	2	11.627	-0.009	103051	142.9	2	12.266	-0.009	158658	54.7
Aroclor-1268	3	12.026	0.014	10509	18.6	3	12.645	-0.015	5702	2.2
Aroclor-1268	4	12.766	0.011	8109	4.6	4	13.435	0.027	45076	5.5
Total Col1Ave (4 peaks):					47.4	Total Col2Ave (4 peaks):				33.2 RPD = 35

Corrected Ave (3 peaks): 15.6 Corrected Ave (3 peaks): 20.8 RPD = 28

Total PCB Area Col1 (5.173 - 13.068) = 1297398 Col1 Total PCB = 0.5 ppm*

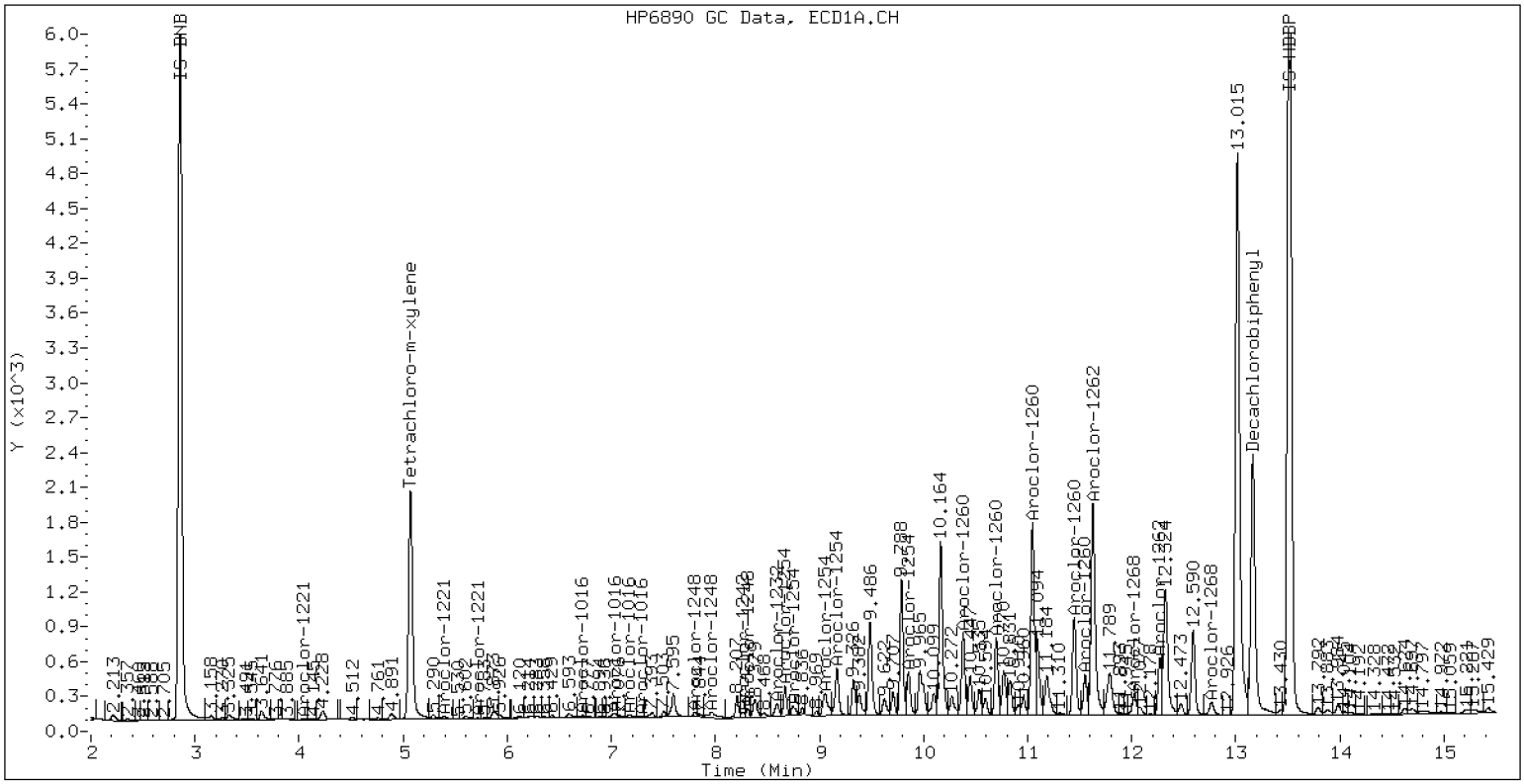
Total PCB Area Col2 (5.173 - 13.068) = 2808598 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

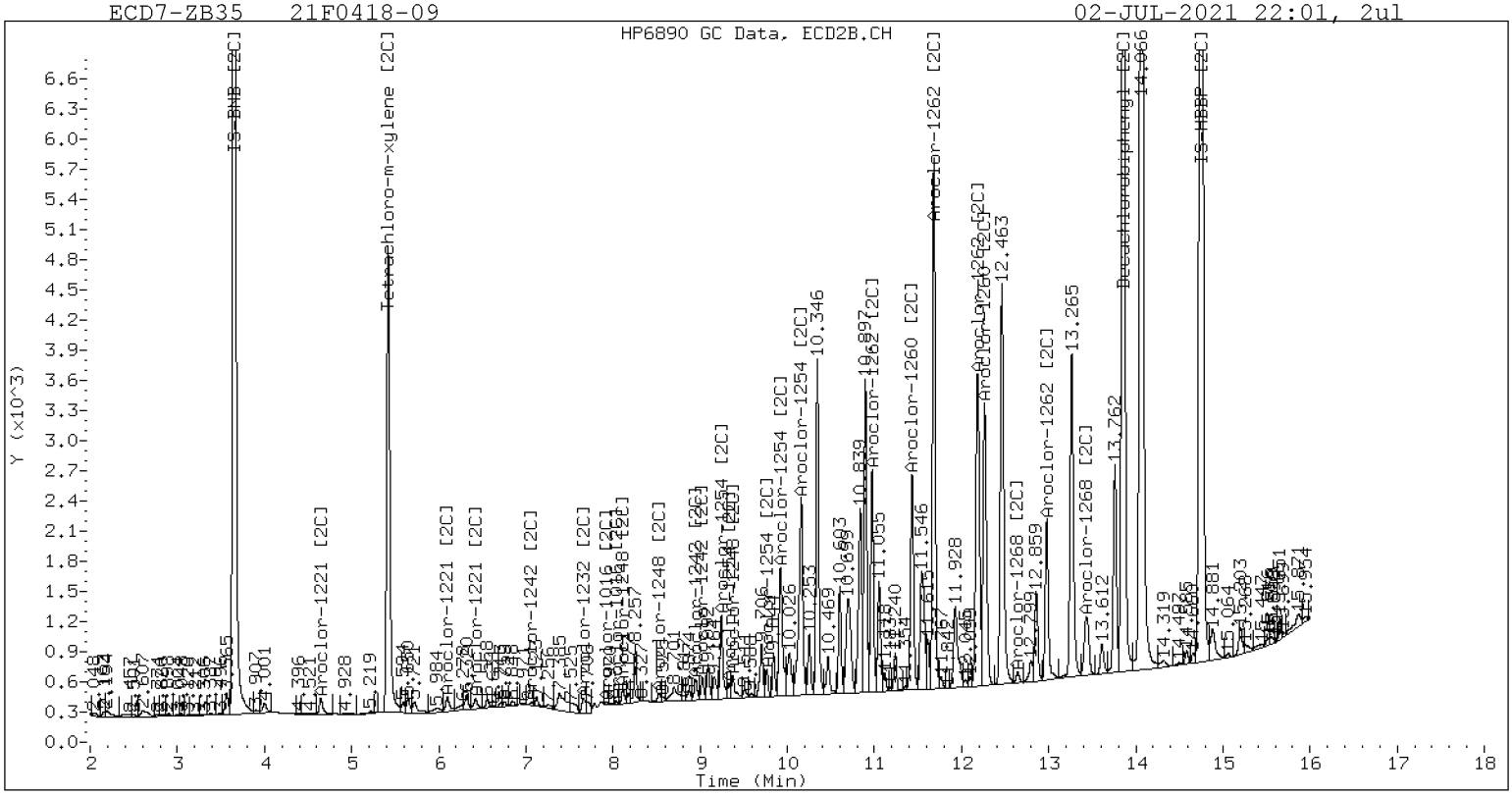
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-09 02-JUL-2021 22:01, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 21F0418-09 02-JUL-2021 22:01, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

LDW21-IT692

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Solid	Laboratory ID:	21F0418-10 B	File ID:	07022131ECD7.D
Sampled:	06/28/21 11:35	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 22:22
% Solids:	72.13	Preparation:	EPA 3546 (Microwave)	Initial/Final:	17.39 g Wet / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	3.8	1.6	4.0	J
11096-82-5	Aroclor 1260	1	1	12.4	0.6	4.0	

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9723*	*8.16*	*102*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9723*	*6.52*	*81.8*	*44 - 120*	

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

Data file 1: /210702.b/07022131ECD7.D
Data file 2: /210702.b/210702.b/07022131ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 21F0418-10
Client ID:
Injection Date: 02-JUL-2021 22:22
Report Date: 07/05/2021 12:06
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.071	-0.003	119742	5.421	-0.002	265379	32.7	30.0	8.7	Tetrachloro-m-xylene
13.166	-0.003	158754	13.858	-0.003	579053	40.9	36.4	11.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	306322	3.3
Hexabromobiphenyl	470266	434947	-7.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	717002	0.7
Hexabromobiphenyl	867949	887666	2.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.719	0.055	578	6.1	1	7.061	-0.007	849	2.3
Aroclor-1016	2	7.033	-0.000	602	1.9	2	7.666	0.009	932	1.1
Aroclor-1016	3	7.172	-0.009	1093	8.4	3	7.918	0.052	941	3.1
Aroclor-1016	4	7.285	-0.004	151	1.7	4	8.032	-0.005	325	1.7
Total Col1Ave (4 peaks):					4.5	Total Col2Ave (4 peaks):				2.1 RPD = 74*
Corrected Ave (3 peaks):					3.2	Corrected Ave (3 peaks):				1.7 RPD = 61*
Aroclor-1221	1	---			0.0	1	4.648	-0.045	6853	146.8
Aroclor-1221	2	5.399	-0.056	1694	43.6	2	6.098	0.014	8335	76.1
Aroclor-1221	3	5.725	-0.004	273	2.8	3	6.424	0.002	6646	32.9
Col1Ave: <3 Quant Peaks						Col2Ave: 85.3				
Aroclor-1232	1	---			0.0	1	4.648	-0.044	6853	232.2
Aroclor-1232	2	5.725	-0.006	273	3.2	2	6.098	0.014	8335	105.5
Aroclor-1232	3	7.033	0.006	602	4.3	3	6.424	0.001	6646	38.4
Aroclor-1232	4	8.597	-0.008	1342	31.6	4	7.666	0.004	932	2.6
Total Col1Ave (3 peaks):					13.1	Total Col2Ave (4 peaks):				94.7 RPD = 152*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				48.8
Aroclor-1242	1	6.719	0.056	578	6.8	1	7.061	-0.004	849	2.7
Aroclor-1242	2	7.033	0.001	602	2.2	2	7.666	0.011	932	1.4
Aroclor-1242	3	8.313	0.043	1183	31.3	3	8.950	-0.002	4655	15.0
Aroclor-1242	4	8.597	-0.013	1342	15.9	4	9.026	-0.006	4014	14.7
Total Col1Ave (4 peaks):					14.1	Total Col2Ave (4 peaks):				8.4 RPD = 50*
Corrected Ave (3 peaks):					8.3	Corrected Ave (3 peaks):				6.2 RPD = 29
Aroclor-1248	1	7.801	-0.003	1230	9.6	1	8.118	0.001	3360	12.9
Aroclor-1248	2	7.967	-0.004	1835	11.6	2	8.530	-0.000	1981	5.6
Aroclor-1248	3	8.313	-0.006	1183	7.5	3	8.950	-0.005	4655	9.1
Aroclor-1248	4	8.597	-0.012	1342	9.6	4	9.377	-0.007	5849	10.7
Total Col1Ave (4 peaks):					9.6	Total Col2Ave (4 peaks):				9.6 RPD = 0
Corrected Ave (3 peaks):					8.9	Corrected Ave (3 peaks):				8.5 RPD = 5
Aroclor-1254	1	8.673	-0.007	3538	13.7	1	9.245	-0.005	13462	24.8
Aroclor-1254	2	8.745	-0.005	1215	12.9	2	9.330	-0.012	3846	12.0
Aroclor-1254	3	9.055	0.006	3699	23.3	3	9.768	-0.005	4245	10.4
Aroclor-1254	4	9.172	-0.009	6017	19.1	4	9.921	-0.003	20288	22.3
Aroclor-1254	5	9.858	-0.013	5601	26.4	5	10.163	0.007	42042	43.2
Total Col1Ave (5 peaks):					19.1	Total Col2Ave (5 peaks):				22.5 RPD = 17
Corrected Ave (4 peaks):					17.2	Corrected Ave (4 peaks):				17.4 RPD = 1
Aroclor-1260	1	10.383	-0.005	10684	67.0	1	11.435	-0.003	34793	62.9
Aroclor-1260	2	10.701	-0.005	9386	57.3	2	11.685	-0.004	79412	55.0
Aroclor-1260	3	11.050	-0.004	26324	61.3	3	12.267	-0.004	50738	54.0
Aroclor-1260	4	11.450	-0.005	12750	58.2	4	12.979	-0.004	26377	65.3
Aroclor-1260	5	11.555	-0.005	5698	67.5	NS	---			----
Total Col1Ave (5 peaks):					62.3	Total Col2Ave (4 peaks):				59.3 RPD = 5
Corrected Ave (4 peaks):					61.0	Corrected Ave (3 peaks):				57.3 RPD = 6
Aroclor-1262	1	10.383	-0.008	10684	39.1	1	10.976	-0.013	34903	39.2
Aroclor-1262	2	11.450	-0.012	12750	72.2	2	11.685	-0.015	79412	45.0
Aroclor-1262	3	11.634	-0.002	44063	185.1	3	12.188	-0.020	54804	64.8
Aroclor-1262	4	12.275	-0.013	4598	24.4	4	12.979	-0.014	26377	34.4
Total Col1Ave (4 peaks):					80.2	Total Col2Ave (4 peaks):				45.8 RPD = 55*
Corrected Ave (3 peaks):					45.2	Corrected Ave (3 peaks):				39.5 RPD = 14
Aroclor-1268	1	11.555	-0.010	5698	7.8	1	12.188	-0.019	54804	21.3
Aroclor-1268	2	11.634	-0.002	44063	59.5	2	12.267	-0.007	50738	18.1
Aroclor-1268	3	12.027	0.015	3878	6.7	3	12.646	-0.013	6648	2.7
Aroclor-1268	4	12.768	-0.009	3202	1.8	4	13.454	-0.019	13787	1.7
Total Col1Ave (4 peaks):					18.9	Total Col2Ave (4 peaks):				10.9 RPD = 54*
Corrected Ave (3 peaks):					5.4	Corrected Ave (3 peaks):				7.5 RPD = 32

Total PCB Area Col1 (5.173 - 13.068) = 555250 Col1 Total PCB = 0.2 ppm*

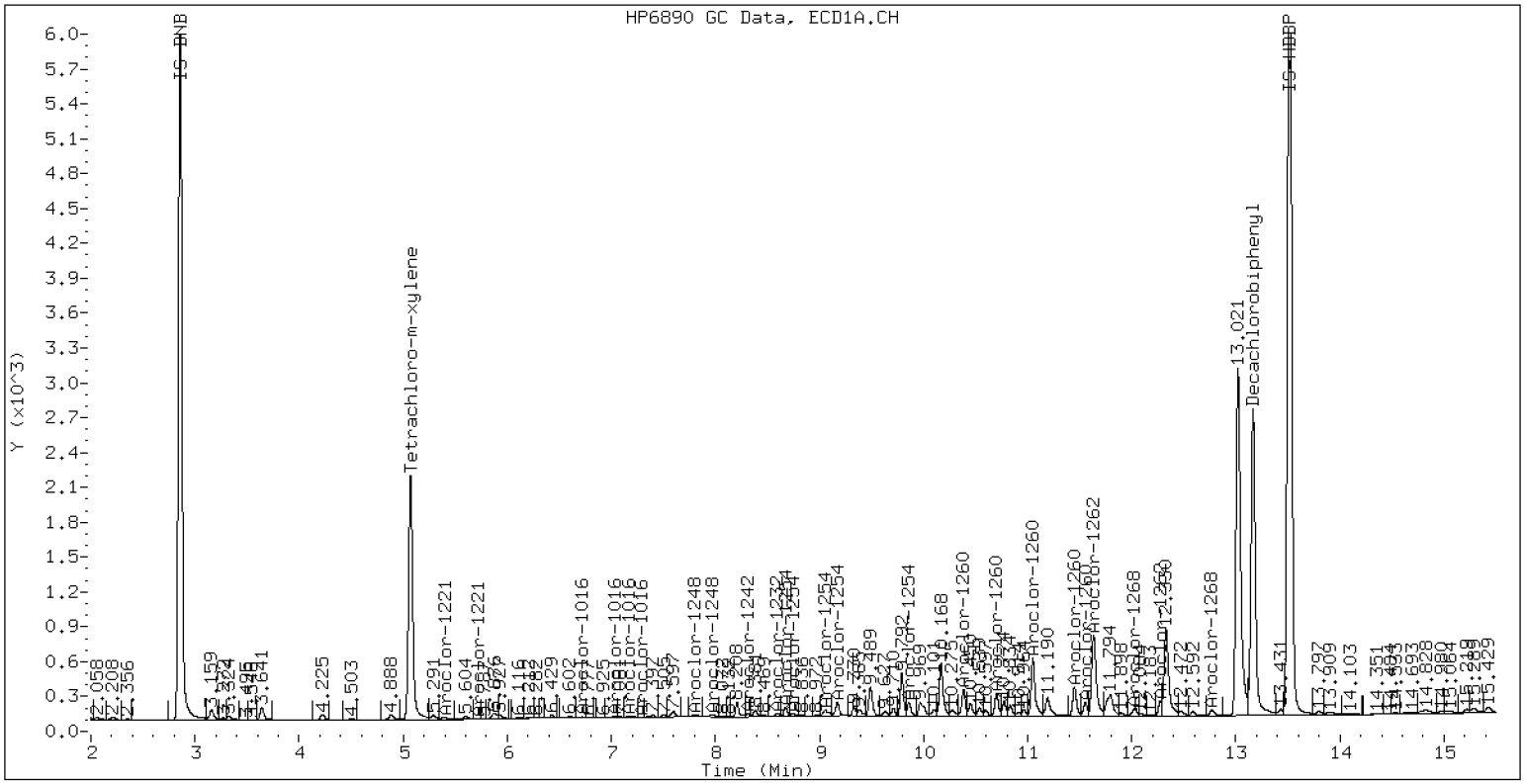
Total PCB Area Col2 (5.173 - 13.068) = 1255396 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

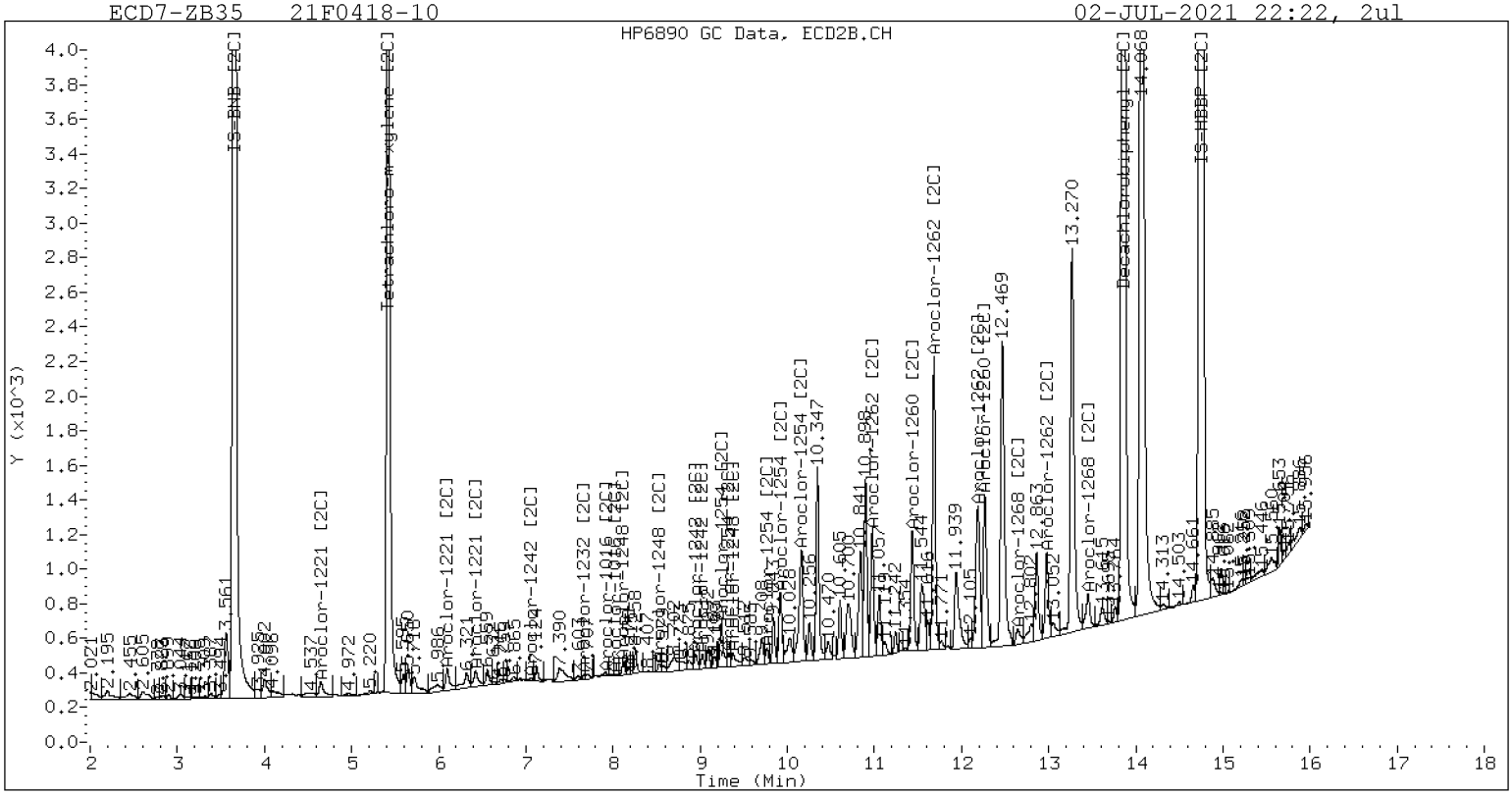
PCB Dual Column Chromatograms

ECD7-ZB5 21F0418-10 02-JUL-2021 22:22, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 21F0418-10 02-JUL-2021 22:22, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Batch:	BJG0002	Batch Matrix:	Solid	Preparation:	EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS696	21F0418-01	07022120ECD7.D	07/01/21 11:50	
LDW21-SS695	21F0418-02	07022121ECD7.D	07/01/21 11:50	
LDW21-IT696	21F0418-03	07022122ECD7.D	07/01/21 11:50	
LDW21-IT695	21F0418-04	07022123ECD7.D	07/01/21 11:50	
LDW21-SS693	21F0418-05	07022124ECD7.D	07/01/21 11:50	
LDW21-IT693	21F0418-06	07022125ECD7.D	07/01/21 11:50	
LDW21-SS691	21F0418-07	07022126ECD7.D	07/01/21 11:50	
LDW21-IT691	21F0418-08	07022129ECD7.D	07/01/21 11:50	
LDW21-SS692	21F0418-09	07022130ECD7.D	07/01/21 11:50	
LDW21-IT692	21F0418-10	07022131ECD7.D	07/01/21 11:50	
Blank	BJG0002-BLK1	07022118ECD7.D	07/01/21 11:50	
LCS	BJG0002-BS1	07022119ECD7.D	07/01/21 11:50	
LDW21-SS691	BJG0002-MS1	07022127ECD7.D	07/01/21 11:50	
LDW21-SS691	BJG0002-MSD1	07022128ECD7.D	07/01/21 11:50	
Reference	BJG0002-SRM1	07022132ECD7.D	07/01/21 11:50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Rush

ORGANICS PREPARATION BENCH SHEET

Batch: BJG0002

Prepared using: EPA 3546 (Microwave)

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

Matrix: Solid **Date Prepared:** 07/01/21 **Balance ID:** B146462614 **Set Up By:** CTO 7/1/21

WO Comments

21F0418: <G> Project batch as mcuh as possible </G> <C> SRM, MS, Rep </C> <M> PS, MS/MSD </M> <E>8270E RM H002055, SIM RM H010158, PCB RM H007086/H008606, MS/MSD </E>
<H> RM H007086/H008606, Dup </H>

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
21F0418-01 B	22.6	~~(55.4)~~ (10.00) 10.02	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-02 B	65.7	(19.03) 19.11	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-03 B	66.5	(18.80) 18.88	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-04 B	77.9	(16.05) 16.06	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-05 B	57.1	(21.91) 21.96	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-06 B	73.1	(17.10) 17.15	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-07 B	65.3	(19.13) 19.13	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-08 B	76.4	(16.36) 16.46	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-09 B	57.5	(21.75) 21.78	5mL	5mL	2mL	2.5 ____	1.0 ____	
21F0418-10 B	72.1	(17.33) 17.39	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
BJG0002-BLK1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5 ____	1.0 ____	(10g Actual Wt.)
BJG0002-BS1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5 ____	1.0 ____	(10g Actual Wt.)
BJG0002-MS1	65.3	()(19.13) 19.13	5mL	5mL	2mL	2.5 ____	1.0 ____	Use 21F0418-07
BJG0002-MSD1	65.3	()(19.13) 19.13	5mL	5mL	2mL	2.5 ____	1.0 ____	Use 21F0418-07
BJG0002-SRM1	100.0	~~(12.50)~~ (2.50) 2.50	5mL	5mL	2mL	2.5 ____	1.0 ____	Use ~~H007086~~ H002975

+1g DI H2O

CTO 7/1/21

07/01/21 — Client ID verified By — Date

TWC 7/2/21 — Preparation Reviewed By — Date

07/01/21 11:50 — Extraction Date and Time

Printed: 7/1/2021 8:45:25AM

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Page 1 of 2

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BJG0002

Prepared using: EPA 3546 (Microwave)

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

WO Comments

21F0418: <G> Project batch as mcuh as possible </G> <C> SRM, MS, Rep </C> <M> PS, MS/MSD </M> <E>8270E RM H002055, SIM RM H010158, PCB RM H007086/H008606, MS/MSD </E>
<H> RM H007086/H008606, Dup </H>

Prep Steps

Microwave

1 (2) 3

07/01/21
CT **Analyst/Date**

KD
100°C
Hexane Exchange
(2 X 20 mL)

1 2 3 (4) (5) 6 (6B)

AA 070221
Analyst/Date

TurboVap
Pre Cleanups

1 2 3 (4) 5

TWC 7/2/21
Analyst/Date

TurboVap
Post Cleanups

1 2 3 4 (5)

TWC 7/2/21
Analyst/Date

Vialing

TWC 7/2/21
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: CT Date: 07/01/21	
Anhydrous Sodium Sulfate	J00654
Neutral Glass Wool	J00524
1:1 Hexane/Acetone	J00654
Hexane	J00642
KD Analyst: AA Date: 070221	
Hexane	J006422
Anhydrous Sodium Sulfate	J006540
Vialing Analyst: TWC Date: 7/2/21	
Hexane	J006422
Concentrated Sulfuric Acid	J006314
Tetrabutylammonium hydrogensulfate (TBAS)	J005829
Sodium Sulfite	J001221
Silica Gel (SPE) Darts	J004837

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 2µg/mL	N J003312 Exp: 08/08/2021	50µL	CT	
Spike 20µg/mL	1 J004905 Exp: 11/07/2021	63µL	G	

(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, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BJG0002

Prepared using: EPA 3546 (Microwave)

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

WO Comments

21F0418: <G> Project batch as mcuh as possible </G> <C> SRM, MS, Rep </C> <M> PS, MS/MSD </M> <E>8270E RM H002055, SIM RM H010158, PCB RM H007086/H008606, MS/MSD </E>
<H> RM H007086/H008606, Dup </H>

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	

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Printed: 7/1/2021 8:45:25AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

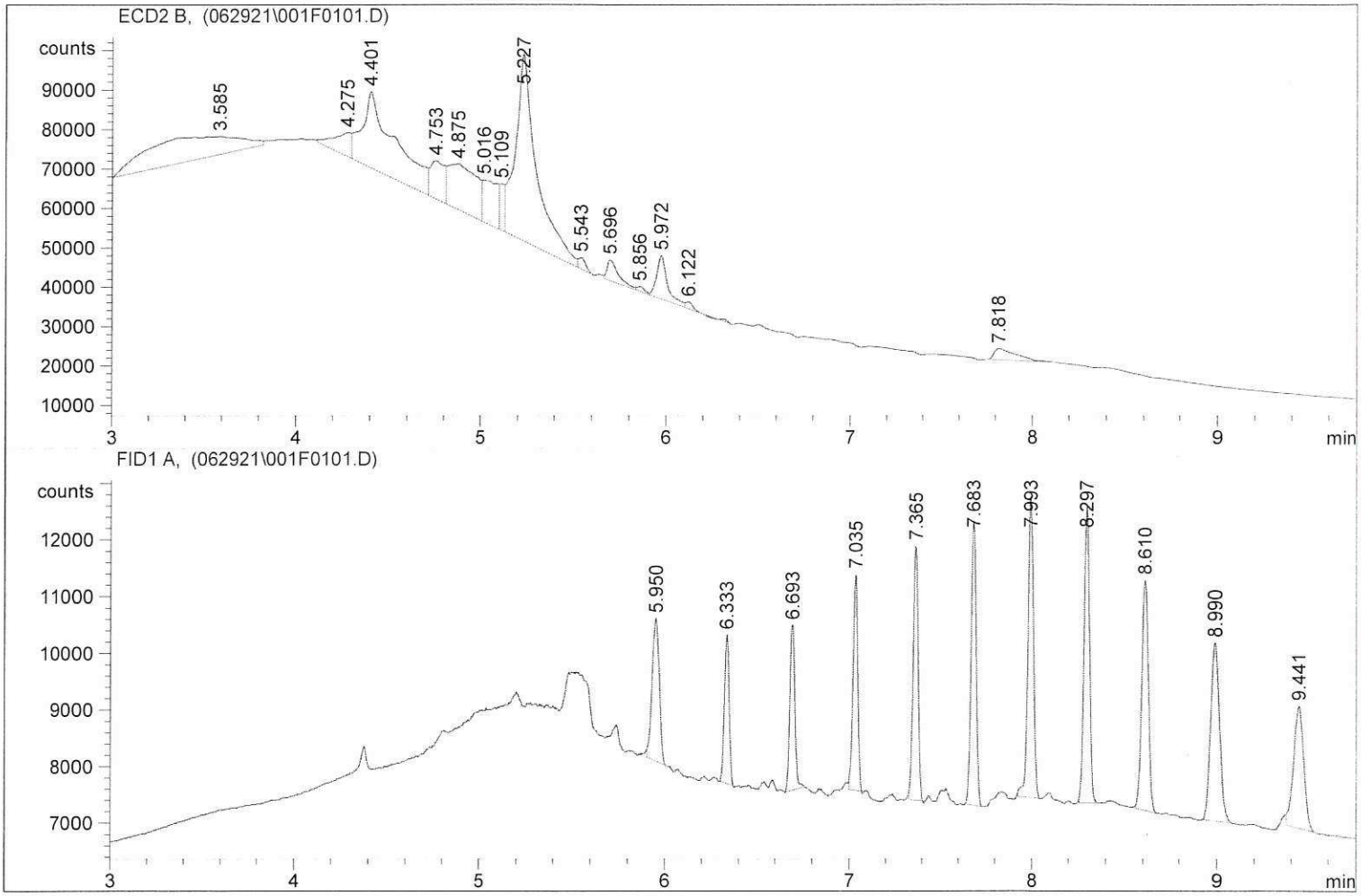
Organic Extractions Laboratory Analyst Notes

Extraction Parameter: PCB Extraction Batch BJE002

Total Solids Batch: BJF0775 Work Order(s): 21F0418

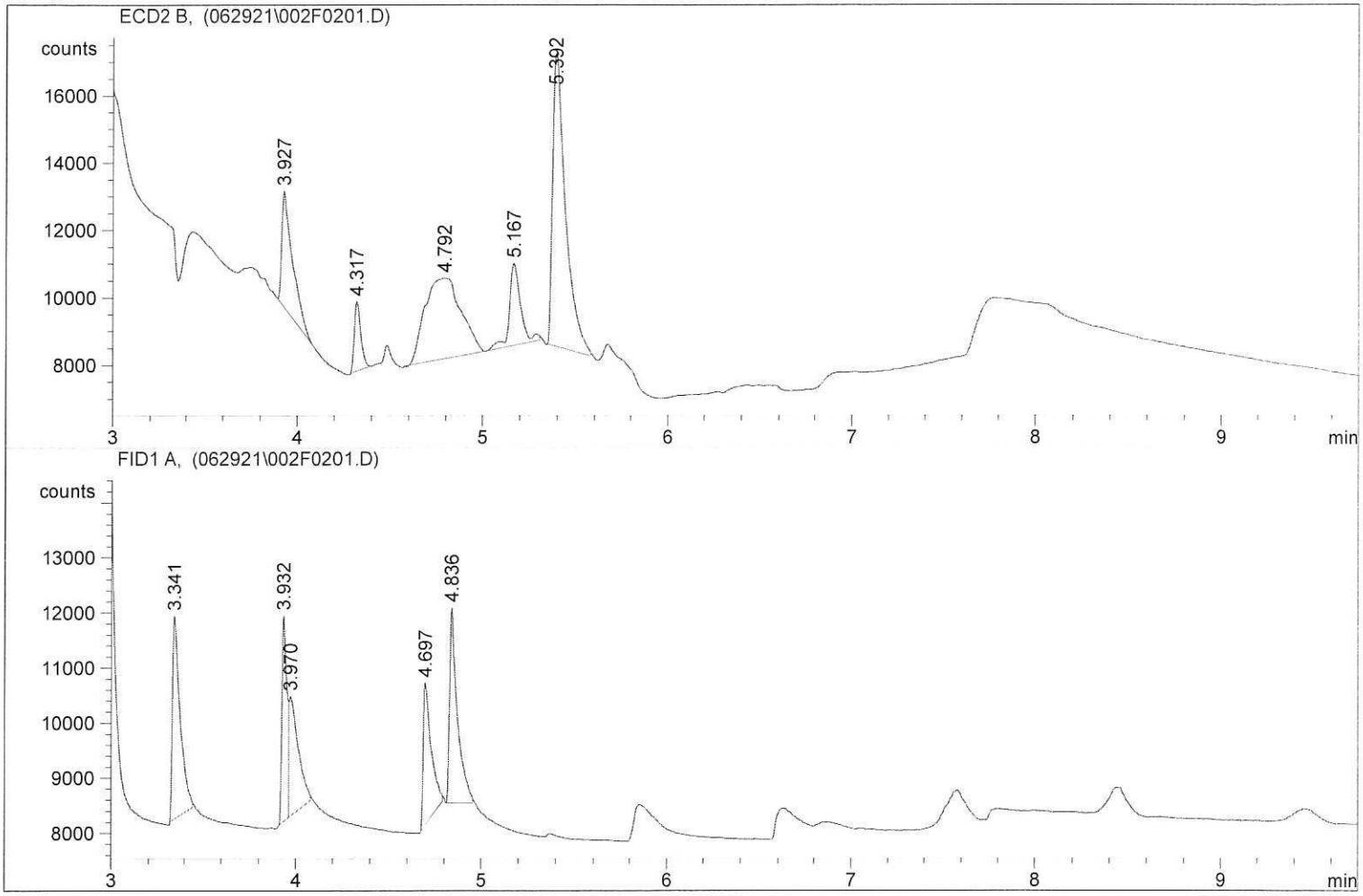
Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☑ Standing Water Decanted (Not shared)= 02, 04, 06, 08, 10	TW 6/29/21
☐ Standing Water Homogenized (Shared samples)=	
☑ Clay/Clumps (Difficult to homogenize)= 01, — 10	TW 6/29/21
☐ Rocks (%+size)?	
☑ Organics (Leaves/sticks/grass)= 01, 02, 03, 05, 07, 09 = roots	TW 6/29/21
☑ Oily, obvious fuel/sulfur odors= 04 = Sulfur odor	TW 6/29/21
☐ 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).	
☑ Share Samples Y / N	TW 6/29/21
☑ Multiple Jars Y / N	TW 6/29/21
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Injection Date	: 6/29/2021 9:00:27 AM	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\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



*** End of Report ***

Injection Date	: 6/29/2021 9:15:06 AM	Seq. Line :	2
Sample Name	: PNA STD 10PPM	Location :	Vial 2
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



*** End of Report ***

Injection Date	: 6/29/2021 9:29:50 AM	Seq. Line :	3
Sample Name	: AR1660 1PPM	Location :	Vial 3
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
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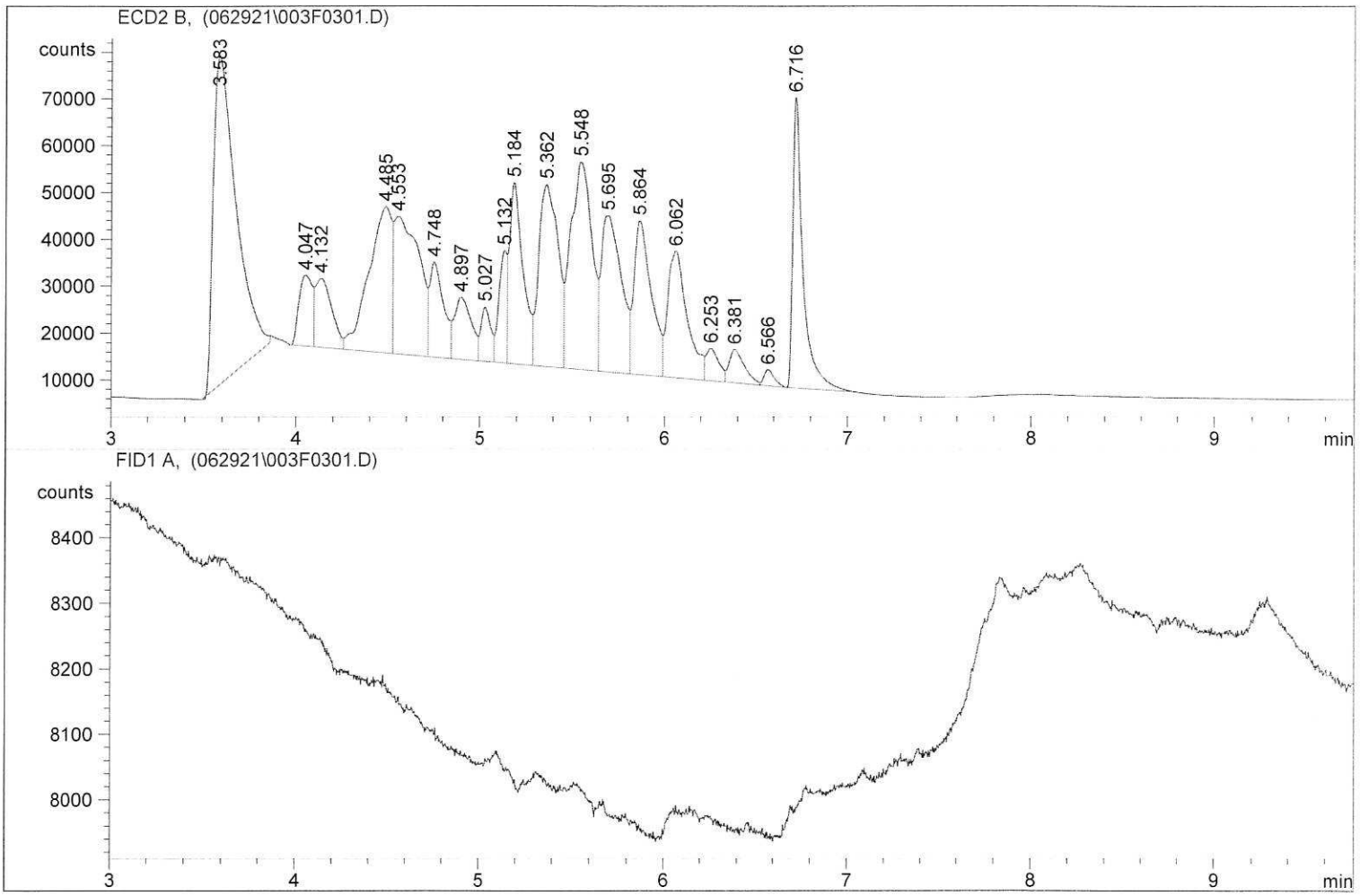
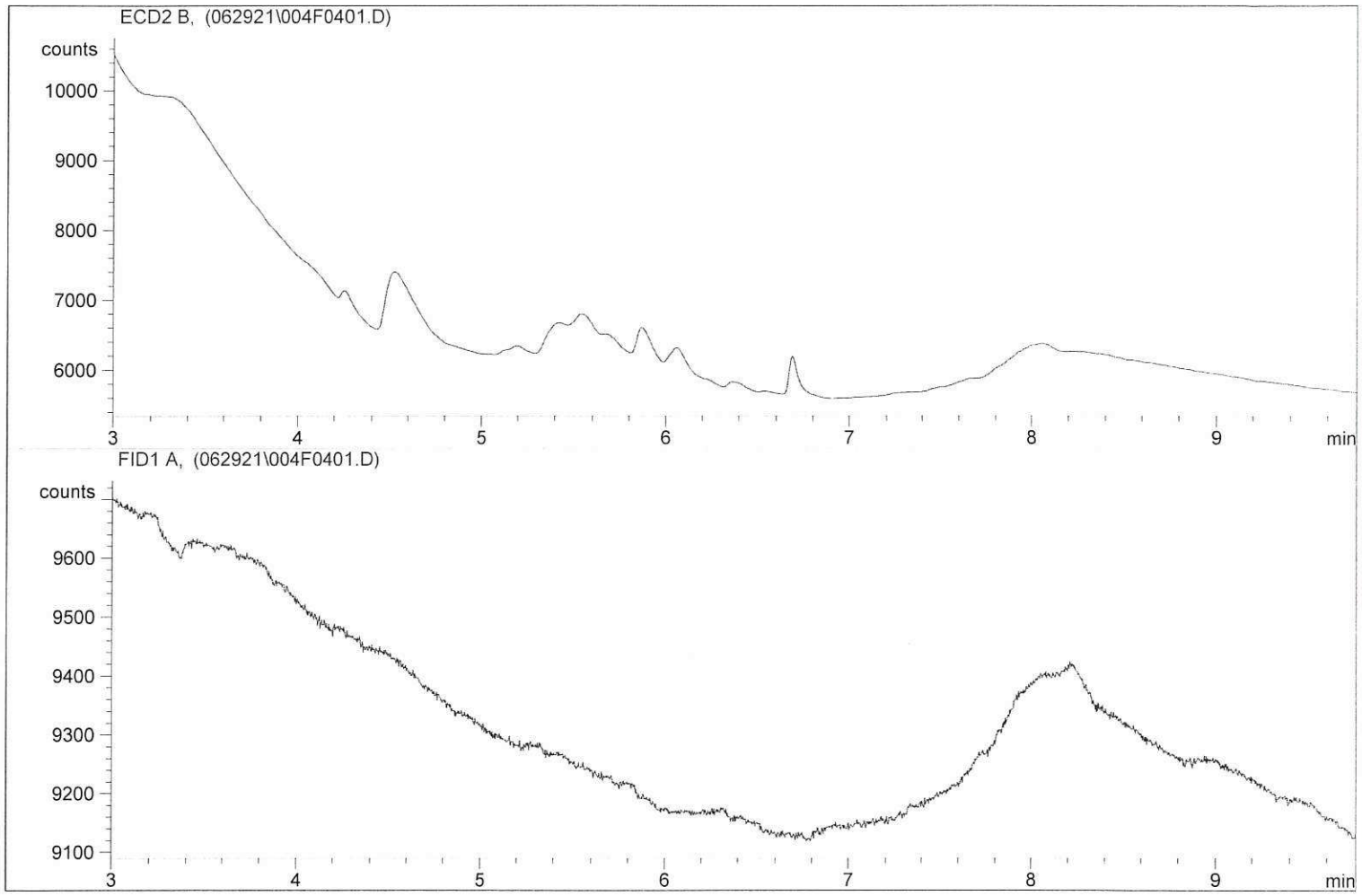


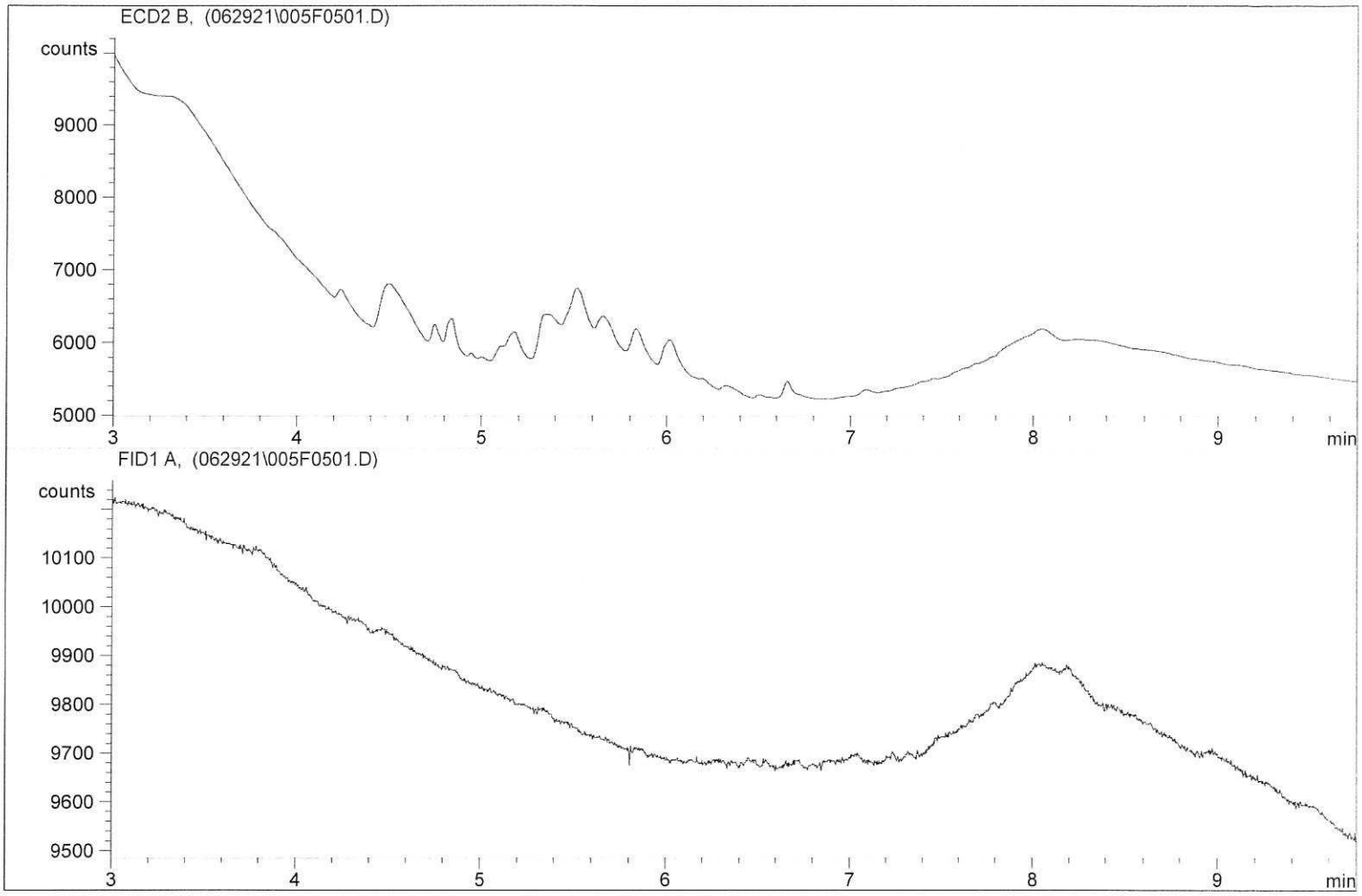
*** End of Report ***

Injection Date	: 6/29/2021 9:44:37 AM	Seq. Line :	4
Sample Name	: 21F0418 01	Location :	Vial 4
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



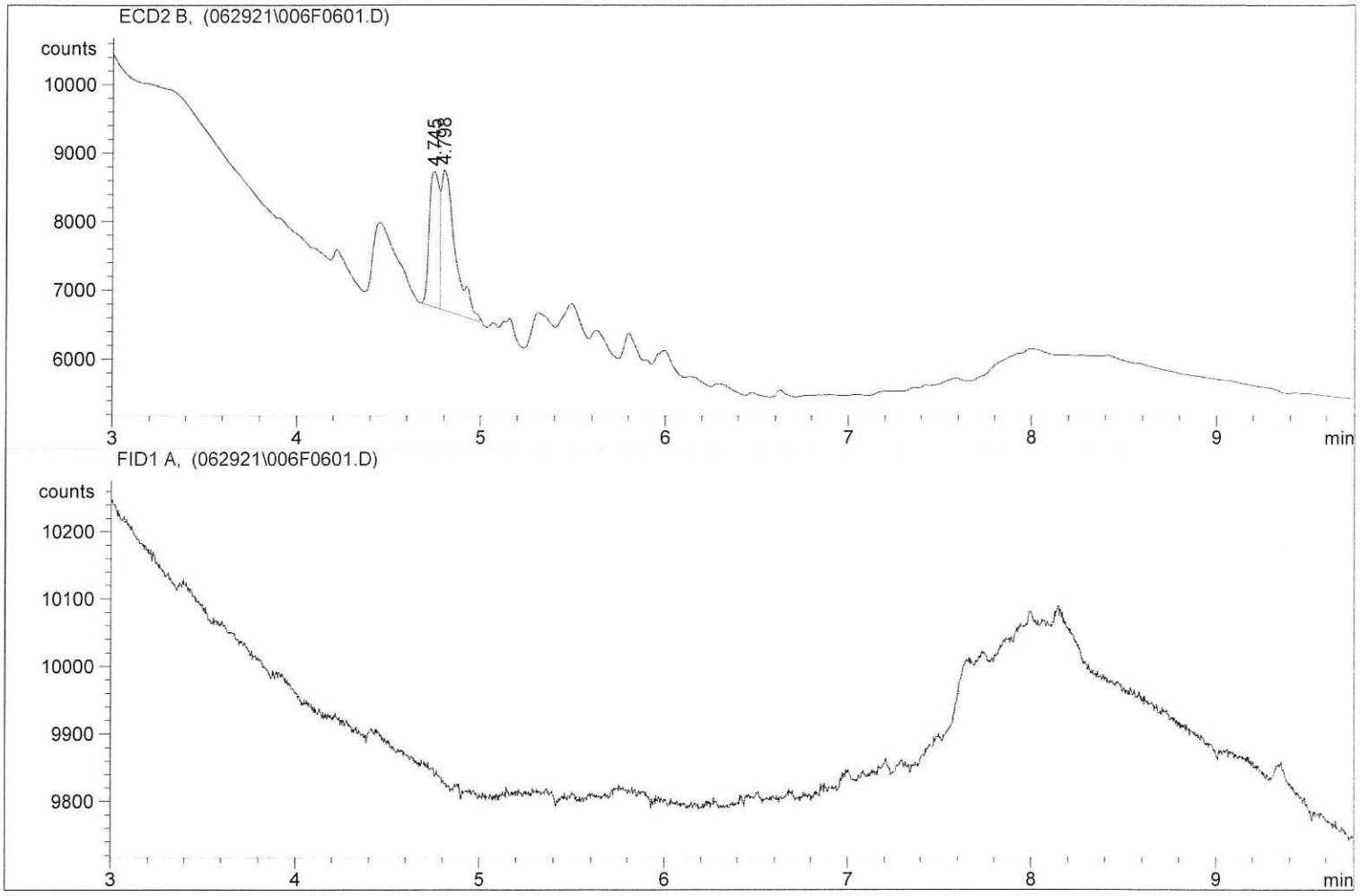
*** End of Report ***

Injection Date	: 6/29/2021 9:59:31 AM	Seq. Line :	5
Sample Name	: 21F0418 02	Location :	Vial 5
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



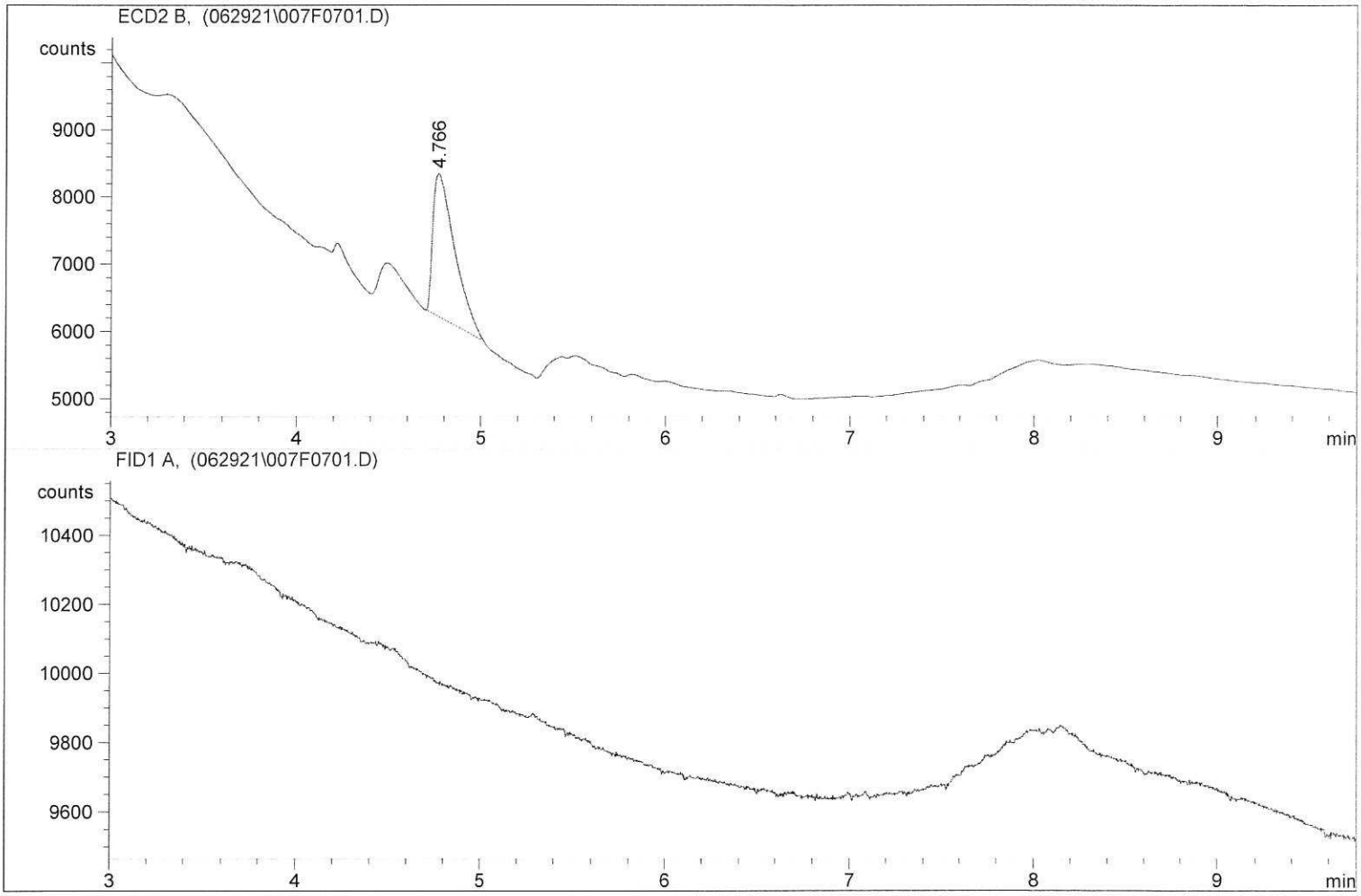
*** End of Report ***

Injection Date	: 6/29/2021 10:14:19 AM	Seq. Line :	6
Sample Name	: 21F0418 03	Location :	Vial 6
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



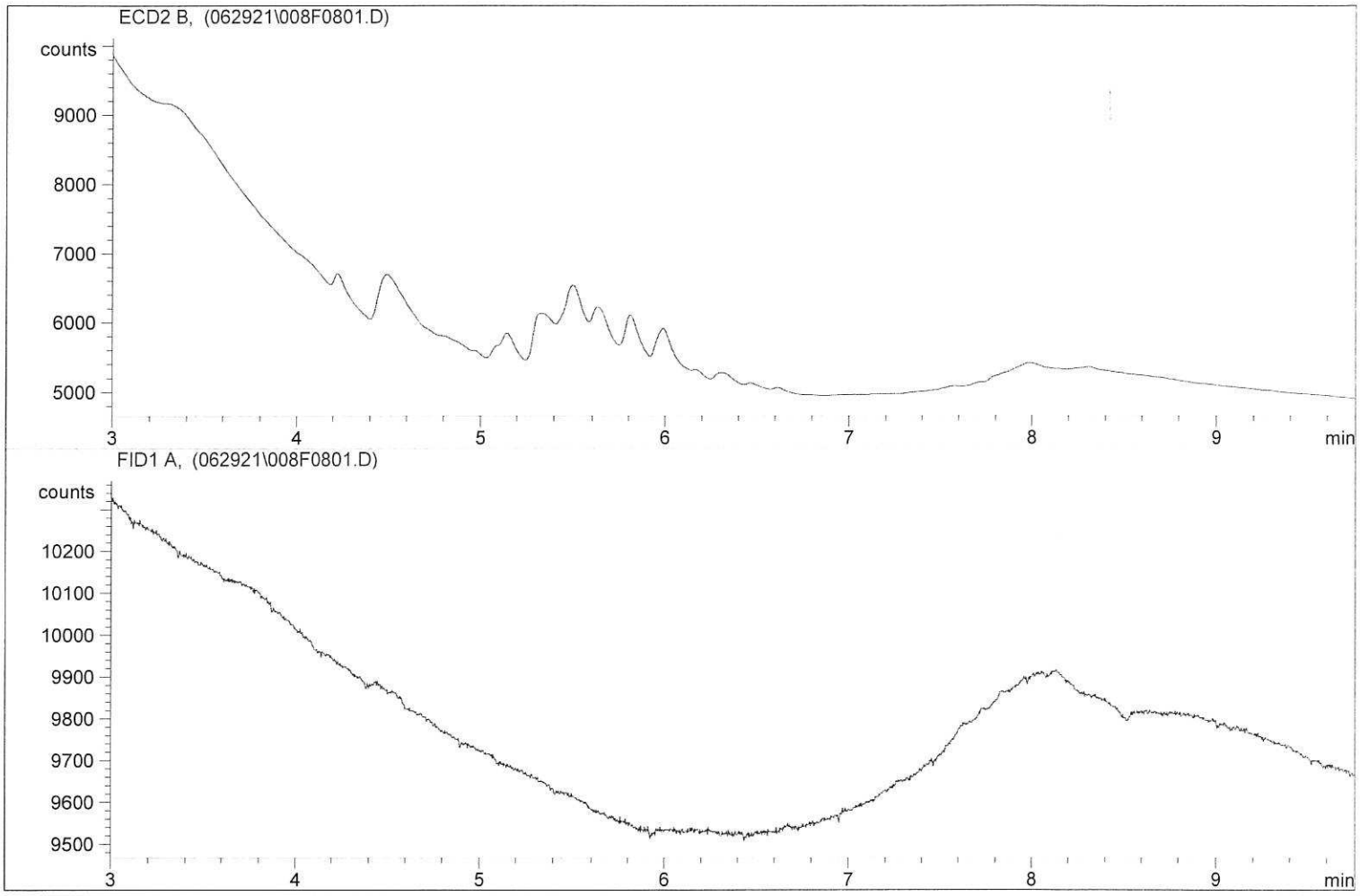
*** End of Report ***

Injection Date	: 6/29/2021 10:29:12 AM	Seq. Line :	7
Sample Name	: 21F0418 04	Location :	Vial 7
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



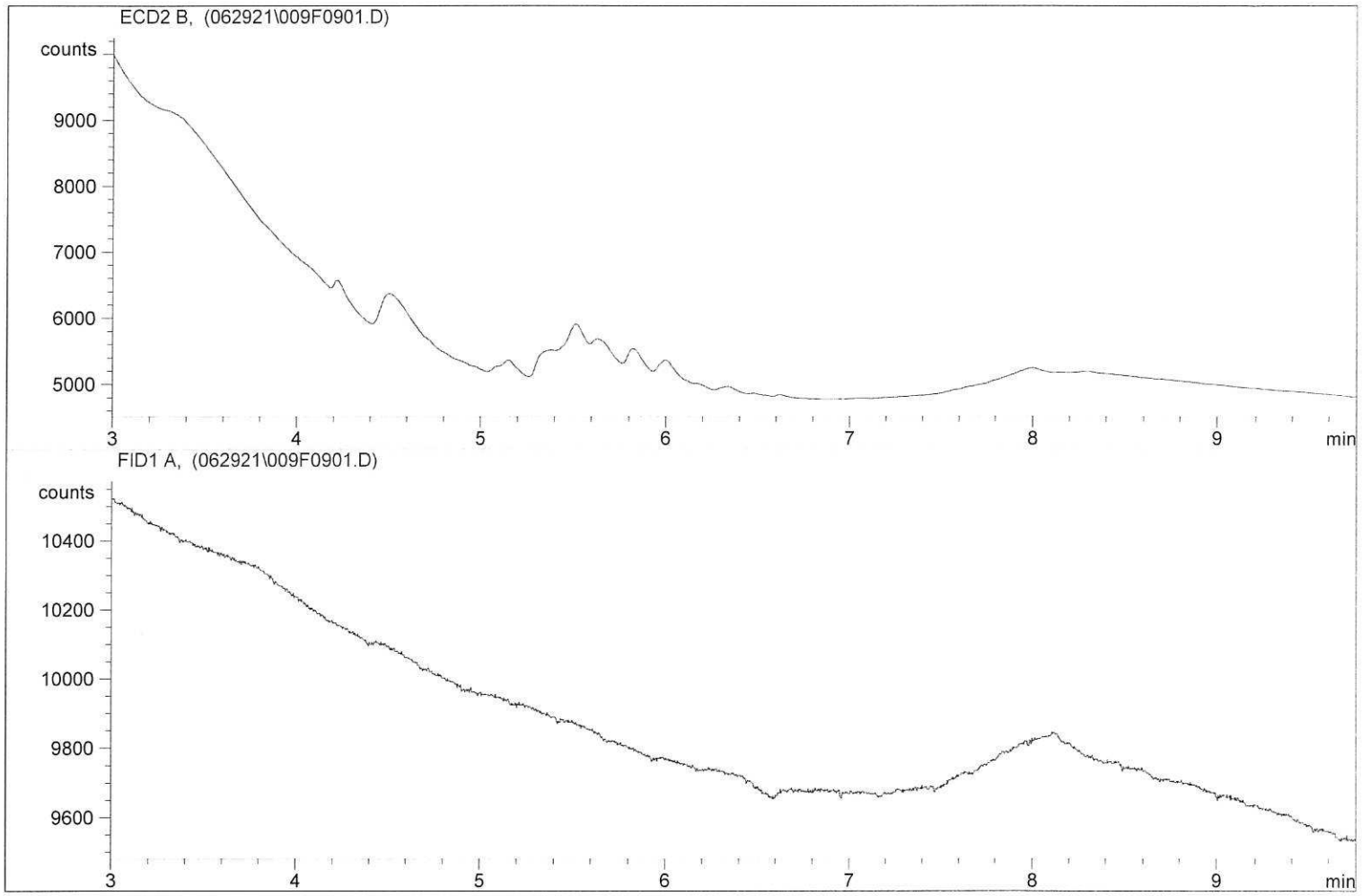
*** End of Report ***

Injection Date	: 6/29/2021 10:44:08 AM	Seq. Line :	8
Sample Name	: 21F0418 05	Location :	Vial 8
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



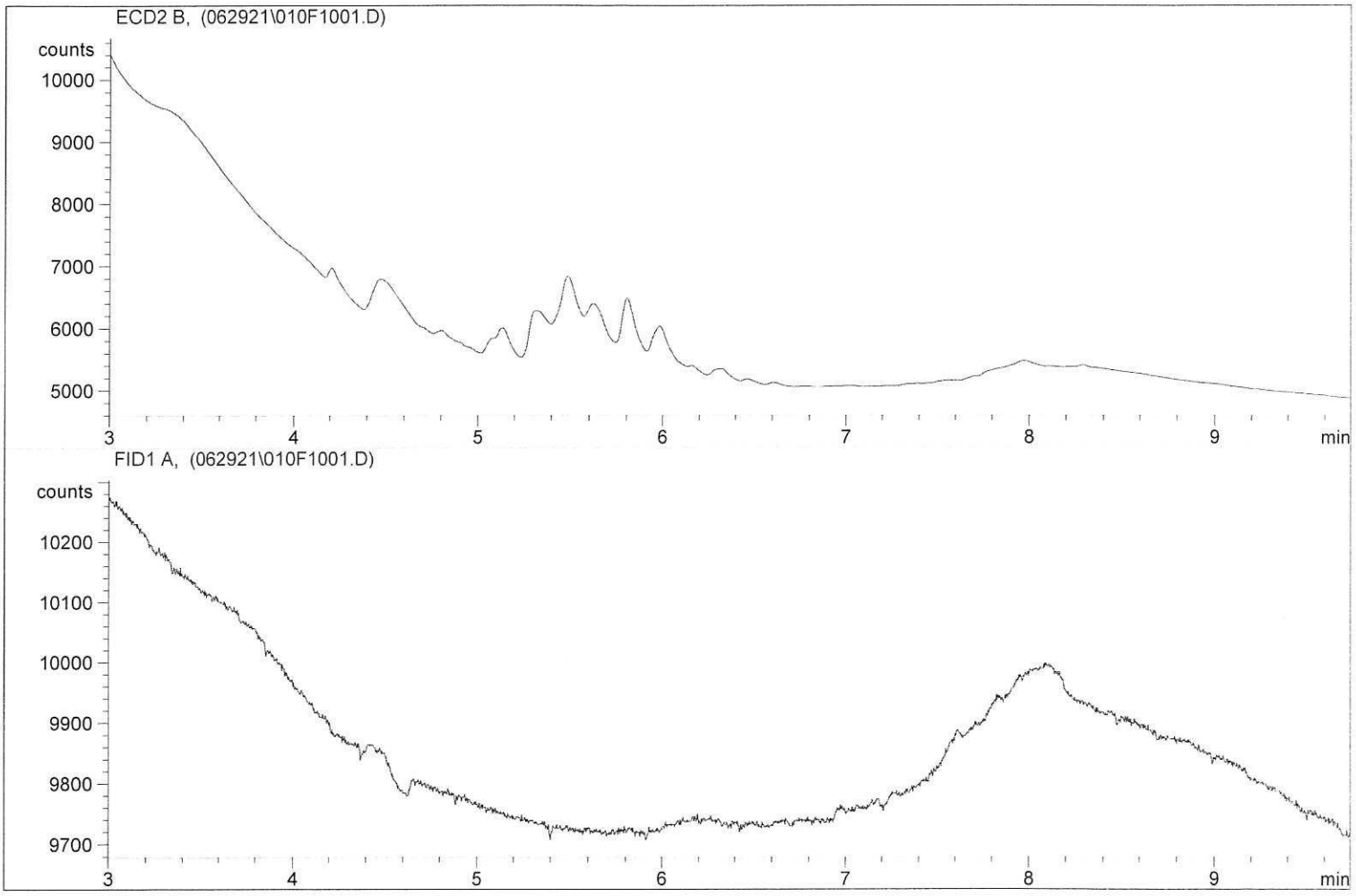
*** End of Report ***

Injection Date	: 6/29/2021 10:58:56 AM	Seq. Line :	9
Sample Name	: 21F0418 06	Location :	Vial 9
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



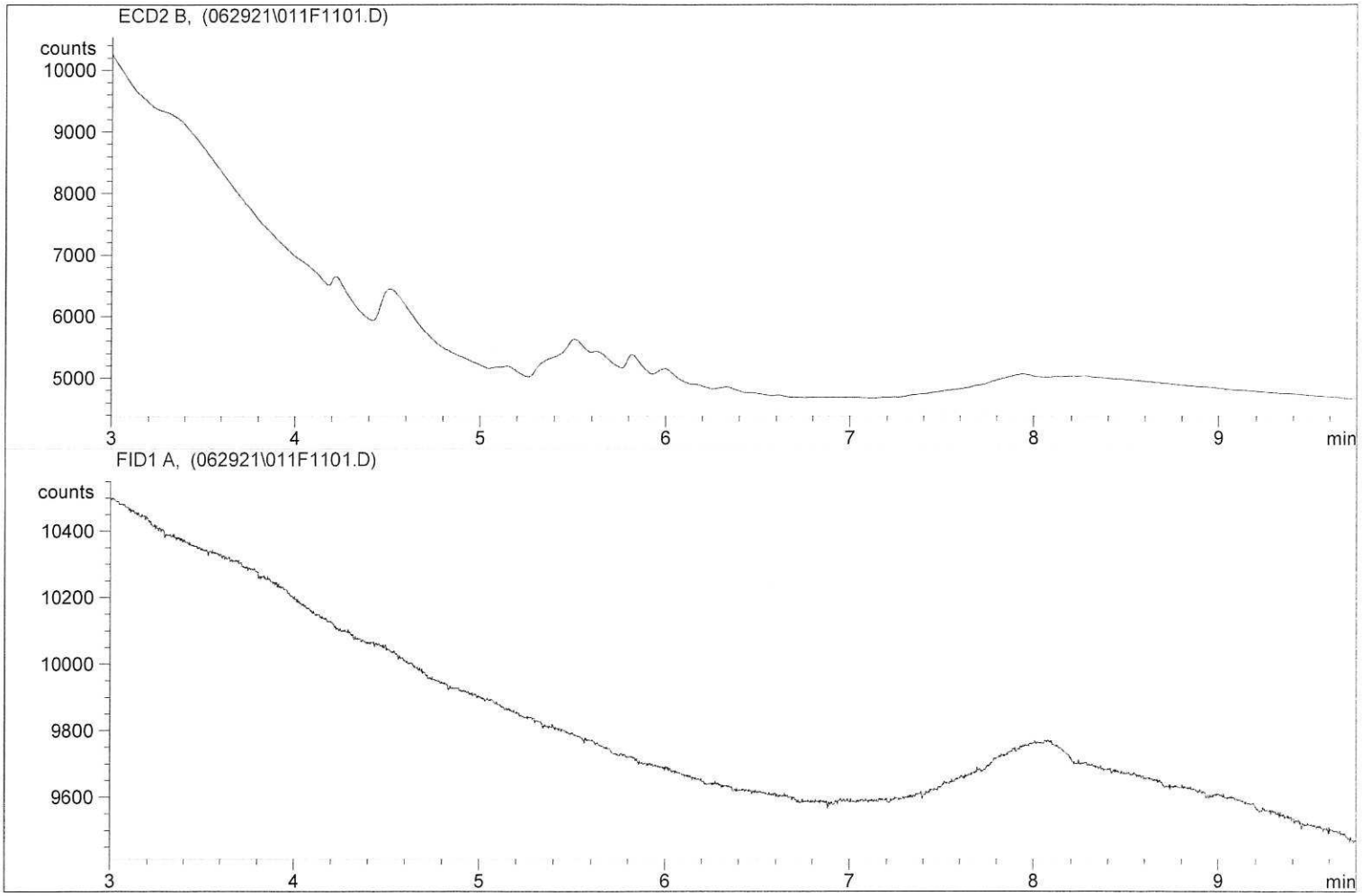
*** End of Report ***

Injection Date	: 6/29/2021 11:13:52 AM	Seq. Line :	10
Sample Name	: 21F0418 07	Location :	Vial 10
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



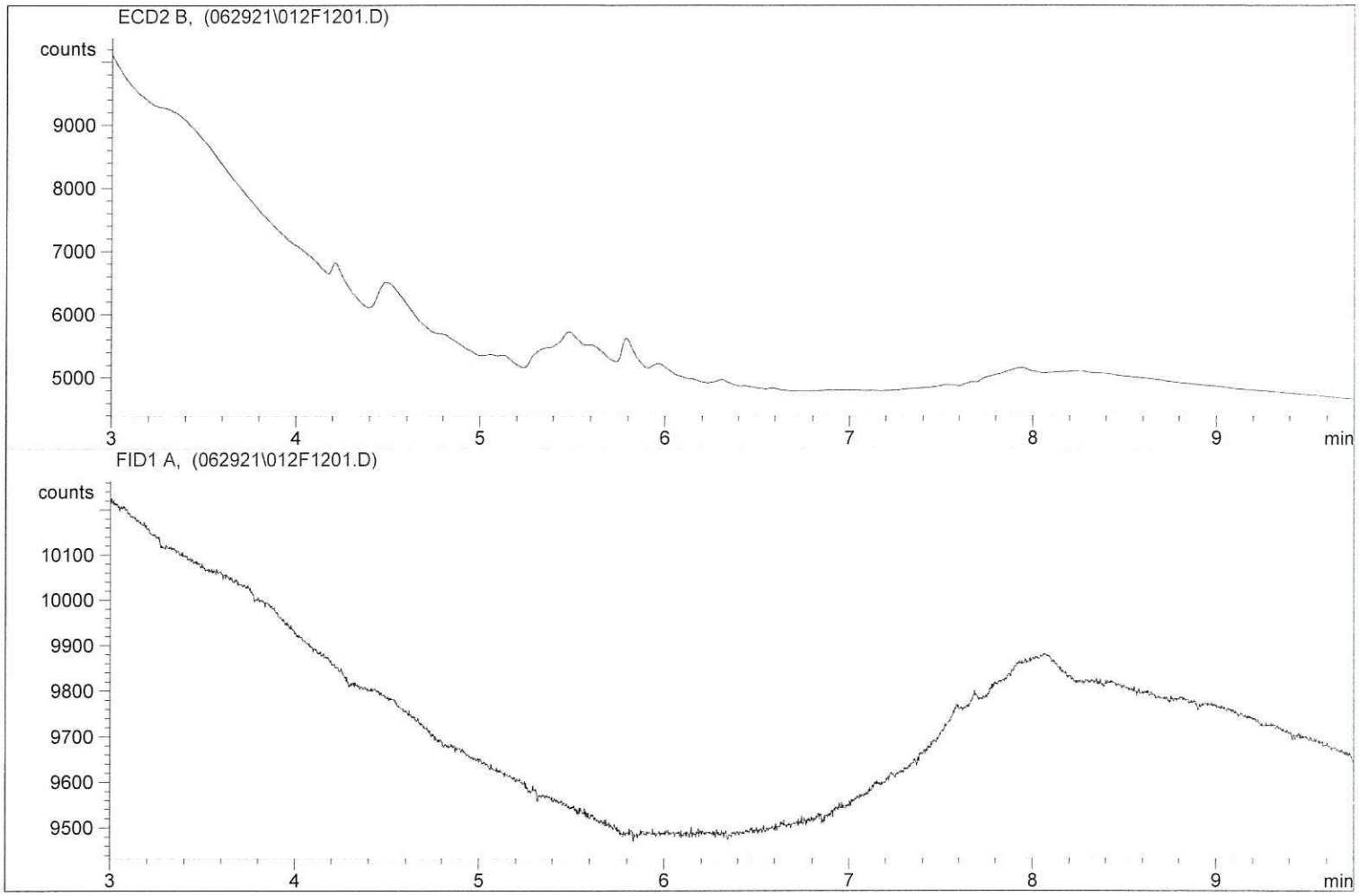
*** End of Report ***

Injection Date	: 6/29/2021 11:28:49 AM	Seq. Line :	11
Sample Name	: 21F0418 08	Location :	Vial 11
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



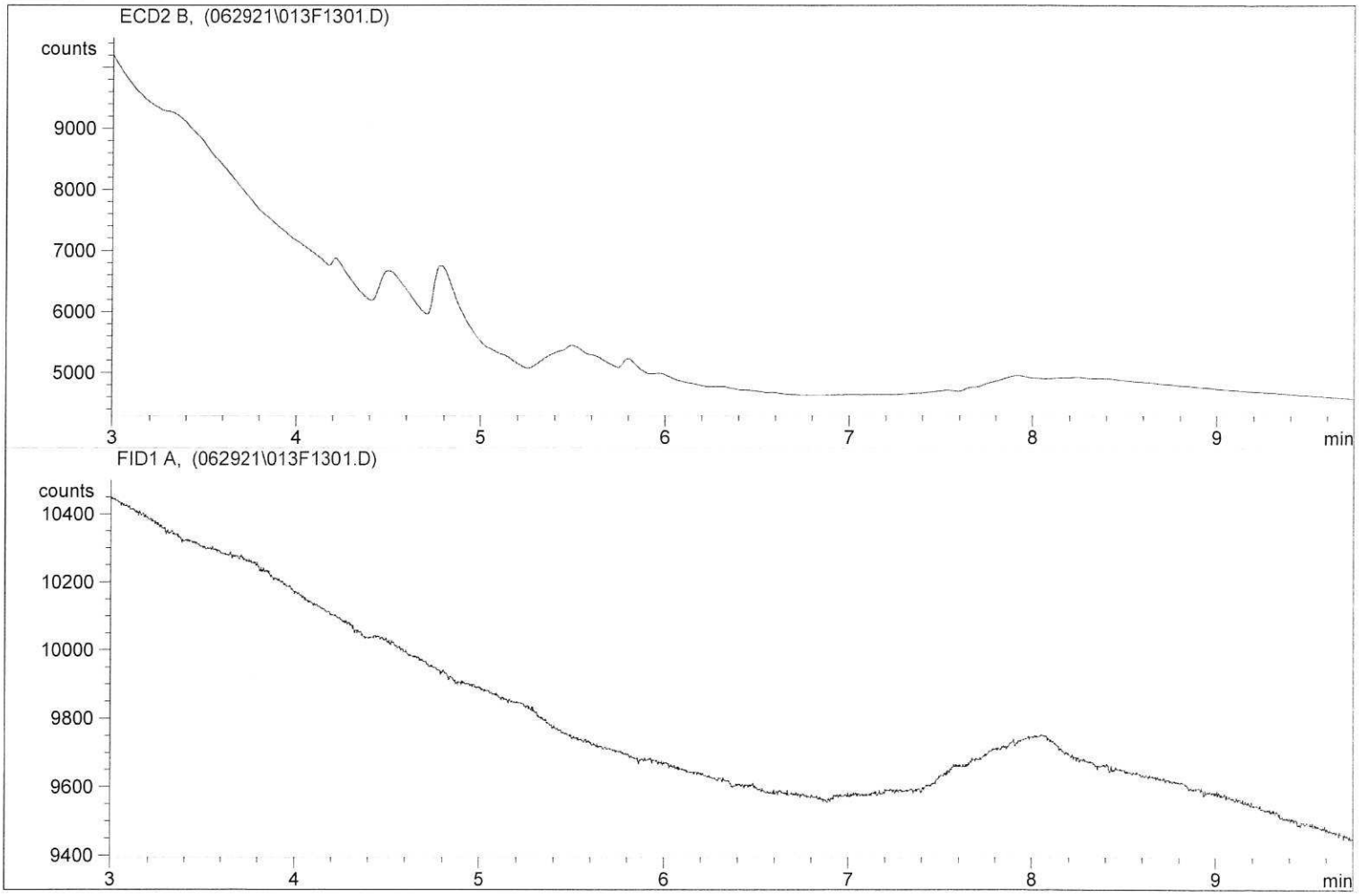
*** End of Report ***

```
==========================================================================
Injection Date  : 6/29/2021 11:43:43 AM          Seq. Line :  12
Sample Name     : 21F0418 09                      Location : Vial 12
Acq. Operator   : YL                                   Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\062921.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 6/7/2021 5:13:28 PM by AR
SCREEN METHOD
==========================================================================
```



*** End of Report ***

Injection Date	: 6/29/2021 11:58:33 AM	Seq. Line :	13
Sample Name	: 21F0418 10	Location :	Vial 13
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\062921.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 6/7/2021 5:13:28 PM by AR		
SCREEN METHOD			



*** End of Report ***

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJG0020	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665A Sulfuric Acid Cleanup	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS692	21F0418-09	07022130ECD7.D	07/02/2021	
LDW21-IT692	21F0418-10	07022131ECD7.D	07/02/2021	
LDW21-IT695	21F0418-04	07022123ECD7.D	07/02/2021	
LDW21-IT696	21F0418-03	07022122ECD7.D	07/02/2021	
LDW21-IT693	21F0418-06	07022125ECD7.D	07/02/2021	
Reference	BJG0002-SRM1	07022132ECD7.D	07/02/2021	
Matrix Spike Dup	BJG0002-MSD1	07022128ECD7.D	07/02/2021	
Matrix Spike	BJG0002-MS1	07022127ECD7.D	07/02/2021	
LCS	BJG0002-BS1	07022119ECD7.D	07/02/2021	
LDW21-SS691	21F0418-07	07022126ECD7.D	07/02/2021	
LDW21-SS693	21F0418-05	07022124ECD7.D	07/02/2021	
LDW21-SS695	21F0418-02	07022121ECD7.D	07/02/2021	
LDW21-SS696	21F0418-01	07022120ECD7.D	07/02/2021	
LDW21-IT691	21F0418-08	07022129ECD7.D	07/02/2021	
Blank	BJG0002-BLK1	07022118ECD7.D	07/02/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJG0020

Matrix: Solid **Cleanup using: Organics - EPA 3665A Sulfuric Acid Cleanup** **Printed: 7/2/2021 2:16:50PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21F0418-10	B	LDW21-IT692	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-09	B	LDW21-SS692	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-05	B	LDW21-SS693	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-06	B	LDW21-IT693	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-07	B	LDW21-SS691	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-08	B	LDW21-IT691	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-01	B	LDW21-SS696	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-02	B	LDW21-SS695	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-03	B	LDW21-IT696	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-04	B	LDW21-IT695	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
BJG0002-SRM1	-	Reference	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-BLK1	-	Blank	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-BS1	-	LCS	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-MS1	-	Matrix Spike	-	2.5	2.5	-	7/2/2021	TWC	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJG0021	Cleanup Type:	Sulfur
Cleanup Method:	EPA 3660B Sulfur Cleanup	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT692	21F0418-10	07022131ECD7.D	07/02/2021	
LCS	BJG0002-BS1	07022119ECD7.D	07/02/2021	
Matrix Spike	BJG0002-MS1	07022127ECD7.D	07/02/2021	
Matrix Spike Dup	BJG0002-MSD1	07022128ECD7.D	07/02/2021	
Reference	BJG0002-SRM1	07022132ECD7.D	07/02/2021	
LDW21-IT696	21F0418-03	07022122ECD7.D	07/02/2021	
Blank	BJG0002-BLK1	07022118ECD7.D	07/02/2021	
LDW21-IT691	21F0418-08	07022129ECD7.D	07/02/2021	
LDW21-IT693	21F0418-06	07022125ECD7.D	07/02/2021	
LDW21-IT695	21F0418-04	07022123ECD7.D	07/02/2021	
LDW21-SS696	21F0418-01	07022120ECD7.D	07/02/2021	
LDW21-SS695	21F0418-02	07022121ECD7.D	07/02/2021	
LDW21-SS693	21F0418-05	07022124ECD7.D	07/02/2021	
LDW21-SS692	21F0418-09	07022130ECD7.D	07/02/2021	
LDW21-SS691	21F0418-07	07022126ECD7.D	07/02/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJG0021

Matrix: Solid **Cleanup using: Organics - EPA 3660B Sulfur Cleanup** **Printed: 7/2/2021 2:17:39PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21F0418-10	B	LDW21-IT692	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-09	B	LDW21-SS692	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-05	B	LDW21-SS693	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-06	B	LDW21-IT693	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-07	B	LDW21-SS691	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-08	B	LDW21-IT691	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-01	B	LDW21-SS696	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-02	B	LDW21-SS695	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-03	B	LDW21-IT696	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-04	B	LDW21-IT695	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
BJG0002-SRM1	-	Reference	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-BLK1	-	Blank	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-BS1	-	LCS	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-MS1	-	Matrix Spike	-	2.5	2.5	-	7/2/2021	TWC	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJG0022	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT692	21F0418-10	07022131ECD7.D	07/02/2021	
Matrix Spike Dup	BJG0002-MSD1	07022128ECD7.D	07/02/2021	
Matrix Spike	BJG0002-MS1	07022127ECD7.D	07/02/2021	
LCS	BJG0002-BS1	07022119ECD7.D	07/02/2021	
Blank	BJG0002-BLK1	07022118ECD7.D	07/02/2021	
LDW21-SS696	21F0418-01	07022120ECD7.D	07/02/2021	
LDW21-SS695	21F0418-02	07022121ECD7.D	07/02/2021	
LDW21-SS693	21F0418-05	07022124ECD7.D	07/02/2021	
LDW21-SS692	21F0418-09	07022130ECD7.D	07/02/2021	
LDW21-SS691	21F0418-07	07022126ECD7.D	07/02/2021	
LDW21-IT696	21F0418-03	07022122ECD7.D	07/02/2021	
Reference	BJG0002-SRM1	07022132ECD7.D	07/02/2021	
LDW21-IT693	21F0418-06	07022125ECD7.D	07/02/2021	
LDW21-IT691	21F0418-08	07022129ECD7.D	07/02/2021	
LDW21-IT695	21F0418-04	07022123ECD7.D	07/02/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJG0022

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 7/2/2021 2:18:19PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21F0418-10	B	LDW21-IT692	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-09	B	LDW21-SS692	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-05	B	LDW21-SS693	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-06	B	LDW21-IT693	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-07	B	LDW21-SS691	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-08	B	LDW21-IT691	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-01	B	LDW21-SS696	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-02	B	LDW21-SS695	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-03	B	LDW21-IT696	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
21F0418-04	B	LDW21-IT695	B 01	2.5	2.5	8082A PCB Solid 4	7/2/2021	TWC	
BJG0002-SRM1	-	Reference	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-BLK1	-	Blank	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-BS1	-	LCS	-	2.5	2.5	-	7/2/2021	TWC	
BJG0002-MS1	-	Matrix Spike	-	2.5	2.5	-	7/2/2021	TWC	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
METHOD BLANK DATA SHEET
EPA 8082A

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJG0002-BLK1	File ID:	07022118ECD7.D
Sampled:	N/A	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 17:52
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	12.5 g / 2.5 mL
Batch:	BJG0002	Sequence:	SJG0060	Calibration:	EE00069
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	7.94	99.3	40 - 126	
Tetrachlorometaxylene	8.0000	7.33	91.6	44 - 120	
Decachlorobiphenyl [2C]	8.0000	8.08	101	40 - 126	
Tetrachlorometaxylene [2C]	8.0000	6.91	86.4	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: /210702.b/07022118ECD7.D
Data file 2: /210702.b/210702.b/07022118ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BJG0002-BLK1
Client ID:
Injection Date: 02-JUL-2021 17:52
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.071	-0.002	129136	5.421	-0.002	290726	36.6	34.6	5.8	Tetrachloro-m-xylene
13.170	0.002	172372	13.860	-0.001	612768	39.7	40.4	1.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	295282	-0.4
Hexabromobiphenyl	470266	486797	3.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	682255	-4.2
Hexabromobiphenyl	867949	846012	-2.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.701	0.037	299	3.3	1	7.066	-0.001	20	0.1
Aroclor-1016	2	7.033	-0.000	173	0.6	2	7.631	-0.027	1537	2.0
Aroclor-1016	3	7.169	-0.011	307	2.4	3	7.922	0.057	269	0.9
Aroclor-1016	4	7.220	-0.070	388	4.6	4	8.135	0.098	1471	8.3
Total Col1Ave (4 peaks): 2.7						Total Col2Ave (4 peaks): 2.8 RPD = 3				
Corrected Ave (3 peaks): 2.1						Corrected Ave (3 peaks): 1.0 RPD = 71*				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.097	0.013	3397	32.6
Aroclor-1221	3	---			0.0	3	6.412	-0.010	980	5.1
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	6.097	0.012	3397	45.2
Aroclor-1232	3	---			0.0	3	6.412	-0.011	980	5.9
Aroclor-1232	4	---			0.0	4	7.631	-0.031	1537	4.5
Col1Ave: <3 Quant Peaks						Col2Ave: 18.5				
Aroclor-1242	1	6.701	0.038	299	3.7	1	7.066	0.001	20	0.1
Aroclor-1242	2	7.033	0.000	173	0.7	2	7.631	-0.025	1537	2.3
Aroclor-1242	3	8.210	-0.061	3395	93.2	3	8.997	0.044	1687	5.7
Aroclor-1242	4	---			0.0	4	9.036	0.004	414	1.6
Total Col1Ave (3 peaks): 32.5						Total Col2Ave (4 peaks): 2.4 RPD = 172*				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 1.3				
Aroclor-1248	1	7.804	0.001	210	1.7	1	8.135	0.019	1471	5.9
Aroclor-1248	2	8.008	0.038	330	2.2	2	8.585	0.055	1109	3.3
Aroclor-1248	3	---			0.0	3	8.997	0.042	1687	3.5
Aroclor-1248	4	---			0.0	4	9.388	0.005	3149	6.1
Col1Ave: <3 Quant Peaks						Col2Ave: 4.7				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	9.388	0.046	3149	10.3
Aroclor-1254	3	---			0.0	3	9.785	0.013	33	0.1
Aroclor-1254	4	---			0.0	4	9.937	0.014	670	0.8
Aroclor-1254	5	---			0.0	5	10.165	0.010	1363	1.5
Col1Ave: <3 Quant Peaks						Col2Ave: 3.2				
Aroclor-1260	1	10.392	0.004	125	0.7	1	11.440	0.003	520	1.0
Aroclor-1260	2	10.707	0.001	223	1.2	2	11.694	0.005	939	0.7
Aroclor-1260	3	11.056	0.002	327	0.7	3	12.270	-0.001	995	1.1
Aroclor-1260	4	11.466	0.012	105	0.4	4	13.057	0.074	3861	10.0
Aroclor-1260	5	---			0.0	NS	---			----
Total Col1Ave (4 peaks): 0.8						Total Col2Ave (4 peaks): 3.2 RPD = 124*				
Corrected Ave (3 peaks): 0.6						Corrected Ave (3 peaks): 0.9 RPD = 42*				
Aroclor-1262	1	10.392	0.001	125	0.4	1	10.980	-0.009	477	0.6
Aroclor-1262	2	11.466	0.005	105	0.5	2	11.694	-0.006	939	0.6
Aroclor-1262	3	---			0.0	3	12.193	-0.016	1372	1.7
Aroclor-1262	4	12.303	0.014	273	1.3	4	13.057	0.064	3861	5.3
Total Col1Ave (3 peaks): 0.7						Total Col2Ave (4 peaks): 2.0 RPD = 92*				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 0.9				
Aroclor-1268	1	11.466	-0.099	105	0.1	1	12.193	-0.015	1372	0.6
Aroclor-1268	2	---			0.0	2	12.270	-0.004	995	0.4
Aroclor-1268	3	12.005	-0.007	703	1.1	3	12.647	-0.013	1823	0.8
Aroclor-1268	4	12.772	-0.005	1333	0.7	4	13.455	-0.017	4043	0.5
Total Col1Ave (3 peaks): 0.6						Total Col2Ave (4 peaks): 0.6 RPD = 10				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 0.5				

Total PCB Area Col1 (5.173 - 13.068) = 37223 Col1 Total PCB = 0.0 ppm*

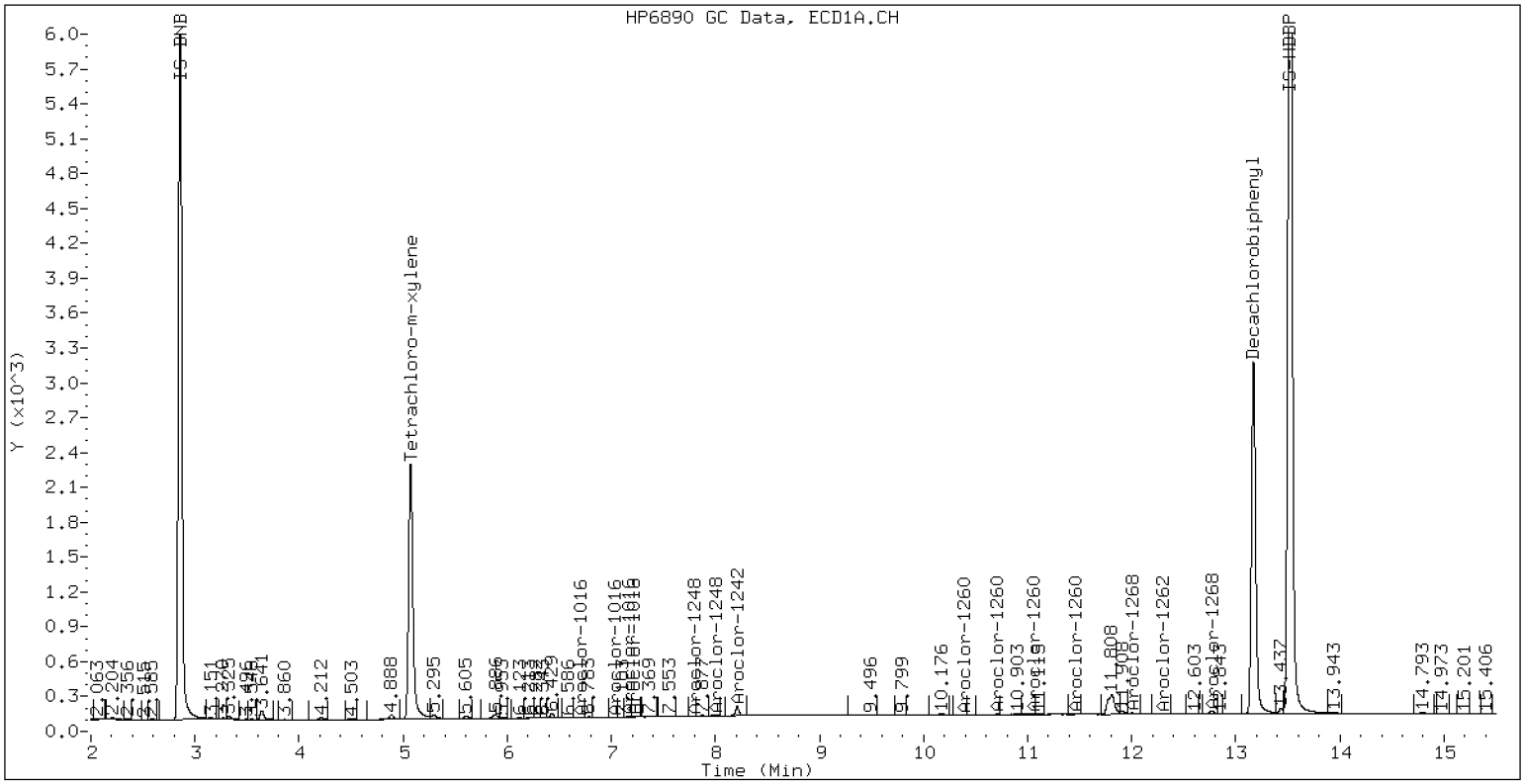
Total PCB Area Col2 (5.173 - 13.068) = 429225 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

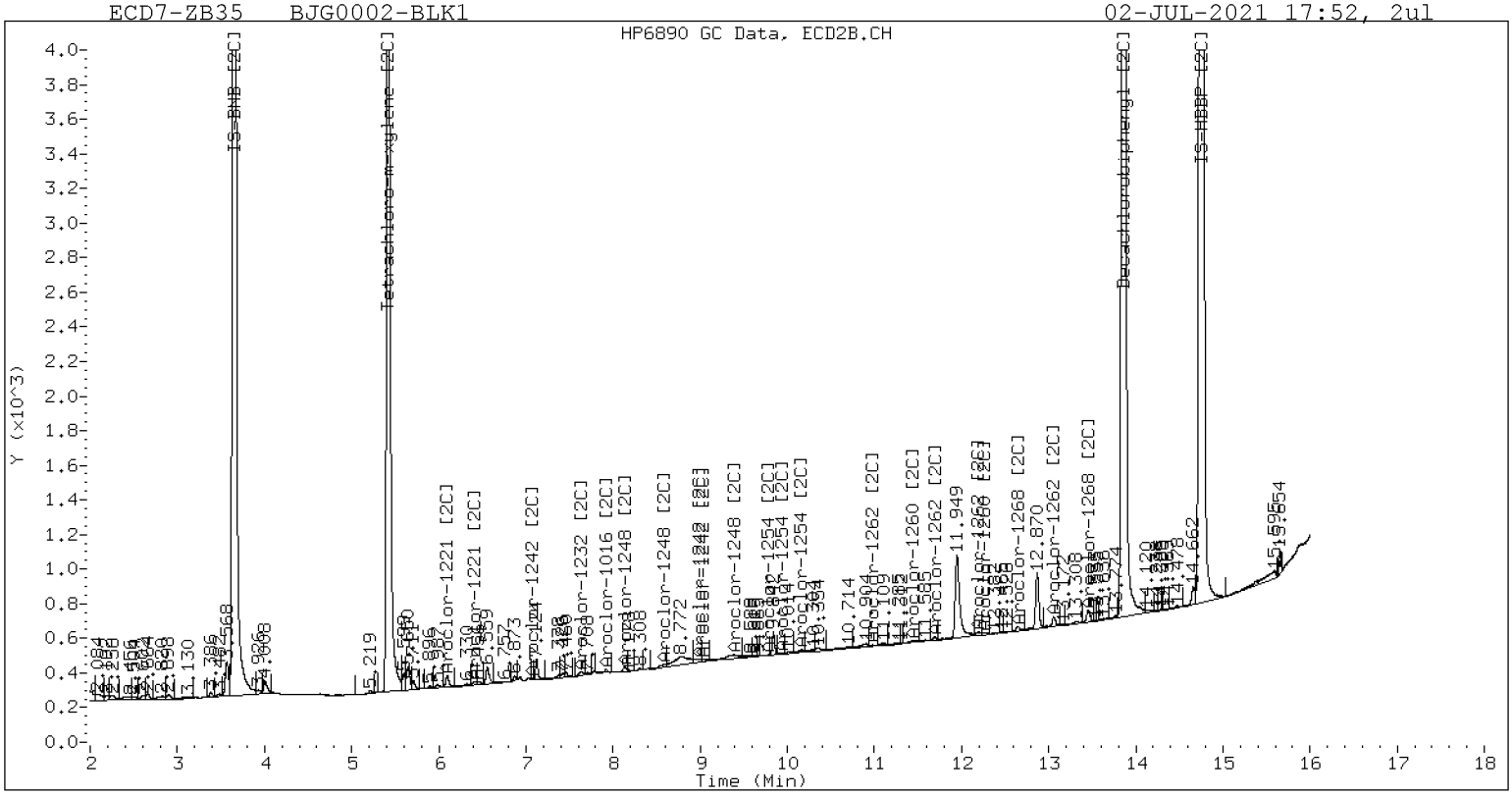
PCB Dual Column Chromatograms

ECD7-ZB5 BJG0002-BLK1 02-JUL-2021 17:52, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BJG0002-BLK1 02-JUL-2021 17:52, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LCS / LCS DUPLICATE RECOVERY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	07/02/21 18:13
Batch:	BJG0002	Laboratory ID:	BJG0002-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	101	88.4		87.7	56 - 120
Aroclor 1260 [2C]	101	104		103	58 - 120

* Indicates values outside of QC limits

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

Data file 1: /210702.b/07022119ECD7.D
Data file 2: /210702.b/210702.b/07022119ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BJG0002-BS1
Client ID:
Injection Date: 02-JUL-2021 18:13
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.072	-0.001	135814	5.421	-0.002	305025	38.4	36.0	6.3	Tetrachloro-m-xylene
13.169	0.001	185160	13.862	0.002	687305	42.1	44.3	5.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296531	0.0
Hexabromobiphenyl	470266	493806	5.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	687176	-3.5
Hexabromobiphenyl	867949	865703	-0.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.662	-0.001	40576	441.1	1	7.066	-0.002	152112	429.7
Aroclor-1016	2	7.032	-0.002	139303	448.8	2	7.655	-0.002	335286	430.6
Aroclor-1016	3	7.179	-0.001	55497	440.1	3	7.863	-0.003	128595	441.1
Aroclor-1016	4	7.287	-0.002	36816	437.1	4	8.034	-0.002	81919	459.0
Total Col1Ave (4 peaks):				441.8		Total Col2Ave (4 peaks):			440.1	RPD = 0
Corrected Ave (3 peaks):				439.4		Corrected Ave (3 peaks):			433.8	RPD = 1
Aroclor-1221	1	4.020	-0.002	230	10.5	1	---			0.0
Aroclor-1221	2	5.453	-0.002	4642	123.5	2	6.083	-0.001	14202	135.2
Aroclor-1221	3	5.728	-0.002	25888	271.7	3	6.418	-0.003	64611	333.7
Total Col1Ave (3 peaks):				135.3		Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	5.728	-0.003	25888	318.3	2	6.083	-0.002	14202	187.6
Aroclor-1232	3	7.032	0.005	139303	1019.3	3	6.418	-0.004	64611	389.2
Aroclor-1232	4	8.602	-0.003	4756	115.9	4	7.655	-0.007	335286	964.9
Total Col1Ave (3 peaks):				484.5		Total Col2Ave (3 peaks):			513.9	RPD = 6
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.662	-0.000	40576	495.5	1	7.066	0.001	152112	498.6
Aroclor-1242	2	7.032	-0.001	139303	523.9	2	7.655	-0.000	335286	508.0
Aroclor-1242	3	8.269	-0.001	3585	98.0	3	8.944	-0.009	42321	141.9
Aroclor-1242	4	8.602	-0.008	4756	58.2	4	9.032	-0.000	15598	59.4
Total Col1Ave (4 peaks):				293.9		Total Col2Ave (4 peaks):			302.0	RPD = 3
Corrected Ave (3 peaks):				217.3		Corrected Ave (3 peaks):			233.3	RPD = 7
Aroclor-1248	1	7.802	-0.001	38457	310.8	1	8.114	-0.002	75967	303.2
Aroclor-1248	2	7.969	-0.001	47132	307.1	2	8.528	-0.002	112000	328.7
Aroclor-1248	3	8.319	-0.000	6661	43.3	3	8.944	-0.011	42321	86.3
Aroclor-1248	4	8.602	-0.007	4756	35.0	4	9.382	-0.002	9514	18.2
Total Col1Ave (4 peaks):				174.1		Total Col2Ave (4 peaks):			184.1	RPD = 6
Corrected Ave (3 peaks):				128.5		Corrected Ave (3 peaks):			135.9	RPD = 6
Aroclor-1254	1	8.676	-0.004	32790	130.8	1	9.247	-0.003	81398	156.4
Aroclor-1254	2	---			0.0	2	9.337	-0.006	2386	7.8
Aroclor-1254	3	9.044	-0.005	4894	31.8	3	9.771	-0.002	13945	35.6
Aroclor-1254	4	9.174	-0.006	30447	100.1	4	9.936	0.013	196444	225.7
Aroclor-1254	5	9.860	-0.011	39375	192.0	5	10.167	0.011	244508	261.9
Total Col1Ave (4 peaks):				113.7		Total Col2Ave (5 peaks):			137.5	RPD = 19
Corrected Ave (3 peaks):				87.6		Corrected Ave (4 peaks):			106.4	RPD = 19
Aroclor-1260	1	10.387	-0.001	93298	515.4	1	11.436	-0.001	260968	483.4
Aroclor-1260	2	10.705	-0.001	92616	497.6	2	11.688	-0.001	705459	500.9
Aroclor-1260	3	11.054	-0.000	244894	502.3	3	12.271	-0.000	461758	504.2
Aroclor-1260	4	11.455	-0.000	115708	465.6	4	12.983	-0.000	230652	585.9
Aroclor-1260	5	11.559	-0.001	53809	561.6	NS	---			----
Total Col1Ave (5 peaks):				508.5		Total Col2Ave (4 peaks):			518.6	RPD = 2
Corrected Ave (4 peaks):				495.2		Corrected Ave (3 peaks):			496.2	RPD = 0
Aroclor-1262	1	10.387	-0.004	93298	300.4	1	10.979	-0.010	277140	318.8
Aroclor-1262	2	11.455	-0.007	115708	577.5	2	11.688	-0.012	705459	410.2
Aroclor-1262	3	11.630	-0.005	67636	250.3	3	12.200	-0.008	231711	280.9
Aroclor-1262	4	12.279	-0.010	62549	292.8	4	12.983	-0.010	230652	308.3
Total Col1Ave (4 peaks):				355.2		Total Col2Ave (4 peaks):			329.5	RPD = 8
Corrected Ave (3 peaks):				281.1		Corrected Ave (3 peaks):			302.7	RPD = 7
Aroclor-1268	1	11.559	-0.007	53809	64.9	1	12.200	-0.007	231711	92.1
Aroclor-1268	2	11.630	-0.005	67636	80.5	2	12.271	-0.003	461758	168.5
Aroclor-1268	3	12.033	0.021	27325	41.4	3	12.647	-0.013	9653	4.0
Aroclor-1268	4	12.773	-0.004	15485	7.5	4	13.457	-0.015	53534	6.9
Total Col1Ave (4 peaks):				48.6		Total Col2Ave (4 peaks):			67.9	RPD = 33
Corrected Ave (3 peaks):				37.9		Corrected Ave (3 peaks):			34.3	RPD = 10

Total PCB Area Col1 (5.173 - 13.068) = 2385429 Col1 Total PCB = 0.9 ppm*

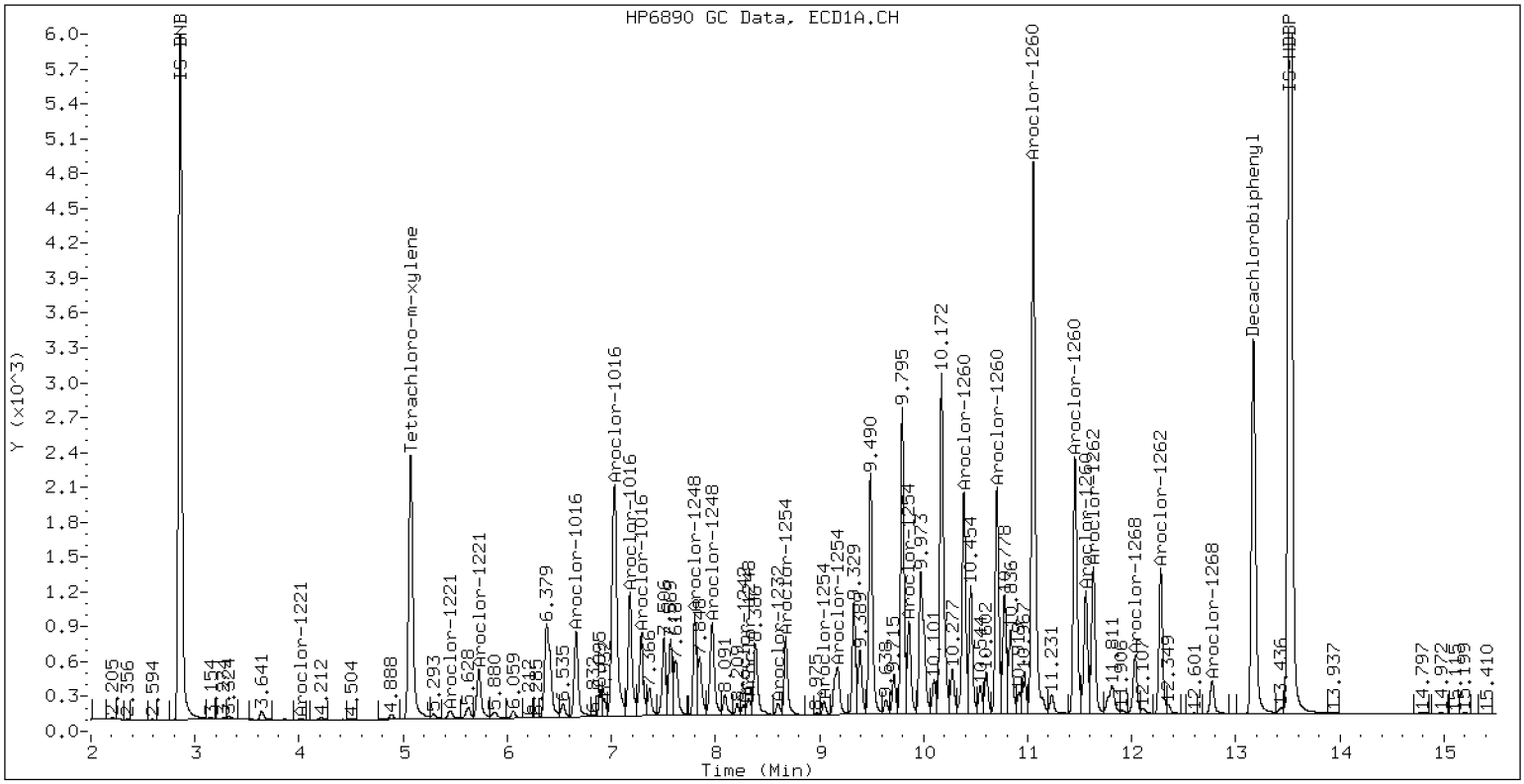
Total PCB Area Col2 (5.173 - 13.068) = 6663827 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

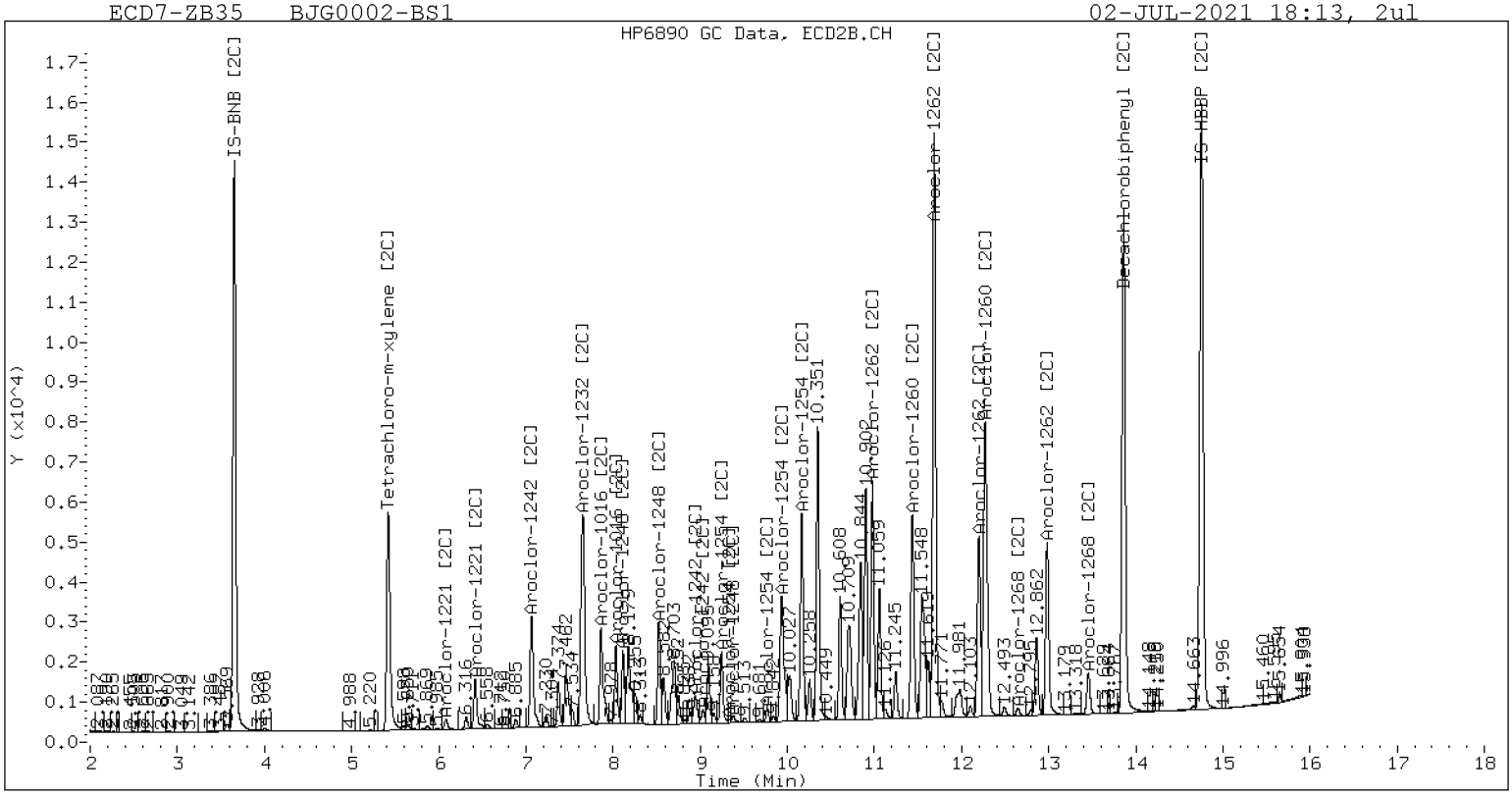
PCB Dual Column Chromatograms

ECD7-ZB5 BJG0002-BS1 02-JUL-2021 18:13, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BJG0002-BS1 02-JUL-2021 18:13, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS691

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	07/02/21 20:59
Batch:	BJG0002	Laboratory ID:	BJG0002-MS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike
Initial/Final:	19.13 g / 2.5 mL	Source Sample:	LDW21-SS691

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	U	74.8		74.1	56 - 120
Aroclor 1260	101	104		169		64.4	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, Incorporated
Analytical Chemists and Consultants

LDW21-SS691

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	07/02/21 21:20
Batch:	BJG0002	Laboratory ID:	BJG0002-MSD1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike Dup
Initial/Final:	19.13 g / 2.5 mL	Source Sample:	LDW21-SS691

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Aroclor 1016	101	75.0		74.3	0.341	30	56 - 120
Aroclor 1260	101	184		79.2	8.59	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: /210702.b/07022127ECD7.D
Data file 2: /210702.b/210702.b/07022127ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BJG0002-MS1
Client ID:
Injection Date: 02-JUL-2021 20:59
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.069	-0.004	124899	5.420	-0.004	274603	33.6	31.2	7.4	Tetrachloro-m-xylene
13.165	-0.004	139920	13.857	-0.004	518689	38.9	33.3	15.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	310928	4.9
Hexabromobiphenyl	470266	403133	-14.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	713118	0.2
Hexabromobiphenyl	867949	868261	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.660	-0.004	37801	391.9	1	7.065	-0.003	141694	385.7
Aroclor-1016	2	7.028	-0.005	131643	404.5	2	7.654	-0.003	286862	355.0
Aroclor-1016	3	7.174	-0.006	48178	364.4	3	7.860	-0.005	111922	369.9
Aroclor-1016	4	7.283	-0.006	29517	334.2	4	8.031	-0.006	64069	345.9
Total Col1Ave (4 peaks): 373.7						Total Col2Ave (4 peaks): 364.2 RPD = 3				
Corrected Ave (3 peaks): 363.5						Corrected Ave (3 peaks): 357.0 RPD = 2				
Aroclor-1221	1	---			0.0	1	4.647	-0.046	14981	322.7
Aroclor-1221	2	5.450	-0.005	5579	141.6	2	6.085	0.002	17087	156.8
Aroclor-1221	3	5.724	-0.005	24123	241.5	3	6.417	-0.005	58297	290.1
Col1Ave: <3 Quant Peaks						Col2Ave: 256.6				
Aroclor-1232	1	---			0.0	1	4.647	-0.045	14981	510.3
Aroclor-1232	2	5.724	-0.007	24123	282.9	2	6.085	0.001	17087	217.5
Aroclor-1232	3	7.028	0.001	131643	918.6	3	6.417	-0.005	58297	338.4
Aroclor-1232	4	8.594	-0.011	13092	304.2	4	7.654	-0.008	286862	795.5
Total Col1Ave (3 peaks): 501.9						Total Col2Ave (4 peaks): 465.4 RPD = 8				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 355.4				
Aroclor-1242	1	6.660	-0.003	37801	440.3	1	7.065	-0.001	141694	447.5
Aroclor-1242	2	7.028	-0.005	131643	472.1	2	7.654	-0.002	286862	418.9
Aroclor-1242	3	8.260	-0.010	5220	136.1	3	8.943	-0.009	45924	148.3
Aroclor-1242	4	8.594	-0.015	13092	152.9	4	9.023	-0.009	30543	112.2
Total Col1Ave (4 peaks): 300.4						Total Col2Ave (4 peaks): 281.7 RPD = 6				
Corrected Ave (3 peaks): 243.1						Corrected Ave (3 peaks): 226.5 RPD = 7				
Aroclor-1248	1	7.798	-0.005	36254	279.4	1	8.113	-0.004	67410	259.3
Aroclor-1248	2	7.964	-0.006	40786	253.4	2	8.526	-0.004	107649	304.5
Aroclor-1248	3	8.307	-0.012	8558	53.1	3	8.943	-0.011	45924	90.2
Aroclor-1248	4	8.594	-0.014	13092	91.9	4	9.375	-0.008	31419	57.9
Total Col1Ave (4 peaks): 169.5						Total Col2Ave (4 peaks): 178.0 RPD = 5				
Corrected Ave (3 peaks): 132.8						Corrected Ave (3 peaks): 135.8 RPD = 2				
Aroclor-1254	1	8.668	-0.012	36677	139.5	1	9.244	-0.006	127347	235.8
Aroclor-1254	2	8.747	-0.003	8507	88.9	2	9.335	-0.008	11086	34.8
Aroclor-1254	3	9.086	0.037	50913	316.0	3	9.767	-0.006	29232	71.9
Aroclor-1254	4	9.168	-0.012	63261	198.3	4	9.928	0.004	307344	340.2
Aroclor-1254	5	9.856	-0.015	71143	330.9	5	10.162	0.007	428968	442.7
Total Col1Ave (5 peaks): 214.7						Total Col2Ave (5 peaks): 225.1 RPD = 5				
Corrected Ave (4 peaks): 185.7						Corrected Ave (4 peaks): 170.7 RPD = 8				
Aroclor-1260	1	10.380	-0.008	126619	856.8	1	11.434	-0.003	419451	774.6
Aroclor-1260	2	10.699	-0.007	126295	831.2	2	11.685	-0.004	1069839	757.4
Aroclor-1260	3	11.048	-0.007	337617	848.2	3	12.267	-0.005	641589	698.5
Aroclor-1260	4	11.448	-0.007	167586	826.1	4	12.979	-0.005	313894	795.1
Aroclor-1260	5	11.553	-0.006	66894	855.3	NS	---			----
Total Col1Ave (5 peaks): 843.5						Total Col2Ave (4 peaks): 756.4 RPD = 11				
Corrected Ave (4 peaks): 840.2						Corrected Ave (3 peaks): 743.5 RPD = 12				
Aroclor-1262	1	10.380	-0.011	126619	499.4	1	10.975	-0.014	419123	480.7
Aroclor-1262	2	11.448	-0.013	167586	1024.5	2	11.685	-0.015	1069839	620.2
Aroclor-1262	3	11.625	-0.011	163682	741.9	3	12.197	-0.011	380141	459.5
Aroclor-1262	4	12.273	-0.016	70727	405.5	4	12.979	-0.014	313894	418.3
Total Col1Ave (4 peaks): 667.8						Total Col2Ave (4 peaks): 494.7 RPD = 30				
Corrected Ave (3 peaks): 548.9						Corrected Ave (3 peaks): 452.8 RPD = 19				
Aroclor-1268	1	11.553	-0.012	66894	98.8	1	12.197	-0.011	380141	150.7
Aroclor-1268	2	11.625	-0.011	163682	238.6	2	12.267	-0.008	641589	233.4
Aroclor-1268	3	12.026	0.014	49051	91.0	3	12.645	-0.015	19552	8.1
Aroclor-1268	4	12.767	-0.010	22130	13.1	4	13.454	-0.018	78282	10.0
Total Col1Ave (4 peaks): 110.4						Total Col2Ave (4 peaks): 100.6 RPD = 9				
Corrected Ave (3 peaks): 67.6						Corrected Ave (3 peaks): 56.3 RPD = 18				

Total PCB Area Col1 (5.173 - 13.068) = 3902612 Col1 Total PCB = 1.4 ppm*

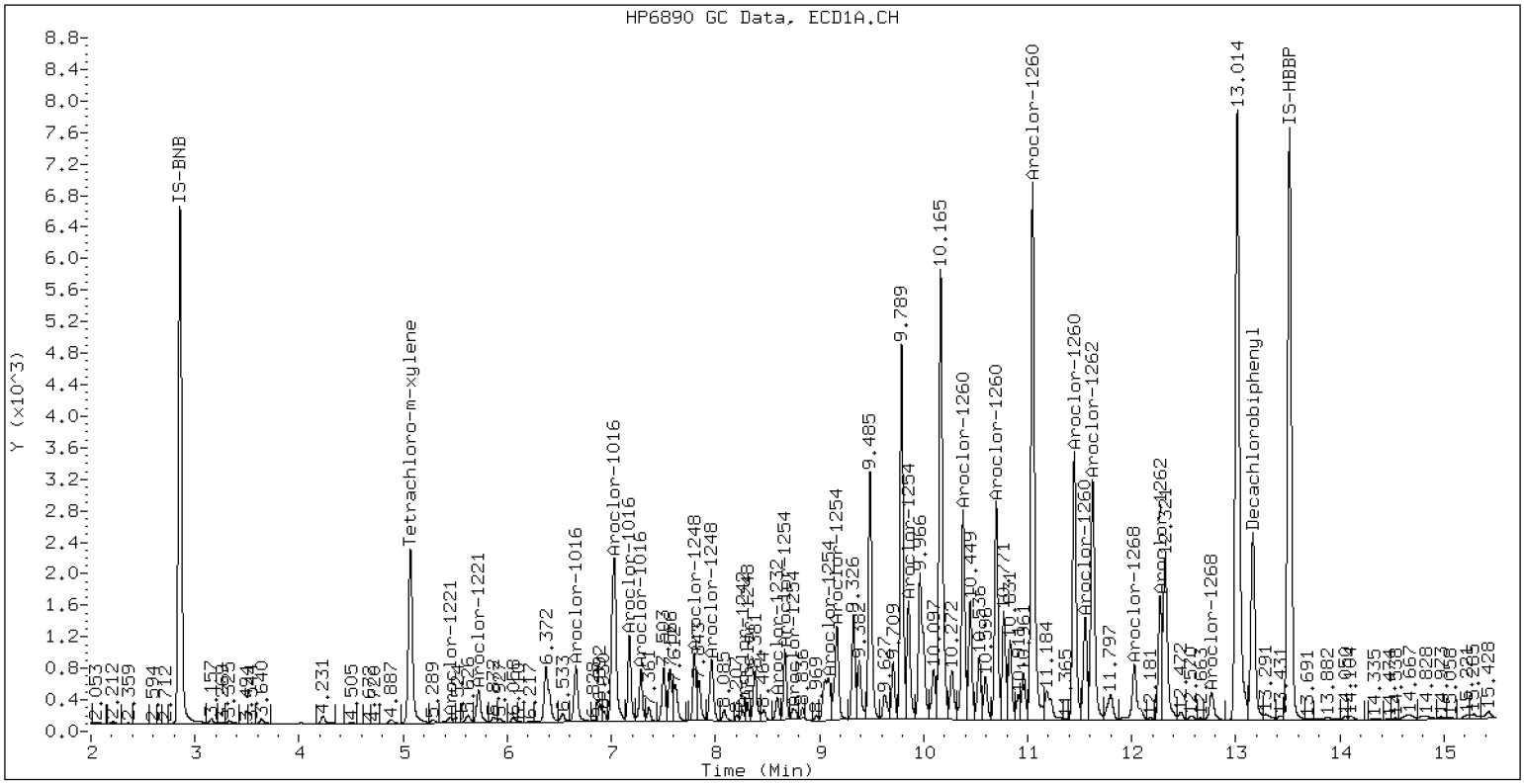
Total PCB Area Col2 (5.173 - 13.068) = 9626526 Col2 Total PCB = 1.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

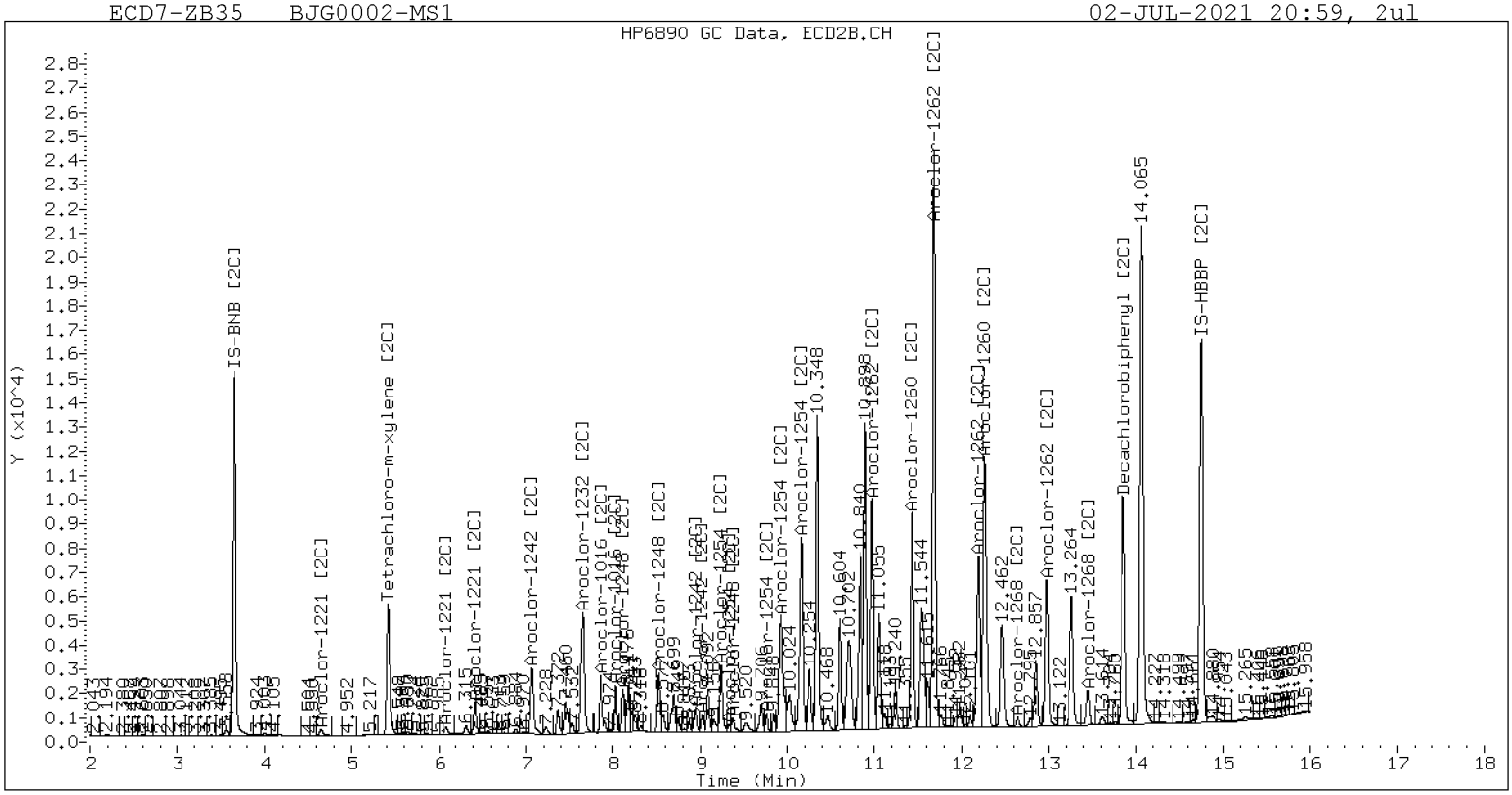
PCB Dual Column Chromatograms

ECD7-ZB5 BJG0002-MS1 02-JUL-2021 20:59, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BJG0002-MS1 02-JUL-2021 20:59, 2ul



ZB-35 Manual Integration: NO

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

Data file 1: /210702.b/07022128ECD7.D
Data file 2: /210702.b/210702.b/07022128ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BJG0002-MSD1
Client ID:
Injection Date: 02-JUL-2021 21:20
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.070	-0.004	123986	5.420	-0.003	274613	34.6	31.9	8.2	Tetrachloro-m-xylene
13.164	-0.005	143281	13.857	-0.004	530199	40.4	34.7	15.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	300268	1.3
Hexabromobiphenyl	470266	397288	-15.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	698916	-1.8
Hexabromobiphenyl	867949	851391	-1.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT (ZB5 Col)	Shift	Area	Amount	Peak#	RT (ZB35 Col)	Shift	Area	Amount
Aroclor-1016	1	6.659	-0.005	36698	394.0	1	7.064	-0.004	137281	381.3
Aroclor-1016	2	7.028	-0.005	126424	402.2	2	7.654	-0.004	272914	344.6
Aroclor-1016	3	7.175	-0.006	46540	364.5	3	7.860	-0.005	106713	359.9
Aroclor-1016	4	7.284	-0.006	28946	339.4	4	8.031	-0.006	62745	345.7
Total Col1Ave (4 peaks):					375.0	Total Col2Ave (4 peaks):				357.9 RPD = 5
Corrected Ave (3 peaks):					366.0	Corrected Ave (3 peaks):				350.1 RPD = 4
Aroclor-1221	1	4.028	0.006	154	6.9	1	4.647	-0.045	16196	356.0
Aroclor-1221	2	5.449	-0.006	5402	142.0	2	6.085	0.001	15747	147.4
Aroclor-1221	3	5.724	-0.005	22967	238.1	3	6.417	-0.004	56996	289.4
Total Col1Ave (3 peaks):					129.0	Total Col2Ave (3 peaks):				264.3 RPD = 69*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	---			0.0	1	4.647	-0.045	16196	563.0
Aroclor-1232	2	5.724	-0.006	22967	278.9	2	6.085	0.000	15747	204.5
Aroclor-1232	3	7.028	0.001	126424	913.5	3	6.417	-0.005	56996	337.6
Aroclor-1232	4	8.593	-0.012	12966	311.9	4	7.654	-0.008	272914	772.2
Total Col1Ave (3 peaks):					501.4	Total Col2Ave (4 peaks):				469.3 RPD = 7
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				368.3
Aroclor-1242	1	6.659	-0.004	36698	442.6	1	7.064	-0.001	137281	442.4
Aroclor-1242	2	7.028	-0.005	126424	469.5	2	7.654	-0.002	272914	406.6
Aroclor-1242	3	8.260	-0.010	5136	138.7	3	8.944	-0.009	45429	149.7
Aroclor-1242	4	8.593	-0.016	12966	156.8	4	9.023	-0.009	30818	115.5
Total Col1Ave (4 peaks):					301.9	Total Col2Ave (4 peaks):				278.6 RPD = 8
Corrected Ave (3 peaks):					246.0	Corrected Ave (3 peaks):				223.9 RPD = 9
Aroclor-1248	1	7.798	-0.005	34335	274.0	1	8.112	-0.004	65441	256.8
Aroclor-1248	2	7.964	-0.006	40074	257.9	2	8.526	-0.004	102092	294.6
Aroclor-1248	3	8.307	-0.012	8982	57.7	3	8.944	-0.011	45429	91.1
Aroclor-1248	4	8.593	-0.015	12966	94.2	4	9.375	-0.009	31358	59.0
Total Col1Ave (4 peaks):					171.0	Total Col2Ave (4 peaks):				175.4 RPD = 3
Corrected Ave (3 peaks):					136.6	Corrected Ave (3 peaks):				135.6 RPD = 1
Aroclor-1254	1	8.667	-0.012	36397	143.4	1	9.243	-0.007	125671	237.5
Aroclor-1254	2	8.745	-0.006	8675	93.8	2	9.334	-0.008	11821	37.9
Aroclor-1254	3	9.053	0.003	38808	249.4	3	9.766	-0.007	28206	70.8
Aroclor-1254	4	9.167	-0.013	62684	203.5	4	9.927	0.003	310204	350.4
Aroclor-1254	5	9.854	-0.017	72058	347.0	5	10.161	0.006	433958	457.0
Total Col1Ave (5 peaks):					207.4	Total Col2Ave (5 peaks):				230.7 RPD = 11
Corrected Ave (4 peaks):					172.5	Corrected Ave (4 peaks):				174.1 RPD = 1
Aroclor-1260	1	10.379	-0.009	134618	924.4	1	11.434	-0.004	442460	833.3
Aroclor-1260	2	10.698	-0.008	132544	885.1	2	11.685	-0.004	1156386	834.9
Aroclor-1260	3	11.047	-0.007	363534	926.8	3	12.267	-0.004	708145	786.3
Aroclor-1260	4	11.447	-0.008	180720	903.9	4	12.979	-0.004	351162	907.1
Aroclor-1260	5	11.552	-0.008	73681	955.9	NS	---			----
Total Col1Ave (5 peaks):					919.2	Total Col2Ave (4 peaks):				840.4 RPD = 9
Corrected Ave (4 peaks):					910.0	Corrected Ave (3 peaks):				818.2 RPD = 11
Aroclor-1262	1	10.379	-0.013	134618	538.7	1	10.974	-0.015	442708	517.8
Aroclor-1262	2	11.447	-0.015	180720	1121.1	2	11.685	-0.015	1156386	683.6
Aroclor-1262	3	11.624	-0.011	177699	817.3	3	12.196	-0.012	402929	496.7
Aroclor-1262	4	12.272	-0.016	78664	457.7	4	12.979	-0.014	351162	477.2
Total Col1Ave (4 peaks):					733.7	Total Col2Ave (4 peaks):				543.8 RPD = 30
Corrected Ave (3 peaks):					604.6	Corrected Ave (3 peaks):				497.2 RPD = 19
Aroclor-1268	1	11.552	-0.014	73681	110.4	1	12.196	-0.012	402929	162.9
Aroclor-1268	2	11.624	-0.011	177699	262.9	2	12.267	-0.007	708145	262.7
Aroclor-1268	3	12.025	0.013	49423	93.1	3	12.645	-0.014	20329	8.6
Aroclor-1268	4	12.766	-0.011	24031	14.4	4	13.452	-0.020	80702	10.5
Total Col1Ave (4 peaks):					120.2	Total Col2Ave (4 peaks):				111.2 RPD = 8

Corrected Ave (3 peaks): 72.6 Corrected Ave (3 peaks): 60.7 RPD = 18

Total PCB Area Col1 (5.173 - 13.068) = 4050179 Col1 Total PCB = 1.5 ppm*

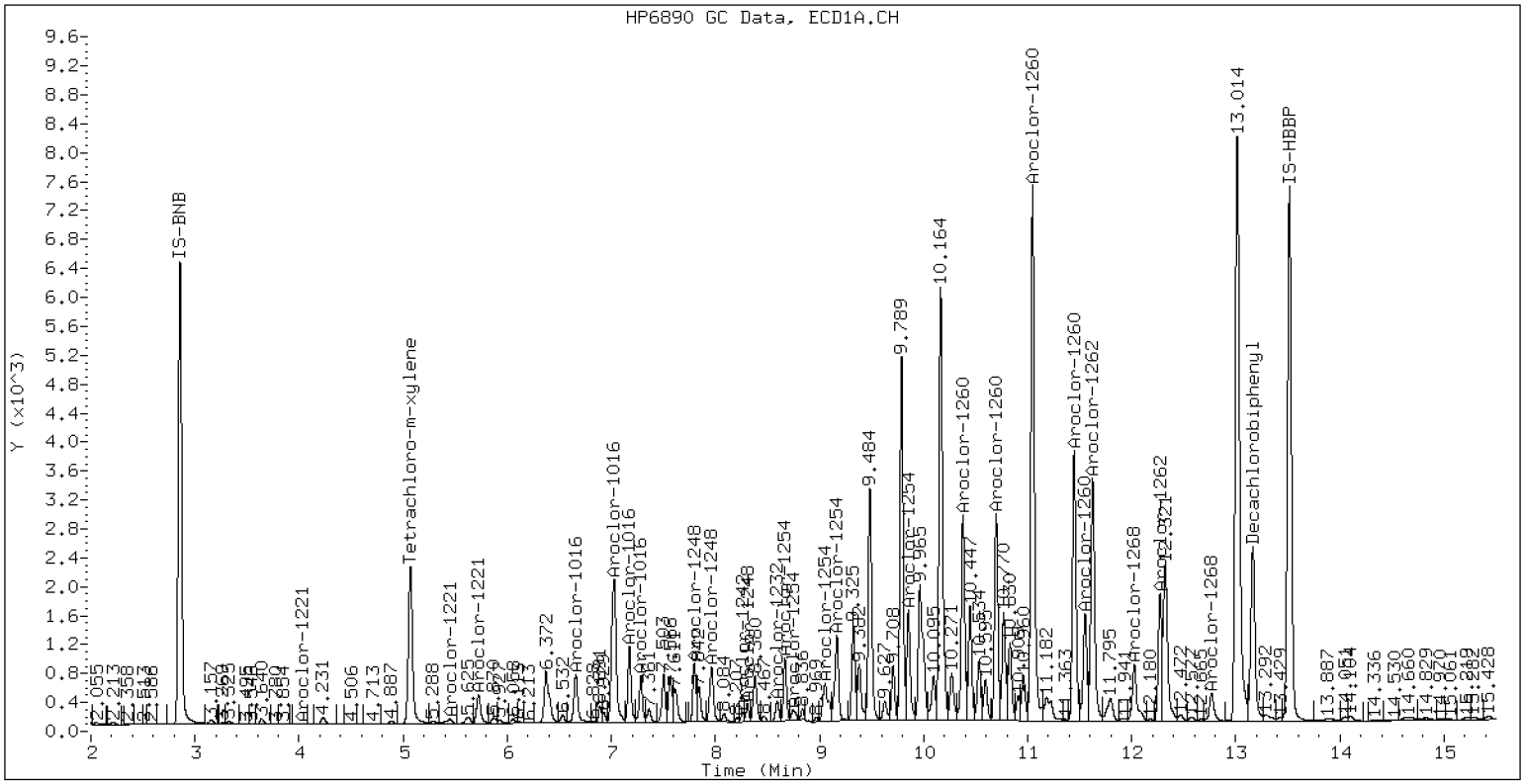
Total PCB Area Col2 (5.173 - 13.068) = 9919712 Col2 Total PCB = 1.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

PCB Dual Column Chromatograms

ECD7-ZB5 BJG0002-MSD1 02-JUL-2021 21:20, 2ul



ZB-5 Manual Integration: NO

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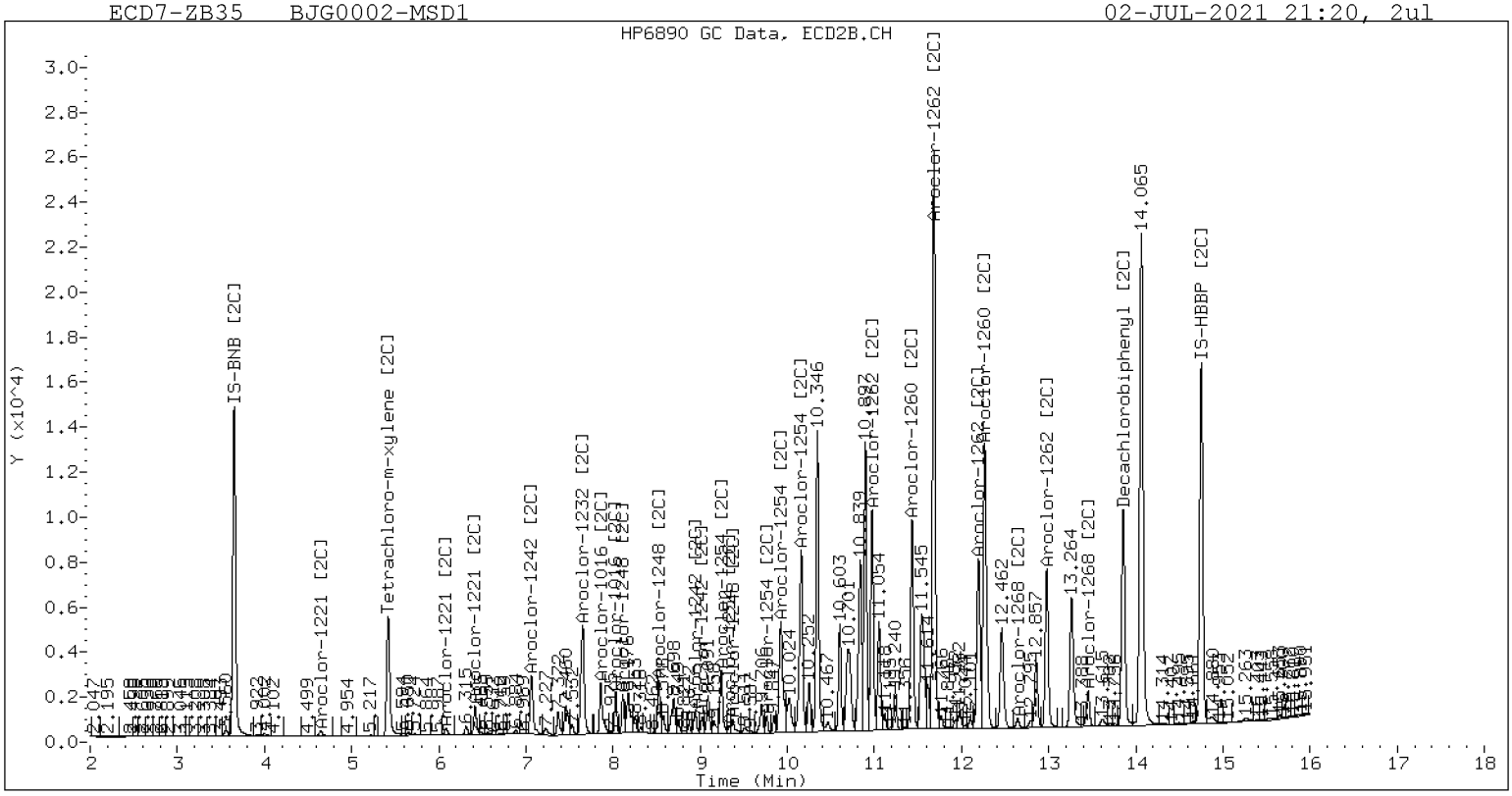


ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJG0002-SRM1
Batch: BJG0002
Initial/Final: 2.5 g / 2.5 mL
Preparation: EPA 3546 (Microwave)
Analyzed: 07/02/2021 22:43
Standard ID: H007086
Expires: 01/21/2023
Standard Lot#: PSRM0122
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	105	2.9	20.0		97.0	38 - 167
Aroclor 1260 [2C]	108.00	103	2.9	20.0		95.8	38 - 167

* Values outside of QC limits

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

Data file 1: /210702.b/07022132ECD7.D
Data file 2: /210702.b/210702.b/07022132ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BJG0002-SRM1
Client ID:
Injection Date: 02-JUL-2021 22:43
Report Date: 07/05/2021 12:06
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.071	-0.003	123897	5.421	-0.002	279171	33.1	30.7	7.5	Tetrachloro-m-xylene
13.166	-0.002	144108	13.856	-0.005	580875	36.7	35.6	3.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	313538	5.8
Hexabromobiphenyl	470266	440129	-6.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	737302	3.6
Hexabromobiphenyl	867949	911148	5.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.657	-0.007	864	8.9	1	7.064	-0.003	2793	7.4
Aroclor-1016	2	7.030	-0.003	3646	11.1	2	7.653	-0.004	12828	15.4
Aroclor-1016	3	7.176	-0.004	1832	13.7	3	7.861	-0.004	444	1.4
Aroclor-1016	4	7.284	-0.006	621	7.0	4	8.031	-0.005	1869	9.8
Total Col1Ave (4 peaks):					10.2	Total Col2Ave (4 peaks):				8.5 RPD = 18
Corrected Ave (3 peaks):					9.0	Corrected Ave (3 peaks):				6.2 RPD = 37
Aroclor-1221	1	---			0.0	1	4.648	-0.045	1693	35.3
Aroclor-1221	2	---			0.0	2	6.096	0.012	4214	37.4
Aroclor-1221	3	---			0.0	3	6.419	-0.003	4069	19.6
Col1Ave: <3 Quant Peaks						Col2Ave: 30.8				
Aroclor-1232	1	---			0.0	1	4.648	-0.044	1693	55.8
Aroclor-1232	2	5.723	-0.008	241	2.8	2	6.096	0.011	4214	51.9
Aroclor-1232	3	7.030	0.003	3646	25.2	3	6.419	-0.004	4069	22.8
Aroclor-1232	4	8.596	-0.009	4622	106.5	4	7.653	-0.009	12828	34.4
Total Col1Ave (3 peaks):					44.8	Total Col2Ave (4 peaks):				41.2 RPD = 8
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 36.4				
Aroclor-1242	1	6.657	-0.006	864	10.0	1	7.064	-0.001	2793	8.5
Aroclor-1242	2	7.030	-0.003	3646	13.0	2	7.653	-0.002	12828	18.1
Aroclor-1242	3	8.261	-0.009	1324	34.2	3	8.948	-0.004	13239	41.4
Aroclor-1242	4	8.596	-0.014	4622	53.5	4	9.027	-0.006	9508	33.8
Total Col1Ave (4 peaks):					27.7	Total Col2Ave (4 peaks):				25.4 RPD = 8
Corrected Ave (3 peaks):					19.1	Corrected Ave (3 peaks):				20.1 RPD = 5
Aroclor-1248	1	7.800	-0.004	2997	22.9	1	8.114	-0.002	11376	42.3
Aroclor-1248	2	7.964	-0.006	2514	15.5	2	8.527	-0.003	8769	24.0
Aroclor-1248	3	8.312	-0.007	3562	21.9	3	8.948	-0.006	13239	25.2
Aroclor-1248	4	8.596	-0.013	4622	32.2	4	9.376	-0.008	9986	17.8
Total Col1Ave (4 peaks):					23.1	Total Col2Ave (4 peaks):				27.3 RPD = 17
Corrected Ave (3 peaks):					20.1	Corrected Ave (3 peaks):				22.3 RPD = 10
Aroclor-1254	1	8.671	-0.008	13949	52.6	1	9.242	-0.008	36340	65.1
Aroclor-1254	2	8.743	-0.007	4486	46.5	2	9.332	-0.010	8591	26.1
Aroclor-1254	3	9.043	-0.007	8342	51.3	3	9.767	-0.005	14757	35.1
Aroclor-1254	4	9.170	-0.010	19344	60.1	4	9.922	-0.002	67342	72.1
Aroclor-1254	5	9.856	-0.015	14547	67.1	5	10.160	0.005	92730	92.6
Total Col1Ave (5 peaks):					55.5	Total Col2Ave (5 peaks):				58.2 RPD = 5
Corrected Ave (4 peaks):					52.6	Corrected Ave (4 peaks):				49.6 RPD = 6
Aroclor-1260	1	10.381	-0.007	17528	108.6	1	11.434	-0.004	61227	107.8
Aroclor-1260	2	10.699	-0.007	13598	82.0	2	11.683	-0.006	149781	101.0
Aroclor-1260	3	11.048	-0.006	49449	113.8	3	12.267	-0.004	94154	97.7
Aroclor-1260	4	11.448	-0.007	24990	112.8	4	12.979	-0.004	44401	107.2
Aroclor-1260	5	11.553	-0.006	9093	106.5	NS	---			----
Total Col1Ave (5 peaks):					104.7	Total Col2Ave (4 peaks):				103.4 RPD = 1
Corrected Ave (4 peaks):					102.5	Corrected Ave (3 peaks):				102.0 RPD = 1
Aroclor-1262	1	10.381	-0.010	17528	63.3	1	10.974	-0.015	56153	61.4
Aroclor-1262	2	11.448	-0.013	24990	139.9	2	11.683	-0.016	149781	82.7
Aroclor-1262	3	11.626	-0.010	11606	48.2	3	12.195	-0.013	51997	59.9
Aroclor-1262	4	12.273	-0.016	11560	60.7	4	12.979	-0.014	44401	56.4
Total Col1Ave (4 peaks):					78.0	Total Col2Ave (4 peaks):				65.1 RPD = 18
Corrected Ave (3 peaks):					57.4	Corrected Ave (3 peaks):				59.2 RPD = 3
Aroclor-1268	1	11.553	-0.012	9093	12.3	1	12.195	-0.013	51997	19.6
Aroclor-1268	2	11.626	-0.010	11606	15.5	2	12.267	-0.007	94154	32.6
Aroclor-1268	3	12.026	0.014	6374	10.8	3	12.645	-0.015	6147	2.4
Aroclor-1268	4	12.768	-0.009	3605	2.0	4	13.453	-0.019	16422	2.0
Total Col1Ave (4 peaks):					10.1	Total Col2Ave (4 peaks):				14.2 RPD = 33
Corrected Ave (3 peaks):					8.4	Corrected Ave (3 peaks):				8.0 RPD = 4

Total PCB Area Col1 (5.173 - 13.068) = 522873 Col1 Total PCB = 0.2 ppm*

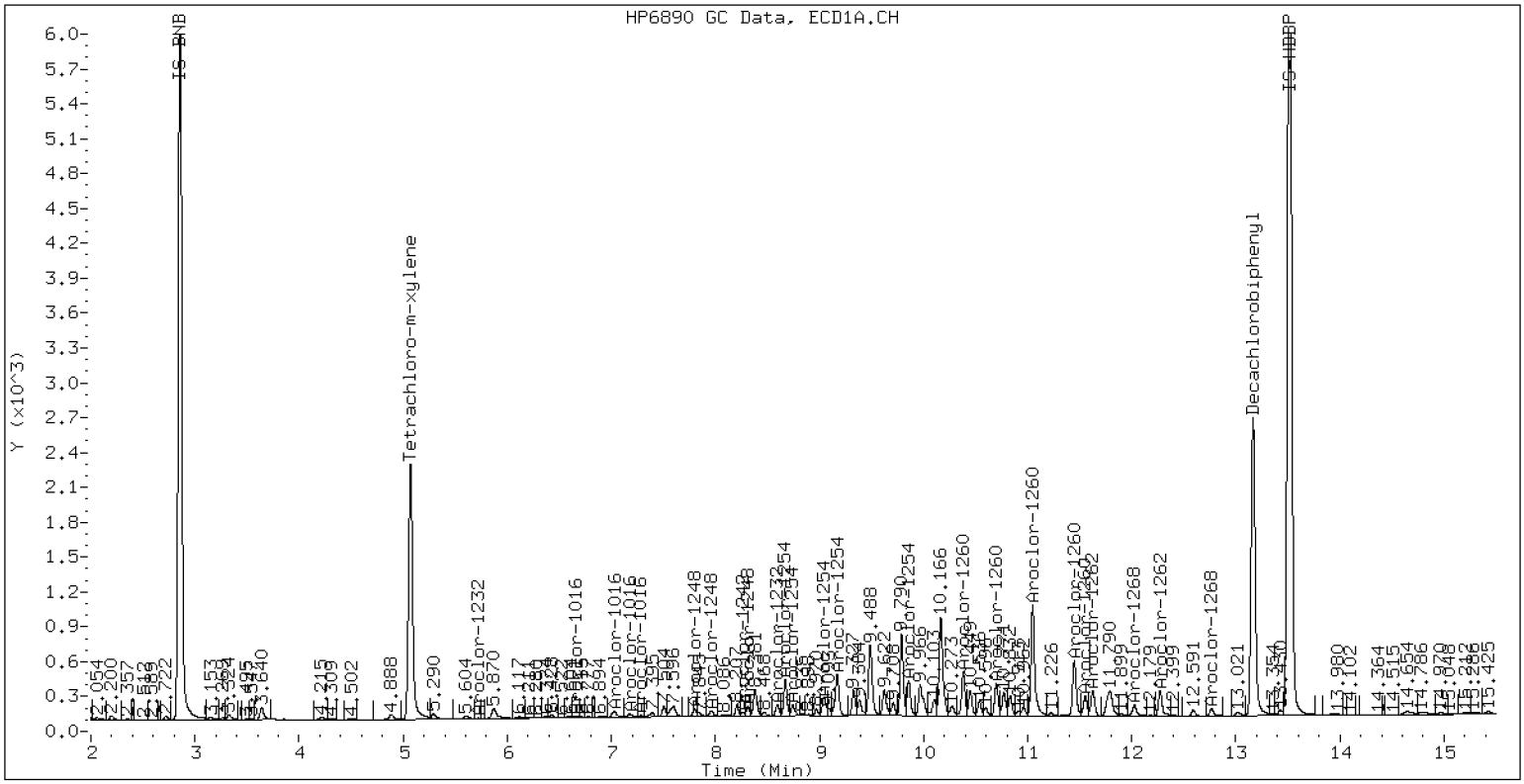
Total PCB Area Col2 (5.173 - 13.068) = 1873157 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

PCB Dual Column Chromatograms

ECD7-ZB5 BJG0002-SRM1 02-JUL-2021 22:43, 2ul



ZB-5 Manual Integration: NO

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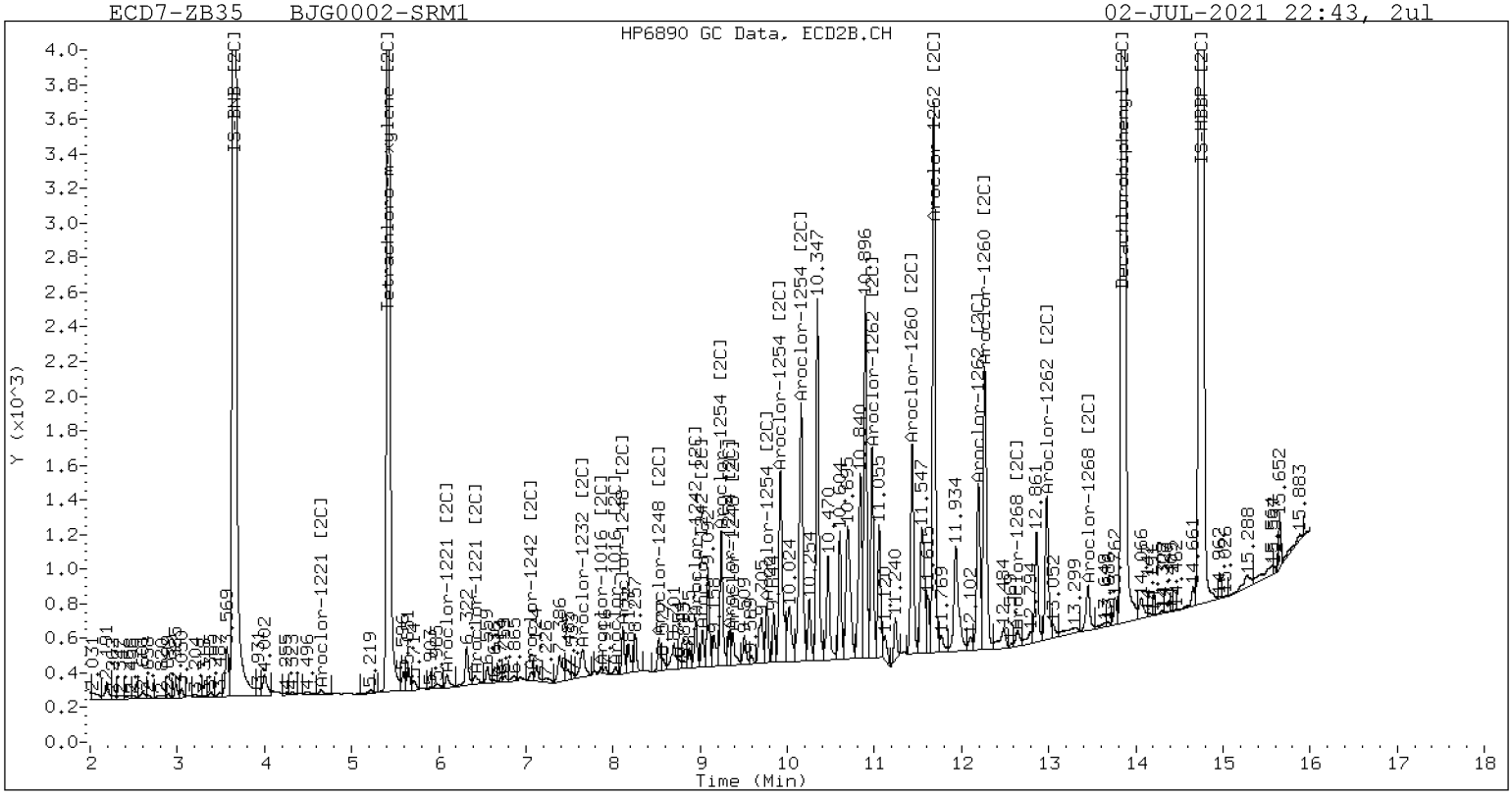

ZB-35 Manual Integration: YES

Manual Peak Adjustment, ZB-35

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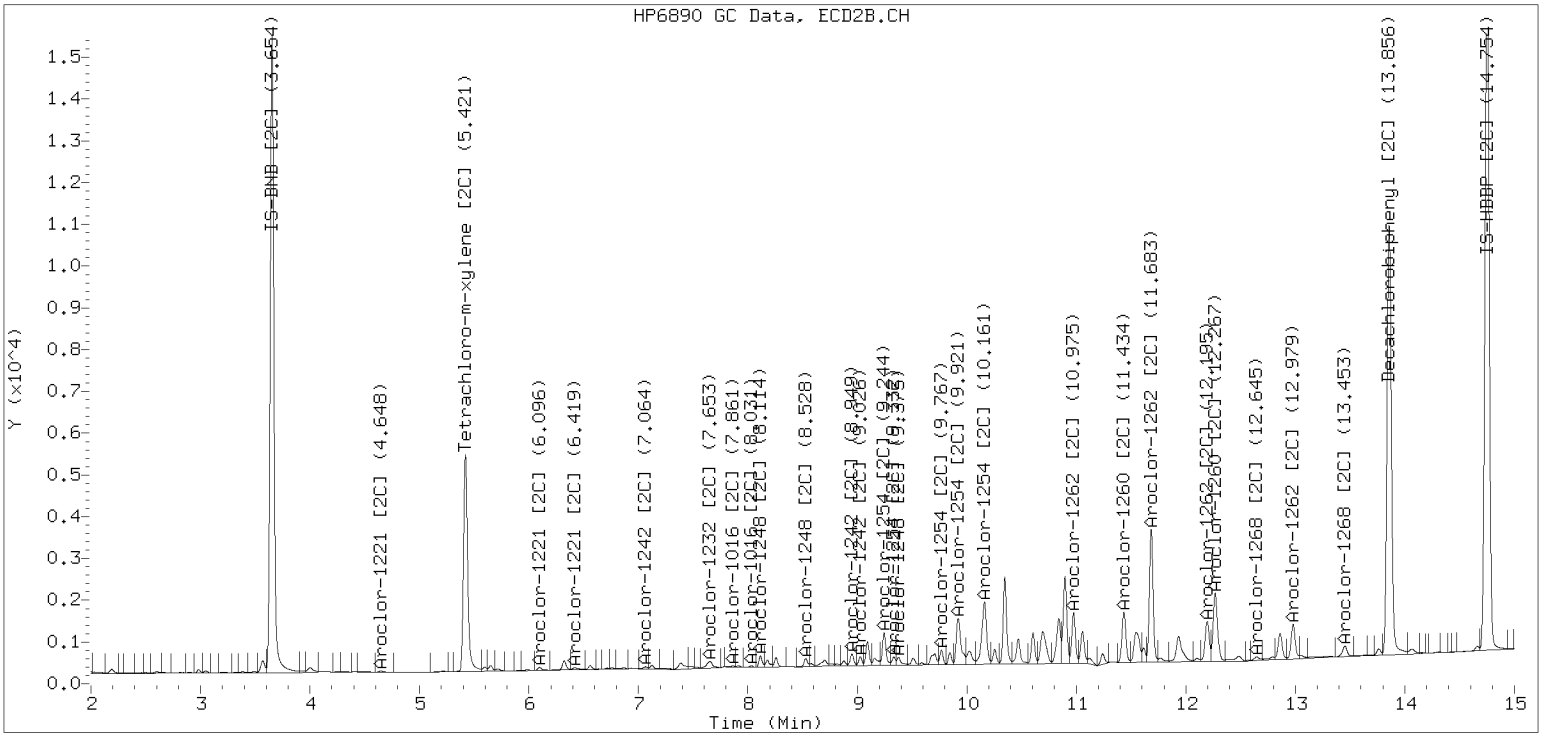
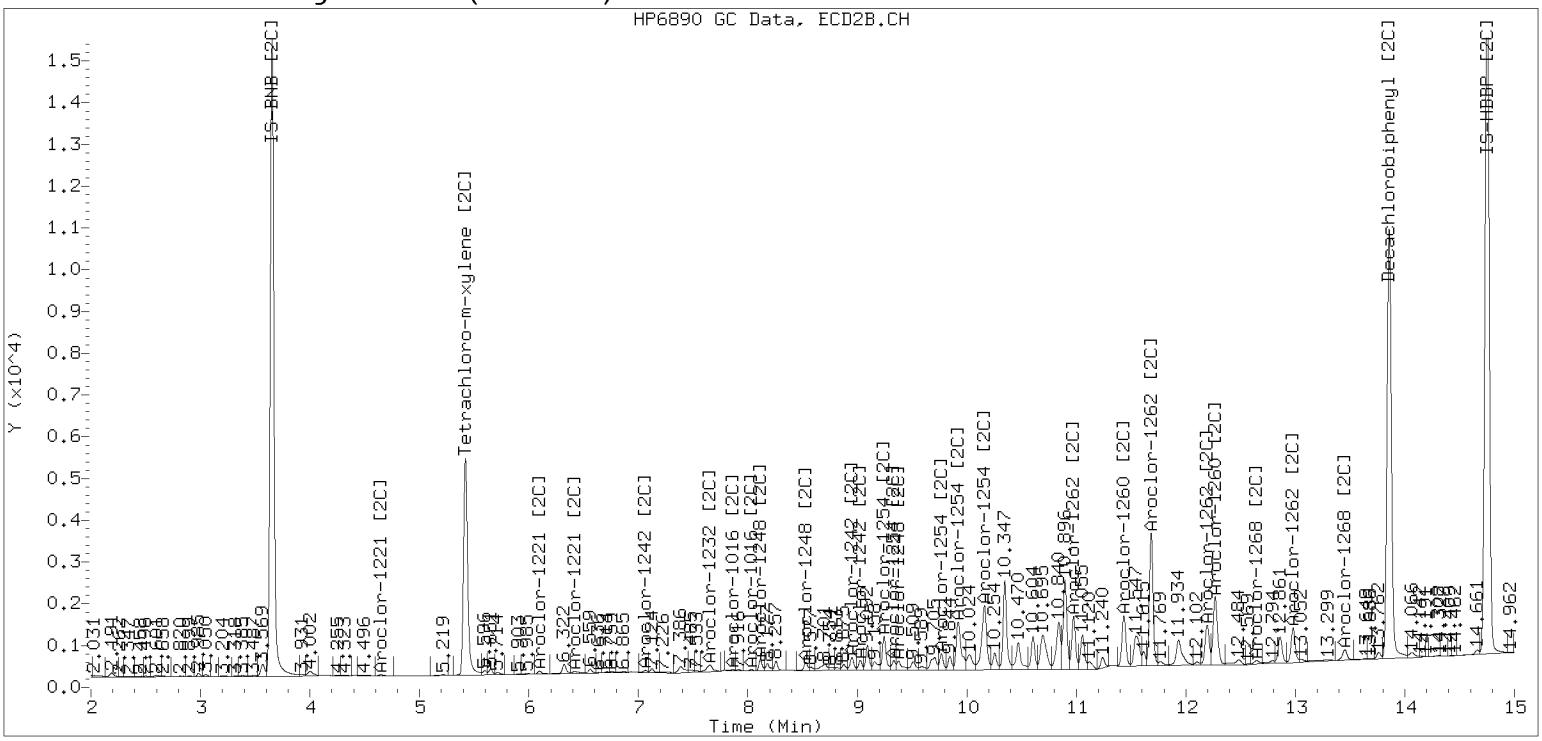
Manual Integration (After)



Processed Integration (Before)



Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (1):	ZB5

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RRF		RRF		RRF		RRF		RRF		RRF
Aroclor 1016	250	4.281279E-02	20	3.871182E-02	50	0.0403374	1000	4.123519E-02	100	4.155757E-02	500	4.329345E-02
Aroclor-1016 (1)	250	2.536287E-02	20	2.227229E-02	50	2.543137E-02	1000	2.380487E-02	100	2.583324E-02	500	2.619464E-02
Aroclor-1016 (2)	250	8.744554E-02	20	7.824352E-02	50	8.011398E-02	1000	8.502404E-02	100	8.320027E-02	500	0.0884132
Aroclor-1016 (3)	250	3.512761E-02	20	3.258856E-02	50	3.391883E-02	1000	3.305896E-02	100	3.453077E-02	500	3.488241E-02
Aroclor-1016 (4)	250	2.331514E-02	20	2.174292E-02	50	2.188545E-02	1000	2.305283E-02	100	2.266598E-02	500	2.368355E-02
Aroclor 1260	250	4.049834E-02	20	3.757905E-02	50	3.742661E-02	1000	3.862396E-02	100	3.846127E-02	500	4.050787E-02
Aroclor-1260 (1)	250	3.024331E-02	20	0.0295947	50	2.833626E-02	1000	2.887592E-02	100	2.891171E-02	500	2.999037E-02
Aroclor-1260 (2)	250	3.112451E-02	20	2.960276E-02	50	2.896969E-02	1000	3.034873E-02	100	2.962048E-02	500	3.125267E-02
Aroclor-1260 (3)	250	0.0829488	20	7.636092E-02	50	7.654474E-02	1000	7.682588E-02	100	7.880533E-02	500	8.244053E-02
Aroclor-1260 (4)	250	4.216235E-02	20	3.730173E-02	50	3.824813E-02	1000	4.153595E-02	100	3.954491E-02	500	4.276573E-02
Aroclor-1260 (5)	250	1.601272E-02	20	1.503517E-02	50	1.503425E-02	1000	1.553329E-02	100	1.542391E-02	500	1.609003E-02
Decachlorobiphenyl	40	0.7350733	3.2	0.7186045	8	0.7083055	160	0.6794829	16	0.7197548	80	0.718407
Tetrachlorometaxylene	40	1.012184	3.2	0.8770118	8	0.8951053	160	0.9715738	16	0.9597575	80	1.015792

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RRF		RRF		RRF		RRF		RRF		RRF
Aroclor 1221							250	1.391921E-02				
Aroclor-1221 (1)							250	5.917406E-03				
Aroclor-1221 (2)							250	1.013896E-02				
Aroclor-1221 (3)							250	2.570124E-02				
Aroclor 1232									250	1.837497E-02		
Aroclor-1232 (1)									250	3.612719E-03		
Aroclor-1232 (2)									250	2.194073E-02		
Aroclor-1232 (3)									250	3.687219E-02		
Aroclor-1232 (4)									250	1.107425E-02		
Aroclor 1242	250	3.143118E-02										
Aroclor-1242 (1)	250	2.209033E-02										
Aroclor-1242 (2)	250	7.174105E-02										
Aroclor-1242 (3)	250	9.865198E-03										
Aroclor-1242 (4)	250	2.202817E-02										
Aroclor 1248			250	3.822602E-02								
Aroclor-1248 (1)			250	0.0333819								
Aroclor-1248 (2)			250	4.140515E-02								
Aroclor-1248 (3)			250	4.145795E-02								
Aroclor-1248 (4)			250	3.665909E-02								
Aroclor 1254					250	5.422381E-02						
Aroclor-1254 (1)					250	6.763994E-02						
Aroclor-1254 (2)					250	0.0246305						
Aroclor-1254 (3)					250	4.145573E-02						
Aroclor-1254 (4)					250	8.207036E-02						
Aroclor-1254 (5)					250	5.532253E-02						
Aroclor 1262							250	4.029314E-02				
Aroclor-1262 (1)							250	5.031797E-02				
Aroclor-1262 (2)							250	0.0324611				

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RRF		RRF		RRF		RRF		RRF		RRF
Aroclor-1262 (3)							250	0.0437816				
Aroclor-1262 (4)							250	0.0346119				
Aroclor 1268									250	0.1782065		
Aroclor-1268 (1)									250	0.1343391		
Aroclor-1268 (2)									250	0.136111		
Aroclor-1268 (3)									250	0.1069228		
Aroclor-1268 (4)									250	0.3354529		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016	0.0413247	4.0			RSD (20)	
Aroclor-1016 (1)	2.481655E-02	6.0			RSD (20)	
Aroclor-1016 (2)	8.374009E-02	4.8			RSD (20)	
Aroclor-1016 (3)	3.401786E-02	3.0			RSD (20)	
Aroclor-1016 (4)	2.272431E-02	3.4			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	3.884952E-02	3.5			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1)	2.932538E-02	2.5			RSD (20)	
Aroclor-1260 (2)	3.015314E-02	3.0			RSD (20)	
Aroclor-1260 (3)	0.0789877	3.8			RSD (20)	
Aroclor-1260 (4)	0.0402598	5.5			RSD (20)	
Aroclor-1260 (5)	1.552156E-02	2.9			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	0.7132713	2.6			RSD (20)	
Tetrachlorometaxylene	0.9552374	6.1			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (2):	ZB35

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RRF		RRF		RRF		RRF		RRF		RRF
Aroclor 1016 [2C]	250	4.831016E-02	20	4.704819E-02	50	4.628025E-02	1000	4.398583E-02	100	0.0473163	500	4.691569E-02
Aroclor-1016 (1) [2C]	250	4.227934E-02	20	4.463057E-02	50	4.204167E-02	1000	3.625869E-02	100	4.207907E-02	500	3.995641E-02
Aroclor-1016 (2) [2C]	250	0.0934567	20	9.249709E-02	50	9.046024E-02	1000	8.556254E-02	100	9.164228E-02	500	0.0902442
Aroclor-1016 (3) [2C]	250	3.541638E-02	20	3.274937E-02	50	0.0327615	1000	3.292514E-02	100	0.0346121	500	3.518771E-02
Aroclor-1016 (4) [2C]	250	2.208821E-02	20	1.831573E-02	50	0.0198576	1000	2.119692E-02	100	2.093176E-02	500	2.227439E-02
Aroclor 1260 [2C]	250	7.651115E-02	20	7.628202E-02	50	7.484558E-02	1000	7.464166E-02	100	7.449105E-02	500	7.479524E-02
Aroclor-1260 (1) [2C]	250	5.109277E-02	20	0.0513235	50	5.080722E-02	1000	4.665795E-02	100	5.020861E-02	500	4.925182E-02
Aroclor-1260 (2) [2C]	250	0.1304961	20	0.1308898	50	0.1285596	1000	0.1349621	100	0.1281739	500	0.1278062
Aroclor-1260 (3) [2C]	250	8.617502E-02	20	8.719133E-02	50	8.540519E-02	1000	8.050445E-02	100	8.440926E-02	500	8.409056E-02
Aroclor-1260 (4) [2C]	250	3.828059E-02	20	3.572346E-02	50	3.461026E-02	1000	3.644211E-02	100	3.517241E-02	500	3.803236E-02
Decachlorobiphenyl [2C]	40	1.423491	3.2	1.366671	8	1.344486	160	1.589411	16	1.400241	80	1.481925
Tetrachlorometaxylene [2C]	40	1.009093	3.2	0.9667487	8	0.9626062	160	0.9923058	16	0.9826074	80	1.004084

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RRF		RRF		RRF		RRF		RRF		RRF
Aroclor 1221 [2C]							250	1.332511E-02				
Aroclor-1221 (1) [2C]							250	5.207268E-03				
Aroclor-1221 (2) [2C]							250	0.0122273				
Aroclor-1221 (3) [2C]							250	2.254076E-02				
Aroclor 1232 [2C]									250	1.797132E-02		
Aroclor-1232 (1) [2C]									250	3.293084E-03		
Aroclor-1232 (2) [2C]									250	8.813512E-03		
Aroclor-1232 (3) [2C]									250	1.932692E-02		
Aroclor-1232 (4) [2C]									250	4.045176E-02		
Aroclor 1242 [2C]	250	4.440635E-02										
Aroclor-1242 (1) [2C]	250	3.551807E-02										
Aroclor-1242 (2) [2C]	250	7.683181E-02										
Aroclor-1242 (3) [2C]	250	3.473024E-02										
Aroclor-1242 (4) [2C]	250	3.054528E-02										
Aroclor 1248 [2C]			250	4.670282E-02								
Aroclor-1248 (1) [2C]			250	0.0291658								
Aroclor-1248 (2) [2C]			250	3.966268E-02								
Aroclor-1248 (3) [2C]			250	5.709904E-02								
Aroclor-1248 (4) [2C]			250	6.088369E-02								
Aroclor 1254 [2C]					250	7.038136E-02						
Aroclor-1254 (1) [2C]					250	6.057494E-02						
Aroclor-1254 (2) [2C]					250	3.572117E-02						
Aroclor-1254 (3) [2C]					250	4.558157E-02						
Aroclor-1254 (4) [2C]					250	0.1013365						
Aroclor-1254 (5) [2C]					250	0.1086926						
Aroclor 1262 [2C]							250	9.616195E-02				
Aroclor-1262 (1) [2C]							250	8.033395E-02				
Aroclor-1262 (2) [2C]							250	0.1589417				

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RRF		RRF		RRF		RRF		RRF		RRF
Aroclor-1262 (3) [2C]							250	0.0762251				
Aroclor-1262 (4) [2C]							250	6.914695E-02				
Aroclor 1268 [2C]									250	0.35673		
Aroclor-1268 (1) [2C]									250	0.2323928		
Aroclor-1268 (2) [2C]									250	0.2533114		
Aroclor-1268 (3) [2C]									250	0.222398		
Aroclor-1268 (4) [2C]									250	0.7188172		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016 [2C]	4.664274E-02	3.1			RSD (20)	
Aroclor-1016 (1) [2C]	4.120762E-02	6.9			RSD (20)	
Aroclor-1016 (2) [2C]	9.064384E-02	3.1			RSD (20)	
Aroclor-1016 (3) [2C]	3.394203E-02	3.7			RSD (20)	
Aroclor-1016 (4) [2C]	2.077744E-02	7.2			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]	7.526112E-02	1.2			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EE00069	Instrument:	ECD7
Calibration Date:	05/22/2021	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1) [2C]	4.989031E-02	3.5			RSD (20)	
Aroclor-1260 (2) [2C]	0.130148	2.1			RSD (20)	
Aroclor-1260 (3) [2C]	0.0846293	2.7			RSD (20)	
Aroclor-1260 (4) [2C]	3.637686E-02	4.1			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]	1.434371	6.3			RSD (20)	
Tetrachlorometaxylene [2C]	0.9862409	1.9			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Calibration: EE00069
Sequence: SJE0321

SDG: 21F0418
Project: Lower Duwamish AOC4
Laboratory ID: SJE0321-SCV1
Sequence Name: AR1660SCV1
Standard ID: J000948

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1016	250.00	250	-0.2	20.00
Aroclor 1016 [2C]	250.00	250	0.2	20.00
Aroclor 1260	250.00	295	17.8	20.00
Aroclor 1260 [2C]	250.00	287	14.8	20.00
Decachlorobiphenyl	40.000	39.8	-0.4	20.00
Tetrachlorometaxylene	40.000	42.4	6.0	20.00
Decachlorobiphenyl [2C]	40.000	39.0	-2.4	20.00
Tetrachlorometaxylene [2C]	40.000	40.6	1.4	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

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

Data file 1: /210522.b/05222117ECD7.D
Data file 2: /210522.b/210522.b/05222117ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 22-MAY-2021 19:32
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	0.000	150100	5.424	-0.000	360043	42.4	40.6	4.4	Tetrachloro-m-xylene
13.178	0.002	171195	13.872	0.002	637856	39.8	39.0	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296594	0.0
Hexabromobiphenyl	470266	481880	2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	719765	1.1
Hexabromobiphenyl	867949	911548	5.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.666	0.001	22769	247.5	1	7.071	0.001	92068	248.3
Aroclor-1016	2	7.034	0.000	78003	251.2	2	7.661	0.001	201632	247.2
Aroclor-1016	3	7.182	0.001	31610	250.6	3	7.869	0.001	76459	250.4
Aroclor-1016	4	7.291	0.001	20953	248.7	4	8.041	0.002	47774	255.6
Total Col1Ave (4 peaks):					249.5	Total Col2Ave (4 peaks):				250.4 RPD = 0
Corrected Ave (3 peaks):					248.9	Corrected Ave (3 peaks):				248.6 RPD = 0
Aroclor-1221	1	4.026	0.004	113	5.2	1	4.692	-0.000	432	9.2
Aroclor-1221	2	5.455	-0.000	2657	70.7	2	6.089	0.005	11633	105.7
Aroclor-1221	3	5.729	0.000	16535	173.5	3	6.423	0.001	39442	194.5
Total Col1Ave (3 peaks):					83.1	Total Col2Ave (3 peaks):				103.2 RPD = 22
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.026	0.005	113	8.4	1	4.692	0.000	432	14.6
Aroclor-1232	2	5.729	0.001	16535	203.3	2	6.089	0.004	11633	146.7
Aroclor-1232	3	7.034	0.001	78003	570.6	3	6.423	0.000	39442	226.8
Aroclor-1232	4	8.606	-0.009	2061	50.2	4	7.661	-0.001	201632	554.0
Total Col1Ave (4 peaks):					208.1	Total Col2Ave (4 peaks):				235.5 RPD = 12
Corrected Ave (3 peaks):					87.3	Corrected Ave (3 peaks):				129.4 RPD = 39
Aroclor-1242	1	6.666	0.001	22769	278.0	1	7.071	0.001	92068	288.1
Aroclor-1242	2	7.034	0.000	78003	293.3	2	7.661	0.002	201632	291.7
Aroclor-1242	3	8.276	0.005	2315	63.3	3	8.950	-0.008	27869	89.2
Aroclor-1242	4	8.606	-0.005	2061	25.2	4	9.040	0.003	7790	28.3
Total Col1Ave (4 peaks):					165.0	Total Col2Ave (4 peaks):				174.3 RPD = 6
Corrected Ave (3 peaks):					122.2	Corrected Ave (3 peaks):				135.2 RPD = 10
Aroclor-1248	1	7.807	0.001	21433	173.2	1	8.122	0.001	43799	166.9
Aroclor-1248	2	7.974	0.001	29322	191.0	2	8.536	0.001	66601	186.6
Aroclor-1248	3	8.324	0.002	4130	26.9	3	8.950	-0.011	27869	54.2
Aroclor-1248	4	8.606	-0.007	2061	15.2	4	9.391	0.002	5888	10.7
Total Col1Ave (4 peaks):					101.6	Total Col2Ave (4 peaks):				104.6 RPD = 3
Corrected Ave (3 peaks):					71.7	Corrected Ave (3 peaks):				77.3 RPD = 7
Aroclor-1254	1	8.682	-0.000	16848	67.2	1	9.255	-0.000	44067	80.9
Aroclor-1254	2	---			0.0	2	9.349	0.002	2467	7.7
Aroclor-1254	3	9.050	0.001	1728	11.2	3	9.781	0.001	6046	14.7
Aroclor-1254	4	9.178	-0.005	15131	49.7	4	9.947	0.017	111904	122.7
Aroclor-1254	5	9.867	-0.008	22044	107.5	5	10.177	0.016	145643	148.9
Total Col1Ave (4 peaks):					58.9	Total Col2Ave (5 peaks):				75.0 RPD = 24
Corrected Ave (3 peaks):					42.7	Corrected Ave (4 peaks):				56.5 RPD = 28
Aroclor-1260	1	10.394	0.003	53063	300.4	1	11.446	0.000	155193	273.0
Aroclor-1260	2	10.712	0.001	53264	293.3	2	11.699	0.002	412469	278.1
Aroclor-1260	3	11.062	0.002	141369	297.1	3	12.282	0.002	271072	281.1
Aroclor-1260	4	11.463	0.004	66669	274.9	4	12.994	0.002	130808	315.6
Aroclor-1260	5	11.566	0.001	28694	306.9	NS	---			----
Total Col1Ave (5 peaks):					294.5	Total Col2Ave (4 peaks):				287.0 RPD = 3
Corrected Ave (4 peaks):					291.4	Corrected Ave (3 peaks):				277.4 RPD = 5
Aroclor-1262	1	10.394	-0.001	53063	175.1	1	10.989	-0.000	162597	177.6
Aroclor-1262	2	11.463	0.000	66669	341.0	2	11.699	-0.001	412469	227.8
Aroclor-1262	3	11.638	-0.000	37034	140.4	3	12.211	0.003	127645	147.0
Aroclor-1262	4	12.286	-0.001	33351	160.0	4	12.994	0.001	130808	166.0
Total Col1Ave (4 peaks):					204.1	Total Col2Ave (4 peaks):				179.6 RPD = 13
Corrected Ave (3 peaks):					158.5	Corrected Ave (3 peaks):				163.5 RPD = 3
Aroclor-1268	1	11.566	-0.001	28694	35.5	1	12.211	0.004	127645	48.2
Aroclor-1268	2	11.638	0.002	37034	45.2	2	12.282	0.008	271072	93.9
Aroclor-1268	3	12.040	0.029	15321	23.8	3	12.659	-0.001	4976	2.0
Aroclor-1268	4	12.781	-0.000	8326	4.1	4	13.469	-0.003	26590	3.2
Total Col1Ave (4 peaks):					27.1	Total Col2Ave (4 peaks):				36.8 RPD = 30

Corrected Ave (3 peaks): 21.1 Corrected Ave (3 peaks): 17.8 RPD = 17

Total PCB Area Col1 (5.174 - 13.076) = 1346327 Col1 Total PCB = 0.5 ppm*

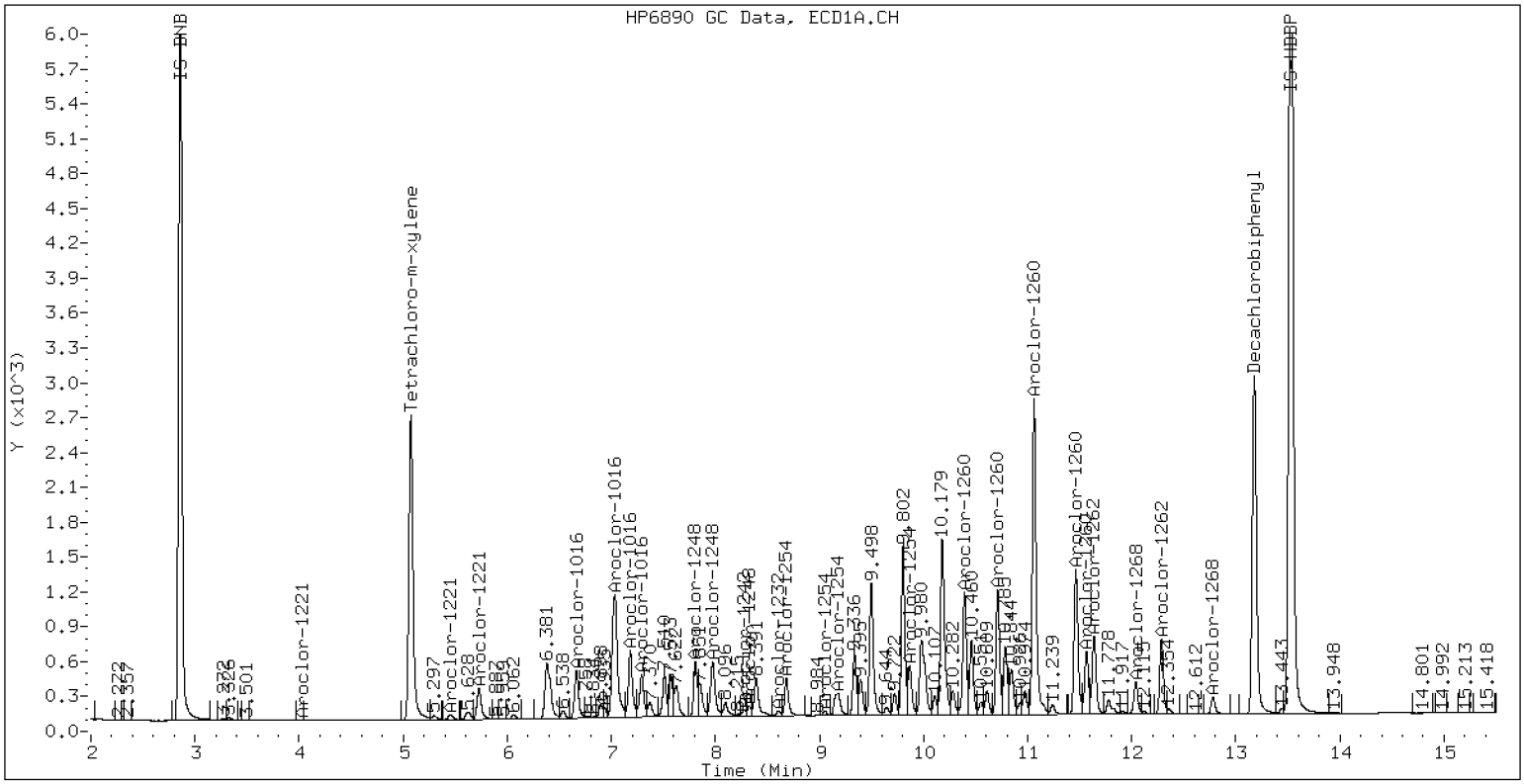
Total PCB Area Col2 (5.174 - 13.076) = 4068268 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

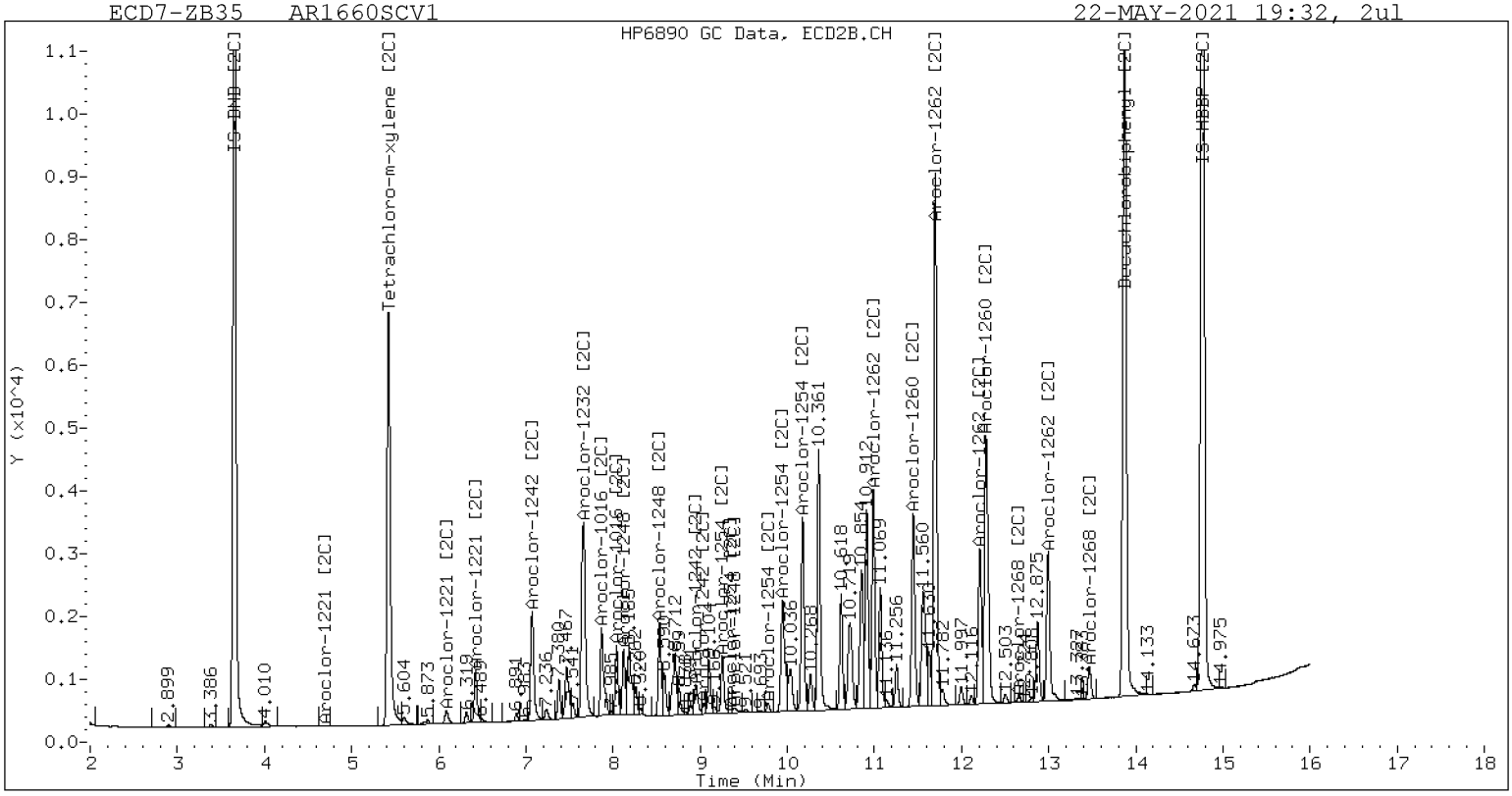
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 22-MAY-2021 19:32, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 22-MAY-2021 19:32, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Calibration: EE00069
Sequence: SJE0321

SDG: 21F0418
Project: Lower Duwamish AOC4
Laboratory ID: SJE0321-SCV2
Sequence Name: AR1242SCV2
Standard ID: J000949

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1242	250.00	226	-9.7	20.00
Aroclor 1242 [2C]	250.00	222	-11.3	20.00
Decachlorobiphenyl	40.000	40.3	0.7	20.00
Tetrachlorometaxylene	40.000	41.8	4.5	20.00
Decachlorobiphenyl [2C]	40.000	40.3	0.7	20.00
Tetrachlorometaxylene [2C]	40.000	40.5	1.1	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

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

Data file 1: /210522.b/05222118ECD7.D
Data file 2: /210522.b/210522.b/05222118ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 22-MAY-2021 19:53
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.073	-0.001	148026	5.424	-0.000	355279	41.8	40.5	3.3	Tetrachloro-m-xylene
13.177	0.001	171517	13.873	0.003	654853	40.3	40.3	0.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296608	0.1
Hexabromobiphenyl	470266	477702	1.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	712373	0.1
Hexabromobiphenyl	867949	906518	4.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.665	-0.000	18392	199.9	1	7.071	-0.000	72036	196.3
Aroclor-1016	2	7.033	-0.001	59895	192.9	2	7.660	0.000	156335	193.7
Aroclor-1016	3	7.182	0.001	24546	194.6	3	7.869	0.001	59486	196.8
Aroclor-1016	4	7.291	0.001	16263	193.0	4	8.041	0.001	37109	200.6
Total Col1Ave (4 peaks): 195.1						Total Col2Ave (4 peaks): 196.8 RPD = 1				
Corrected Ave (3 peaks): 193.5						Corrected Ave (3 peaks): 195.6 RPD = 1				
Aroclor-1221	1	4.021	-0.002	126	5.7	1	---			0.0
Aroclor-1221	2	5.453	-0.002	2075	55.2	2	6.090	0.006	9535	87.6
Aroclor-1221	3	5.729	-0.001	12906	135.4	3	6.422	0.000	30451	151.7
Total Col1Ave (3 peaks): 65.5						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.021	-0.000	126	9.4	1	---			0.0
Aroclor-1232	2	5.729	-0.000	12906	158.7	2	6.090	0.006	9535	121.5
Aroclor-1232	3	7.033	-0.001	59895	438.1	3	6.422	-0.001	30451	176.9
Aroclor-1232	4	8.614	-0.001	18633	453.8	4	7.660	-0.002	156335	434.0
Total Col1Ave (4 peaks): 265.0						Total Col2Ave (3 peaks): 244.1 RPD = 8				
Corrected Ave (3 peaks): 202.1						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.665	0.000	18392	224.6	1	7.071	-0.000	72036	227.8
Aroclor-1242	2	7.033	-0.001	59895	225.2	2	7.660	0.001	156335	228.5
Aroclor-1242	3	8.275	0.003	8247	225.5	3	8.961	0.003	69303	224.1
Aroclor-1242	4	8.614	0.003	18633	228.1	4	9.040	0.004	56266	206.9
Total Col1Ave (4 peaks): 225.8						Total Col2Ave (4 peaks): 221.8 RPD = 2				
Corrected Ave (3 peaks): 225.1						Corrected Ave (3 peaks): 219.6 RPD = 2				
Aroclor-1248	1	7.806	-0.001	17228	139.2	1	8.121	-0.001	35861	138.1
Aroclor-1248	2	7.974	0.001	24199	157.6	2	8.536	0.000	54676	154.8
Aroclor-1248	3	8.322	0.000	19391	126.2	3	8.961	0.000	69303	136.3
Aroclor-1248	4	8.614	0.001	18633	137.1	4	9.391	0.001	77643	143.2
Total Col1Ave (4 peaks): 140.0						Total Col2Ave (4 peaks): 143.1 RPD = 2				
Corrected Ave (3 peaks): 134.1						Corrected Ave (3 peaks): 139.2 RPD = 4				
Aroclor-1254	1	8.683	0.001	12254	48.9	1	9.255	-0.000	28380	52.6
Aroclor-1254	2	8.753	0.000	5283	57.9	2	9.391	0.044	77643	244.1
Aroclor-1254	3	9.050	0.002	5840	38.0	3	9.781	0.001	18362	45.2
Aroclor-1254	4	9.185	0.003	9954	32.7	4	9.930	0.000	37314	41.4
Aroclor-1254	5	9.881	0.005	6746	32.9	5	10.160	-0.000	39089	40.4
Total Col1Ave (5 peaks): 42.1						Total Col2Ave (5 peaks): 84.7 RPD = 67*				
Corrected Ave (4 peaks): 38.1						Corrected Ave (4 peaks): 44.9 RPD = 16				
Aroclor-1260	1	10.393	0.002	187	1.1	1	11.458	0.012	3982	7.0
Aroclor-1260	2	10.713	0.002	208	1.2	2	11.703	0.006	2513	1.7
Aroclor-1260	3	11.063	0.004	540	1.1	3	12.285	0.005	1926	2.0
Aroclor-1260	4	11.466	0.006	450	1.9	4	13.071	0.079	5406	13.1
Aroclor-1260	5	---			0.0	NS	---			----
Total Col1Ave (4 peaks): 1.3						Total Col2Ave (4 peaks): 6.0 RPD = 128*				
Corrected Ave (3 peaks): 1.1						Corrected Ave (3 peaks): 3.6 RPD = 105*				
Aroclor-1262	1	10.393	-0.001	187	0.6	1	10.914	-0.075	13876	15.2
Aroclor-1262	2	11.466	0.003	450	2.3	2	11.703	0.003	2513	1.4
Aroclor-1262	3	---			0.0	3	12.209	0.001	1037	1.2
Aroclor-1262	4	12.313	0.026	270	1.3	4	13.071	0.078	5406	6.9
Total Col1Ave (3 peaks): 1.4						Total Col2Ave (4 peaks): 6.2 RPD = 125*				
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 3.2				
Aroclor-1268	1	---			0.0	1	12.209	0.002	1037	0.4
Aroclor-1268	2	---			0.0	2	12.285	0.010	1926	0.7
Aroclor-1268	3	12.011	-0.000	683	1.1	3	12.658	-0.002	2315	0.9
Aroclor-1268	4	12.779	-0.002	1999	1.0	4	13.467	-0.005	4164	0.5
Col1Ave: <3 Quant Peaks						Col2Ave: 0.6				

Total PCB Area Col1 (5.174 - 13.076) = 451658 Col1 Total PCB = 0.2 ppm*

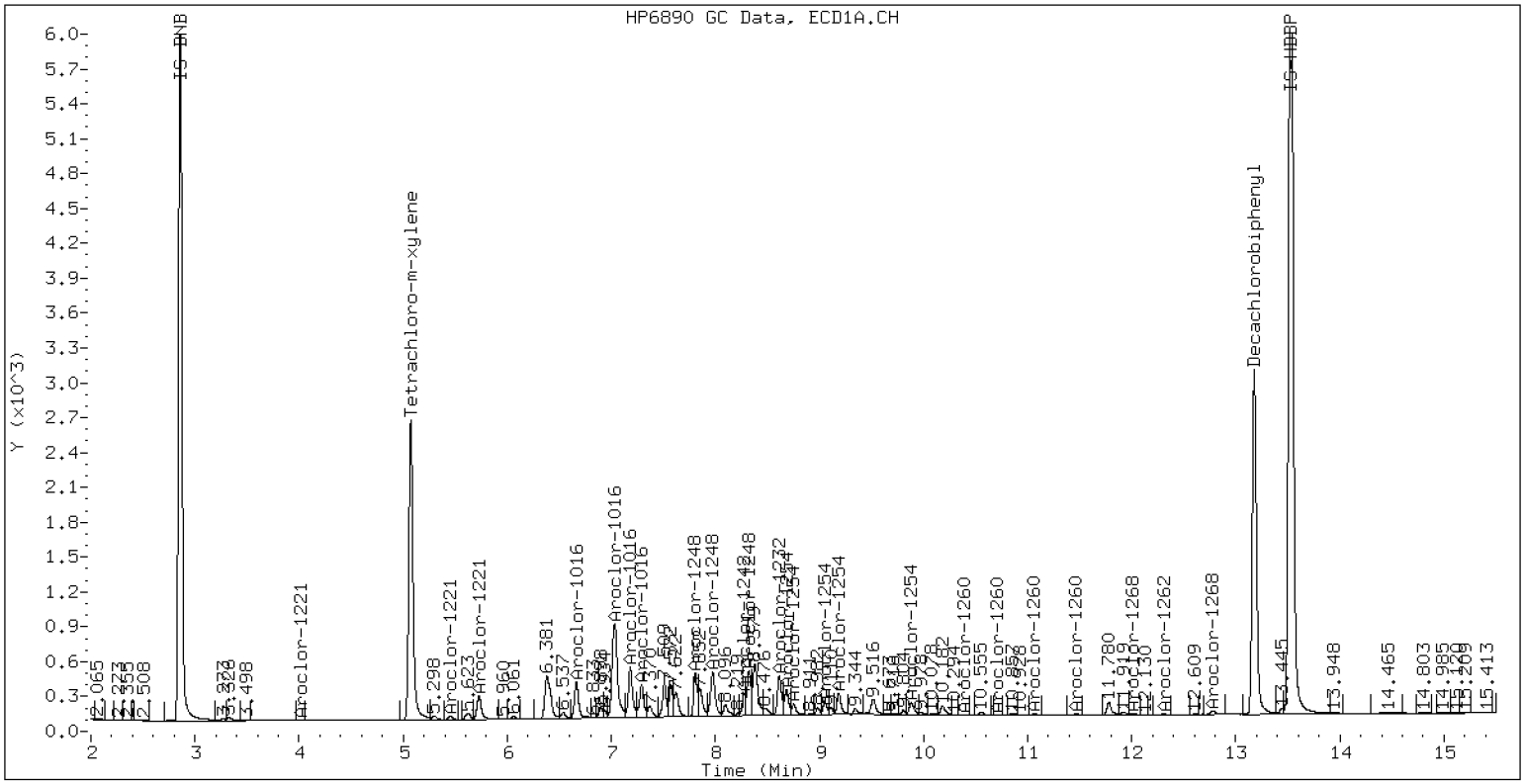
Total PCB Area Col2 (5.174 - 13.076) = 1609207 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

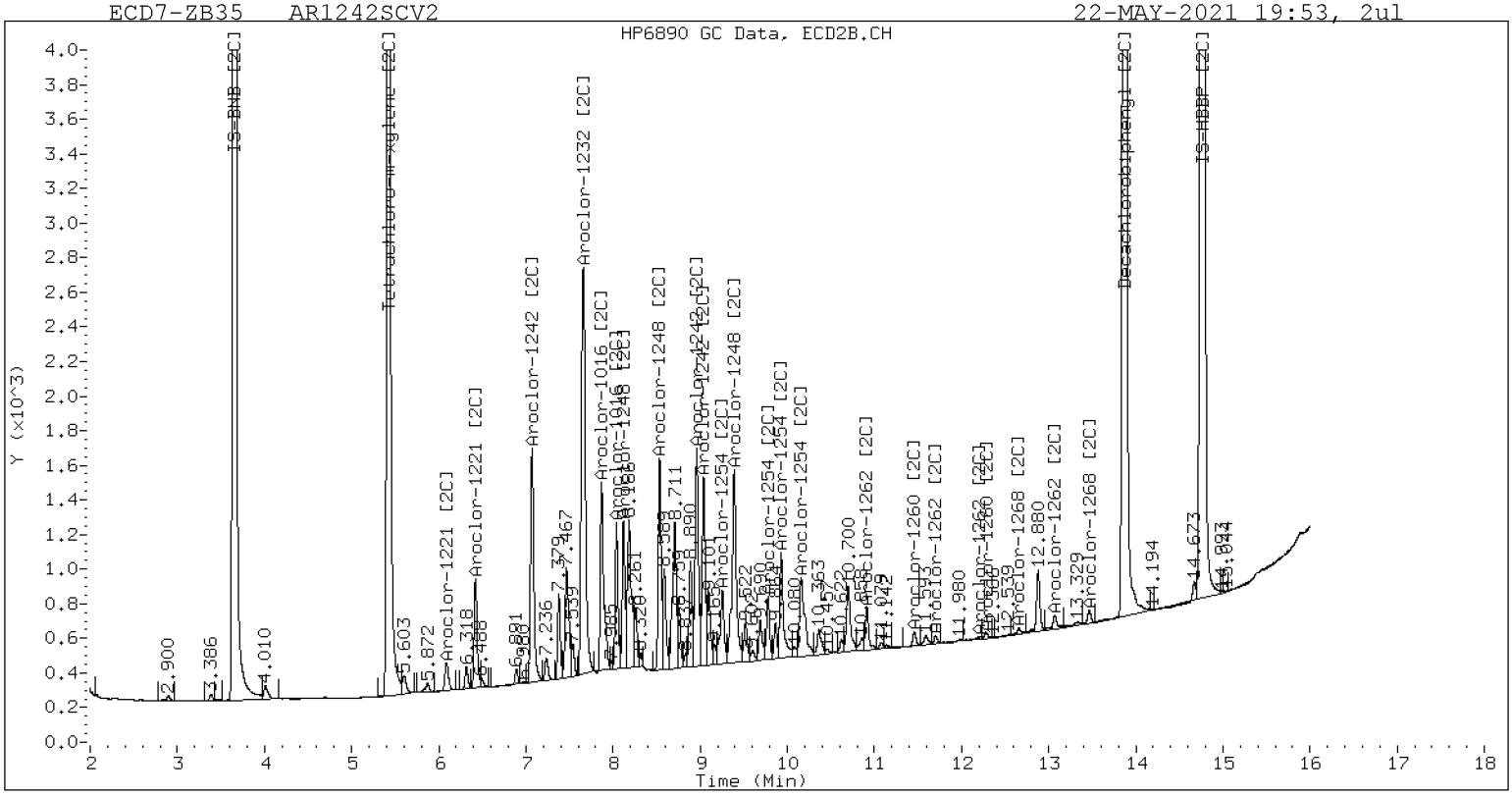
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 22-MAY-2021 19:53, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 22-MAY-2021 19:53, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Calibration: EE00069
Sequence: SJE0321

SDG: 21F0418
Project: Lower Duwamish AOC4
Laboratory ID: SJE0321-SCV3
Sequence Name: AR1248SCV3
Standard ID: J000950

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1248	250.00	239	-4.5	20.00
Aroclor 1248 [2C]	250.00	240	-4.0	20.00
Decachlorobiphenyl	40.000	40.5	1.3	20.00
Tetrachlorometaxylene	40.000	42.7	6.7	20.00
Decachlorobiphenyl [2C]	40.000	40.4	0.9	20.00
Tetrachlorometaxylene [2C]	40.000	40.8	2.0	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

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

Data file 1: /210522.b/05222119ECD7.D
Data file 2: /210522.b/210522.b/05222119ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 22-MAY-2021 20:15
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.075	0.001	148558	5.424	0.000	355673	42.7	40.8	4.6	Tetrachloro-m-xylene
13.177	0.001	172097	13.874	0.003	652141	40.5	40.4	0.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	291470	-1.7
Hexabromobiphenyl	470266	476310	1.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	707436	-0.6
Hexabromobiphenyl	867949	901019	3.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	ZB5 Col Peak#	RT	Shift	Area	Amount	ZB35 Col Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.665	0.000	8436	93.3	1	7.070	-0.001	37964	104.2
Aroclor-1016	2	7.032	-0.002	39299	128.8	2	7.657	-0.003	105519	131.6
Aroclor-1016	3	7.185	0.004	14510	117.1	3	7.870	0.002	23528	78.4
Aroclor-1016	4	7.290	0.001	9419	113.8	4	8.042	0.002	19521	106.2
Total Col1Ave (4 peaks): 113.2						Total Col2Ave (4 peaks): 105.1				RPD = 7
Corrected Ave (3 peaks): 108.0						Corrected Ave (3 peaks): 96.3				RPD = 12
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	5.457	0.001	514	13.9	2	6.100	0.016	4839	44.8
Aroclor-1221	3	5.730	0.001	2589	27.6	3	6.422	0.001	7431	37.3
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	5.730	0.001	2589	32.4	2	6.100	0.015	4839	62.1
Aroclor-1232	3	7.032	-0.001	39299	292.5	3	6.422	-0.000	7431	43.5
Aroclor-1232	4	8.613	-0.002	31117	771.2	4	7.657	-0.005	105519	295.0
Total Col1Ave (3 peaks): 365.4						Total Col2Ave (3 peaks): 133.5				RPD = 93*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.665	0.000	8436	104.8	1	7.070	-0.001	37964	120.9
Aroclor-1242	2	7.032	-0.002	39299	150.4	2	7.657	-0.002	105519	155.3
Aroclor-1242	3	8.274	0.003	13538	376.7	3	8.961	0.003	120141	391.2
Aroclor-1242	4	8.613	0.002	31117	387.7	4	9.040	0.003	91529	338.9
Total Col1Ave (4 peaks): 254.9						Total Col2Ave (4 peaks): 251.6				RPD = 1
Corrected Ave (3 peaks): 210.6						Corrected Ave (3 peaks): 205.0				RPD = 3
Aroclor-1248	1	7.807	0.000	29704	244.2	1	8.121	-0.000	63408	245.9
Aroclor-1248	2	7.974	0.001	35985	238.5	2	8.536	0.000	84533	241.0
Aroclor-1248	3	8.323	0.001	36177	239.5	3	8.961	0.000	120141	237.9
Aroclor-1248	4	8.613	0.000	31117	233.0	4	9.391	0.001	126590	235.1
Total Col1Ave (4 peaks): 238.8						Total Col2Ave (4 peaks): 240.0				RPD = 0
Corrected Ave (3 peaks): 237.0						Corrected Ave (3 peaks): 238.0				RPD = 0
Aroclor-1254	1	8.683	0.001	23899	97.0	1	9.255	-0.000	40453	75.5
Aroclor-1254	2	8.753	0.001	11007	122.7	2	9.391	0.044	126590	400.8
Aroclor-1254	3	9.050	0.001	12659	83.8	3	9.780	0.001	36693	91.0
Aroclor-1254	4	9.184	0.002	21298	71.2	4	9.930	0.000	71223	79.5
Aroclor-1254	5	9.881	0.006	14795	73.4	5	10.158	-0.003	48447	50.4
Total Col1Ave (5 peaks): 89.6						Total Col2Ave (5 peaks): 139.4				RPD = 44*
Corrected Ave (4 peaks): 81.4						Corrected Ave (4 peaks): 74.1				RPD = 9
Aroclor-1260	1	10.396	0.005	668	3.8	1	11.456	0.010	5225	9.3
Aroclor-1260	2	10.713	0.002	511	2.8	2	11.701	0.004	5284	3.6
Aroclor-1260	3	11.063	0.003	1423	3.0	3	12.284	0.004	3829	4.0
Aroclor-1260	4	11.464	0.004	549	2.3	4	12.994	0.002	2061	5.0
Aroclor-1260	5	11.570	0.005	526	5.7	NS	---			----
Total Col1Ave (5 peaks): 3.5						Total Col2Ave (4 peaks): 5.5				RPD = 43*
Corrected Ave (4 peaks): 3.0						Corrected Ave (3 peaks): 4.2				RPD = 34
Aroclor-1262	1	10.396	0.002	668	2.2	1	10.988	-0.001	3149	3.5
Aroclor-1262	2	11.464	0.001	549	2.8	2	11.701	0.001	5284	3.0
Aroclor-1262	3	11.638	-0.000	520	2.0	3	12.207	-0.001	2542	3.0
Aroclor-1262	4	12.292	0.005	702	3.4	4	12.994	0.001	2061	2.6
Total Col1Ave (4 peaks): 2.6						Total Col2Ave (4 peaks): 3.0				RPD = 14
Corrected Ave (3 peaks): 2.4						Corrected Ave (3 peaks): 2.9				RPD = 19
Aroclor-1268	1	11.570	0.003	526	0.7	1	12.207	-0.000	2542	1.0
Aroclor-1268	2	11.638	0.001	520	0.6	2	12.284	0.009	3829	1.3
Aroclor-1268	3	12.015	0.004	863	1.4	3	12.657	-0.002	2695	1.1
Aroclor-1268	4	12.780	-0.001	2506	1.3	4	13.467	-0.005	4780	0.6
Total Col1Ave (4 peaks): 1.0						Total Col2Ave (4 peaks): 1.0				RPD = 2
Corrected Ave (3 peaks): 0.9						Corrected Ave (3 peaks): 0.9				RPD = 3

Total PCB Area Col1 (5.174 - 13.076) = 550840 Col1 Total PCB = 0.2 ppm*

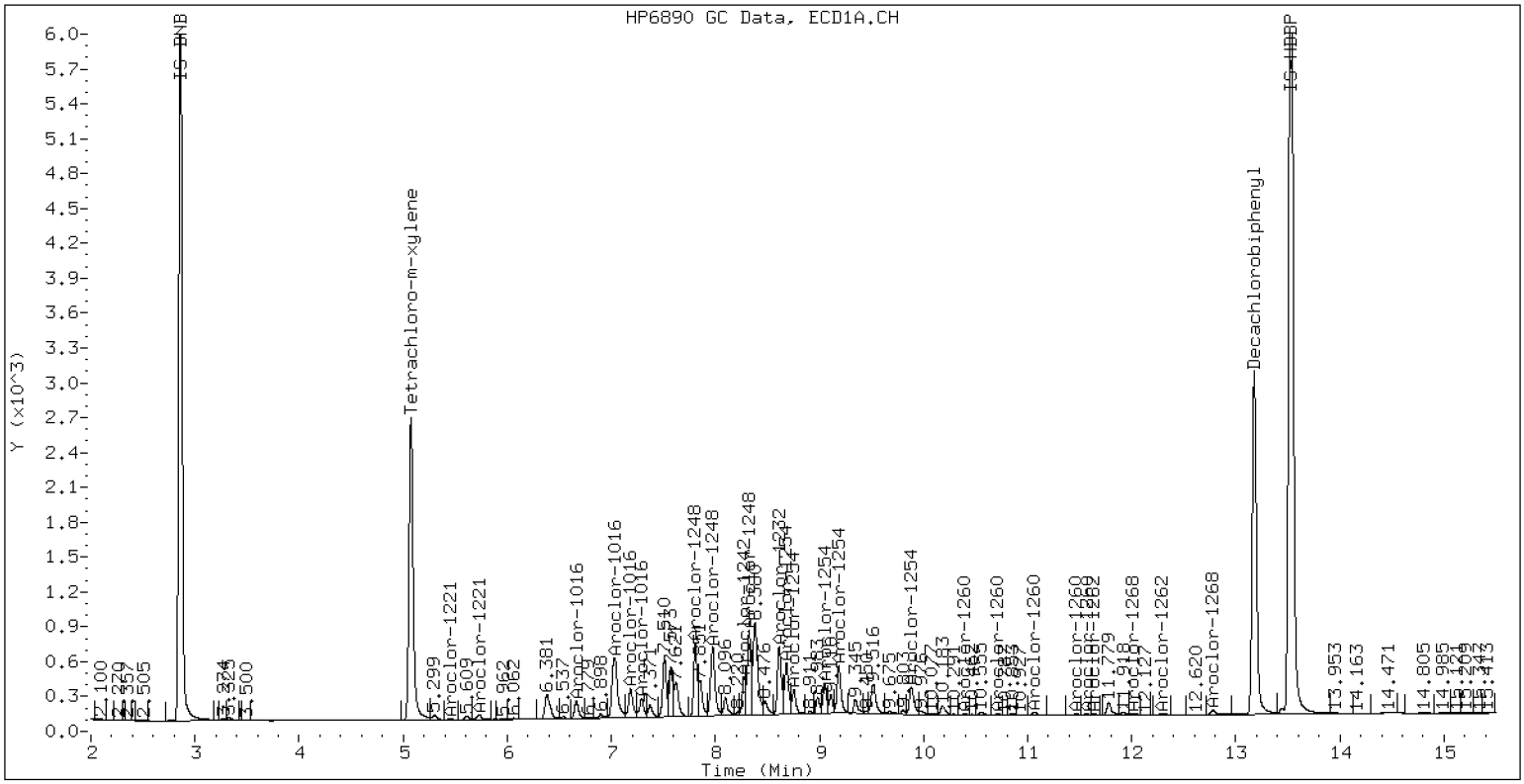
Total PCB Area Col2 (5.174 - 13.076) = 1898867 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

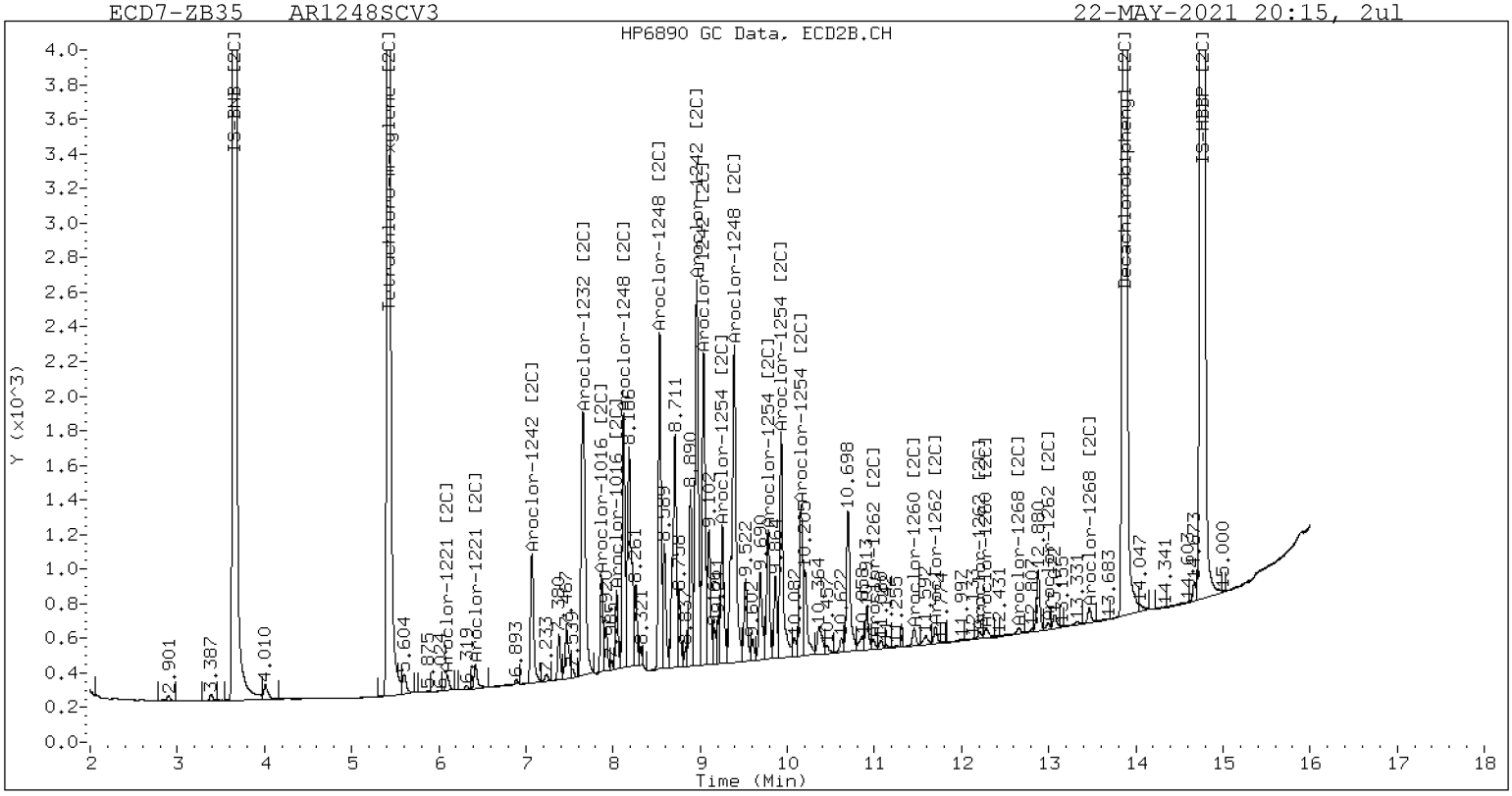
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 22-MAY-2021 20:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 22-MAY-2021 20:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Calibration: EE00069
Sequence: SJE0321

SDG: 21F0418
Project: Lower Duwamish AOC4
Laboratory ID: SJE0321-SCV4
Sequence Name: AR1254SCV4
Standard ID: J000951

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1254	250.00	235	-5.9	20.00
Aroclor 1254 [2C]	250.00	244	-2.2	20.00
Decachlorobiphenyl	40.000	40.0	0.09	20.00
Tetrachlorometaxylene	40.000	41.7	4.3	20.00
Decachlorobiphenyl [2C]	40.000	39.6	-1.0	20.00
Tetrachlorometaxylene [2C]	40.000	40.4	1.0	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

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

Data file 1: /210522.b/05222120ECD7.D
Data file 2: /210522.b/210522.b/05222120ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 22-MAY-2021 20:37
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	-0.000	147480	5.423	-0.001	353436	41.7	40.4	3.2	Tetrachloro-m-xylene
13.178	0.002	169697	13.873	0.002	645388	40.0	39.6	1.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296015	-0.1
Hexabromobiphenyl	470266	475384	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	709760	-0.3
Hexabromobiphenyl	867949	908548	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	ZB5 Col Peak#	RT	Shift	Area	Amount	ZB35 Col Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.670	0.005	136	1.5	1	7.071	0.000	986	2.7
Aroclor-1016	2	7.030	-0.005	825	2.7	2	7.655	-0.005	2851	3.5
Aroclor-1016	3	7.192	0.010	462	3.7	3	7.870	0.002	369	1.2
Aroclor-1016	4	7.290	0.000	114	1.4	4	8.044	0.004	353	1.9
Total Col1Ave (4 peaks):					2.3	Total Col2Ave (4 peaks):				2.3 RPD = 2
Corrected Ave (3 peaks):					1.8	Corrected Ave (3 peaks):				1.9 RPD = 6
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.100	0.016	3990	36.8
Aroclor-1221	3	---			0.0	3	6.417	-0.004	870	4.4
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	5.730	0.001	136	1.7	2	6.100	0.015	3990	51.0
Aroclor-1232	3	7.030	-0.004	825	6.0	3	6.417	-0.005	870	5.1
Aroclor-1232	4	8.605	-0.010	10628	259.4	4	7.655	-0.007	2851	7.9
Total Col1Ave (3 peaks):					89.0	Total Col2Ave (3 peaks):				21.3 RPD = 123*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.670	0.005	136	1.7	1	7.071	0.000	986	3.1
Aroclor-1242	2	7.030	-0.004	825	3.1	2	7.655	-0.005	2851	4.2
Aroclor-1242	3	8.324	0.053	18533	507.7	3	8.964	0.006	50428	163.7
Aroclor-1242	4	8.605	-0.006	10628	130.4	4	9.040	0.003	16173	59.7
Total Col1Ave (4 peaks):					160.7	Total Col2Ave (4 peaks):				57.7 RPD = 94*
Corrected Ave (3 peaks):					45.1	Corrected Ave (3 peaks):				22.3 RPD = 67*
Aroclor-1248	1	7.805	-0.001	11633	94.2	1	8.121	-0.000	48527	187.5
Aroclor-1248	2	7.973	0.000	4360	28.5	2	8.536	0.001	30748	87.4
Aroclor-1248	3	8.324	0.002	18533	120.8	3	8.964	0.003	50428	99.5
Aroclor-1248	4	8.605	-0.008	10628	78.4	4	9.348	-0.042	74662	138.2
Total Col1Ave (4 peaks):					80.5	Total Col2Ave (4 peaks):				128.2 RPD = 46*
Corrected Ave (3 peaks):					67.0	Corrected Ave (3 peaks):				108.4 RPD = 47*
Aroclor-1254	1	8.681	-0.000	58854	235.2	1	9.255	-0.001	141492	263.3
Aroclor-1254	2	8.753	0.001	21709	238.2	2	9.348	0.001	74662	235.6
Aroclor-1254	3	9.049	0.000	36329	236.8	3	9.780	0.000	98121	242.6
Aroclor-1254	4	9.183	0.000	70176	231.1	4	9.929	-0.001	214334	238.4
Aroclor-1254	5	9.875	-0.001	48066	234.8	5	10.161	0.000	233499	242.1
Total Col1Ave (5 peaks):					235.2	Total Col2Ave (5 peaks):				244.4 RPD = 4
Corrected Ave (4 peaks):					234.5	Corrected Ave (4 peaks):				239.7 RPD = 2
Aroclor-1260	1	10.392	0.000	2454	14.1	1	11.457	0.011	57455	101.4
Aroclor-1260	2	10.713	0.002	3392	18.9	2	11.702	0.005	38691	26.2
Aroclor-1260	3	11.063	0.003	8860	18.9	3	12.284	0.004	24630	25.6
Aroclor-1260	4	11.464	0.004	9017	37.7	4	12.991	-0.001	1502	3.6
Aroclor-1260	5	11.637	0.072	411	4.5	NS	---			----
Total Col1Ave (5 peaks):					18.8	Total Col2Ave (4 peaks):				39.2 RPD = 70*
Corrected Ave (4 peaks):					14.1	Corrected Ave (3 peaks):				18.5 RPD = 27
Aroclor-1262	1	10.392	-0.003	2454	8.2	1	10.985	-0.004	11671	12.8
Aroclor-1262	2	11.464	0.001	9017	46.7	2	11.702	0.002	38691	21.4
Aroclor-1262	3	11.637	-0.001	411	1.6	3	12.222	0.014	5172	6.0
Aroclor-1262	4	12.293	0.006	557	2.7	4	12.991	-0.002	1502	1.9
Total Col1Ave (4 peaks):					14.8	Total Col2Ave (4 peaks):				10.5 RPD = 34
Corrected Ave (3 peaks):					4.2	Corrected Ave (3 peaks):				6.9 RPD = 49*
Aroclor-1268	1	11.637	0.070	411	0.5	1	12.222	0.015	5172	2.0
Aroclor-1268	2	---			0.0	2	12.284	0.009	24630	8.6
Aroclor-1268	3	12.017	0.006	776	1.2	3	12.662	0.002	1796	0.7
Aroclor-1268	4	12.779	-0.002	1983	1.0	4	13.469	-0.004	4233	0.5
Total Col1Ave (3 peaks):					0.9	Total Col2Ave (4 peaks):				2.9 RPD = 105*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				1.1

Total PCB Area Col1 (5.174 - 13.076) = 715747 Col1 Total PCB = 0.3 ppm*

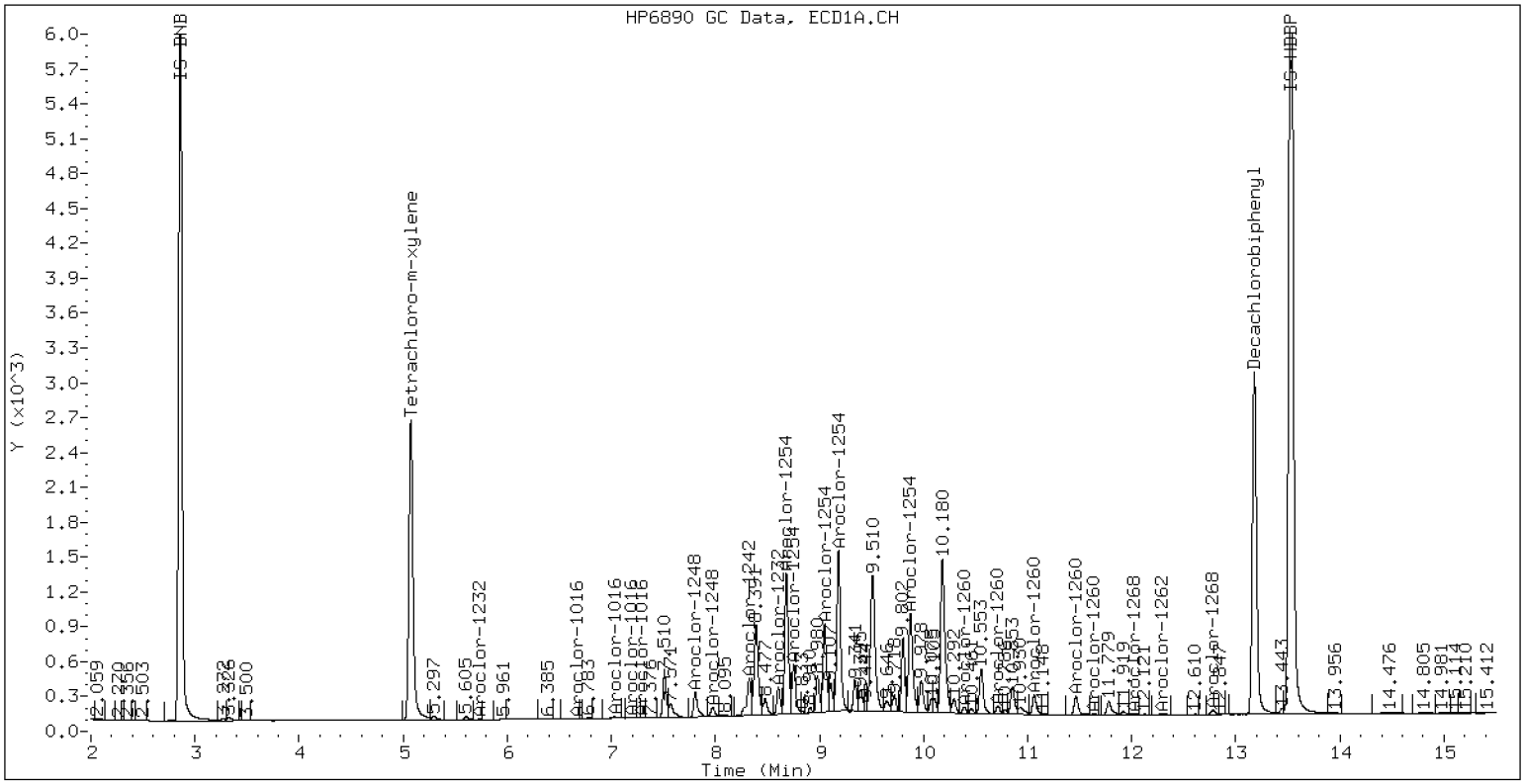
Total PCB Area Col2 (5.174 - 13.076) = 2439127 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

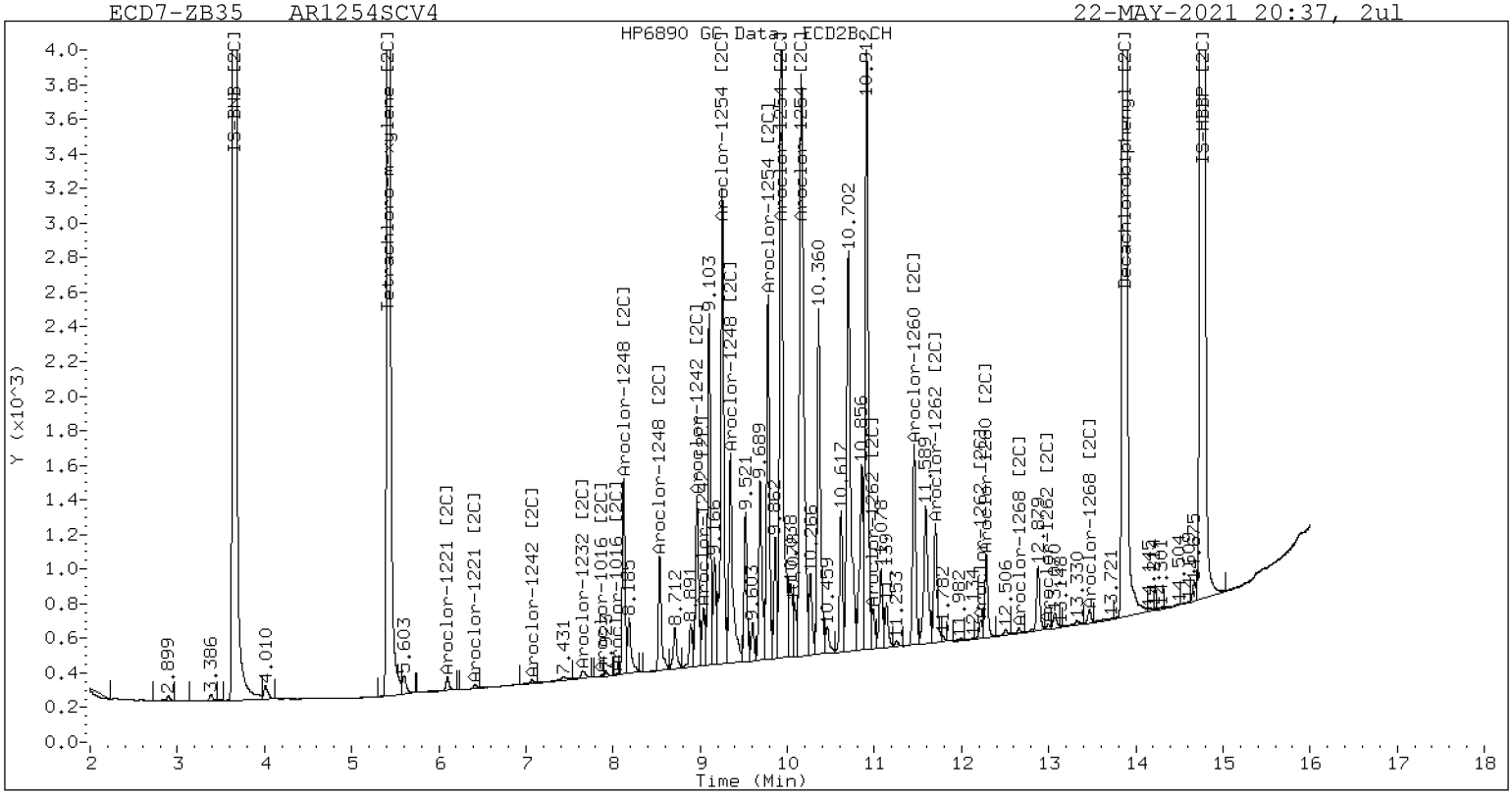
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 22-MAY-2021 20:37, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 22-MAY-2021 20:37, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Calibration: EE00069
Sequence: SJE0321

SDG: 21F0418
Project: Lower Duwamish AOC4
Laboratory ID: SJE0321-SCV5
Sequence Name: AR2162SCV5
Standard ID: J000952

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1221	250.00	262	4.9	20.00
Aroclor 1221 [2C]	250.00	261	4.4	20.00
Aroclor 1262	250.00	253	1.1	20.00
Aroclor 1262 [2C]	250.00	252	0.7	20.00
Decachlorobiphenyl	40.000	39.7	-0.6	20.00
Tetrachlorometaxylene	40.000	41.1	2.7	20.00
Decachlorobiphenyl [2C]	40.000	39.5	-1.2	20.00
Tetrachlorometaxylene [2C]	40.000	39.1	-2.2	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

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

Data file 1: /210522.b/05222121ECD7.D
Data file 2: /210522.b/210522.b/05222121ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 22-MAY-2021 20:58
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	0.000	144866	5.424	0.000	345727	41.1	39.1	4.8	Tetrachloro-m-xylene
13.178	0.002	169535	13.874	0.004	648797	39.7	39.5	0.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	295364	-0.4
Hexabromobiphenyl	470266	478364	1.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	716532	0.6
Hexabromobiphenyl	867949	915545	5.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.667	0.002	1677	18.3	1	7.081	0.010	15078	40.9
Aroclor-1016	2	7.034	0.000	4823	15.6	2	7.663	0.003	13852	17.1
Aroclor-1016	3	7.183	0.002	2249	17.9	3	7.871	0.003	5670	18.7
Aroclor-1016	4	7.292	0.002	1396	16.6	4	8.043	0.003	3078	16.5
Total Col1Ave (4 peaks):				17.1		Total Col2Ave (4 peaks):			23.3	RPD = 31
Corrected Ave (3 peaks):				16.7		Corrected Ave (3 peaks):			17.4	RPD = 4
Aroclor-1221	1	4.022	-0.001	6055	277.2	1	4.692	-0.000	12493	267.9
Aroclor-1221	2	5.455	0.000	9553	255.2	2	6.085	0.001	28588	261.0
Aroclor-1221	3	5.729	-0.000	24144	254.4	3	6.423	0.001	51294	254.1
Total Col1Ave (3 peaks):				262.3		Total Col2Ave (3 peaks):			261.0	RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.022	0.001	6055	454.0	1	4.692	0.001	12493	423.6
Aroclor-1232	2	5.729	0.000	24144	298.1	2	6.085	-0.000	28588	362.2
Aroclor-1232	3	7.034	0.001	4823	35.4	3	6.423	-0.000	51294	296.3
Aroclor-1232	4	8.610	-0.005	1062	26.0	4	7.663	0.001	13852	38.2
Total Col1Ave (4 peaks):				203.4		Total Col2Ave (4 peaks):			280.1	RPD = 32
Corrected Ave (3 peaks):				119.8		Corrected Ave (3 peaks):			232.2	RPD = 64*
Aroclor-1242	1	6.667	0.002	1677	20.6	1	7.081	0.011	15078	47.4
Aroclor-1242	2	7.034	0.001	4823	18.2	2	7.663	0.003	13852	20.1
Aroclor-1242	3	8.278	0.007	940	25.8	3	8.966	0.008	4328	13.9
Aroclor-1242	4	8.610	-0.001	1062	13.1	4	9.045	0.008	2579	9.4
Total Col1Ave (4 peaks):				19.4		Total Col2Ave (4 peaks):			22.7	RPD = 16
Corrected Ave (3 peaks):				17.3		Corrected Ave (3 peaks):			14.5	RPD = 18
Aroclor-1248	1	7.808	0.002	805	6.5	1	8.121	0.000	2819	10.8
Aroclor-1248	2	7.976	0.003	802	5.2	2	8.537	0.002	2272	6.4
Aroclor-1248	3	8.327	0.005	1117	7.3	3	8.966	0.005	4328	8.5
Aroclor-1248	4	8.610	-0.003	1062	7.8	4	9.393	0.003	7120	13.1
Total Col1Ave (4 peaks):				6.7		Total Col2Ave (4 peaks):			9.7	RPD = 36
Corrected Ave (3 peaks):				6.4		Corrected Ave (3 peaks):			8.5	RPD = 29
Aroclor-1254	1	8.681	-0.000	8014	32.1	1	9.256	0.000	22883	42.2
Aroclor-1254	2	8.749	-0.003	796	8.8	2	9.350	0.003	4670	14.6
Aroclor-1254	3	9.050	0.001	1147	7.5	3	9.781	0.001	4047	9.9
Aroclor-1254	4	9.155	-0.028	10041	33.1	4	9.947	0.018	98893	109.0
Aroclor-1254	5	9.867	-0.009	12222	59.8	5	10.176	0.015	116343	119.5
Total Col1Ave (5 peaks):				28.3		Total Col2Ave (5 peaks):			59.0	RPD = 70*
Corrected Ave (4 peaks):				20.4		Corrected Ave (4 peaks):			43.9	RPD = 73*
Aroclor-1260	1	10.395	0.003	76119	434.1	1	11.446	-0.000	188460	330.1
Aroclor-1260	2	10.711	0.001	62698	347.7	2	11.699	0.002	456681	306.6
Aroclor-1260	3	11.061	0.001	154654	327.4	3	12.280	-0.000	328604	339.3
Aroclor-1260	4	11.463	0.003	49024	203.6	4	12.993	0.002	199946	480.3
Aroclor-1260	5	11.566	0.001	59318	639.1	NS	---			----
Total Col1Ave (5 peaks):				390.4		Total Col2Ave (4 peaks):			364.1	RPD = 7
Corrected Ave (4 peaks):				328.2		Corrected Ave (3 peaks):			325.3	RPD = 1
Aroclor-1262	1	10.395	0.000	76119	253.0	1	10.989	-0.000	230478	250.7
Aroclor-1262	2	11.463	0.000	49024	252.6	2	11.699	-0.001	456681	251.1
Aroclor-1262	3	11.638	-0.000	66180	252.8	3	12.208	0.000	220057	252.3
Aroclor-1262	4	12.286	-0.001	52313	252.8	4	12.993	0.000	199946	252.7
Total Col1Ave (4 peaks):				252.8		Total Col2Ave (4 peaks):			251.7	RPD = 0
Corrected Ave (3 peaks):				252.7		Corrected Ave (3 peaks):			251.3	RPD = 1
Aroclor-1268	1	11.566	-0.001	59318	73.8	1	12.208	0.001	220057	82.7
Aroclor-1268	2	11.638	0.002	66180	81.3	2	12.280	0.005	328604	113.4
Aroclor-1268	3	12.038	0.027	23299	36.4	3	12.658	-0.002	14664	5.8
Aroclor-1268	4	12.780	-0.001	19289	9.6	4	13.468	-0.004	67959	8.3
Total Col1Ave (4 peaks):				50.3		Total Col2Ave (4 peaks):			52.5	RPD = 4

Corrected Ave (3 peaks): 40.0 Corrected Ave (3 peaks): 32.3 RPD = 21

Total PCB Area Col1 (5.174 - 13.076) = 1072965 Col1 Total PCB = 0.4 ppm*

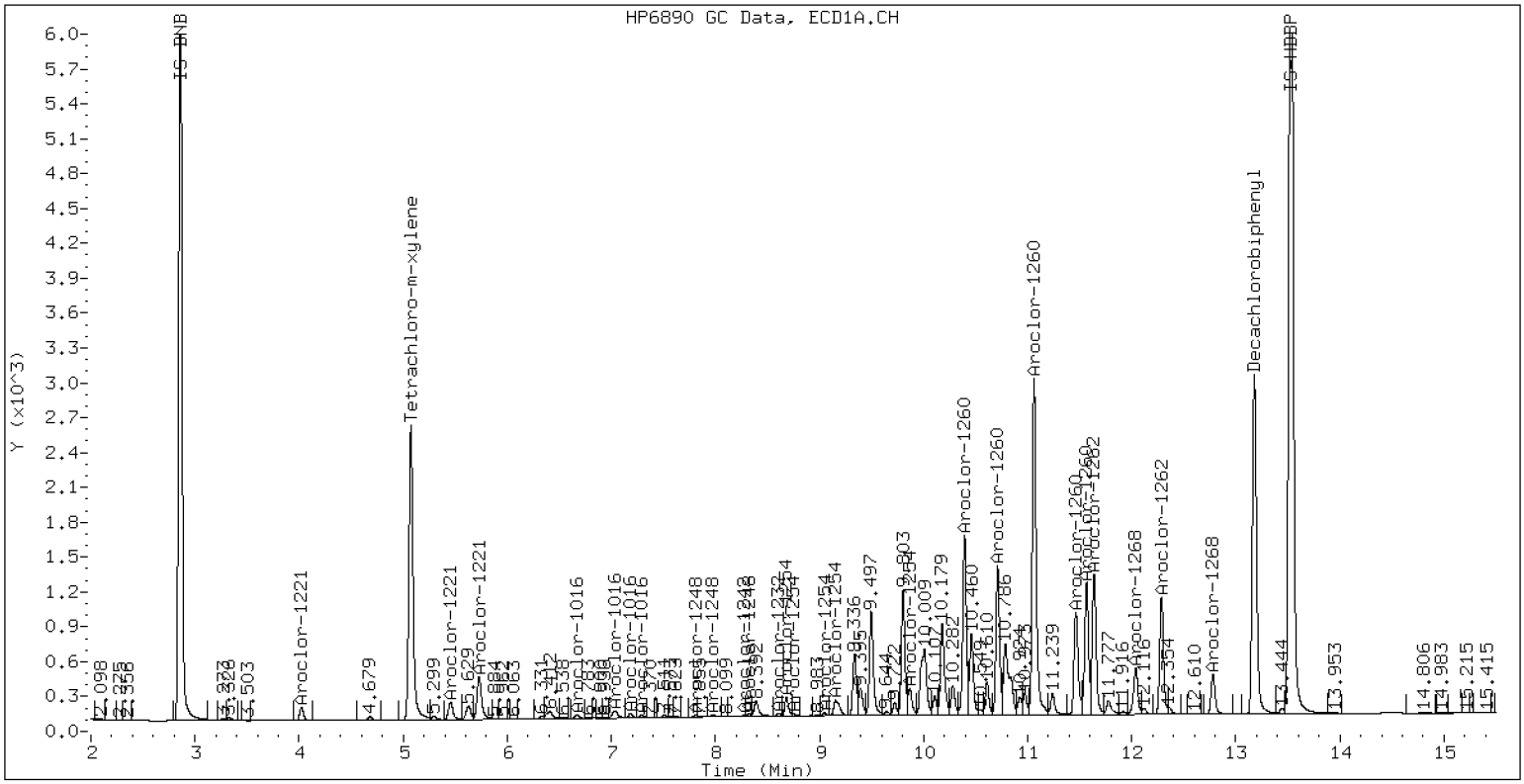
Total PCB Area Col2 (5.174 - 13.076) = 3437225 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

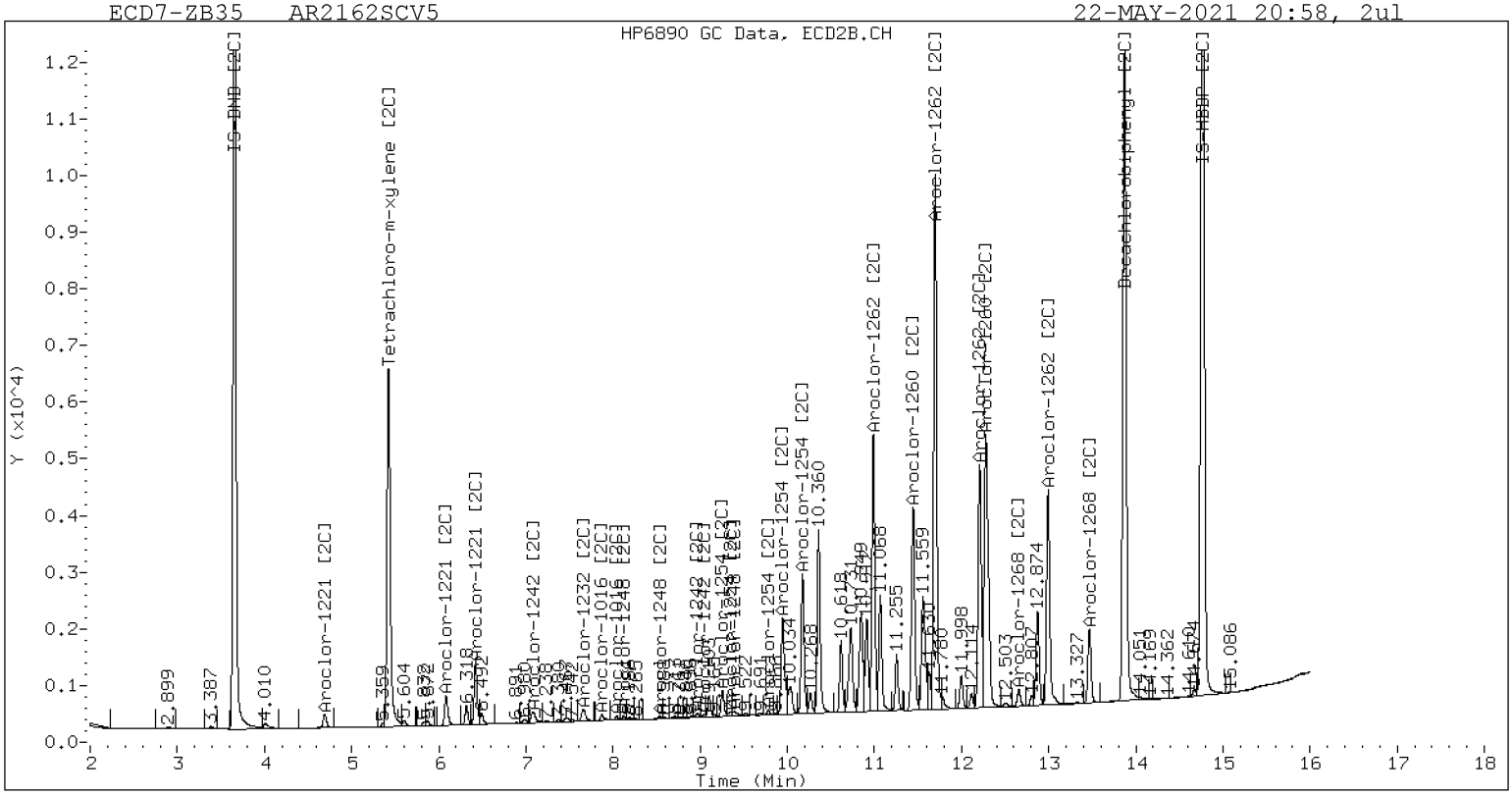
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 22-MAY-2021 20:58, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 22-MAY-2021 20:58, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Calibration: EE00069
Sequence: SJE0321

SDG: 21F0418
Project: Lower Duwamish AOC4
Laboratory ID: SJE0321-SCV6
Sequence Name: AR3268SCV6
Standard ID: J000953

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1232	250.00	243	-2.7	20.00
Aroclor 1232 [2C]	250.00	242	-3.3	20.00
Aroclor 1268	250.00	204	-18.5	20.00
Aroclor 1268 [2C]	250.00	206	-17.7	20.00
Decachlorobiphenyl	40.000	59.7	49.2	20.00
Tetrachlorometaxylene	40.000	41.8	4.5	20.00
Decachlorobiphenyl [2C]	40.000	61.1	52.6	20.00
Tetrachlorometaxylene [2C]	40.000	40.5	1.2	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

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

Data file 1: /210522.b/05222122ECD7.D
Data file 2: /210522.b/210522.b/05222122ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 22-MAY-2021 21:20
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	-0.000	148239	5.424	-0.000	355344	41.8	40.5	3.3	Tetrachloro-m-xylene
13.178	0.002	255056	13.875	0.005	1001977	59.7	61.1	2.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296903	0.2
Hexabromobiphenyl	470266	479288	1.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	712350	0.0
Hexabromobiphenyl	867949	915257	5.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.666	0.001	10346	112.3	1	7.071	-0.000	45781	124.8
Aroclor-1016	2	7.034	0.000	34585	111.3	2	7.661	0.001	91604	113.5
Aroclor-1016	3	7.182	0.001	14354	113.7	3	7.870	0.002	34691	114.8
Aroclor-1016	4	7.291	0.002	9485	112.5	4	8.041	0.002	21844	118.1
Total Col1Ave (4 peaks):					112.4	Total Col2Ave (4 peaks):				117.8 RPD = 5
Corrected Ave (3 peaks):					112.0	Corrected Ave (3 peaks):				115.4 RPD = 3
Aroclor-1221	1	4.022	0.000	3391	154.4	1	4.692	-0.000	7248	156.3
Aroclor-1221	2	5.456	0.000	5464	145.2	2	6.086	0.002	18148	166.7
Aroclor-1221	3	5.730	0.000	18154	190.3	3	6.422	0.001	40400	201.3
Total Col1Ave (3 peaks):					163.3	Total Col2Ave (3 peaks):				174.8 RPD = 7
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.022	0.002	3391	252.9	1	4.692	0.001	7248	247.2
Aroclor-1232	2	5.730	0.001	18154	222.9	2	6.086	0.001	18148	231.2
Aroclor-1232	3	7.034	0.001	34585	252.7	3	6.422	-0.000	40400	234.8
Aroclor-1232	4	8.615	0.000	10043	244.4	4	7.661	-0.001	91604	254.3
Total Col1Ave (4 peaks):					243.2	Total Col2Ave (4 peaks):				241.9 RPD = 1
Corrected Ave (3 peaks):					240.0	Corrected Ave (3 peaks):				237.7 RPD = 1
Aroclor-1242	1	6.666	0.001	10346	126.2	1	7.071	-0.000	45781	144.8
Aroclor-1242	2	7.034	0.000	34585	129.9	2	7.661	0.001	91604	133.9
Aroclor-1242	3	8.278	0.006	4145	113.2	3	8.962	0.004	38109	123.2
Aroclor-1242	4	8.615	0.004	10043	122.8	4	9.041	0.004	32198	118.4
Total Col1Ave (4 peaks):					123.0	Total Col2Ave (4 peaks):				130.1 RPD = 6
Corrected Ave (3 peaks):					120.8	Corrected Ave (3 peaks):				125.2 RPD = 4
Aroclor-1248	1	7.808	0.001	9089	73.4	1	8.121	-0.001	18506	71.3
Aroclor-1248	2	7.975	0.002	12739	82.9	2	8.536	0.000	29545	83.7
Aroclor-1248	3	8.325	0.003	10258	66.7	3	8.962	0.001	38109	75.0
Aroclor-1248	4	8.615	0.002	10043	73.8	4	9.391	0.001	44833	82.7
Total Col1Ave (4 peaks):					74.2	Total Col2Ave (4 peaks):				78.1 RPD = 5
Corrected Ave (3 peaks):					71.3	Corrected Ave (3 peaks):				76.3 RPD = 7
Aroclor-1254	1	8.682	0.000	4617	18.4	1	9.256	0.000	10462	19.4
Aroclor-1254	2	8.753	0.000	1862	20.4	2	9.391	0.044	44833	141.0
Aroclor-1254	3	9.051	0.002	1704	11.1	3	9.781	0.001	6029	14.9
Aroclor-1254	4	9.187	0.004	3103	10.2	4	9.932	0.003	13664	15.1
Aroclor-1254	5	9.883	0.007	2229	10.9	5	10.162	0.002	13230	13.7
Total Col1Ave (5 peaks):					14.2	Total Col2Ave (5 peaks):				40.8 RPD = 97*
Corrected Ave (4 peaks):					12.6	Corrected Ave (4 peaks):				15.8 RPD = 22
Aroclor-1260	1	10.395	0.004	30116	171.4	1	11.426	-0.020	123255	215.9
Aroclor-1260	2	10.713	0.002	2096	11.6	2	11.698	0.001	56961	38.3
Aroclor-1260	3	11.062	0.002	16373	34.6	3	12.275	-0.005	585373	604.6
Aroclor-1260	4	11.463	0.003	591	2.5	4	12.993	0.001	214119	514.5
Aroclor-1260	5	11.567	0.003	163395	1757.1	NS	---			----
Total Col1Ave (5 peaks):					395.4	Total Col2Ave (4 peaks):				343.3 RPD = 14
Corrected Ave (4 peaks):					55.0	Corrected Ave (3 peaks):				256.2 RPD = 129*
Aroclor-1262	1	10.395	0.001	30116	99.9	1	10.988	-0.001	87691	95.4
Aroclor-1262	2	11.463	0.000	591	3.0	2	11.698	-0.002	56961	31.3
Aroclor-1262	3	11.636	-0.003	164716	628.0	3	12.209	0.000	570399	654.1
Aroclor-1262	4	12.286	-0.001	66330	319.9	4	12.993	0.000	214119	270.7
Total Col1Ave (4 peaks):					262.7	Total Col2Ave (4 peaks):				262.9 RPD = 0
Corrected Ave (3 peaks):					140.9	Corrected Ave (3 peaks):				132.5 RPD = 6
Aroclor-1268	1	11.567	0.000	163395	203.0	1	12.209	0.001	570399	214.5
Aroclor-1268	2	11.636	-0.001	164716	202.0	2	12.275	0.000	585373	202.0
Aroclor-1268	3	12.012	0.001	130565	203.8	3	12.658	-0.001	514356	202.2
Aroclor-1268	4	12.781	0.000	415210	206.6	4	13.474	0.002	1683012	204.7
Total Col1Ave (4 peaks):					203.9	Total Col2Ave (4 peaks):				205.8 RPD = 1

Corrected Ave (3 peaks): 202.9 Corrected Ave (3 peaks): 202.9 RPD = 0

Total PCB Area Col1 (5.174 - 13.076) = 1390907 Col1 Total PCB = 0.5 ppm*

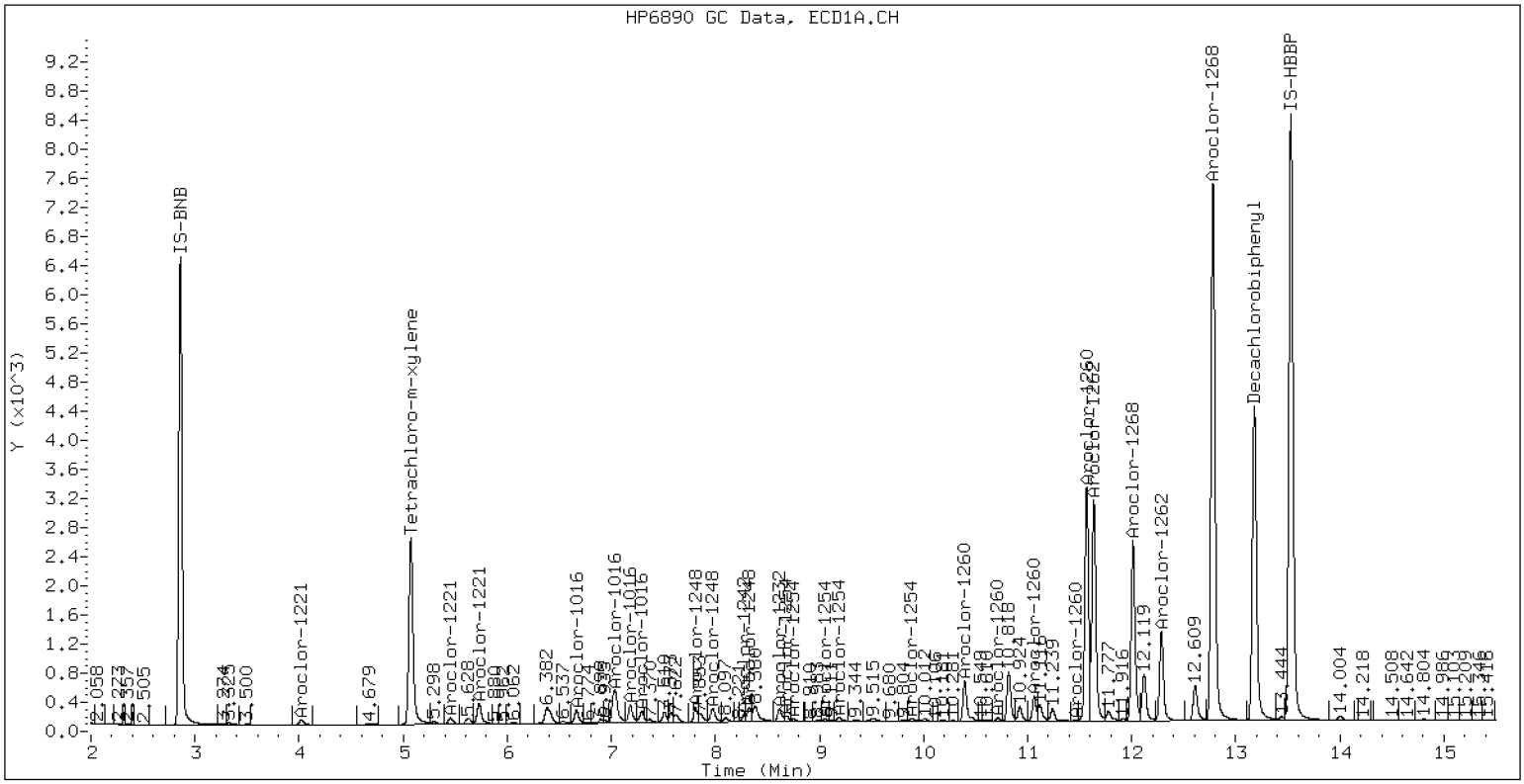
Total PCB Area Col2 (5.174 - 13.076) = 3445589 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

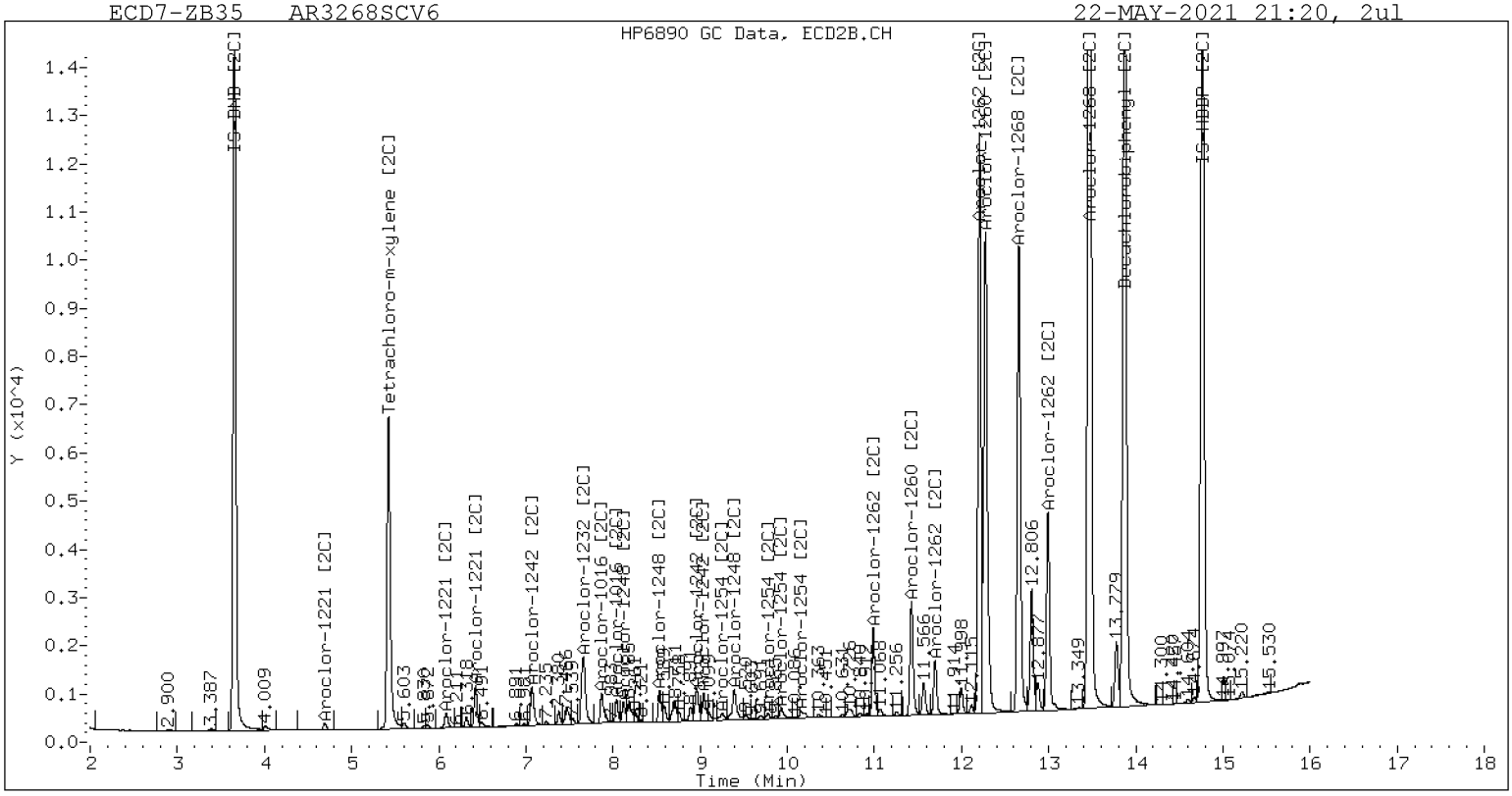
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 22-MAY-2021 21:20, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 22-MAY-2021 21:20, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022102ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-ICV1	Injection Time:	09:13
Sequence Name:	AR1254ICV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1254	A	250.00	246	0.0542238	0.0545051		-1.6	+/-20
Aroclor-1254 (1)	A	250.00	268	0.0676399	0.0726275			
Aroclor-1254 (2)	A	250.00	266	0.0246305	0.0262021			
Aroclor-1254 (3)	A	250.00	162	0.0414557	0.0269464			
Aroclor-1254 (4)	A	250.00	267	0.0820704	0.0876670			
Aroclor-1254 (5)	A	250.00	267	0.0553225	0.0590827			
Aroclor 1254 [2C]	A	250.00	255	0.0703814	0.0723505		2.2	+/-20
Aroclor-1254 (1) [2C]	A	250.00	268	0.0605749	0.0648208			
Aroclor-1254 (2) [2C]	A	250.00	276	0.0357212	0.0394374			
Aroclor-1254 (3) [2C]	A	250.00	212	0.0455816	0.0386416			
Aroclor-1254 (4) [2C]	A	250.00	259	0.1013365	0.1051197			
Aroclor-1254 (5) [2C]	A	250.00	262	0.1086926	0.1137328			
Decachlorobiphenyl	A	40.000	45.7	0.7132713	0.8149327		14.3	+/-20
Tetrachlorometaxylene	A	40.000	45.0	0.9552374	1.0740820		12.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	43.4	1.4343710	1.5554090		8.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	43.1	0.9862409	1.0631350		7.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210702.b/07022102ECD7.D
Data file 2: /210702.b/210702.b/07022102ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.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-JUL-2021 09:13
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.073	-0.000	169242	5.421	-0.002	378945	45.0	43.1	4.2	Tetrachloro-m-xylene
13.173	0.005	189676	13.862	0.001	593496	45.7	43.4	5.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	315138	6.3
Hexabromobiphenyl	470266	465501	-1.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	712882	0.1
Hexabromobiphenyl	867949	763138	-12.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	8.679	0.000	71524	268.4	1	9.248	-0.002	144405	267.5
Aroclor-1254	2	8.750	-0.000	25804	266.0	2	9.340	-0.002	87857	276.0
Aroclor-1254	3	9.049	-0.000	26537	162.5	3	9.771	-0.002	86084	211.9
Aroclor-1254	4	9.180	-0.000	86335	267.0	4	9.922	-0.001	234181	259.3
Aroclor-1254	5	9.871	0.000	58185	267.0	5	10.153	-0.002	253369	261.6

Total Col1Ave (5 peaks): 246.2 Total Col2Ave (5 peaks): 255.3 RPD = 4
Corrected Ave (4 peaks): 240.6 Corrected Ave (4 peaks): 250.1 RPD = 4

CalAmt %D: -1.5 CalAmt %D: 2.1

Total PCB Area Col1 (5.173 - 13.068) = 847660 Col1 Total PCB = 0.3 ppm*

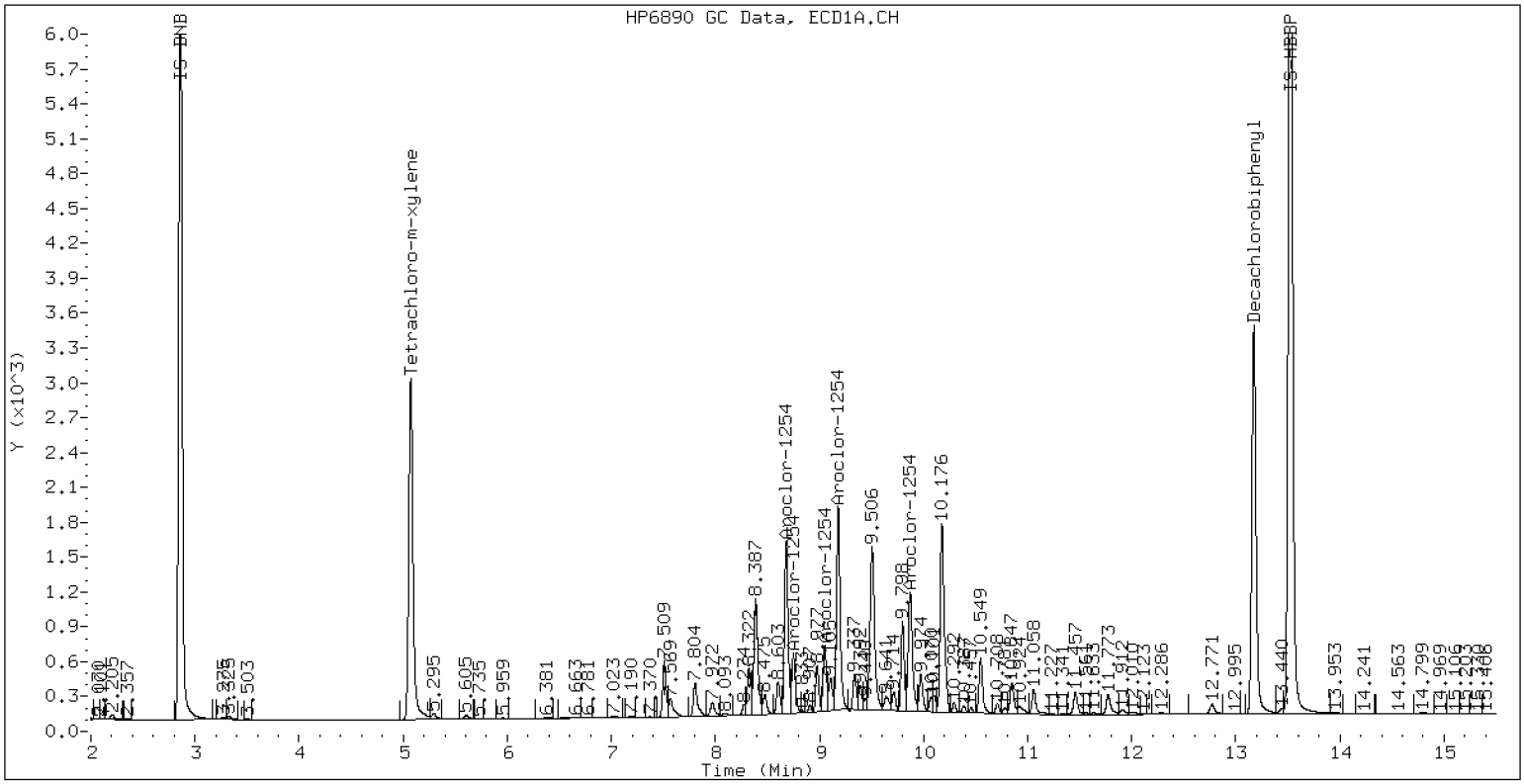
Total PCB Area Col2 (5.173 - 13.068) = 2625083 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

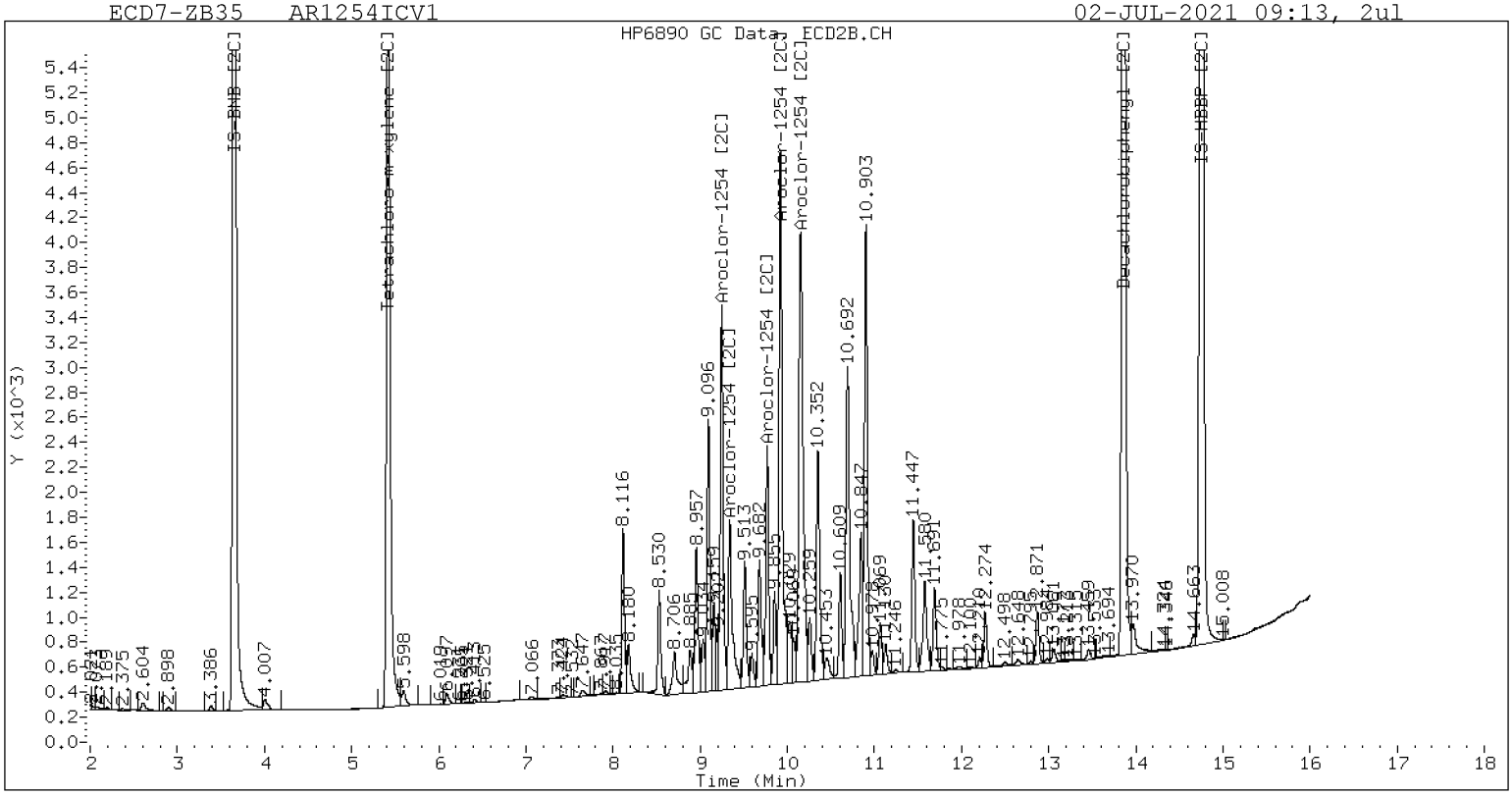
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254ICV1 02-JUL-2021 09:13, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254ICV1 02-JUL-2021 09:13, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022103ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-ICV2	Injection Time:	09:34
Sequence Name:	AR1660ICV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1016	A	250.00	265	0.0413247	0.0439322		6.1	+/-20
Aroclor-1016 (1)	A	250.00	270	0.0248166	0.0268423		8.0	
Aroclor-1016 (2)	A	250.00	266	0.0837401	0.0892435		6.4	
Aroclor-1016 (3)	A	250.00	263	0.0340179	0.0358523		5.2	
Aroclor-1016 (4)	A	250.00	262	0.0227243	0.0237906		4.8	
Aroclor 1016 [2C]	A	250.00	267	0.0466427	0.0489930		6.6	+/-20
Aroclor-1016 (1) [2C]	A	250.00	263	0.0412076	0.0433326		5.2	
Aroclor-1016 (2) [2C]	A	250.00	257	0.0906438	0.0930903		2.8	
Aroclor-1016 (3) [2C]	A	250.00	270	0.0339420	0.0366209		8.0	
Aroclor-1016 (4) [2C]	A	250.00	276	0.0207774	0.0229280		10.4	
Aroclor 1260	A	250.00	276	0.0388495	0.0431916		10.3	+/-20
Aroclor-1260 (1)	A	250.00	257	0.0293254	0.0301533		2.8	
Aroclor-1260 (2)	A	250.00	279	0.0301531	0.0336791		11.6	
Aroclor-1260 (3)	A	250.00	283	0.0789877	0.0894649		13.2	
Aroclor-1260 (4)	A	250.00	282	0.0402598	0.0454059		12.8	
Aroclor-1260 (5)	A	250.00	278	0.0155216	0.0172549		11.2	
Aroclor 1260 [2C]	A	250.00	257	0.0752611	0.0752673		2.9	+/-20
Aroclor-1260 (1) [2C]	A	250.00	276	0.0498903	0.0551038		10.4	
Aroclor-1260 (2) [2C]	A	250.00	238	0.1301480	0.1236880		-4.8	
Aroclor-1260 (3) [2C]	A	250.00	244	0.0846293	0.0828012		-2.4	
Aroclor-1260 (4) [2C]	A	250.00	271	0.0363769	0.0394760		8.4	
Decachlorobiphenyl	A	40.000	43.0	0.7132713	0.7659340		7.5	+/-20
Tetrachlorometaxylene	A	40.000	43.7	0.9552374	1.0436040		9.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.0	1.4343710	1.4330160		0.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.2	0.9862409	1.0419620		5.5	+/-20

* Values outside of QC limits

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

Data file 1: /210702.b/07022103ECD7.D
Data file 2: /210702.b/210702.b/07022103ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.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-JUL-2021 09:34
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.073	-0.000	164474	5.422	-0.001	372939	43.7	42.3	3.4	Tetrachloro-m-xylene
13.171	0.003	187344	13.861	0.001	594650	43.0	40.0	7.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	315204	6.3
Hexabromobiphenyl	470266	489191	4.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	715840	0.5
Hexabromobiphenyl	867949	829928	-4.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT (ZB5 Col)	Shift	Area	Amount	Peak#	RT (ZB35 Col)	Shift	Area	Amount
Aroclor-1016	1	6.663	-0.000	26440	270.4	1	7.067	-0.001	96935	262.9
Aroclor-1016	2	7.033	0.000	87906	266.4	2	7.657	0.000	208243	256.7
Aroclor-1016	3	7.180	0.000	35315	263.5	3	7.865	-0.000	81921	269.7
Aroclor-1016	4	7.290	0.000	23434	261.7	4	8.037	-0.000	51290	275.9
Total Col1Ave (4 peaks):				265.5		Total Col2Ave (4 peaks):			266.3	RPD = 0
Corrected Ave (3 peaks):				263.9		Corrected Ave (3 peaks):			263.1	RPD = 0
CalAmt %D:				6.2		CalAmt %D:			6.5	
Aroclor-1260	1	10.388	0.000	46096	257.1	1	11.439	0.001	142913	276.1
Aroclor-1260	2	10.706	0.000	51486	279.2	2	11.690	0.001	320788	237.6
Aroclor-1260	3	11.056	0.002	136767	283.2	3	12.272	0.000	214747	244.6
Aroclor-1260	4	11.456	0.001	69413	282.0	4	12.984	0.001	102382	271.3
Aroclor-1260	5	11.560	0.001	26378	277.9	NS	---			----
Total Col1Ave (5 peaks):				275.9		Total Col2Ave (4 peaks):			257.4	RPD = 7
Corrected Ave (4 peaks):				274.0		Corrected Ave (3 peaks):			251.2	RPD = 9
CalAmt %D:				10.3		CalAmt %D:			3.0	

Total PCB Area Col1 (5.173 - 13.068) = 1439980 Col1 Total PCB = 0.5 ppm*

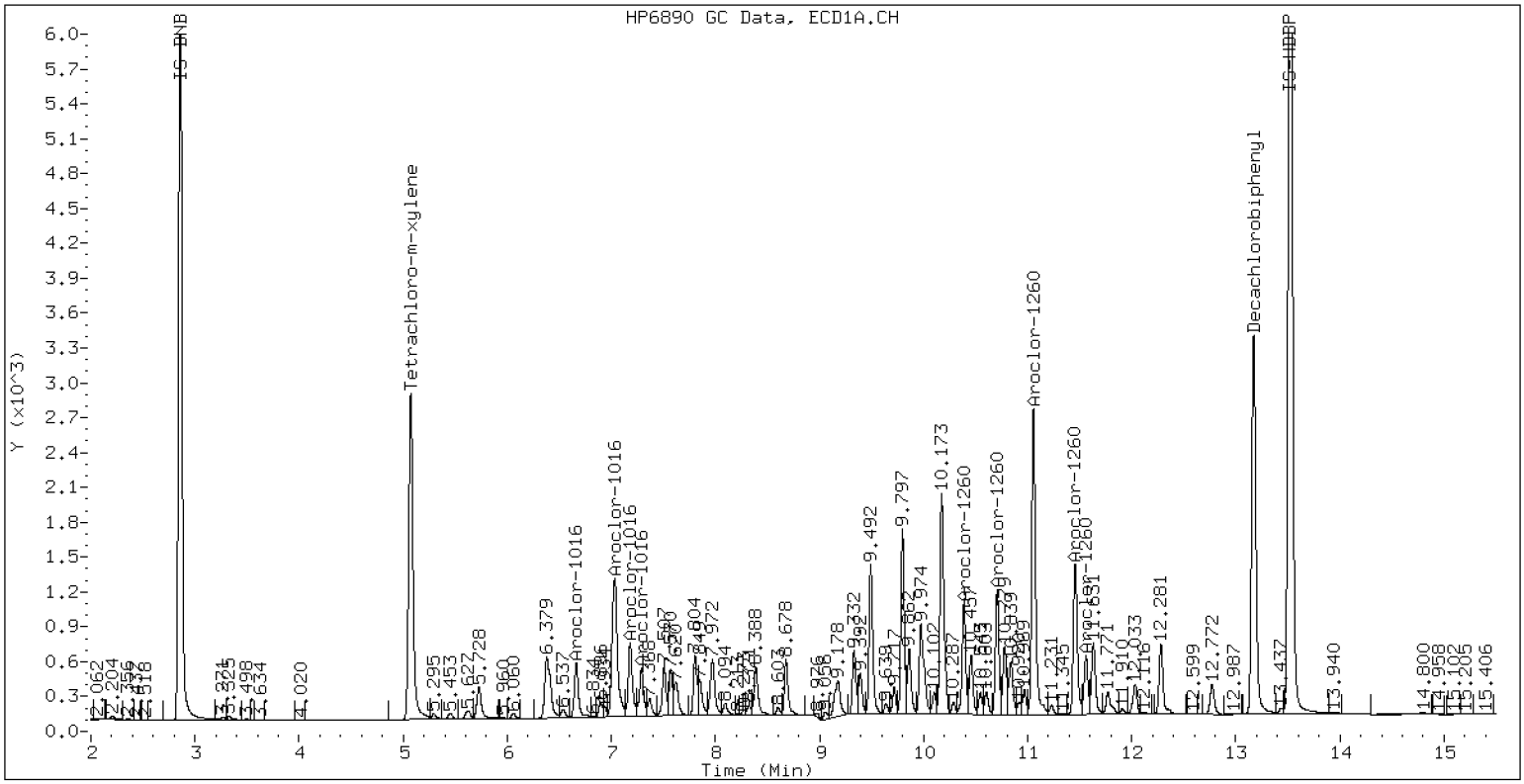
Total PCB Area Col2 (5.173 - 13.068) = 3827762 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

PCB Dual Column Chromatograms

ECD7-ZB5 AR1660ICV2 02-JUL-2021 09:34, 2ul



ZB-5 Manual Integration: NO

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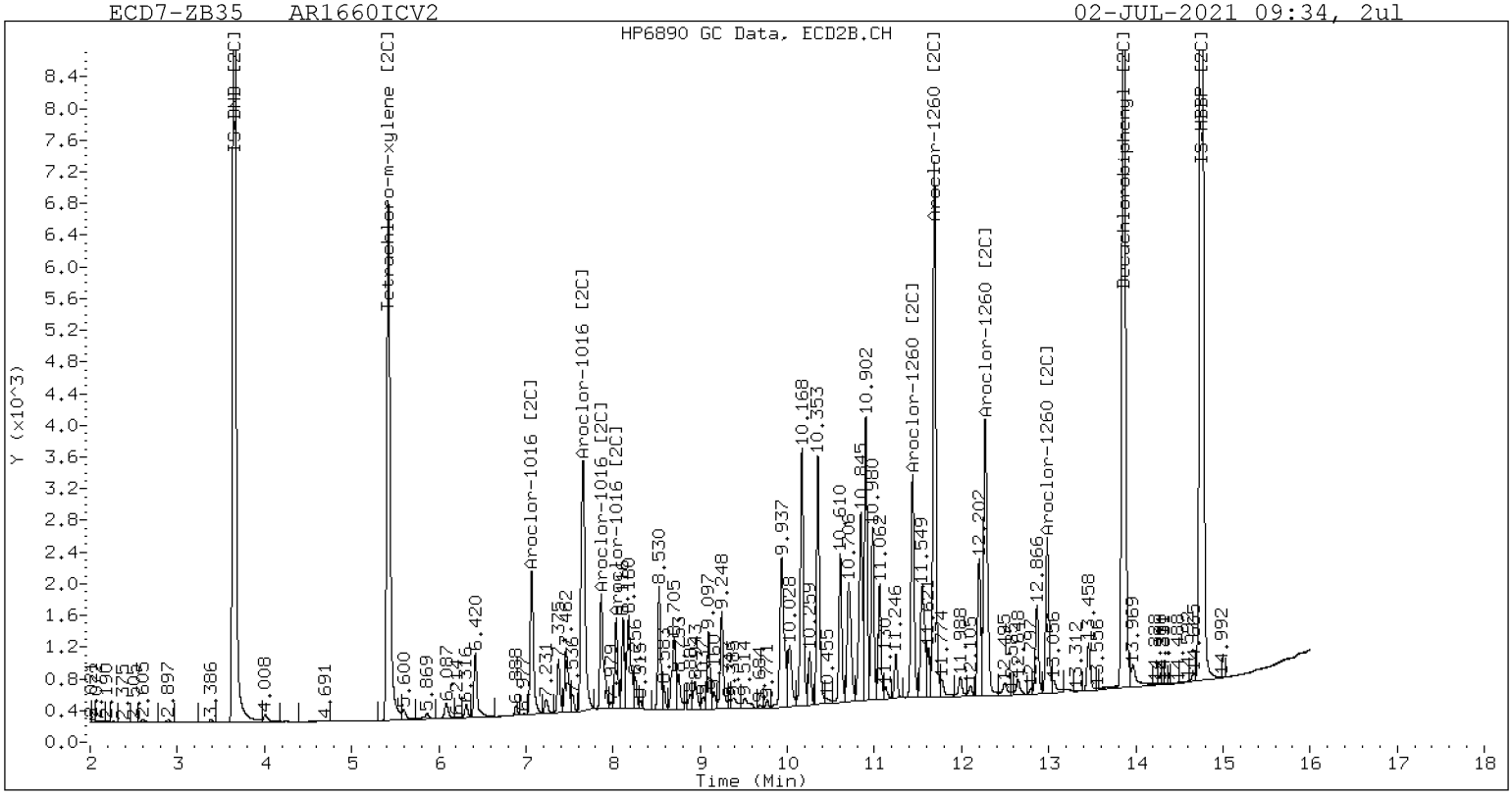


ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	05222117ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJE0321	Injection Date:	05/22/21
Lab Sample ID:	SJE0321-SCV1	Injection Time:	19:32
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	250	0.0413247	0.0413589		-0.2	+/-20
Aroclor 1016 [2C]	A	250.00	250	0.0466427	0.0464522		0.2	+/-20
Aroclor 1260	A	250.00	295	0.0388495	0.0455628		17.8	+/-20
Aroclor 1260 [2C]	A	250.00	287	0.0752611	0.0850897		14.8	+/-20
Decachlorobiphenyl	A	40.000	39.8	0.7132713	0.7105296		-0.4	+/-20
Tetrachlorometaxylene	A	40.000	42.4	0.9552374	1.0121580		6.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.0	1.4343710	1.3995010		-2.4	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.6	0.9862409	1.0004460		1.4	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210522.b/05222117ECD7.D
Data file 2: /210522.b/210522.b/05222117ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 22-MAY-2021 19:32
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	0.000	150100	5.424	-0.000	360043	42.4	40.6	4.4	Tetrachloro-m-xylene
13.178	0.002	171195	13.872	0.002	637856	39.8	39.0	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296594	0.0
Hexabromobiphenyl	470266	481880	2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	719765	1.1
Hexabromobiphenyl	867949	911548	5.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.666	0.001	22769	247.5	1	7.071	0.001	92068	248.3
Aroclor-1016	2	7.034	0.000	78003	251.2	2	7.661	0.001	201632	247.2
Aroclor-1016	3	7.182	0.001	31610	250.6	3	7.869	0.001	76459	250.4
Aroclor-1016	4	7.291	0.001	20953	248.7	4	8.041	0.002	47774	255.6
Total Col1Ave (4 peaks):					249.5	Total Col2Ave (4 peaks):				250.4 RPD = 0
Corrected Ave (3 peaks):					248.9	Corrected Ave (3 peaks):				248.6 RPD = 0
Aroclor-1221	1	4.026	0.004	113	5.2	1	4.692	-0.000	432	9.2
Aroclor-1221	2	5.455	-0.000	2657	70.7	2	6.089	0.005	11633	105.7
Aroclor-1221	3	5.729	0.000	16535	173.5	3	6.423	0.001	39442	194.5
Total Col1Ave (3 peaks):					83.1	Total Col2Ave (3 peaks):				103.2 RPD = 22
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.026	0.005	113	8.4	1	4.692	0.000	432	14.6
Aroclor-1232	2	5.729	0.001	16535	203.3	2	6.089	0.004	11633	146.7
Aroclor-1232	3	7.034	0.001	78003	570.6	3	6.423	0.000	39442	226.8
Aroclor-1232	4	8.606	-0.009	2061	50.2	4	7.661	-0.001	201632	554.0
Total Col1Ave (4 peaks):					208.1	Total Col2Ave (4 peaks):				235.5 RPD = 12
Corrected Ave (3 peaks):					87.3	Corrected Ave (3 peaks):				129.4 RPD = 39
Aroclor-1242	1	6.666	0.001	22769	278.0	1	7.071	0.001	92068	288.1
Aroclor-1242	2	7.034	0.000	78003	293.3	2	7.661	0.002	201632	291.7
Aroclor-1242	3	8.276	0.005	2315	63.3	3	8.950	-0.008	27869	89.2
Aroclor-1242	4	8.606	-0.005	2061	25.2	4	9.040	0.003	7790	28.3
Total Col1Ave (4 peaks):					165.0	Total Col2Ave (4 peaks):				174.3 RPD = 6
Corrected Ave (3 peaks):					122.2	Corrected Ave (3 peaks):				135.2 RPD = 10
Aroclor-1248	1	7.807	0.001	21433	173.2	1	8.122	0.001	43799	166.9
Aroclor-1248	2	7.974	0.001	29322	191.0	2	8.536	0.001	66601	186.6
Aroclor-1248	3	8.324	0.002	4130	26.9	3	8.950	-0.011	27869	54.2
Aroclor-1248	4	8.606	-0.007	2061	15.2	4	9.391	0.002	5888	10.7
Total Col1Ave (4 peaks):					101.6	Total Col2Ave (4 peaks):				104.6 RPD = 3
Corrected Ave (3 peaks):					71.7	Corrected Ave (3 peaks):				77.3 RPD = 7
Aroclor-1254	1	8.682	-0.000	16848	67.2	1	9.255	-0.000	44067	80.9
Aroclor-1254	2	---			0.0	2	9.349	0.002	2467	7.7
Aroclor-1254	3	9.050	0.001	1728	11.2	3	9.781	0.001	6046	14.7
Aroclor-1254	4	9.178	-0.005	15131	49.7	4	9.947	0.017	111904	122.7
Aroclor-1254	5	9.867	-0.008	22044	107.5	5	10.177	0.016	145643	148.9
Total Col1Ave (4 peaks):					58.9	Total Col2Ave (5 peaks):				75.0 RPD = 24
Corrected Ave (3 peaks):					42.7	Corrected Ave (4 peaks):				56.5 RPD = 28
Aroclor-1260	1	10.394	0.003	53063	300.4	1	11.446	0.000	155193	273.0
Aroclor-1260	2	10.712	0.001	53264	293.3	2	11.699	0.002	412469	278.1
Aroclor-1260	3	11.062	0.002	141369	297.1	3	12.282	0.002	271072	281.1
Aroclor-1260	4	11.463	0.004	66669	274.9	4	12.994	0.002	130808	315.6
Aroclor-1260	5	11.566	0.001	28694	306.9	NS	---			----
Total Col1Ave (5 peaks):					294.5	Total Col2Ave (4 peaks):				287.0 RPD = 3
Corrected Ave (4 peaks):					291.4	Corrected Ave (3 peaks):				277.4 RPD = 5
Aroclor-1262	1	10.394	-0.001	53063	175.1	1	10.989	-0.000	162597	177.6
Aroclor-1262	2	11.463	0.000	66669	341.0	2	11.699	-0.001	412469	227.8
Aroclor-1262	3	11.638	-0.000	37034	140.4	3	12.211	0.003	127645	147.0
Aroclor-1262	4	12.286	-0.001	33351	160.0	4	12.994	0.001	130808	166.0
Total Col1Ave (4 peaks):					204.1	Total Col2Ave (4 peaks):				179.6 RPD = 13
Corrected Ave (3 peaks):					158.5	Corrected Ave (3 peaks):				163.5 RPD = 3
Aroclor-1268	1	11.566	-0.001	28694	35.5	1	12.211	0.004	127645	48.2
Aroclor-1268	2	11.638	0.002	37034	45.2	2	12.282	0.008	271072	93.9
Aroclor-1268	3	12.040	0.029	15321	23.8	3	12.659	-0.001	4976	2.0
Aroclor-1268	4	12.781	-0.000	8326	4.1	4	13.469	-0.003	26590	3.2
Total Col1Ave (4 peaks):					27.1	Total Col2Ave (4 peaks):				36.8 RPD = 30

Corrected Ave (3 peaks): 21.1 Corrected Ave (3 peaks): 17.8 RPD = 17

Total PCB Area Col1 (5.174 - 13.076) = 1346327 Col1 Total PCB = 0.5 ppm*

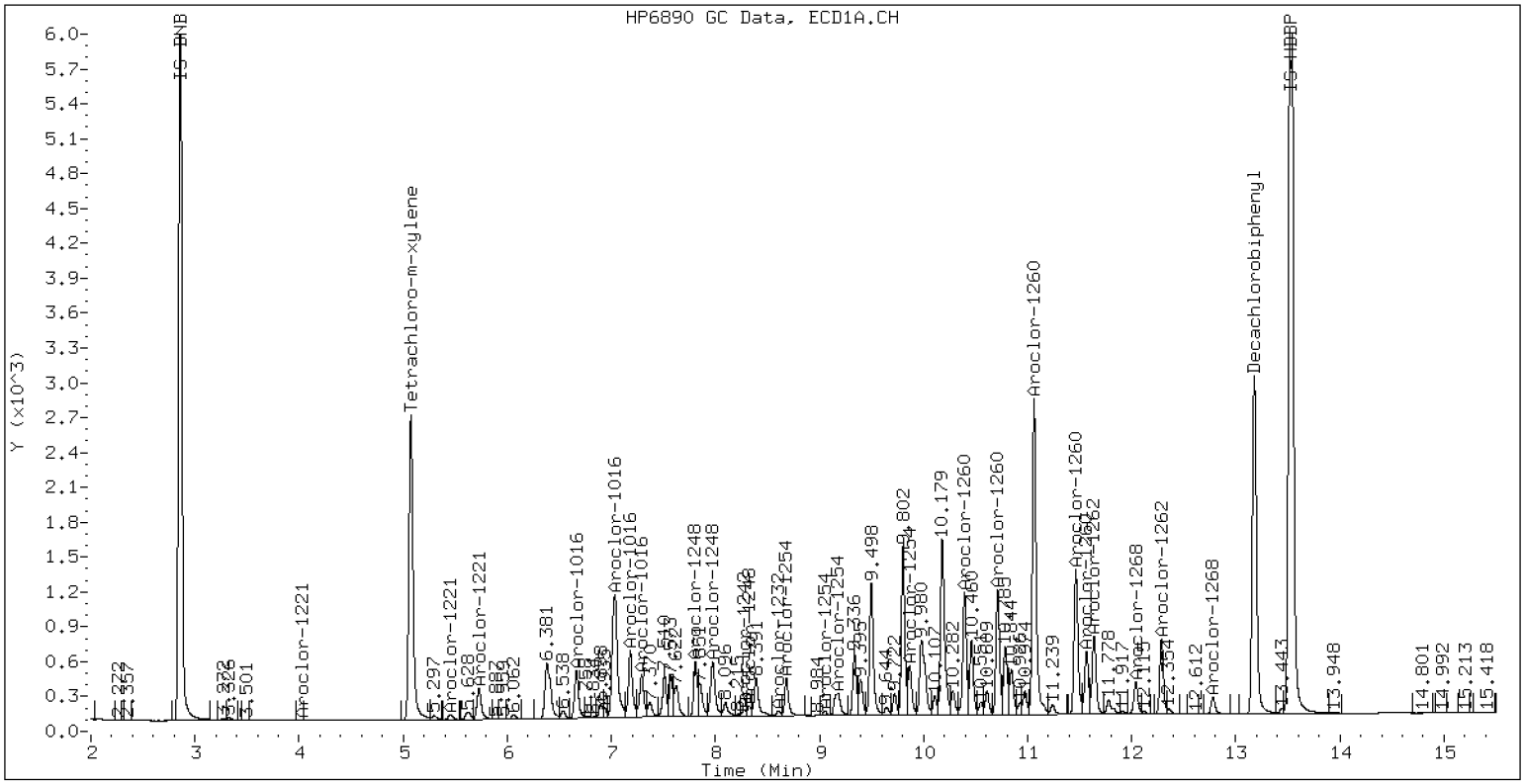
Total PCB Area Col2 (5.174 - 13.076) = 4068268 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

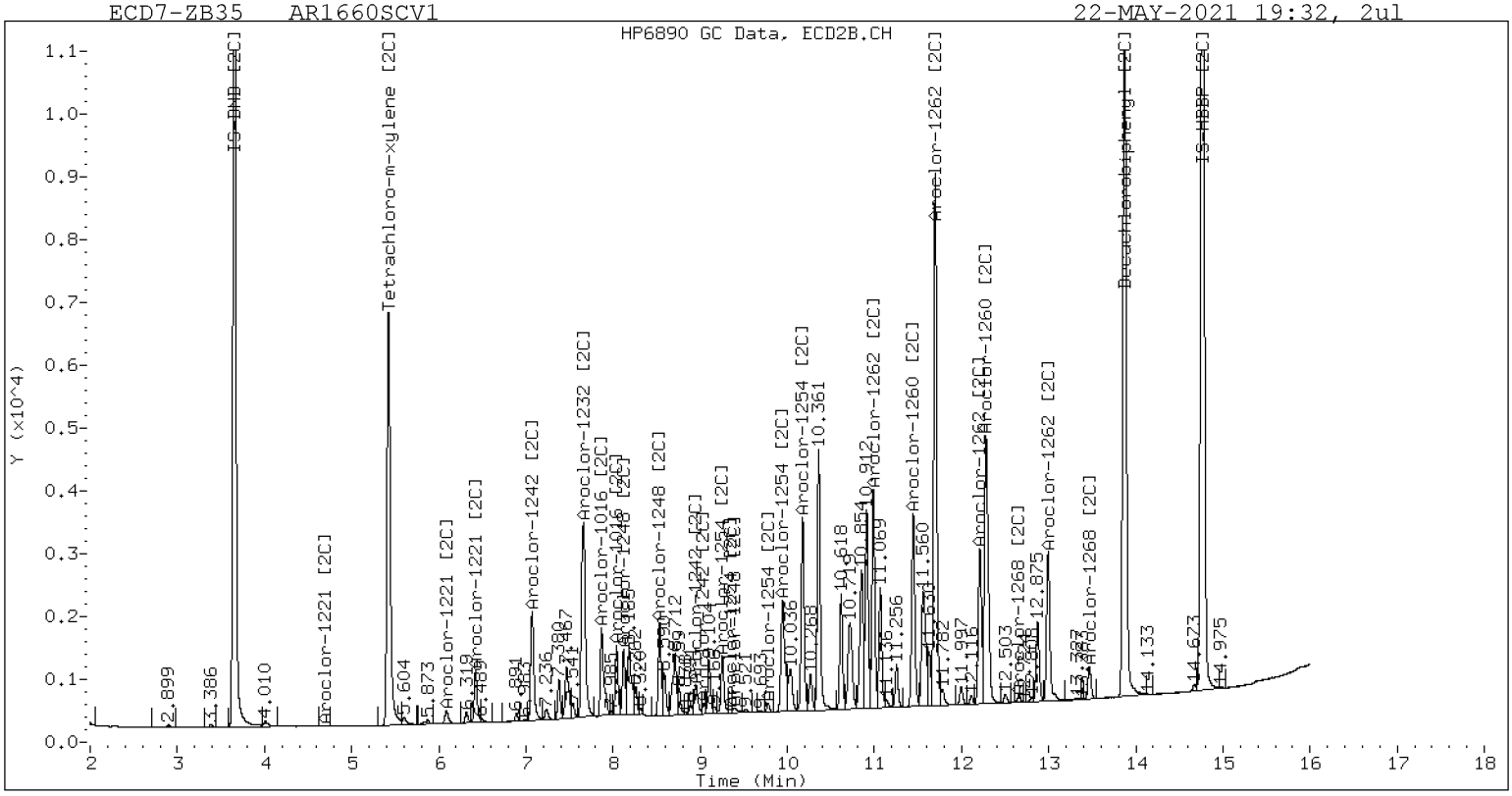
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 22-MAY-2021 19:32, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 22-MAY-2021 19:32, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	05222118ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJE0321	Injection Date:	05/22/21
Lab Sample ID:	SJE0321-SCV2	Injection Time:	19:53
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	226	0.0314312	0.0283653		-9.7	+/-20
Aroclor 1242 [2C]	A	250.00	222	0.0444064	0.0397477		-11.3	+/-20
Decachlorobiphenyl	A	40.000	40.3	0.7132713	0.7180920		0.7	+/-20
Tetrachlorometaxylene	A	40.000	41.8	0.9552374	0.9981255		4.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.3	1.4343710	1.4447660		0.7	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.5	0.9862409	0.9974522		1.1	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210522.b/05222118ECD7.D
Data file 2: /210522.b/210522.b/05222118ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 22-MAY-2021 19:53
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.073	-0.001	148026	5.424	-0.000	355279	41.8	40.5	3.3	Tetrachloro-m-xylene
13.177	0.001	171517	13.873	0.003	654853	40.3	40.3	0.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296608	0.1
Hexabromobiphenyl	470266	477702	1.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	712373	0.1
Hexabromobiphenyl	867949	906518	4.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.665	-0.000	18392	199.9	1	7.071	-0.000	72036	196.3
Aroclor-1016	2	7.033	-0.001	59895	192.9	2	7.660	0.000	156335	193.7
Aroclor-1016	3	7.182	0.001	24546	194.6	3	7.869	0.001	59486	196.8
Aroclor-1016	4	7.291	0.001	16263	193.0	4	8.041	0.001	37109	200.6
Total Col1Ave (4 peaks):				195.1		Total Col2Ave (4 peaks):			196.8	RPD = 1
Corrected Ave (3 peaks):				193.5		Corrected Ave (3 peaks):			195.6	RPD = 1
Aroclor-1221	1	4.021	-0.002	126	5.7	1	---			0.0
Aroclor-1221	2	5.453	-0.002	2075	55.2	2	6.090	0.006	9535	87.6
Aroclor-1221	3	5.729	-0.001	12906	135.4	3	6.422	0.000	30451	151.7
Total Col1Ave (3 peaks):				65.5		Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.021	-0.000	126	9.4	1	---			0.0
Aroclor-1232	2	5.729	-0.000	12906	158.7	2	6.090	0.006	9535	121.5
Aroclor-1232	3	7.033	-0.001	59895	438.1	3	6.422	-0.001	30451	176.9
Aroclor-1232	4	8.614	-0.001	18633	453.8	4	7.660	-0.002	156335	434.0
Total Col1Ave (4 peaks):				265.0		Total Col2Ave (3 peaks):			244.1	RPD = 8
Corrected Ave (3 peaks):				202.1		Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.665	0.000	18392	224.6	1	7.071	-0.000	72036	227.8
Aroclor-1242	2	7.033	-0.001	59895	225.2	2	7.660	0.001	156335	228.5
Aroclor-1242	3	8.275	0.003	8247	225.5	3	8.961	0.003	69303	224.1
Aroclor-1242	4	8.614	0.003	18633	228.1	4	9.040	0.004	56266	206.9
Total Col1Ave (4 peaks):				225.8		Total Col2Ave (4 peaks):			221.8	RPD = 2
Corrected Ave (3 peaks):				225.1		Corrected Ave (3 peaks):			219.6	RPD = 2
Aroclor-1248	1	7.806	-0.001	17228	139.2	1	8.121	-0.001	35861	138.1
Aroclor-1248	2	7.974	0.001	24199	157.6	2	8.536	0.000	54676	154.8
Aroclor-1248	3	8.322	0.000	19391	126.2	3	8.961	0.000	69303	136.3
Aroclor-1248	4	8.614	0.001	18633	137.1	4	9.391	0.001	77643	143.2
Total Col1Ave (4 peaks):				140.0		Total Col2Ave (4 peaks):			143.1	RPD = 2
Corrected Ave (3 peaks):				134.1		Corrected Ave (3 peaks):			139.2	RPD = 4
Aroclor-1254	1	8.683	0.001	12254	48.9	1	9.255	-0.000	28380	52.6
Aroclor-1254	2	8.753	0.000	5283	57.9	2	9.391	0.044	77643	244.1
Aroclor-1254	3	9.050	0.002	5840	38.0	3	9.781	0.001	18362	45.2
Aroclor-1254	4	9.185	0.003	9954	32.7	4	9.930	0.000	37314	41.4
Aroclor-1254	5	9.881	0.005	6746	32.9	5	10.160	-0.000	39089	40.4
Total Col1Ave (5 peaks):				42.1		Total Col2Ave (5 peaks):			84.7	RPD = 67*
Corrected Ave (4 peaks):				38.1		Corrected Ave (4 peaks):			44.9	RPD = 16
Aroclor-1260	1	10.393	0.002	187	1.1	1	11.458	0.012	3982	7.0
Aroclor-1260	2	10.713	0.002	208	1.2	2	11.703	0.006	2513	1.7
Aroclor-1260	3	11.063	0.004	540	1.1	3	12.285	0.005	1926	2.0
Aroclor-1260	4	11.466	0.006	450	1.9	4	13.071	0.079	5406	13.1
Aroclor-1260	5	---			0.0	NS	---			----
Total Col1Ave (4 peaks):				1.3		Total Col2Ave (4 peaks):			6.0	RPD = 128*
Corrected Ave (3 peaks):				1.1		Corrected Ave (3 peaks):			3.6	RPD = 105*
Aroclor-1262	1	10.393	-0.001	187	0.6	1	10.914	-0.075	13876	15.2
Aroclor-1262	2	11.466	0.003	450	2.3	2	11.703	0.003	2513	1.4
Aroclor-1262	3	---			0.0	3	12.209	0.001	1037	1.2
Aroclor-1262	4	12.313	0.026	270	1.3	4	13.071	0.078	5406	6.9
Total Col1Ave (3 peaks):				1.4		Total Col2Ave (4 peaks):			6.2	RPD = 125*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):			3.2	
Aroclor-1268	1	---			0.0	1	12.209	0.002	1037	0.4
Aroclor-1268	2	---			0.0	2	12.285	0.010	1926	0.7
Aroclor-1268	3	12.011	-0.000	683	1.1	3	12.658	-0.002	2315	0.9
Aroclor-1268	4	12.779	-0.002	1999	1.0	4	13.467	-0.005	4164	0.5
Col1Ave: <3 Quant Peaks						Col2Ave: 0.6				

Total PCB Area Col1 (5.174 - 13.076) = 451658 Col1 Total PCB = 0.2 ppm*

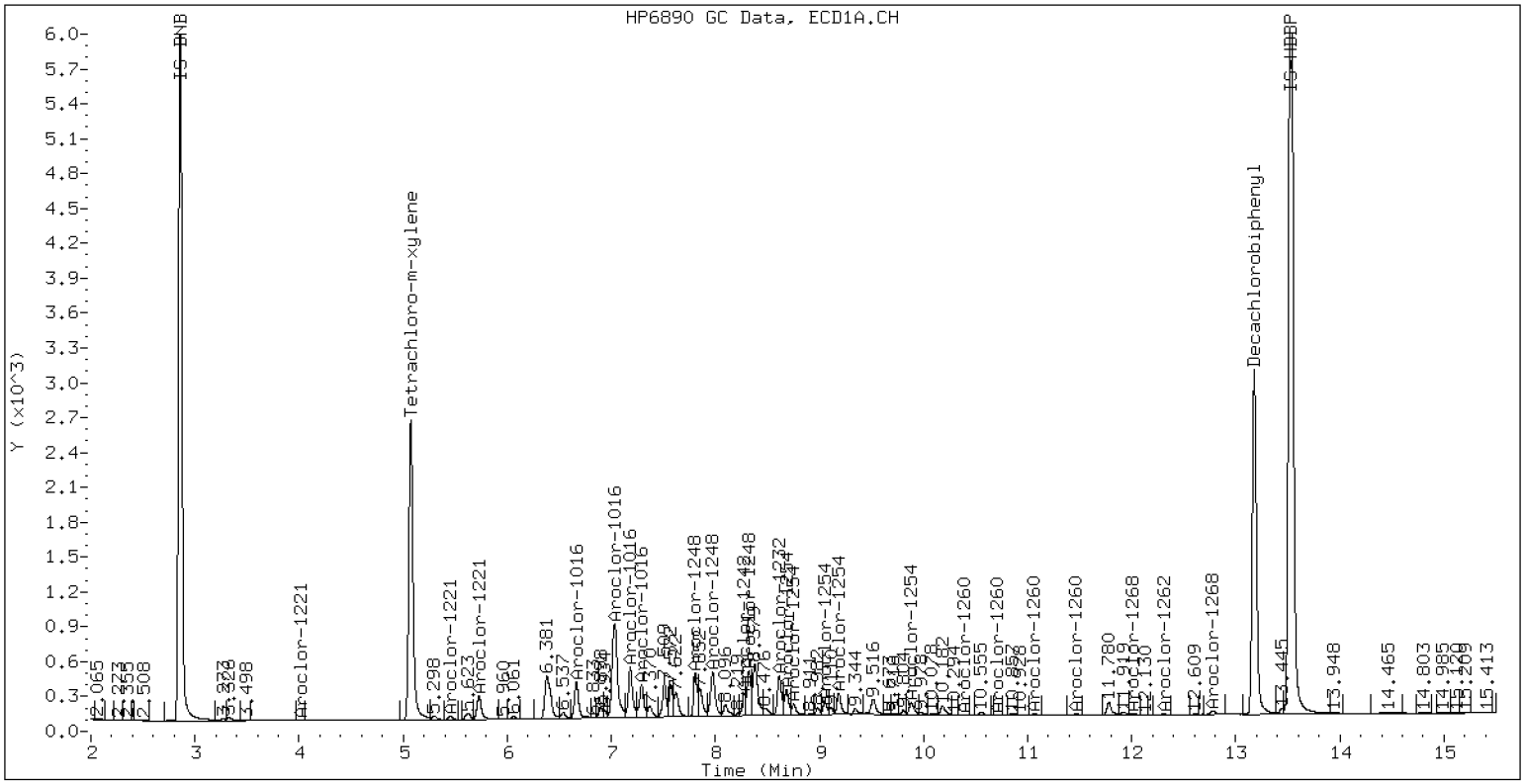
Total PCB Area Col2 (5.174 - 13.076) = 1609207 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

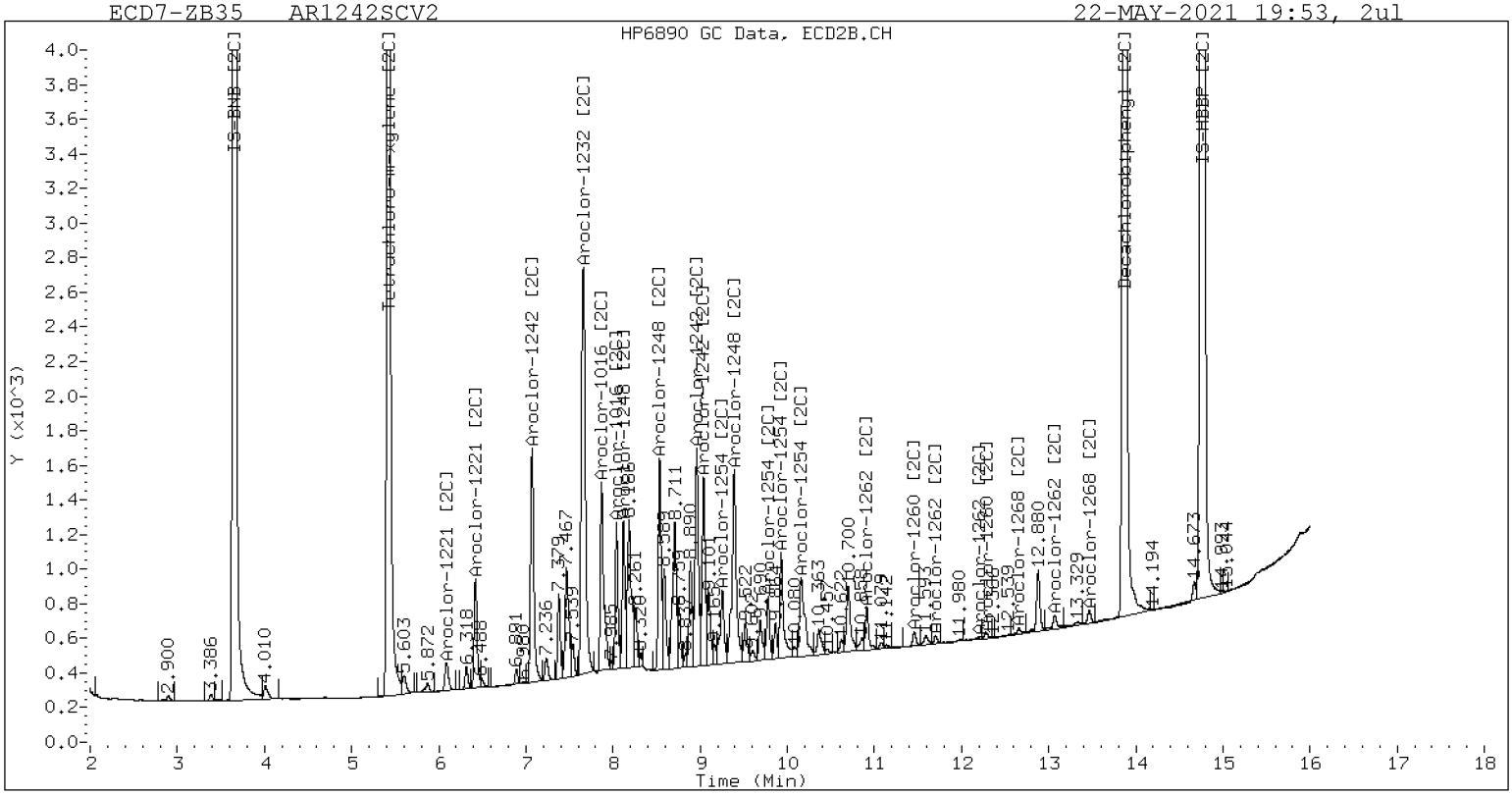
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 22-MAY-2021 19:53, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 22-MAY-2021 19:53, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	05222119ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJE0321	Injection Date:	05/22/21
Lab Sample ID:	SJE0321-SCV3	Injection Time:	20:15
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	239	0.0382260	0.0365000		-4.5	+/-20
Aroclor 1248 [2C]	A	250.00	240	0.0467028	0.0446313		-4.0	+/-20
Decachlorobiphenyl	A	40.000	40.5	0.7132713	0.7226260		1.3	+/-20
Tetrachlorometaxylene	A	40.000	42.7	0.9552374	1.0193710		6.7	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.4	1.4343710	1.4475630		0.9	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.8	0.9862409	1.0055270		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: /210522.b/05222119ECD7.D
Data file 2: /210522.b/210522.b/05222119ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 22-MAY-2021 20:15
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.075	0.001	148558	5.424	0.000	355673	42.7	40.8	4.6	Tetrachloro-m-xylene
13.177	0.001	172097	13.874	0.003	652141	40.5	40.4	0.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	291470	-1.7
Hexabromobiphenyl	470266	476310	1.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	707436	-0.6
Hexabromobiphenyl	867949	901019	3.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.665	0.000	8436	93.3	1	7.070	-0.001	37964	104.2
Aroclor-1016	2	7.032	-0.002	39299	128.8	2	7.657	-0.003	105519	131.6
Aroclor-1016	3	7.185	0.004	14510	117.1	3	7.870	0.002	23528	78.4
Aroclor-1016	4	7.290	0.001	9419	113.8	4	8.042	0.002	19521	106.2
Total Col1Ave (4 peaks):					113.2	Total Col2Ave (4 peaks):				105.1 RPD = 7
Corrected Ave (3 peaks):					108.0	Corrected Ave (3 peaks):				96.3 RPD = 12
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	5.457	0.001	514	13.9	2	6.100	0.016	4839	44.8
Aroclor-1221	3	5.730	0.001	2589	27.6	3	6.422	0.001	7431	37.3
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	5.730	0.001	2589	32.4	2	6.100	0.015	4839	62.1
Aroclor-1232	3	7.032	-0.001	39299	292.5	3	6.422	-0.000	7431	43.5
Aroclor-1232	4	8.613	-0.002	31117	771.2	4	7.657	-0.005	105519	295.0
Total Col1Ave (3 peaks):					365.4	Total Col2Ave (3 peaks):				133.5 RPD = 93*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.665	0.000	8436	104.8	1	7.070	-0.001	37964	120.9
Aroclor-1242	2	7.032	-0.002	39299	150.4	2	7.657	-0.002	105519	155.3
Aroclor-1242	3	8.274	0.003	13538	376.7	3	8.961	0.003	120141	391.2
Aroclor-1242	4	8.613	0.002	31117	387.7	4	9.040	0.003	91529	338.9
Total Col1Ave (4 peaks):					254.9	Total Col2Ave (4 peaks):				251.6 RPD = 1
Corrected Ave (3 peaks):					210.6	Corrected Ave (3 peaks):				205.0 RPD = 3
Aroclor-1248	1	7.807	0.000	29704	244.2	1	8.121	-0.000	63408	245.9
Aroclor-1248	2	7.974	0.001	35985	238.5	2	8.536	0.000	84533	241.0
Aroclor-1248	3	8.323	0.001	36177	239.5	3	8.961	0.000	120141	237.9
Aroclor-1248	4	8.613	0.000	31117	233.0	4	9.391	0.001	126590	235.1
Total Col1Ave (4 peaks):					238.8	Total Col2Ave (4 peaks):				240.0 RPD = 0
Corrected Ave (3 peaks):					237.0	Corrected Ave (3 peaks):				238.0 RPD = 0
Aroclor-1254	1	8.683	0.001	23899	97.0	1	9.255	-0.000	40453	75.5
Aroclor-1254	2	8.753	0.001	11007	122.7	2	9.391	0.044	126590	400.8
Aroclor-1254	3	9.050	0.001	12659	83.8	3	9.780	0.001	36693	91.0
Aroclor-1254	4	9.184	0.002	21298	71.2	4	9.930	0.000	71223	79.5
Aroclor-1254	5	9.881	0.006	14795	73.4	5	10.158	-0.003	48447	50.4
Total Col1Ave (5 peaks):					89.6	Total Col2Ave (5 peaks):				139.4 RPD = 44*
Corrected Ave (4 peaks):					81.4	Corrected Ave (4 peaks):				74.1 RPD = 9
Aroclor-1260	1	10.396	0.005	668	3.8	1	11.456	0.010	5225	9.3
Aroclor-1260	2	10.713	0.002	511	2.8	2	11.701	0.004	5284	3.6
Aroclor-1260	3	11.063	0.003	1423	3.0	3	12.284	0.004	3829	4.0
Aroclor-1260	4	11.464	0.004	549	2.3	4	12.994	0.002	2061	5.0
Aroclor-1260	5	11.570	0.005	526	5.7	NS	---			----
Total Col1Ave (5 peaks):					3.5	Total Col2Ave (4 peaks):				5.5 RPD = 43*
Corrected Ave (4 peaks):					3.0	Corrected Ave (3 peaks):				4.2 RPD = 34
Aroclor-1262	1	10.396	0.002	668	2.2	1	10.988	-0.001	3149	3.5
Aroclor-1262	2	11.464	0.001	549	2.8	2	11.701	0.001	5284	3.0
Aroclor-1262	3	11.638	-0.000	520	2.0	3	12.207	-0.001	2542	3.0
Aroclor-1262	4	12.292	0.005	702	3.4	4	12.994	0.001	2061	2.6
Total Col1Ave (4 peaks):					2.6	Total Col2Ave (4 peaks):				3.0 RPD = 14
Corrected Ave (3 peaks):					2.4	Corrected Ave (3 peaks):				2.9 RPD = 19
Aroclor-1268	1	11.570	0.003	526	0.7	1	12.207	-0.000	2542	1.0
Aroclor-1268	2	11.638	0.001	520	0.6	2	12.284	0.009	3829	1.3
Aroclor-1268	3	12.015	0.004	863	1.4	3	12.657	-0.002	2695	1.1
Aroclor-1268	4	12.780	-0.001	2506	1.3	4	13.467	-0.005	4780	0.6
Total Col1Ave (4 peaks):					1.0	Total Col2Ave (4 peaks):				1.0 RPD = 2
Corrected Ave (3 peaks):					0.9	Corrected Ave (3 peaks):				0.9 RPD = 3

Total PCB Area Col1 (5.174 - 13.076) = 550840 Col1 Total PCB = 0.2 ppm*

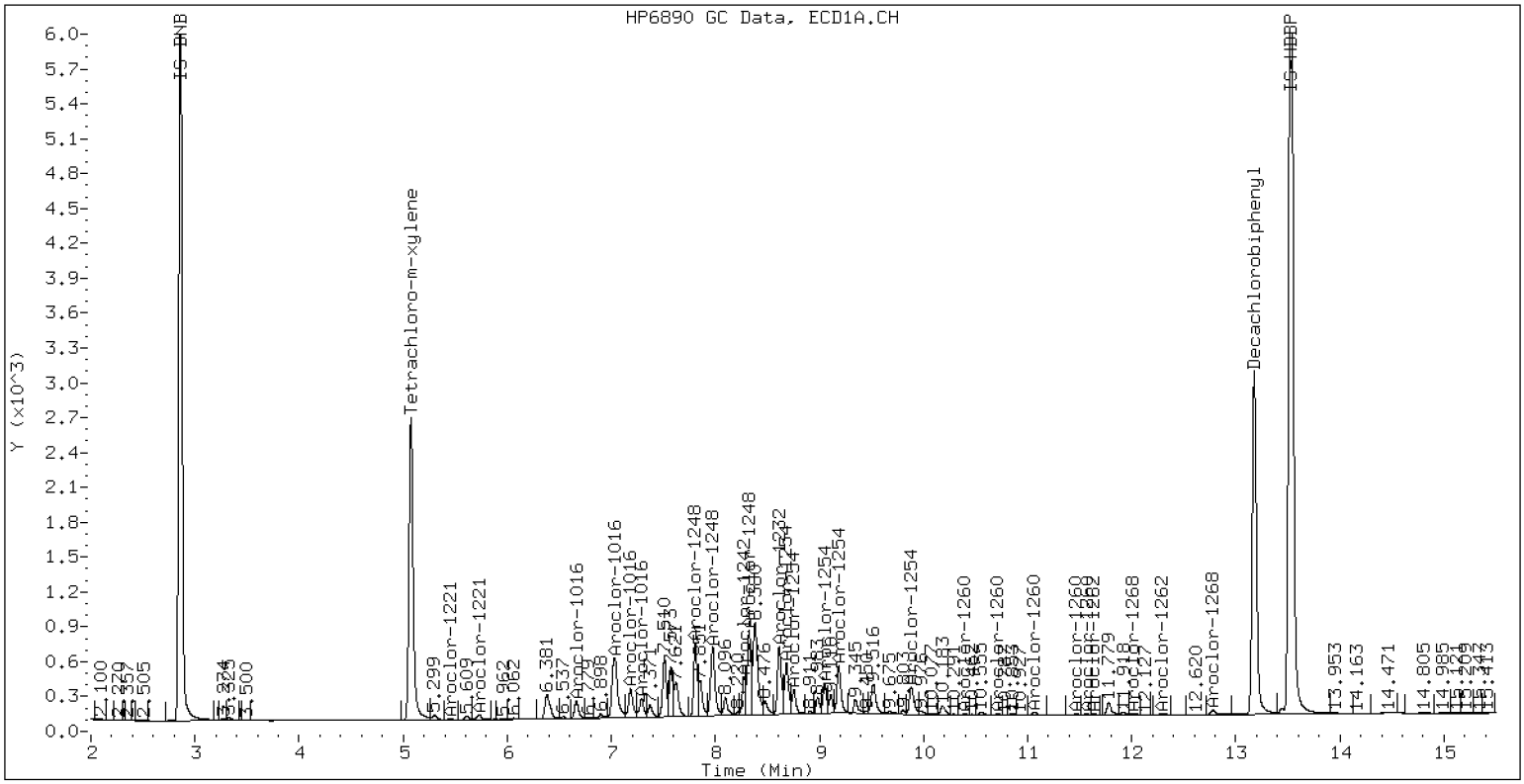
Total PCB Area Col2 (5.174 - 13.076) = 1898867 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

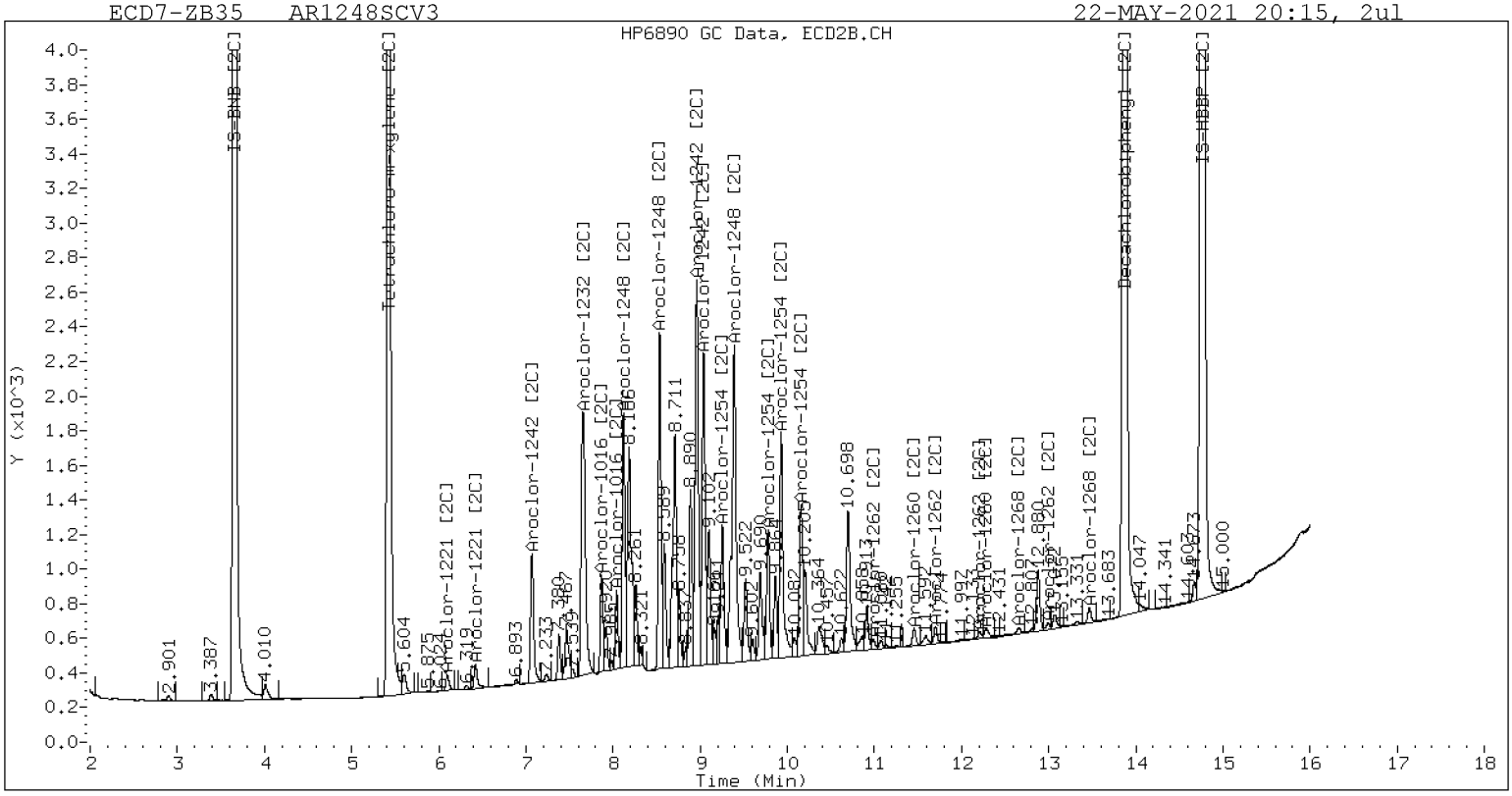
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 22-MAY-2021 20:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 22-MAY-2021 20:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	05222120ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJE0321	Injection Date:	05/22/21
Lab Sample ID:	SJE0321-SCV4	Injection Time:	20:37
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	0.0542238	0.0508372		-5.9	+/-20
Aroclor 1254 [2C]	A	250.00	244	0.0703814	0.0687203		-2.2	+/-20
Decachlorobiphenyl	A	40.000	40.0	0.7132713	0.7139365		0.09	+/-20
Tetrachlorometaxylene	A	40.000	41.7	0.9552374	0.9964360		4.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.6	1.4343710	1.4207020		-1.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.4	0.9862409	0.9959310		1.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210522.b/05222120ECD7.D
Data file 2: /210522.b/210522.b/05222120ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 22-MAY-2021 20:37
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	-0.000	147480	5.423	-0.001	353436	41.7	40.4	3.2	Tetrachloro-m-xylene
13.178	0.002	169697	13.873	0.002	645388	40.0	39.6	1.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296015	-0.1
Hexabromobiphenyl	470266	475384	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	709760	-0.3
Hexabromobiphenyl	867949	908548	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	ZB5 Col Peak#	RT	Shift	Area	Amount	ZB35 Col Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.670	0.005	136	1.5	1	7.071	0.000	986	2.7
Aroclor-1016	2	7.030	-0.005	825	2.7	2	7.655	-0.005	2851	3.5
Aroclor-1016	3	7.192	0.010	462	3.7	3	7.870	0.002	369	1.2
Aroclor-1016	4	7.290	0.000	114	1.4	4	8.044	0.004	353	1.9
Total Col1Ave (4 peaks):					2.3	Total Col2Ave (4 peaks):				2.3 RPD = 2
Corrected Ave (3 peaks):					1.8	Corrected Ave (3 peaks):				1.9 RPD = 6
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.100	0.016	3990	36.8
Aroclor-1221	3	---			0.0	3	6.417	-0.004	870	4.4
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	5.730	0.001	136	1.7	2	6.100	0.015	3990	51.0
Aroclor-1232	3	7.030	-0.004	825	6.0	3	6.417	-0.005	870	5.1
Aroclor-1232	4	8.605	-0.010	10628	259.4	4	7.655	-0.007	2851	7.9
Total Col1Ave (3 peaks):					89.0	Total Col2Ave (3 peaks):				21.3 RPD = 123*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.670	0.005	136	1.7	1	7.071	0.000	986	3.1
Aroclor-1242	2	7.030	-0.004	825	3.1	2	7.655	-0.005	2851	4.2
Aroclor-1242	3	8.324	0.053	18533	507.7	3	8.964	0.006	50428	163.7
Aroclor-1242	4	8.605	-0.006	10628	130.4	4	9.040	0.003	16173	59.7
Total Col1Ave (4 peaks):					160.7	Total Col2Ave (4 peaks):				57.7 RPD = 94*
Corrected Ave (3 peaks):					45.1	Corrected Ave (3 peaks):				22.3 RPD = 67*
Aroclor-1248	1	7.805	-0.001	11633	94.2	1	8.121	-0.000	48527	187.5
Aroclor-1248	2	7.973	0.000	4360	28.5	2	8.536	0.001	30748	87.4
Aroclor-1248	3	8.324	0.002	18533	120.8	3	8.964	0.003	50428	99.5
Aroclor-1248	4	8.605	-0.008	10628	78.4	4	9.348	-0.042	74662	138.2
Total Col1Ave (4 peaks):					80.5	Total Col2Ave (4 peaks):				128.2 RPD = 46*
Corrected Ave (3 peaks):					67.0	Corrected Ave (3 peaks):				108.4 RPD = 47*
Aroclor-1254	1	8.681	-0.000	58854	235.2	1	9.255	-0.001	141492	263.3
Aroclor-1254	2	8.753	0.001	21709	238.2	2	9.348	0.001	74662	235.6
Aroclor-1254	3	9.049	0.000	36329	236.8	3	9.780	0.000	98121	242.6
Aroclor-1254	4	9.183	0.000	70176	231.1	4	9.929	-0.001	214334	238.4
Aroclor-1254	5	9.875	-0.001	48066	234.8	5	10.161	0.000	233499	242.1
Total Col1Ave (5 peaks):					235.2	Total Col2Ave (5 peaks):				244.4 RPD = 4
Corrected Ave (4 peaks):					234.5	Corrected Ave (4 peaks):				239.7 RPD = 2
Aroclor-1260	1	10.392	0.000	2454	14.1	1	11.457	0.011	57455	101.4
Aroclor-1260	2	10.713	0.002	3392	18.9	2	11.702	0.005	38691	26.2
Aroclor-1260	3	11.063	0.003	8860	18.9	3	12.284	0.004	24630	25.6
Aroclor-1260	4	11.464	0.004	9017	37.7	4	12.991	-0.001	1502	3.6
Aroclor-1260	5	11.637	0.072	411	4.5	NS	---			----
Total Col1Ave (5 peaks):					18.8	Total Col2Ave (4 peaks):				39.2 RPD = 70*
Corrected Ave (4 peaks):					14.1	Corrected Ave (3 peaks):				18.5 RPD = 27
Aroclor-1262	1	10.392	-0.003	2454	8.2	1	10.985	-0.004	11671	12.8
Aroclor-1262	2	11.464	0.001	9017	46.7	2	11.702	0.002	38691	21.4
Aroclor-1262	3	11.637	-0.001	411	1.6	3	12.222	0.014	5172	6.0
Aroclor-1262	4	12.293	0.006	557	2.7	4	12.991	-0.002	1502	1.9
Total Col1Ave (4 peaks):					14.8	Total Col2Ave (4 peaks):				10.5 RPD = 34
Corrected Ave (3 peaks):					4.2	Corrected Ave (3 peaks):				6.9 RPD = 49*
Aroclor-1268	1	11.637	0.070	411	0.5	1	12.222	0.015	5172	2.0
Aroclor-1268	2	---			0.0	2	12.284	0.009	24630	8.6
Aroclor-1268	3	12.017	0.006	776	1.2	3	12.662	0.002	1796	0.7
Aroclor-1268	4	12.779	-0.002	1983	1.0	4	13.469	-0.004	4233	0.5
Total Col1Ave (3 peaks):					0.9	Total Col2Ave (4 peaks):				2.9 RPD = 105*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				1.1

Total PCB Area Col1 (5.174 - 13.076) = 715747 Col1 Total PCB = 0.3 ppm*

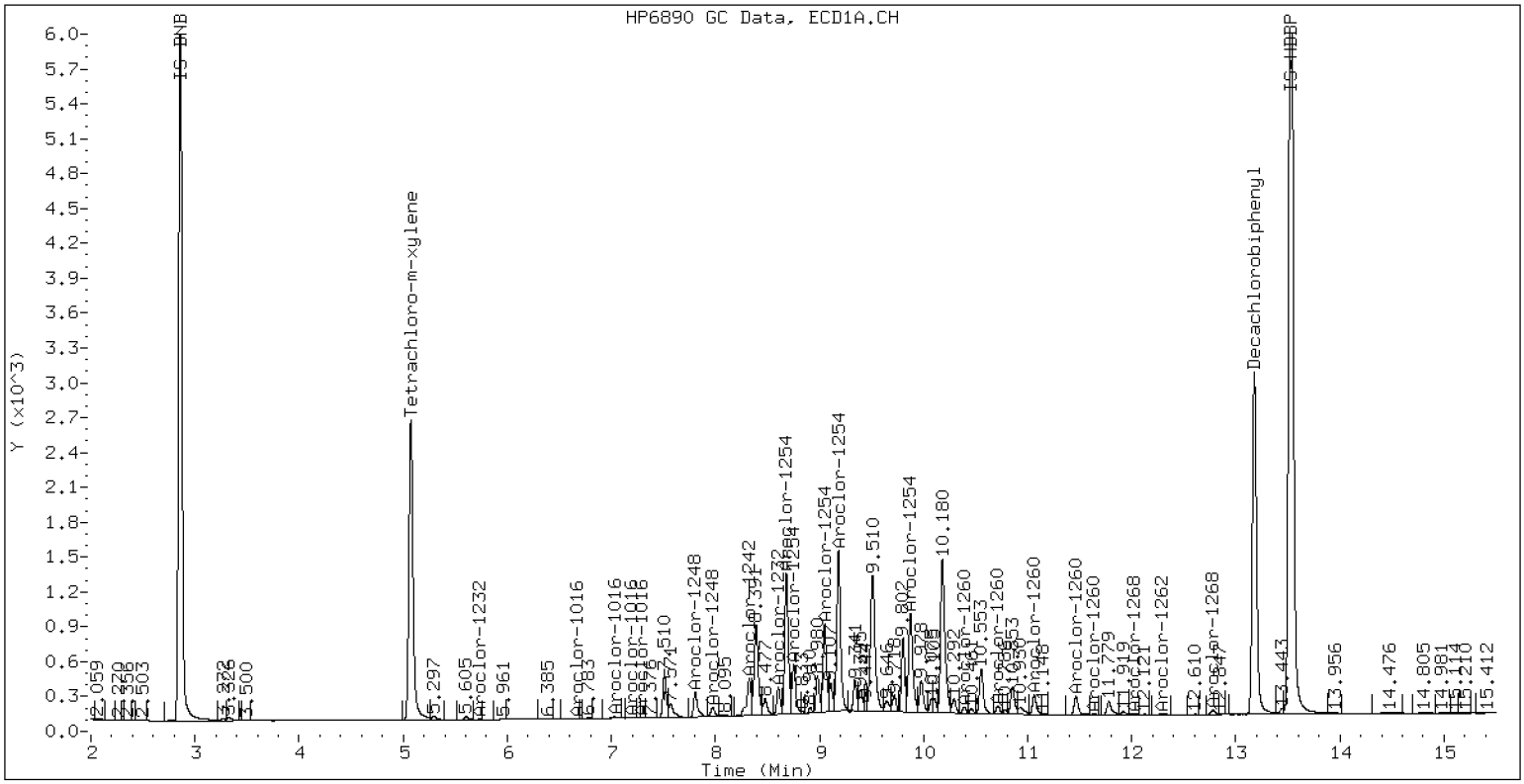
Total PCB Area Col2 (5.174 - 13.076) = 2439127 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

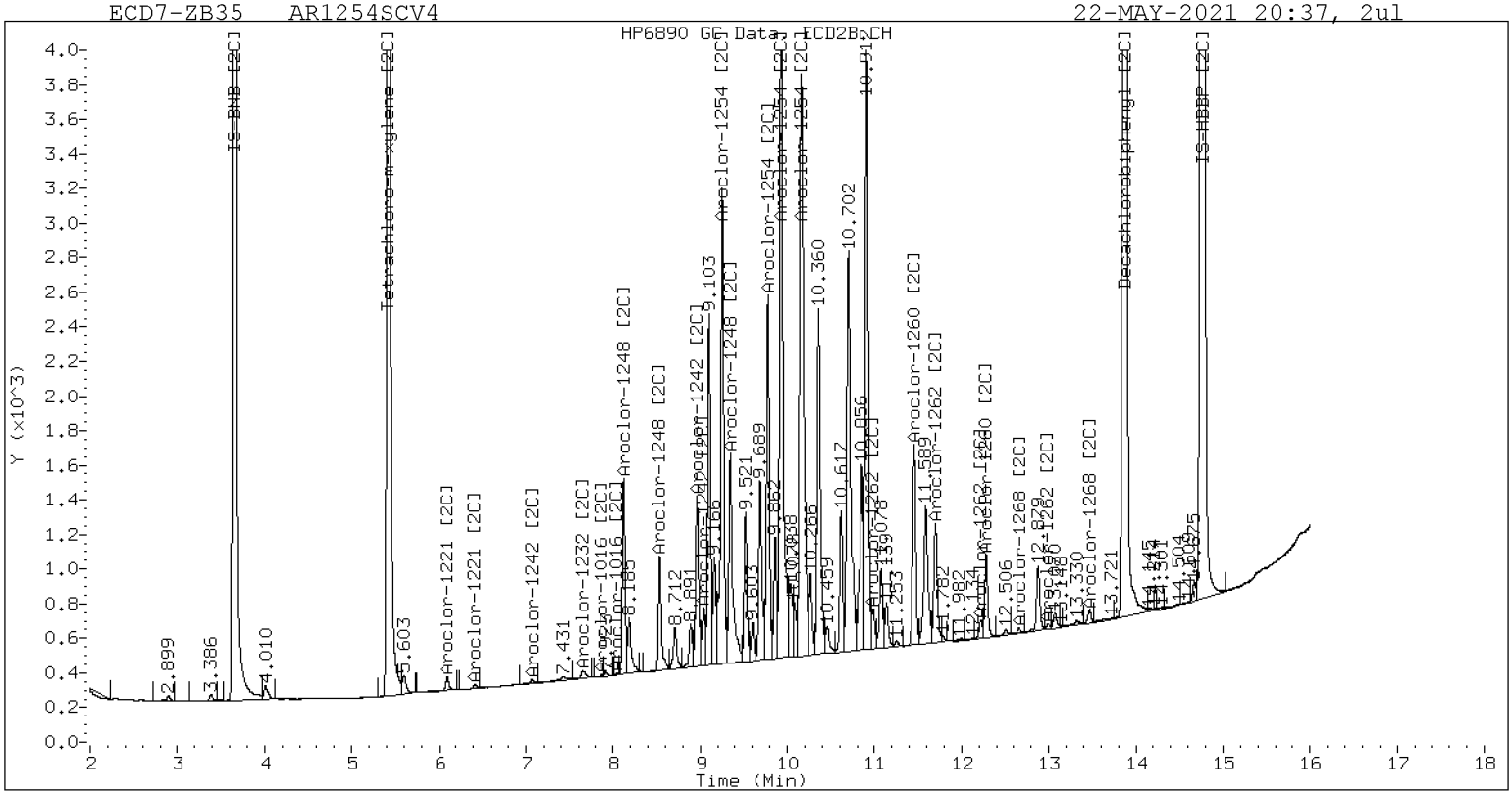
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 22-MAY-2021 20:37, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 22-MAY-2021 20:37, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	05222121ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJE0321	Injection Date:	05/22/21
Lab Sample ID:	SJE0321-SCV5	Injection Time:	20:58
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	262	0.0139192	0.0143559		4.9	+/-20
Aroclor 1221 [2C]	A	250.00	261	0.0133251	0.0137514		4.4	+/-20
Aroclor 1262	A	250.00	253	0.0402931	0.0407449		1.1	+/-20
Aroclor 1262 [2C]	A	250.00	252	0.0961620	0.0967434		0.7	+/-20
Decachlorobiphenyl	A	40.000	39.7	0.7132713	0.7088117		-0.6	+/-20
Tetrachlorometaxylene	A	40.000	41.1	0.9552374	0.9809320		2.7	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.5	1.4343710	1.4172910		-1.2	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.1	0.9862409	0.9650009		-2.2	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210522.b/05222121ECD7.D
Data file 2: /210522.b/210522.b/05222121ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 22-MAY-2021 20:58
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	0.000	144866	5.424	0.000	345727	41.1	39.1	4.8	Tetrachloro-m-xylene
13.178	0.002	169535	13.874	0.004	648797	39.7	39.5	0.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	295364	-0.4
Hexabromobiphenyl	470266	478364	1.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	716532	0.6
Hexabromobiphenyl	867949	915545	5.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.667	0.002	1677	18.3	1	7.081	0.010	15078	40.9
Aroclor-1016	2	7.034	0.000	4823	15.6	2	7.663	0.003	13852	17.1
Aroclor-1016	3	7.183	0.002	2249	17.9	3	7.871	0.003	5670	18.7
Aroclor-1016	4	7.292	0.002	1396	16.6	4	8.043	0.003	3078	16.5
Total Col1Ave (4 peaks):				17.1		Total Col2Ave (4 peaks):			23.3	RPD = 31
Corrected Ave (3 peaks):				16.7		Corrected Ave (3 peaks):			17.4	RPD = 4
Aroclor-1221	1	4.022	-0.001	6055	277.2	1	4.692	-0.000	12493	267.9
Aroclor-1221	2	5.455	0.000	9553	255.2	2	6.085	0.001	28588	261.0
Aroclor-1221	3	5.729	-0.000	24144	254.4	3	6.423	0.001	51294	254.1
Total Col1Ave (3 peaks):				262.3		Total Col2Ave (3 peaks):			261.0	RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.022	0.001	6055	454.0	1	4.692	0.001	12493	423.6
Aroclor-1232	2	5.729	0.000	24144	298.1	2	6.085	-0.000	28588	362.2
Aroclor-1232	3	7.034	0.001	4823	35.4	3	6.423	-0.000	51294	296.3
Aroclor-1232	4	8.610	-0.005	1062	26.0	4	7.663	0.001	13852	38.2
Total Col1Ave (4 peaks):				203.4		Total Col2Ave (4 peaks):			280.1	RPD = 32
Corrected Ave (3 peaks):				119.8		Corrected Ave (3 peaks):			232.2	RPD = 64*
Aroclor-1242	1	6.667	0.002	1677	20.6	1	7.081	0.011	15078	47.4
Aroclor-1242	2	7.034	0.001	4823	18.2	2	7.663	0.003	13852	20.1
Aroclor-1242	3	8.278	0.007	940	25.8	3	8.966	0.008	4328	13.9
Aroclor-1242	4	8.610	-0.001	1062	13.1	4	9.045	0.008	2579	9.4
Total Col1Ave (4 peaks):				19.4		Total Col2Ave (4 peaks):			22.7	RPD = 16
Corrected Ave (3 peaks):				17.3		Corrected Ave (3 peaks):			14.5	RPD = 18
Aroclor-1248	1	7.808	0.002	805	6.5	1	8.121	0.000	2819	10.8
Aroclor-1248	2	7.976	0.003	802	5.2	2	8.537	0.002	2272	6.4
Aroclor-1248	3	8.327	0.005	1117	7.3	3	8.966	0.005	4328	8.5
Aroclor-1248	4	8.610	-0.003	1062	7.8	4	9.393	0.003	7120	13.1
Total Col1Ave (4 peaks):				6.7		Total Col2Ave (4 peaks):			9.7	RPD = 36
Corrected Ave (3 peaks):				6.4		Corrected Ave (3 peaks):			8.5	RPD = 29
Aroclor-1254	1	8.681	-0.000	8014	32.1	1	9.256	0.000	22883	42.2
Aroclor-1254	2	8.749	-0.003	796	8.8	2	9.350	0.003	4670	14.6
Aroclor-1254	3	9.050	0.001	1147	7.5	3	9.781	0.001	4047	9.9
Aroclor-1254	4	9.155	-0.028	10041	33.1	4	9.947	0.018	98893	109.0
Aroclor-1254	5	9.867	-0.009	12222	59.8	5	10.176	0.015	116343	119.5
Total Col1Ave (5 peaks):				28.3		Total Col2Ave (5 peaks):			59.0	RPD = 70*
Corrected Ave (4 peaks):				20.4		Corrected Ave (4 peaks):			43.9	RPD = 73*
Aroclor-1260	1	10.395	0.003	76119	434.1	1	11.446	-0.000	188460	330.1
Aroclor-1260	2	10.711	0.001	62698	347.7	2	11.699	0.002	456681	306.6
Aroclor-1260	3	11.061	0.001	154654	327.4	3	12.280	-0.000	328604	339.3
Aroclor-1260	4	11.463	0.003	49024	203.6	4	12.993	0.002	199946	480.3
Aroclor-1260	5	11.566	0.001	59318	639.1	NS	---			----
Total Col1Ave (5 peaks):				390.4		Total Col2Ave (4 peaks):			364.1	RPD = 7
Corrected Ave (4 peaks):				328.2		Corrected Ave (3 peaks):			325.3	RPD = 1
Aroclor-1262	1	10.395	0.000	76119	253.0	1	10.989	-0.000	230478	250.7
Aroclor-1262	2	11.463	0.000	49024	252.6	2	11.699	-0.001	456681	251.1
Aroclor-1262	3	11.638	-0.000	66180	252.8	3	12.208	0.000	220057	252.3
Aroclor-1262	4	12.286	-0.001	52313	252.8	4	12.993	0.000	199946	252.7
Total Col1Ave (4 peaks):				252.8		Total Col2Ave (4 peaks):			251.7	RPD = 0
Corrected Ave (3 peaks):				252.7		Corrected Ave (3 peaks):			251.3	RPD = 1
Aroclor-1268	1	11.566	-0.001	59318	73.8	1	12.208	0.001	220057	82.7
Aroclor-1268	2	11.638	0.002	66180	81.3	2	12.280	0.005	328604	113.4
Aroclor-1268	3	12.038	0.027	23299	36.4	3	12.658	-0.002	14664	5.8
Aroclor-1268	4	12.780	-0.001	19289	9.6	4	13.468	-0.004	67959	8.3
Total Col1Ave (4 peaks):				50.3		Total Col2Ave (4 peaks):			52.5	RPD = 4

Corrected Ave (3 peaks): 40.0 Corrected Ave (3 peaks): 32.3 RPD = 21

Total PCB Area Col1 (5.174 - 13.076) = 1072965 Col1 Total PCB = 0.4 ppm*

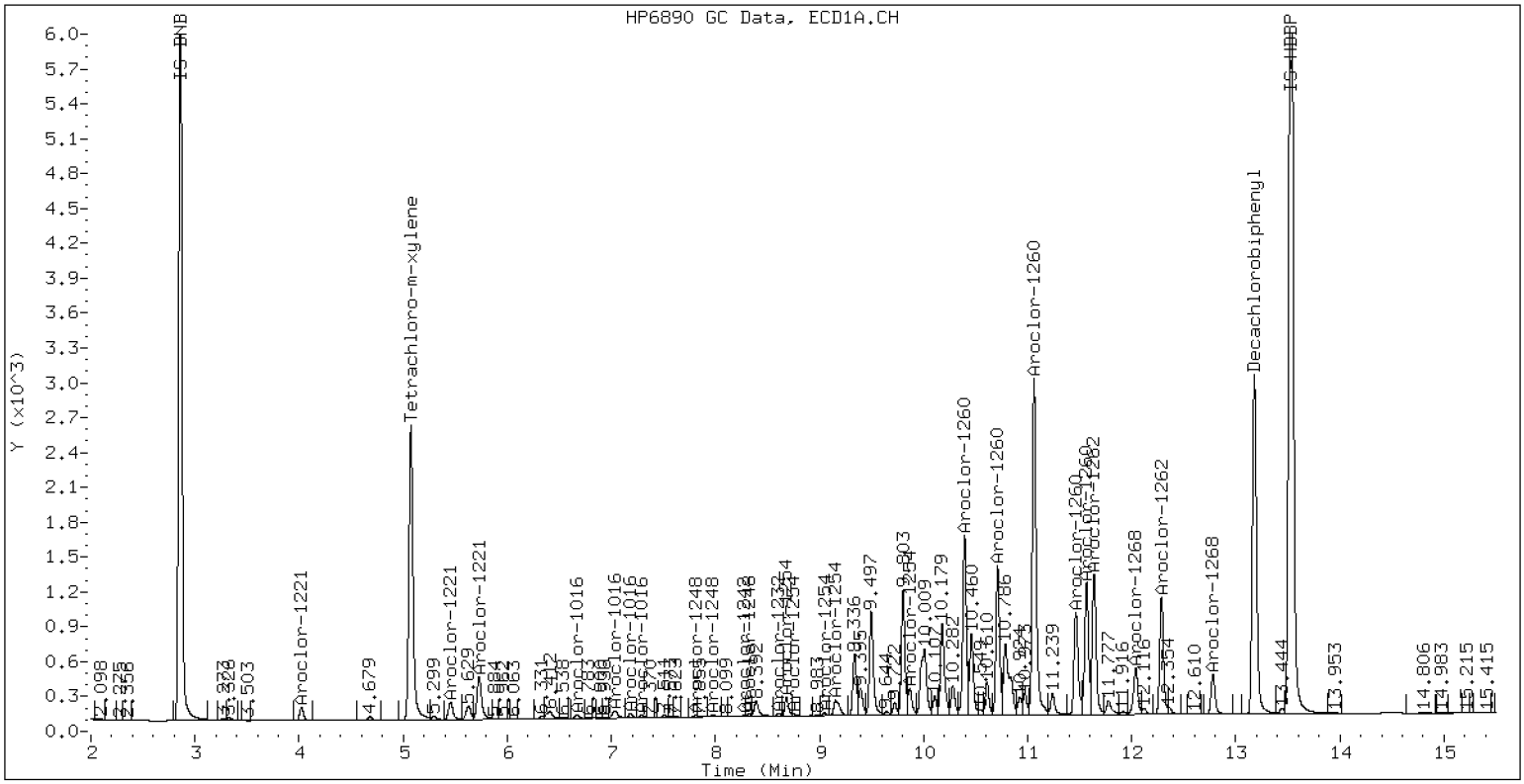
Total PCB Area Col2 (5.174 - 13.076) = 3437225 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

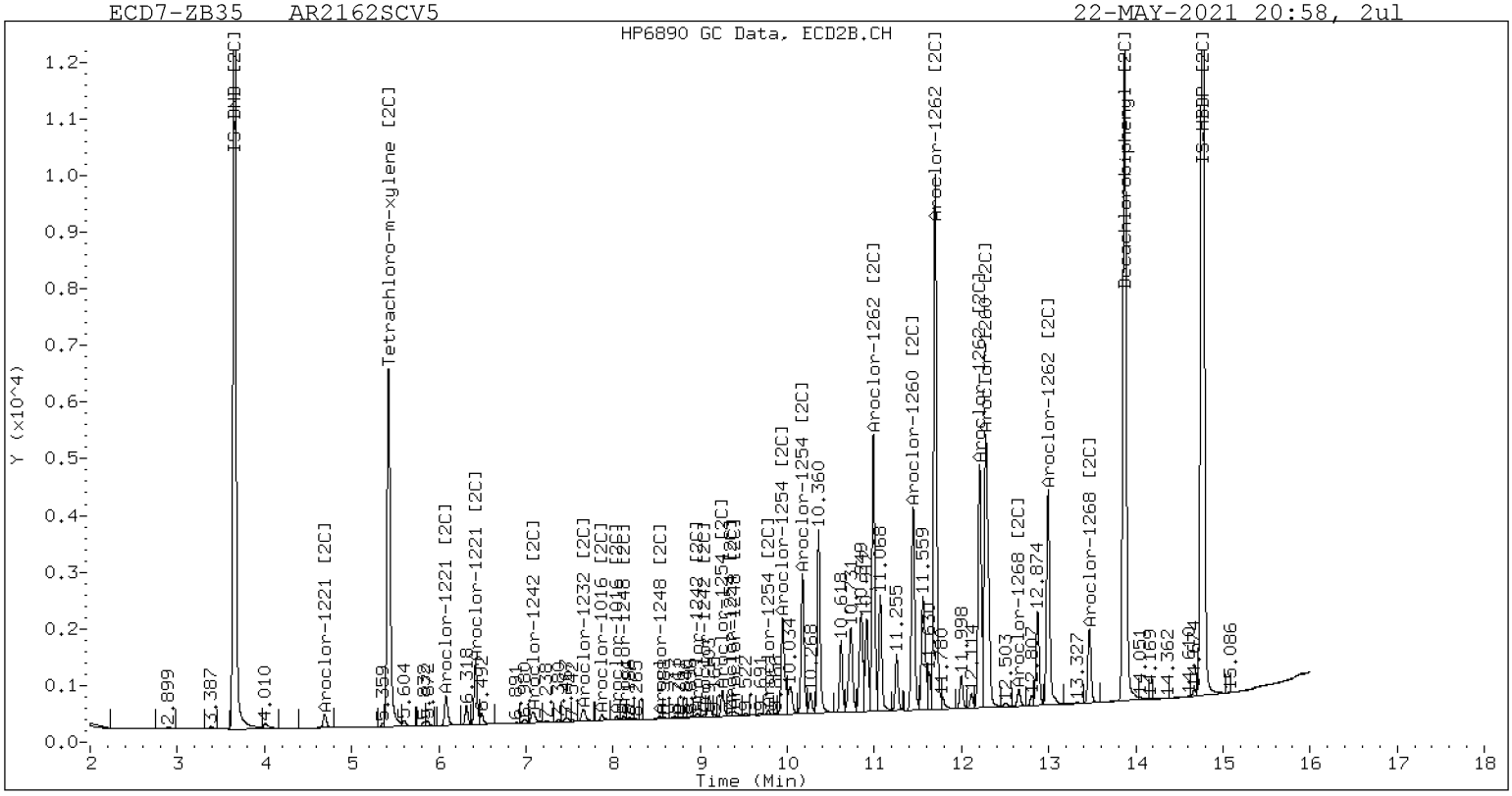
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 22-MAY-2021 20:58, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 22-MAY-2021 20:58, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	05222122ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJE0321	Injection Date:	05/22/21
Lab Sample ID:	SJE0321-SCV6	Injection Time:	21:20
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	243	0.0183750	0.0178302		-2.7	+/-20
Aroclor 1232 [2C]	A	250.00	242	0.0179713	0.0176767		-3.3	+/-20
Aroclor 1268	A	250.00	204	0.1782065	0.1458640		-18.5	+/-20
Aroclor 1268 [2C]	A	250.00	206	0.3567300	0.2930884		-17.7	+/-20
Decachlorobiphenyl	A	40.000	59.7	0.7132713	1.0643120		49.2	+/-20
Tetrachlorometaxylene	A	40.000	41.8	0.9552374	0.9985686		4.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	61.1	1.4343710	2.1894990		52.6	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.5	0.9862409	0.9976669		1.2	+/-20

* Values outside of QC limits

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

Data file 1: /210522.b/05222122ECD7.D
Data file 2: /210522.b/210522.b/05222122ECD7.D
Method: \\target\share\chem4\ecd7.i\210522.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 22-MAY-2021 21:20
Report Date: 05/25/2021 08:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	-0.000	148239	5.424	-0.000	355344	41.8	40.5	3.3	Tetrachloro-m-xylene
13.178	0.002	255056	13.875	0.005	1001977	59.7	61.1	2.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	296903	0.2
Hexabromobiphenyl	470266	479288	1.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	712350	0.0
Hexabromobiphenyl	867949	915257	5.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.666	0.001	10346	112.3	1	7.071	-0.000	45781	124.8
Aroclor-1016	2	7.034	0.000	34585	111.3	2	7.661	0.001	91604	113.5
Aroclor-1016	3	7.182	0.001	14354	113.7	3	7.870	0.002	34691	114.8
Aroclor-1016	4	7.291	0.002	9485	112.5	4	8.041	0.002	21844	118.1
Total Col1Ave (4 peaks):					112.4	Total Col2Ave (4 peaks):				117.8 RPD = 5
Corrected Ave (3 peaks):					112.0	Corrected Ave (3 peaks):				115.4 RPD = 3
Aroclor-1221	1	4.022	0.000	3391	154.4	1	4.692	-0.000	7248	156.3
Aroclor-1221	2	5.456	0.000	5464	145.2	2	6.086	0.002	18148	166.7
Aroclor-1221	3	5.730	0.000	18154	190.3	3	6.422	0.001	40400	201.3
Total Col1Ave (3 peaks):					163.3	Total Col2Ave (3 peaks):				174.8 RPD = 7
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.022	0.002	3391	252.9	1	4.692	0.001	7248	247.2
Aroclor-1232	2	5.730	0.001	18154	222.9	2	6.086	0.001	18148	231.2
Aroclor-1232	3	7.034	0.001	34585	252.7	3	6.422	-0.000	40400	234.8
Aroclor-1232	4	8.615	0.000	10043	244.4	4	7.661	-0.001	91604	254.3
Total Col1Ave (4 peaks):					243.2	Total Col2Ave (4 peaks):				241.9 RPD = 1
Corrected Ave (3 peaks):					240.0	Corrected Ave (3 peaks):				237.7 RPD = 1
Aroclor-1242	1	6.666	0.001	10346	126.2	1	7.071	-0.000	45781	144.8
Aroclor-1242	2	7.034	0.000	34585	129.9	2	7.661	0.001	91604	133.9
Aroclor-1242	3	8.278	0.006	4145	113.2	3	8.962	0.004	38109	123.2
Aroclor-1242	4	8.615	0.004	10043	122.8	4	9.041	0.004	32198	118.4
Total Col1Ave (4 peaks):					123.0	Total Col2Ave (4 peaks):				130.1 RPD = 6
Corrected Ave (3 peaks):					120.8	Corrected Ave (3 peaks):				125.2 RPD = 4
Aroclor-1248	1	7.808	0.001	9089	73.4	1	8.121	-0.001	18506	71.3
Aroclor-1248	2	7.975	0.002	12739	82.9	2	8.536	0.000	29545	83.7
Aroclor-1248	3	8.325	0.003	10258	66.7	3	8.962	0.001	38109	75.0
Aroclor-1248	4	8.615	0.002	10043	73.8	4	9.391	0.001	44833	82.7
Total Col1Ave (4 peaks):					74.2	Total Col2Ave (4 peaks):				78.1 RPD = 5
Corrected Ave (3 peaks):					71.3	Corrected Ave (3 peaks):				76.3 RPD = 7
Aroclor-1254	1	8.682	0.000	4617	18.4	1	9.256	0.000	10462	19.4
Aroclor-1254	2	8.753	0.000	1862	20.4	2	9.391	0.044	44833	141.0
Aroclor-1254	3	9.051	0.002	1704	11.1	3	9.781	0.001	6029	14.9
Aroclor-1254	4	9.187	0.004	3103	10.2	4	9.932	0.003	13664	15.1
Aroclor-1254	5	9.883	0.007	2229	10.9	5	10.162	0.002	13230	13.7
Total Col1Ave (5 peaks):					14.2	Total Col2Ave (5 peaks):				40.8 RPD = 97*
Corrected Ave (4 peaks):					12.6	Corrected Ave (4 peaks):				15.8 RPD = 22
Aroclor-1260	1	10.395	0.004	30116	171.4	1	11.426	-0.020	123255	215.9
Aroclor-1260	2	10.713	0.002	2096	11.6	2	11.698	0.001	56961	38.3
Aroclor-1260	3	11.062	0.002	16373	34.6	3	12.275	-0.005	585373	604.6
Aroclor-1260	4	11.463	0.003	591	2.5	4	12.993	0.001	214119	514.5
Aroclor-1260	5	11.567	0.003	163395	1757.1	NS	---			----
Total Col1Ave (5 peaks):					395.4	Total Col2Ave (4 peaks):				343.3 RPD = 14
Corrected Ave (4 peaks):					55.0	Corrected Ave (3 peaks):				256.2 RPD = 129*
Aroclor-1262	1	10.395	0.001	30116	99.9	1	10.988	-0.001	87691	95.4
Aroclor-1262	2	11.463	0.000	591	3.0	2	11.698	-0.002	56961	31.3
Aroclor-1262	3	11.636	-0.003	164716	628.0	3	12.209	0.000	570399	654.1
Aroclor-1262	4	12.286	-0.001	66330	319.9	4	12.993	0.000	214119	270.7
Total Col1Ave (4 peaks):					262.7	Total Col2Ave (4 peaks):				262.9 RPD = 0
Corrected Ave (3 peaks):					140.9	Corrected Ave (3 peaks):				132.5 RPD = 6
Aroclor-1268	1	11.567	0.000	163395	203.0	1	12.209	0.001	570399	214.5
Aroclor-1268	2	11.636	-0.001	164716	202.0	2	12.275	0.000	585373	202.0
Aroclor-1268	3	12.012	0.001	130565	203.8	3	12.658	-0.001	514356	202.2
Aroclor-1268	4	12.781	0.000	415210	206.6	4	13.474	0.002	1683012	204.7
Total Col1Ave (4 peaks):					203.9	Total Col2Ave (4 peaks):				205.8 RPD = 1

Corrected Ave (3 peaks): 202.9 Corrected Ave (3 peaks): 202.9 RPD = 0

Total PCB Area Col1 (5.174 - 13.076) = 1390907 Col1 Total PCB = 0.5 ppm*

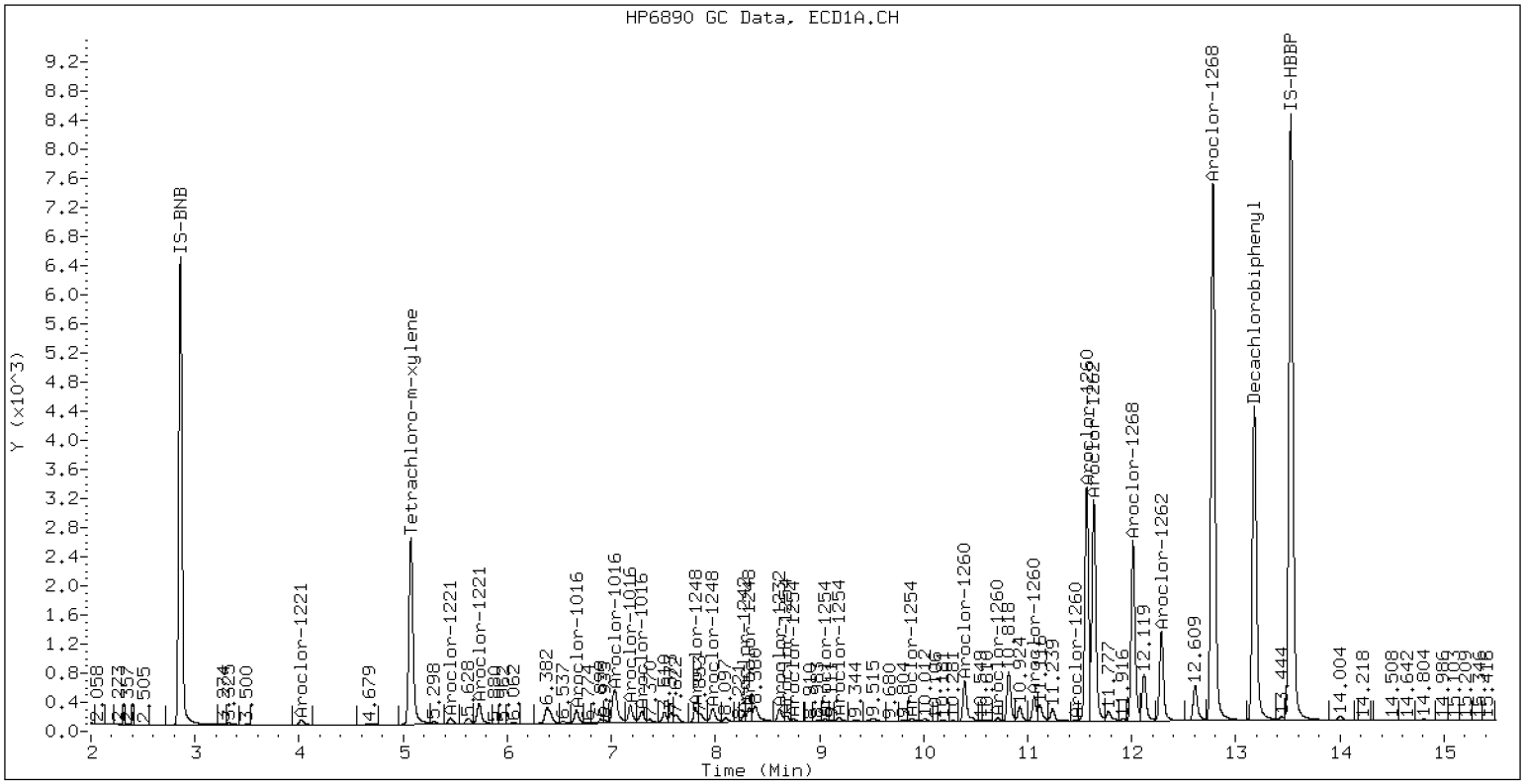
Total PCB Area Col2 (5.174 - 13.076) = 3445589 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

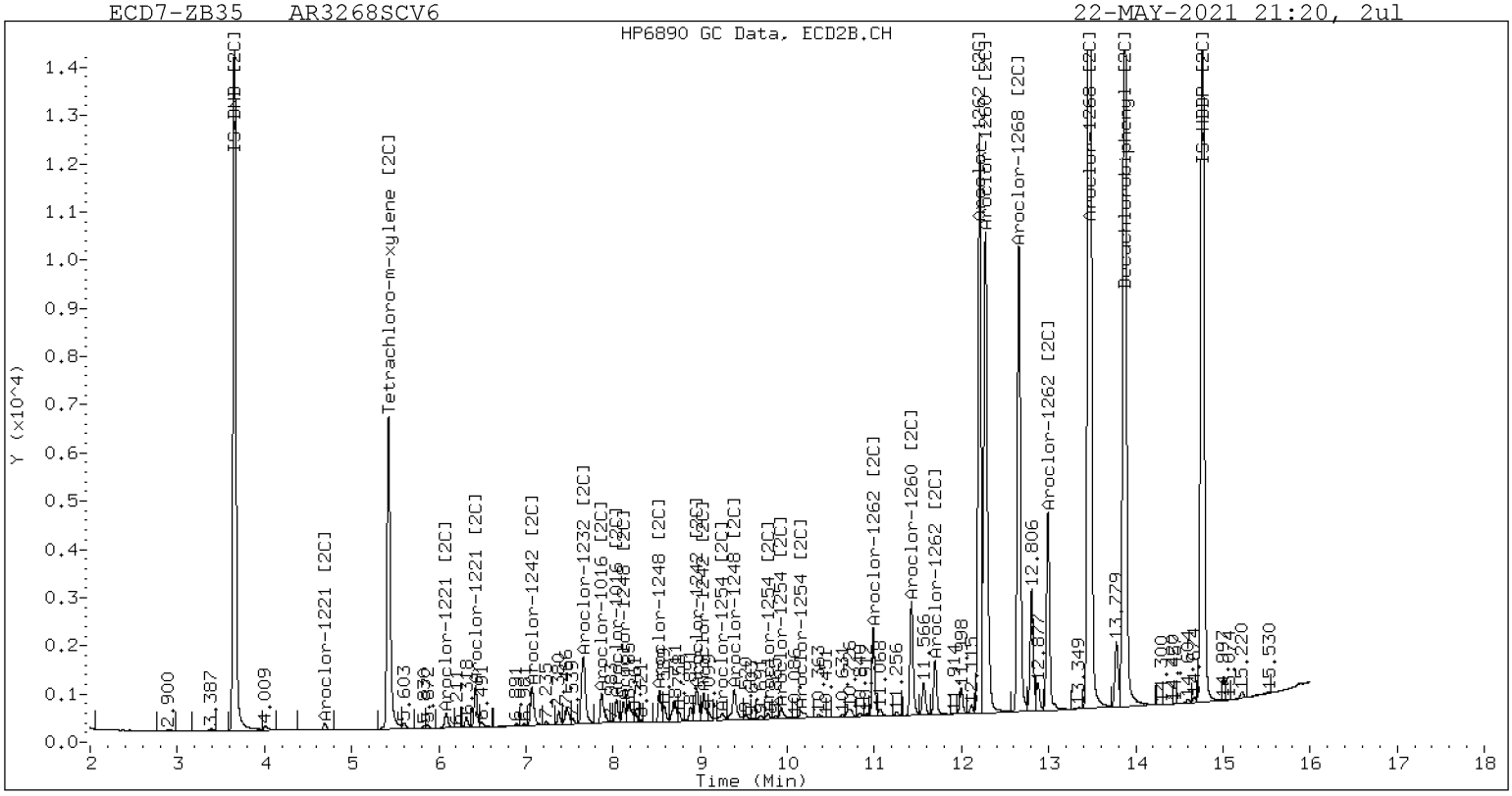
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 22-MAY-2021 21:20, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 22-MAY-2021 21:20, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022112ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-CCV1	Injection Time:	14:27
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	0.0382260	0.0402566		4.9	+/-20
Aroclor-1248 (1)	A	250.00	277		0.0370415			
Aroclor-1248 (2)	A	250.00	281		0.0465822			
Aroclor-1248 (3)	A	250.00	276		0.0458376			
Aroclor-1248 (4)	A	250.00	215		0.0315650			
Aroclor 1248 [2C]	A	250.00	251	0.0467028	0.0461936		0.2	+/-20
Aroclor-1248 (1) [2C]	A	250.00	271		0.0315696			
Aroclor-1248 (2) [2C]	A	250.00	252		0.0400632			
Aroclor-1248 (3) [2C]	A	250.00	227		0.0518913			
Aroclor-1248 (4) [2C]	A	250.00	252		0.0612502			
Decachlorobiphenyl	A	40.000	43.4	0.7132713	0.7739670		8.5	+/-20
Tetrachlorometaxylene	A	40.000	44.1	0.9552374	1.0537010		10.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.0	1.4343710	1.4723660		2.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	41.7	0.9862409	1.0275540		4.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210702.b/07022112ECD7.D
Data file 2: /210702.b/210702.b/07022112ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.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-JUL-2021 14:27
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.072	-0.002	195175	5.421	-0.002	466229	44.1	41.7	5.7	Tetrachloro-m-xylene
13.169	0.001	188442	13.861	0.001	698302	43.4	41.1	5.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	370456	25.0
Hexabromobiphenyl	470266	486951	3.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	907454	27.5
Hexabromobiphenyl	867949	948544	9.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1248	1	7.803	0.000	42882	277.4	1	8.116	0.000	89525	270.6
Aroclor-1248	2	7.970	0.000	53927	281.3	2	8.530	0.000	113611	252.5
Aroclor-1248	3	8.319	0.000	53065	276.4	3	8.955	0.000	147153	227.2
Aroclor-1248	4	8.609	0.000	36542	215.3	4	9.383	0.000	173693	251.5

Total Col1Ave (4 peaks): 262.6 Total Col2Ave (4 peaks): 250.5 RPD = 5

Corrected Ave (3 peaks): 256.4 Corrected Ave (3 peaks): 243.7 RPD = 5

CalAmt %D: 5.0 CalAmt %D: 0.2

Total PCB Area Col1 (5.173 - 13.068) = 758900 Col1 Total PCB = 0.2 ppm*

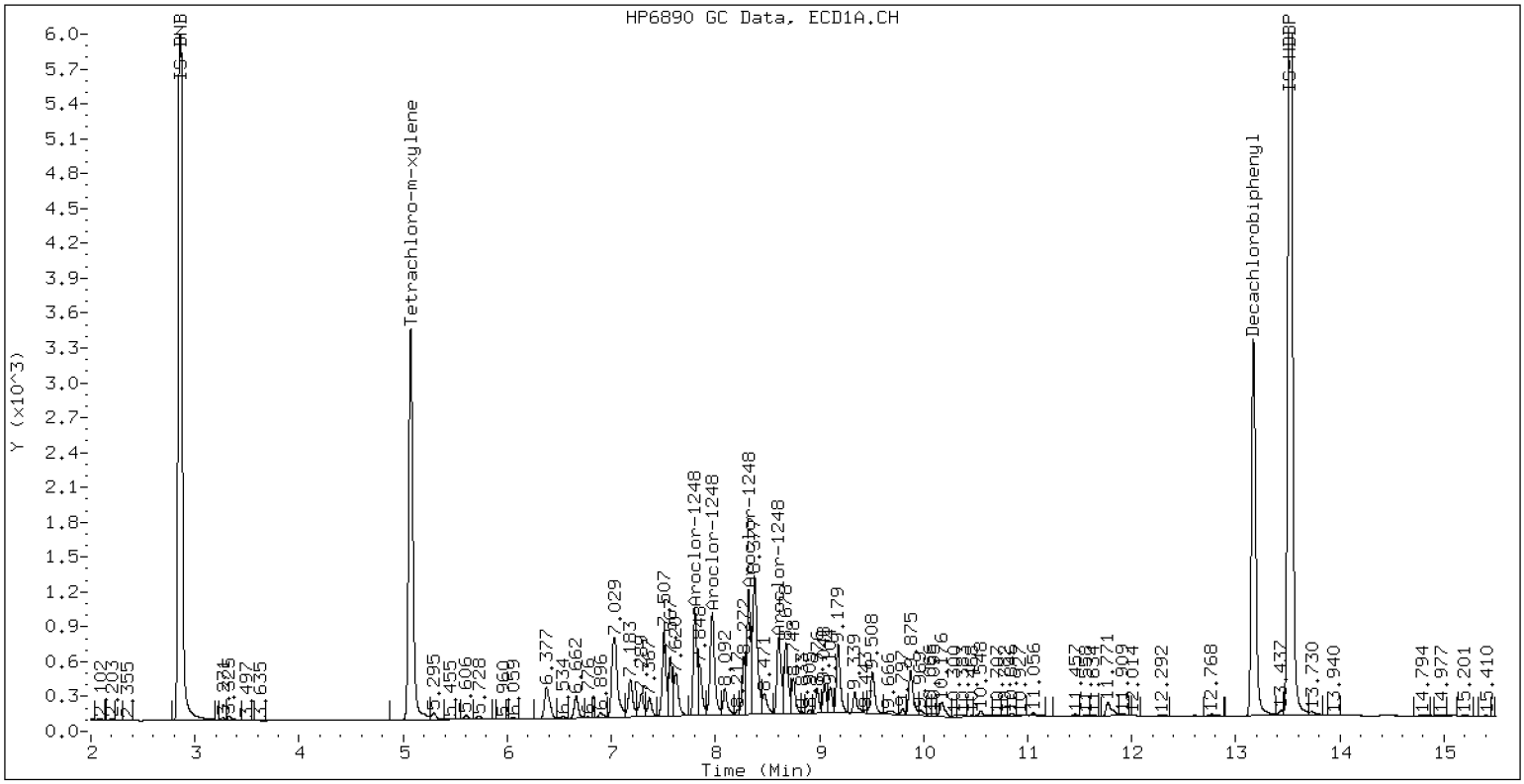
Total PCB Area Col2 (5.173 - 13.068) = 2500868 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

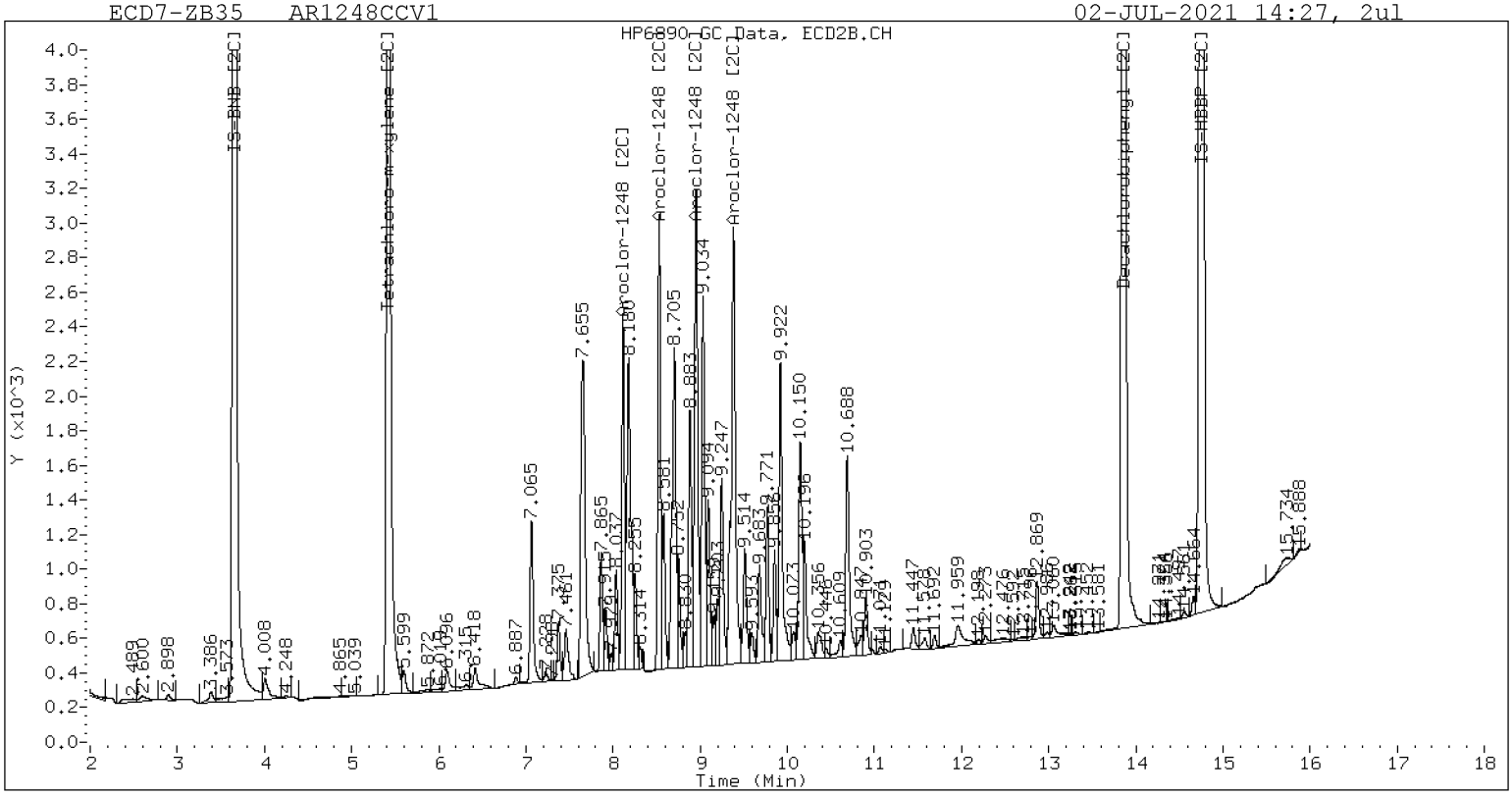
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV1 02-JUL-2021 14:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248CCV1 02-JUL-2021 14:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022113ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-CCV2	Injection Time:	14:48
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	268	0.0413247	0.0442567		7.2	+/-20
Aroclor-1016 (1)	A	250.00	274	0.0248166	0.0271494		9.6	
Aroclor-1016 (2)	A	250.00	268	0.0837401	0.0896198		7.2	
Aroclor-1016 (3)	A	250.00	267	0.0340179	0.0363301		6.8	
Aroclor-1016 (4)	A	250.00	263	0.0227243	0.0239276		5.2	
Aroclor 1016 [2C]	A	250.00	266	0.0466427	0.0488995		6.4	+/-20
Aroclor-1016 (1) [2C]	A	250.00	264	0.0412076	0.0435140		5.6	
Aroclor-1016 (2) [2C]	A	250.00	255	0.0906438	0.0926216		2.0	
Aroclor-1016 (3) [2C]	A	250.00	269	0.0339420	0.0365331		7.6	
Aroclor-1016 (4) [2C]	A	250.00	276	0.0207774	0.0229291		10.4	
Aroclor 1260	A	250.00	280	0.0388495	0.0437707		11.9	+/-20
Aroclor-1260 (1)	A	250.00	262	0.0293254	0.0306919		4.8	
Aroclor-1260 (2)	A	250.00	283	0.0301531	0.0341463		13.2	
Aroclor-1260 (3)	A	250.00	286	0.0789877	0.0904640		14.4	
Aroclor-1260 (4)	A	250.00	286	0.0402598	0.0460727		14.4	
Aroclor-1260 (5)	A	250.00	282	0.0155216	0.0174786		12.8	
Aroclor 1260 [2C]	A	250.00	258	0.0752611	0.0753115		3.1	+/-20
Aroclor-1260 (1) [2C]	A	250.00	276	0.0498903	0.0550379		10.4	
Aroclor-1260 (2) [2C]	A	250.00	238	0.1301480	0.1238780		-4.8	
Aroclor-1260 (3) [2C]	A	250.00	244	0.0846293	0.0826025		-2.4	
Aroclor-1260 (4) [2C]	A	250.00	273	0.0363769	0.0397277		9.2	
Decachlorobiphenyl	A	40.000	43.3	0.7132713	0.7719563		8.3	+/-20
Tetrachlorometaxylene	A	40.000	43.8	0.9552374	1.0461600		9.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.2	1.4343710	1.4405140		0.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.2	0.9862409	1.0402810		5.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210702.b/07022113ECD7.D
Data file 2: /210702.b/210702.b/07022113ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.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-JUL-2021 14:48
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.071	-0.002	165367	5.421	-0.002	388377	43.8	42.2	3.8	Tetrachloro-m-xylene
13.169	0.001	183709	13.860	-0.001	617071	43.3	40.2	7.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	316141	6.6
Hexabromobiphenyl	470266	475957	1.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	746677	4.9
Hexabromobiphenyl	867949	856737	-1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.663	-0.001	26822	273.5	1	7.066	-0.001	101534	264.0
Aroclor-1016	2	7.032	-0.001	88539	267.6	2	7.657	-0.000	216120	255.5
Aroclor-1016	3	7.180	-0.000	35892	267.0	3	7.864	-0.001	85245	269.1
Aroclor-1016	4	7.289	-0.001	23639	263.2	4	8.036	-0.001	53502	275.9
Total Col1Ave (4 peaks):				267.8		Total Col2Ave (4 peaks):			266.1	RPD = 1
Corrected Ave (3 peaks):				265.9		Corrected Ave (3 peaks):			262.8	RPD = 1
CalAmt %D:				7.1		CalAmt %D:			6.4	
Aroclor-1260	1	10.386	-0.001	45650	261.6	1	11.438	0.000	147353	275.8
Aroclor-1260	2	10.705	-0.001	50788	283.1	2	11.690	0.001	331659	238.0
Aroclor-1260	3	11.054	0.000	134553	286.3	3	12.271	-0.001	221152	244.0
Aroclor-1260	4	11.455	0.000	68527	286.1	4	12.983	0.000	106363	273.0
Aroclor-1260	5	11.559	-0.000	25997	281.5	NS	---			----
Total Col1Ave (5 peaks):				279.7		Total Col2Ave (4 peaks):			257.7	RPD = 8
Corrected Ave (4 peaks):				278.1		Corrected Ave (3 peaks):			251.7	RPD = 10
CalAmt %D:				11.9		CalAmt %D:			3.1	

Total PCB Area Col1 (5.173 - 13.068) = 1438312 Col1 Total PCB = 0.5 ppm*

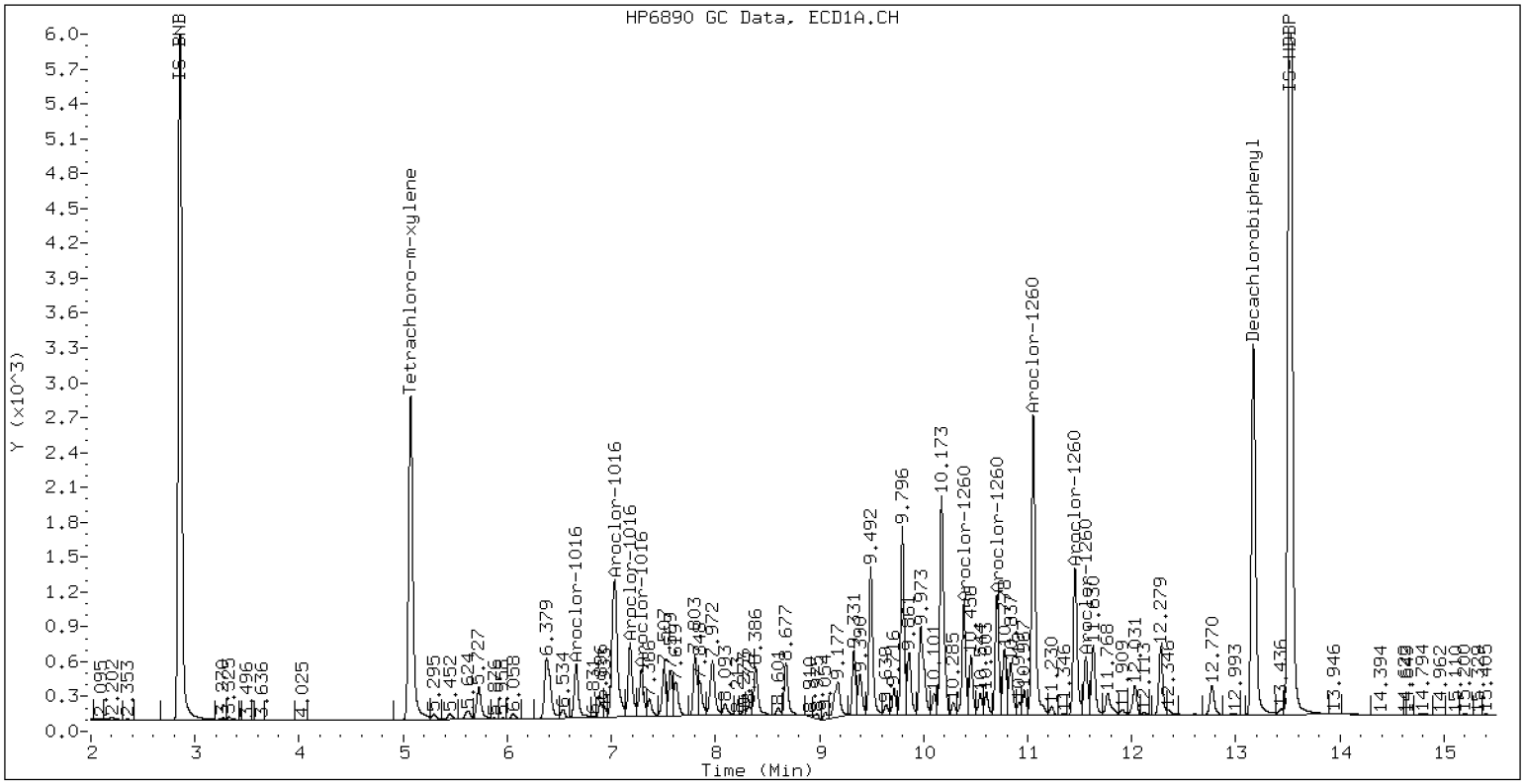
Total PCB Area Col2 (5.173 - 13.068) = 3958638 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

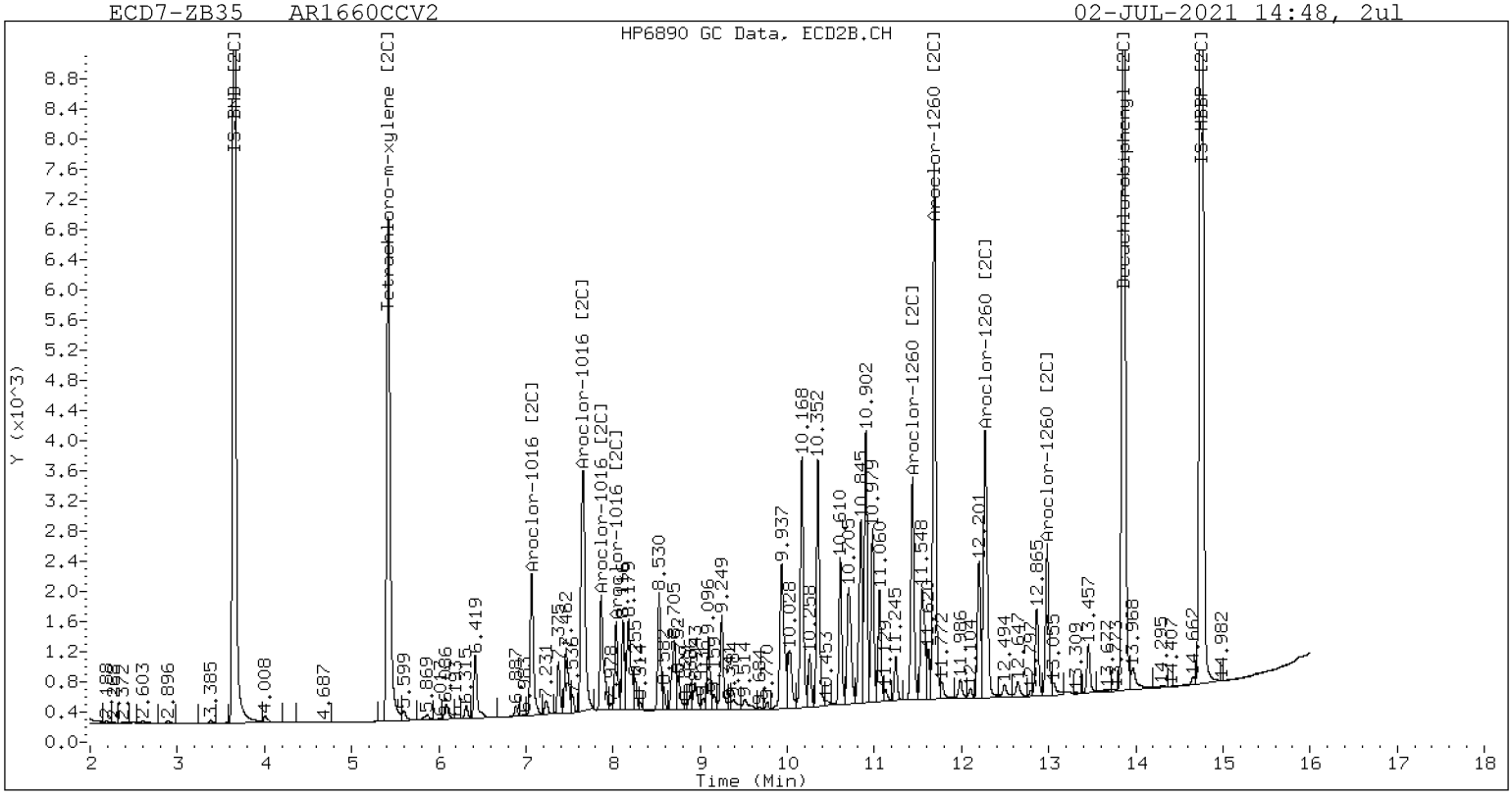
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV2 02-JUL-2021 14:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV2 02-JUL-2021 14:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022116ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-CCV3	Injection Time:	17:10
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	258	0.0314312	0.0320890		3.1	+/-20
Aroclor-1242 (1)	A	250.00	250		0.0220536			
Aroclor-1242 (2)	A	250.00	254		0.0728784			
Aroclor-1242 (3)	A	250.00	268		0.0105757			
Aroclor-1242 (4)	A	250.00	259		0.0228482			
Aroclor 1242 [2C]	A	250.00	228	0.0444064	0.0414531		-8.7	+/-20
Aroclor-1242 (1) [2C]	A	250.00	250		0.0354552			
Aroclor-1242 (2) [2C]	A	250.00	246		0.0756907			
Aroclor-1242 (3) [2C]	A	250.00	221		0.0306712			
Aroclor-1242 (4) [2C]	A	250.00	196		0.0239955			
Decachlorobiphenyl	A	40.000	40.6	0.7132713	0.7242415		1.5	+/-20
Tetrachlorometaxylene	A	40.000	42.8	0.9552374	1.0217130		7.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.3	1.4343710	1.4090970		-1.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.4	0.9862409	0.9954399		1.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210702.b/07022116ECD7.D
Data file 2: /210702.b/210702.b/07022116ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242CCV3
Client ID:
Injection Date: 02-JUL-2021 17:10
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.072	-0.001	194410	5.421	-0.003	441063	42.8	40.4	5.8	Tetrachloro-m-xylene
13.172	0.004	219854	13.861	0.000	747524	40.6	39.3	3.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	380557	28.4
Hexabromobiphenyl	470266	607129	29.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	886167	24.5
Hexabromobiphenyl	867949	1060997	22.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT (ZB5 Col)	Shift	Area	Amount	Peak#	RT (ZB35 Col)	Shift	Area	Amount
Aroclor-1242	1	6.663	0.000	26227	249.6	1	7.065	0.000	98185	249.6
Aroclor-1242	2	7.033	0.000	86670	254.0	2	7.655	0.000	209608	246.3
Aroclor-1242	3	8.270	0.000	12577	268.0	3	8.953	0.000	84937	220.8
Aroclor-1242	4	8.610	0.000	27172	259.3	4	9.032	0.000	66450	196.4

Total Col1Ave (4 peaks): 257.7 Total Col2Ave (4 peaks): 228.3 RPD = 12

Corrected Ave (3 peaks): 254.3 Corrected Ave (3 peaks): 221.2 RPD = 14

CalAmt %D: 3.1 CalAmt %D: -8.7

Total PCB Area Col1 (5.173 - 13.068) = 900899 Col1 Total PCB = 0.3 ppm*

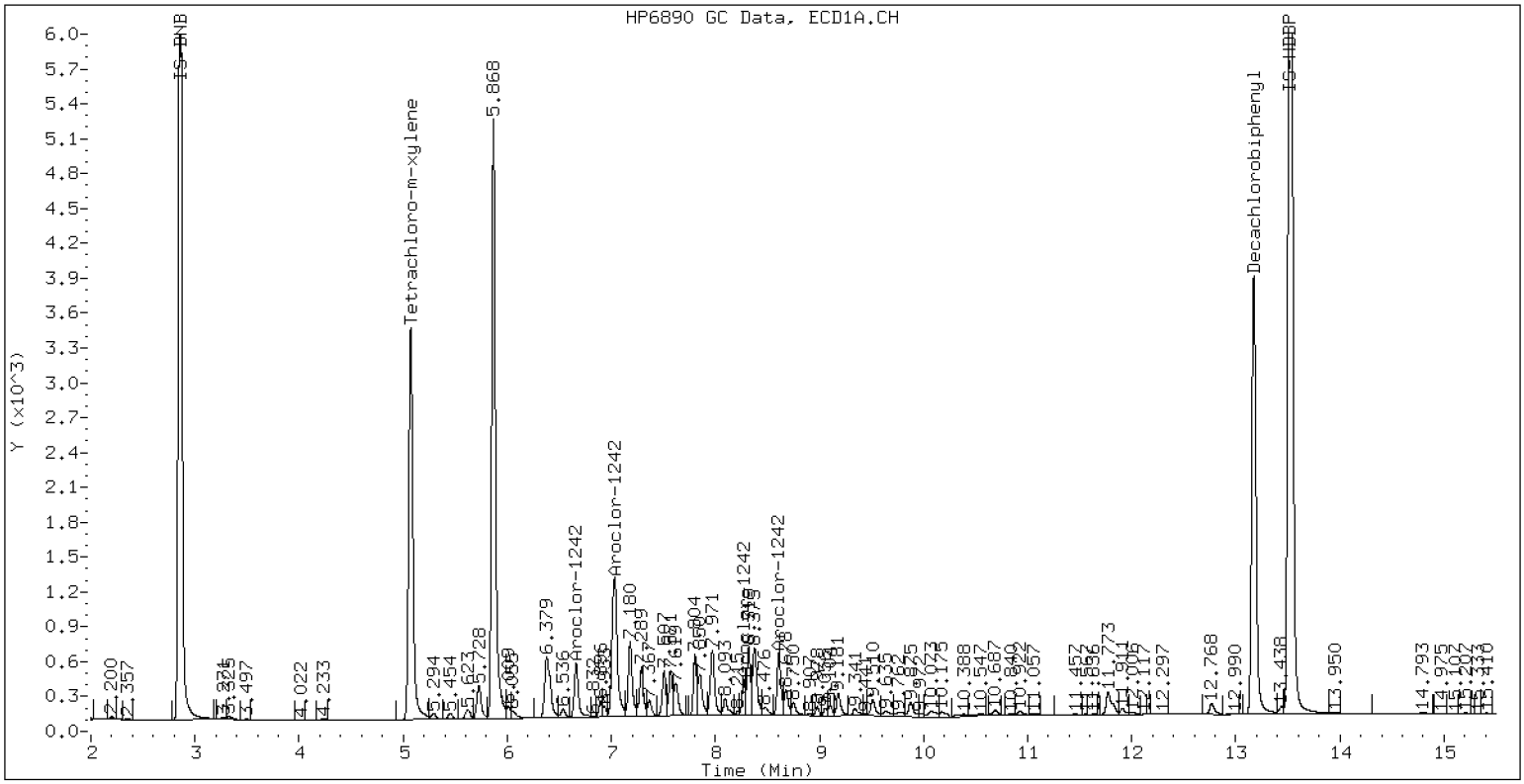
Total PCB Area Col2 (5.173 - 13.068) = 2961024 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

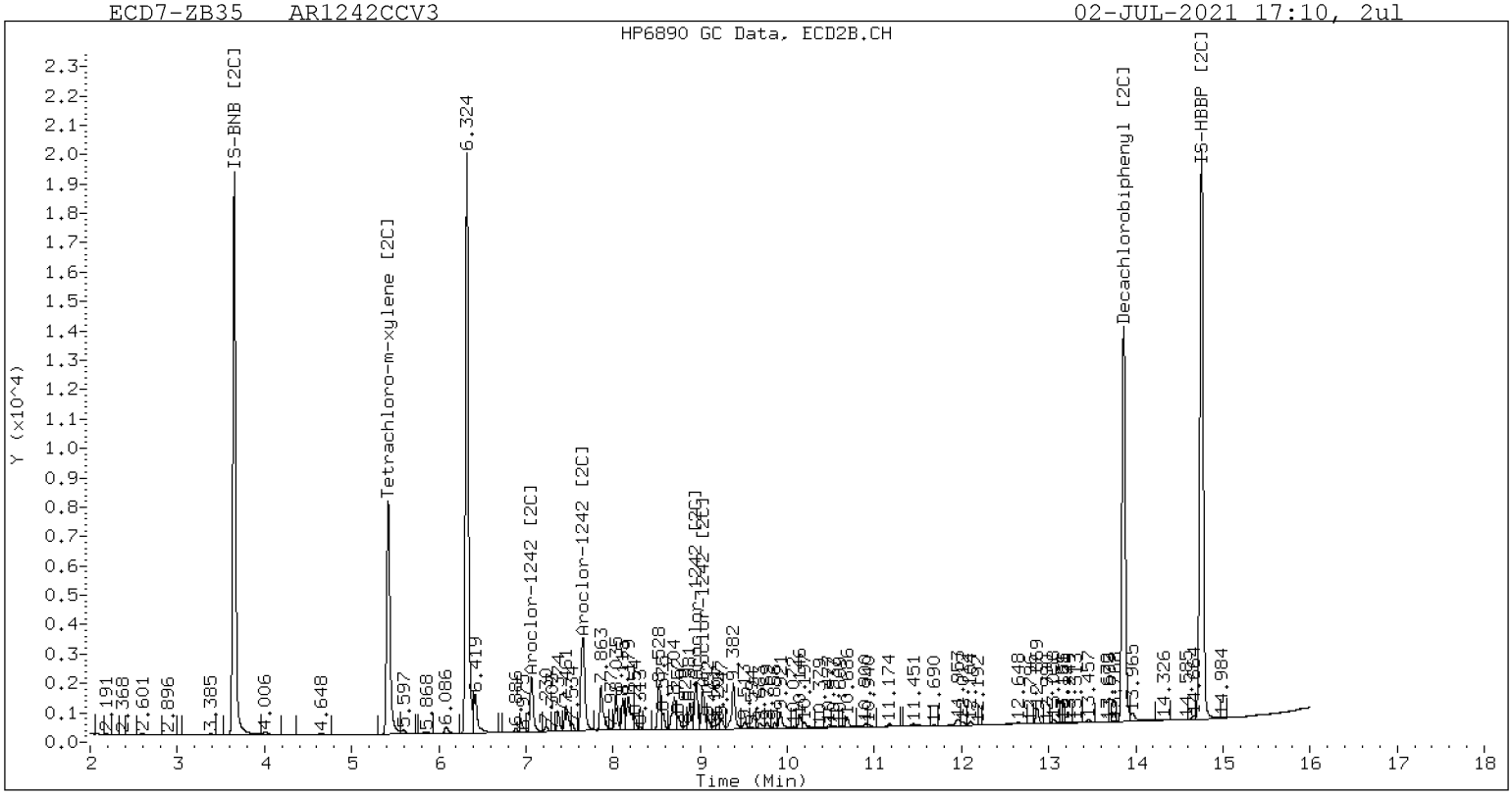
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242CCV3 02-JUL-2021 17:10, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242CCV3 02-JUL-2021 17:10, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022117ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-CCV4	Injection Time:	17:31
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	266	0.0413247	0.0439513		6.3	+/-20
Aroclor-1016 (1)	A	250.00	271	0.0248166	0.0268634		8.4	
Aroclor-1016 (2)	A	250.00	266	0.0837401	0.0891562		6.4	
Aroclor-1016 (3)	A	250.00	264	0.0340179	0.0359623		5.6	
Aroclor-1016 (4)	A	250.00	262	0.0227243	0.0238234		4.8	
Aroclor 1016 [2C]	A	250.00	266	0.0466427	0.0489102		6.4	+/-20
Aroclor-1016 (1) [2C]	A	250.00	263	0.0412076	0.0433869		5.2	
Aroclor-1016 (2) [2C]	A	250.00	256	0.0906438	0.0927890		2.4	
Aroclor-1016 (3) [2C]	A	250.00	269	0.0339420	0.0365330		7.6	
Aroclor-1016 (4) [2C]	A	250.00	276	0.0207774	0.0229318		10.4	
Aroclor 1260	A	250.00	269	0.0388495	0.0422035		7.8	+/-20
Aroclor-1260 (1)	A	250.00	250	0.0293254	0.0292851		0.0	
Aroclor-1260 (2)	A	250.00	273	0.0301531	0.0329130		9.2	
Aroclor-1260 (3)	A	250.00	276	0.0789877	0.0873886		10.4	
Aroclor-1260 (4)	A	250.00	276	0.0402598	0.0445359		10.4	
Aroclor-1260 (5)	A	250.00	272	0.0155216	0.0168947		8.8	
Aroclor 1260 [2C]	A	250.00	260	0.0752611	0.0747159		4.1	+/-20
Aroclor-1260 (1) [2C]	A	250.00	270	0.0498903	0.0538433		8.0	
Aroclor-1260 (2) [2C]	A	250.00	231	0.1301480	0.1204471		-7.6	
Aroclor-1260 (3) [2C]	A	250.00	238	0.0846293	0.0806562		-4.8	
Aroclor-1260 (4) [2C]	A	250.00	302	0.0363769	0.0439171		20.8	
Decachlorobiphenyl	A	40.000	42.7	0.7132713	0.7621786		6.8	+/-20
Tetrachlorometaxylene	A	40.000	43.8	0.9552374	1.0451740		9.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.2	1.4343710	1.4770350		3.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.3	0.9862409	1.0427450		5.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

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

Data file 1: /210702.b/07022117ECD7.D
Data file 2: /210702.b/210702.b/07022117ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV4
Client ID:
Injection Date: 02-JUL-2021 17:31
Report Date: 07/05/2021 12:05
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	0.000	174160	5.422	-0.001	397655	43.8	42.3	3.4	Tetrachloro-m-xylene
13.171	0.002	201480	13.862	0.001	681515	42.7	41.2	3.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	333265	12.4
Hexabromobiphenyl	470266	528695	12.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	762708	7.1
Hexabromobiphenyl	867949	922815	6.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.664	0.001	27977	270.6	1	7.068	-0.000	103411	263.2
Aroclor-1016	2	7.036	0.002	92852	266.2	2	7.657	-0.000	221159	255.9
Aroclor-1016	3	7.181	0.001	37453	264.3	3	7.865	0.000	87075	269.1
Aroclor-1016	4	7.290	0.000	24811	262.1	4	8.037	0.000	54657	275.9

Total Col1Ave (4 peaks): 265.8 Total Col2Ave (4 peaks): 266.0 RPD = 0
Corrected Ave (3 peaks): 264.2 Corrected Ave (3 peaks): 262.7 RPD = 1

CalAmt %D: 6.3 CalAmt %D: 6.4

Aroclor-1260	1	10.389	0.001	48384	249.7	1	11.438	0.001	155273	269.8
Aroclor-1260	2	10.707	0.001	54378	272.9	2	11.690	0.001	347345	231.4
Aroclor-1260	3	11.056	0.002	144381	276.6	3	12.273	0.001	232596	238.3
Aroclor-1260	4	11.456	0.002	73581	276.6	4	12.984	0.001	126648	301.8
Aroclor-1260	5	11.560	0.001	27913	272.1	NS	---			----

Total Col1Ave (5 peaks): 269.6 Total Col2Ave (4 peaks): 260.3 RPD = 3
Corrected Ave (4 peaks): 267.8 Corrected Ave (3 peaks): 246.5 RPD = 8

CalAmt %D: 7.8 CalAmt %D: 4.1

Total PCB Area Col1 (5.173 - 13.068) = 1524448 Col1 Total PCB = 0.5 ppm*

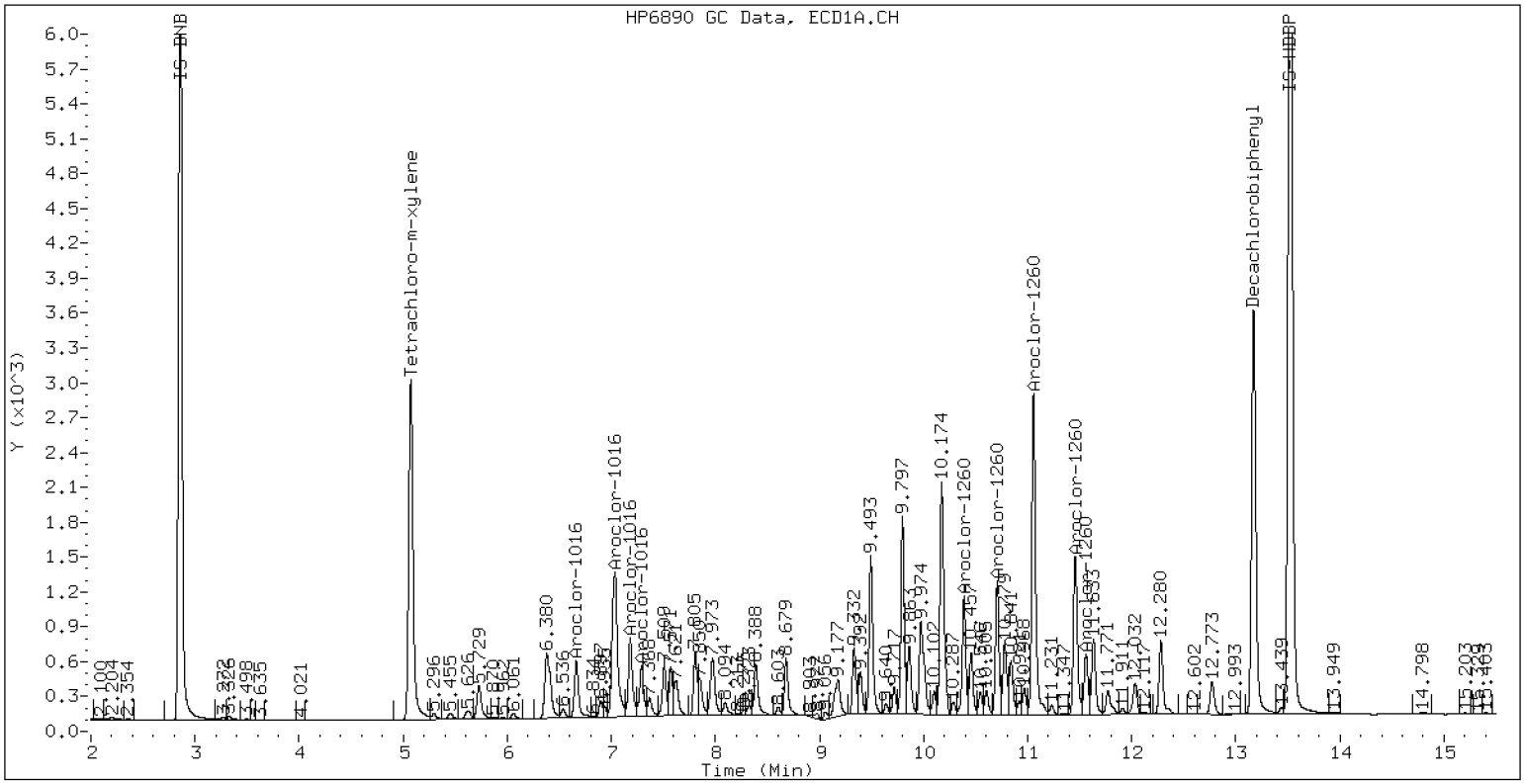
Total PCB Area Col2 (5.173 - 13.068) = 4120059 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

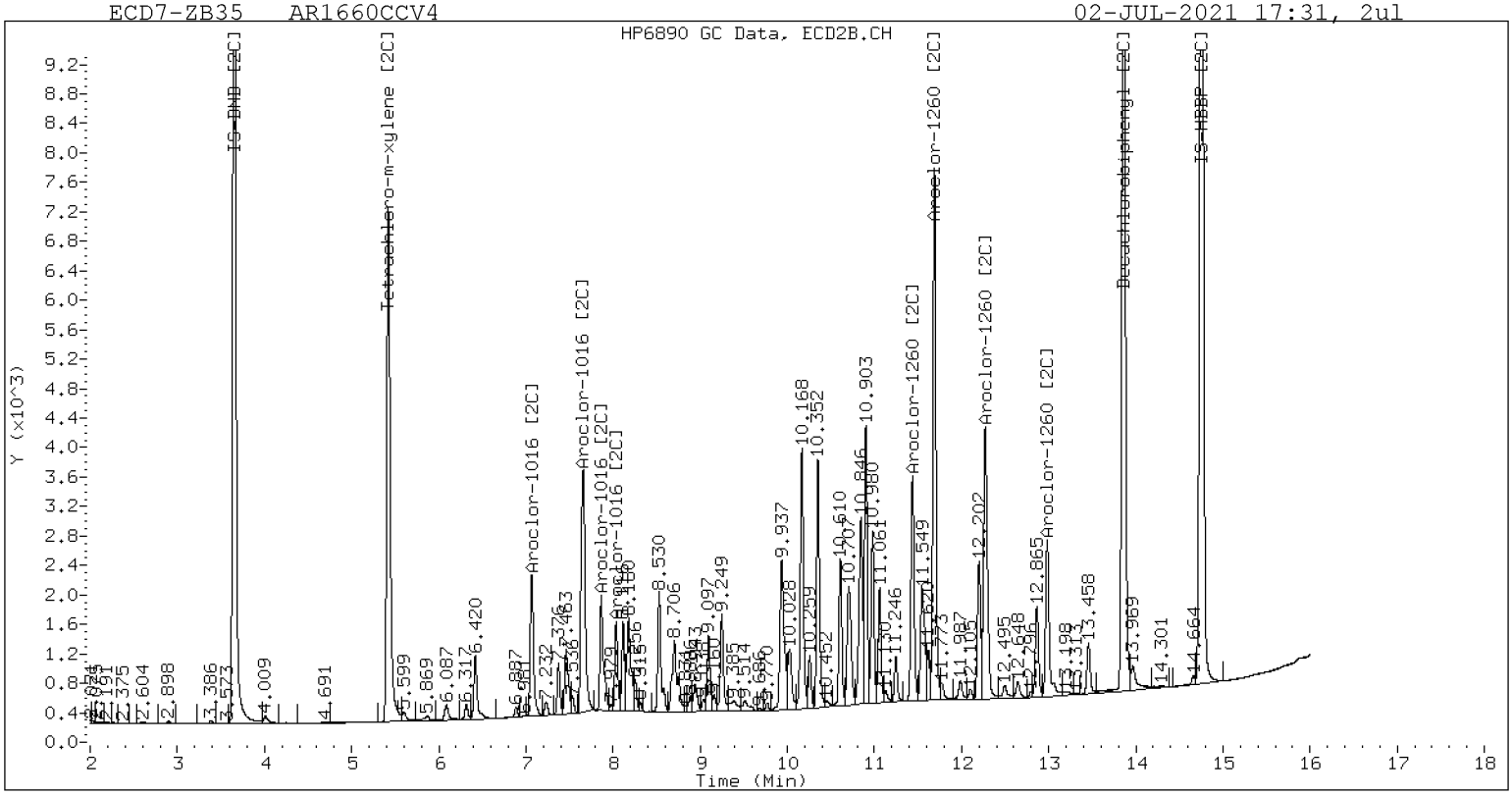
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV4 02-JUL-2021 17:31, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV4 02-JUL-2021 17:31, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022133ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-CCV5	Injection Time:	23:04
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	238	0.0542238	0.0525002		-4.8	+/-20
Aroclor-1254 (1)	A	250.00	258		0.0699437			
Aroclor-1254 (2)	A	250.00	264		0.0259613			
Aroclor-1254 (3)	A	250.00	153		0.0253413			
Aroclor-1254 (4)	A	250.00	255		0.0836688			
Aroclor-1254 (5)	A	250.00	260		0.0575862			
Aroclor 1254 [2C]	A	250.00	263	0.0703814	0.0742671		5.0	+/-20
Aroclor-1254 (1) [2C]	A	250.00	294		0.0713785			
Aroclor-1254 (2) [2C]	A	250.00	277		0.0395895			
Aroclor-1254 (3) [2C]	A	250.00	217		0.0396200			
Aroclor-1254 (4) [2C]	A	250.00	260		0.1055015			
Aroclor-1254 (5) [2C]	A	250.00	265		0.1152458			
Decachlorobiphenyl	A	40.000	46.0	0.7132713	0.8198615		15.0	+/-20
Tetrachlorometaxylene	A	40.000	44.3	0.9552374	1.0576400		10.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	46.0	1.4343710	1.6509740		15.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.7	0.9862409	1.0537830		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: /210702.b/07022133ECD7.D
Data file 2: /210702.b/210702.b/07022133ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254CCV5
Client ID:
Injection Date: 02-JUL-2021 23:04
Report Date: 07/05/2021 12:06
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	ZB5 Col Shift	ZB5 Col Response	ZB35 Col RT	ZB35 Col Shift	ZB35 Col Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.073	-0.001	164573	5.422	-0.001	387486	44.3	42.7	3.6	Tetrachloro-m-xylene
13.171	0.002	192938	13.862	0.001	699691	46.0	46.0	0.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	311208	5.0
Hexabromobiphenyl	470266	470660	0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	735419	3.3
Hexabromobiphenyl	867949	847610	-2.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1254	1	8.679	0.000	68022	258.5	1	9.250	0.000	164041	294.6
Aroclor-1254	2	8.750	0.000	25248	263.5	2	9.342	0.000	90984	277.1
Aroclor-1254	3	9.049	0.000	24645	152.8	3	9.773	0.000	91054	217.3
Aroclor-1254	4	9.180	0.000	81370	254.9	4	9.924	0.000	242462	260.3
Aroclor-1254	5	9.871	0.000	56004	260.2	5	10.155	0.000	264856	265.1

Total Col1Ave (5 peaks): 238.0 Total Col2Ave (5 peaks): 262.9 RPD = 10

Corrected Ave (4 peaks): 231.6 Corrected Ave (4 peaks): 254.9 RPD = 10

CalAmt %D: -4.8 CalAmt %D: 5.1

Total PCB Area Col1 (5.173 - 13.068) = 810016 Col1 Total PCB = 0.3 ppm*

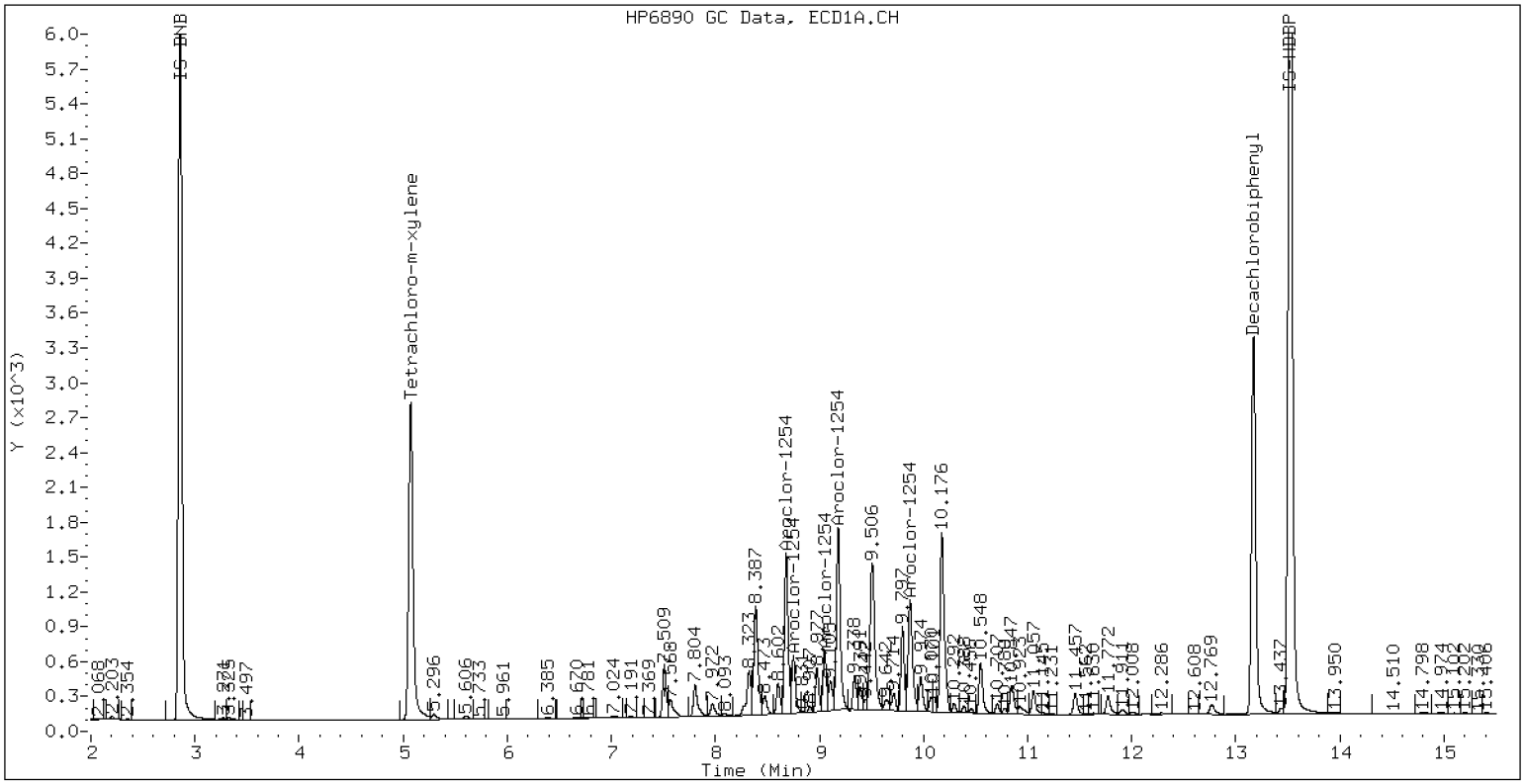
Total PCB Area Col2 (5.173 - 13.068) = 2742211 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

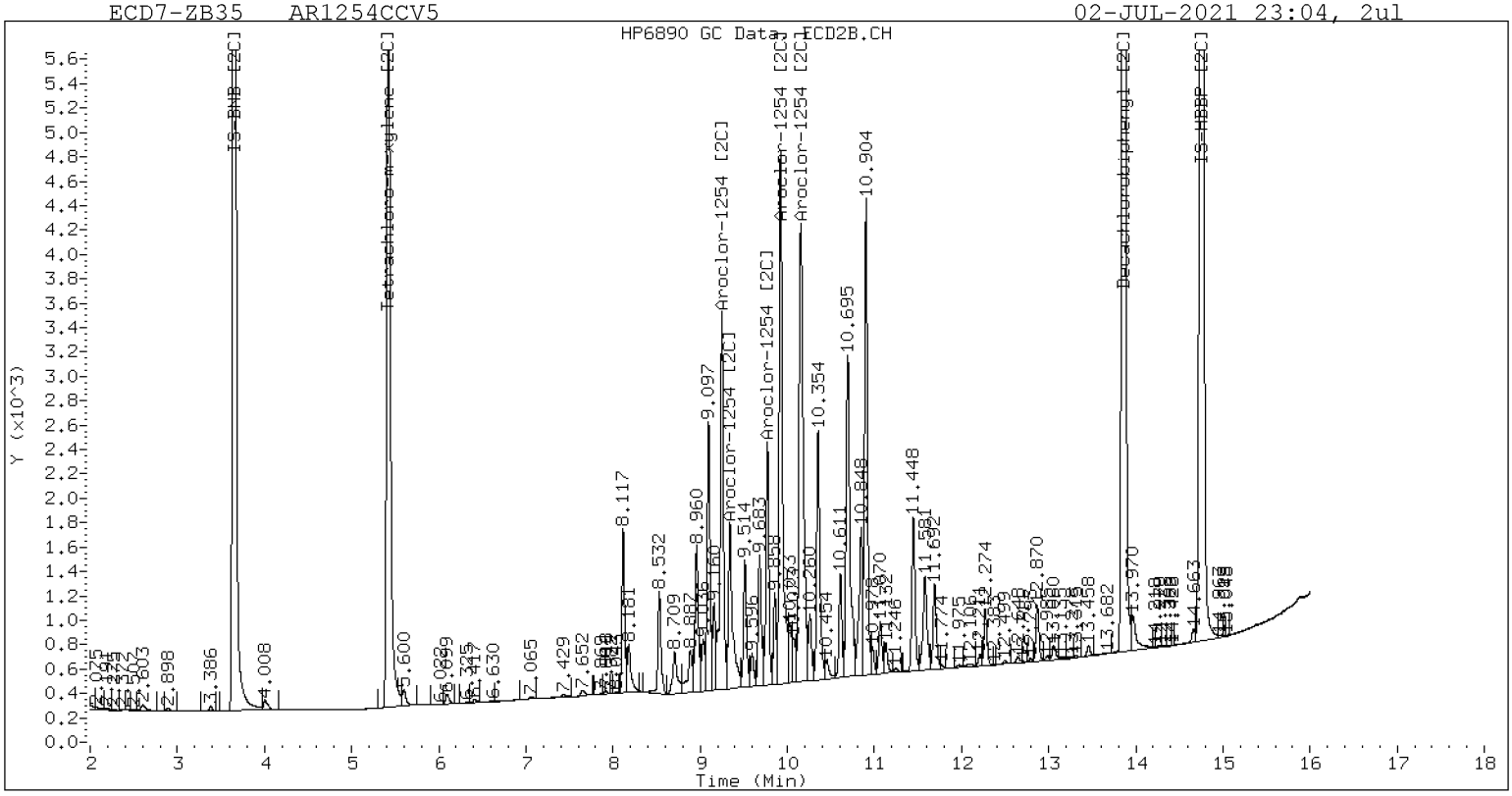
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254CCV5 02-JUL-2021 23:04, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254CCV5 02-JUL-2021 23:04, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	ECD7	Calibration:	EE00069
Lab File ID:	07022134ECD7.D	Calibration Date:	05/22/2021
Sequence:	SJG0060	Injection Date:	07/02/21
Lab Sample ID:	SJG0060-CCV6	Injection Time:	23:24
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	268	0.0413247	0.0441609		7.1	+/-20
Aroclor-1016 (1)	A	250.00	274	0.0248166	0.0271978		9.6	
Aroclor-1016 (2)	A	250.00	267	0.0837401	0.0893072		6.8	
Aroclor-1016 (3)	A	250.00	266	0.0340179	0.0361827		6.4	
Aroclor-1016 (4)	A	250.00	264	0.0227243	0.0239557		5.6	
Aroclor 1016 [2C]	A	250.00	264	0.0466427	0.0484390		5.6	+/-20
Aroclor-1016 (1) [2C]	A	250.00	262	0.0412076	0.0431071		4.8	
Aroclor-1016 (2) [2C]	A	250.00	252	0.0906438	0.0914991		0.8	
Aroclor-1016 (3) [2C]	A	250.00	268	0.0339420	0.0363651		7.2	
Aroclor-1016 (4) [2C]	A	250.00	274	0.0207774	0.0227846		9.6	
Aroclor 1260	A	250.00	263	0.0388495	0.0411321		5.1	+/-20
Aroclor-1260 (1)	A	250.00	243	0.0293254	0.0284990		-2.8	
Aroclor-1260 (2)	A	250.00	265	0.0301531	0.0320077		6.0	
Aroclor-1260 (3)	A	250.00	269	0.0789877	0.0851123		7.6	
Aroclor-1260 (4)	A	250.00	270	0.0402598	0.0434711		8.0	
Aroclor-1260 (5)	A	250.00	267	0.0155216	0.0165705		6.8	
Aroclor 1260 [2C]	A	250.00	239	0.0752611	0.0694002		-4.4	+/-20
Aroclor-1260 (1) [2C]	A	250.00	255	0.0498903	0.0508213		2.0	
Aroclor-1260 (2) [2C]	A	250.00	216	0.1301480	0.1126868		-13.6	
Aroclor-1260 (3) [2C]	A	250.00	225	0.0846293	0.0762583		-10.0	
Aroclor-1260 (4) [2C]	A	250.00	260	0.0363769	0.0378345		4.0	
Decachlorobiphenyl	A	40.000	43.0	0.7132713	0.7660379		7.5	+/-20
Tetrachlorometaxylene	A	40.000	43.9	0.9552374	1.0480090		9.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.5	1.4343710	1.4173960		-1.3	+/-20
Tetrachlorometaxylene [2C]	A	40.000	42.2	0.9862409	1.0398150		5.5	+/-20

* Values outside of QC limits

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

Data file 1: /210702.b/07022134ECD7.D
Data file 2: /210702.b/210702.b/07022134ECD7.D
Method: \\target\share\chem4\ecd7.i\210702.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV6
Client ID:
Injection Date: 02-JUL-2021 23:24
Report Date: 07/05/2021 12:06
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col RT	Shift	Response	ZB35 Col RT	Shift	Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.074	0.000	175334	5.423	0.000	410790	43.9	42.2	4.0	Tetrachloro-m-xylene
13.168	0.000	210043	13.861	0.000	725536	43.0	39.5	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	296446	334604	12.9
Hexabromobiphenyl	470266	548388	16.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	711996	790121	11.0
Hexabromobiphenyl	867949	1023759	18.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 22-MAY-2021
<- 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	6.664	0.000	28439	274.0	1	7.068	0.000	106437	261.5
Aroclor-1016	2	7.033	0.000	93383	266.6	2	7.657	0.000	225923	252.4
Aroclor-1016	3	7.180	0.000	37834	265.9	3	7.865	0.000	89790	267.8
Aroclor-1016	4	7.289	0.000	25049	263.5	4	8.037	0.000	56258	274.2

Total Col1Ave (4 peaks): 267.5 Total Col2Ave (4 peaks): 264.0 RPD = 1
Corrected Ave (3 peaks): 265.4 Corrected Ave (3 peaks): 260.6 RPD = 2

CalAmt %D: 7.0 CalAmt %D: 5.6

Aroclor-1260	1	10.388	0.000	48839	243.0	1	11.438	0.000	162590	254.7
Aroclor-1260	2	10.706	0.000	54852	265.4	2	11.689	0.000	360513	216.5
Aroclor-1260	3	11.054	0.000	145858	269.4	3	12.272	0.000	243969	225.3
Aroclor-1260	4	11.455	0.000	74497	269.9	4	12.983	0.000	121042	260.0
Aroclor-1260	5	11.560	0.000	28397	266.9	NS	---			----

Total Col1Ave (5 peaks): 262.9 Total Col2Ave (4 peaks): 239.1 RPD = 9
Corrected Ave (4 peaks): 261.2 Corrected Ave (3 peaks): 232.1 RPD = 12

CalAmt %D: 5.2 CalAmt %D: -4.4

Total PCB Area Col1 (5.173 - 13.068) = 1541422 Col1 Total PCB = 0.5 ppm*

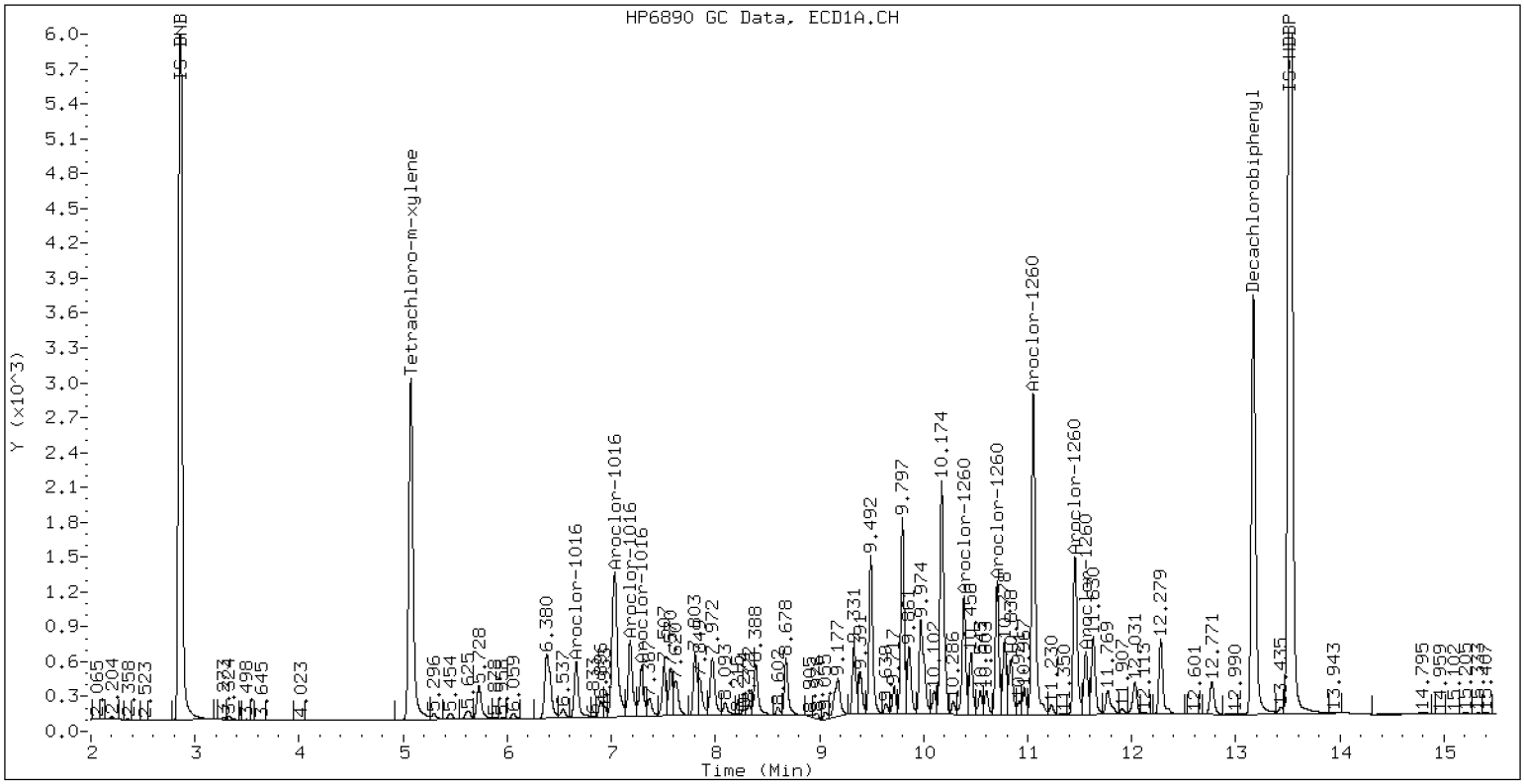
Total PCB Area Col2 (5.173 - 13.068) = 4267240 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

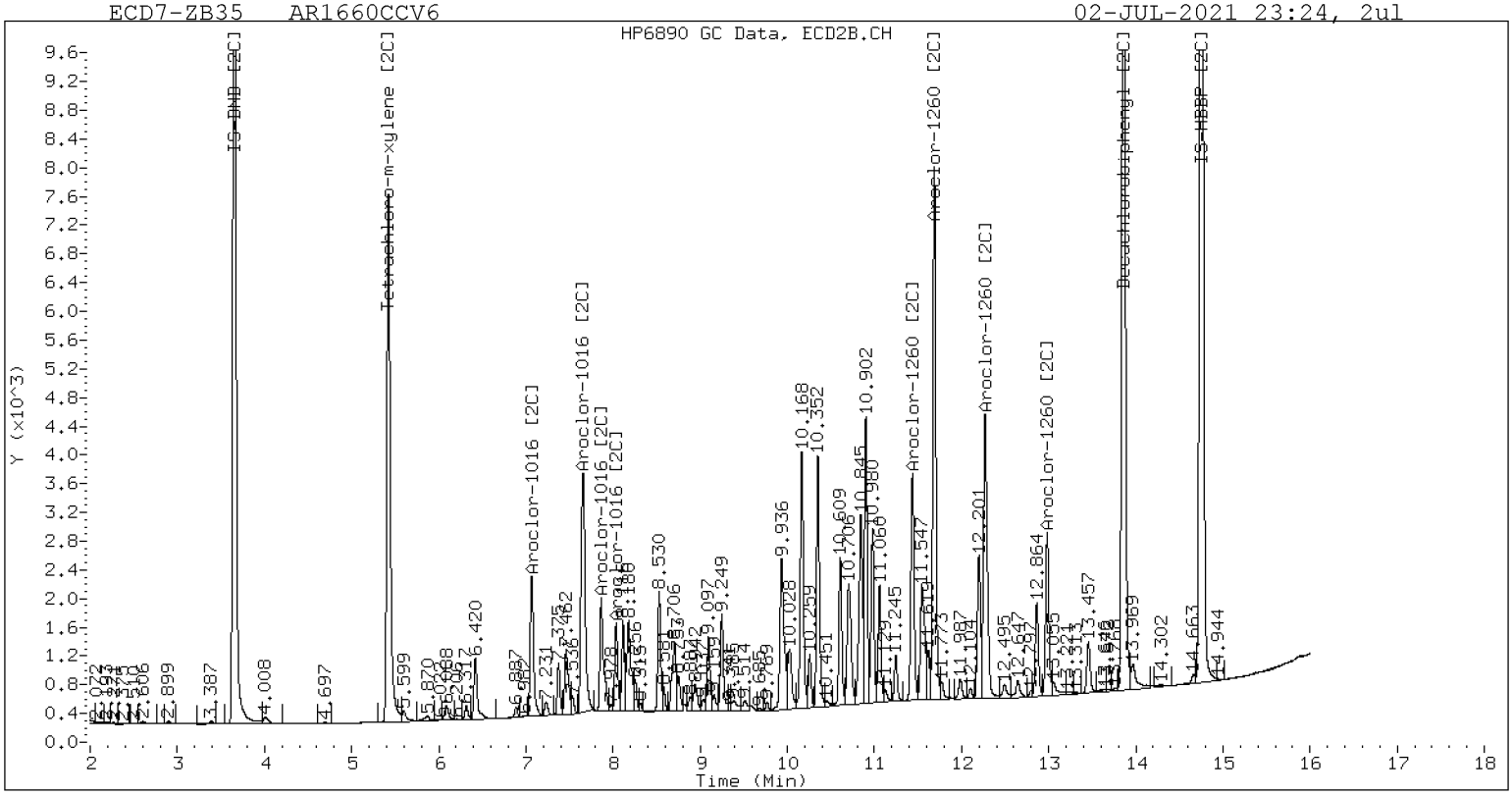
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV6 02-JUL-2021 23:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV6 02-JUL-2021 23:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJE0321	Instrument:	ECD7
		Calibration:	EE00069

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Cal Standard	SJE0321-CAL1	05222106ECD7.D	05222106ECD7.D	NA	05/22/21 15:34
Cal Standard	SJE0321-CAL2	05222107ECD7.D	05222107ECD7.D	NA	05/22/21 15:55
Cal Standard	SJE0321-CAL3	05222108ECD7.D	05222108ECD7.D	NA	05/22/21 16:17
Cal Standard	SJE0321-CAL4	05222109ECD7.D	05222109ECD7.D	NA	05/22/21 16:39
Cal Standard	SJE0321-CAL5	05222110ECD7.D	05222110ECD7.D	NA	05/22/21 17:00
Cal Standard	SJE0321-CAL6	05222111ECD7.D	05222111ECD7.D	NA	05/22/21 17:22
Cal Standard	SJE0321-CAL7	05222112ECD7.D	05222112ECD7.D	NA	05/22/21 17:44
Cal Standard	SJE0321-CAL8	05222113ECD7.D	05222113ECD7.D	NA	05/22/21 18:05
Cal Standard	SJE0321-CAL9	05222114ECD7.D	05222114ECD7.D	NA	05/22/21 18:27
Cal Standard	SJE0321-CALA	05222115ECD7.D	05222115ECD7.D	NA	05/22/21 18:49
Cal Standard	SJE0321-CALB	05222116ECD7.D	05222116ECD7.D	NA	05/22/21 19:10
Secondary Cal Check	SJE0321-SCV1	05222117ECD7.D	05222117ECD7.D	NA	05/22/21 19:32
Secondary Cal Check	SJE0321-SCV2	05222118ECD7.D	05222118ECD7.D	NA	05/22/21 19:53
Secondary Cal Check	SJE0321-SCV3	05222119ECD7.D	05222119ECD7.D	NA	05/22/21 20:15
Secondary Cal Check	SJE0321-SCV4	05222120ECD7.D	05222120ECD7.D	NA	05/22/21 20:37
Secondary Cal Check	SJE0321-SCV5	05222121ECD7.D	05222121ECD7.D	NA	05/22/21 20:58
Secondary Cal Check	SJE0321-SCV6	05222122ECD7.D	05222122ECD7.D	NA	05/22/21 21:20

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 5/25/2021 10:02:27AM

ANALYSIS SEQUENCE

SJE0321

Instrument: ECD7 Element Column ID: i10655i10656
Calibration ID: EE00033

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SJE0321-CAL1	0.25PPM AR1660	QC		1	J001758	J001757	
SJE0321-CAL2	0.02PPM AR1660	QC		2	J002100	J001757	
SJE0321-CAL3	0.05PPM AR1660	QC		3	J002099	J001757	
SJE0321-CAL4	1.0PPM AR1660	QC		4	J001699	J001757	
SJE0321-CAL5	0.1PPM AR1660	QC		5	J002098	J001757	
SJE0321-CAL6	0.5PPM AR1660	QC		6	J002097	J001757	
SJE0321-CAL7	0.25PPM AR1242	QC		7	J001700	J001757	
SJE0321-CAL8	0.25PPM AR1248	QC		8	J001701	J001757	
SJE0321-CAL9	0.25PPM AR1254	QC		9	J001702	J001757	
SJE0321-CALA	0.25PPM AR2162	QC		10	J001703	J001757	
SJE0321-CALB	0.25PPM AR3268	QC		11	J004709	J001757	
SJE0321-SCV1	AR1660SCV1	QC		12	J000948	J001757	
SJE0321-SCV2	AR1242SCV2	QC		13	J000949	J001757	
SJE0321-SCV3	AR1248SCV3	QC		14	J000950	J001757	
SJE0321-SCV4	AR1254SCV4	QC		15	J000951	J001757	
SJE0321-SCV5	AR2162SCV5	QC		16	J000952	J001757	
SJE0321-SCV6	AR3268SCV6	QC		17	J000953	J001757	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210522.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	22-MAY-2021 13:45	05222101ECD7.D	1	RINSE	
2	22-MAY-2021 14:07	05222102ECD7.D	1	RINSE	
3	22-MAY-2021 14:29	05222103ECD7.D	1	RINSE	
4	22-MAY-2021 14:50	05222104ECD7.D	1	RINSE	
5	22-MAY-2021 15:12	05222105ECD7.D	1	IB	
6	22-MAY-2021 15:34	05222106ECD7.D	1	0.25PPMAR1660	
7	22-MAY-2021 15:55	05222107ECD7.D	1	0.02PPMAR1660	
8	22-MAY-2021 16:17	05222108ECD7.D	1	0.05PPMAR1660	
9	22-MAY-2021 16:39	05222109ECD7.D	1	1PPMAR1660	
10	22-MAY-2021 17:00	05222110ECD7.D	1	0.1PPMAR1660	
11	22-MAY-2021 17:22	05222111ECD7.D	1	0.5PPMAR1660	
12	22-MAY-2021 17:44	05222112ECD7.D	1	AR1242	
13	22-MAY-2021 18:05	05222113ECD7.D	1	AR1248	
14	22-MAY-2021 18:27	05222114ECD7.D	1	AR1254	
15	22-MAY-2021 18:49	05222115ECD7.D	1	AR2162	
16	22-MAY-2021 19:10	05222116ECD7.D	1	AR3268	
17	22-MAY-2021 19:32	05222117ECD7.D	1	AR1660SCV1	
18	22-MAY-2021 19:53	05222118ECD7.D	1	AR1242SCV2	
19	22-MAY-2021 20:15	05222119ECD7.D	1	AR1248SCV3	
20	22-MAY-2021 20:37	05222120ECD7.D	1	AR1254SCV4	
21	22-MAY-2021 20:58	05222121ECD7.D	1	AR2162SCV5	
22	22-MAY-2021 21:20	05222122ECD7.D	1	AR3268SCV6	
23	22-MAY-2021 21:42	05222123ECD7.D	1	0.1PPMDDTS	
24	22-MAY-2021 22:03	05222124ECD7.D	1	DDT BD	
25	22-MAY-2021 22:25	05222125ECD7.D	1	AR1254ICV1	
26	22-MAY-2021 22:47	05222126ECD7.D	1	AR1660ICV2	
27	22-MAY-2021 23:08	05222127ECD7.D	1	BJE0408-BLK1	
28	22-MAY-2021 23:30	05222128ECD7.D	1	BJE0408-BS1	
29	22-MAY-2021 23:52	05222129ECD7.D	1	21E0145-01	
30	23-MAY-2021 00:13	05222130ECD7.D	1	BJE0400-BLK1	
31	23-MAY-2021 00:35	05222131ECD7.D	1	BJE0400-BS1	
32	23-MAY-2021 00:56	05222132ECD7.D	1	BJE0400-BSD1	
33	23-MAY-2021 01:18	05222133ECD7.D	1	21E0150-01	
34	23-MAY-2021 01:40	05222134ECD7.D	1	21E0150-02	
35	23-MAY-2021 02:01	05222135ECD7.D	1	21E0150-03	
36	23-MAY-2021 02:23	05222136ECD7.D	1	21E0150-04	
37	23-MAY-2021 02:45	05222137ECD7.D	1	AR1248CCV1	
38	23-MAY-2021 03:06	05222138ECD7.D	1	AR1660CCV2	
39	23-MAY-2021 03:28	05222139ECD7.D	1	BJE0481-BLK1	
40	23-MAY-2021 03:49	05222140ECD7.D	1	BJE0481-BS1	
41	23-MAY-2021 04:11	05222141ECD7.D	1	BJE0481-BSD1	
42	23-MAY-2021 04:33	05222142ECD7.D	1	21E0131-01	
43	23-MAY-2021 04:54	05222143ECD7.D	1	21E0131-02	
44	23-MAY-2021 05:16	05222144ECD7.D	1	21E0131-03	
45	23-MAY-2021 05:37	05222145ECD7.D	1	21E0131-04	
46	23-MAY-2021 05:59	05222146ECD7.D	1	21E0131-05	
47	23-MAY-2021 06:20	05222147ECD7.D	1	21E0131-06	
48	23-MAY-2021 06:42	05222148ECD7.D	1	21E0131-07	
49	23-MAY-2021 07:04	05222149ECD7.D	1	21E0131-08	
50	23-MAY-2021 07:25	05222150ECD7.D	1	21E0199-01	

	Inject Date/Time	Filename	DF	LabID	ClientID
51	23-MAY-2021 07:47	05222151ECD7.D	1	21E0199-02	
52	23-MAY-2021 08:08	05222152ECD7.D	1	AR1242CCV3	
53	23-MAY-2021 08:30	05222153ECD7.D	1	AR1660CCV4	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210522.b

ARI Job No.: RINS Method: PCB.m Instrument: ecd7.i Date: 22-MAY-2021

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1345	05222101ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1407	05222102ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1429	05222103ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1450	05222104ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1512	05222105ECD7.D	IB		1	NO MANUAL INTEGRATION
1534	05222106ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1555	05222107ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1617	05222108ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1639	05222109ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION
1700	05222110ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1722	05222111ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1744	05222112ECD7.D	AR1242		1	NO MANUAL INTEGRATION
1805	05222113ECD7.D	AR1248		1	NO MANUAL INTEGRATION
1827	05222114ECD7.D	AR1254		1	NO MANUAL INTEGRATION
1849	05222115ECD7.D	AR2162		1	NO MANUAL INTEGRATION
1910	05222116ECD7.D	AR3268		1	NO MANUAL INTEGRATION
1932	05222117ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210522.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1953	05222118ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
2015	05222119ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
2037	05222120ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
2058	05222121ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
2120	05222122ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
2142	05222123ECD7.D	0.1PPMDDTS		1	NO MANUAL INTEGRATION
2203	05222124ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
2225	05222125ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
2247	05222126ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
2308	05222127ECD7.D	BJE0408-BLK1		1	NO MANUAL INTEGRATION
2330	05222128ECD7.D	BJE0408-BS1		1	NO MANUAL INTEGRATION
2352	05222129ECD7.D	21E0145-01		1	NO MANUAL INTEGRATION
0013	05222130ECD7.D	BJE0400-BLK1		1	NO MANUAL INTEGRATION
0035	05222131ECD7.D	BJE0400-BS1		1	NO MANUAL INTEGRATION
0056	05222132ECD7.D	BJE0400-BSD1		1	NO MANUAL INTEGRATION
0118	05222133ECD7.D	21E0150-01		1	NO MANUAL INTEGRATION
0140	05222134ECD7.D	21E0150-02		1	NO MANUAL INTEGRATION
0201	05222135ECD7.D	21E0150-03		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210522.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0223	05222136ECD7.D	21E0150-04		1	NO MANUAL INTEGRATION
0245	05222137ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
0306	05222138ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
0328	05222139ECD7.D	BJE0481-BLK1		1	NO MANUAL INTEGRATION
0349	05222140ECD7.D	BJE0481-BS1		1	NO MANUAL INTEGRATION
0411	05222141ECD7.D	BJE0481-BSD1		1	NO MANUAL INTEGRATION
0433	05222142ECD7.D	21E0131-01		1	NO MANUAL INTEGRATION
0454	05222143ECD7.D	21E0131-02		1	NO MANUAL INTEGRATION
0516	05222144ECD7.D	21E0131-03		1	NO MANUAL INTEGRATION
0537	05222145ECD7.D	21E0131-04		1	NO MANUAL INTEGRATION
0559	05222146ECD7.D	21E0131-05		1	NO MANUAL INTEGRATION
0620	05222147ECD7.D	21E0131-06		1	NO MANUAL INTEGRATION
0642	05222148ECD7.D	21E0131-07		1	NO MANUAL INTEGRATION
0704	05222149ECD7.D	21E0131-08		1	NO MANUAL INTEGRATION
0725	05222150ECD7.D	21E0199-01		1	NO MANUAL INTEGRATION
0747	05222151ECD7.D	21E0199-02		1	NO MANUAL INTEGRATION
0808	05222152ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
0830	05222153ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210522.b\210522.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1345	05222101ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1407	05222102ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1429	05222103ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1450	05222104ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1512	05222105ECD7.D	IB		1	NO MANUAL INTEGRATION
1534	05222106ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1555	05222107ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1617	05222108ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1639	05222109ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION
1700	05222110ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1722	05222111ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1744	05222112ECD7.D	AR1242		1	NO MANUAL INTEGRATION
1805	05222113ECD7.D	AR1248		1	NO MANUAL INTEGRATION
1827	05222114ECD7.D	AR1254		1	NO MANUAL INTEGRATION
1849	05222115ECD7.D	AR2162		1	NO MANUAL INTEGRATION
1910	05222116ECD7.D	AR3268		1	NO MANUAL INTEGRATION
1932	05222117ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
1953	05222118ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210522.b\210522.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2015	05222119ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
2037	05222120ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
2058	05222121ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
2120	05222122ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
2142	05222123ECD7.D	0.1PPMDDTS		1	NO MANUAL INTEGRATION
2203	05222124ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
2225	05222125ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
2247	05222126ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
2308	05222127ECD7.D	BJE0408-BLK1		1	NO MANUAL INTEGRATION
2330	05222128ECD7.D	BJE0408-BS1		1	NO MANUAL INTEGRATION
2352	05222129ECD7.D	21E0145-01		1	NO MANUAL INTEGRATION
0013	05222130ECD7.D	BJE0400-BLK1		1	NO MANUAL INTEGRATION
0035	05222131ECD7.D	BJE0400-BS1		1	NO MANUAL INTEGRATION
0056	05222132ECD7.D	BJE0400-BSD1		1	NO MANUAL INTEGRATION
0118	05222133ECD7.D	21E0150-01		1	NO MANUAL INTEGRATION
0140	05222134ECD7.D	21E0150-02		1	NO MANUAL INTEGRATION
0201	05222135ECD7.D	21E0150-03		1	NO MANUAL INTEGRATION
0223	05222136ECD7.D	21E0150-04		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210522.b\210522.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0245	05222137ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
0306	05222138ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
0328	05222139ECD7.D	BJE0481-BLK1		1	NO MANUAL INTEGRATION
0349	05222140ECD7.D	BJE0481-BS1		1	NO MANUAL INTEGRATION
0411	05222141ECD7.D	BJE0481-BSD1		1	NO MANUAL INTEGRATION
0433	05222142ECD7.D	21E0131-01		1	NO MANUAL INTEGRATION
0454	05222143ECD7.D	21E0131-02		1	NO MANUAL INTEGRATION
0516	05222144ECD7.D	21E0131-03		1	NO MANUAL INTEGRATION
0537	05222145ECD7.D	21E0131-04		1	NO MANUAL INTEGRATION
0559	05222146ECD7.D	21E0131-05		1	NO MANUAL INTEGRATION
0620	05222147ECD7.D	21E0131-06		1	NO MANUAL INTEGRATION
0642	05222148ECD7.D	21E0131-07		1	NO MANUAL INTEGRATION
0704	05222149ECD7.D	21E0131-08		1	NO MANUAL INTEGRATION
0725	05222150ECD7.D	21E0199-01		1	NO MANUAL INTEGRATION
0747	05222151ECD7.D	21E0199-02		1	NO MANUAL INTEGRATION
0808	05222152ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
0830	05222153ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION

Security Status Report

Date: 25-May-2021 10:16

05222101ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222102ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222103ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222104ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222105ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222106ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222107ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222108ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222109ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222110ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222111ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222112ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222113ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222114ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222115ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222116ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222117ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222118ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222119ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222120ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222121ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222122ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222123ECD7.D	Data Locked	jrains, 25-May-2021 10:16
05222124ECD7.D	Data Locked	jrains, 25-May-2021 10:16

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
		Calibration:	EE00069

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Initial Cal Check	SJG0060-ICV1	07022102ECD7.D	07022102ECD7.D	NA	07/02/21 09:13
Initial Cal Check	SJG0060-ICV2	07022103ECD7.D	07022103ECD7.D	NA	07/02/21 09:34
Calibration Check	SJG0060-CCV1	07022112ECD7.D	07022112ECD7.D	NA	07/02/21 14:27
Calibration Check	SJG0060-CCV2	07022113ECD7.D	07022113ECD7.D	NA	07/02/21 14:48
Calibration Check	SJG0060-CCV3	07022116ECD7.D	07022116ECD7.D	NA	07/02/21 17:10
Calibration Check	SJG0060-CCV4	07022117ECD7.D	07022117ECD7.D	NA	07/02/21 17:31
Blank	BJG0002-BLK1	07022118ECD7.D	07022118ECD7.D	Solid	07/02/21 17:52
LCS	BJG0002-BS1	07022119ECD7.D	07022119ECD7.D	Solid	07/02/21 18:13
LDW21-SS696	21F0418-01	07022120ECD7.D	07022120ECD7.D	Solid	07/02/21 18:33
LDW21-SS695	21F0418-02	07022121ECD7.D	07022121ECD7.D	Solid	07/02/21 18:54
LDW21-IT696	21F0418-03	07022122ECD7.D	07022122ECD7.D	Solid	07/02/21 19:15
LDW21-IT695	21F0418-04	07022123ECD7.D	07022123ECD7.D	Solid	07/02/21 19:36
LDW21-SS693	21F0418-05	07022124ECD7.D	07022124ECD7.D	Solid	07/02/21 19:57
LDW21-IT693	21F0418-06	07022125ECD7.D	07022125ECD7.D	Solid	07/02/21 20:17
LDW21-SS691	21F0418-07	07022126ECD7.D	07022126ECD7.D	Solid	07/02/21 20:38
LDW21-SS691	BJG0002-MS1	07022127ECD7.D	07022127ECD7.D	Solid	07/02/21 20:59
LDW21-SS691	BJG0002-MSD1	07022128ECD7.D	07022128ECD7.D	Solid	07/02/21 21:20
LDW21-IT691	21F0418-08	07022129ECD7.D	07022129ECD7.D	Solid	07/02/21 21:41
LDW21-SS692	21F0418-09	07022130ECD7.D	07022130ECD7.D	Solid	07/02/21 22:01
LDW21-IT692	21F0418-10	07022131ECD7.D	07022131ECD7.D	Solid	07/02/21 22:22
Reference	BJG0002-SRM1	07022132ECD7.D	07022132ECD7.D	Solid	07/02/21 22:43
Calibration Check	SJG0060-CCV5	07022133ECD7.D	07022133ECD7.D	NA	07/02/21 23:04
Calibration Check	SJG0060-CCV6	07022134ECD7.D	07022134ECD7.D	NA	07/02/21 23:24

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Printed: 7/6/2021 2:51:56PM

ANALYSIS SEQUENCE

SJG0060

Instrument: ECD7 Element Column ID: i10655i10656
Calibration ID: EE00069

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SJG0060-ICV1	AR1254ICV1	QC		1	J001702	J001757	
SJG0060-ICV2	AR1660ICV2	QC		2	J001758	J001757	
BJF0708-BLK1	Blank	QC		3		J001757	
BJF0708-BS1	LCS	QC		4		J001757	
BJF0708-BSD1	LCS Dup	QC		5		J001757	
BJF0708-SRM1	Reference	QC		6		J001757	
21F0277-01	BM-DC-D1-061621	8082A PCB Solid 4	B 02	7		J001757	Requires PS RM
21F0277-03	BM-DC-D2-061621	8082A PCB Solid 4	B 02	8		J001757	Requires PS RM
BJF0708-MS1	Matrix Spike	QC		9		J001757	
BJF0708-MSD1	Matrix Spike Dup	QC		10		J001757	
SJG0060-CCV1	AR1248CCV1	QC		11	J006804	J001757	
SJG0060-CCV2	AR1660CCV2	QC		12	J001758	J001757	
SJG0060-CCV3	AR1242CCV3	QC		13	J001700	J001757	
SJG0060-CCV4	AR1660CCV4	QC		14	J001758	J001757	
BJG0002-BLK1	Blank	QC		15		J001757	
BJG0002-BS1	LCS	QC		16		J001757	
BJG0002-SRM1	Reference	QC		17		J001757	
BJG0002-MS1	Matrix Spike	QC		18		J001757	
BJG0002-MSD1	Matrix Spike Dup	QC		19		J001757	
21F0418-01	LDW21-SS696	8082A PCB Solid 4	B 01	20		J001757	
21F0418-02	LDW21-SS695	8082A PCB Solid 4	B 01	21		J001757	
21F0418-03	LDW21-IT696	8082A PCB Solid 4	B 01	22		J001757	

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Printed: 7/6/2021 2:51:56PM

ANALYSIS SEQUENCE

SJG0060

Instrument: ECD7 Element Column ID: i10655i10656
Calibration ID: EE00069

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
21F0418-04	LDW21-IT695	8082A PCB Solid 4	B 01	23		J001757	
21F0418-05	LDW21-SS693	8082A PCB Solid 4	B 01	24		J001757	
21F0418-06	LDW21-IT693	8082A PCB Solid 4	B 01	25		J001757	
21F0418-07	LDW21-SS691	8082A PCB Solid 4	B 01	26		J001757	
21F0418-08	LDW21-IT691	8082A PCB Solid 4	B 01	27		J001757	
21F0418-09	LDW21-SS692	8082A PCB Solid 4	B 01	28		J001757	
21F0418-10	LDW21-IT692	8082A PCB Solid 4	B 01	29		J001757	
SJG0060-CCV5	AR1254CCV5	QC		30	J001702	J001757	
SJG0060-CCV6	AR1660CCV6	QC		31	J001758	J001757	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210702.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	02-JUL-2021 08:52	07022101ECD7.D	1	DDTS	
2	02-JUL-2021 09:13	07022102ECD7.D	1	AR1254ICV1	
3	02-JUL-2021 09:34	07022103ECD7.D	1	AR1660ICV2	
4	02-JUL-2021 11:40	07022104ECD7.D	1	BFJ0708-BLK1	
5	02-JUL-2021 12:01	07022105ECD7.D	1	BFJ0708-BS1	
6	02-JUL-2021 12:22	07022106ECD7.D	1	BJF0708-BSD1	
7	02-JUL-2021 12:43	07022107ECD7.D	1	BJF0708-SRM1	
8	02-JUL-2021 13:04	07022108ECD7.D	1	21F0277-01	
9	02-JUL-2021 13:24	07022109ECD7.D	1	21F0277-03	
10	02-JUL-2021 13:45	07022110ECD7.D	1	BJF0708-MS1	
11	02-JUL-2021 14:06	07022111ECD7.D	1	BJF0708-MSD1	
12	02-JUL-2021 14:27	07022112ECD7.D	1	AR1248CCV1	
13	02-JUL-2021 14:48	07022113ECD7.D	1	AR1660CCV2	
14	02-JUL-2021 16:50	07022115ECD7.D	1	RINSE	
15	02-JUL-2021 17:10	07022116ECD7.D	1	AR1242CCV3	
16	02-JUL-2021 17:31	07022117ECD7.D	1	AR1660CCV4	
17	02-JUL-2021 17:52	07022118ECD7.D	1	BJG0002-BLK1	
18	02-JUL-2021 18:13	07022119ECD7.D	1	BJG0002-BS1	
19	02-JUL-2021 18:33	07022120ECD7.D	1	21F0418-01	
20	02-JUL-2021 18:54	07022121ECD7.D	1	21F0418-02	
21	02-JUL-2021 19:15	07022122ECD7.D	1	21F0418-03	
22	02-JUL-2021 19:36	07022123ECD7.D	1	21F0418-04	
23	02-JUL-2021 19:57	07022124ECD7.D	1	21F0418-05	
24	02-JUL-2021 20:17	07022125ECD7.D	1	21F0418-06	
25	02-JUL-2021 20:38	07022126ECD7.D	1	21F0418-07	
26	02-JUL-2021 20:59	07022127ECD7.D	1	BJG0002-MS1	
27	02-JUL-2021 21:20	07022128ECD7.D	1	BJG0002-MSD1	
28	02-JUL-2021 21:41	07022129ECD7.D	1	21F0418-08	
29	02-JUL-2021 22:01	07022130ECD7.D	1	21F0418-09	
30	02-JUL-2021 22:22	07022131ECD7.D	1	21F0418-10	
31	02-JUL-2021 22:43	07022132ECD7.D	1	BJG0002-SRM1	
32	02-JUL-2021 23:04	07022133ECD7.D	1	AR1254CCV5	
33	02-JUL-2021 23:24	07022134ECD7.D	1	AR1660CCV6	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210702.b

ARI Job No.: DDTS Method: PCB.m Instrument: ecd7.i Date: 02-JUL-2021

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0852	07022101ECD7.D	DDTS		1	NO MANUAL INTEGRATION
0913	07022102ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
0934	07022103ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1140	07022104ECD7.D	BFJ0708-BLK1		1	NO MANUAL INTEGRATION
1201	07022105ECD7.D	BFJ0708-BS1		1	NO MANUAL INTEGRATION
1222	07022106ECD7.D	BJF0708-BSD1		1	NO MANUAL INTEGRATION
1243	07022107ECD7.D	BJF0708-SRM1		1	NO MANUAL INTEGRATION
1304	07022108ECD7.D	21F0277-01		1	Aroclor-1260,
1324	07022109ECD7.D	21F0277-03		1	NO MANUAL INTEGRATION
1345	07022110ECD7.D	BJF0708-MS1		1	NO MANUAL INTEGRATION
1406	07022111ECD7.D	BJF0708-MSD1		1	NO MANUAL INTEGRATION
1427	07022112ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
1448	07022113ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1650	07022115ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1710	07022116ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
1731	07022117ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION
1752	07022118ECD7.D	BJG0002-BLK1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210702.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1813	07022119ECD7.D	BJG0002-BS1		1	NO MANUAL INTEGRATION
1833	07022120ECD7.D	21F0418-01		1	Aroclor-1254, Aroclor-1260,
1854	07022121ECD7.D	21F0418-02		1	Aroclor-1254, Aroclor-1260,
1915	07022122ECD7.D	21F0418-03		1	Aroclor-1254,
1936	07022123ECD7.D	21F0418-04		1	NO MANUAL INTEGRATION
1957	07022124ECD7.D	21F0418-05		1	NO MANUAL INTEGRATION
2017	07022125ECD7.D	21F0418-06		1	NO MANUAL INTEGRATION
2038	07022126ECD7.D	21F0418-07		1	NO MANUAL INTEGRATION
2059	07022127ECD7.D	BJG0002-MS1		1	NO MANUAL INTEGRATION
2120	07022128ECD7.D	BJG0002-MSD1		1	NO MANUAL INTEGRATION
2141	07022129ECD7.D	21F0418-08		1	NO MANUAL INTEGRATION
2201	07022130ECD7.D	21F0418-09		1	NO MANUAL INTEGRATION
2222	07022131ECD7.D	21F0418-10		1	NO MANUAL INTEGRATION
2243	07022132ECD7.D	BJG0002-SRM1		1	NO MANUAL INTEGRATION
2304	07022133ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
2324	07022134ECD7.D	AR1660CCV6		1	NO MANUAL INTEGRATION
0852	07022101ECD7.D	DDTS		1	NO MANUAL INTEGRATION
0913	07022102ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210702.b\210702.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0934	07022103ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1140	07022104ECD7.D	BFJ0708-BLK1		1	NO MANUAL INTEGRATION
1201	07022105ECD7.D	BFJ0708-BS1		1	NO MANUAL INTEGRATION
1222	07022106ECD7.D	BJF0708-BSD1		1	NO MANUAL INTEGRATION
1243	07022107ECD7.D	BJF0708-SRM1		1	Aroclor-1016 [2C], Aroclor-1232 [2C], Aroclor-1242 [2C], Aroclor-1248 [2C], Aroclor-1254 [2C], Aroclor-1260 [2C], Aroclor-1262 [2C],
1304	07022108ECD7.D	21F0277-01		1	Aroclor-1260 [2C], Decachlorobiphenyl [2C],
1324	07022109ECD7.D	21F0277-03		1	Aroclor-1254 [2C],
1345	07022110ECD7.D	BJF0708-MS1		1	NO MANUAL INTEGRATION
1406	07022111ECD7.D	BJF0708-MSD1		1	NO MANUAL INTEGRATION
1427	07022112ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
1448	07022113ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1650	07022115ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1710	07022116ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
1731	07022117ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION
1752	07022118ECD7.D	BJG0002-BLK1		1	NO MANUAL INTEGRATION
1813	07022119ECD7.D	BJG0002-BS1		1	NO MANUAL INTEGRATION
1833	07022120ECD7.D	21F0418-01		1	Aroclor-1254 [2C], Aroclor-1260 [2C],
1854	07022121ECD7.D	21F0418-02		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\210702.b\210702.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1915	07022122ECD7.D	21F0418-03		1	NO MANUAL INTEGRATION
1936	07022123ECD7.D	21F0418-04		1	Aroclor-1254 [2C],
1957	07022124ECD7.D	21F0418-05		1	NO MANUAL INTEGRATION
2017	07022125ECD7.D	21F0418-06		1	NO MANUAL INTEGRATION
2038	07022126ECD7.D	21F0418-07		1	NO MANUAL INTEGRATION
2059	07022127ECD7.D	BJG0002-MS1		1	NO MANUAL INTEGRATION
2120	07022128ECD7.D	BJG0002-MSD1		1	NO MANUAL INTEGRATION
2141	07022129ECD7.D	21F0418-08		1	NO MANUAL INTEGRATION
2201	07022130ECD7.D	21F0418-09		1	NO MANUAL INTEGRATION
2222	07022131ECD7.D	21F0418-10		1	NO MANUAL INTEGRATION
2243	07022132ECD7.D	BJG0002-SRM1		1	Aroclor-1242 [2C], Aroclor-1248 [2C], Aroclor-1254 [2C], Aroclor-1262 [2C],
2304	07022133ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
2324	07022134ECD7.D	AR1660CCV6		1	NO MANUAL INTEGRATION

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG/WO:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJE0321	Instrument:	ECD7
Calibration:	EE00069	Calibration Date:	05/22/2021

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SJE0321-SCV1 (Water)			Lab File ID: 05222117ECD7.D				Analyzed: 05/22/21 19:32	
Decachlorobiphenyl	40.000	99.6	80 - 120	13.177	13.1765	0.0005	N/A	
Tetrachlorometaxylene	40.000	106	80 - 120	5.074	5.072667	0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	97.6	80 - 120	13.872	13.8715	0.0005	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.423	5.423333	-0.0003	N/A	
SJE0321-SCV2 (Water)			Lab File ID: 05222118ECD7.D				Analyzed: 05/22/21 19:53	
Decachlorobiphenyl	40.000	101	80 - 120	13.176	13.1765	-0.0005	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.072	5.072667	-0.0007	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	13.873	13.8715	0.0015	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.423	5.423333	-0.0003	N/A	
SJE0321-SCV3 (Water)			Lab File ID: 05222119ECD7.D				Analyzed: 05/22/21 20:15	
Decachlorobiphenyl	40.000	101	80 - 120	13.176	13.1765	-0.0005	N/A	
Tetrachlorometaxylene	40.000	107	80 - 120	5.074	5.072667	0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	13.873	13.8715	0.0015	N/A	
Tetrachlorometaxylene [2C]	40.000	102	80 - 120	5.424	5.423333	0.0007	N/A	
SJE0321-SCV4 (Water)			Lab File ID: 05222120ECD7.D				Analyzed: 05/22/21 20:37	
Decachlorobiphenyl	40.000	100	80 - 120	13.177	13.1765	0.0005	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.073	5.072667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	99.0	80 - 120	13.872	13.8715	0.0005	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.423	5.423333	-0.0003	N/A	
SJE0321-SCV5 (Water)			Lab File ID: 05222121ECD7.D				Analyzed: 05/22/21 20:58	
Decachlorobiphenyl	40.000	99.4	80 - 120	13.178	13.1765	0.0015	N/A	
Tetrachlorometaxylene	40.000	103	80 - 120	5.074	5.072667	0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	98.8	80 - 120	13.874	13.8715	0.0025	N/A	
Tetrachlorometaxylene [2C]	40.000	97.8	80 - 120	5.423	5.423333	-0.0003	N/A	
SJE0321-SCV6 (Water)			Lab File ID: 05222122ECD7.D				Analyzed: 05/22/21 21:20	
Decachlorobiphenyl	40.000	149	80 - 200	13.177	13.1765	0.0005	N/A	
Tetrachlorometaxylene	40.000	105	80 - 120	5.073	5.072667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	153	80 - 200	13.875	13.8715	0.0035	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.423	5.423333	-0.0003	N/A	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG/WO:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
Calibration:	EE00069	Calibration Date:	05/22/2021

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SJG0060-ICV1 (Solid)			Lab File ID: 07022102ECD7.D				Analyzed: 07/02/21 09:13	
Decachlorobiphenyl	40.000	114	80 - 120	13.173	13.1765	-0.0035	N/A	
Tetrachlorometaxylene	40.000	113	80 - 120	5.073	5.072667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	109	80 - 120	13.862	13.8715	-0.0095	N/A	
Tetrachlorometaxylene [2C]	40.000	108	80 - 120	5.42	5.423333	-0.0033	N/A	
SJG0060-ICV2 (Solid)			Lab File ID: 07022103ECD7.D				Analyzed: 07/02/21 09:34	
Decachlorobiphenyl	40.000	108	80 - 120	13.171	13.1765	-0.0055	N/A	
Tetrachlorometaxylene	40.000	109	80 - 120	5.073	5.072667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	100	80 - 120	13.861	13.8715	-0.0105	N/A	
Tetrachlorometaxylene [2C]	40.000	106	80 - 120	5.421	5.423333	-0.0023	N/A	
SJG0060-CCV1 (Solid)			Lab File ID: 07022112ECD7.D				Analyzed: 07/02/21 14:27	
Decachlorobiphenyl	40.000	109	80 - 120	13.169	13.1765	-0.0075	N/A	
Tetrachlorometaxylene	40.000	110	80 - 120	5.071	5.072667	-0.0017	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	13.861	13.8715	-0.0105	N/A	
Tetrachlorometaxylene [2C]	40.000	104	80 - 120	5.421	5.423333	-0.0023	N/A	
SJG0060-CCV2 (Solid)			Lab File ID: 07022113ECD7.D				Analyzed: 07/02/21 14:48	
Decachlorobiphenyl	40.000	108	80 - 120	13.169	13.1765	-0.0075	N/A	
Tetrachlorometaxylene	40.000	110	80 - 120	5.071	5.072667	-0.0017	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	13.86	13.8715	-0.0115	N/A	
Tetrachlorometaxylene [2C]	40.000	106	80 - 120	5.42	5.423333	-0.0033	N/A	
SJG0060-CCV3 (Solid)			Lab File ID: 07022116ECD7.D				Analyzed: 07/02/21 17:10	
Decachlorobiphenyl	40.000	102	80 - 120	13.172	13.1765	-0.0045	N/A	
Tetrachlorometaxylene	40.000	107	80 - 120	5.072	5.072667	-0.0007	N/A	
Decachlorobiphenyl [2C]	40.000	98.3	80 - 120	13.86	13.8715	-0.0115	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.42	5.423333	-0.0033	N/A	
SJG0060-CCV4 (Solid)			Lab File ID: 07022117ECD7.D				Analyzed: 07/02/21 17:31	
Decachlorobiphenyl	40.000	107	80 - 120	13.17	13.1765	-0.0065	N/A	
Tetrachlorometaxylene	40.000	110	80 - 120	5.073	5.072667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	13.861	13.8715	-0.0105	N/A	
Tetrachlorometaxylene [2C]	40.000	106	80 - 120	5.422	5.423333	-0.0013	N/A	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG/WO:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
Calibration:	EE00069	Calibration Date:	05/22/2021

Surrogate Compound	Spike Level ug/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BJG0002-BLK1 (Solid)			Lab File ID: 07022118ECD7.D			Analyzed: 07/02/21 17:52		
Decachlorobiphenyl	8.0000	99.3	40 - 126	13.17	13.1765	-0.0065	N/A	
Tetrachlorometaxylene	8.0000	91.6	44 - 120	5.071	5.072667	-0.0017	N/A	
Decachlorobiphenyl [2C]	8.0000	101	40 - 126	13.859	13.8715	-0.0125	N/A	
Tetrachlorometaxylene [2C]	8.0000	86.4	44 - 120	5.42	5.423333	-0.0033	N/A	
BJG0002-BS1 (Solid)			Lab File ID: 07022119ECD7.D			Analyzed: 07/02/21 18:13		
Decachlorobiphenyl	8.0000	105	40 - 126	13.169	13.1765	-0.0075	N/A	
Tetrachlorometaxylene	8.0000	95.9	44 - 120	5.072	5.072667	-0.0007	N/A	
Decachlorobiphenyl [2C]	8.0000	111	40 - 126	13.862	13.8715	-0.0095	N/A	
Tetrachlorometaxylene [2C]	8.0000	90.0	44 - 120	5.42	5.423333	-0.0033	N/A	
21F0418-01 (Solid)			Lab File ID: 07022120ECD7.D			Analyzed: 07/02/21 18:33		
Decachlorobiphenyl	44.238	96.3	40 - 126	13.164	13.1765	-0.0125	N/A	
Tetrachlorometaxylene	44.238	90.2	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	44.238	92.7	40 - 126	13.855	13.8715	-0.0165	N/A	
Tetrachlorometaxylene [2C]	44.238	81.5	44 - 120	5.42	5.423333	-0.0033	N/A	
21F0418-02 (Solid)			Lab File ID: 07022121ECD7.D			Analyzed: 07/02/21 18:54		
Decachlorobiphenyl	7.9672	92.3	40 - 126	13.161	13.1765	-0.0155	N/A	
Tetrachlorometaxylene	7.9672	92.3	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	7.9672	97.5	40 - 126	13.856	13.8715	-0.0155	N/A	
Tetrachlorometaxylene [2C]	7.9672	82.0	44 - 120	5.42	5.423333	-0.0033	N/A	
21F0418-03 (Solid)			Lab File ID: 07022122ECD7.D			Analyzed: 07/02/21 19:15		
Decachlorobiphenyl	7.9672	93.4	40 - 126	13.161	13.1765	-0.0155	N/A	
Tetrachlorometaxylene	7.9672	91.4	44 - 120	5.071	5.072667	-0.0017	N/A	
Decachlorobiphenyl [2C]	7.9672	89.6	40 - 126	13.856	13.8715	-0.0155	N/A	
Tetrachlorometaxylene [2C]	7.9672	84.1	44 - 120	5.421	5.423333	-0.0023	N/A	
21F0418-04 (Solid)			Lab File ID: 07022123ECD7.D			Analyzed: 07/02/21 19:36		
Decachlorobiphenyl	7.9972	95.0	40 - 126	13.165	13.1765	-0.0115	N/A	
Tetrachlorometaxylene	7.9972	85.5	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	7.9972	88.3	40 - 126	13.857	13.8715	-0.0145	N/A	
Tetrachlorometaxylene [2C]	7.9972	77.0	44 - 120	5.42	5.423333	-0.0033	N/A	

Analytical Resources, Incorporated
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SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG/WO:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
Calibration:	EE00069	Calibration Date:	05/22/2021

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
21F0418-05 (Solid)			Lab File ID: 07022124ECD7.D				Analyzed: 07/02/21 19:57	
Decachlorobiphenyl	7.9820	90.1	40 - 126	13.163	13.1765	-0.0135	N/A	
Tetrachlorometaxylene	7.9820	79.2	44 - 120	5.071	5.072667	-0.0017	N/A	
Decachlorobiphenyl [2C]	7.9820	78.3	40 - 126	13.857	13.8715	-0.0145	N/A	
Tetrachlorometaxylene [2C]	7.9820	72.4	44 - 120	5.421	5.423333	-0.0023	N/A	
21F0418-06 (Solid)			Lab File ID: 07022125ECD7.D				Analyzed: 07/02/21 20:17	
Decachlorobiphenyl	7.9744	103	40 - 126	13.165	13.1765	-0.0115	N/A	
Tetrachlorometaxylene	7.9744	82.9	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	7.9744	88.8	40 - 126	13.857	13.8715	-0.0145	N/A	
Tetrachlorometaxylene [2C]	7.9744	76.3	44 - 120	5.42	5.423333	-0.0033	N/A	
21F0418-07 (Solid)			Lab File ID: 07022126ECD7.D				Analyzed: 07/02/21 20:38	
Decachlorobiphenyl	8.0003	101	40 - 126	13.163	13.1765	-0.0135	N/A	
Tetrachlorometaxylene	8.0003	86.7	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	8.0003	86.7	40 - 126	13.855	13.8715	-0.0165	N/A	
Tetrachlorometaxylene [2C]	8.0003	81.0	44 - 120	5.42	5.423333	-0.0033	N/A	
BJG0002-MS1 (Solid)			Lab File ID: 07022127ECD7.D				Analyzed: 07/02/21 20:59	
Decachlorobiphenyl	8.0003	97.3	40 - 126	13.164	13.1765	-0.0125	N/A	
Tetrachlorometaxylene	8.0003	84.1	44 - 120	5.069	5.072667	-0.0037	N/A	
Decachlorobiphenyl [2C]	8.0003	83.3	40 - 126	13.856	13.8715	-0.0155	N/A	
Tetrachlorometaxylene [2C]	8.0003	78.1	44 - 120	5.419	5.423333	-0.0043	N/A	
BJG0002-MSD1 (Solid)			Lab File ID: 07022128ECD7.D				Analyzed: 07/02/21 21:20	
Decachlorobiphenyl	8.0003	101	40 - 126	13.163	13.1765	-0.0135	N/A	
Tetrachlorometaxylene	8.0003	86.5	44 - 120	5.069	5.072667	-0.0037	N/A	
Decachlorobiphenyl [2C]	8.0003	86.8	40 - 126	13.856	13.8715	-0.0155	N/A	
Tetrachlorometaxylene [2C]	8.0003	79.7	44 - 120	5.419	5.423333	-0.0043	N/A	
21F0418-08 (Solid)			Lab File ID: 07022129ECD7.D				Analyzed: 07/02/21 21:41	
Decachlorobiphenyl	7.9510	96.7	40 - 126	13.165	13.1765	-0.0115	N/A	
Tetrachlorometaxylene	7.9510	85.9	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	7.9510	89.5	40 - 126	13.858	13.8715	-0.0135	N/A	
Tetrachlorometaxylene [2C]	7.9510	80.0	44 - 120	5.42	5.423333	-0.0033	N/A	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG/WO:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
Calibration:	EE00069	Calibration Date:	05/22/2021

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
21F0418-09 (Solid)			Lab File ID: 07022130ECD7.D				Analyzed: 07/02/21 22:01	
Decachlorobiphenyl	7.9892	90.6	40 - 126	13.163	13.1765	-0.0135	N/A	
Tetrachlorometaxylene	7.9892	73.3	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	7.9892	75.8	40 - 126	13.857	13.8715	-0.0145	N/A	
Tetrachlorometaxylene [2C]	7.9892	67.5	44 - 120	5.42	5.423333	-0.0033	N/A	
21F0418-10 (Solid)			Lab File ID: 07022131ECD7.D				Analyzed: 07/02/21 22:22	
Decachlorobiphenyl	7.9723	102	40 - 126	13.165	13.1765	-0.0115	N/A	
Tetrachlorometaxylene	7.9723	81.8	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	7.9723	91.0	40 - 126	13.857	13.8715	-0.0145	N/A	
Tetrachlorometaxylene [2C]	7.9723	75.1	44 - 120	5.42	5.423333	-0.0033	N/A	
BJG0002-SRM1 (Solid)			Lab File ID: 07022132ECD7.D				Analyzed: 07/02/21 22:43	
Decachlorobiphenyl	40.000	91.8	40 - 126	13.165	13.1765	-0.0115	N/A	
Tetrachlorometaxylene	40.000	82.7	44 - 120	5.07	5.072667	-0.0027	N/A	
Decachlorobiphenyl [2C]	40.000	88.9	40 - 126	13.856	13.8715	-0.0155	N/A	
Tetrachlorometaxylene [2C]	40.000	76.8	44 - 120	5.42	5.423333	-0.0033	N/A	
SJG0060-CCV5 (Solid)			Lab File ID: 07022133ECD7.D				Analyzed: 07/02/21 23:04	
Decachlorobiphenyl	40.000	115	80 - 120	13.17	13.1765	-0.0065	N/A	
Tetrachlorometaxylene	40.000	111	80 - 120	5.072	5.072667	-0.0007	N/A	
Decachlorobiphenyl [2C]	40.000	115	80 - 120	13.862	13.8715	-0.0095	N/A	
Tetrachlorometaxylene [2C]	40.000	107	80 - 120	5.422	5.423333	-0.0013	N/A	
SJG0060-CCV6 (Solid)			Lab File ID: 07022134ECD7.D				Analyzed: 07/02/21 23:24	
Decachlorobiphenyl	40.000	108	80 - 120	13.168	13.1765	-0.0085	N/A	
Tetrachlorometaxylene	40.000	110	80 - 120	5.073	5.072667	0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	98.8	80 - 120	13.86	13.8715	-0.0115	N/A	
Tetrachlorometaxylene [2C]	40.000	106	80 - 120	5.423	5.423333	-0.0003	N/A	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJE0321	Instrument:	ECD7
		Calibration:	EE00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SJE0321-SCV1)		(Water)		Lab File ID: 05222117ECD7.D				Analyzed: 05/22/21 19:32	
1-Bromo-2-Nitrobenzene	296594	2.858	296446	2.859	100	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	481880	13.529	470266	13.529	102	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	719765	3.655	711996	3.656	101	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	911548	14.767	867949	14.766	105	50 - 200	0.001	+/-0.50	
Secondary Cal Check (SJE0321-SCV2)		(Water)		Lab File ID: 05222118ECD7.D				Analyzed: 05/22/21 19:53	
1-Bromo-2-Nitrobenzene	296608	2.858	296446	2.859	100	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	477702	13.529	470266	13.529	102	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	712373	3.655	711996	3.656	100	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	906518	14.765	867949	14.766	104	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SJE0321-SCV3)		(Water)		Lab File ID: 05222119ECD7.D				Analyzed: 05/22/21 20:15	
1-Bromo-2-Nitrobenzene	291470	2.86	296446	2.859	98	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	476310	13.529	470266	13.529	101	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	707436	3.657	711996	3.656	99	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	901019	14.766	867949	14.766	104	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SJE0321-SCV4)		(Water)		Lab File ID: 05222120ECD7.D				Analyzed: 05/22/21 20:37	
1-Bromo-2-Nitrobenzene	296015	2.859	296446	2.859	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	475384	13.529	470266	13.529	101	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	709760	3.656	711996	3.656	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	908548	14.767	867949	14.766	105	50 - 200	0.001	+/-0.50	
Secondary Cal Check (SJE0321-SCV5)		(Water)		Lab File ID: 05222121ECD7.D				Analyzed: 05/22/21 20:58	
1-Bromo-2-Nitrobenzene	295364	2.859	296446	2.859	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	478364	13.529	470266	13.529	102	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	716532	3.656	711996	3.656	101	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	915545	14.765	867949	14.766	105	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SJE0321-SCV6)		(Water)		Lab File ID: 05222122ECD7.D				Analyzed: 05/22/21 21:20	
1-Bromo-2-Nitrobenzene	296903	2.859	296446	2.859	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	479288	13.528	470266	13.529	102	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	712350	3.656	711996	3.656	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	915257	14.765	867949	14.766	105	50 - 200	-0.001	+/-0.50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
		Calibration:	EE00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SJG0060-ICV1)		(Solid)		Lab File ID: 07022102ECD7.D				Analyzed: 07/02/21 09:13	
1-Bromo-2-Nitrobenzene	315138	2.86	315204	2.858	100	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl	465501	13.524	489191	13.522	95	50 - 200	0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	712882	3.654	715840	3.653	100	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	763138	14.756	829928	14.755	92	50 - 200	0.001	+/-0.50	
Initial Cal Check (SJG0060-ICV2)		(Solid)		Lab File ID: 07022103ECD7.D				Analyzed: 07/02/21 09:34	
1-Bromo-2-Nitrobenzene	315204	2.858	315204	2.858	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	489191	13.522	489191	13.522	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	715840	3.653	715840	3.653	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	829928	14.755	829928	14.755	100	50 - 200	0.000	+/-0.50	
Blank (BJG0002-BLK1)		(Solid)		Lab File ID: 07022118ECD7.D				Analyzed: 07/02/21 17:52	
1-Bromo-2-Nitrobenzene	295282	2.857	315204	2.858	94	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	486797	13.521	489191	13.522	100	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	682255	3.653	715840	3.653	95	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	846012	14.754	829928	14.755	102	50 - 200	-0.001	+/-0.50	
LCS (BJG0002-BS1)		(Solid)		Lab File ID: 07022119ECD7.D				Analyzed: 07/02/21 18:13	
1-Bromo-2-Nitrobenzene	296531	2.858	315204	2.858	94	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	493806	13.521	489191	13.522	101	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	687176	3.654	715840	3.653	96	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	865703	14.754	829928	14.755	104	50 - 200	-0.001	+/-0.50	
LDW21-SS696 (21F0418-01)		(Solid)		Lab File ID: 07022120ECD7.D				Analyzed: 07/02/21 18:33	
1-Bromo-2-Nitrobenzene	308431	2.856	315204	2.858	98	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	429881	13.515	489191	13.522	88	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	723301	3.653	715840	3.653	101	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	881945	14.751	829928	14.755	106	50 - 200	-0.004	+/-0.50	
LDW21-SS695 (21F0418-02)		(Solid)		Lab File ID: 07022121ECD7.D				Analyzed: 07/02/21 18:54	
1-Bromo-2-Nitrobenzene	302512	2.857	315204	2.858	96	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	353964	13.513	489191	13.522	72	50 - 200	-0.009	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	699025	3.653	715840	3.653	98	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	777926	14.75	829928	14.755	94	50 - 200	-0.005	+/-0.50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
		Calibration:	EE00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LDW21-IT696 (21F0418-03)		(Solid)		Lab File ID: 07022122ECD7.D				Analyzed: 07/02/21 19:15	
1-Bromo-2-Nitrobenzene	309629	2.857	315204	2.858	98	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	328753	13.512	489191	13.522	67	50 - 200	-0.010	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	713893	3.654	715840	3.653	100	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	755891	14.749	829928	14.755	91	50 - 200	-0.006	+/-0.50	
LDW21-IT695 (21F0418-04)		(Solid)		Lab File ID: 07022123ECD7.D				Analyzed: 07/02/21 19:36	
1-Bromo-2-Nitrobenzene	299362	2.856	315204	2.858	95	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	377574	13.516	489191	13.522	77	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	697697	3.653	715840	3.653	97	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	810750	14.751	829928	14.755	98	50 - 200	-0.004	+/-0.50	
LDW21-SS693 (21F0418-05)		(Solid)		Lab File ID: 07022124ECD7.D				Analyzed: 07/02/21 19:57	
1-Bromo-2-Nitrobenzene	307640	2.858	315204	2.858	98	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	395335	13.515	489191	13.522	81	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	719948	3.654	715840	3.653	101	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	845553	14.75	829928	14.755	102	50 - 200	-0.005	+/-0.50	
LDW21-IT693 (21F0418-06)		(Solid)		Lab File ID: 07022125ECD7.D				Analyzed: 07/02/21 20:17	
1-Bromo-2-Nitrobenzene	313982	2.855	315204	2.858	100	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl	448489	13.516	489191	13.522	92	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	729614	3.652	715840	3.653	102	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	889914	14.752	829928	14.755	107	50 - 200	-0.003	+/-0.50	
LDW21-SS691 (21F0418-07)		(Solid)		Lab File ID: 07022126ECD7.D				Analyzed: 07/02/21 20:38	
1-Bromo-2-Nitrobenzene	309512	2.857	315204	2.858	98	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	390000	13.515	489191	13.522	80	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	711514	3.653	715840	3.653	99	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	846464	14.75	829928	14.755	102	50 - 200	-0.005	+/-0.50	
Matrix Spike (BJG0002-MS1)		(Solid)		Lab File ID: 07022127ECD7.D				Analyzed: 07/02/21 20:59	
1-Bromo-2-Nitrobenzene	310928	2.856	315204	2.858	99	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	403133	13.515	489191	13.522	82	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	713118	3.652	715840	3.653	100	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	868261	14.751	829928	14.755	105	50 - 200	-0.004	+/-0.50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0060	Instrument:	ECD7
		Calibration:	EE00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (BJG0002-MSD1)		(Solid)		Lab File ID: 07022128ECD7.D				Analyzed: 07/02/21 21:20	
1-Bromo-2-Nitrobenzene	300268	2.856	315204	2.858	95	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	397288	13.515	489191	13.522	81	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	698916	3.652	715840	3.653	98	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	851391	14.752	829928	14.755	103	50 - 200	-0.003	+/-0.50	
LDW21-IT691 (21F0418-08)		(Solid)		Lab File ID: 07022129ECD7.D				Analyzed: 07/02/21 21:41	
1-Bromo-2-Nitrobenzene	311064	2.857	315204	2.858	99	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	463289	13.517	489191	13.522	95	50 - 200	-0.005	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	734330	3.653	715840	3.653	103	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	925062	14.754	829928	14.755	111	50 - 200	-0.001	+/-0.50	
LDW21-SS692 (21F0418-09)		(Solid)		Lab File ID: 07022130ECD7.D				Analyzed: 07/02/21 22:01	
1-Bromo-2-Nitrobenzene	316087	2.857	315204	2.858	100	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	423829	13.515	489191	13.522	87	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	731974	3.654	715840	3.653	102	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	916381	14.753	829928	14.755	110	50 - 200	-0.002	+/-0.50	
LDW21-IT692 (21F0418-10)		(Solid)		Lab File ID: 07022131ECD7.D				Analyzed: 07/02/21 22:22	
1-Bromo-2-Nitrobenzene	306322	2.858	315204	2.858	97	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	434947	13.517	489191	13.522	89	50 - 200	-0.005	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	717002	3.653	715840	3.653	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	887666	14.752	829928	14.755	107	50 - 200	-0.003	+/-0.50	
Reference (BJG0002-SRM1)		(Solid)		Lab File ID: 07022132ECD7.D				Analyzed: 07/02/21 22:43	
1-Bromo-2-Nitrobenzene	313538	2.856	315204	2.858	99	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	440129	13.516	489191	13.522	90	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	737302	3.653	715840	3.653	103	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	911148	14.753	829928	14.755	110	50 - 200	-0.002	+/-0.50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-01	File ID:	07022120ECD7.D
Sampled:	06/28/21 09:55	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 18:33
Solids:	22.56	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	1	9.858	9.874	0.016	3968.2	21.7	6.3
	* 2	10.161	10.16	0.001	15741.2	23.1	
Aroclor 1260	* 1	11.549	11.56567	0.0167	9934.4	54.1	6.9
	2	12.977	12.993	0.016	37003.25	50.5	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-02	File ID:	07022121ECD7.D
Sampled:	06/28/21 10:15	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 18:54
Solids:	65.68	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	1	9.854	9.874	0.02	67263	30.3	17.2
	* 2	10.159	10.16	0.001	134627.2	36.0	
Aroclor 1260	* 1	11.55	11.56567	0.0157	72239	86.7	13.
	2	12.977	12.993	0.016	270537	76.1	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-03	File ID:	07022122ECD7.D
Sampled:	06/28/21 10:00	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 19:15
Solids:	66.48	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	1	9.854	9.874	0.02	45236.4	27.3	7.1
	* 2	10.156	10.16	0.004	117607.8	29.3	
Aroclor 1260	* 1	11.55	11.56567	0.0157	30310.6	39.6	19.7
	2	12.975	12.993	0.018	110991.3	32.5	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-04	File ID:	07022123ECD7.D
Sampled:	06/28/21 10:30	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 19:36
Solids:	77.86	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	1	9.857	9.874	0.017	1515.2	ND	N/A
	* 2	10.158	10.16	0.002	6370	1.8	
Aroclor 1260	1	11.553	11.56567	0.0127	1979.6	2.4	15.4
	* 2	12.979	12.993	0.014	10066.25	2.8	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-05	File ID:	07022124ECD7.D
Sampled:	06/28/21 10:45	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 19:57
Solids:	57.05	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1260	* 1	11.552	11.56567	0.0137	124925.2	132	13.8
	2	12.977	12.993	0.016	446590.3	115	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-06	File ID:	07022125ECD7.D
Sampled:	06/28/21 10:50	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 20:17
Solids:	73.12	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	* 1	9.859	9.874	0.015	12767	9.9	1.
	2	10.162	10.16	0.002	49191.2	9.8	
Aroclor 1260	* 1	11.554	11.56567	0.0117	43548.4	40.2	5.4
	2	12.979	12.993	0.014	155805.3	38.1	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-07	File ID:	07022126ECD7.D
Sampled:	06/28/21 11:10	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 20:38
Solids:	65.34	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1260	* 1	11.551	11.56567	0.0147	99494.6	104	17.8
	2	12.977	12.993	0.016	342245.3	87.0	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-08	File ID:	07022129ECD7.D
Sampled:	06/28/21 11:15	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 21:41
Solids:	76.41	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1260	* 1	11.555	11.56567	0.0107	48945.4	43.2	2.6
	2	12.979	12.993	0.014	179563.8	42.1	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-09	File ID:	07022130ECD7.D
Sampled:	06/28/21 11:34	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 22:01
Solids:	57.47	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1260	* 1	11.551	11.56567	0.0147	39942	39.7	10.6
	2	12.978	12.993	0.015	148744.8	35.7	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21F0418-10	File ID:	07022131ECD7.D
Sampled:	06/28/21 11:35	Prepared:	07/01/21 11:50	Analyzed:	07/02/21 22:22
Solids:	72.13	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BJG0002	Sequence:	SJG0060		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	* 1	9.858	9.874	0.016	4014	3.8	8.2
	2	10.162	10.16	0.002	16776.6	3.5	
Aroclor 1260	* 1	11.554	11.56567	0.0117	12968.4	12.4	5.
	2	12.978	12.993	0.015	47830	11.8	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

HOLDING TIME SUMMARY

Analysis: EPA 8082A

Laboratory: Analytical Resources, Inc. SDG: 21F0418

Client: Anchor QEA, LLC Project: Lower Duwamish AOC4

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-SS696 21F0418-01	06/28/21 09:55	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 18:33	1	40	
LDW21-SS695 21F0418-02	06/28/21 10:15	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 18:54	1	40	
LDW21-IT696 21F0418-03	06/28/21 10:00	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 19:15	1	40	
LDW21-IT695 21F0418-04	06/28/21 10:30	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 19:36	1	40	
LDW21-SS693 21F0418-05	06/28/21 10:45	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 19:57	1	40	
LDW21-IT693 21F0418-06	06/28/21 10:50	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 20:17	1	40	
LDW21-SS691 21F0418-07	06/28/21 11:10	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 20:38	1	40	
LDW21-IT691 21F0418-08	06/28/21 11:15	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 21:41	1	40	
LDW21-SS692 21F0418-09	06/28/21 11:34	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 22:01	1	40	
LDW21-IT692 21F0418-10	06/28/21 11:35	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 22:22	1	40	
Matrix Spike BJG0002-MS1	06/28/21 11:10	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 20:59	1	40	
Matrix Spike Dup BJG0002-MSD1	06/28/21 11:10	06/28/21 12:50	07/01/21 11:50	3	14	07/02/21 21:20	1	40	

* Indicates hold time exceedance.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Water
Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	1.56	4.00	ug/kg
Aroclor 1016 [2C]	1.56	4.00	ug/kg
Aroclor 1221	1.56	4.00	ug/kg
Aroclor 1221 [2C]	1.56	4.00	ug/kg
Aroclor 1232	1.56	4.00	ug/kg
Aroclor 1232 [2C]	1.56	4.00	ug/kg
Aroclor 1242	1.56	4.00	ug/kg
Aroclor 1242 [2C]	1.56	4.00	ug/kg
Aroclor 1248	1.56	4.00	ug/kg
Aroclor 1248 [2C]	1.56	4.00	ug/kg
Aroclor 1254	1.56	4.00	ug/kg
Aroclor 1254 [2C]	1.56	4.00	ug/kg
Aroclor 1260	0.589	4.00	ug/kg
Aroclor 1260 [2C]	0.589	4.00	ug/kg
Aroclor 1262	0.589	4.00	ug/kg
Aroclor 1262 [2C]	0.589	4.00	ug/kg
Aroclor 1268	0.589	4.00	ug/kg
Aroclor 1268 [2C]	0.589	4.00	ug/kg

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: S-279N
DESCRIPTION: Volatile Organic Compound (TCMx)
LOT #: 0052481B-1
SOLVENT: N/A

EXPIRATION: July 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/FID)	Prepared Concentration[1]	Certified Analyte Concentration[2]
Tetrachloro-meta-xylene (TCMX)	877-09-8	96.0	N/A	N/A

Te

* I1769A

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 ~ 4-6-09 (8)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record
Standard ID: C000147

Printed: 4/23/2015 11:52:09AM

Description:	tetrachlormetaxylene	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	n/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:01 by JGR
Vendor:	Accustandard	Lot #:	0052481b-1
Vendor Catalog #:			

Comments

see I1769a
updated for calibration TCX DCBP 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Tetrachlorometaxylene [2C]	877-09-8	1000000	ug/mL
Tetrachlorometaxylene	877-09-8	1000000	ug/mL
TCX 1660 [2C]	877-09-8	1000000	ug/mL
TCX 1660	877-09-8	1000000	ug/mL
TCX [2C]	877-09-8	1000000	ug/mL
TCX (A) [2C]	877-09-8	1000000	ug/mL
TCX (A)	877-09-8	1000000	ug/mL
TCX	877-09-8	1000000	ug/mL

Reviewed By Date

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: C-209N
EXPIRATION: Jul 28, 2015
DESCRIPTION: 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
LOT #: 990521LB-AC
SOLVENT: N/A

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

2,

* 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 Resources, Incorporated
Analytical Chemists and Consultants

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

Recipient Copy

CHAIN-OF-CUSTODY RECORD

COC No. 14509

Order Number: CB013932 Date Shipped: 7/24/2019 AirBill No(s): 460843962552

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. B
LAS VEGAS, NV 89120
PHONE: 1-702-895-8712
FAX: 1-702-795-8210

To: AMANDA VOLGARDSEN
ANALYTICAL RESOURCES, INC.
4611 S. 134TH PLACE, SUITE 100
TUKWILA WA 98168
206-695-6200

Sample ID	Qty	Description/Remarks	→ Catalogue Number
PSRM0122 - H007086	1	PUGET SOUND SEDIMENT RM	PS-SRM
		7/24/19	
		CITY OF DES MOINES MARINA	

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 7/24/19	Received by: (Signature)	Date/Time 07/25/19 1000
Custody Seal(s): Present/Absent	Remarks:		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

H008387

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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.: AL0-101467
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%

IL1110613_US

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Reference Material Producer
Certificate No. 2427.02

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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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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)

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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.: AL0-101467
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%

H 8387

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Certificate No. 2427.02

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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 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)

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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.: AL0-101467
Description: Aroclor 1016
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL12908
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%

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Reed
09/22/20

IL11110613_us

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

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Certificate of Analysis

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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/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.
[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 included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101462
Description: Aroclor 1260
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL13054
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 1260	11096-82-5	1000	± 0.520%

I 8525
Recd. JR
09/22/20

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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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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:

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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%

I009074

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Reference Material Producer
Certicate No. 2427.02

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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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[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%

I 009075

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Certicate No. 2427.02

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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:

[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.
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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.:	AL0-101470	**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%

I 009076

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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%

I 009077

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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.

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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%

I 009077

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Certicate No. 2427.02

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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:

[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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Phenova is an accredited ISO/IEC 17034 Reference Material Producer and ISO/IEC 17025 accredited Chemical Testing Laboratory.

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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.: AL0-101472
Description: Aroclor 1254
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL13055
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	± 0.247%

I009078

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

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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/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.
[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 included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101474	**Lot Number:**	CL11330
Description:	Aroclor 1262	**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 1262	37324-23-5	1000	± 0.516%

I 009079

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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/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.
[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 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%

I0090800 10/04/20

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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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Certificate of Analysis

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).

J000580

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.

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John Russo
President

Monica Bourgeois
Director of QA/RA

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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).

J000581

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

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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).

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

2021/15/21
J000582

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ISO 17034 Cert No. AR-1936

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ISO17025 Cert No. AT-1937

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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).

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

J 000583

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ISO Guide 34 Cert No.
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Certificate of Analysis
ISO Guide 34

Aroclor 1248 Standard

Product Number: PP-342 **Page:** 1 of 1

Lot Number: CT-0774 **Lot Issue Date:** 08-Mar-2019 **Expiration Date:** 31-Mar-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 1248	012672-29-6	NT01718	100.3 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

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

J000584
01/15/21

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Certificate of Analysis

Aroclor 1254 Solution

Product Number:	PP-352			**Page:**	1 of 1
Lot Number:	CK-4250	**Lot Issue Date:**	31-Dec-2013	**Expiration Date:**	31-Jan-2022

This certified 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	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15-30°C).

J000585

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.

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ISO 9001:2008 Registered TUV USA, Inc. Cert. No. 09-1009

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wwww.ultrasci.com

William J. Leary
Quality Assurance Manager

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).

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

J000 587

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
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ISO 17034

Aroclor 1268 Standard

Product Number: PP-382-1 **Page:** 1 of 1

Lot Number: 0006478417 **Lot Issue Date:** 24-Jul-2019 **Expiration Date:** 31-Aug-2027

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 1268	011100-14-4	RM00937	100.3 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

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

J000588

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

250 Smith Street North Kingstown, Rhode Island 02852 www.agilent.com/quality

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-SS696

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-01 C	SDG:	21F0418
Sampled:	06/28/21 09:55	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-160
% Solids:	22.33	Preparation:	PSEP 1986 (modified)	Analyzed:	07/03/21 23:16
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.1177 g Wet / 0.1177 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	14.5	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-SS695

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-02 C	SDG:	21F0418
Sampled:	06/28/21 10:15	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-161
% Solids:	67.55	Preparation:	PSEP 1986 (modified)	Analyzed:	07/03/21 23:47
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.3915 g Wet / 0.3915 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.29	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT696

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-03 C	SDG:	21F0418
Sampled:	06/28/21 10:00	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-162
% Solids:	53.16	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 00:17
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.2133 g Wet / 0.2133 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	2.91	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT695

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-04 C	SDG:	21F0418
Sampled:	06/28/21 10:30	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-165
% Solids:	71.29	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 01:49
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.522 g Wet / 0.522 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.44	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-SS693

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-05 C	SDG:	21F0418
Sampled:	06/28/21 10:45	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-166
% Solids:	56.40	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 02:19
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.5709 g Wet / 0.5709 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.96	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT693

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-06 C	SDG:	21F0418
Sampled:	06/28/21 10:50	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-167
% Solids:	69.70	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 02:50
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.576 g Wet / 0.576 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	0.58	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-SS691

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-07 C	SDG:	21F0418
Sampled:	06/28/21 11:10	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-168
% Solids:	65.57	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 03:21
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.5009 g Wet / 0.5009 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.56	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT691

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-08 C	SDG:	21F0418
Sampled:	06/28/21 11:15	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-169
% Solids:	72.39	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 03:52
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.5072 g Wet / 0.5072 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	0.38	1	0.02	0.02	B

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Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-SS692

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-09 C	SDG:	21F0418
Sampled:	06/28/21 11:34	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-170
% Solids:	56.17	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 04:23
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.6155 g Wet / 0.6155 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.96	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9060A m

LDW21-IT692

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-10 C	SDG:	21F0418
Sampled:	06/28/21 11:35	Prepared:	07/02/21 13:57	File ID:	CubeData_07062021@0954-171
% Solids:	70.29	Preparation:	PSEP 1986 (modified)	Analyzed:	07/04/21 04:53
Batch:	BJG0080	Sequence:	SJG0032	Initial/Final:	0.5512 g Wet / 0.5512 mL
Instrument:	TOC Cube			Calibration:	DI00090

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	0.57	1	0.02	0.02	B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 9060A m

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Batch:	BJG0080	Batch Matrix:	Solid	Preparation:	PSEP 1986 (modified)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS696	21F0418-01	eData_07062021@0954-	07/02/21 13:57	
LDW21-SS695	21F0418-02	eData_07062021@0954-	07/02/21 13:57	
LDW21-IT696	21F0418-03	eData_07062021@0954-	07/02/21 13:57	
LDW21-IT695	21F0418-04	eData_07062021@0954-	07/02/21 13:57	
LDW21-SS693	21F0418-05	eData_07062021@0954-	07/02/21 13:57	
LDW21-IT693	21F0418-06	eData_07062021@0954-	07/02/21 13:57	
LDW21-SS691	21F0418-07	eData_07062021@0954-	07/02/21 13:57	
LDW21-IT691	21F0418-08	eData_07062021@0954-	07/02/21 13:57	
LDW21-SS692	21F0418-09	eData_07062021@0954-	07/02/21 13:57	
LDW21-IT692	21F0418-10	eData_07062021@0954-	07/02/21 13:57	
Blank	BJG0080-BLK1	eData_07062021@0954-	07/02/21 13:57	
LCS	BJG0080-BS1	eData_07062021@0954-	07/02/21 13:57	
MRL Check	BJG0080-MRL1	eData_07062021@0954-	07/02/21 13:57	
Reference	BJG0080-SRM1	eData_07062021@0954-	07/02/21 13:57	

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Corrective Actions
Inorganic Analyses

Criteria Flagged:		ARI Job No.:	BJG0080
Unacceptable Blank:	✓	Date of Event:	7/3/21
Unacceptable Duplicate:		Client ID:	
Unacceptable Spike:		Method/Element:	TOC (S)
Unacceptable Reference:		Prep Code:	

Details of Problem/Recommended Corrective Action:

BLK1 detect @ 0.02%

Samples Affected: All sample in Batch

Corrective Action Taken: All samples in Batch are >10x the RL any possible contamination is insignificant Report data as is.

Analyst Initials:	BF	**Supervisor:**	W
Date:	7/6/2021	**Date:**	7.6.21

5049F

Revision 007
6/11/10

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Form I

METHOD BLANK DATA SHEET

EPA 9060A m

TotalAnalytes

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	21F0418
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Batch:	BJG0080	Laboratory ID:	BJG0080-BLK1	Prepared:	07/02/21 13:57
Matrix:	Solid	Preparation:	PSEP 1986 (modified)	Analyzed:	07/03/21 11:27
Sequence:	SJG0032	Calibration:	DI00090	Instrument:	TOC Cube

CAS NO.	Analyte	Concentration (% wet)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	0.02	1	0.02	0.02	

Analytical Resources, Incorporated
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LCS / LCS DUPLICATE RECOVERY

EPA 9060A m

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	07/03/21 11:58
Batch:	BJG0080	Laboratory ID:	BJG0080-BS1
Preparation:	PSEP 1986 (modified)	Sequence Name:	LCS
Initial/Final:	0.0228 g / 0.0228 mL		

COMPOUND	SPIKE ADDED (% wet)	LCS CONCENTRATION (% wet)	Q	LCS % REC. #	QC LIMITS REC.
Total Organic Carbon	44.4	44.7	B	100	80 - 120

* Indicates values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 9060A m

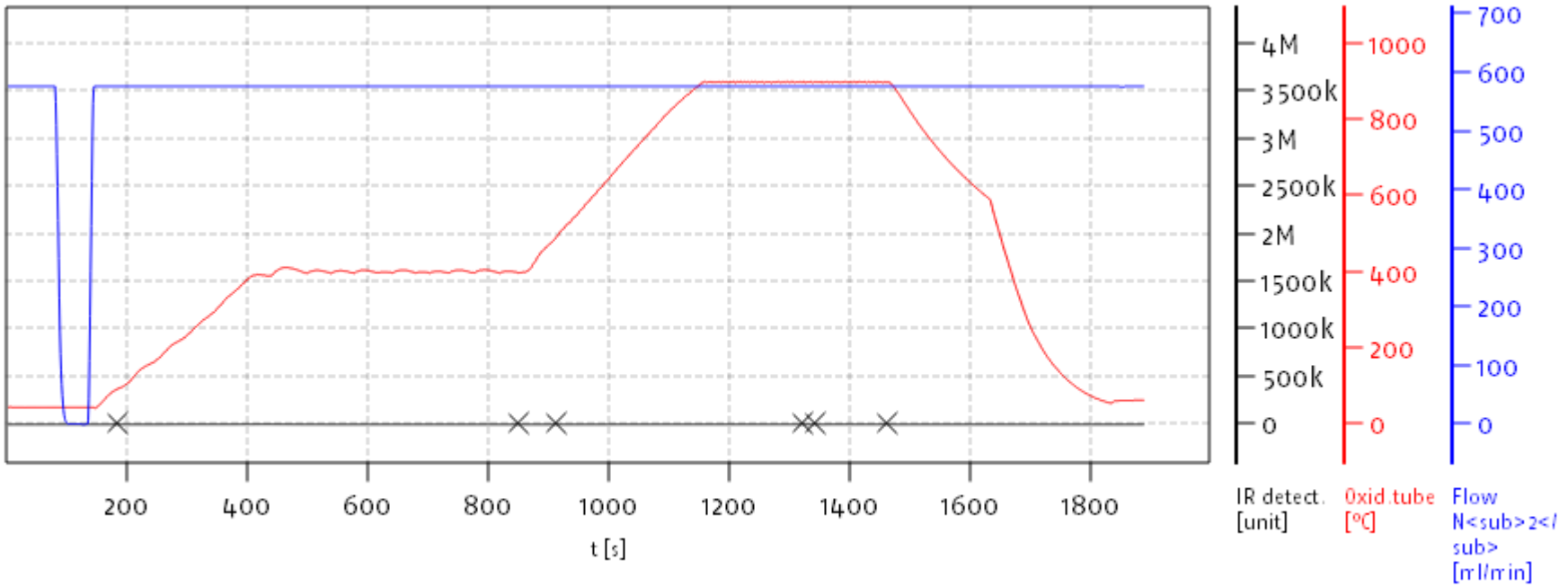
Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SIJ0003	Instrument:	TOC Cube
		Calibration:	DI00090

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Cal Standard	SIJ0003-CAL1	peData_10012020@0939-(	NA	09/30/20 18:28
Cal Standard	SIJ0003-CAL2	peData_10012020@0939-(	NA	09/30/20 18:59
Cal Standard	SIJ0003-CAL3	peData_10012020@0939-(	NA	09/30/20 19:31
Cal Standard	SIJ0003-CAL4	peData_10012020@0939-(	NA	09/30/20 20:02
Cal Standard	SIJ0003-CAL5	peData_10012020@0939-(	NA	09/30/20 20:34
Cal Standard	SIJ0003-CAL6	peData_10012020@0939-(	NA	09/30/20 21:05
Cal Standard	SIJ0003-CAL7	peData_10012020@0939-(	NA	09/30/20 21:37
Cal Standard	SIJ0003-CAL8	peData_10012020@0939-(	NA	09/30/20 22:08
Cal Standard	SIJ0003-CAL9	peData_10012020@0939-(	NA	09/30/20 22:39
Cal Standard	SIJ0003-CALA	peData_10012020@0939-(	NA	09/30/20 23:10
Cal Standard	SIJ0003-CALB	peData_10012020@0939-(	NA	09/30/20 23:41
Cal Standard	SIJ0003-CALC	peData_10012020@0939-(	NA	10/01/20 00:13
Cal Standard	SIJ0003-CALD	peData_10012020@0939-(	NA	10/01/20 00:44
Cal Standard	SIJ0003-CALE	peData_10012020@0939-(	NA	10/01/20 01:15
Cal Standard	SIJ0003-CALF	peData_10012020@0939-(	NA	10/01/20 01:47
Cal Standard	SIJ0003-CALG	peData_10012020@0939-(	NA	10/01/20 02:18
Cal Standard	SIJ0003-CALH	peData_10012020@0939-(	NA	10/01/20 02:49
Cal Standard	SIJ0003-CALI	peData_10012020@0939-(	NA	10/01/20 03:21
Cal Standard	SIJ0003-CALJ	peData_10012020@0939-(	NA	10/01/20 03:52
Cal Standard	SIJ0003-CALK	peData_10012020@0939-(	NA	10/01/20 04:24
Cal Standard	SIJ0003-CALL	peData_10012020@0939-(	NA	10/01/20 04:55
Cal Standard	SIJ0003-CALM	peData_10012020@0939-(	NA	10/01/20 05:26
Cal Standard	SIJ0003-CALN	peData_10012020@0939-(	NA	10/01/20 05:57
Cal Standard	SIJ0003-CALO	peData_10012020@0939-(	NA	10/01/20 06:29
Initial Cal Check	SIJ0003-ICV1	peData_10012020@0939-(	NA	10/01/20 08:35
Initial Cal Blank	SIJ0003-ICB1	peData_10012020@0939-(	NA	10/01/20 09:06

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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	9/30/2020 5:24 PM	0.000	0.000	0.000	bl	16 821	9 477	3 545	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

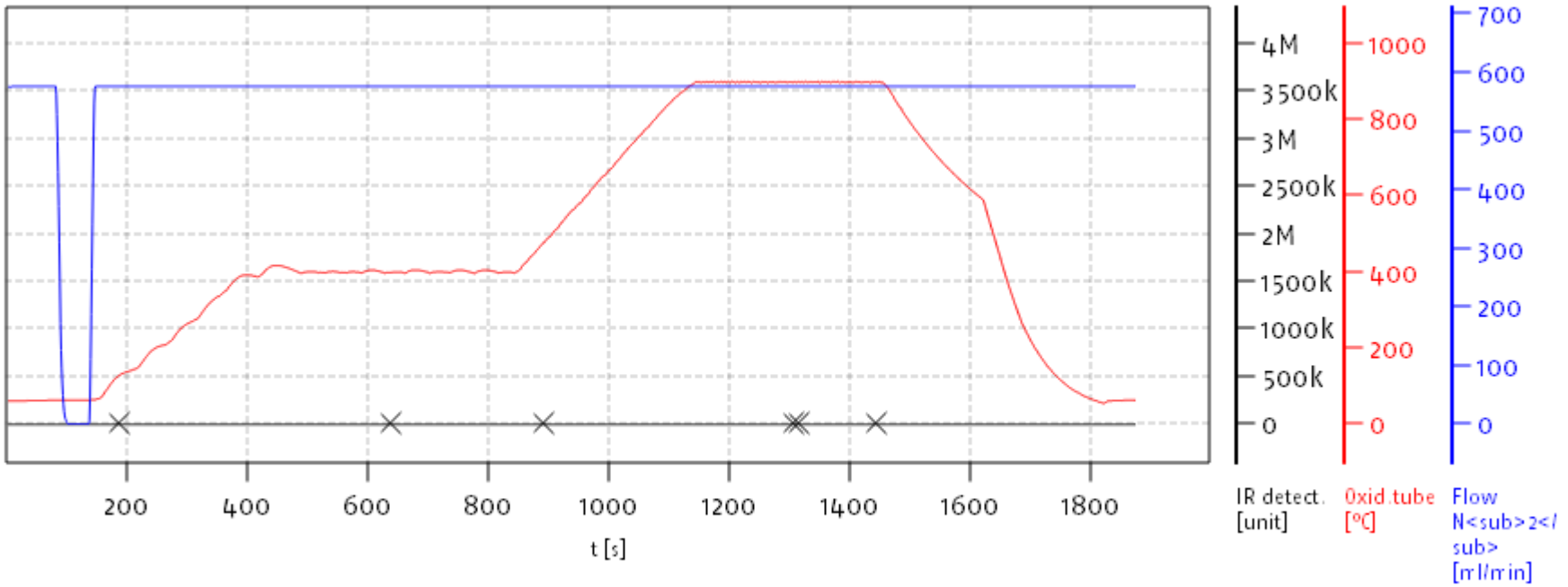
elementar
EXCELLENCE IN ELEMENTS

Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
2	2	BLANK	1.00		1.00	CARBON	9/30/2020 5:56 PM	0.000	0.000	0.000	bl	771	0	39	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
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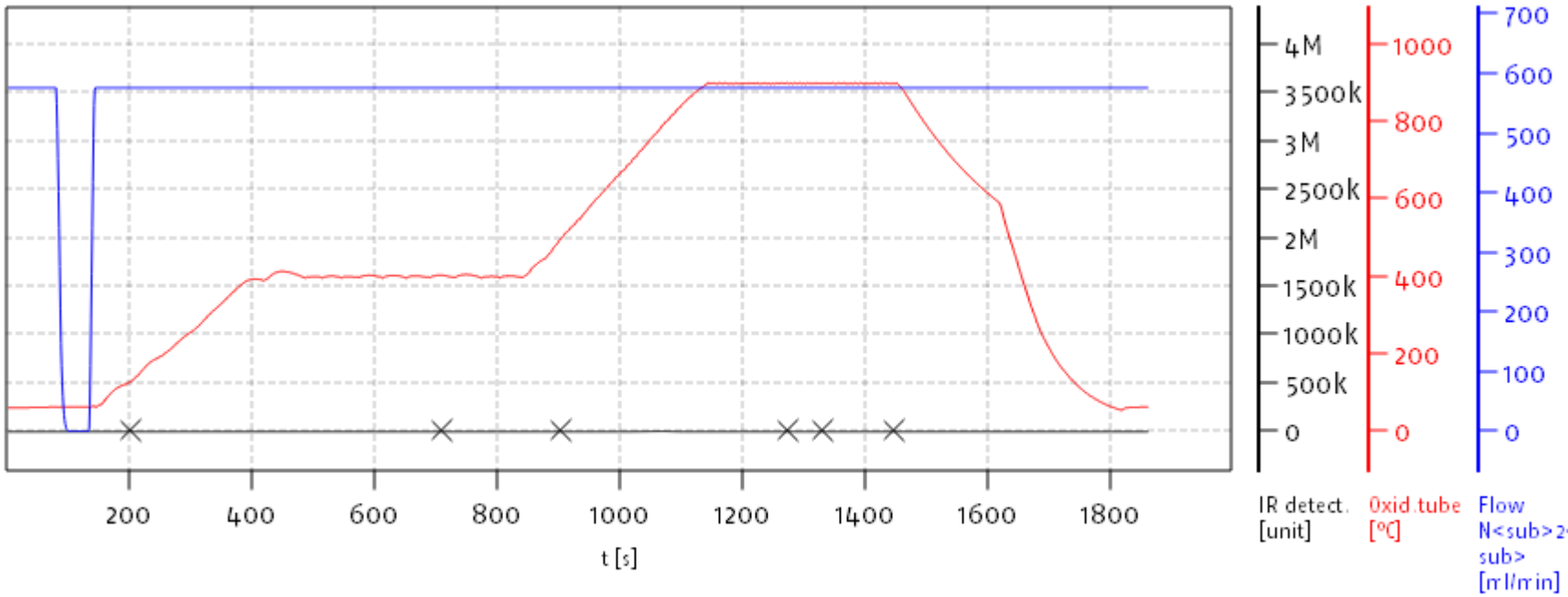
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
3	3	SEQ-CAL1	200.00	0.0023	1.00	CARBON	9/30/2020 6:28 PM	0.000	0.008	0.008	bl,C1u,C3u,C2u	1 427	7 484	68	1.0000	0.4704



Name:

Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

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Serial No: 0300.181017
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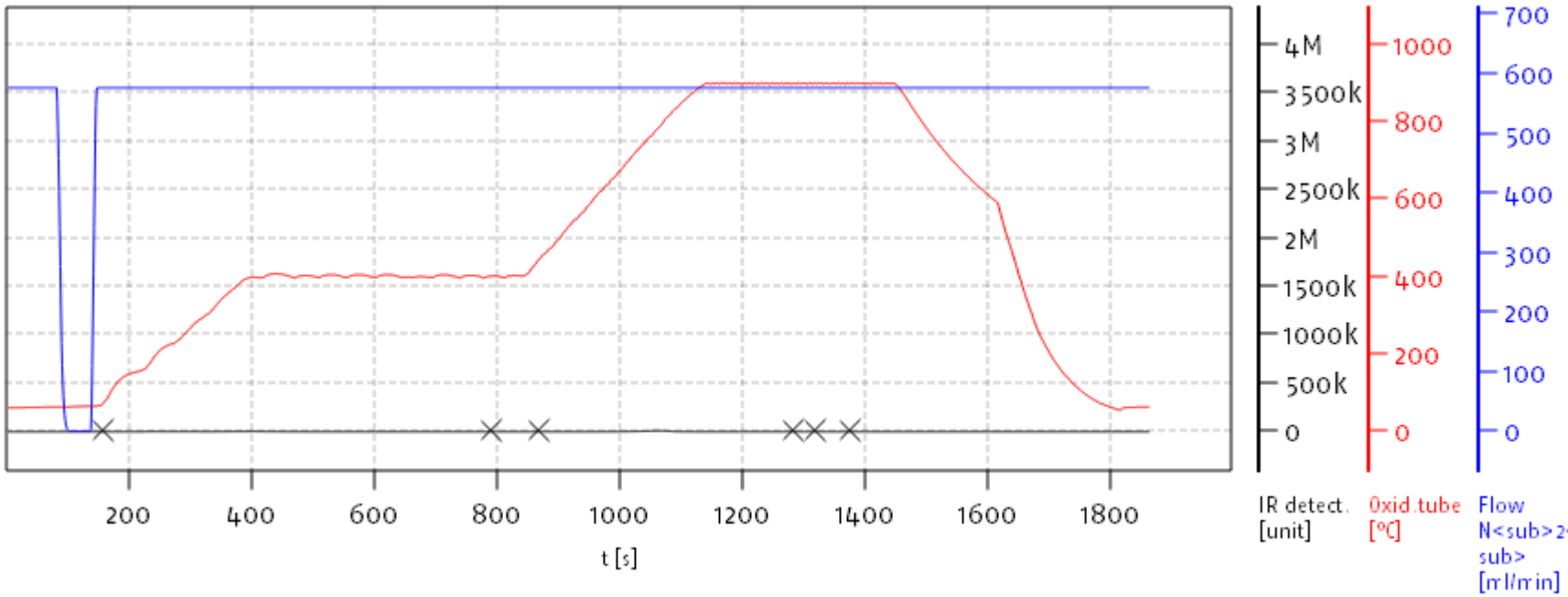
Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
4	4	SEQ-CAL2	200.00	0.0050	1.00	CARBON	9/30/2020 6:59 PM	0.000	0.015	0.015	bl,C2u	16 743	19 635	48	1.0000	0.5690



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Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

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Serial No: 0300.181017
Mode CCC

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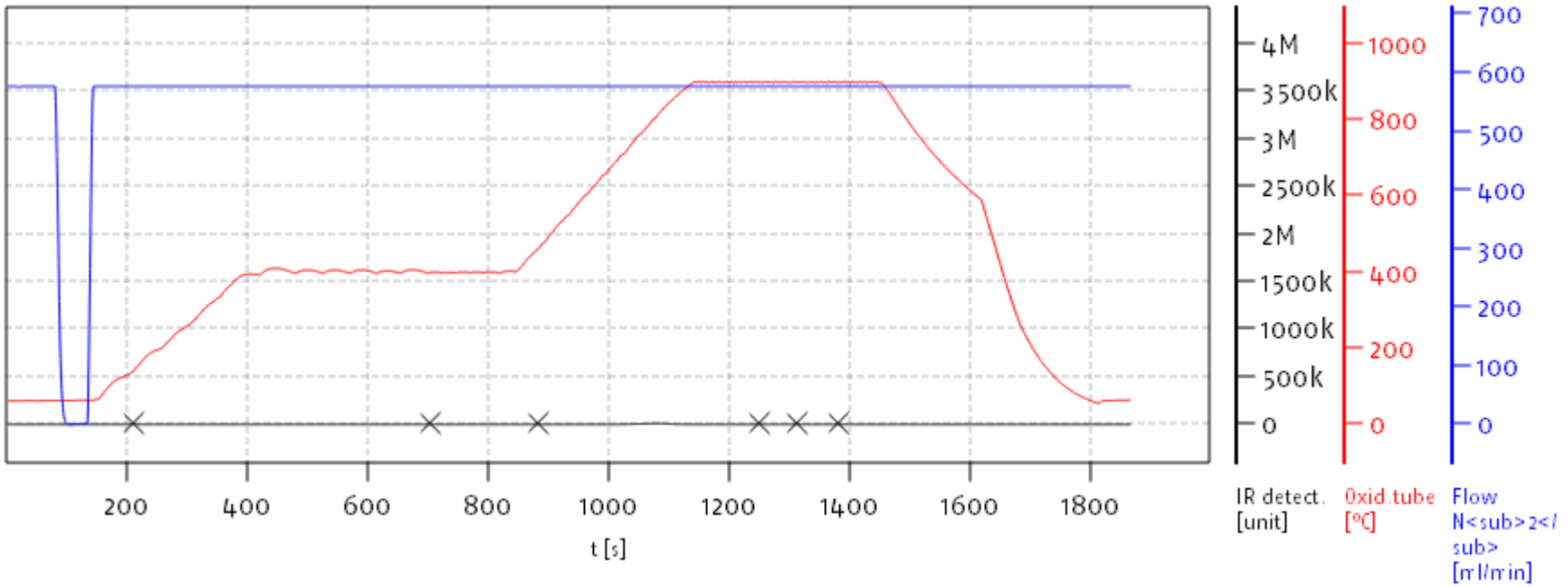
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
5	5	SEQ-CAL3	200.00	0.0069	1.00	CARBON	9/30/2020 7:31 PM	0.000	0.022	0.022	bl,C1u,C2u	1 189	22 707	52	1.0000	0.7609



Name:

Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

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Serial No: 0300.181017
Mode CCC

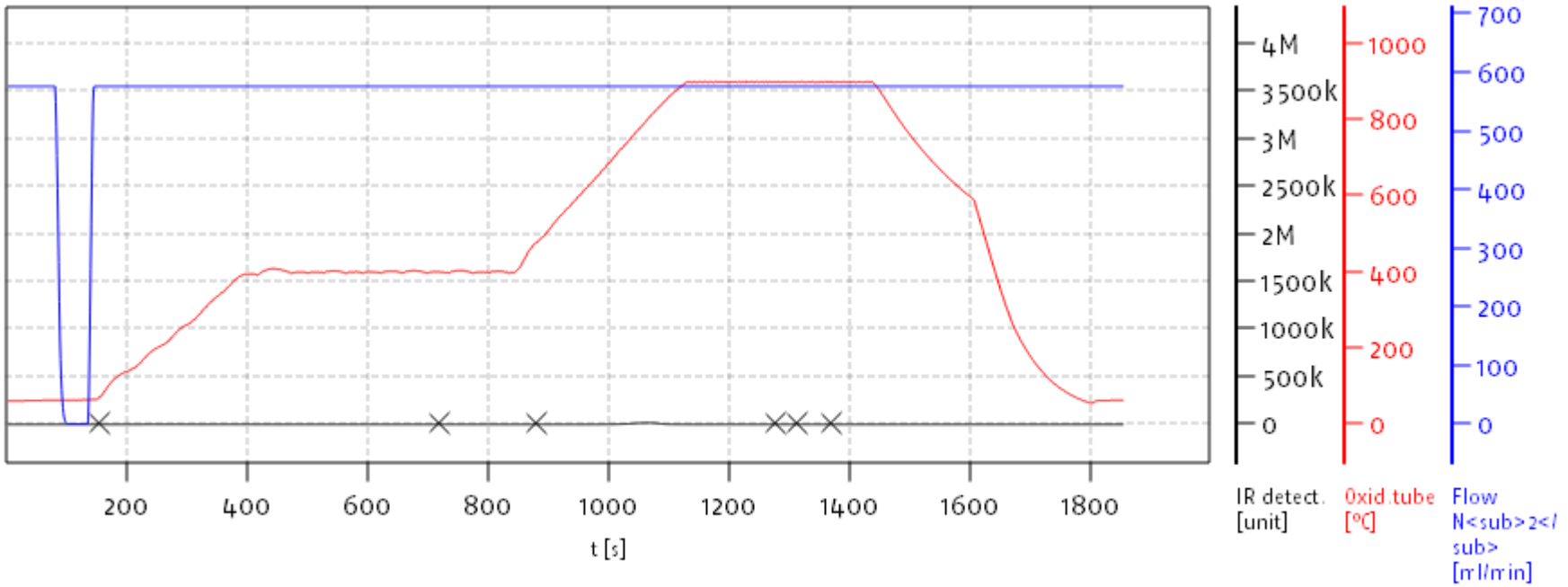
elementar
EXCELLENCE IN ELEMENTS

Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
6	6	SEQ-CAL4	200.00	0.0102	1.00	CARBON	9/30/2020 8:02 PM	0.000	0.030	0.030	bl,C1u,C2u	6 863	34 958	62	1.0000	0.7914



Name:

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Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
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elementar
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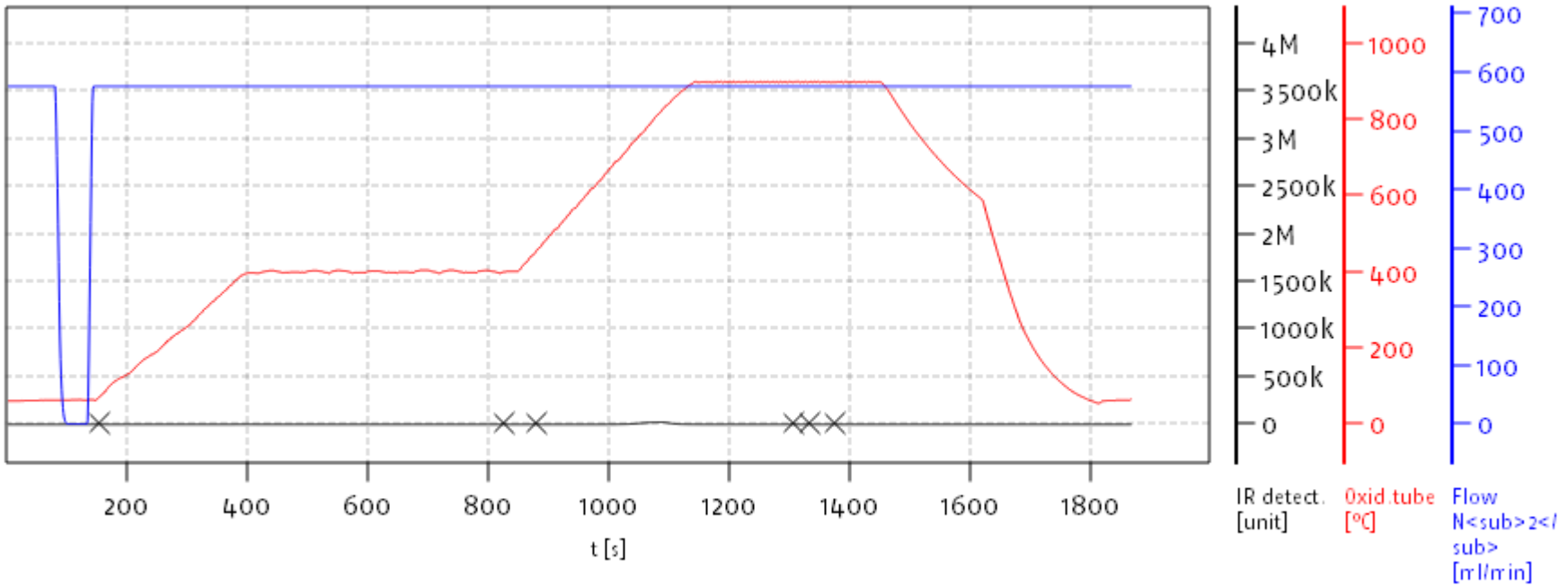
Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
7	7	SEQ-CAL5	200.00	0.0150	1.00	CARBON	9/30/2020 8:34 PM	0.000	0.045	0.045	bl,C1u,C2u	4 741	51 341	25	1.0000	0.8916



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Balance: BAL3
Analyst: KLE

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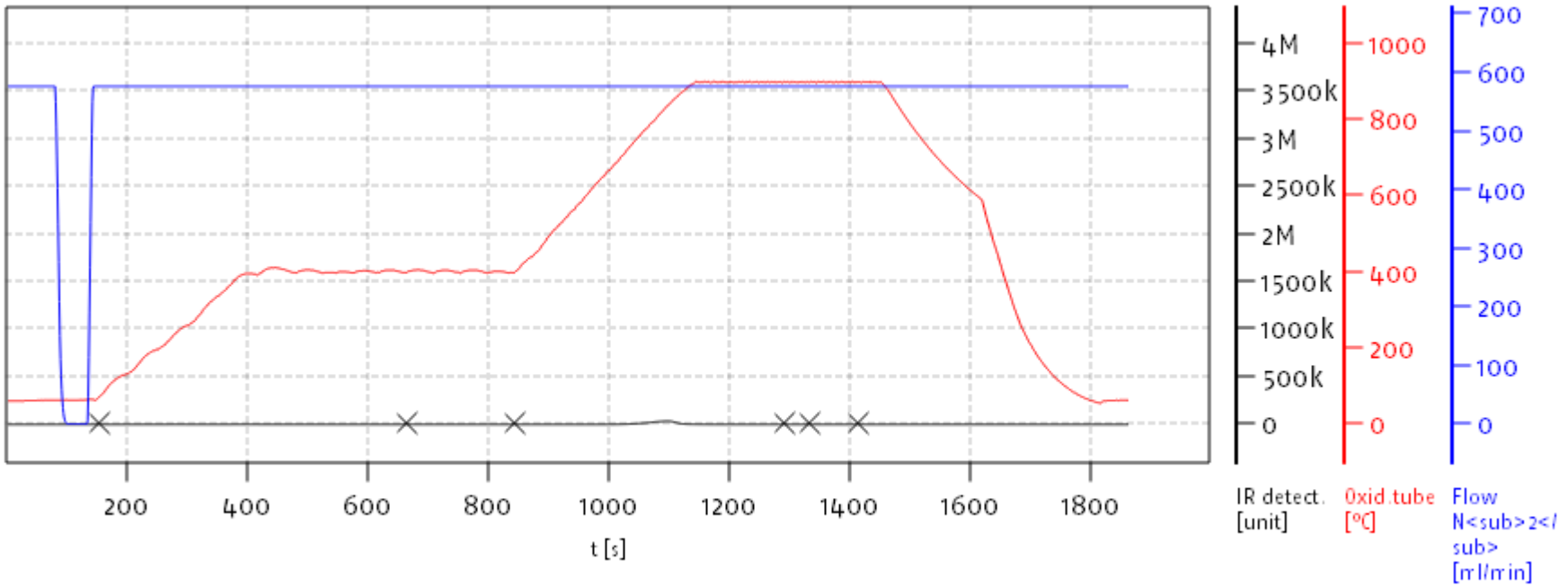
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	8	SEQ-CAL6	200.00	0.0203	1.00	CARBON	9/30/2020 9:05 PM	0.000	0.061	0.061	bl,C1u,C2u	5 201	72 998	148	1.0000	0.9193



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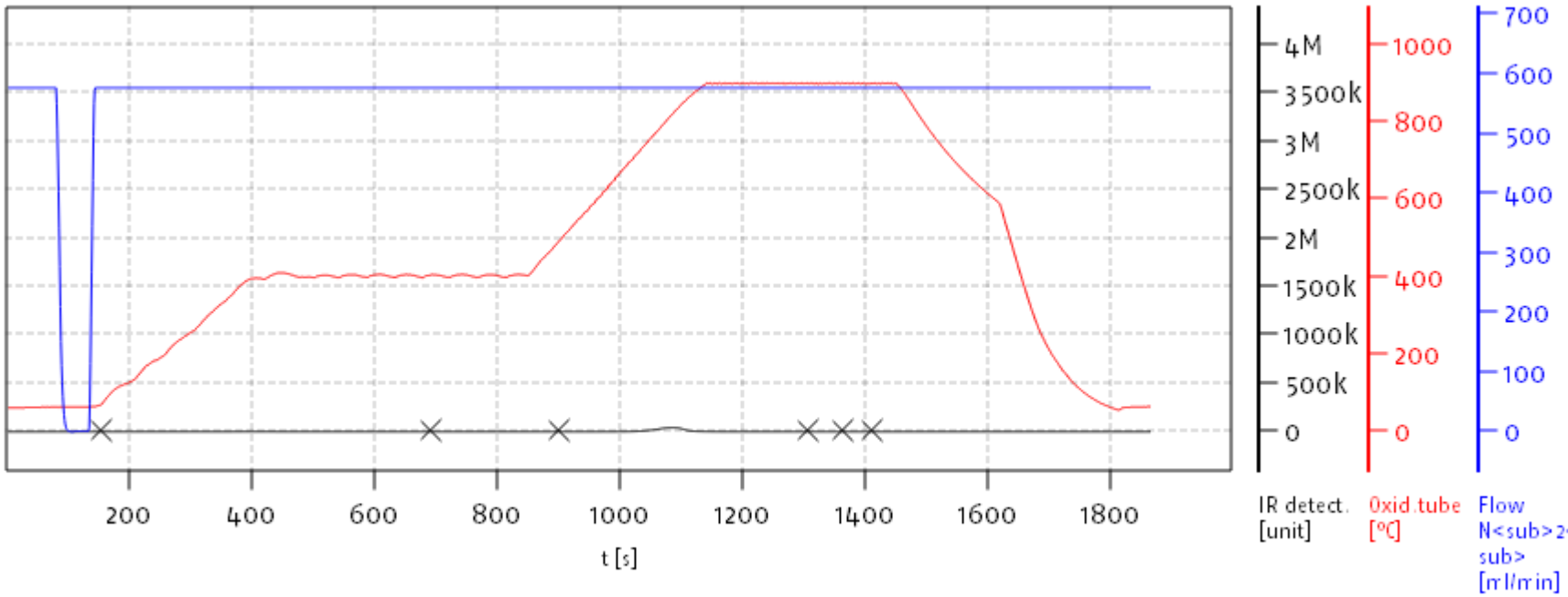
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
9	9	SEQ-CAL7	200.00	0.0249	1.00	CARBON	9/30/2020 9:37 PM	0.000	0.075	0.075	bl,C1u,C2u	5 404	87 654	32	1.0000	0.9719



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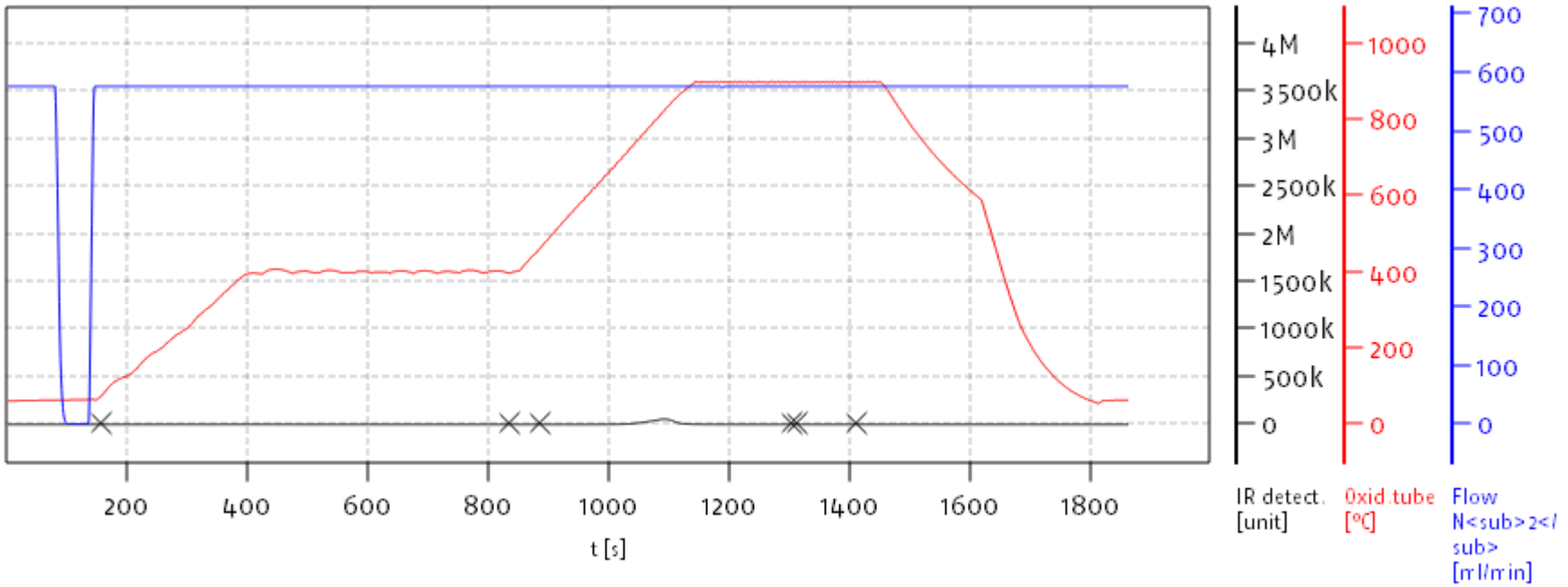
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
10	10	SEQ-CAL8	200.00	0.0302	1.00	CARBON	9/30/2020 10:08 PM	0.000	0.091	0.091	bl,C1u,C2u	7 153	111 567	84	1.0000	0.9511



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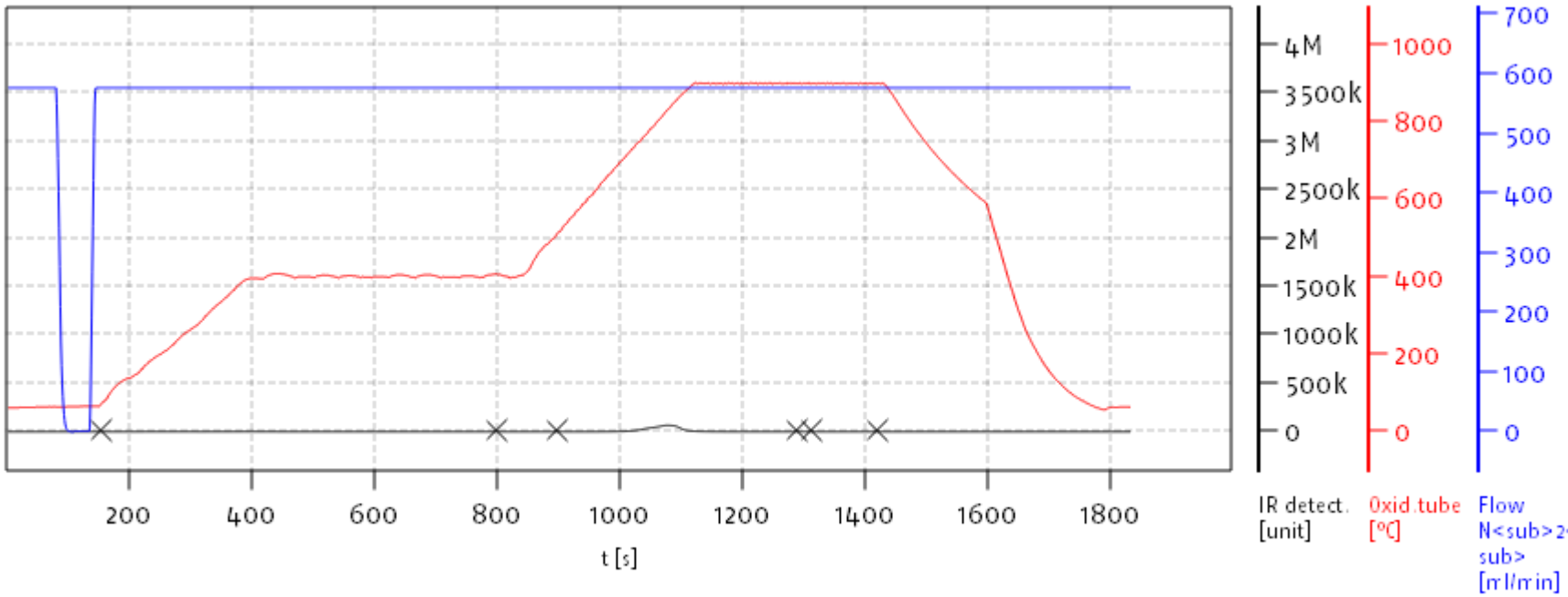
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
11	11	SEQ-CAL9	200.00	0.0399	1.00	CARBON	9/30/2020 10:39 PM	0.000	0.120	0.120	bl,C1u,C2u	7 447	148 506	81	1.0000	0.9778



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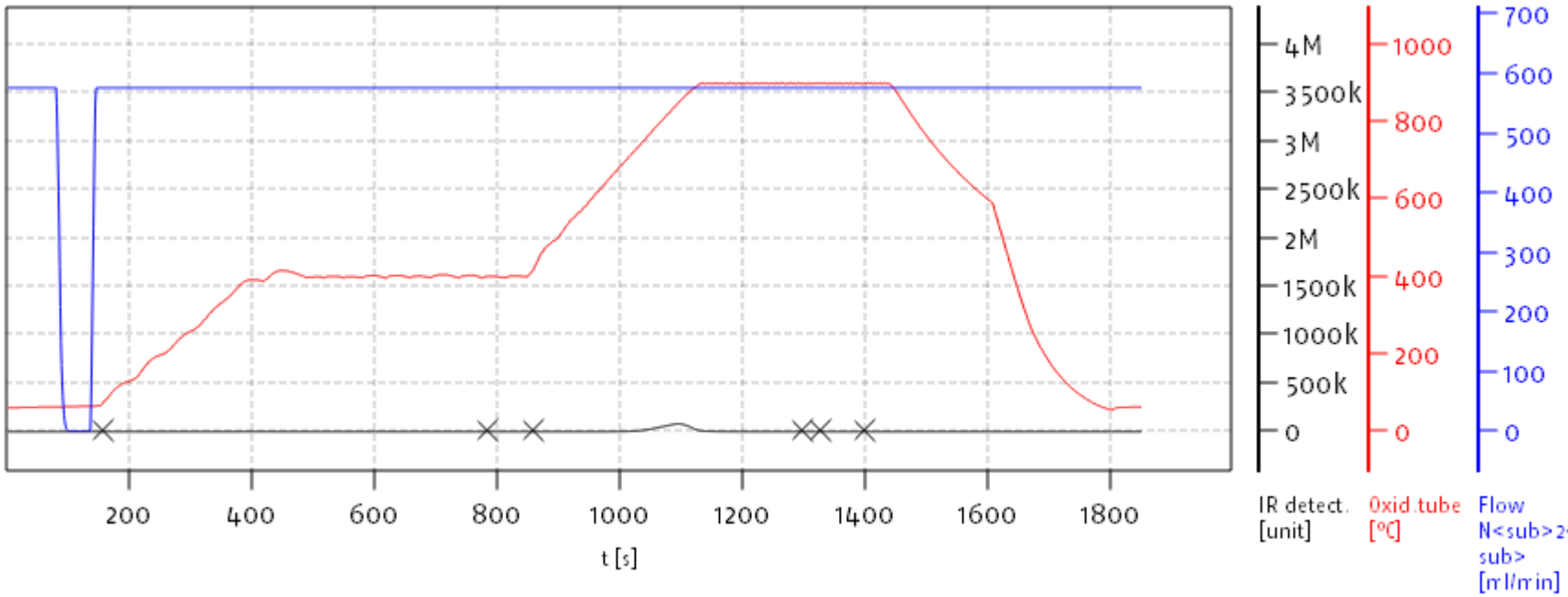
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
12	12	SEQ-CALA	200.00	0.0500	1.00	CARBON	9/30/2020 11:10 PM	0.000	0.151	0.151	bl,C1u,C2u	4 501	186 424	91	1.0000	0.9998



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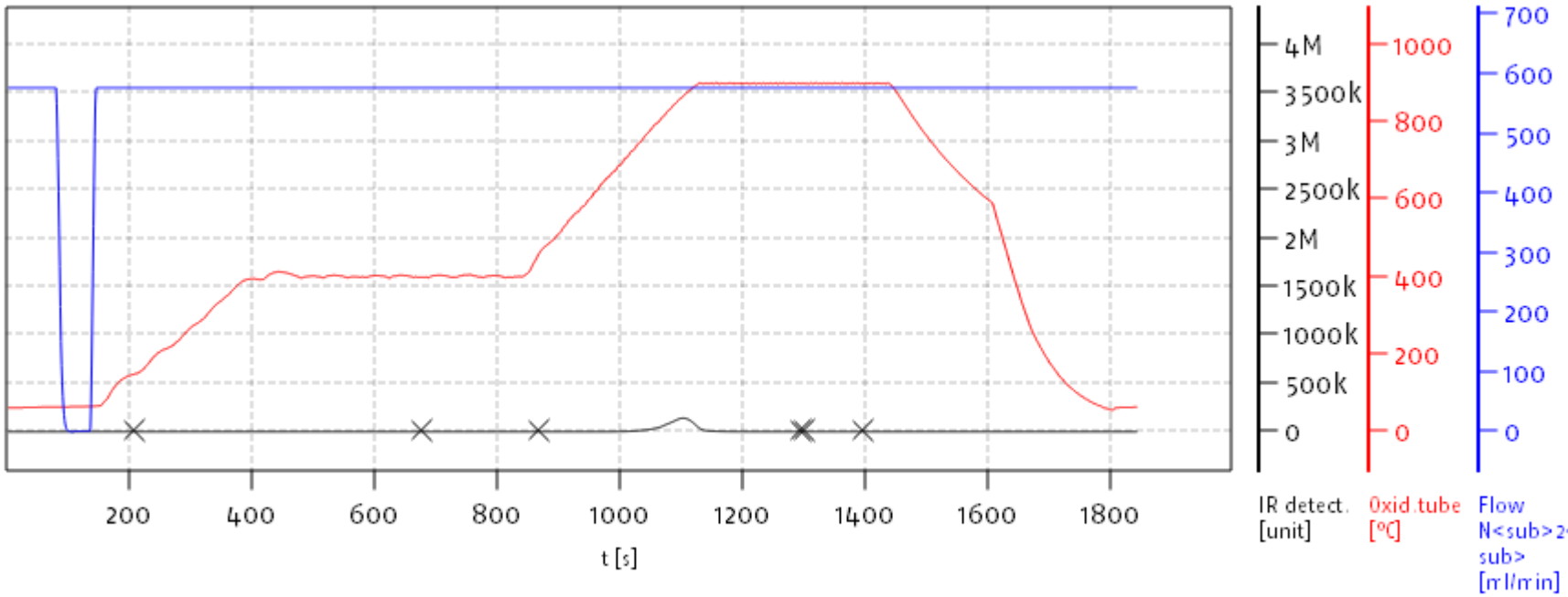
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
13	13	SEQ-CALB	200.00	0.0039	1.00	CARBON	9/30/2020 11:41 PM	0.000	0.258	0.258	bl,C1u,C2u	719	291 245	93	1.0000	1.1272



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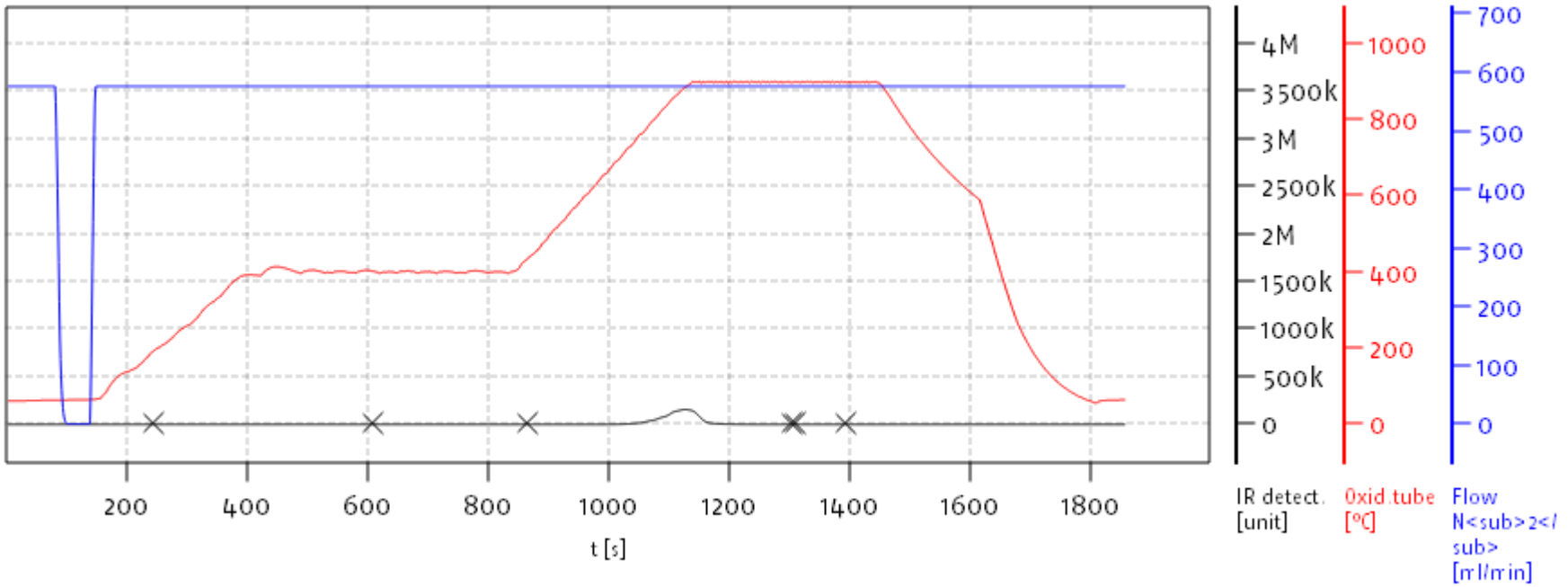
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
14	14	SEQ-CALC	200.00	0.0053	1.00	CARBON	10/1/2020 12:13 AM	0.000	0.324	0.324	bl,C1u,C2u	698	400 529	135	1.0000	1.0447



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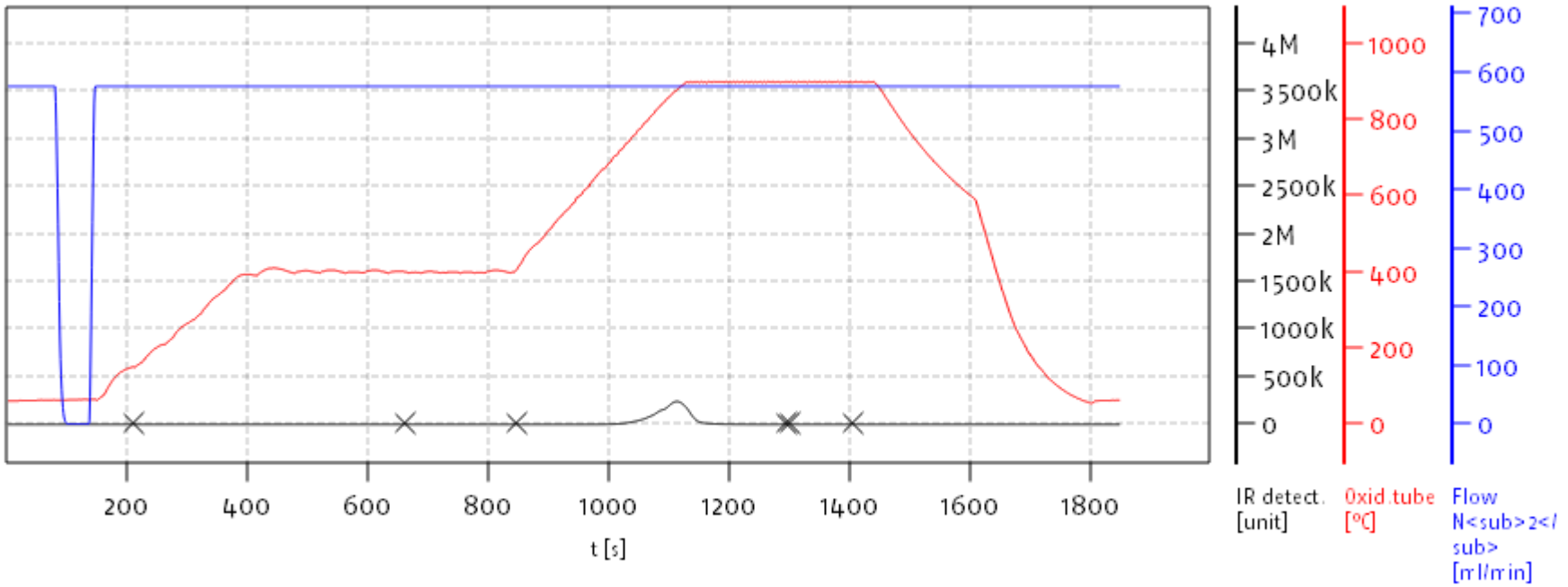
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
15	15	SEQ-CALD	200.00	0.0075	1.00	CARBON	10/1/2020 12:44 AM	0.000	0.444	0.444	bl,C1u,C2u	859	561 781	183	1.0000	1.0324



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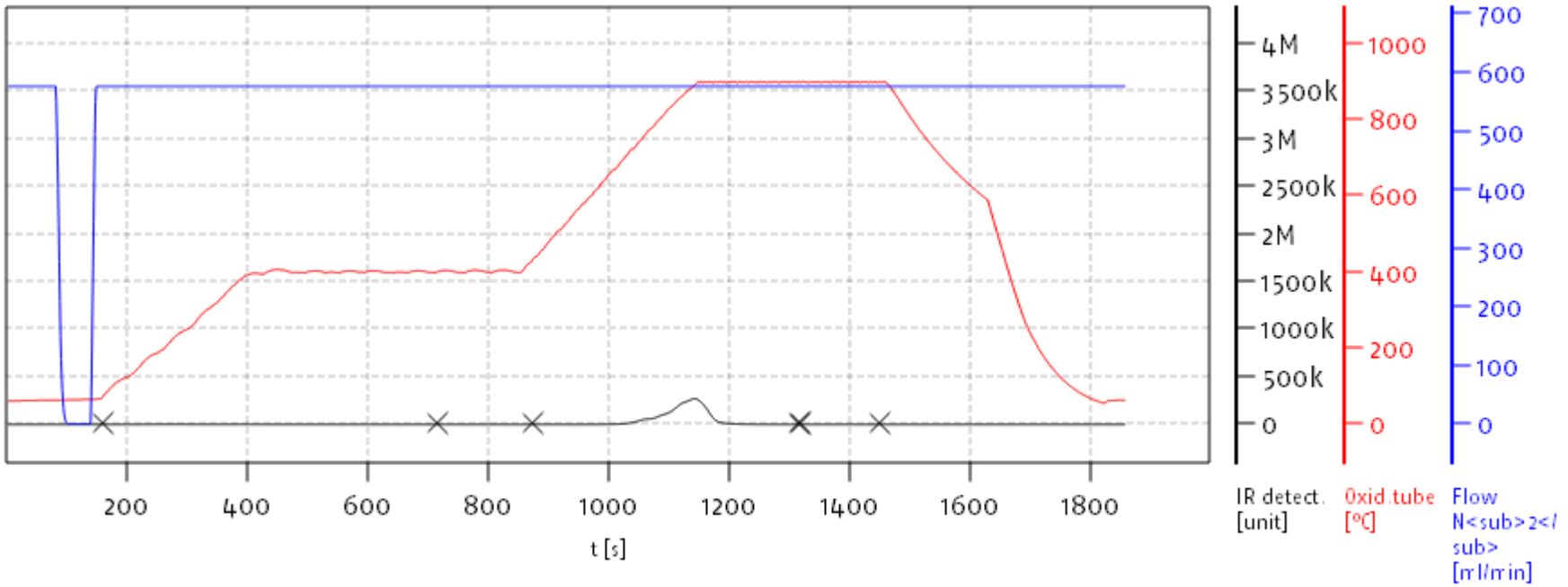
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
16	16	SEQ-CALE	200.00	0.0098	1.00	CARBON	10/1/2020 1:15 AM	0.000	0.600	0.600	bl,C1u,C2u	9 484	747 477	308	1.0000	1.0560



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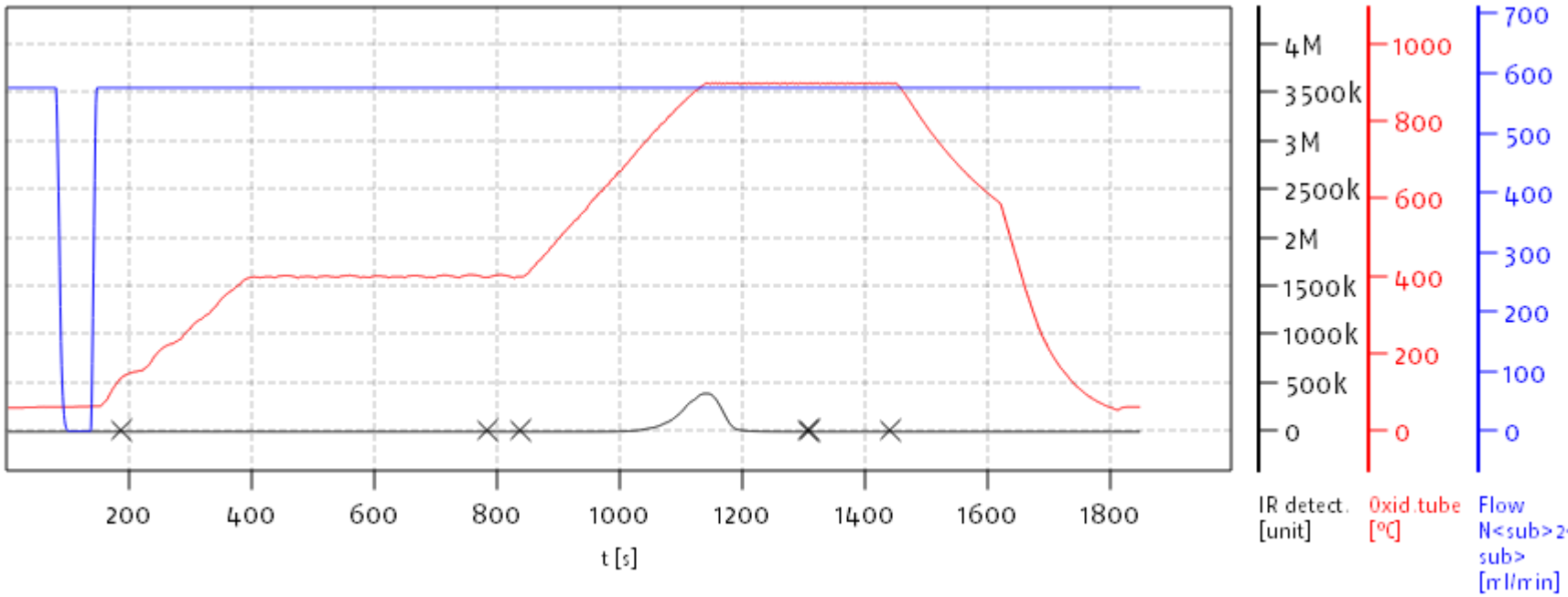
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
17	17	SEQ-CALF	200.00	0.0148	1.00	CARBON	10/1/2020 1:47 AM	0.000	0.906	0.906	bl,C1u,C2u	7 007	1 142 208	388	1.0000	1.0514



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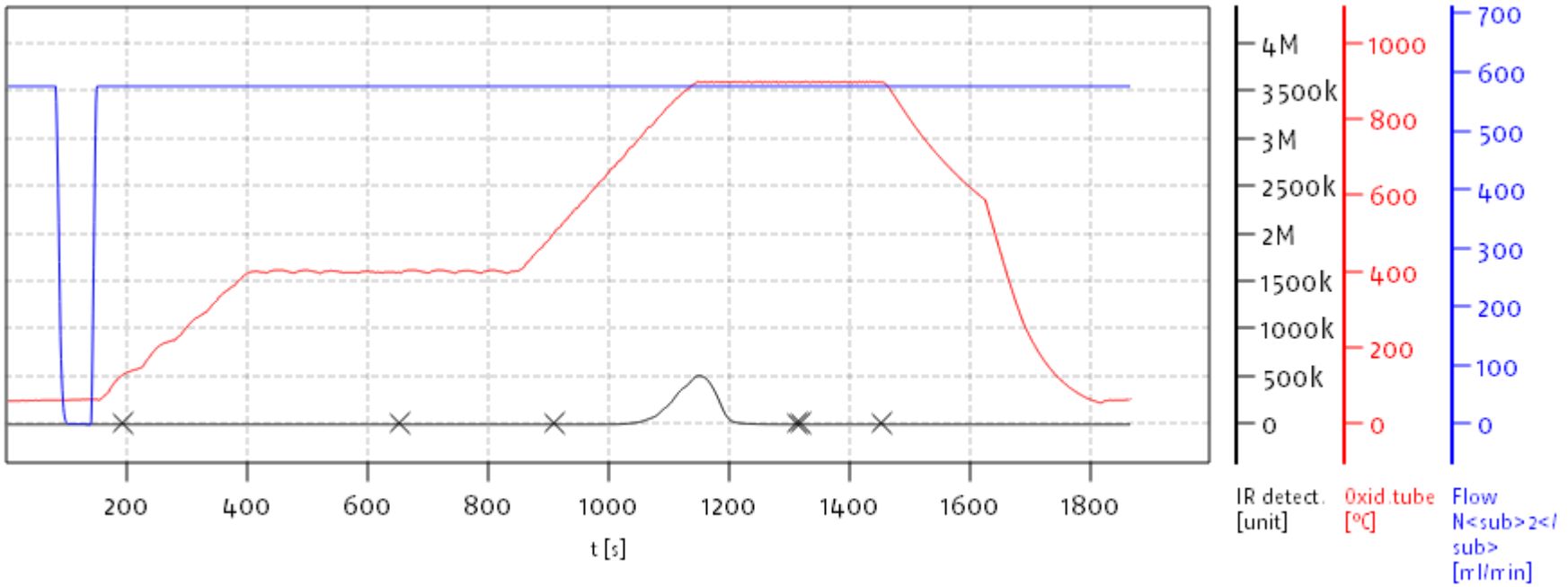
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
18	18	SEQ-CALG	200.00	0.0200	1.00	CARBON	10/1/2020 2:18 AM	0.000	1.206	1.206	bl,C1u,C2u	1 393	1 547 030	696	1.0000	1.0372



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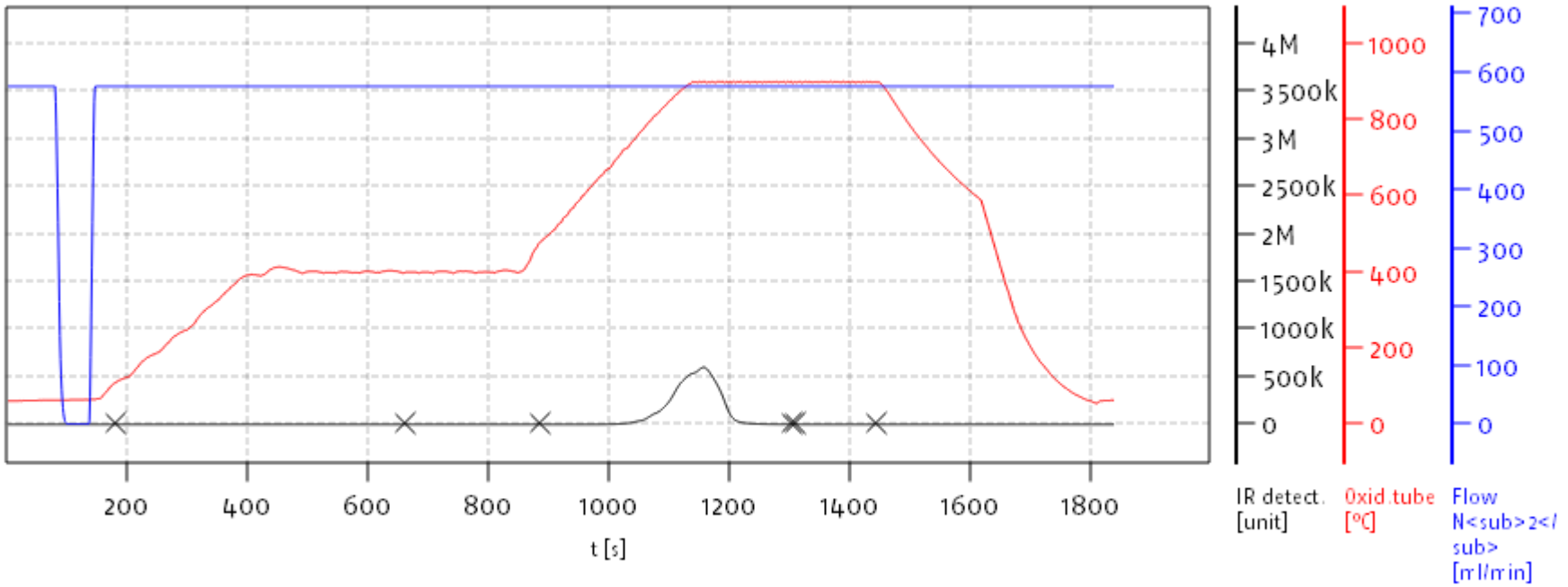
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
19	19	SEQ-CALH	200.00	0.0253	1.00	CARBON	10/1/2020 2:49 AM	0.000	1.524	1.524	bl,C1u,C2u	1 599	1 947 673	1 238	1.0000	1.0433



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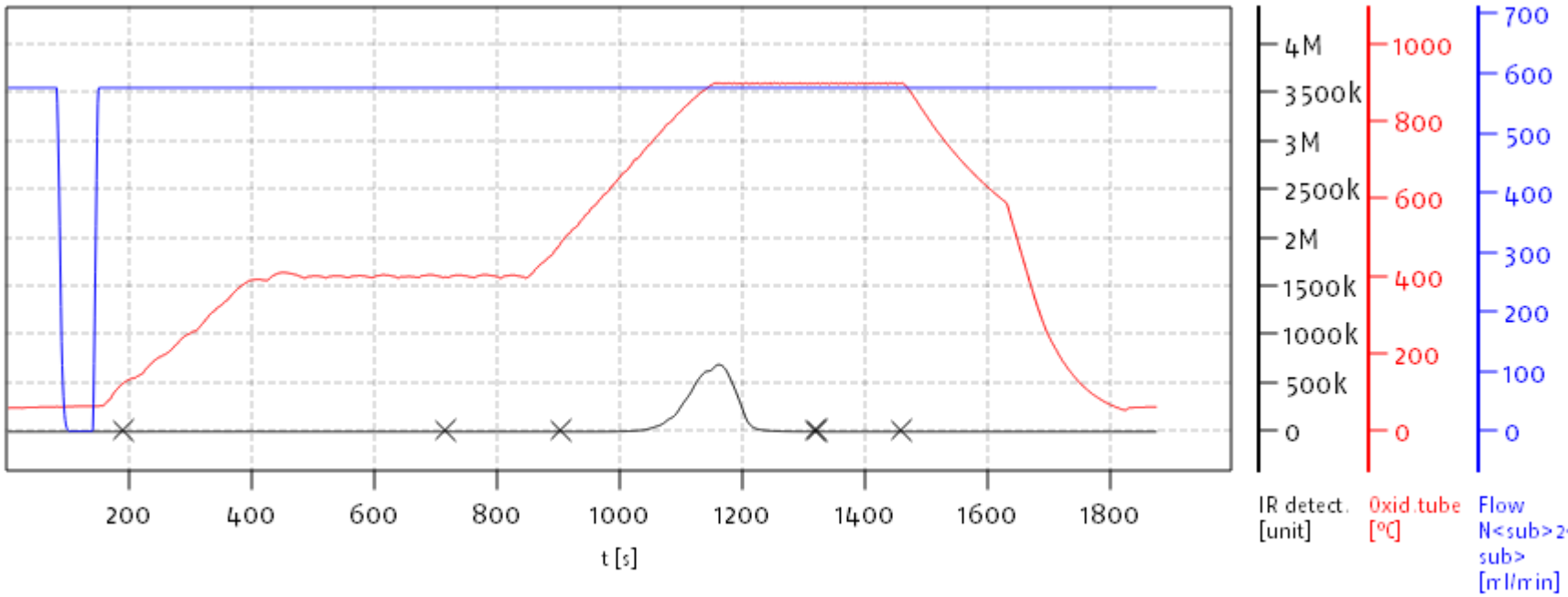
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
20	20	SEQ-CALI	200.00	0.0297	1.00	CARBON	10/1/2020 3:21 AM	0.000	1.800	1.800	bl,C1u,C2u	6 147	2 292 069	1 031	1.0000	1.0484



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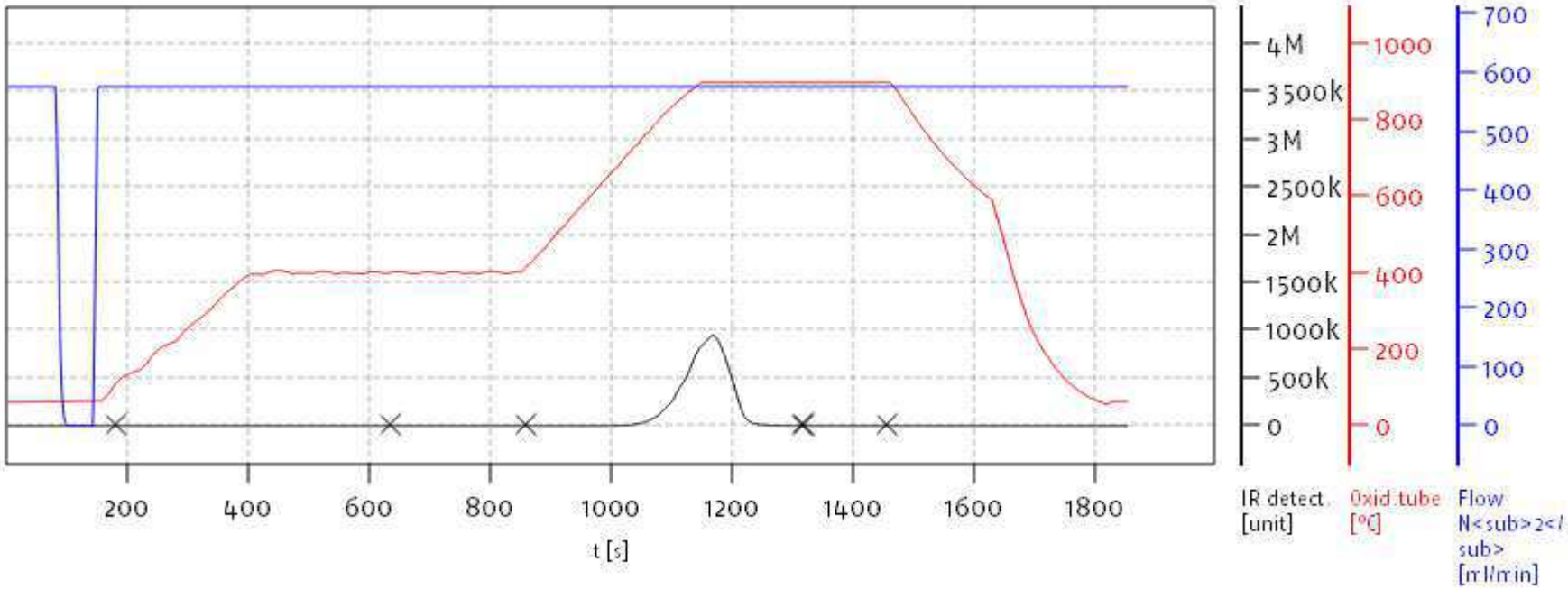
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
21	21	SEQ-CALJ	200.00	0.0398	1.00	CARBON	10/1/2020 3:52 AM	0.000	2.400	2.400	bl,C1u,C2u	2 731	3 047 917	1 654	1.0000	1.0531



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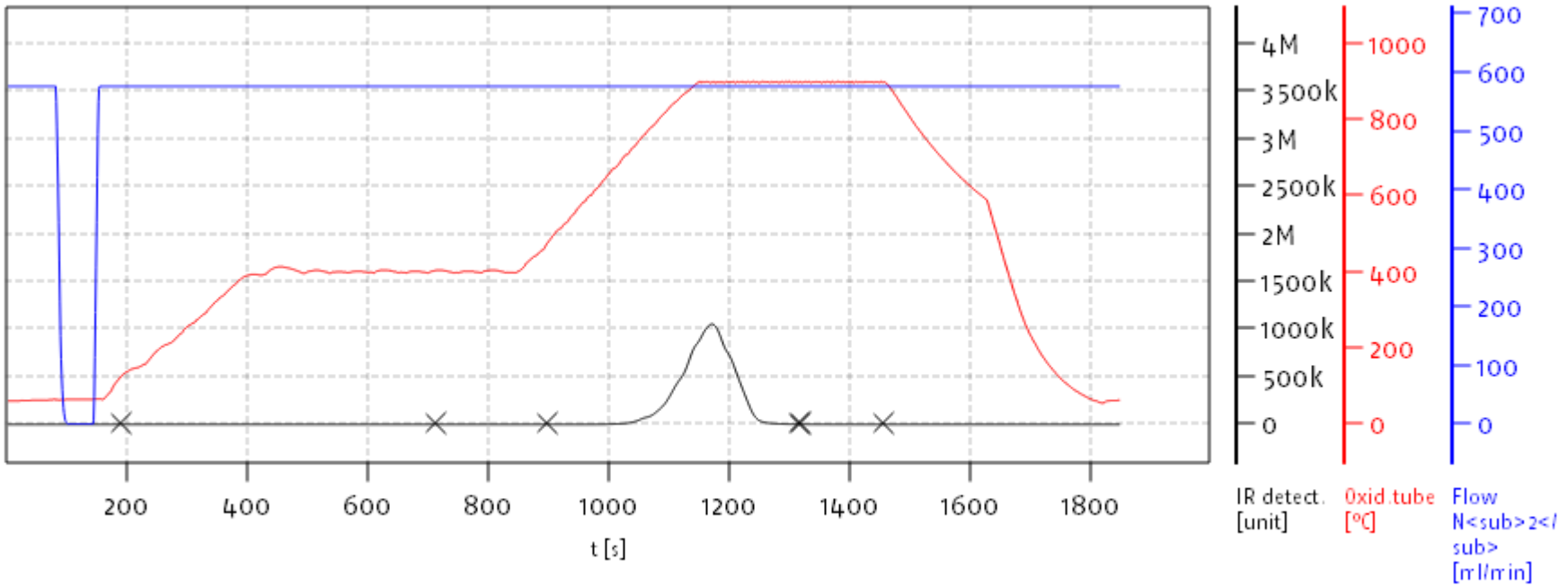
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
22	22	SEQ-CALK	200.00	0.0494	1.00	CARBON	10/1/2020 4:24 AM	0.000	3.012	3.012	bl,C1u,C2u	3 942	3 777 872	2 656	1.0000	1.0674



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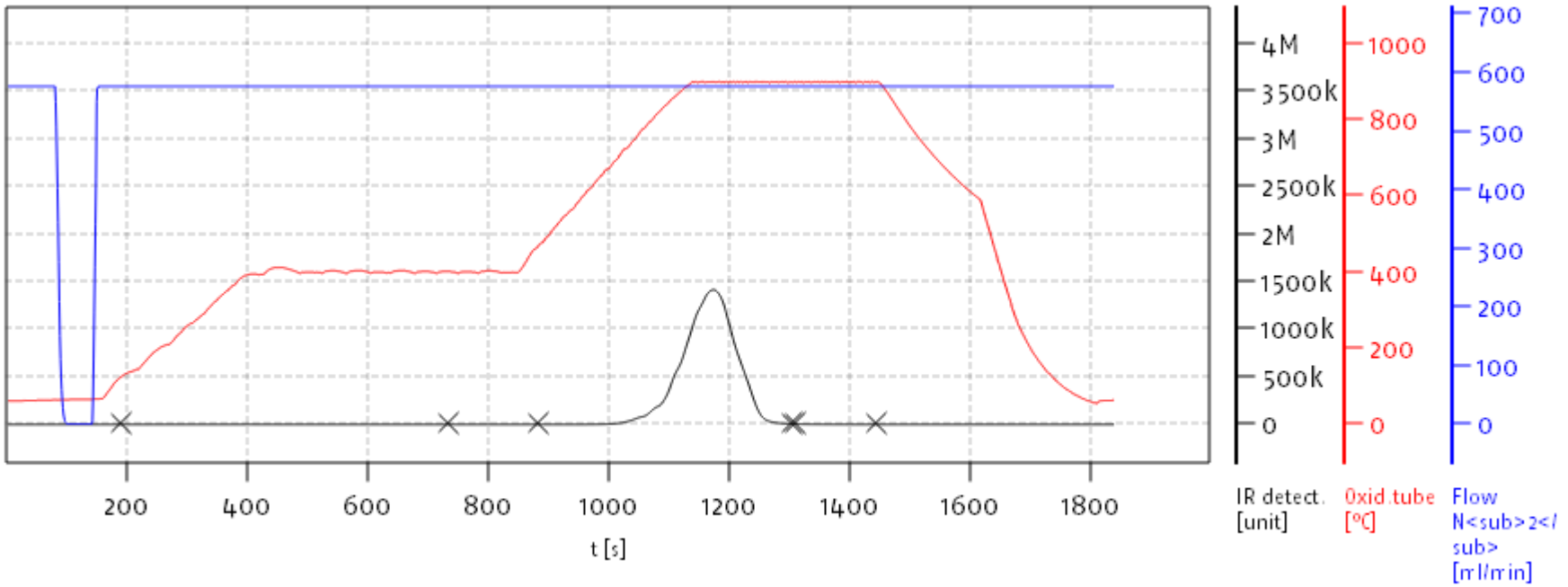
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	SEQ-CALL	200.00	0.0701	1.00	CARBON	10/1/2020 4:55 AM	0.000	4.206	4.206	bl,C1u,C2u	3 958	5 383 800	5 723	1.0000	1.0473



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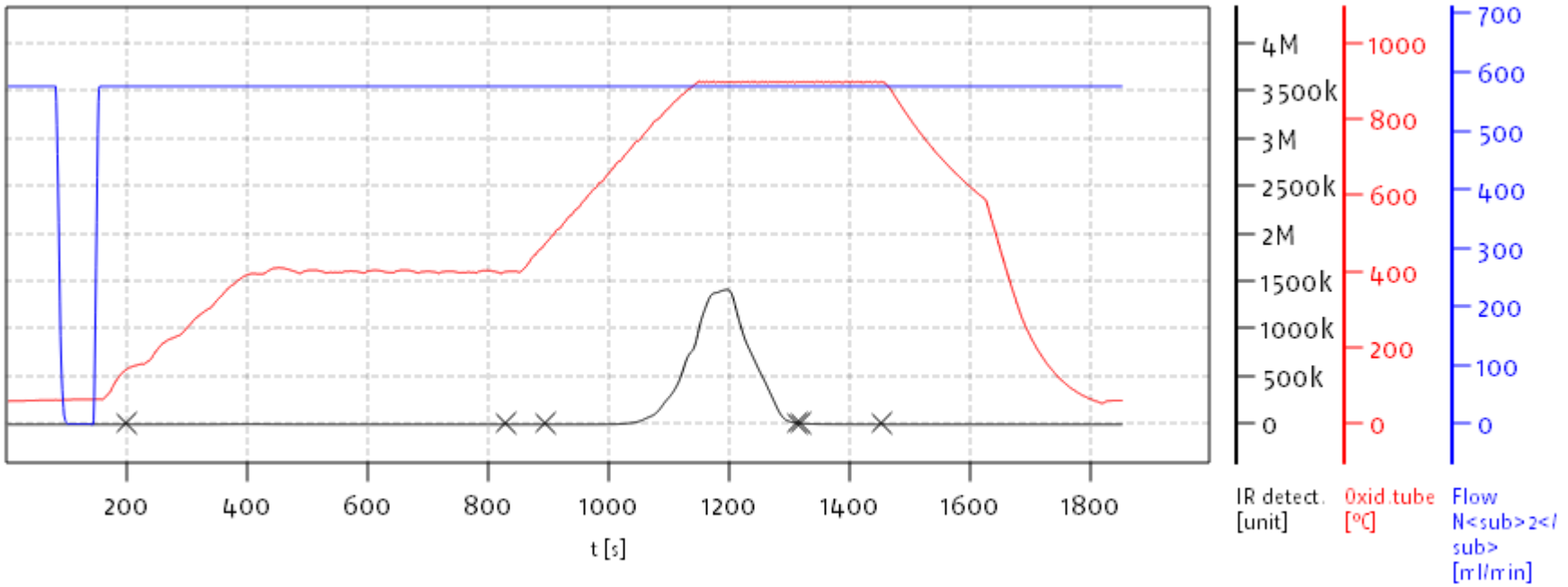
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	SEQ-CALM	200.00	0.0797	1.00	CARBON	10/1/2020 5:26 AM	0.000	4.812	4.812	bl	11 497	6 136 526	12 033	1.0000	1.0516



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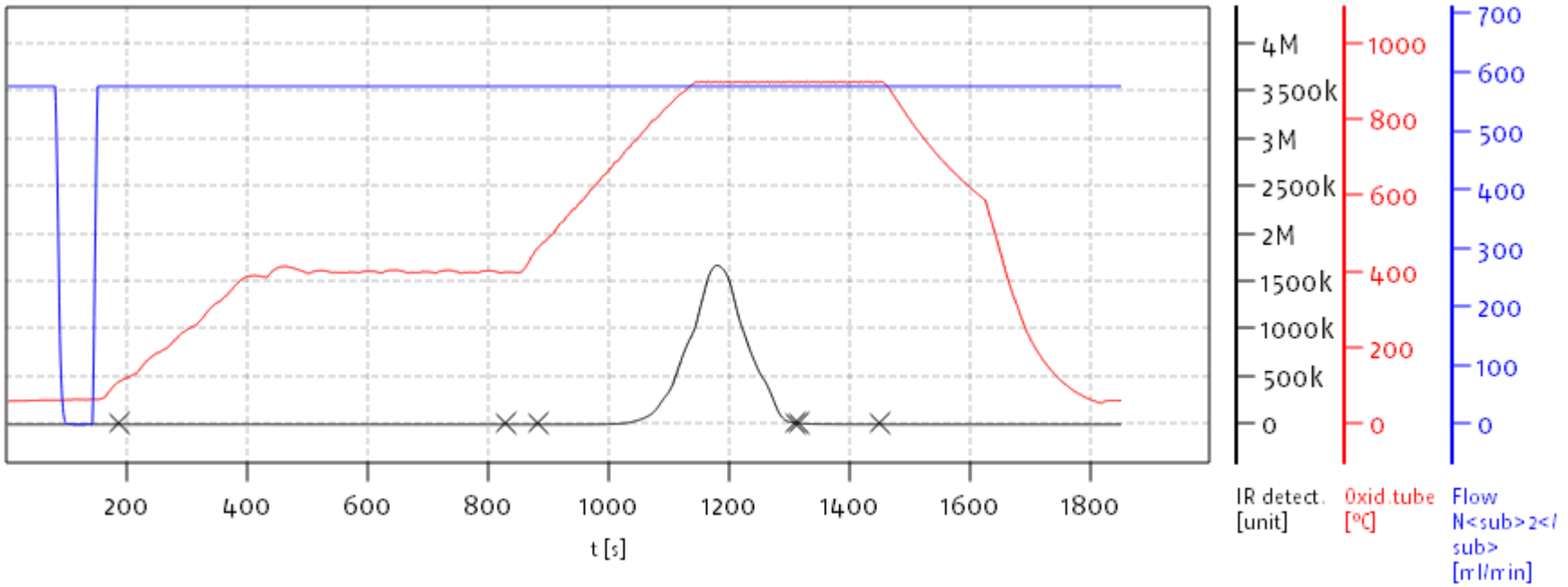
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	SEQ-CALN	200.00	0.0899	1.00	CARBON	10/1/2020 5:57 AM	0.000	5.406	5.406	bl,C1u	5 198	6 923 085	12 676	1.0000	1.0475



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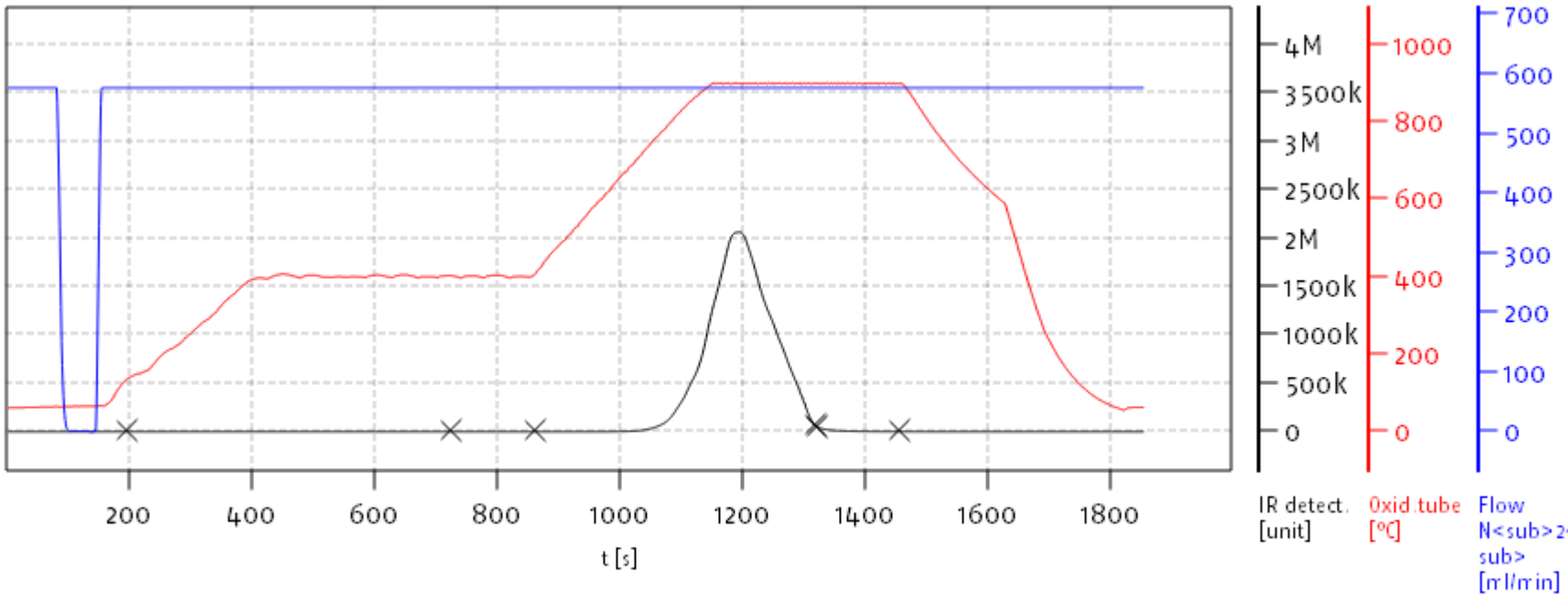
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	SEQ-CALO	200.00	0.1201	1.00	CARBON	10/1/2020 6:29 AM	0.000	7.218	7.218	bl,C1u	2 631	9 277 209	38 075	1.0000	1.0444



Name:

Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

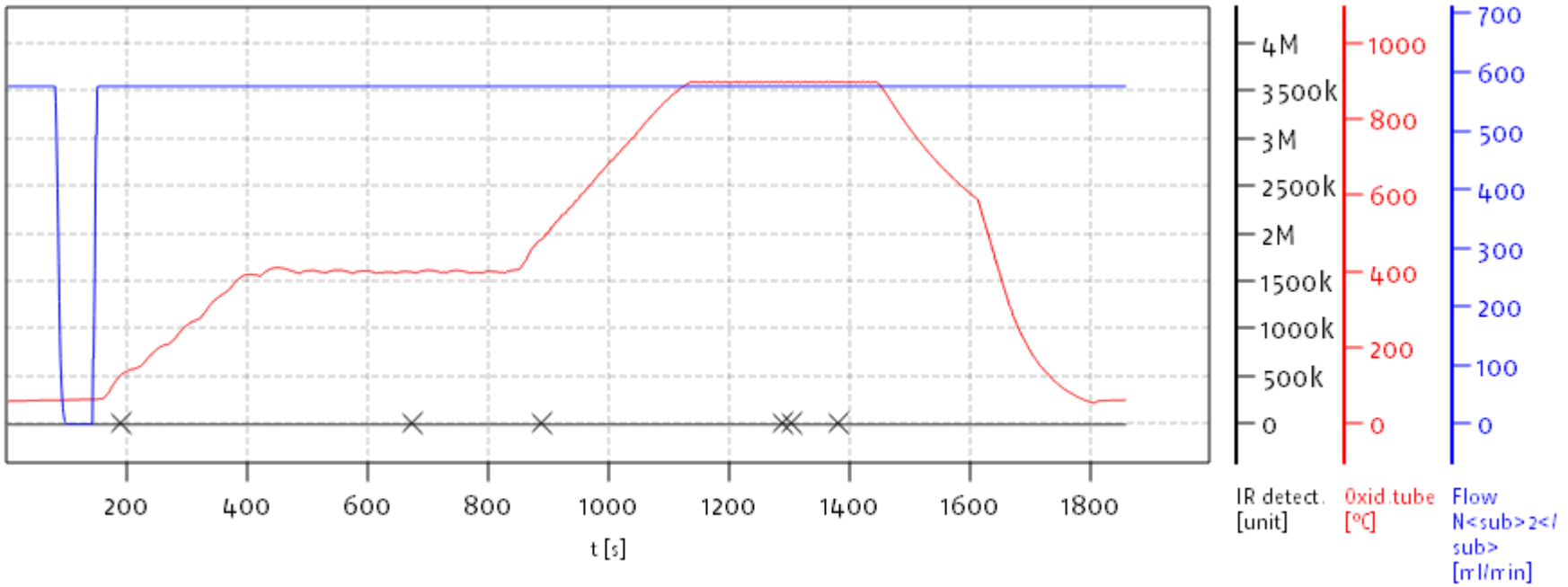
elementar
EXCELLENCE IN ELEMENTS

Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
27	27	BLANK	1.00		1.00	CARBON	10/1/2020 7:00 AM	0.000	0.000	0.000	bl	1 872	130	0	1.0000	0.9606



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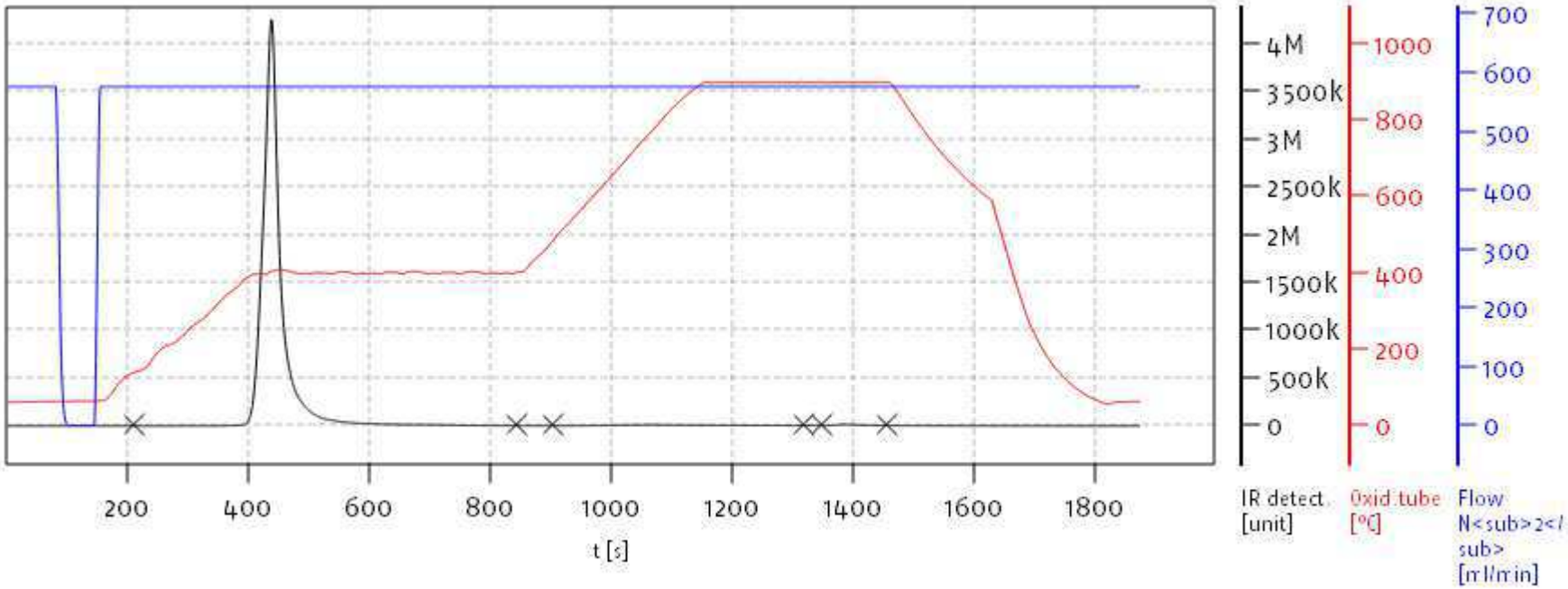
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
28	28	Dfactor	20.10		1.00	CARBON	10/1/2020 7:32 AM	44.446	0.000	44.446	bl	5 324 281	93 455	31 169	1.1246	1.0000



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Soli TOC Cube, Carbon
Balance: BAL3
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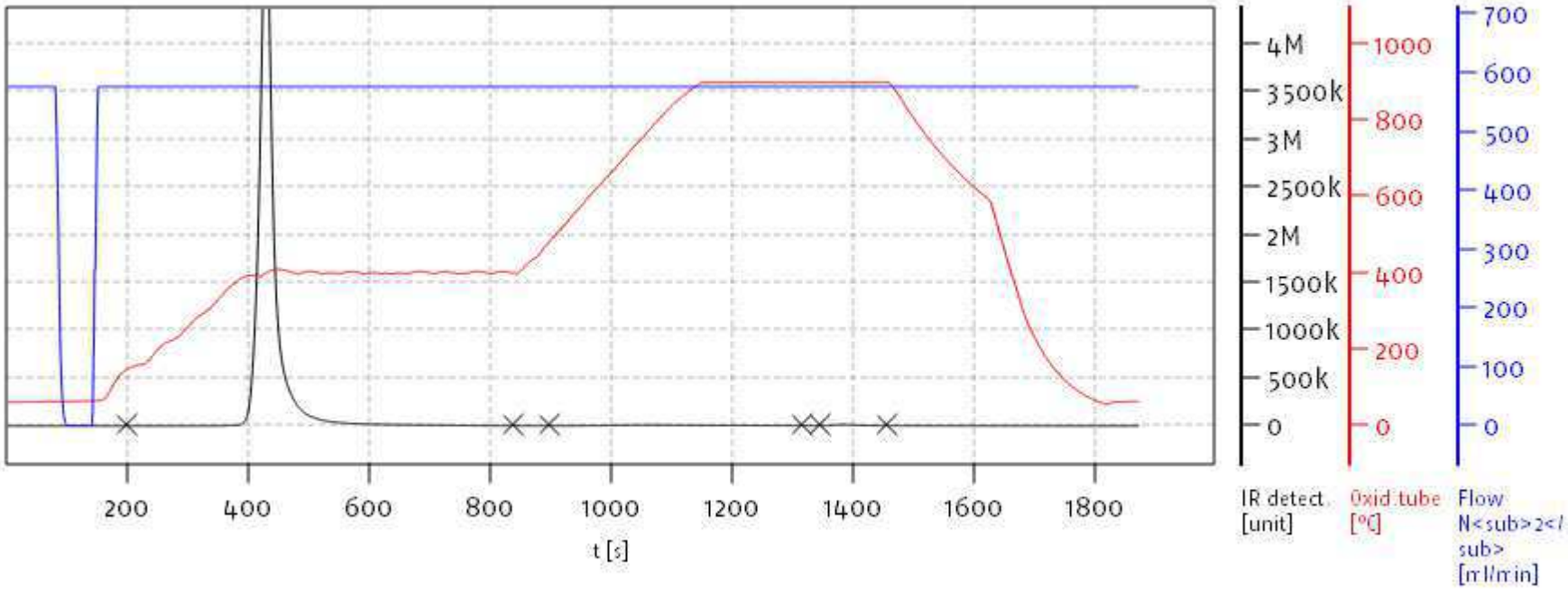
Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
29	29	Dfactor	21.00		1.00	CARBON	10/1/2020 8:03 AM	44.446	0.000	44.446	bl	5 652 928	84 725	26 730	1.1069	1.0000



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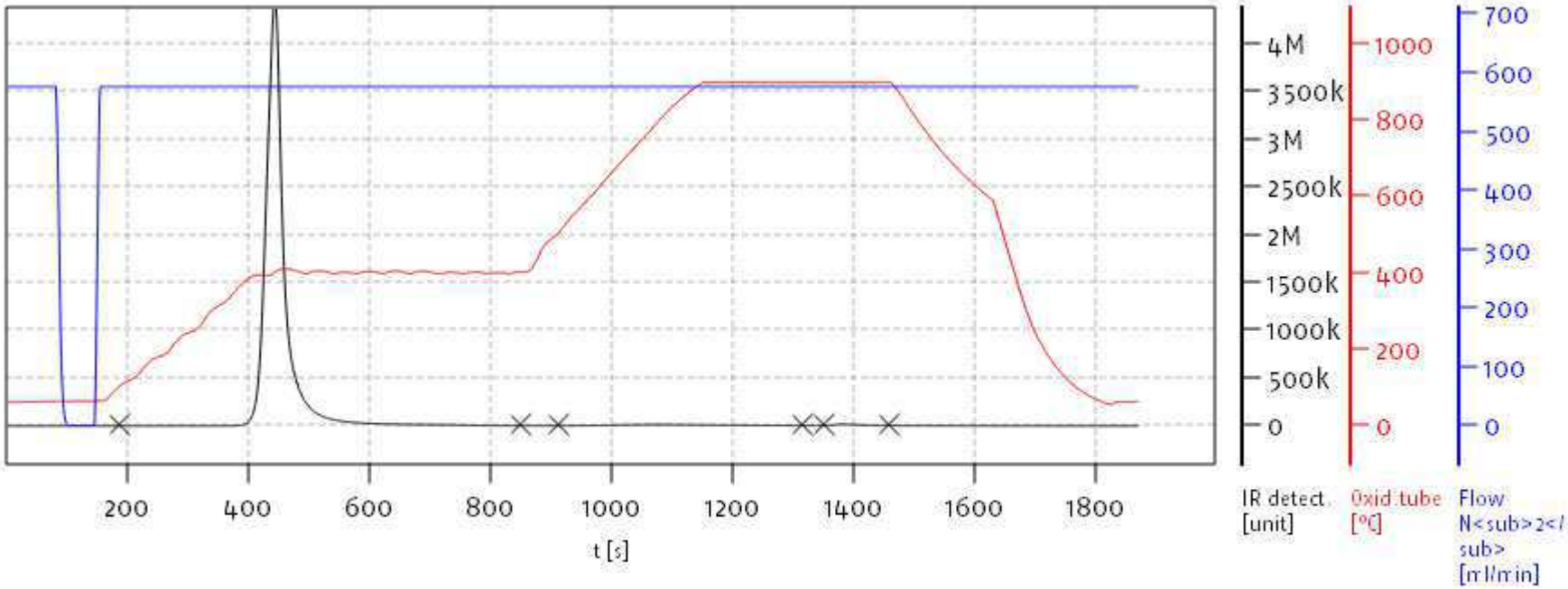
Balance: BAL3
Analyst: KLE

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
30	30	SIF0169-ICV1	21.80		1.00	CARBON	10/1/2020 8:35 AM	46.675	0.861	47.536	bl	5 784 178	112 420	34 152	1.1158	0.9606



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Soli TOC Cube, Carbon
Balance: BAL3
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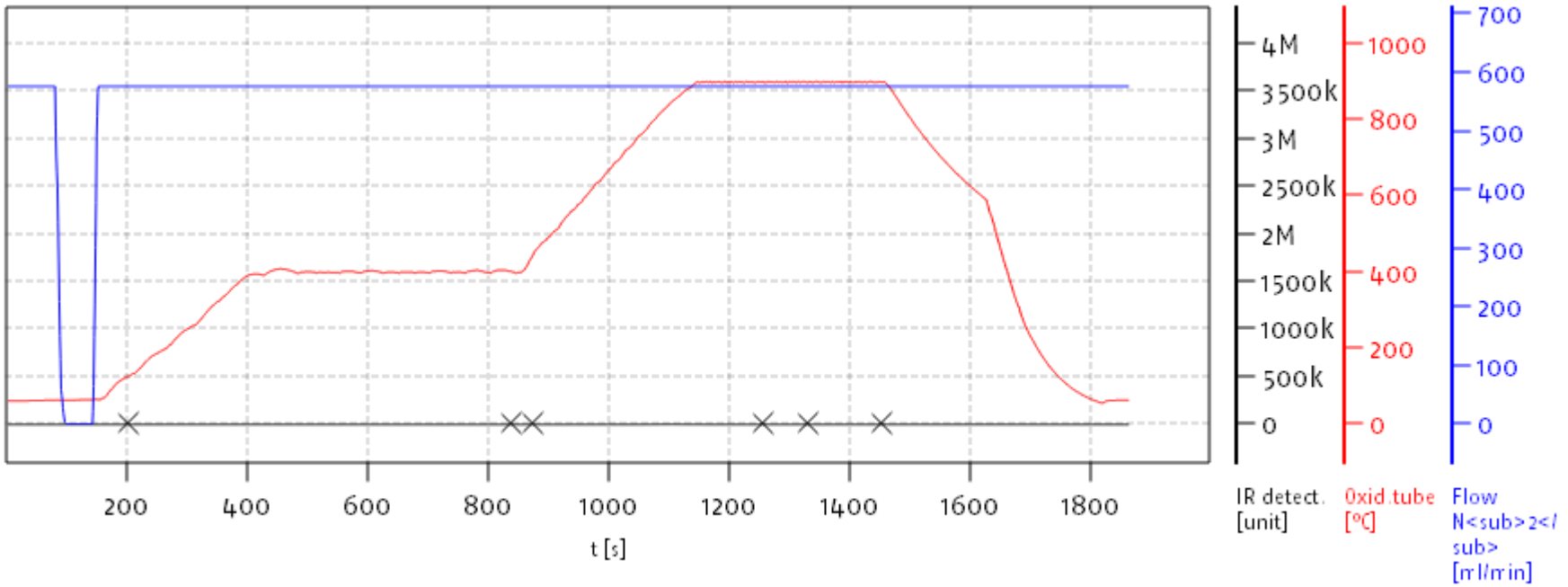
Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
31	31	SIF0169-ICB1	573.00		1.00	CARBON	10/1/2020 9:06 AM	0.010	0.005	0.015	bl,C1u,C3u,C2u	2 691	5 075	622	1.1158	0.9606



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Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 9060A m

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0032	Instrument:	TOC Cube
		Calibration:	DI00090

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Initial Cal Check	SJG0032-ICV1	peData_07062021@0954-(	NA	07/02/21 18:04
Initial Cal Blank	SJG0032-ICB1	peData_07062021@0954-(	NA	07/02/21 18:35
Calibration Check	SJG0032-CCV1	peData_07062021@0954-(	NA	07/03/21 00:12
Calibration Blank	SJG0032-CCB1	peData_07062021@0954-(	NA	07/03/21 00:43
Calibration Check	SJG0032-CCV2	peData_07062021@0954-1	NA	07/03/21 06:20
Calibration Blank	SJG0032-CCB2	peData_07062021@0954-1	NA	07/03/21 06:50
MRL Check	BJG0080-MRL1	peData_07062021@0954-1	Solid	07/03/21 10:56
Blank	BJG0080-BLK1	peData_07062021@0954-1	Solid	07/03/21 11:27
LCS	BJG0080-BS1	peData_07062021@0954-1	Solid	07/03/21 11:58
Calibration Check	SJG0032-CCV3	peData_07062021@0954-1	NA	07/03/21 12:29
Calibration Blank	SJG0032-CCB3	peData_07062021@0954-1	NA	07/03/21 13:00
Reference	BJG0080-SRM1	peData_07062021@0954-1	Solid	07/03/21 13:30
Calibration Check	SJG0032-CCV4	peData_07062021@0954-1	NA	07/03/21 18:39
Calibration Blank	SJG0032-CCB4	peData_07062021@0954-1	NA	07/03/21 19:09
LDW21-SS696	21F0418-01	peData_07062021@0954-1	Solid	07/03/21 23:16
LDW21-SS695	21F0418-02	peData_07062021@0954-1	Solid	07/03/21 23:47
LDW21-IT696	21F0418-03	peData_07062021@0954-1	Solid	07/04/21 00:17
Calibration Check	SJG0032-CCV5	peData_07062021@0954-1	NA	07/04/21 00:48
Calibration Blank	SJG0032-CCB5	peData_07062021@0954-1	NA	07/04/21 01:18
LDW21-IT695	21F0418-04	peData_07062021@0954-1	Solid	07/04/21 01:49
LDW21-SS693	21F0418-05	peData_07062021@0954-1	Solid	07/04/21 02:19
LDW21-IT693	21F0418-06	peData_07062021@0954-1	Solid	07/04/21 02:50
LDW21-SS691	21F0418-07	peData_07062021@0954-1	Solid	07/04/21 03:21
LDW21-IT691	21F0418-08	peData_07062021@0954-1	Solid	07/04/21 03:52
LDW21-SS692	21F0418-09	peData_07062021@0954-1	Solid	07/04/21 04:23
LDW21-IT692	21F0418-10	peData_07062021@0954-1	Solid	07/04/21 04:53
Calibration Check	SJG0032-CCV6	peData_07062021@0954-1	NA	07/04/21 06:56
Calibration Blank	SJG0032-CCB6	peData_07062021@0954-1	NA	07/04/21 07:27
Calibration Check	SJG0032-CCV7	peData_07062021@0954-1	NA	07/04/21 13:05
Calibration Blank	SJG0032-CCB7	peData_07062021@0954-1	NA	07/04/21 13:36

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 9060A m

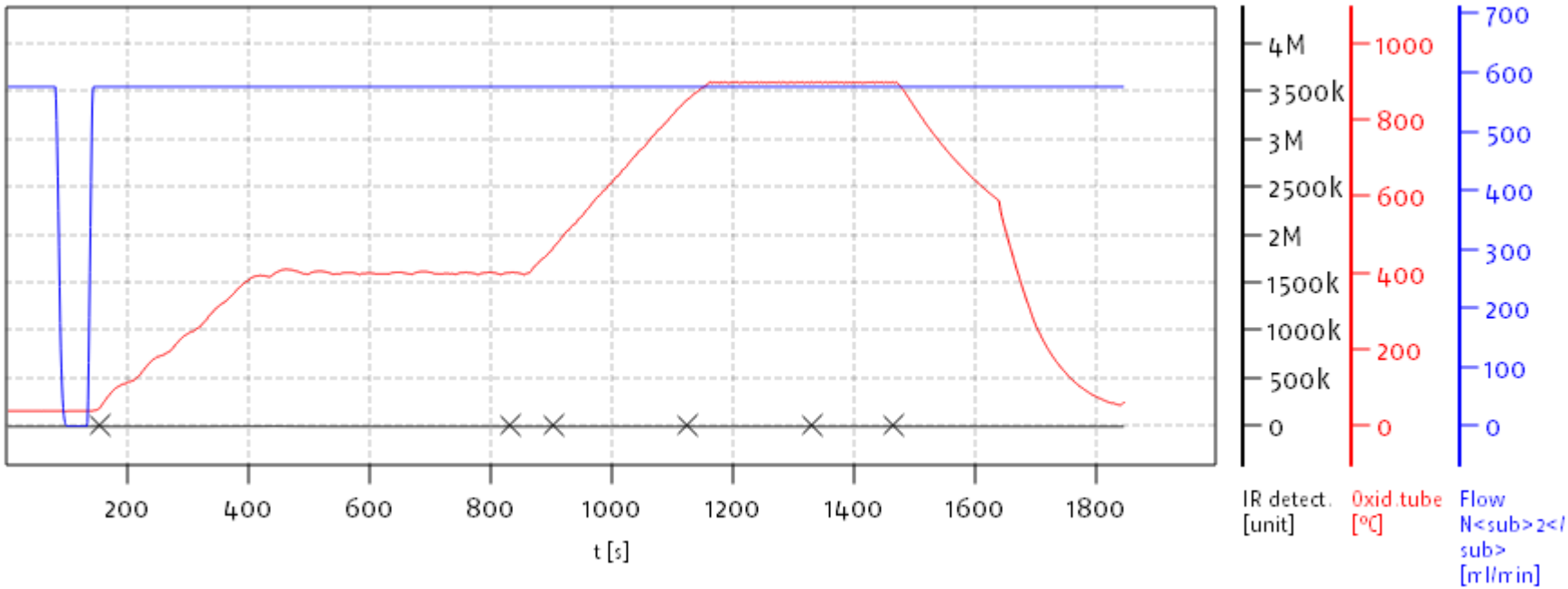
Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJG0032	Instrument:	TOC Cube
		Calibration:	DI00090

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Calibration Check	SJG0032-CCV8	peData_07062021@0954-(	NA	07/04/21 19:13
Calibration Blank	SJG0032-CCB8	peData_07062021@0954-(	NA	07/04/21 19:44
Calibration Check	SJG0032-CCV9	peData_07062021@0954-1	NA	07/04/21 23:50
Calibration Blank	SJG0032-CCB9	peData_07062021@0954-1	NA	07/05/21 00:21

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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	7/2/2021 4:32 PM	0.000	0.000	0.000	bl	17 337	3 240	1 792	1.0000	1.0000



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Access: soliTOC superuser

Date: Tue Jul 6 09:44:54 2021

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

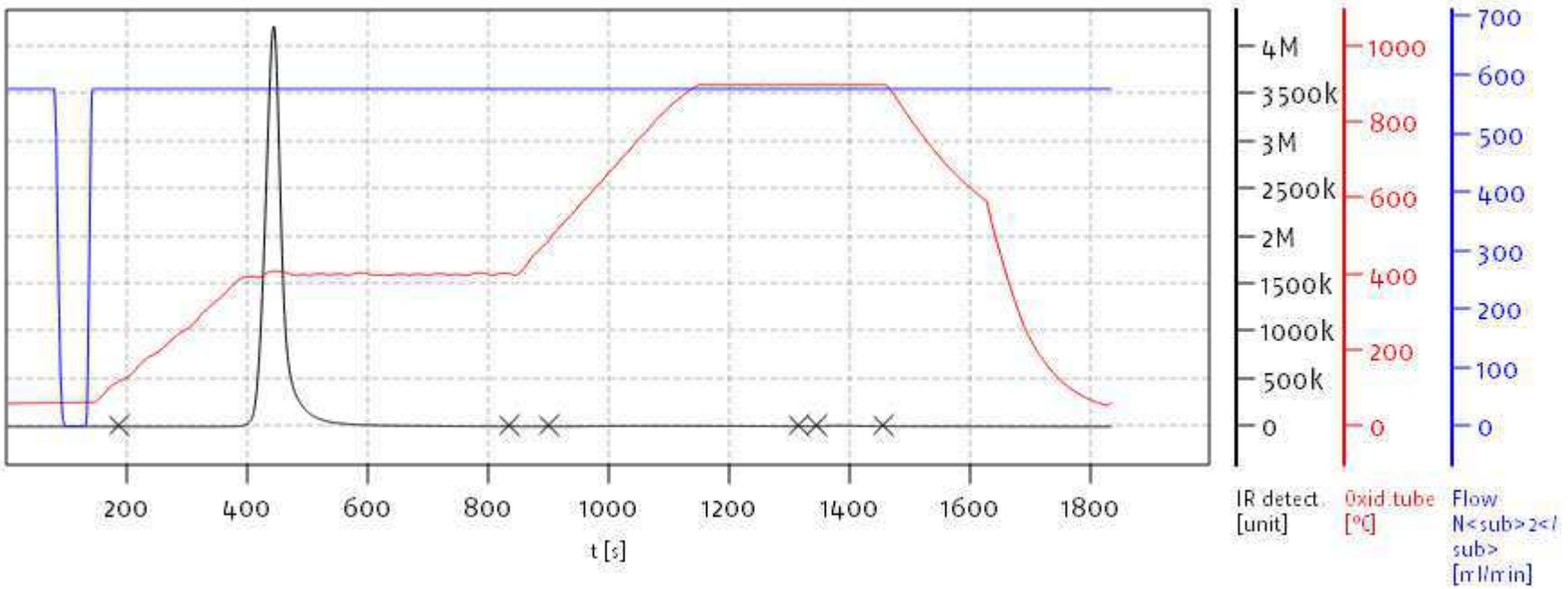
elementar
EXCELLENCE IN ELEMENTS

Document: 070221BF from: 7/6/2021 9:38 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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
2	2	Dfactor	20.20		1.00	CARBON	7/2/2021 5:03 PM	44.766	0.762	45.529	bl	5 275 642	82 730	25 581	1.0874	1.0000



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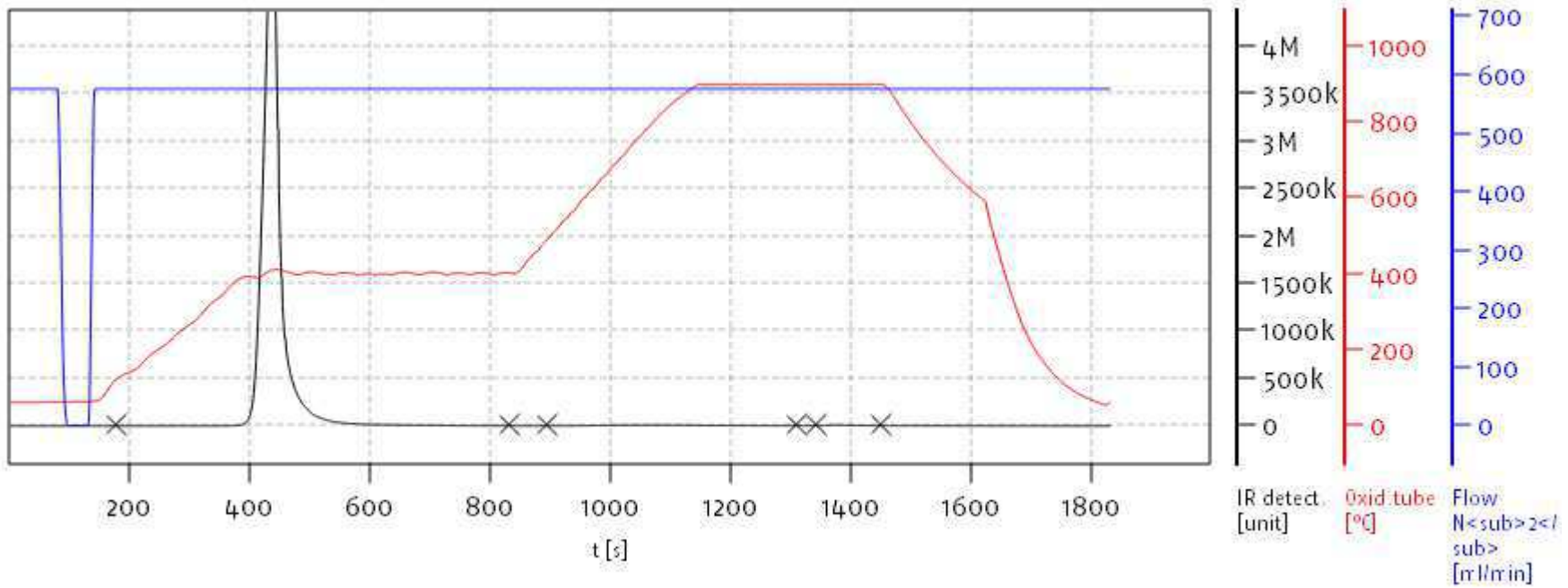
Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
3	3	Dfactor	23.60		1.00	CARBON	7/2/2021 5:34 PM	44.706	0.621	45.327	bl	6 561 825	77 941	23 397	1.0221	1.0000



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Balance: BAL3
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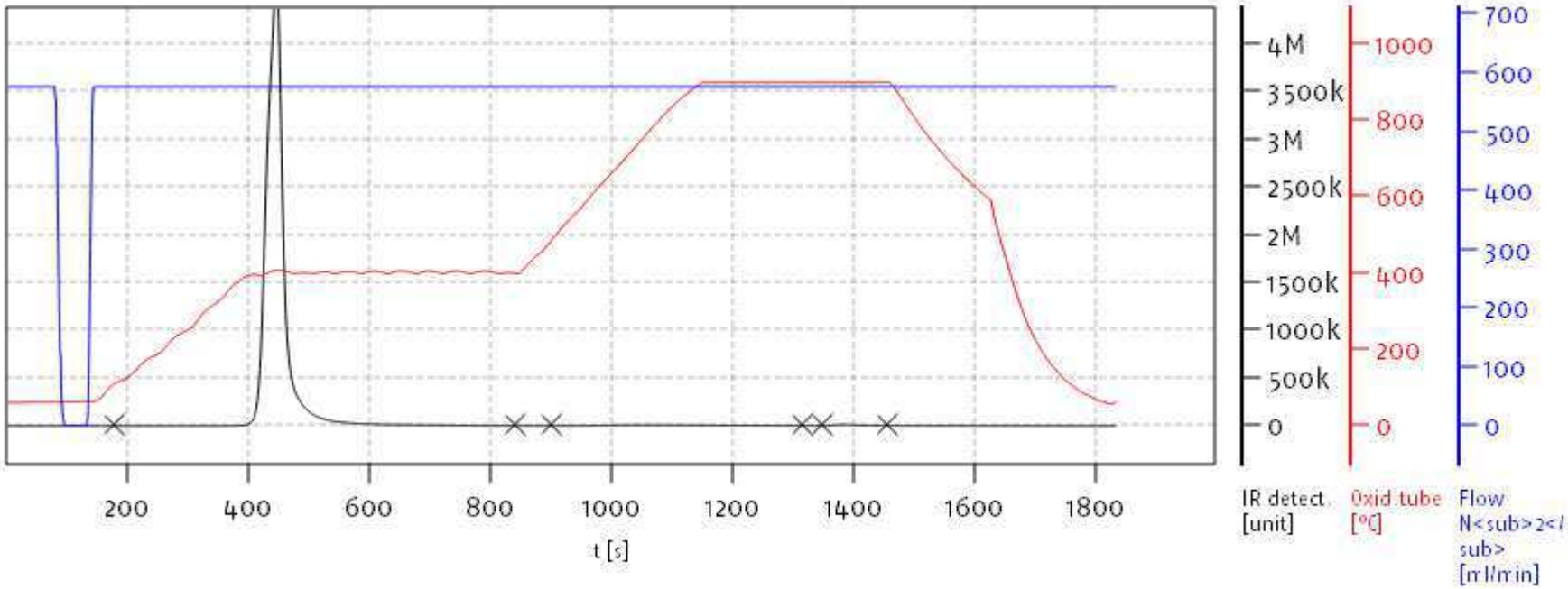
Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
4	4	SJG0 032-ICV1	21.10		1.00	CARBON	7/2/2021 6:04 PM	44.881	0.786	45.667	bl	5 696 652	90 329	28 194	1.0547	1.0000



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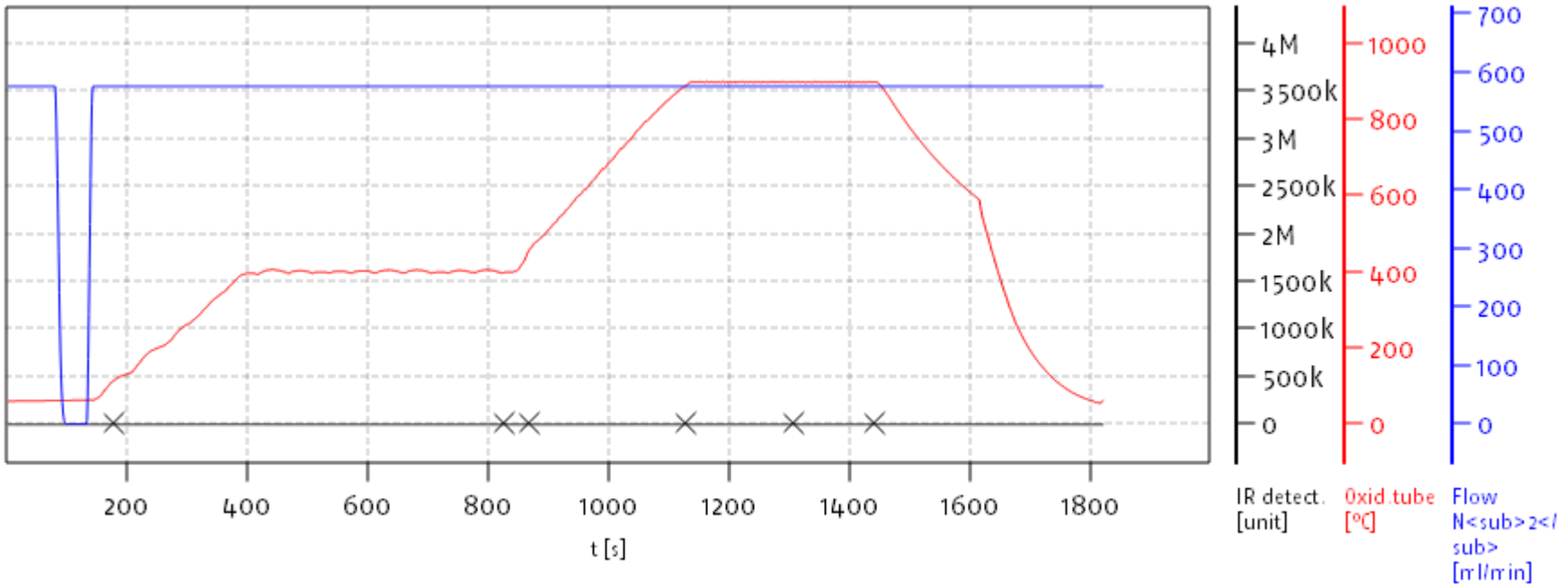
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
5	5	SJG0032-ICB1	503.80		1.00	CARBON	7/2/2021 6:35 PM	0.012	0.005	0.018	bl,C3u,C2u	5 364	1 543	1 798	1.0547	1.0000



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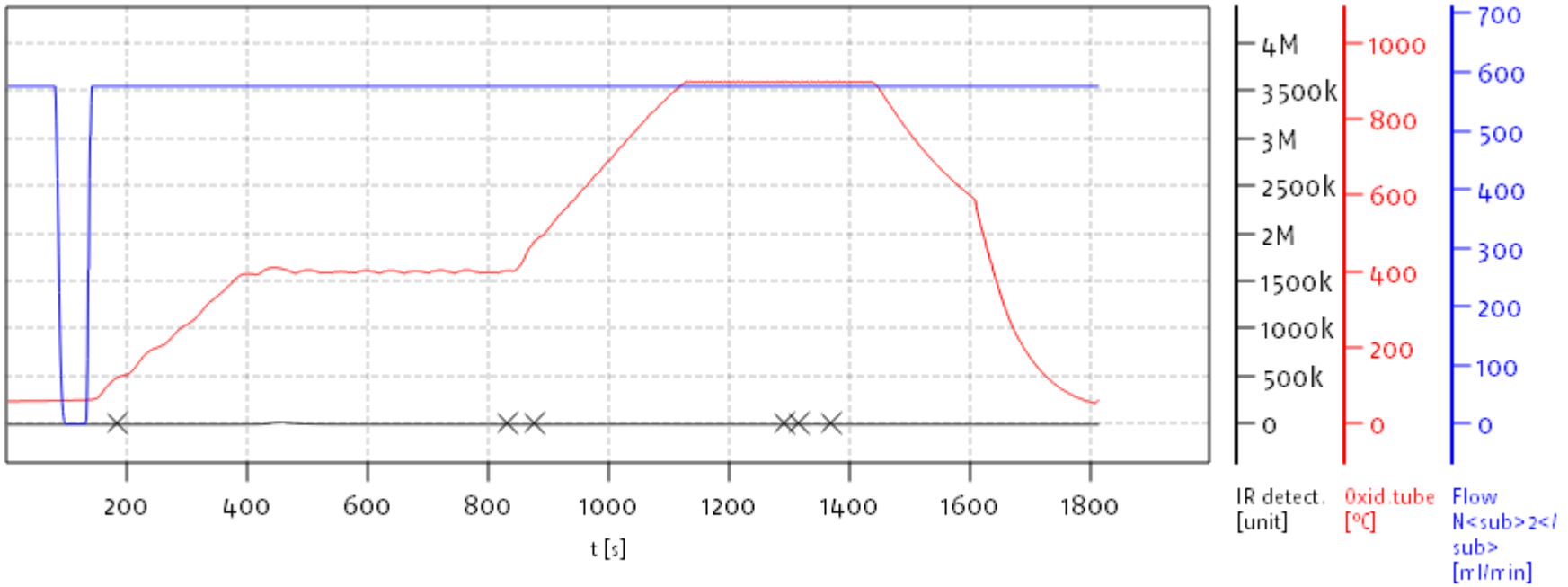
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
6	6	BJG0079-MRL1	512.90		1.00	CARBON	7/2/2021 7:06 PM	0.027	0.007	0.035	bl,C2u	52 422	8 447	1 754	1.0547	1.0000



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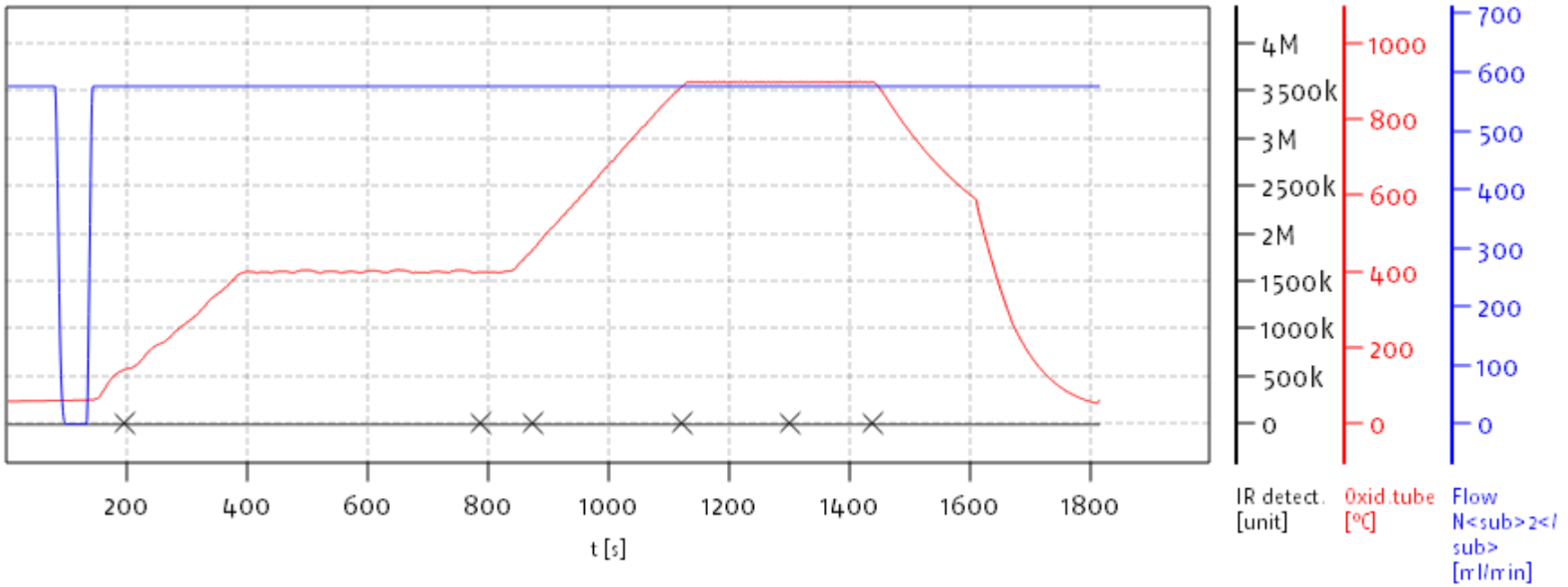
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	BJG0079-BLK1	515.50		1.00	CARBON	7/2/2021 7:36 PM	0.011	0.005	0.016	bl,C1u,C3u,C2u	1 719	1 267	982	1.0547	1.0000



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Balance: BAL3
Analyst: BF

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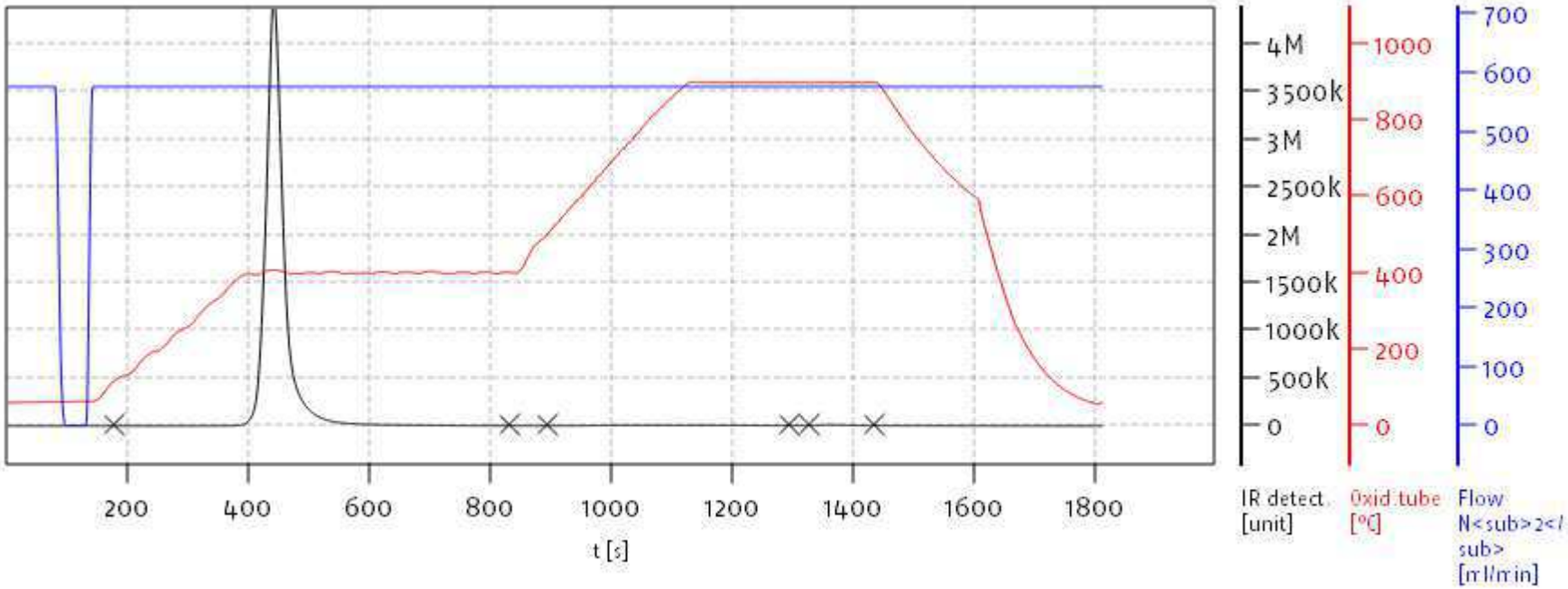
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	8	BJG0079-BS1	21.20		1.00	CARBON	7/2/2021 8:07 PM	44.707	0.690	45.397	bl	5 702 944	77 788	26 762	1.0547	1.0000



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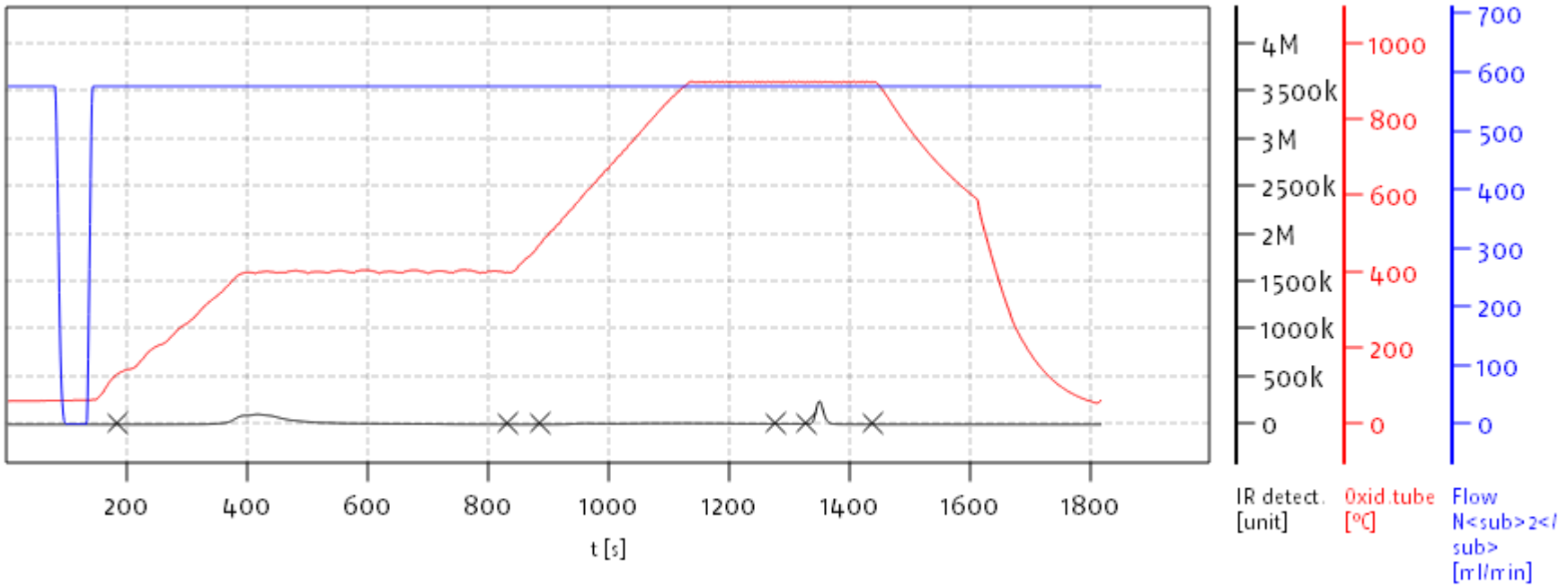
Balance: BAL3
Analyst: BF

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
9	9	BJG0079-SRM1	37.60		1.00	CARBON	7/2/2021 8:38 PM	2.690	0.557	3.248	bl	448 862	118 342	142 142	1.0547	1.0000



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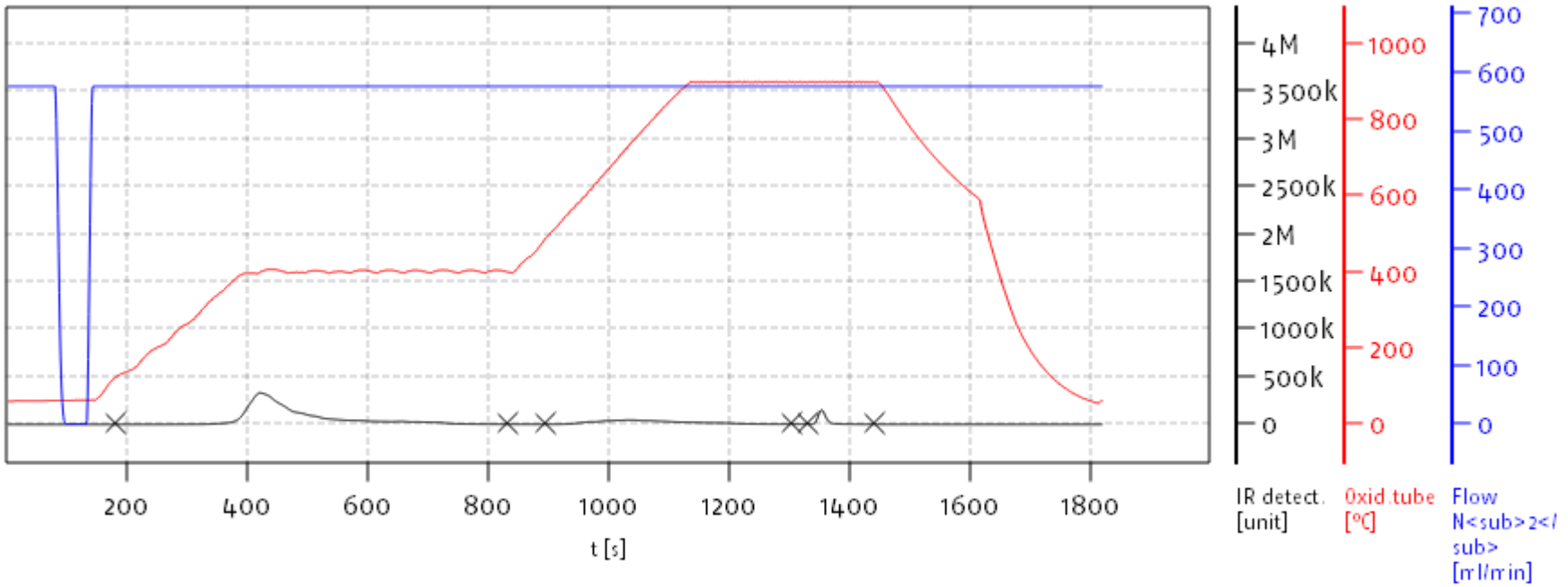
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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
10	10	21F0415-01	523.40		1.00	CARBON	7/2/2021 9:08 PM	0.437	0.096	0.533	bl	1 271 514	305 462	92 797	1.0547	1.0000



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Date: Tue Jul 6 09:44:54 2021

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

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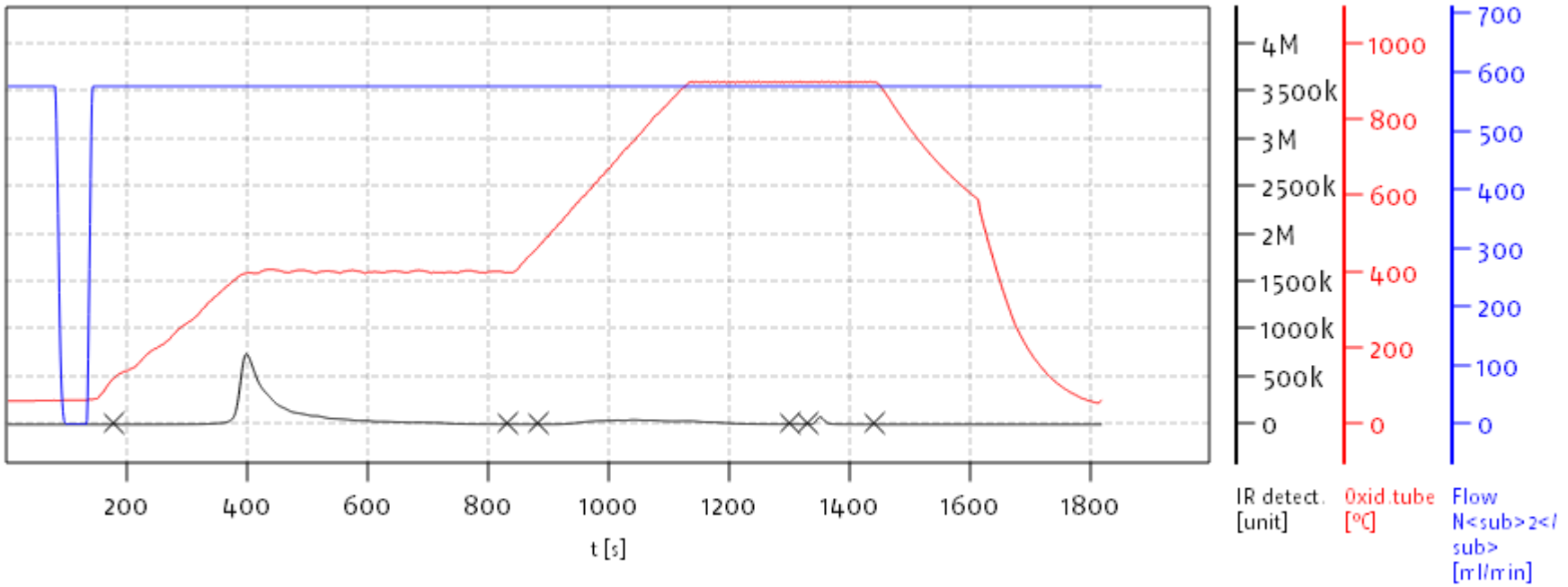
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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
11	11	21F0415-02	627.90		1.00	CARBON	7/2/2021 9:39 PM	0.496	0.091	0.587	bl	1 816 222	351 627	47 990	1.0547	1.0000



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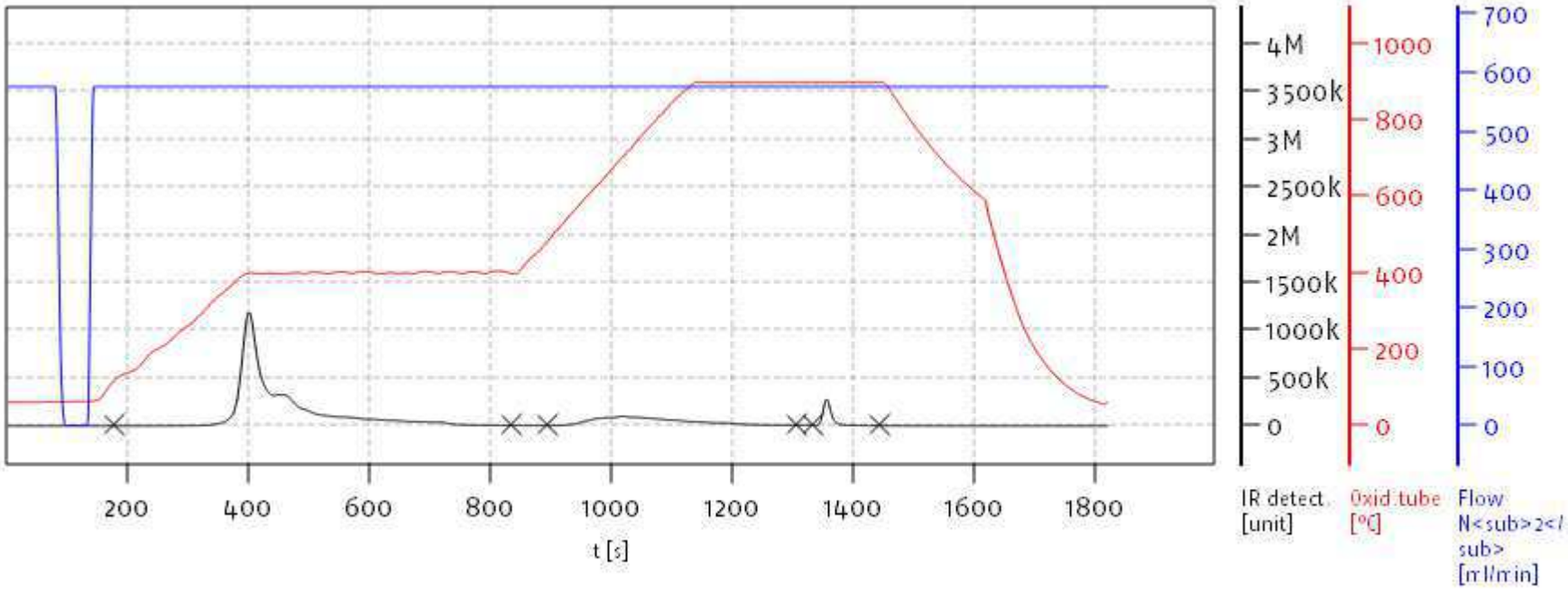
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
12	12	21F0415-03	560.30		1.00	CARBON	7/2/2021 10:10 PM	0.893	0.189	1.083	bl	2 843 406	663 775	176 080	1.0547	1.0000



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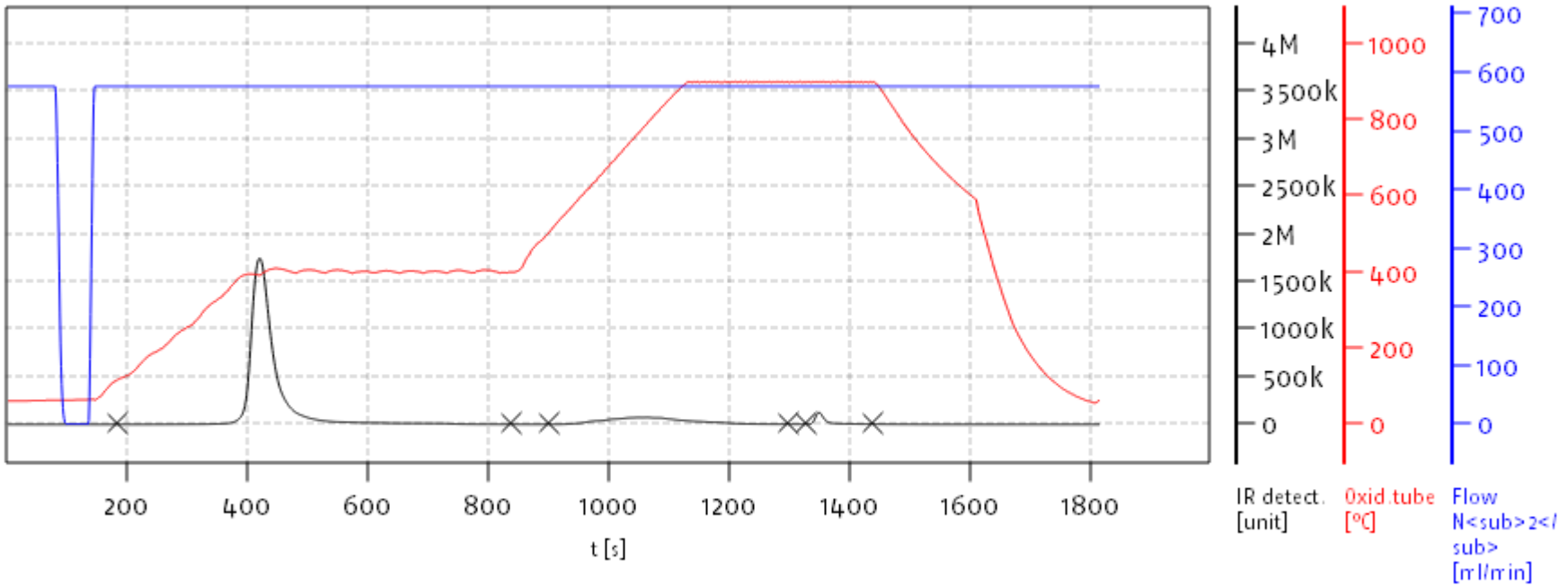
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
13	13	21F0415-04	503.00		1.00	CARBON	7/2/2021 10:41 PM	0.976	0.146	1.122	bl	2 862 628	455 617	94 287	1.0547	1.0000



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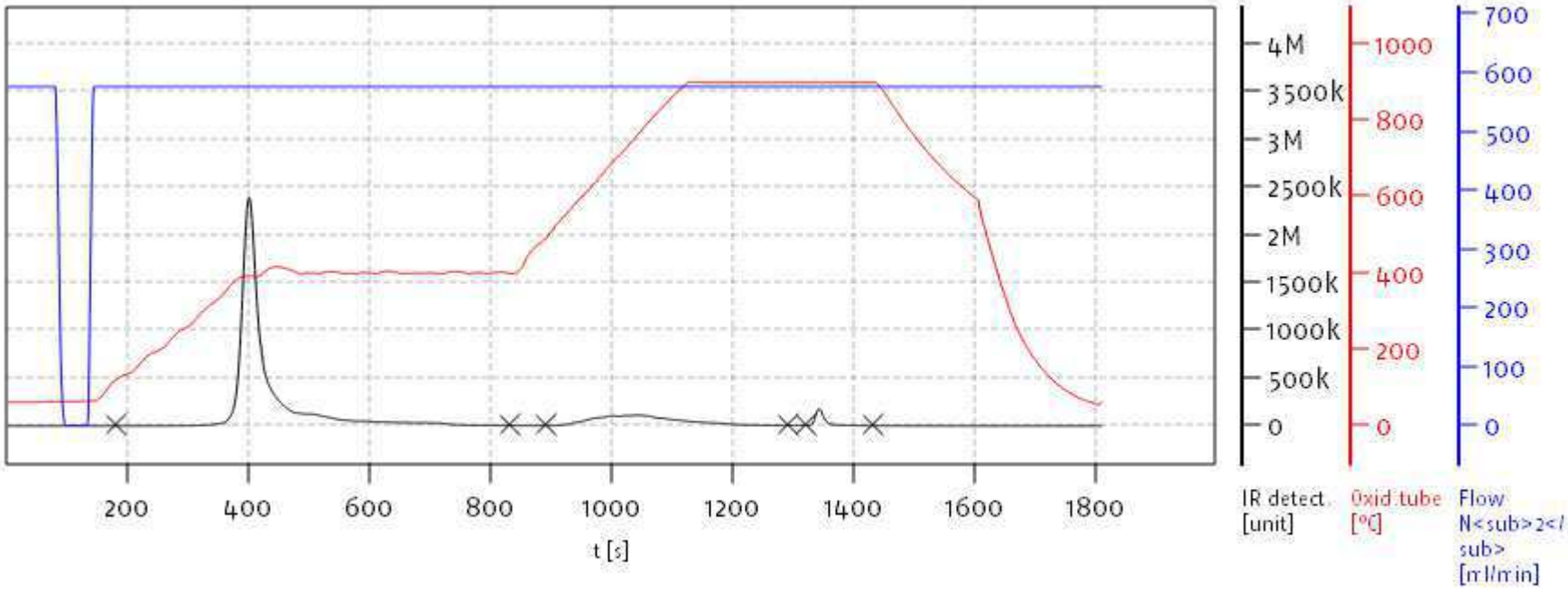
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
14	14	21F0415-05	616.40		1.00	CARBON	7/2/2021 11:11 PM	1.031	0.187	1.218	bl	3 714 088	724 354	121 983	1.0547	1.0000



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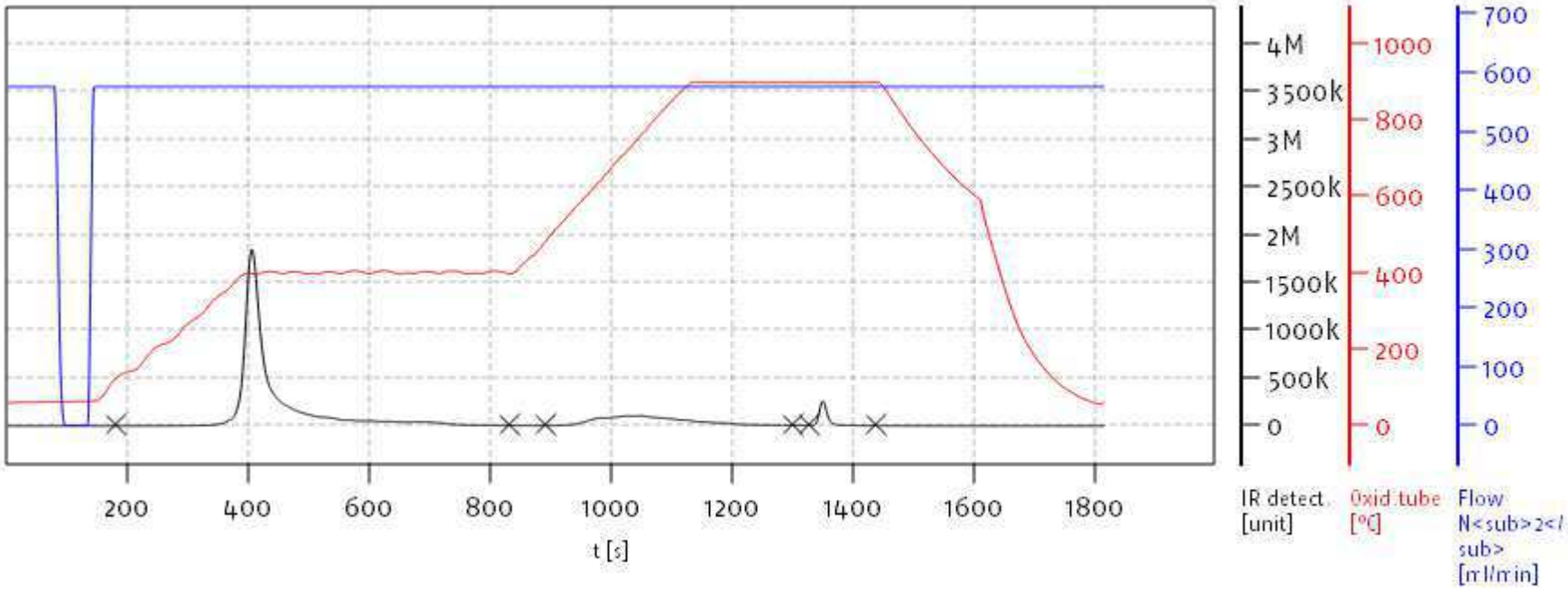
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
15	15	21F0415-06	641.80		1.00	CARBON	7/2/2021 11:42 PM	0.845	0.176	1.021	bl	3 114 369	707 291	159 379	1.0547	1.0000



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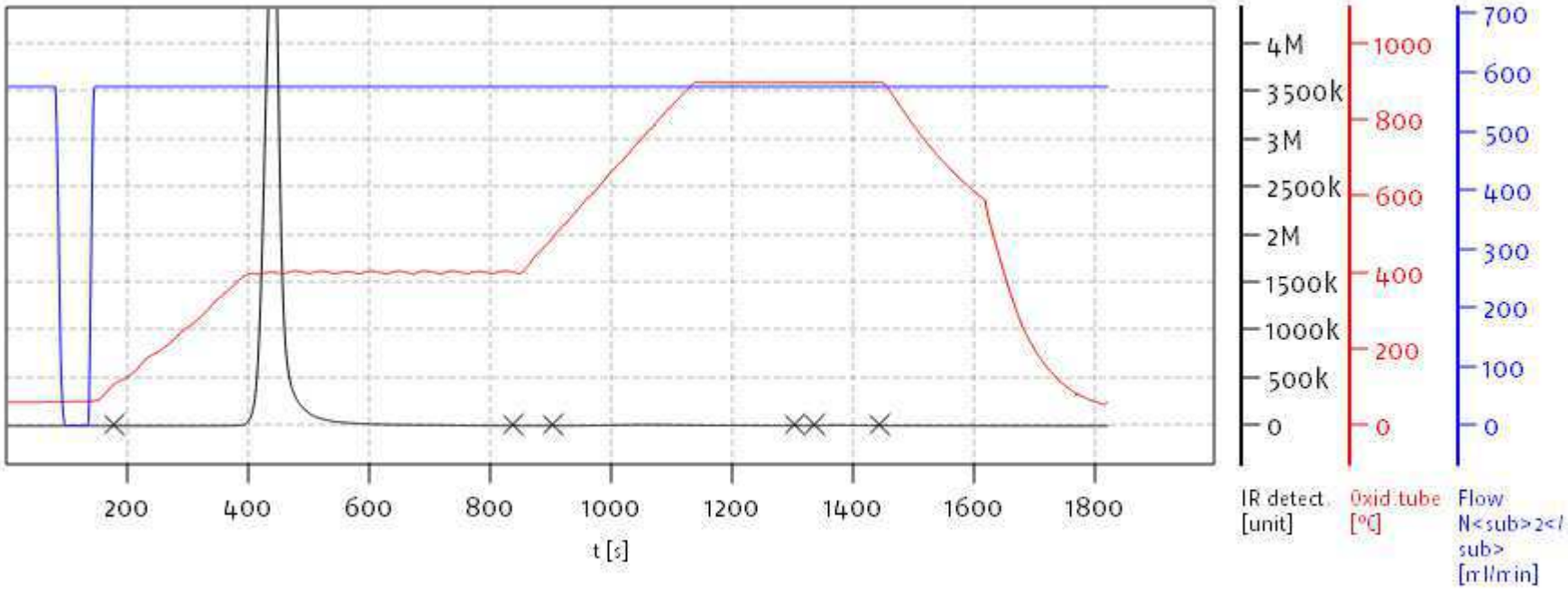
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
16	16	SJG0 032-CCV1	23.40		1.00	CARBON	7/3/2021 12:12 AM	45.122	0.678	45.800	bl	6 365 162	85 700	20 887	1.0547	1.0000



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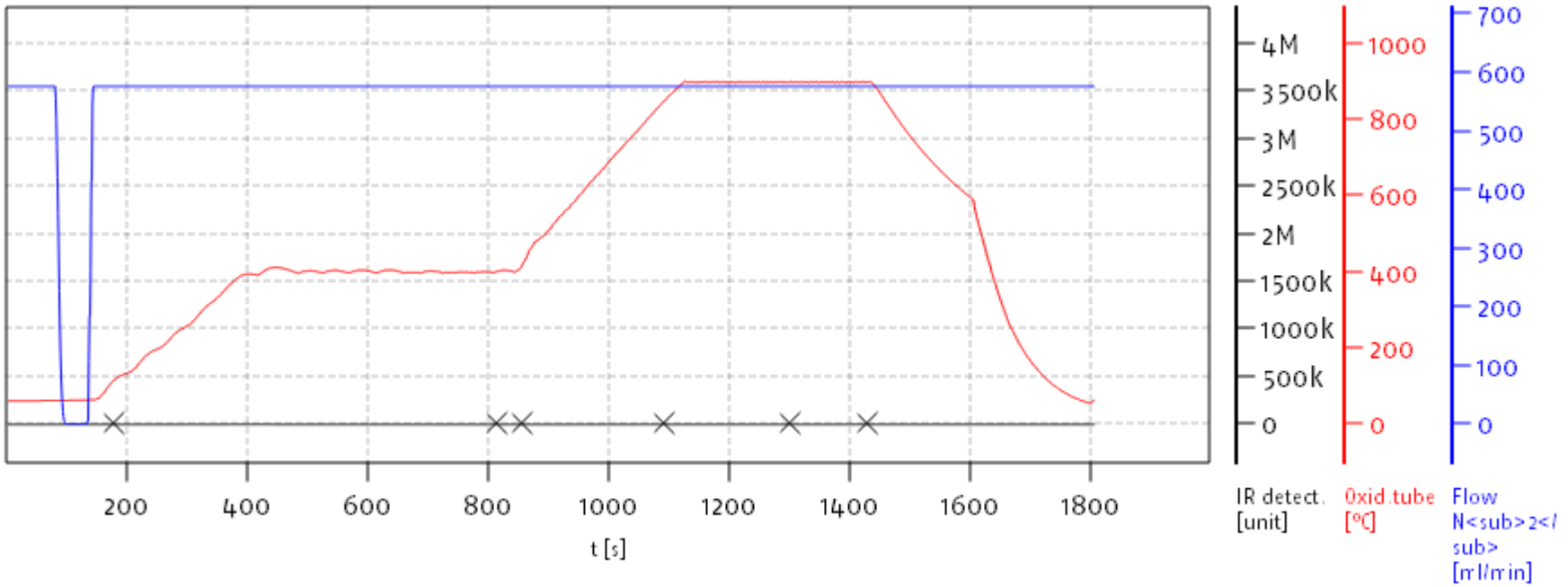
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
17	17	SJG0 032-CCB1	559.60		1.00	CARBON	7/3/2021 12:43 AM	0.011	0.005	0.016	bl,C3u,C2u	4 354	1 221	1 131	1.0547	1.0000



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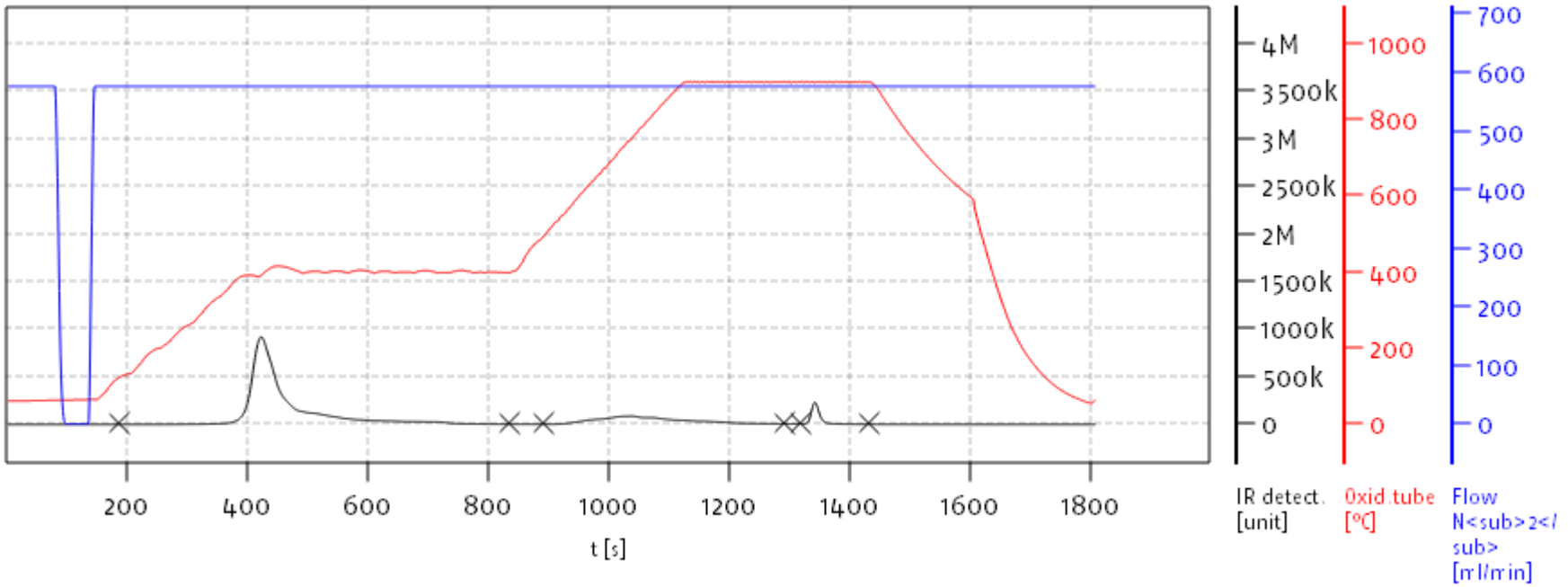
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
18	18	21F0415-07	511.30		1.00	CARBON	7/3/2021 1:13 AM	0.761	0.174	0.935	bl	2 196 410	552 772	145 478	1.0547	1.0000



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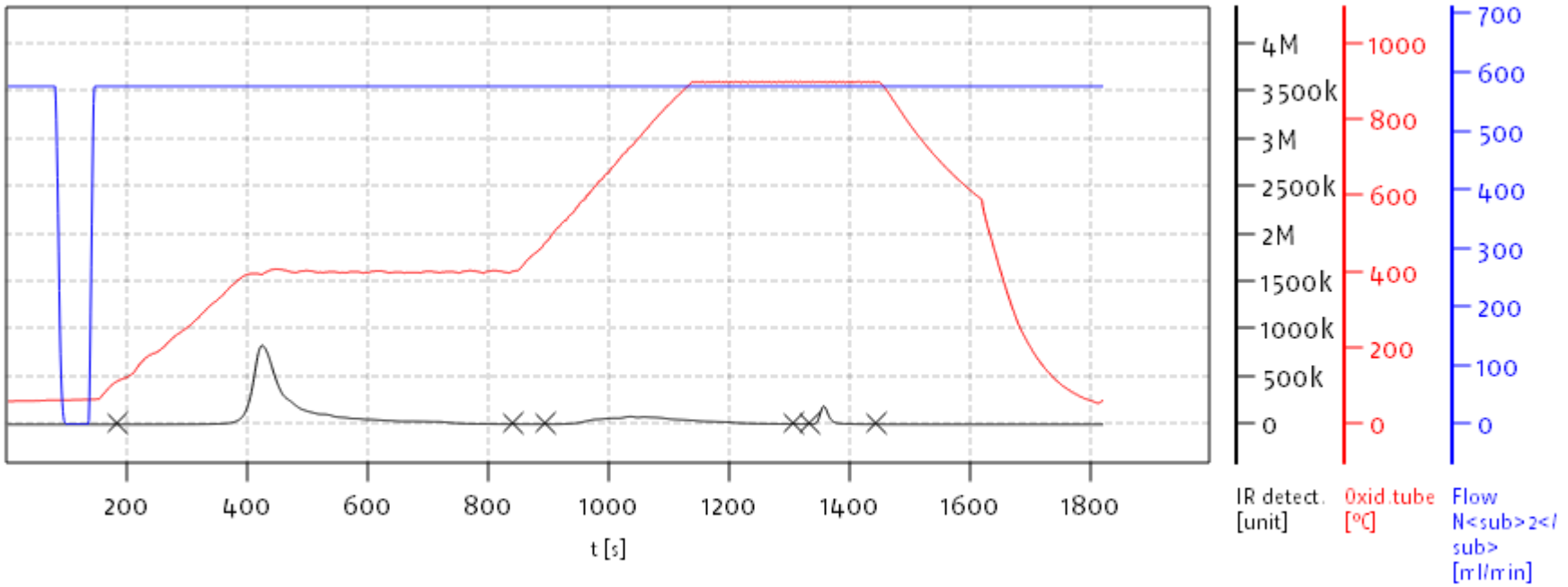
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
19	19	21F0415-08	587.30		1.00	CARBON	7/3/2021 1:44 AM	0.652	0.149	0.801	bl	2 171 860	545 635	128 974	1.0547	1.0000



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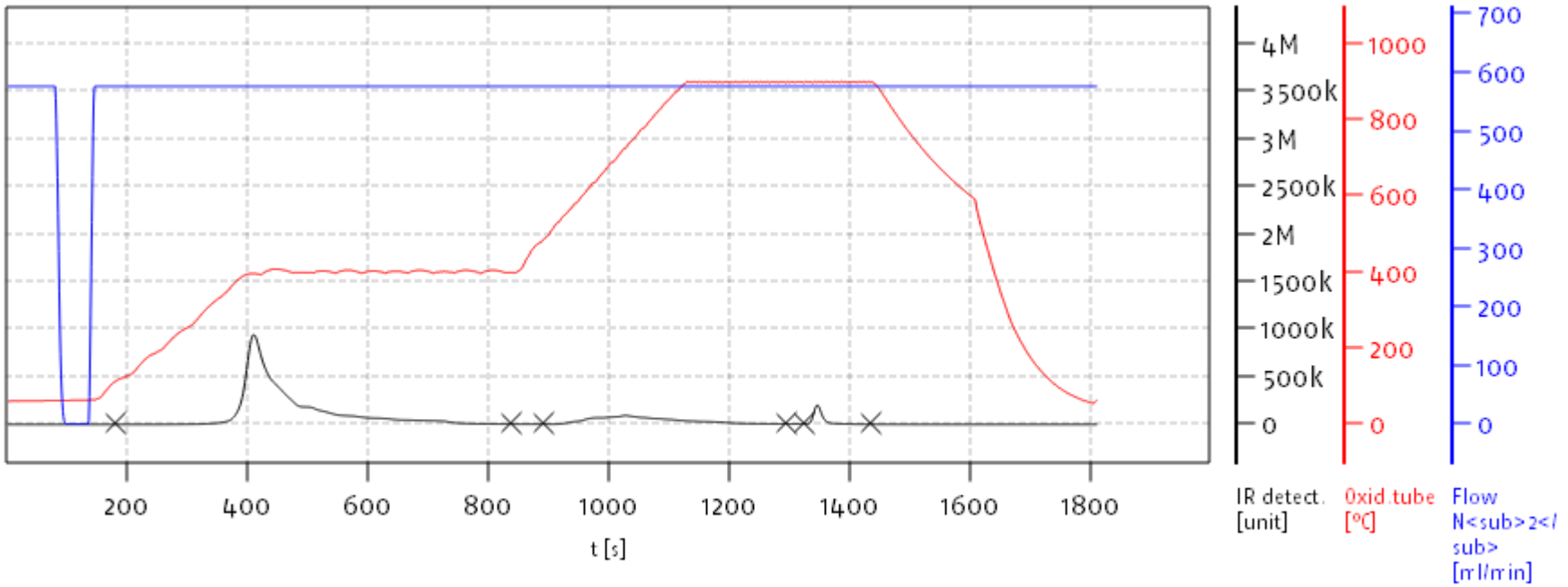
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
20	20	21F0415-09	553.90		1.00	CARBON	7/3/2021 2:15 AM	0.854	0.165	1.019	bl	2 714 214	570 008	134 537	1.0547	1.0000



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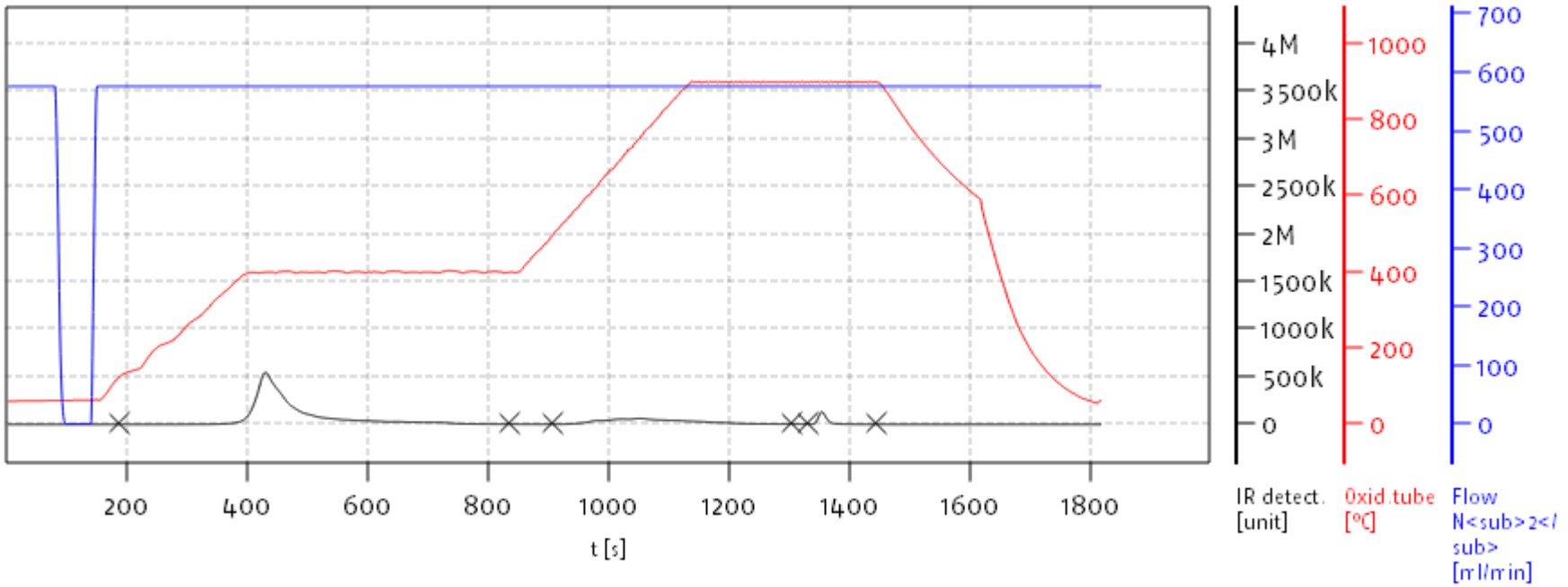
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
21	21	21F0415-10	541.30		1.00	CARBON	7/3/2021 2:45 AM	0.487	0.120	0.607	bl	1 491 597	401 307	83 784	1.0547	1.0000



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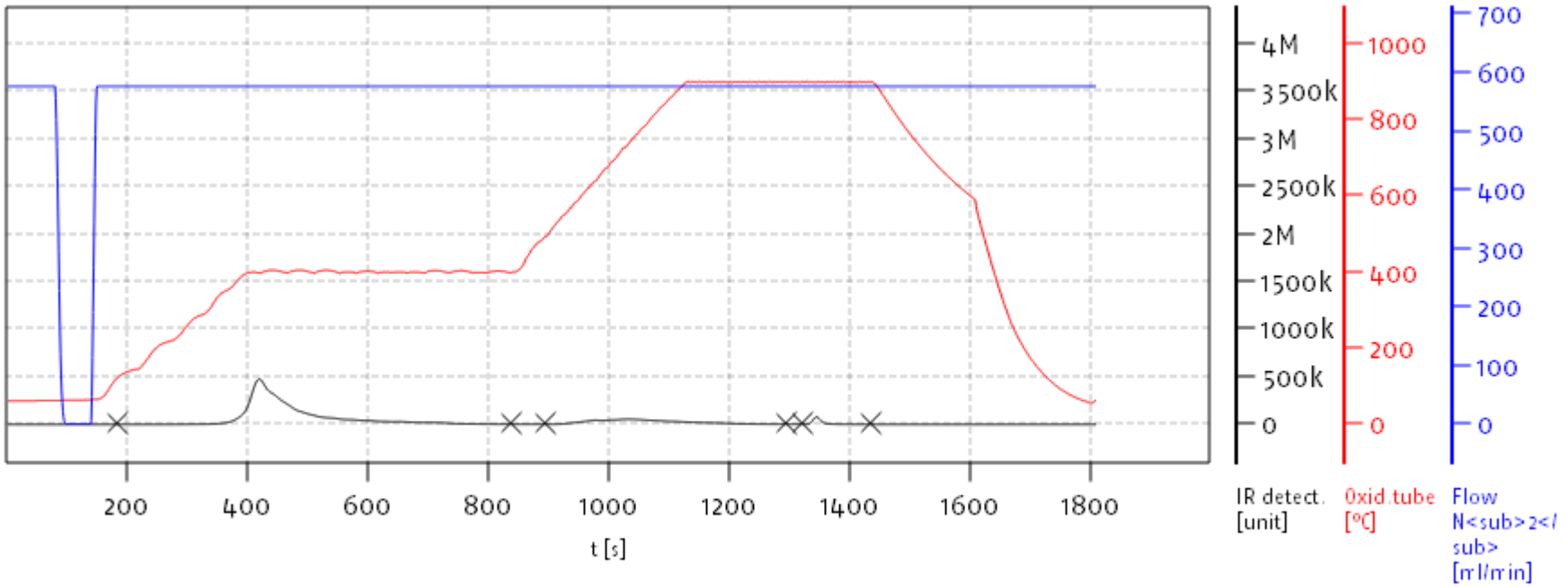
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
22	22	BJG0079-DUP2	508.00		1.00	CARBON	7/3/2021 3:16 AM	0.518	0.115	0.633	bl	1 521 118	358 531	50 685	1.0547	1.0000



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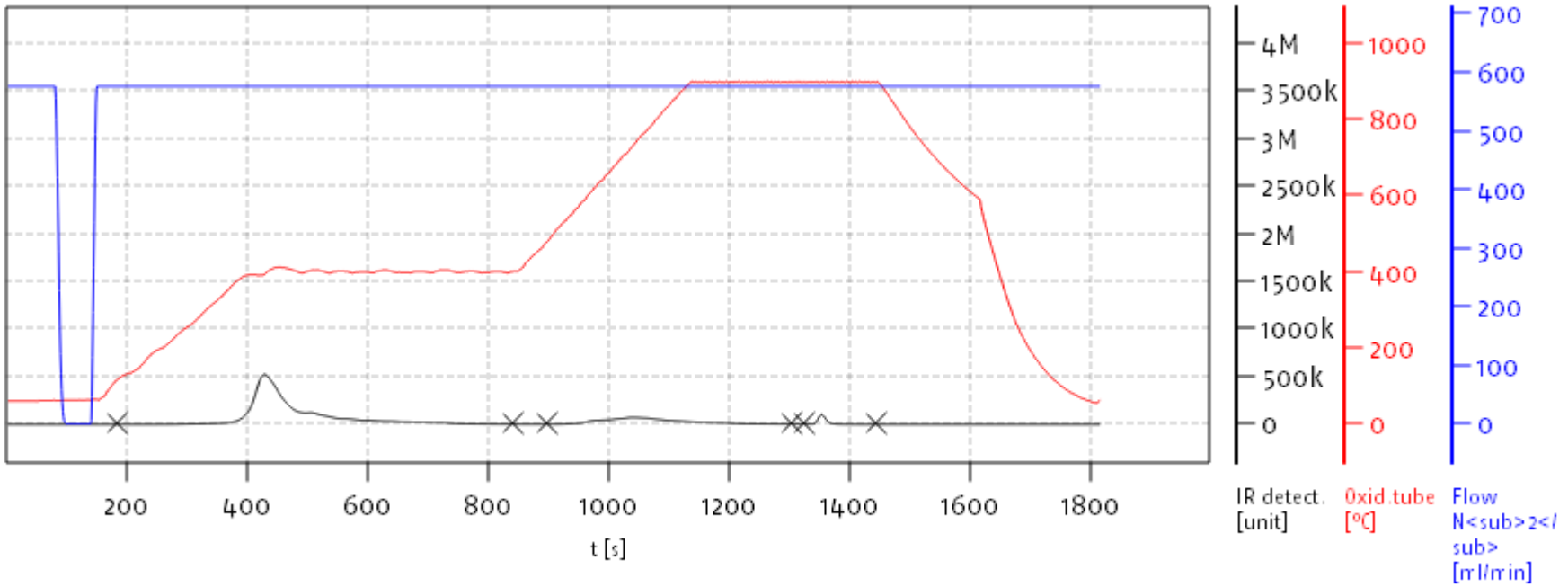
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	BJG0079-DUP1	534.90		1.00	CARBON	7/3/2021 3:47 AM	0.523	0.127	0.650	bl	1 610 042	419 719	63 353	1.0547	1.0000



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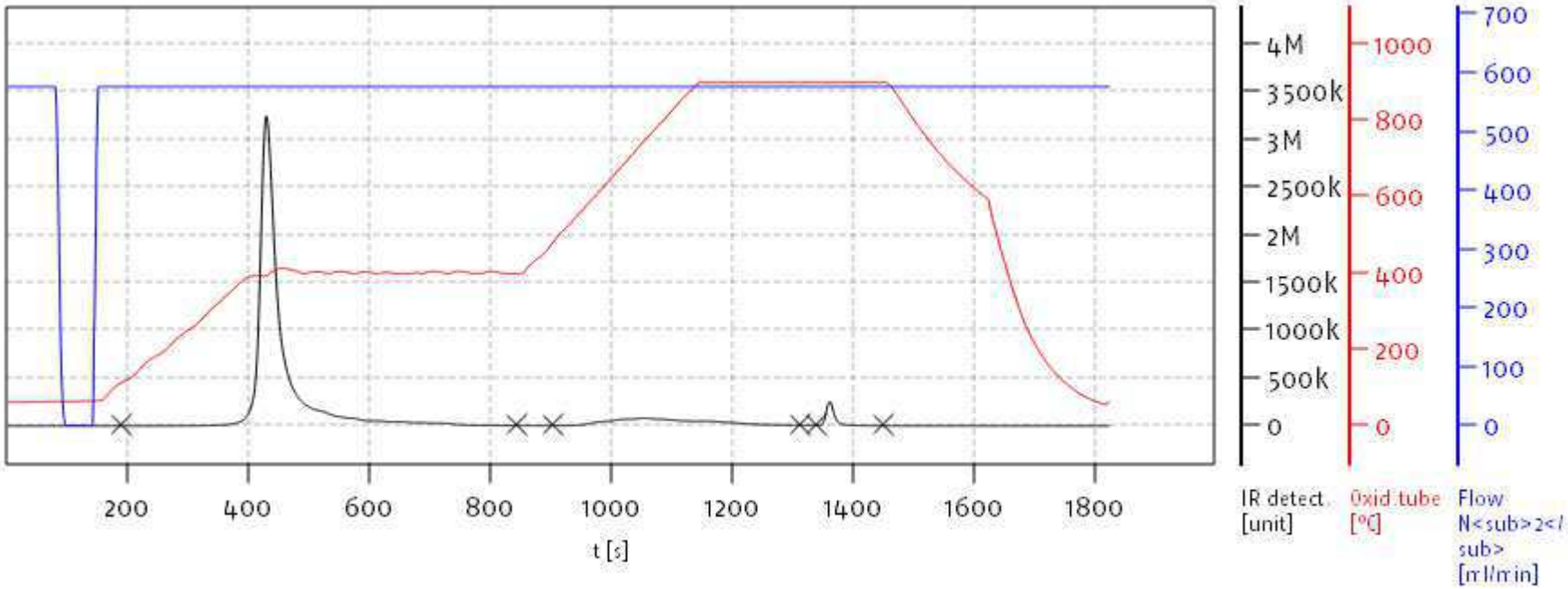
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	BJG0079-MS1	606.80	0.0111	1.00	CARBON	7/3/2021 4:17 AM	1.323	0.152	1.475	bl	4 697 171	575 927	158 776	1.0547	1.0000



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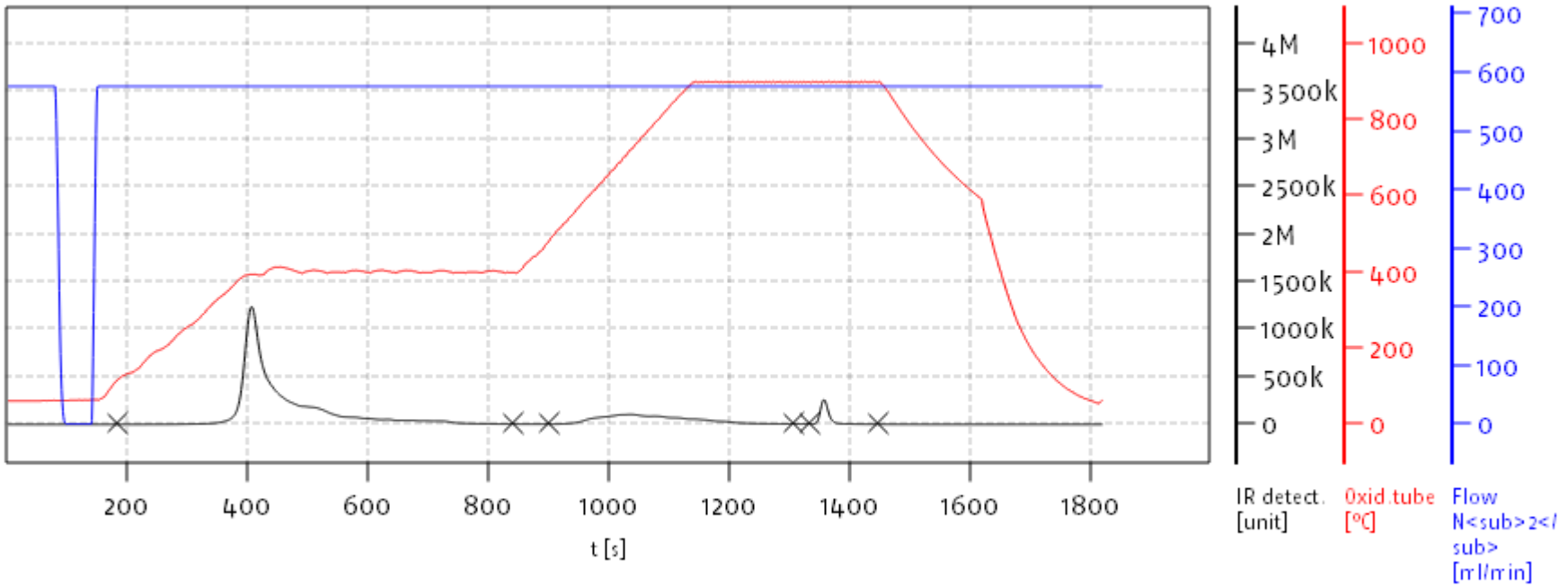
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	21F0415-11	533.30		1.00	CARBON	7/3/2021 4:48 AM	0.942	0.210	1.152	bl	2 867 655	702 823	161 721	1.0547	1.0000



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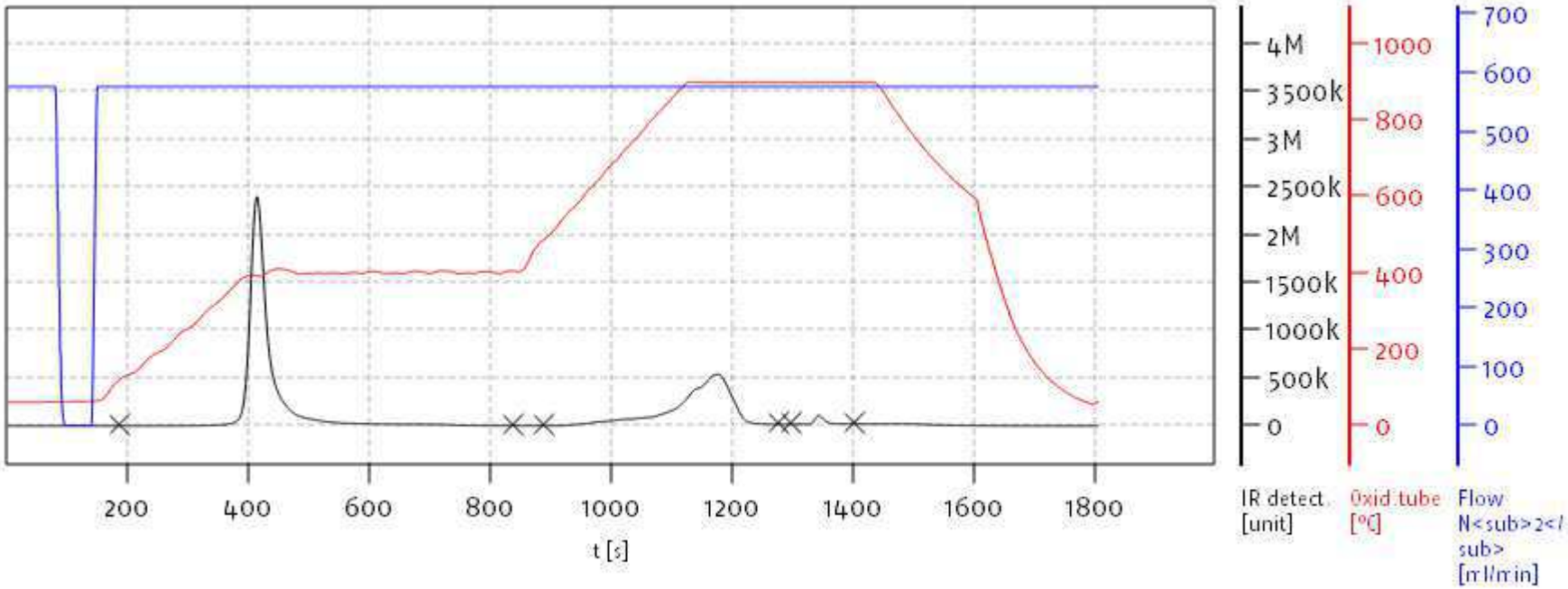
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	21F0415-12	514.30		1.00	CARBON	7/3/2021 5:19 AM	1.089	0.620	1.709	bl	3 249 314	2 026 699	130 653	1.0547	1.0000



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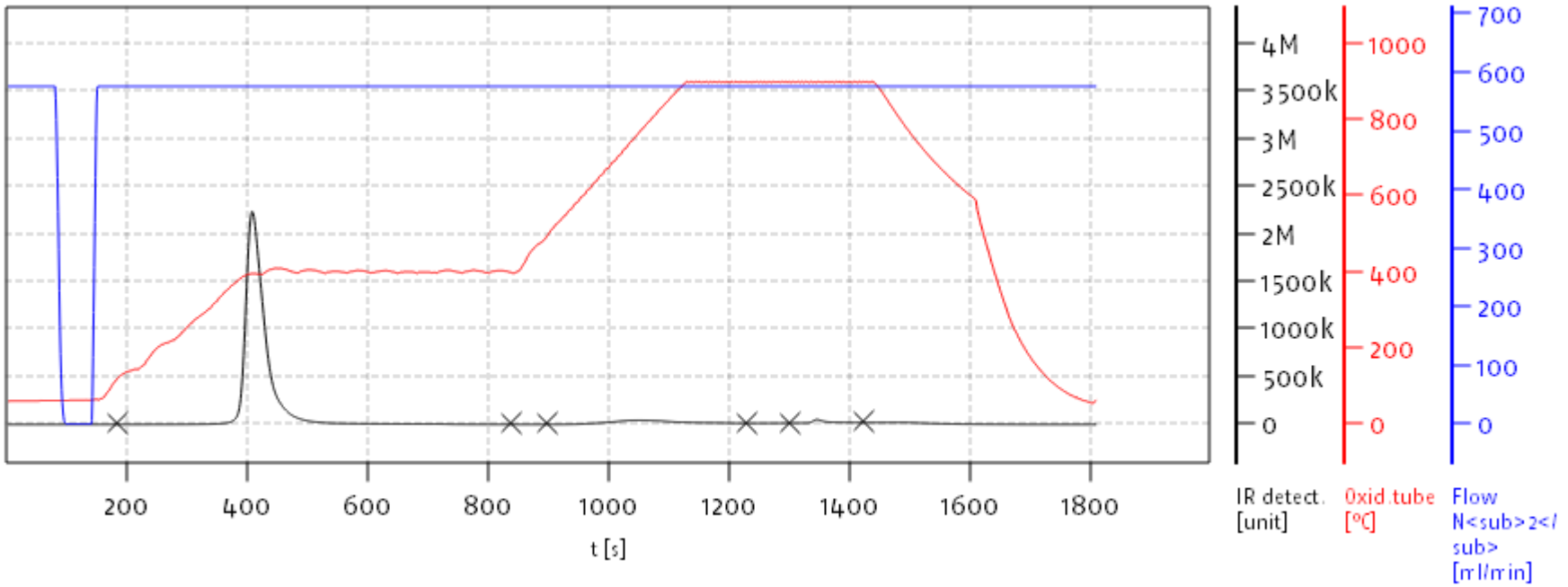
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
27	27	21F0415-13	399.00		1.00	CARBON	7/3/2021 5:49 AM	1.336	0.105	1.441	bl	3 106 175	253 636	106 624	1.0547	1.0000



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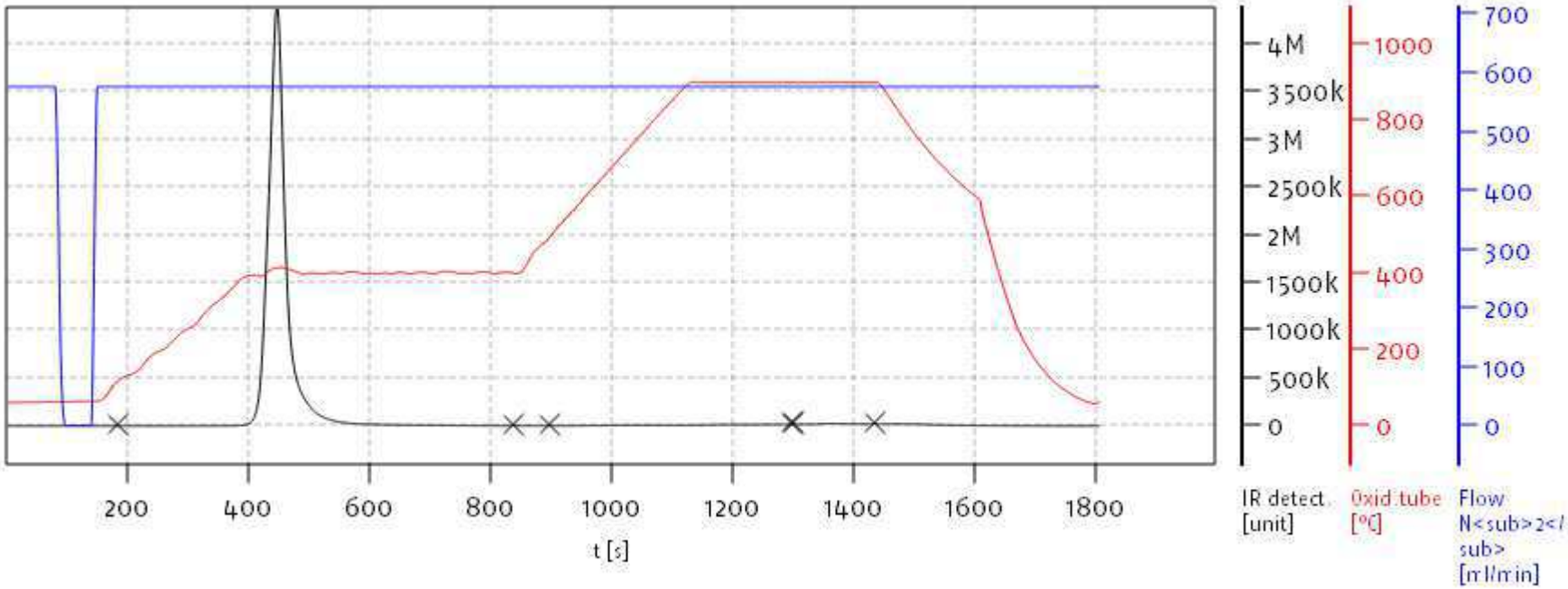
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
28	28	SJG0 032-CCV2	21.20		1.00	CARBON	7/3/2021 6:20 AM	44.373	1.033	45.406	bl	5 590 442	124 373	100 045	1.0547	1.0000



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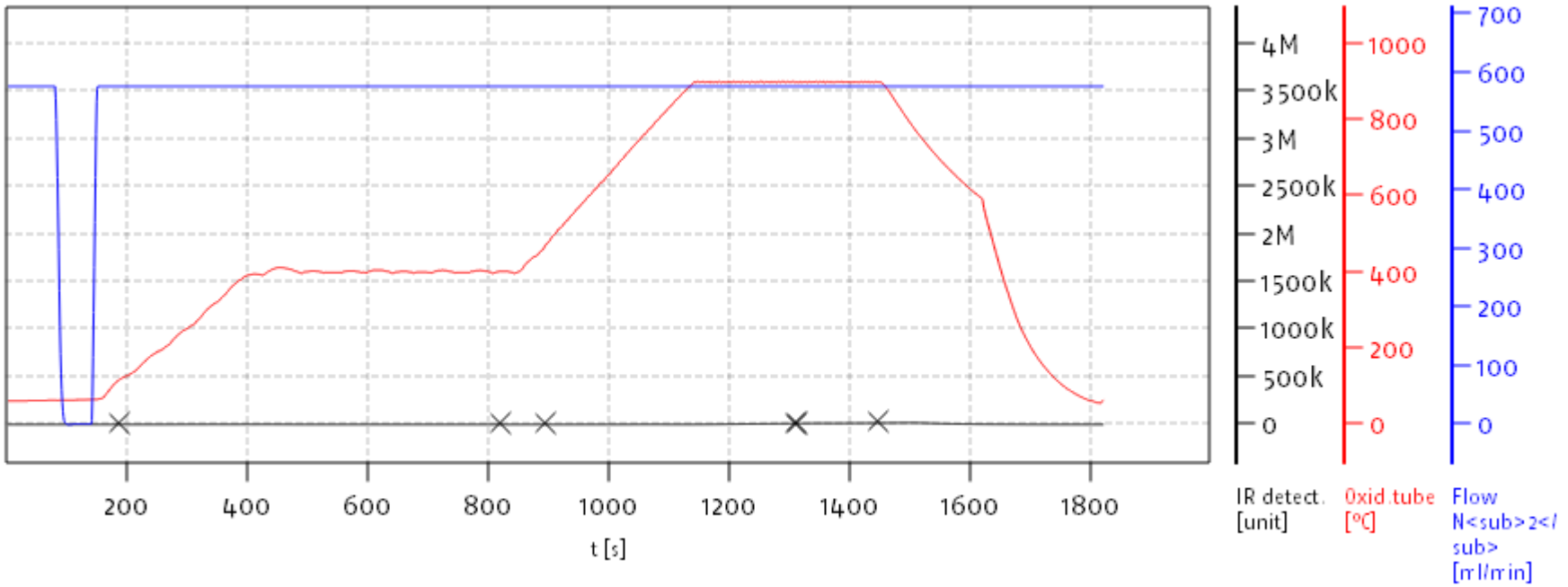
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
29	29	SJG0 032-CCB2	538.80		1.00	CARBON	7/3/2021 6:50 AM	0.030	0.014	0.045	bl	8 347	33 559	62 910	1.0547	1.0000



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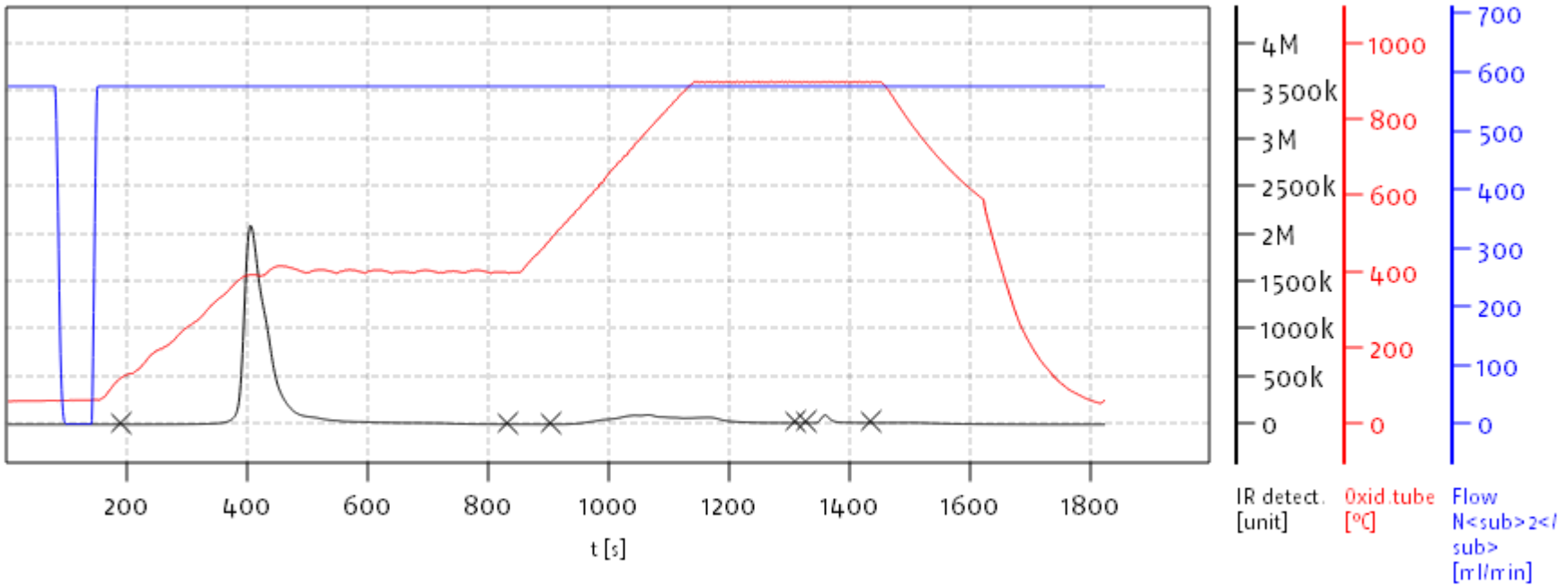
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
30	30	21F0415-14	527.70		1.00	CARBON	7/3/2021 7:21 AM	1.183	0.212	1.396	bl	3 649 281	702 470	120 556	1.0547	1.0000



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Date: Tue Jul 6 09:44:54 2021

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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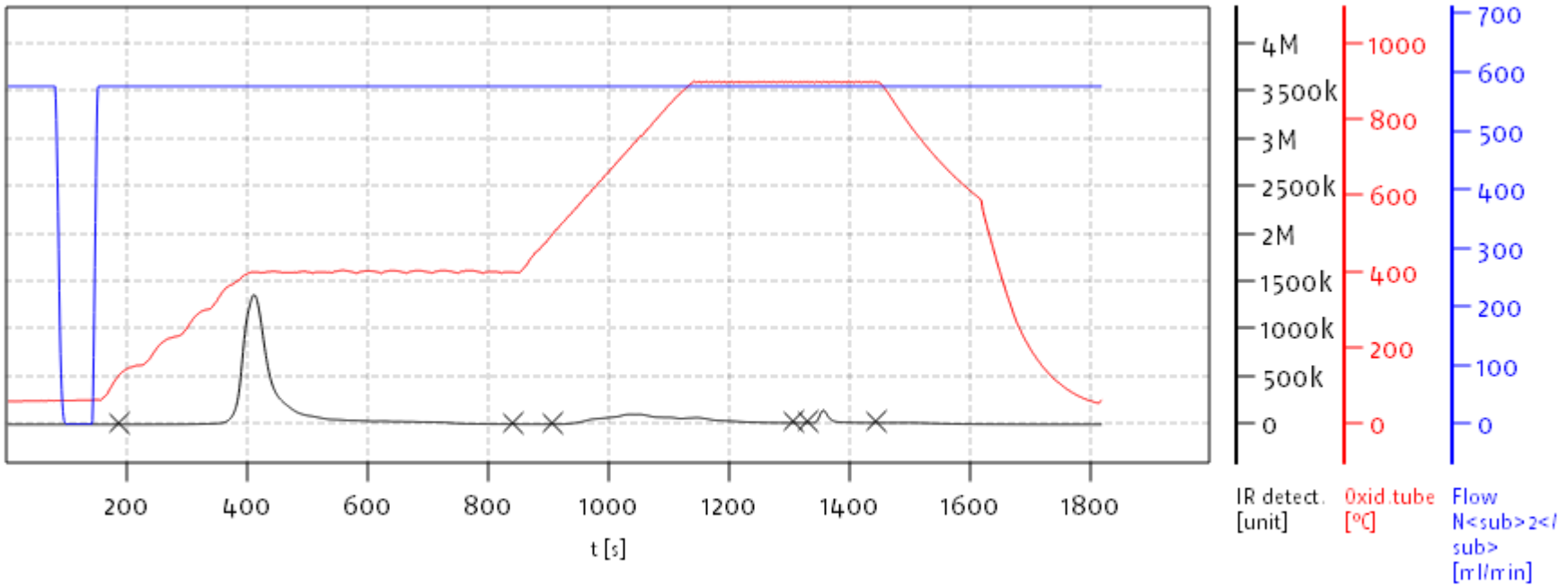
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
31	31	21F0415-15	528.40		1.00	CARBON	7/3/2021 7:52 AM	0.957	0.226	1.183	bl	2 891 194	751 116	158 613	1.0547	1.0000



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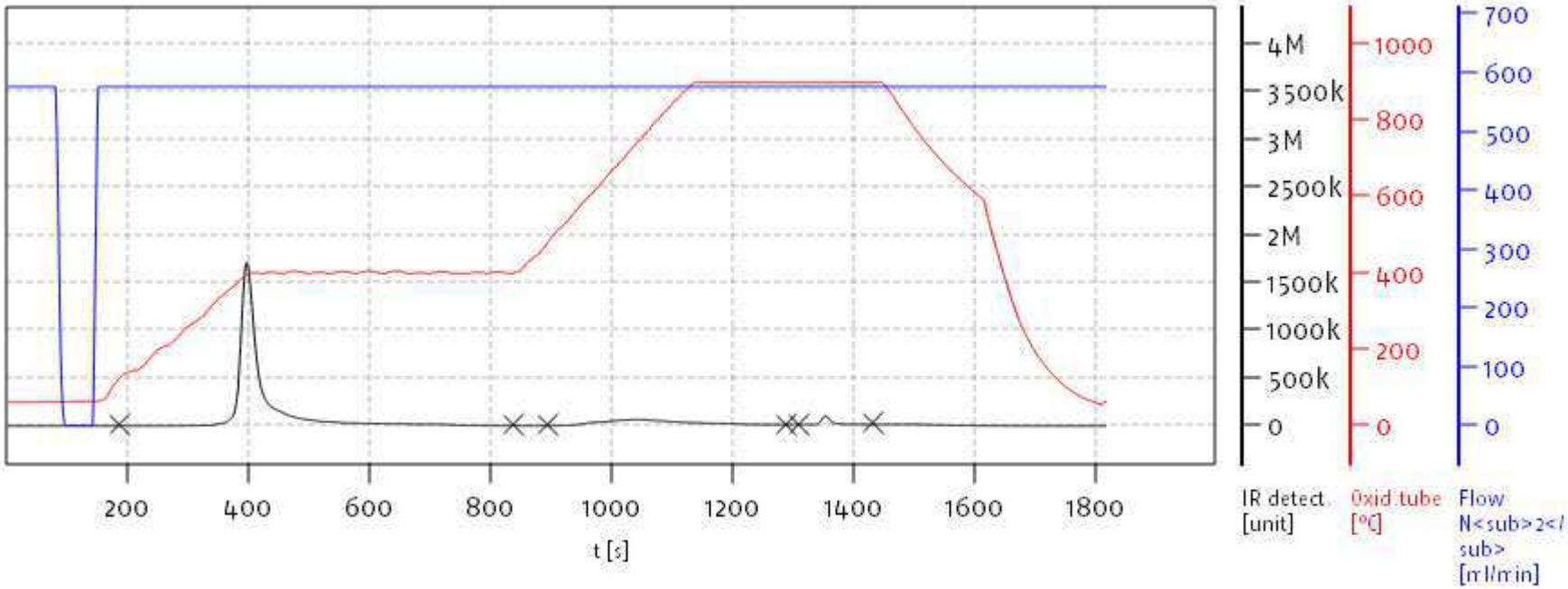
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
32	32	21F0415-16	410.20		1.00	CARBON	7/3/2021 8:23 AM	1.010	0.184	1.194	bl	2 369 490	468 963	122 780	1.0547	1.0000



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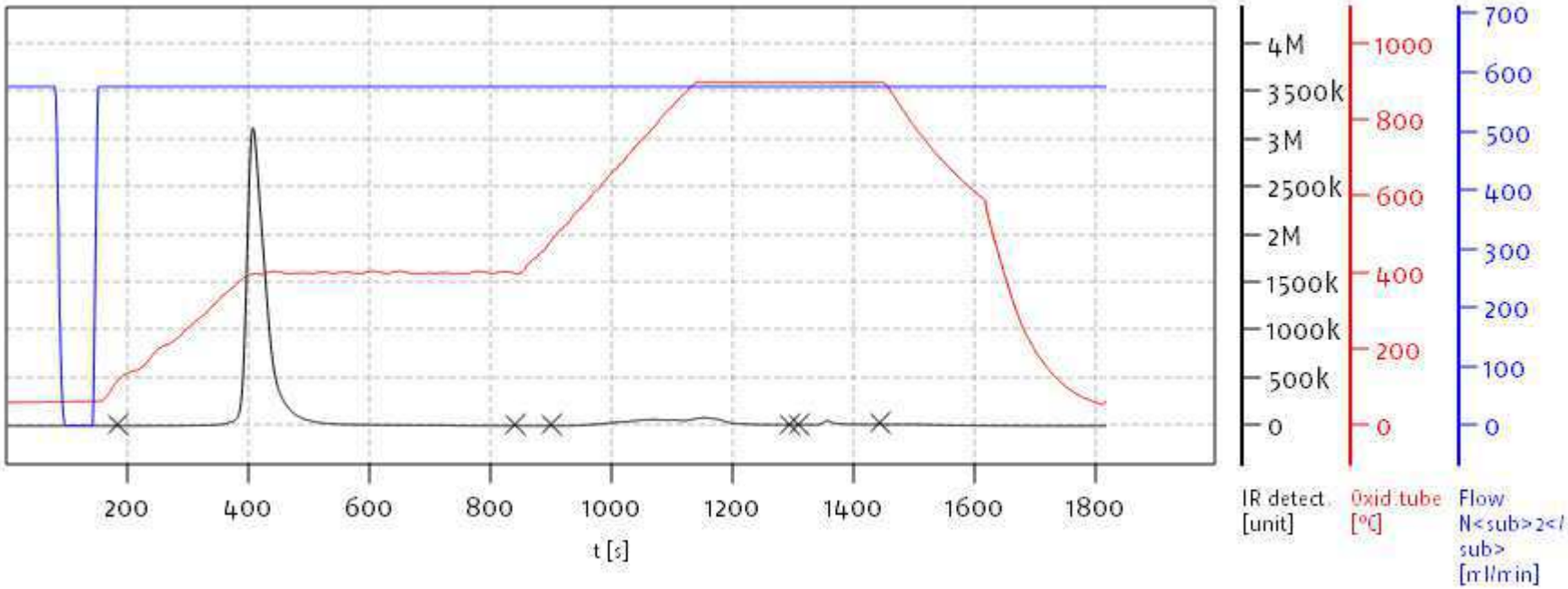
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
33	33	21F0415-18	620.50		1.00	CARBON	7/3/2021 8:53 AM	1.183	0.139	1.322	bl	4 334 176	537 380	98 999	1.0547	1.0000



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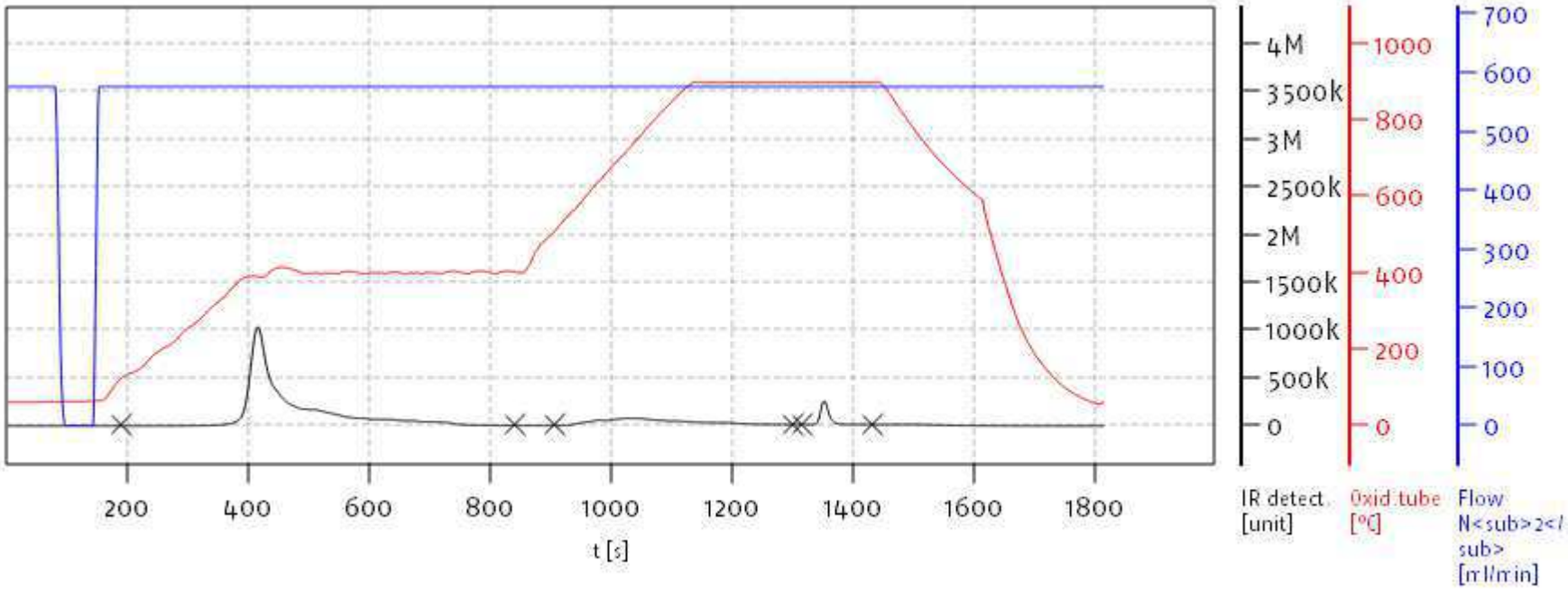
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
34	34	21F0415-19	568.00		1.00	CARBON	7/3/2021 9:24 AM	0.808	0.165	0.972	bl	2 564 132	583 308	202 978	1.0547	1.0000



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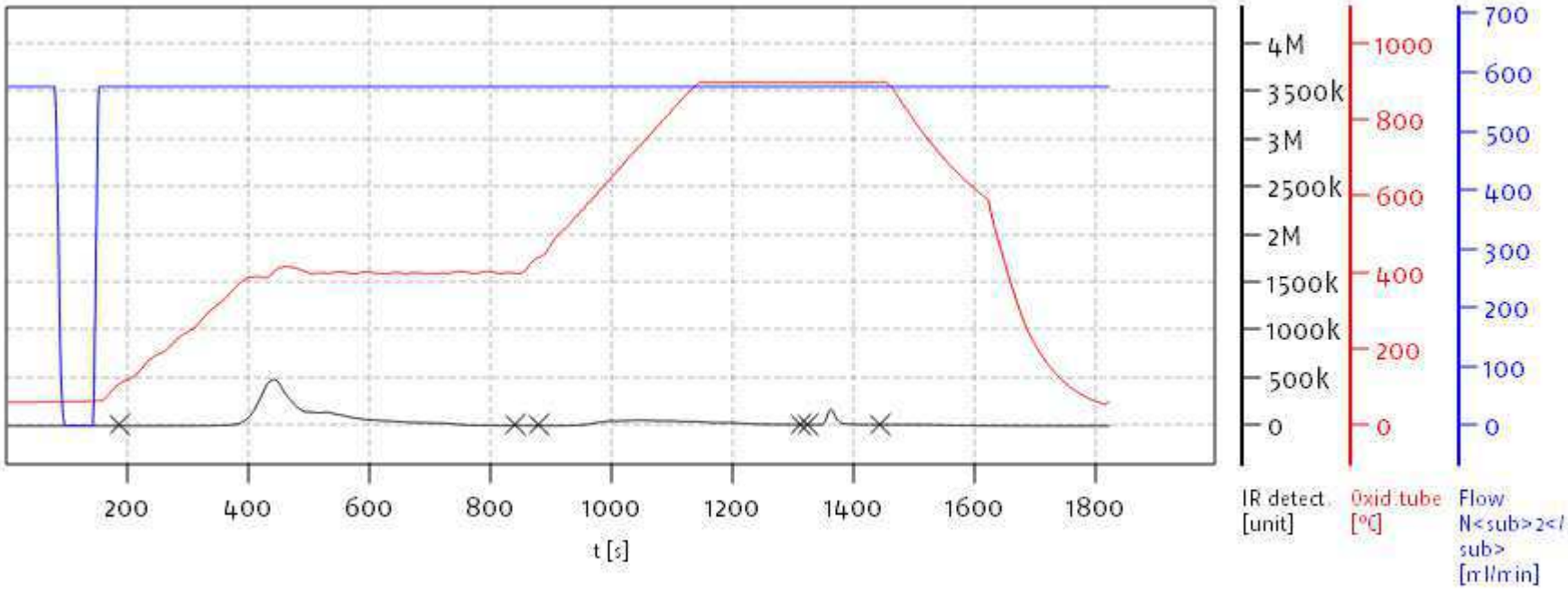
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
35	35	21F0415-20	638.10		1.00	CARBON	7/3/2021 9:55 AM	0.508	0.126	0.634	bl	1 789 229	500 834	155 917	1.0547	1.0000



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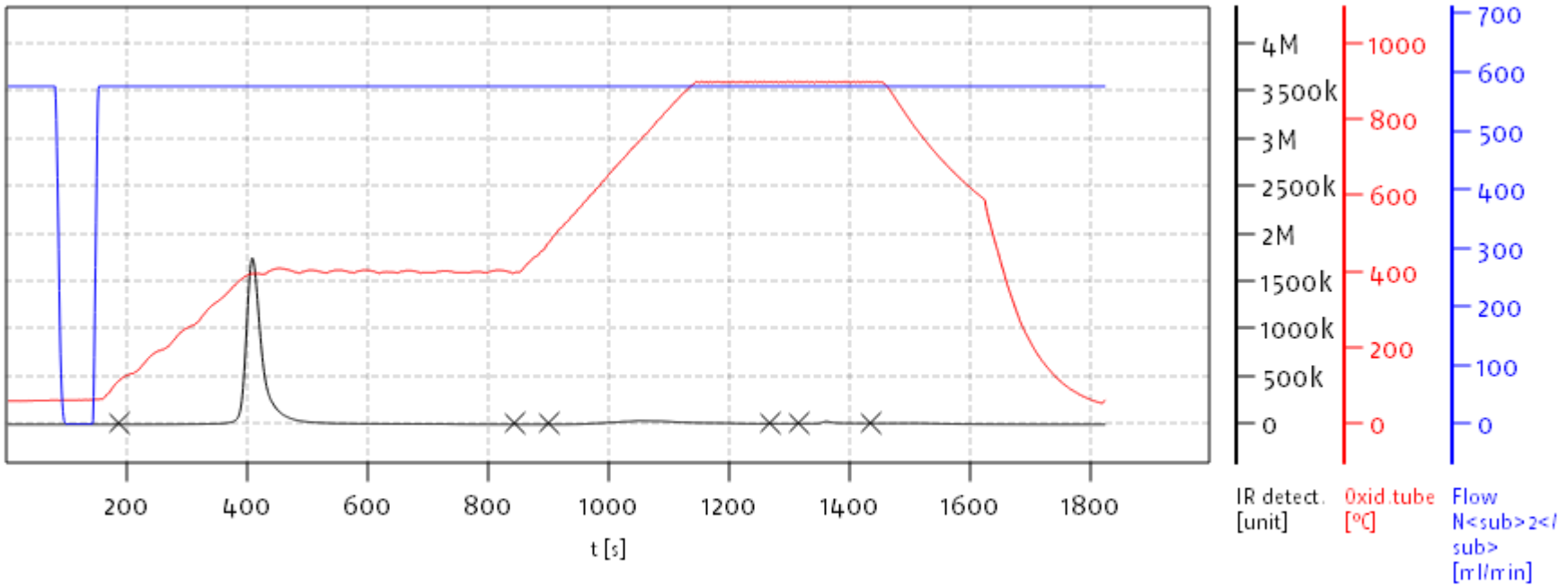
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
36	36	21F0415-21	285.80		1.00	CARBON	7/3/2021 10:25 AM	1.258	0.135	1.393	bl	2 095 799	231 031	61 642	1.0547	1.0000



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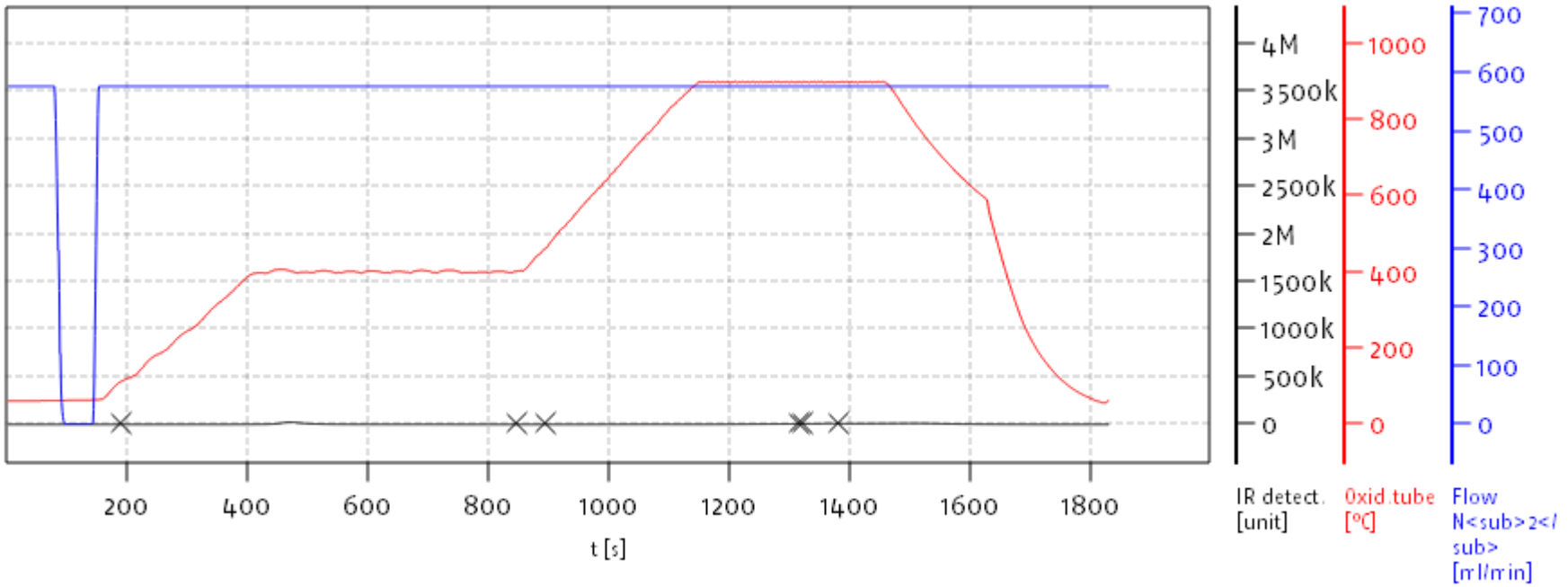
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
37	37	BJG0080-MRL1	527.50		1.00	CARBON	7/3/2021 10:56 AM	0.032	0.013	0.045	bl	53 614	26 786	18 550	1.0547	1.0000



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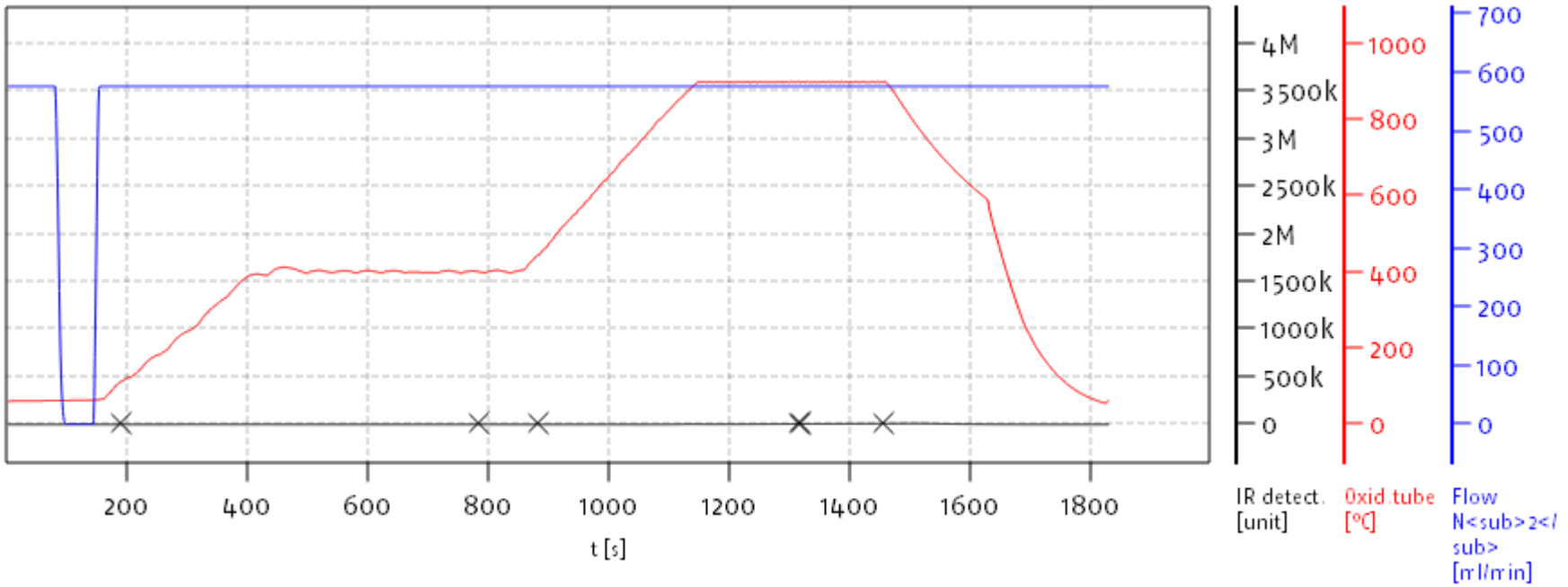
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
38	38	BJG0080-BLK1	513.30		1.00	CARBON	7/3/2021 11:27 AM	0.023	0.012	0.036	bl	6 883	24 431	37 231	1.0547	1.0000



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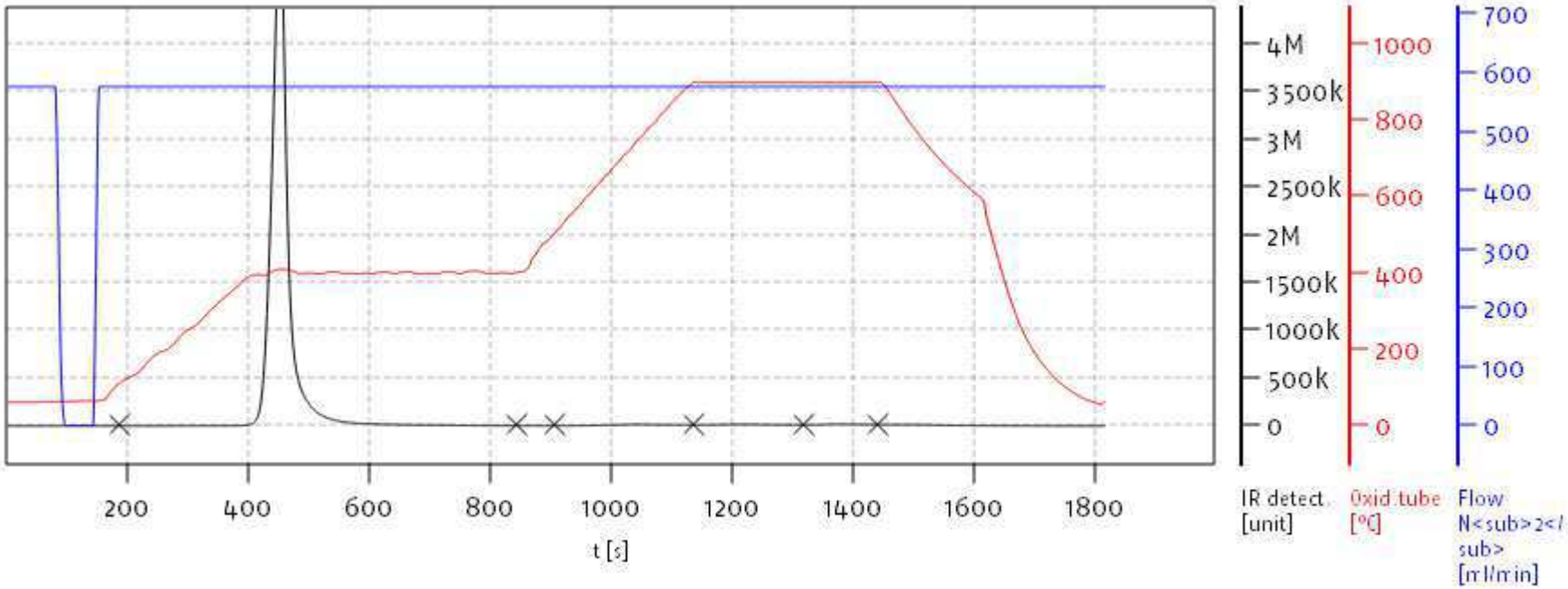
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
39	39	BJG0080-BS1	22.80		1.00	CARBON	7/3/2021 11:58 AM	44.656	0.617	45.273	bl	6 093 826	74 166	65 515	1.0547	1.0000



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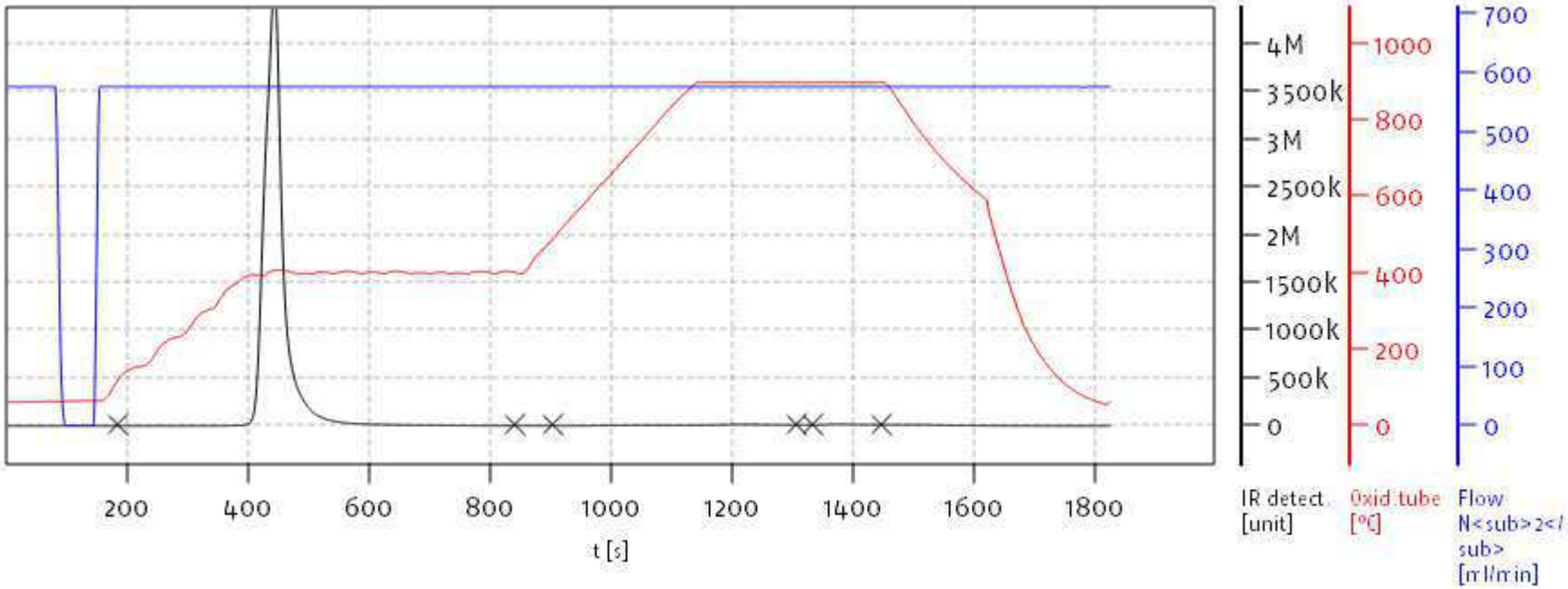
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
40	40	SJG0 032-CCV3	22.60		1.00	CARBON	7/3/2021 12:29 PM	44.749	0.927	45.677	bl	6 060 953	118 366	56 432	1.0547	1.0000



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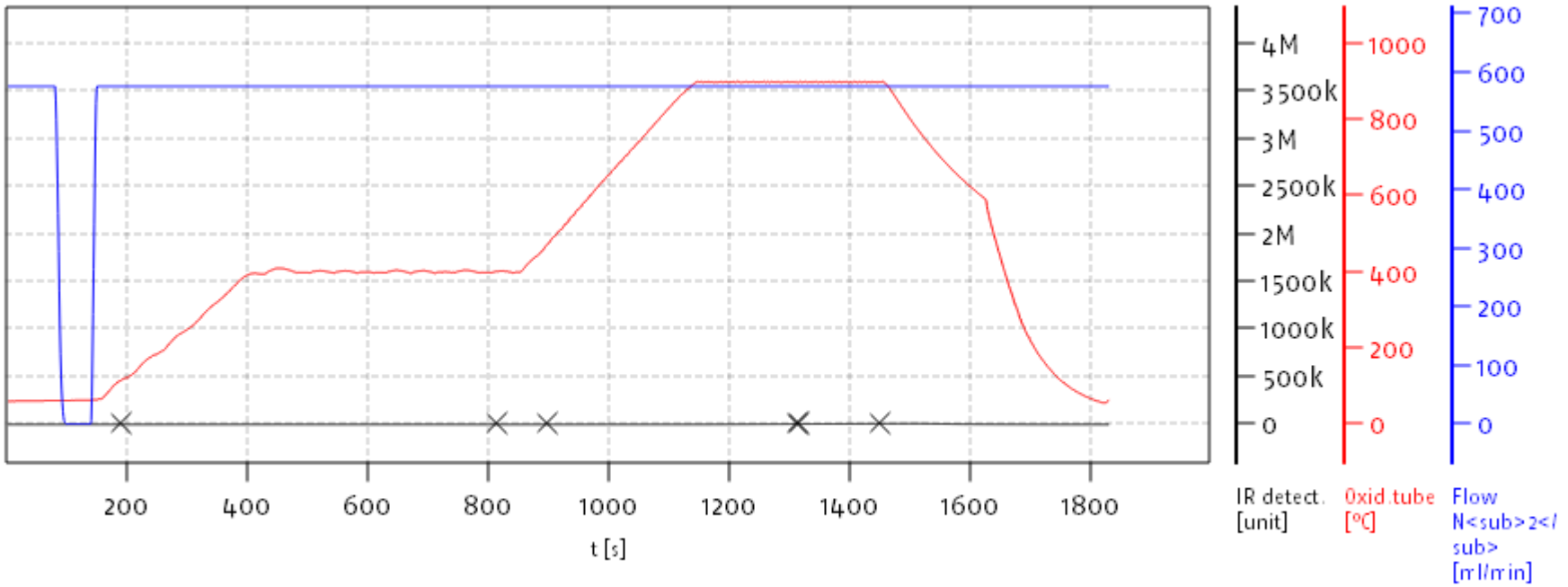
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
41	41	SJG0032-CCB3	550.50		1.00	CARBON	7/3/2021 1:00 PM	0.019	0.008	0.027	bl,C1u	2 962	13 586	30 309	1.0547	1.0000



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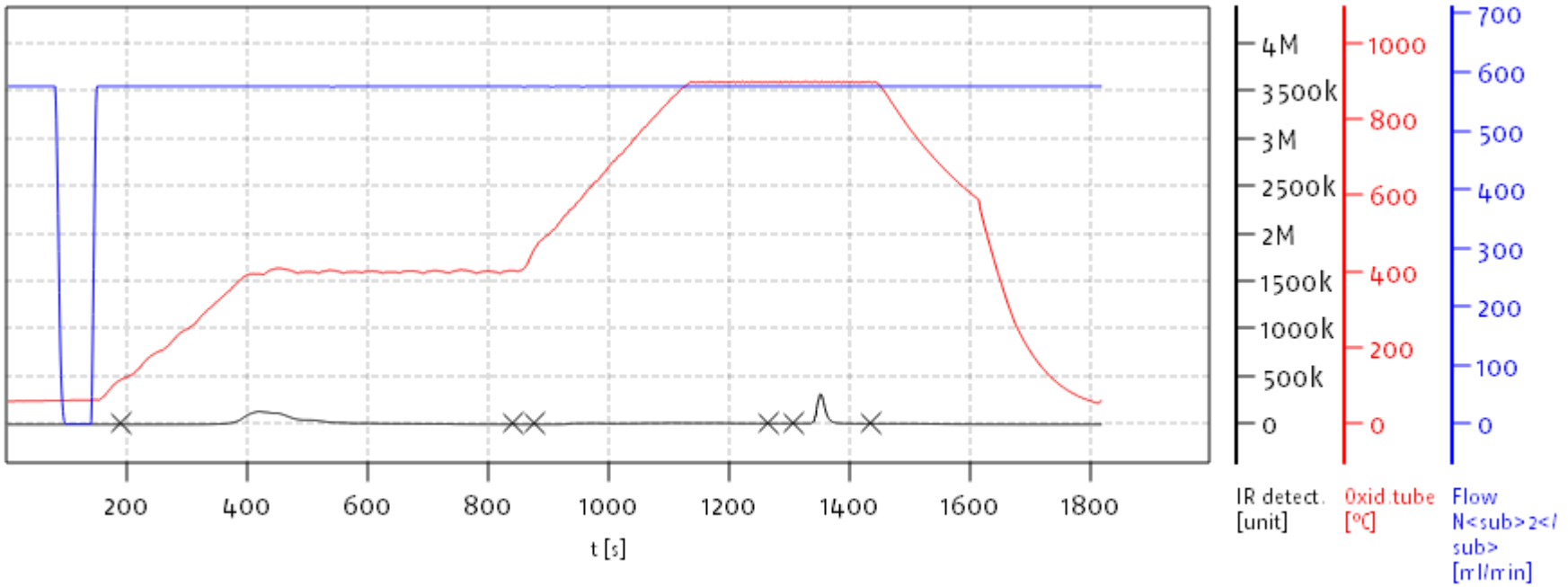
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
42	42	BJG0080-SRM1	48.00		1.00	CARBON	7/3/2021 1:30 PM	2.757	0.536	3.292	bl	560 958	148 794	223 573	1.0547	1.0000



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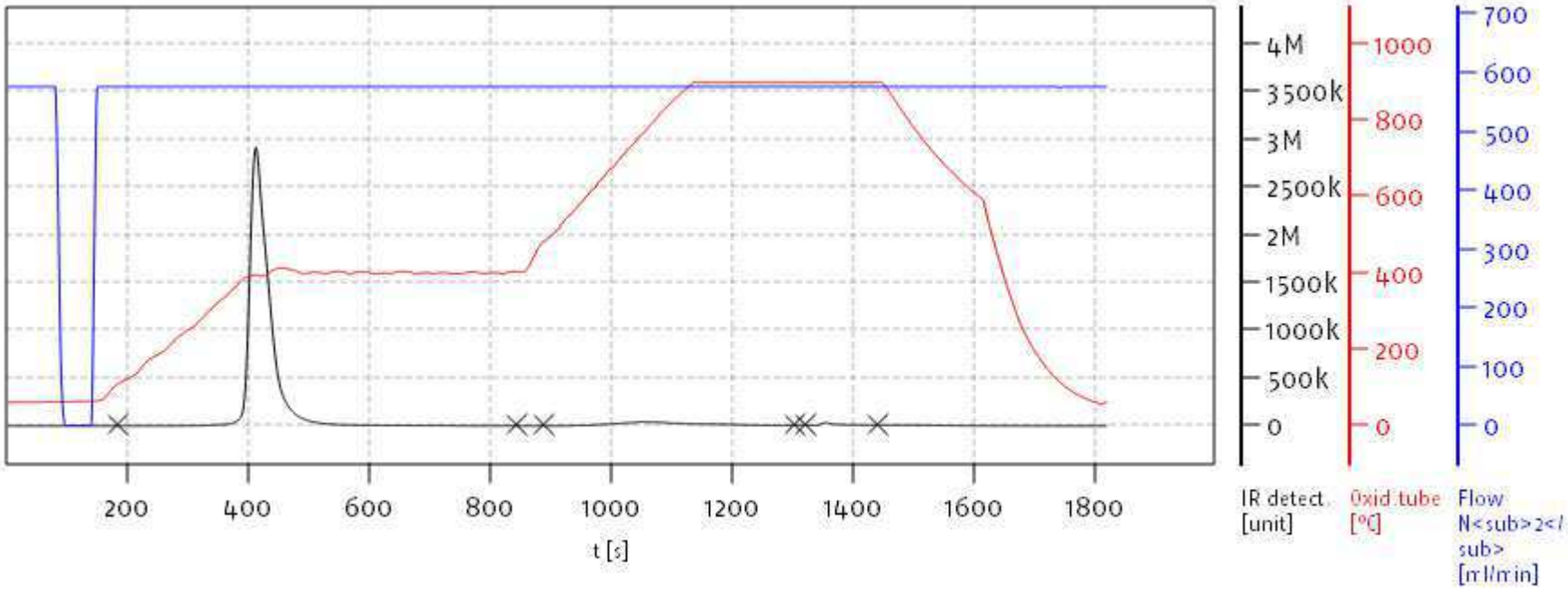
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
43	43	21F0415-17	532.10		1.00	CARBON	7/3/2021 2:01 PM	1.274	0.080	1.354	bl	4 034 654	256 675	55 607	1.0547	1.0000



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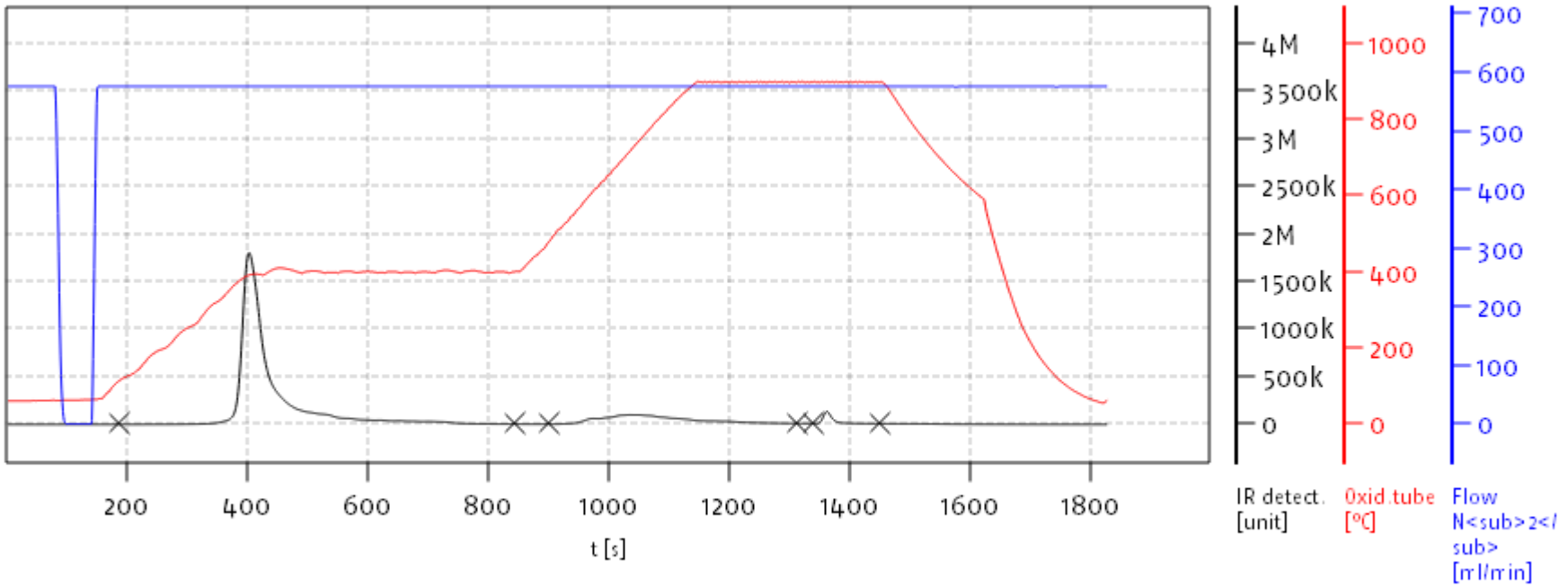
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
44	44	BJG0080-DUP1	518.40		1.00	CARBON	7/3/2021 2:32 PM	1.140	0.214	1.354	bl	3 448 856	693 527	118 190	1.0547	1.0000



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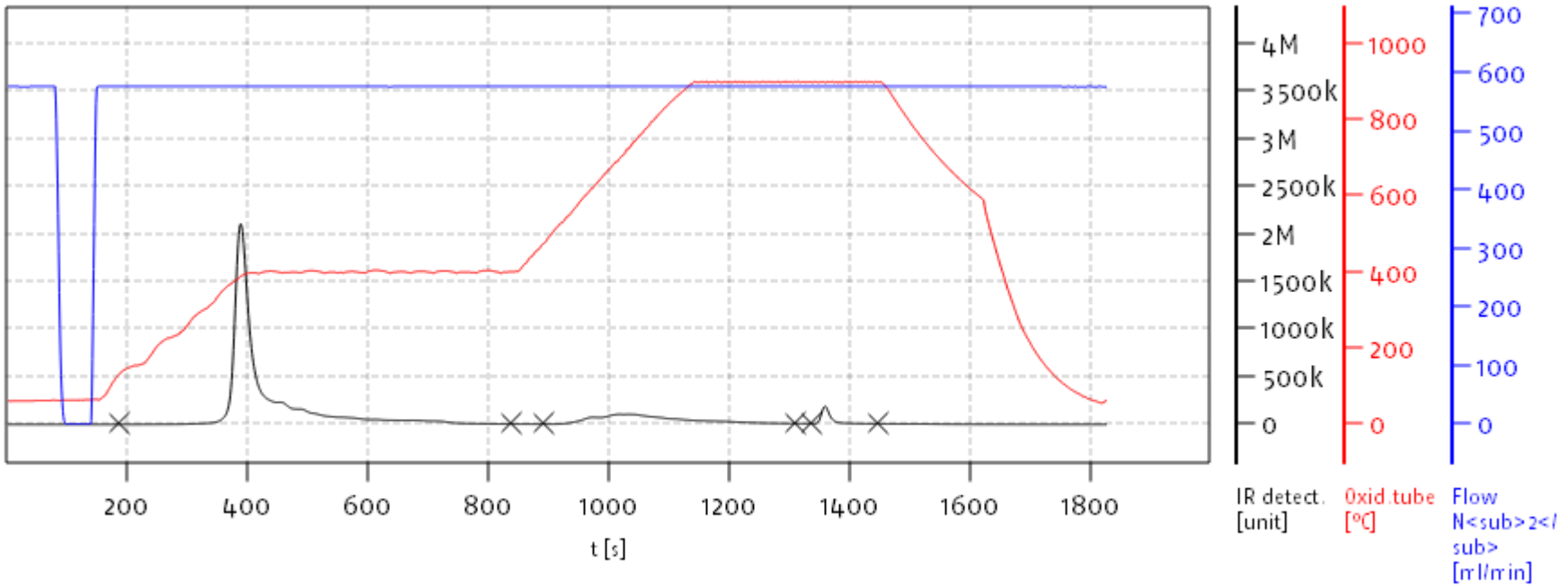
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
45	45	BJG0080-DUP2	509.60		1.00	CARBON	7/3/2021 3:03 PM	1.156	0.225	1.381	bl	3 409 561	718 056	147 568	1.0547	1.0000



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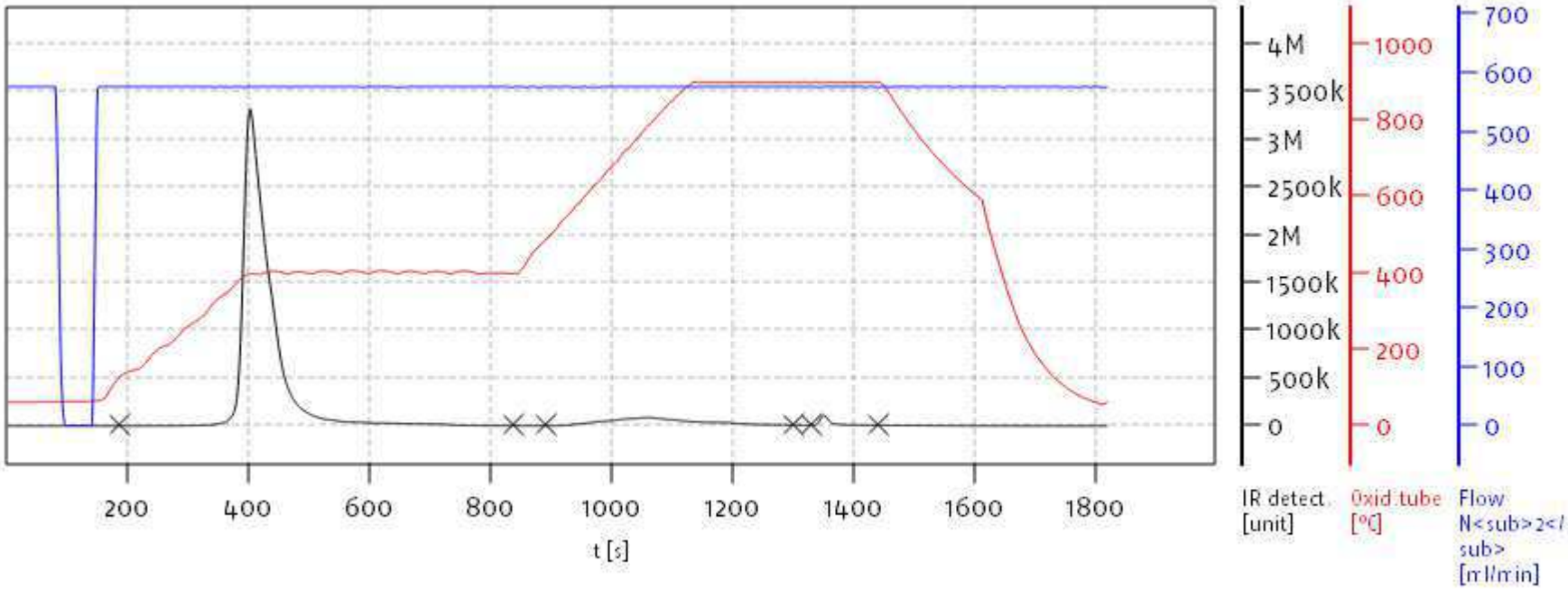
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
46	46	BJG0080-MS1	514.20	0.0092	1.00	CARBON	7/3/2021 3:33 PM	2.018	0.183	2.201	bl	6 181 065	587 773	98 164	1.0547	1.0000



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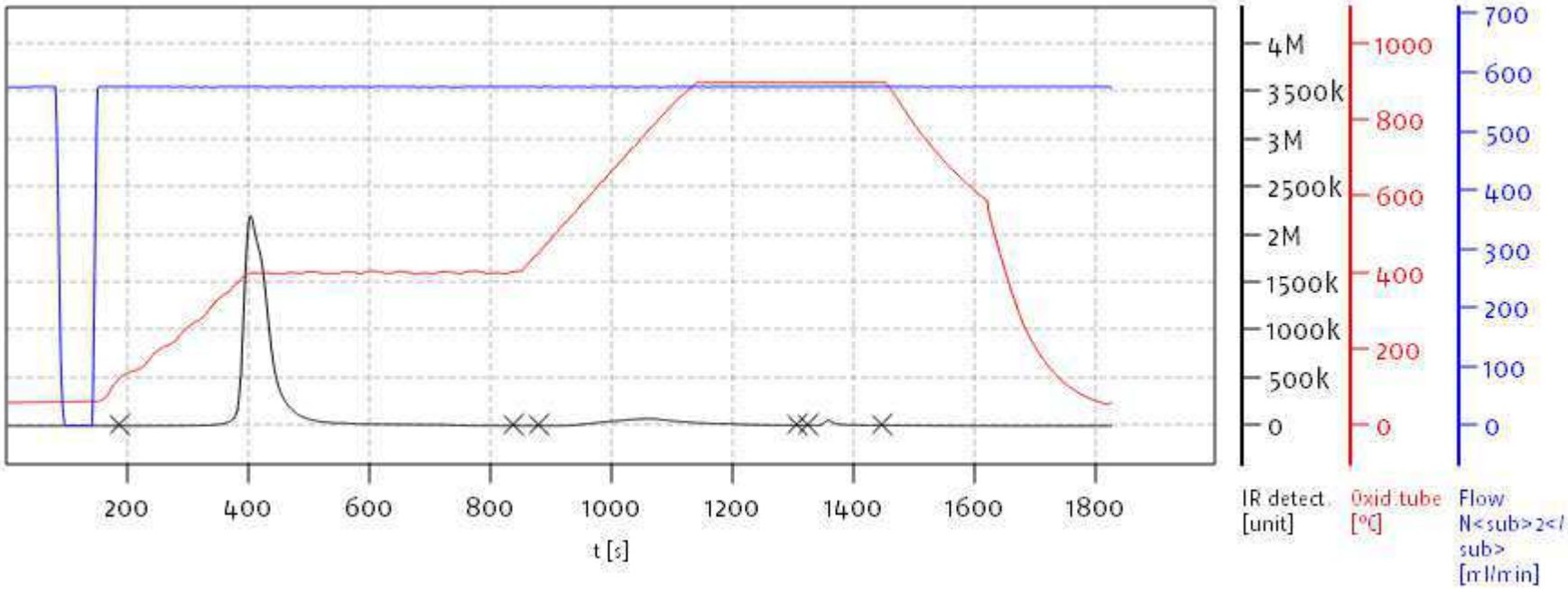
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
47	47	21F0415-22	521.40		1.00	CARBON	7/3/2021 4:04 PM	1.296	0.145	1.440	bl	4 013 561	467 121	63 585	1.0547	1.0000



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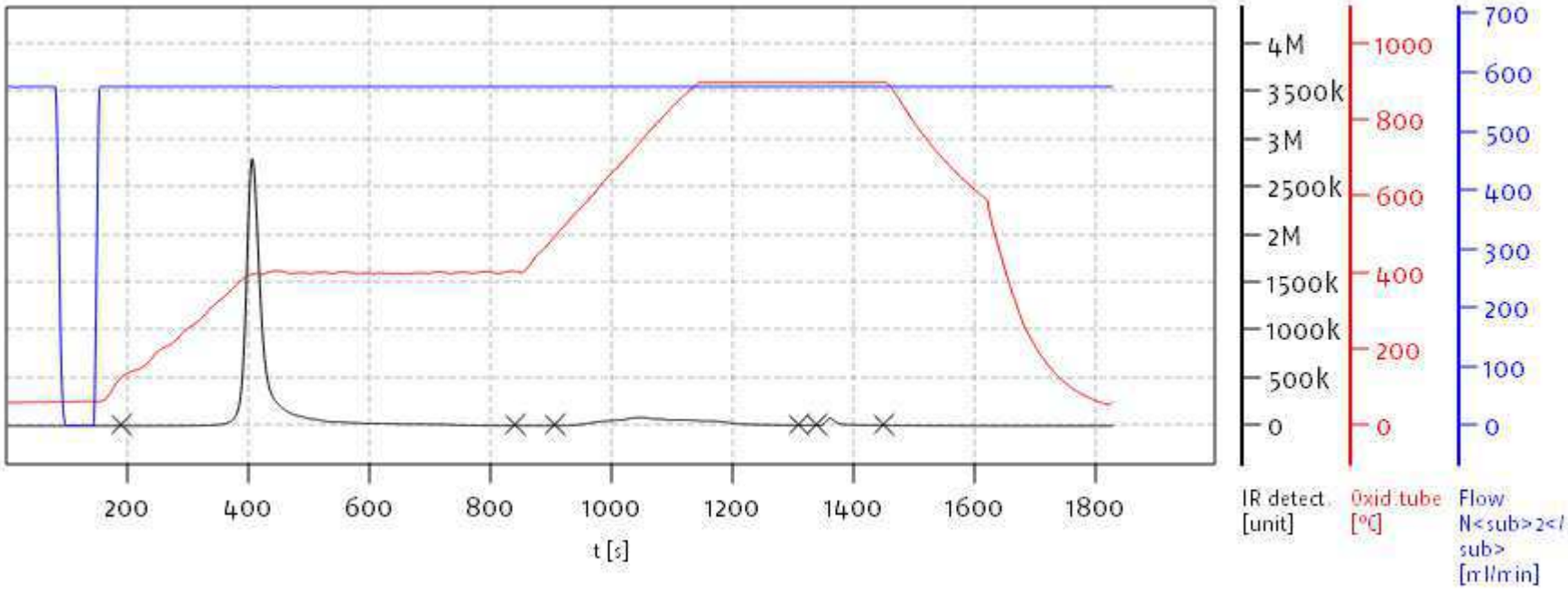
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
48	48	21F0415-23	520.30		1.00	CARBON	7/3/2021 4:35 PM	1.121	0.184	1.305	bl	3 439 656	598 220	76 896	1.0547	1.0000



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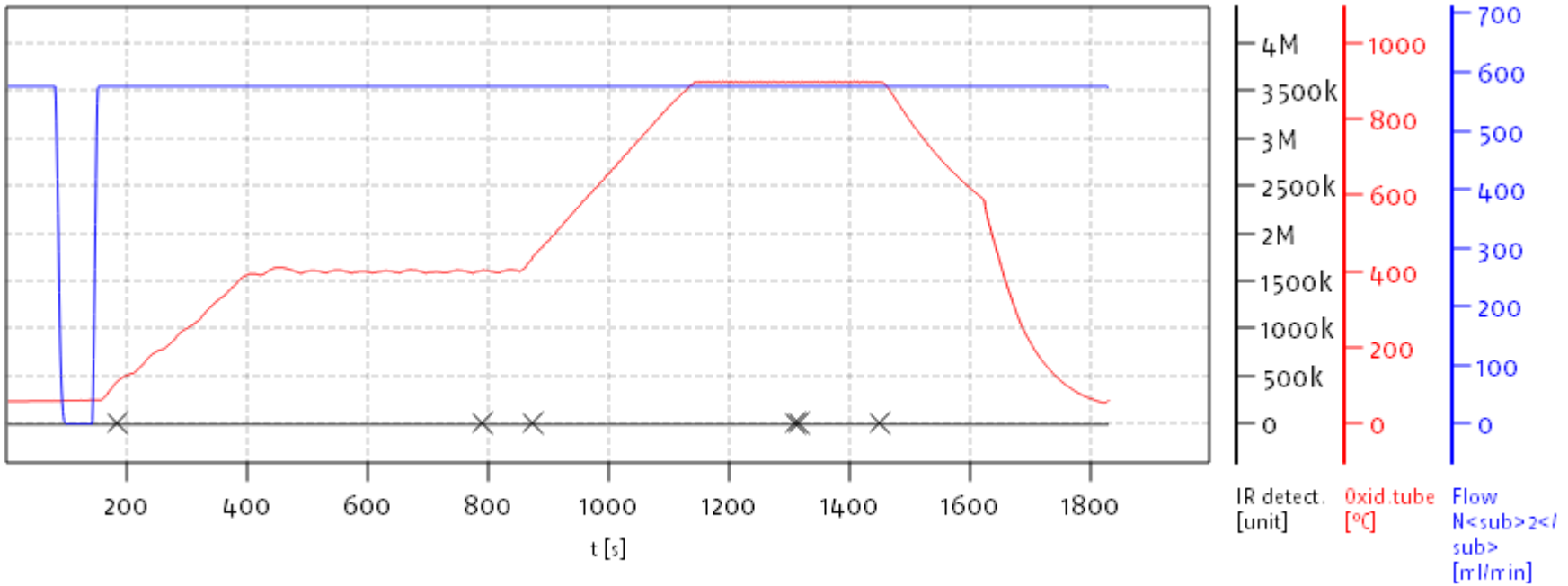
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
49	49	BLANK	1.00		1.00	CARBON	7/3/2021 5:06 PM	0.000	0.000	0.000	bl	3 858	4 933	7 191	1.0547	1.0000



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soliTOC V2.0.2 (31015f9) 2018-11-19
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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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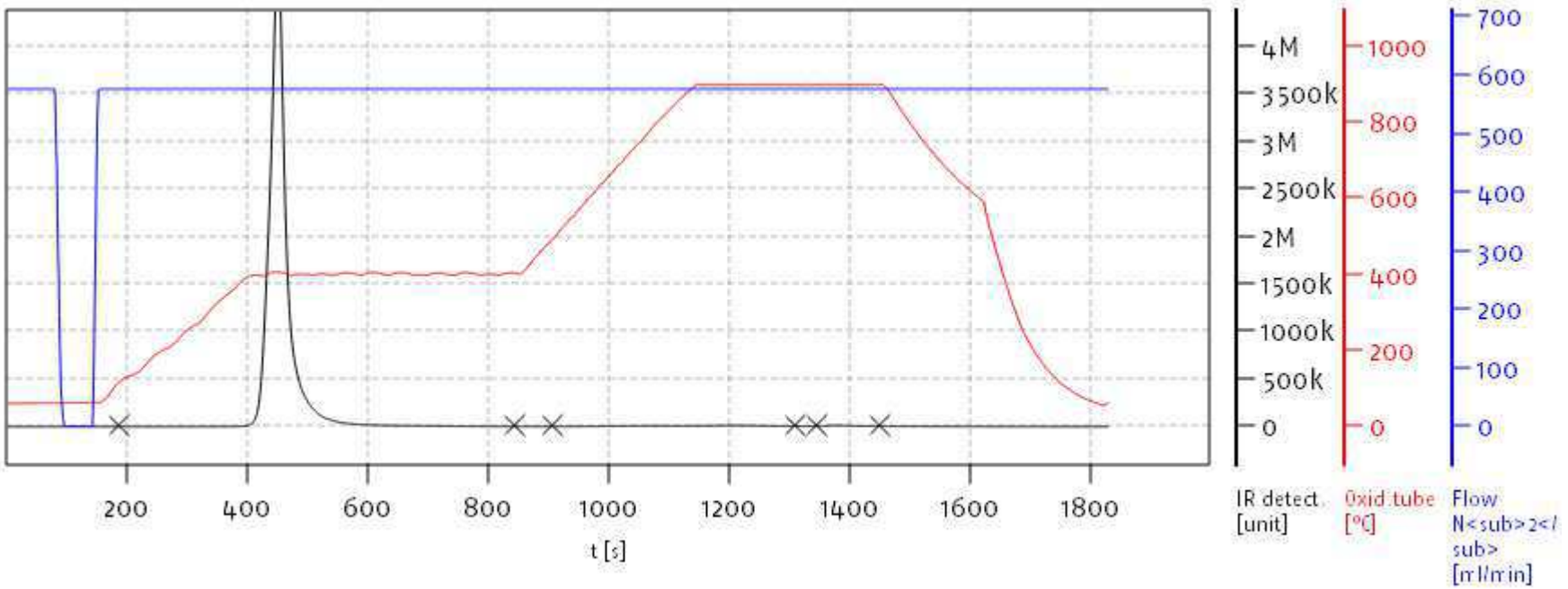
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
50	50	Dfactor	22.10		1.00	CARBON	7/3/2021 5:37 PM	44.772	0.851	45.622	bl	5 970 969	104 517	30 233	1.0516	1.0000



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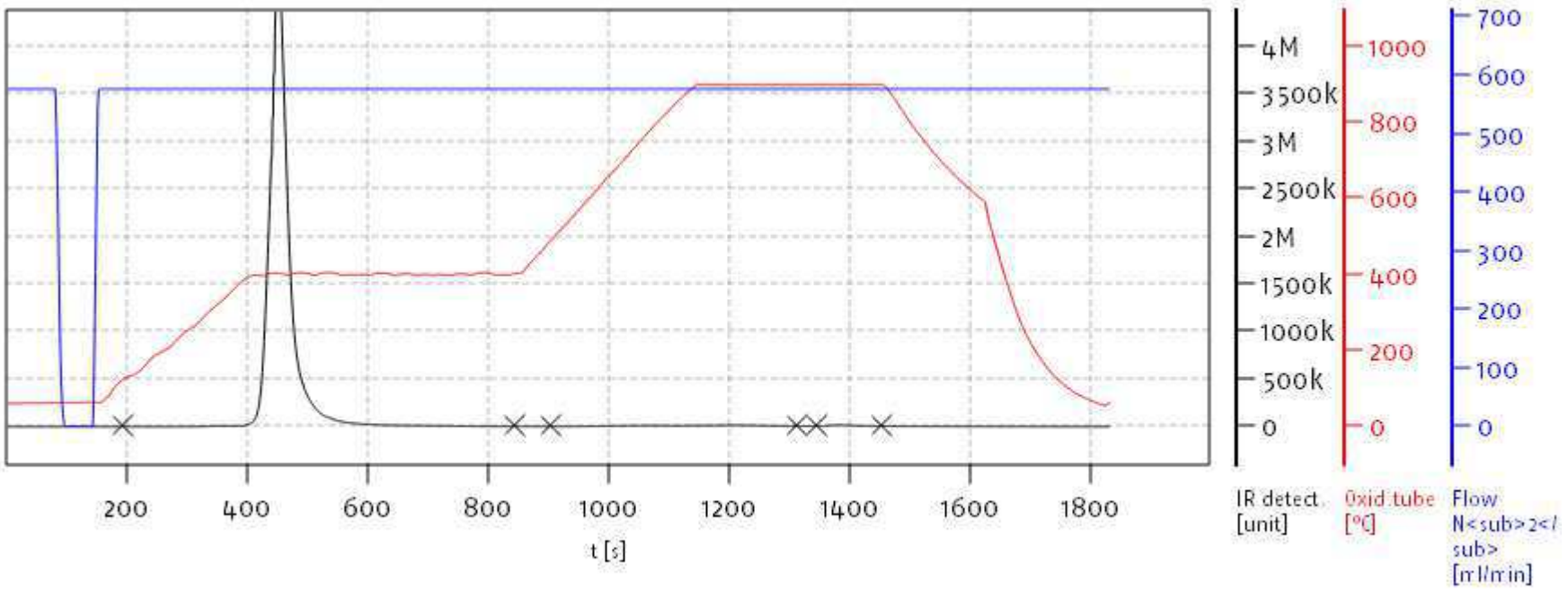
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
51	51	Dfactor	24.20		1.00	CARBON	7/3/2021 6:08 PM	44.799	0.959	45.757	bl	6 515 860	132 734	38 792	1.0554	1.0000



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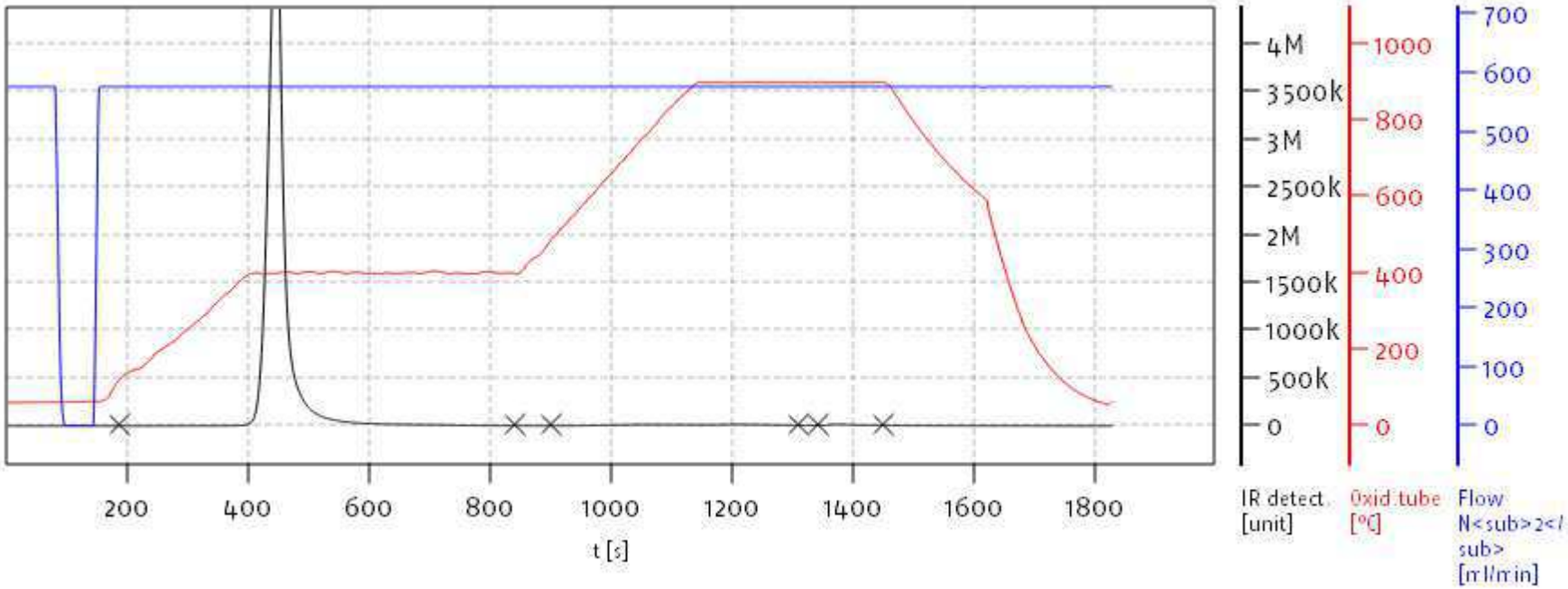
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
52	52	SJG0 032-CCV4	23.70		1.00	CARBON	7/3/2021 6:39 PM	44.761	1.060	45.821	bl	6 388 238	145 114	36 527	1.0535	1.0000



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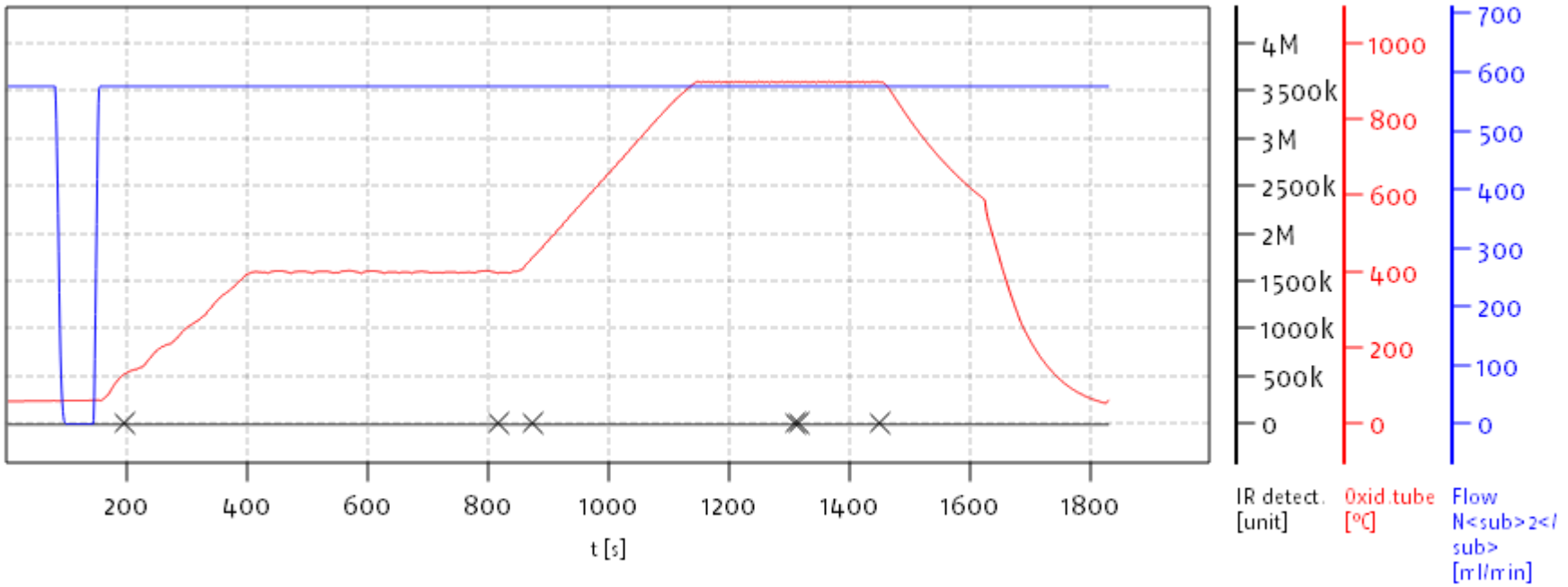
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
53	53	SJG0032-CCB4	559.60		1.00	CARBON	7/3/2021 7:09 PM	0.011	0.005	0.015	bl,C1u,C3u,C2u	2 701	1 054	2 310	1.0535	1.0000



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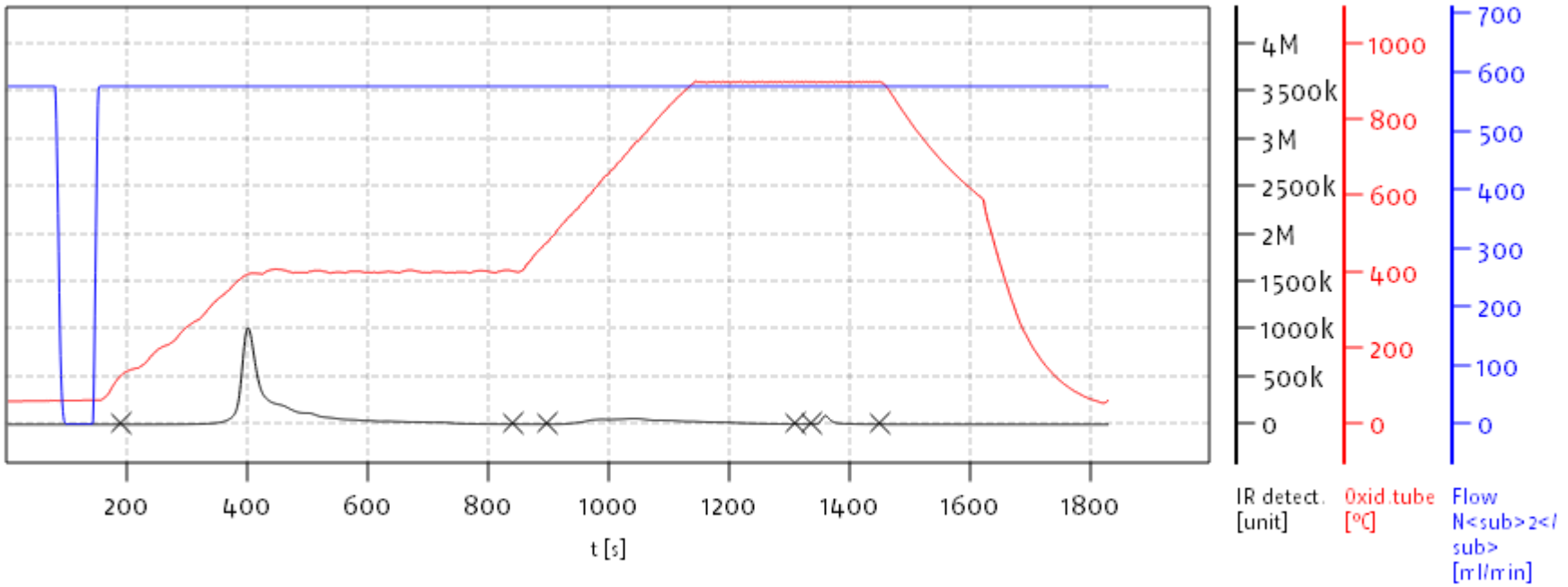
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
54	54	21F0415-24	335.90		1.00	CARBON	7/3/2021 7:40 PM	1.049	0.208	1.257	bl	2 044 622	431 652	71 022	1.0535	1.0000



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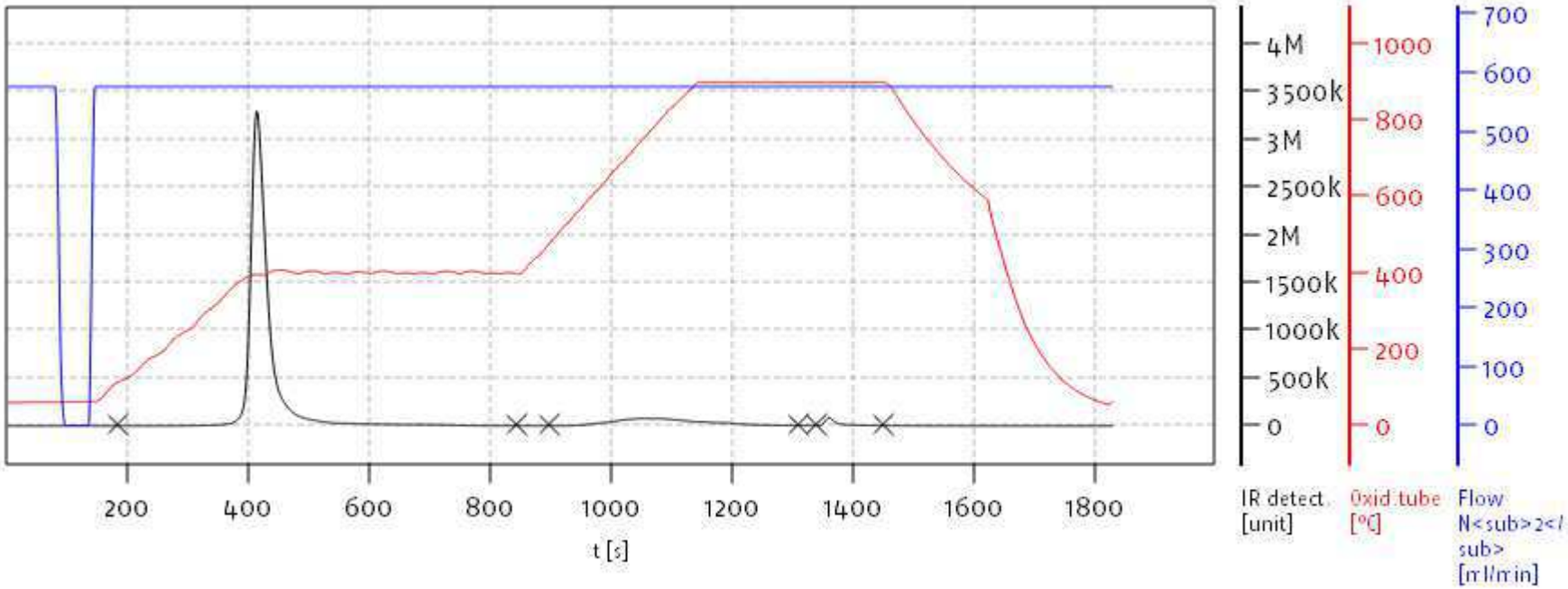
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
55	55	21F0415-25	620.50		1.00	CARBON	7/3/2021 8:11 PM	1.115	0.133	1.248	bl	4 102 962	514 822	77 959	1.0535	1.0000



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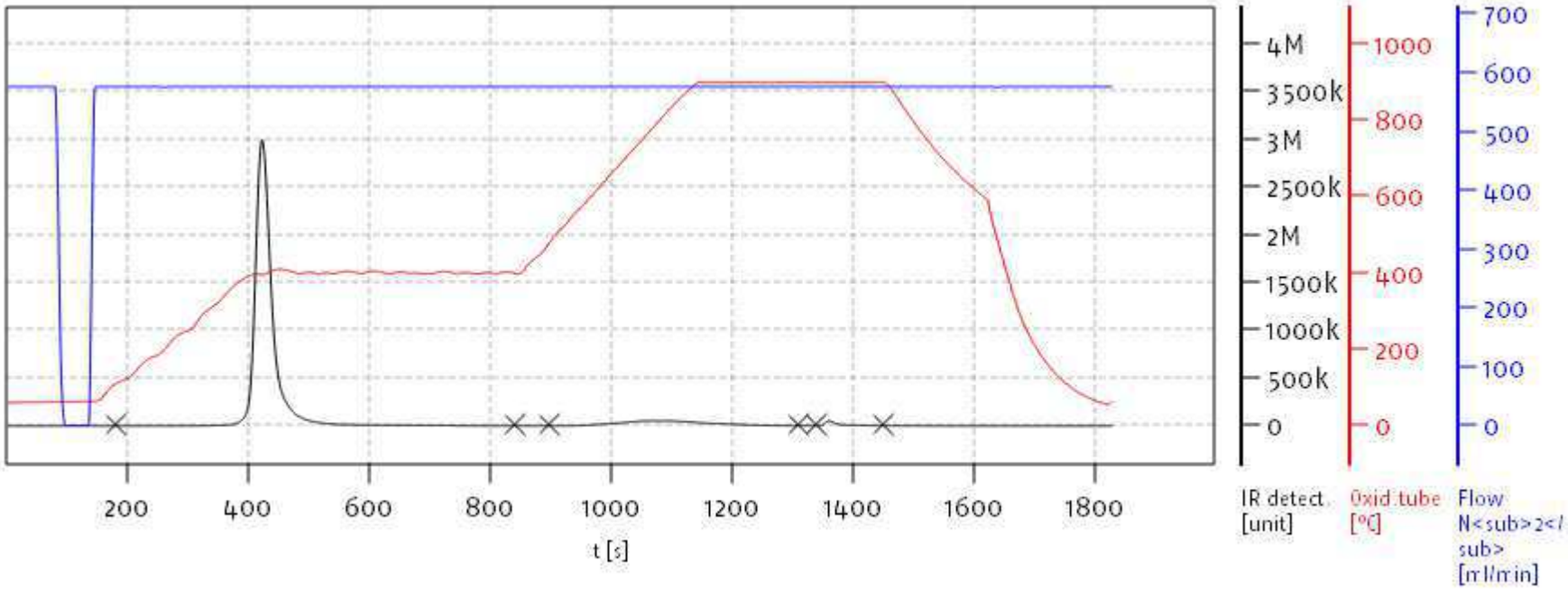
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
56	56	21F0415-26	566.00		1.00	CARBON	7/3/2021 8:42 PM	1.076	0.100	1.176	bl	3 627 198	346 162	51 075	1.0535	1.0000



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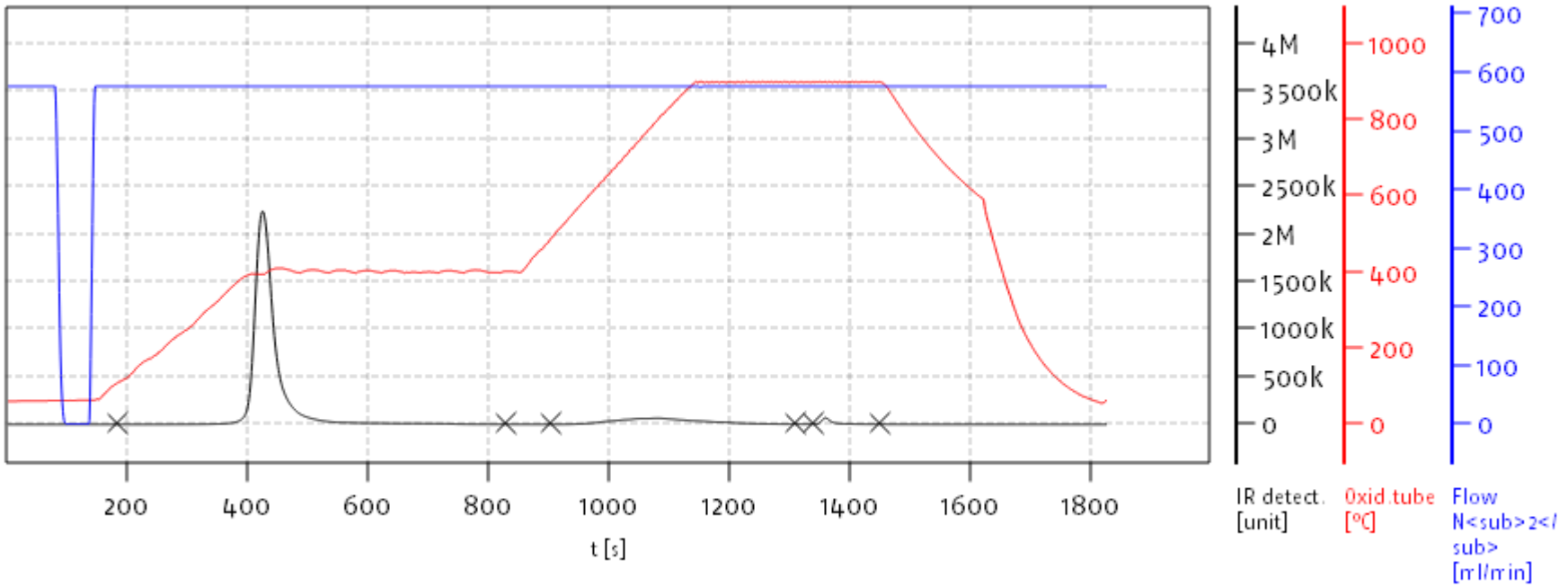
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
57	57	21F0415-27	530.40		1.00	CARBON	7/3/2021 9:13 PM	1.026	0.125	1.151	bl	3 227 331	409 554	55 367	1.0535	1.0000



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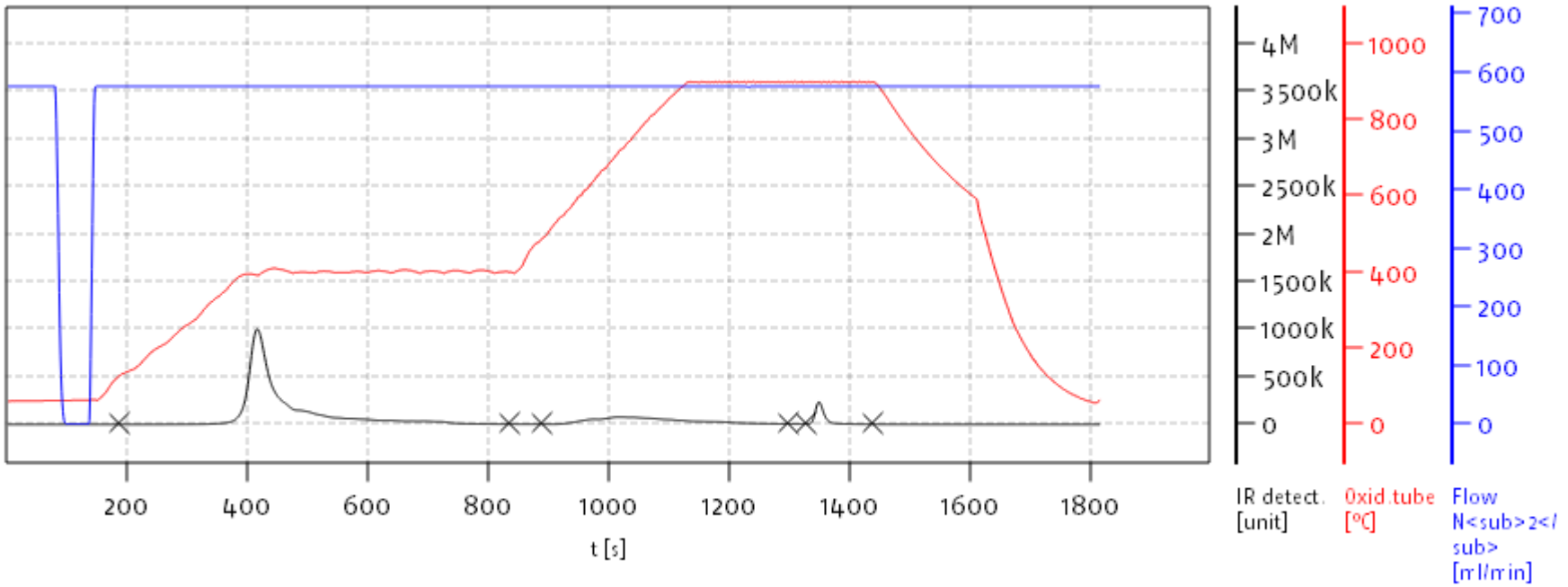
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
58	58	21F0415-28	508.90		1.00	CARBON	7/3/2021 9:44 PM	0.781	0.169	0.950	bl	2 237 711	536 072	157 995	1.0535	1.0000



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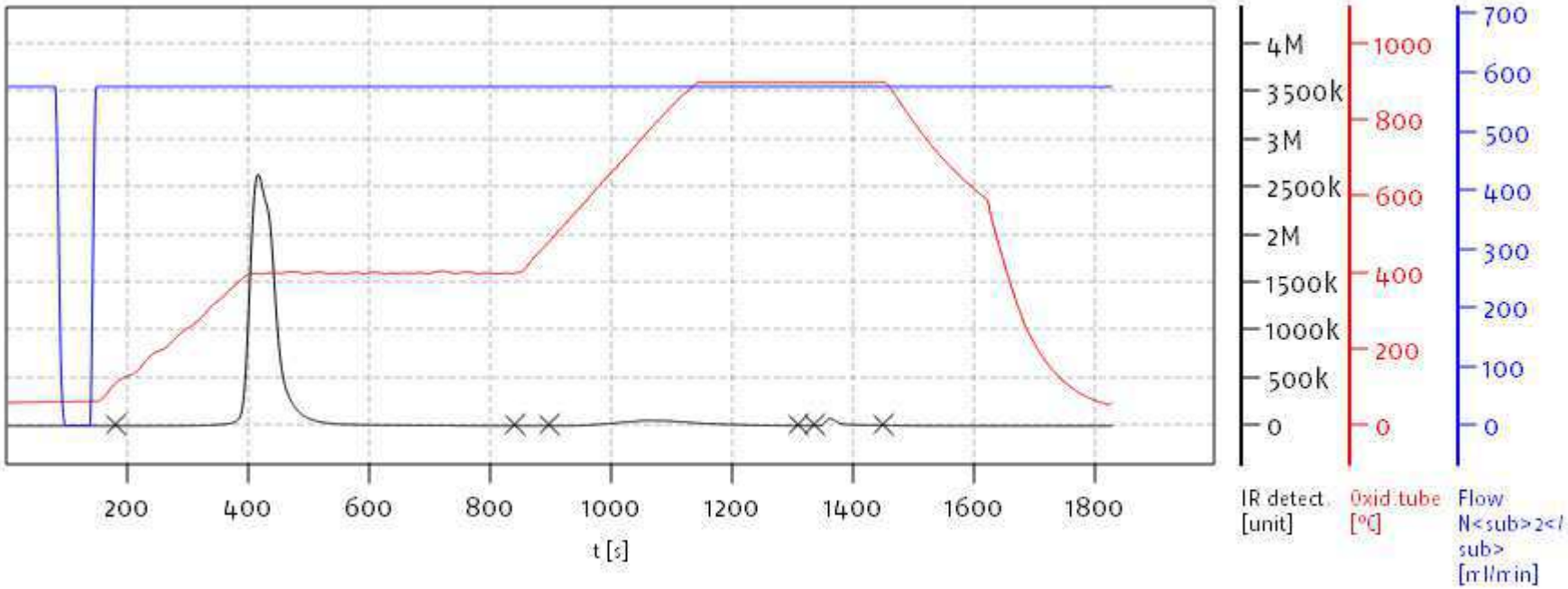
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
59	59	21F0415-29	525.70		1.00	CARBON	7/3/2021 10:14 PM	1.539	0.105	1.644	bl	4 810 437	338 154	84 405	1.0535	1.0000



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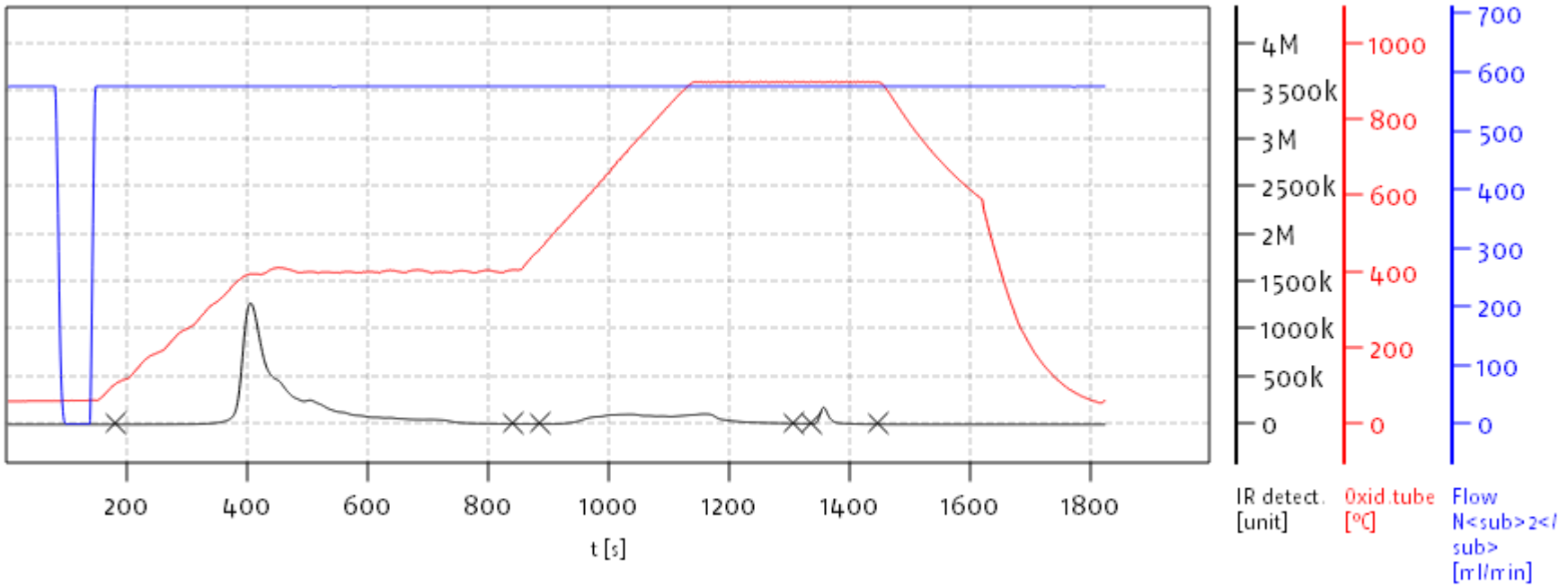
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
60	60	21F0415-30	629.50		1.00	CARBON	7/3/2021 10:45 PM	0.976	0.233	1.210	bl	3 585 834	925 286	128 634	1.0535	1.0000



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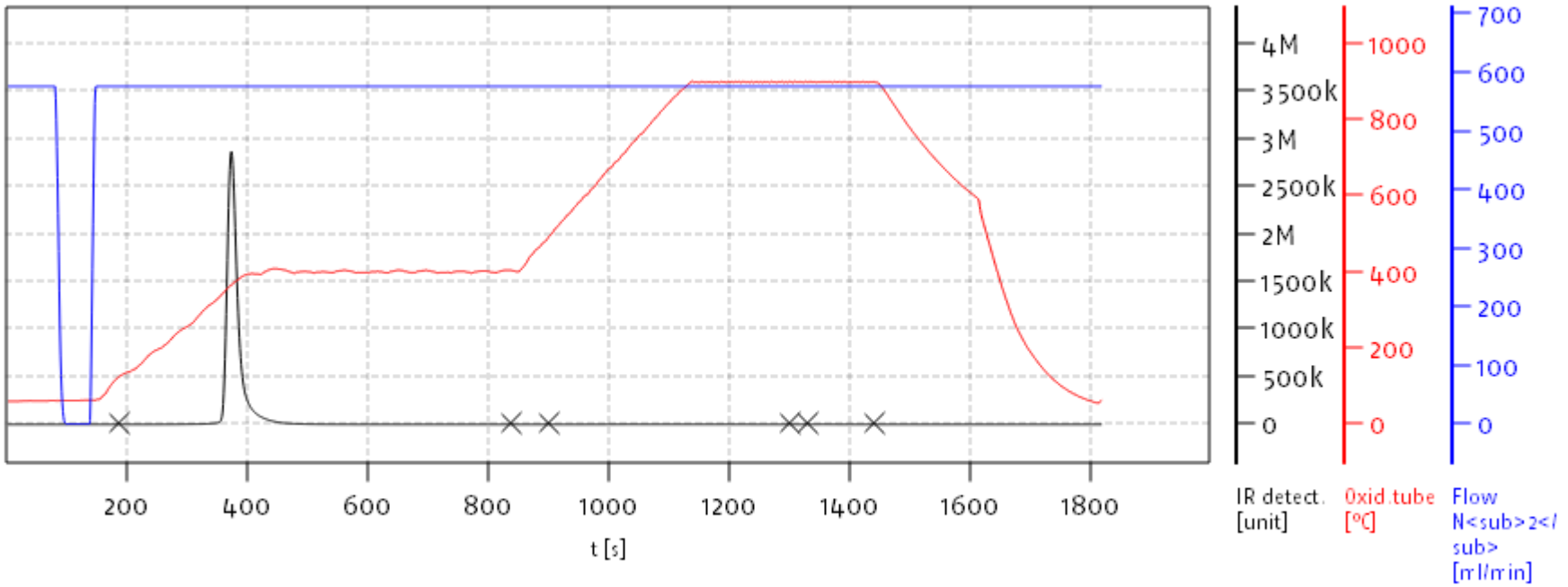
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
61	61	21F0418-01	117.70		1.00	CARBON	7/3/2021 11:16 PM	3.243	0.036	3.278	bl,C2u	2 288 753	10 930	2 337	1.0535	1.0000



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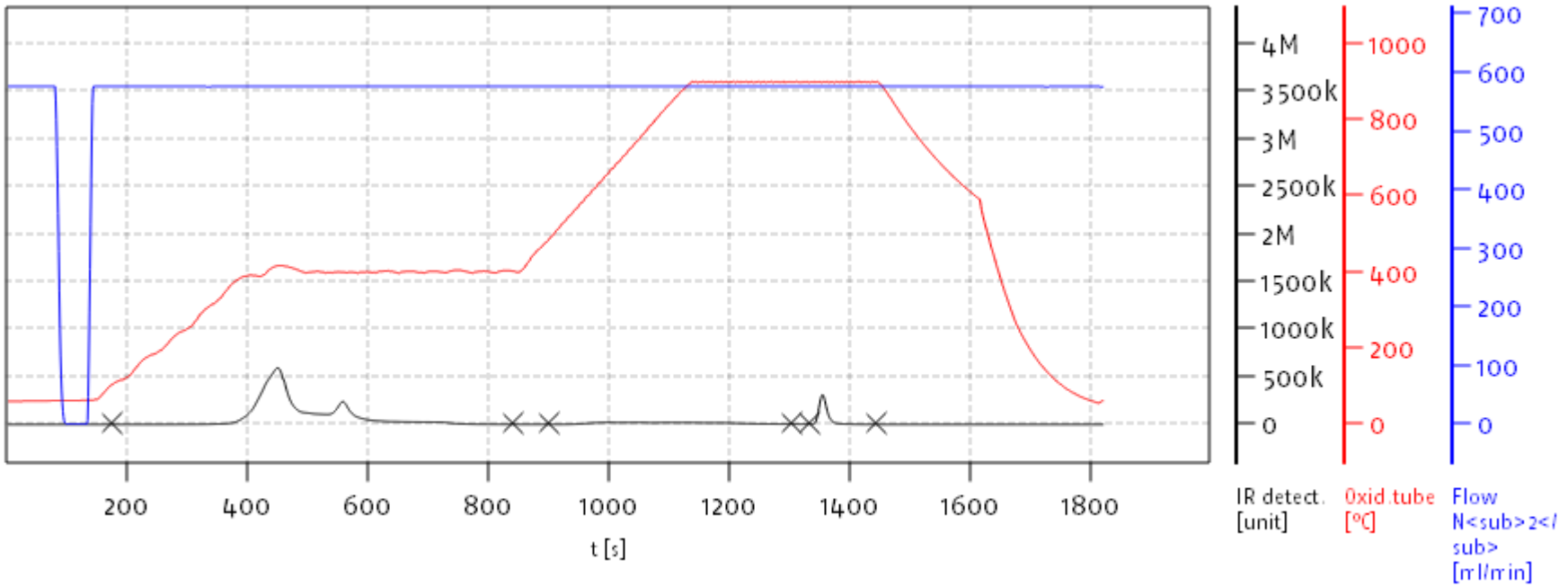
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
62	62	21F0418-02	391.50		1.00	CARBON	7/3/2021 11:47 PM	0.869	0.086	0.955	bl	1 861 009	200 170	186 089	1.0535	1.0000



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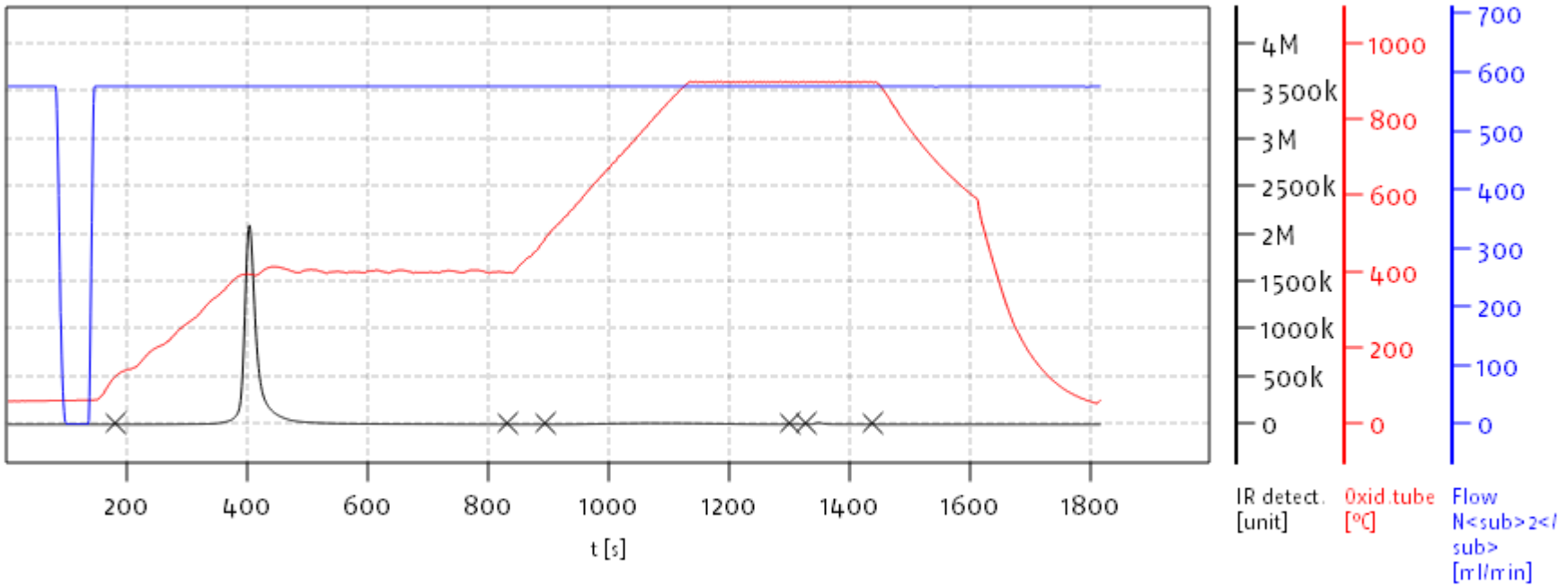
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
63	63	21F0418-03	213.30		1.00	CARBON	7/4/2021 12:17 AM	1.545	0.078	1.623	bl	1 962 278	90 096	12 615	1.0535	1.0000



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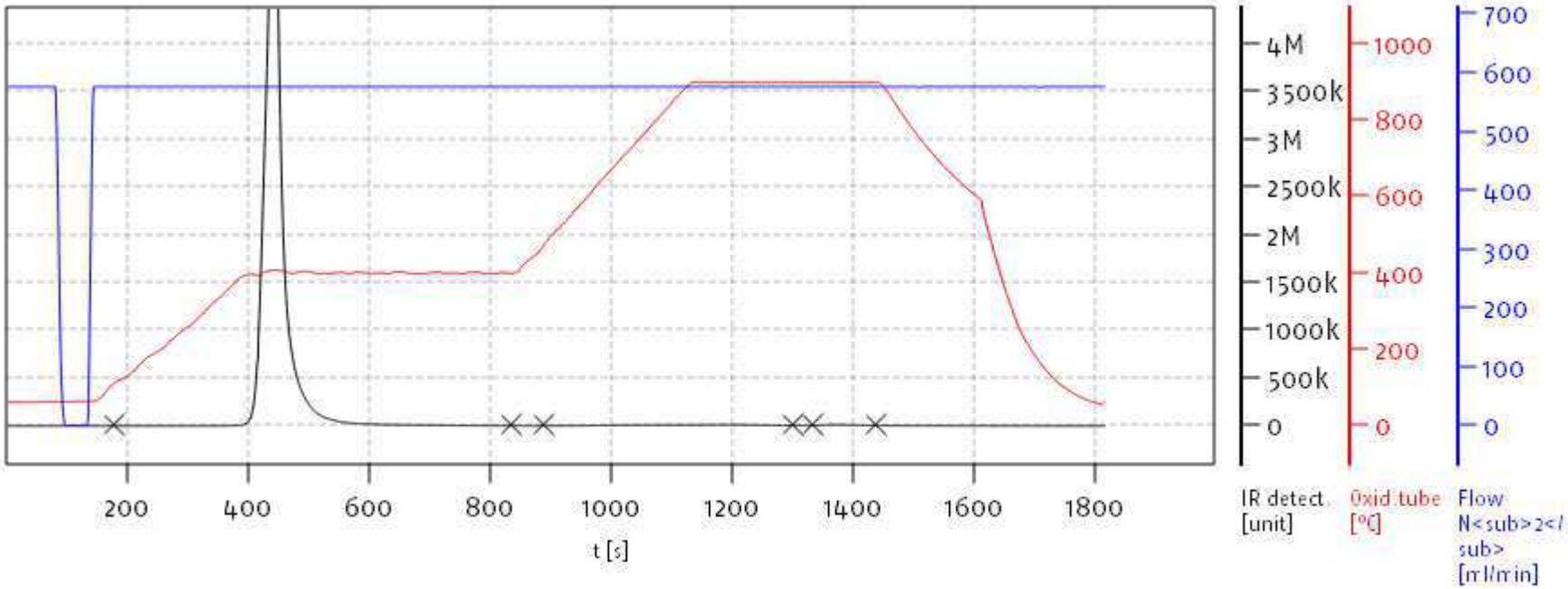
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
64	64	SJG0 032-CCV5	27.40		1.00	CARBON	7/4/2021 12:48 AM	44.964	0.724	45.688	bl	7 435 549	111 173	30 433	1.0535	1.0000



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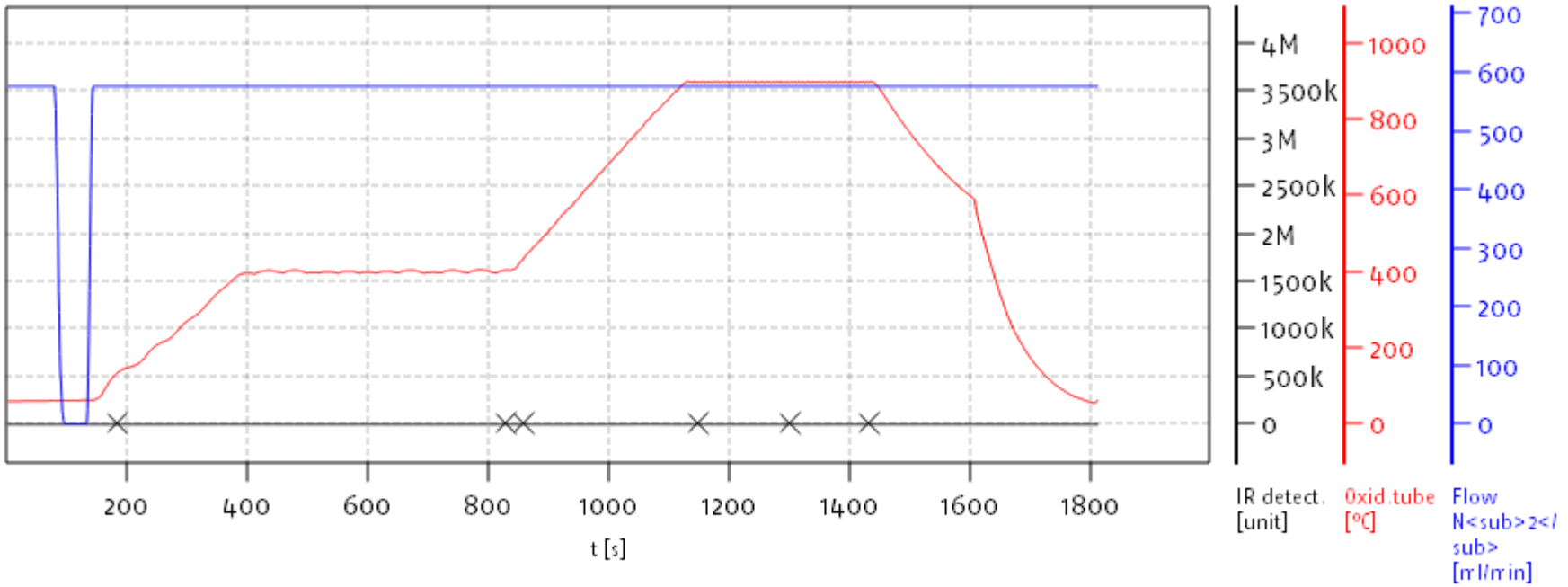
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
65	65	SJG0032-CCB5	676.50		1.00	CARBON	7/4/2021 1:18 AM	0.009	0.004	0.013	bl,C1u,C3u,C2u	4 251	3 147	1 294	1.0535	1.0000



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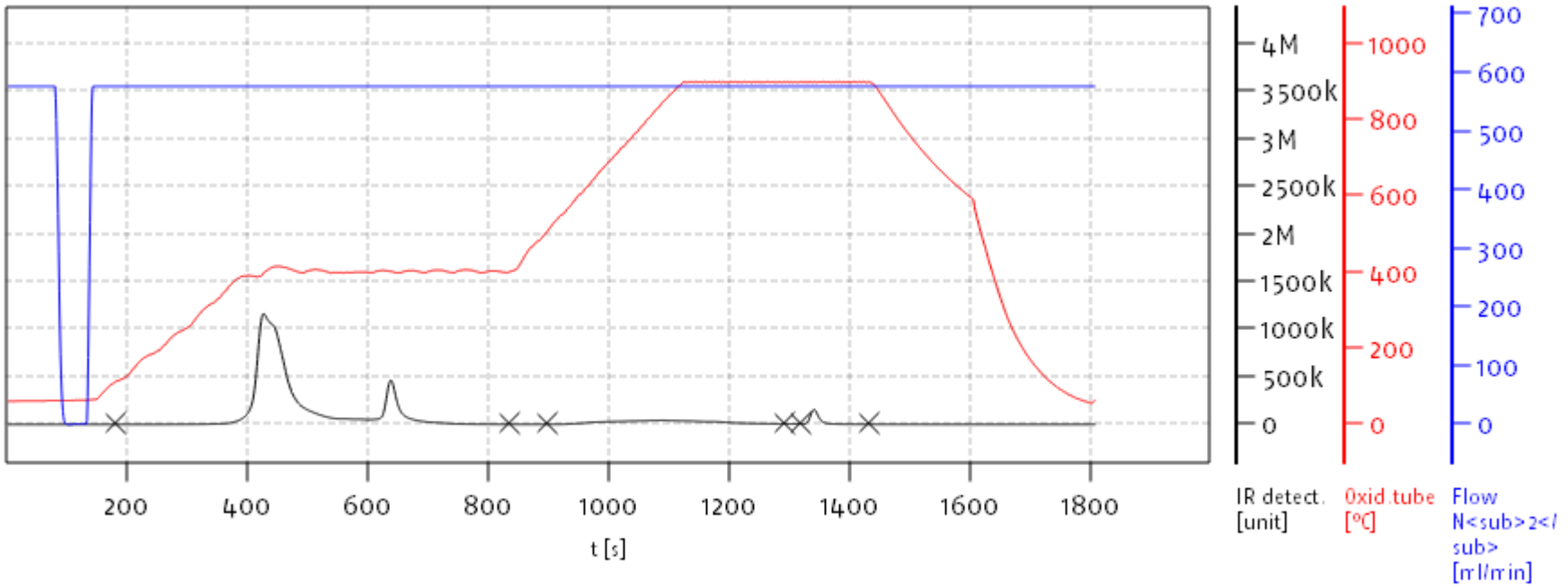
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
66	66	21F0418-04	522.00		1.00	CARBON	7/4/2021 1:49 AM	1.024	0.107	1.131	bl	3 122 884	342 345	103 248	1.0535	1.0000



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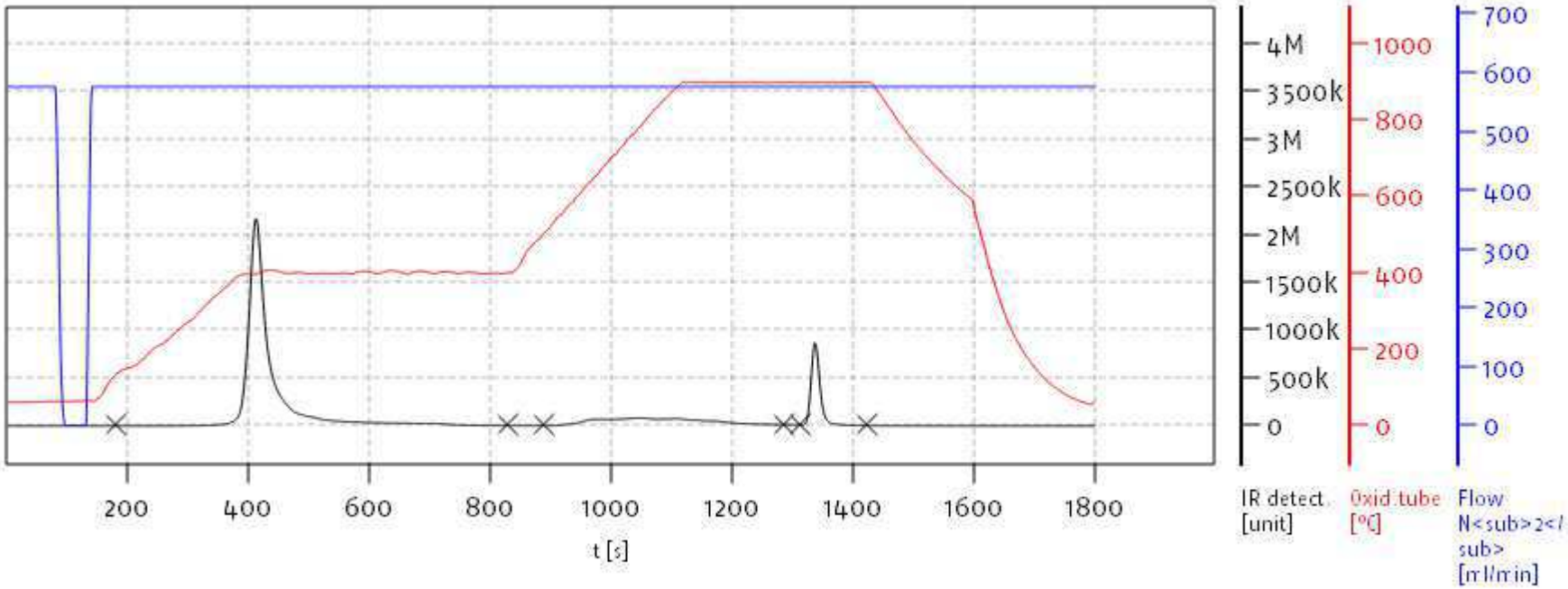
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
67	67	21F0418-05	570.90		1.00	CARBON	7/4/2021 2:19 AM	1.103	0.196	1.299	bl	3 260 151	700 048	569 172	1.0535	1.0000



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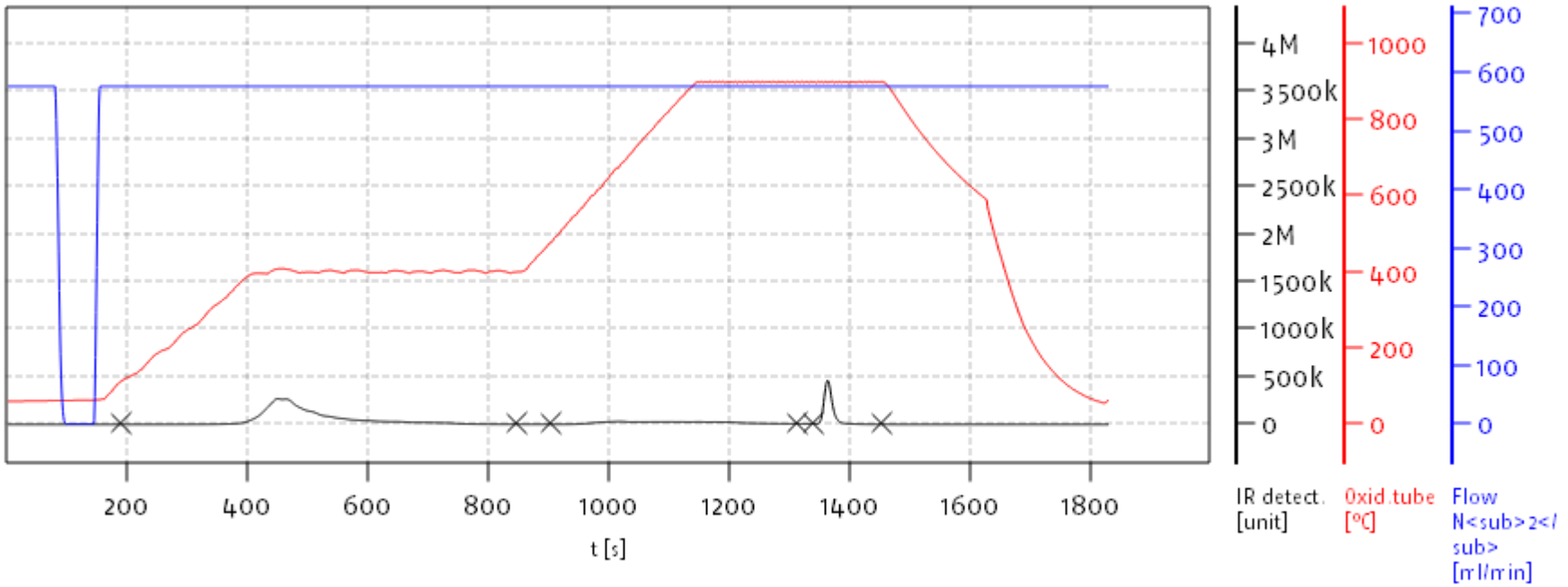
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
68	68	21F0418-06	576.00		1.00	CARBON	7/4/2021 2:50 AM	0.403	0.079	0.482	bl	1 114 218	277 141	281 344	1.0535	1.0000



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Date: Tue Jul 6 09:44:54 2021

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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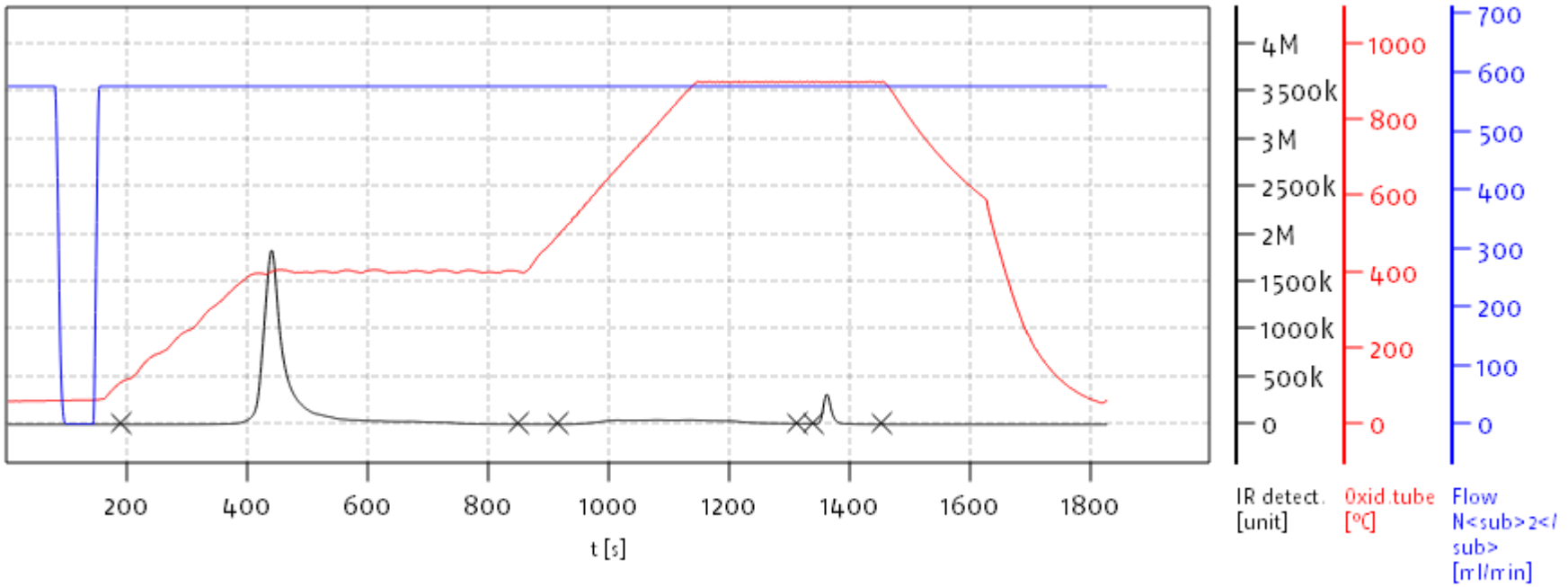
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
69	69	21F0418-07	500.90		1.00	CARBON	7/4/2021 3:21 AM	1.025	0.139	1.164	bl	2 911 036	429 980	190 332	1.0535	1.0000



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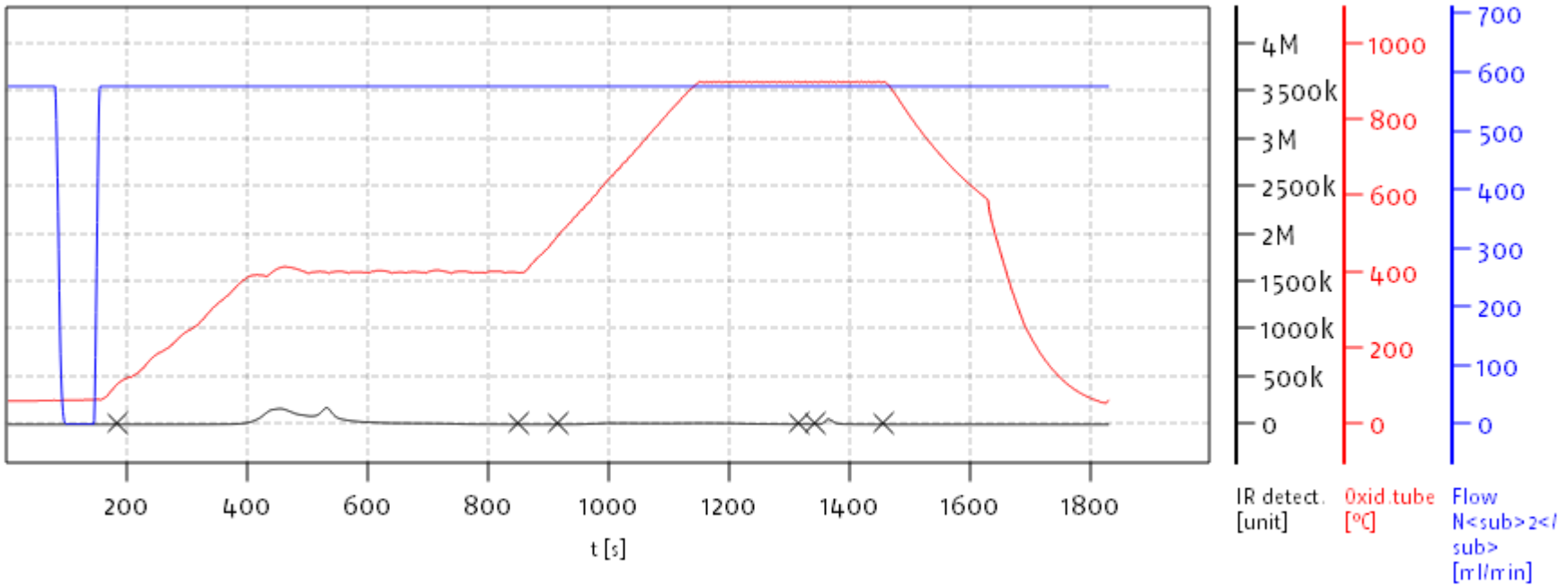
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
70	70	21F0418-08	507.20		1.00	CARBON	7/4/2021 3:52 AM	0.278	0.045	0.322	bl	791 147	128 868	36 501	1.0535	1.0000



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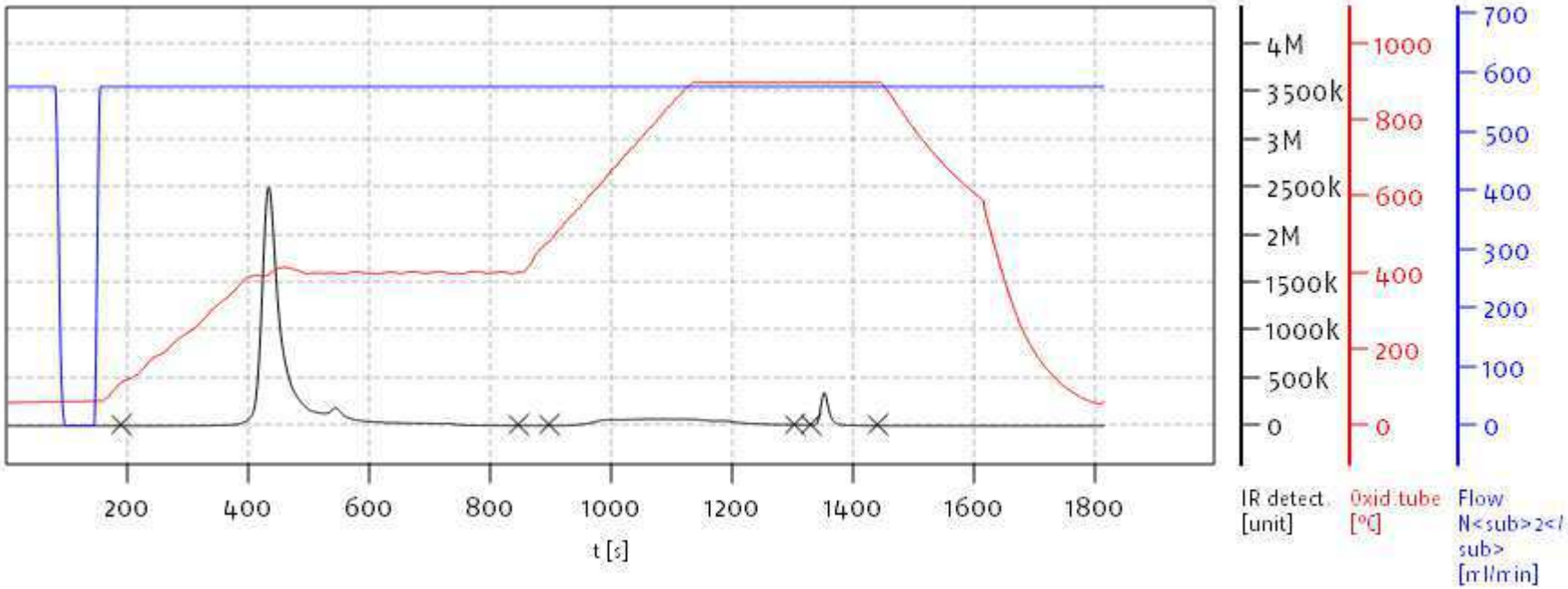
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
71	71	21F0418-09	615.50		1.00	CARBON	7/4/2021 4:23 AM	1.101	0.171	1.271	bl	3 885 848	657 393	215 440	1.0535	1.0000



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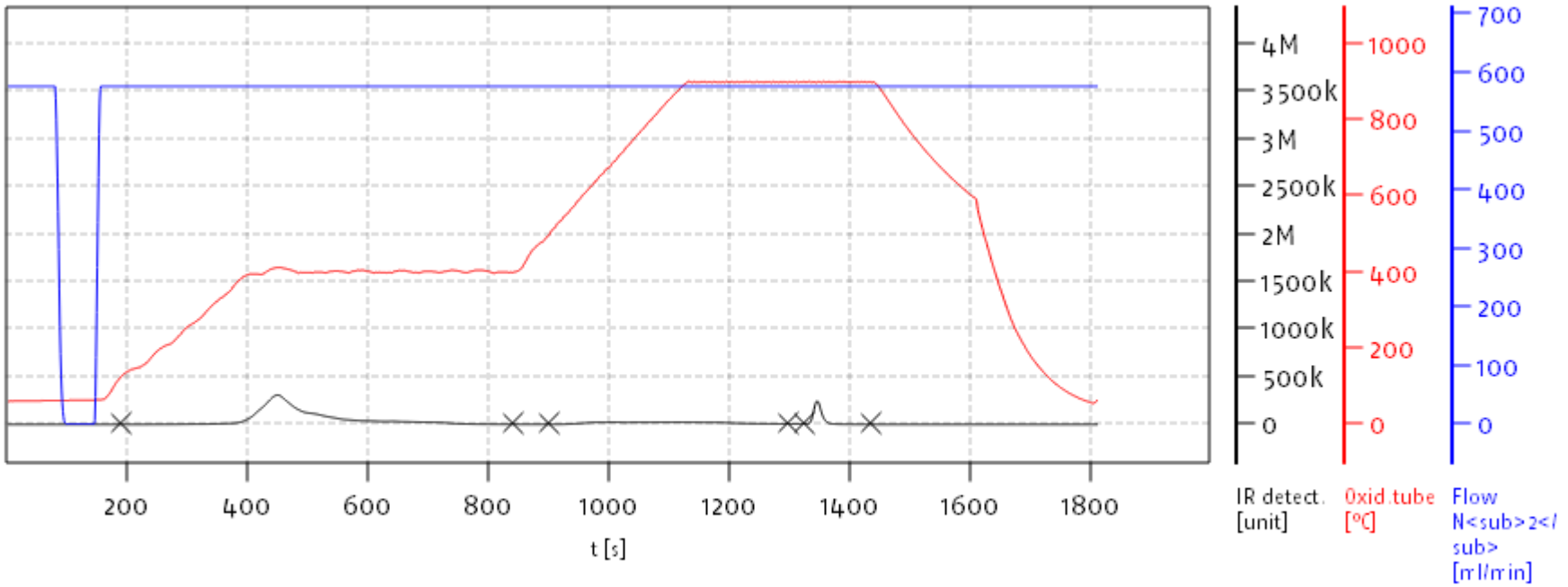
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
72	72	21F0418-10	551.20		1.00	CARBON	7/4/2021 4:53 AM	0.404	0.072	0.476	bl	1 185 151	237 776	146 718	1.0535	1.0000



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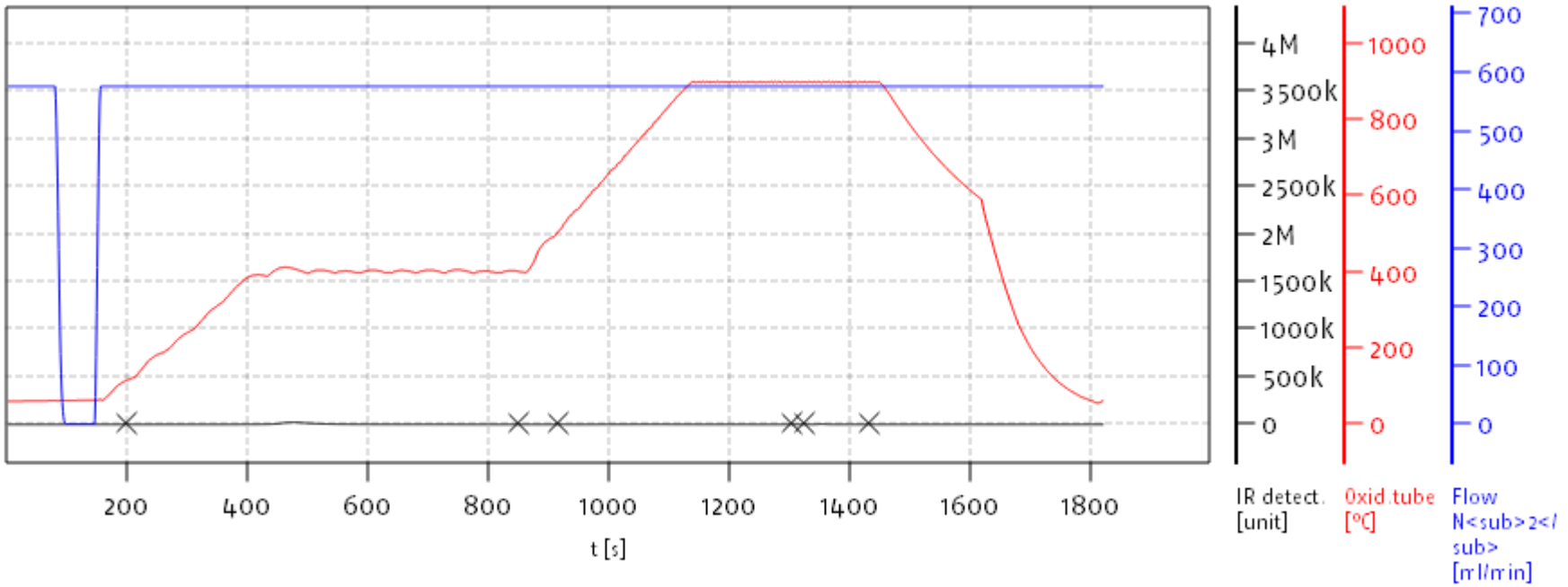
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
73	73	BJG0081-MRL1	592.40		1.00	CARBON	7/4/2021 5:24 AM	0.026	0.007	0.033	bl,C2u	60 096	8 985	2 704	1.0535	1.0000



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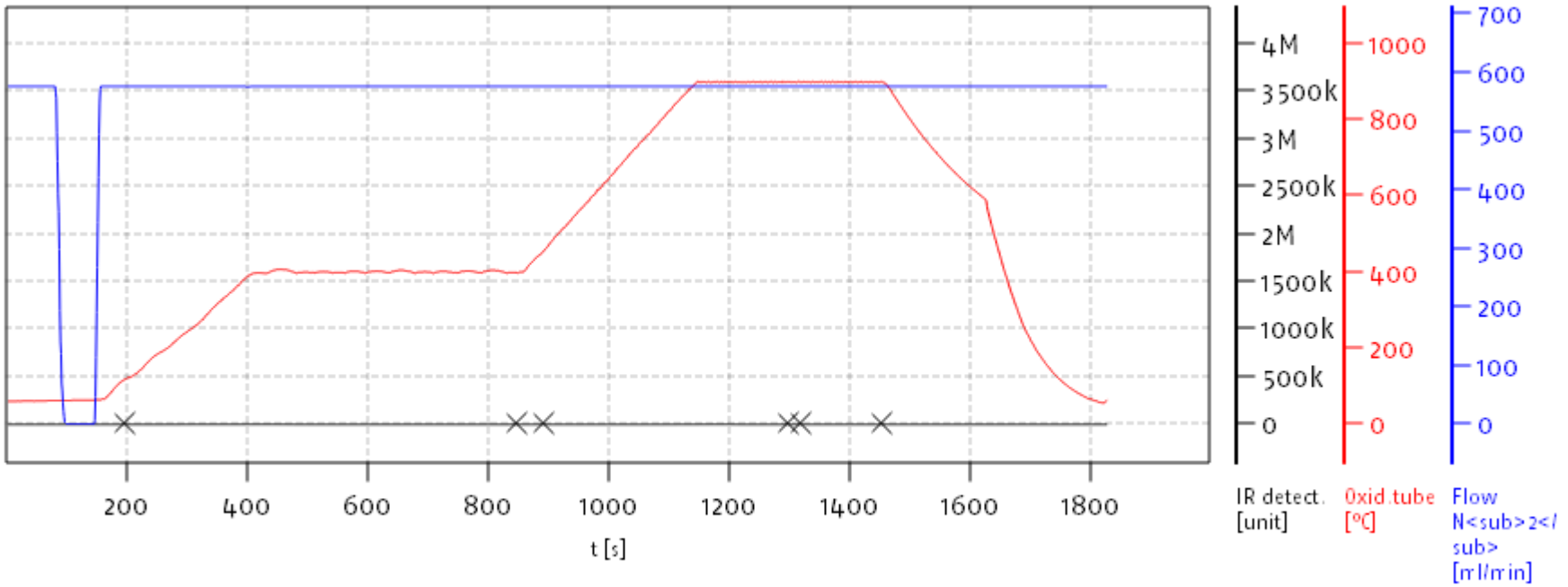
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
74	74	BJG0081-BLK1	606.80		1.00	CARBON	7/4/2021 5:55 AM	0.011	0.005	0.017	bl,C2u	9 261	5 427	322	1.0535	1.0000



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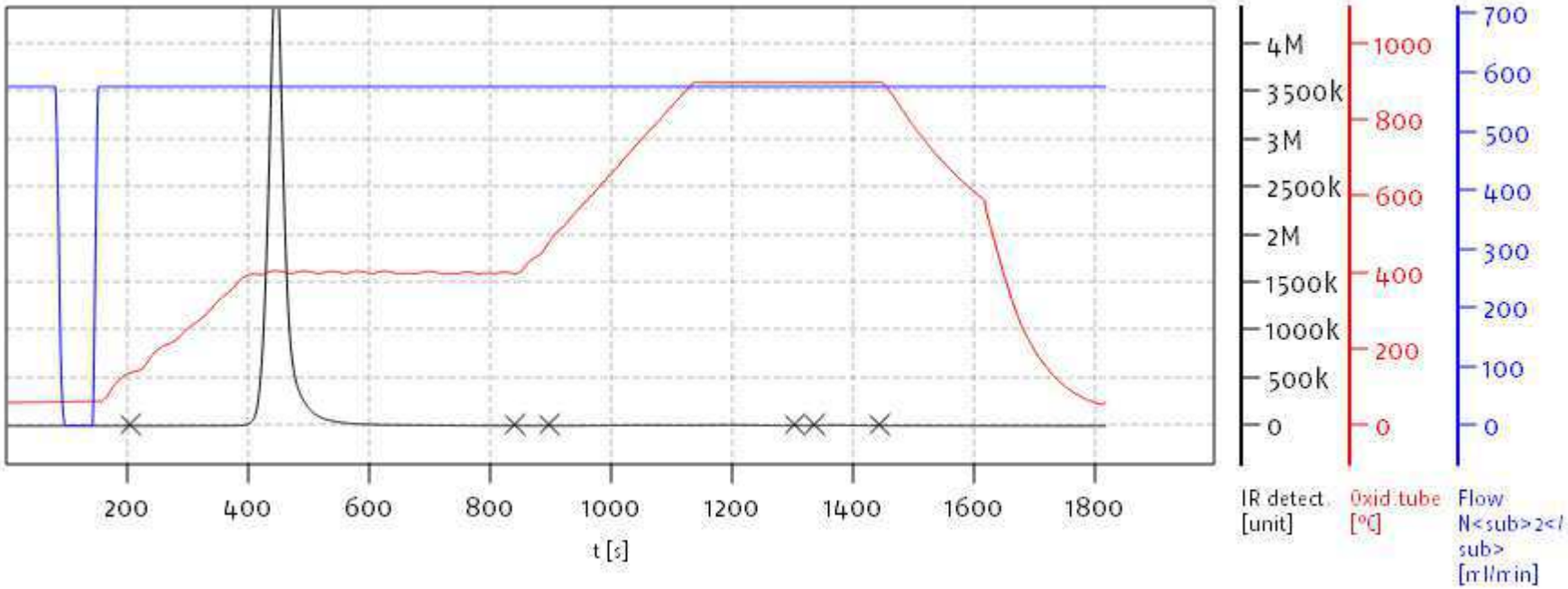
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
75	75	BJG0081-BS1	21.80		1.00	CARBON	7/4/2021 6:25 AM	44.380	0.735	45.115	bl	5 836 056	86 682	19 967	1.0535	1.0000



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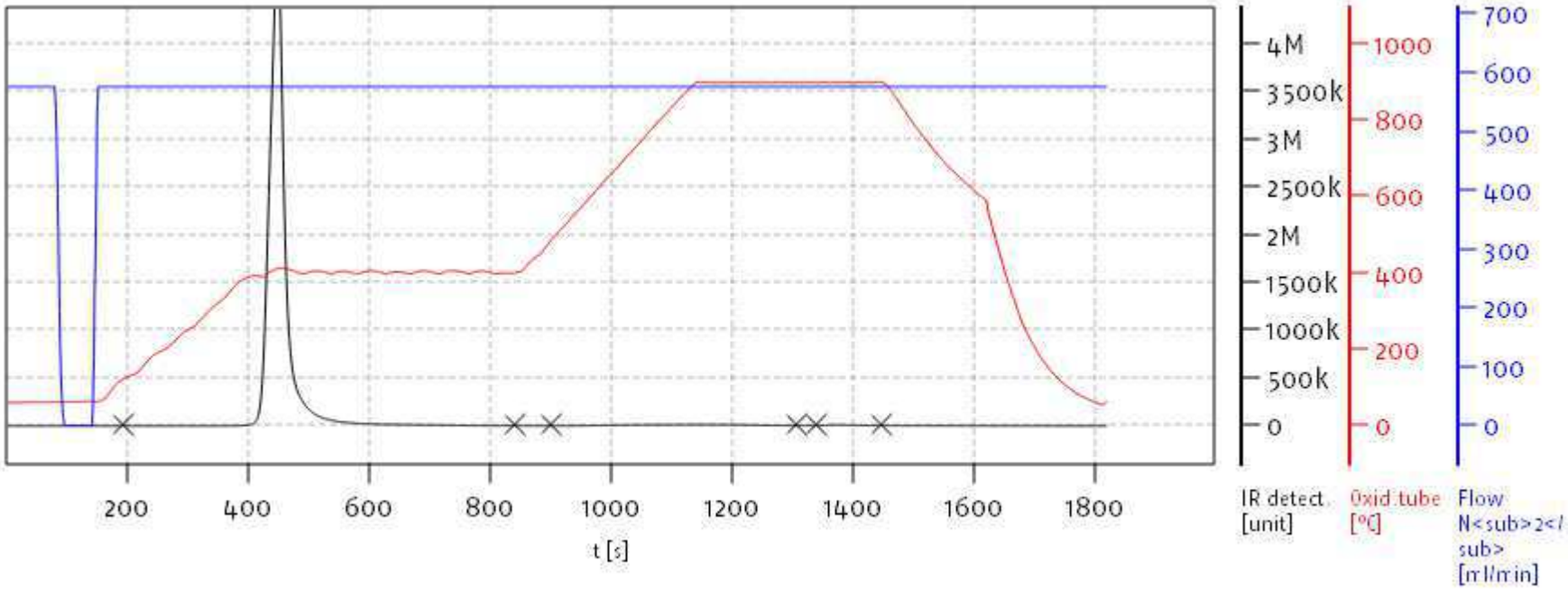
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
76	76	SJG0 032-CCV6	21.00		1.00	CARBON	7/4/2021 6:56 AM	44.146	1.014	45.160	bl	5 585 322	120 468	25 108	1.0535	1.0000



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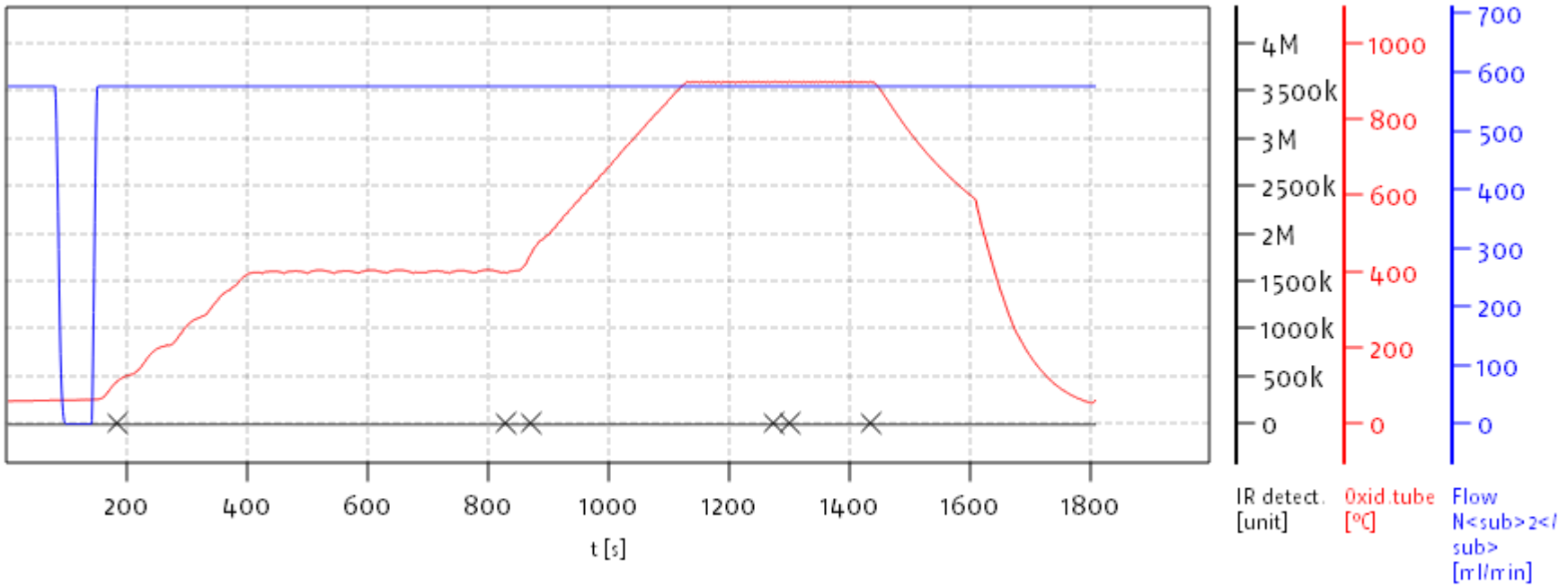
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
77	77	SJG0032-CCB6	605.30		1.00	CARBON	7/4/2021 7:27 AM	0.010	0.006	0.016	bl,C2u	6 266	6 366	1 138	1.0535	1.0000



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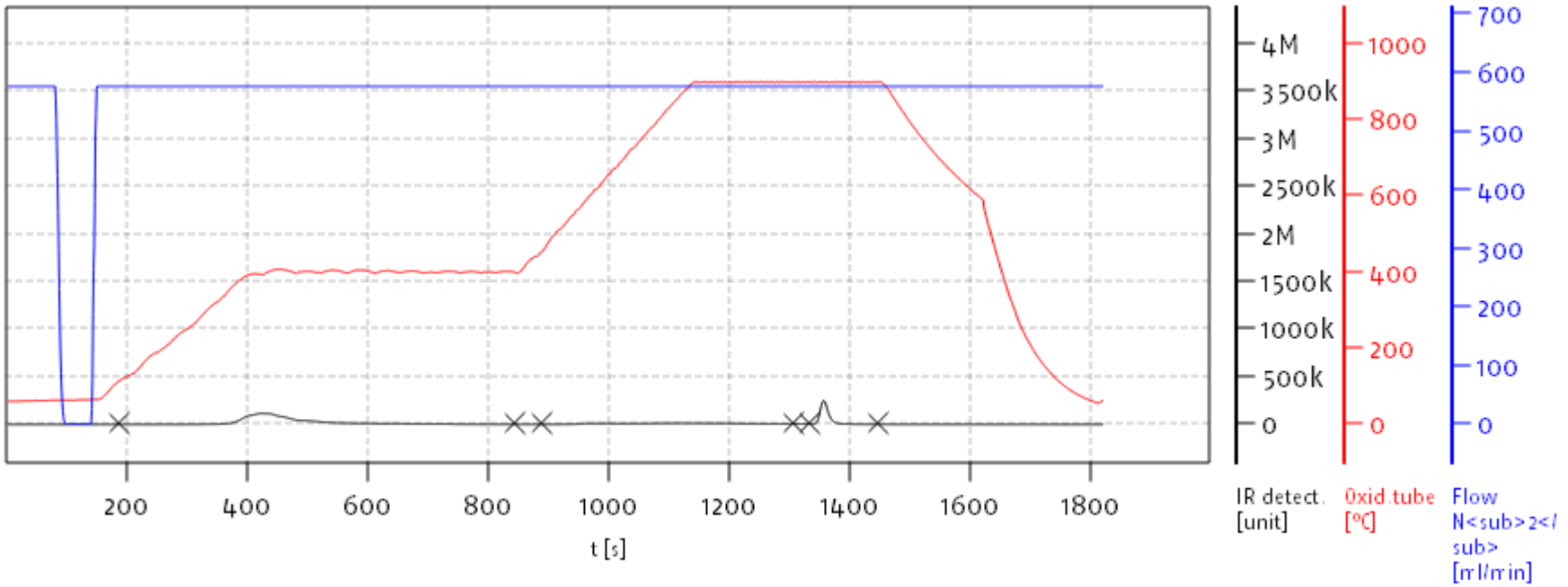
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
78	78	BJG0081-SRM1	41.20		1.00	CARBON	7/4/2021 7:57 AM	2.628	0.570	3.199	bl	479 465	134 663	156 107	1.0535	1.0000



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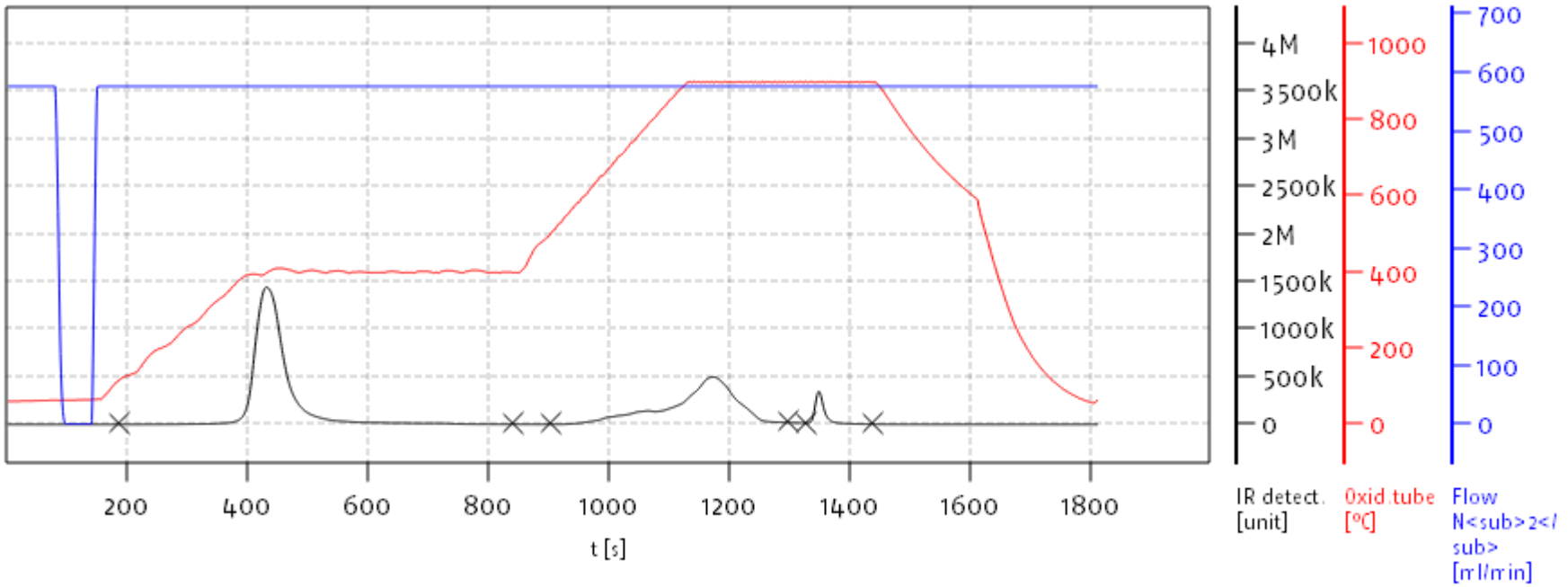
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
79	79	21F0386-01	544.40		1.00	CARBON	7/4/2021 8:28 AM	1.030	0.654	1.684	bl	3 151 325	2 266 131	241 342	1.0535	1.0000



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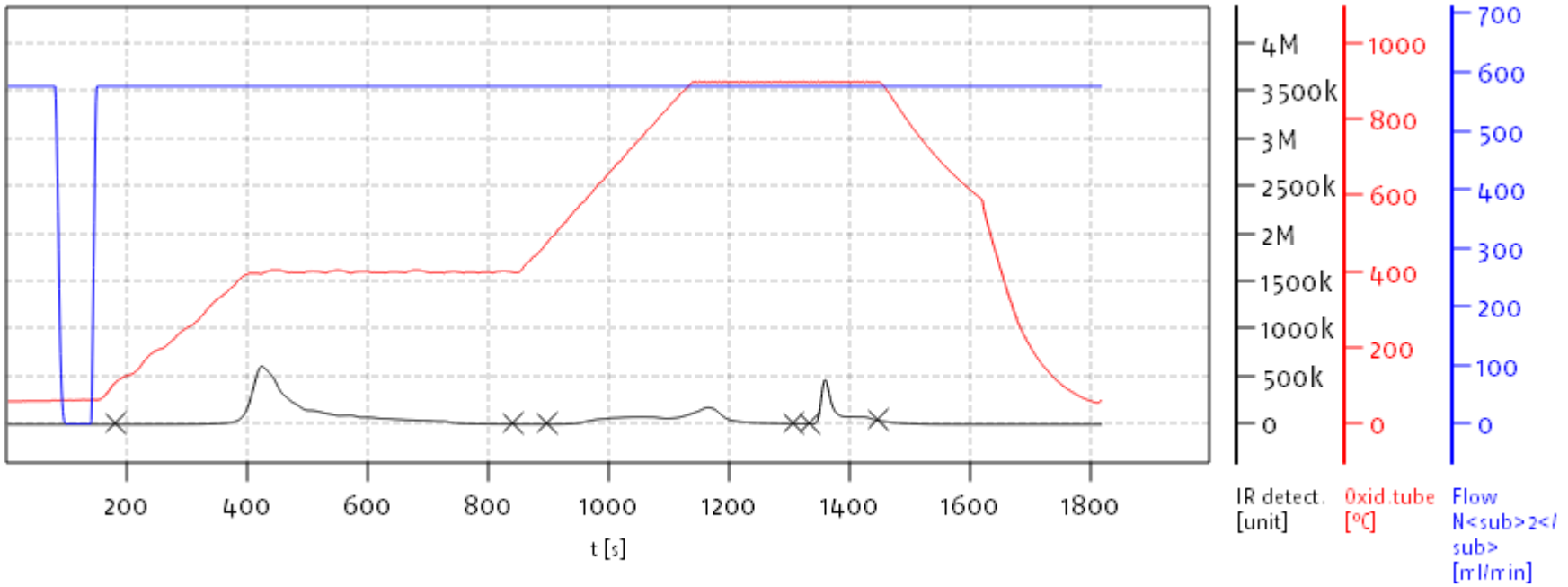
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
80	80	BJG0081-DUP1	545.40		1.00	CARBON	7/4/2021 8:59 AM	0.796	0.252	1.047	bl	2 111 869	863 484	523 682	1.0535	1.0000



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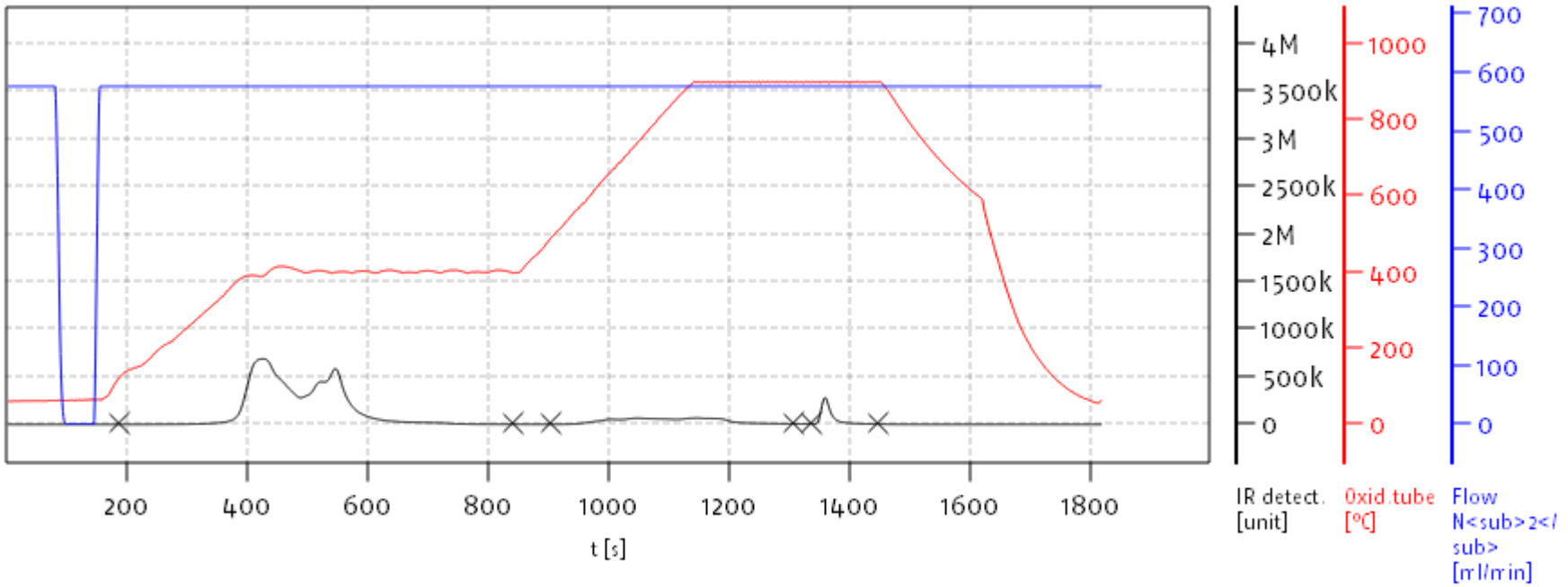
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
81	81	BJG0081-DUP2	563.60		1.00	CARBON	7/4/2021 9:29 AM	1.080	0.158	1.238	bl	3 469 248	554 875	212 190	1.0535	1.0000



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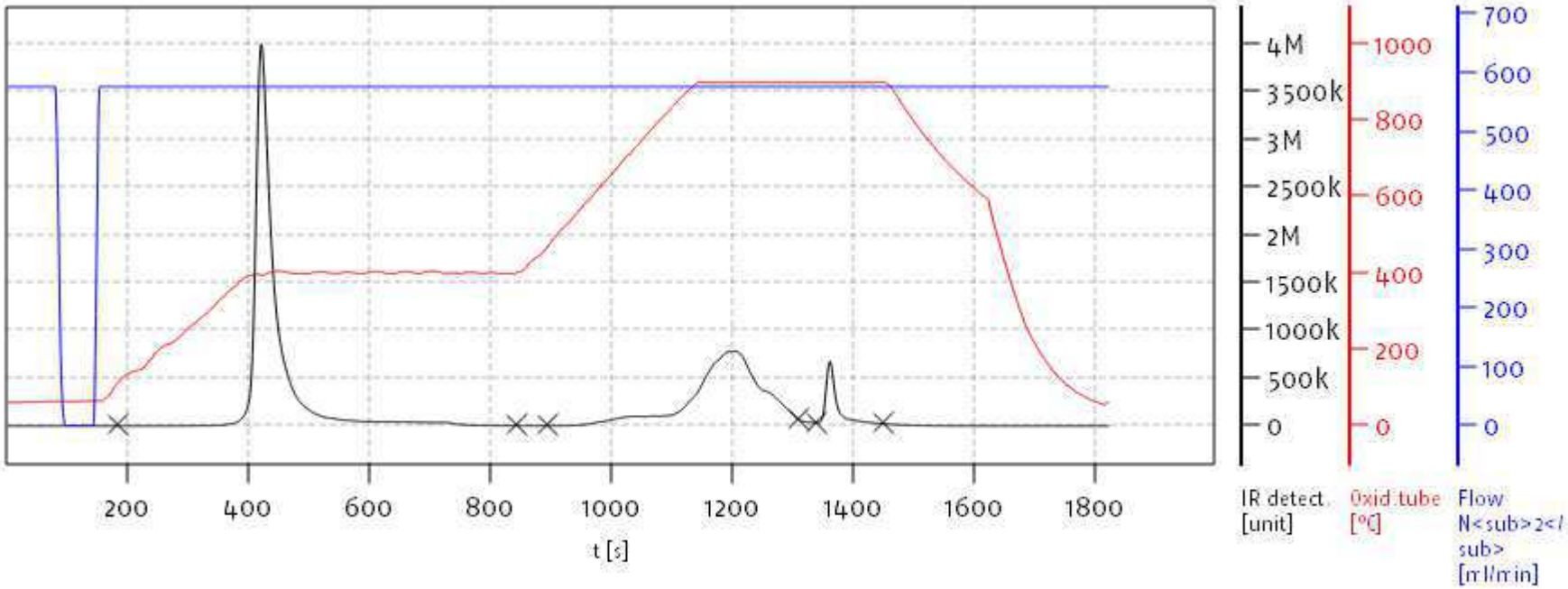
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
82	82	BJG0081-MS1	549.10	0.0096	1.00	CARBON	7/4/2021 10:00 AM	1.811	1.082	2.893	bl	5 476 226	3 790 886	571 858	1.0535	1.0000



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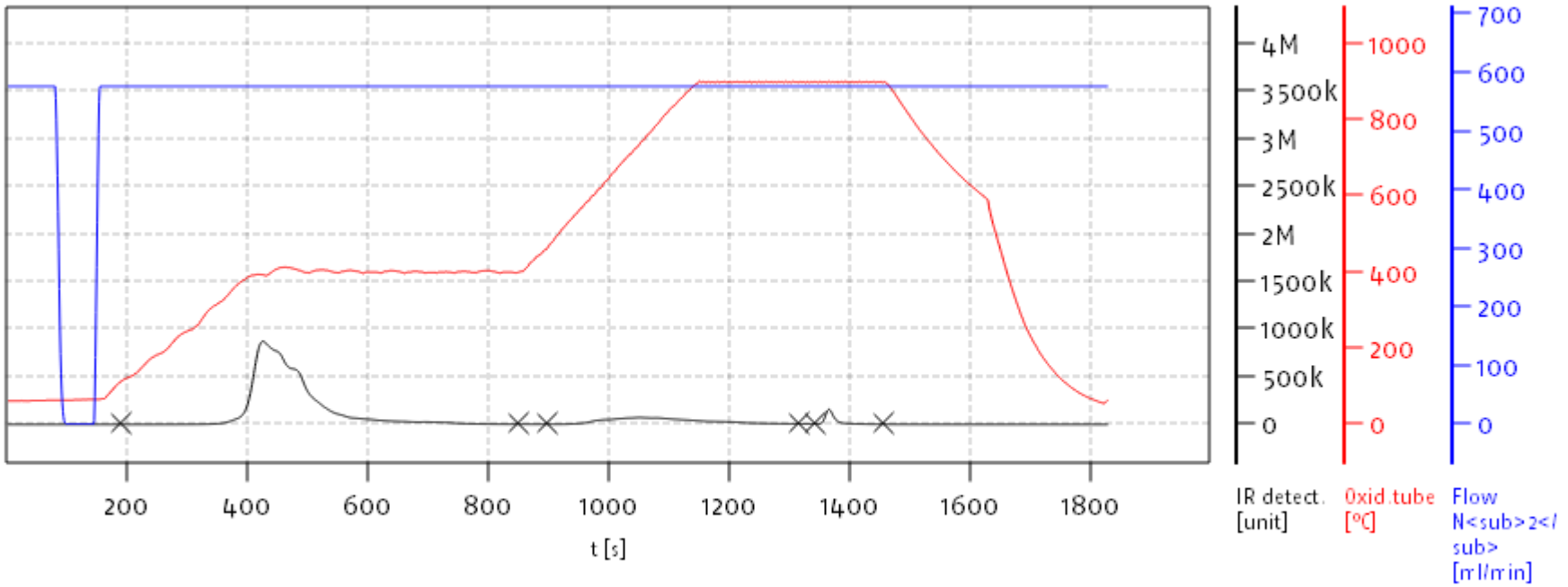
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
83	83	21F0386-02	575.60		1.00	CARBON	7/4/2021 10:31 AM	0.957	0.144	1.101	bl	3 213 403	516 726	112 285	1.0535	1.0000



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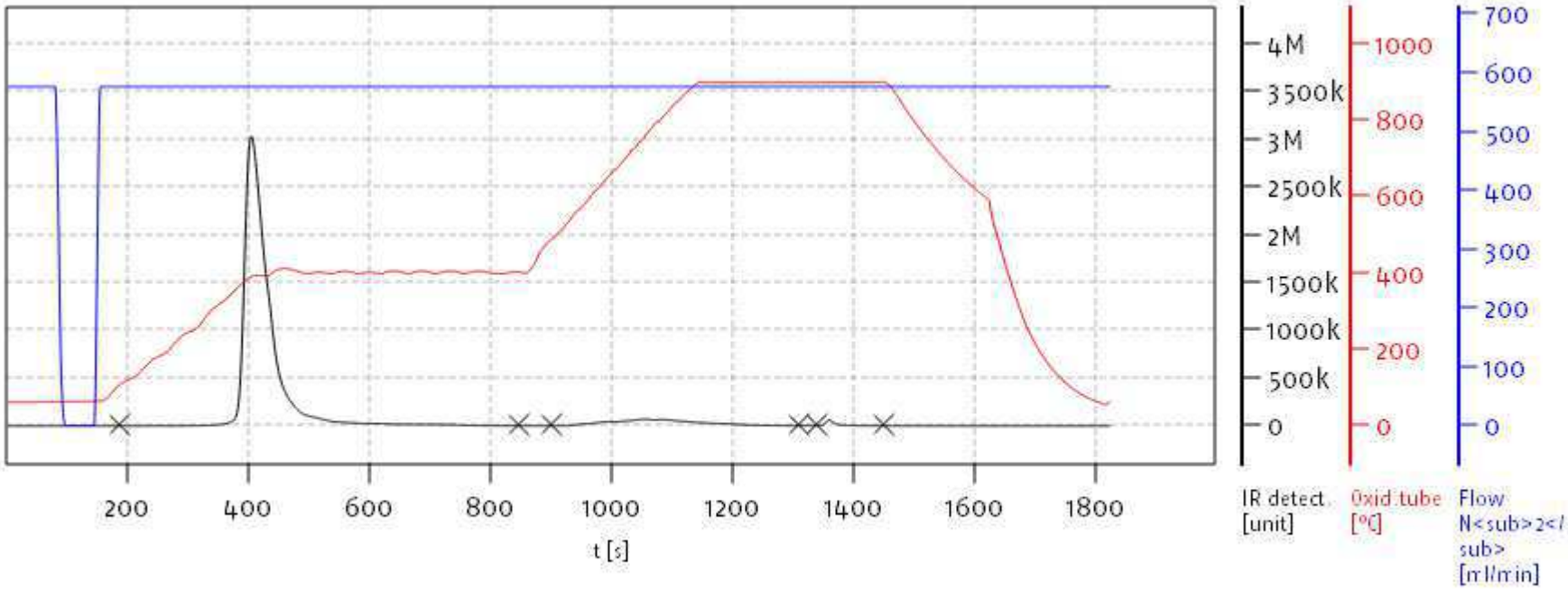
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
84	84	21F0386-03	513.40		1.00	CARBON	7/4/2021 11:02 AM	1.691	0.141	1.833	bl	5 208 885	448 832	45 051	1.0535	1.0000



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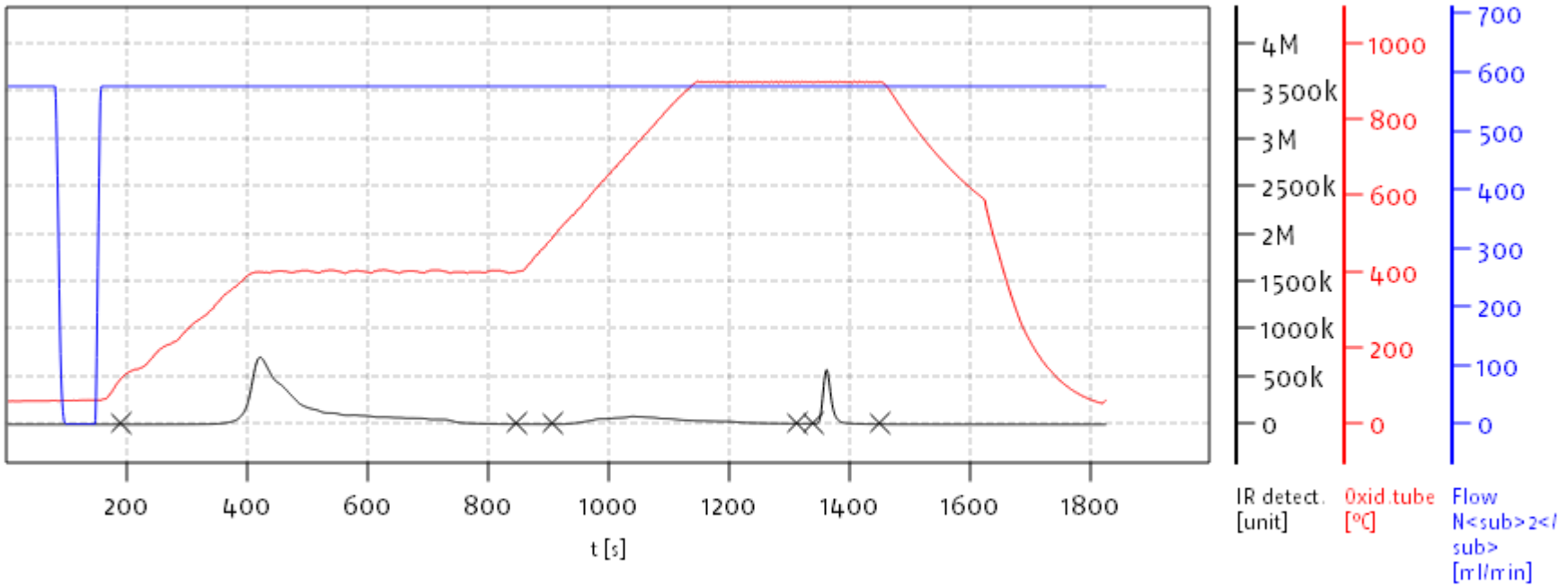
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
85	85	21F0386-04	570.50		1.00	CARBON	7/4/2021 11:33 AM	0.826	0.162	0.988	bl	2 498 885	575 085	355 355	1.0535	1.0000



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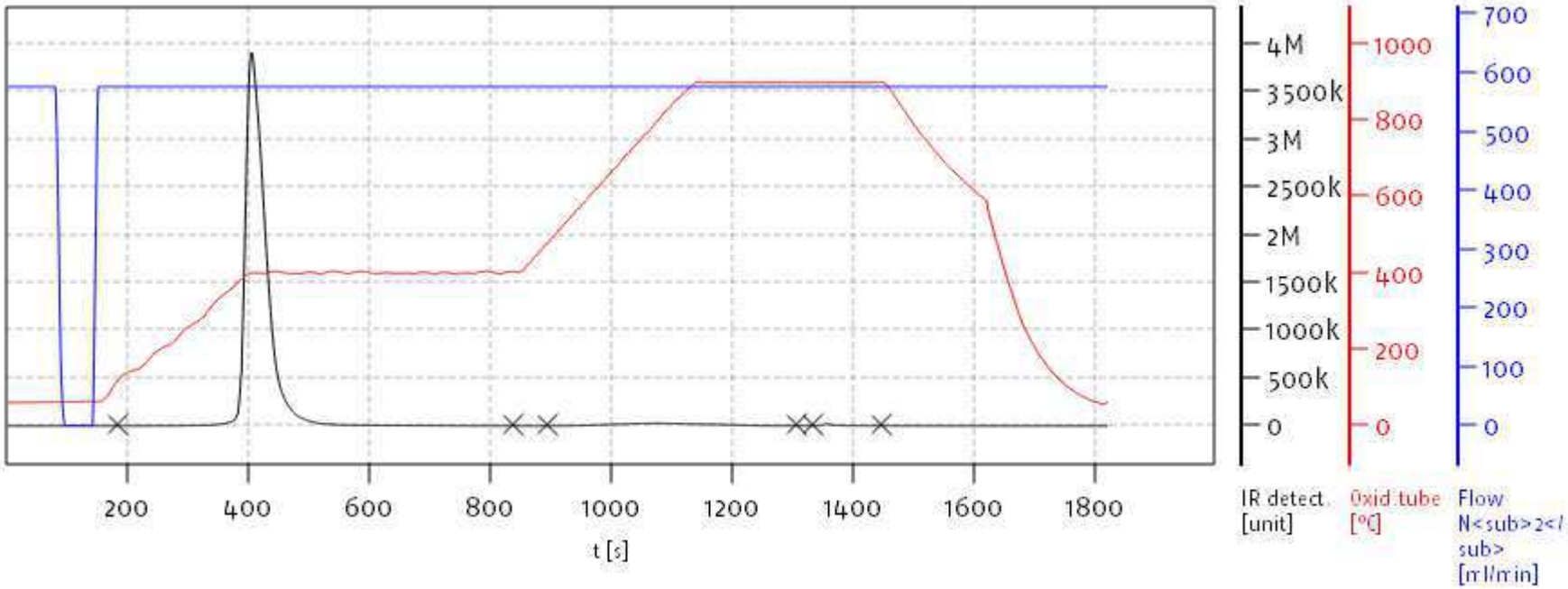
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
86	86	21F0386-05	586.10		1.00	CARBON	7/4/2021 12:03 PM	1.617	0.053	1.670	bl	5 715 773	184 024	19 639	1.0535	1.0000



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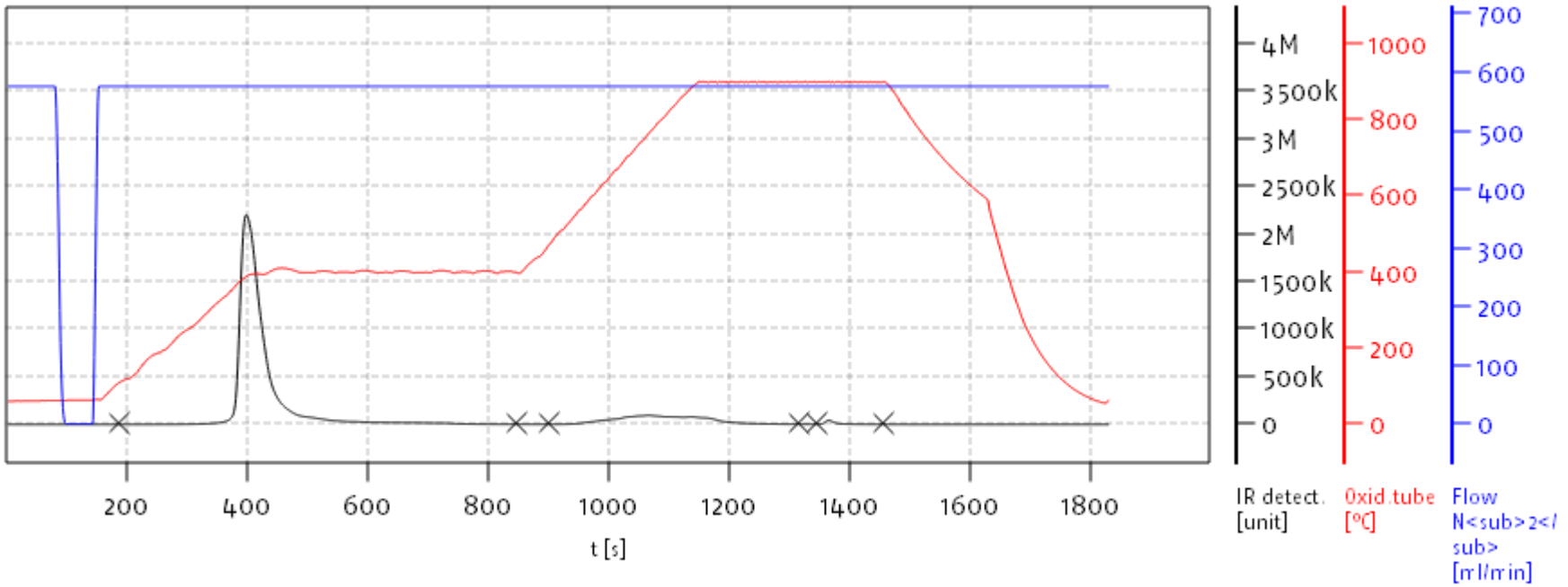
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
87	87	21F0386-06	396.70		1.00	CARBON	7/4/2021 12:34 PM	1.574	0.257	1.831	bl	3 735 050	637 202	33 778	1.0535	1.0000



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soliTOC V2.0.2 (31015f9) 2018-11-19
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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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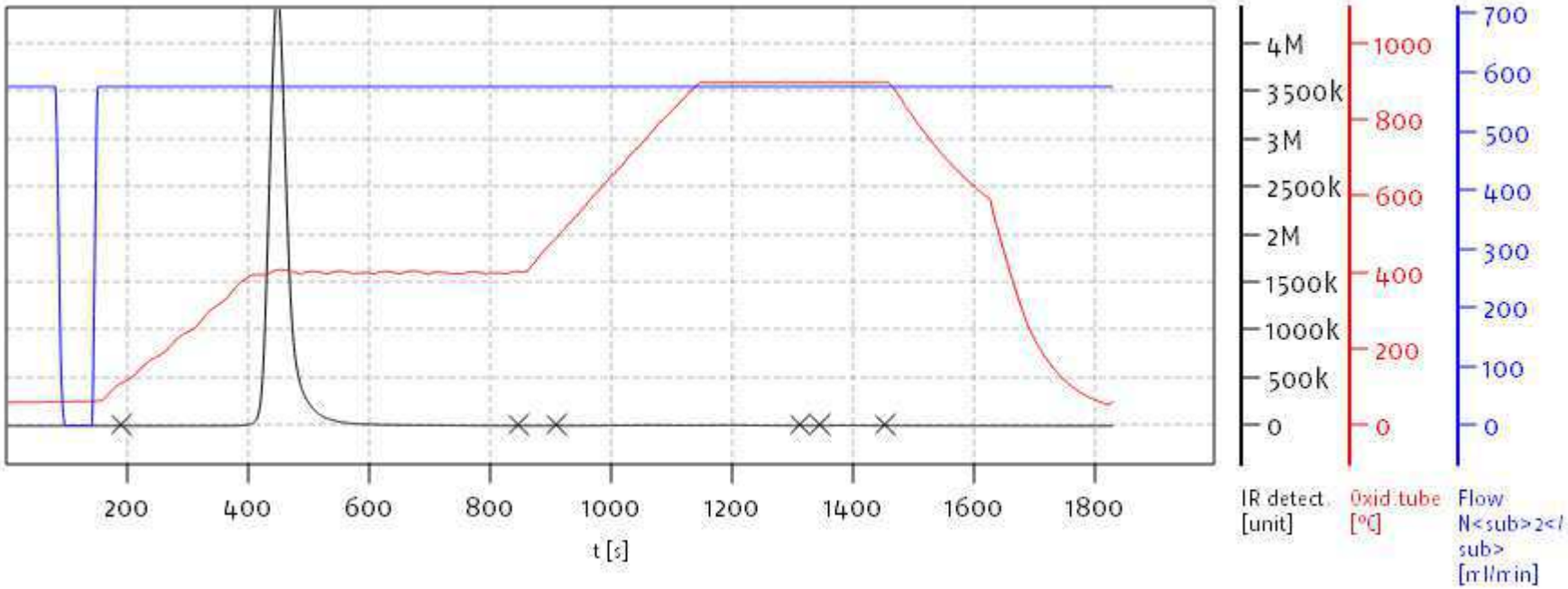
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
88	88	SJG0 032-CCV7	22.20		1.00	CARBON	7/4/2021 1:05 PM	45.278	0.634	45.912	bl	6 070 971	74 219	14 110	1.0535	1.0000



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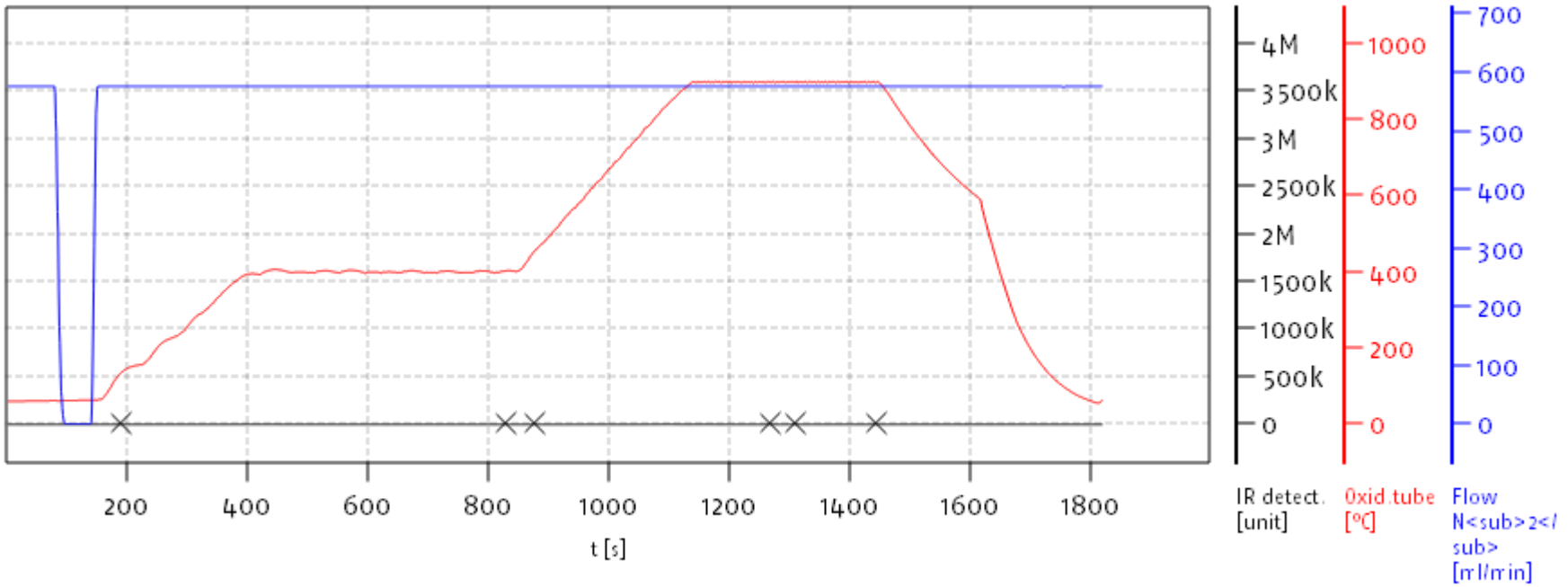
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
89	89	SJG0 032-CCB7	561.50		1.00	CARBON	7/4/2021 1:36 PM	0.010	0.006	0.016	bl,C1u,C2u	3 301	4 375	664	1.0535	1.0000



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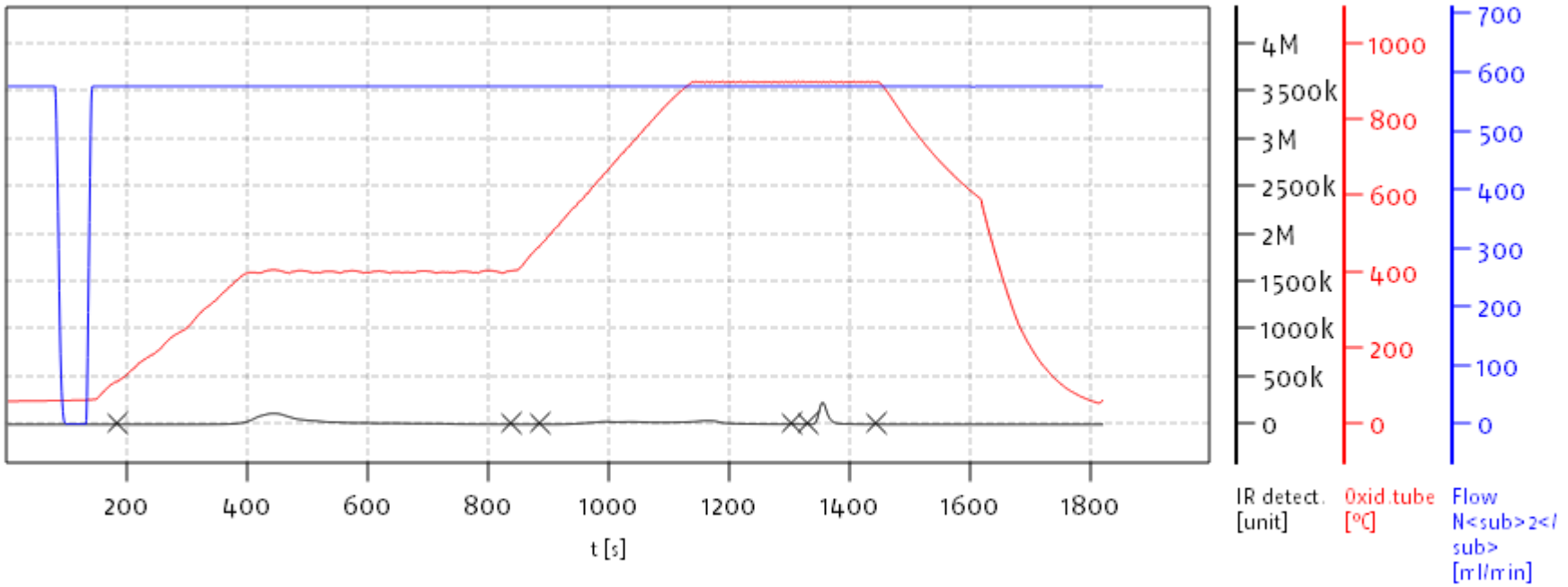
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
90	1	21F0392-01	397.00		1.00	CARBON	7/4/2021 2:06 PM	0.266	0.106	0.372	bl	468 844	254 704	149 030	1.0535	1.0000



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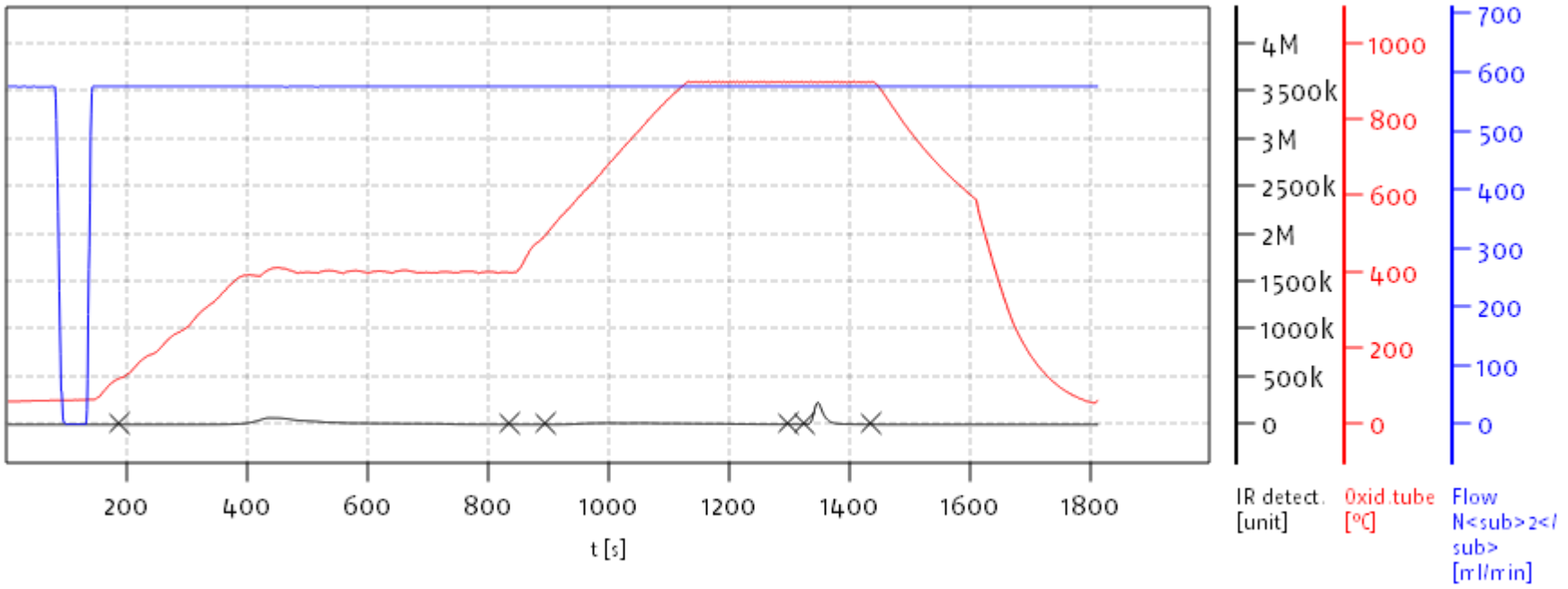
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
91	2	21F0392-02	644.60		1.00	CARBON	7/4/2021 2:37 PM	0.136	0.037	0.172	bl	342 486	135 388	166 590	1.0535	1.0000



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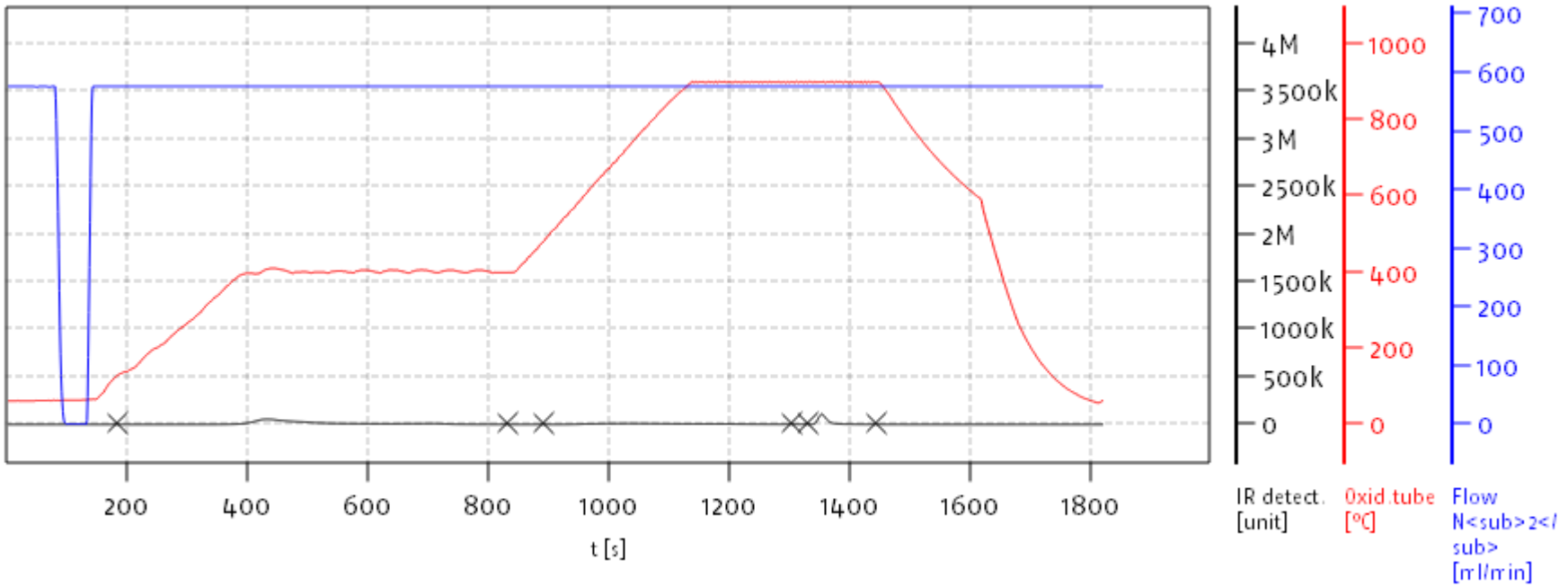
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
92	3	21F0392-03	594.50		1.00	CARBON	7/4/2021 3:08 PM	0.094	0.026	0.120	bl	237 844	82 436	73 715	1.0535	1.0000



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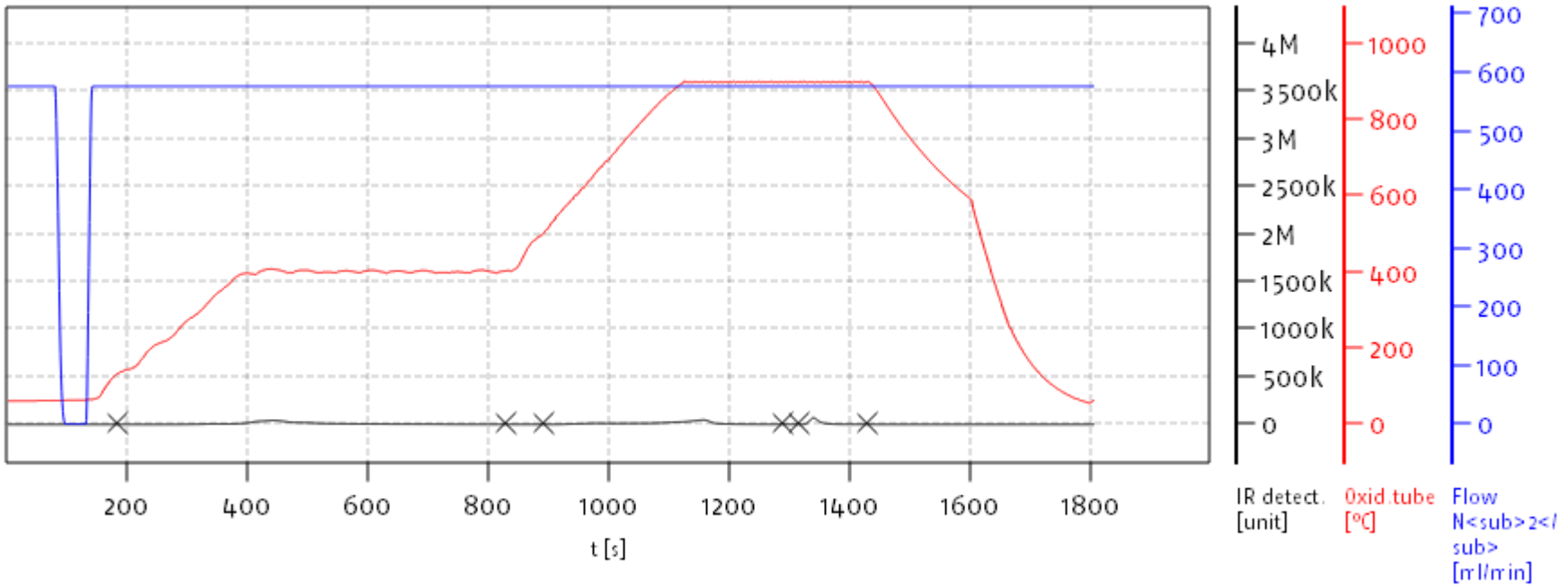
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
93	4	21F0392-04	527.90		1.00	CARBON	7/4/2021 3:38 PM	0.083	0.057	0.139	bl	185 951	175 951	51 384	1.0535	1.0000



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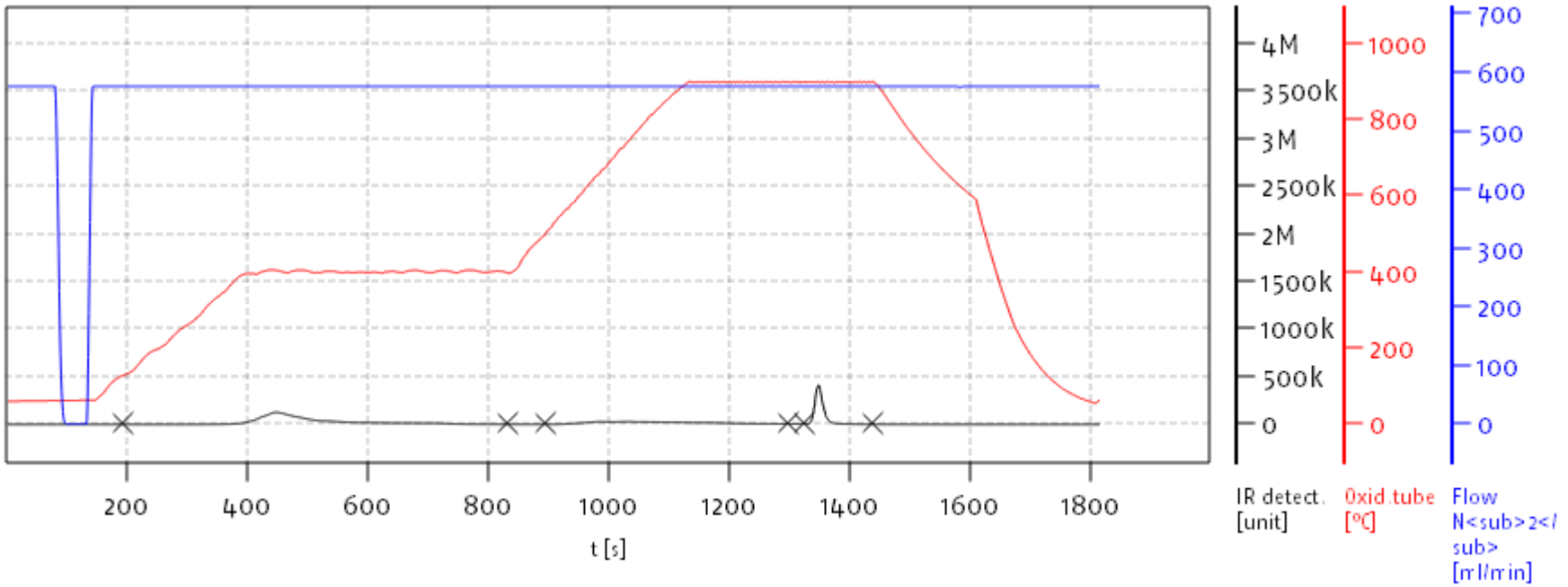
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
94	5	21F0392-05	647.60		1.00	CARBON	7/4/2021 4:09 PM	0.203	0.064	0.268	bl	529 045	251 068	254 334	1.0535	1.0000



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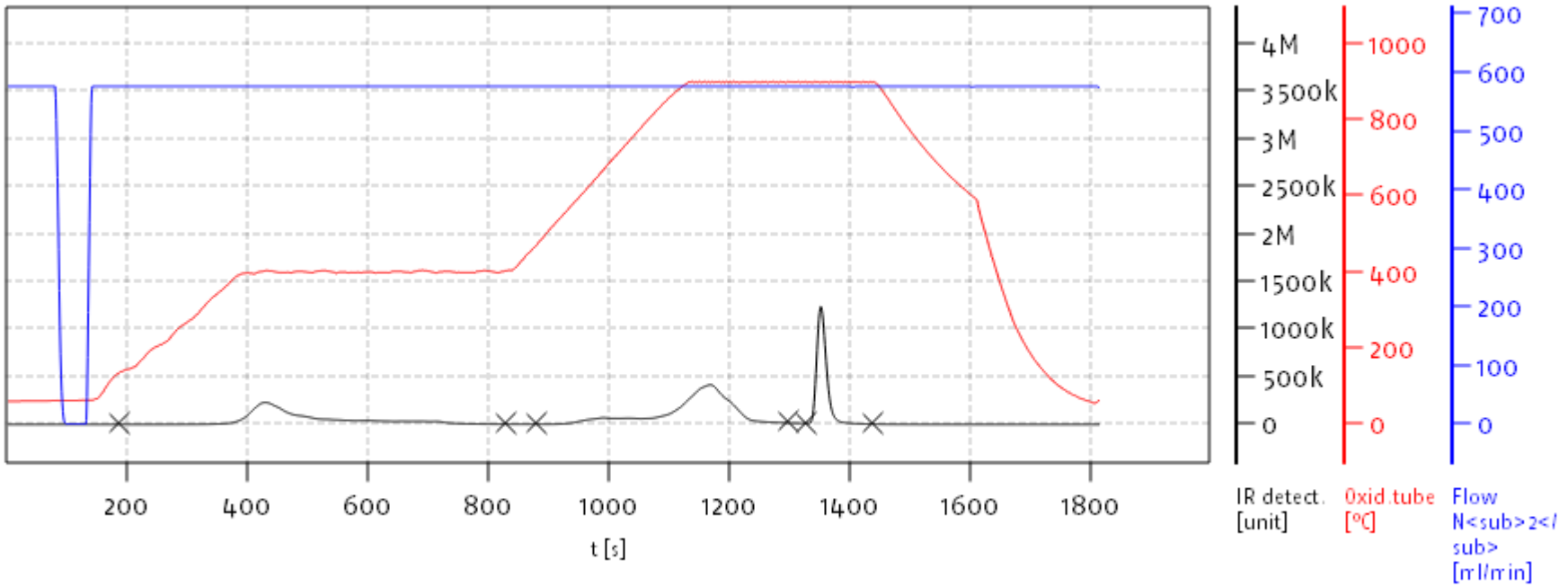
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
95	6	21F0392-06	607.30		1.00	CARBON	7/4/2021 4:40 PM	0.505	0.445	0.951	bl	1 001 554	1 716 300	879 603	1.0535	1.0000



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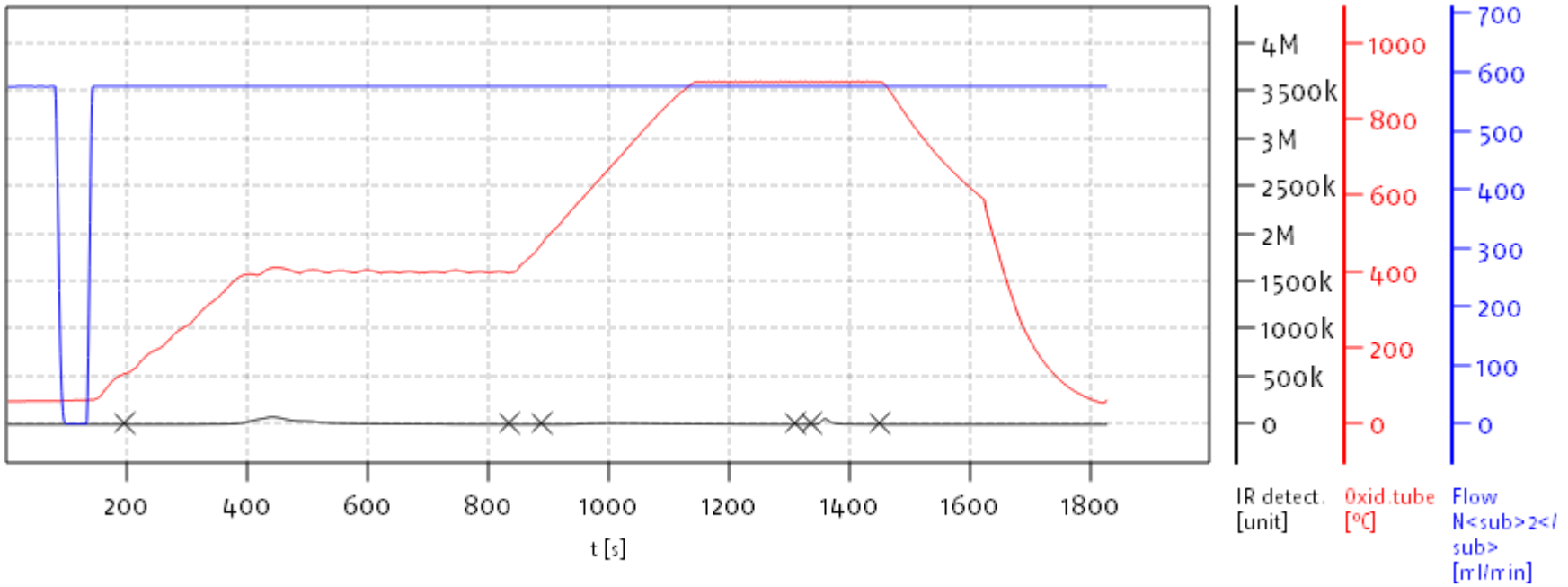
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
96	7	21F0392-13	563.80		1.00	CARBON	7/4/2021 5:10 PM	0.109	0.028	0.138	bl	304 368	86 782	42 143	1.0535	1.0000



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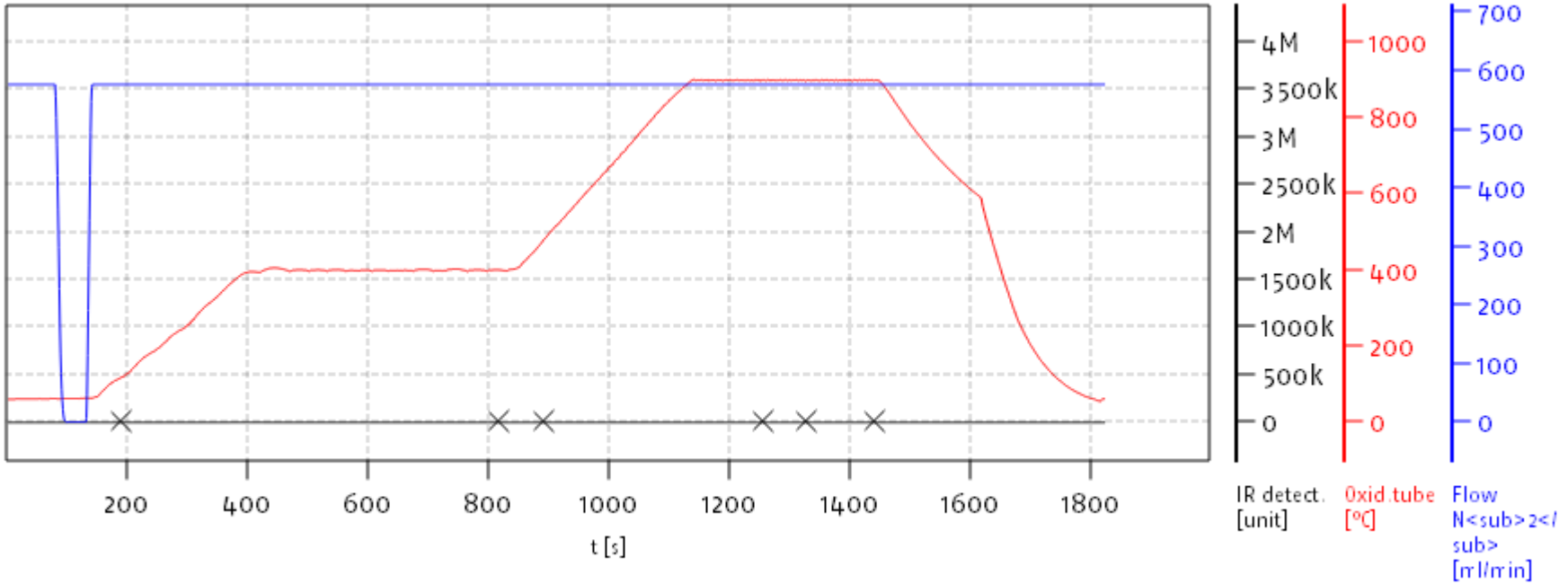
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
97	8	BLANK	1.00		1.00	CARBON	7/4/2021 5:41 PM	0.000	0.000	0.000	bl	3 671	449	278	1.0535	1.0000



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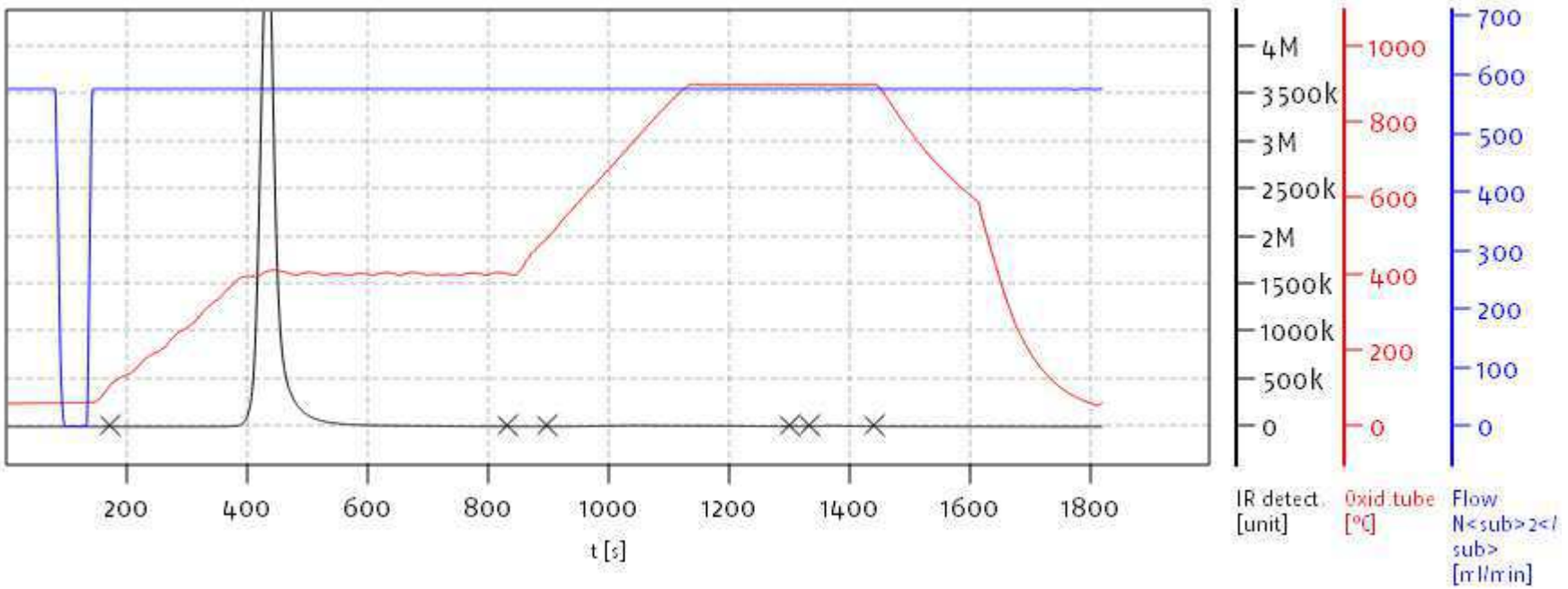
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
98	9	Dfactor	22.20		1.00	CARBON	7/4/2021 6:12 PM	44.709	0.812	45.521	bl	6 018 585	99 604	21 479	1.0480	1.0000



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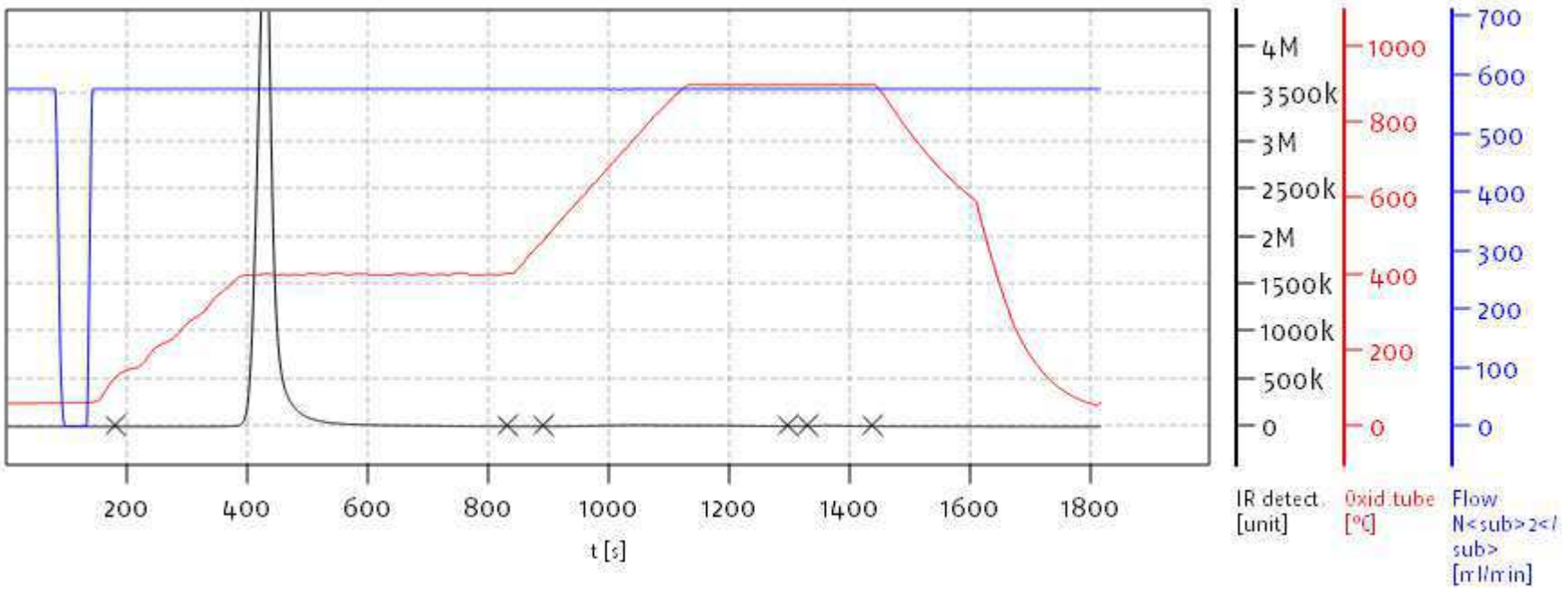
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
99	10	Dfactor	22.80		1.00	CARBON	7/4/2021 6:42 PM	44.715	1.022	45.737	bl	6 133 916	133 370	23 366	1.0561	1.0000



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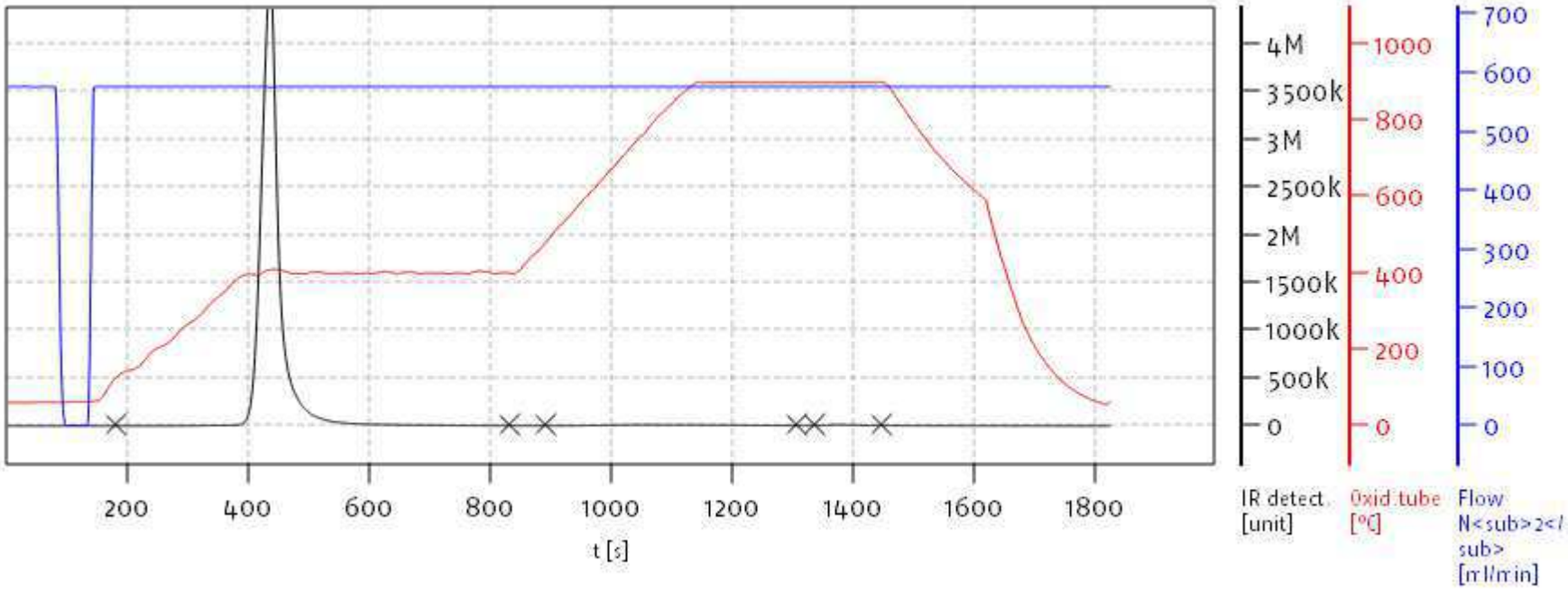
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
100	11	SJG0 032-CCV8	21.90		1.00	CARBON	7/4/2021 7:13 PM	44.940	0.869	45.809	bl	5 936 400	105 972	29 936	1.0520	1.0000



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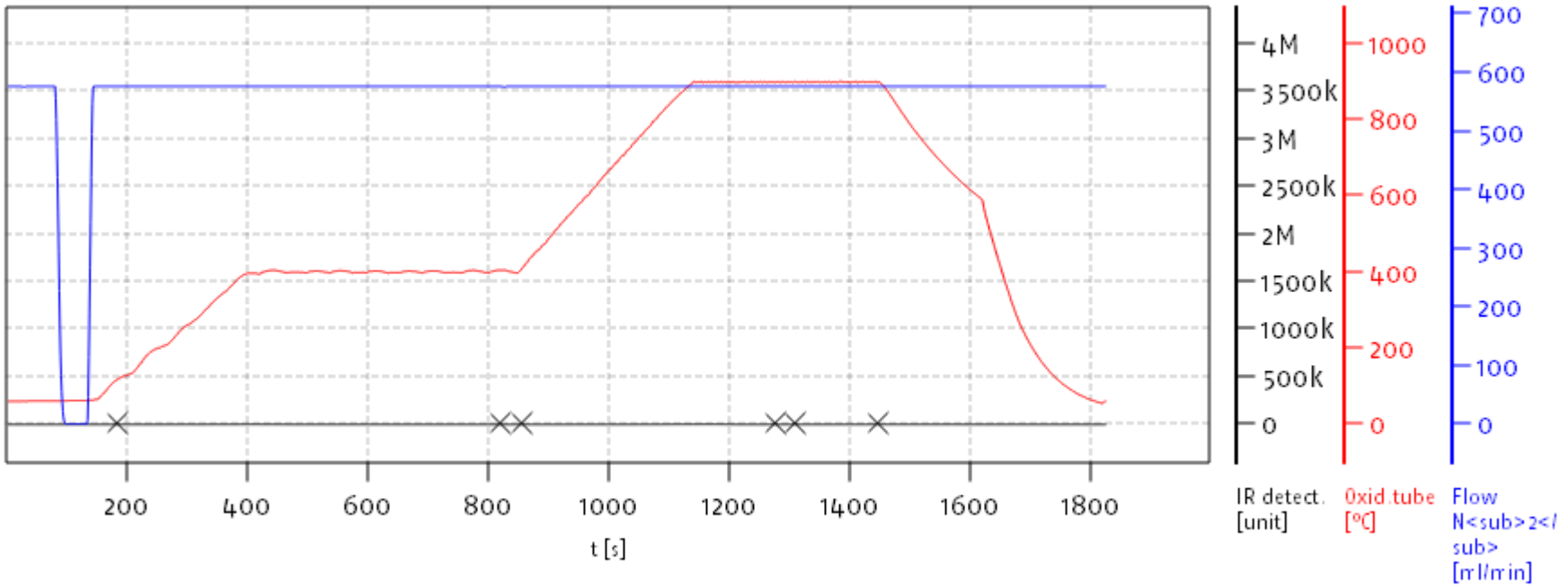
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
101	12	SJG0032-CCB8	531.50		1.00	CARBON	7/4/2021 7:44 PM	0.012	0.008	0.020	bl,C2u	7 666	10 466	1 658	1.0520	1.0000



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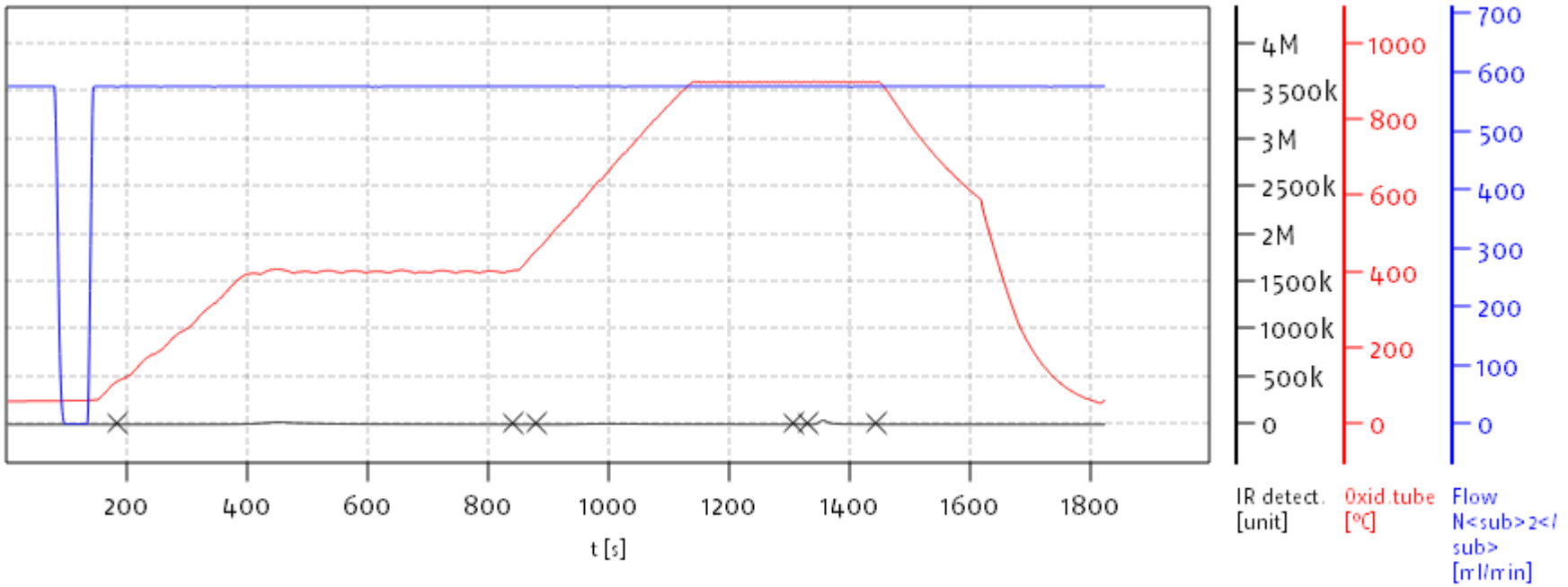
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
102	13	21F0392-14	614.10		1.00	CARBON	7/4/2021 8:15 PM	0.043	0.015	0.058	bl	98 757	41 842	33 714	1.0520	1.0000



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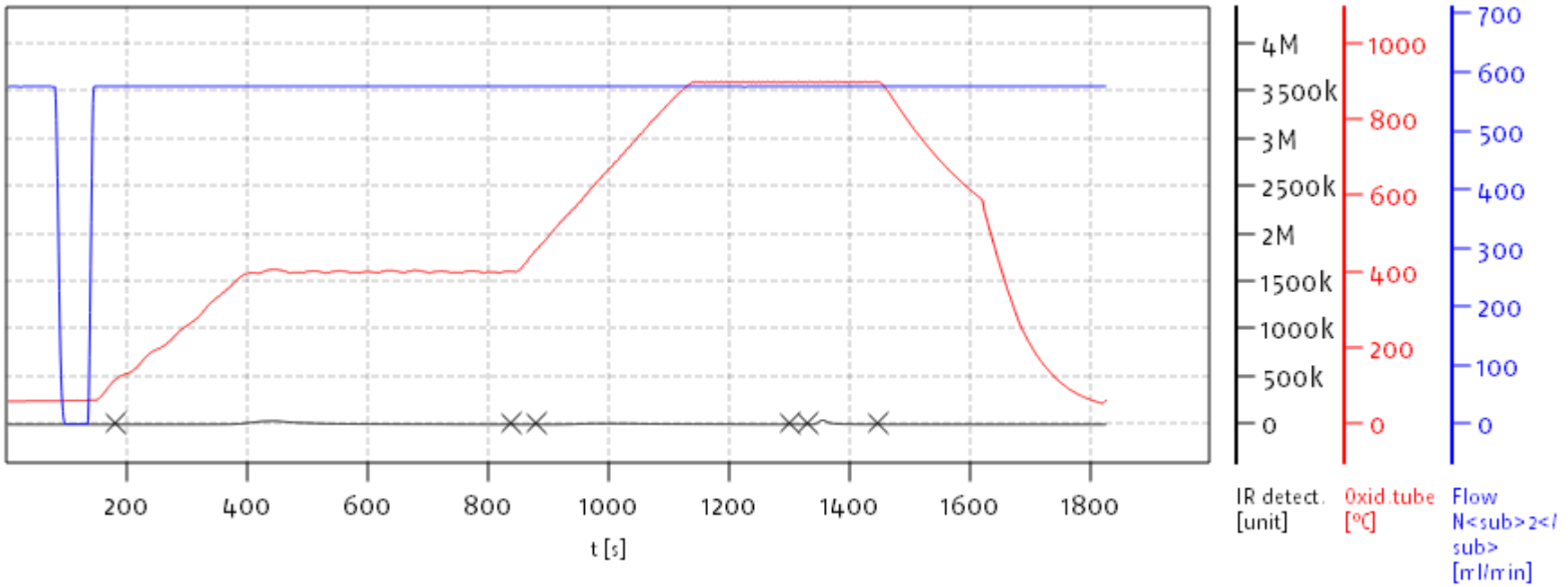
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
103	14	21F0392-15	543.80		1.00	CARBON	7/4/2021 8:46 PM	0.066	0.022	0.088	bl	151 566	60 290	36 520	1.0520	1.0000



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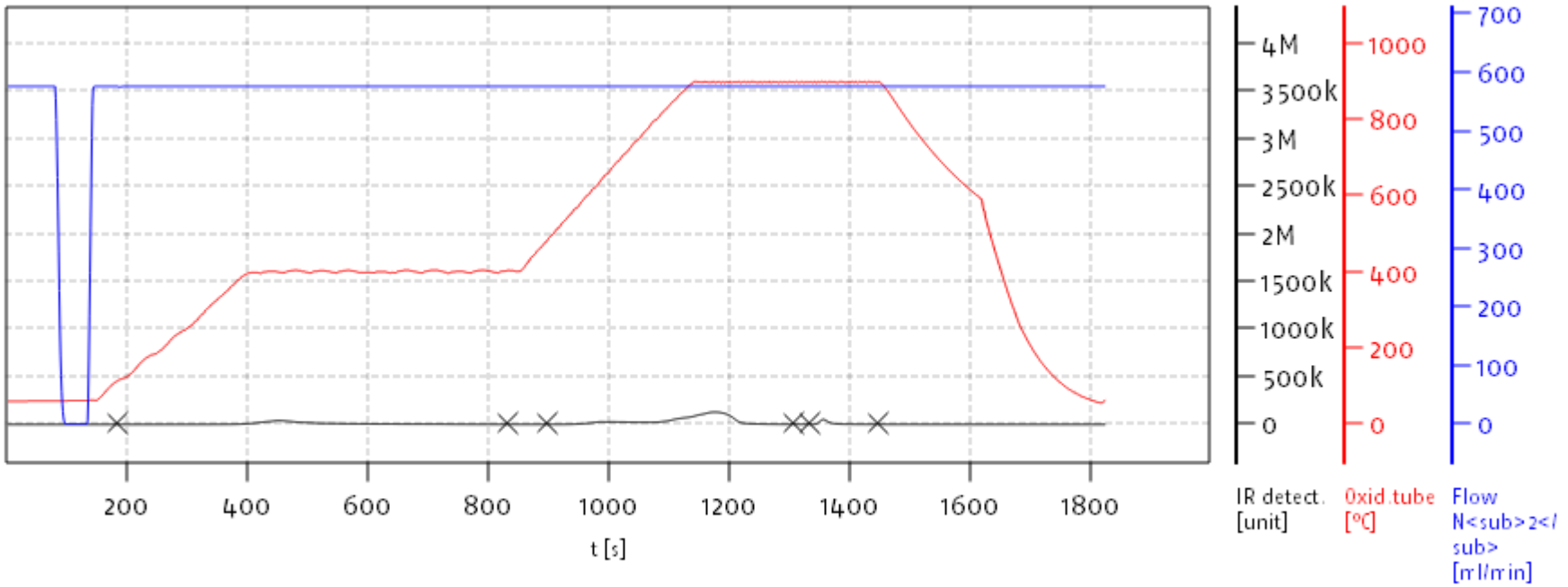
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
104	15	21F0392-16	509.90		1.00	CARBON	7/4/2021 9:16 PM	0.075	0.170	0.245	bl	166 084	538 676	39 118	1.0520	1.0000



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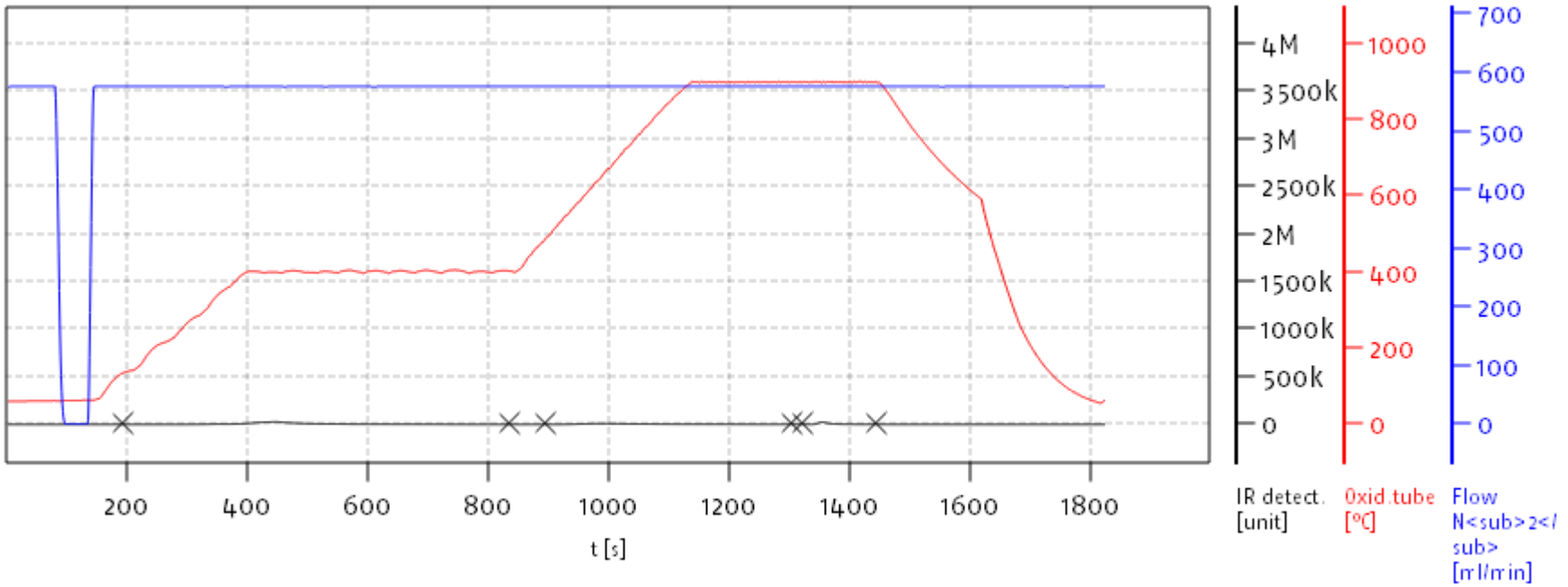
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
105	16	21F0392-17	552.50		1.00	CARBON	7/4/2021 9:47 PM	0.049	0.019	0.068	bl	114 194	50 420	22 002	1.0520	1.0000



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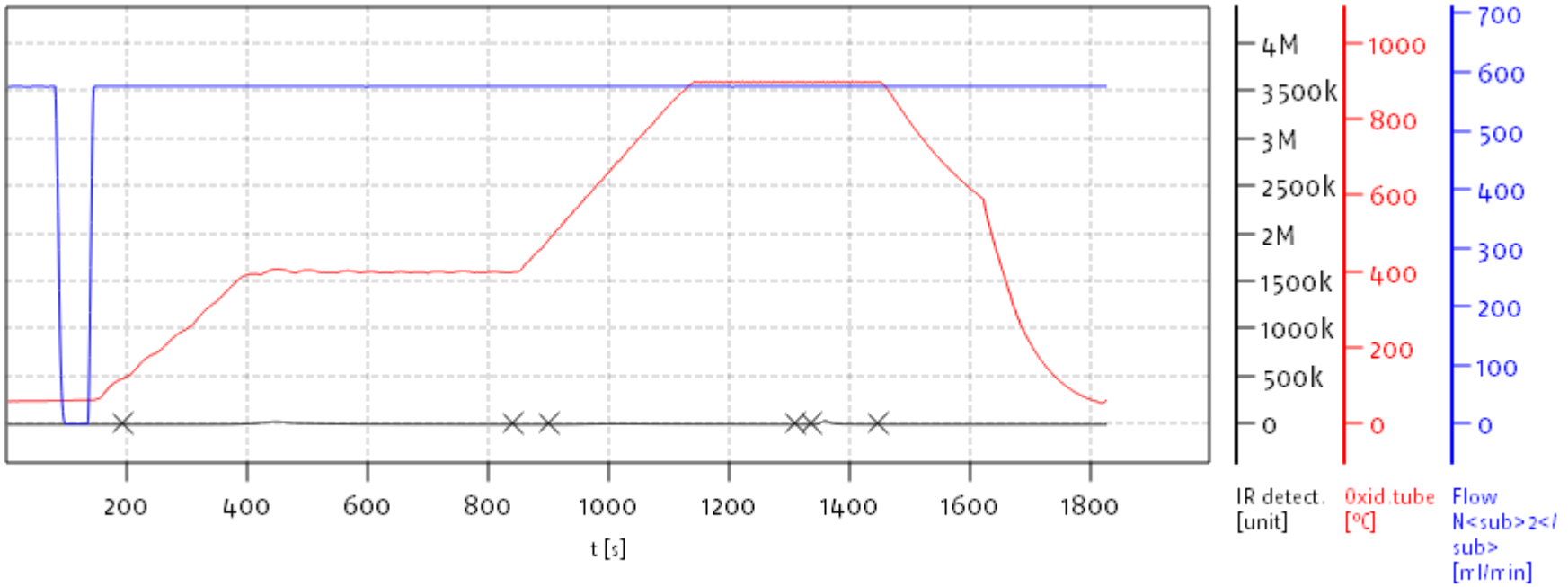
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
106	17	21F0392-18	579.00		1.00	CARBON	7/4/2021 10:18 PM	0.047	0.016	0.062	bl	106 091	41 690	29 389	1.0520	1.0000



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Access: soliTOC superuser

Date: Tue Jul 6 09:44:54 2021

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

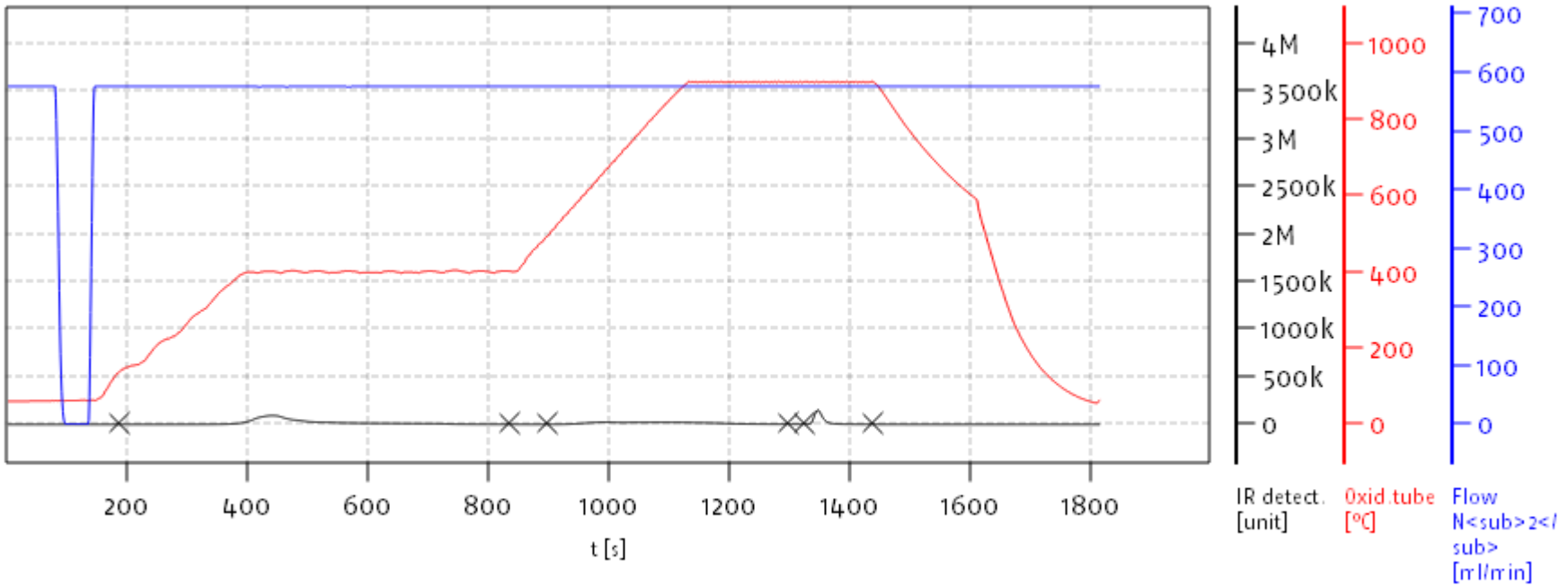
elementar
EXCELLENCE IN ELEMENTS

Document: 070221BF from: 7/6/2021 9:38 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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
107	18	21F0392-25	571.10		1.00	CARBON	7/4/2021 10:49 PM	0.146	0.059	0.205	bl	383 342	200 645	99 170	1.0520	1.0000



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Date: Tue Jul 6 09:44:54 2021

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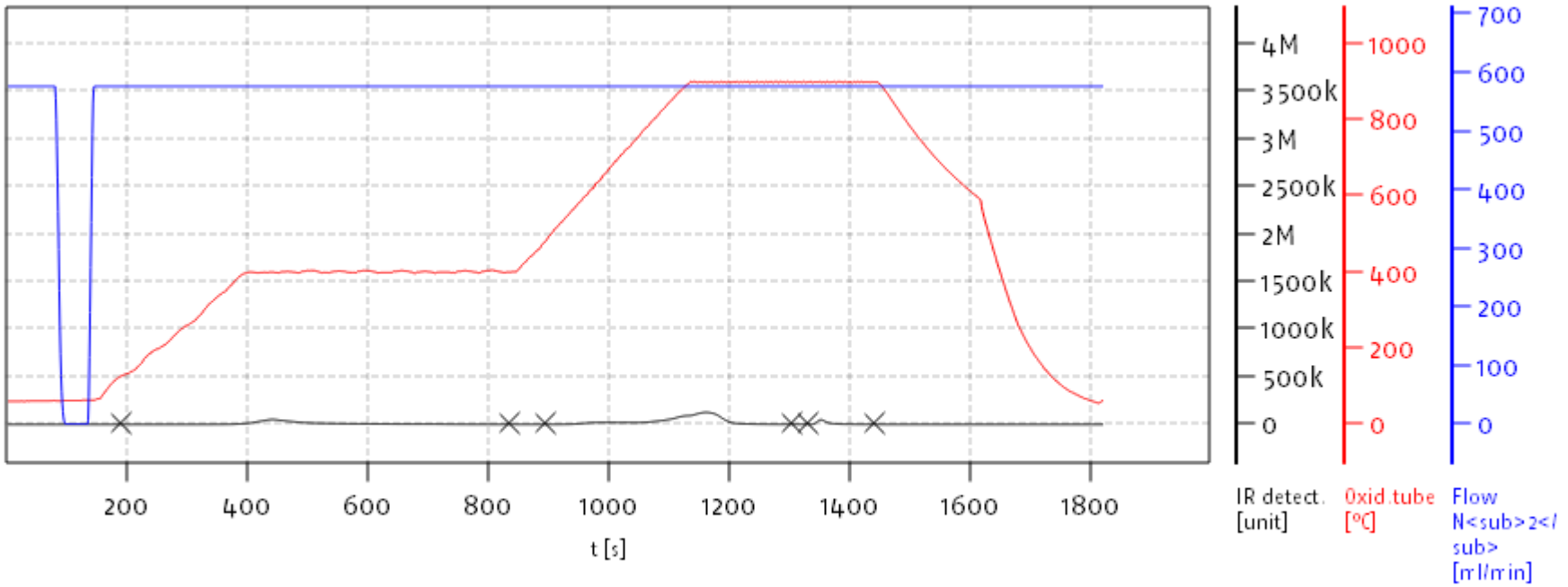
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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
108	19	21F0392-26	562.50		1.00	CARBON	7/4/2021 11:19 PM	0.076	0.141	0.216	bl	191 778	491 040	38 896	1.0520	1.0000



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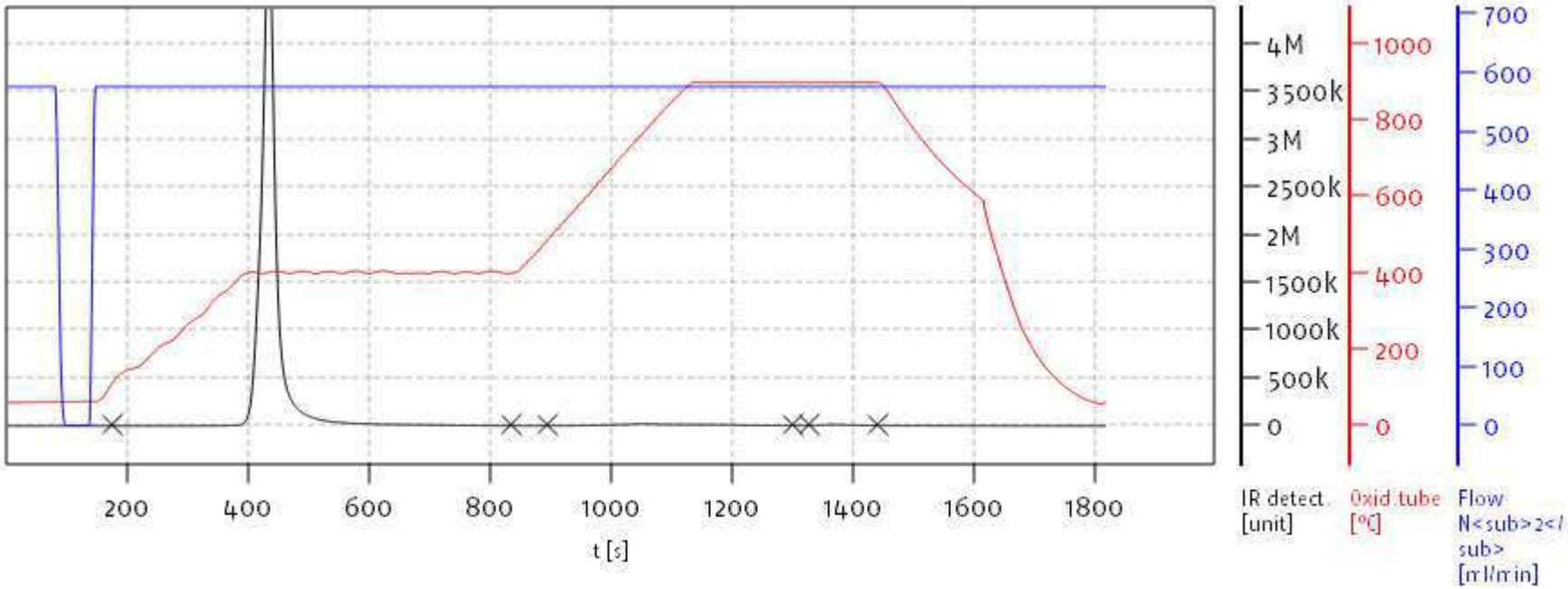
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
109	20	SJG0 032-CCV9	20.60		1.00	CARBON	7/4/2021 11:50 PM	43.743	1.215	44.957	bl	5 430 214	144 395	29 902	1.0520	1.0000



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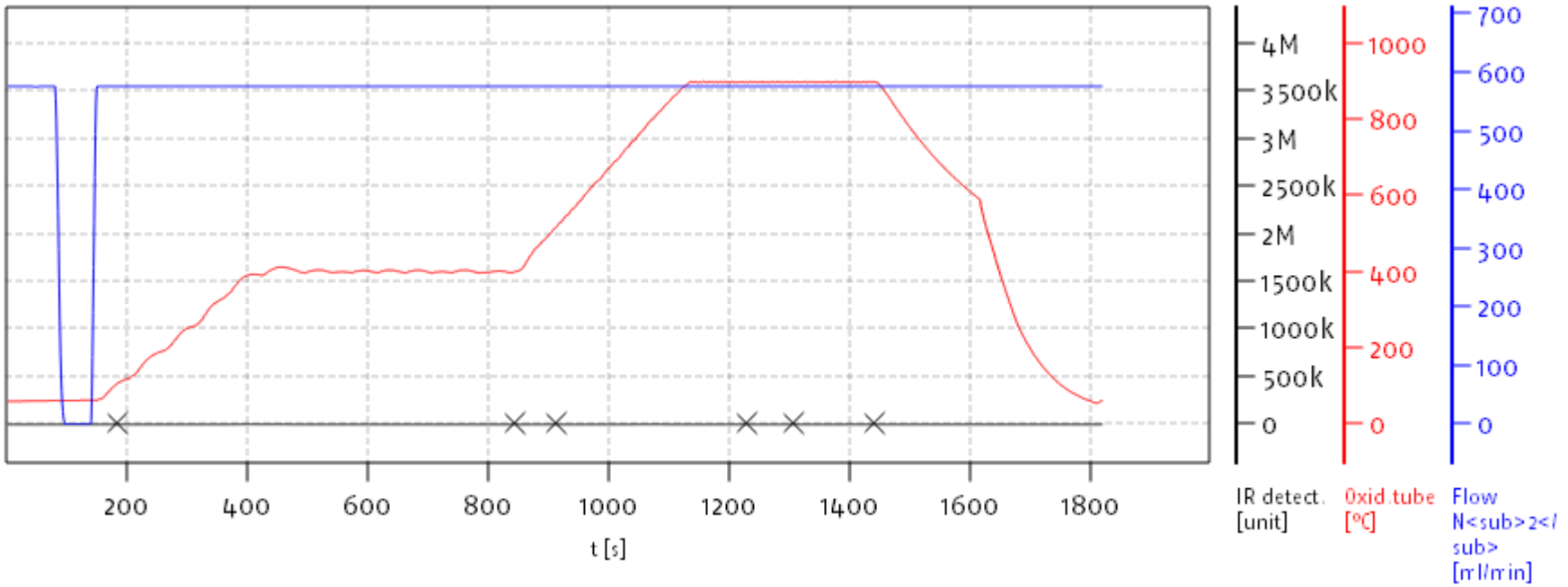
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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
110	21	SJG0 032-CCB9	585.10		1.00	CARBON	7/5/2021 12:21 AM	0.011	0.005	0.016	bl,C3u,C2u	6 384	3 291	1 102	1.0520	1.0000



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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Corrective Actions
Inorganic Analyses

Criteria Flagged:		ARI Job No.:	SJG0032
Unacceptable Blank:	✓	Date of Event:	7/3/21
Unacceptable Duplicate:		Client ID:	~~7/3/21~~ BF 7/6/21
Unacceptable Spike:		Method/Element:	TOC (s)
Unacceptable Reference:		Prep Code:	

Details of Problem/Recommended Corrective Action:

CCB2 detect @ 0.07%

Samples Affected:

Corrective Action Taken: All samples in affected brackets are >10x the RL. Any possible contamination is insignificant. Report data as is

Analyst Initials: BF

Supervisor: W

Date: 7/6/21

Date: 7-6-21

5049F

Revision 007
6/11/10

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	DI00090	Instrument:	TOC Cube
Calibration Date:	09/30/2020 16:46		

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	0.006899	1084748	0.014998	1309175	0.020698	1097063	0.030597	1142530	0.044996	1141013	0.060894	1198772
Total Carbon	0.006899	2169496	0.014998	2618349	0.020698	2194125	0.030597	2285061	0.044996	2282025	0.060894	2397543
Total Inorganic Carbon	0.006899	1084748	0.014998	1309175	0.020698	1097063	0.030597	1142530	0.044996	1141013	0.060894	1198772
% Soot	0.006899	1084748	0.014998	1309175	0.020698	1097063	0.030597	1142530	0.044996	1141013	0.060894	1198772

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	DI00090	Instrument:	TOC Cube
Calibration Date:	09/30/2020 16:46		

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	0.074693	1173524	0.090591	1231546	0.11969	1240755	0.14998	1242992	0.234	1244637	0.318	1259525
Total Carbon	0.074693	2347047	0.090591	2463092	0.11969	2481511	0.14998	2485985	0.234	2489274	0.318	2519050
Total Inorganic Carbon	0.074693	1173524	0.090591	1231546	0.11969	1240755	0.14998	1242992	0.234	1244637	0.318	1259525
% Soot	0.074693	1173524	0.090591	1231546	0.11969	1240755	0.14998	1242992	0.234	1244637	0.318	1259525

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	DI00090	Instrument:	TOC Cube
Calibration Date:	09/30/2020 16:46		

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	0.45	1248402	0.588	1271219	0.888	1286270	1.2	1289192	1.518	1283052	1.782	1286234
Total Carbon	0.45	2496805	0.588	2542439	0.888	2572541	1.2	2578383	1.518	2566104	1.782	2572468
Total Inorganic Carbon	0.45	1248402	0.588	1271219	0.888	1286270	1.2	1289192	1.518	1283052	1.782	1286234
% Soot	0.45	1248402	0.588	1271219	0.888	1286270	1.2	1289192	1.518	1283052	1.782	1286234

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 9060A m

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	DI00090	Instrument:	TOC Cube
Calibration Date:	09/30/2020 16:46		

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	2.388	1276347	2.964	1274586	4.206	1280029	4.782	1283255	5.394	1283479	7.206	1287428
Total Carbon	2.388	2552694	2.964	2549172	4.206	2560057	4.782	2566510	5.394	2566958	7.206	2574857
Total Inorganic Carbon	2.388	1276347	2.964	1274586	4.206	1280029	4.782	1283255	5.394	1283479	7.206	1287428
% Soot	2.388	1276347	2.964	1274586	4.206	1280029	4.782	1283255	5.394	1283479	7.206	1287428

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 9060A m

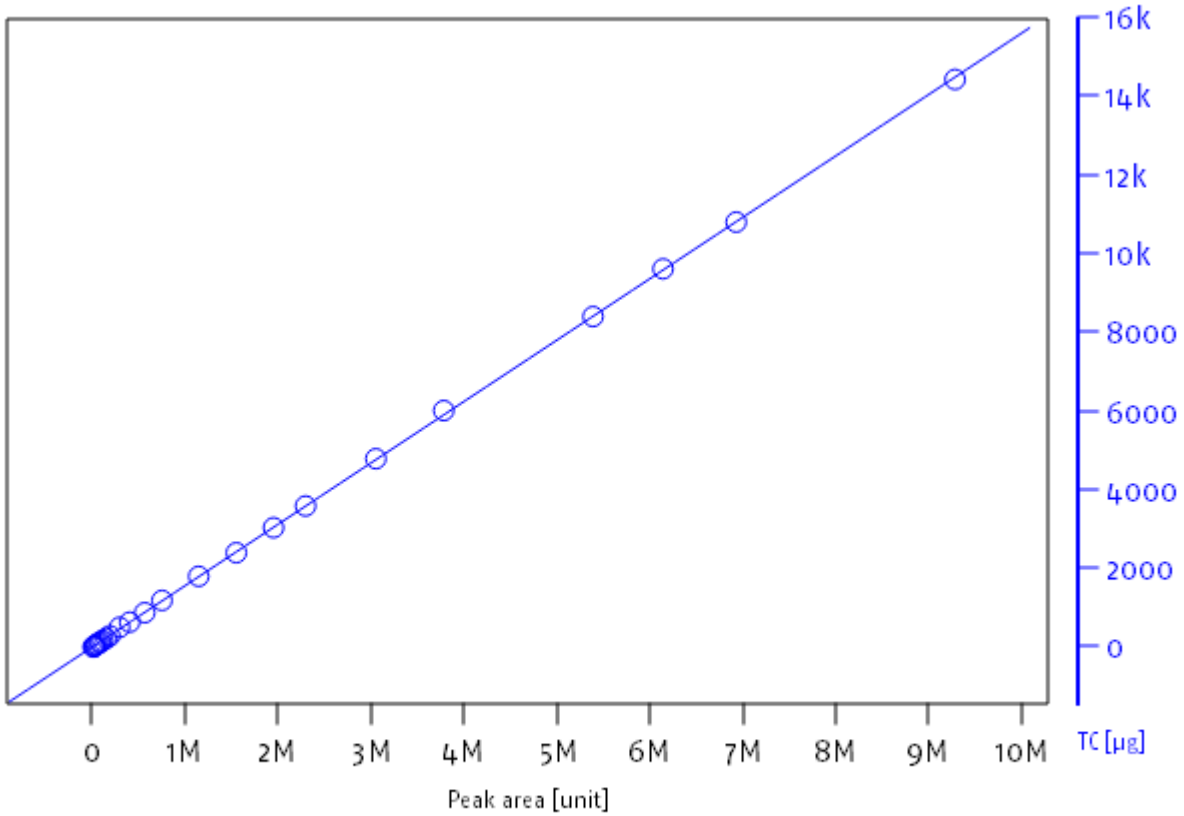
Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	DI00090	Instrument:	TOC Cube
Calibration Date:	09/30/2020 16:46		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Total Organic Carbon	1238157	5.2	1.0000			
Total Carbon	2476314	5.2	1.0000			
Total Inorganic Carbon	1238157	5.2	1.0000			
% Soot	1238157	5.2	1.0000			

Calibration parameters TC, Whole range

a	+2.490601e-02
b	+1.560222e-06
c	+0.000000e+00
d	+0.000000e+00
e	+0.000000e+00
r	0.999944
r_old	0.999944
Proc.-SD	30.494447 µg

Calibration graph TC, Whole range



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Access: soliTOC superuser

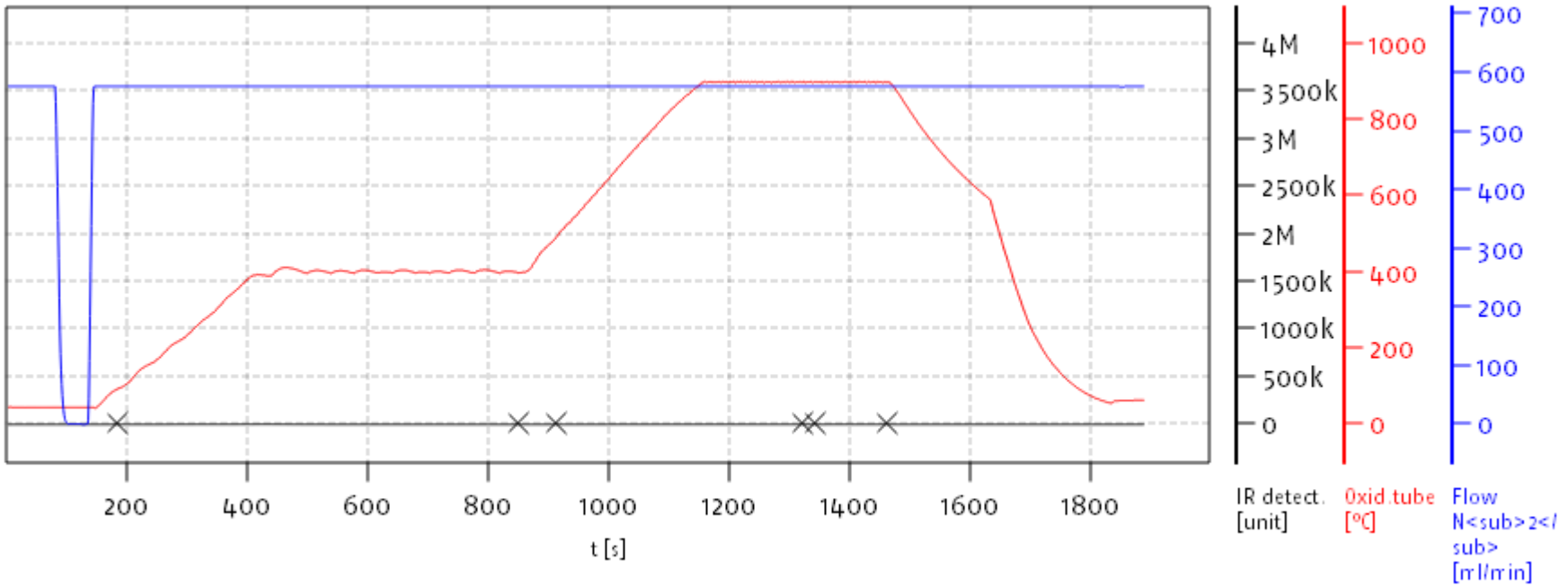
Date: Thu Oct 1 09:25:35 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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	9/30/2020 5:24 PM	0.000	0.000	0.000	bl	16 821	9 477	3 545	1.0000	1.0000



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Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

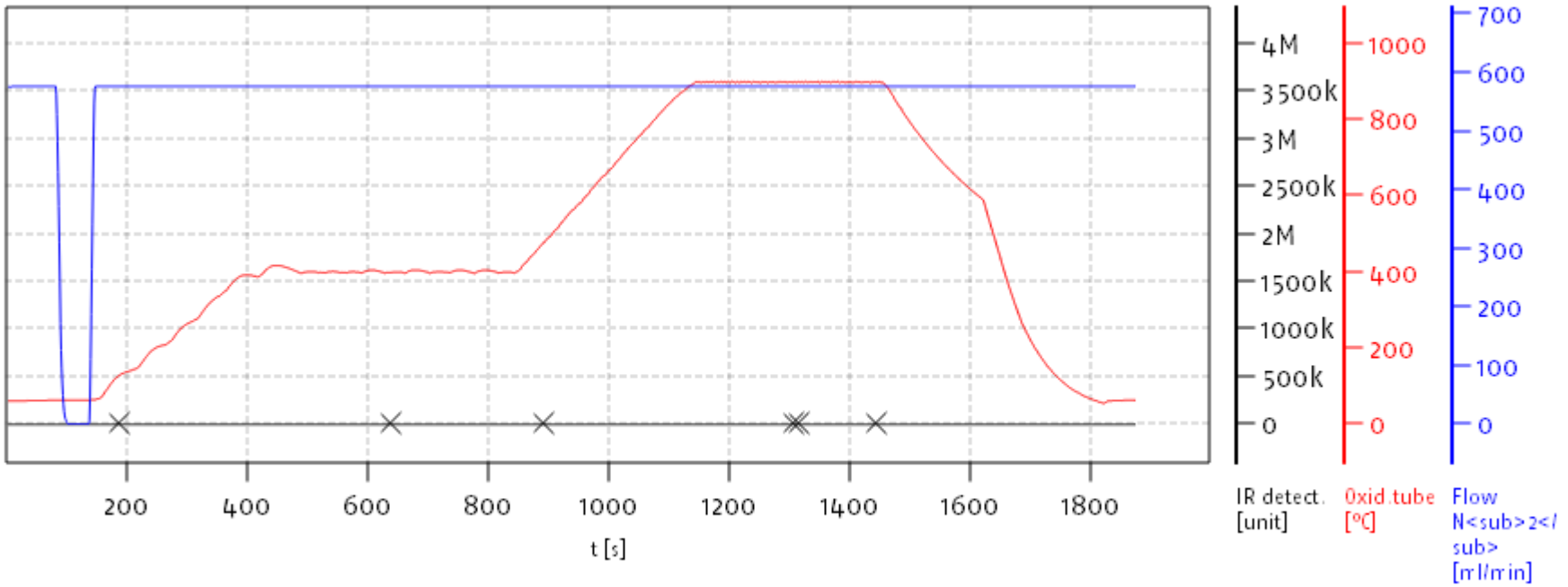
elementar
EXCELLENCE IN ELEMENTS

Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
2	2	BLANK	1.00		1.00	CARBON	9/30/2020 5:56 PM	0.000	0.000	0.000	bl	771	0	39	1.0000	1.0000



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Date: Thu Oct 1 09:26:50 2020

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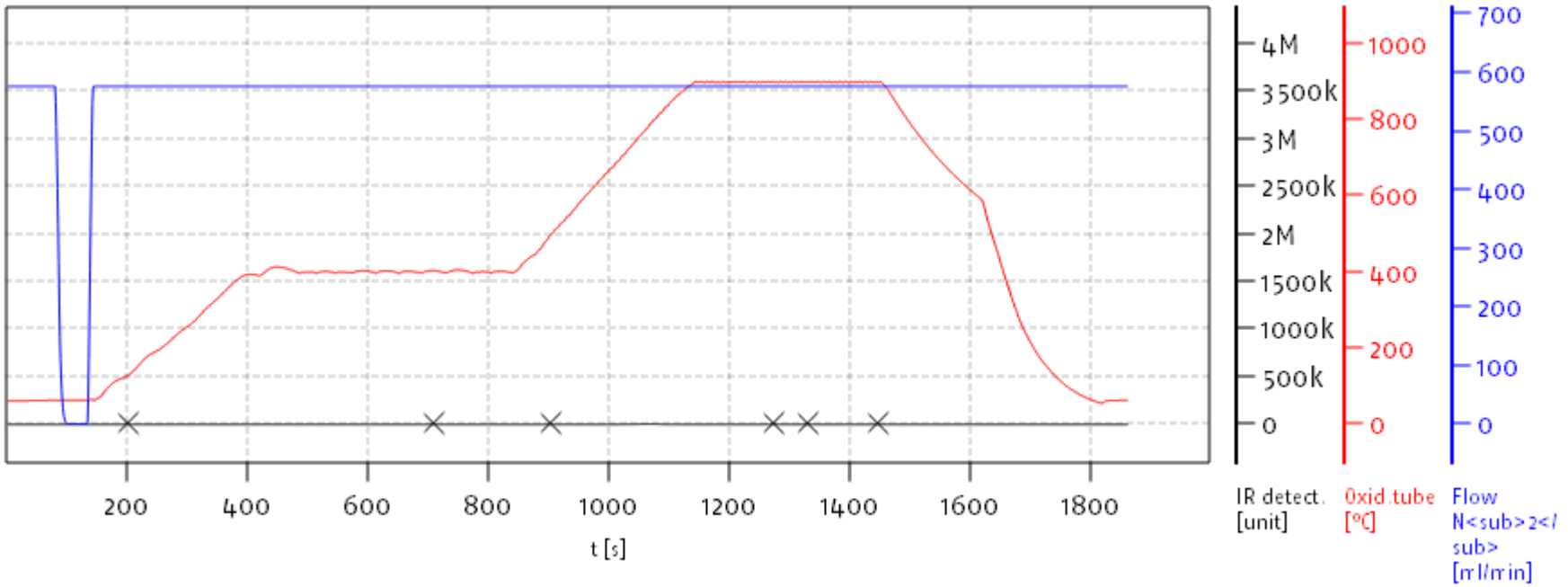
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
3	3	SEQ-CAL1	200.00	0.0023	1.00	CARBON	9/30/2020 6:28 PM	0.000	0.008	0.008	bl,C1u,C3u,C2u	1 427	7 484	68	1.0000	0.4704



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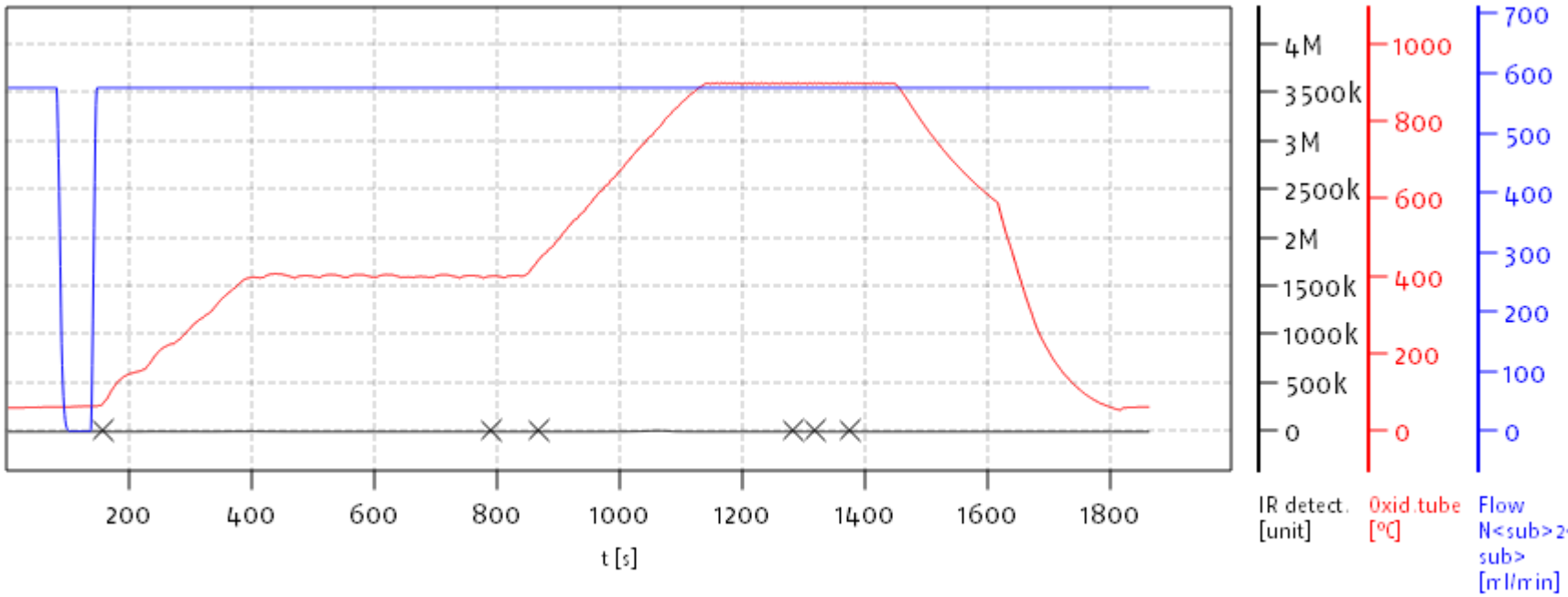
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
4	4	SEQ-CAL2	200.00	0.0050	1.00	CARBON	9/30/2020 6:59 PM	0.000	0.015	0.015	bl,C2u	16 743	19 635	48	1.0000	0.5690



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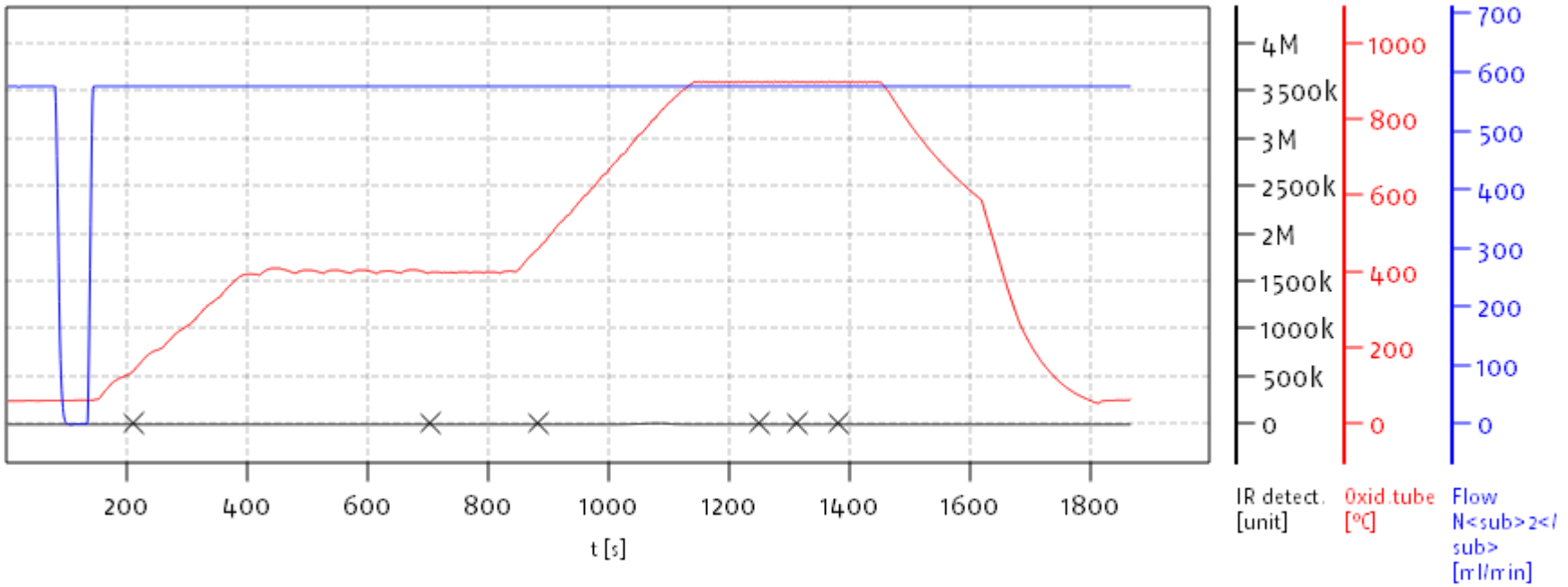
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
5	5	SEQ-CAL3	200.00	0.0069	1.00	CARBON	9/30/2020 7:31 PM	0.000	0.022	0.022	bl,C1u,C2u	1 189	22 707	52	1.0000	0.7609



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Balance: BAL3
Analyst: KLE

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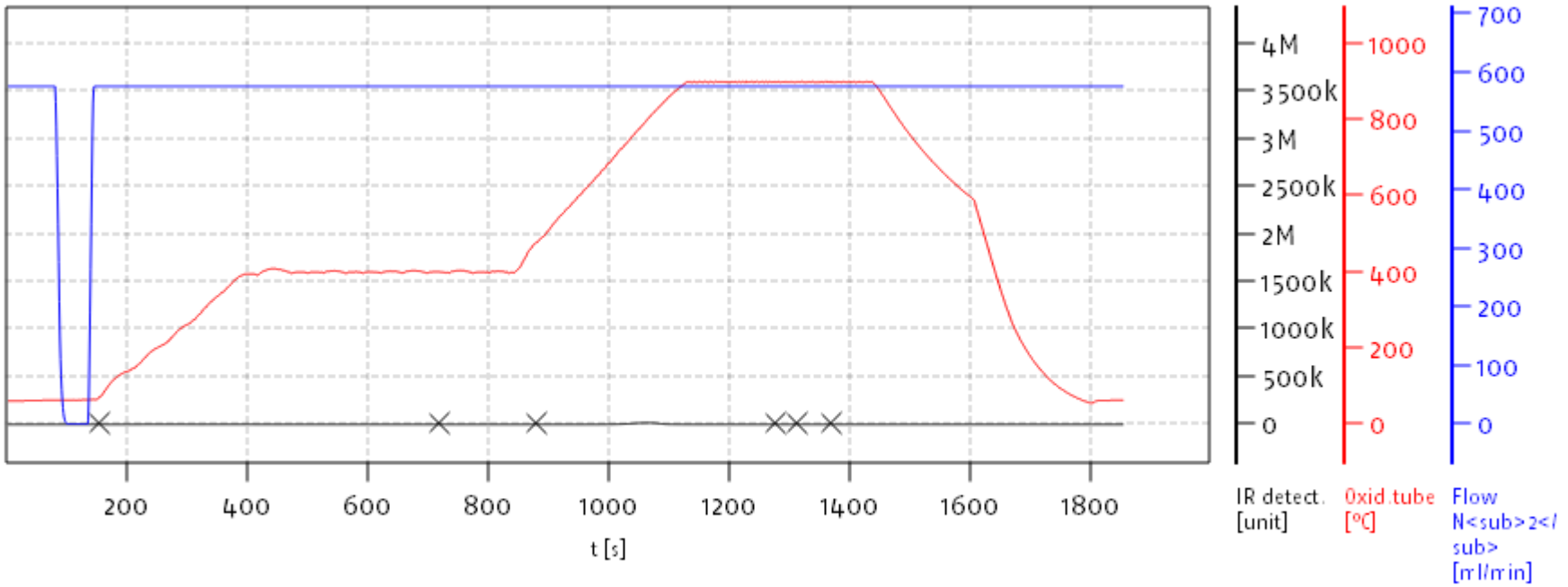
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
6	6	SEQ-CAL4	200.00	0.0102	1.00	CARBON	9/30/2020 8:02 PM	0.000	0.030	0.030	bl,C1u,C2u	6 863	34 958	62	1.0000	0.7914



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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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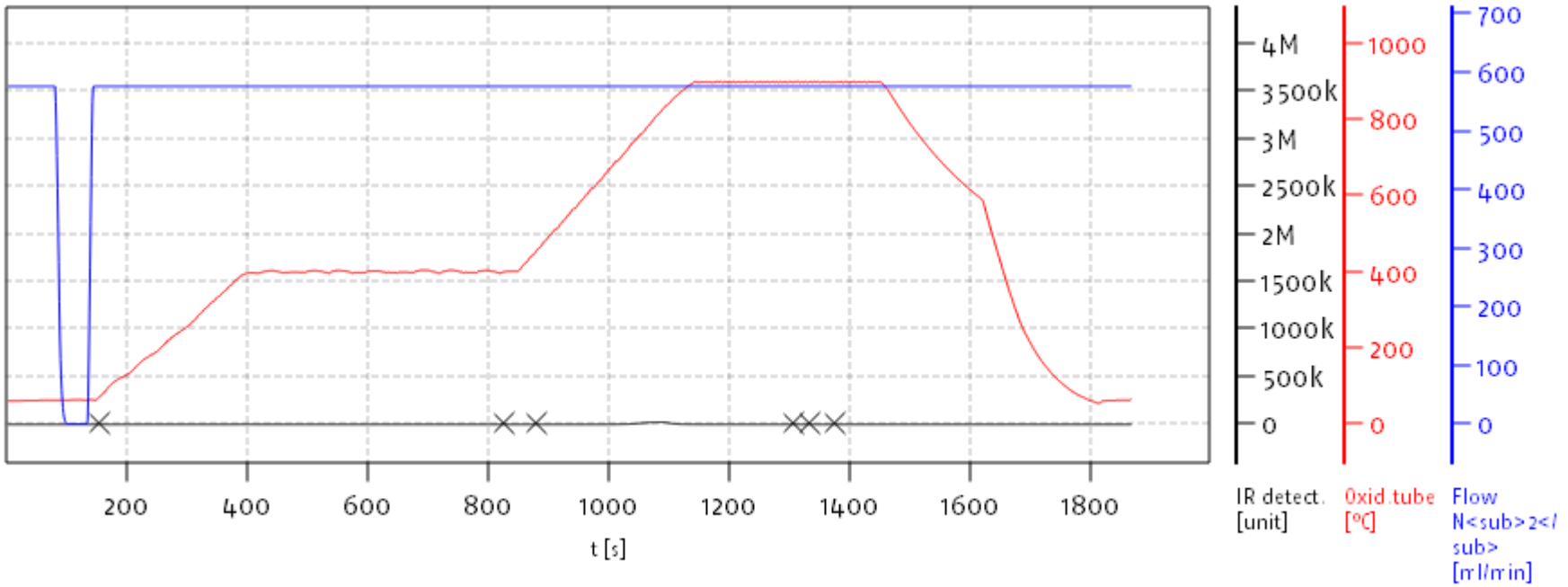
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	SEQ-CAL5	200.00	0.0150	1.00	CARBON	9/30/2020 8:34 PM	0.000	0.045	0.045	bl,C1u,C2u	4 741	51 341	25	1.0000	0.8916



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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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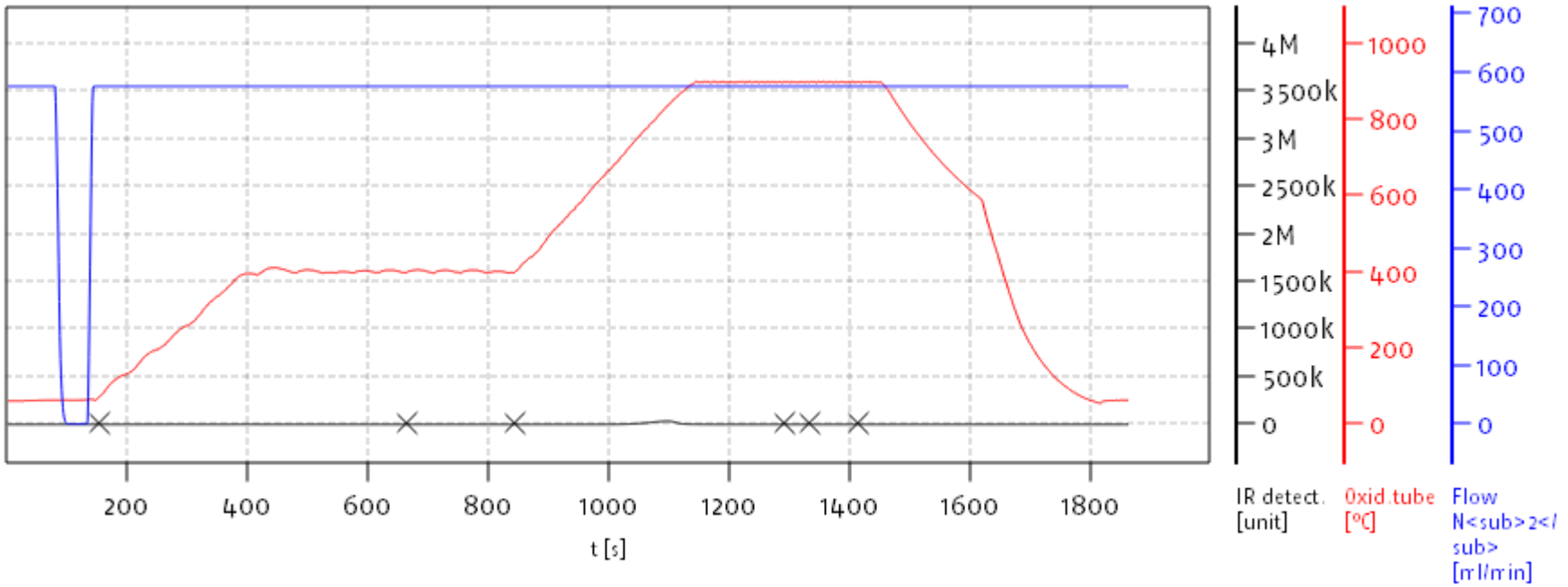
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	8	SEQ-CAL6	200.00	0.0203	1.00	CARBON	9/30/2020 9:05 PM	0.000	0.061	0.061	bl,C1u,C2u	5 201	72 998	148	1.0000	0.9193



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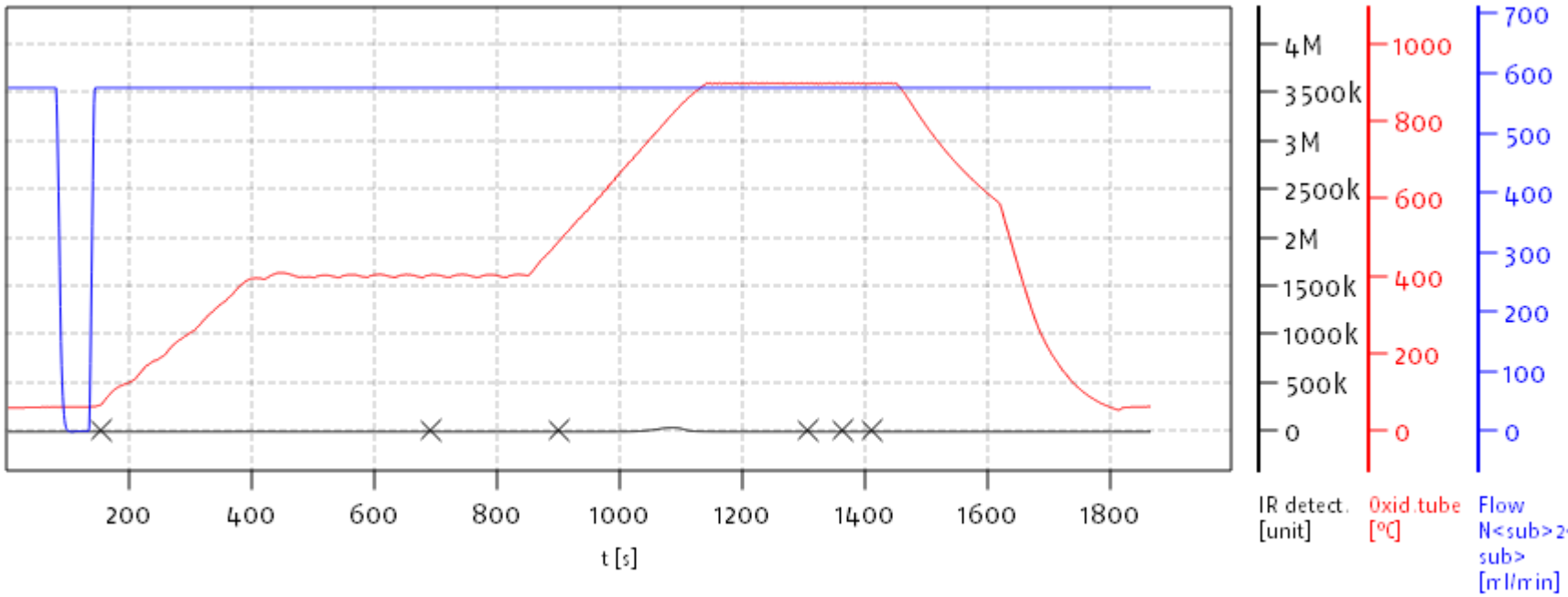
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
9	9	SEQ-CAL7	200.00	0.0249	1.00	CARBON	9/30/2020 9:37 PM	0.000	0.075	0.075	bl,C1u,C2u	5 404	87 654	32	1.0000	0.9719



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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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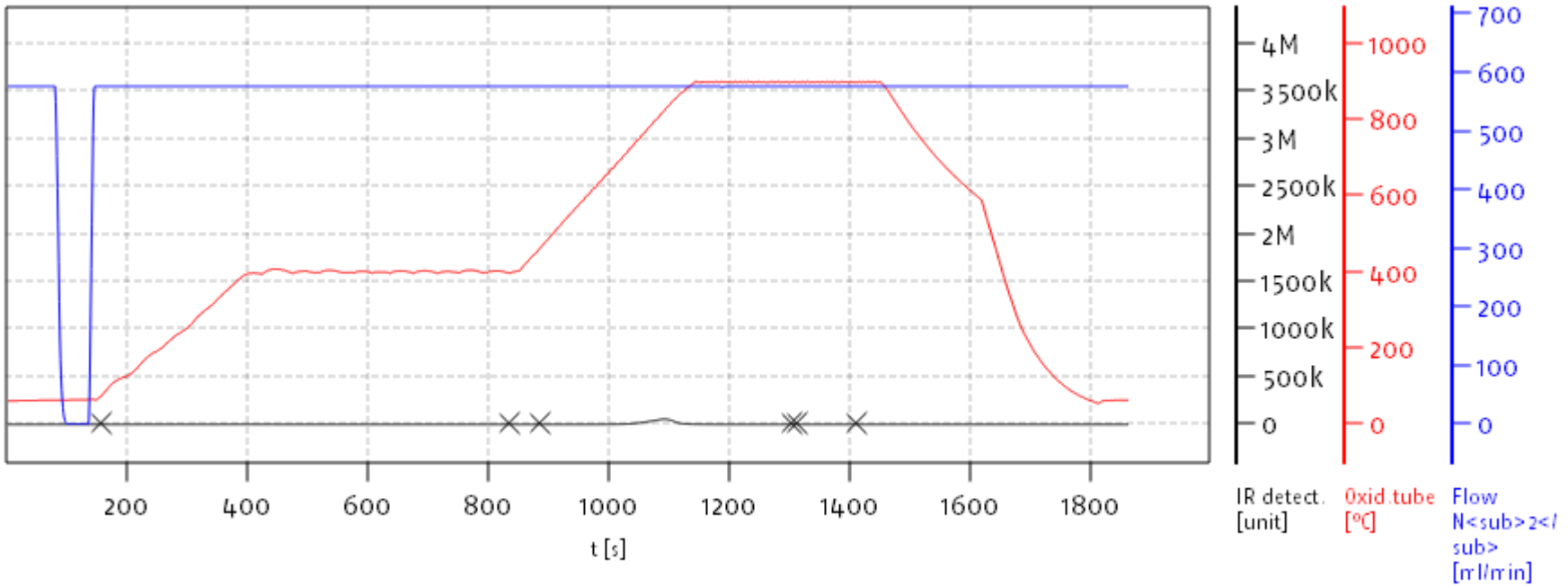
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
10	10	SEQ-CAL8	200.00	0.0302	1.00	CARBON	9/30/2020 10:08 PM	0.000	0.091	0.091	bl,C1u,C2u	7 153	111 567	84	1.0000	0.9511



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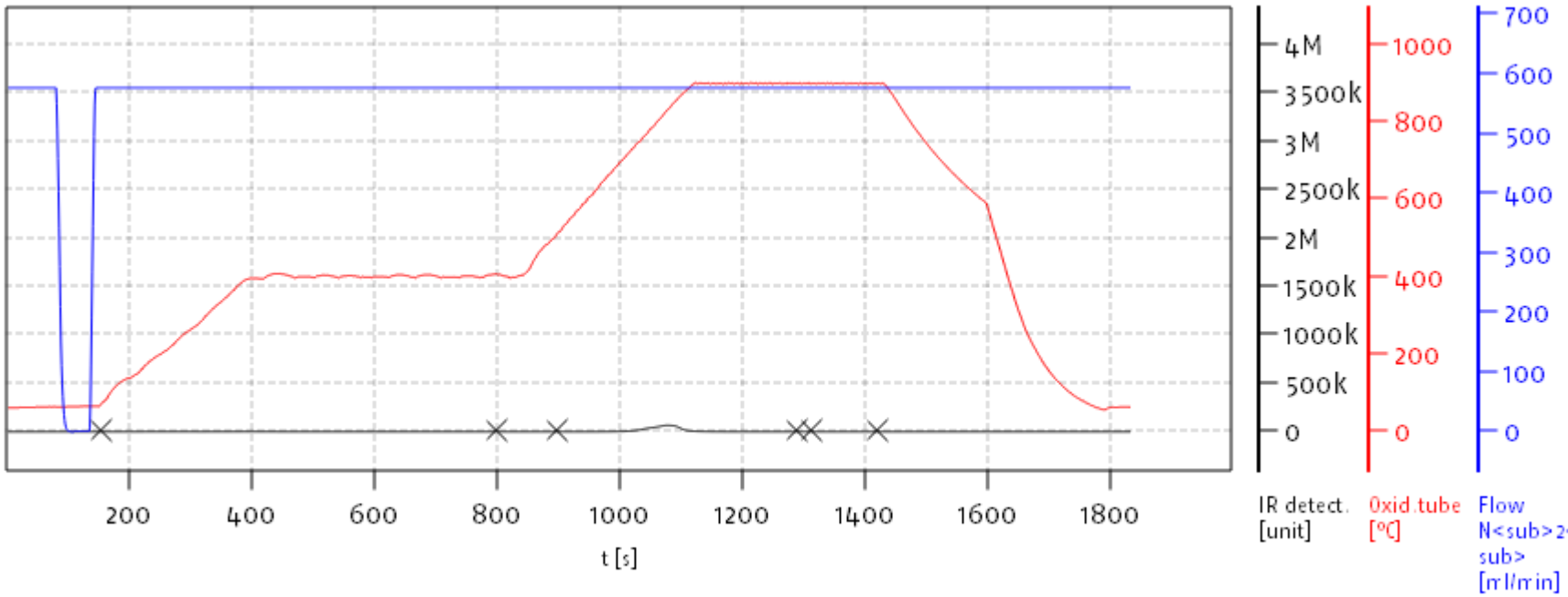
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
11	11	SEQ-CAL9	200.00	0.0399	1.00	CARBON	9/30/2020 10:39 PM	0.000	0.120	0.120	bl,C1u,C2u	7 447	148 506	81	1.0000	0.9778



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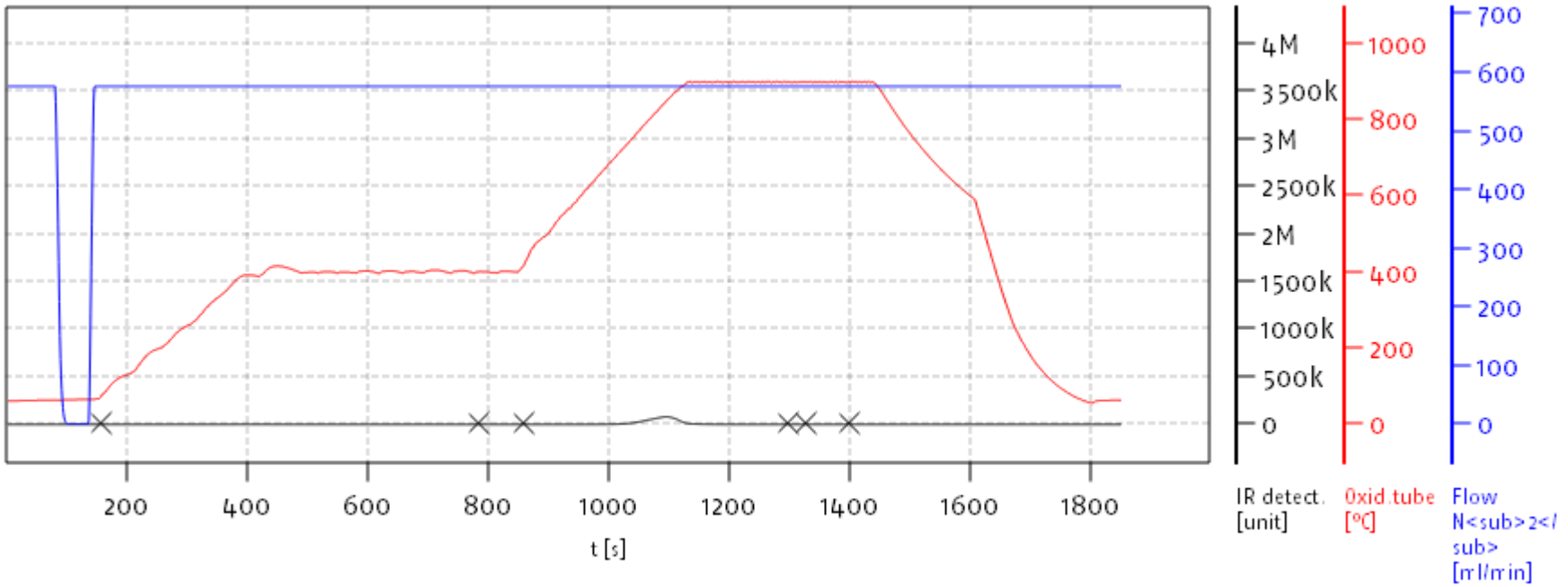
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
12	12	SEQ-CALA	200.00	0.0500	1.00	CARBON	9/30/2020 11:10 PM	0.000	0.151	0.151	bl,C1u,C2u	4 501	186 424	91	1.0000	0.9998



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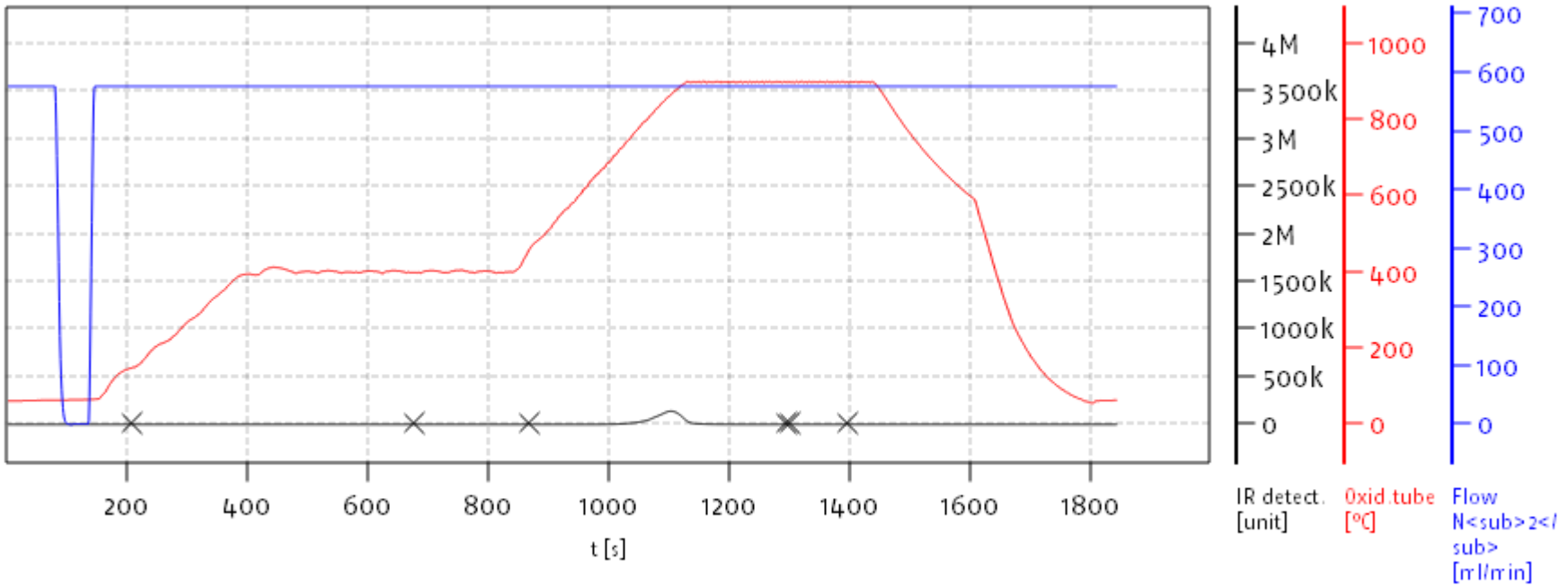
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
13	13	SEQ-CALB	200.00	0.0039	1.00	CARBON	9/30/2020 11:41 PM	0.000	0.258	0.258	bl,C1u,C2u	719	291 245	93	1.0000	1.1272



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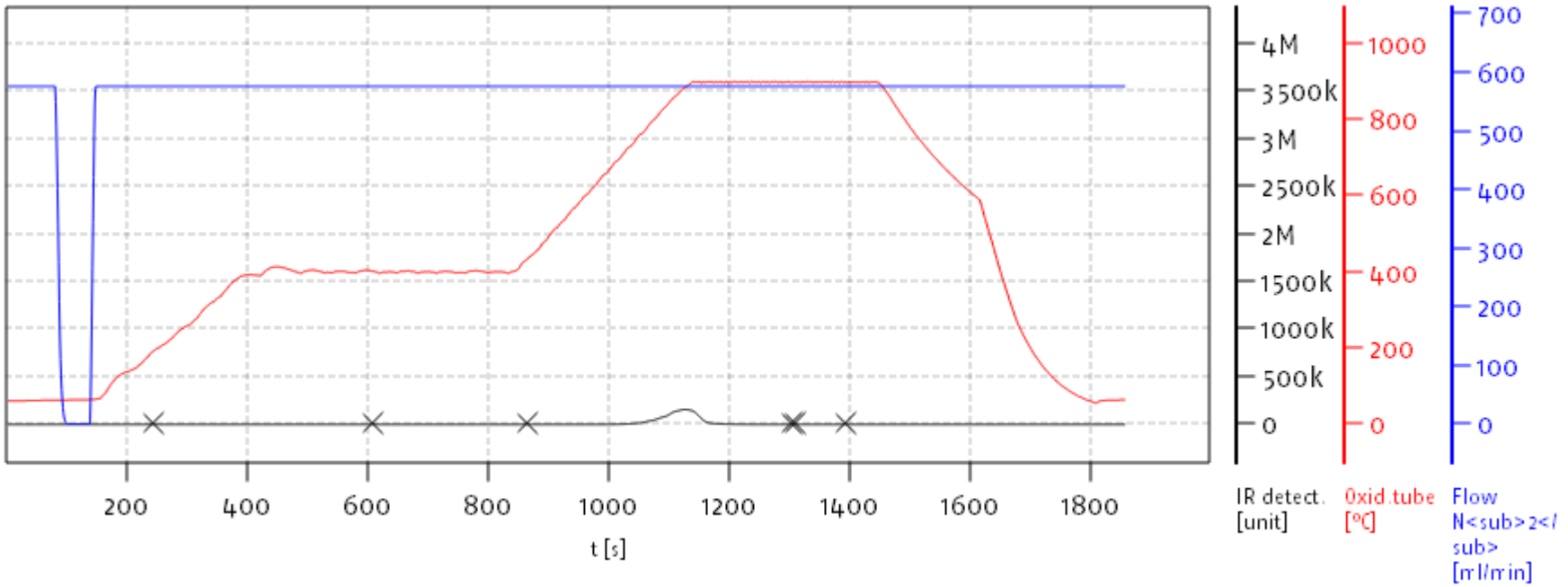
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
14	14	SEQ-CALC	200.00	0.0053	1.00	CARBON	10/1/2020 12:13 AM	0.000	0.324	0.324	bl,C1u,C2u	698	400 529	135	1.0000	1.0447



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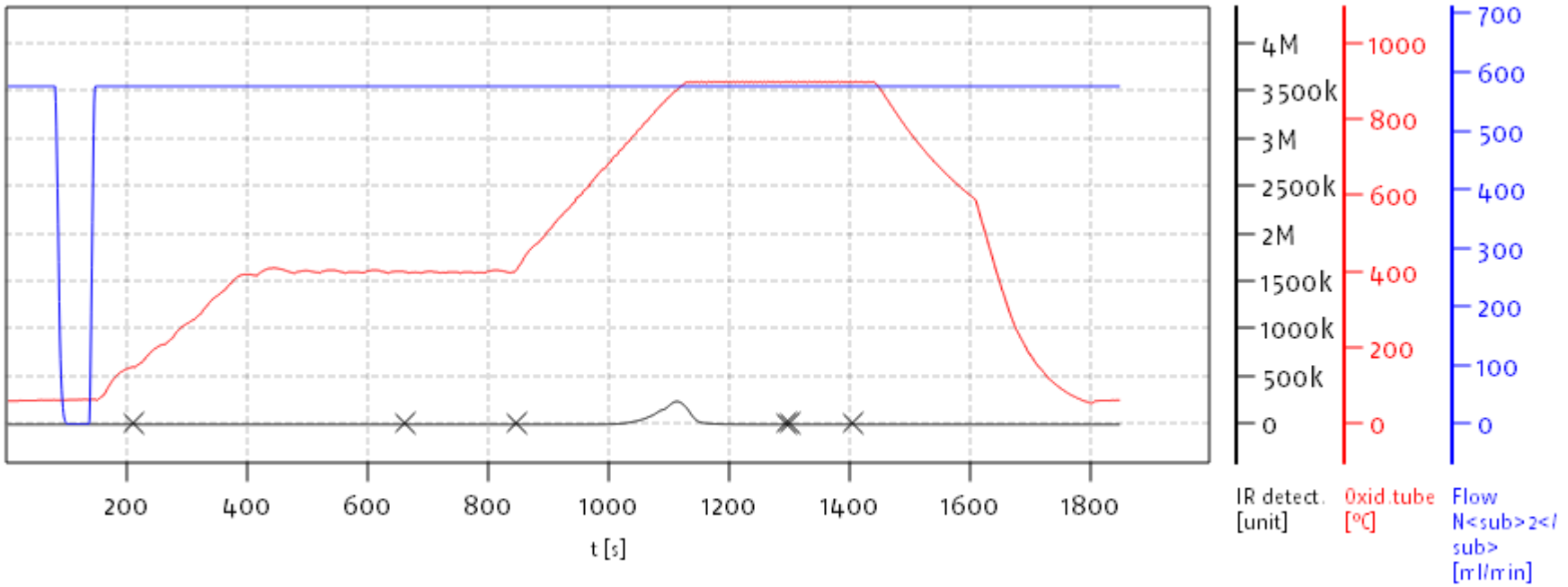
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
15	15	SEQ-CALD	200.00	0.0075	1.00	CARBON	10/1/2020 12:44 AM	0.000	0.444	0.444	bl,C1u,C2u	859	561 781	183	1.0000	1.0324



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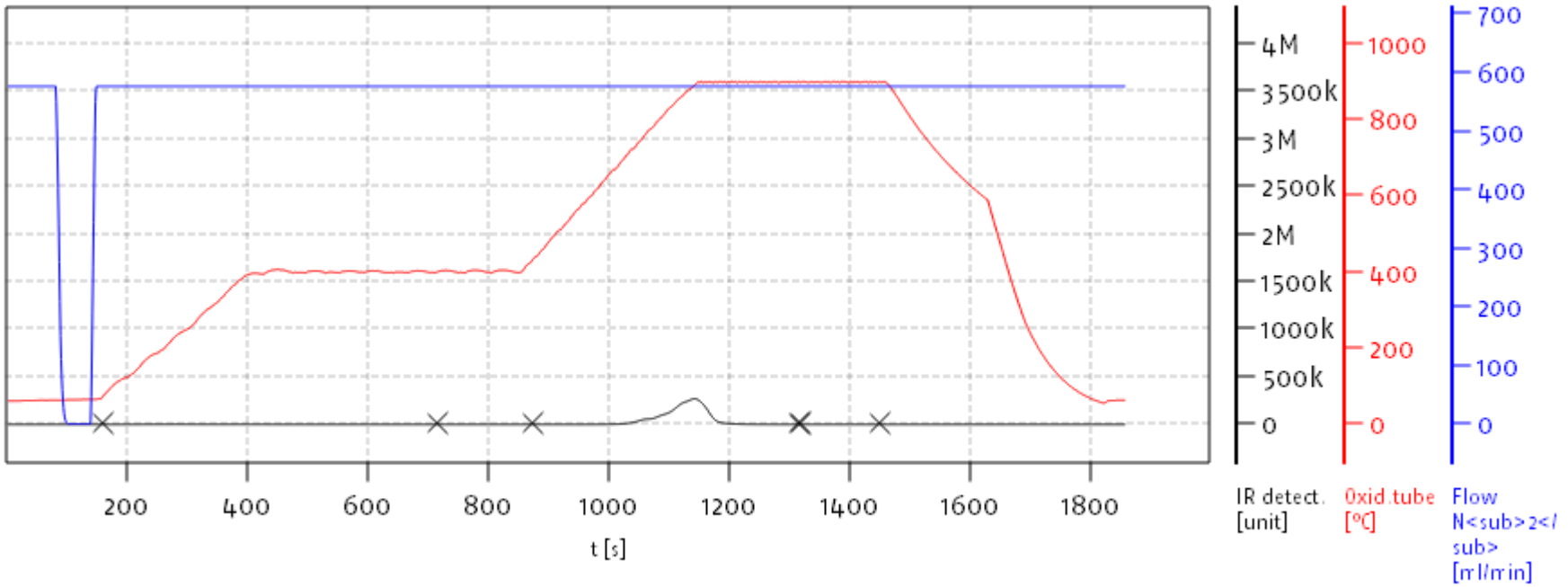
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
16	16	SEQ-CALE	200.00	0.0098	1.00	CARBON	10/1/2020 1:15 AM	0.000	0.600	0.600	bl,C1u,C2u	9 484	747 477	308	1.0000	1.0560



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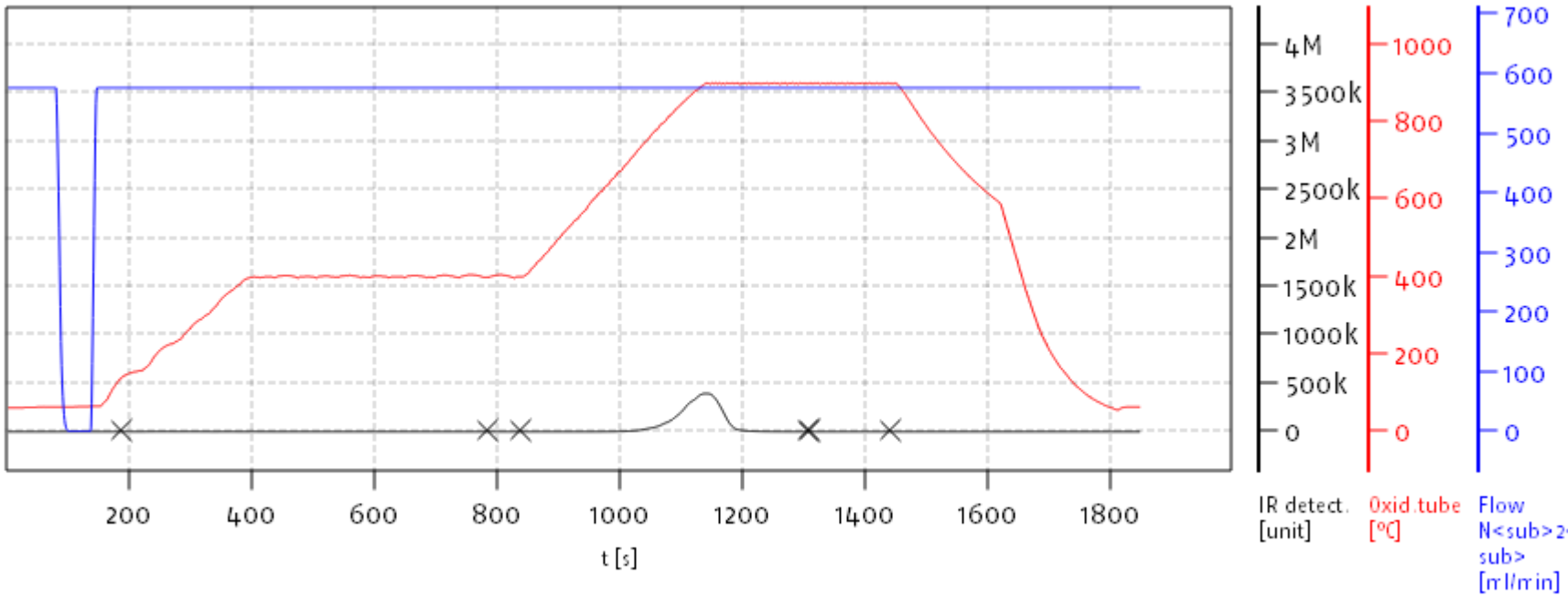
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
17	17	SEQ-CALF	200.00	0.0148	1.00	CARBON	10/1/2020 1:47 AM	0.000	0.906	0.906	bl,C1u,C2u	7 007	1 142 208	388	1.0000	1.0514



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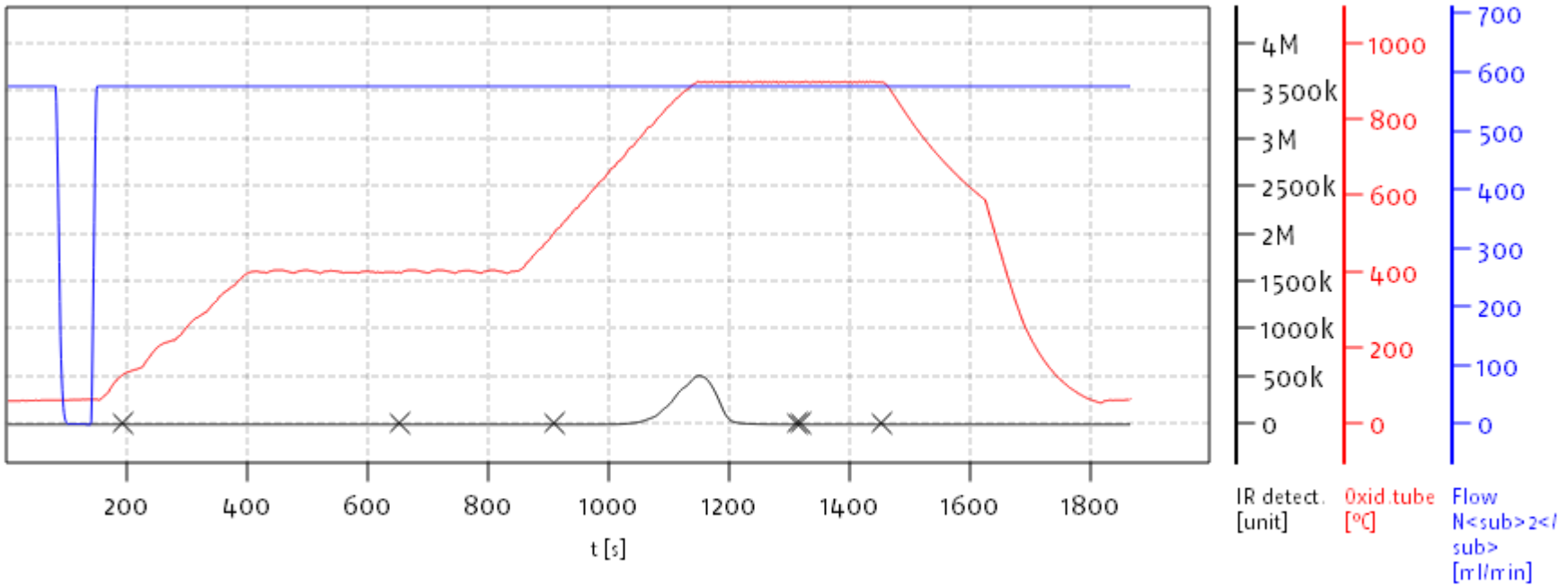
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
18	18	SEQ-CALG	200.00	0.0200	1.00	CARBON	10/1/2020 2:18 AM	0.000	1.206	1.206	bl,C1u,C2u	1 393	1 547 030	696	1.0000	1.0372



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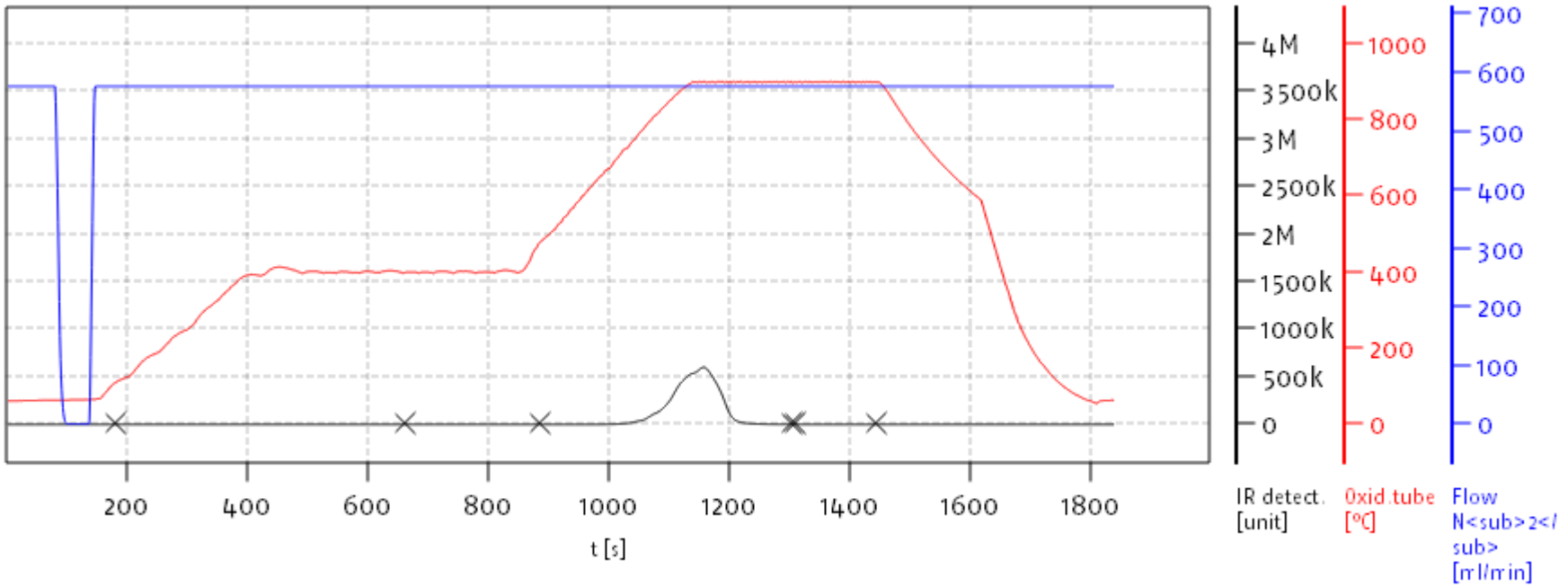
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
19	19	SEQ-CALH	200.00	0.0253	1.00	CARBON	10/1/2020 2:49 AM	0.000	1.524	1.524	bl,C1u,C2u	1 599	1 947 673	1 238	1.0000	1.0433



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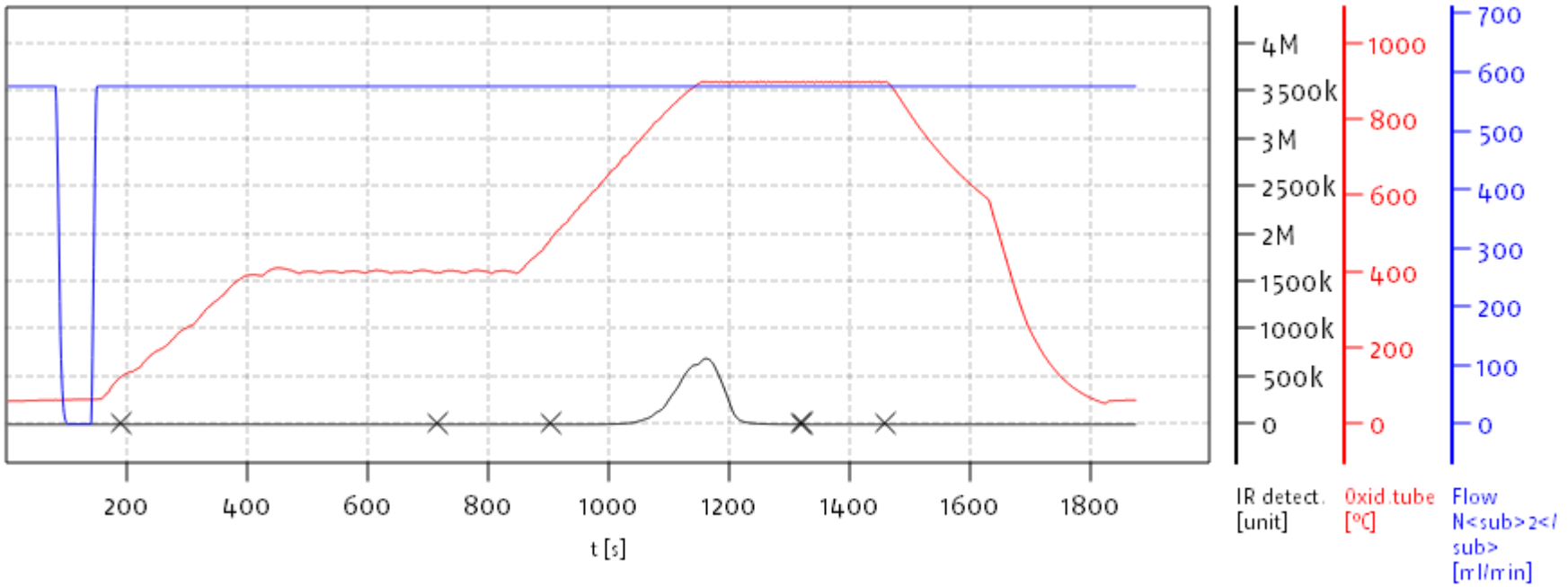
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
20	20	SEQ-CALI	200.00	0.0297	1.00	CARBON	10/1/2020 3:21 AM	0.000	1.800	1.800	bl,C1u,C2u	6 147	2 292 069	1 031	1.0000	1.0484



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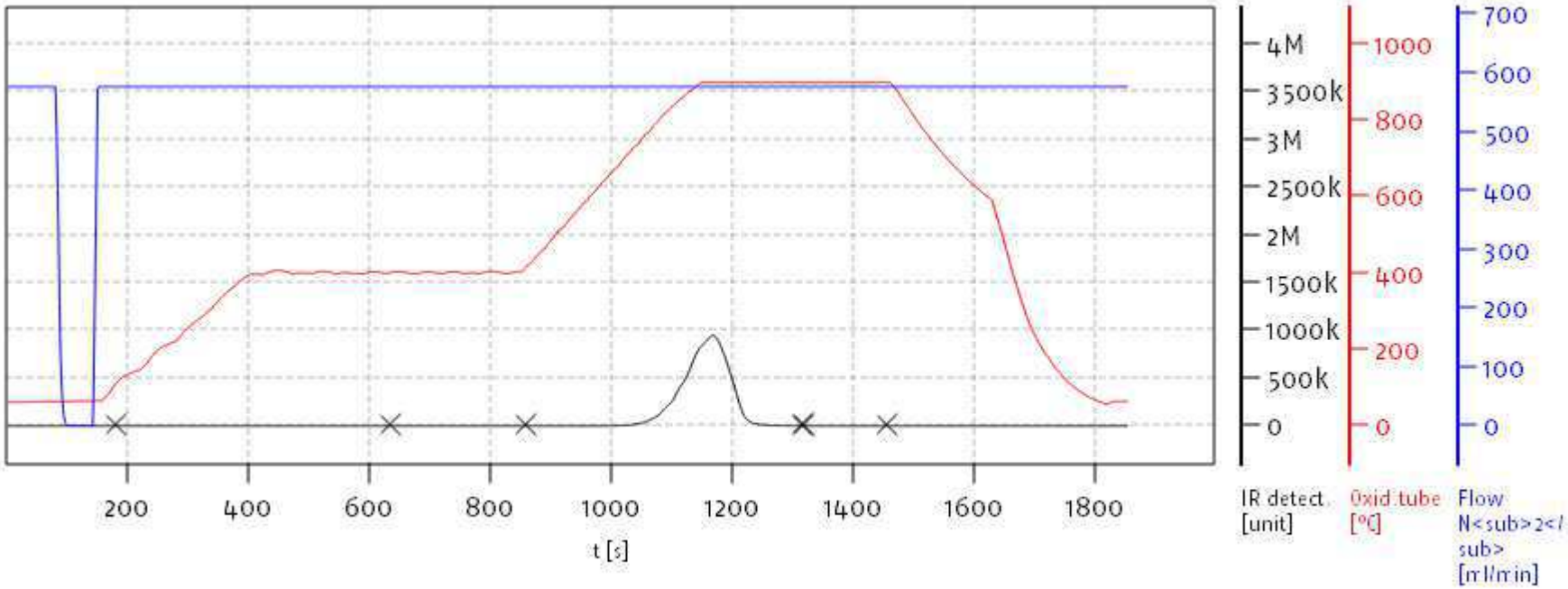
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
21	21	SEQ-CALJ	200.00	0.0398	1.00	CARBON	10/1/2020 3:52 AM	0.000	2.400	2.400	bl,C1u,C2u	2 731	3 047 917	1 654	1.0000	1.0531



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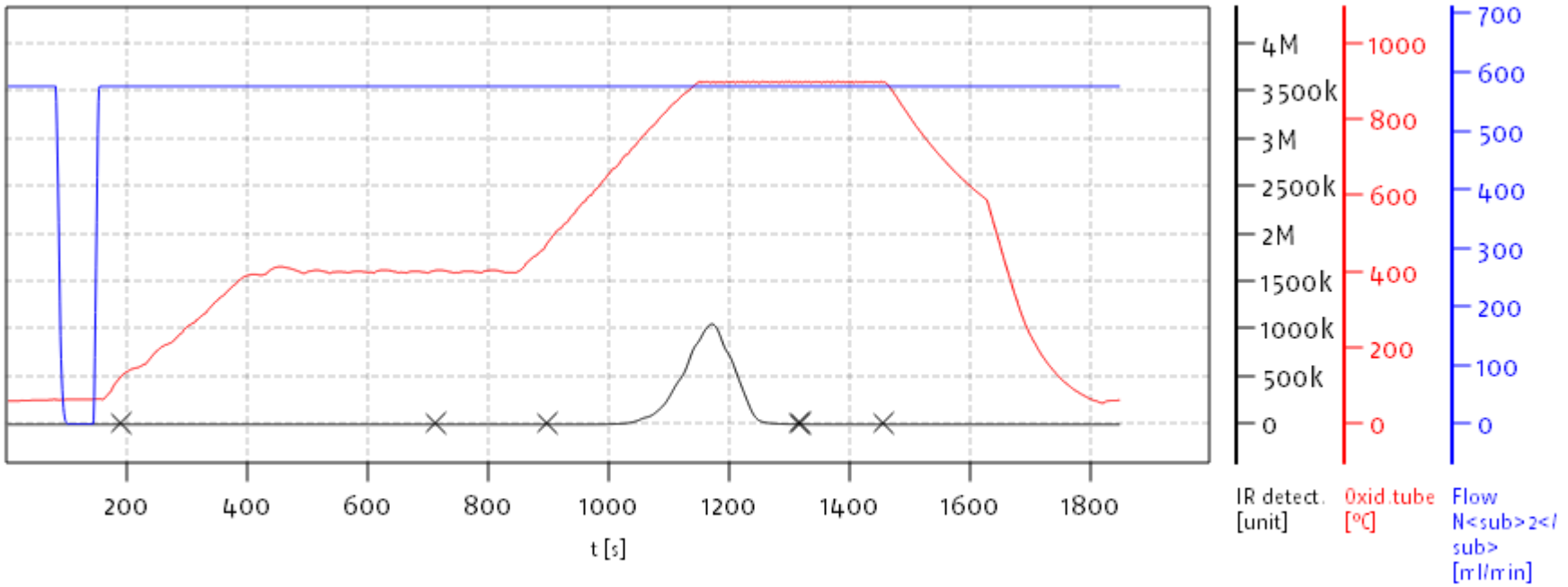
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
22	22	SEQ-CALK	200.00	0.0494	1.00	CARBON	10/1/2020 4:24 AM	0.000	3.012	3.012	bl,C1u,C2u	3 942	3 777 872	2 656	1.0000	1.0674



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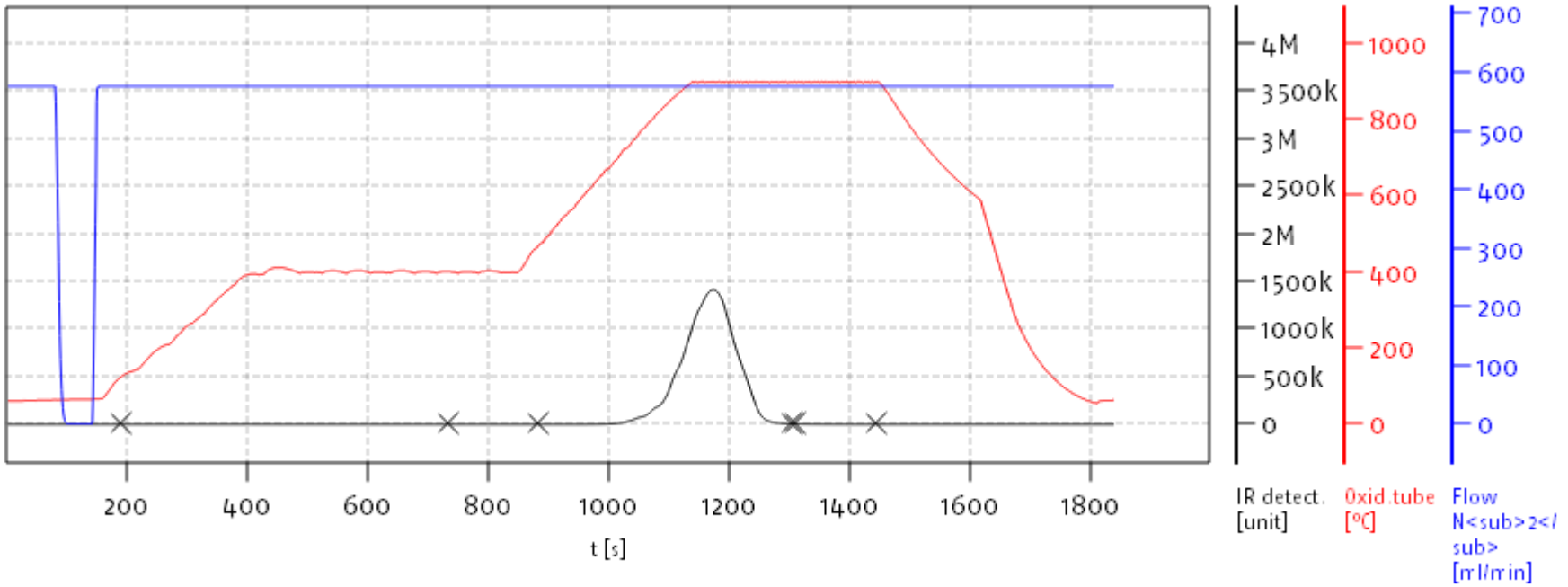
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	SEQ-CALL	200.00	0.0701	1.00	CARBON	10/1/2020 4:55 AM	0.000	4.206	4.206	bl,C1u,C2u	3 958	5 383 800	5 723	1.0000	1.0473



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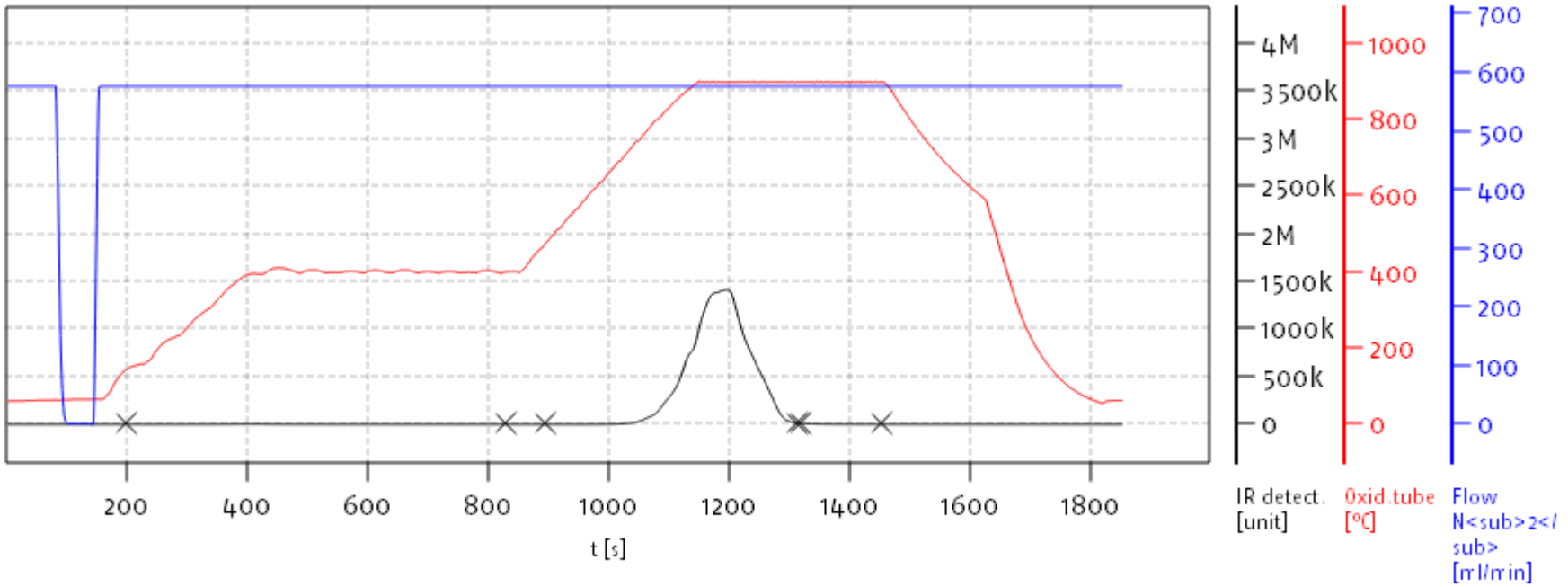
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	SEQ-CALM	200.00	0.0797	1.00	CARBON	10/1/2020 5:26 AM	0.000	4.812	4.812	bl	11 497	6 136 526	12 033	1.0000	1.0516



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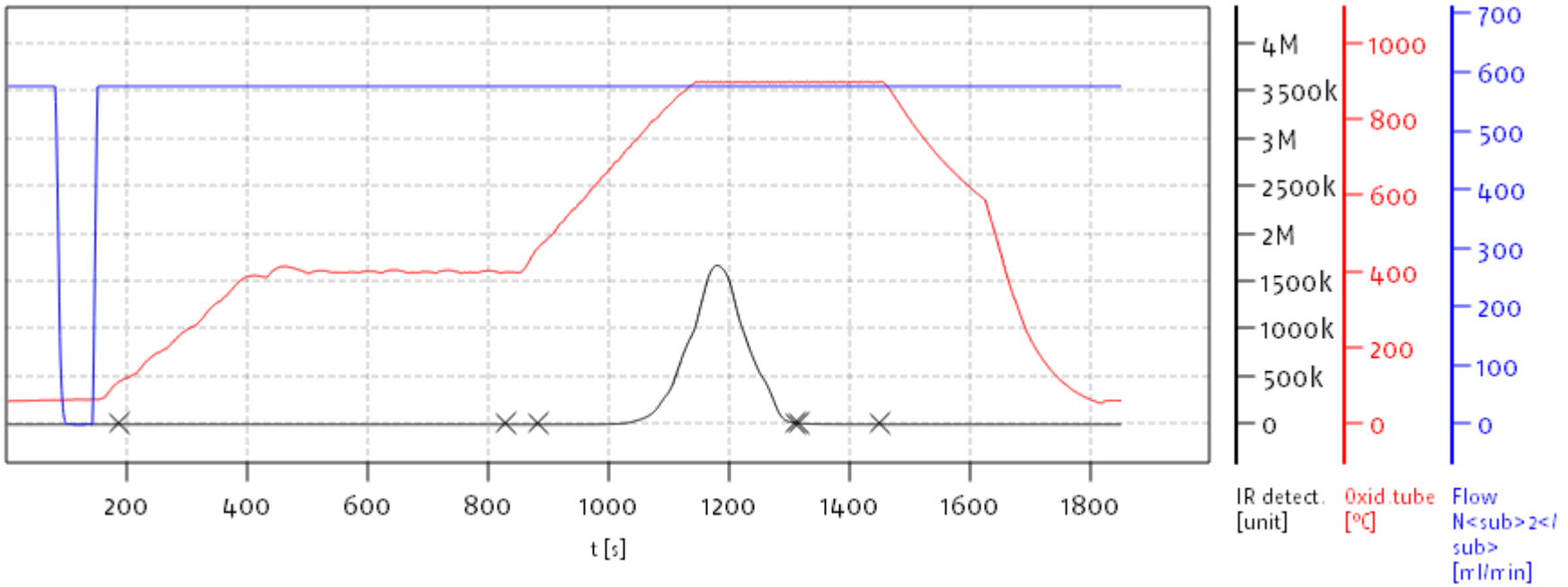
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	SEQ-CALN	200.00	0.0899	1.00	CARBON	10/1/2020 5:57 AM	0.000	5.406	5.406	bl,C1u	5 198	6 923 085	12 676	1.0000	1.0475



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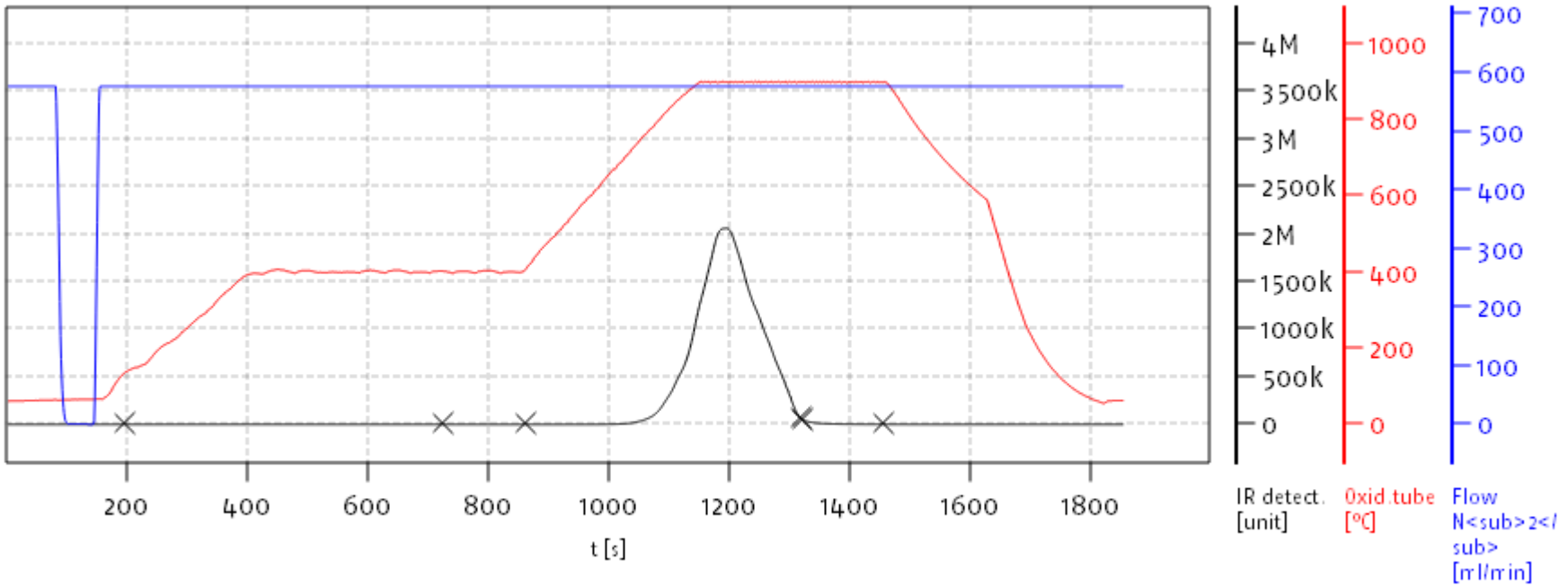
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	SEQ-CALO	200.00	0.1201	1.00	CARBON	10/1/2020 6:29 AM	0.000	7.218	7.218	bl,C1u	2 631	9 277 209	38 075	1.0000	1.0444



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Analyst: KLE

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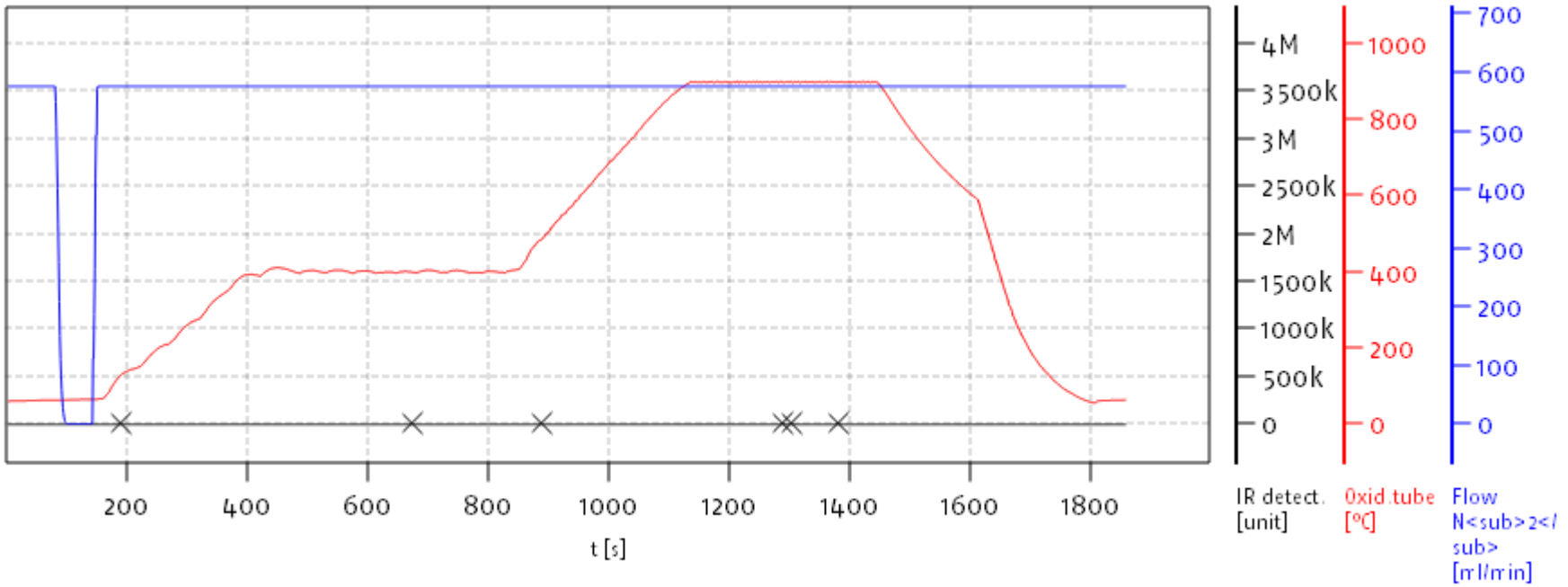
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
27	27	BLANK	1.00		1.00	CARBON	10/1/2020 7:00 AM	0.000	0.000	0.000	bl	1 872	130	0	1.0000	0.9606



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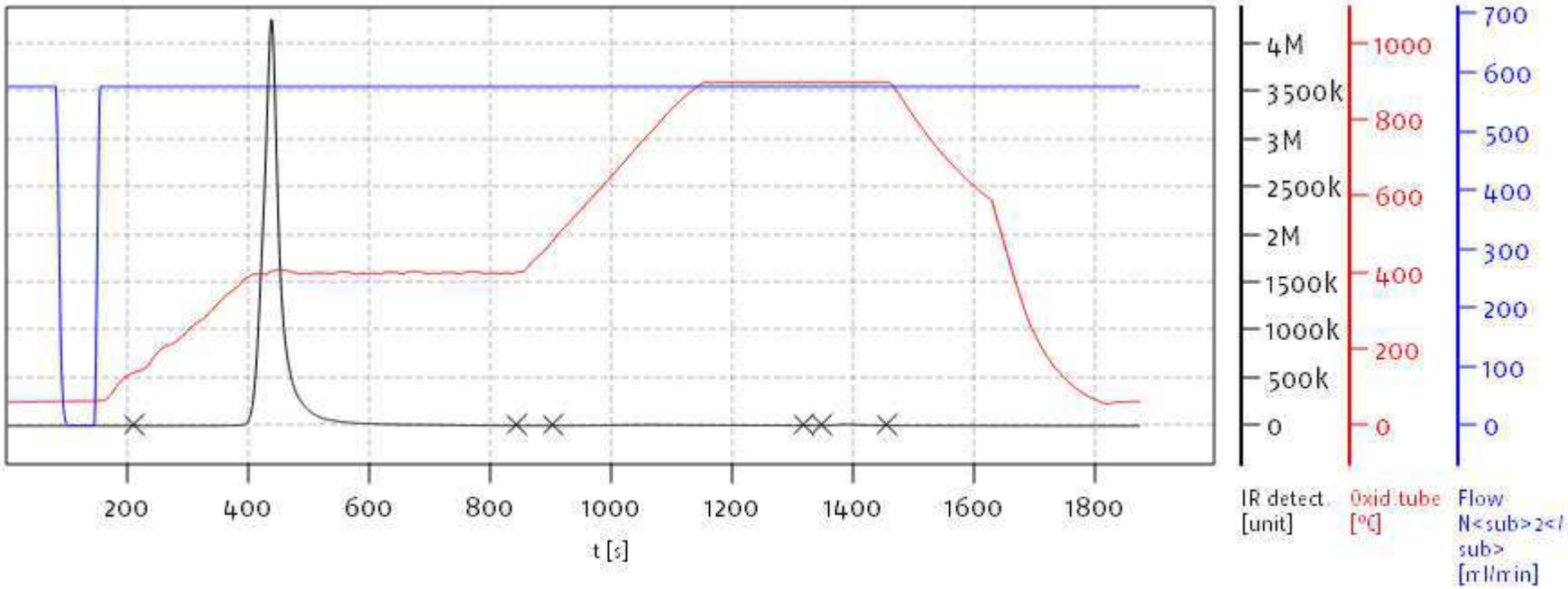
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
28	28	Dfactor	20.10		1.00	CARBON	10/1/2020 7:32 AM	44.446	0.000	44.446	bl	5 324 281	93 455	31 169	1.1246	1.0000



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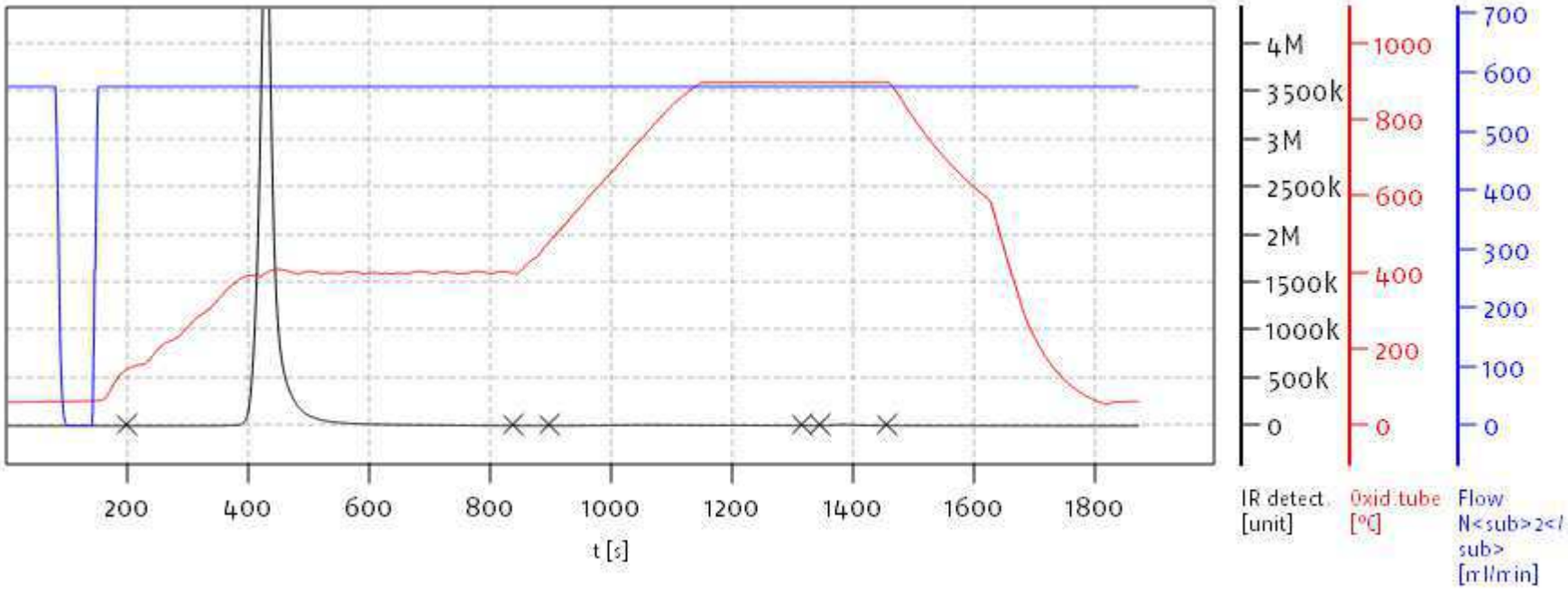
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
29	29	Dfactor	21.00		1.00	CARBON	10/1/2020 8:03 AM	44.446	0.000	44.446	bl	5 652 928	84 725	26 730	1.1069	1.0000



Name:

Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

Analytical Resources, Incorporated
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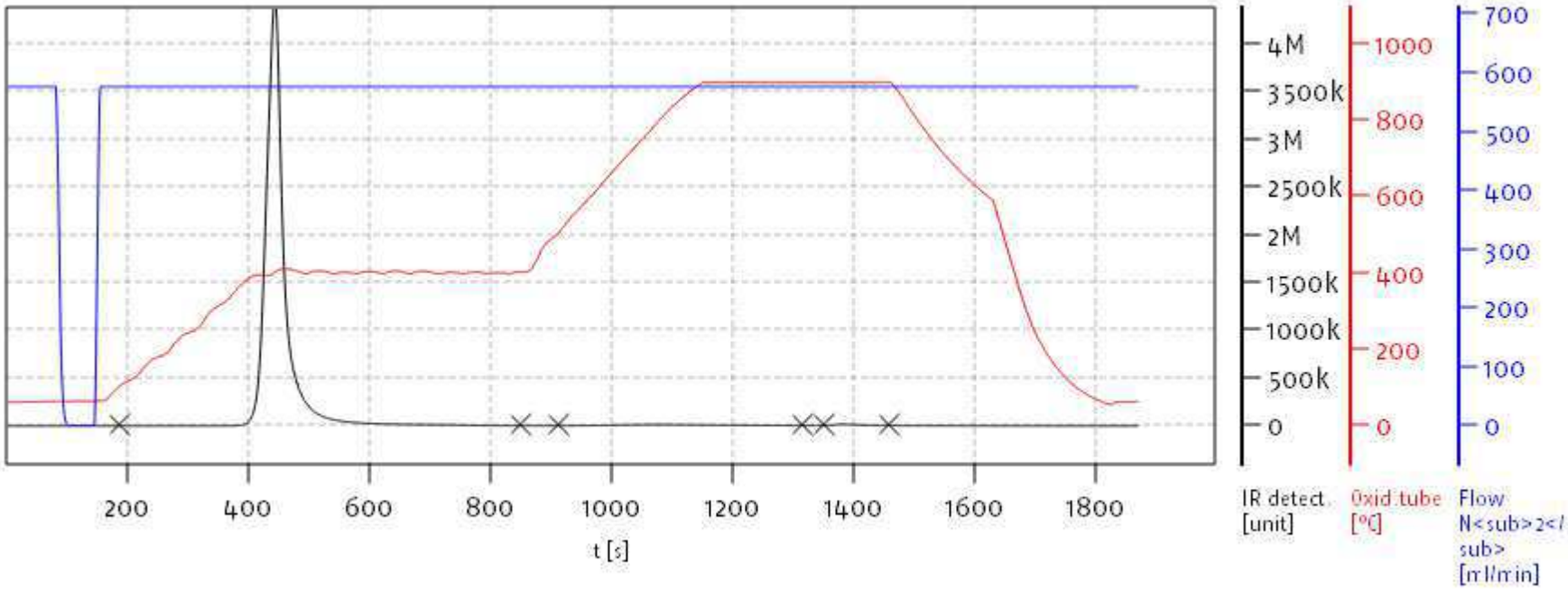
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
30	30	SIF0169-ICV1	21.80		1.00	CARBON	10/1/2020 8:35 AM	46.675	0.861	47.536	bl	5 784 178	112 420	34 152	1.1158	0.9606



Name:

Access: soliTOC superuser

Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

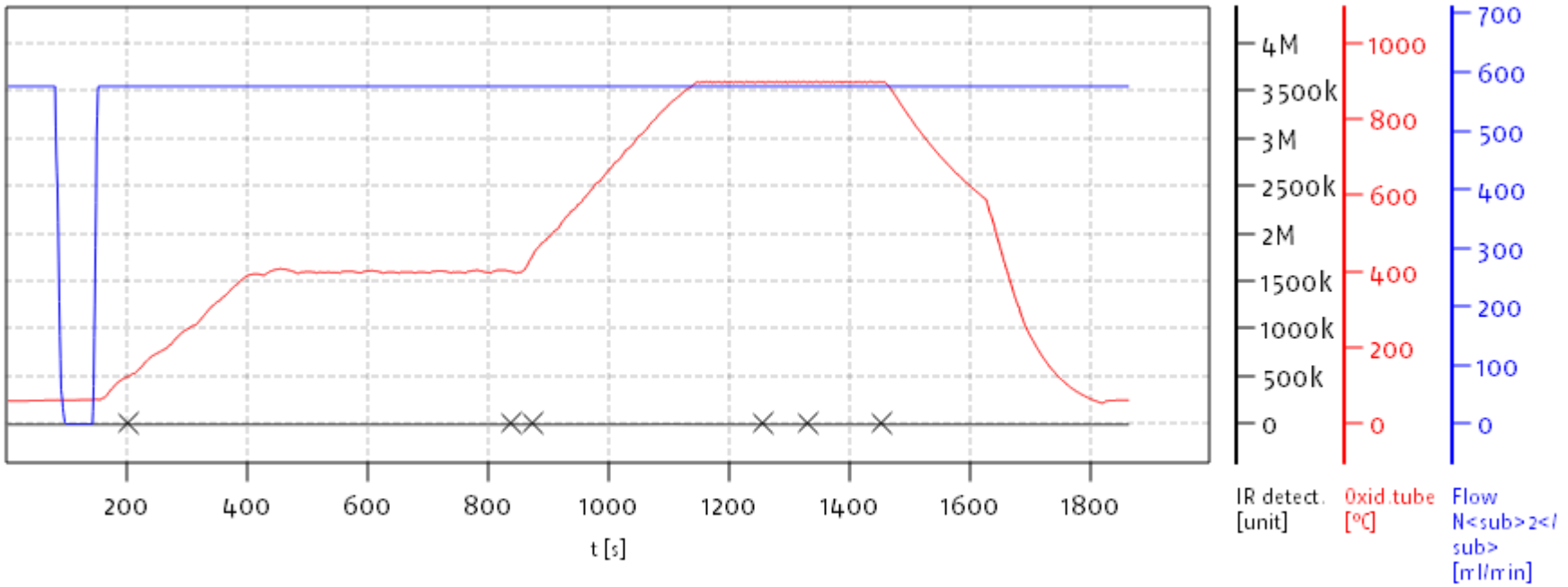
elementar
EXCELLENCE IN ELEMENTS

Document: DI00090 09302020 from: 10/1/2020 9:26 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: KLE

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
31	31	SIF0169-ICB1	573.00		1.00	CARBON	10/1/2020 9:06 AM	0.010	0.005	0.015	bl,C1u,C3u,C2u	2 691	5 075	622	1.1158	0.9606



Name:

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Date: Thu Oct 1 09:26:50 2020

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: DI00090 09302020 from: 10/1/2020 9:26 AM

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INSTRUMENT BLANKS
EPA 9060A m

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Instrument ID: TOC Cube
Calibration: DI00090
Sequence: SIJ0003
Date Analyzed: 10/01/20 09:06

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SIJ0003-ICB1	Total Organic Carbon	0.01	0.02	0.02	%	

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INSTRUMENT BLANKS
EPA 9060A m

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Instrument ID: TOC Cube
Calibration: DI00090
Sequence: SJG0032
Date Analyzed: 07/02/21 18:35

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SJG0032-ICB1	Total Organic Carbon	0.01	0.02	0.02	%	
SJG0032-CCB1	Total Organic Carbon	0.01	0.02	0.02	%	
SJG0032-CCB2	Total Organic Carbon	0.03	0.02	0.02	%	
SJG0032-CCB3	Total Organic Carbon	0.02	0.02	0.02	%	
SJG0032-CCB4	Total Organic Carbon	0.01	0.02	0.02	%	
SJG0032-CCB5	Total Organic Carbon	0.009	0.02	0.02	%	
SJG0032-CCB6	Total Organic Carbon	0.01	0.02	0.02	%	
SJG0032-CCB7	Total Organic Carbon	0.01	0.02	0.02	%	
SJG0032-CCB8	Total Organic Carbon	0.01	0.02	0.02	%	
SJG0032-CCB9	Total Organic Carbon	0.01	0.02	0.02	%	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 9060A m

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Instrument ID: TOC Cube
Calibration: DI00090
Control Limt: +/- 10.00%
Sequence: SIJ0003

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SIJ0003-ICV1	Total Organic Carbon	44.446	46.7	105	%	EPA 9060A m
	Total Carbon	44.446	47.5	107	%	EPA 9060A m
	Total Inorganic Carbon	0.0000	0.86		%	EPA 9060A m
	% Soot	0.0000	0.36		%	EPA 9060A m

* Values outside of QC limits

Analytical Resources, Incorporated
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INITIAL AND CONTINUING CALIBRATION CHECK

EPA 9060A m

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Instrument ID: TOC Cube
Calibration: DI00090
Control Limt: +/- 10.00%
Sequence: SJG0032

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SJG0032-ICV1	Total Organic Carbon	44.446	44.9	101	%	EPA 9060A m
SJG0032-CCV1	Total Organic Carbon	44.446	45.1	102	%	EPA 9060A m
SJG0032-CCV2	Total Organic Carbon	44.446	44.4	99.8	%	EPA 9060A m
SJG0032-CCV3	Total Organic Carbon	44.446	44.7	101	%	EPA 9060A m
SJG0032-CCV4	Total Organic Carbon	44.446	44.8	101	%	EPA 9060A m
SJG0032-CCV5	Total Organic Carbon	44.446	45.0	101	%	EPA 9060A m
SJG0032-CCV6	Total Organic Carbon	44.446	44.1	99.3	%	EPA 9060A m
SJG0032-CCV7	Total Organic Carbon	44.446	45.3	102	%	EPA 9060A m
SJG0032-CCV8	Total Organic Carbon	44.446	44.9	101	%	EPA 9060A m
SJG0032-CCV9	Total Organic Carbon	44.446	43.7	98.4	%	EPA 9060A m

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 9060A m

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJG0080-SRM1
Batch: BJG0080
Initial/Final: 0.048 g / 0.048 mL
Preparation: PSEP 1986 (modified)
Analyzed: 07/03/2021 13:30
Standard ID: H003424
Expires: 12/31/2079
Standard Lot#: 1941b
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	2.76	0.02	0.02	B	92.2	80 - 120

* Values outside of QC limits

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HOLDING TIME SUMMARY

Analysis: EPA 9060A m

Laboratory: Analytical Resources, Inc. SDG: 21F0418

Client: Anchor QEA, LLC Project: Lower Duwamish AOC4

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-SS696 21F0418-01	06/28/21 09:55	06/28/21 12:50	07/02/21 13:57	4	14	07/03/21 23:16			
LDW21-SS695 21F0418-02	06/28/21 10:15	06/28/21 12:50	07/02/21 13:57	4	14	07/03/21 23:47			
LDW21-IT696 21F0418-03	06/28/21 10:00	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 00:17			
LDW21-IT695 21F0418-04	06/28/21 10:30	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 01:49			
LDW21-SS693 21F0418-05	06/28/21 10:45	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 02:19			
LDW21-IT693 21F0418-06	06/28/21 10:50	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 02:50			
LDW21-SS691 21F0418-07	06/28/21 11:10	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 03:21			
LDW21-IT691 21F0418-08	06/28/21 11:15	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 03:52			
LDW21-SS692 21F0418-09	06/28/21 11:34	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 04:23			
LDW21-IT692 21F0418-10	06/28/21 11:35	06/28/21 12:50	07/02/21 13:57	4	14	07/04/21 04:53			

* Indicates hold time exceedance.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 9060A m

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Instrument: TOC Cube

Analyte	MDL	RL	Units
Total Organic Carbon	0.02	0.02	%

H001822

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: $(C_6H_{10}O_5)n$
CAS #: 9004-34-6
Physical Description: White Powder

Formula Weight: N/A
Storage: 15 - 30°C

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

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

This is an electronically generated document
mailto:biotech@mpbio.com
http://www.mpbio.com
Online Ordering, MSDSs, certificates of analysis and data sheets now available on our web site
Technical Service: 1-800-279-5490 (440-337-1200) Customer Service: 1-800-854-0530 (440-337-1200)

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-SS696

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-01 C	SDG:	21F0418
Sampled:	06/28/21 09:55	Prepared:	06/29/21 10:51	File ID:	
% Solids:	22.33	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	22.33	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-SS695

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-02 C	SDG:	21F0418
Sampled:	06/28/21 10:15	Prepared:	06/29/21 10:51	File ID:	
% Solids:	67.55	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	67.55	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT696

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-03 C	SDG:	21F0418
Sampled:	06/28/21 10:00	Prepared:	06/29/21 10:51	File ID:	
% Solids:	53.16	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	53.16	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT695

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-04 C	SDG:	21F0418
Sampled:	06/28/21 10:30	Prepared:	06/29/21 10:51	File ID:	
% Solids:	71.29	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	71.29	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-SS693

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-05 C	SDG:	21F0418
Sampled:	06/28/21 10:45	Prepared:	06/29/21 10:51	File ID:	
% Solids:	56.40	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	56.40	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT693

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-06 C	SDG:	21F0418
Sampled:	06/28/21 10:50	Prepared:	06/29/21 10:51	File ID:	
% Solids:	69.70	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	69.70	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-SS691

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-07 C	SDG:	21F0418
Sampled:	06/28/21 11:10	Prepared:	06/29/21 10:51	File ID:	
% Solids:	65.57	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	65.57	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT691

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-08 C	SDG:	21F0418
Sampled:	06/28/21 11:15	Prepared:	06/29/21 10:51	File ID:	
% Solids:	72.39	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	72.39	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-SS692

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-09 C	SDG:	21F0418
Sampled:	06/28/21 11:34	Prepared:	06/29/21 10:51	File ID:	
% Solids:	56.17	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	56.17	1	0.04	0.04	

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Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

LDW21-IT692

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21F0418-10 C	SDG:	21F0418
Sampled:	06/28/21 11:35	Prepared:	06/29/21 10:51	File ID:	
% Solids:	70.29	Preparation:	No Prep Wet Chem	Analyzed:	06/29/21 10:55
Batch:	BJF0781	Sequence:		Initial/Final:	5 g Wet / 5 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	70.29	1	0.04	0.04	

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PREPARATION BATCH SUMMARY

SM 2540 G-97

Laboratory:	Analytical Resources, Inc.	SDG:	21F0418
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Batch:	BJF0781 Batch Matrix: Solid	Preparation:	No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS696	21F0418-01		06/29/21 10:51	
LDW21-SS695	21F0418-02		06/29/21 10:51	
LDW21-IT696	21F0418-03		06/29/21 10:51	
LDW21-IT695	21F0418-04		06/29/21 10:51	
LDW21-SS693	21F0418-05		06/29/21 10:51	
LDW21-IT693	21F0418-06		06/29/21 10:51	
LDW21-SS691	21F0418-07		06/29/21 10:51	
LDW21-IT691	21F0418-08		06/29/21 10:51	
LDW21-SS692	21F0418-09		06/29/21 10:51	
LDW21-IT692	21F0418-10		06/29/21 10:51	
Blank	BJF0781-BLK1		06/29/21 10:51	

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/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:	BJF0781
Date:	6/29/2021 10:55
Analyst:	DOE

Instrumentation

Drying Ovens:	12	**Analytical Balance:**	BAL2
Muffle Furnace:	2		

Batch drying time		
record times as mm/dd/yy hh:mm		
date/time in oven:	6/29/2021 12:40	
date/time out:	6/30/2021 9:20	
elapsed hrs =	20.7	OK

TS (%) calculated as:
Final dry wt (g) = (Dry Wt - Tare Wt)
TS = (Final Dry Wt)/ (grams Sample-Tare)

Oven Temps, °C	
Start Temp	106
Dry Cycle 1	104
Dry Cycle 2	
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:	6/29/21 11:00	6/29/21 11:10	6/30/21 9:45					
Cal Wt (g): 10.0000	9.9999	9.9999	9.9999					
	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)	TVS (%)	Notes	Fixed (%)
BJF0781-BLK1	1	0.8010	0.0000	0.8008			-0.0002	0.02%									
21F0415-01	2	0.7956	7.9272	5.7876			4.9920	70.00%									
21F0415-02	3	0.7964	5.7232	4.2525			3.4561	70.15%									
21F0415-03	4	0.8188	4.7214	2.7435			1.9247	49.32%									
21F0415-04	5	0.8179	6.4859	3.6705			2.8526	50.33%									
21F0415-05	6	0.7940	5.4967	3.1366			2.3426	49.81%									
21F0415-06	7	0.7960	5.3305	3.1144			2.3184	51.13%									
21F0415-07	8	0.8017	6.0796	4.0404			3.2387	61.36%									
21F0415-08	9	0.7882	5.8631	3.8398			3.0516	60.13%									
21F0415-09	10	0.7832	6.2767	3.9908			3.2076	58.39%									
21F0415-10	11	0.7961	8.2022	5.5241			4.7280	63.84%									
BJF0781-DUP1	12	0.8063	7.8202	5.4023			4.5960	65.53%	RPD=2.6								
BJF0781-DUP2	13	0.7925	6.3767	4.5493			3.7568	67.28%	RSD=2.6								
21F0418-01	14	0.7989	5.7705	1.9090			1.1101	22.33%									
21F0418-02	15	0.8039	6.9235	4.9374			4.1335	67.55%									
21F0418-03	16	0.7962	7.2292	4.2158			3.4196	53.16%									
21F0418-04	17	0.8099	7.5735	5.6314			4.8215	71.29%									
21F0418-05	18	0.7863	5.3896	3.3824			2.5961	56.40%									
21F0418-06	19	0.7904	6.1351	4.5158			3.7254	69.70%									
21F0418-07	20	0.7986	7.1910	4.9899			4.1913	65.57%									
21F0418-08	21	0.7943	9.2627	6.9246			6.1303	72.39%									
21F0418-09	22	0.7934	5.9280	3.6776			2.8842	56.17%									
21F0418-10	23	0.7860	8.2185	6.0100			5.2240	70.29%									

Analytical Resources, Incorporated
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Form I

METHOD BLANK DATA SHEET

SM 2540 G-97

TotalAnalytes

Blank

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Batch: BJF0781
Laboratory ID: BJF0781-BLK1
Prepared: 06/29/21 10:51
Matrix: Solid
Preparation: No Prep Wet Chem
Analyzed: 06/29/21 10:55
Sequence:
Calibration:
Instrument: BAL2

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	ND	1	0.04	0.04	U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

HOLDING TIME SUMMARY

Analysis: SM 2540 G-97

Laboratory: Analytical Resources, Inc. SDG: 21F0418

Client: Anchor QEA, LLC Project: Lower Duwamish AOC4

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-SS696 21F0418-01	06/28/21 09:55	06/28/21 12:50	06/29/21 10:51	1	28	06/29/21 10:55	1	28	
LDW21-SS695 21F0418-02	06/28/21 10:15	06/28/21 12:50	06/29/21 10:51	1	28	06/29/21 10:55	1	28	
LDW21-IT696 21F0418-03	06/28/21 10:00	06/28/21 12:50	06/29/21 10:51	1	28	06/29/21 10:55	1	28	
LDW21-IT695 21F0418-04	06/28/21 10:30	06/28/21 12:50	06/29/21 10:51	1	28	06/29/21 10:55	1	28	
LDW21-SS693 21F0418-05	06/28/21 10:45	06/28/21 12:50	06/29/21 10:51	1	28	06/29/21 10:55	1	28	
LDW21-IT693 21F0418-06	06/28/21 10:50	06/28/21 12:50	06/29/21 10:51	1	28	06/29/21 10:55	1	28	
LDW21-SS691 21F0418-07	06/28/21 11:10	06/28/21 12:50	06/29/21 10:51	0	28	06/29/21 10:55	1	28	
LDW21-IT691 21F0418-08	06/28/21 11:15	06/28/21 12:50	06/29/21 10:51	0	28	06/29/21 10:55	1	28	
LDW21-SS692 21F0418-09	06/28/21 11:34	06/28/21 12:50	06/29/21 10:51	0	28	06/29/21 10:55	1	28	
LDW21-IT692 21F0418-10	06/28/21 11:35	06/28/21 12:50	06/29/21 10:51	0	28	06/29/21 10:55	1	28	

* Indicates hold time exceedance.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

SM 2540 G-97

Laboratory: Analytical Resources, Inc.
SDG: 21F0418
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids	0.04	0.04	%

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BJF0775
Date:	6/29/2021 10:19
Analyst:	TW
Drying Oven:	15
Analytical Balance:	B139298002

Batch drying time				
Record times as mm/dd/yy hh:mm		Oven Temp, C	TS (%) calculated as:	Oven Temps, °C
Date/time in oven:	6/29/2021 15:05		Final dry wt (g) = (Dry Wt - Tare Wt)	Start Temp: 100
Date/time out:	6/30/2021 10:42		TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)	End Temp: 98
Elapsed hrs:	19.6			

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21F0418-01	0.8000	11.6600	3.2500	2.45	**22.56%**	No
21F0418-02	0.8000	11.3200	7.7100	6.91	**65.68%**	No
21F0418-03	0.8100	11.4900	7.9100	7.10	**66.48%**	No
21F0418-04	0.8000	11.6400	9.2400	8.44	**77.86%**	No
21F0418-05	0.8100	11.3800	6.8400	6.03	**57.05%**	No
21F0418-06	0.8100	11.9700	8.9700	8.16	**73.12%**	No
21F0418-07	0.8000	11.6200	7.8700	7.07	**65.34%**	No
21F0418-08	0.8100	11.7900	9.2000	8.39	**76.41%**	No
21F0418-09	0.8000	11.2400	6.8000	6.00	**57.47%**	No
21F0418-10	0.7800	11.7600	8.7000	7.92	**72.13%**	No

TOTAL SOLIDS BENCHSHEET	Batch:	BJF0775
Method: PSEP 1986	Date:	6/29/2021 10:19
(dry at 103-105 C)	Analyst:	TW
Instrumentation	Drying Oven:	015
	Analytical Balance:	B139298002

Batch drying time						Oven Temps, °C	
Record times as mm/dd/yy hh:mm			Oven Temp, C	TS (%) calculated as:			
Date/time in oven:	6/29/21	15:05	100	Final dry wt (g) = (Dry Wt - Tare Wt)		Start Temp:	100
Date/time out:	6/30/21	10:42	98	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)		End Temp:	98
Elapsed hrs:	0.0						

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21F0418-01 B	0.80	11.66	3.25			No
21F0418-02	0.80	11.32	7.71			No
21F0418-03	0.81	11.49	7.91			No
21F0418-04	0.80	11.64	9.24			No
21F0418-05	0.81	11.38	6.84			No
21F0418-06	0.81	11.97	8.97			No
21F0418-07	0.80	11.62	9.87			No
21F0418-08	0.81	11.79	9.20			No
21F0418-09	0.80	11.24	6.80			No
21F0418-10	0.78	11.76	9.70			No

TS + Screens
NO Copy

Rush