Analytical Resources, Incorporated
Analytical Chemists and Consultants

10 January 2020

Delaney Peterson
Anchor QEA, LLC
1201 3rd Ave, Suite 2600
Seattle, WA 98101

RE: Gasco PDI

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)
19K0394	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
DN: c=US, st=Washington, l=Tukwila, o=Analytical Resources, Inc., cn=Amanda Volgardsen, email=amanda.volgardsen@arilabs.com
Date: 2020.01.10 12:51:20 -08'00'

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 enclose 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.

Amanda Volgardsen, Project Manager

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

PJLA Testing
Accreditation # 66169

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

ANCHOR QEA 1201 3rd Avenue, Suite 2600, Seattle, WA 98101

19K0394 ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

COC ID: ARI-20191119-144349
Sample Custodian: SN
Lab: Analytical Resources Inc.

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-FB-1911191346	FB	WQ	11/19/2019	13:46	2	☐	TBT	SW8270DSIM	30	4°C
002	PDI-RB-1911191254	RB	WQ	11/19/2019	12:54	2	☐	TBT	SW8270DSIM	30	4°C
003	PDI-1138RAB-00-10-191118	FD	SO	11/18/2019		1	☐	TBT	SW8270DSIM	30	4°C
004	PDI-138RAB-00-10-191118	N	SO	11/18/2019	11:40	1	☐	TBT	SW8270DSIM	30	4°C
005	PDI-138RAB-10-19.1-191118	N	SO	11/18/2019	12:40	1	☐	TBT	SW8270DSIM	30	4°C
006	PDI-139RAB-00-10-191115	N	SO	11/15/2019	12:40	1	☐	TBT	SW8270DSIM	30	4°C
007	PDI-139RAB-10-20-191115	N	SO	11/15/2019	14:40	1	☐	TBT	SW8270DSIM	30	4°C
008	PDI-139RAB-20-25.5-191118	N	SO	11/18/2019	8:30	1	☐	TBT	SW8270DSIM	30	4°C
009	PDI-145RAB-00-10-191114	N	SO	11/14/2019	9:15	2	☒	TBT	SW8270DSIM	30	4°C
010	PDI-145RAB-10-20-191114	N	SO	11/14/2019	10:30	1	☐	TBT	SW8270DSIM	30	4°C
011	PDI-145RAB-20-24.7-191114	N	SO	11/14/2019	11:05	1	☐	TBT	SW8270DSIM	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name: Sasha Norwood	Print Name: Kenny Dang	Print Name	Print Name	Print Name	Print Name
Company: AnchorQEA	Company: ARI	Company	Company	Company	Company
Date/Time: 11/21/19 1330	Date/Time: 11/26/19 1022	Date/Time	Date/Time	Date/Time	Date/Time

2 of 365

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 11/19/2019

ANCHOR QEA 19k0394

1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

COC ID: ARI-20191119-144349
Sample Custodian: SN
Lab: Analytical Resources Inc.

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
011	PDI-145RAB-20-24.7-191114	N	SO	11/14/2019	11:05	1	☐	TBT	SW8270DSIM	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Sasha Norwood	Print Name Kenny Dang	Print Name	Print Name	Print Name	Print Name
Company Anchor QEA	Company ARI	Company	Company	Company	Company
Date/Time 11/21/19 1330	Date/Time 11/26/19 1022	Date/Time	Date/Time	Date/Time	Date/Time

3 of 3

Date Printed: 11/19/2019

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor QEA Project Name: Gasco PDI

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

Assigned ARI Job No: 19K0394 Tracking No: 7770 7702 6387 NA
7770 7702 7019

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 1022 1.8 0.8 ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 5206

Cooler Accepted by: KD Date: 11/26/19 Time: 1022

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI NA _____

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

Samples Logged by: JBw Date: 11/26/19 Time: 1151 Labels checked by: JBw

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Anchor QEA, LLC	Project: Gasco PDI	
1201 3rd Ave, Suite 2600	Project Number: 000029-02.59	**Reported:**
Seattle WA, 98101	Project Manager: Delaney Peterson	10-Jan-2020 12:23

Case Narrative

Sample receipt

Samples as listed on the preceding page were received November 26, 2019 under ARI work order 19K0394. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Butyl Tin(s) - EPA Method SW8270D-SIM

The water samples PDI-FB-1911191346 and PDI-RB-1911191254 were received with limited remaining holding time and were extracted outside of the 7 day recommended holding time. These samples were flagged with "H" qualifiers. The solid samples were frozen to extend 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 blanks were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Matrix spikes and matrix spike duplicate were prepared in conjunction with samples PDI-FB- 1911191346 and PDI-145RAB-00-10-191114. The matrix spike duplicates both have high RPD. The matrix spike for PDI-145RAB-00-10-191114 has low spike recovery. The results are advisory. All other matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits. No corrective action was taken.

Anchor QEA, LLC	Project: Gasco PDI	
1201 3rd Ave, Suite 2600	Project Number: 000029-02.59	**Reported:**
Seattle, WA 98101	Project Manager: Delaney Peterson	01/10/2020 12:23

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
19K0394-01	PDI-FB-1911191346	Water	11/19/19 13:46	11/26/19 10:22
19K0394-02	PDI-RB-1911191254	Water	11/19/19 12:54	11/26/19 10:22
19K0394-03	PDI-1138RAB-00-10-191118	Solid	11/18/19 11:40	11/26/19 10:22
19K0394-04	PDI-138RAB-00-10-191118	Solid	11/18/19 11:40	11/26/19 10:22
19K0394-05	PDI-138RAB-10-19.1-191118	Solid	11/18/19 12:40	11/26/19 10:22
19K0394-06	PDI-139RAB-00-10-191115	Solid	11/15/19 12:40	11/26/19 10:22
19K0394-07	PDI-139RAB-10-20-191115	Solid	11/15/19 14:40	11/26/19 10:22
19K0394-08	PDI-139RAB-20-25.5-191118	Solid	11/18/19 08:30	11/26/19 10:22
19K0394-09	PDI-145RAB-00-10-191114	Solid	11/14/19 09:15	11/26/19 10:22
19K0394-10	PDI-145RAB-10-20-191114	Solid	11/14/19 10:30	11/26/19 10:22
19K0394-11	PDI-145RAB-20-24.7-191114	Solid	11/14/19 11:05	11/26/19 10:22

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).
H	Hold time violation - Hold time was exceeded.
*	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

PDI-FB-1911191346

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Water	Laboratory ID:	19K0394-01 A	SDG:	19K0394
Sampled:	11/19/19 13:46	Prepared:	11/27/19 12:35	File ID:	N819120252.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	12/02/19 23:40
Batch:	BHK0747	Sequence:	SHL0025	Initial/Final:	100 mL / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	CK00068
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	(ug/L)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	0.193	H, U	0.043	0.193

SURROGATES	ADDED:(ug/L)	(ug/L)	% REC	QC LIMITS	Q
Tripentyltin	2.2589	1.69	74.9	30 - 160	
Tripropyltin	2.1873	1.85	84.4	30 - 160	

Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120252.D

Date : 02-DEC-2019 23:40

Client ID:

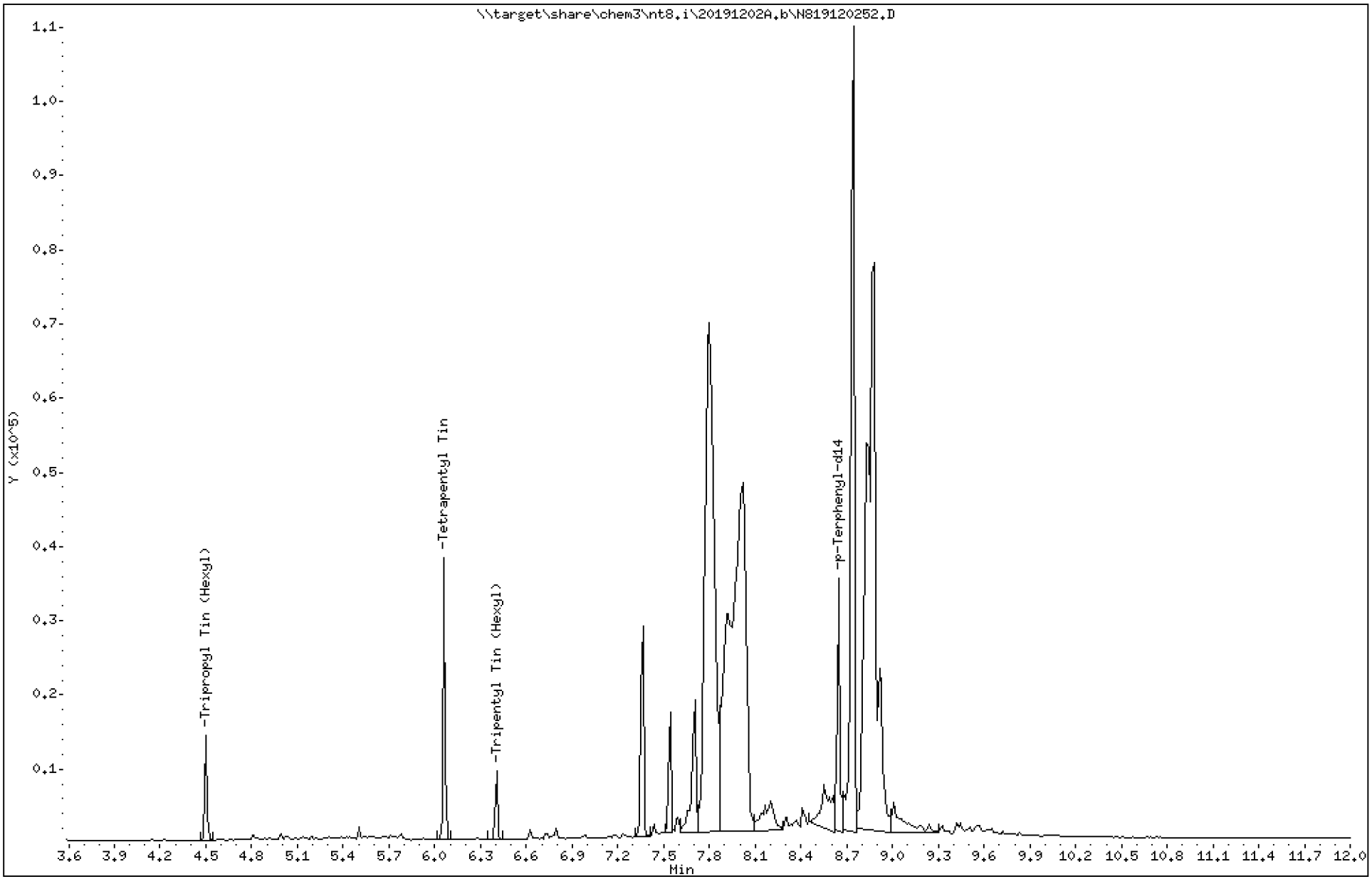
Sample Info: 19K0394-01

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120252.D
Lab Smp Id: 19K0394-01
Inj Date : 02-DEC-2019 23:40 MS Autotune Date: 27-FEB-2008 03:32
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-01
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Meth Date : 03-Dec-2019 10:47 jianqing Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TBTW.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.502	4.471	(0.743)	7111	0.49598	0.4960
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	Compound Not Detected.					
*	4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	36684	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	4436	0.42534	0.4253
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	32176	0.20000	

Report Date: 03-Dec-2019 10:49

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120252.D
Lab Smp Id: 19K0394-01
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Calibration Date: 02-DEC-2019
Calibration Time: 17:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	36684	-11.80
8 p-Terphenyl-d14	41162	20581	82324	32176	-21.83

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120252.D

Lab ID: 19K0394-01
nt8.i, 20191202A.b\TBT1125.m,   02-DEC-2019 23:40

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0066	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, TBTW.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0200

* Only compounds listed in the work order have been verified by the analyst *

PDI-RB-1911191254

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Water	Laboratory ID:	19K0394-02 A	SDG:	19K0394
Sampled:	11/19/19 12:54	Prepared:	11/27/19 12:35	File ID:	N819120255.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	12/03/19 00:28
Batch:	BHK0747	Sequence:	SHL0025	Initial/Final:	100 mL / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	CK00068
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	(ug/L)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	0.193	H, U	0.043	0.193

SURROGATES	ADDED:(ug/L)	(ug/L)	% REC	QC LIMITS	Q
Tripentyltin	2.2589	1.40	62.1	30 - 160	
Tripropyltin	2.1873	1.53	70.0	30 - 160	

Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120255.D

Date : 03-DEC-2019 00:28

Client ID:

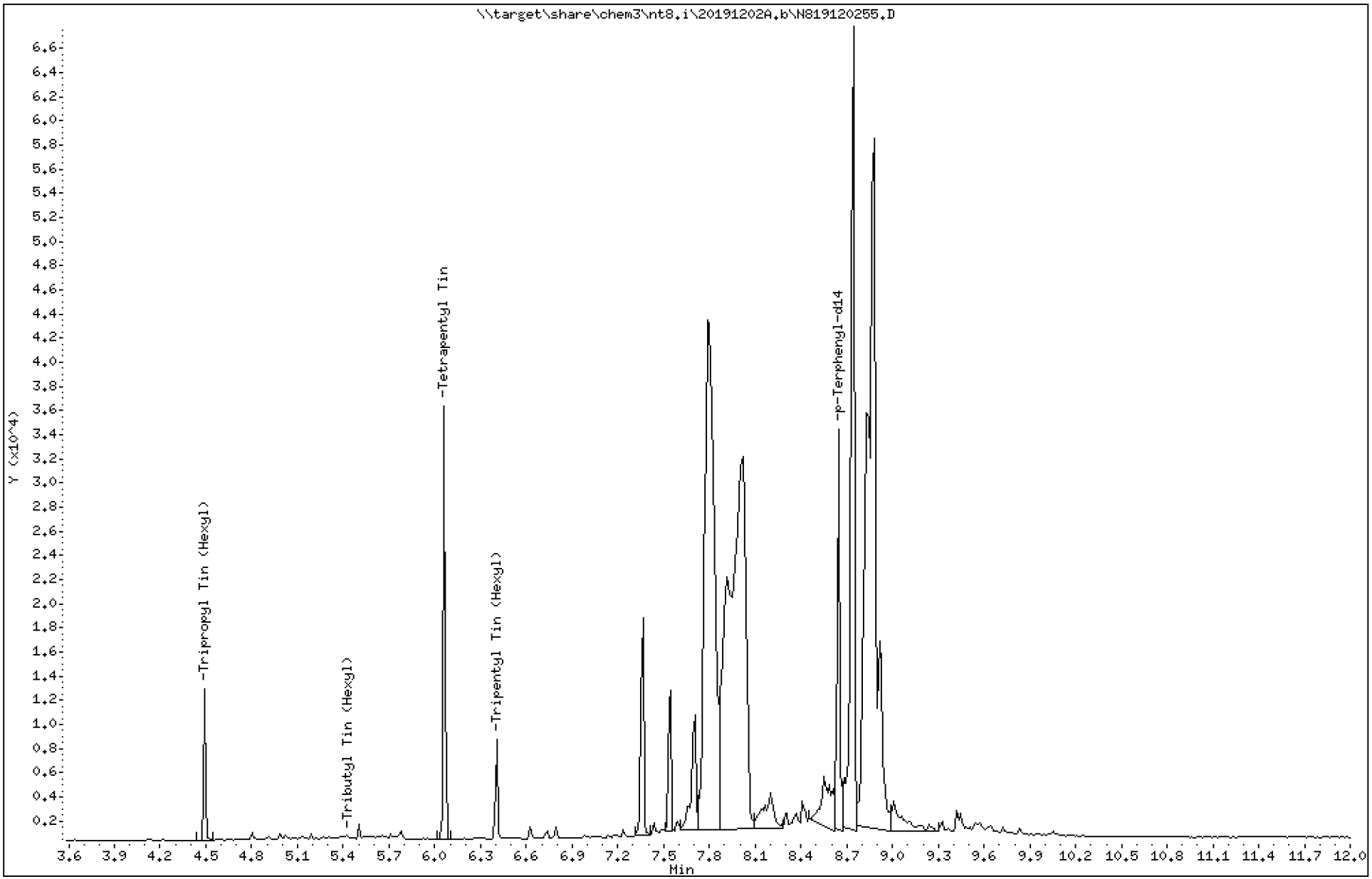
Sample Info: 19K0394-02

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120255.D

Date : 03-DEC-2019 00:28

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-02

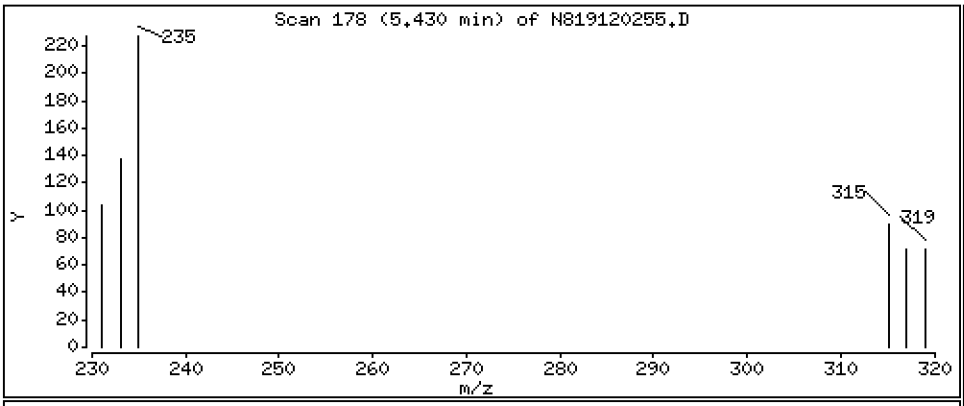
Operator: JZ

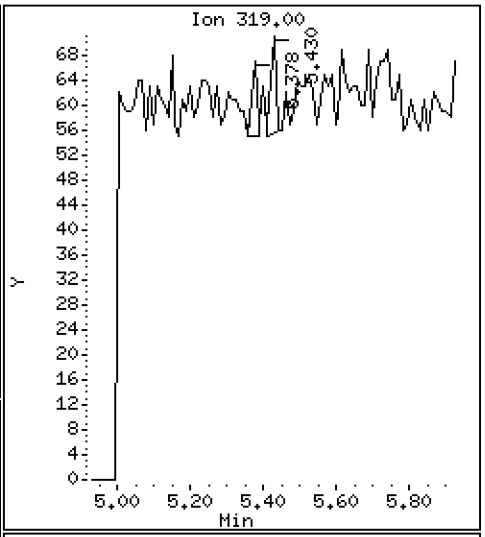
Column phase: ZB-5msi

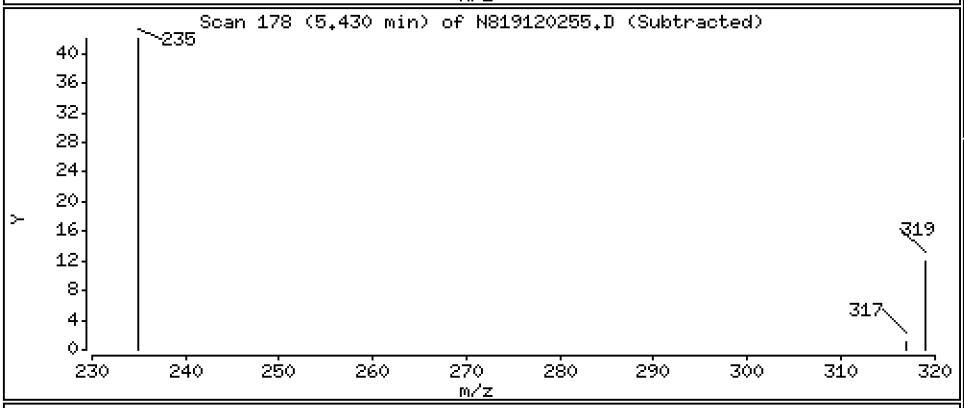
Column diameter: 0.25

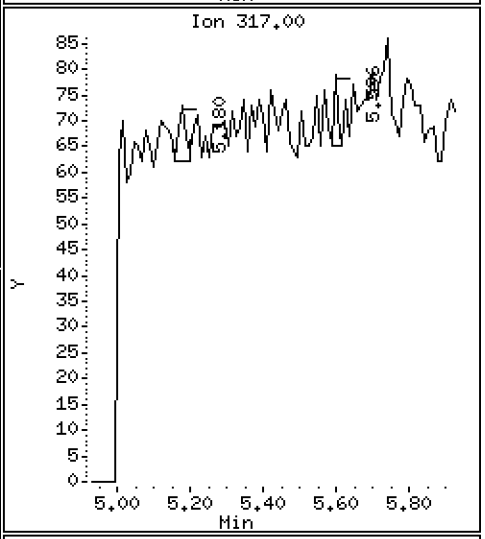
3 Tributyl Tin (Hexyl)

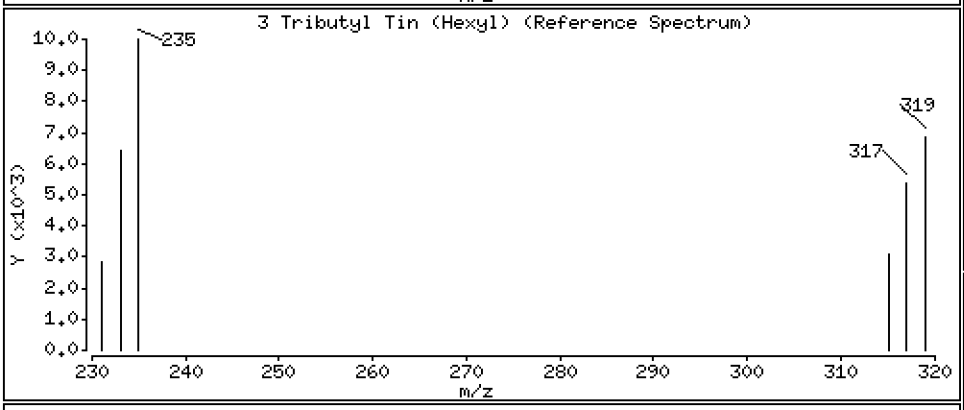
Concentration: 0.001468 ug/mL

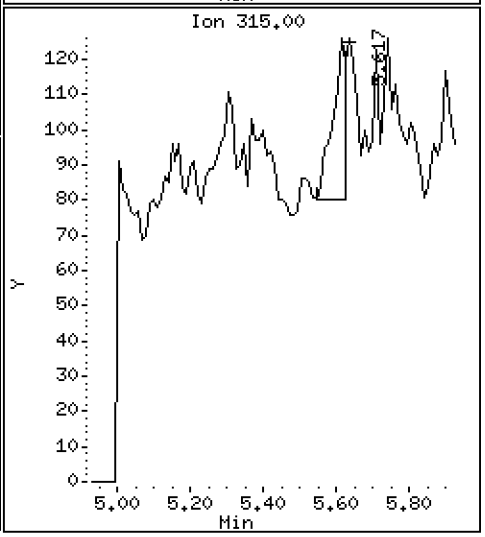


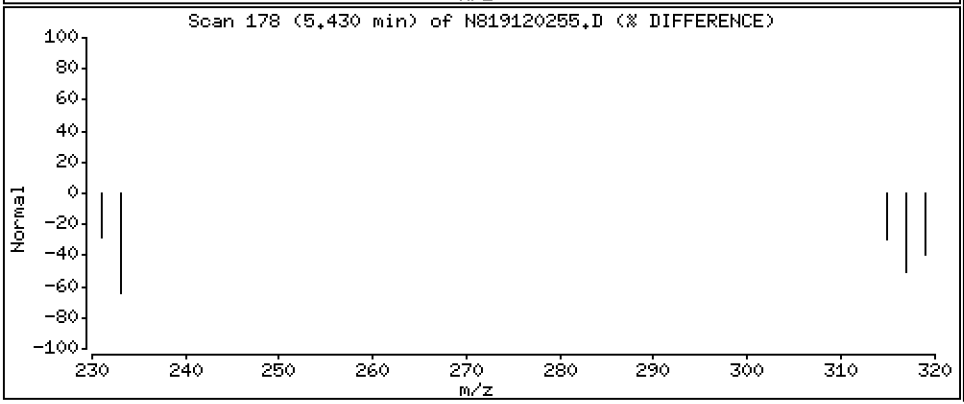












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120255.D
Lab Smp Id: 19K0394-02
Inj Date : 03-DEC-2019 00:28 MS Autotune Date: 27-FEB-2008 03:32
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-02
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Meth Date : 03-Dec-2019 10:47 jianqing Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TBTW.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.492	4.471	(0.741)	5802	0.41135	0.4114
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	16	0.00147	0.001468
*	4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	36089	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	3678	0.35247	0.3525
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	32193	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120255.D
Lab Smp Id: 19K0394-02
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Calibration Date: 02-DEC-2019
Calibration Time: 17:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	36089	-13.23
8 p-Terphenyl-d14	41162	20581	82324	32193	-21.79

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120255.D

Lab ID: 19K0394-02
nt8.i, 20191202A.b\TBT1125.m,   03-DEC-2019 00:28

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, TBTW.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0200

* Only compounds listed in the work order have been verified by the analyst *

PDI-1138RAB-00-10-191118

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-03 A	SDG:	19K0394
Sampled:	11/18/19 11:40	Prepared:	01/06/20 12:48	File ID:	N820010905.D
% Solids:	86.29	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 15:11
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.11 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	4.38	U	0.510	4.38

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	51.229	21.6	42.2	30 - 160	
Tripropyltin	49.605	23.8	48.0	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010905.D

Date : 09-JAN-2020 15:11

Client ID:

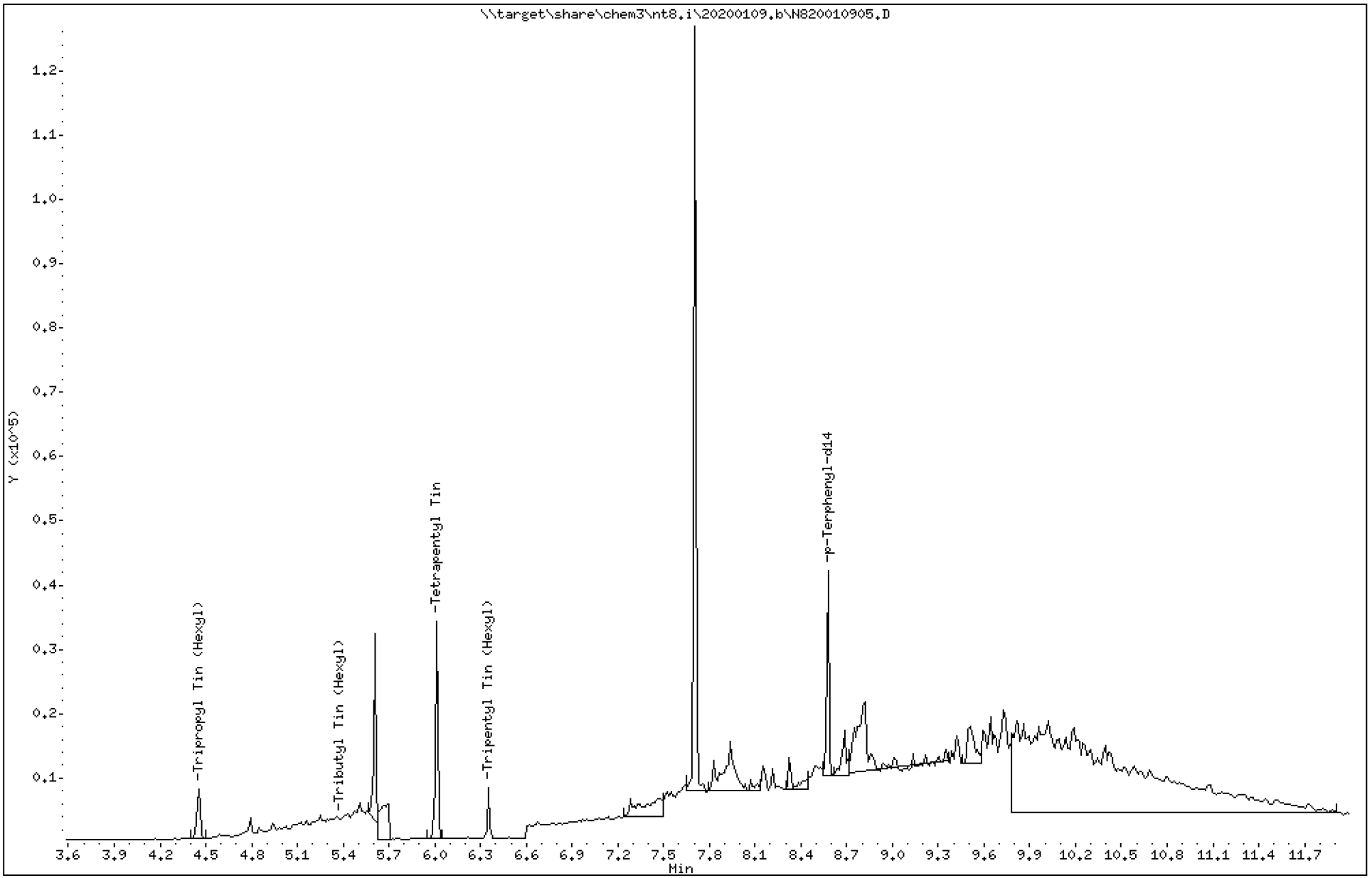
Sample Info: 19K0394-03

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010905.D

Date : 09-JAN-2020 15:11

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-03

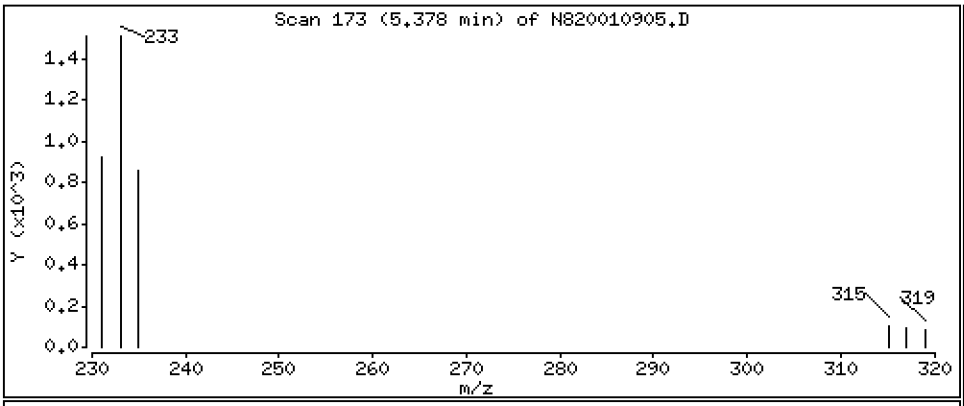
Operator: JZ

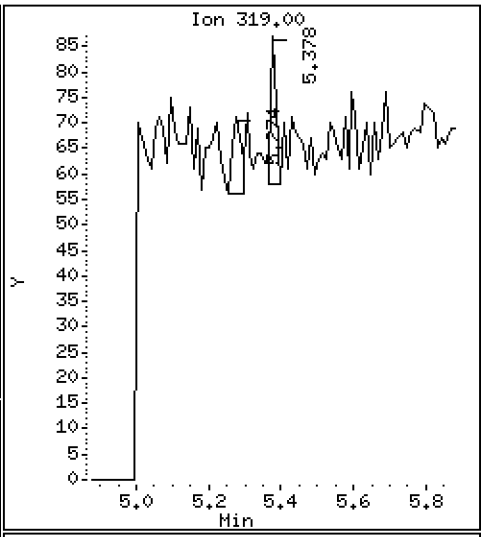
Column phase: ZB-5msi

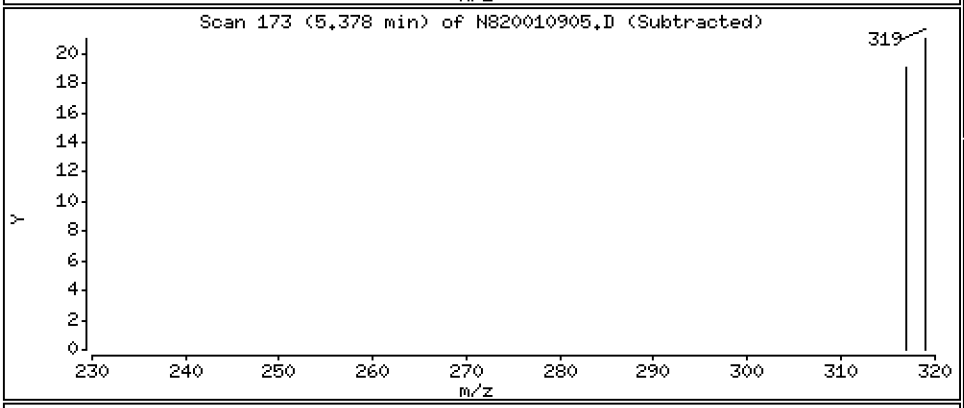
Column diameter: 0.25

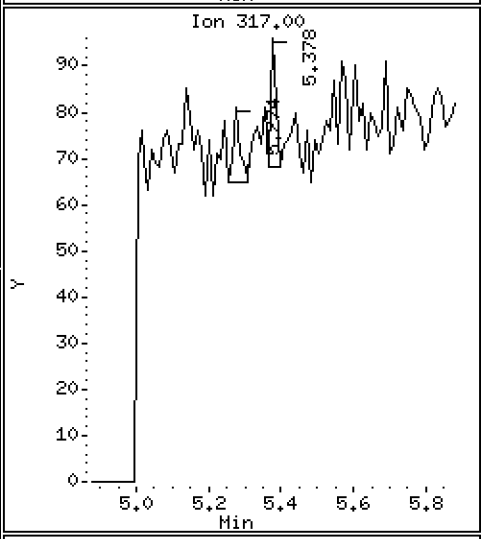
3 Tributyl Tin (Hexyl)

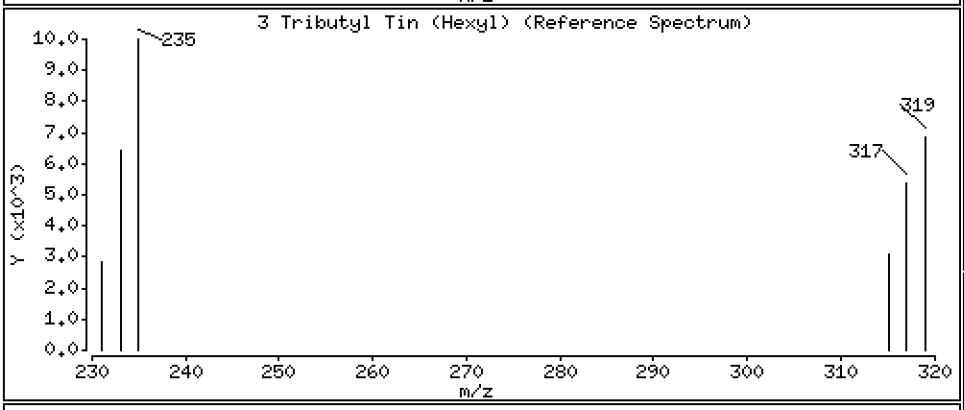
Concentration: 0.002130 ug/mL

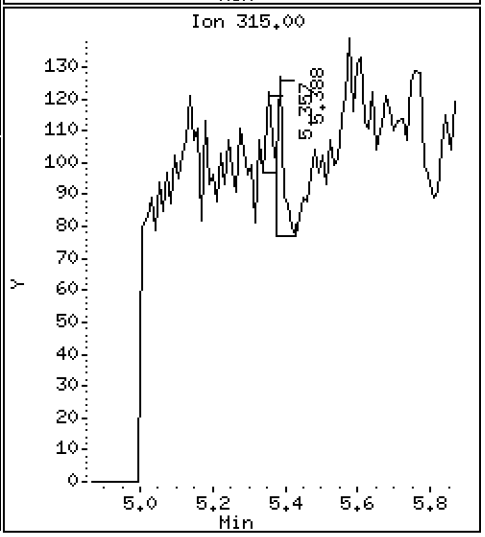


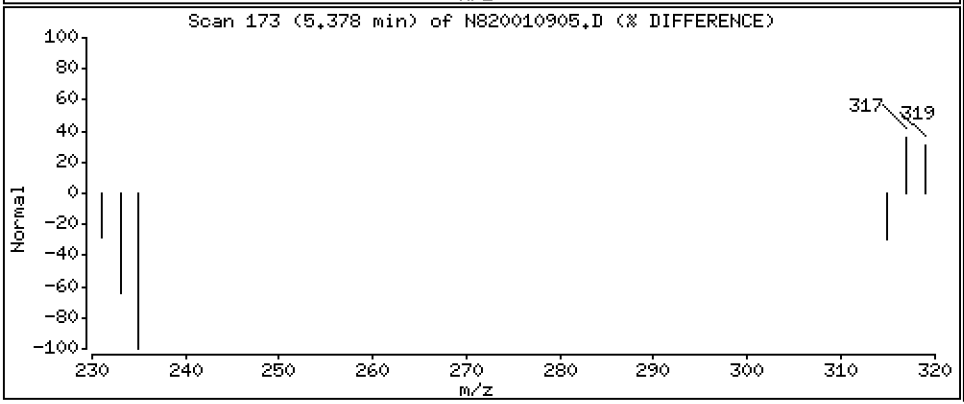












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010905.D
Lab Smp Id: 19K0394-03
Inj Date : 09-JAN-2020 15:11
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-03
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.450	4.419	(0.740)	4925	0.28197	0.2820
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.894)	30	0.00213	0.002130
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	33453	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	3140	0.23930	0.2393
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.578	8.577	(1.000)	28619	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010905.D
Lab Smp Id: 19K0394-03
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	33453	-22.83
8 p-Terphenyl-d14	36156	18078	72312	28619	-20.85

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010905.D

Lab ID: 19K0394-03
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 15:11

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.740	0.735	0.0052	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PDI-138RAB-00-10-191118

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-04 A	SDG:	19K0394
Sampled:	11/18/19 11:40	Prepared:	01/06/20 12:48	File ID:	N820010906.D
% Solids:	84.84	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 15:27
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.11 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	4.45	U	0.519	4.45

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	52.102	20.1	38.6	30 - 160	
Tripropyltin	50.450	20.0	39.6	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010906.D

Date : 09-JAN-2020 15:27

Client ID:

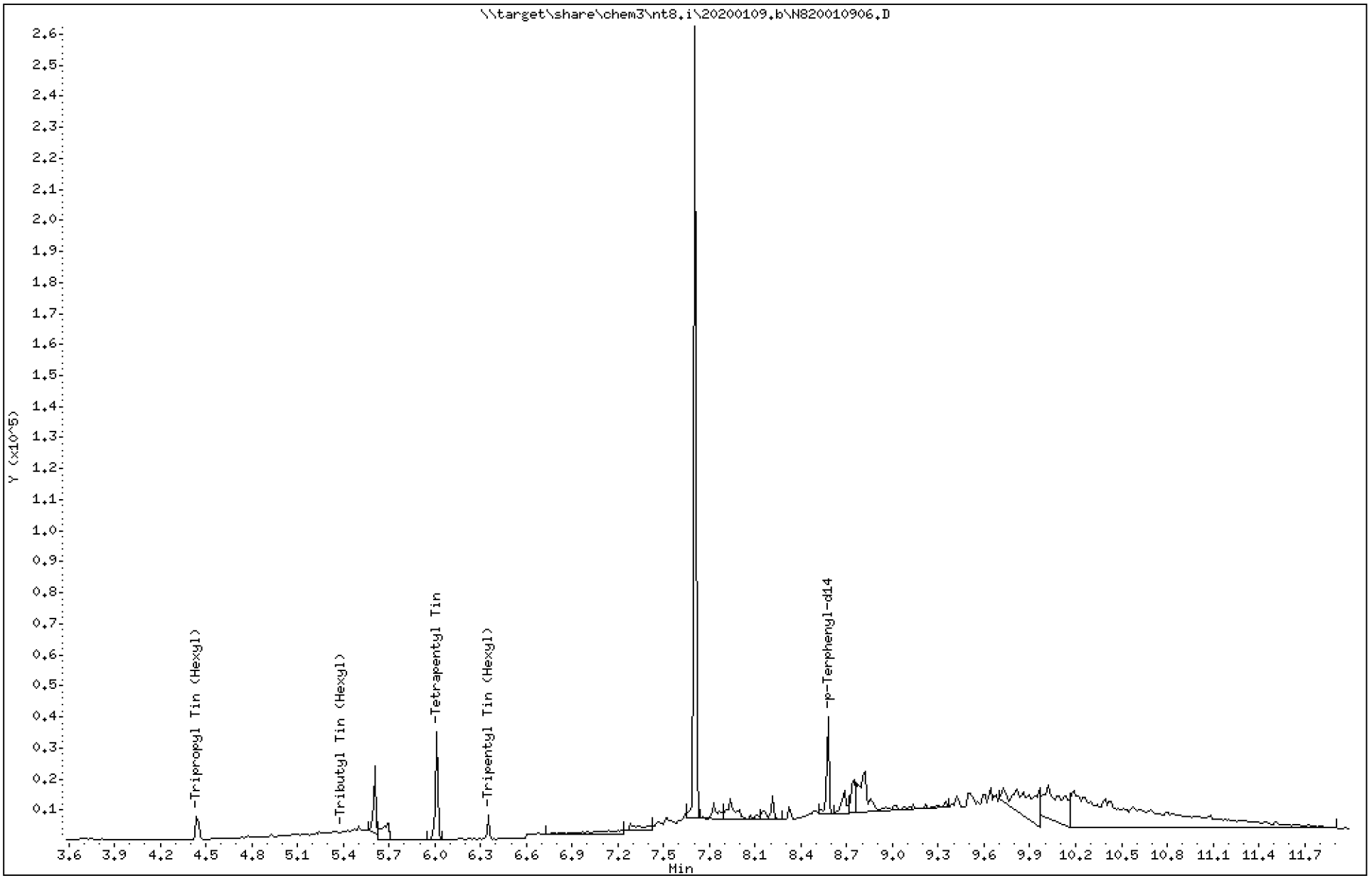
Sample Info: 19K0394-04

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010906.D

Date : 09-JAN-2020 15:27

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-04

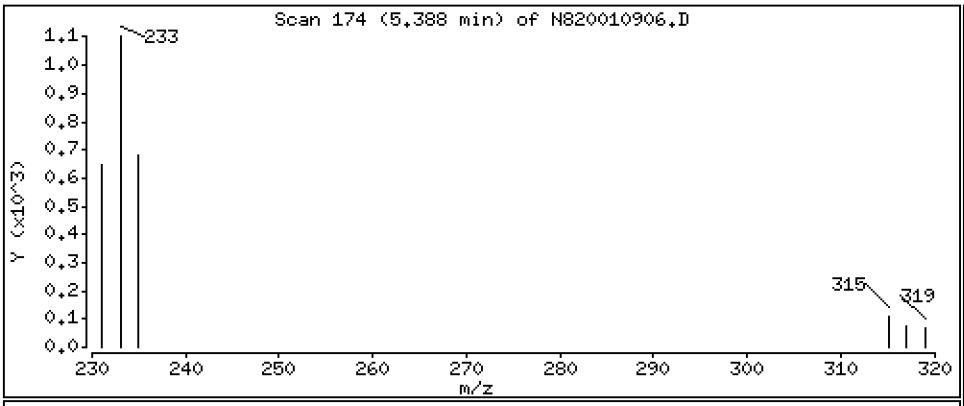
Operator: JZ

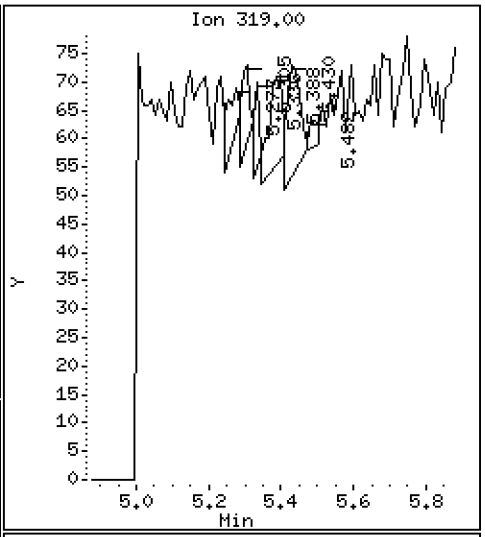
Column phase: ZB-5msi

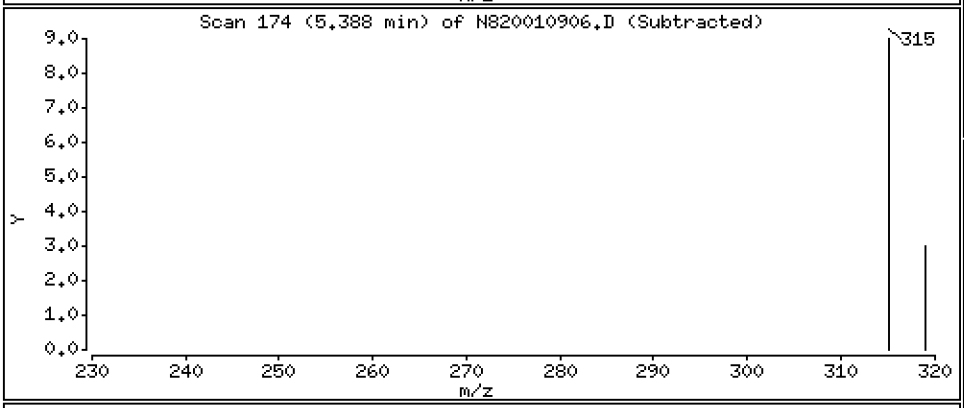
Column diameter: 0.25

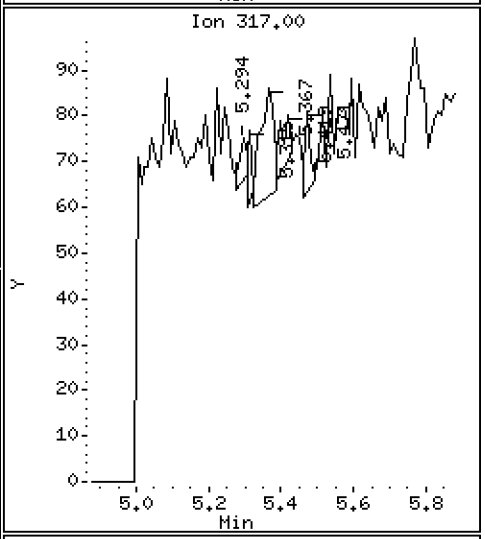
3 Tributyl Tin (Hexyl)

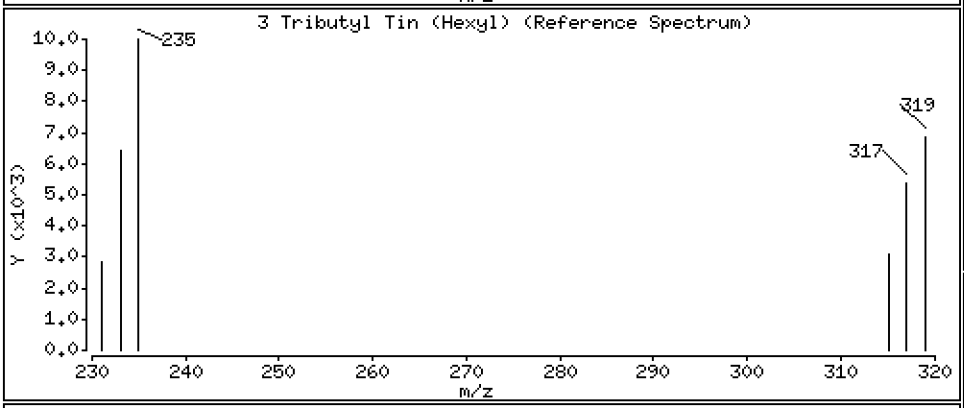
Concentration: 0.002898 ug/mL

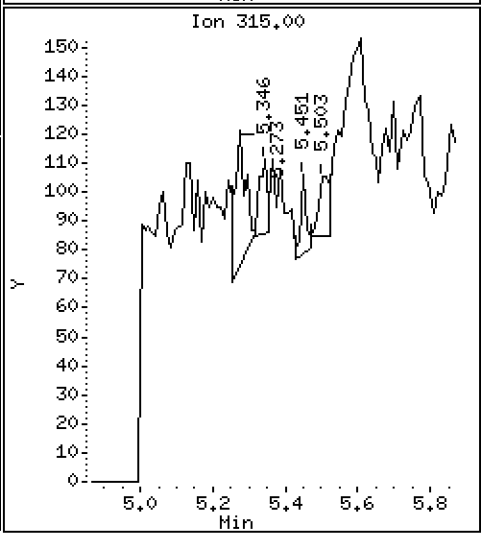


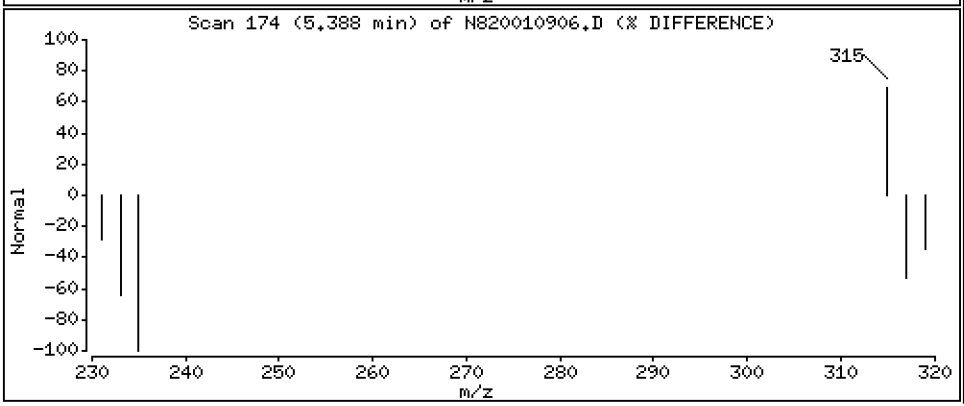












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010906.D
Lab Smp Id: 19K0394-04
Inj Date : 09-JAN-2020 15:27
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-04
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.440	4.419	(0.738)	4183	0.23269	0.2327
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.388	5.377	(0.896)	42	0.00290	0.002898
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	34430	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	2840	0.21899	0.2190
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	28302	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010906.D
Lab Smp Id: 19K0394-04
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	34430	-20.58
8 p-Terphenyl-d14	36156	18078	72312	28302	-21.72

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010906.D

Lab ID: 19K0394-04
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 15:27

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PDI-138RAB-10-19.1-191118

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-05 A	SDG:	19K0394
Sampled:	11/18/19 12:40	Prepared:	01/06/20 12:48	File ID:	N820010907.D
% Solids:	79.14	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 15:43
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.09 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	4.79	U	0.559	4.79

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	56.074	18.2	32.4	30 - 160	
Tripropyltin	54.297	18.7	34.5	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010907.D

Date : 09-JAN-2020 15:43

Client ID:

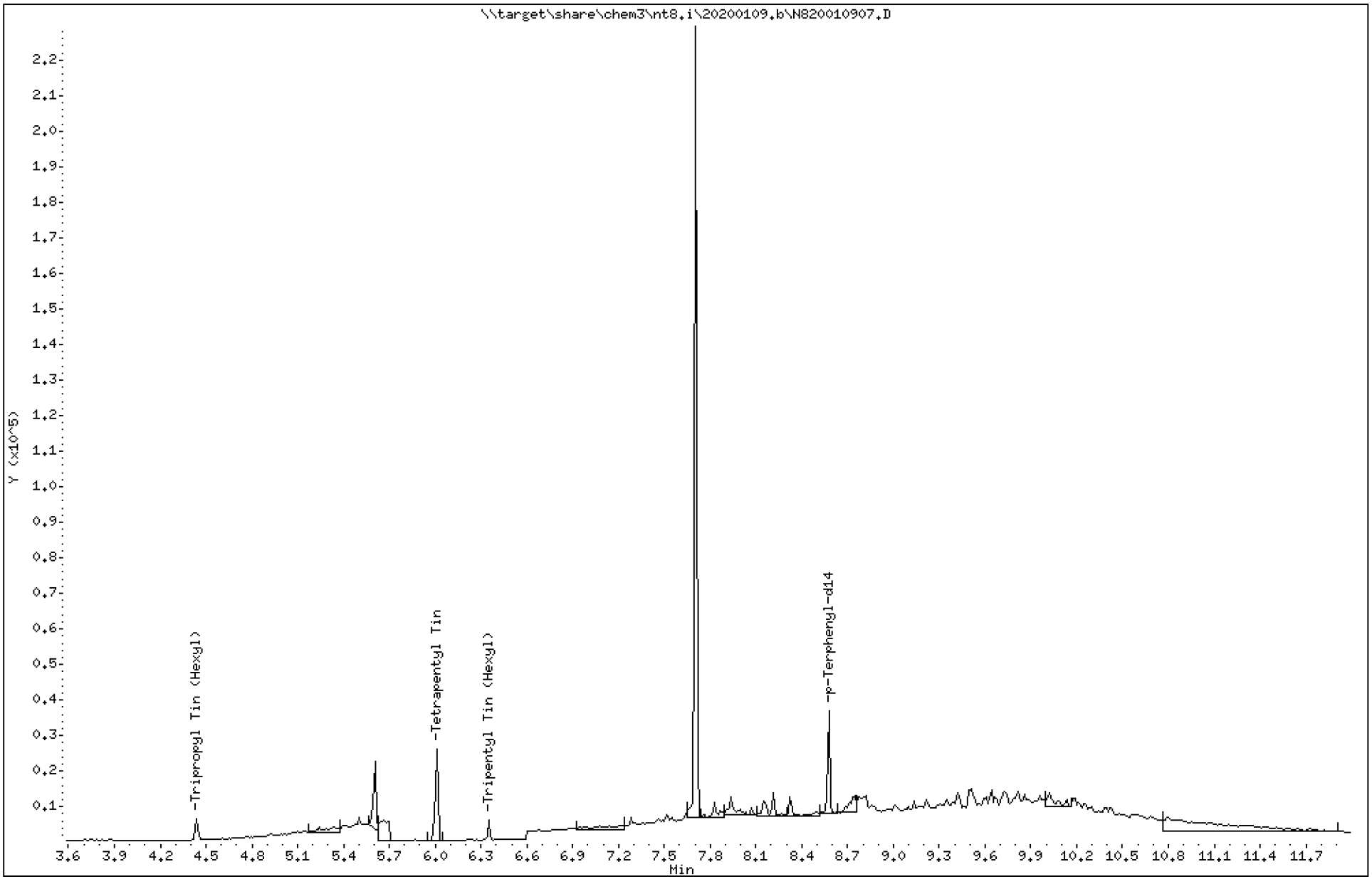
Sample Info: 19K0394-05

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010907.D
Lab Smp Id: 19K0394-05
Inj Date : 09-JAN-2020 15:43
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-05
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.440	4.419	(0.738)	3217	0.20285	0.2029
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	Compound Not Detected.					
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	30374	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	2213	0.18393	0.1839
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	26285	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010907.D
Lab Smp Id: 19K0394-05
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	30374	-29.93
8 p-Terphenyl-d14	36156	18078	72312	26285	-27.30

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010907.D

Lab ID: 19K0394-05
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 15:43

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PDI-139RAB-00-10-191115

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-06 A	SDG:	19K0394
Sampled:	11/15/19 12:40	Prepared:	01/06/20 12:48	File ID:	N820010909.D
% Solids:	80.76	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 16:16
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.07 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	3	14.1	U	1.65	14.1

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	55.170	18.6	33.7	30 - 160	
Tripropyltin	53.421	16.5	30.9	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010909.D

Date : 09-JAN-2020 16:16

Client ID: 3

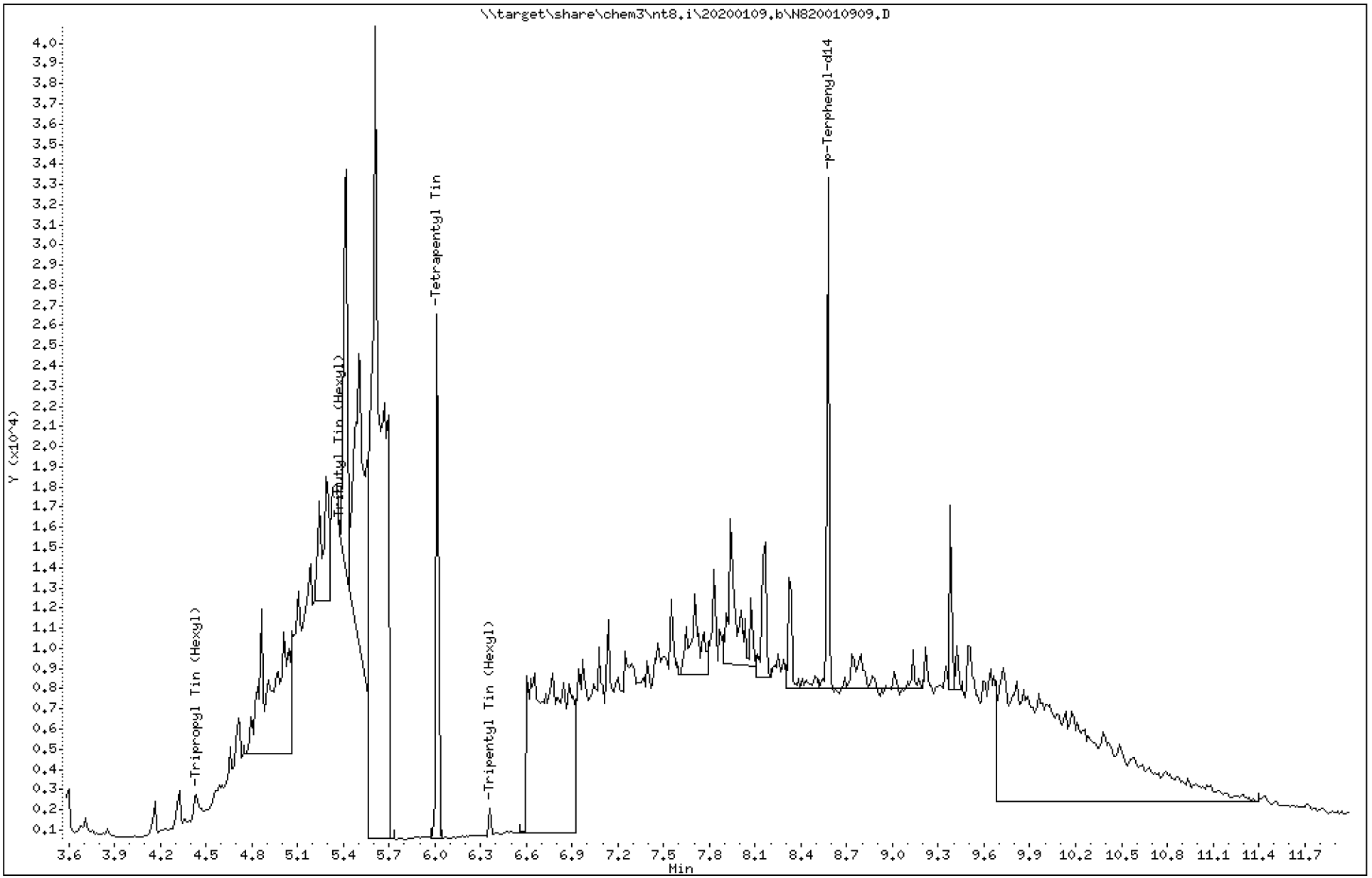
Sample Info: 19K0394-06,3

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010909.D

Date : 09-JAN-2020 16:16

Client ID: 3

Instrument: nt8.i

Sample Info: 19K0394-06,3

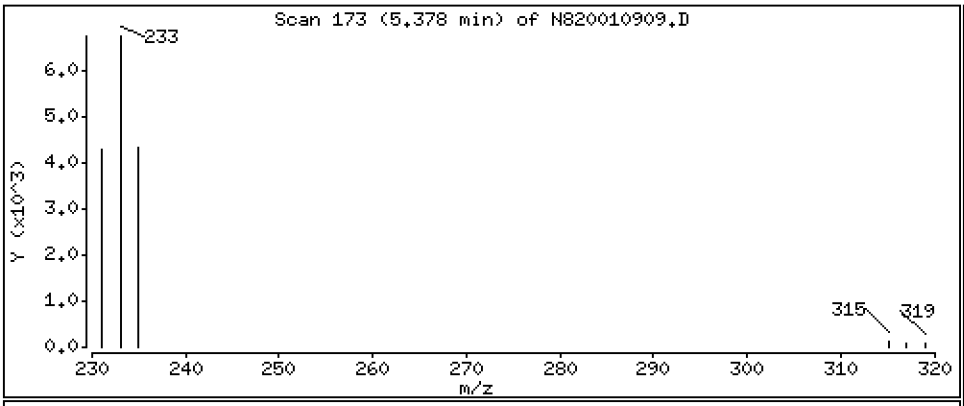
Operator: JZ

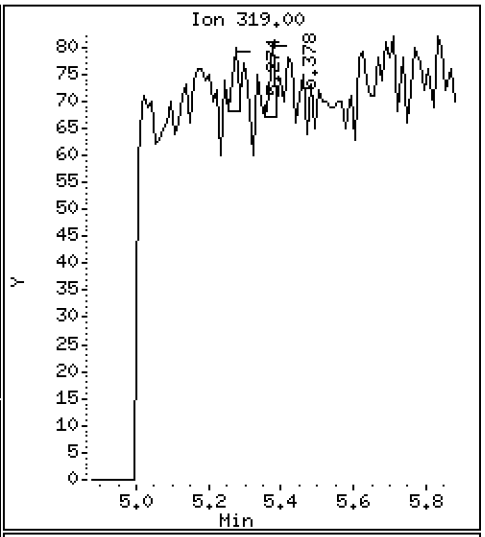
Column phase: ZB-5msi

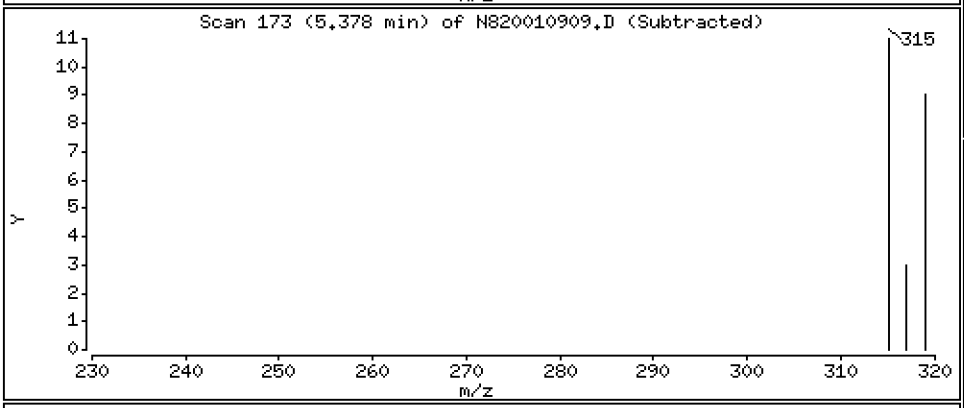
Column diameter: 0.25

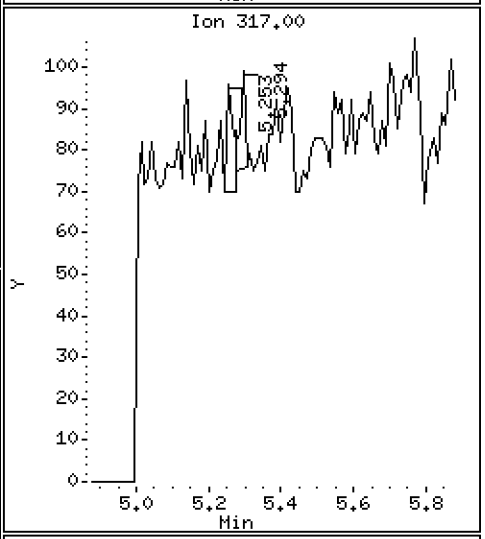
3 Tributyl Tin (Hexyl)

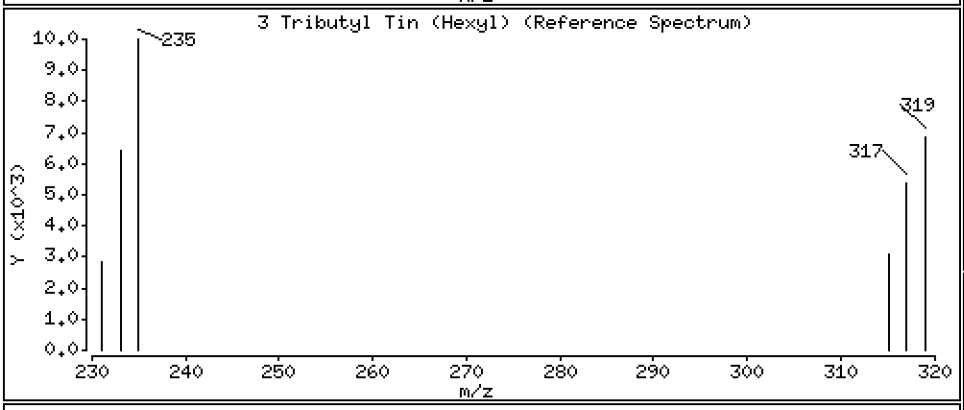
Concentration: 0.003358 ug/mL

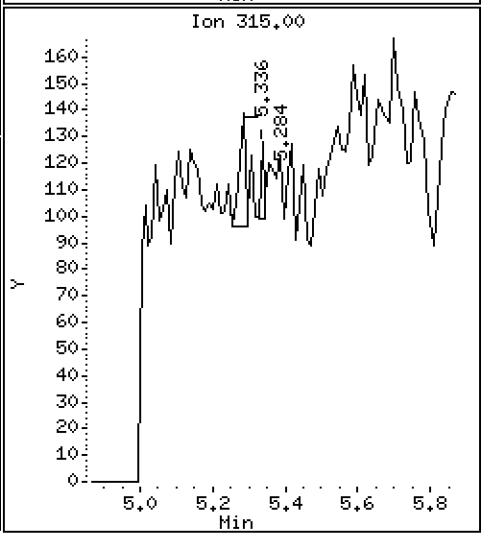


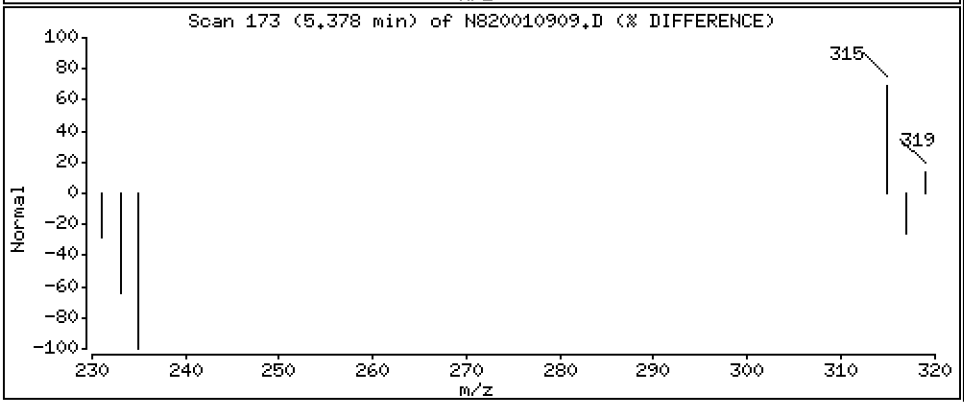












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010909.D
Lab Smp Id: 19K0394-06 Client Smp ID: 3
Inj Date : 09-JAN-2020 16:16
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-06,3
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 9
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.440	4.419	(0.738)	872	0.06054	0.1816(M)
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.894)	13	0.00112	0.003358
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	27586	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.363	6.351	(0.742)	633	0.06384	0.1915
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	21736	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010909.D
Lab Smp Id: 19K0394-06
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Client Smp ID: 3
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	27586	-36.36
8 p-Terphenyl-d14	36156	18078	72312	21736	-39.88

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010909.D

Lab ID: 19K0394-06
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 16:16

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N820010902.D

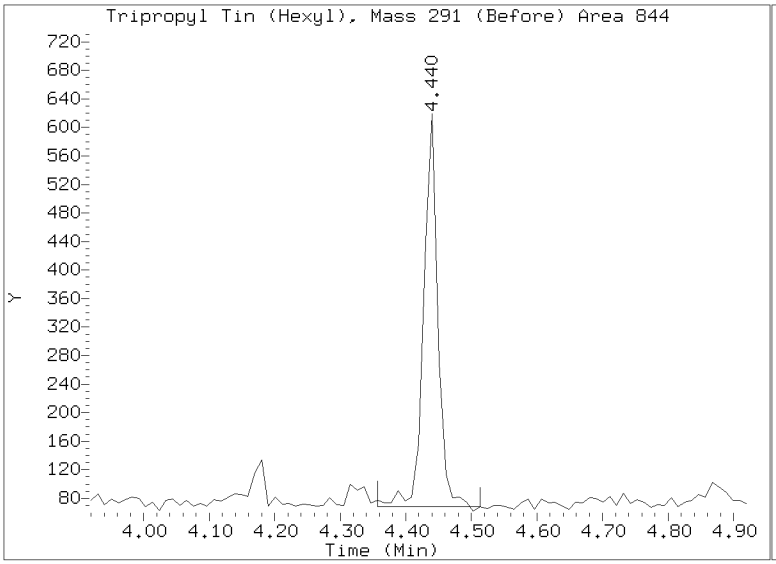
On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

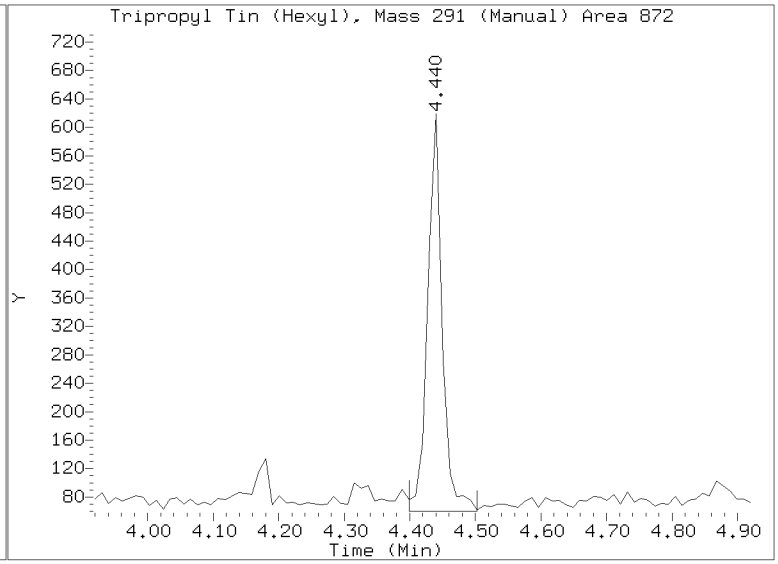
Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20200109.b/N820010909.D
Injection Date: 09-JAN-2020 16:16
Lab ID:19K0394-06 Client ID:3
Report Date: 01/09/2020 17:06





PDI-139RAB-10-20-191115

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-07 A	SDG:	19K0394
Sampled:	11/15/19 14:40	Prepared:	01/06/20 12:48	File ID:	N820010910.D
% Solids:	75.41	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 16:32
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.08 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	5.04	U	0.587	5.04

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	58.966	22.3	37.8	30 - 160	
Tripropyltin	57.097	21.7	38.0	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010910.D

Date : 09-JAN-2020 16:32

Client ID:

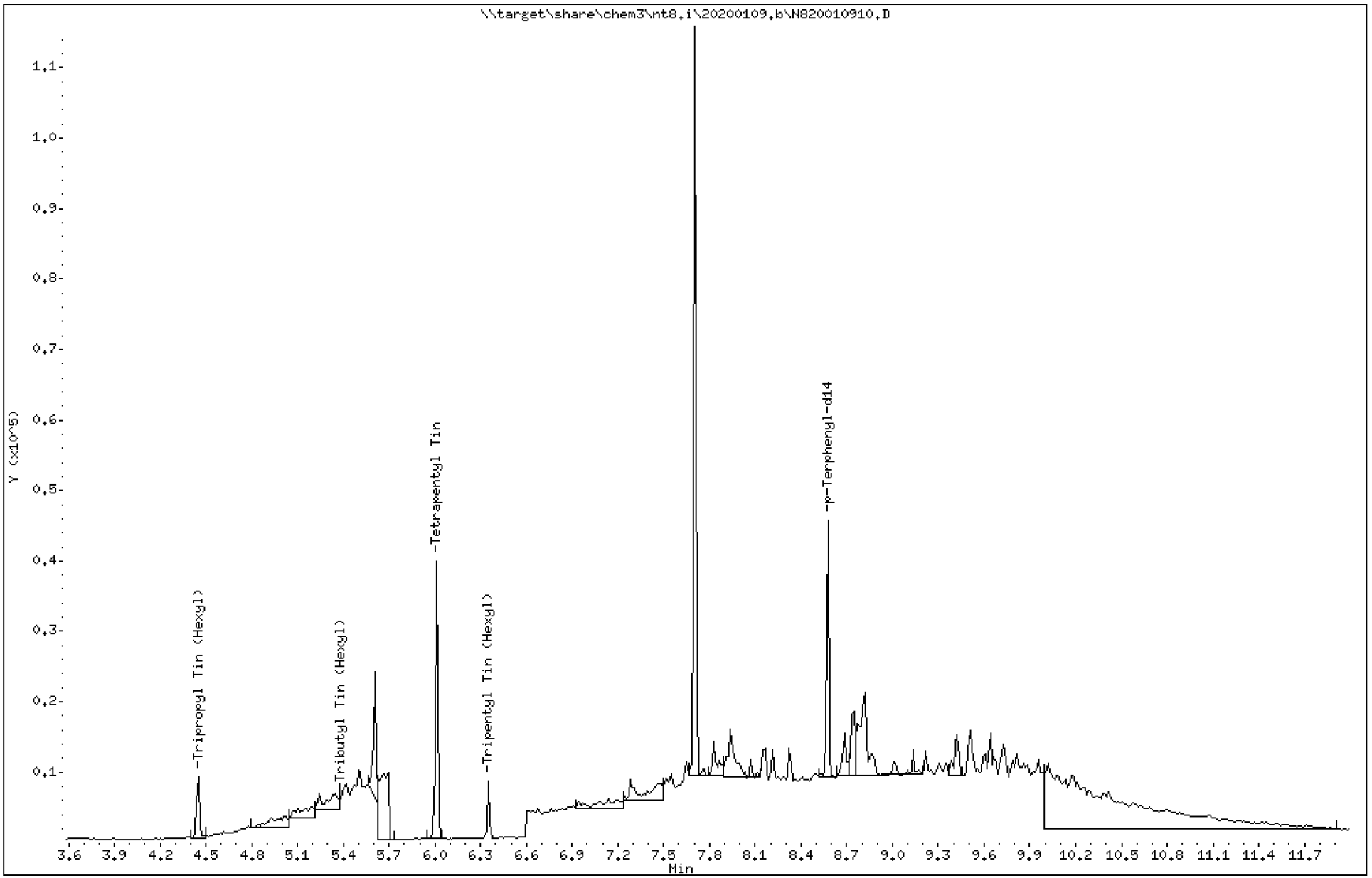
Sample Info: 19K0394-07

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010910.D

Date : 09-JAN-2020 16:32

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-07

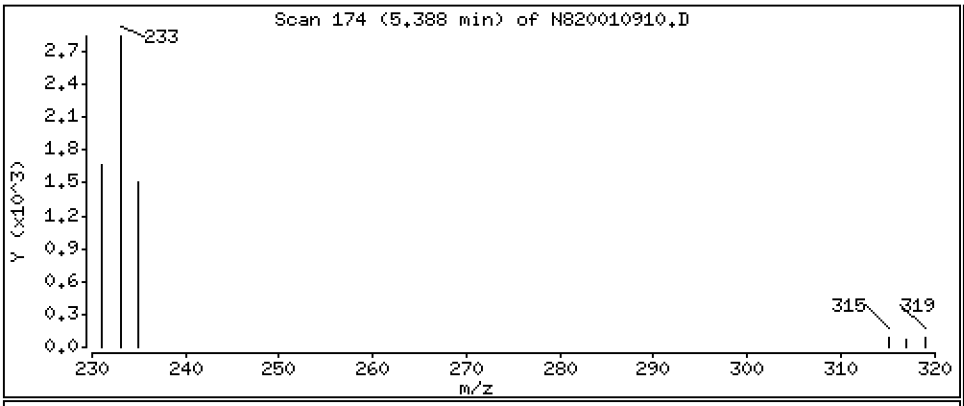
Operator: JZ

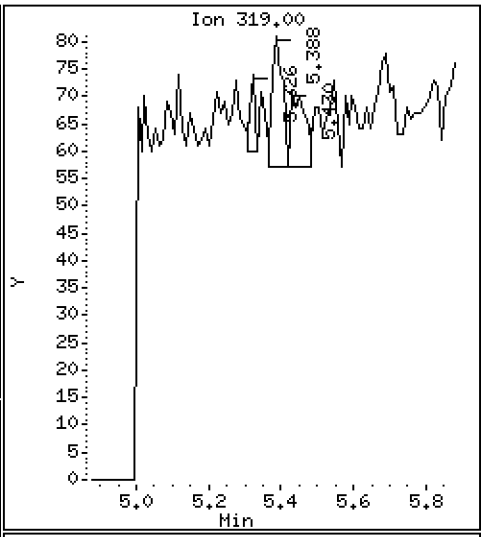
Column phase: ZB-5msi

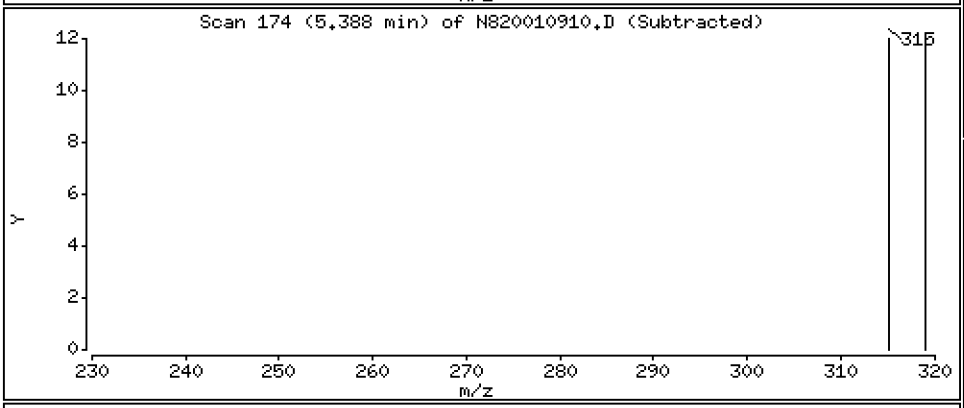
Column diameter: 0.25

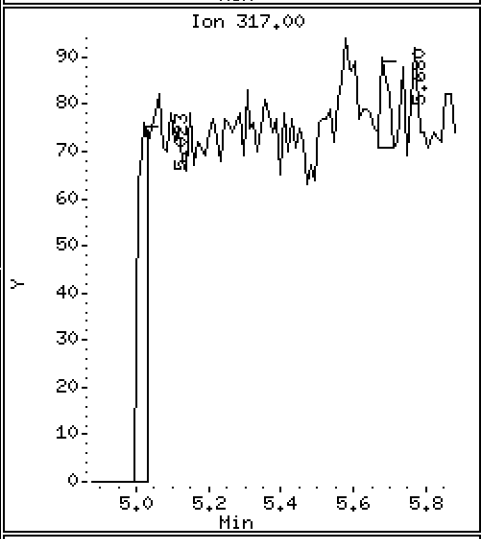
3 Tributyl Tin (Hexyl)

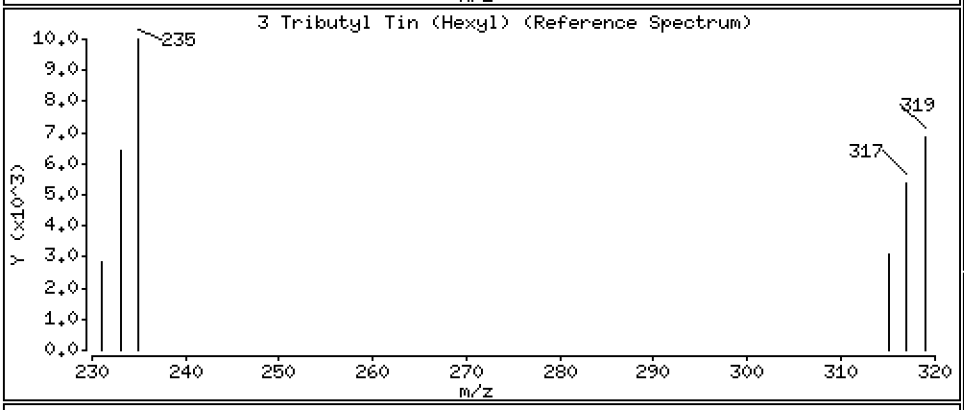
Concentration: 0.002934 ug/mL

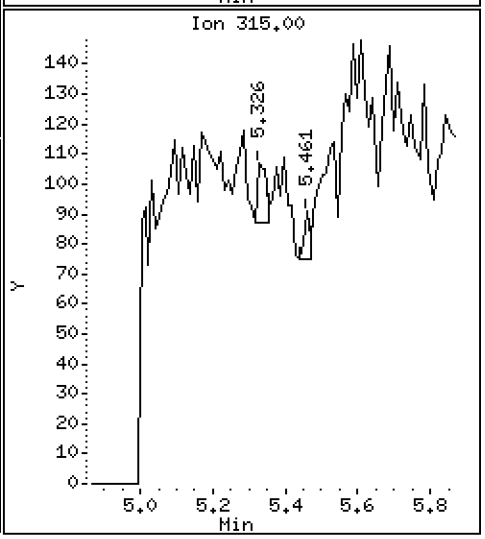


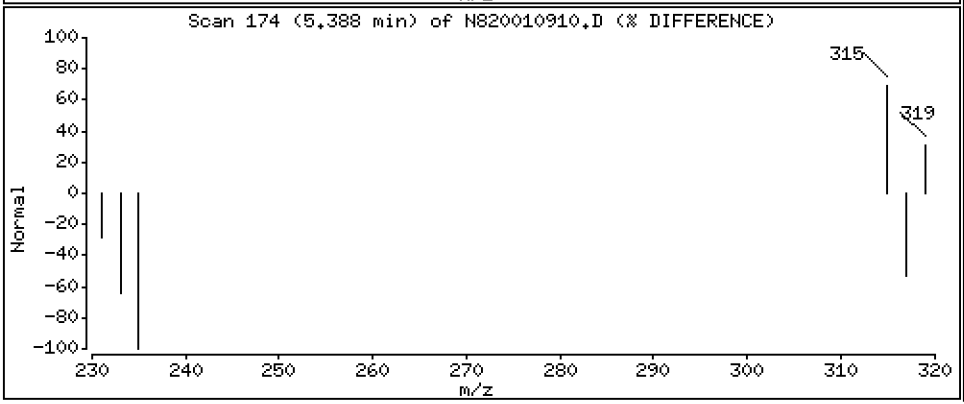












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010910.D
Lab Smp Id: 19K0394-07
Inj Date : 09-JAN-2020 16:32
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-07
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.450	4.419	(0.740)	4532	0.22338	0.2234
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.388	5.377	(0.896)	48	0.00293	0.002934
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	38858	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	3262	0.21450	0.2145
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	33192	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010910.D
Lab Smp Id: 19K0394-07
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	38858	-10.36
8 p-Terphenyl-d14	36156	18078	72312	33192	-8.20

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010910.D

Lab ID: 19K0394-07
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 16:32

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.740	0.735	0.0052	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PDI-139RAB-20-25.5-191118

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-08 A	SDG:	19K0394
Sampled:	11/18/19 08:30	Prepared:	01/06/20 12:48	File ID:	N820010911.D
% Solids:	75.36	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 16:49
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.09 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	5.03	U	0.587	5.03

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	58.888	25.6	43.5	30 - 160	
Tripropyltin	57.022	24.6	43.1	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010911.D

Date : 09-JAN-2020 16:49

Client ID:

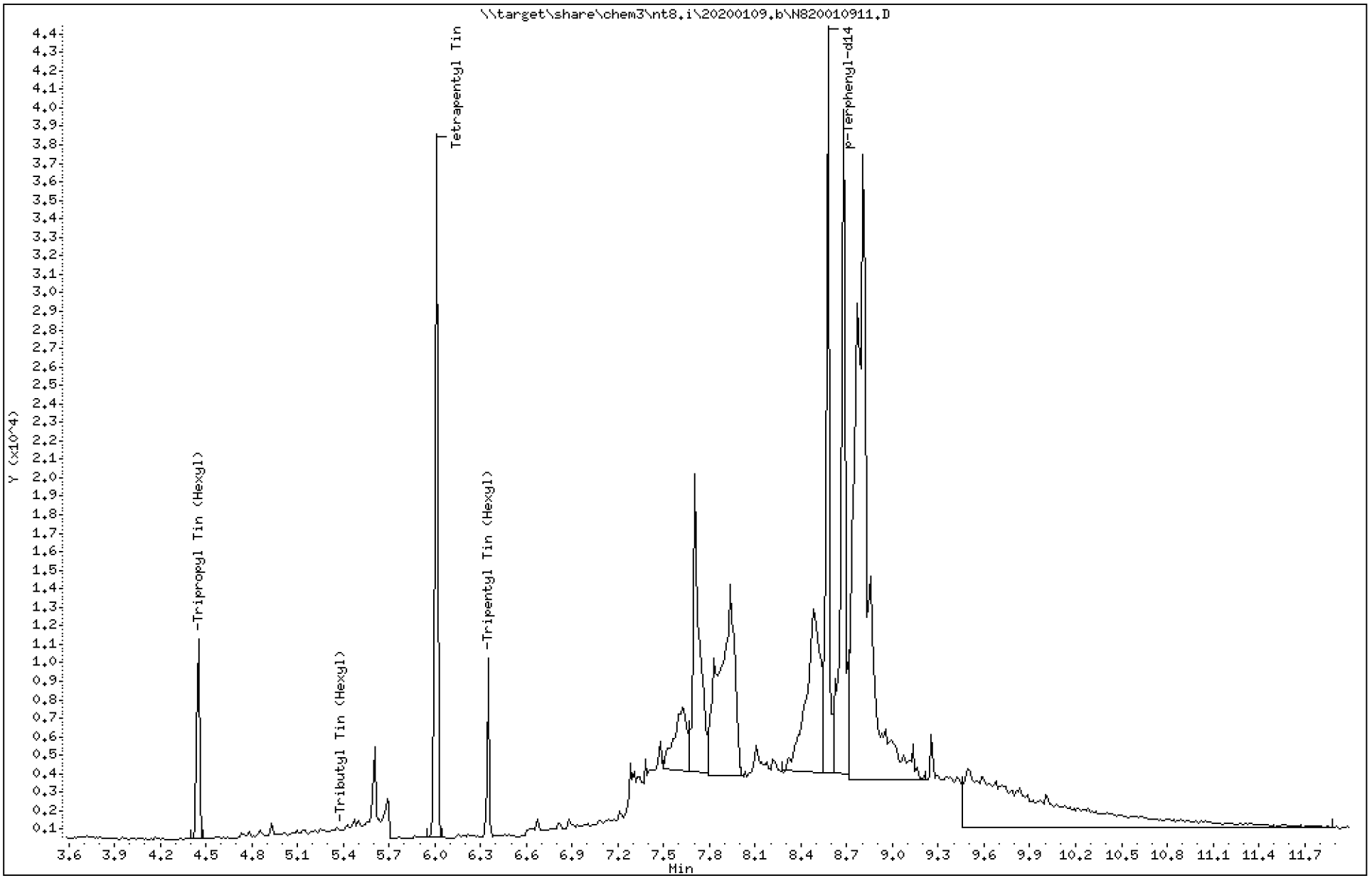
Sample Info: 19K0394-08

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010911.D

Date : 09-JAN-2020 16:49

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-08

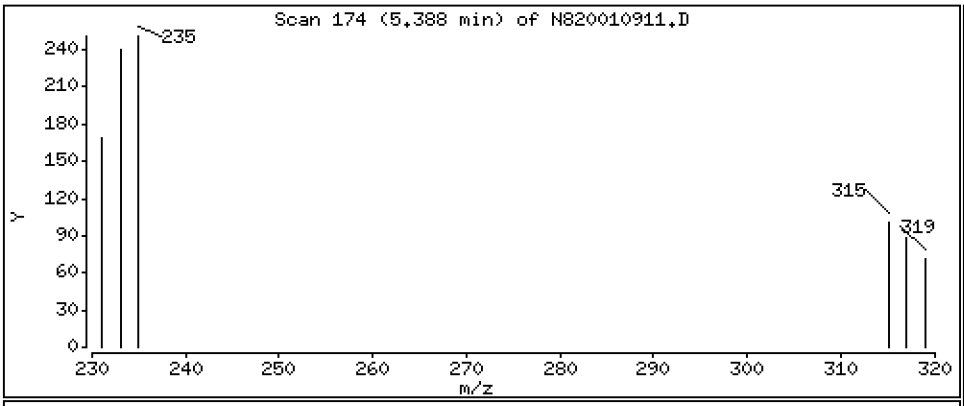
Operator: JZ

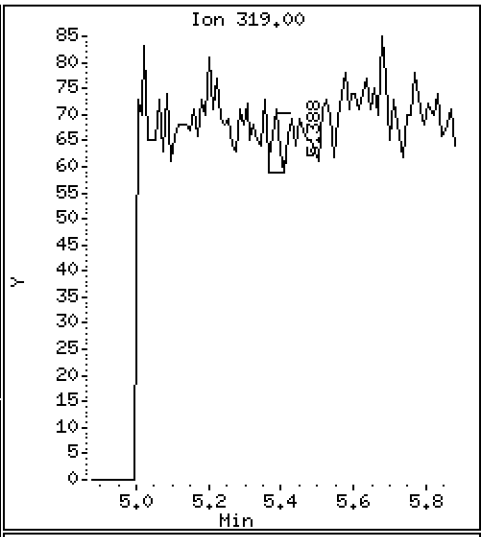
Column phase: ZB-5msi

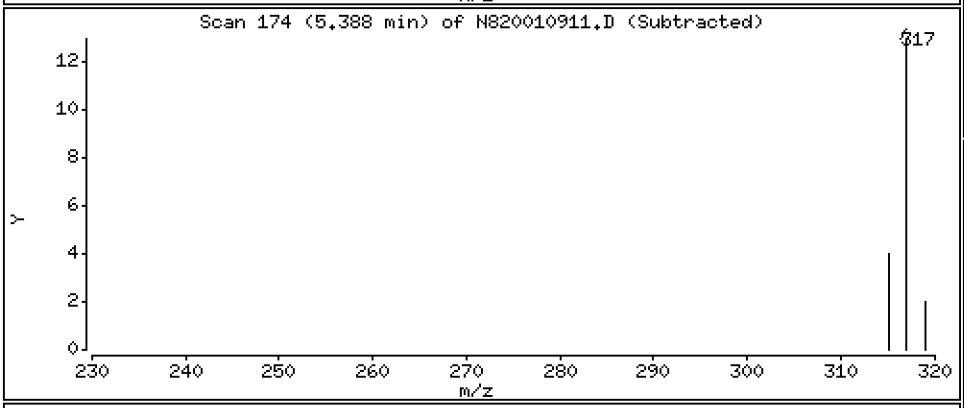
Column diameter: 0.25

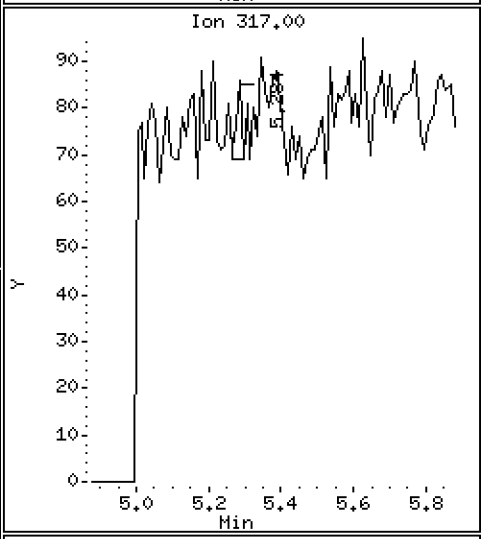
3 Tributyl Tin (Hexyl)

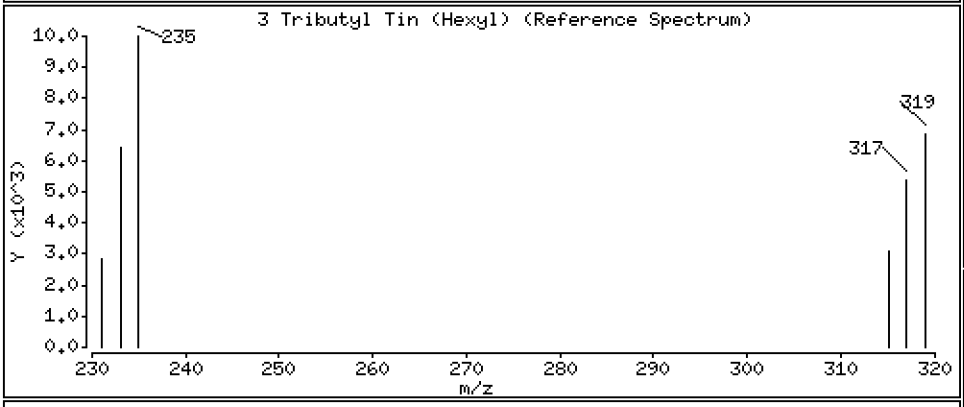
Concentration: 0.0008993 ug/mL

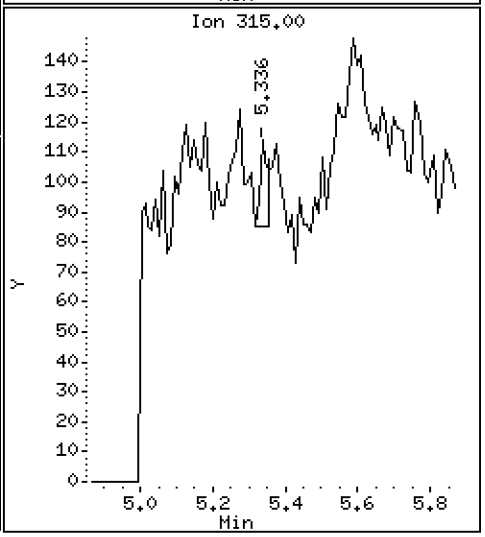


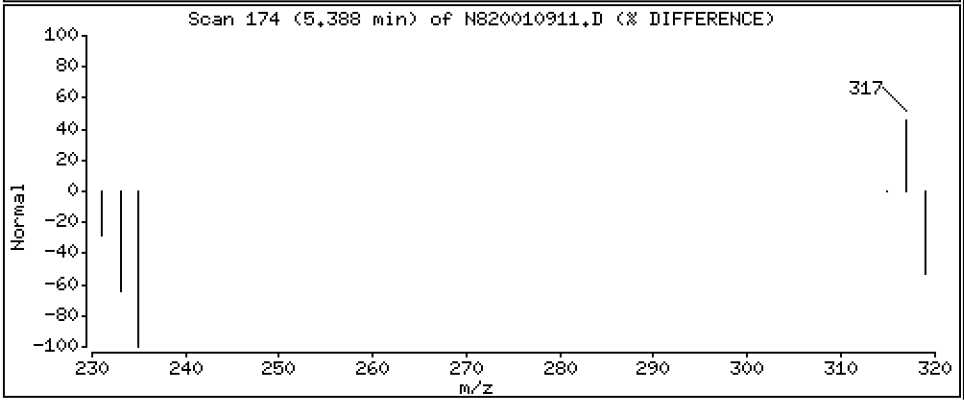












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010911.D
Lab Smp Id: 19K0394-08
Inj Date : 09-JAN-2020 16:49
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-08
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.450	4.419	(0.740)	5589	0.25328	0.2533
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.388	5.377	(0.896)	16	9.e-004	0.0008993
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	42263	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	3856	0.24668	0.2467
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	34086	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010911.D
Lab Smp Id: 19K0394-08
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	42263	-2.51
8 p-Terphenyl-d14	36156	18078	72312	34086	-5.73

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010911.D

Lab ID: 19K0394-08
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 16:49

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.740	0.735	0.0052	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PDI-145RAB-00-10-191114

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-09 A	SDG:	19K0394
Sampled:	11/14/19 09:15	Prepared:	01/06/20 12:48	File ID:	N820010912.D
% Solids:	90.70	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 17:53
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.11 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	4.16	U	0.485	4.16

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	48.737	18.2	37.4	30 - 160	
Tripropyltin	47.192	15.0	31.8	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010912.D

Date : 09-JAN-2020 17:53

Client ID:

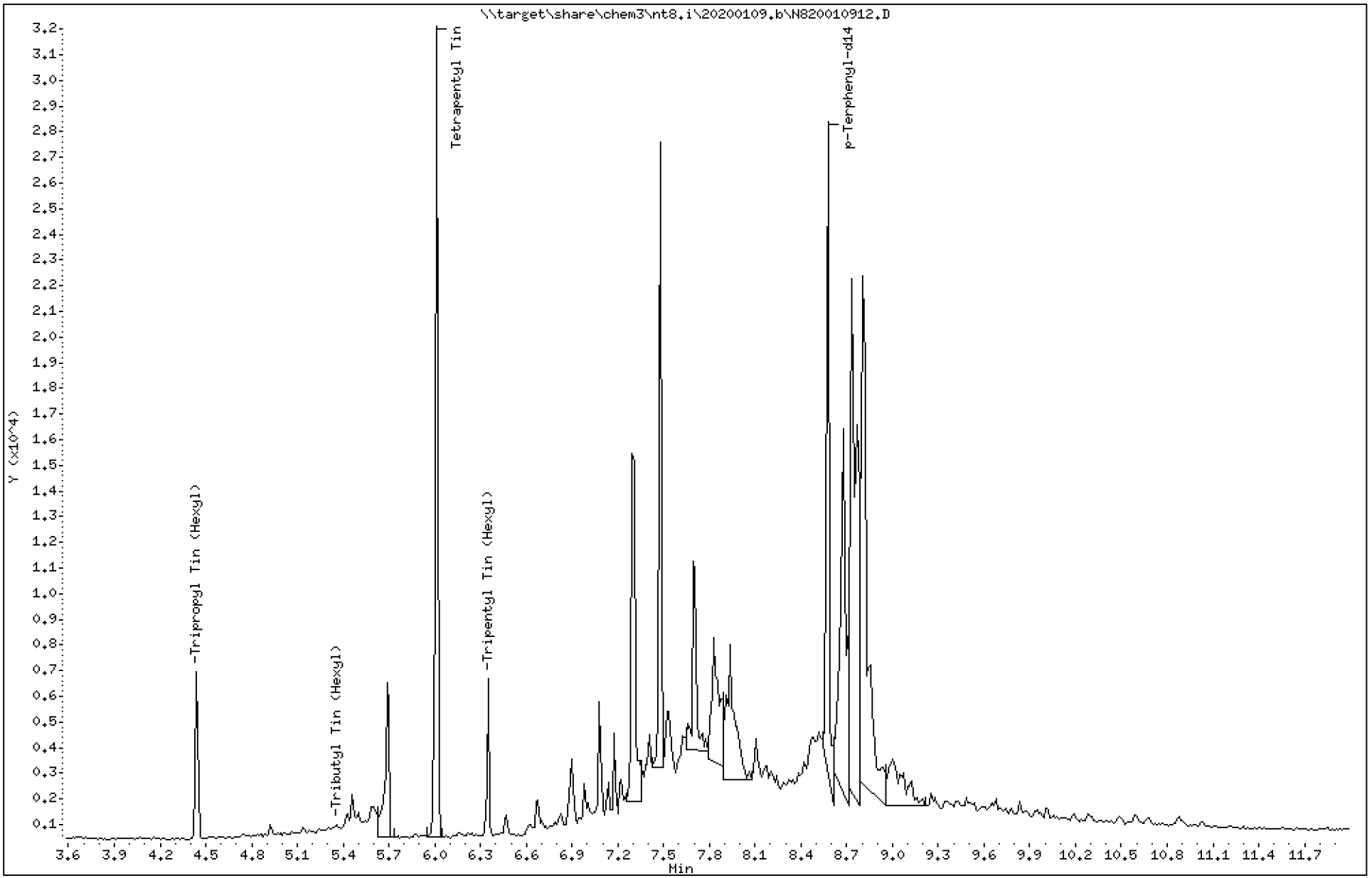
Sample Info: 19K0394-09

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010912.D

Date : 09-JAN-2020 17:53

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-09

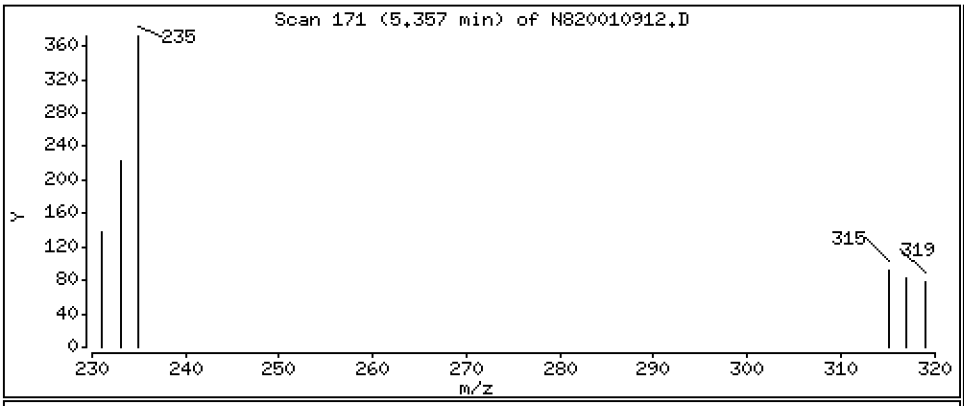
Operator: JZ

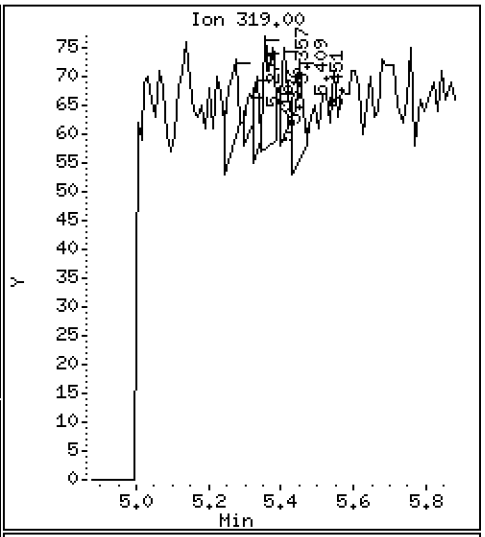
Column phase: ZB-5msi

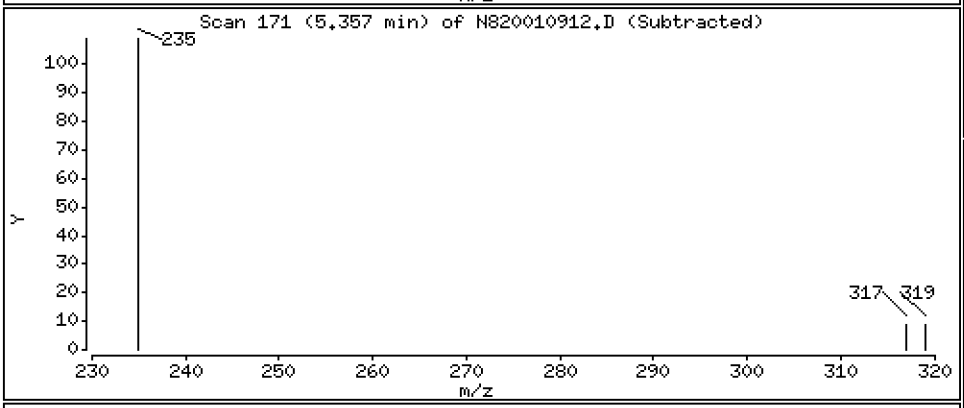
Column diameter: 0.25

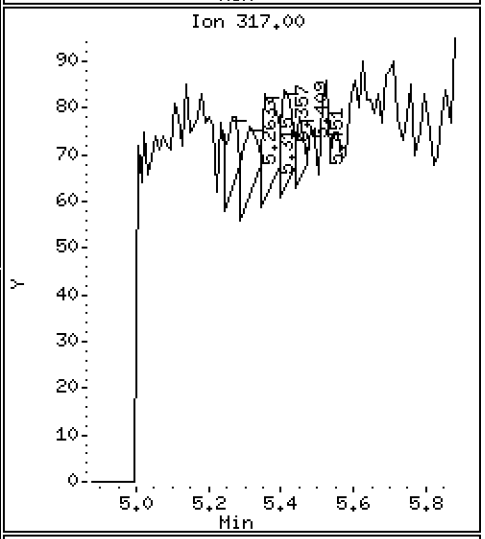
3 Tributyl Tin (Hexyl)

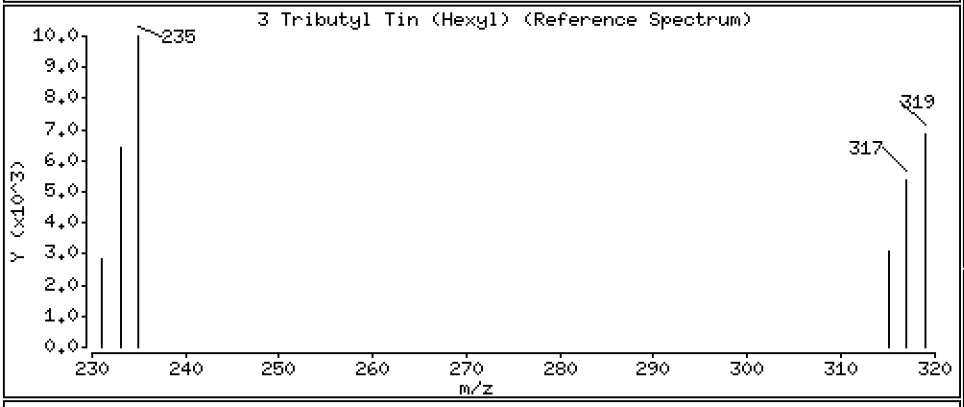
Concentration: 0.002711 ug/mL

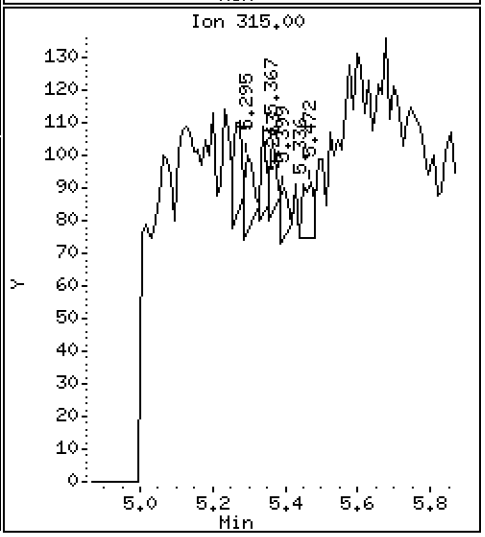


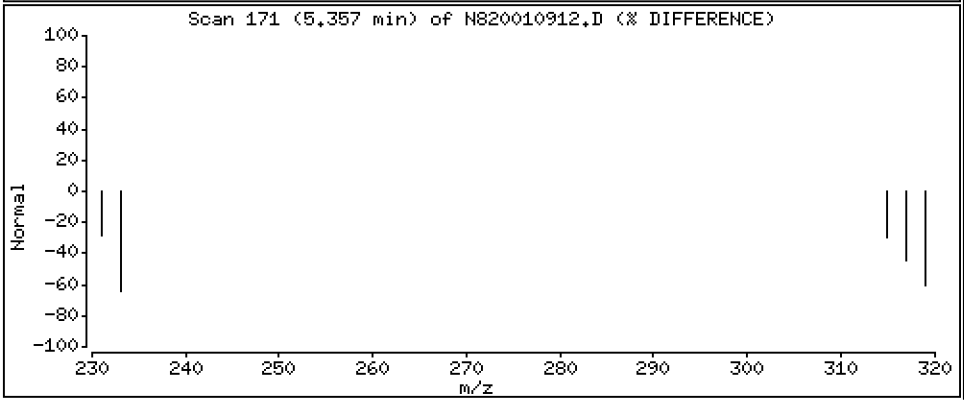












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010912.D
Lab Smp Id: 19K0394-09
Inj Date : 09-JAN-2020 17:53
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-09
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.440	4.419	(0.738)	3081	0.18710	0.1871
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.357	5.377	(0.891)	36	0.00271	0.002711
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	31539	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	2414	0.21236	0.2124
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.578	8.577	(1.000)	24813	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010912.D
Lab Smp Id: 19K0394-09
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	31539	-27.25
8 p-Terphenyl-d14	36156	18078	72312	24813	-31.37

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010912.D

Lab ID: 19K0394-09
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 17:53

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PDI-145RAB-10-20-191114

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-10 A	SDG:	19K0394
Sampled:	11/14/19 10:30	Prepared:	01/06/20 12:48	File ID:	N820010915.D
% Solids:	91.62	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 18:42
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.05 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	4.17	U	0.486	4.17

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	48.823	20.6	42.3	30 - 160	
Tripropyltin	47.275	18.7	39.6	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010915.D

Date : 09-JAN-2020 18:42

Client ID:

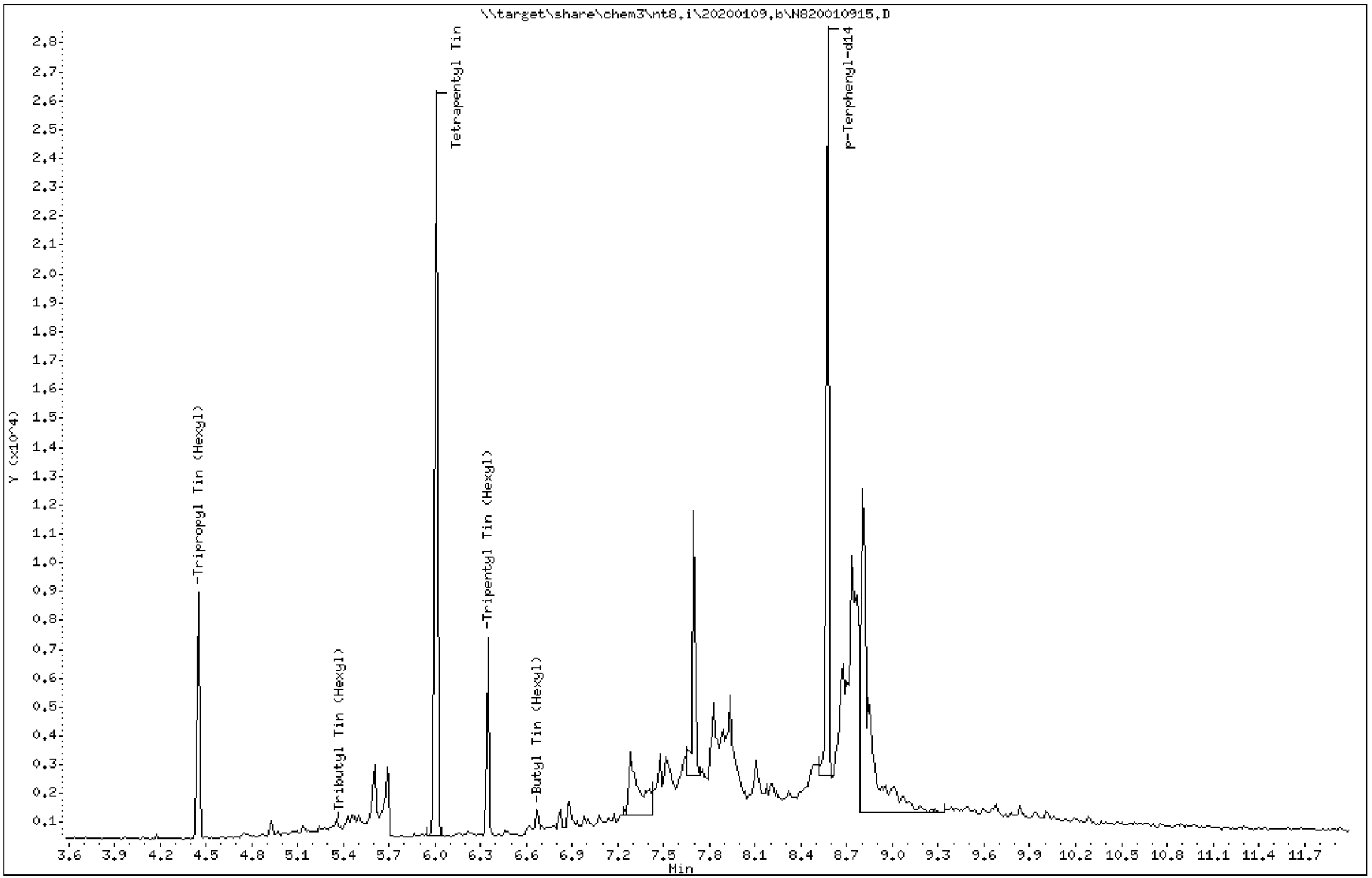
Sample Info: 19K0394-10

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010915.D

Date : 09-JAN-2020 18:42

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-10

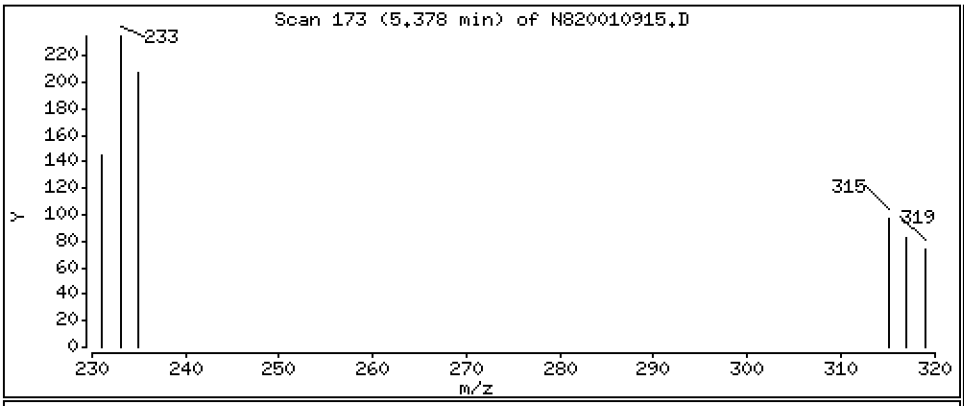
Operator: JZ

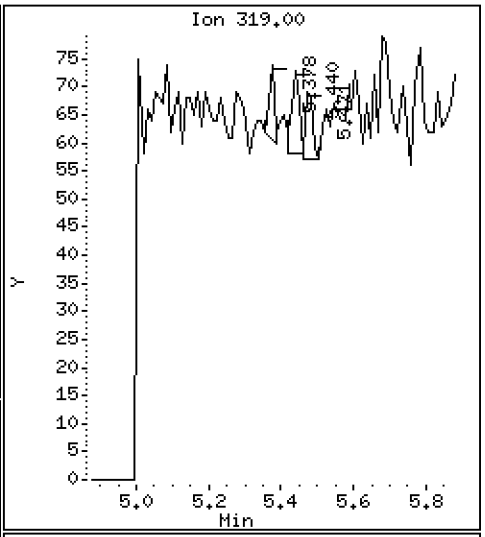
Column phase: ZB-5msi

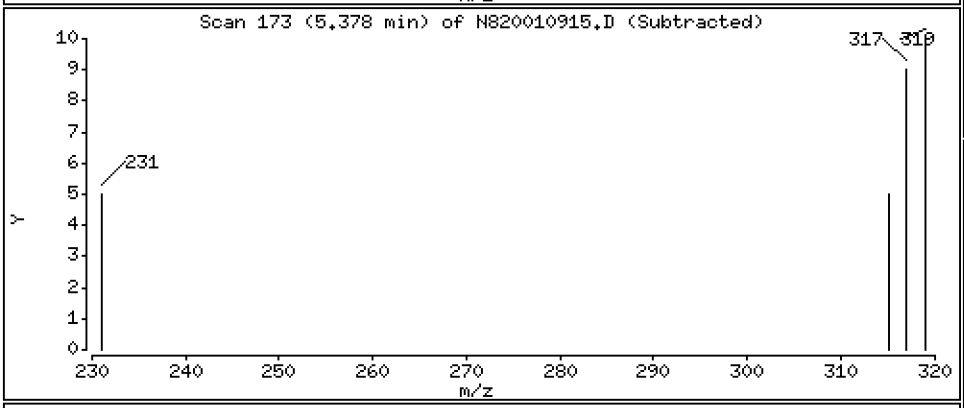
Column diameter: 0.25

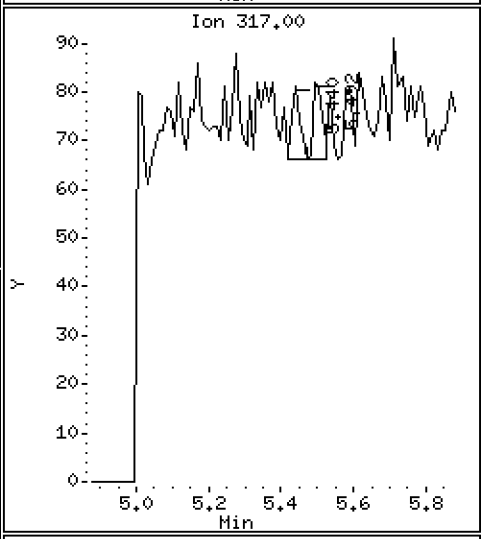
3 Tributyl Tin (Hexyl)

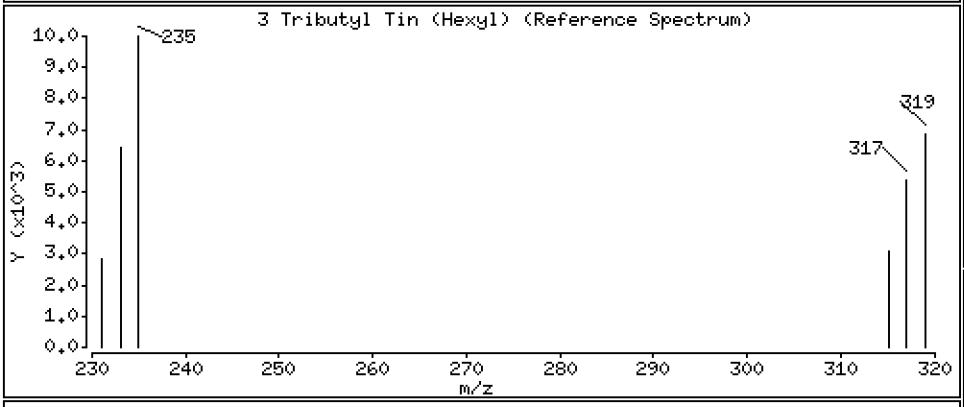
Concentration: 0.0009688 ug/mL

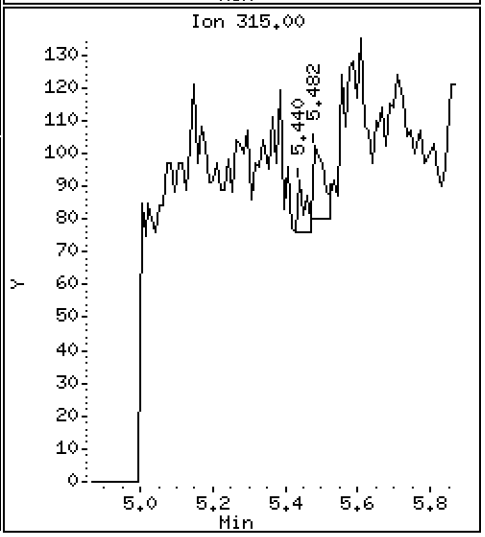


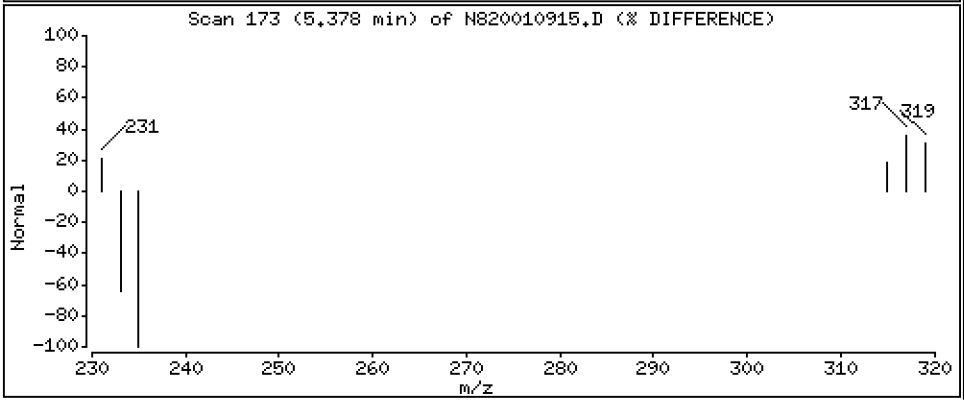












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010915.D

Date : 09-JAN-2020 18:42

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-10

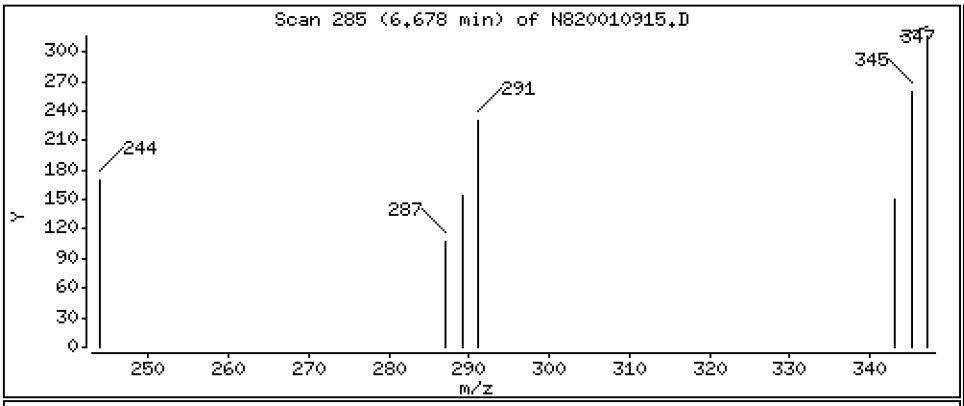
Operator: JZ

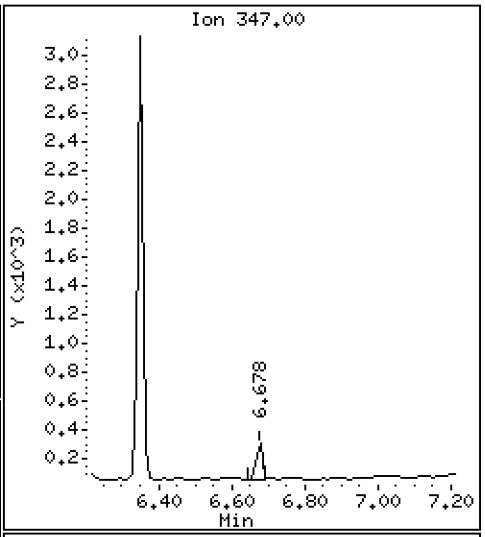
Column phase: ZB-5msi

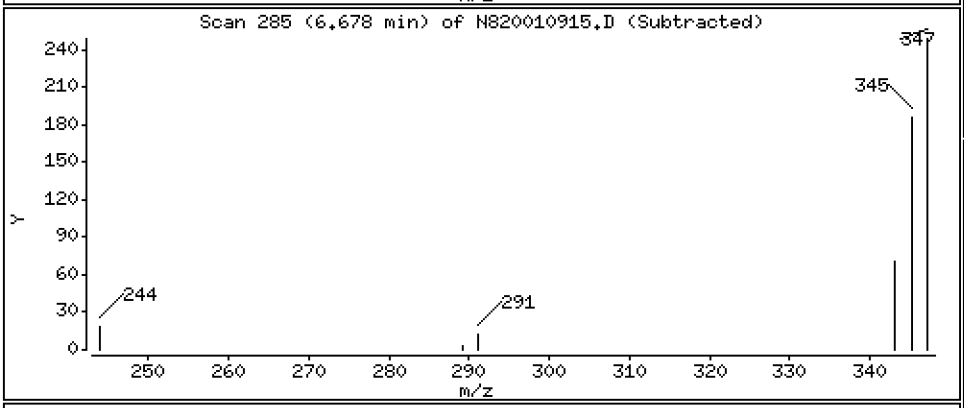
Column diameter: 0.25

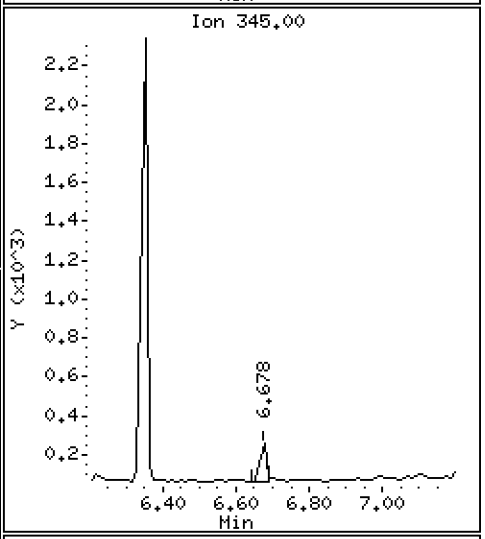
7 Butyl Tin (Hexyl)

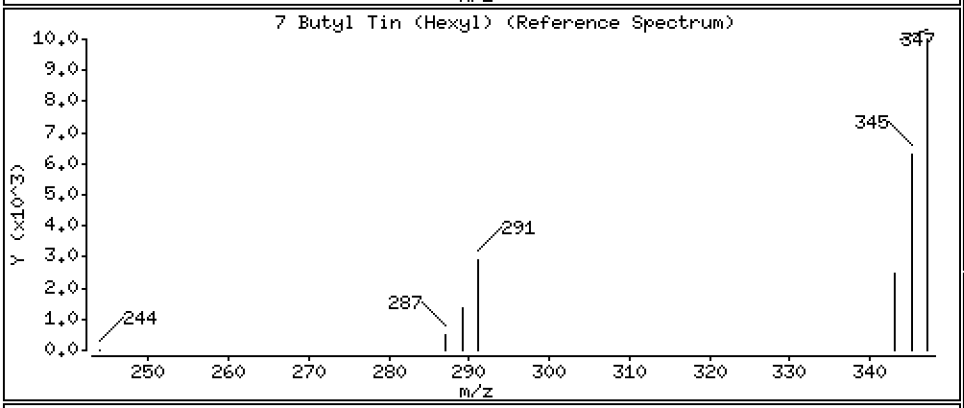
Concentration: 0.01771 ug/mL

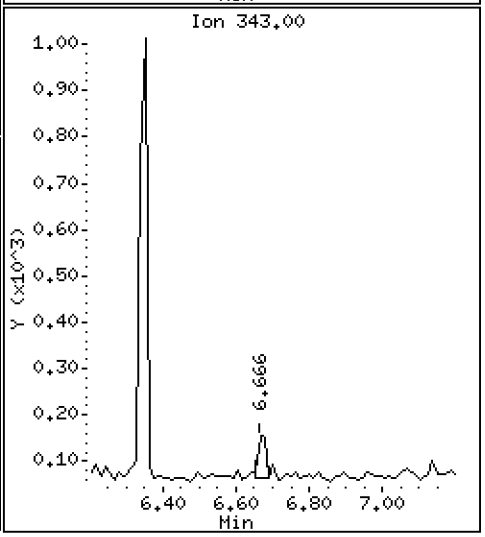


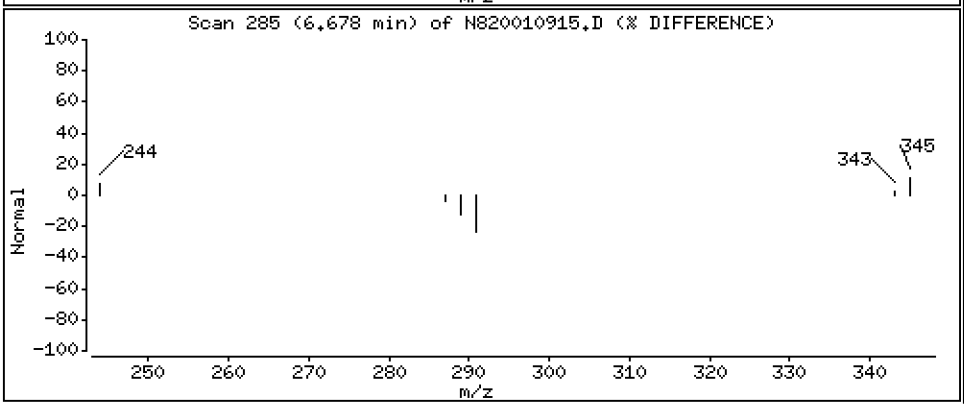












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010915.D
Lab Smp Id: 19K0394-10
Inj Date : 09-JAN-2020 18:42
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-10
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.450	4.419	(0.740)	3873	0.23272	0.2327
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.894)	13	1e-003	0.0009688
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	31874	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	2942	0.23999	0.2400
	7 Butyl Tin (Hexyl)	347	6.678	6.714	(0.779)	288	0.01771	0.01771
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	26736	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010915.D
Lab Smp Id: 19K0394-10
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	31874	-26.47
8 p-Terphenyl-d14	36156	18078	72312	26736	-26.05

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010915.D

Lab ID: 19K0394-10
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 18:42

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.740	0.735	0.0052	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PDI-145RAB-20-24.7-191114

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-11 A	SDG:	19K0394
Sampled:	11/14/19 11:05	Prepared:	01/06/20 12:48	File ID:	N820010916.D
% Solids:	91.92	Preparation:	EPA 3546 (Microwave)	Analyzed:	01/09/20 18:58
Batch:	BIA0050	Sequence:	SIA0110	Initial/Final:	5.08 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	DA00008
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	4.13	U	0.482	4.13

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	48.377	19.5	40.2	30 - 160	
Tripropyltin	46.844	17.0	36.4	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010916.D

Date : 09-JAN-2020 18:58

Client ID:

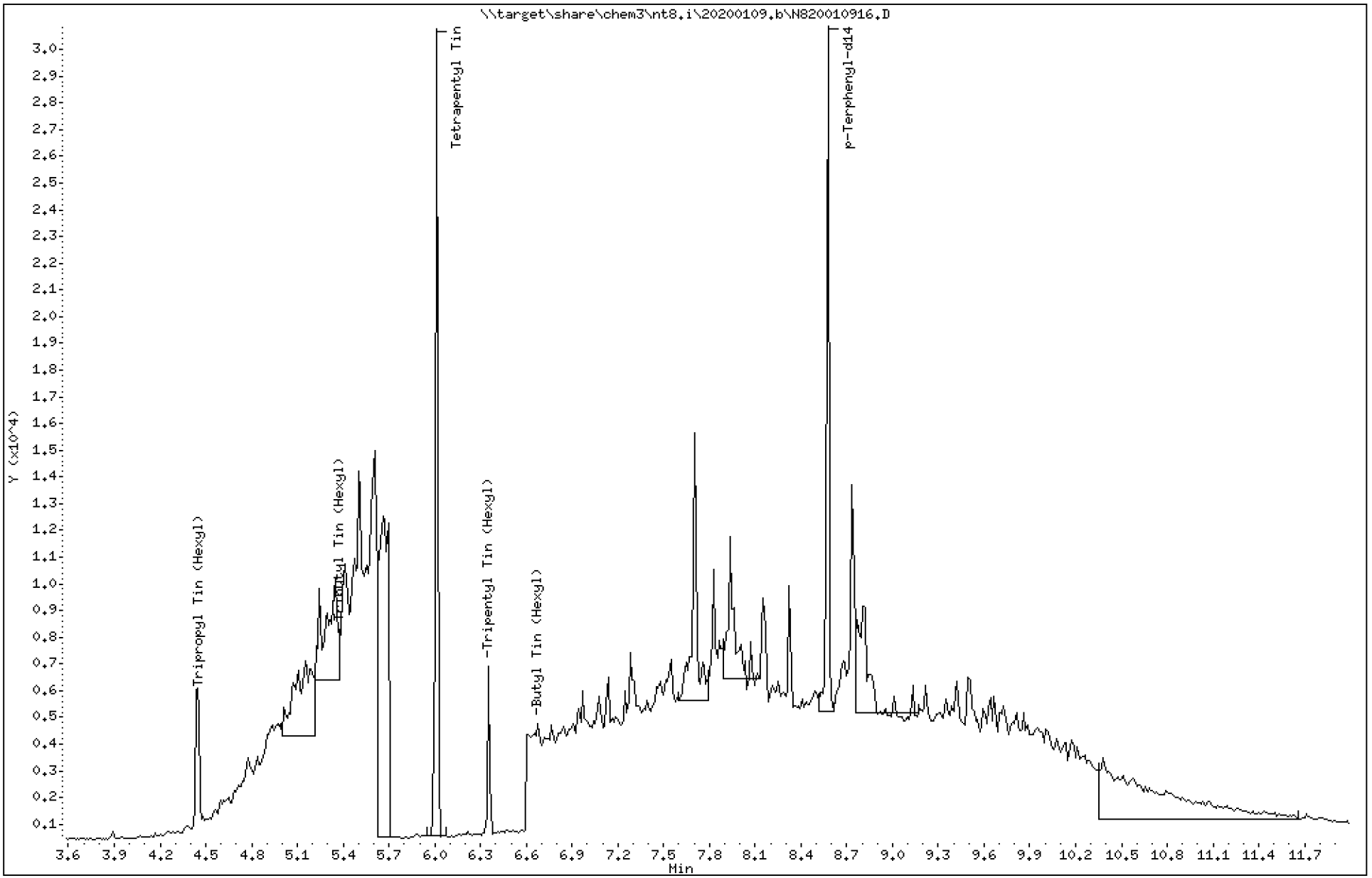
Sample Info: 19K0394-11

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010916.D

Date : 09-JAN-2020 18:58

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-11

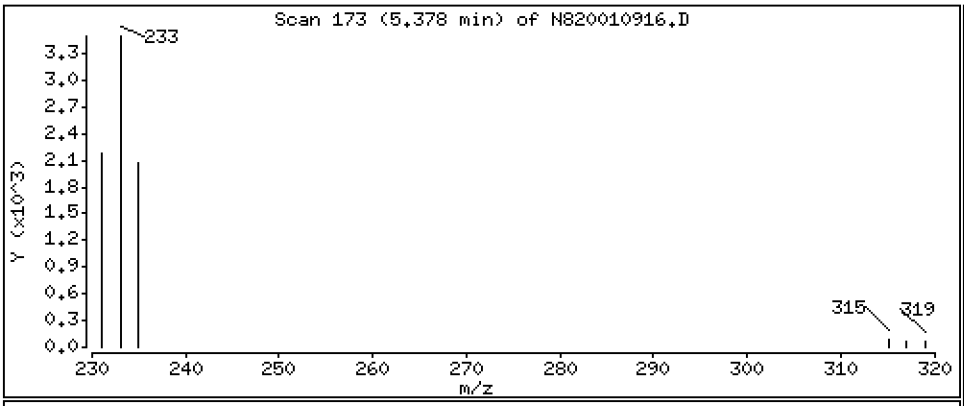
Operator: JZ

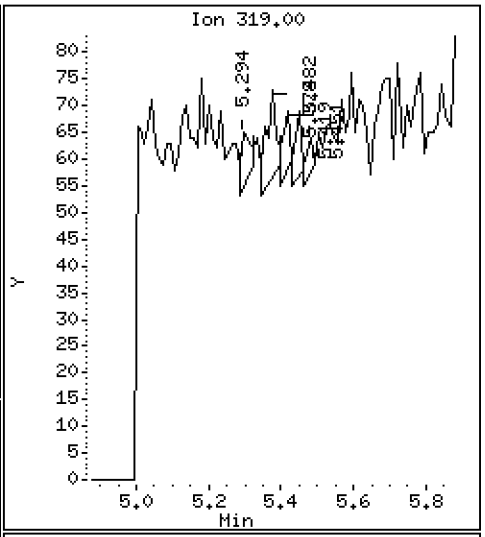
Column phase: ZB-5msi

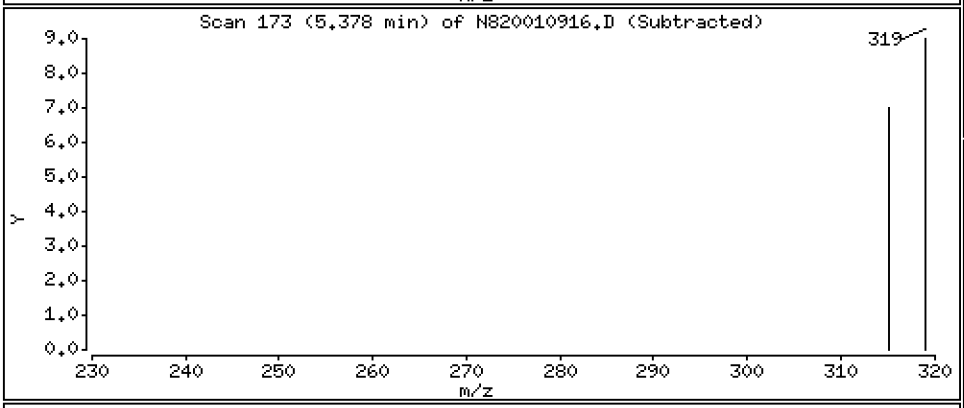
Column diameter: 0.25

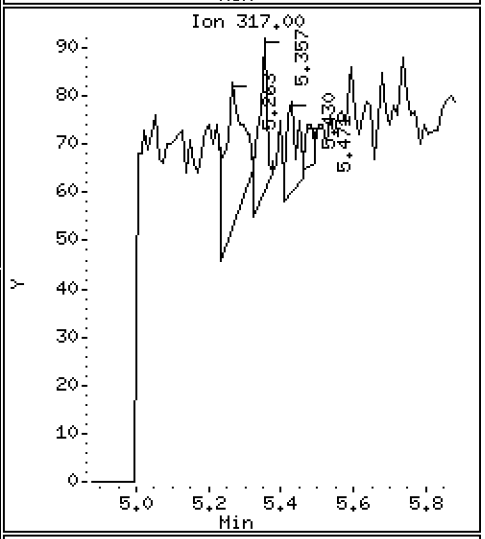
3 Tributyl Tin (Hexyl)

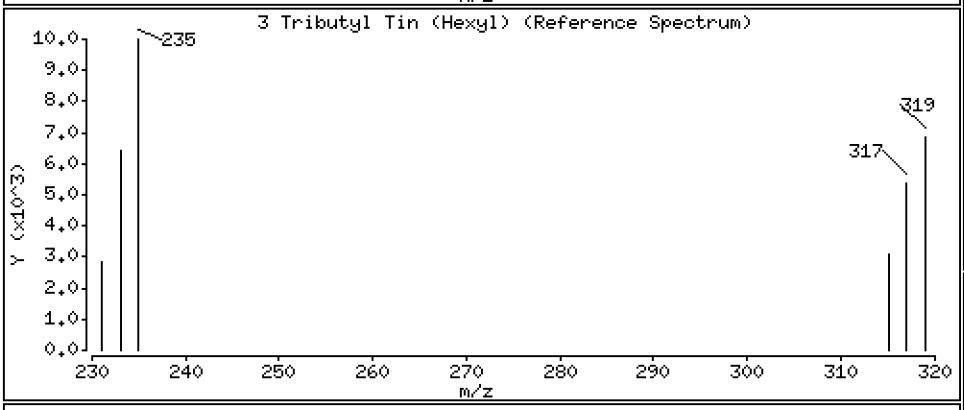
Concentration: 0.002589 ug/mL

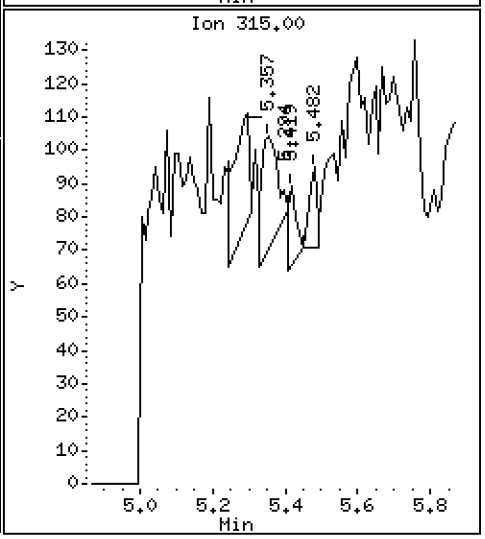


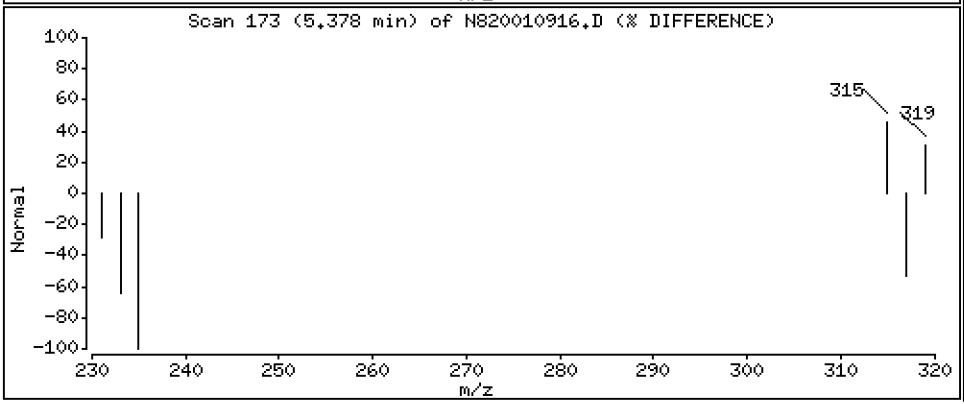












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010916.D

Date : 09-JAN-2020 18:58

Client ID:

Instrument: nt8.i

Sample Info: 19K0394-11

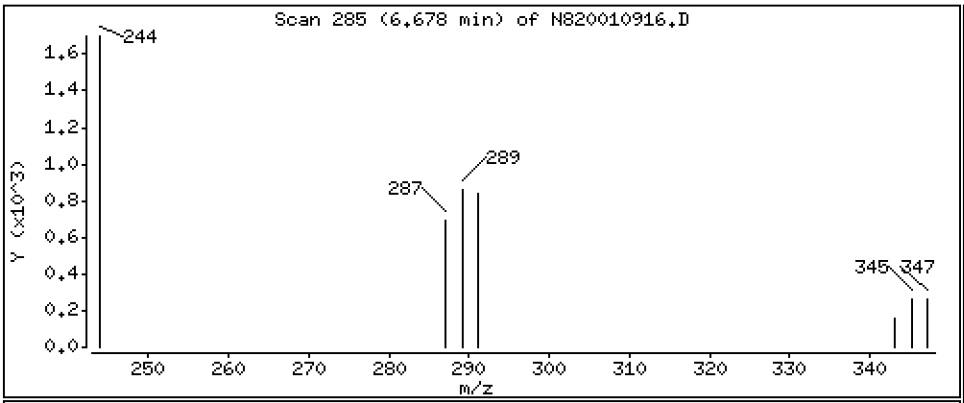
Operator: JZ

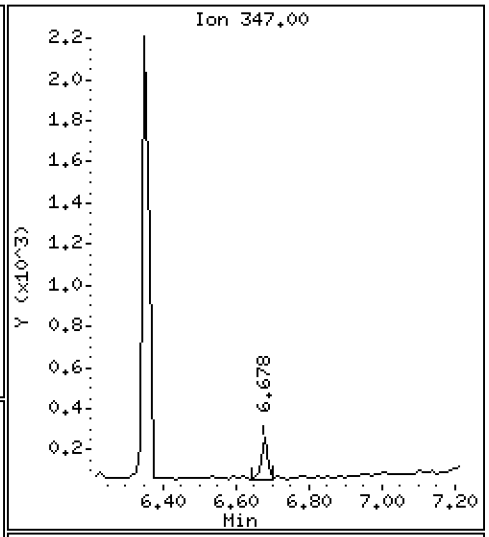
Column phase: ZB-5msi

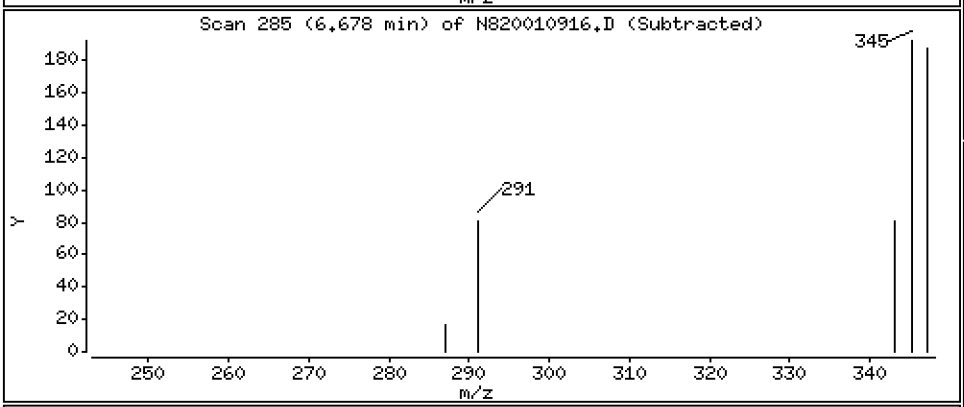
Column diameter: 0.25

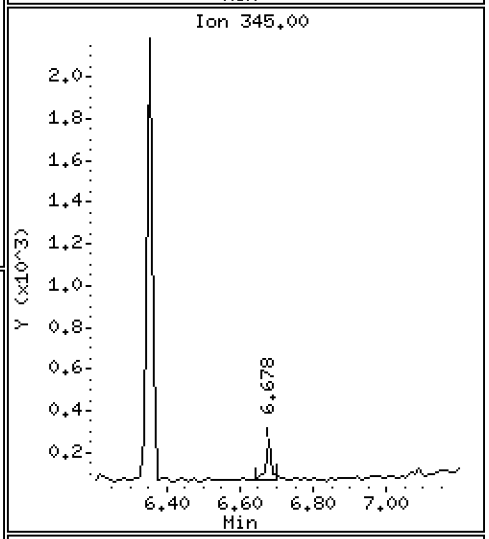
7 Butyl Tin (Hexyl)

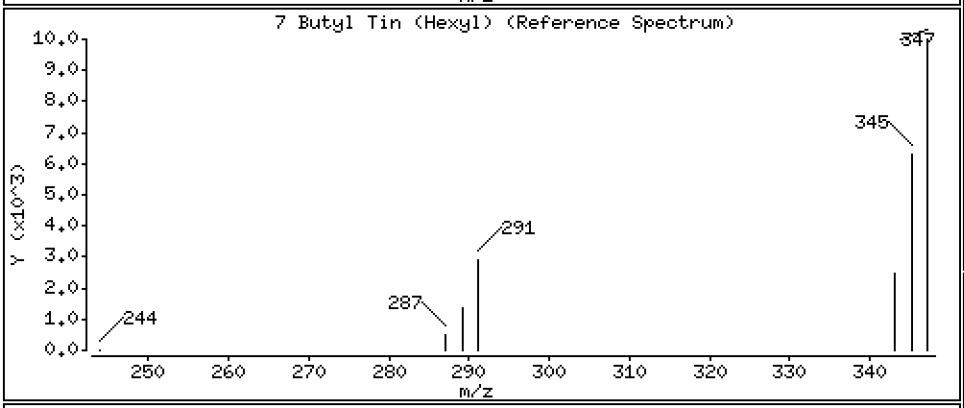
Concentration: 0.01527 ug/mL

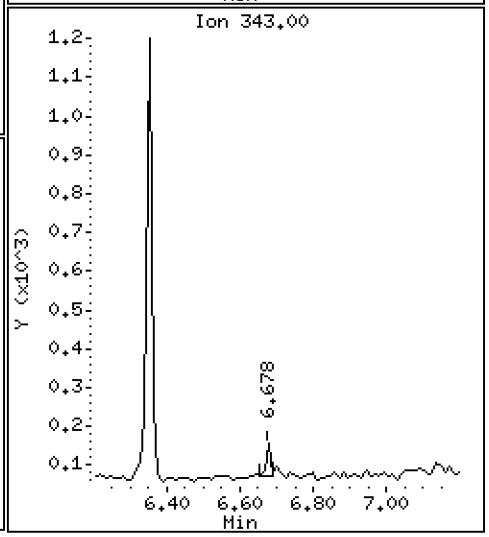


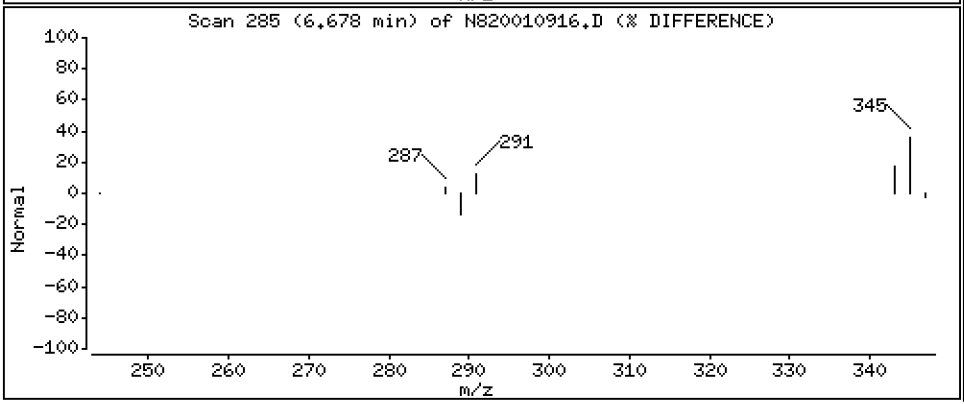












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010916.D
Lab Smp Id: 19K0394-11
Inj Date : 09-JAN-2020 18:58
Operator : JZ Inst ID: nt8.i
Smp Info : 19K0394-11
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.450	4.419	(0.740)	3276	0.21371	0.2137
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.894)	32	0.00259	0.002589
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	29359	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	2512	0.22829	0.2283
	7 Butyl Tin (Hexyl)	347	6.678	6.714	(0.779)	223	0.01527	0.01527
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	24007	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010916.D
Lab Smp Id: 19K0394-11
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	29359	-32.27
8 p-Terphenyl-d14	36156	18078	72312	24007	-33.60

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010916.D

Lab ID: 19K0394-11
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 18:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.740	0.735	0.0052	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

PREPARATION BATCH SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0394

Client: Anchor QEA, LLC Project: Gasco PDI

Batch: BHK0747 Batch Matrix: Water Preparation: EPA 3510C SepF

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-FB-1911191346	19K0394-01	N819120252.D	11/27/19 12:35	
PDI-RB-1911191254	19K0394-02	N819120255.D	11/27/19 12:35	
Blank	BHK0747-BLK1	N819120250.D	11/27/19 12:35	
LCS	BHK0747-BS1	N819120306.D	11/27/19 12:35	
PDI-FB-1911191346	BHK0747-MS1	N819120253.D	11/27/19 12:35	
PDI-FB-1911191346	BHK0747-MSD1	N819120254.D	11/27/19 12:35	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHK0747

Prepared using: EPA 3510C SepF

8270D-SIM Butyl Tins in Water (Version:TBT Only)

Matrix: Water **Date Prepared:** 11/27/19 **Balance ID:** N/A **Set Up By:** RcsM 11/26/19

The following standards may be missing from this batch!

Designator	Description
QLS 3	QLS Spike

Analysis: 8270D-SIM Butyl Tins

Lab Number & Container	Initial (mL) Actual	Actual	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19K0394-01 A	100.00	100.00	0.5	0.5	
19K0394-02 A	100.00	↓	0.5	0.5	

Batch QC

Lab Number	Initial (mL) Actual	Actual	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHK0747-BLK1	100.00	100.00	0.5	0.5	
BHK0747-BS1	100.00	↓	0.5	0.5	
BHK0747-MS1	100.00	↓	0.5	0.5	Use 19K0394-01
BHK0747-MSD1	100.00	↓	0.5	0.5	Use 19K0394-01

SFl 11/27/19
Client ID verified By Date

SP 12-2-19
Preparation Reviewed By Date

11/27/19 12:35
Extraction Date and Time

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHK0747

Prepared using: EPA 3510C SepF

8270D-SIM Butyl Tins in Water (Version:TBT Only)

Prep Steps

KD 80°C
Hexane Exchange
(2 X 20 mL)
100°C

(1) 2 3 4 5 6

CO 11/27/19

Analyst/Date

TurboVap
Pre Derivitization

(1) 2 3 4 5

SP 11-27-19

Analyst/Date

HexMgBr Addition
Vortex
45min+Overnight

(1) 2 3 4 5

SP 11-27-19

Analyst/Date

(REQ) Hydrolysis
(4mL)
Vortex

(1) 2 3

SP 12-2-19

Analyst/Date

(REQ) Silica Gel
(SPE)
(1mL)

SP 12-2-19

Analyst/Date

TurboVap
Post Silica Gel

1 (2) 3 4 5

SP 12-2-19

Analyst/Date

Vialing

SP 12-2-19

Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Separatory Funnel Analyst: SH Date: 11/27/19	
0.02% Tropolone in Methylene Chloride	H00825
Anhydrous Sodium Sulfate	H01368
Methylene Chloride	H01129
1:1 HCL	H00747
KD Analyst: CO Date: 11/27/19	
0.02% Tropolone in Methylene Chloride	H00825
Hexane	H01257
Methylene Chloride	H01129
Derivitize Analyst: SP Date: 11-27-19	
Hexane	H01257
HexylMagnesiumBromide	H00681
Hydrolysis/Silica/Final Vialing Analyst: SP Date: 12-2-19	
Concentrated HCL	H02039
Anhydrous Sodium Sulfate	H00182
Silica Gel (SPE) Dart	H01204
Hexane	H01257

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 2.5µg/mL	L H009794 Exp: 12/08/2019 H00794	100µL	SH	MW
Spike 2.5µg/mL	8 G011499 Exp: 12/08/2019 G01499	100µL	SH	MW

(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

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: TBT Extraction Batch: BHK0747

Total Solids Batch: N/A Work Order(s): 19K0394

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☑ No Anomalies	SH 11/27/19
☐ 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).	
extracted out of Hold per ~~PM~~ Project manager	MW 11/27/19
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

ORGANICS PREPARATION BENCH SHEET

Batch: BHK0747

Prepared using: EPA 3510C SepF

8270D-SIM Butyl Tins in Water (Version:TBT Only)

Prep Instructions	Cleaning Instructions
SPECIAL INSTRUCTIONS: NOTE: TBT Extractions must be completed within 48 hours! 1. Rinse all glassware with 0.02% Tropolone. 2. Pre-wash blanks with 30mL DCM (2min shake) (Discard DCM) 3. Add Surr/Spk. 4. Acidify with 1:1 HCL. 5. Check pH. 6. Let sit 10 minutes-Check pH again. 7. Extract 1 X with 30mL 0.02% Tropolone (4 min shake-SHAKE VIGOROUSLY). Plus 2 X 30mL DCM. 8. KD rinsed with 0.02% Tropolone (NO Drying Column) at 80°. 9. Exchange (2 X with 20mL) to Hexane at 100°. 10. TurboVap to 3mL-Transfer with Hexane to 40mL VOA vial. 11. Derivitize=1 pipet HexMgBr (Mix by hand) then Vortex. Let sit 45min (vortex every 10 min). Then let sit overnite. 12. Hydrolysis: Add (1) pipet conc. HCL. Vortex. Draw off/discard HCL. Add 5mL DI H2O. Vortex. Draw off/discard H20. Add 5mL DI H2O a second time. Vortex. Draw off/discard H2O. 13. Add sodium sulfate-Let sit 15min. 14. Turbovap to 1mL. 15. SPE Clean, EPH darts. 16. TurboVap. 17. Vial in Hexane. 18. NOTE: Derivitizations must be done in the hood to protect from potential chemical reactions, odors and fumes! Archive: (Y) / N	Vessel Cleaning Procedure: 1. Rinse all glassware with 0.02% Tropolone.

PREPARATION BATCH SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0394

Client: Anchor QEA, LLC Project: Gasco PDI

Batch: BIA0050 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-1138RAB-00-10-191118	19K0394-03	N820010905.D	01/06/20 12:48	
PDI-138RAB-00-10-191118	19K0394-04	N820010906.D	01/06/20 12:48	
PDI-138RAB-10-19.1-191118	19K0394-05	N820010907.D	01/06/20 12:48	
PDI-139RAB-00-10-191115	19K0394-06	N820010909.D	01/06/20 12:48	
PDI-139RAB-10-20-191115	19K0394-07	N820010910.D	01/06/20 12:48	
PDI-139RAB-20-25.5-191118	19K0394-08	N820010911.D	01/06/20 12:48	
PDI-145RAB-00-10-191114	19K0394-09	N820010912.D	01/06/20 12:48	
PDI-145RAB-10-20-191114	19K0394-10	N820010915.D	01/06/20 12:48	
PDI-145RAB-20-24.7-191114	19K0394-11	N820010916.D	01/06/20 12:48	
Blank	BIA0050-BLK1	N820010903.D	01/06/20 12:48	
LCS	BIA0050-BS1	N820010904.D	01/06/20 12:48	
PDI-145RAB-00-10-191114	BIA0050-MS1	N820010913.D	01/06/20 12:48	
PDI-145RAB-00-10-191114	BIA0050-MSD1	N820010914.D	01/06/20 12:48	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Cleanup Batch:	CHL0019	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	EPA 8270D-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-FB-1911191346	19K0394-01	N819120252.D	12/02/2019	
Blank	BHK0747-BLK1	N819120250.D	12/02/2019	
LCS	BHK0747-BS1	N819120306.D	12/02/2019	
Matrix Spike	BHK0747-MS1	N819120253.D	12/02/2019	
Matrix Spike Dup	BHK0747-MSD1	N819120254.D	12/02/2019	
PDI-RB-1911191254	19K0394-02	N819120255.D	12/02/2019	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CHL0019

Matrix: Water **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 12/2/2019 2:15:43PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19K0394-01	A	PDI-FB-1911191346	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0394-02	A	PDI-RB-1911191254	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
BHK0747-BLK1	-	Blank	-	0.5	0.5	-	12/2/2019	SDP	
BHK0747-BS1	-	LCS	-	0.5	0.5	-	12/2/2019	SDP	
BHK0747-MS1	-	Matrix Spike	-	0.5	0.5	-	12/2/2019	SDP	
BHK0747-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	12/2/2019	SDP	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Cleanup Batch:	CIA0057	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	EPA 8270D-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-145RAB-00-10-191114	19K0394-09	N820010912.D	01/08/2020	
Matrix Spike	BIA0050-MS1	N820010913.D	01/08/2020	
LCS	BIA0050-BS1	N820010904.D	01/08/2020	
Blank	BIA0050-BLK1	N820010903.D	01/08/2020	
Matrix Spike Dup	BIA0050-MSD1	N820010914.D	01/08/2020	
PDI-145RAB-10-20-191114	19K0394-10	N820010915.D	01/08/2020	
PDI-139RAB-20-25.5-191118	19K0394-08	N820010911.D	01/08/2020	
PDI-139RAB-10-20-191115	19K0394-07	N820010910.D	01/08/2020	
PDI-139RAB-00-10-191115	19K0394-06	N820010909.D	01/08/2020	
PDI-138RAB-10-19.1-191118	19K0394-05	N820010907.D	01/08/2020	
PDI-138RAB-00-10-191118	19K0394-04	N820010906.D	01/08/2020	
PDI-1138RAB-00-10-191118	19K0394-03	N820010905.D	01/08/2020	
PDI-145RAB-20-24.7-191114	19K0394-11	N820010916.D	01/08/2020	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CIA0057

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 1/8/2020 11:44:13AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19K0394-11	A	PDI-145RAB-20-24.7-191114	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-10	A	PDI-145RAB-10-20-191114	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-06	A	PDI-139RAB-00-10-191115	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-07	A	PDI-139RAB-10-20-191115	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-08	A	PDI-139RAB-20-25.5-191118	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-09	A	PDI-145RAB-00-10-191114	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-03	A	PDI-1138RAB-00-10-191118	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-04	A	PDI-138RAB-00-10-191118	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
19K0394-05	A	PDI-138RAB-10-19.1-191118	A 01	0.5	0.5	8270D-SIM Butyl Tins	1/8/2020	SDP	
BIA0050-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	1/8/2020	SDP	
BIA0050-MS1	-	Matrix Spike	-	0.5	0.5	-	1/8/2020	SDP	
BIA0050-BS1	-	LCS	-	0.5	0.5	-	1/8/2020	SDP	
BIA0050-BLK1	-	Blank	-	0.5	0.5	-	1/8/2020	SDP	

Form I

METHOD BLANK DATA SHEET

EPA 8270D-SIM

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19K0394
Client:	Anchor QEA, LLC			Project:	Gasco PDI
Matrix:	Water	Laboratory ID:	BHK0747-BLK1	File ID:	N819120250.D
Sampled:	N/A	Prepared:	11/27/19 12:35	Analyzed:	12/02/19 23:07
Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	100 mL / 0.5 mL
Batch:	BHK0747	Sequence:	SHL0025	Calibration:	CK00068
Instrument:	NT8	Column:	RXI-17Sil ms	Cleanups:	Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	0.193	U	0.043	0.193

SURROGATES	ADDED (ug/L)	CONC. (ug/L)	% REC	QC LIMITS	Q
Tripentyltin	2.2589	1.60	70.9	30 - 160	
Tripropyltin	2.1873	1.67	76.5	30 - 160	

Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120250.D

Date : 02-DEC-2019 23:07

Client ID:

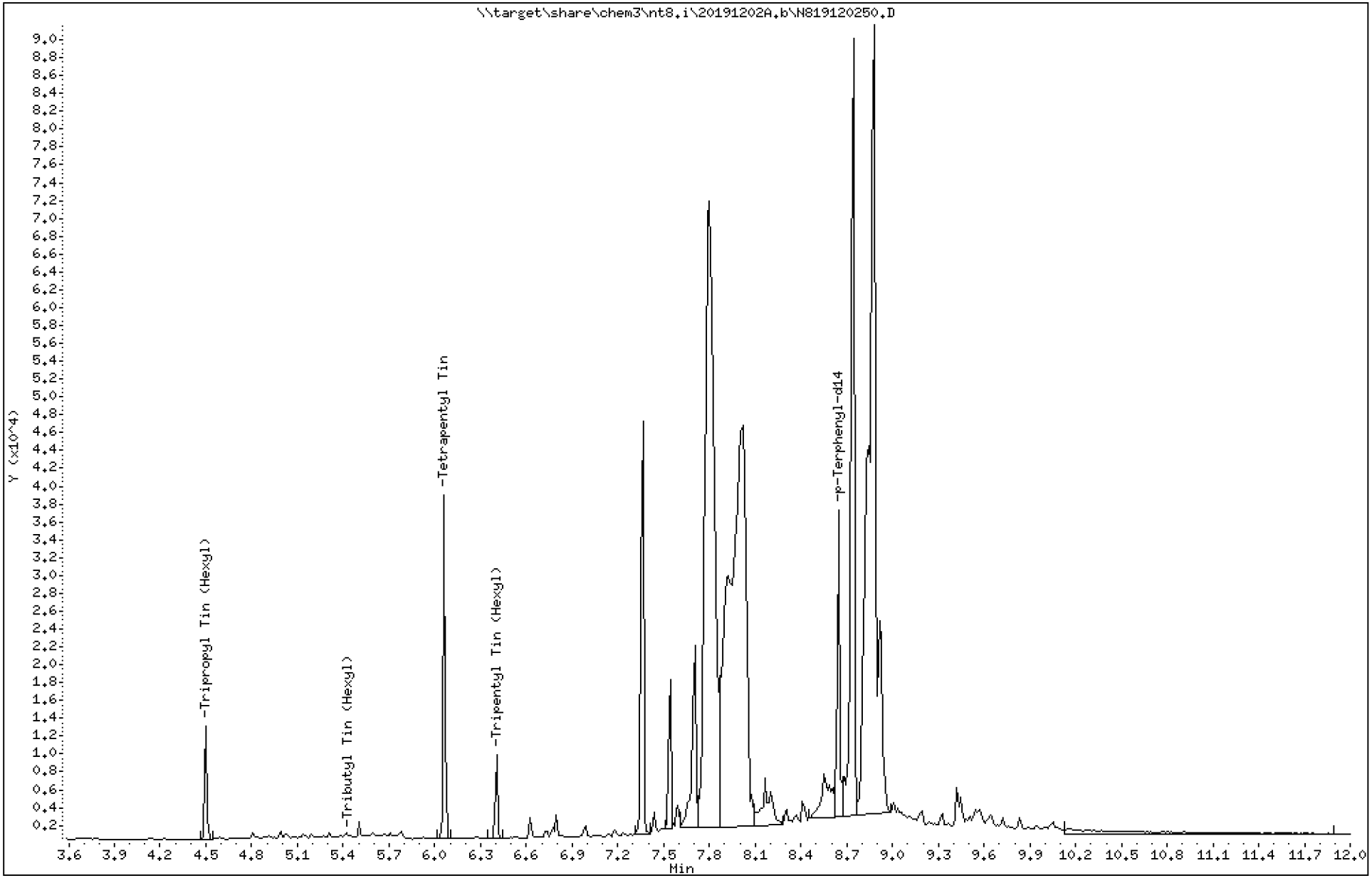
Sample Info: BHK0747-BLK1,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120250.D

Date : 02-DEC-2019 23:07

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-BLK1,

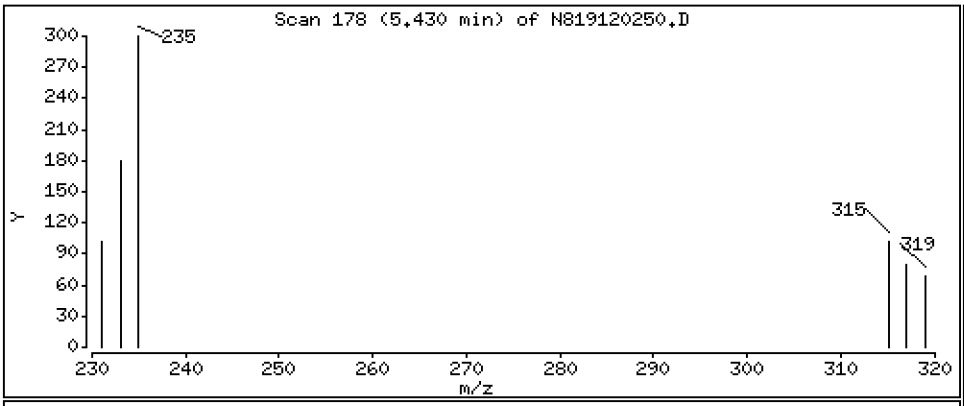
Operator: JZ

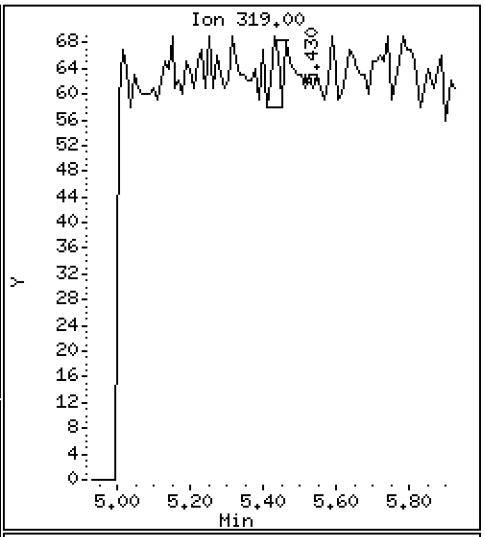
Column phase: ZB-5msi

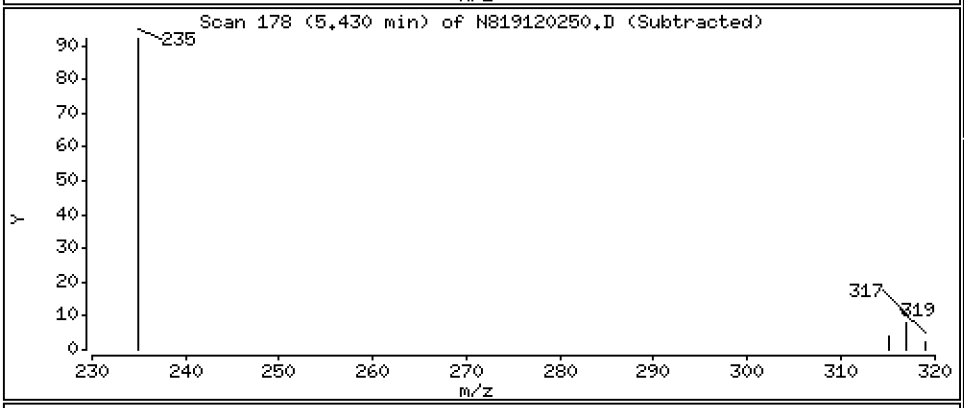
Column diameter: 0.25

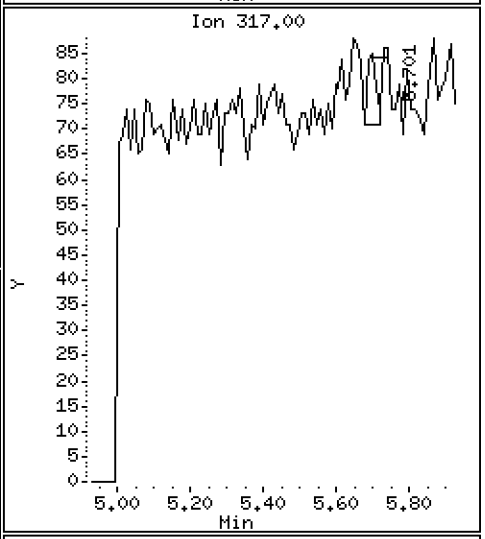
3 Tributyl Tin (Hexyl)

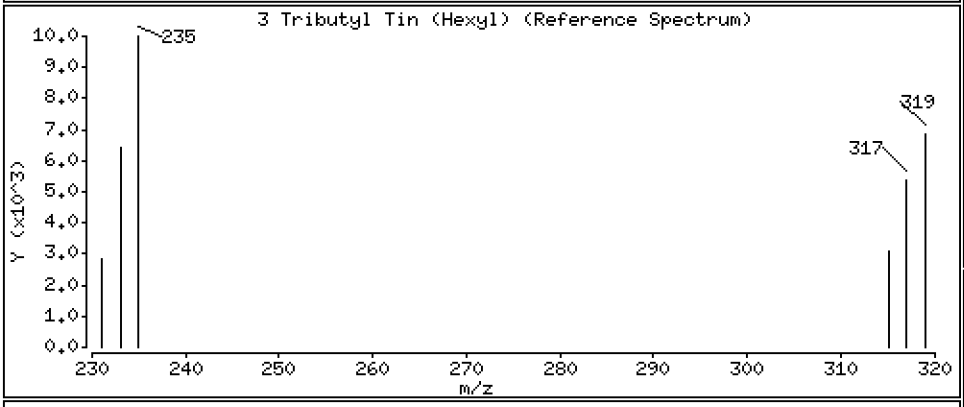
Concentration: 0.001312 ug/mL

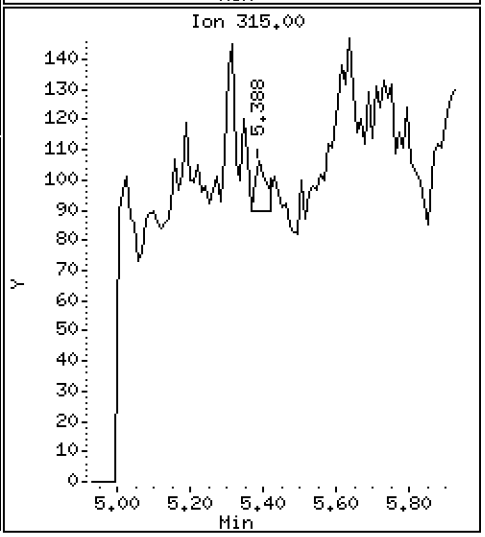


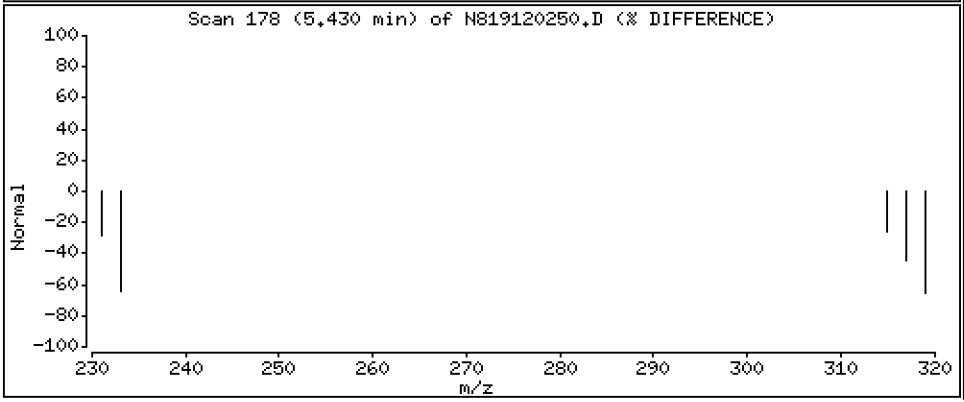












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120250.D
Lab Smp Id: BHK0747-BLK1
Inj Date : 02-DEC-2019 23:07 MS Autotune Date: 27-FEB-2008 03:32
Operator : JZ Inst ID: nt8.i
Smp Info : BHK0747-BLK1,
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Meth Date : 03-Dec-2019 10:47 jianqing Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TBTW.sub
Target Version: 4.14
Processing Host: ORGDATA22

								CONCENTRATIONS	
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.502	4.471	(0.743)	6655	0.44962	0.4496
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	15	0.00131	0.001312
*	4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	37872	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	4339	0.40246	0.4025
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	33262	0.20000	

Report Date: 03-Dec-2019 10:49

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120250.D
Lab Smp Id: BHK0747-BLK1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Calibration Date: 02-DEC-2019
Calibration Time: 17:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	37872	-8.94
8 p-Terphenyl-d14	41162	20581	82324	33262	-19.19

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120250.D

Lab ID: BHK0747-BLK1
nt8.i, 20191202A.b\TBT1125.m,   02-DEC-2019 23:07

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0066	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, TBTW.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Form I

METHOD BLANK DATA SHEET

EPA 8270D-SIM

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19K0394
Client:	Anchor QEA, LLC			Project:	Gasco PDI
Matrix:	Solid	Laboratory ID:	BIA0050-BLK1	File ID:	N820010903.D
Sampled:	N/A	Prepared:	01/06/20 12:48	Analyzed:	01/09/20 14:38
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	5 g / 0.5 mL
Batch:	BIA0050	Sequence:	SIA0110	Calibration:	DA00008
Instrument:	NT8	Column:	RXI-17Sil ms	Cleanups:	Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.86	U	0.450	3.86

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
Tripentyltin	45.178	18.5	41.0	30 - 160	
Tripropyltin	43.746	20.8	47.6	30 - 160	

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010903.D

Date : 09-JAN-2020 14:38

Client ID:

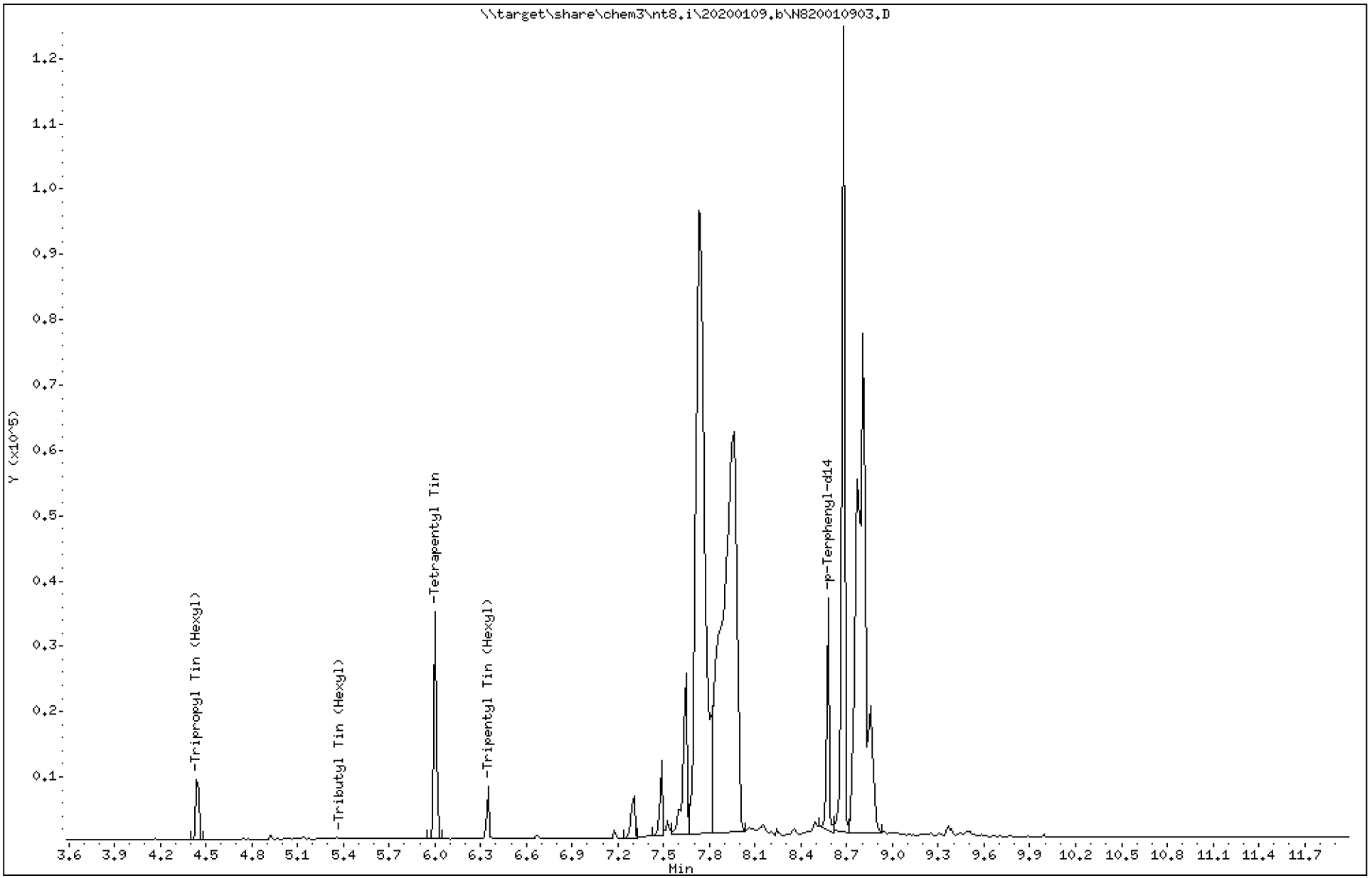
Sample Info: BIA0050-BLK1,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010903.D

Date : 09-JAN-2020 14:38

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-BLK1,

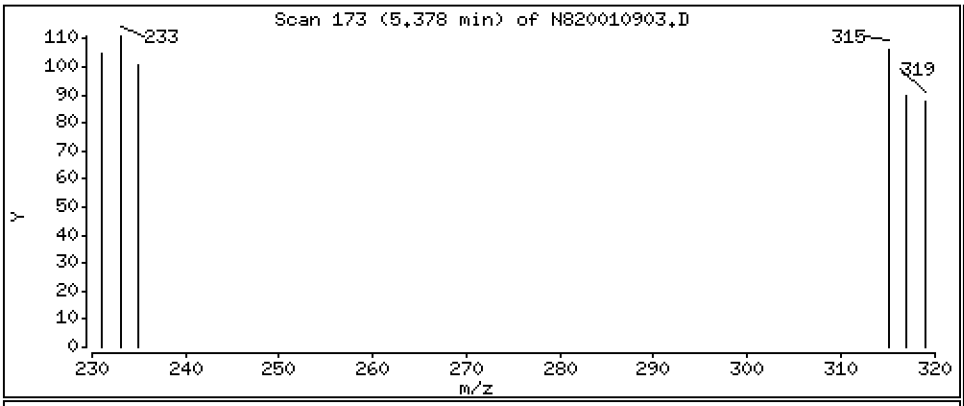
Operator: JZ

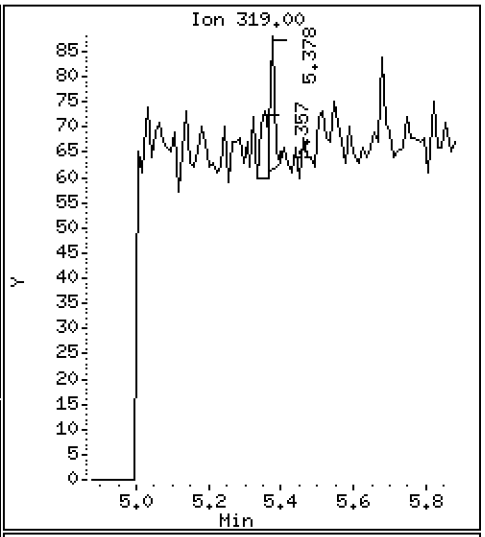
Column phase: ZB-5msi

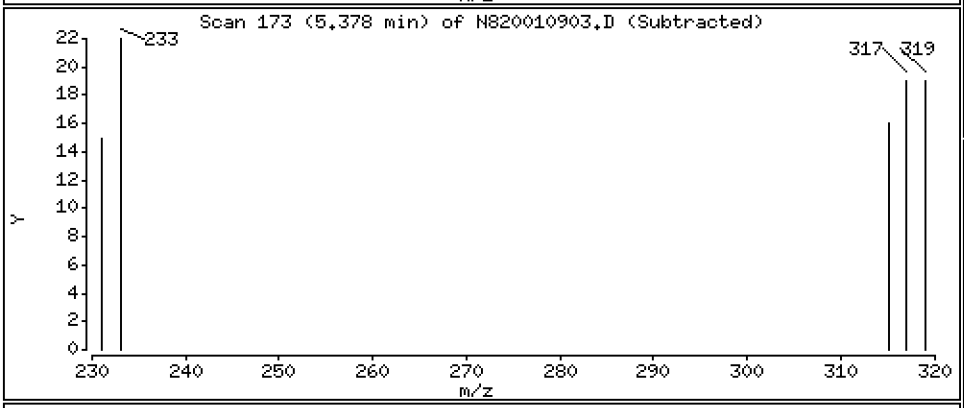
Column diameter: 0.25

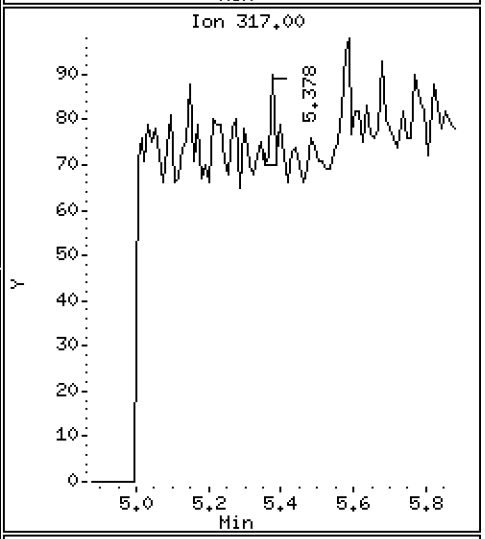
3 Tributyl Tin (Hexyl)

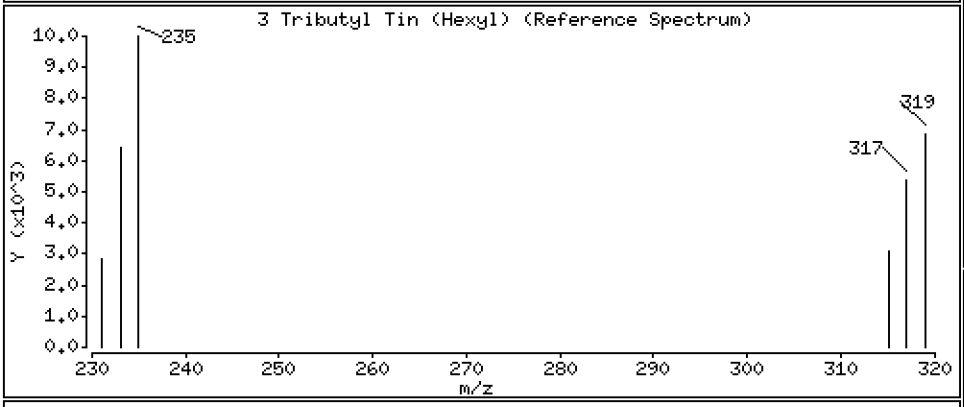
Concentration: 0.001474 ug/mL

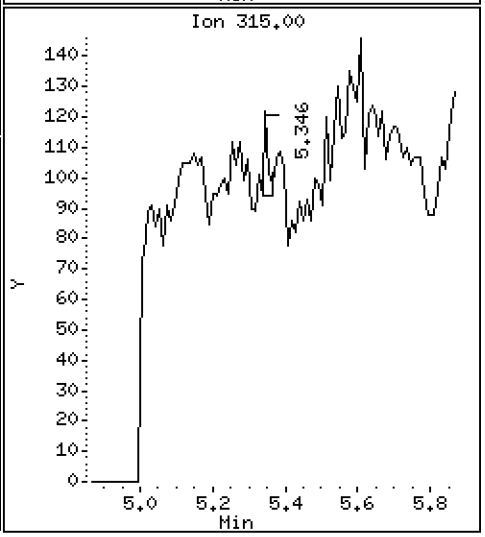


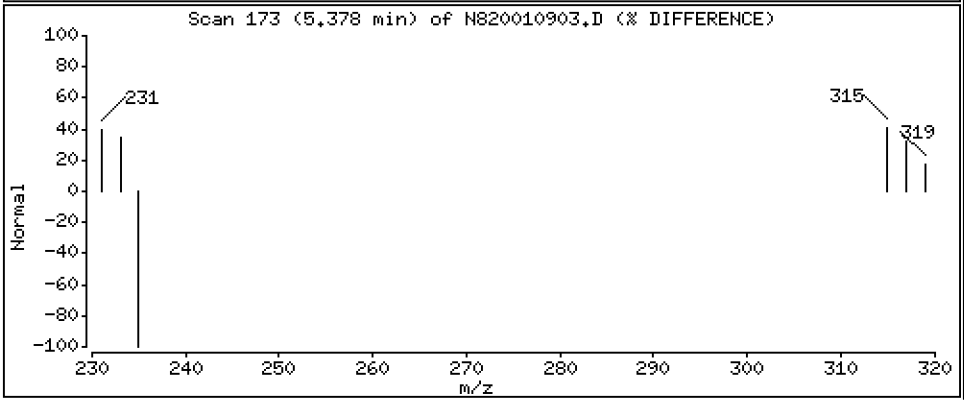












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010903.D
Lab Smp Id: BIA0050-BLK1
Inj Date : 09-JAN-2020 14:38
Operator : JZ Inst ID: nt8.i
Smp Info : BIA0050-BLK1,
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.450	4.419	(0.742)	5417	0.27987	0.2799
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.896)	23	0.00147	0.001474
*	4 Tetrapentyl Tin	333	6.001	6.013	(1.000)	37070	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	3502	0.23258	0.2326
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	32847	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010903.D
Lab Smp Id: BIA0050-BLK1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	37070	-14.49
8 p-Terphenyl-d14	36156	18078	72312	32847	-9.15

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.00	-0.20
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010903.D

Lab ID: BIA0050-BLK1
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 14:38

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.735	0.0067	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

LCS / LCS DUPLICATE RECOVERY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Matrix:	Water	Analyzed:	12/03/19 11:08
Batch:	BHK0747	Laboratory ID:	BHK0747-BS1
Preparation:	EPA 3510C SepF	Sequence Name:	LCS
Initial/Final:	100 mL / 0.5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Tributyltin Ion	2.23	1.20		53.9	30 - 160

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20191203.b\N819120306.D

Date : 03-DEC-2019 11:08

Client ID:

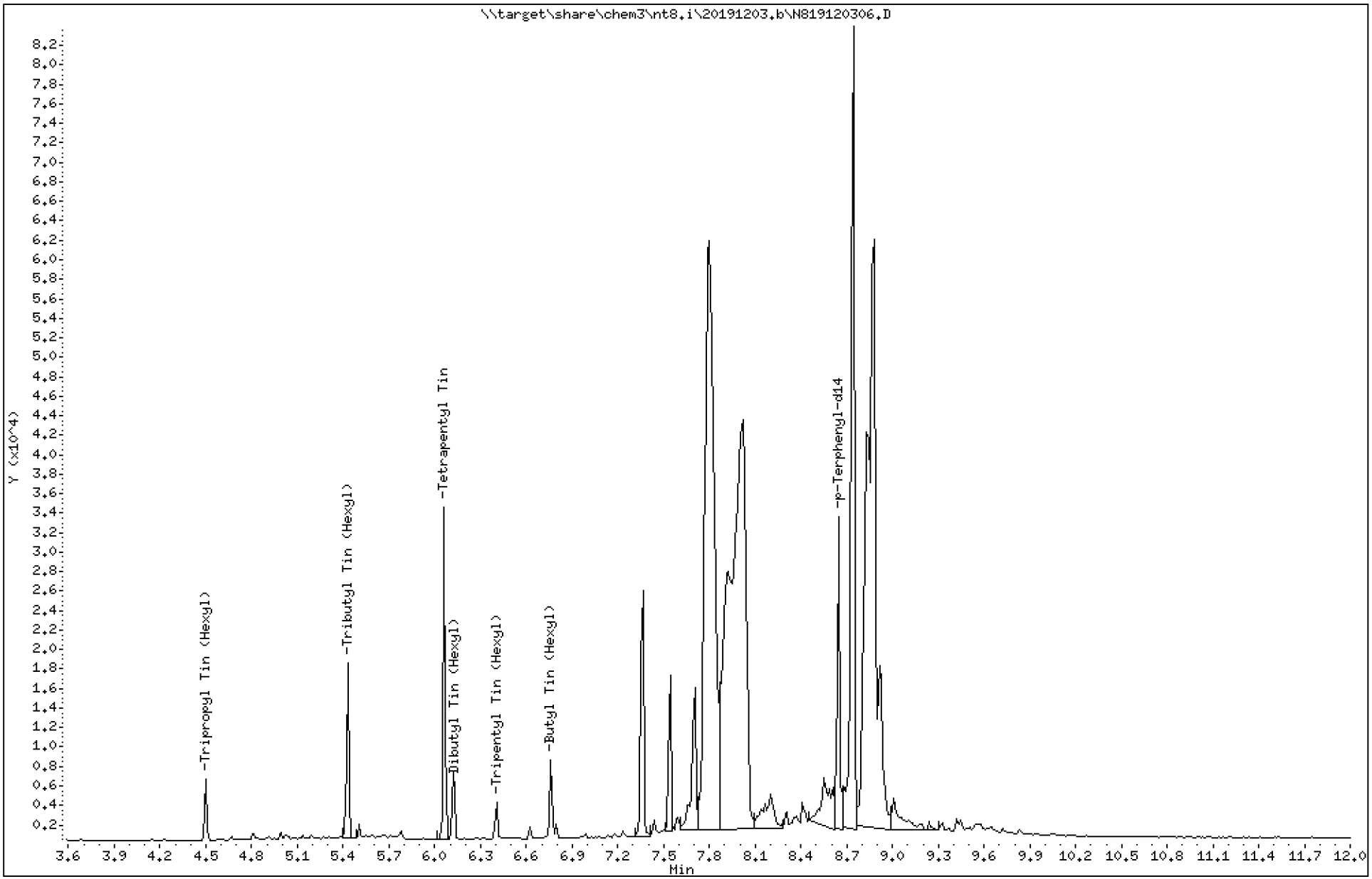
Sample Info: BHK0747-BS1,

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20191203.b\N819120306.D

Date : 03-DEC-2019 11:08

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-BS1,

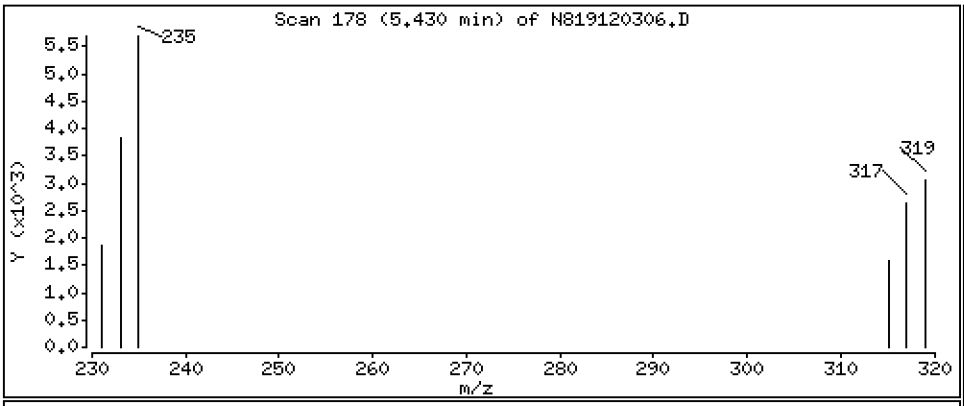
Operator: JZ

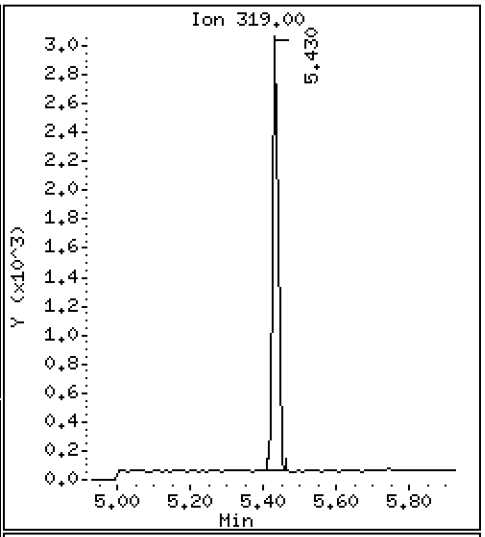
Column phase: ZB-5msi

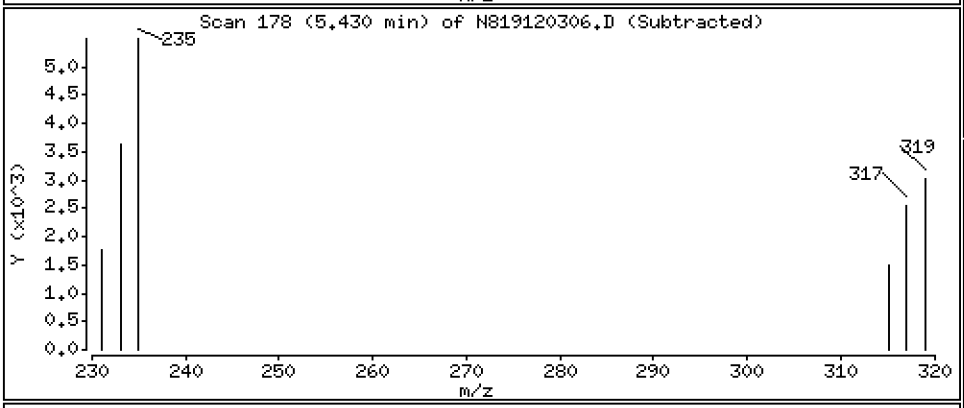
Column diameter: 0.25

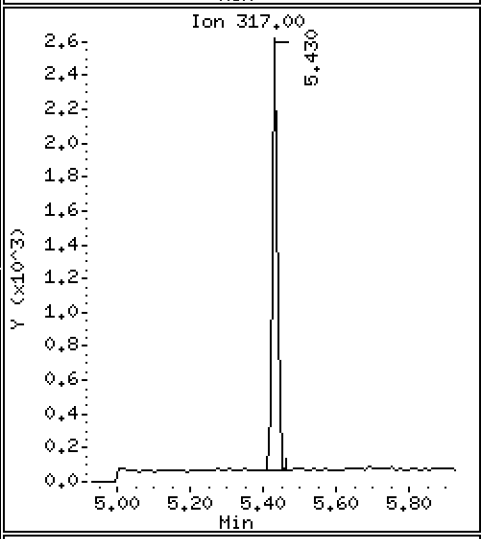
3 Tributyl Tin (Hexyl)

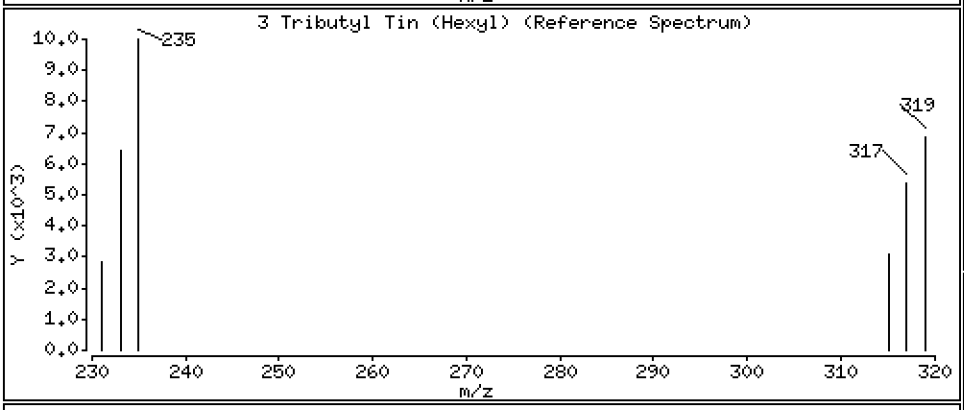
Concentration: 0.3109 ug/mL

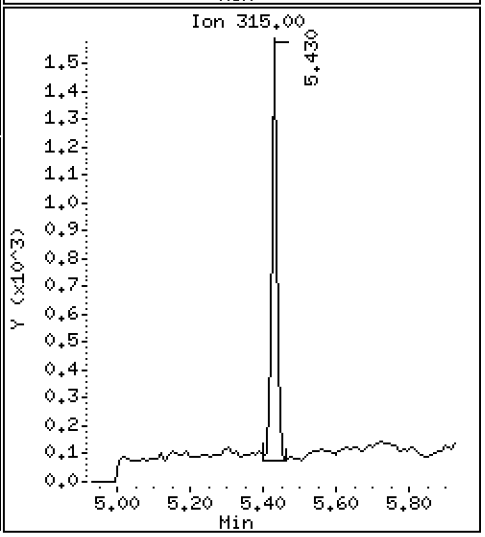


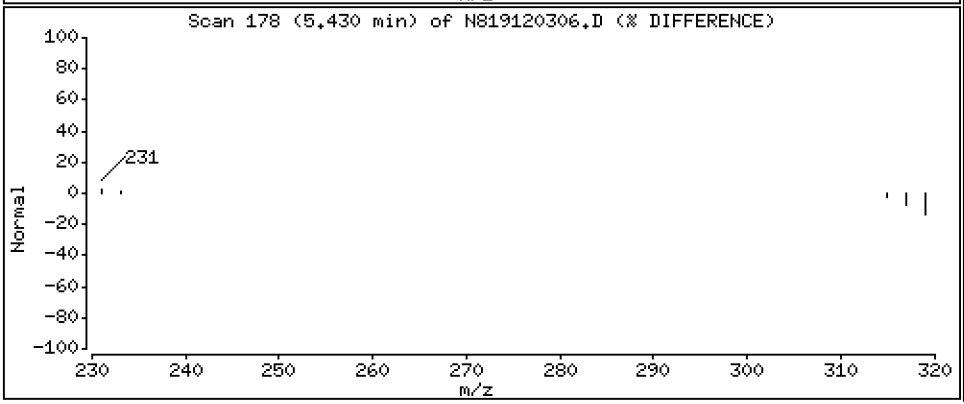












Data File: \\target\share\chem3\nt8.i\20191203.b\N819120306.D

Date : 03-DEC-2019 11:08

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-BS1,

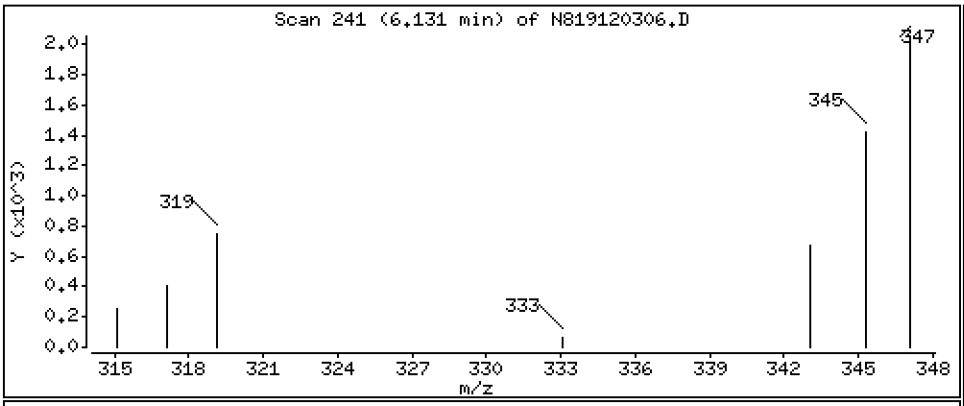
Operator: JZ

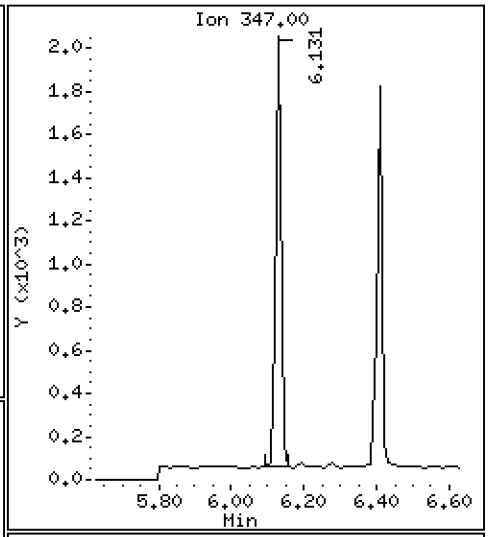
Column phase: ZB-5msi

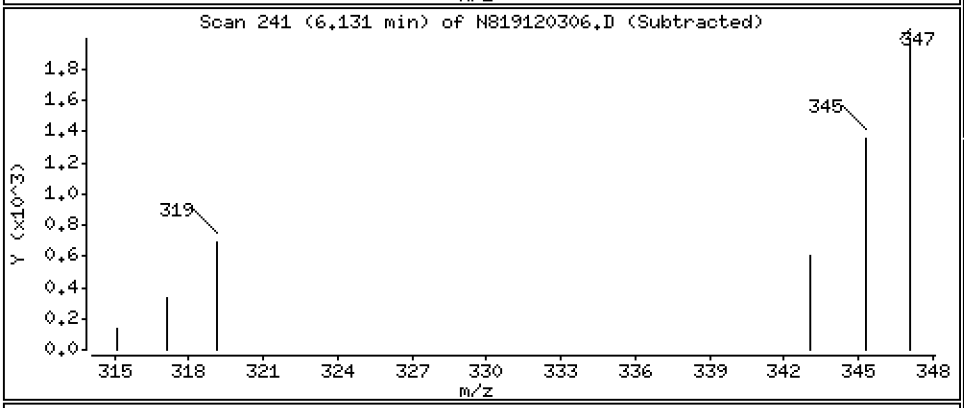
Column diameter: 0.25

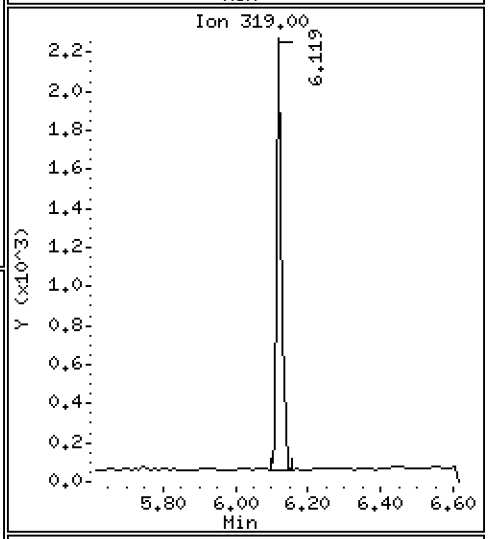
5 Dibutyl Tin (Hexyl)

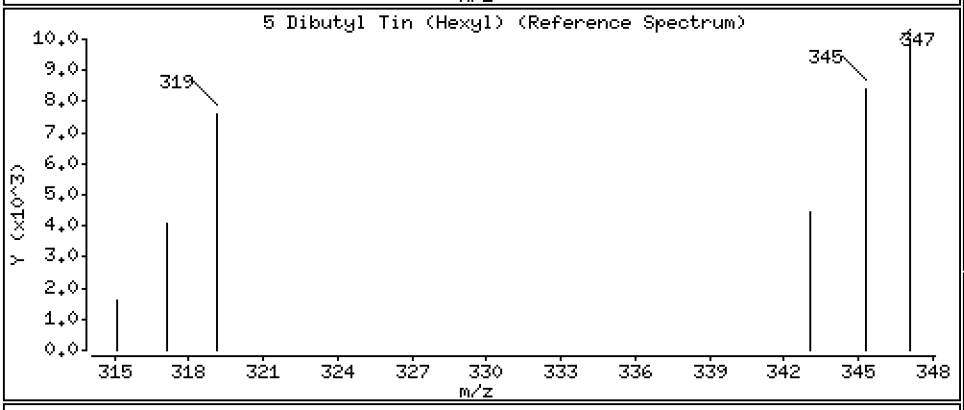
Concentration: 0.2995 ug/mL

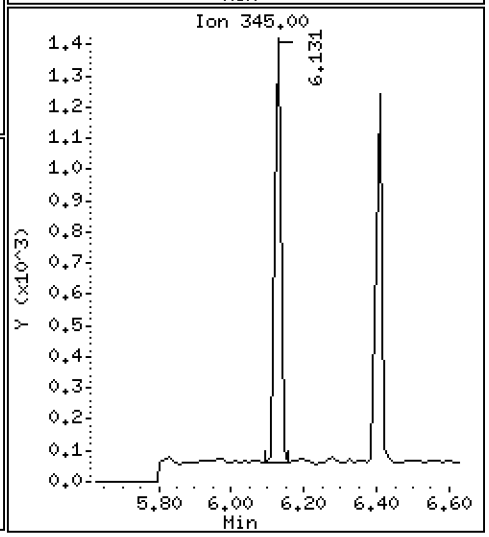


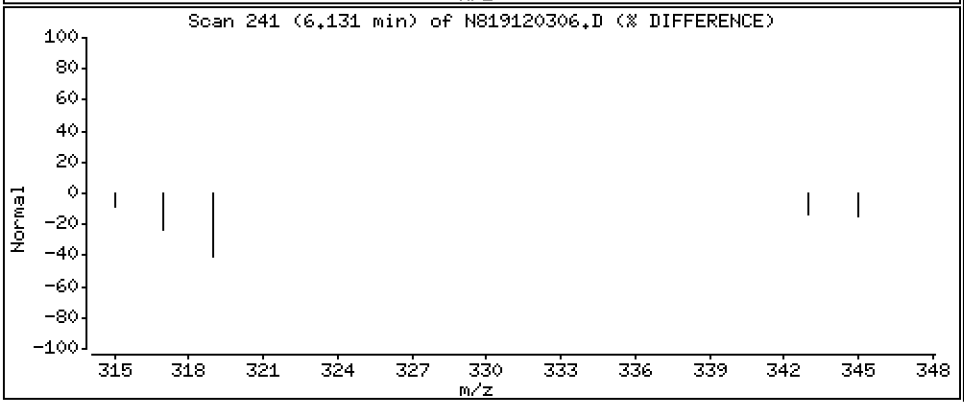












Data File: \\target\share\chem3\nt8.i\20191203.b\N819120306.D

Date : 03-DEC-2019 11:08

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-BS1,

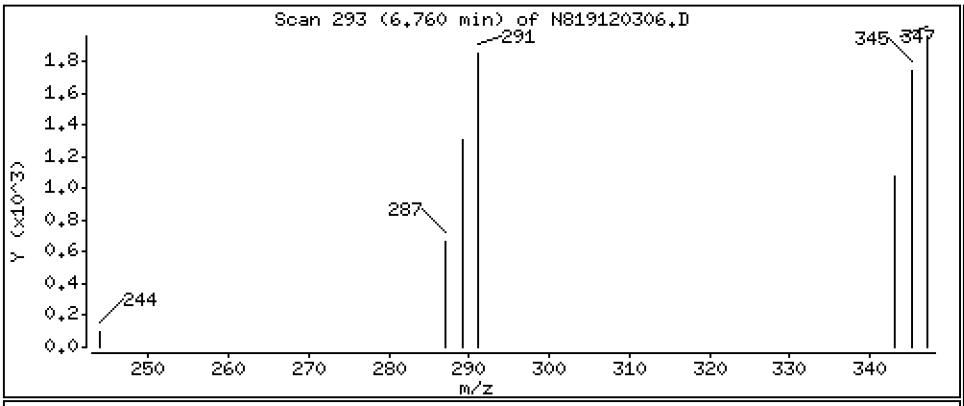
Operator: JZ

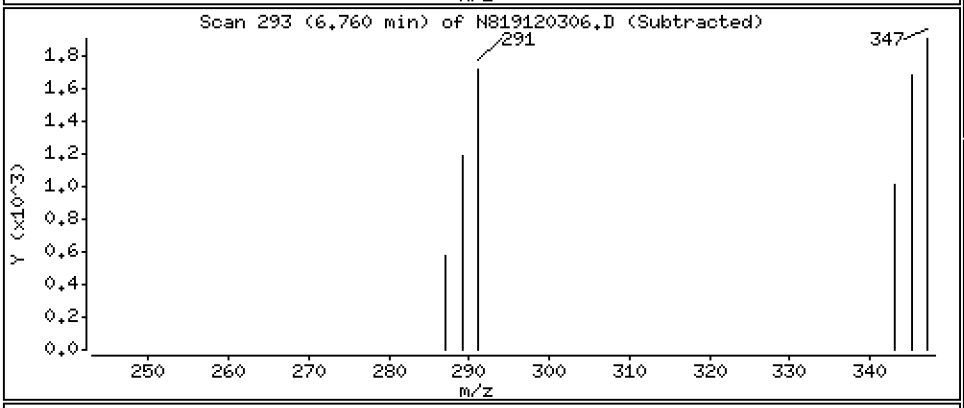
Column phase: ZB-5msi

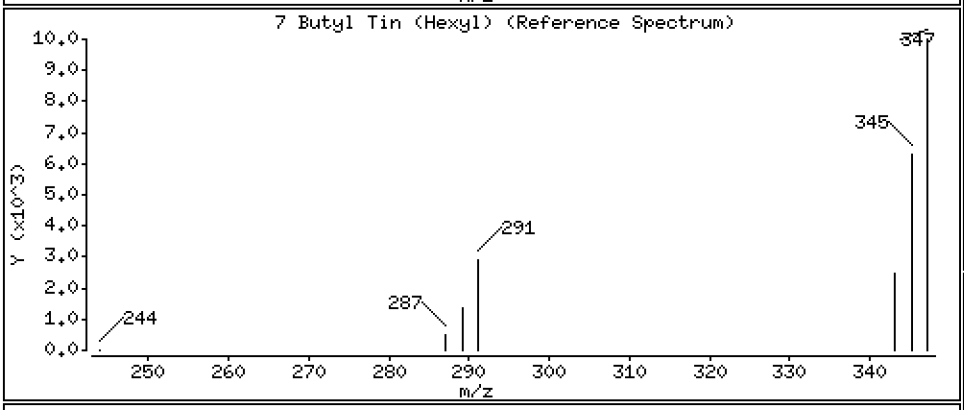
Column diameter: 0.25

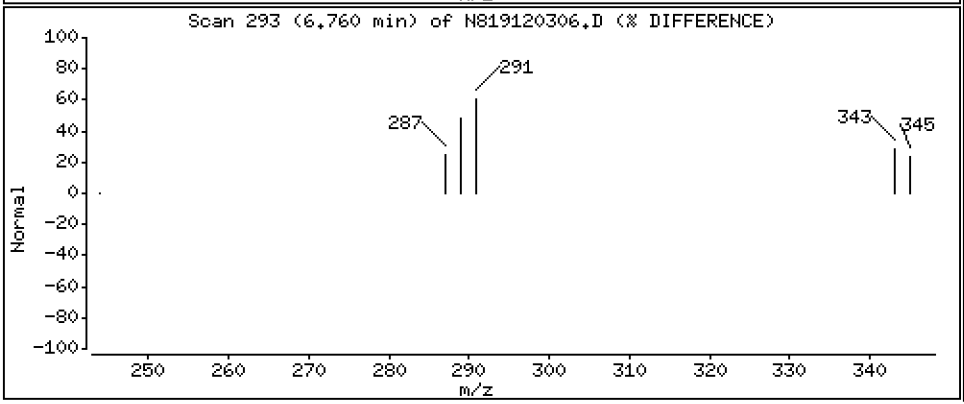
7 Butyl Tin (Hexyl)

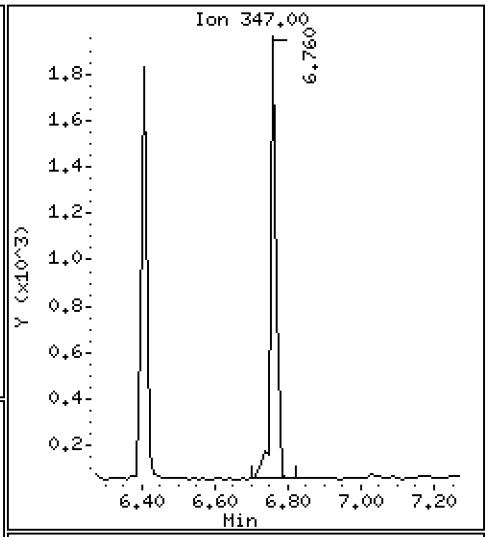
Concentration: 0.2020 ug/mL

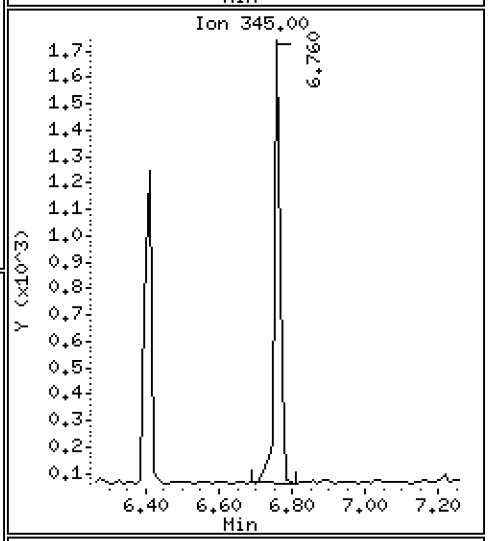


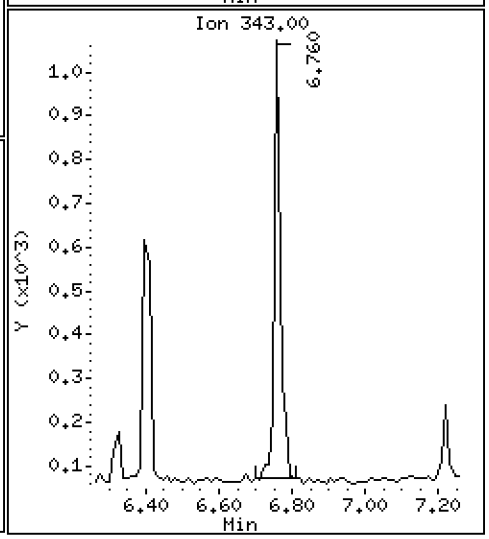












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191203.b\N819120306.D
Lab Smp Id: BHK0747-BS1
Inj Date : 03-DEC-2019 11:08 MS Autotune Date: 27-FEB-2008 03:32
Operator : JZ Inst ID: nt8.i
Smp Info : BHK0747-BS1,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
Meth Date : 03-Dec-2019 11:20 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TBTW.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.502	4.471	(0.743)	3150	0.24163	0.2416
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	3132	0.31094	0.3109
*	4 Tetrapentyl Tin	333	6.058	6.058	(1.000)	33356	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	2000	0.29952	0.2995
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	1785	0.18257	0.1826
	7 Butyl Tin (Hexyl)	347	6.760	6.771	(0.782)	2132	0.20200	0.2020(M)
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	30164	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120306.D
Lab Smp Id: BHK0747-BS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
Misc Info:

Calibration Date: 03-DEC-2019
Calibration Time: 09:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	33356	-19.80
8 p-Terphenyl-d14	41162	20581	82324	30164	-26.72

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120306.D

Lab ID: BHK0747-BS1
nt8.i, 20191203.b\TBT1125.m,   03-DEC-2019 11:08

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.738	0.0051	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120302.D

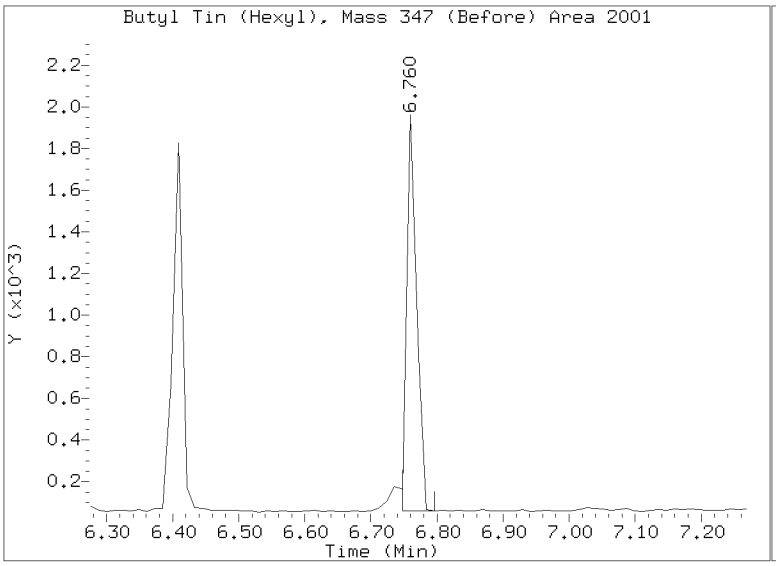
On Column LOD for nt8.i, 20191203.b\TBT1125.m, TBTW.sub = 0.0000

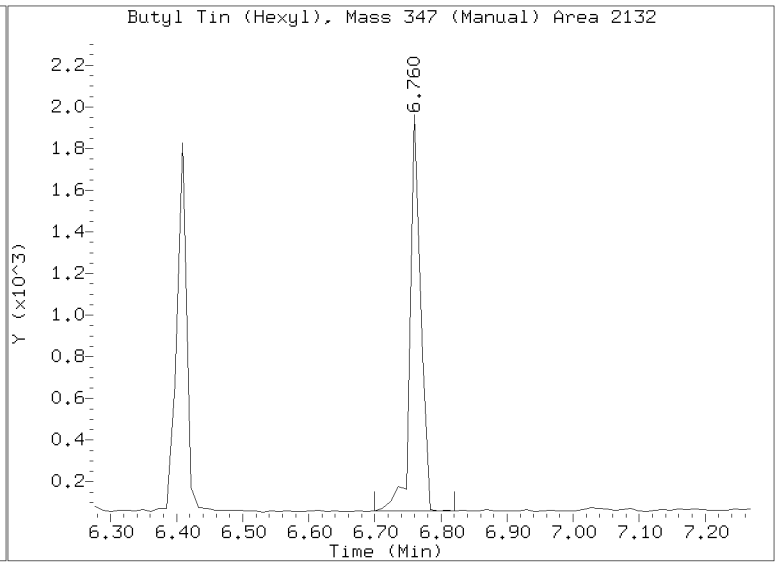
Exception: Tripropyl Tin (Hexyl) (Surr) 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191203.b/N819120306.D
Injection Date: 03-DEC-2019 11:08
Lab ID:BHK0747-BS1 Client ID:
Report Date: 12/03/2019 11:34





LCS / LCS DUPLICATE RECOVERY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Matrix:	Solid	Analyzed:	01/09/20 14:54
Batch:	BIA0050	Laboratory ID:	BIA0050-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	5 g / 0.5 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Tributyltin Ion	44.6	23.0		51.6	30 - 160

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010904.D

Date : 09-JAN-2020 14:54

Client ID:

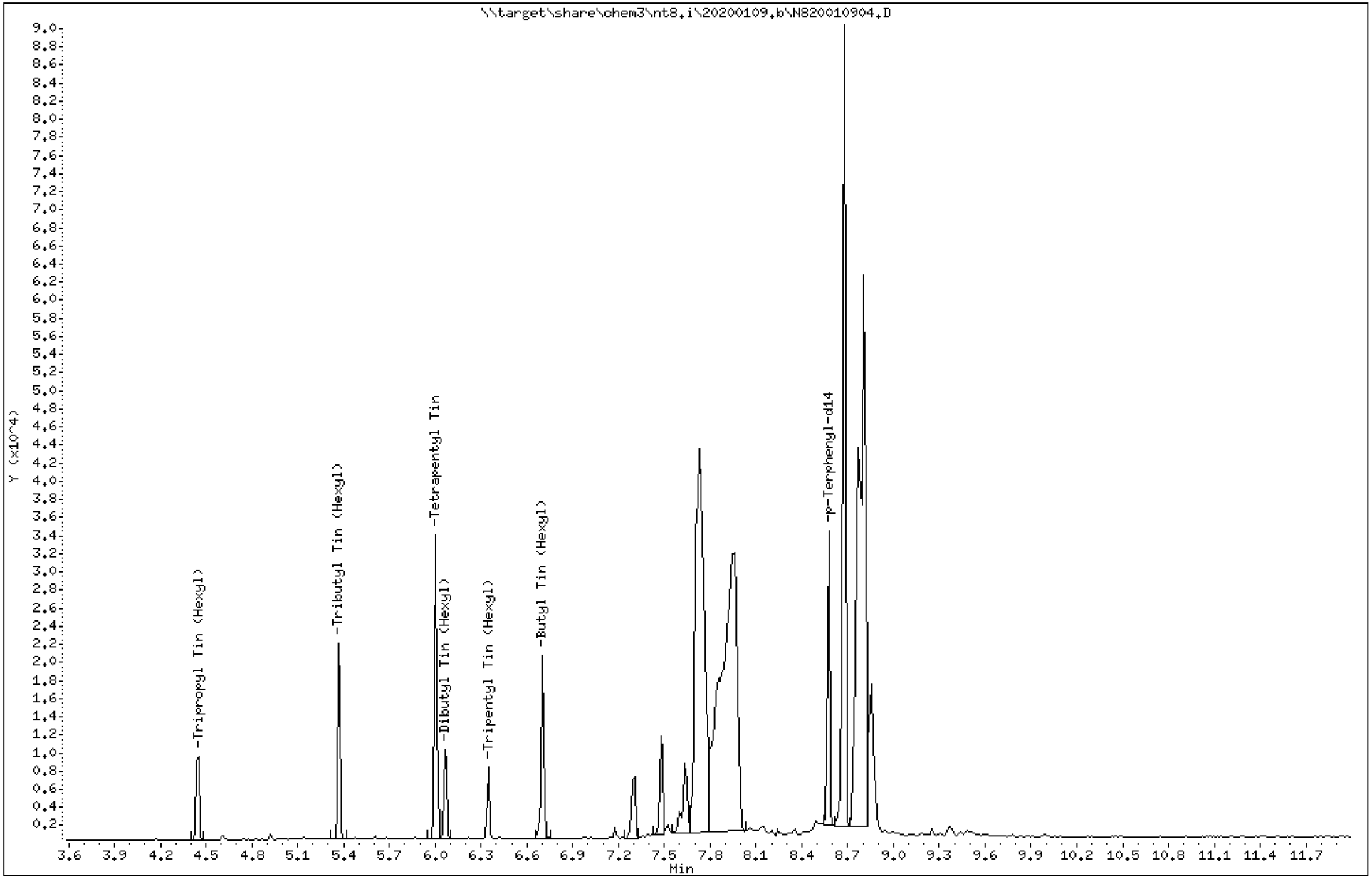
Sample Info: BIA0050-BS1,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200109.b\N820010904.D

Date : 09-JAN-2020 14:54

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-BS1,

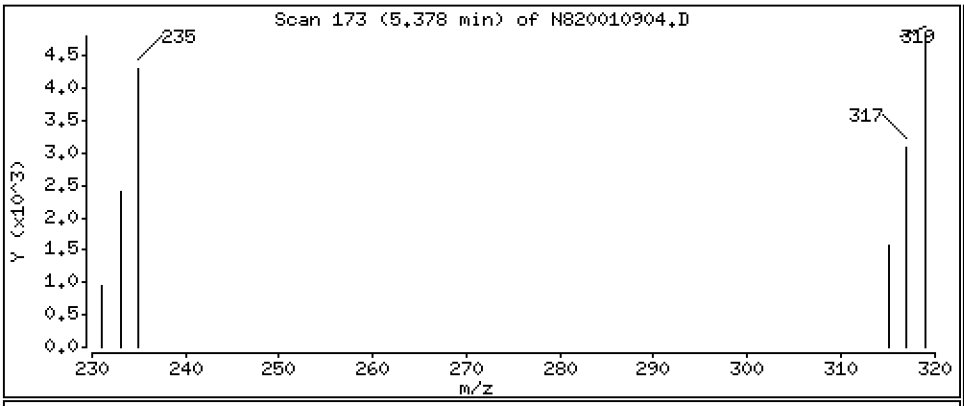
Operator: JZ

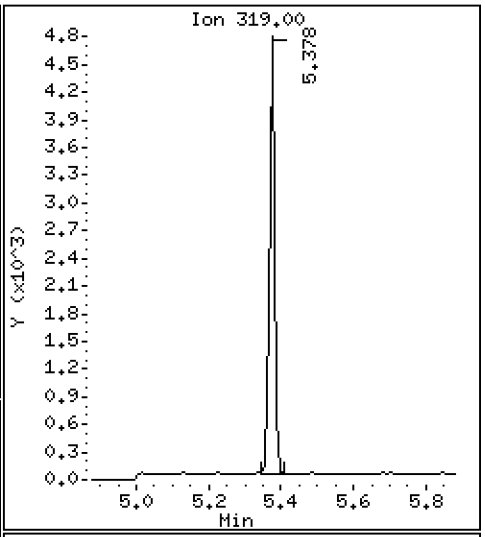
Column phase: ZB-5msi

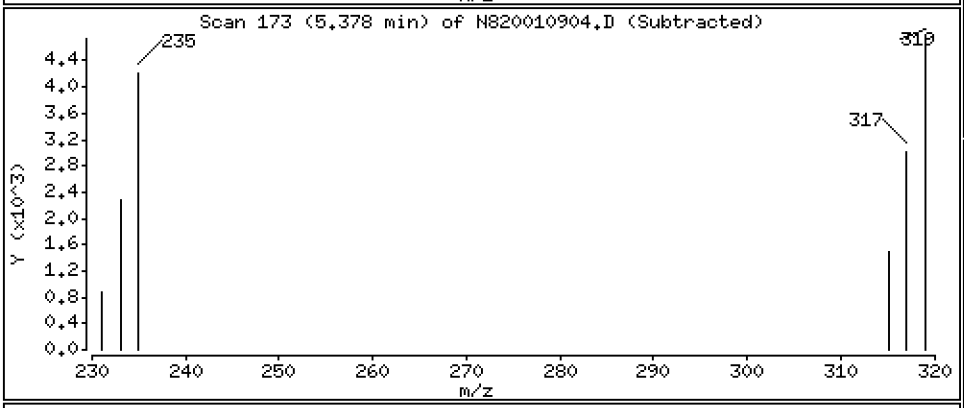
Column diameter: 0.25

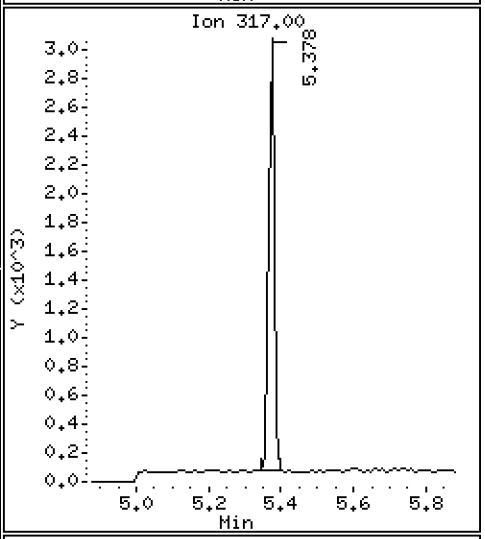
3 Tributyl Tin (Hexyl)

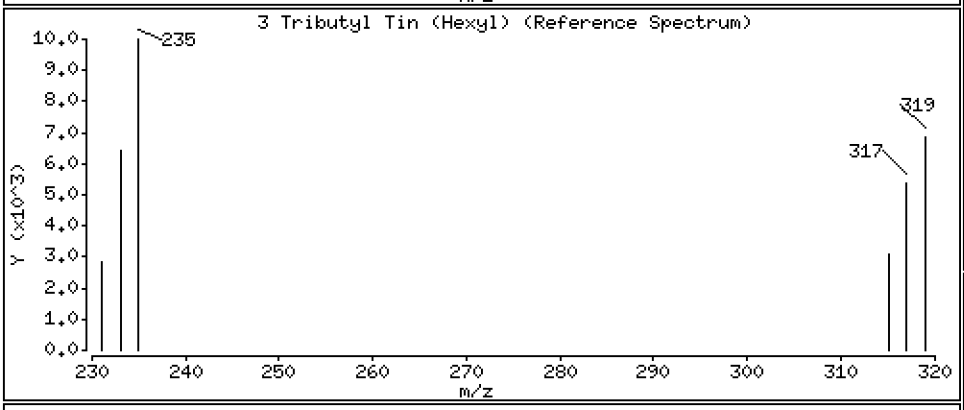
Concentration: 0.2977 ug/mL

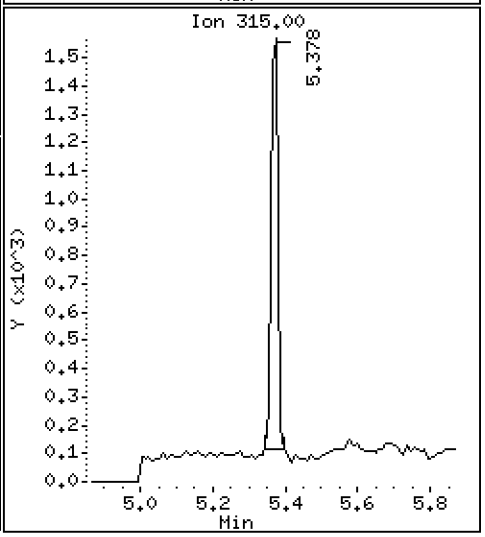


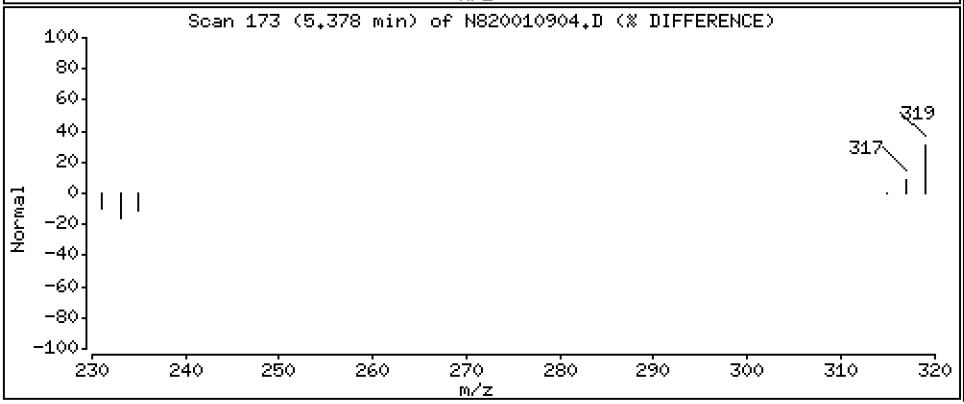












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010904.D

Date : 09-JAN-2020 14:54

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-BS1,

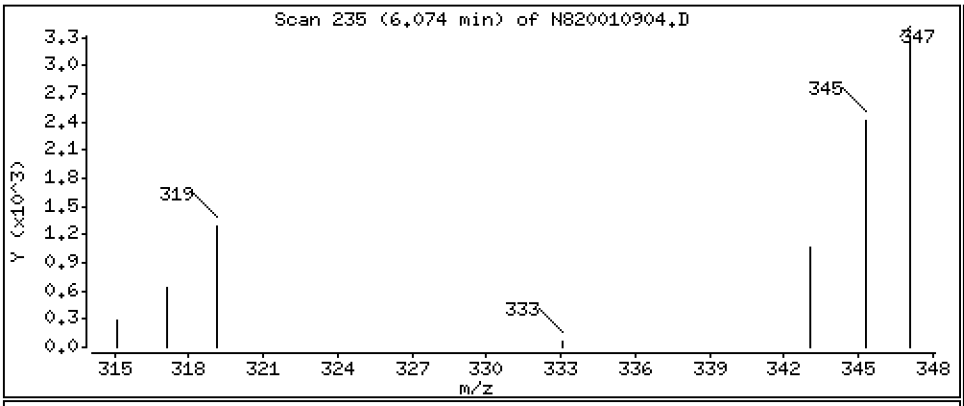
Operator: JZ

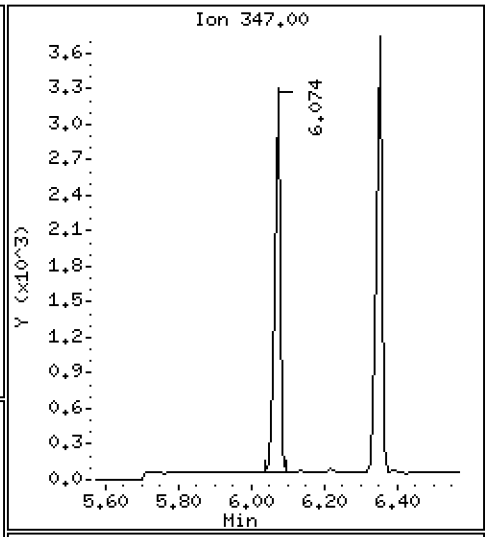
Column phase: ZB-5msi

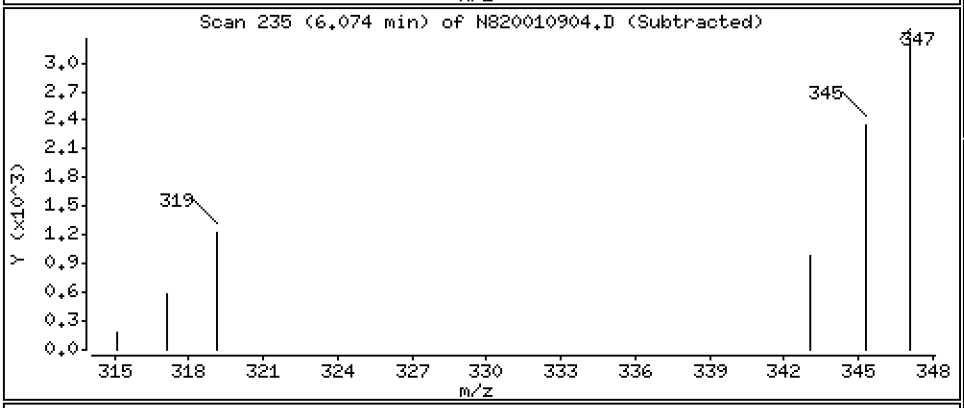
Column diameter: 0.25

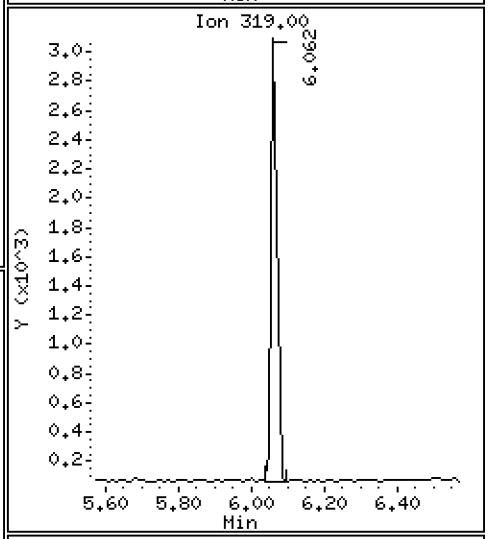
5 Dibutyl Tin (Hexyl)

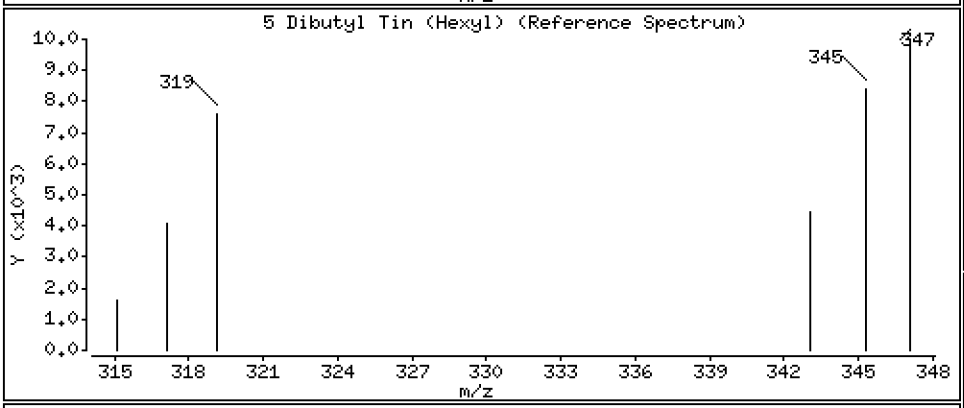
Concentration: 0.2939 ug/mL

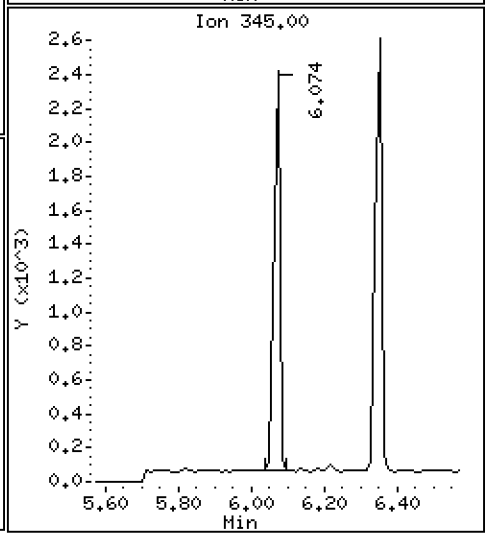


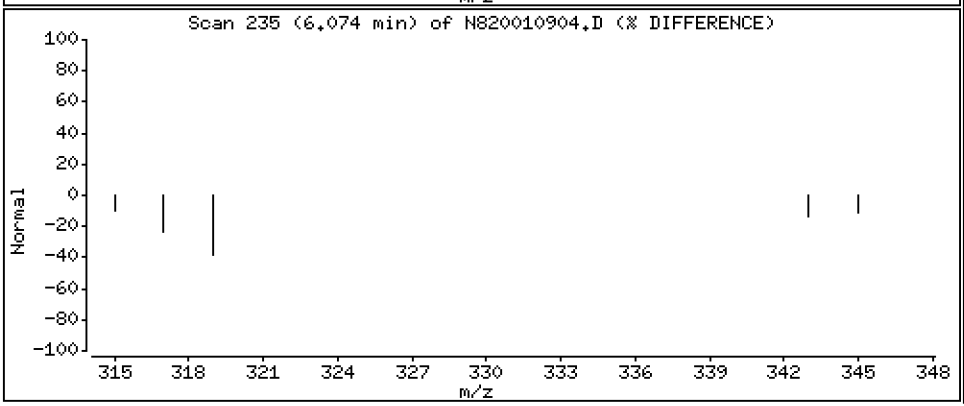












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010904.D

Date : 09-JAN-2020 14:54

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-BS1,

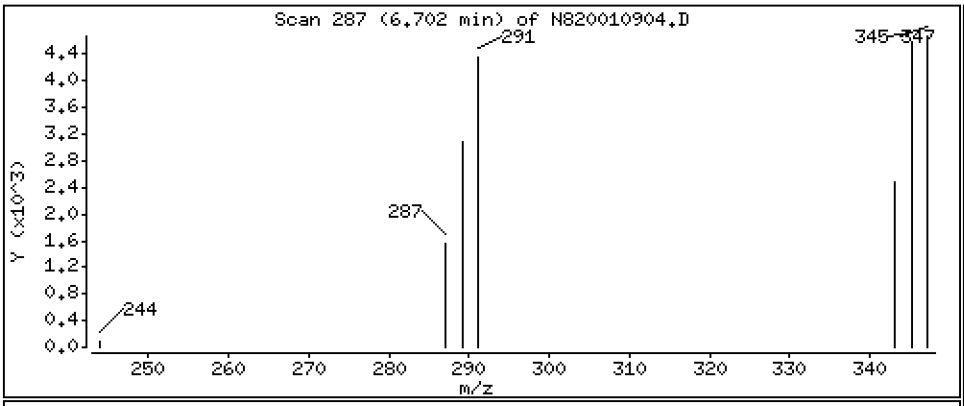
Operator: JZ

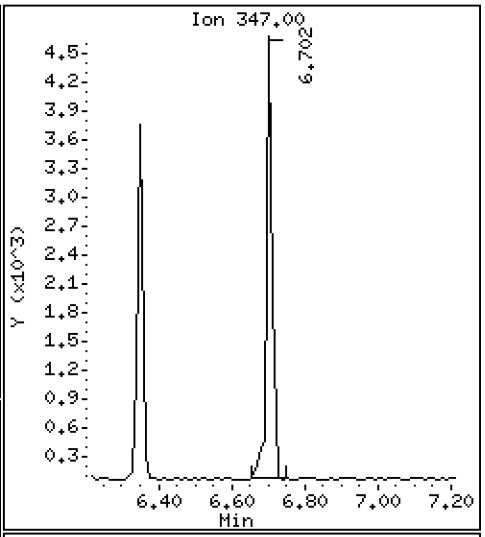
Column phase: ZB-5msi

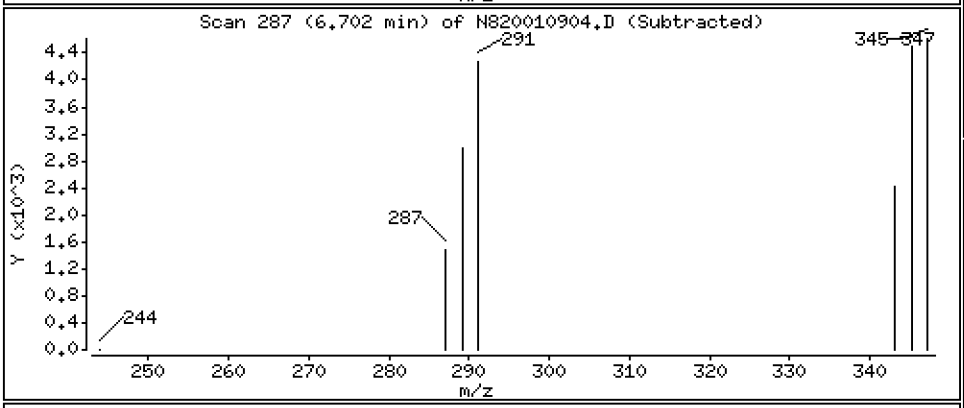
Column diameter: 0.25

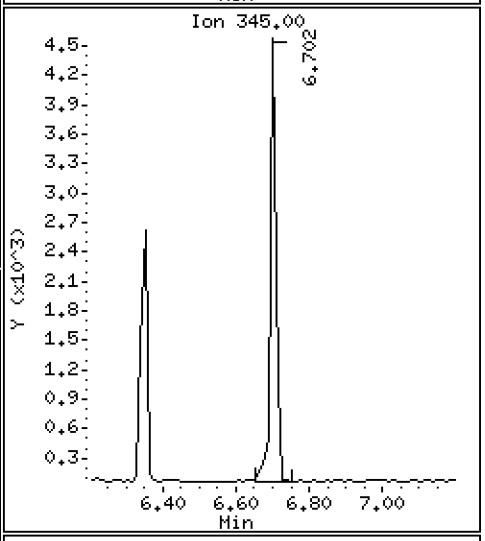
7 Butyl Tin (Hexyl)

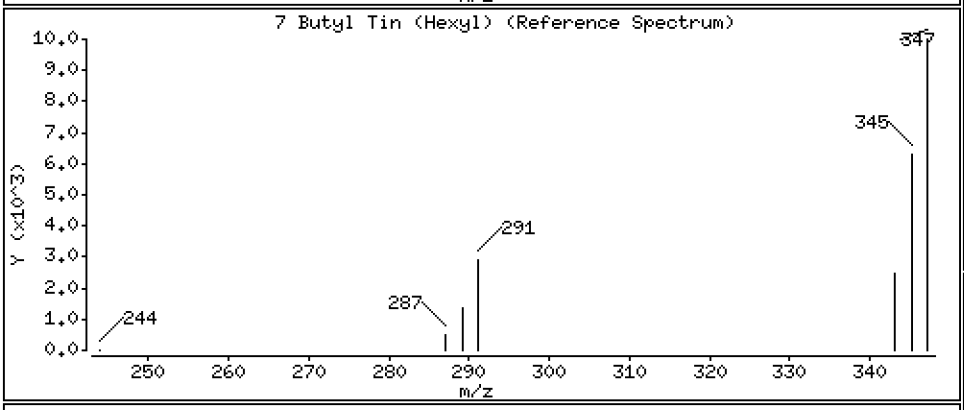
Concentration: 0.2724 ug/mL

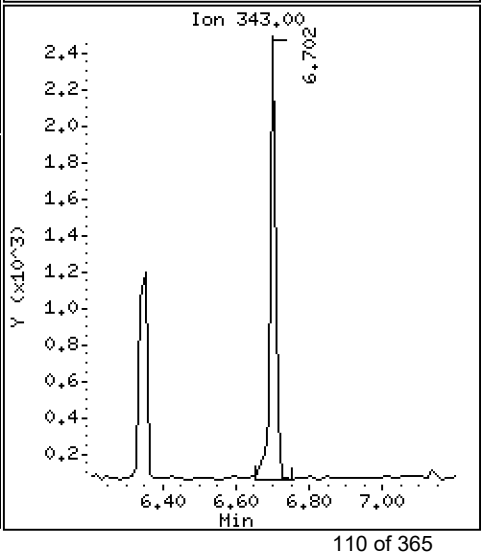


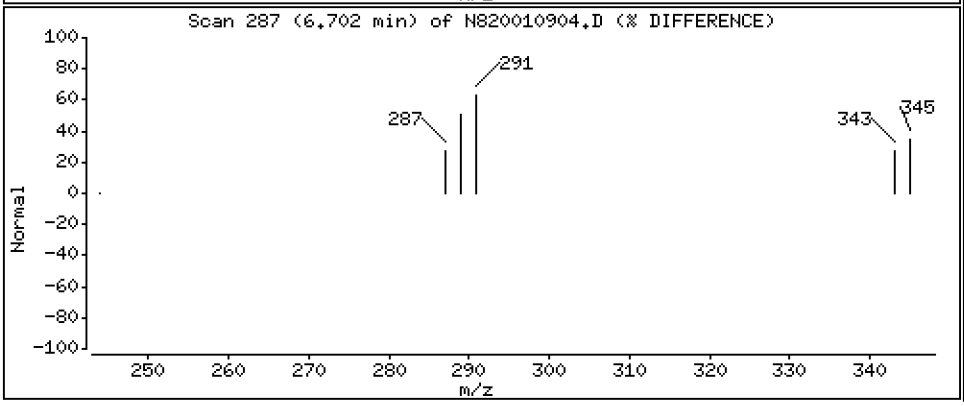












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010904.D
Lab Smp Id: BIA0050-BS1
Inj Date : 09-JAN-2020 14:54
Operator : JZ Inst ID: nt8.i
Smp Info : BIA0050-BS1,
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.450	4.419	(0.742)	5545	0.29735	0.2973
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.896)	4476	0.29768	0.2977
*	4 Tetrapentyl Tin	333	6.001	6.013	(1.000)	35716	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.073	(0.708)	3112	0.29388	0.2939
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	3640	0.25124	0.2512
	7 Butyl Tin (Hexyl)	347	6.702	6.714	(0.781)	5265	0.27241	0.2724
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	31588	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010904.D
Lab Smp Id: BIA0050-BS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	35716	-17.61
8 p-Terphenyl-d14	36156	18078	72312	31588	-12.63

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.00	-0.20
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010904.D

Lab ID: BIA0050-BS1
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 14:54

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.735	0.0067	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Matrix:	Water	Analyzed:	12/02/19 23:56
Batch:	BHK0747	Laboratory ID:	BHK0747-MS1
Preparation:	EPA 3510C SepF	Sequence Name:	Matrix Spike
Initial/Final:	100 mL / 0.5 mL	Source Sample:	PDI-FB-1911191346

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	Q	MS CONCENTRATION (ug/L)	Q	MS % REC. #	QC LIMITS REC.
Tributyltin Ion	2.23	ND	H, U	1.22		54.7	30 - 160

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Matrix:	Water	Analyzed:	12/03/19 00:12
Batch:	BHK0747	Laboratory ID:	BHK0747-MSD1
Preparation:	EPA 3510C SepF	Sequence Name:	Matrix Spike Dup
Initial/Final:	100 mL / 0.5 mL	Source Sample:	PDI-FB-1911191346

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	Q	MSD % REC. #	% RPD #		QC LIMITS RPD	QC LIMITS REC.
Tributyltin Ion	2.23	1.92	*	86.0	44.6	*	30	30 - 160

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120253.D

Date : 02-DEC-2019 23:56

Client ID:

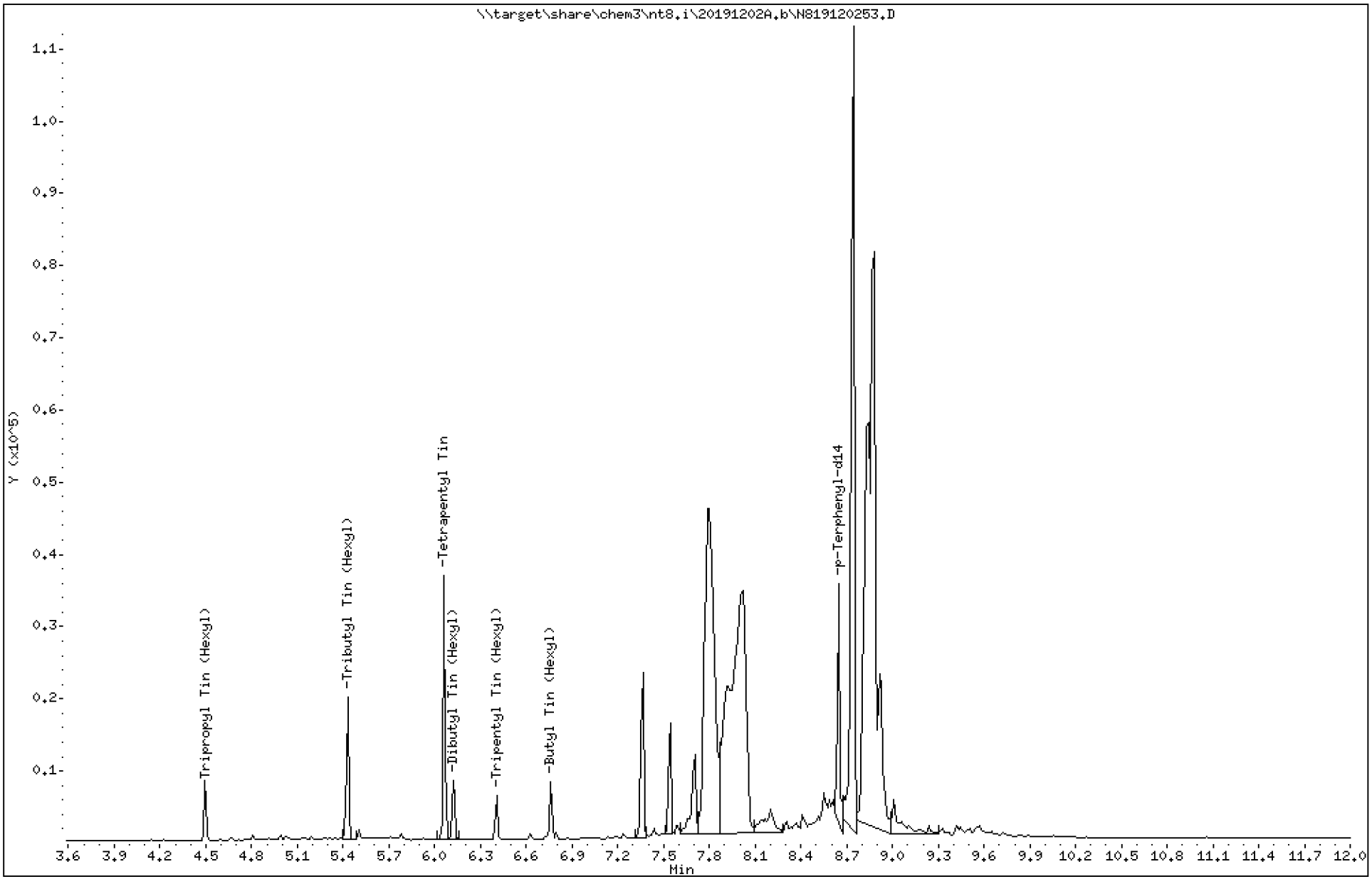
Sample Info: BHK0747-MS1,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



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Date : 02-DEC-2019 23:56

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-MS1,

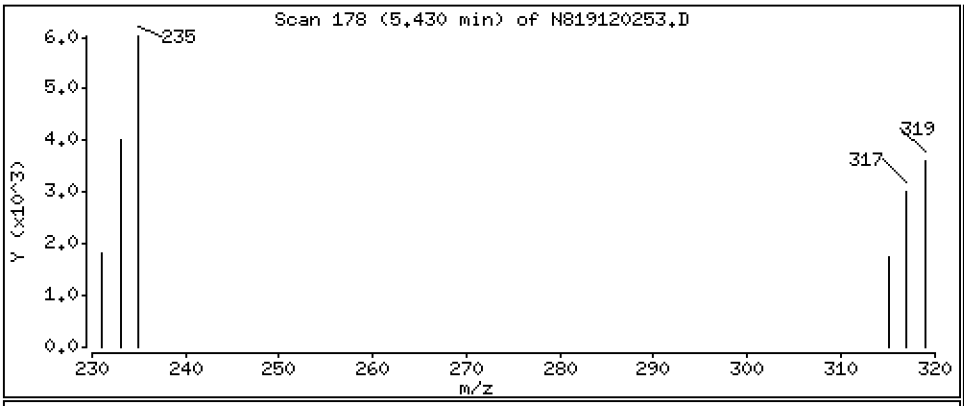
Operator: JZ

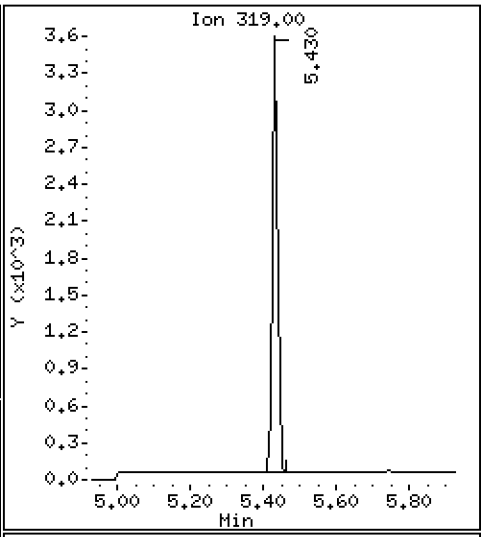
Column phase: ZB-5msi

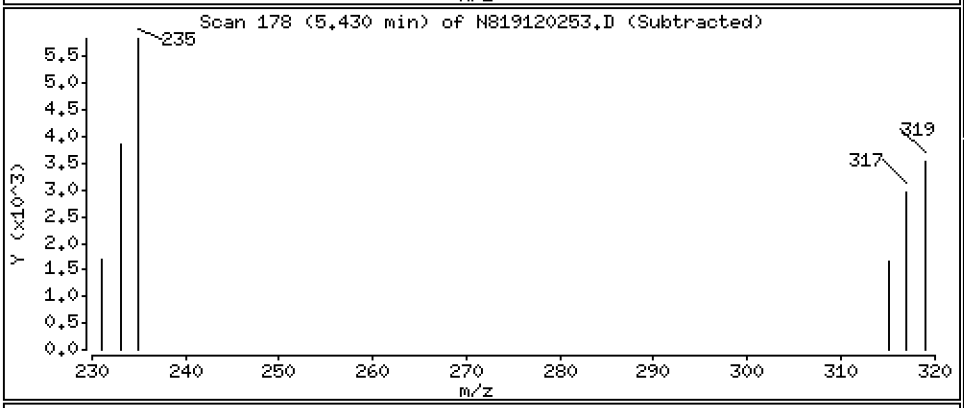
Column diameter: 0.25

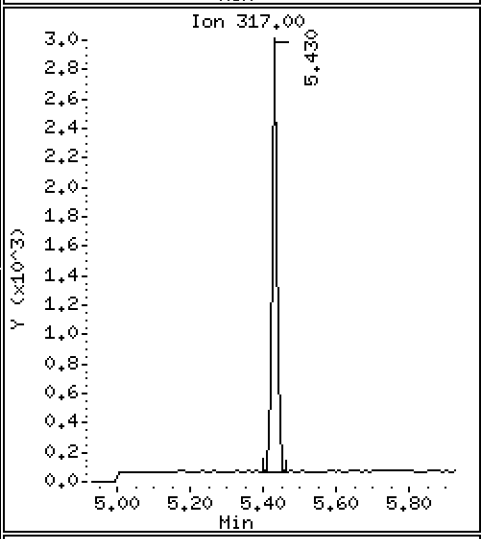
3 Tributyl Tin (Hexyl)

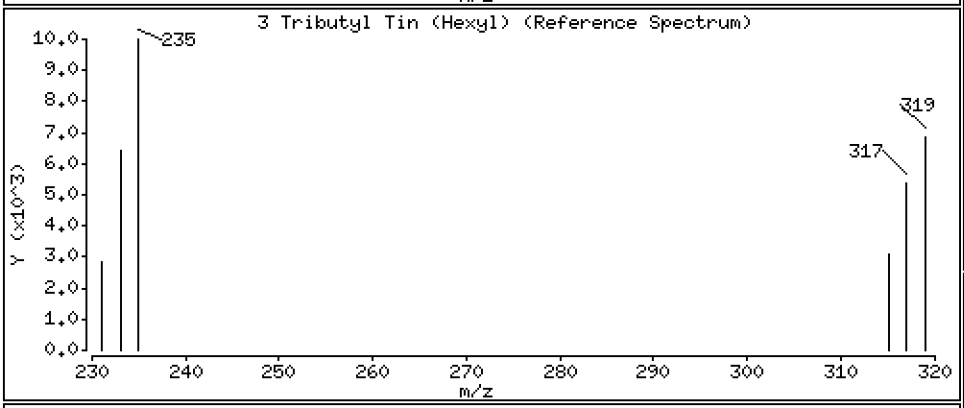
Concentration: 0.3151 ug/mL

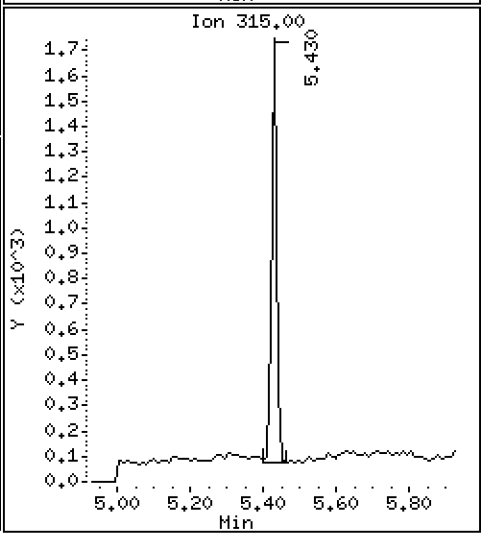


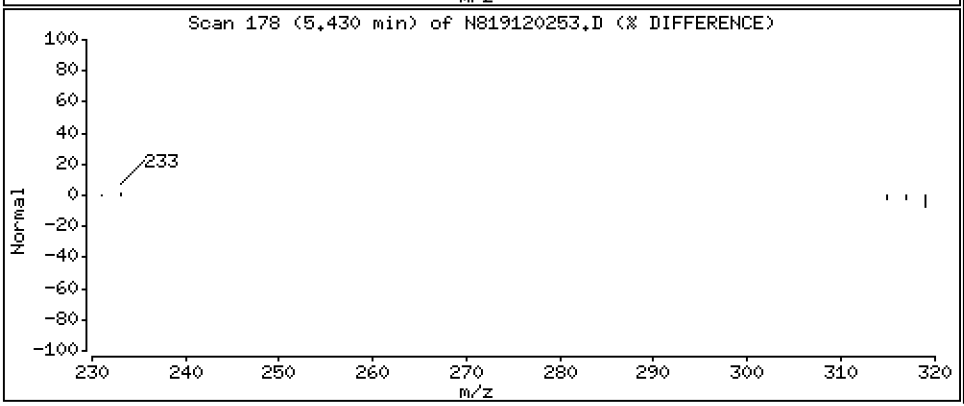












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Date : 02-DEC-2019 23:56

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-MS1,

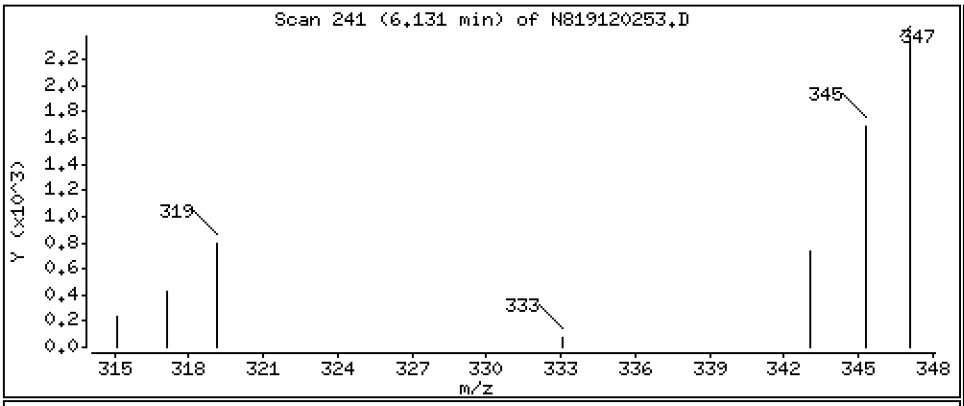
Operator: JZ

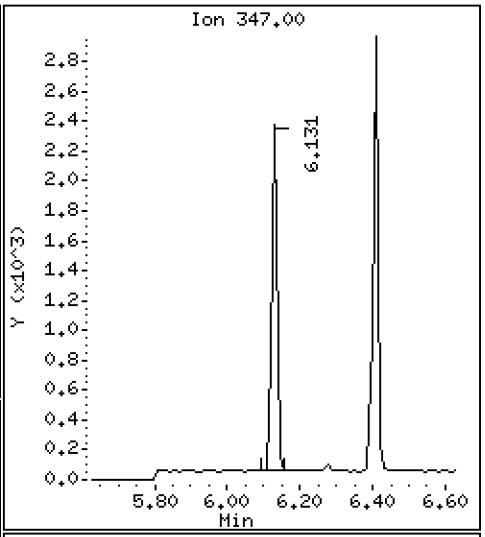
Column phase: ZB-5msi

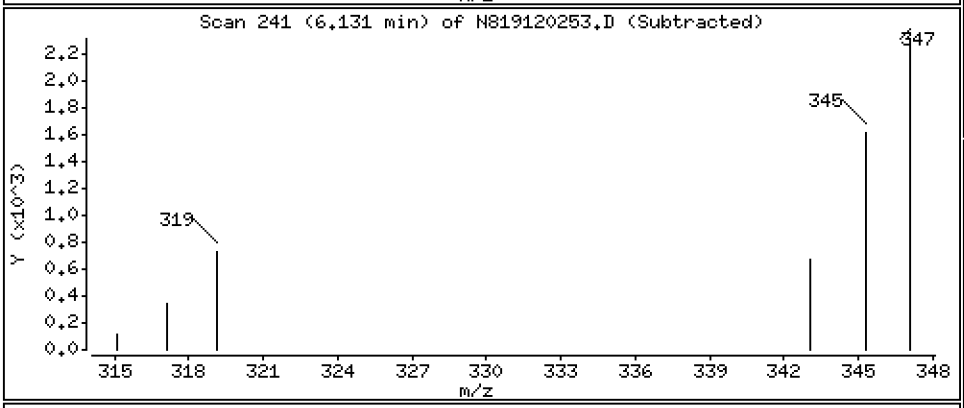
Column diameter: 0.25

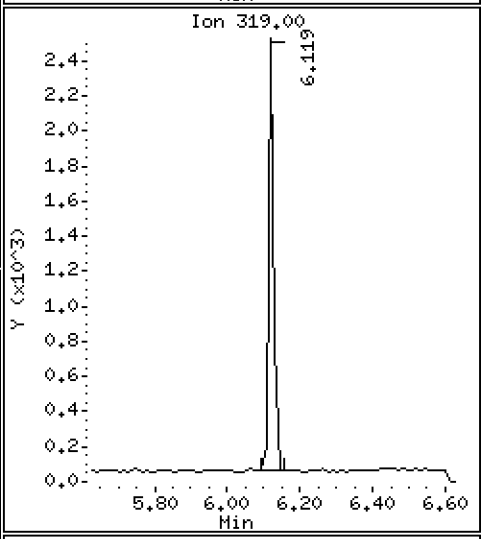
5 Dibutyl Tin (Hexyl)

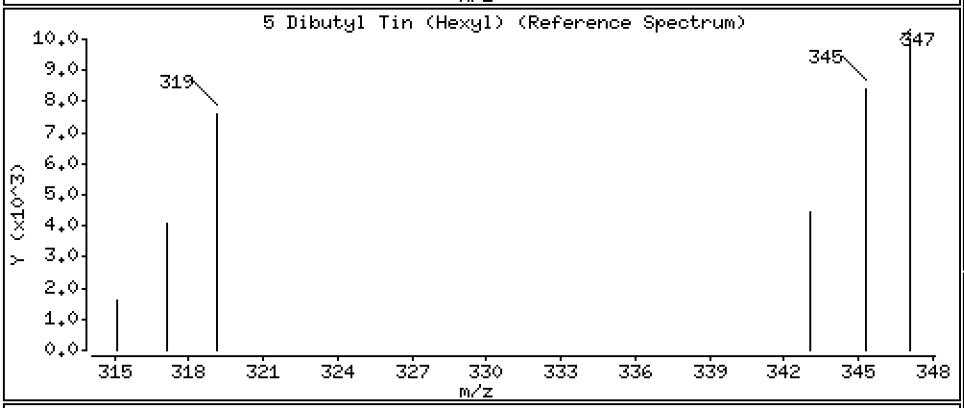
Concentration: 0.3214 ug/mL

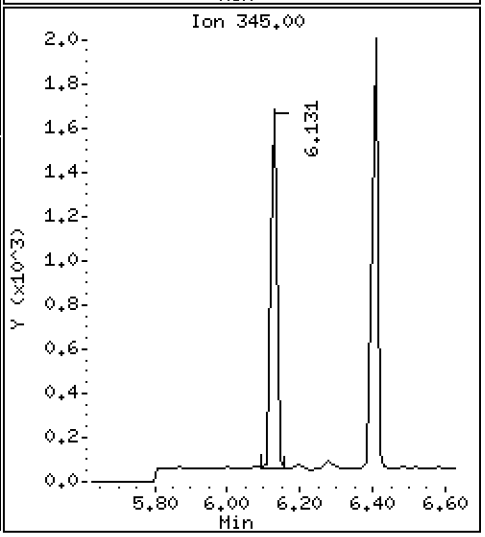


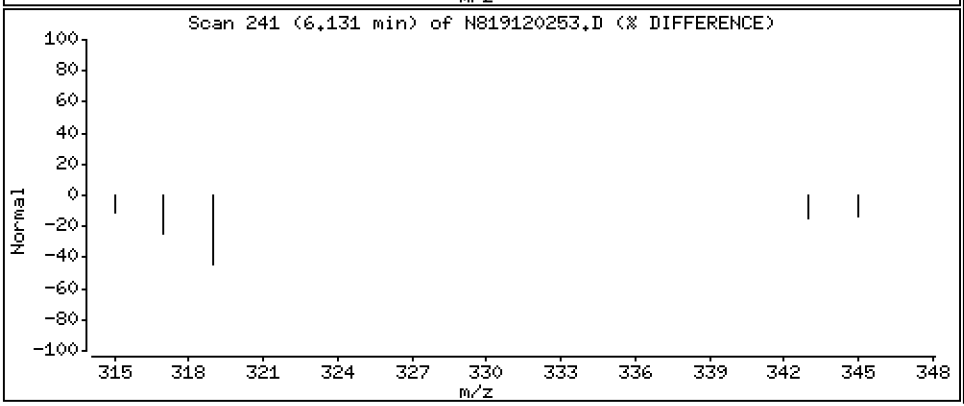












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Date : 02-DEC-2019 23:56

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-MS1,

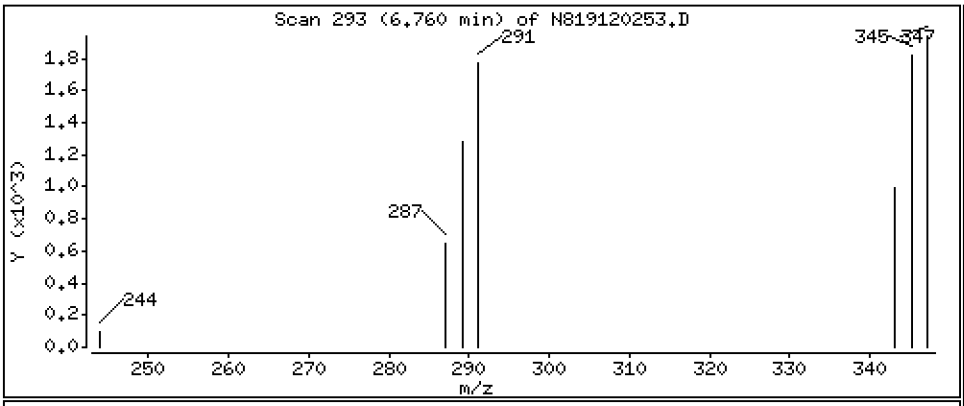
Operator: JZ

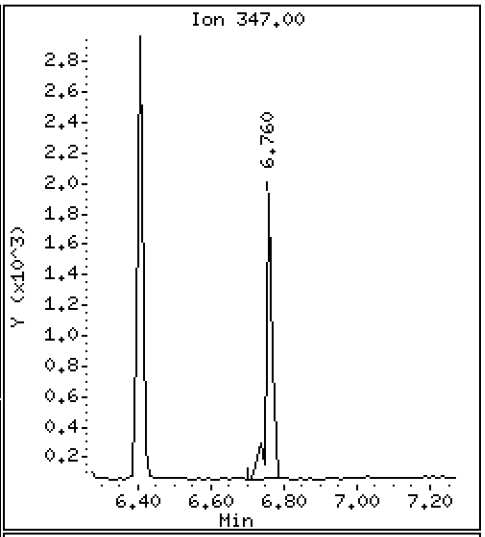
Column phase: ZB-5msi

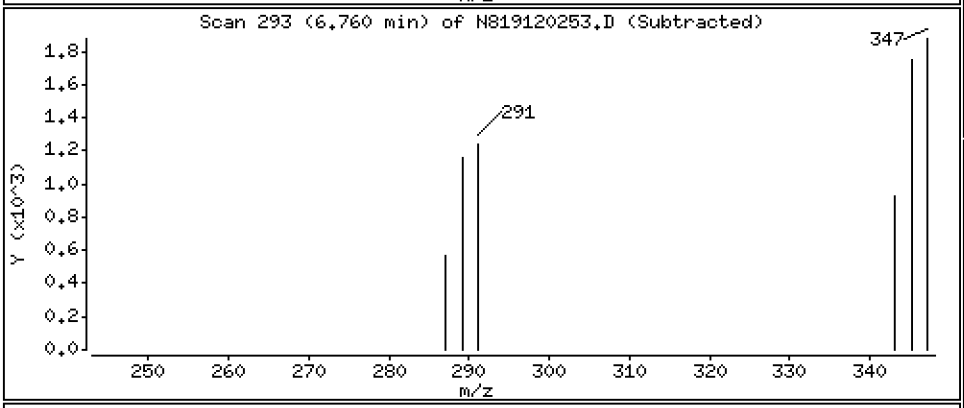
Column diameter: 0.25

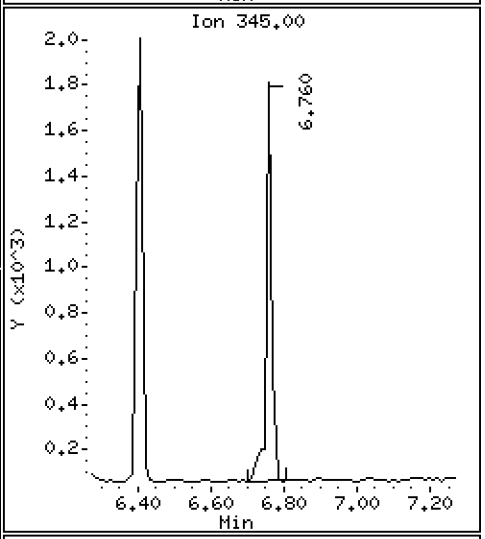
7 Butyl Tin (Hexyl)

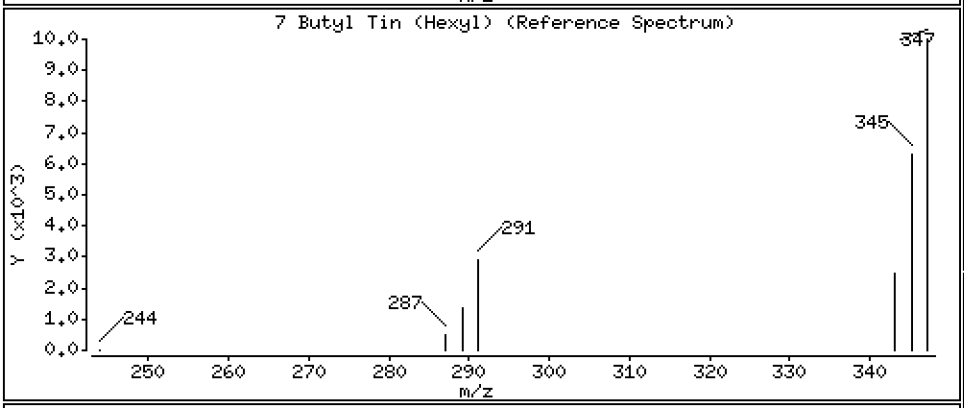
Concentration: 0.1937 ug/mL

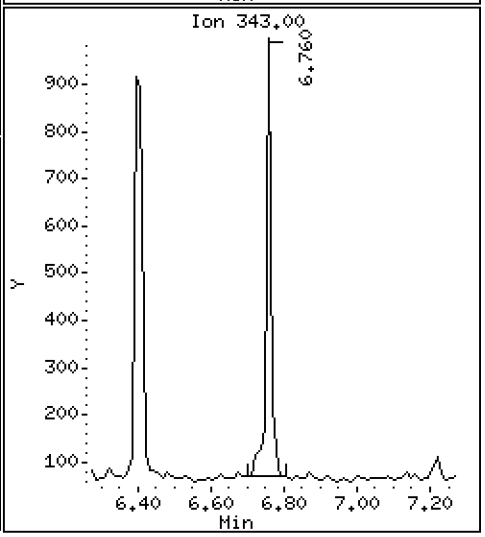


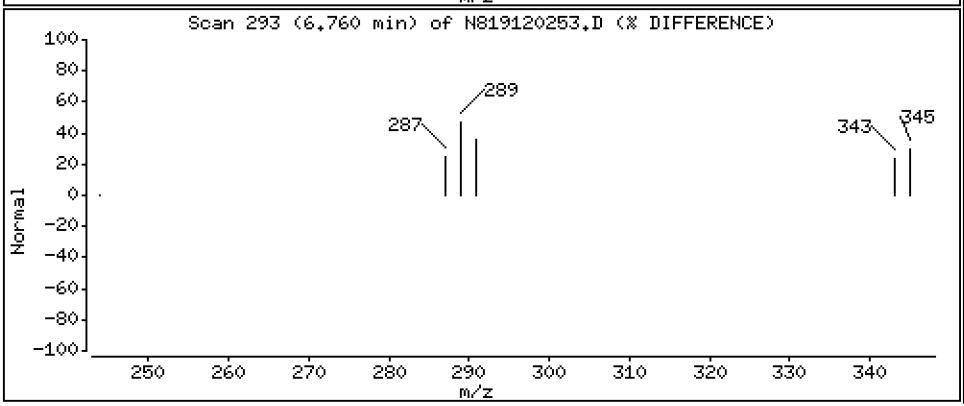












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120253.D
Lab Smp Id: BHK0747-MS1
Inj Date : 02-DEC-2019 23:56 MS Autotune Date: 27-FEB-2008 03:32
Operator : JZ Inst ID: nt8.i
Smp Info : BHK0747-MS1,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Meth Date : 03-Dec-2019 10:47 jianqing Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TBTW.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.503	4.471	(0.743)	4337	0.30784	0.3078
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	3430	0.31510	0.3151
*	4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	36048	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	2309	0.32136	0.3214
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	2900	0.27566	0.2757
	7 Butyl Tin (Hexyl)	347	6.760	6.772	(0.782)	2200	0.19372	0.1937(M)
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	32457	0.20000	

QC Flag Legend

M - Compound response manually integrated.

Report Date: 03-Dec-2019 10:49

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120253.D
Lab Smp Id: BHK0747-MS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Calibration Date: 02-DEC-2019
Calibration Time: 17:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	36048	-13.33
8 p-Terphenyl-d14	41162	20581	82324	32457	-21.15

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120253.D

Lab ID: BHK0747-MS1
nt8.i, 20191202A.b\TBT1125.m,   02-DEC-2019 23:56

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0066	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

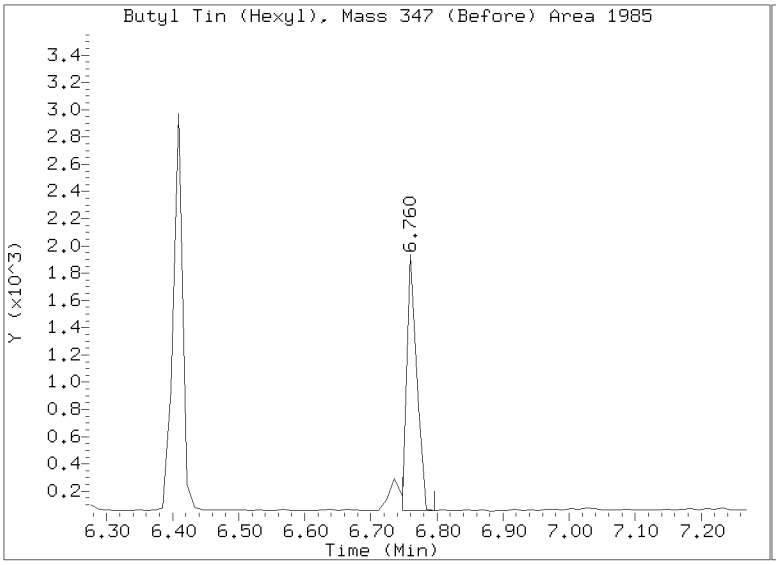
On Column LOD for nt8.i, 20191202A.b\TBT1125.m, TBTW.sub = 0.0000

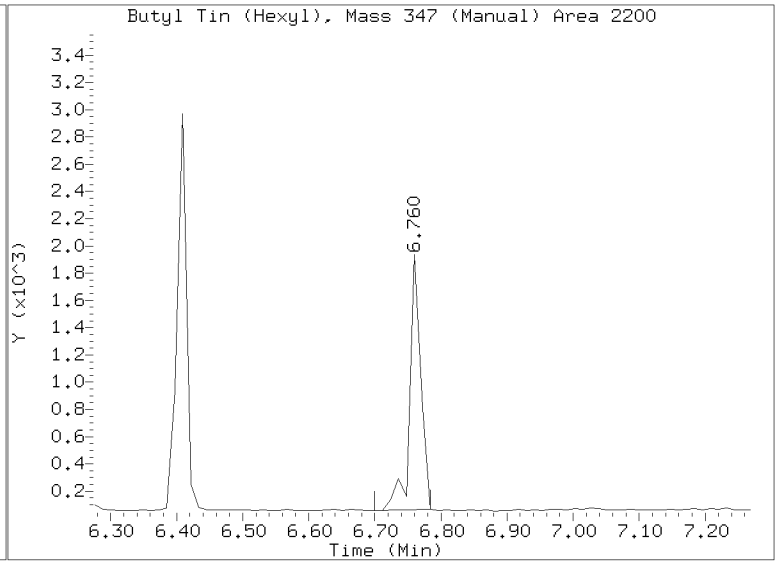
Exception: Tripropyl Tin (Hexyl) (Surr) 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191202A.b/N819120253.D
Injection Date: 02-DEC-2019 23:56
Lab ID:BHK0747-MS1 Client ID:
Report Date: 12/03/2019 10:49





Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120254.D

Date : 03-DEC-2019 00:12

Client ID:

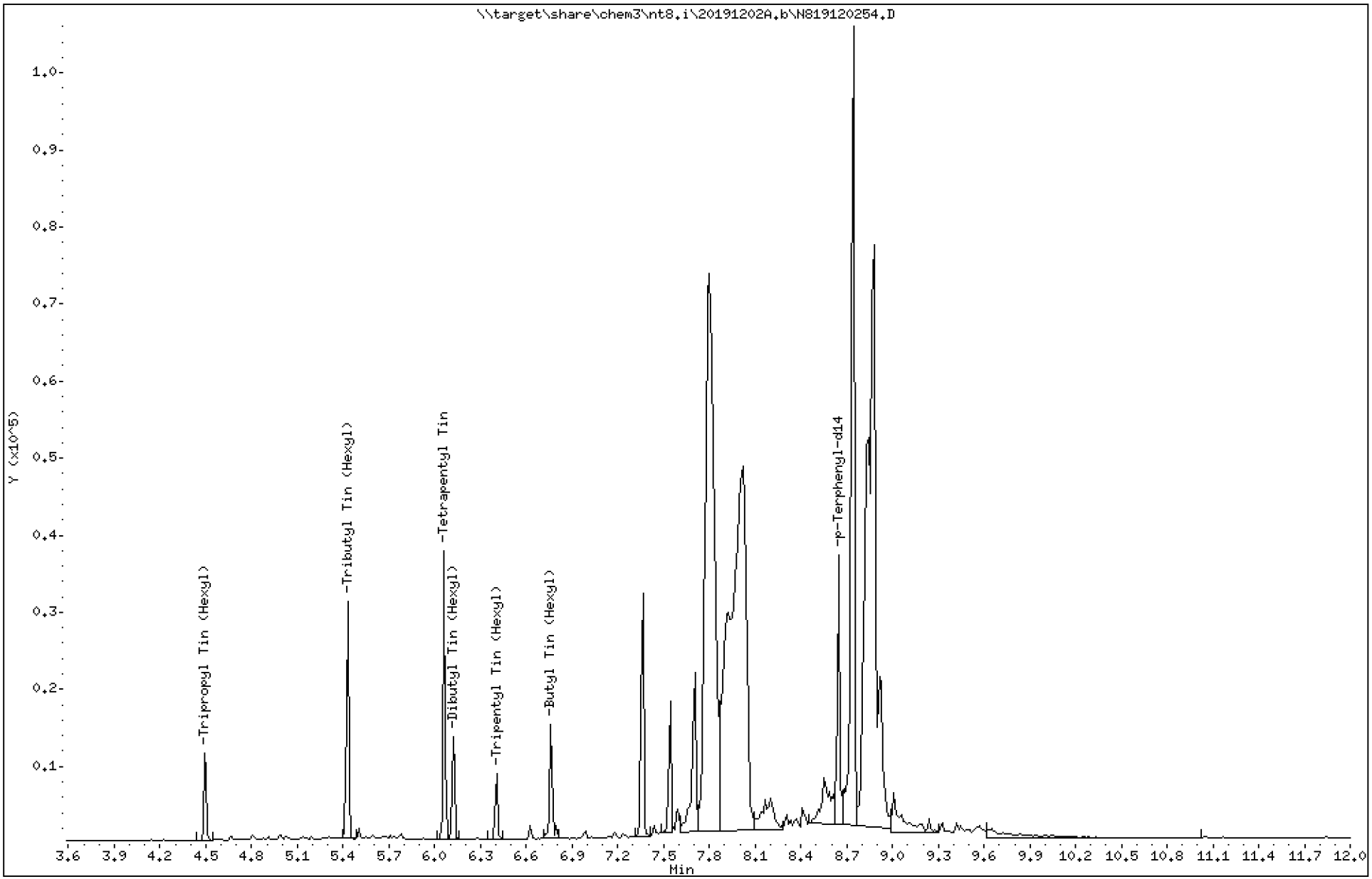
Sample Info: BHK0747-MSD1,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120254.D

Date : 03-DEC-2019 00:12

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-MSD1,

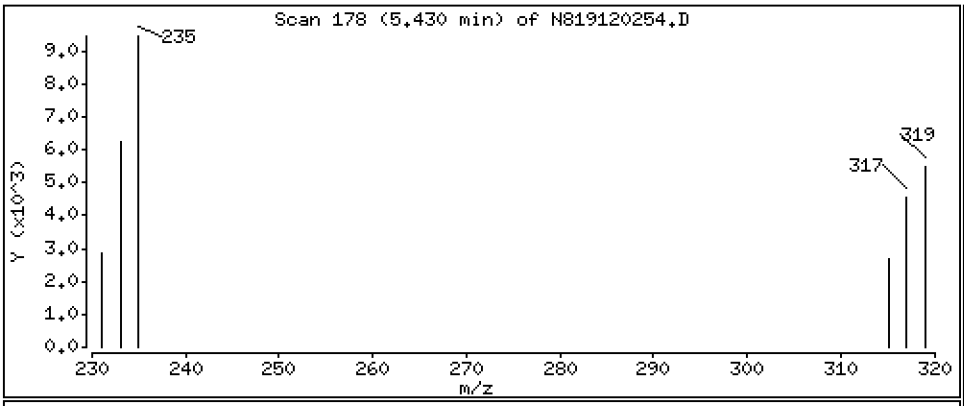
Operator: JZ

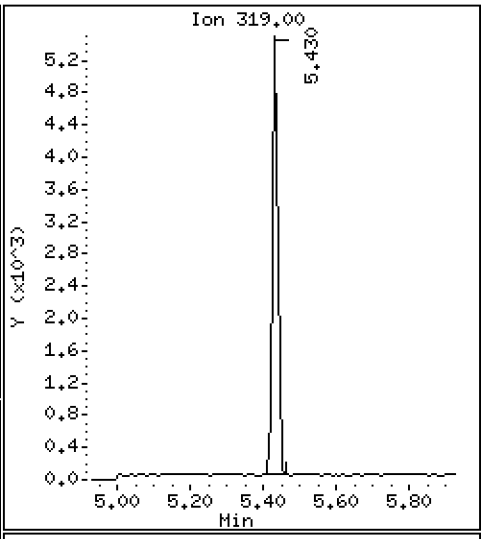
Column phase: ZB-5msi

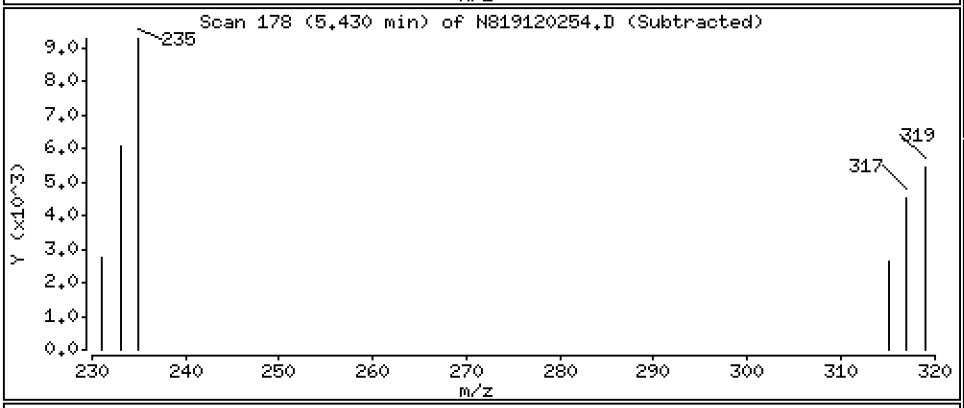
Column diameter: 0.25

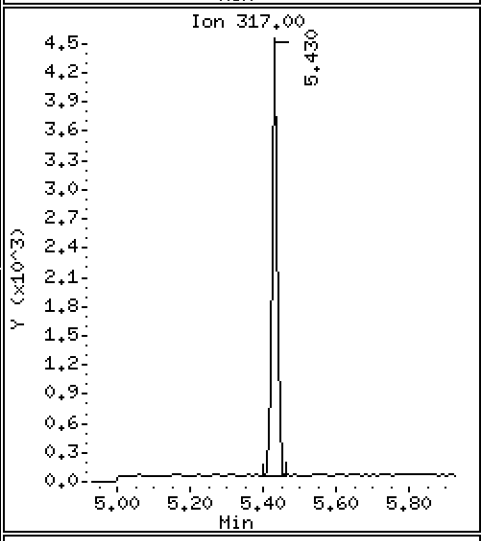
3 Tributyl Tin (Hexyl)

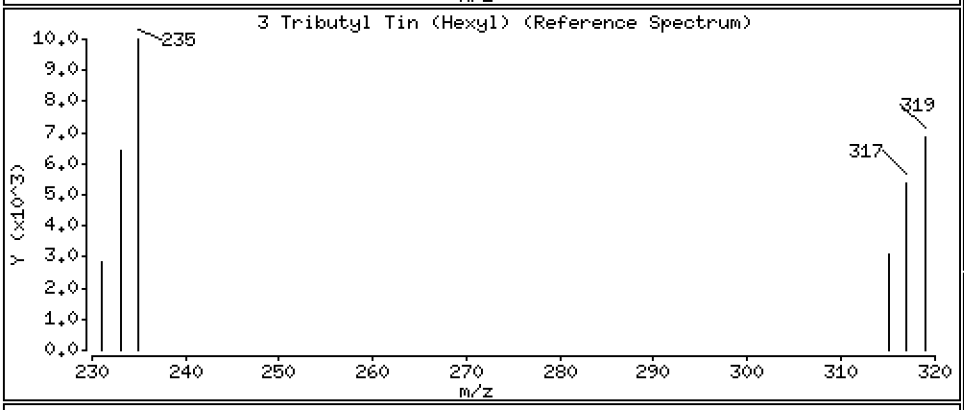
Concentration: 0.4957 ug/mL

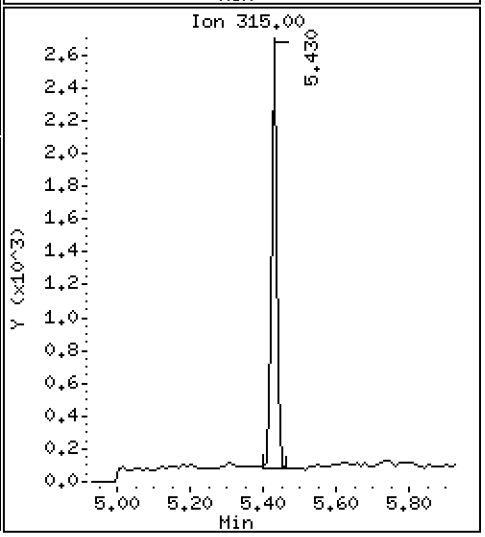


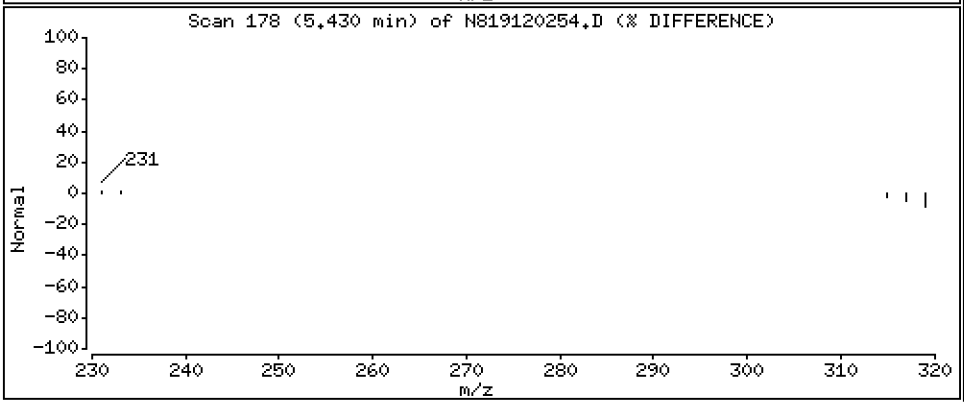












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Date : 03-DEC-2019 00:12

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-MSD1,

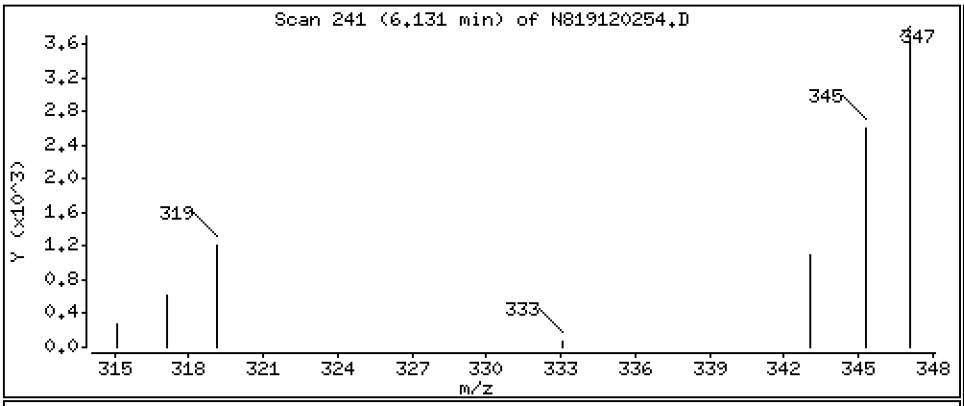
Operator: JZ

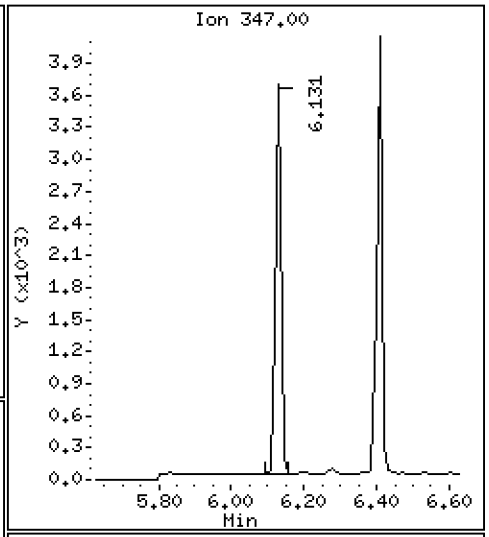
Column phase: ZB-5msi

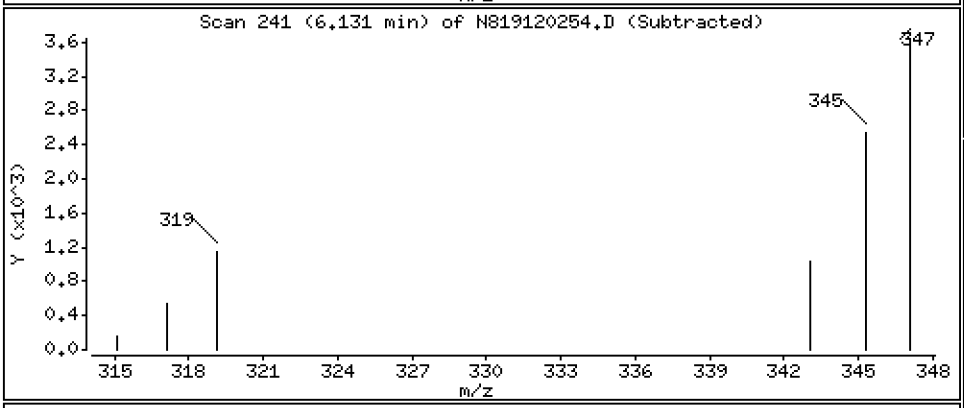
Column diameter: 0.25

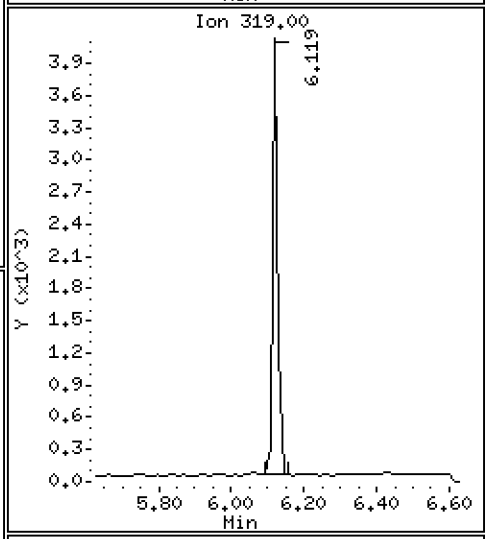
5 Dibutyl Tin (Hexyl)

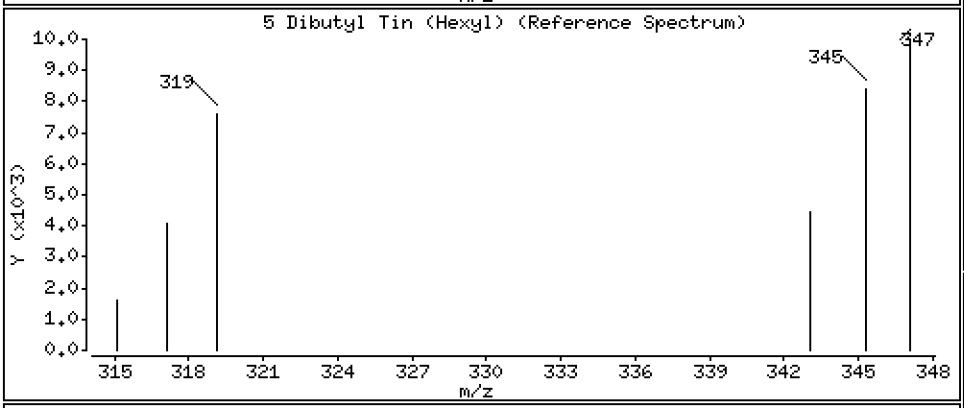
Concentration: 0.5220 ug/mL

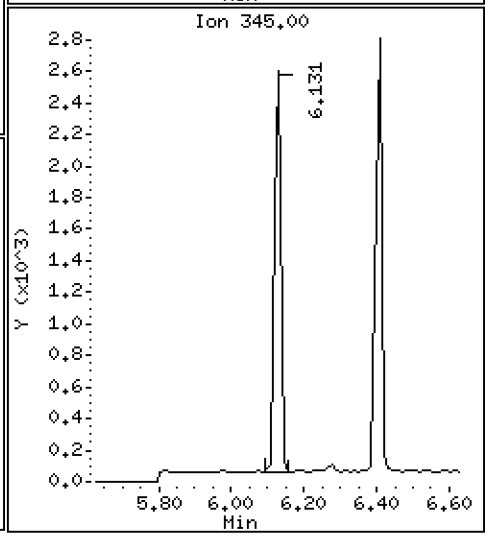


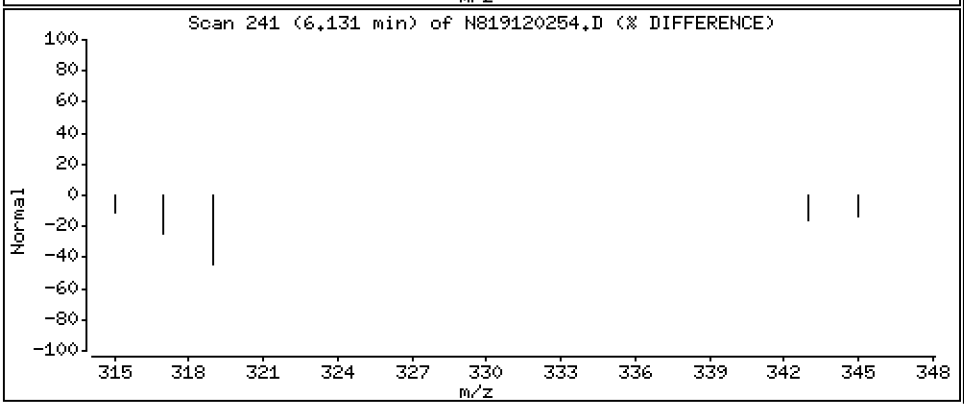












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Date : 03-DEC-2019 00:12

Client ID:

Instrument: nt8.i

Sample Info: BHK0747-MSD1,

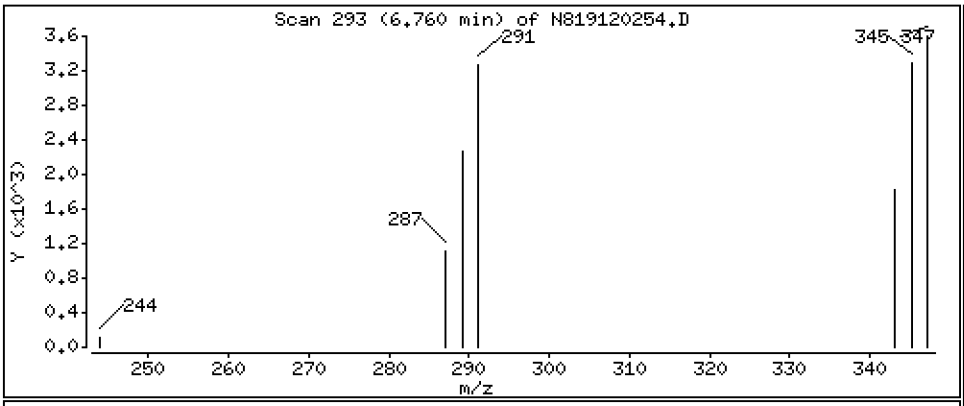
Operator: JZ

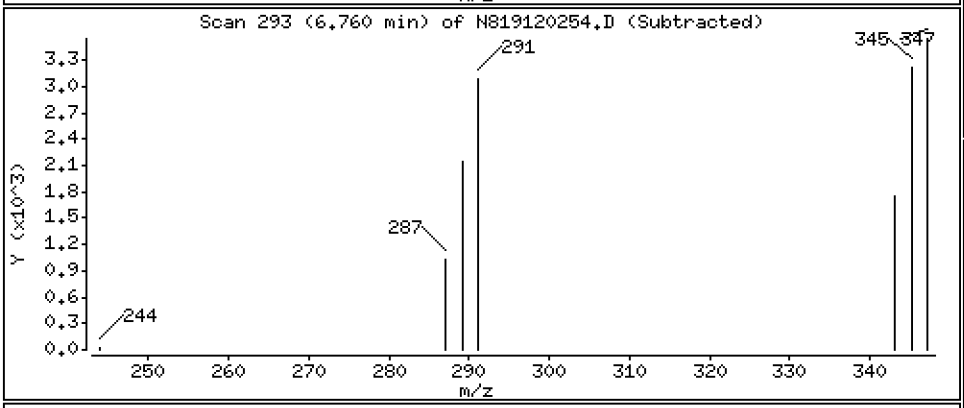
Column phase: ZB-5msi

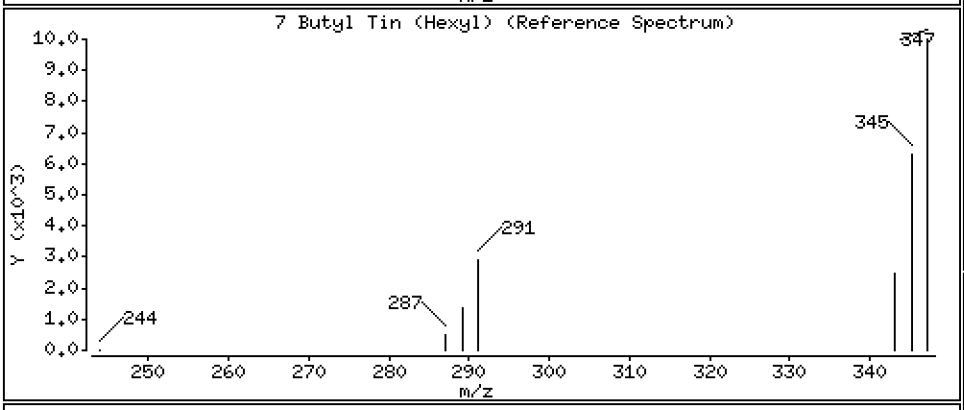
Column diameter: 0.25

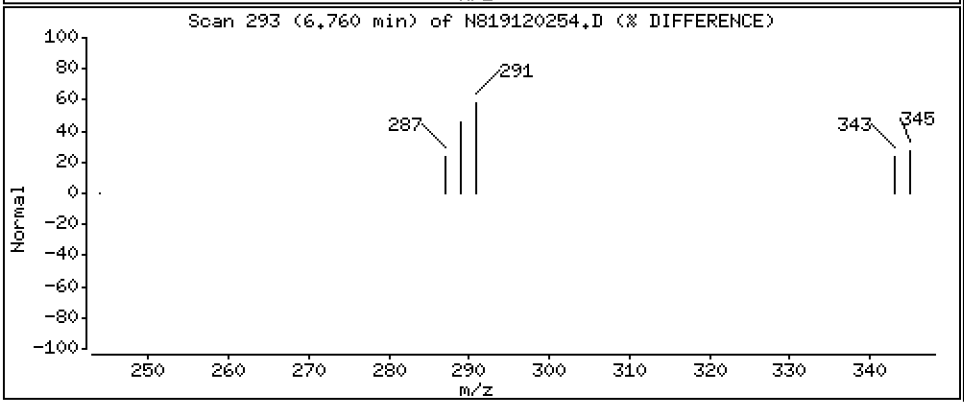
7 Butyl Tin (Hexyl)

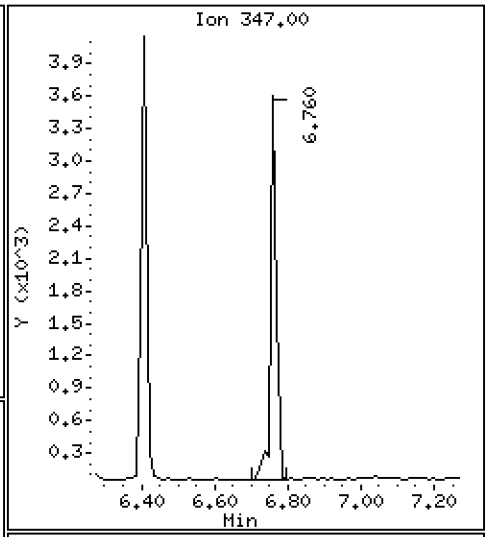
Concentration: 0.3600 ug/mL

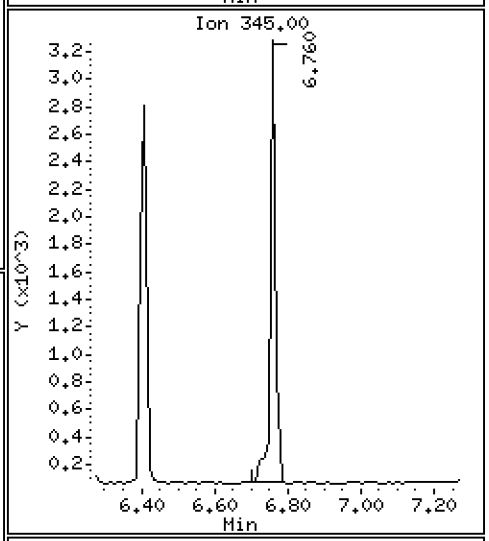


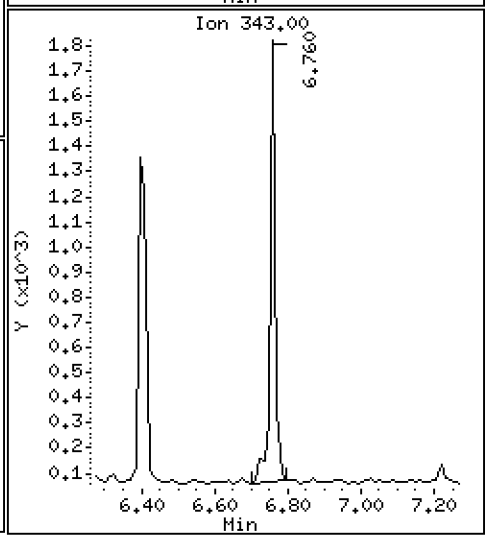












ARI Labs, Inc.

Krone1989/8270D-SIM

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Operator : JZ Inst ID: nt8.i
Smp Info : BHK0747-MSD1,
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Meth Date : 03-Dec-2019 10:47 jianqing Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TBTW.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.503	4.471	(0.743)	6481	0.45166	0.4517
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	5496	0.49572	0.4957
*	4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	36715	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	3754	0.52200	0.5220
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	4257	0.40427	0.4043
	7 Butyl Tin (Hexyl)	347	6.760	6.772	(0.782)	4092	0.35998	0.3600(M)
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	32487	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120254.D
Lab Smp Id: BHK0747-MSD1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Calibration Date: 02-DEC-2019
Calibration Time: 17:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	36715	-11.73
8 p-Terphenyl-d14	41162	20581	82324	32487	-21.08

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120254.D

Lab ID: BHK0747-MSD1
nt8.i, 20191202A.b\TBT1125.m,   03-DEC-2019 00:12

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0066	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

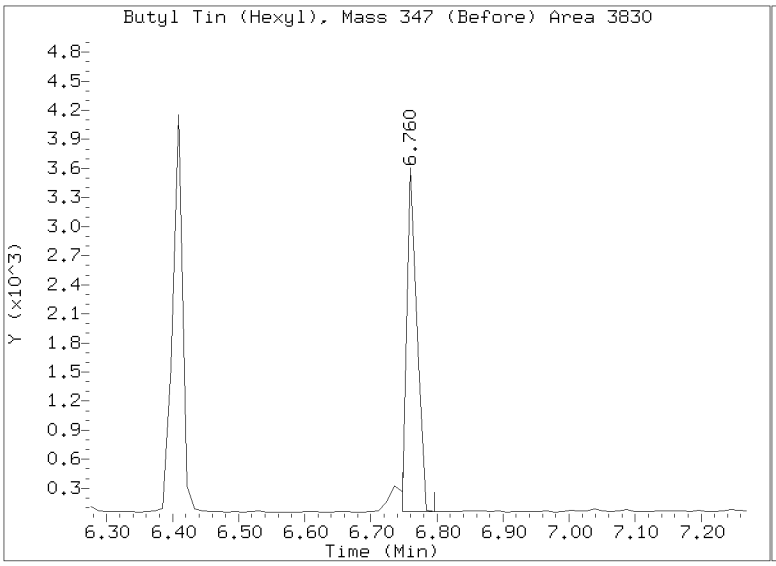
On Column LOD for nt8.i, 20191202A.b\TBT1125.m, TBTW.sub = 0.0000

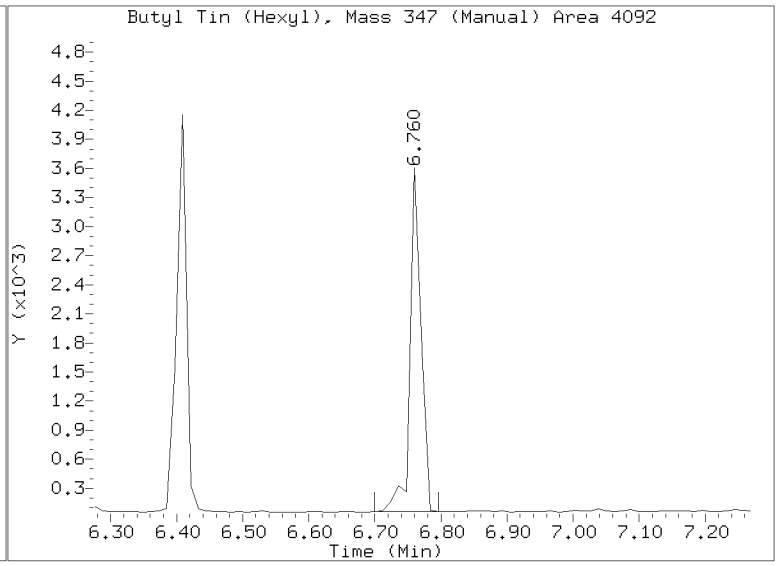
Exception: Tripropyl Tin (Hexyl) (Surr) 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191202A.b/N819120254.D
Injection Date: 03-DEC-2019 00:12
Lab ID:BHK0747-MSD1 Client ID:
Report Date: 12/03/2019 10:49





MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Matrix:	Solid	Analyzed:	01/09/20 18:10
Batch:	BIA0050	Laboratory ID:	BIA0050-MS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike
Initial/Final:	5.03 g / 0.5 mL	Source Sample:	PDI-145RAB-00-10-191114

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #		QC LIMITS REC.
Tributyltin Ion	48.8	ND	U	12.9	*	26.4	*	30 - 160

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Matrix:	Solid	Analyzed:	01/09/20 18:26
Batch:	BIA0050	Laboratory ID:	BIA0050-MSD1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike Dup
Initial/Final:	5.18 g / 0.5 mL	Source Sample:	PDI-145RAB-00-10-191114

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #		QC LIMITS RPD	QC LIMITS REC.
Tributyltin Ion	47.4	20.1	*	42.4	43.7	*	30	30 - 160

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010913.D

Date : 09-JAN-2020 18:10

Client ID:

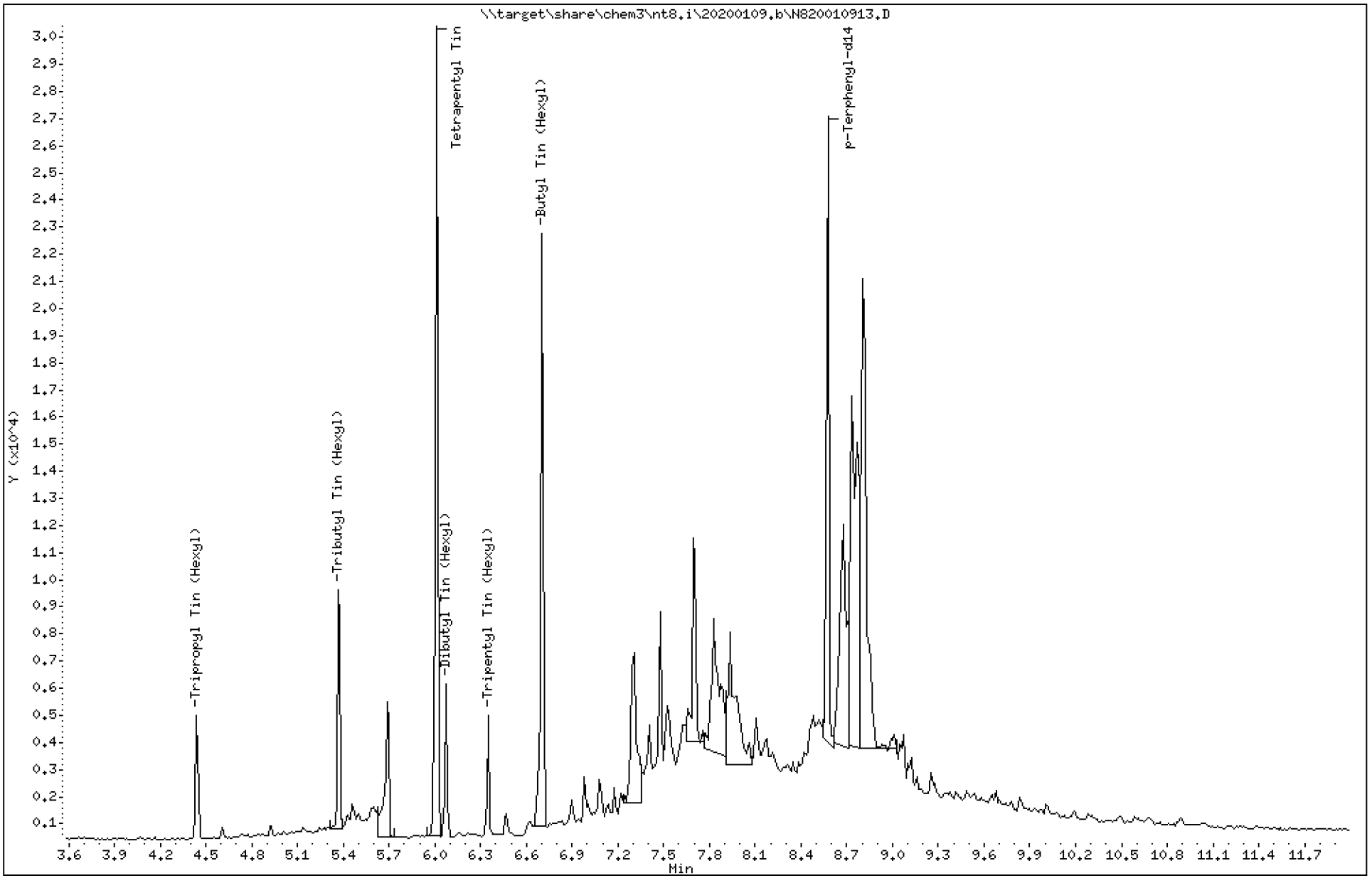
Sample Info: BIA0050-MS1,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



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Date : 09-JAN-2020 18:10

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-MS1,

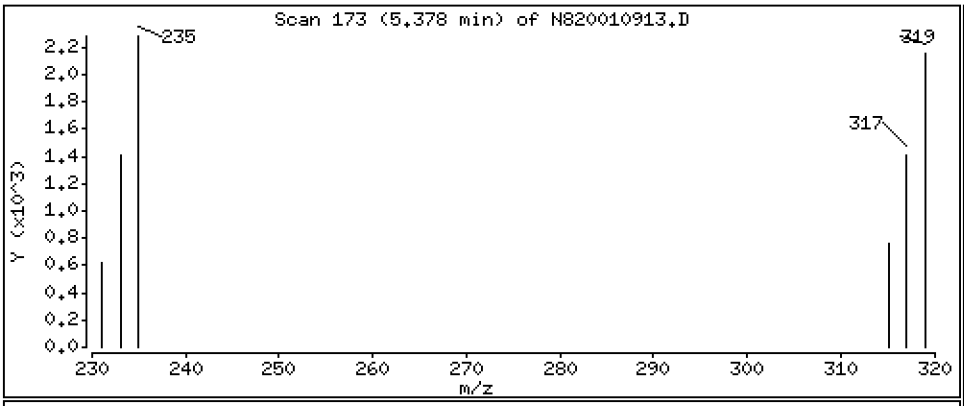
Operator: JZ

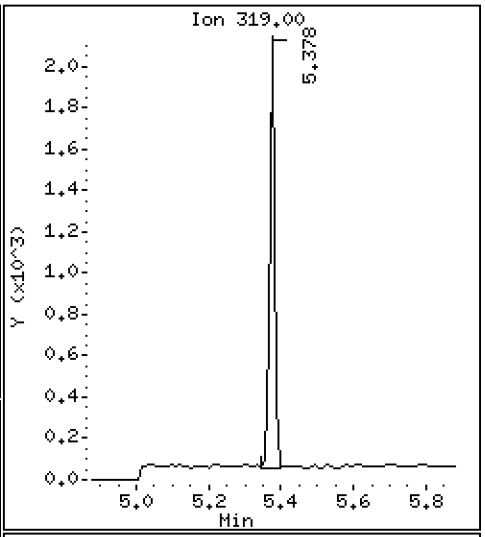
Column phase: ZB-5msi

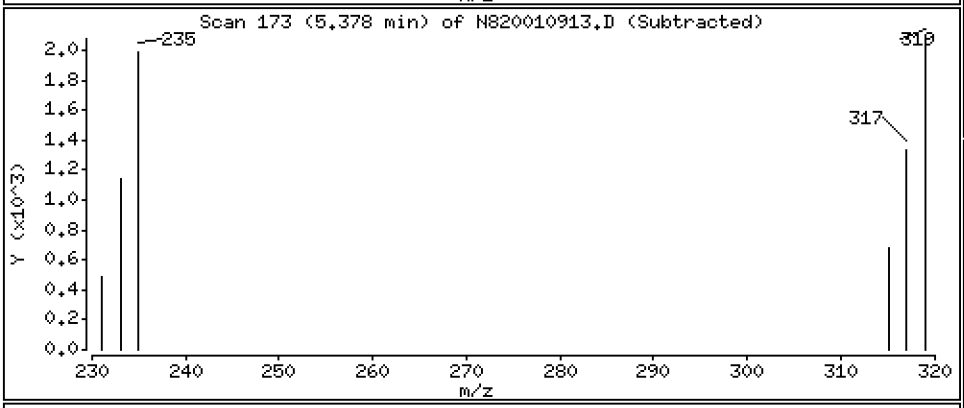
Column diameter: 0.25

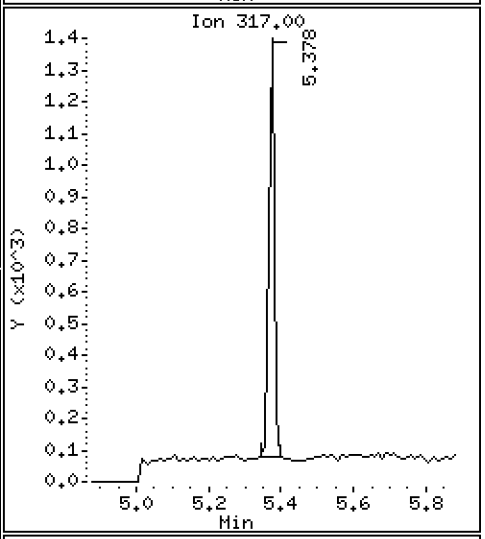
3 Tributyl Tin (Hexyl)

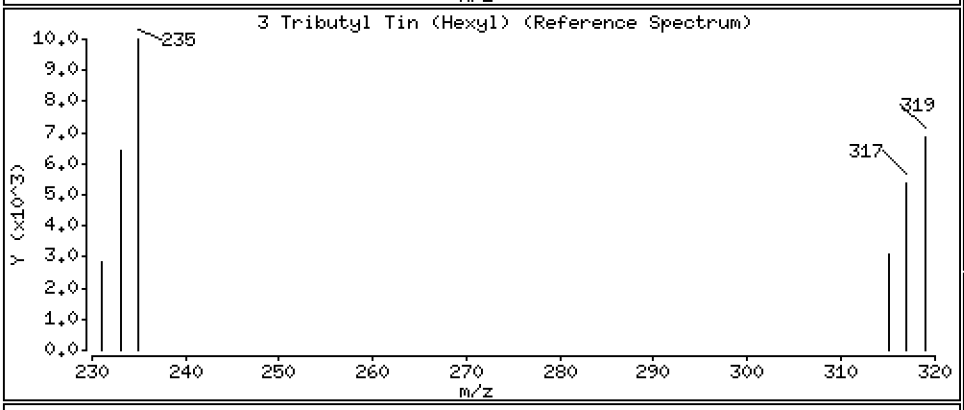
Concentration: 0.1524 ug/mL

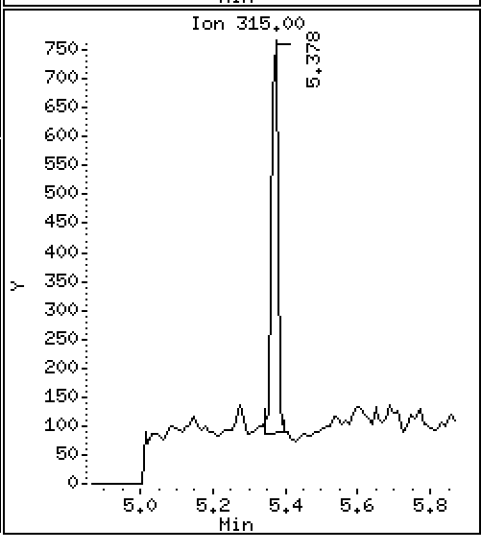


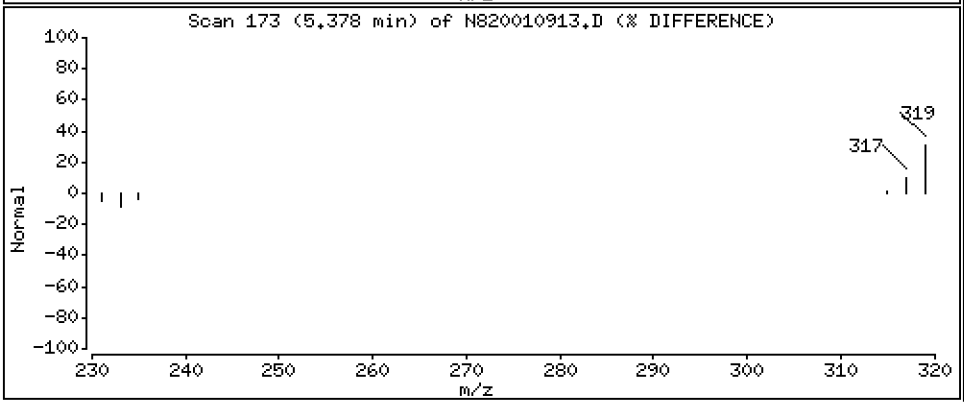












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010913.D

Date : 09-JAN-2020 18:10

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-MS1,

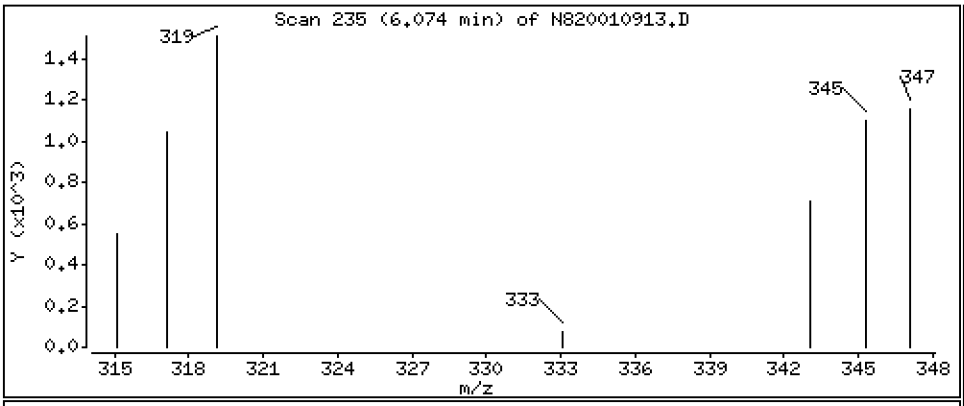
Operator: JZ

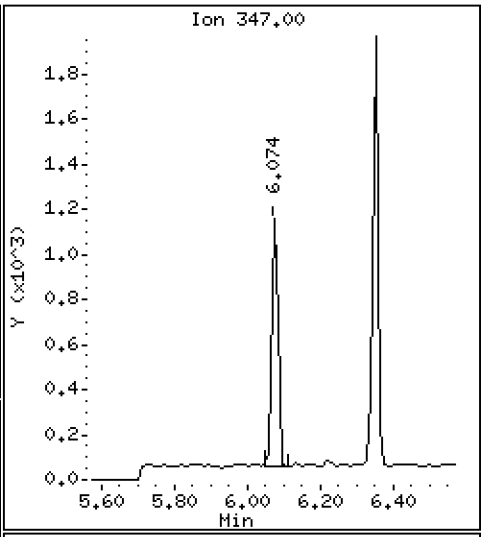
Column phase: ZB-5msi

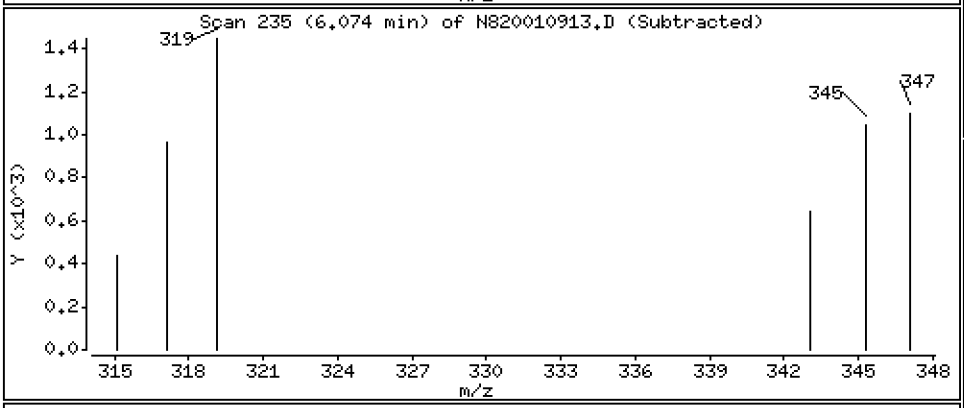
Column diameter: 0.25

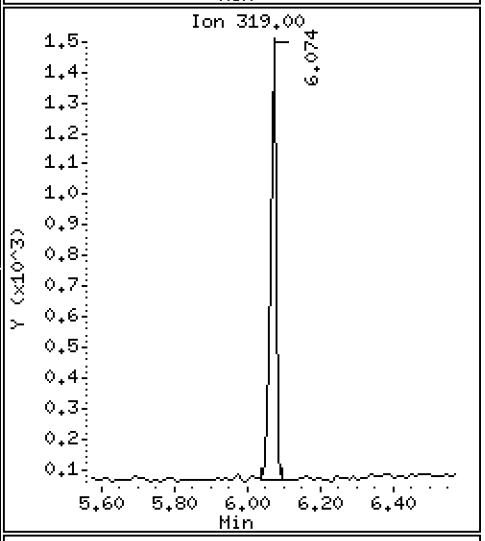
5 Dibutyl Tin (Hexyl)

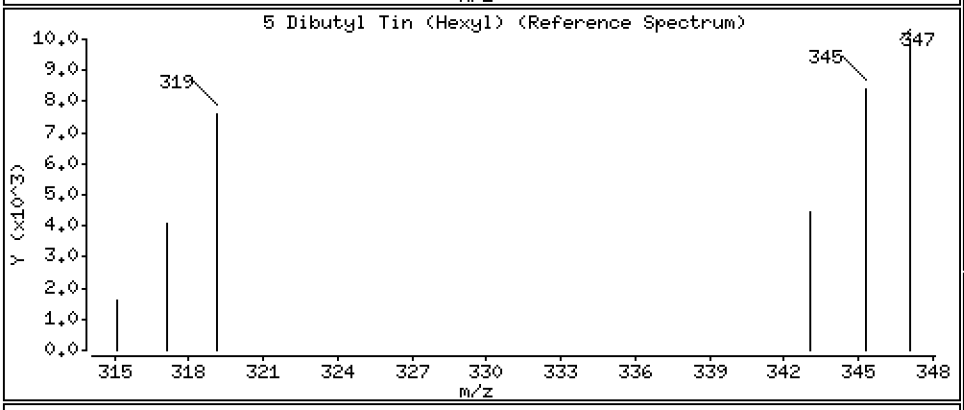
Concentration: 0.1715 ug/mL

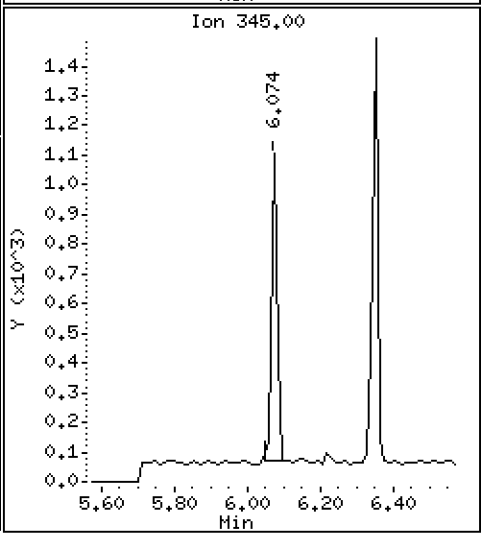


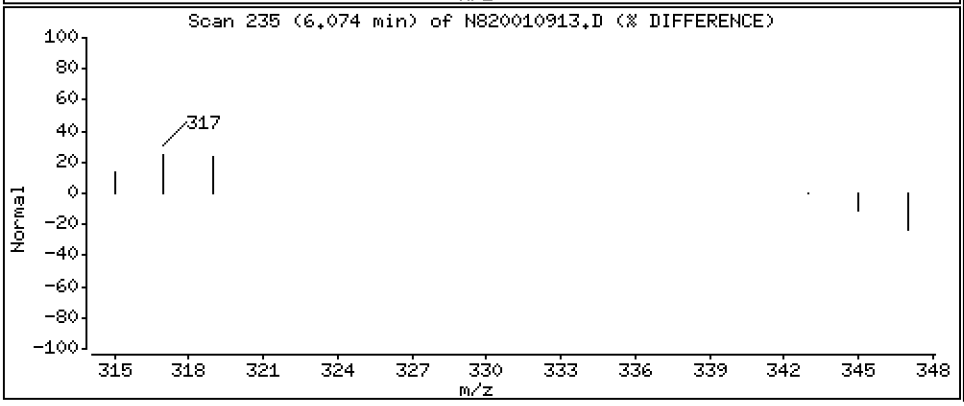












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010913.D

Date : 09-JAN-2020 18:10

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-MS1,

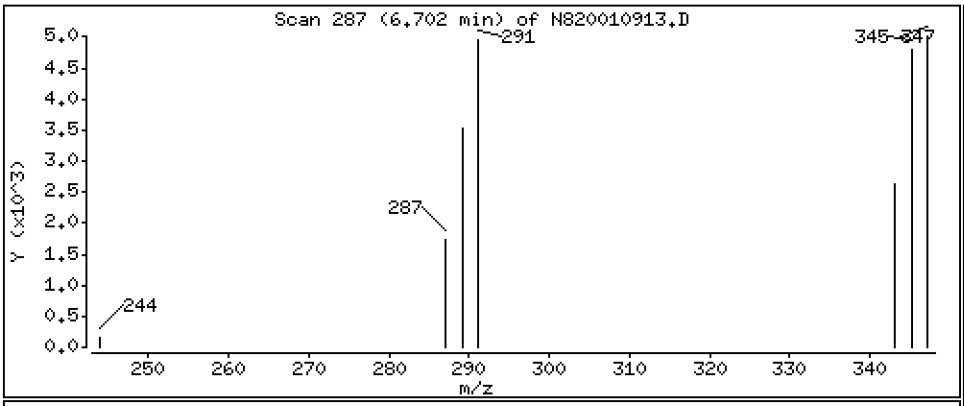
Operator: JZ

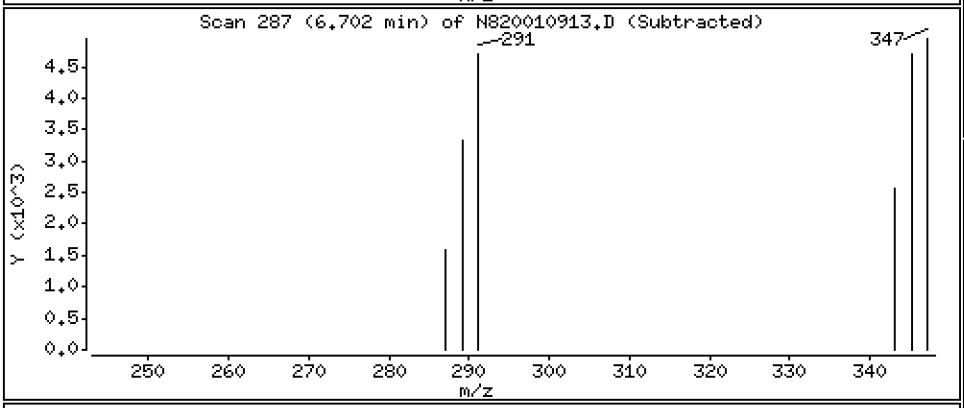
Column phase: ZB-5msi

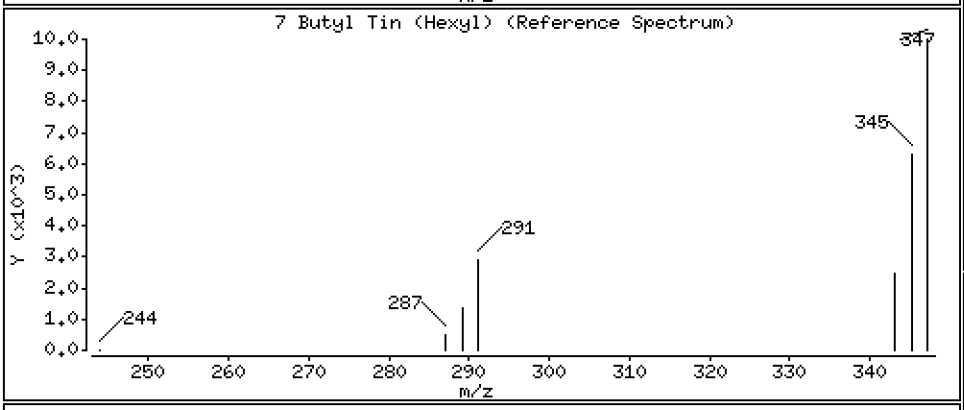
Column diameter: 0.25

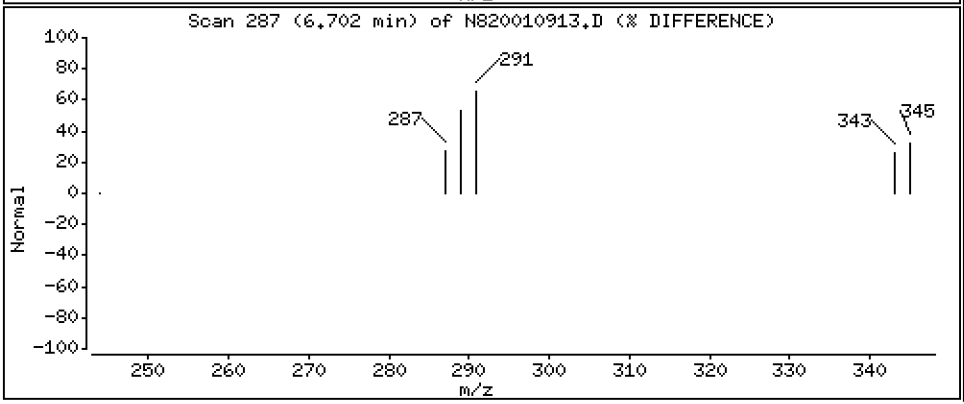
7 Butyl Tin (Hexyl)

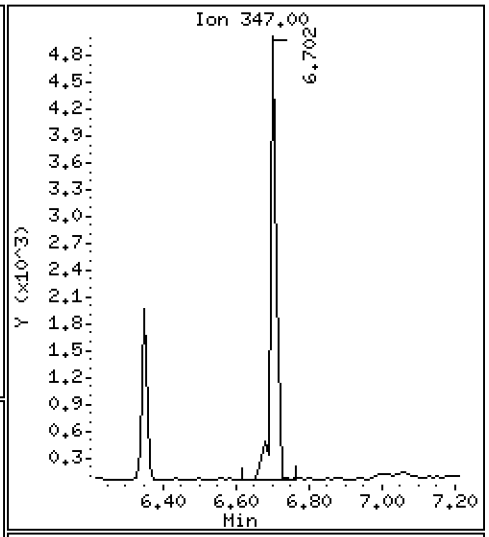
Concentration: 0.4089 ug/mL

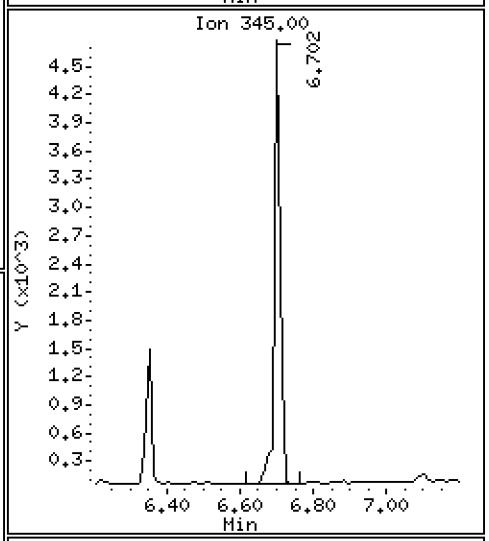


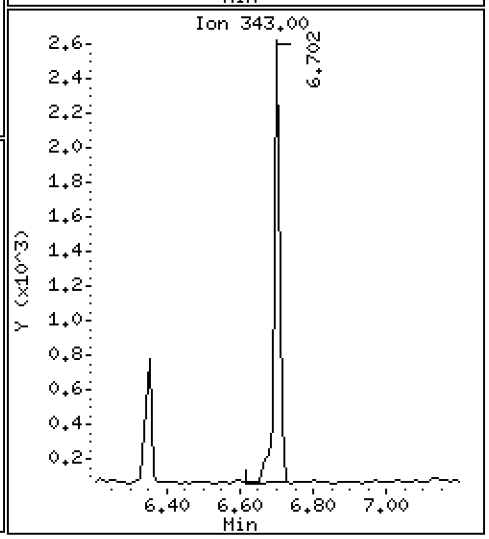












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010913.D
Lab Smp Id: BIA0050-MS1
Inj Date : 09-JAN-2020 18:10
Operator : JZ Inst ID: nt8.i
Smp Info : BIA0050-MS1,
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.440	4.419	(0.738)	2200	0.14153	0.1415
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.894)	1910	0.15239	0.1524
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	29772	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.073	(0.708)	1331	0.17151	0.1715
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	1735	0.16321	0.1632
	7 Butyl Tin (Hexyl)	347	6.702	6.714	(0.781)	5833	0.40892	0.4089
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	23237	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010913.D
Lab Smp Id: BIA0050-MS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	29772	-31.32
8 p-Terphenyl-d14	36156	18078	72312	23237	-35.73

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010913.D

Lab ID: BIA0050-MS1
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 18:10

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010914.D

Date : 09-JAN-2020 18:26

Client ID:

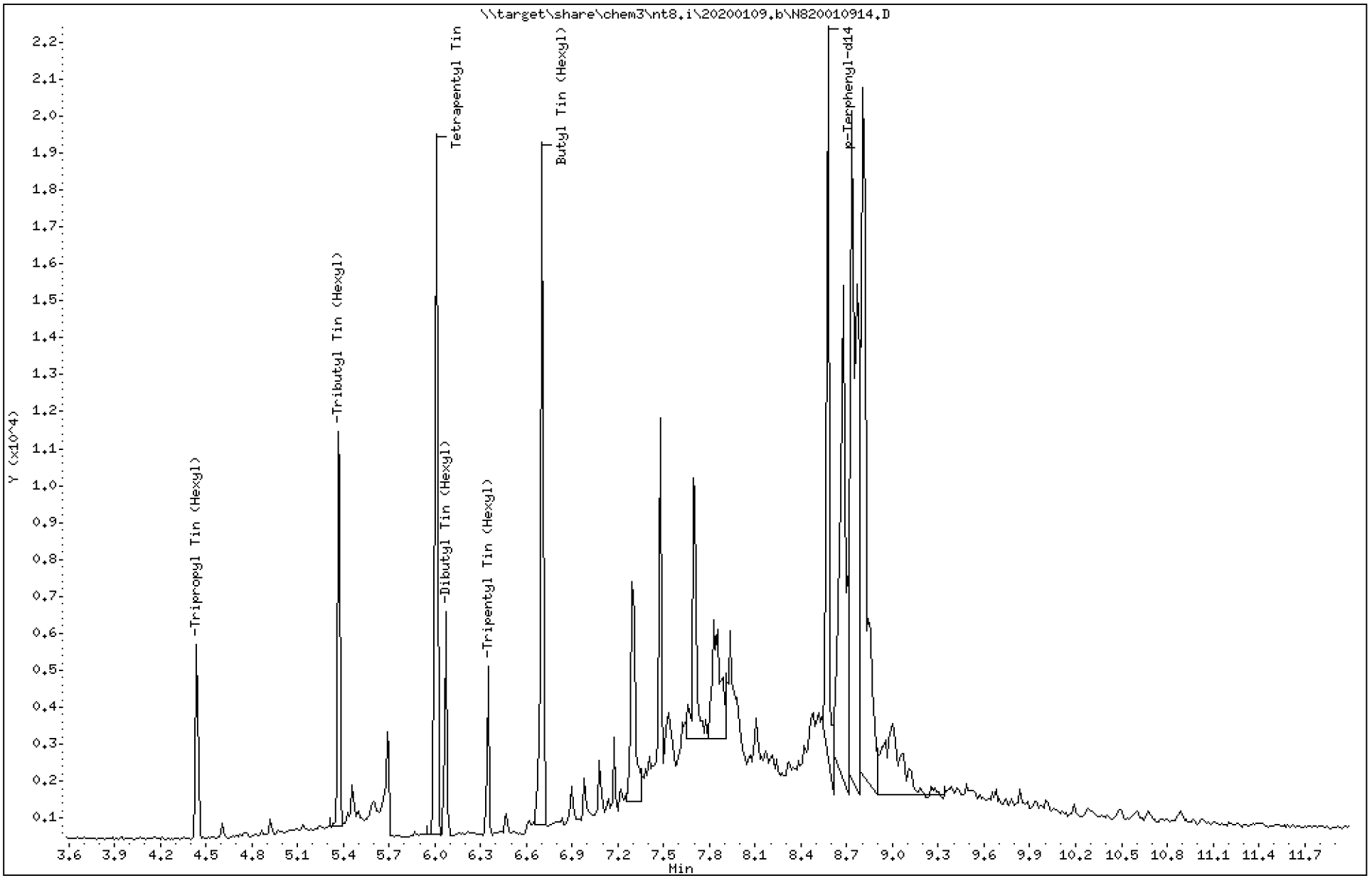
Sample Info: BIA0050-MSD1,

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 09-JAN-2020 18:26

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-MSD1,

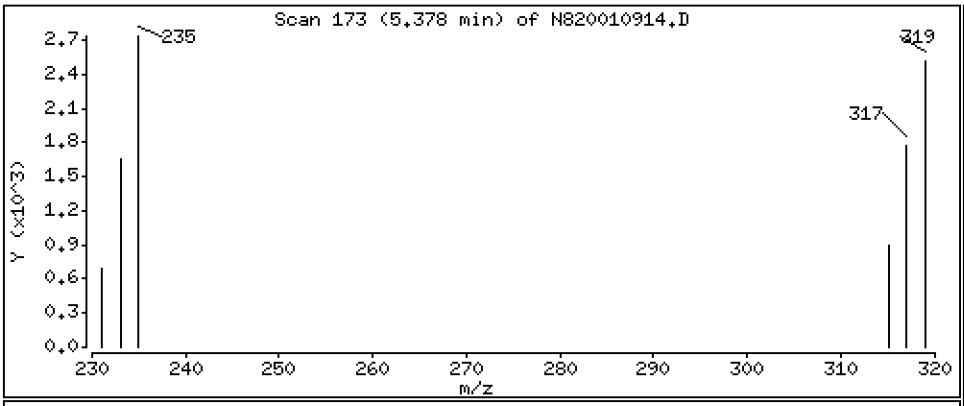
Operator: JZ

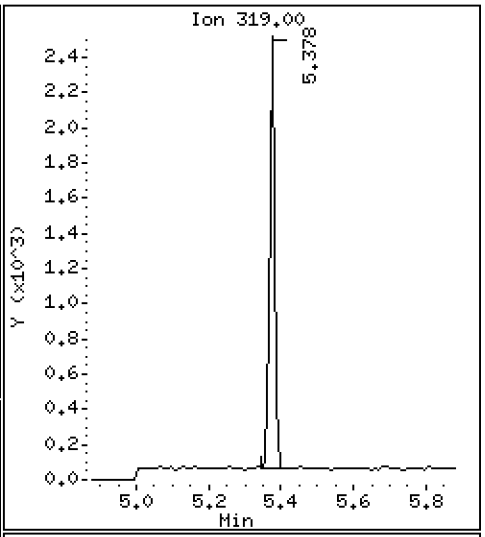
Column phase: ZB-5msi

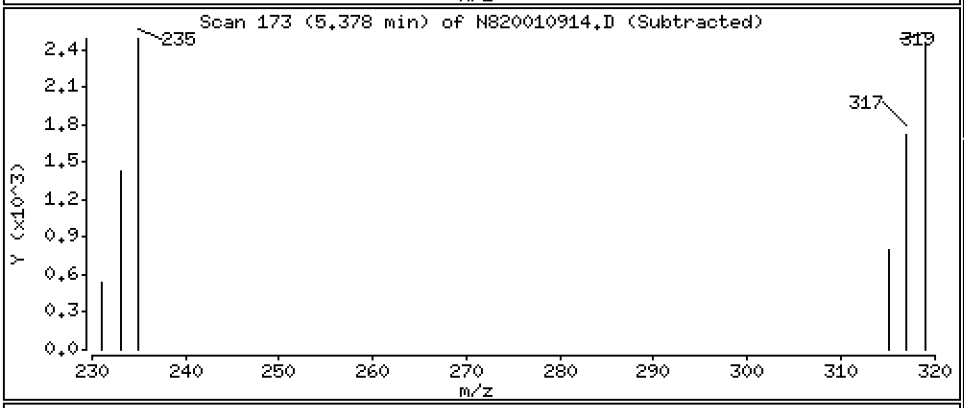
Column diameter: 0.25

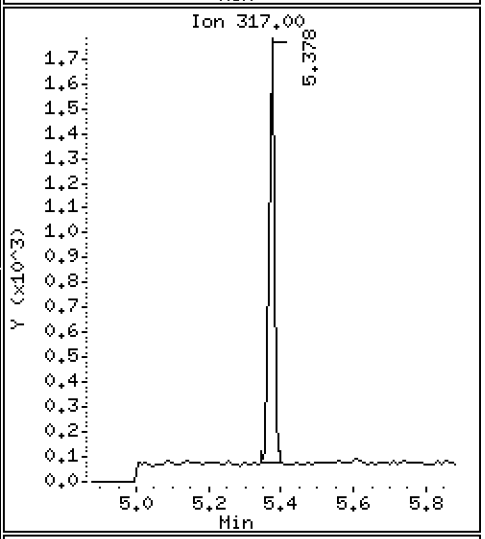
3 Tributyl Tin (Hexyl)

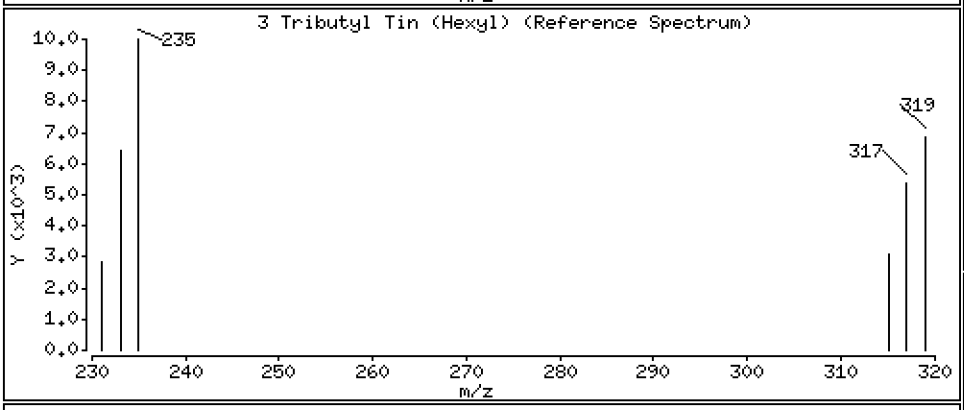
Concentration: 0.2446 ug/mL

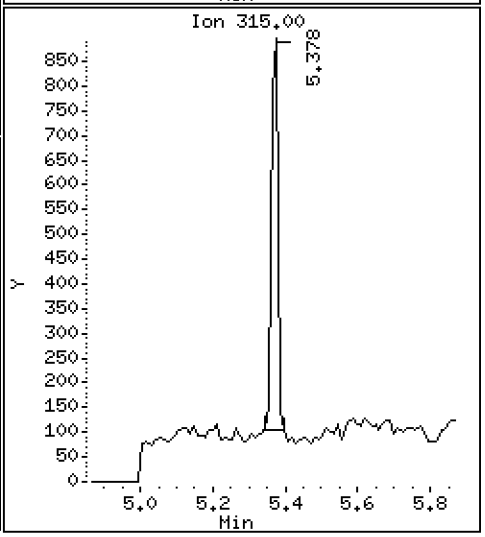


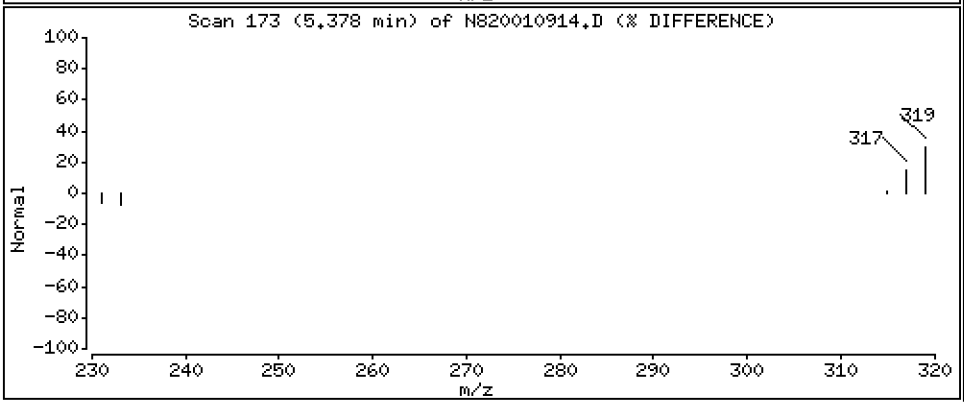












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010914.D

Date : 09-JAN-2020 18:26

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-MSD1,

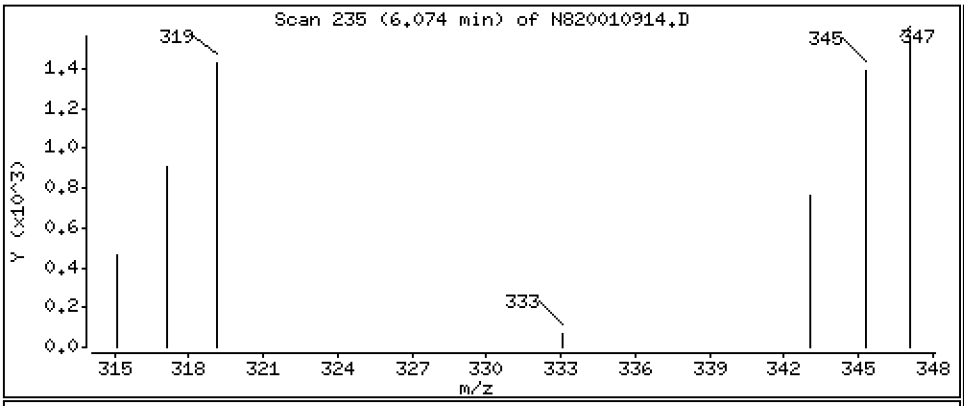
Operator: JZ

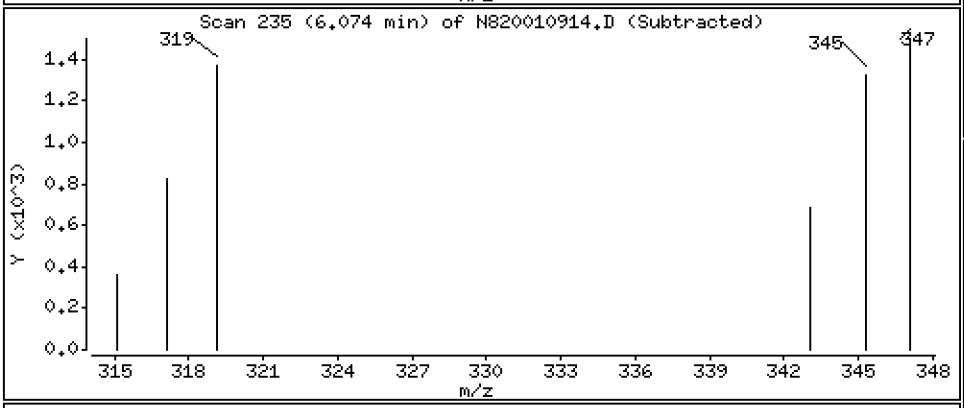
Column phase: ZB-5msi

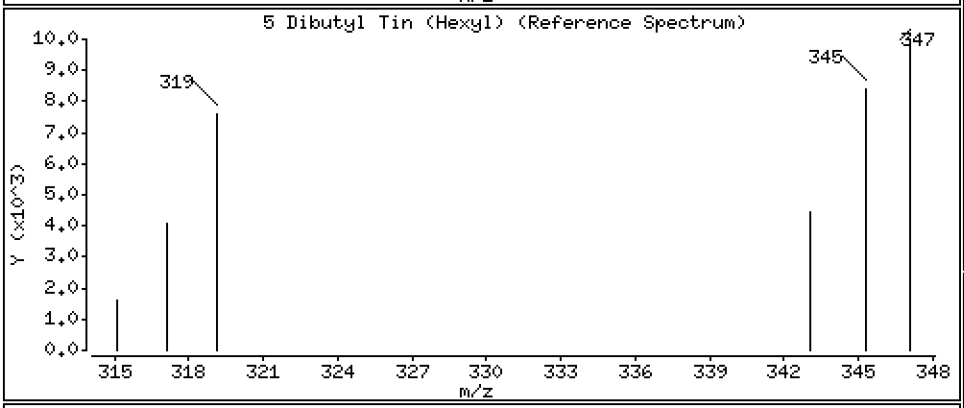
Column diameter: 0.25

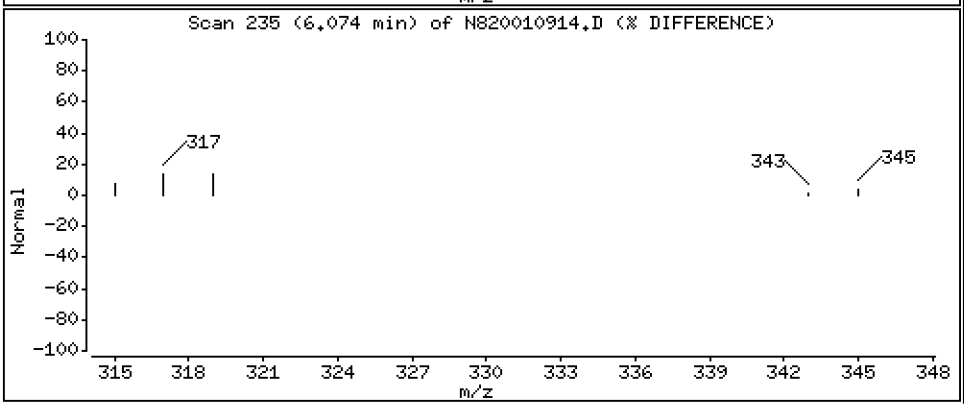
5 Dibutyl Tin (Hexyl)

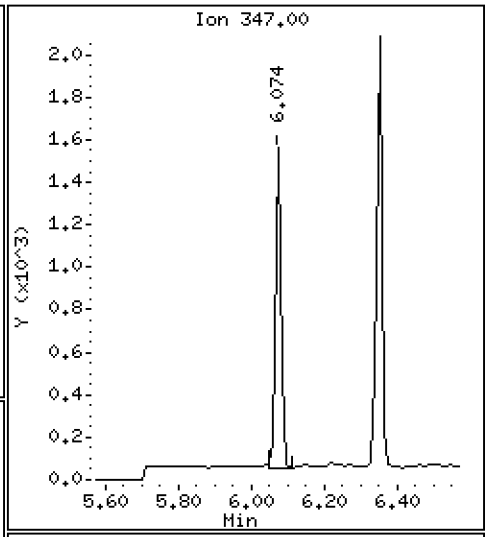
Concentration: 0.2517 ug/mL

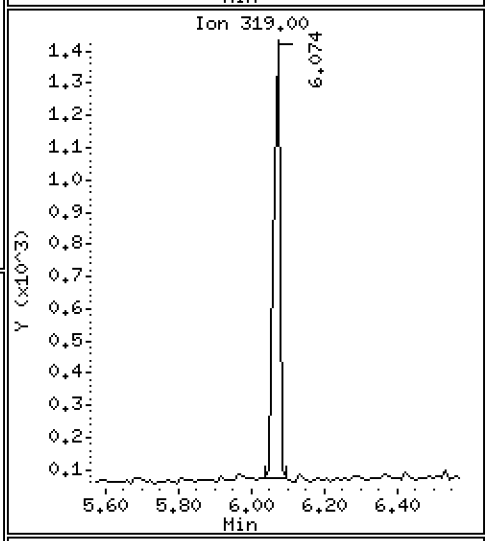


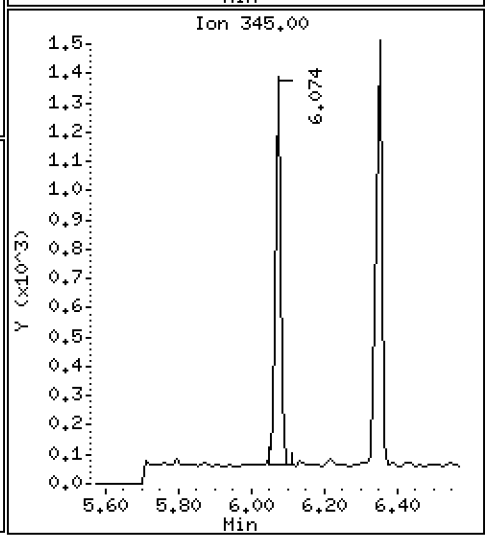












Data File: \\target\share\chem3\nt8.i\20200109.b\N820010914.D

Date : 09-JAN-2020 18:26

Client ID:

Instrument: nt8.i

Sample Info: BIA0050-MSD1,

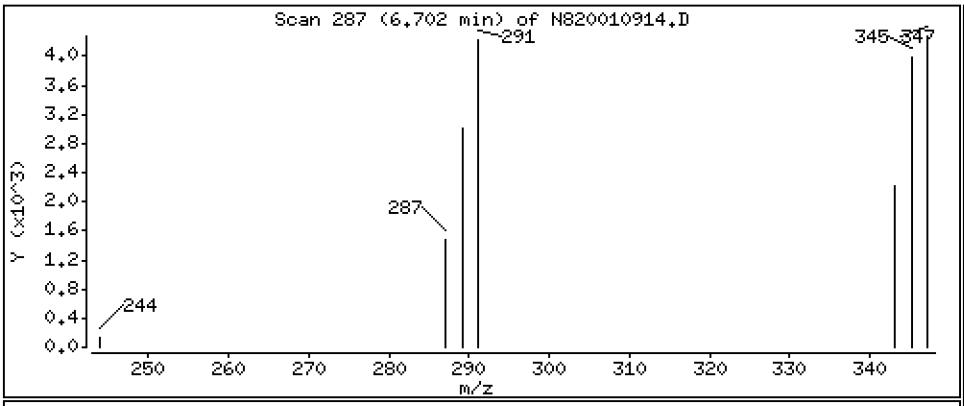
Operator: JZ

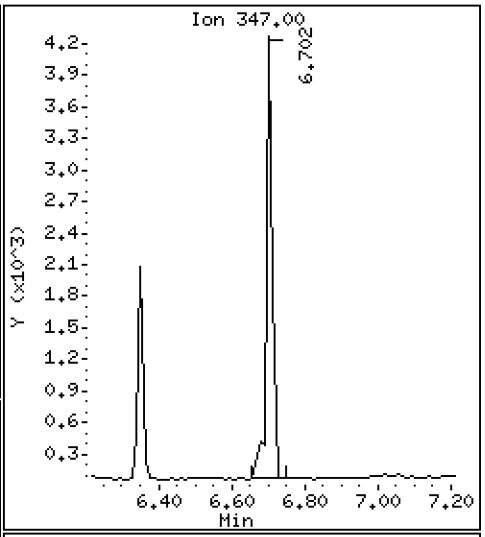
Column phase: ZB-5msi

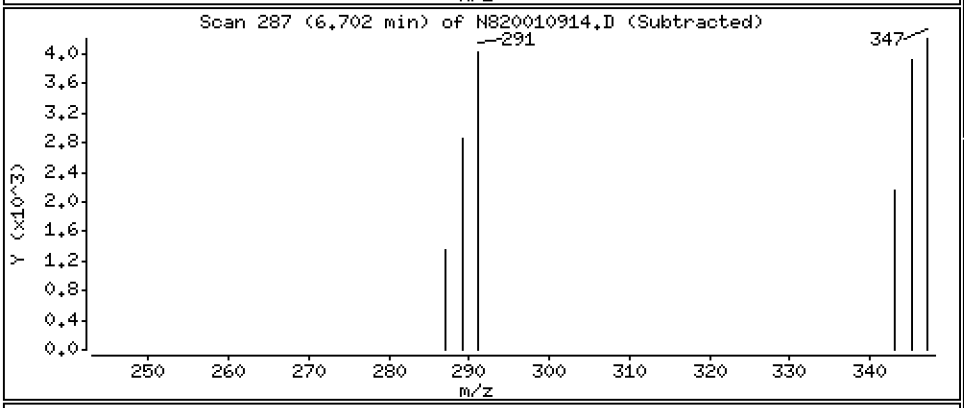
Column diameter: 0.25

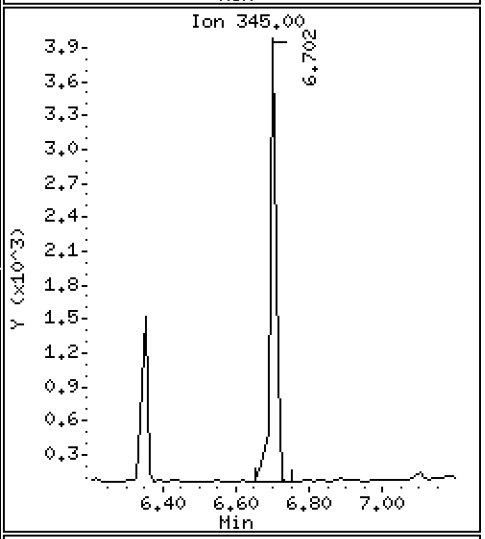
7 Butyl Tin (Hexyl)

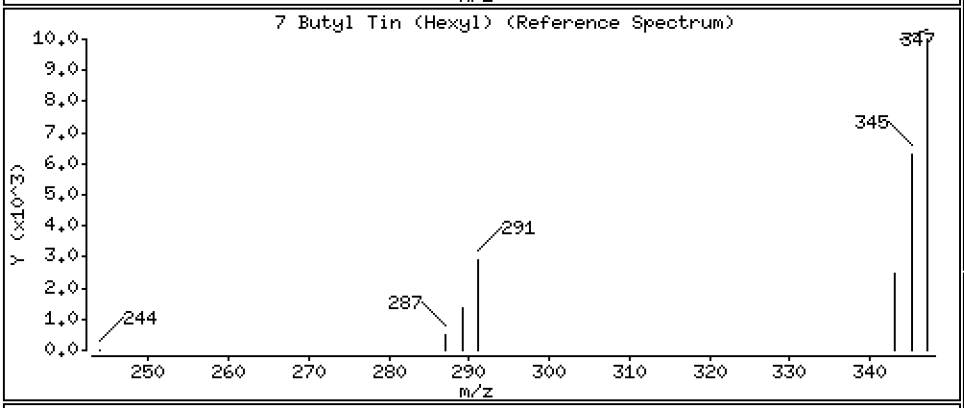
Concentration: 0.4425 ug/mL

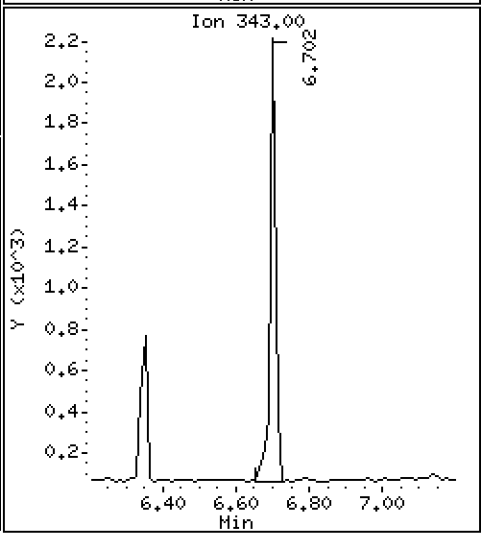


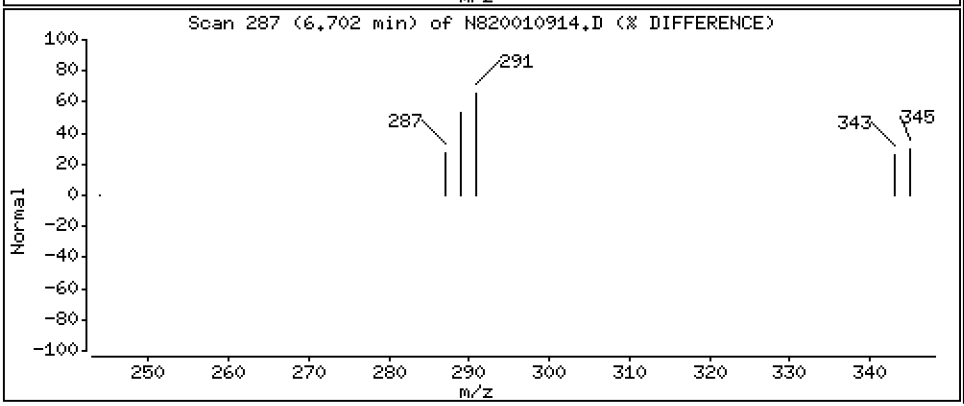












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010914.D
Lab Smp Id: BIA0050-MSD1
Inj Date : 09-JAN-2020 18:26
Operator : JZ Inst ID: nt8.i
Smp Info : BIA0050-MSD1,
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.440	4.419	(0.738)	2492	0.21672	0.2167
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.894)	2268	0.24462	0.2446
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	22023	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.073	(0.708)	1528	0.25169	0.2517
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	1906	0.22932	0.2293
	7 Butyl Tin (Hexyl)	347	6.702	6.714	(0.781)	4930	0.44255	0.4425
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	18133	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010914.D
Lab Smp Id: BIA0050-MSD1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 14:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	22023	-49.20
8 p-Terphenyl-d14	36156	18078	72312	18133	-49.85

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010914.D

Lab ID: BIA0050-MSD1
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 18:26

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010902.D

On Column LOD for nt8.i, 20200109.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM

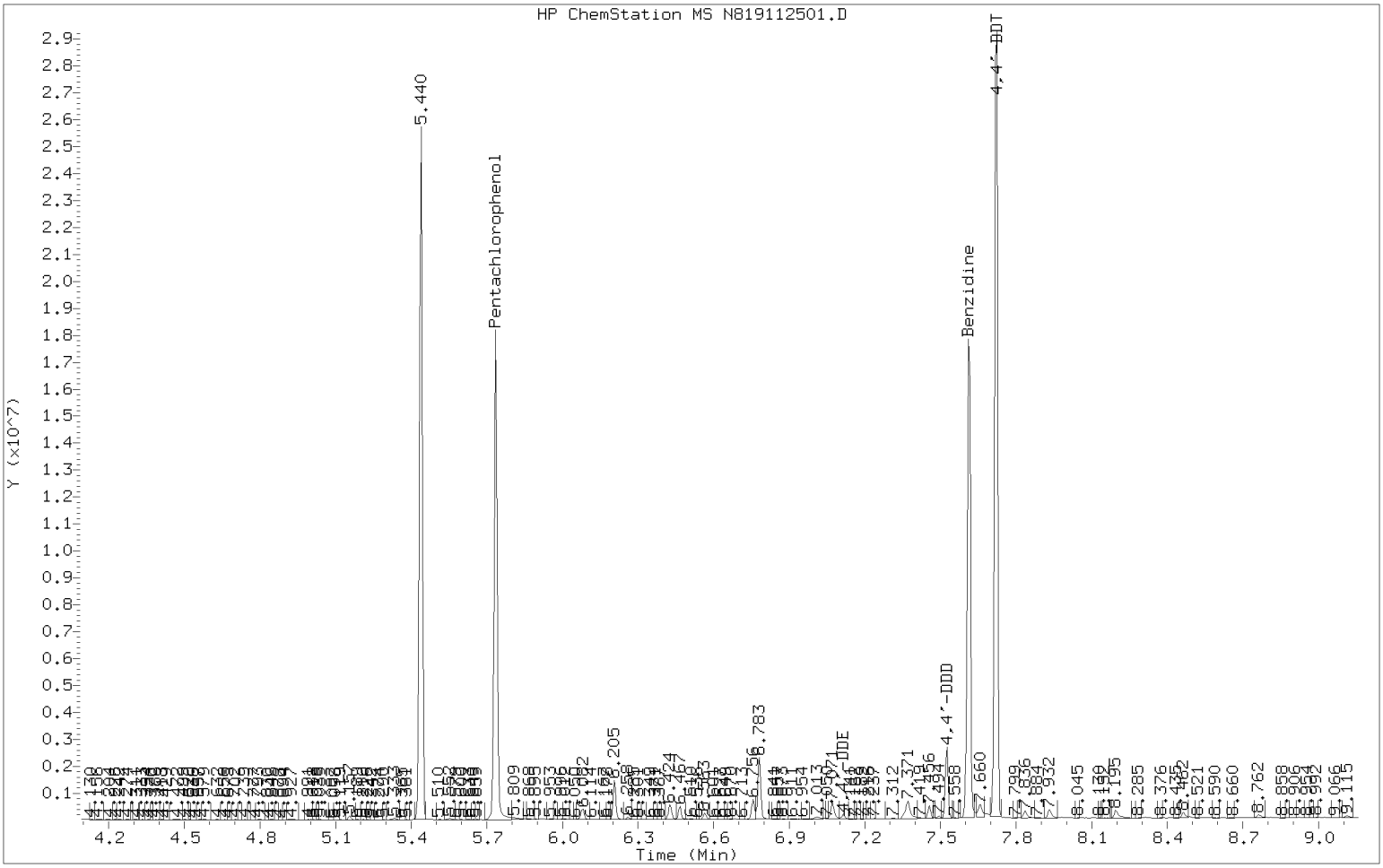
Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Lab File ID:	N819112501.D	Injection Date:	11/25/19
Instrument ID:	NT8	Injection Time:	13:20
Sequence:	SHK0340	Lab Sample ID:	SHK0340-TUN1

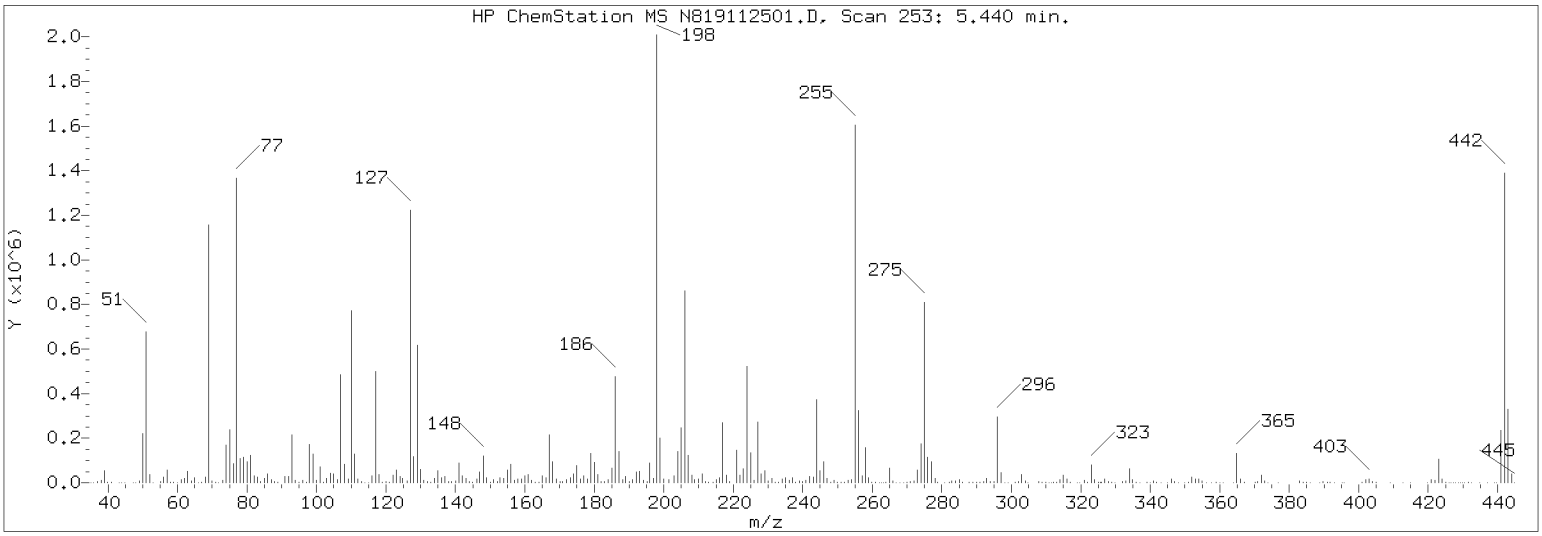
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	32.3	PASS
68	Less than 2% of 69	1.95	PASS
69	Less than 100% of 198	57.9	PASS
70	Less than 2% of 69	0.684	PASS
127	10 - 80% of 198	58.7	PASS
197	Less than 2% of 198	0.931	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.94	PASS
275	10 - 60% of 198	37	PASS
365	1 - 100% of 198	6.49	PASS
441	0.1 - 24% of 442	16	PASS
442	50 - 200% of 198	70	PASS
443	15 - 24% of 442	23.2	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHK0340-TUN1	N819112501.D	11/25/2019	13:20
Cal Standard	SHK0340-CAL1	N819112502.D	11/25/2019	14:05
Cal Standard	SHK0340-CAL2	N819112503.D	11/25/2019	14:24
Cal Standard	SHK0340-CAL3	N819112504.D	11/25/2019	14:41
Cal Standard	SHK0340-CAL4	N819112505.D	11/25/2019	14:57
Cal Standard	SHK0340-CAL5	N819112506.D	11/25/2019	15:13
Cal Standard	SHK0340-CAL6	N819112507.D	11/25/2019	15:29
Secondary Cal Check	SHK0340-SCV1	N819112508.D	11/25/2019	16:02

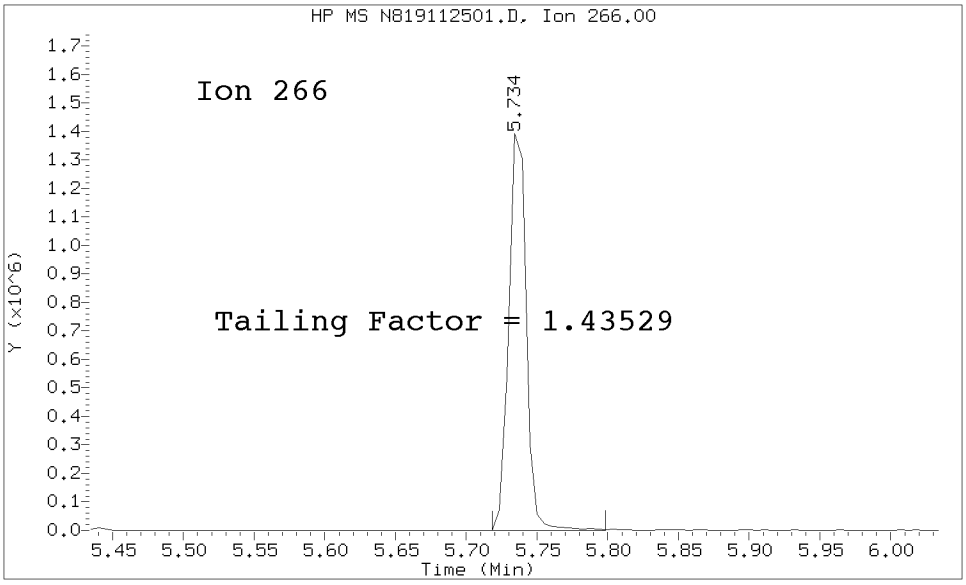
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: SHK0340-TUN1 DFTPP191125
Report Date: 11/26/2019 11:07



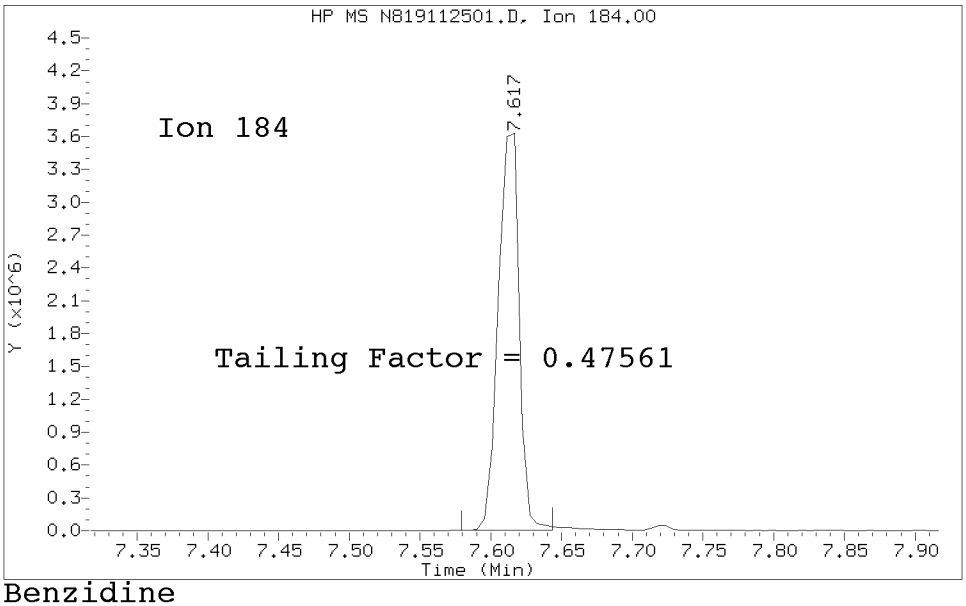


Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: DFTPP191125
Report Date: 11/26/2019 11:07



Pentachlorophenol
==========
Exp. RT = 5.740
Found RT = 5.734

Tail Factor = 1.435 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.649
Found RT = 7.617

Tail Factor = 0.476 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.4352941	2.000	PASS
Benzidine	0.4756098	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	2665847			N/A
4,4-DDE	11039	0.4	20.0	PASS
4,4-DDD	276865	9.4	20.0	PASS
4,4-DDD + DDE	287904	9.7	20.0	PASS

Tuning Sample, /nt8.i/20191125.b/tune.b/N819112501.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	32.32
68	Less than 2.00% of mass 69	1.13 (1.95)
69	Mass 69 relative abundance	57.92
70	Less than 2.00% of mass 69	0.40 (0.68)
127	10.00 - 80.00% of mass 198	58.73
197	Less than 2.00% of mass 198	0.93
199	5.00 - 9.00% of mass 198	8.94
275	10.00 - 60.00% of mass 198	37.03
365	Greater than 1.00% of mass 198	6.49
441	0.01 - 24.00% of mass 442	11.16 (15.96)
442	50.00 - 200.00% of mass 198	69.97
443	15.00 - 24.00% of mass 442	16.23 (23.19)

Data File: N819112501.D
Spectrum: Avg. Scans 252-254 (5.44), Background Scan 246
Location of Maximum: 198.00
Number of points: 375

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	626	135.00	37736	230.00	4922	327.00	12030
36.00	144	136.00	15737	231.00	13463	328.00	6275
37.00	3755	137.00	18752	232.00	2486	329.00	1169
38.00	8069	138.00	3357	233.00	2450	330.00	680
39.00	38488	139.00	2802	234.00	11367	332.00	4383
40.00	1484	140.00	6032	235.00	13102	333.00	6316
41.00	1680	141.00	60936	236.00	8647	334.00	39488
44.00	729	142.00	19568	237.00	13244	335.00	7991
45.00	897	143.00	12494	238.00	2079	336.00	1509
47.00	944	144.00	3142	239.00	6759	337.00	134
49.00	3440	145.00	1994	240.00	6045	339.00	1424
50.00	149056	146.00	11149	241.00	7937	340.00	651
51.00	470784	147.00	34896	242.00	19320	341.00	5688
52.00	27856	148.00	81744	243.00	20480	342.00	2468
53.00	632	149.00	16079	244.00	245184	343.00	294
55.00	2942	150.00	2914	245.00	35200	344.00	158
56.00	17960	151.00	10509	246.00	67528	345.00	690
57.00	41496	152.00	3106	247.00	13938	346.00	13112
58.00	1712	153.00	16194	248.00	2120	347.00	2669
59.00	1162	154.00	12242	249.00	9693	348.00	235
60.00	395	155.00	36624	250.00	2200	350.00	391
61.00	10309	156.00	51016	251.00	2784	351.00	1149
62.00	13807	157.00	7639	252.00	3442	352.00	17624
63.00	37936	158.00	10421	253.00	7032	353.00	11420
64.00	6462	159.00	8437	254.00	11213	354.00	12685
65.00	16672	160.00	21472	255.00	1161728	355.00	4026
66.00	1122	161.00	26800	256.00	211008	356.00	184
67.00	910	162.00	9367	257.00	18848	358.00	383
68.00	16432	163.00	2717	258.00	105328	359.00	1728
69.00	843712	164.00	2590	259.00	16904	360.00	847
70.00	5771	165.00	22792	260.00	2290	361.00	440
71.00	2019	166.00	16792	261.00	1854	362.00	283
72.00	771	167.00	147200	262.00	323	364.00	350
73.00	9151	168.00	66008	263.00	1063	365.00	94528
74.00	118952	169.00	10585	264.00	2608	366.00	11647
75.00	169984	170.00	4743	265.00	40992	367.00	1106
76.00	61648	171.00	4390	266.00	5410	369.00	186
77.00	1003328	172.00	10914	267.00	1005	370.00	1987
78.00	80792	173.00	14767	268.00	852	371.00	3809
79.00	86120	174.00	26472	269.00	102	372.00	24528
80.00	66544	175.00	54192	270.00	1932	373.00	6223
81.00	90792	176.00	11172	271.00	3567	374.00	805
82.00	21240	177.00	21216	272.00	5868	377.00	766
83.00	15738	178.00	10704	273.00	39968	378.00	211
84.00	1948	179.00	87072	274.00	114344	382.00	158
85.00	12601	180.00	64008	275.00	539328	383.00	5940
86.00	26568	181.00	24904	276.00	77096	384.00	2430
87.00	9024	182.00	4401	277.00	69696	385.00	1129
88.00	4523	183.00	3134	278.00	13490	386.00	120

89.00	2828	184.00	9505	279.00	3197	389.00	427
91.00	20400	185.00	43600	280.00	102	390.00	2592
92.00	19232	186.00	321280	281.00	110	391.00	2247
93.00	148160	187.00	96200	282.00	1249	392.00	1895
94.00	8559	188.00	9359	283.00	7269	393.00	805
95.00	2144	189.00	22368	284.00	4713	395.00	560
96.00	6151	190.00	4806	285.00	9367	396.00	87
97.00	2355	191.00	10540	286.00	2361	397.00	138
98.00	119720	192.00	30408	288.00	1350	400.00	514
99.00	84824	193.00	33808	289.00	2254	401.00	1201
100.00	6622	194.00	8263	290.00	1865	402.00	9237
101.00	47352	195.00	2253	291.00	1453	403.00	11777
102.00	2520	196.00	53936	292.00	2892	404.00	5313
103.00	14113	197.00	13560	293.00	13074	405.00	1337
104.00	28616	198.00	1456640	294.00	4312	409.00	117
105.00	29344	199.00	130296	295.00	4104	410.00	470
106.00	9425	200.00	11245	296.00	212672	412.00	131
107.00	345152	201.00	8148	297.00	30992	413.00	129
108.00	55792	203.00	19840	298.00	1110	415.00	781
109.00	9729	204.00	90536	299.00	538	420.00	292
110.00	522560	205.00	158720	301.00	2624	421.00	10344
111.00	91224	206.00	593728	302.00	3762	422.00	7981
112.00	12176	207.00	82288	303.00	25176	423.00	66952
113.00	4187	208.00	27504	304.00	6208	424.00	12029
114.00	1266	209.00	11073	305.00	847	425.00	2117
115.00	1326	210.00	11074	306.00	134	426.00	896
116.00	20880	211.00	28160	308.00	3218	427.00	880
117.00	363136	212.00	3946	309.00	2406	428.00	814
118.00	25088	213.00	2789	310.00	2322	429.00	788
119.00	2496	214.00	1069	311.00	1013	430.00	899
120.00	4774	215.00	10147	312.00	1001	431.00	1312
121.00	1371	216.00	16400	313.00	2569	432.00	444
122.00	25192	217.00	185856	314.00	9613	433.00	745
123.00	38528	218.00	23880	315.00	24688	434.00	509
124.00	18168	219.00	2394	316.00	11937	435.00	200
125.00	14752	220.00	2510	317.00	2184	437.00	303
126.00	4943	221.00	85632	318.00	248	439.00	363
127.00	855424	222.00	22888	319.00	317	440.00	263
128.00	79672	223.00	43032	320.00	361	441.00	162624
129.00	419968	224.00	360192	321.00	6533	442.00	1019264
130.00	37672	225.00	91800	322.00	2623	443.00	236416
131.00	7802	226.00	9821	323.00	57064	444.00	25696
132.00	3915	227.00	191872	324.00	9267	445.00	1269
133.00	1227	228.00	26944	325.00	1525	484.00	118
134.00	14724	229.00	39200	326.00	961		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Lab File ID:	N819110230.D	Injection Date:	12/02/19
Instrument ID:	NT8	Injection Time:	17:36
Sequence:	SHL0025	Lab Sample ID:	SHL0025-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	31	PASS
68	Less than 2% of 69	1.89	PASS
69	Less than 100% of 198	61.9	PASS
70	Less than 2% of 69	0.601	PASS
127	10 - 80% of 198	56.5	PASS
197	Less than 2% of 198	1.07	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.17	PASS
275	10 - 60% of 198	33.6	PASS
365	1 - 100% of 198	6.18	PASS
441	0.1 - 24% of 442	14.9	PASS
442	50 - 200% of 198	58.3	PASS
443	15 - 24% of 442	20.9	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM

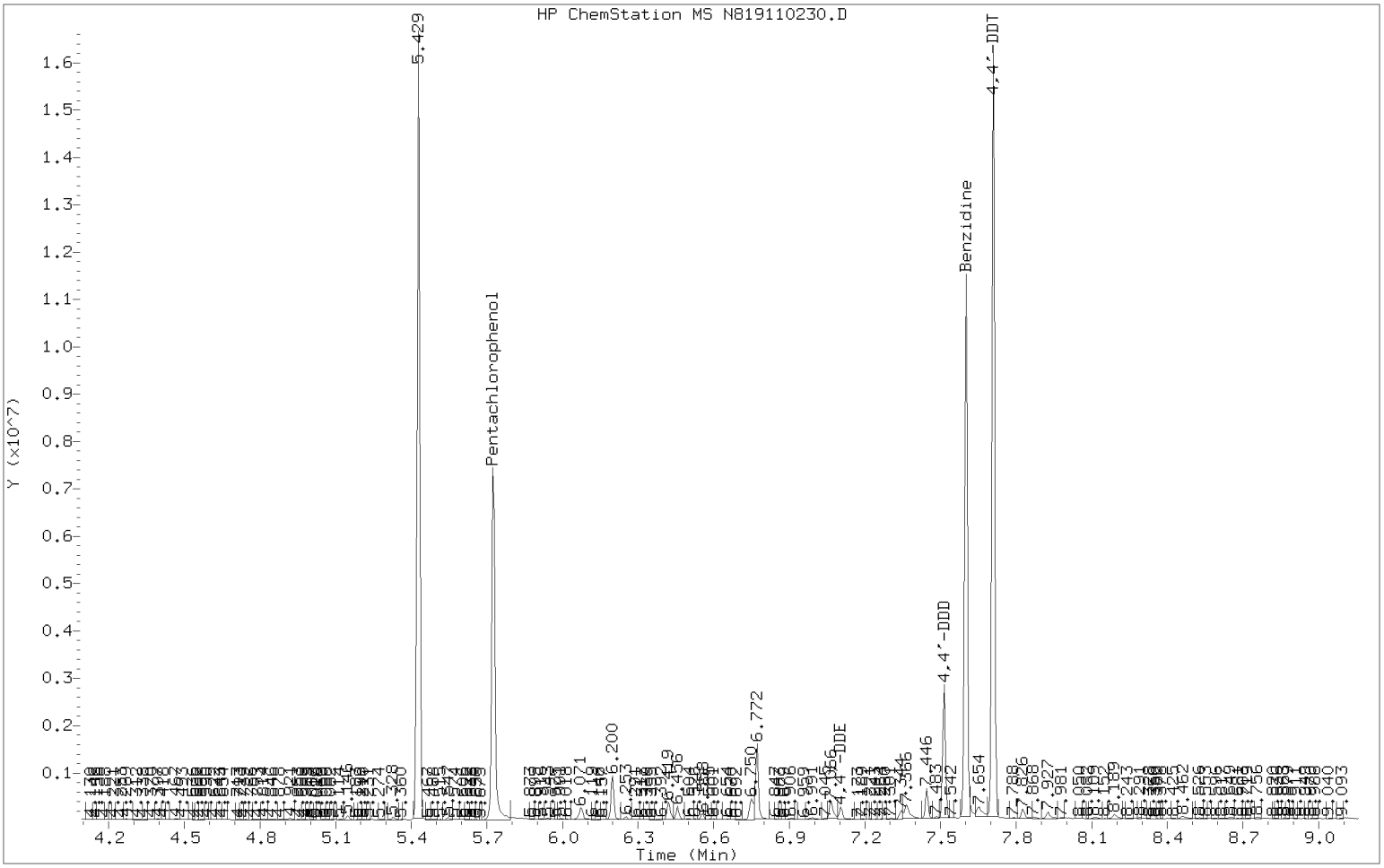
Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Lab File ID:	N819110230.D	Injection Date:	12/02/19
Instrument ID:	NT8	Injection Time:	17:36
Sequence:	SHL0025	Lab Sample ID:	SHL0025-TUN1

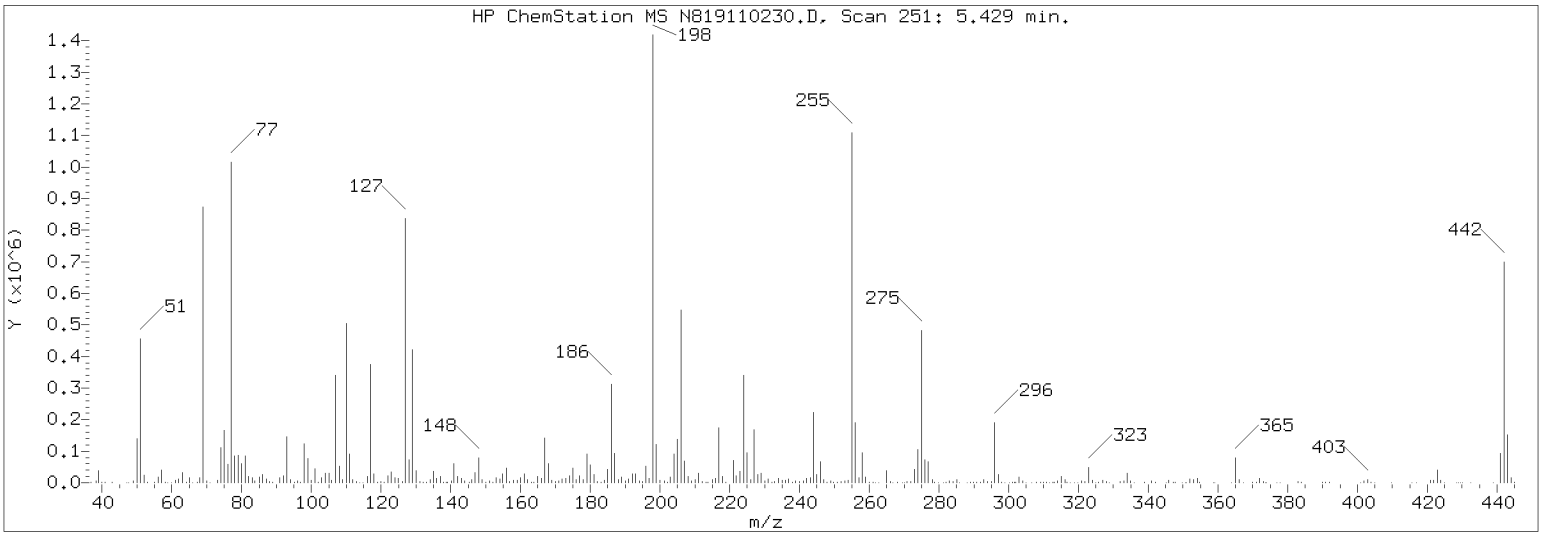
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	31	PASS
68	Less than 2% of 69	1.89	PASS
69	Less than 100% of 198	61.9	PASS
70	Less than 2% of 69	0.601	PASS
127	10 - 80% of 198	56.5	PASS
197	Less than 2% of 198	1.07	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.17	PASS
275	10 - 60% of 198	33.6	PASS
365	1 - 100% of 198	6.18	PASS
441	0.1 - 24% of 442	14.9	PASS
442	50 - 200% of 198	58.3	PASS
443	15 - 24% of 442	20.9	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHL0025-TUN1	N819110230.D	12/02/2019	17:36
Initial Cal Check	SHL0025-ICV1	N819120231.D	12/02/2019	17:52
Blank	BHK0576-BLK1	N819120232.D	12/02/2019	18:09
LCS	BHK0576-BS1	N819120233.D	12/02/2019	18:30
ZZZZZ	19K0228-01	N819120234.D	12/02/2019	18:47
ZZZZZ	19K0228-03	N819120238.D	12/02/2019	19:52
ZZZZZ	19K0228-04	N819120239.D	12/02/2019	20:08
ZZZZZ	19K0228-05	N819120240.D	12/02/2019	20:24
ZZZZZ	19K0228-06	N819120241.D	12/02/2019	20:41
ZZZZZ	19K0228-07	N819120242.D	12/02/2019	20:57
ZZZZZ	19K0228-11	N819120244.D	12/02/2019	21:29
ZZZZZ	19K0228-12	N819120245.D	12/02/2019	21:46
ZZZZZ	19K0228-13	N819120246.D	12/02/2019	22:02
ZZZZZ	19K0228-14	N819120247.D	12/02/2019	22:18
ZZZZZ	19K0228-15	N819120248.D	12/02/2019	22:34
ZZZZZ	19K0228-16	N819120249.D	12/02/2019	22:51
Blank	BHK0747-BLK1	N819120250.D	12/02/2019	23:07
PDI-FB-1911191346	19K0394-01	N819120252.D	12/02/2019	23:40
Matrix Spike	BHK0747-MS1	N819120253.D	12/02/2019	23:56
Matrix Spike Dup	BHK0747-MSD1	N819120254.D	12/03/2019	0:12
PDI-RB-1911191254	19K0394-02	N819120255.D	12/03/2019	0:28
Calibration Check	SHL0025-CCV1	N819120256.D	12/03/2019	0:45

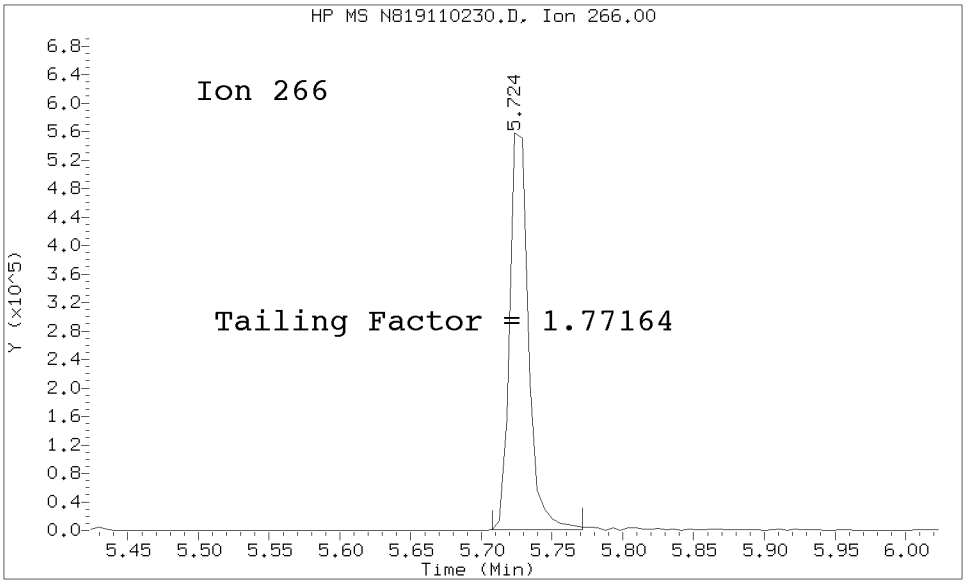
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191202A.b/tune.b/N819110230.D/N819110230.D
Method Used: \20191202A.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 02-DEC-2019 17:36 Operator: JZ
Sample Info: SHL0025-TUN1 DFTPP191202A
Report Date: 12/03/2019 09:03



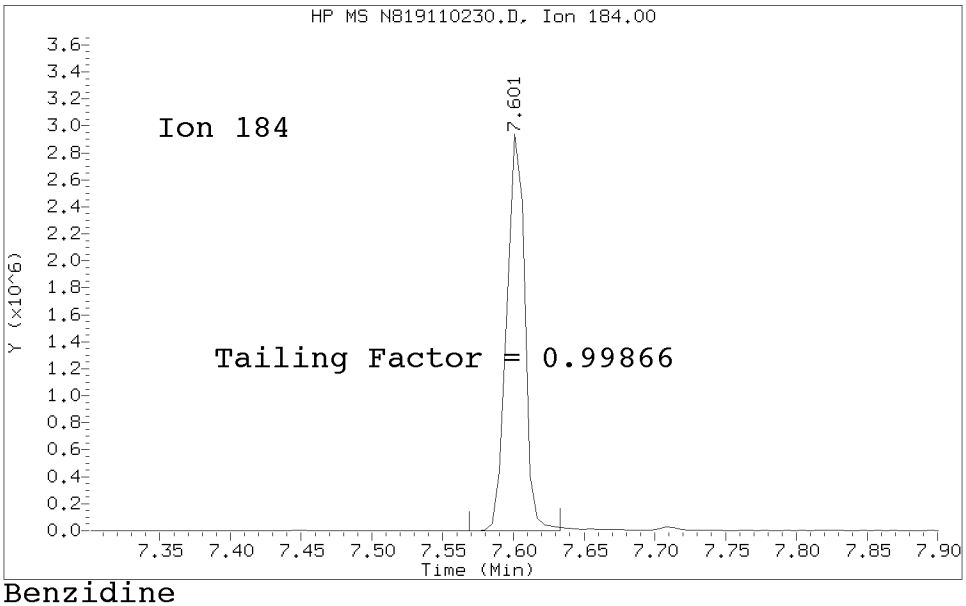


Datafile Analyzed: /20191202A.b/tune.b/N819110230.D/N819110230.D
Method Used: \20191202A.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 02-DEC-2019 17:36 Operator: JZ
Sample Info: DFTPP191202A
Report Date: 12/03/2019 09:03



Pentachlorophenol
==========
Exp. RT = 5.729
Found RT = 5.724

Tail Factor = 1.772 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.606
Found RT = 7.601

Tail Factor = 0.999 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.7716390	2.000	PASS
Benzidine	0.9986649	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1631022			N/A
4,4-DDE	16906	1.0	20.0	PASS
4,4-DDD	306399	15.8	20.0	PASS
4,4-DDD + DDE	323305	16.5	20.0	PASS

Tuning Sample, /nt8.i/20191202A.b/tune.b/N819110230.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	31.05
68	Less than 2.00% of mass 69	1.17 (1.89)
69	Mass 69 relative abundance	61.86
70	Less than 2.00% of mass 69	0.37 (0.60)
127	10.00 - 80.00% of mass 198	56.50
197	Less than 2.00% of mass 198	1.07
199	5.00 - 9.00% of mass 198	8.17
275	10.00 - 60.00% of mass 198	33.59
365	Greater than 1.00% of mass 198	6.18
441	0.01 - 24.00% of mass 442	8.66 (14.86)
442	50.00 - 200.00% of mass 198	58.28
443	15.00 - 24.00% of mass 442	12.16 (20.87)

Data File: N819110230.D
Spectrum: Avg. Scans 250-252 (5.43), Background Scan 244
Location of Maximum: 198.00
Number of points: 353

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	111	128.00	49872	217.00	126568	307.00	326
36.00	283	129.00	284672	218.00	14169	308.00	3077
37.00	2236	130.00	26744	219.00	1864	309.00	1606
38.00	4024	131.00	4238	220.00	1361	310.00	1443
39.00	23544	132.00	2307	221.00	41656	311.00	604
40.00	1402	133.00	1613	222.00	15830	312.00	721
41.00	885	134.00	8432	223.00	25920	313.00	1138
43.00	712	135.00	22792	224.00	236352	314.00	6823
44.00	259	136.00	10687	225.00	61976	315.00	16440
45.00	272	137.00	13576	226.00	5918	316.00	6886
47.00	252	138.00	2477	227.00	122064	317.00	1762
48.00	425	139.00	2026	228.00	17288	319.00	675
49.00	1895	140.00	4107	229.00	23104	321.00	4363
50.00	94400	141.00	40720	230.00	2977	322.00	2659
51.00	312832	142.00	12055	231.00	7729	323.00	30736
52.00	16760	143.00	8280	232.00	1633	324.00	5519
53.00	1174	144.00	2949	233.00	2566	325.00	481
55.00	2598	145.00	1465	234.00	8168	326.00	691
56.00	10779	146.00	7106	235.00	7294	327.00	6706
57.00	25960	147.00	21288	236.00	6002	328.00	3887
58.00	1010	148.00	55232	237.00	8199	329.00	254
59.00	303	149.00	10176	238.00	1388	332.00	1967
60.00	86	150.00	1989	239.00	5018	333.00	3814
61.00	5614	151.00	4877	240.00	3457	334.00	21328
62.00	7684	152.00	2016	241.00	5416	335.00	5426
63.00	21824	153.00	12262	242.00	11802	336.00	320
64.00	2819	154.00	9311	243.00	12807	339.00	712
65.00	11361	155.00	20208	244.00	157888	340.00	302
66.00	595	156.00	29784	245.00	18464	341.00	4371
67.00	978	157.00	4988	246.00	49640	342.00	1287
68.00	11768	158.00	6111	247.00	7409	345.00	369
69.00	623296	159.00	6413	248.00	2137	346.00	6255
70.00	3744	160.00	11427	249.00	5584	347.00	2027
71.00	251	161.00	18216	250.00	1596	348.00	684
73.00	4410	162.00	6194	251.00	2017	350.00	1003
74.00	83656	163.00	1403	252.00	2559	351.00	442
75.00	117432	164.00	1273	253.00	4388	352.00	10246
76.00	41784	165.00	17696	254.00	5820	353.00	6670
77.00	728896	166.00	9528	255.00	785408	354.00	9475
78.00	60528	167.00	96000	256.00	131648	355.00	1588
79.00	59944	168.00	43072	257.00	10612	357.00	132
80.00	40296	169.00	6002	258.00	67656	359.00	723
81.00	59704	170.00	3046	259.00	11876	364.00	248
82.00	12674	171.00	3981	260.00	2680	365.00	62304
83.00	11840	172.00	8918	261.00	1262	366.00	7822
84.00	1935	173.00	9754	262.00	218	367.00	494
85.00	11405	174.00	15564	263.00	530	370.00	1735
86.00	18272	175.00	31792	264.00	984	371.00	1443
87.00	8013	176.00	7349	265.00	26192	372.00	12996

88.00	2633	177.00	14324	266.00	3028	373.00	3420
89.00	1750	178.00	6159	267.00	263	374.00	414
90.00	144	179.00	63904	268.00	471	377.00	227
91.00	11760	180.00	39976	269.00	203	378.00	373
92.00	14242	181.00	17880	270.00	841	383.00	3483
93.00	109112	182.00	3045	271.00	2726	384.00	1402
94.00	5542	183.00	1797	272.00	3148	385.00	114
95.00	1260	184.00	5924	273.00	26400	389.00	151
96.00	2755	185.00	31096	274.00	67120	390.00	1398
97.00	1080	186.00	213632	275.00	338496	391.00	1254
98.00	82128	187.00	64936	276.00	45960	392.00	1509
99.00	52952	188.00	6912	277.00	46272	401.00	675
100.00	5160	189.00	15952	278.00	7424	402.00	4686
101.00	26872	190.00	2740	279.00	1725	403.00	7596
102.00	1747	191.00	6784	280.00	478	404.00	2401
103.00	8933	192.00	18624	281.00	527	405.00	379
104.00	19592	193.00	19848	282.00	972	410.00	240
105.00	19808	194.00	5349	283.00	4146	416.00	559
106.00	5544	195.00	2566	284.00	2750	417.00	288
107.00	235840	196.00	32432	285.00	7036	421.00	5020
108.00	33160	197.00	10760	286.00	895	422.00	5775
109.00	7149	198.00	1007616	288.00	330	423.00	35512
110.00	339968	199.00	82296	289.00	1275	424.00	7178
111.00	60040	200.00	5626	290.00	1232	425.00	489
112.00	8016	201.00	3679	291.00	1009	428.00	357
113.00	3279	202.00	1224	292.00	1833	429.00	421
114.00	683	203.00	13126	293.00	6728	430.00	467
115.00	1347	204.00	64176	294.00	2261	431.00	389
116.00	14513	205.00	96776	295.00	2012	432.00	293
117.00	263552	206.00	386368	296.00	139520	434.00	210
118.00	17536	207.00	48176	297.00	19432	439.00	230
119.00	1846	208.00	14056	298.00	994	440.00	110
120.00	2830	209.00	5027	299.00	153	441.00	87264
121.00	637	210.00	6787	300.00	145	442.00	587264
122.00	16648	211.00	18696	301.00	2506	443.00	122576
123.00	24384	212.00	2675	302.00	2189	444.00	12514
124.00	11313	213.00	1732	303.00	14697	445.00	988
125.00	7814	214.00	629	304.00	4301		
126.00	2675	215.00	5406	305.00	726		
127.00	569280	216.00	11552	306.00	246		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM

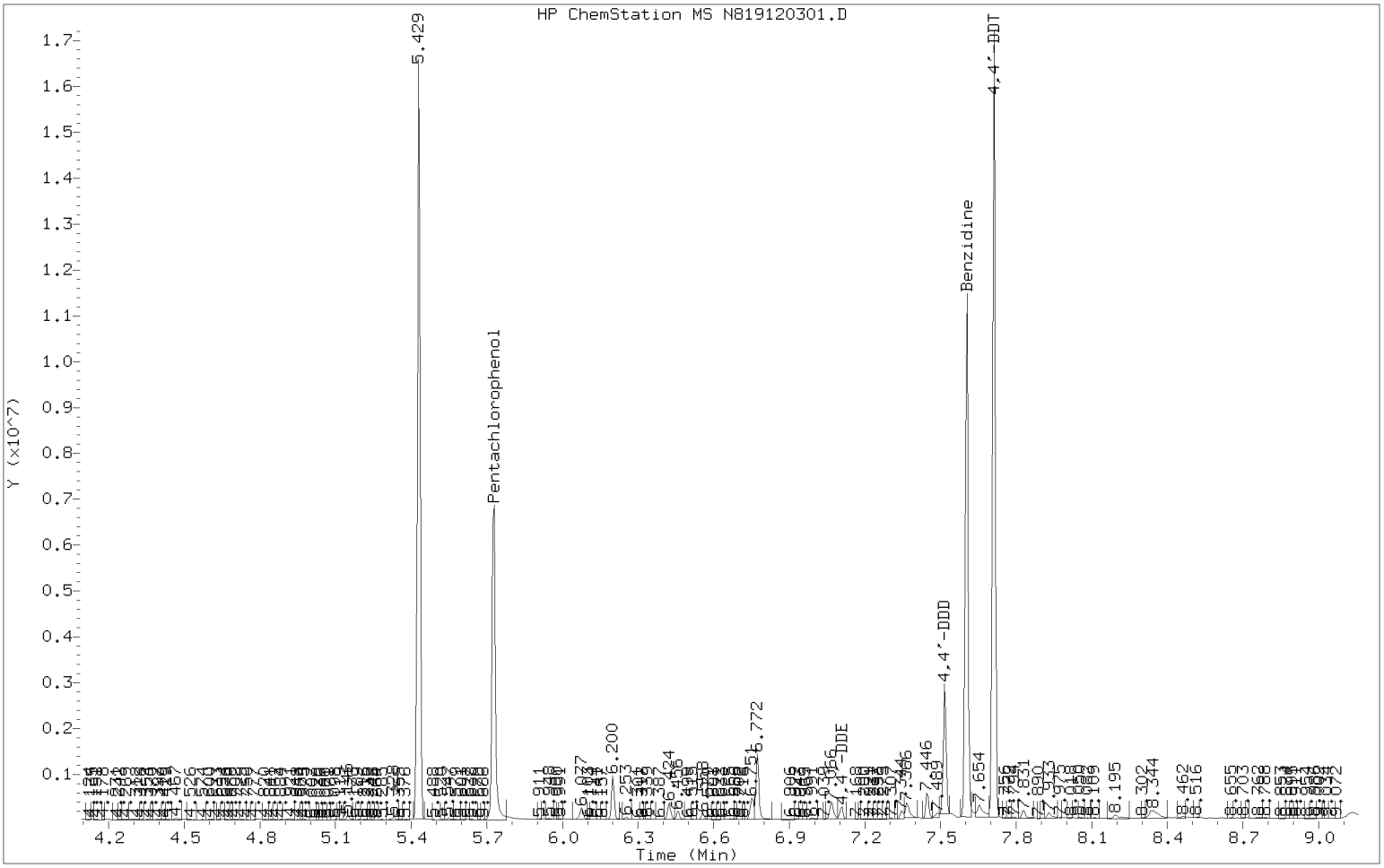
Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Lab File ID:	N819120301.D	Injection Date:	12/03/19
Instrument ID:	NT8	Injection Time:	09:10
Sequence:	SHL0032	Lab Sample ID:	SHL0032-TUN1

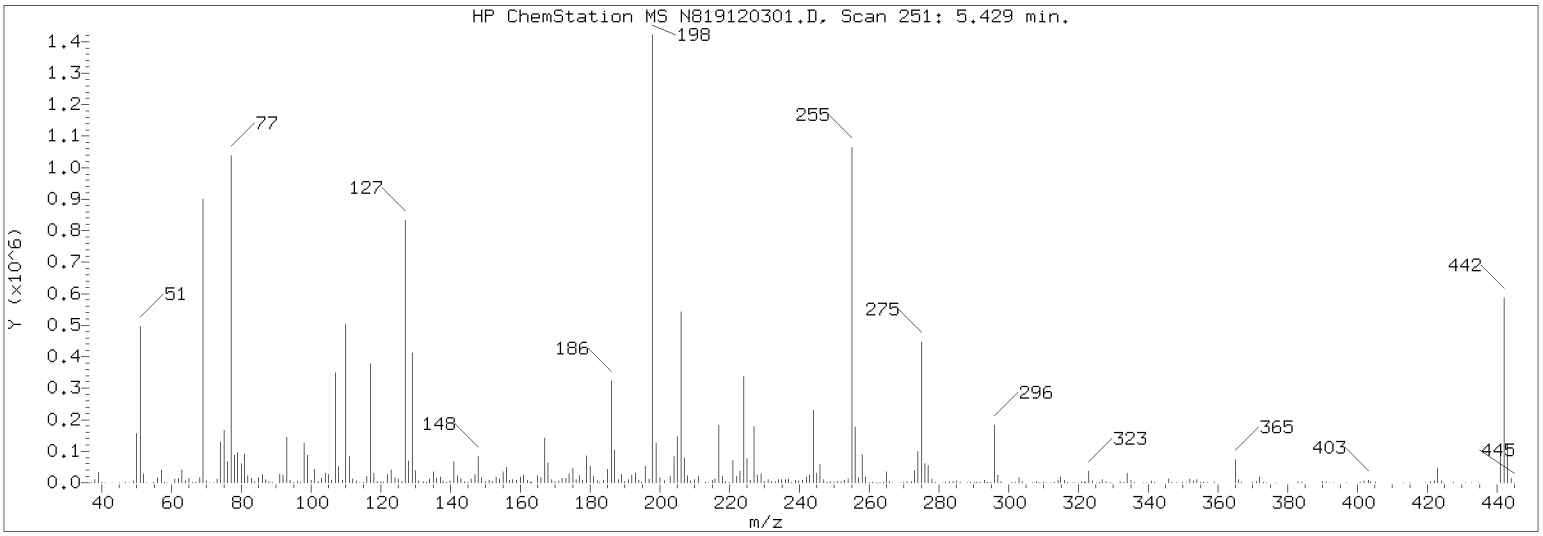
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	32.7	PASS
68	Less than 2% of 69	1.88	PASS
69	Less than 100% of 198	62.7	PASS
70	Less than 2% of 69	0.633	PASS
127	10 - 80% of 198	57.3	PASS
197	Less than 2% of 198	1.08	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.6	PASS
275	10 - 60% of 198	32.3	PASS
365	1 - 100% of 198	5.89	PASS
441	0.1 - 24% of 442	15.6	PASS
442	50 - 200% of 198	54.4	PASS
443	15 - 24% of 442	21.3	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHL0032-TUN1	N819120301.D	12/03/2019	9:10
Initial Cal Check	SHL0032-ICV1	N819120302.D	12/03/2019	9:22
Instrument Blank	SHL0032-IBL1	N819120303.D	12/03/2019	10:14
ZZZZZ	19K0228-02	N819120304.D	12/03/2019	10:36
ZZZZZ	19K0228-10	N819120305.D	12/03/2019	10:52
LCS	BHK0747-BS1	N819120306.D	12/03/2019	11:08
Calibration Check	SHL0032-CCV1	N819120307.D	12/03/2019	12:12

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191203.b/tune.b/N819120301.D/N819120301.D
Method Used: \20191203.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 03-DEC-2019 09:10 Operator: JZ
Sample Info: SHL0032-TUN1 DFTPP191203
Report Date: 12/03/2019 13:03





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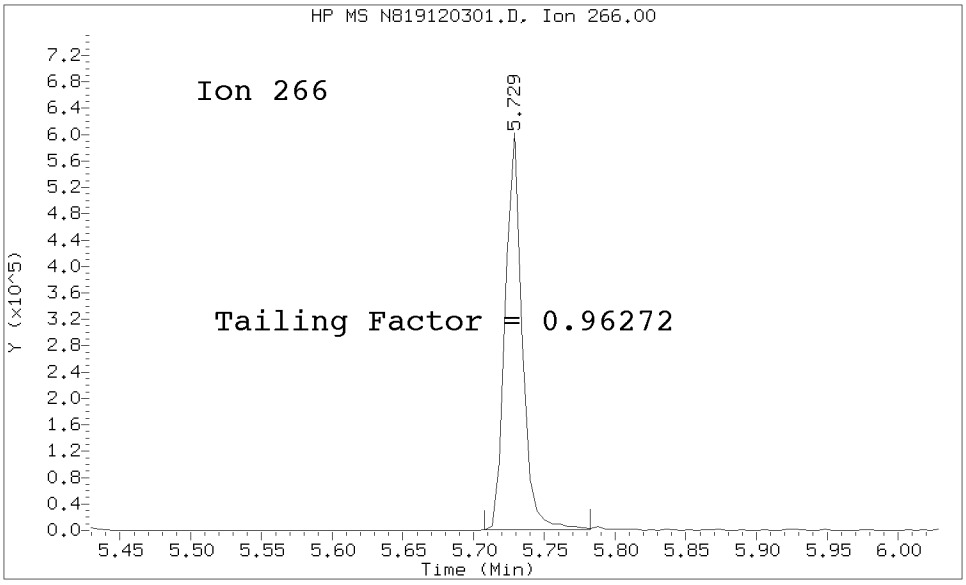
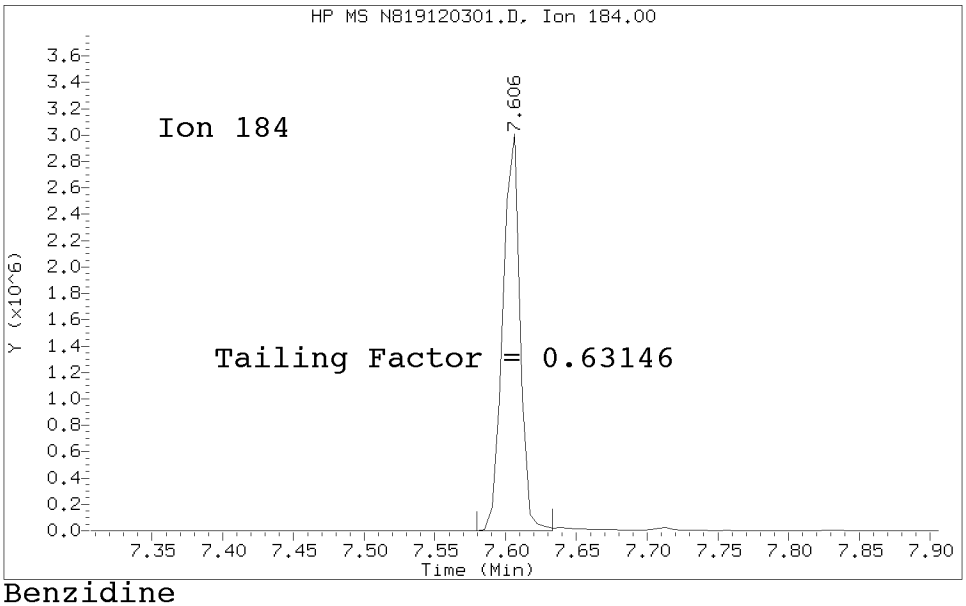
Method Used: \20191203.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 03-DEC-2019 09:10 Operator: JZ
Sample Info: DFTPP191203
Report Date: 12/03/2019 13:03



Pentachlorophenol
==========
Exp. RT = 5.729
Found RT = 5.729

Tail Factor = 0.963 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.606
Found RT = 7.606

Tail Factor = 0.631 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	0.9627249	2.000	PASS
Benzidine	0.6314631	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1625753			N/A
4,4-DDE	20215	1.2	20.0	PASS
4,4-DDD	302882	15.7	20.0	PASS
4,4-DDD + DDE	323097	16.6	20.0	PASS

Tuning Sample, /nt8.i/20191203.b/tune.b/N819120301.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	32.73
68	Less than 2.00% of mass 69	1.18 (1.88)
69	Mass 69 relative abundance	62.72
70	Less than 2.00% of mass 69	0.40 (0.63)
127	10.00 - 80.00% of mass 198	57.35
197	Less than 2.00% of mass 198	1.08
199	5.00 - 9.00% of mass 198	8.60
275	10.00 - 60.00% of mass 198	32.29
365	Greater than 1.00% of mass 198	5.89
441	0.01 - 24.00% of mass 442	8.51 (15.64)
442	50.00 - 200.00% of mass 198	54.41
443	15.00 - 24.00% of mass 442	11.56 (21.25)

Data File: N819120301.D
Spectrum: Avg. Scans 250-252 (5.43), Background Scan 246
Location of Maximum: 198.00
Number of points: 352

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	332	132.00	2505	221.00	46760	315.00	16448
37.00	2320	133.00	1982	222.00	14622	316.00	6817
38.00	5279	134.00	9765	223.00	25088	317.00	1792
39.00	20912	135.00	24600	224.00	236096	318.00	175
40.00	1494	136.00	11316	225.00	57968	319.00	203
43.00	688	137.00	12088	226.00	7097	320.00	350
45.00	558	138.00	3308	227.00	130360	321.00	4570
47.00	795	139.00	1579	228.00	18672	322.00	1801
49.00	2537	140.00	3967	229.00	21760	323.00	34528
50.00	106824	141.00	42856	230.00	3497	324.00	6250
51.00	335296	142.00	13783	231.00	7266	325.00	626
52.00	17088	143.00	9453	232.00	2479	326.00	814
53.00	488	144.00	2493	233.00	3198	327.00	8693
55.00	2159	145.00	2099	234.00	8748	328.00	3457
56.00	13090	146.00	9114	235.00	8823	329.00	787
57.00	28448	147.00	21464	236.00	6440	332.00	2547
58.00	1094	148.00	61520	237.00	8339	333.00	2839
59.00	460	149.00	11970	238.00	1587	334.00	23208
60.00	277	150.00	2427	239.00	5066	335.00	5560
61.00	8024	151.00	4562	240.00	3554	336.00	1197
62.00	10016	152.00	2809	241.00	6118	339.00	147
63.00	27016	153.00	13819	242.00	13228	340.00	395
64.00	4310	154.00	7509	243.00	15324	341.00	3279
65.00	11720	155.00	22296	244.00	163776	342.00	979
66.00	512	156.00	32376	245.00	21792	343.00	124
67.00	1601	157.00	5440	246.00	42336	346.00	8944
68.00	12084	158.00	7347	247.00	8744	347.00	1454
69.00	642496	159.00	5203	248.00	1377	348.00	269
70.00	4067	160.00	13064	249.00	3670	349.00	178
71.00	151	161.00	17752	250.00	1191	350.00	373
72.00	163	162.00	4667	251.00	2266	351.00	528
73.00	7632	163.00	2474	252.00	2881	352.00	8888
74.00	85976	164.00	175	253.00	5751	353.00	6678
75.00	119464	165.00	16096	254.00	7871	354.00	8681
76.00	44176	166.00	11581	255.00	798592	355.00	1632
77.00	757184	167.00	101736	256.00	130792	356.00	306
78.00	59648	168.00	50808	257.00	11025	357.00	87
79.00	61424	169.00	6991	258.00	67640	359.00	1042
80.00	44248	170.00	3015	259.00	11904	364.00	136
81.00	61104	171.00	2950	260.00	1676	365.00	60376
82.00	13523	172.00	9022	261.00	1983	366.00	7686
83.00	11899	173.00	9828	262.00	857	367.00	968
84.00	1947	174.00	18000	263.00	650	370.00	1550
85.00	11248	175.00	32776	264.00	1497	371.00	2557
86.00	18304	176.00	7489	265.00	26432	372.00	15385
87.00	6897	177.00	15585	266.00	2969	373.00	3214
88.00	1991	178.00	5755	267.00	505	374.00	518
89.00	988	179.00	61856	268.00	267	377.00	396
91.00	16050	180.00	39424	269.00	253	378.00	112

92.00	14790	181.00	14110	270.00	727	382.00	163
93.00	107200	182.00	3511	271.00	2463	383.00	3565
94.00	7180	183.00	1843	272.00	2638	384.00	1013
95.00	1207	184.00	6350	273.00	27528	385.00	115
96.00	5079	185.00	29952	274.00	73992	390.00	2299
97.00	1393	186.00	221376	275.00	330752	391.00	1843
98.00	91088	187.00	68368	276.00	46112	392.00	761
99.00	61560	188.00	6546	277.00	45488	393.00	413
100.00	5006	189.00	17000	278.00	8073	397.00	477
101.00	30144	190.00	2676	279.00	1595	401.00	602
102.00	1872	191.00	6154	281.00	336	402.00	5557
103.00	9308	192.00	16928	282.00	1739	403.00	6768
104.00	22208	193.00	21224	283.00	4429	404.00	3548
105.00	19248	194.00	5264	284.00	3214	405.00	484
106.00	5930	195.00	949	285.00	5938	410.00	184
107.00	244608	196.00	33464	286.00	1619	413.00	98
108.00	35136	197.00	11065	288.00	86	415.00	216
109.00	6241	198.00	1024384	289.00	2122	419.00	153
110.00	344192	199.00	88120	290.00	1643	420.00	241
111.00	58168	200.00	10896	291.00	1016	421.00	5620
112.00	7757	201.00	4370	292.00	1746	422.00	5004
113.00	3255	202.00	576	293.00	6640	423.00	39984
114.00	511	203.00	14729	294.00	2431	424.00	8115
115.00	1150	204.00	62256	295.00	2300	425.00	995
116.00	13539	205.00	107032	296.00	141440	426.00	325
117.00	271424	206.00	388288	297.00	20752	427.00	704
118.00	20576	207.00	52632	298.00	1510	428.00	157
119.00	2404	208.00	17984	299.00	212	431.00	489
120.00	1811	209.00	4869	301.00	1626	433.00	368
121.00	1702	210.00	8369	302.00	1824	434.00	133
122.00	17464	211.00	17640	303.00	12783	435.00	557
123.00	26224	212.00	1358	304.00	4953	441.00	87152
124.00	10762	213.00	1748	307.00	424	442.00	557376
125.00	8435	214.00	823	308.00	2451	443.00	118456
126.00	3445	215.00	6890	309.00	1154	444.00	11722
127.00	587456	216.00	10680	310.00	1267	445.00	860
128.00	47896	217.00	129536	311.00	261		
129.00	286720	218.00	15558	312.00	97		
130.00	26336	219.00	2865	313.00	1794		
131.00	4200	220.00	1784	314.00	6591		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM

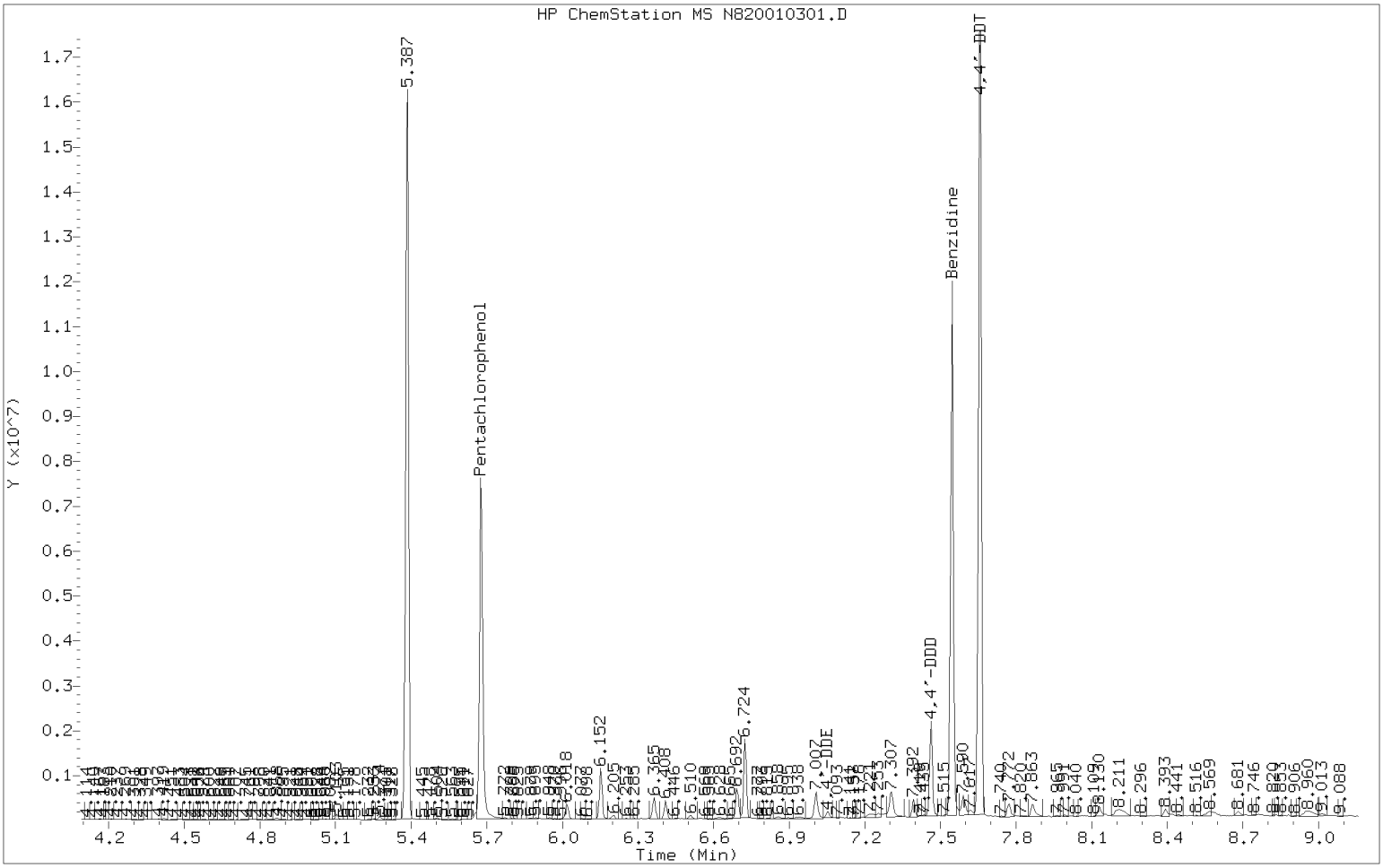
Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Lab File ID:	N820010301.D	Injection Date:	01/03/20
Instrument ID:	NT8	Injection Time:	10:03
Sequence:	SIA0018	Lab Sample ID:	SIA0018-TUN1

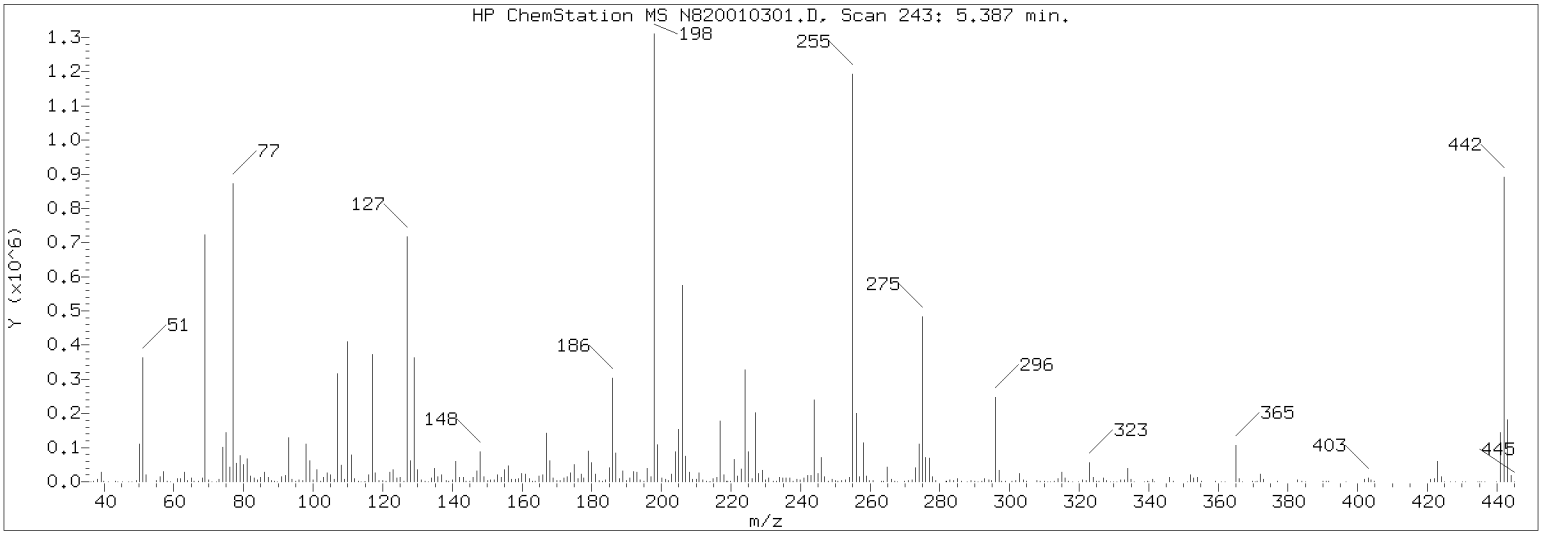
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	31.8	PASS
68	Less than 2% of 69	1.85	PASS
69	Less than 100% of 198	61	PASS
70	Less than 2% of 69	0.658	PASS
127	10 - 80% of 198	56.1	PASS
197	Less than 2% of 198	1.27	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.09	PASS
275	10 - 60% of 198	34	PASS
365	1 - 100% of 198	7.57	PASS
441	0.1 - 24% of 442	15.4	PASS
442	50 - 200% of 198	58	PASS
443	15 - 24% of 442	20.2	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SIA0018-TUN1	N820010301.D	01/03/2020	10:03
Cal Standard	SIA0018-CAL4	N820010302.D	01/03/2020	10:15
Cal Standard	SIA0018-CAL1	N820010303.D	01/03/2020	10:34
Cal Standard	SIA0018-CAL2	N820010304.D	01/03/2020	10:50
Cal Standard	SIA0018-CAL3	N820010305.D	01/03/2020	11:06
Cal Standard	SIA0018-CAL5	N820010306.D	01/03/2020	11:23
Cal Standard	SIA0018-CAL6	N820010307.D	01/03/2020	11:39
Secondary Cal Check	SIA0018-SCV1	N820010308.D	01/03/2020	13:23

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20200103.b/tune.b/N820010301.D/N820010301.D
Method Used: \20200103.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 03-JAN-2020 10:03 Operator: JZ
Sample Info: SIA0018-TUN1 DFTPP200103
Report Date: 01/03/2020 11:55





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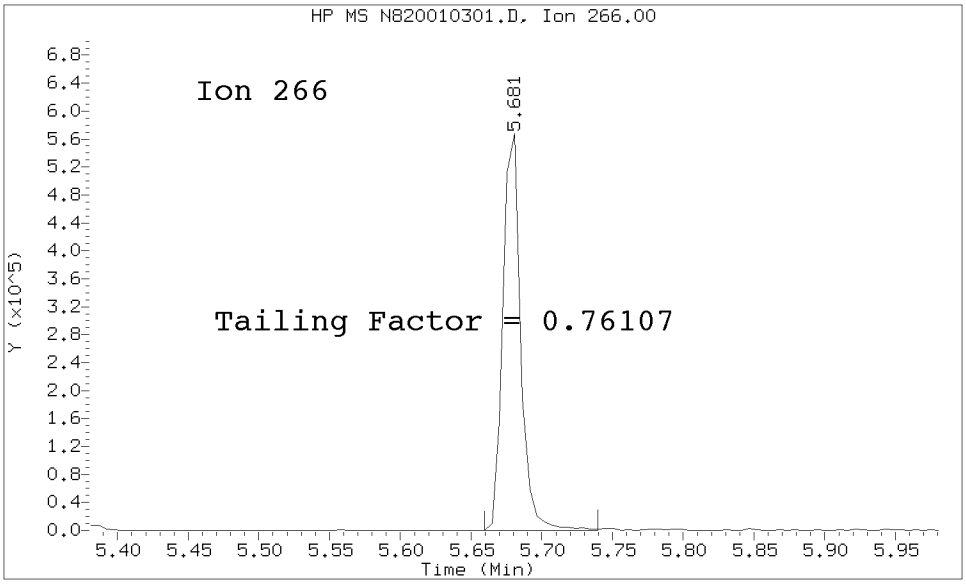
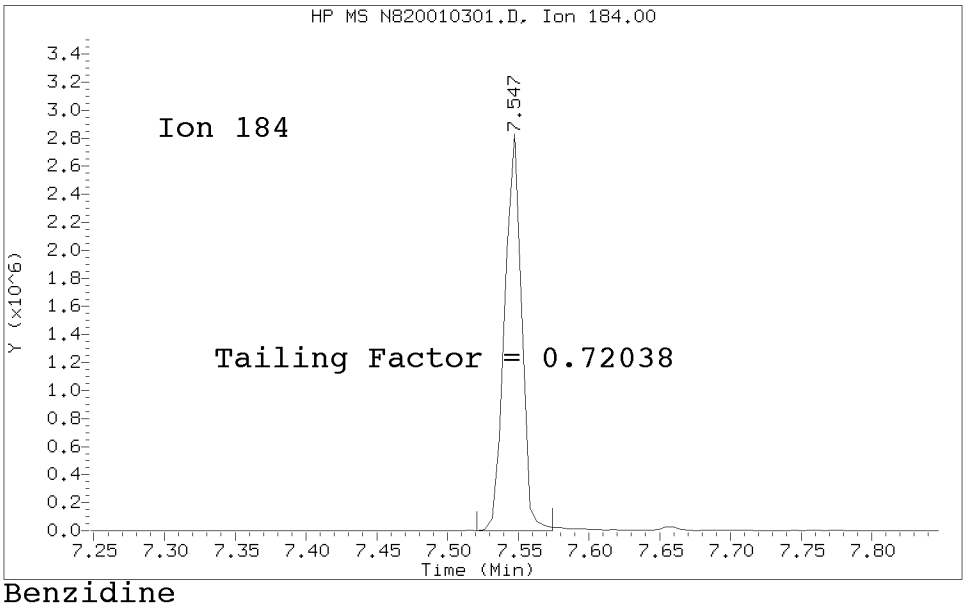
Method Used: \20200103.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 03-JAN-2020 10:03 Operator: JZ
Sample Info: DFTPP200103
Report Date: 01/03/2020 11:55



Pentachlorophenol
==========
Exp. RT = 5.681
Found RT = 5.681

Tail Factor = 0.761 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.547
Found RT = 7.547

Tail Factor = 0.720 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	0.7610723	2.000	PASS
Benzidine	0.7203791	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1708752			N/A
4,4-DDE	10585	0.6	20.0	PASS
4,4-DDD	215735	11.2	20.0	PASS
4,4-DDD + DDE	226320	11.7	20.0	PASS

Tuning Sample, /nt8.i/20200103.b/tune.b/N820010301.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	31.78
68	Less than 2.00% of mass 69	1.13 (1.85)
69	Mass 69 relative abundance	61.03
70	Less than 2.00% of mass 69	0.40 (0.66)
127	10.00 - 80.00% of mass 198	56.14
197	Less than 2.00% of mass 198	1.27
199	5.00 - 9.00% of mass 198	8.09
275	10.00 - 60.00% of mass 198	34.01
365	Greater than 1.00% of mass 198	7.57
441	0.01 - 24.00% of mass 442	8.93 (15.39)
442	50.00 - 200.00% of mass 198	57.99
443	15.00 - 24.00% of mass 442	11.69 (20.16)

Data File: N820010301.D
Spectrum: Avg. Scans 242-244 (5.39), Background Scan 236
Location of Maximum: 198.00
Number of points: 351

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	475	127.00	534656	215.00	6832	307.00	146
36.00	200	128.00	47104	216.00	9938	308.00	2360
37.00	850	129.00	272768	217.00	124360	309.00	1099
38.00	4962	130.00	28864	218.00	16600	310.00	1945
39.00	24888	131.00	4804	219.00	2682	311.00	202
40.00	1724	132.00	1895	220.00	1262	312.00	404
41.00	663	133.00	1535	221.00	41976	313.00	1104
43.00	279	134.00	9790	222.00	13682	314.00	7094
44.00	346	135.00	25584	223.00	25352	315.00	16424
45.00	346	136.00	11894	224.00	229632	316.00	7118
47.00	371	137.00	12582	225.00	63016	317.00	1403
48.00	713	138.00	2486	226.00	6126	318.00	194
49.00	2479	139.00	1658	227.00	138240	320.00	822
50.00	101104	140.00	4416	228.00	19344	321.00	3237
51.00	302656	141.00	44056	229.00	24344	322.00	2367
52.00	17744	142.00	10811	230.00	4509	323.00	37520
53.00	456	143.00	8317	231.00	8225	324.00	8247
55.00	1118	144.00	2650	232.00	1257	325.00	858
56.00	11919	145.00	1504	233.00	1603	326.00	1141
57.00	24496	146.00	9307	234.00	9336	327.00	7356
58.00	1210	147.00	25880	235.00	8194	328.00	3927
59.00	167	148.00	62152	236.00	7390	329.00	509
60.00	105	149.00	11901	237.00	7686	330.00	545
61.00	7031	150.00	2928	238.00	1427	331.00	355
62.00	9100	151.00	4339	239.00	5615	332.00	3712
63.00	23056	152.00	3799	240.00	3990	333.00	3351
64.00	3548	153.00	13082	241.00	7269	334.00	24288
65.00	10012	154.00	9125	242.00	12562	335.00	5992
66.00	962	155.00	24584	243.00	12491	336.00	466
67.00	544	156.00	31664	244.00	163712	339.00	964
68.00	10763	157.00	4421	245.00	20240	340.00	803
69.00	581184	158.00	7000	246.00	49008	341.00	4712
70.00	3826	159.00	5567	247.00	9951	342.00	908
71.00	885	160.00	14312	248.00	2550	343.00	192
73.00	4373	161.00	16270	249.00	5186	346.00	9145
74.00	80120	162.00	5587	250.00	1354	347.00	703
75.00	118536	163.00	1543	251.00	1392	348.00	104
76.00	38576	164.00	1850	252.00	2714	350.00	442
77.00	693632	165.00	14844	253.00	4387	351.00	1005
78.00	47616	166.00	13452	254.00	8140	352.00	11337
79.00	59240	167.00	106664	255.00	799296	353.00	6614
80.00	39504	168.00	50840	256.00	137920	354.00	9058
81.00	53632	169.00	7732	257.00	10915	355.00	2146
82.00	13793	170.00	3374	258.00	80656	359.00	1120
83.00	10520	171.00	3271	259.00	10015	361.00	256
84.00	2259	172.00	7797	260.00	2860	362.00	135
85.00	10518	173.00	10116	261.00	1146	365.00	72096
86.00	17168	174.00	16512	262.00	226	366.00	8651
87.00	8341	175.00	33824	263.00	1572	367.00	540

88.00	3822	176.00	6440	264.00	2171	370.00	1909
89.00	1322	177.00	14655	265.00	30792	371.00	1848
90.00	124	178.00	6408	266.00	5202	372.00	14108
91.00	12727	179.00	63624	267.00	1102	373.00	4003
92.00	15657	180.00	41136	268.00	198	383.00	4342
93.00	106400	181.00	17112	270.00	1265	384.00	475
94.00	6995	182.00	3232	271.00	2221	385.00	163
95.00	1573	183.00	1450	272.00	3427	390.00	2626
96.00	3407	184.00	4858	273.00	29640	391.00	640
97.00	1354	185.00	31272	274.00	74344	392.00	703
98.00	85224	186.00	221376	275.00	323904	393.00	275
99.00	54328	187.00	62192	276.00	46752	397.00	327
100.00	4280	188.00	7158	277.00	46336	398.00	152
101.00	28504	189.00	20288	278.00	9986	401.00	1289
102.00	1269	190.00	4051	279.00	1914	402.00	5155
103.00	10110	191.00	7880	280.00	207	403.00	5936
104.00	22912	192.00	20760	281.00	658	404.00	3929
105.00	18328	193.00	21360	282.00	3026	405.00	795
106.00	5989	194.00	3722	283.00	3851	421.00	5173
107.00	245568	195.00	2819	284.00	2736	422.00	6215
108.00	34736	196.00	31024	285.00	5518	423.00	32344
109.00	6379	197.00	12105	286.00	939	424.00	8752
110.00	309184	198.00	952320	288.00	408	425.00	381
111.00	59664	199.00	77024	289.00	2389	426.00	316
112.00	6096	200.00	5825	290.00	1155	428.00	295
113.00	2579	201.00	4627	291.00	1022	430.00	1171
114.00	354	202.00	1017	292.00	1159	431.00	362
115.00	1634	203.00	16456	293.00	8667	432.00	397
116.00	15991	204.00	64144	294.00	3250	433.00	83
117.00	284928	205.00	109432	295.00	2814	434.00	358
118.00	18736	206.00	398784	296.00	162816	435.00	89
119.00	2875	207.00	48952	297.00	20880	436.00	651
120.00	3430	208.00	19768	298.00	2220	440.00	142
121.00	1943	209.00	6346	299.00	471	441.00	85008
122.00	19128	210.00	7549	301.00	1445	442.00	552256
123.00	26344	211.00	18696	302.00	2568	443.00	111312
124.00	9886	212.00	1884	303.00	14333	444.00	11685
125.00	10332	213.00	976	304.00	3651	445.00	209
126.00	1258	214.00	534	305.00	954		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM

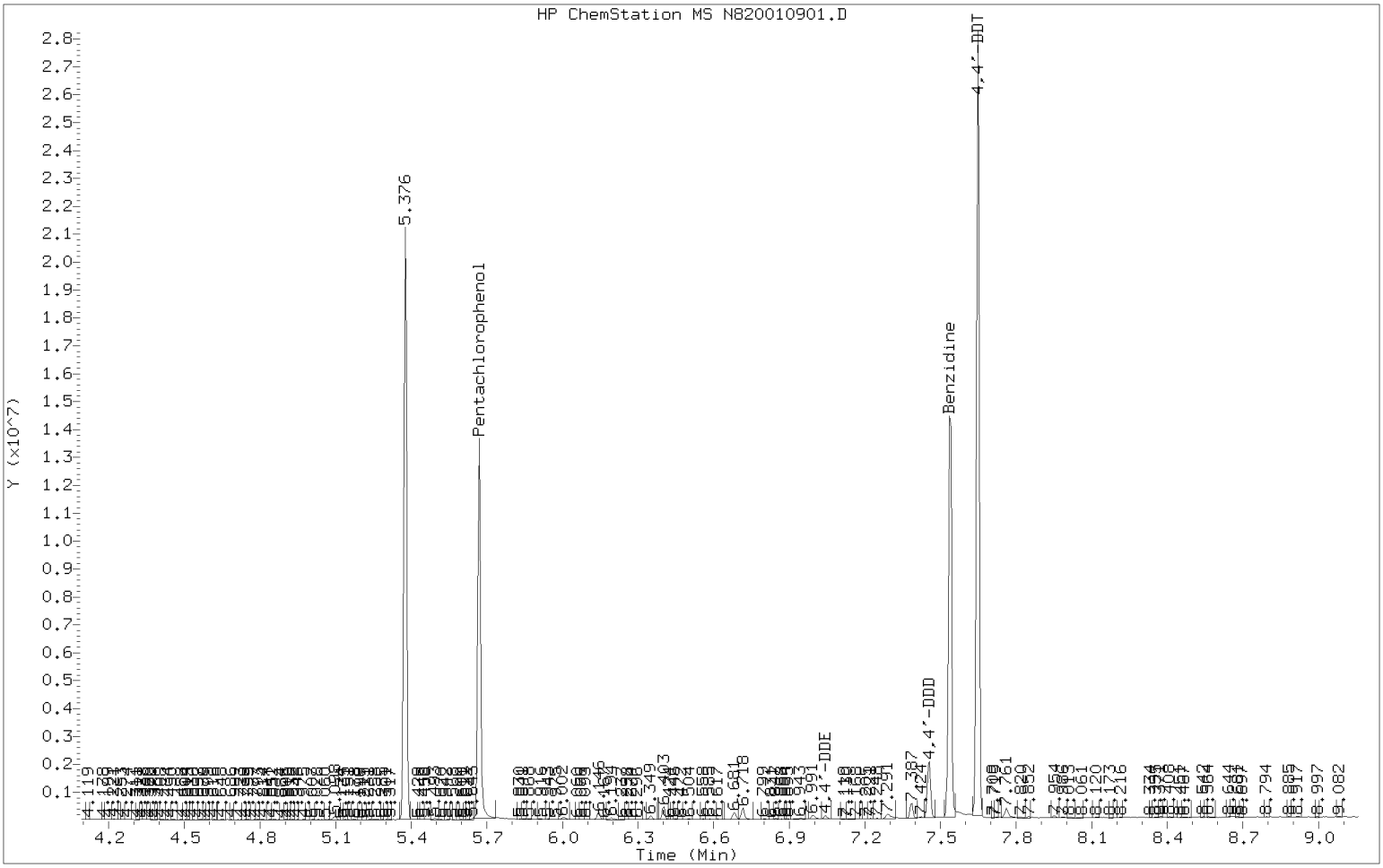
Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Lab File ID:	N820010901.D	Injection Date:	01/09/20
Instrument ID:	NT8	Injection Time:	10:52
Sequence:	SIA0110	Lab Sample ID:	SIA0110-TUN1

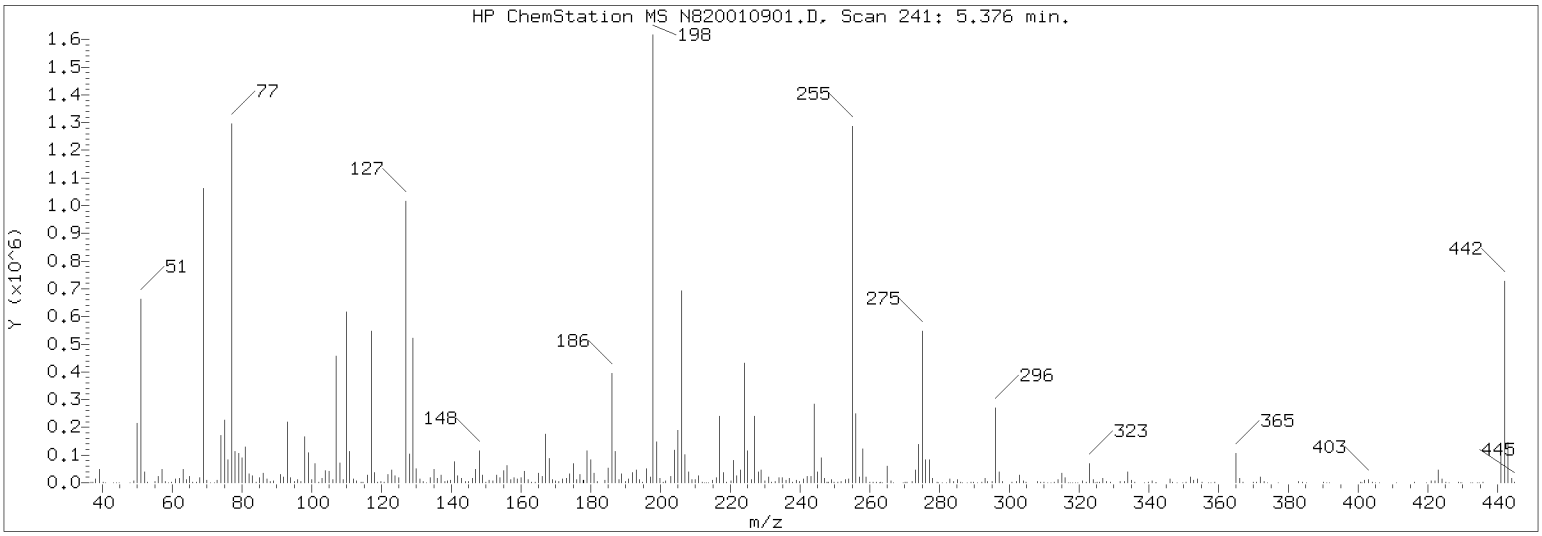
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	37.5	PASS
68	Less than 2% of 69	1.8	PASS
69	Less than 100% of 198	69.2	PASS
70	Less than 2% of 69	0.767	PASS
127	10 - 80% of 198	63.3	PASS
197	Less than 2% of 198	0.989	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.95	PASS
275	10 - 60% of 198	36.6	PASS
365	1 - 100% of 198	8.37	PASS
441	0.1 - 24% of 442	15	PASS
442	50 - 200% of 198	56.1	PASS
443	15 - 24% of 442	21.5	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SIA0110-TUN1	N820010901.D	01/09/2020	10:52
Initial Cal Check	SIA0110-ICV1	N820010902.D	01/09/2020	14:22
Blank	BIA0050-BLK1	N820010903.D	01/09/2020	14:38
LCS	BIA0050-BS1	N820010904.D	01/09/2020	14:54
PDI-1138RAB-00-10-19111	19K0394-03	N820010905.D	01/09/2020	15:11
PDI-138RAB-00-10-191118	19K0394-04	N820010906.D	01/09/2020	15:27
DI-138RAB-10-19.1-19111	19K0394-05	N820010907.D	01/09/2020	15:43
PDI-139RAB-00-10-191115	19K0394-06	N820010909.D	01/09/2020	16:16
PDI-139RAB-10-20-191115	19K0394-07	N820010910.D	01/09/2020	16:32
DI-139RAB-20-25.5-19111	19K0394-08	N820010911.D	01/09/2020	16:49
PDI-145RAB-00-10-191114	19K0394-09	N820010912.D	01/09/2020	17:53
Matrix Spike	BIA0050-MS1	N820010913.D	01/09/2020	18:10
Matrix Spike Dup	BIA0050-MSD1	N820010914.D	01/09/2020	18:26
PDI-145RAB-10-20-191114	19K0394-10	N820010915.D	01/09/2020	18:42
DI-145RAB-20-24.7-19111	19K0394-11	N820010916.D	01/09/2020	18:58
Calibration Check	SIA0110-CCV1	N820010917.D	01/09/2020	19:15

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20200109.b/tune.b/N820010901.D/N820010901.D
Method Used: \20200109.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 09-JAN-2020 14:09 Operator: JZ
Sample Info: SIA0110-TUN1 DFTPP200109
Report Date: 01/09/2020 14:38





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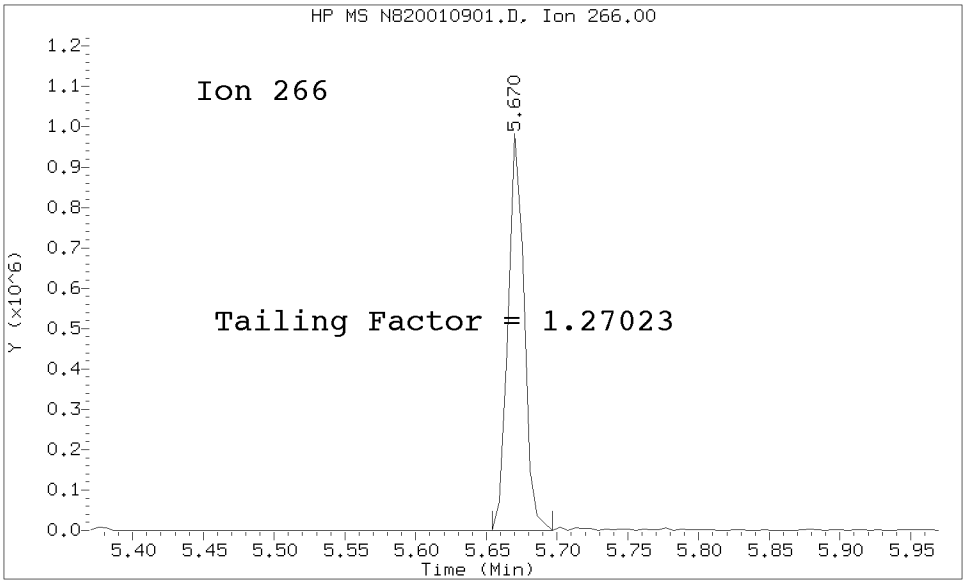
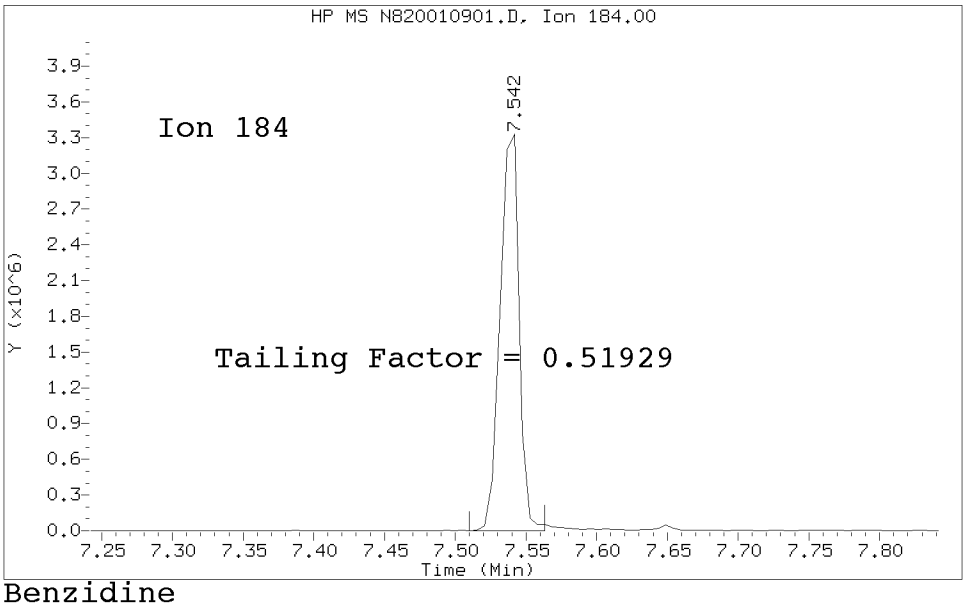
Method Used: \20200109.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 09-JAN-2020 14:09 Operator: JZ
Sample Info: DFTPP200109
Report Date: 01/09/2020 14:38



Pentachlorophenol
==========
Exp. RT = 5.681
Found RT = 5.670

Tail Factor = 1.270 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.547
Found RT = 7.542

Tail Factor = 0.519 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.2702265	2.000	PASS
Benzidine	0.5192878	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	2262704			N/A
4,4-DDE	7784	0.3	20.0	PASS
4,4-DDD	221005	8.9	20.0	PASS
4,4-DDD + DDE	228789	9.2	20.0	PASS

Tuning Sample, /nt8.i/20200109.b/tune.b/N820010901.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	36.99
68	Less than 2.00% of mass 69	1.00 (1.52)
69	Mass 69 relative abundance	65.48
70	Less than 2.00% of mass 69	0.58 (0.88)
127	10.00 - 80.00% of mass 198	59.71
197	Less than 2.00% of mass 198	1.33
199	5.00 - 9.00% of mass 198	8.41
275	10.00 - 60.00% of mass 198	34.99
365	Greater than 1.00% of mass 198	6.89
441	0.01 - 24.00% of mass 442	8.42 (14.82)
442	50.00 - 200.00% of mass 198	56.80
443	15.00 - 24.00% of mass 442	12.26 (21.58)

Data File: N820010901.D
Spectrum: Avg. Scans 240-242 (5.38), Background Scan 236
Location of Maximum: 198.00
Number of points: 355

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	176	132.00	2797	221.00	56808	314.00	7575
37.00	3131	133.00	1334	222.00	24008	315.00	24048
38.00	9913	134.00	13920	223.00	37648	316.00	13970
39.00	32784	135.00	33168	224.00	318464	317.00	1290
40.00	1941	136.00	12954	225.00	89144	318.00	337
43.00	747	137.00	18088	226.00	9442	319.00	108
44.00	616	138.00	2607	227.00	185920	320.00	391
45.00	247	139.00	3517	228.00	29520	321.00	5352
48.00	259	140.00	6381	229.00	33496	322.00	2356
49.00	4042	141.00	55208	230.00	5194	323.00	51136
50.00	146880	142.00	18520	231.00	12825	324.00	8100
51.00	454592	143.00	11018	232.00	1488	325.00	1193
52.00	26400	144.00	3135	233.00	2558	326.00	1110
53.00	1026	145.00	3374	234.00	11919	327.00	13079
55.00	4464	146.00	13314	235.00	13277	328.00	4341
56.00	15538	147.00	31128	236.00	9539	329.00	1109
57.00	34448	148.00	89528	237.00	13024	332.00	3281
58.00	1667	149.00	17160	238.00	1419	333.00	2972
59.00	395	150.00	2499	239.00	6812	334.00	31808
60.00	678	151.00	7121	240.00	3319	335.00	6744
61.00	9404	152.00	4554	241.00	8693	336.00	1145
62.00	12982	153.00	18736	242.00	16872	338.00	417
63.00	32224	154.00	13566	243.00	16712	339.00	299
64.00	5156	155.00	32552	244.00	222528	340.00	964
65.00	14953	156.00	44456	245.00	30856	341.00	5840
66.00	1028	157.00	7680	246.00	64640	342.00	973
67.00	1052	158.00	12404	247.00	13840	346.00	14787
68.00	12231	159.00	9479	248.00	3709	347.00	1874
69.00	804608	160.00	15597	249.00	8573	348.00	257
70.00	7108	161.00	27296	250.00	1288	350.00	122
72.00	191	162.00	7675	251.00	2515	351.00	1107
73.00	7841	163.00	1955	252.00	3075	352.00	15899
74.00	120776	164.00	2311	253.00	8058	353.00	9288
75.00	160832	165.00	22704	254.00	10691	354.00	13208
76.00	58184	166.00	15572	255.00	999232	355.00	2567
77.00	956800	167.00	130456	256.00	175552	357.00	346
78.00	79056	168.00	68656	257.00	16992	358.00	431
79.00	83472	169.00	7568	258.00	99752	359.00	1438
80.00	61664	170.00	4760	259.00	16011	360.00	198
81.00	89784	171.00	4748	260.00	2481	361.00	322
82.00	22816	172.00	10356	261.00	1596	365.00	84672
83.00	17024	173.00	12565	262.00	497	366.00	12325
84.00	1970	174.00	23880	263.00	1501	367.00	865
85.00	13054	175.00	45672	264.00	919	370.00	1849
86.00	26736	176.00	6681	265.00	43688	371.00	2524
87.00	10860	177.00	22720	266.00	5491	372.00	19744
88.00	3456	178.00	11165	267.00	500	373.00	4691
89.00	3120	179.00	88520	269.00	266	374.00	718
91.00	19632	180.00	58432	270.00	1450	377.00	837

92.00	17256	181.00	25800	271.00	2306	383.00	4215
93.00	157568	182.00	3854	272.00	2904	384.00	1480
94.00	11245	183.00	577	273.00	36128	385.00	500
95.00	3319	184.00	6744	274.00	104864	390.00	2819
96.00	6352	185.00	41448	275.00	430016	391.00	1233
97.00	1861	186.00	300736	276.00	66400	392.00	704
98.00	126720	187.00	82848	277.00	67168	397.00	331
99.00	86224	188.00	9890	278.00	13576	401.00	1238
100.00	6915	189.00	23824	279.00	1721	402.00	6527
101.00	44656	190.00	2893	280.00	632	403.00	10816
102.00	2102	191.00	10048	281.00	227	404.00	3158
103.00	13662	192.00	26496	282.00	2152	405.00	247
104.00	30704	193.00	31856	283.00	8614	406.00	84
105.00	27368	194.00	6592	284.00	3903	411.00	363
106.00	9389	195.00	3185	285.00	8885	415.00	166
107.00	329728	196.00	41136	286.00	2061	416.00	480
108.00	49424	197.00	16357	287.00	486	420.00	86
109.00	7961	198.00	1228800	288.00	678	421.00	7759
110.00	438528	199.00	103376	289.00	1938	422.00	7518
111.00	80168	200.00	11148	290.00	1777	423.00	47528
112.00	8920	201.00	4595	291.00	1115	424.00	9606
113.00	3900	202.00	3307	292.00	2215	425.00	1733
114.00	886	203.00	17648	293.00	12485	426.00	223
115.00	1753	204.00	92208	294.00	4086	427.00	155
116.00	18592	205.00	144448	295.00	3839	428.00	222
117.00	405696	206.00	510400	296.00	215552	429.00	1307
118.00	29360	207.00	70288	297.00	32176	430.00	370
119.00	2959	208.00	26200	298.00	2725	431.00	245
120.00	3259	209.00	8910	301.00	1673	432.00	594
121.00	928	210.00	9904	302.00	3121	433.00	361
122.00	21240	211.00	22256	303.00	20072	434.00	441
123.00	32664	212.00	2229	304.00	5675	435.00	457
124.00	17624	213.00	1273	305.00	683	436.00	1295
125.00	11912	214.00	1175	307.00	132	437.00	411
126.00	906	215.00	8732	308.00	2067	441.00	103464
127.00	733696	216.00	13693	309.00	2282	442.00	697984
128.00	72008	217.00	178688	310.00	1435	443.00	150592
129.00	388800	218.00	23016	311.00	586	444.00	16960
130.00	35016	219.00	1867	312.00	623	445.00	1338
131.00	9475	220.00	3853	313.00	2957		

INITIAL CALIBRATION DATA

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Calibration:	CK00068	Instrument:	NT8
Calibration Date:	11/25/2019	Column (1):	RXI-17Sil ms

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RRF		**RRF**		**RRF**		**RRF**		**RRF**		**RRF**
Tributyltin Ion	0.03865	0.9397335	0.1546	0.5747287	0.3865	0.6787978	0.773	0.6153587	1.546	0.5925081	3.092	0.6047016
Tripentyltin	0.07959	8.048317E-02	0.31836	5.619179E-02	0.7959	6.324054E-02	1.5918	6.307031E-02	3.1836	5.948025E-02	6.3672	6.649284E-02
Tripropyltin	0.037216	1.301877	0.14886	0.7761632	0.37216	0.9373087	0.74432	0.8355231	1.4886	0.7807639	2.9773	0.7751666

INITIAL CALIBRATION DATA

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Calibration:	CK00068	Instrument:	NT8
Calibration Date:	11/25/2019	Column (1):	RXI-17Sil ms

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Tributyltin Ion	0.6676381	20.7	0.9994		LCOD (0.99)	
Tripentyltin	6.482649E-02	13.0			RSD (15)	
Tripropyltin	0.9011338	22.9	0.9985		LCOD (0.99)	

Printed: 11/26/2019 12:09:27PM

ANALYSIS SEQUENCE

SHK0340

Instrument: NT8 Element Column ID: H004092
Calibration ID: CK00068 Tune File: 191025.U
EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHK0340-TUN1	MS Tune	QC		1	H010226		
SHK0340-CAL1	8270-SIM TBT	QC		2	H011459	H004622	
SHK0340-CAL2	8270-SIM TBT	QC		3	H011460	H004622	
SHK0340-CAL3	8270-SIM TBT	QC		4	H011461	H004622	
SHK0340-CAL4	8270-SIM TBT	QC		5	H011462	H004622	
SHK0340-CAL5	8270-SIM TBT	QC		6	H011463	H004622	
SHK0340-CAL6	8270-SIM TBT	QC		7	H011464	H004622	
SHK0340-SCV1	Secondary Cal Check	QC		8	H011495	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

	Time	Filename	LabID	ClientId	DF				
1	1320	N819112501.D	SHK0340-TUN1		1	NO ISTDS FOUND			
2	1405	N819112502.D	SHK0340-CAL1		1	6.07	41416	8.66	42717
3	1424	N819112503.D	SHK0340-CAL2		1	6.07	42942	8.66	40691
4	1441	N819112504.D	SHK0340-CAL3		1	6.07	39128	8.65	40493
5	1457	N819112505.D	SHK0340-CAL4		1	6.07	41592	8.65	41162
6	1513	N819112506.D	SHK0340-CAL5		1	6.07	41672	8.65	41539
7	1529	N819112507.D	SHK0340-CAL6		1	6.07	45410	8.65	41659
8	1602	N819112508.D	SHK0340-SCV1		1	6.06	39133	8.65	39863

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

ARI Job No.: SHK0 Method: TBT1125.m Instrument: nt8.i Date: 25-NOV-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1405	N819112502.D	SHK0340-CAL1		1	NO MANUAL INTEGRATION
1424	N819112503.D	SHK0340-CAL2		1	NO MANUAL INTEGRATION
1441	N819112504.D	SHK0340-CAL3		1	NO MANUAL INTEGRATION
1457	N819112505.D	SHK0340-CAL4		1	NO MANUAL INTEGRATION
1513	N819112506.D	SHK0340-CAL5		1	NO MANUAL INTEGRATION
1529	N819112507.D	SHK0340-CAL6		1	NO MANUAL INTEGRATION
1602	N819112508.D	SHK0340-SCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 26-Nov-2019 12:10

N819112501.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112502.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112503.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112504.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112505.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112506.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112507.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112508.D	Data Locked	jianqing, 26-Nov-2019 12:10

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 25-NOV-2019 14:05
End Cal Date : 25-NOV-2019 15:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Last Edit : 26-Nov-2019 11:53 nt8.i

Calibration File Names:
Level 1: \\target\share\chem3\nt8.i\20191125.b\N819112502.D
Level 2: \\target\share\chem3\nt8.i\20191125.b\N819112503.D
Level 3: \\target\share\chem3\nt8.i\20191125.b\N819112504.D
Level 4: \\target\share\chem3\nt8.i\20191125.b\N819112505.D
Level 5: \\target\share\chem3\nt8.i\20191125.b\N819112506.D
Level 6: \\target\share\chem3\nt8.i\20191125.b\N819112507.D

Compound	0.0500000 Level 1	0.2000000 Level 2	0.5000000 Level 3	1.0000 Level 4	2.0000 Level 5	4.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
2 Tetrabutyl Tin	1205	3036	7819	15194	28159	62595	LINR	0.000e+000	0.69042		0.99888
3 Tributyl Tin (Hexyl)	973	2468	6640	12797	24691	54919	LINR	0.000e+000	0.60395		0.99942
5 Dibutyl Tin (Hexyl)	0.05679	0.03787	0.04379	0.04242	0.03999	0.04478	AVRG		0.04427		14.98147
7 Butyl Tin (Hexyl)	0.08179	0.05892	0.06527	0.06530	0.06512	0.08348	AVRG		0.06998		14.45937
$ 1 Tripropyl Tin (Hexyl)	1348	3333	9169	17376	32536	70403	LINR	0.000e+000	0.78166		0.99850
$ 6 Tripentyl Tin (Hexyl)	0.08048	0.05619	0.06324	0.06307	0.05948	0.06649	AVRG		0.06483		13.02815

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 25-NOV-2019 14:05
End Cal Date : 25-NOV-2019 15:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Last Edit : 26-Nov-2019 11:53 nt8.i

Curve	Formula	Units
Averaged	Amt = Rsp/m1	Response
Linear	Amt = b + Rsp/m1	Response

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Batch File: \\target\share\chem3\nt8.i\20191125.b
Inst ID: nt8.i

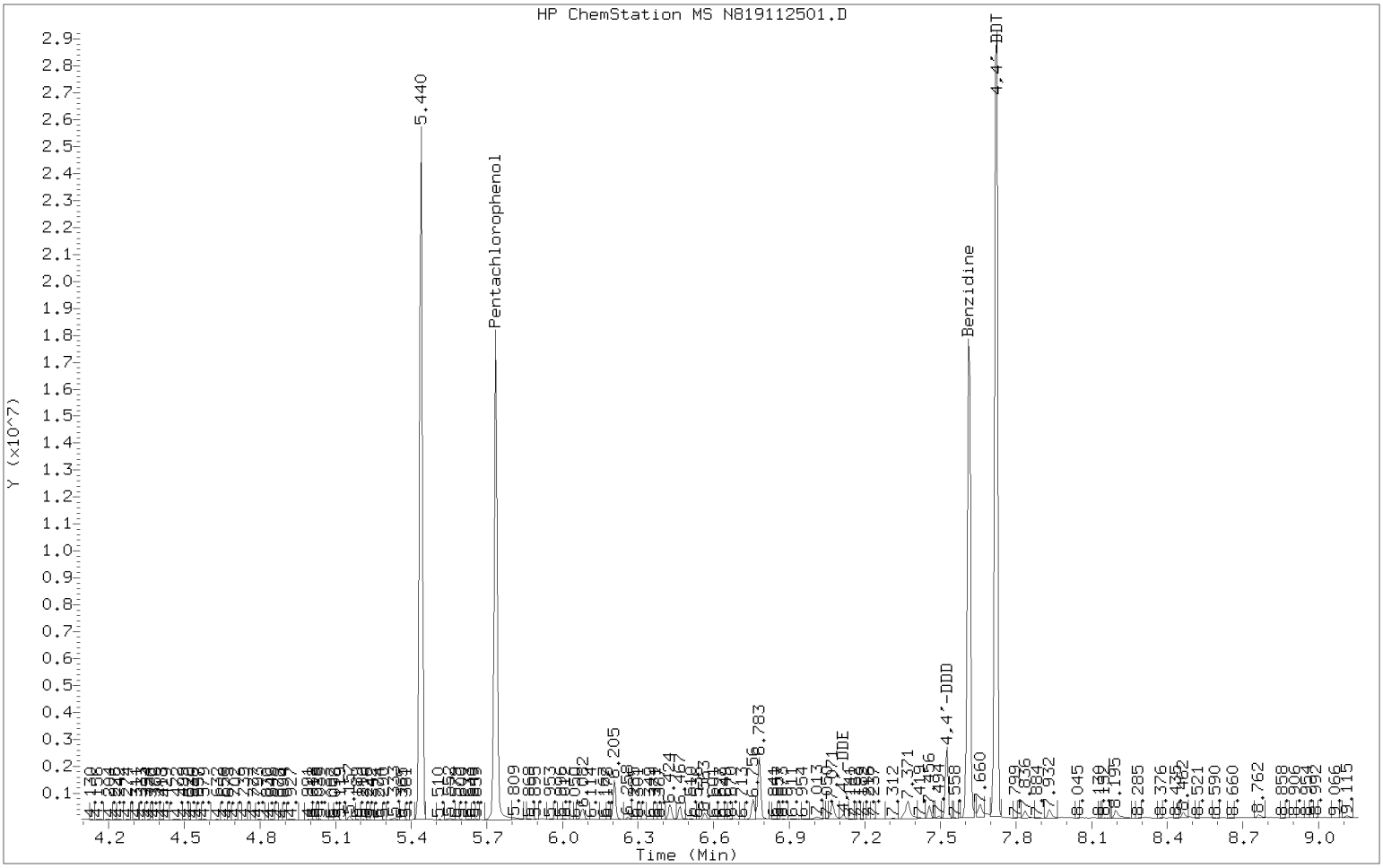
ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	N819112502	N819112503	N819112504	N819112505	N819112506	N819112507
INJ.DATE:	25-NOV-2019	25-NOV-2019	25-NOV-2019	25-NOV-2019	25-NOV-2019	25-NOV-2019
INJ.TIME:	14:05	14:24	14:41	14:57	15:13	15:29

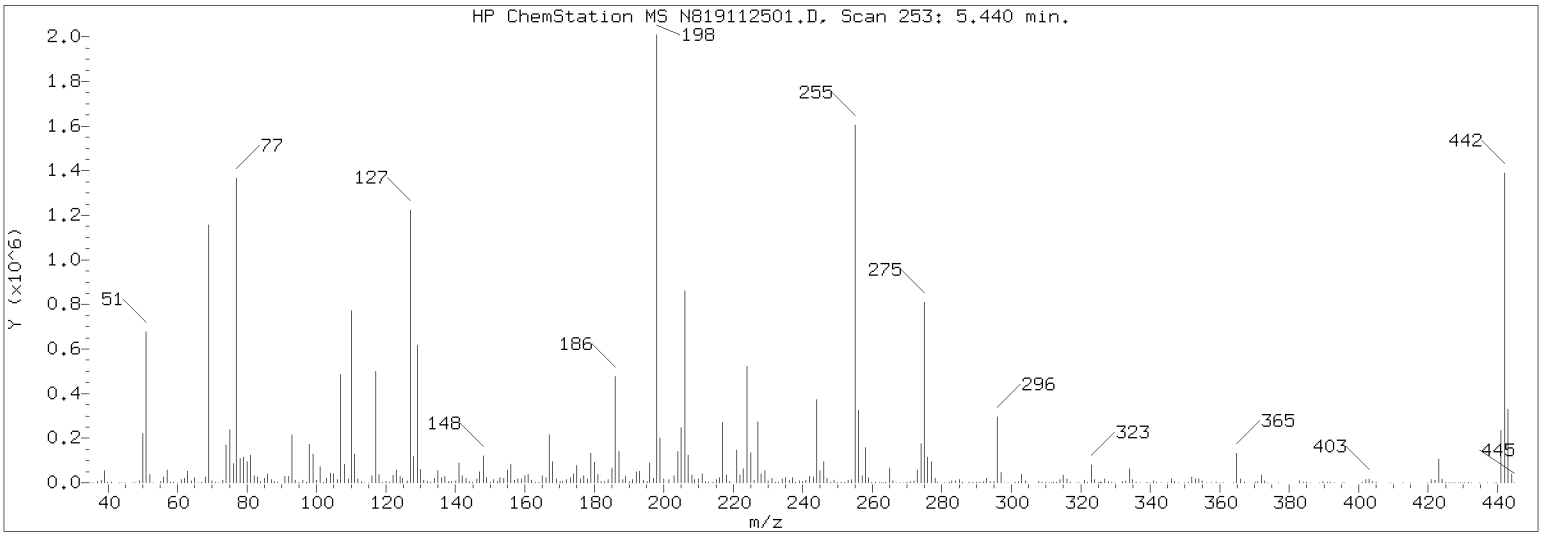
Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$ 1 Tripropyl Tin (Hexyl)	4.482	4.472	4.472	4.472	4.472	4.472	4.472	4.382-4.561	4.473	0.004
2 Tetrabutyl Tin	4.659	4.649	4.649	4.649	4.649	4.649	4.649	4.556-4.742	4.650	0.004
3 Tributyl Tin (Hexyl)	5.440	5.440	5.430	5.430	5.430	5.430	5.430	5.321-5.538	5.433	0.005
* 4 Tetrapentyl Tin	6.071	6.071	6.071	6.071	6.071	6.071	6.071	5.949-6.192	6.071	0.000
5 Dibutyl Tin (Hexyl)	6.143	6.131	6.131	6.131	6.131	6.131	6.131	6.009-6.254	6.133	0.005
$ 6 Tripentyl Tin (Hexyl)	6.421	6.409	6.409	6.409	6.409	6.409	6.409	6.281-6.537	6.411	0.005
7 Butyl Tin (Hexyl)	6.772	6.772	6.772	6.772	6.772	6.772	6.772	6.637-6.907	6.772	0.000
* 8 p-Terphenyl-d14	8.660	8.660	8.647	8.647	8.648	8.647	8.647	8.475-8.820	8.652	0.006

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

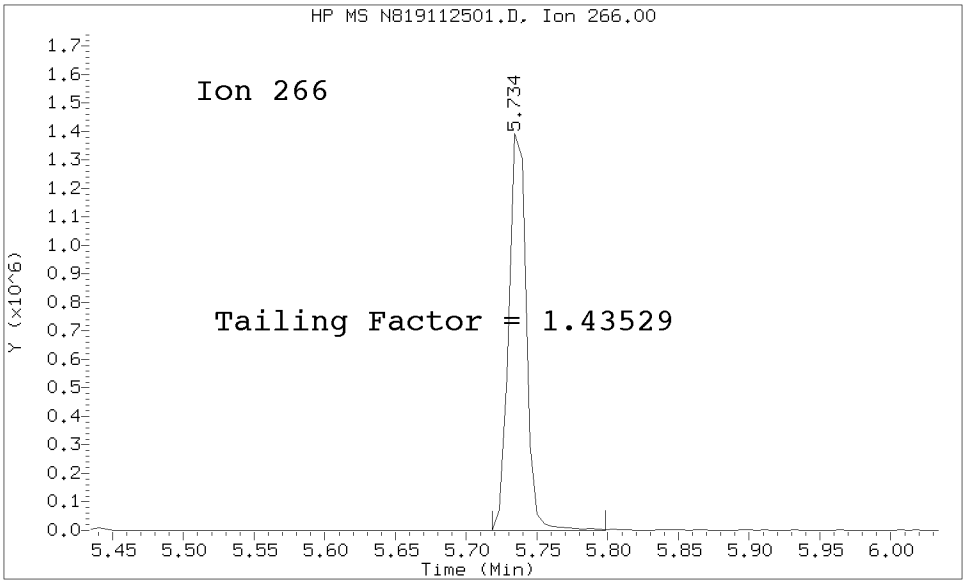
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: SHK0340-TUN1 DFTPP191125
Report Date: 11/26/2019 11:07



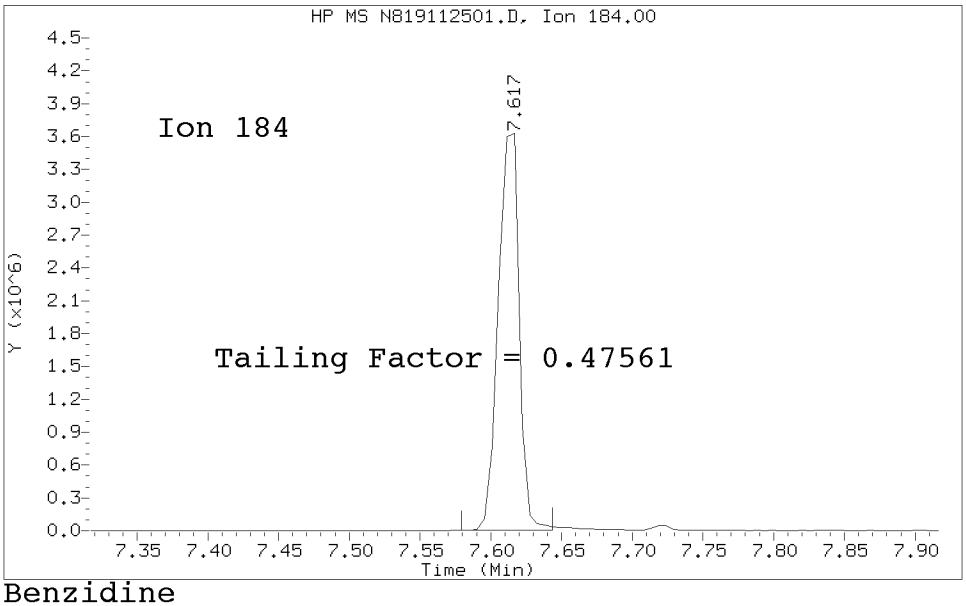


Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: DFTPP191125
Report Date: 11/26/2019 11:07



Pentachlorophenol
==========
Exp. RT = 5.740
Found RT = 5.734

Tail Factor = 1.435 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.649
Found RT = 7.617

Tail Factor = 0.476 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.4352941	2.000	PASS
Benzidine	0.4756098	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	2665847			N/A
4,4-DDE	11039	0.4	20.0	PASS
4,4-DDD	276865	9.4	20.0	PASS
4,4-DDD + DDE	287904	9.7	20.0	PASS

Tuning Sample, /nt8.i/20191125.b/tune.b/N819112501.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	32.32
68	Less than 2.00% of mass 69	1.13 (1.95)
69	Mass 69 relative abundance	57.92
70	Less than 2.00% of mass 69	0.40 (0.68)
127	10.00 - 80.00% of mass 198	58.73
197	Less than 2.00% of mass 198	0.93
199	5.00 - 9.00% of mass 198	8.94
275	10.00 - 60.00% of mass 198	37.03
365	Greater than 1.00% of mass 198	6.49
441	0.01 - 24.00% of mass 442	11.16 (15.96)
442	50.00 - 200.00% of mass 198	69.97
443	15.00 - 24.00% of mass 442	16.23 (23.19)

Data File: N819112501.D
Spectrum: Avg. Scans 252-254 (5.44), Background Scan 246
Location of Maximum: 198.00
Number of points: 375

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	626	135.00	37736	230.00	4922	327.00	12030
36.00	144	136.00	15737	231.00	13463	328.00	6275
37.00	3755	137.00	18752	232.00	2486	329.00	1169
38.00	8069	138.00	3357	233.00	2450	330.00	680
39.00	38488	139.00	2802	234.00	11367	332.00	4383
40.00	1484	140.00	6032	235.00	13102	333.00	6316
41.00	1680	141.00	60936	236.00	8647	334.00	39488
44.00	729	142.00	19568	237.00	13244	335.00	7991
45.00	897	143.00	12494	238.00	2079	336.00	1509
47.00	944	144.00	3142	239.00	6759	337.00	134
49.00	3440	145.00	1994	240.00	6045	339.00	1424
50.00	149056	146.00	11149	241.00	7937	340.00	651
51.00	470784	147.00	34896	242.00	19320	341.00	5688
52.00	27856	148.00	81744	243.00	20480	342.00	2468
53.00	632	149.00	16079	244.00	245184	343.00	294
55.00	2942	150.00	2914	245.00	35200	344.00	158
56.00	17960	151.00	10509	246.00	67528	345.00	690
57.00	41496	152.00	3106	247.00	13938	346.00	13112
58.00	1712	153.00	16194	248.00	2120	347.00	2669
59.00	1162	154.00	12242	249.00	9693	348.00	235
60.00	395	155.00	36624	250.00	2200	350.00	391
61.00	10309	156.00	51016	251.00	2784	351.00	1149
62.00	13807	157.00	7639	252.00	3442	352.00	17624
63.00	37936	158.00	10421	253.00	7032	353.00	11420
64.00	6462	159.00	8437	254.00	11213	354.00	12685
65.00	16672	160.00	21472	255.00	1161728	355.00	4026
66.00	1122	161.00	26800	256.00	211008	356.00	184
67.00	910	162.00	9367	257.00	18848	358.00	383
68.00	16432	163.00	2717	258.00	105328	359.00	1728
69.00	843712	164.00	2590	259.00	16904	360.00	847
70.00	5771	165.00	22792	260.00	2290	361.00	440
71.00	2019	166.00	16792	261.00	1854	362.00	283
72.00	771	167.00	147200	262.00	323	364.00	350
73.00	9151	168.00	66008	263.00	1063	365.00	94528
74.00	118952	169.00	10585	264.00	2608	366.00	11647
75.00	169984	170.00	4743	265.00	40992	367.00	1106
76.00	61648	171.00	4390	266.00	5410	369.00	186
77.00	1003328	172.00	10914	267.00	1005	370.00	1987
78.00	80792	173.00	14767	268.00	852	371.00	3809
79.00	86120	174.00	26472	269.00	102	372.00	24528
80.00	66544	175.00	54192	270.00	1932	373.00	6223
81.00	90792	176.00	11172	271.00	3567	374.00	805
82.00	21240	177.00	21216	272.00	5868	377.00	766
83.00	15738	178.00	10704	273.00	39968	378.00	211
84.00	1948	179.00	87072	274.00	114344	382.00	158
85.00	12601	180.00	64008	275.00	539328	383.00	5940
86.00	26568	181.00	24904	276.00	77096	384.00	2430
87.00	9024	182.00	4401	277.00	69696	385.00	1129
88.00	4523	183.00	3134	278.00	13490	386.00	120

89.00	2828	184.00	9505	279.00	3197	389.00	427
91.00	20400	185.00	43600	280.00	102	390.00	2592
92.00	19232	186.00	321280	281.00	110	391.00	2247
93.00	148160	187.00	96200	282.00	1249	392.00	1895
94.00	8559	188.00	9359	283.00	7269	393.00	805
95.00	2144	189.00	22368	284.00	4713	395.00	560
96.00	6151	190.00	4806	285.00	9367	396.00	87
97.00	2355	191.00	10540	286.00	2361	397.00	138
98.00	119720	192.00	30408	288.00	1350	400.00	514
99.00	84824	193.00	33808	289.00	2254	401.00	1201
100.00	6622	194.00	8263	290.00	1865	402.00	9237
101.00	47352	195.00	2253	291.00	1453	403.00	11777
102.00	2520	196.00	53936	292.00	2892	404.00	5313
103.00	14113	197.00	13560	293.00	13074	405.00	1337
104.00	28616	198.00	1456640	294.00	4312	409.00	117
105.00	29344	199.00	130296	295.00	4104	410.00	470
106.00	9425	200.00	11245	296.00	212672	412.00	131
107.00	345152	201.00	8148	297.00	30992	413.00	129
108.00	55792	203.00	19840	298.00	1110	415.00	781
109.00	9729	204.00	90536	299.00	538	420.00	292
110.00	522560	205.00	158720	301.00	2624	421.00	10344
111.00	91224	206.00	593728	302.00	3762	422.00	7981
112.00	12176	207.00	82288	303.00	25176	423.00	66952
113.00	4187	208.00	27504	304.00	6208	424.00	12029
114.00	1266	209.00	11073	305.00	847	425.00	2117
115.00	1326	210.00	11074	306.00	134	426.00	896
116.00	20880	211.00	28160	308.00	3218	427.00	880
117.00	363136	212.00	3946	309.00	2406	428.00	814
118.00	25088	213.00	2789	310.00	2322	429.00	788
119.00	2496	214.00	1069	311.00	1013	430.00	899
120.00	4774	215.00	10147	312.00	1001	431.00	1312
121.00	1371	216.00	16400	313.00	2569	432.00	444
122.00	25192	217.00	185856	314.00	9613	433.00	745
123.00	38528	218.00	23880	315.00	24688	434.00	509
124.00	18168	219.00	2394	316.00	11937	435.00	200
125.00	14752	220.00	2510	317.00	2184	437.00	303
126.00	4943	221.00	85632	318.00	248	439.00	363
127.00	855424	222.00	22888	319.00	317	440.00	263
128.00	79672	223.00	43032	320.00	361	441.00	162624
129.00	419968	224.00	360192	321.00	6533	442.00	1019264
130.00	37672	225.00	91800	322.00	2623	443.00	236416
131.00	7802	226.00	9821	323.00	57064	444.00	25696
132.00	3915	227.00	191872	324.00	9267	445.00	1269
133.00	1227	228.00	26944	325.00	1525	484.00	118
134.00	14724	229.00	39200	326.00	961		

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112502.D

Date : 25-NOV-2019 14:05

Client ID:

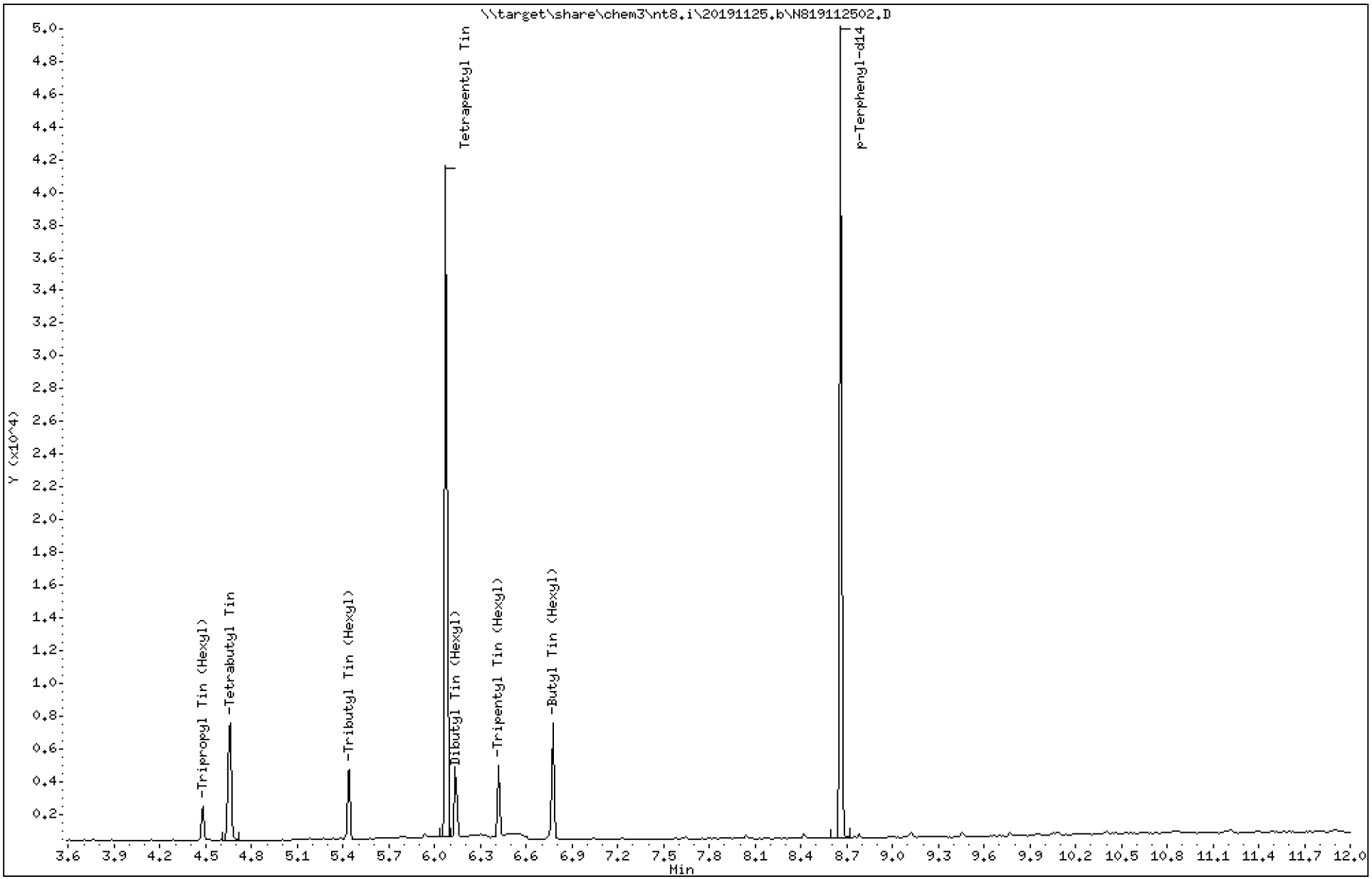
Sample Info: IC005191125,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112502.D
Lab Smp Id: SHK0340-CAL1
Inj Date : 25-NOV-2019 14:05
Operator : JZ Inst ID: nt8.i
Smp Info : IC005191125,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 14:57 Cal File: N819112505.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.482	4.471	(0.738)	1348	0.05000	0.08328
	2 Tetrabutyl Tin	289	4.659	4.648	(0.767)	1205	0.05000	0.08428
	3 Tributyl Tin (Hexyl)	319	5.440	5.429	(0.896)	973	0.05000	0.07780
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	41416	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.143	6.131	(0.709)	1213	0.10000	0.1283
$	6 Tripentyl Tin (Hexyl)	347	6.421	6.409	(0.742)	1719	0.10000	0.1242
	7 Butyl Tin (Hexyl)	347	6.772	6.771	(0.782)	1747	0.10000	0.1169
*	8 p-Terphenyl-d14	244	8.659	8.647	(1.000)	42717	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112502.D
Lab Smp Id: SHK0340-CAL1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	41416	-0.42
8 p-Terphenyl-d14	41162	20581	82324	42717	3.78

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.66	0.14

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112502.D

Lab ID: SHK0340-CAL1
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 14:05

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112503.D

Date : 25-NOV-2019 14:24

Client ID:

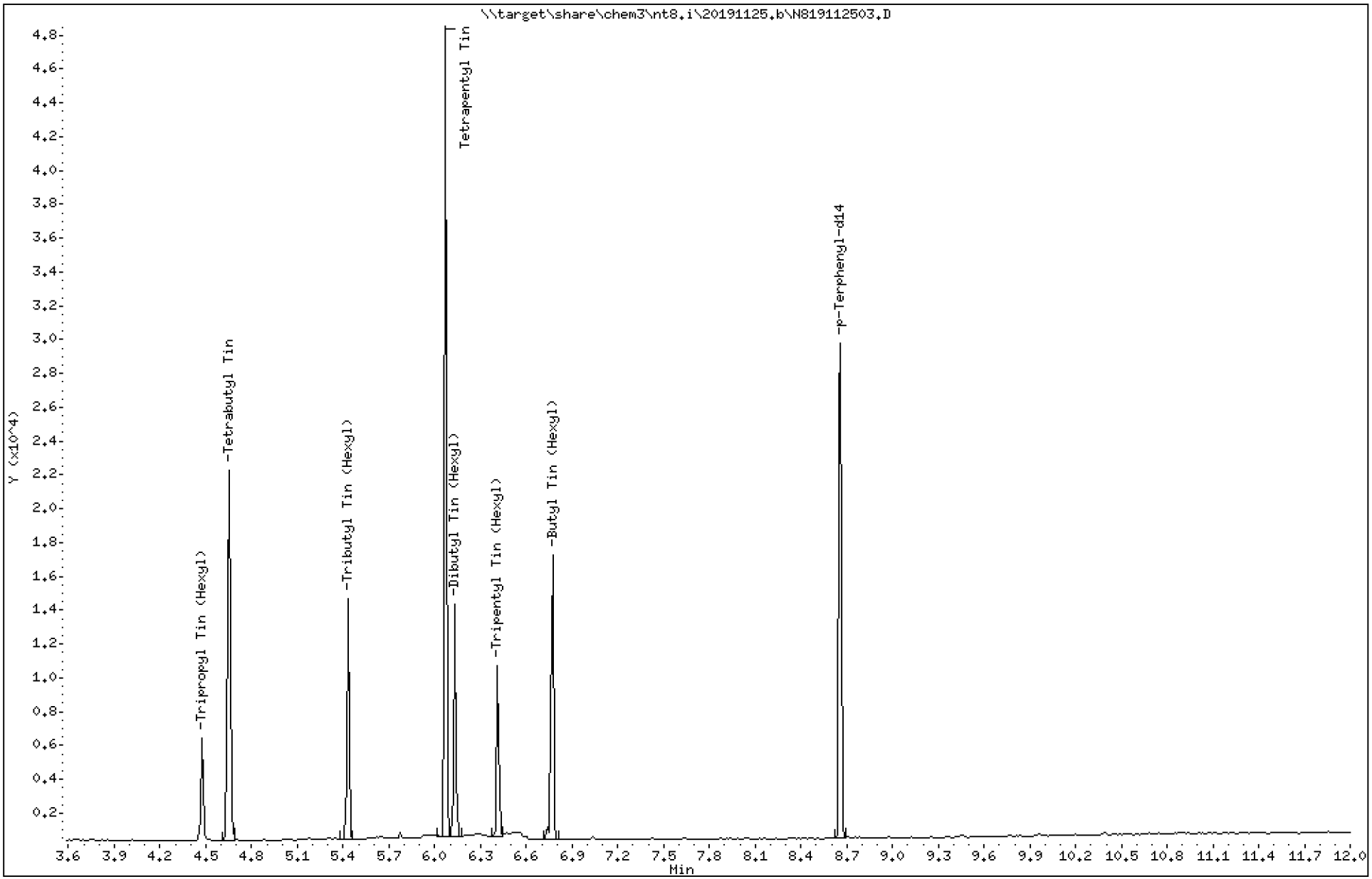
Sample Info: IC02191125,

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112503.D
Lab Smp Id: SHK0340-CAL2
Inj Date : 25-NOV-2019 14:24
Operator : JZ Inst ID: nt8.i
Smp Info : IC02191125,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 14:05 Cal File: N819112502.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.737)	3333	0.20000	0.1986
	2 Tetrabutyl Tin	289	4.648	4.648	(0.766)	3036	0.20000	0.2048
	3 Tributyl Tin (Hexyl)	319	5.440	5.429	(0.896)	2468	0.20000	0.1903
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	42942	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.708)	3082	0.40000	0.3422
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.740)	4573	0.40000	0.3467
	7 Butyl Tin (Hexyl)	347	6.772	6.771	(0.782)	4795	0.40000	0.3368
*	8 p-Terphenyl-d14	244	8.659	8.647	(1.000)	40691	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112503.D
Lab Smp Id: SHK0340-CAL2
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	42942	3.25
8 p-Terphenyl-d14	41162	20581	82324	40691	-1.14

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.66	0.14

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112503.D

Lab ID: SHK0340-CAL2
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 14:24

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112504.D

Date : 25-NOV-2019 14:41

Client ID:

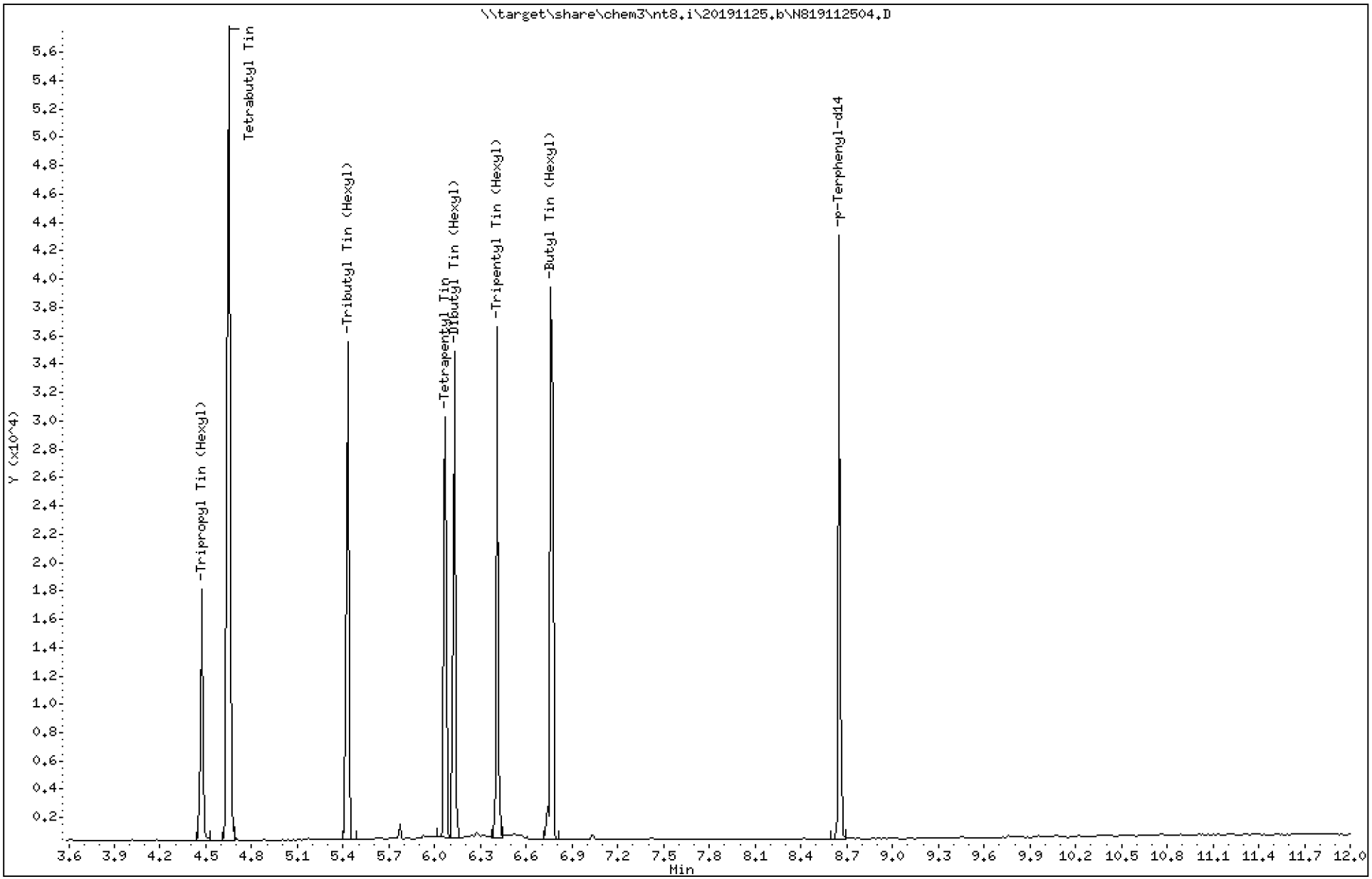
Sample Info: IC05191125,

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112504.D
Lab Smp Id: SHK0340-CAL3
Inj Date : 25-NOV-2019 14:41
Operator : JZ Inst ID: nt8.i
Smp Info : IC05191125,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 14:24 Cal File: N819112503.D
Als bottle: 4 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.737)	9169	0.50000	0.5996
	2 Tetrabutyl Tin	289	4.648	4.648	(0.766)	7819	0.50000	0.5789
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.894)	6640	0.50000	0.5620
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	39128	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	8865	1.00000	0.9890
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	12804	1.00000	0.9755
	7 Butyl Tin (Hexyl)	347	6.772	6.771	(0.783)	13214	1.00000	0.9326
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	40493	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112504.D
Lab Smp Id: SHK0340-CAL3
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	39128	-5.92
8 p-Terphenyl-d14	41162	20581	82324	40493	-1.63

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112504.D

Lab ID: SHK0340-CAL3
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 14:41

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112505.D

Date : 25-NOV-2019 14:57

Client ID:

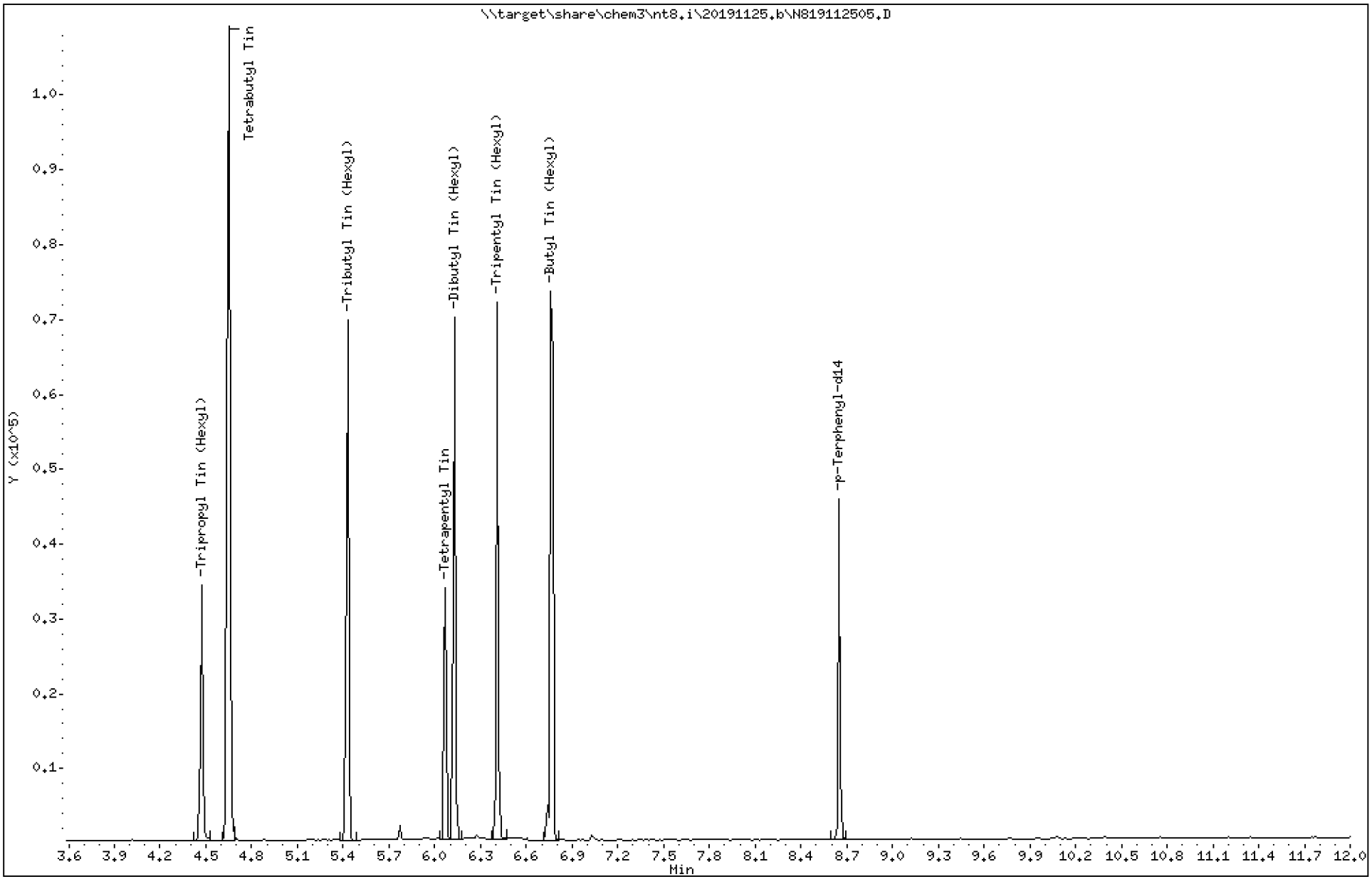
Sample Info: IC1191125,

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112505.D
Lab Smp Id: SHK0340-CAL4
Inj Date : 25-NOV-2019 14:57
Operator : JZ Inst ID: nt8.i
Smp Info : IC1191125,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:52 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 14:57 Cal File: N819112505.D
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.737)	17376	1.00000	1.069
	2 Tetrabutyl Tin	289	4.648	4.648	(0.766)	15194	1.00000	1.058
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.894)	12797	1.00000	1.019
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	41592	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	17462	2.00000	1.916
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	25961	2.00000	1.946
	7 Butyl Tin (Hexyl)	347	6.771	6.771	(0.783)	26879	2.00000	1.866
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	41162	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112505.D
Lab Smp Id: SHK0340-CAL4
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	41592	0.00
8 p-Terphenyl-d14	41162	20581	82324	41162	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112505.D

Lab ID: SHK0340-CAL4
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 14:57

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

ARI Labs, Inc.

Krone1989/8270D-SIM
Data file : \\target\share\chem3\nt8.i\20191125.b\N819112505.D
Lab Smp Id: SHK0340-CAL4
Inj Date : 25-NOV-2019 14:57
Operator : JZ   Inst ID: nt8.i
Smp Info : IC1191125,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i   Quant Type: ISTD
Cal Date : 25-NOV-2019 14:41   Cal File: N819112504.D
Als bottle: 5   Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.737)	17376	1.00000	1.069
	2 Tetrabutyl Tin	289	4.648	4.648	(0.766)	15194	1.00000	1.058
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.894)	12797	1.00000	1.019
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	41592	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	17462	2.00000	1.916
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	25961	2.00000	1.946
	7 Butyl Tin (Hexyl)	347	6.771	6.771	(0.783)	26879	2.00000	1.866
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	41162	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112505.D
Lab Smp Id: SHK0340-CAL4
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	41592	0.00
8 p-Terphenyl-d14	41162	20581	82324	41162	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112505.D

Lab ID: SHK0340-CAL4
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 14:57

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

Instrument: nt8.i Date: 25-NOV-2019 Method: 20191125.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N819112505.D 25-NOV-2019 14:57

Compound	%D
NO Q-FLAGS	

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112506.D

Date : 25-NOV-2019 15:13

Client ID:

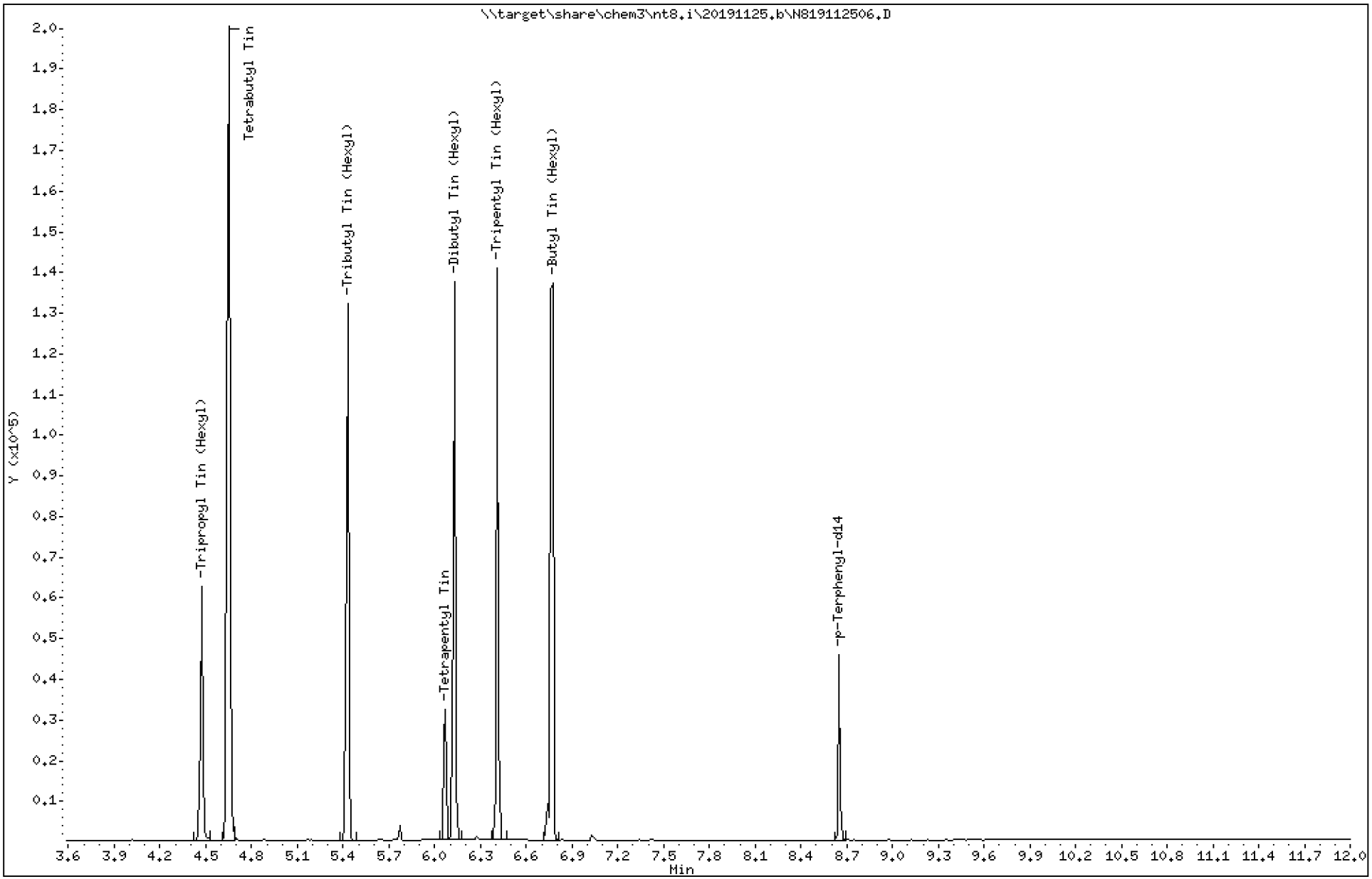
Sample Info: IC2191125,

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112506.D
Lab Smp Id: SHK0340-CAL5
Inj Date : 25-NOV-2019 15:13
Operator : JZ Inst ID: nt8.i
Smp Info : IC2191125,
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 14:57 Cal File: N819112505.D
Als bottle: 6 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.737)	32536	2.00000	1.998
	2 Tetrabutyl Tin	289	4.648	4.648	(0.766)	28159	2.00000	1.957
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.894)	24691	2.00000	1.962
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	41672	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	33224	4.00000	3.613
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	49415	4.00000	3.670
	7 Butyl Tin (Hexyl)	347	6.772	6.771	(0.783)	54099	4.00000	3.722
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	41539	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112506.D
Lab Smp Id: SHK0340-CAL5
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	41672	0.19
8 p-Terphenyl-d14	41162	20581	82324	41539	0.92

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112506.D

Lab ID: SHK0340-CAL5
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 15:13

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112507.D

Date : 25-NOV-2019 15:29

Client ID:

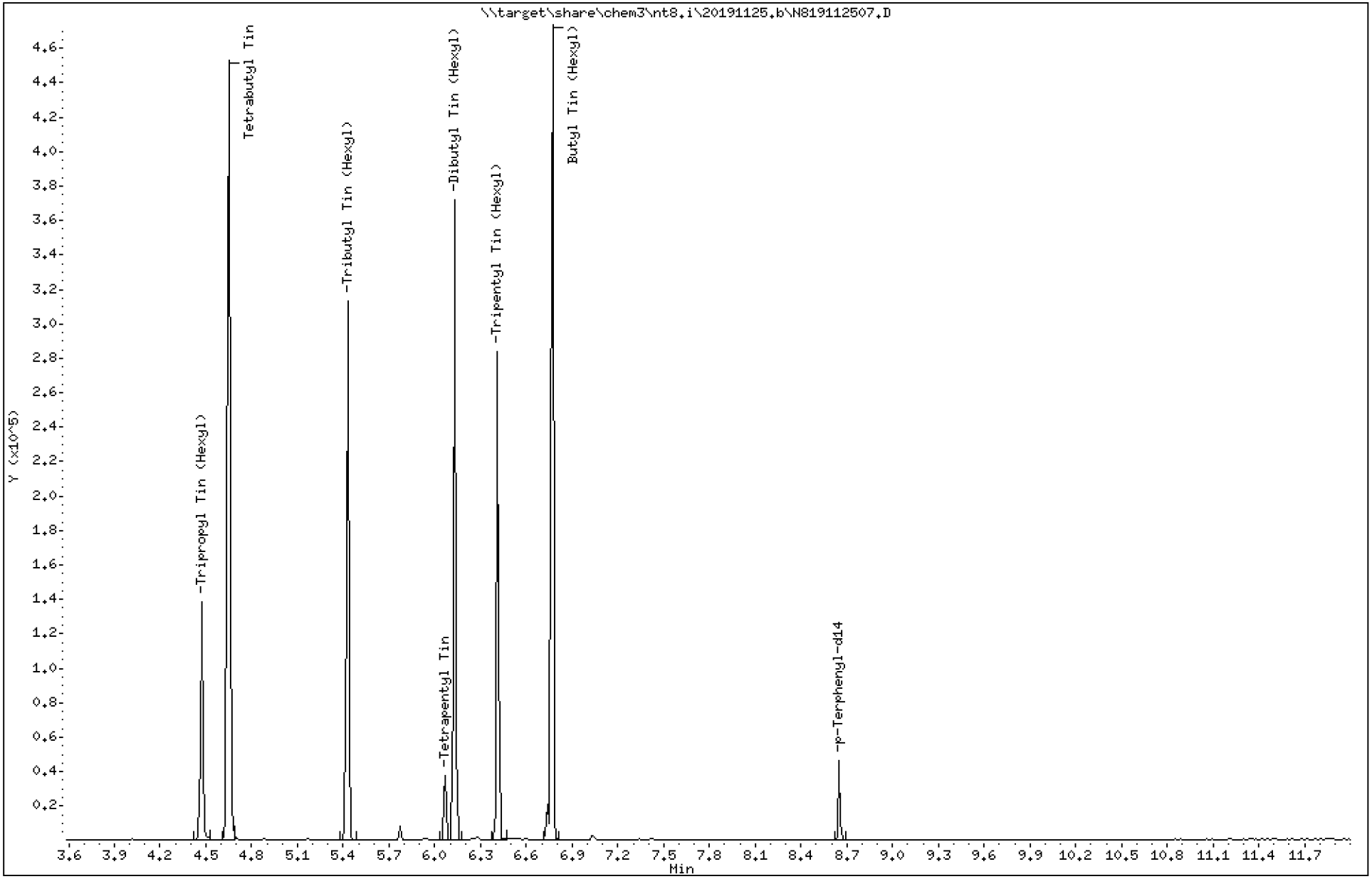
Sample Info: IC4191125,

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112507.D
Lab Smp Id: SHK0340-CAL6
Inj Date : 25-NOV-2019 15:29
Operator : JZ Inst ID: nt8.i
Smp Info : IC4191125,
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 15:13 Cal File: N819112506.D
Als bottle: 7 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.737)	70403	4.00000	3.967
	2 Tetrabutyl Tin	289	4.648	4.648	(0.766)	62595	4.00000	3.993
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.894)	54919	4.00000	4.005
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	45410	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	74621	8.00000	8.092
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	110801	8.00000	8.206
	7 Butyl Tin (Hexyl)	347	6.771	6.771	(0.783)	139109	8.00000	9.543
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	41659	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112507.D
Lab Smp Id: SHK0340-CAL6
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	45410	9.18
8 p-Terphenyl-d14	41162	20581	82324	41659	1.21

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112507.D

Lab ID: SHK0340-CAL6
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 15:29

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112508.D

Date : 25-NOV-2019 16:02

Client ID:

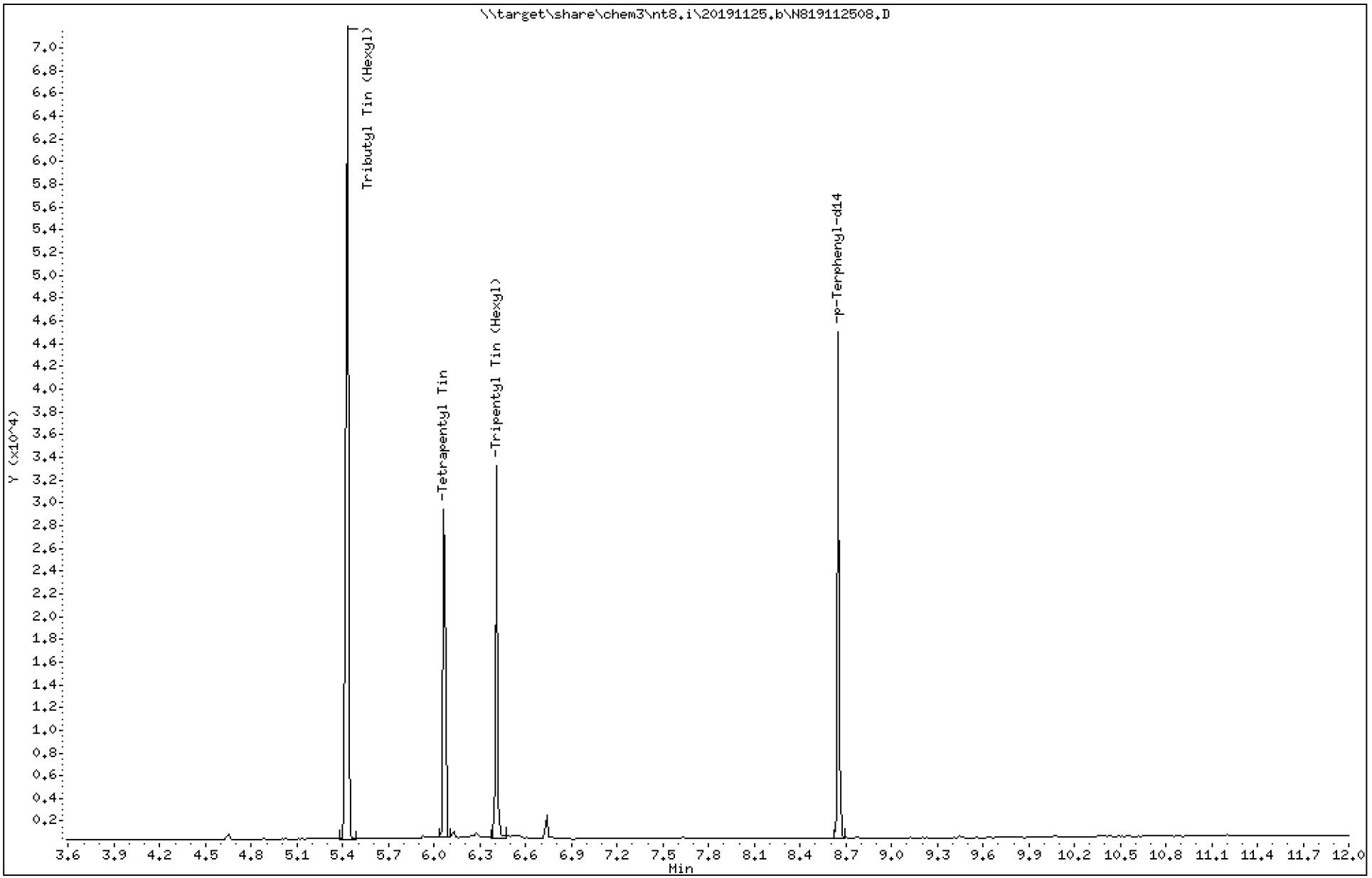
Sample Info: SCV191125

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20191125.b\N819112508.D

Date : 25-NOV-2019 16:02

Client ID:

Instrument: nt8.i

Sample Info: SCV191125

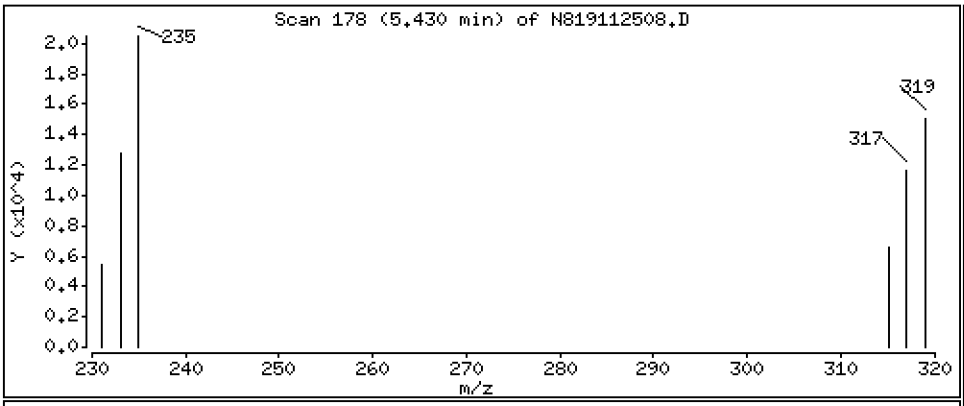
Operator: JZ

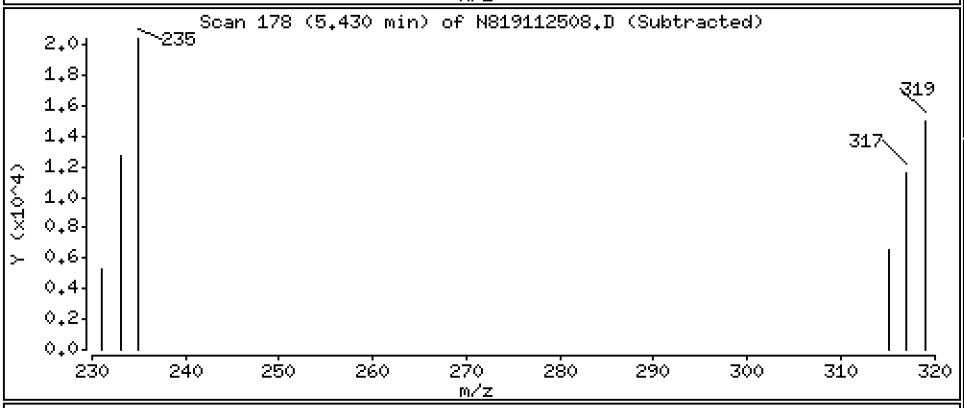
Column phase: ZB-5msi

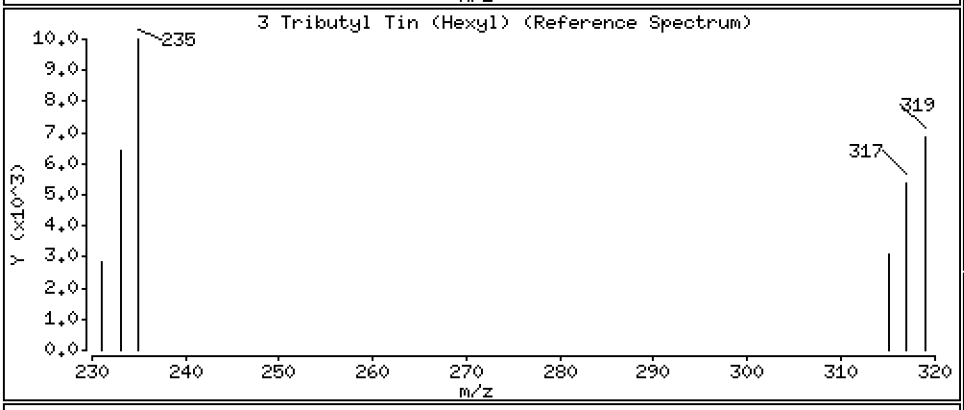
Column diameter: 0.25

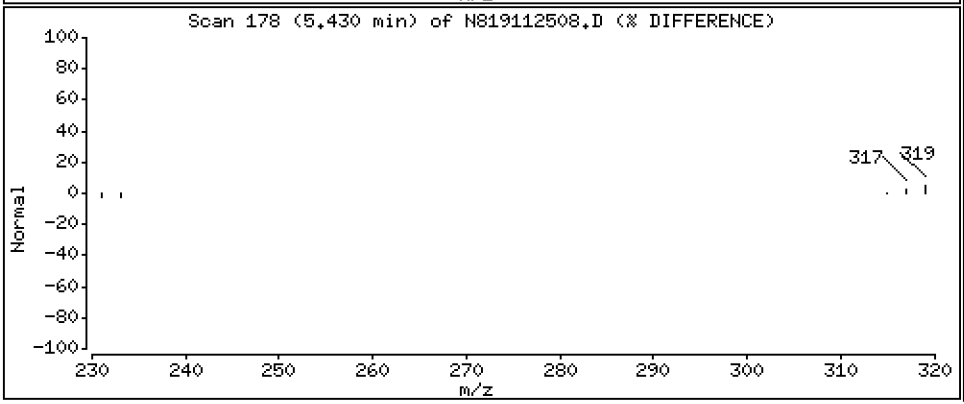
3 Tributyl Tin (Hexyl)

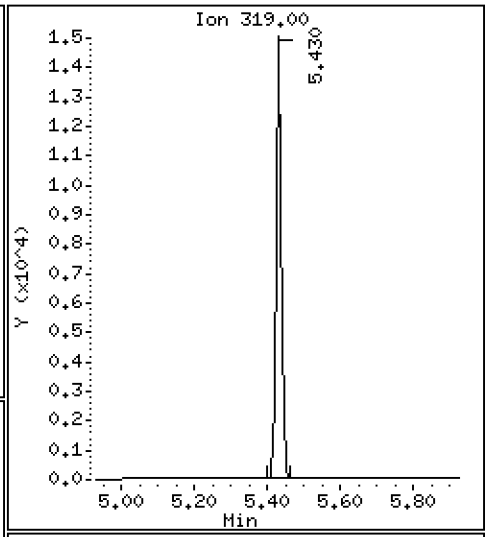
Concentration: 1.176 ug/mL

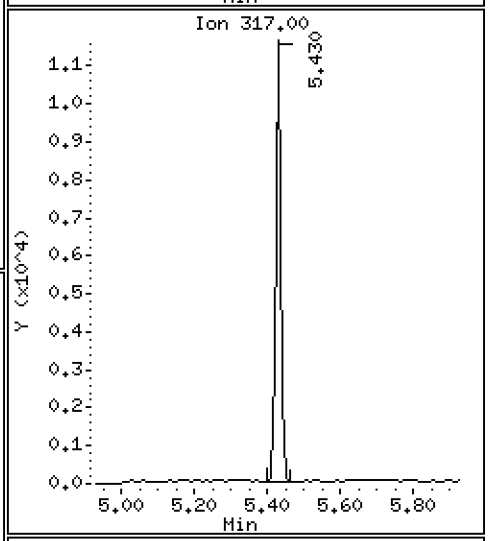


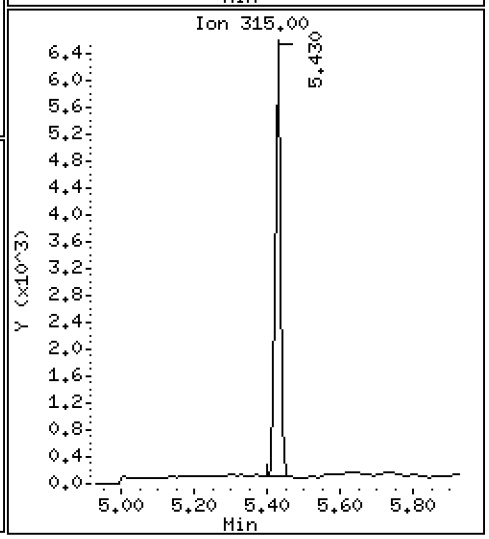












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112508.D
Lab Smp Id: SHK0340-SCV1
Inj Date : 25-NOV-2019 16:02
Operator : JZ Inst ID: nt8.i
Smp Info : SCV191125
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	Compound Not Detected.					
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	13901	1.17634	1.176
*	4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	39133	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	11703	0.90574	0.9057
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	39863	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112508.D
Lab Smp Id: SHK0340-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	39133	-5.91
8 p-Terphenyl-d14	41162	20581	82324	39863	-3.16

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112508.D

Lab ID: SHK0340-SCV1
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 16:02

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N819112507.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

INITIAL CALIBRATION DATA

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Calibration:	DA00008	Instrument:	NT8
Calibration Date:	01/03/2020	Column (1):	RXI-17Sil ms

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RRF		**RRF**		**RRF**		**RRF**		**RRF**		**RRF**
Tributyltin Ion	0.03865	1.283962	0.1546	0.8177456	0.3865	0.9300383	0.773	0.7758708	1.546	0.8403752	3.092	0.8446295
Tripentyltin	0.07959	0.1487247	0.31836	8.760048E-02	0.7959	0.101864	1.5918	9.675295E-02	3.1836	0.104324	6.3672	0.1436724
Tripropyltin	0.037215	1.640932	0.14886	1.082091	0.37215	1.239587	0.7443	1.054717	1.4886	1.082334	2.9772	1.029643

INITIAL CALIBRATION DATA

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Calibration:	DA00008	Instrument:	NT8
Calibration Date:	01/03/2020	Column (1):	RXI-17Sil ms

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Tributyltin Ion	0.9154369	20.5	0.9991		LCOD (0.99)	
Tripentyltin	0.1138231	22.6		0.9997	QCOD (0.99)	
Tripropyltin	1.188217	19.7	0.9984		LCOD (0.99)	

Printed: 1/3/2020 2:19:48PM

ANALYSIS SEQUENCE

SIA0018

Instrument: NT8 Element Column ID: H004092
Calibration ID: DA00008 Tune File: 191025.U
EM Voltage: 2118

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SIA0018-TUN1	MS Tune	QC		1	H010226		
SIA0018-CAL1	TBT Cal 1	QC		2	I000064	H004622	
SIA0018-CAL2	TBT Cal 2	QC		3	I000065	H004622	
SIA0018-CAL3	TBT Cal 3	QC		4	I000066	H004622	
SIA0018-CAL4	TBT Cal 4	QC		5	I000067	H004622	
SIA0018-CAL5	TBT Cal 5	QC		6	I000068	H004622	
SIA0018-CAL6	TBT Cal 6	QC		7	I000069	H004622	
SIA0018-SCV1	Secondary Cal Check	QC		8	I000096	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20200103.b

	Time	Filename	LabID	ClientId	DF				
1	1003	N820010301.D	SIA0018-TUN1		1	NO ISTDS FOUND			
2	1015	N820010302.D	SIA0018-CAL4		1	6.01	43350	8.58	36156
3	1034	N820010303.D	SIA0018-CAL1		1	6.01	35297	8.59	30580
4	1050	N820010304.D	SIA0018-CAL2		1	6.01	34803	8.58	31227
5	1106	N820010305.D	SIA0018-CAL3		1	6.01	34476	8.58	29989
6	1123	N820010306.D	SIA0018-CAL5		1	6.01	36874	8.58	29614
7	1139	N820010307.D	SIA0018-CAL6		1	6.01	39335	8.58	29071
8	1323	N820010308.D	SIA0018-SCV1		1	6.01	30619	8.59	26292

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20200103.b

ARI Job No.: SIA0 Method: TBT200103.m Instrument: nt8.i Date: 03-JAN-2020

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1015	N820010302.D	SIA0018-CAL4		1	NO MANUAL INTEGRATION
1034	N820010303.D	SIA0018-CAL1		1	NO MANUAL INTEGRATION
1050	N820010304.D	SIA0018-CAL2		1	NO MANUAL INTEGRATION
1106	N820010305.D	SIA0018-CAL3		1	NO MANUAL INTEGRATION
1123	N820010306.D	SIA0018-CAL5		1	NO MANUAL INTEGRATION
1139	N820010307.D	SIA0018-CAL6		1	NO MANUAL INTEGRATION
1323	N820010308.D	SIA0018-SCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 03-Jan-2020 14:30

N820010301.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010302.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010303.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010304.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010305.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010306.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010307.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010308.D	Data Locked	jianqing, 03-Jan-2020 14:30

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 03-JAN-2020 10:15
End Cal Date : 03-JAN-2020 11:39
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Last Edit : 03-Jan-2020 11:54 jianqing

Calibration File Names:
Level 1: \\target\share\chem3\nt8.i\20200103.b\N820010303.D
Level 2: \\target\share\chem3\nt8.i\20200103.b\N820010304.D
Level 3: \\target\share\chem3\nt8.i\20200103.b\N820010305.D
Level 4: \\target\share\chem3\nt8.i\20200103.b\N820010302.D
Level 5: \\target\share\chem3\nt8.i\20200103.b\N820010306.D
Level 6: \\target\share\chem3\nt8.i\20200103.b\N820010307.D

Compound	0.0500000 Level 1	0.2000000 Level 2	0.5000000 Level 3	1.0000 Level 4	2.0000 Level 5	4.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
2 Tetrabutyl Tin	1441	3743	10247	20920	37818	80017	LINR	0.000e+000	1.01900		0.99903
3 Tributyl Tin (Hexyl)	1133	2846	8016	16817	30988	66447	LINR	0.000e+000	0.84199		0.99913
5 Dibutyl Tin (Hexyl)	1688	4011	11406	23463	46540	132032	QUAD	0.000e+000	15.05023	-1.37544	0.99902
7 Butyl Tin (Hexyl)	2641	6138	18706	40061	83888	187091	QUAD	0.000e+000	8.22423	-0.31483	0.99802
$ 1 Tripropyl Tin (Hexyl)	1448	3766	10684	22861	39910	81002	LINR	0.000e+000	1.04425		0.99839
$ 6 Tripentyl Tin (Hexyl)	2274	5471	15274	34982	61789	167068	QUAD	0.000e+000	10.98194	-0.69935	0.99980

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 03-JAN-2020 10:15
End Cal Date : 03-JAN-2020 11:39
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Last Edit : 03-Jan-2020 11:54 jianqing

Curve	Formula	Units
Linear	Amt = b + Rsp/m1	Response
Quad	Amt = b + m1*Rsp + m2*Rsp^2	Response

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Batch File: \\target\share\chem3\nt8.i\20200103.b
Inst ID: nt8.i

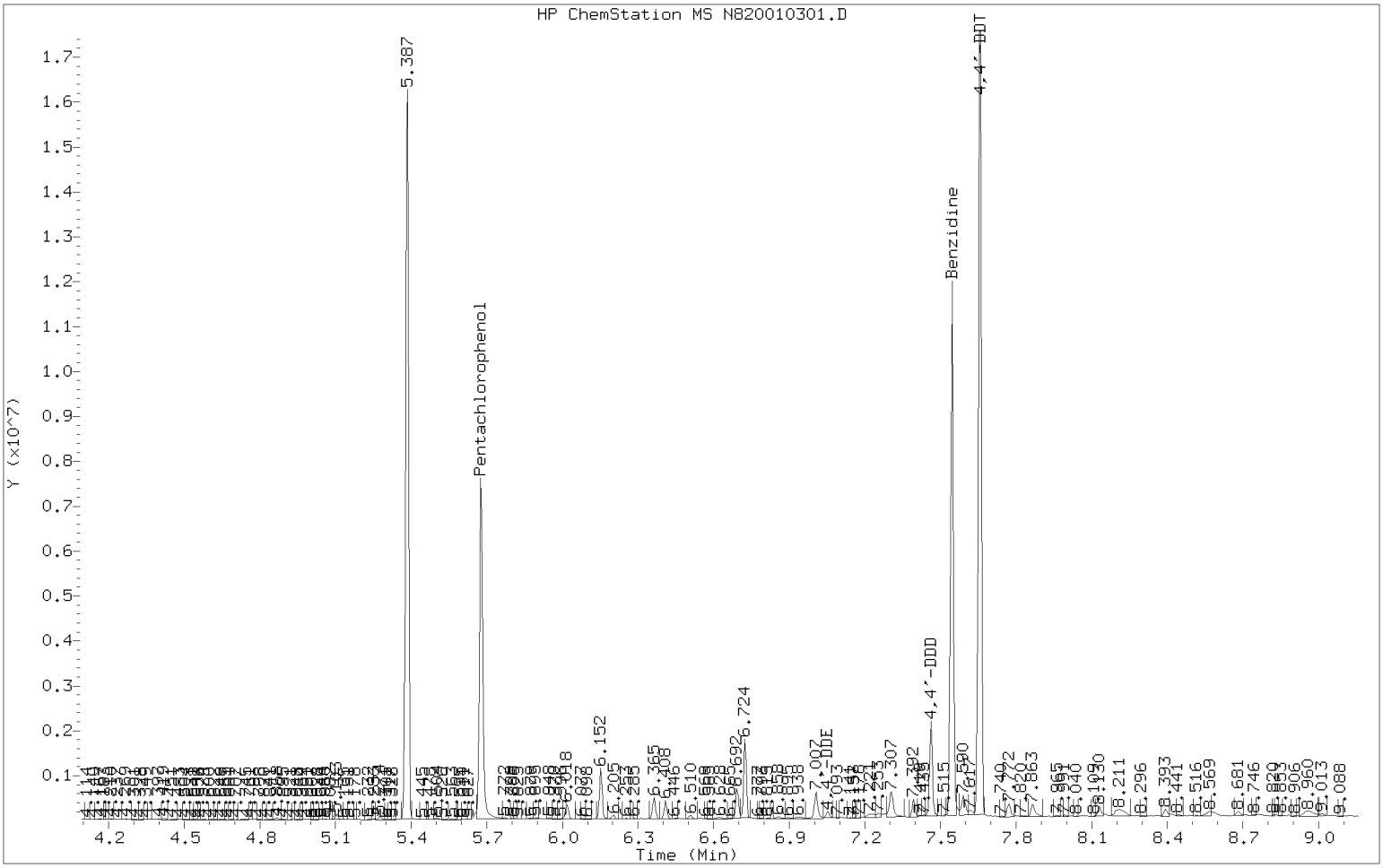
ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	N820010302	N820010303	N820010304	N820010305	N820010306	N820010307
INJ.DATE:	03-JAN-2020	03-JAN-2020	03-JAN-2020	03-JAN-2020	03-JAN-2020	03-JAN-2020
INJ.TIME:	10:15	10:34	10:50	11:06	11:23	11:39

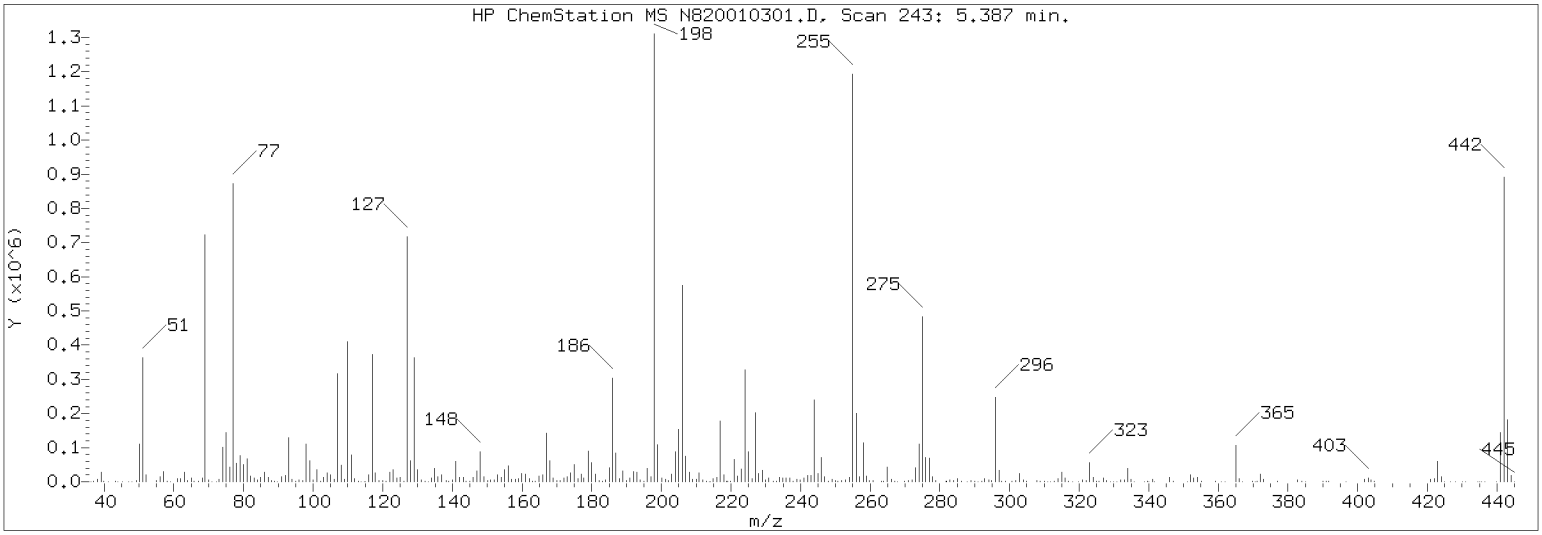
Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$ 1 Tripropyl Tin (Hexyl)	4.420	4.430	4.420	4.419	4.420	4.419	4.420	4.332-4.508	4.421	0.004
2 Tetrabutyl Tin	4.597	4.607	4.597	4.596	4.597	4.596	4.597	4.505-4.689	4.598	0.004
3 Tributyl Tin (Hexyl)	5.378	5.378	5.378	5.378	5.378	5.378	5.378	5.270-5.486	5.378	0.000
* 4 Tetrapentyl Tin	6.013	6.013	6.013	6.013	6.013	6.013	6.013	5.893-6.133	6.013	0.000
5 Dibutyl Tin (Hexyl)	6.074	6.086	6.074	6.074	6.074	6.086	6.074	5.953-6.195	6.078	0.006
$ 6 Tripentyl Tin (Hexyl)	6.352	6.364	6.352	6.352	6.352	6.364	6.352	6.225-6.479	6.356	0.006
7 Butyl Tin (Hexyl)	6.715	6.715	6.715	6.714	6.714	6.714	6.715	6.581-6.849	6.714	0.000
* 8 p-Terphenyl-d14	8.578	8.590	8.578	8.578	8.578	8.578	8.578	8.406-8.750	8.580	0.005

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

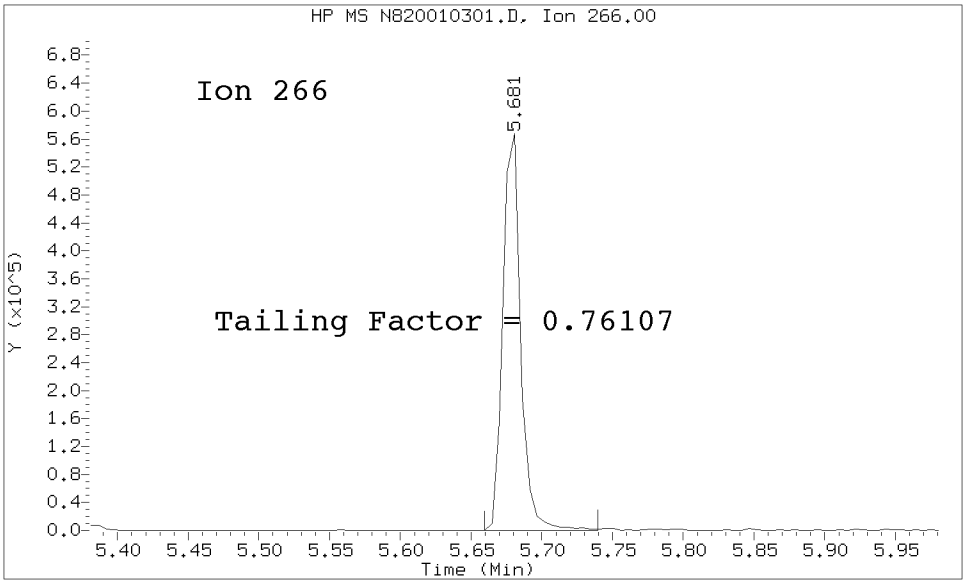
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20200103.b/tune.b/N820010301.D/N820010301.D
Method Used: \20200103.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 03-JAN-2020 10:03 Operator: JZ
Sample Info: SIA0018-TUN1 DFTPP200103
Report Date: 01/03/2020 14:27



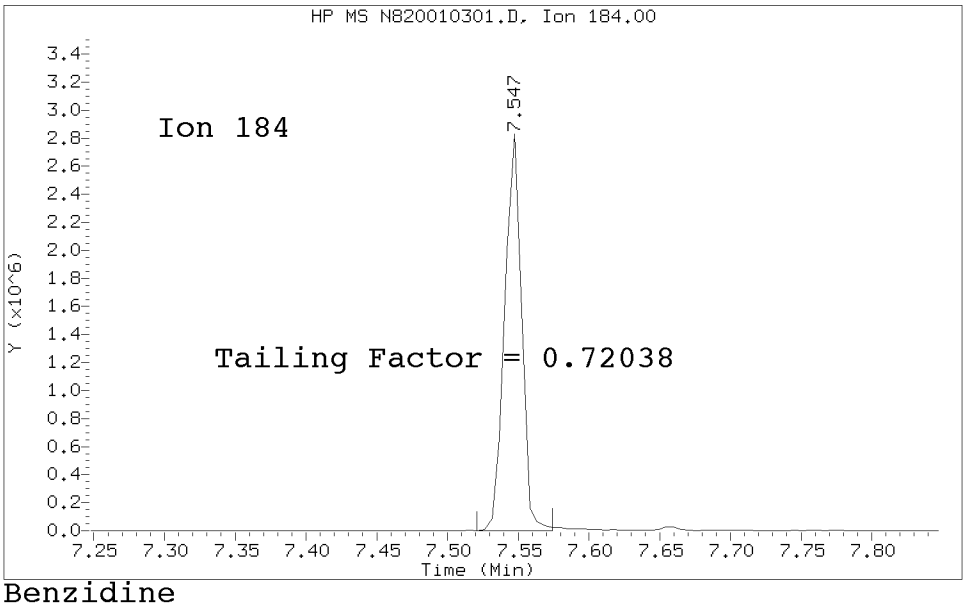


Datafile Analyzed: /20200103.b/tune.b/N820010301.D/N820010301.D
Method Used: \20200103.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 03-JAN-2020 10:03 Operator: JZ
Sample Info: DFTPP200103
Report Date: 01/03/2020 14:27



Pentachlorophenol
==========
Exp. RT = 5.681
Found RT = 5.681

Tail Factor = 0.761 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.547
Found RT = 7.547

Tail Factor = 0.720 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	0.7610723	2.000	PASS
Benzidine	0.7203791	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1708752			N/A
4,4-DDE	10585	0.6	20.0	PASS
4,4-DDD	215735	11.2	20.0	PASS
4,4-DDD + DDE	226320	11.7	20.0	PASS

Tuning Sample, /nt8.i/20200103.b/tune.b/N820010301.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	31.78
68	Less than 2.00% of mass 69	1.13 (1.85)
69	Mass 69 relative abundance	61.03
70	Less than 2.00% of mass 69	0.40 (0.66)
127	10.00 - 80.00% of mass 198	56.14
197	Less than 2.00% of mass 198	1.27
199	5.00 - 9.00% of mass 198	8.09
275	10.00 - 60.00% of mass 198	34.01
365	Greater than 1.00% of mass 198	7.57
441	0.01 - 24.00% of mass 442	8.93 (15.39)
442	50.00 - 200.00% of mass 198	57.99
443	15.00 - 24.00% of mass 442	11.69 (20.16)

Data File: N820010301.D
Spectrum: Avg. Scans 242-244 (5.39), Background Scan 236
Location of Maximum: 198.00
Number of points: 351

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	475	127.00	534656	215.00	6832	307.00	146
36.00	200	128.00	47104	216.00	9938	308.00	2360
37.00	850	129.00	272768	217.00	124360	309.00	1099
38.00	4962	130.00	28864	218.00	16600	310.00	1945
39.00	24888	131.00	4804	219.00	2682	311.00	202
40.00	1724	132.00	1895	220.00	1262	312.00	404
41.00	663	133.00	1535	221.00	41976	313.00	1104
43.00	279	134.00	9790	222.00	13682	314.00	7094
44.00	346	135.00	25584	223.00	25352	315.00	16424
45.00	346	136.00	11894	224.00	229632	316.00	7118
47.00	371	137.00	12582	225.00	63016	317.00	1403
48.00	713	138.00	2486	226.00	6126	318.00	194
49.00	2479	139.00	1658	227.00	138240	320.00	822
50.00	101104	140.00	4416	228.00	19344	321.00	3237
51.00	302656	141.00	44056	229.00	24344	322.00	2367
52.00	17744	142.00	10811	230.00	4509	323.00	37520
53.00	456	143.00	8317	231.00	8225	324.00	8247
55.00	1118	144.00	2650	232.00	1257	325.00	858
56.00	11919	145.00	1504	233.00	1603	326.00	1141
57.00	24496	146.00	9307	234.00	9336	327.00	7356
58.00	1210	147.00	25880	235.00	8194	328.00	3927
59.00	167	148.00	62152	236.00	7390	329.00	509
60.00	105	149.00	11901	237.00	7686	330.00	545
61.00	7031	150.00	2928	238.00	1427	331.00	355
62.00	9100	151.00	4339	239.00	5615	332.00	3712
63.00	23056	152.00	3799	240.00	3990	333.00	3351
64.00	3548	153.00	13082	241.00	7269	334.00	24288
65.00	10012	154.00	9125	242.00	12562	335.00	5992
66.00	962	155.00	24584	243.00	12491	336.00	466
67.00	544	156.00	31664	244.00	163712	339.00	964
68.00	10763	157.00	4421	245.00	20240	340.00	803
69.00	581184	158.00	7000	246.00	49008	341.00	4712
70.00	3826	159.00	5567	247.00	9951	342.00	908
71.00	885	160.00	14312	248.00	2550	343.00	192
73.00	4373	161.00	16270	249.00	5186	346.00	9145
74.00	80120	162.00	5587	250.00	1354	347.00	703
75.00	118536	163.00	1543	251.00	1392	348.00	104
76.00	38576	164.00	1850	252.00	2714	350.00	442
77.00	693632	165.00	14844	253.00	4387	351.00	1005
78.00	47616	166.00	13452	254.00	8140	352.00	11337
79.00	59240	167.00	106664	255.00	799296	353.00	6614
80.00	39504	168.00	50840	256.00	137920	354.00	9058
81.00	53632	169.00	7732	257.00	10915	355.00	2146
82.00	13793	170.00	3374	258.00	80656	359.00	1120
83.00	10520	171.00	3271	259.00	10015	361.00	256
84.00	2259	172.00	7797	260.00	2860	362.00	135
85.00	10518	173.00	10116	261.00	1146	365.00	72096
86.00	17168	174.00	16512	262.00	226	366.00	8651
87.00	8341	175.00	33824	263.00	1572	367.00	540

88.00	3822	176.00	6440	264.00	2171	370.00	1909
89.00	1322	177.00	14655	265.00	30792	371.00	1848
90.00	124	178.00	6408	266.00	5202	372.00	14108
91.00	12727	179.00	63624	267.00	1102	373.00	4003
92.00	15657	180.00	41136	268.00	198	383.00	4342
93.00	106400	181.00	17112	270.00	1265	384.00	475
94.00	6995	182.00	3232	271.00	2221	385.00	163
95.00	1573	183.00	1450	272.00	3427	390.00	2626
96.00	3407	184.00	4858	273.00	29640	391.00	640
97.00	1354	185.00	31272	274.00	74344	392.00	703
98.00	85224	186.00	221376	275.00	323904	393.00	275
99.00	54328	187.00	62192	276.00	46752	397.00	327
100.00	4280	188.00	7158	277.00	46336	398.00	152
101.00	28504	189.00	20288	278.00	9986	401.00	1289
102.00	1269	190.00	4051	279.00	1914	402.00	5155
103.00	10110	191.00	7880	280.00	207	403.00	5936
104.00	22912	192.00	20760	281.00	658	404.00	3929
105.00	18328	193.00	21360	282.00	3026	405.00	795
106.00	5989	194.00	3722	283.00	3851	421.00	5173
107.00	245568	195.00	2819	284.00	2736	422.00	6215
108.00	34736	196.00	31024	285.00	5518	423.00	32344
109.00	6379	197.00	12105	286.00	939	424.00	8752
110.00	309184	198.00	952320	288.00	408	425.00	381
111.00	59664	199.00	77024	289.00	2389	426.00	316
112.00	6096	200.00	5825	290.00	1155	428.00	295
113.00	2579	201.00	4627	291.00	1022	430.00	1171
114.00	354	202.00	1017	292.00	1159	431.00	362
115.00	1634	203.00	16456	293.00	8667	432.00	397
116.00	15991	204.00	64144	294.00	3250	433.00	83
117.00	284928	205.00	109432	295.00	2814	434.00	358
118.00	18736	206.00	398784	296.00	162816	435.00	89
119.00	2875	207.00	48952	297.00	20880	436.00	651
120.00	3430	208.00	19768	298.00	2220	440.00	142
121.00	1943	209.00	6346	299.00	471	441.00	85008
122.00	19128	210.00	7549	301.00	1445	442.00	552256
123.00	26344	211.00	18696	302.00	2568	443.00	111312
124.00	9886	212.00	1884	303.00	14333	444.00	11685
125.00	10332	213.00	976	304.00	3651	445.00	209
126.00	1258	214.00	534	305.00	954		

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010302.D

Date : 03-JAN-2020 10:15

Client ID:

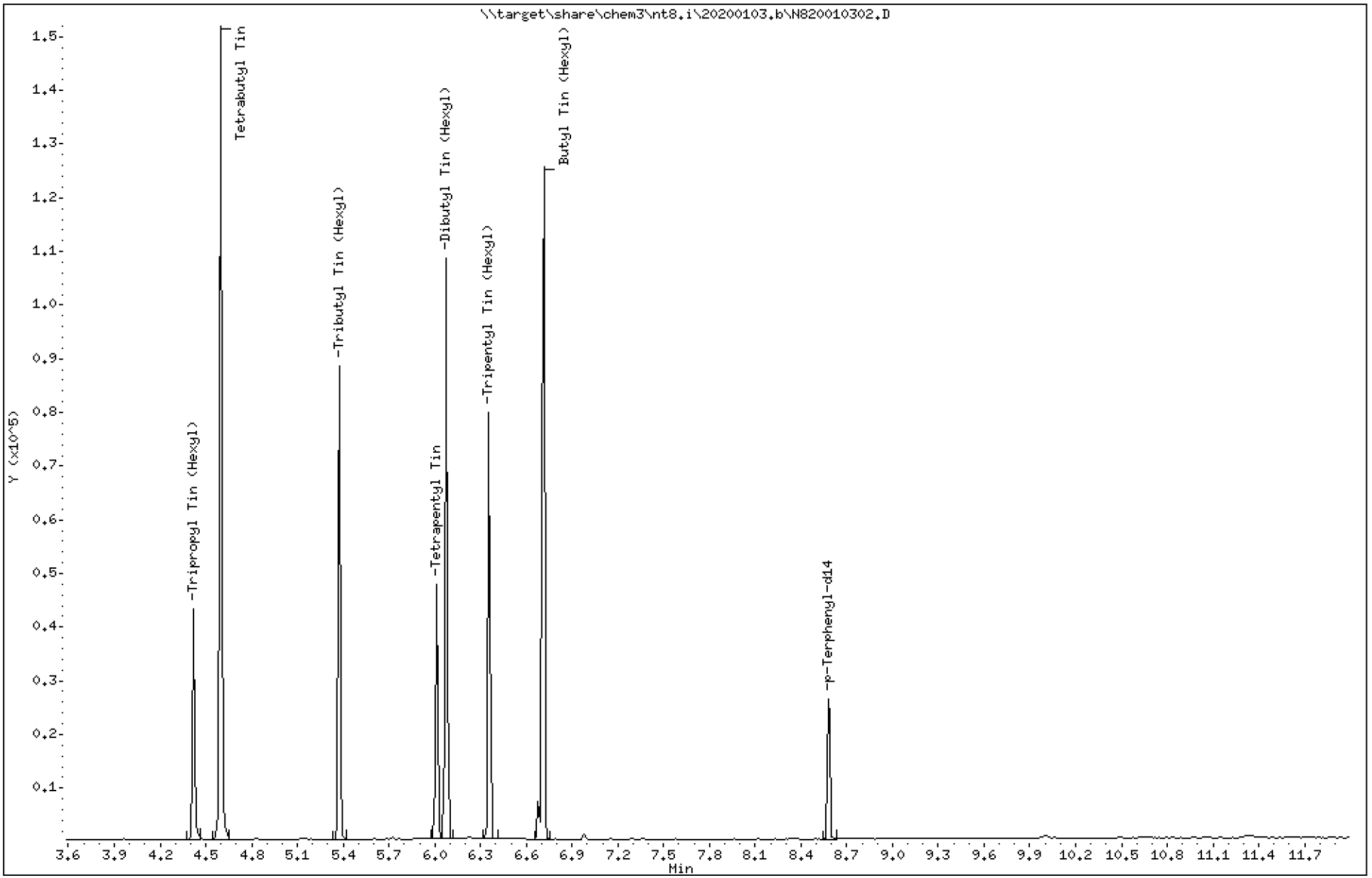
Sample Info: IC1200103

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010302.D
Lab Smp Id: SIA0018-CAL4
Inj Date : 03-JAN-2020 10:15
Operator : JZ Inst ID: nt8.i
Smp Info : IC1200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 2 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.419	4.420	(0.735)	22861	1.00000	1.010
	2 Tetrabutyl Tin	289	4.596	4.597	(0.764)	20920	1.00000	0.9472
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	16817	1.00000	0.9215
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	43350	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.074	(0.708)	23463	2.00000	1.837
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.352	(0.740)	34982	2.00000	1.994
	7 Butyl Tin (Hexyl)	347	6.714	6.715	(0.783)	40061	2.00000	1.745
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	36156	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010302.D
Lab Smp Id: SIA0018-CAL4
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	43350	0.00
8 p-Terphenyl-d14	36156	18078	72312	36156	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010302.D

Lab ID: SIA0018-CAL4
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 10:15

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20200103.b

Instrument: nt8.i Date: 03-JAN-2020 Method: 20200103.b\TBT200103.m

INITIAL CAL: 02-JAN-2020

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N820010302.D 03-JAN-2020 10:15

Compound	%D
NO Q-FLAGS	

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010303.D

Date : 03-JAN-2020 10:34

Client ID:

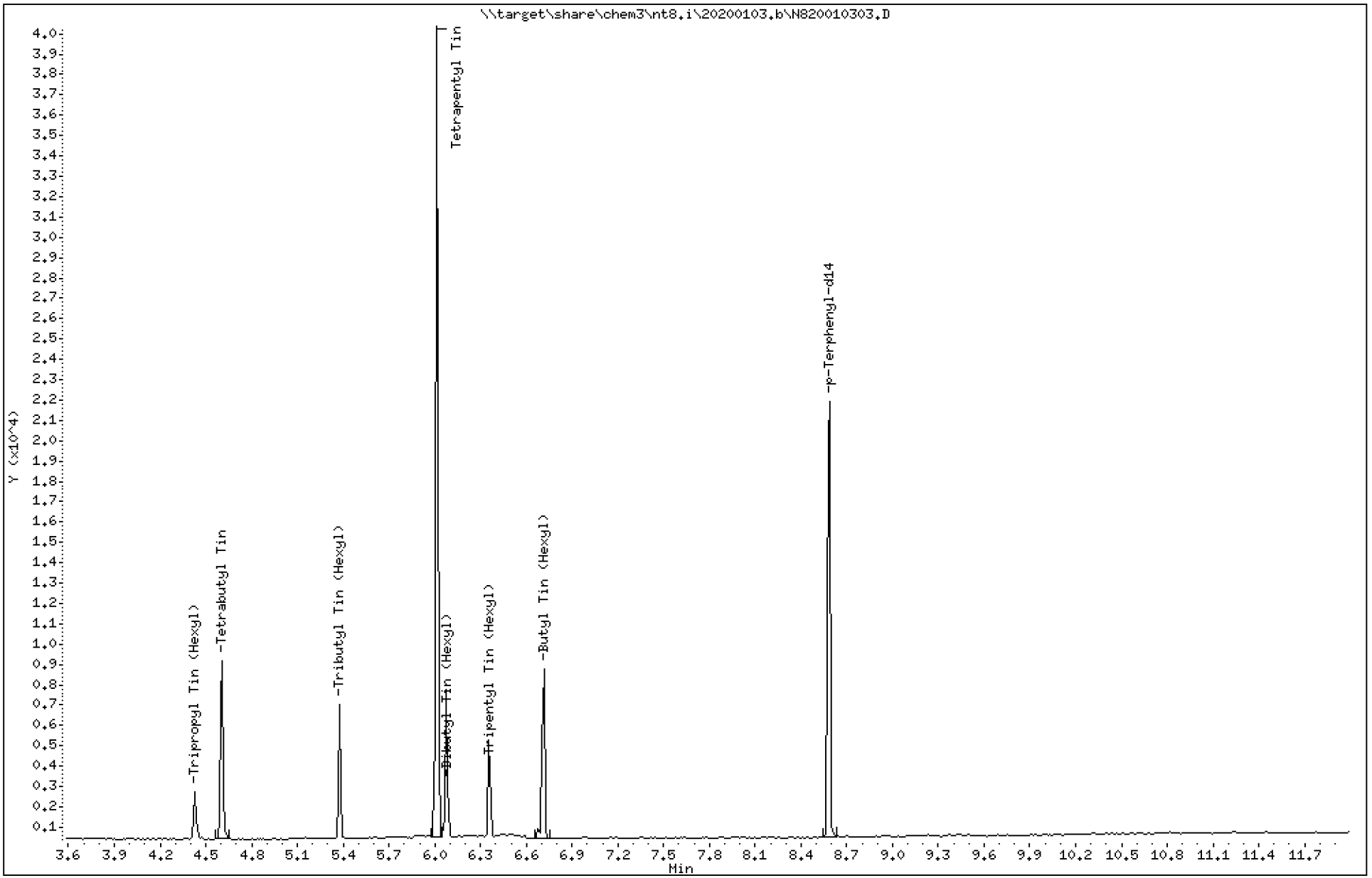
Instrument: nt8.i

Sample Info: IC005200103

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010303.D
Lab Smp Id: SIA0018-CAL1
Inj Date : 03-JAN-2020 10:34
Operator : JZ Inst ID: nt8.i
Smp Info : IC005200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 3 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.430	4.420	(0.737)	1448	0.05000	0.07857
	2 Tetrabutyl Tin	289	4.607	4.597	(0.766)	1441	0.05000	0.08013
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	1133	0.05000	0.07625
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	35297	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.085	6.074	(0.708)	1688	0.10000	0.1653
$	6 Tripentyl Tin (Hexyl)	347	6.363	6.352	(0.741)	2274	0.10000	0.1626
	7 Butyl Tin (Hexyl)	347	6.714	6.715	(0.782)	2641	0.10000	0.1416
*	8 p-Terphenyl-d14	244	8.589	8.577	(1.000)	30580	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010303.D
Lab Smp Id: SIA0018-CAL1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	35297	-18.58
8 p-Terphenyl-d14	36156	18078	72312	30580	-15.42

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.59	0.14

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010303.D

Lab ID: SIA0018-CAL1
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 10:34

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010304.D

Date : 03-JAN-2020 10:50

Client ID:

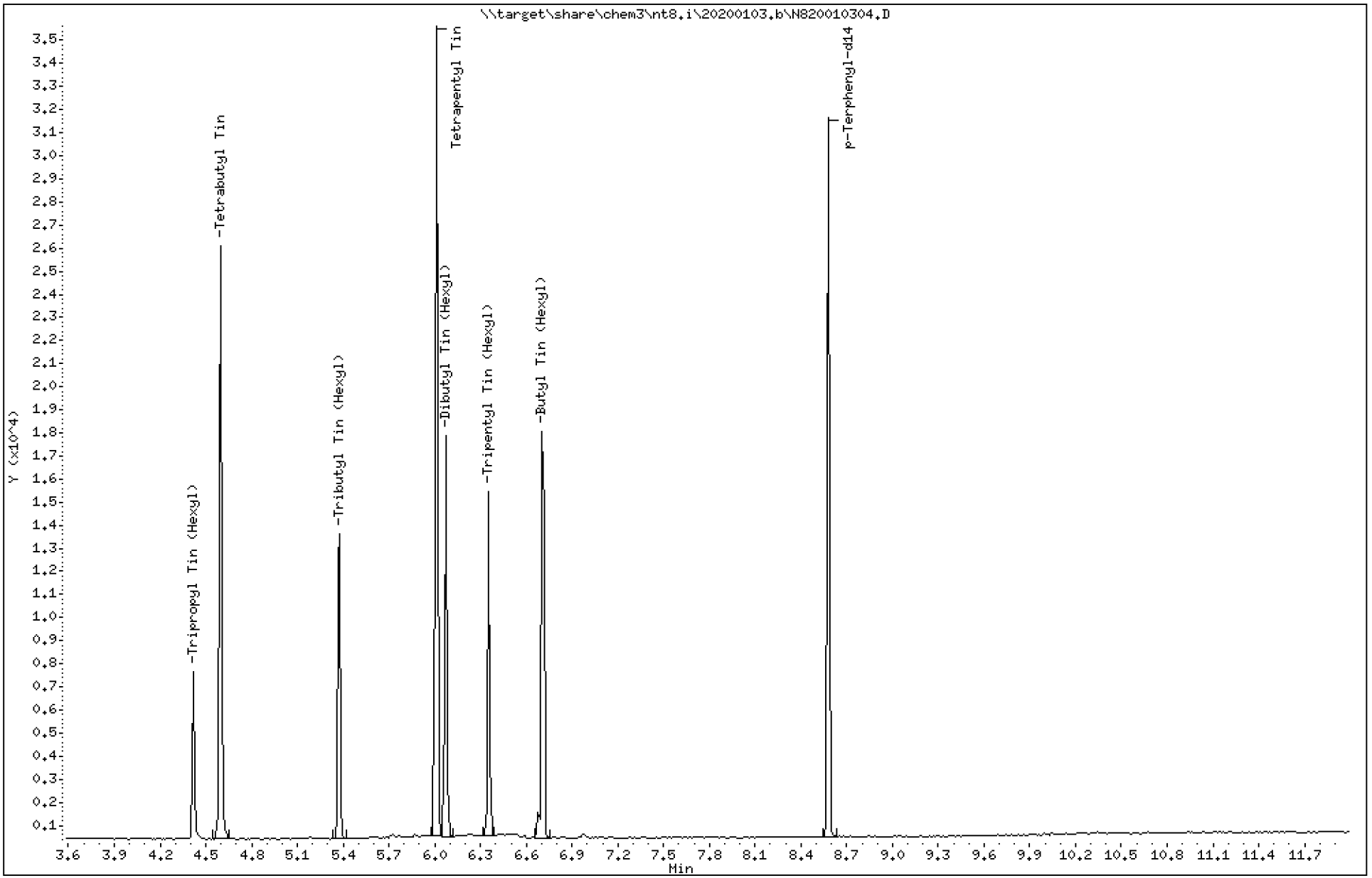
Sample Info: IC02200103

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010304.D
Lab Smp Id: SIA0018-CAL2
Inj Date : 03-JAN-2020 10:50
Operator : JZ Inst ID: nt8.i
Smp Info : IC02200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.419	4.420	(0.735)	3766	0.20000	0.2072
	2 Tetrabutyl Tin	289	4.596	4.597	(0.764)	3743	0.20000	0.2111
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	2846	0.20000	0.1942
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	34803	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.074	(0.708)	4011	0.40000	0.3821
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.352	(0.740)	5471	0.40000	0.3805
	7 Butyl Tin (Hexyl)	347	6.714	6.715	(0.783)	6138	0.40000	0.3209
*	8 p-Terphenyl-d14	244	8.578	8.577	(1.000)	31227	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010304.D
Lab Smp Id: SIA0018-CAL2
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	34803	-19.72
8 p-Terphenyl-d14	36156	18078	72312	31227	-13.63

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010304.D

Lab ID: SIA0018-CAL2
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 10:50

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010305.D

Date : 03-JAN-2020 11:06

Client ID:

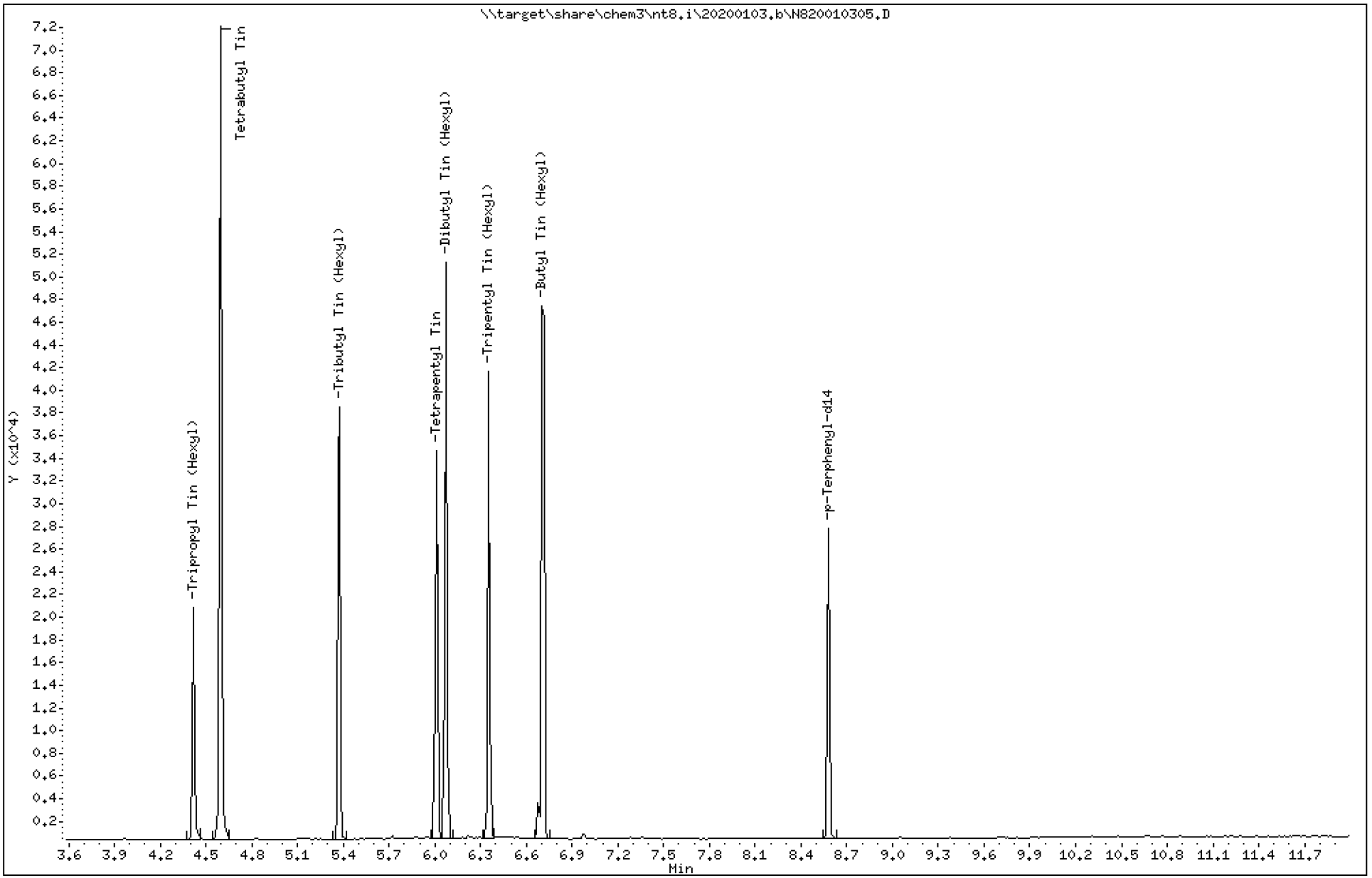
Sample Info: IC05200103

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010305.D
Lab Smp Id: SIA0018-CAL3
Inj Date : 03-JAN-2020 11:06
Operator : JZ Inst ID: nt8.i
Smp Info : IC05200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.419	4.420	(0.735)	10684	0.50000	0.5935
	2 Tetrabutyl Tin	289	4.596	4.597	(0.764)	10247	0.50000	0.5834
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	8016	0.50000	0.5523
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	34476	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.074	(0.708)	11406	1.00000	1.105
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.352	(0.740)	15274	1.00000	1.082
	7 Butyl Tin (Hexyl)	347	6.714	6.715	(0.783)	18706	1.00000	1.001
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	29989	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010305.D
Lab Smp Id: SIA0018-CAL3
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	34476	-20.47
8 p-Terphenyl-d14	36156	18078	72312	29989	-17.06

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010305.D

Lab ID: SIA0018-CAL3
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 11:06

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010306.D

Date : 03-JAN-2020 11:23

Client ID:

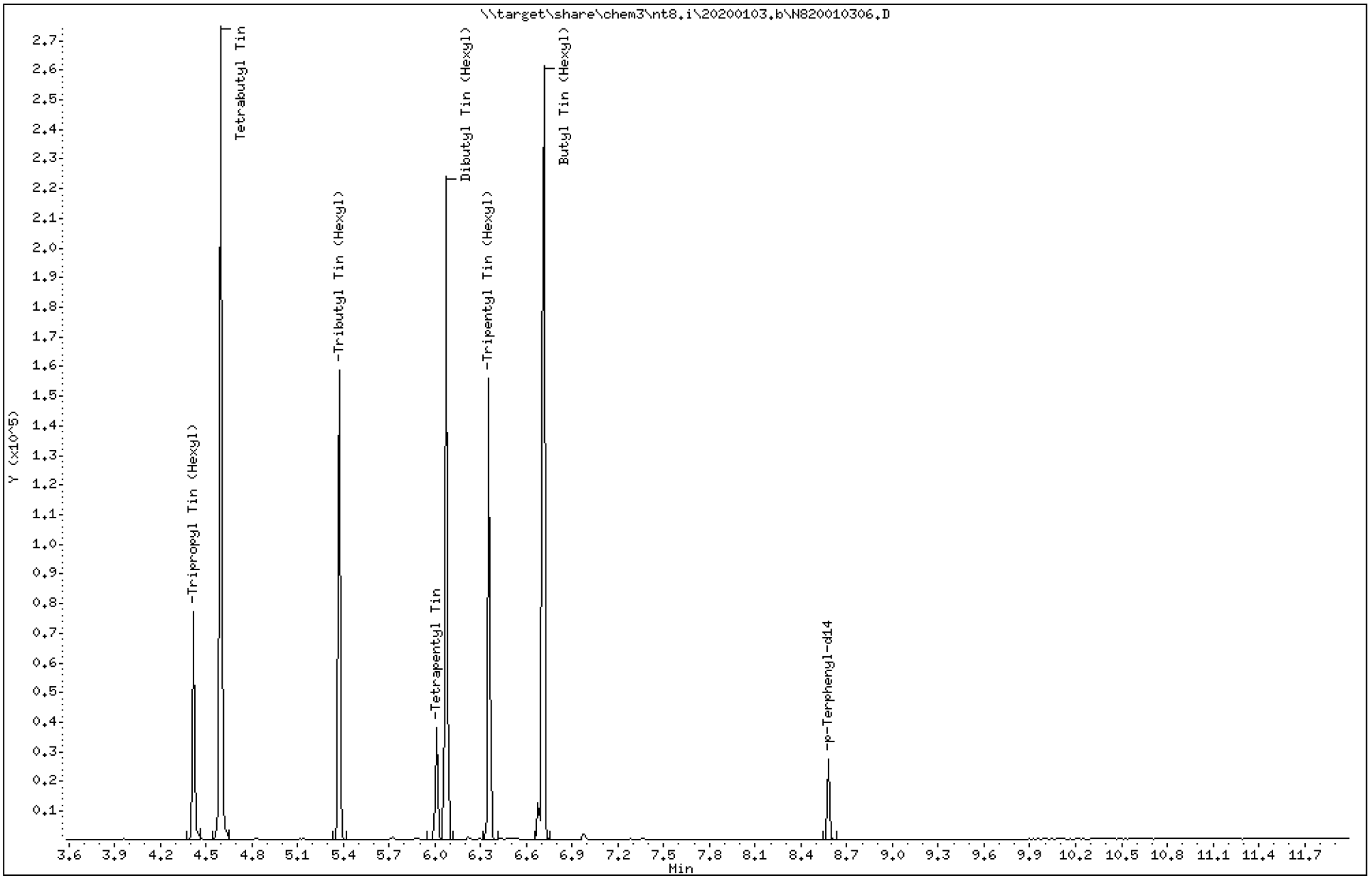
Sample Info: IC2200103

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010306.D
Lab Smp Id: SIA0018-CAL5
Inj Date : 03-JAN-2020 11:23
Operator : JZ Inst ID: nt8.i
Smp Info : IC2200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 6 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.419	4.420	(0.735)	39910	2.00000	2.073
	2 Tetrabutyl Tin	289	4.596	4.597	(0.764)	37818	2.00000	2.013
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	30988	2.00000	1.996
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	36874	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.074	(0.708)	46540	4.00000	4.051
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.352	(0.740)	61789	4.00000	3.974
	7 Butyl Tin (Hexyl)	347	6.714	6.715	(0.783)	83888	4.00000	4.154
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	29614	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010306.D
Lab Smp Id: SIA0018-CAL5
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	36874	-14.94
8 p-Terphenyl-d14	36156	18078	72312	29614	-18.09

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010306.D

Lab ID: SIA0018-CAL5
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 11:23

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010307.D

Date : 03-JAN-2020 11:39

Client ID:

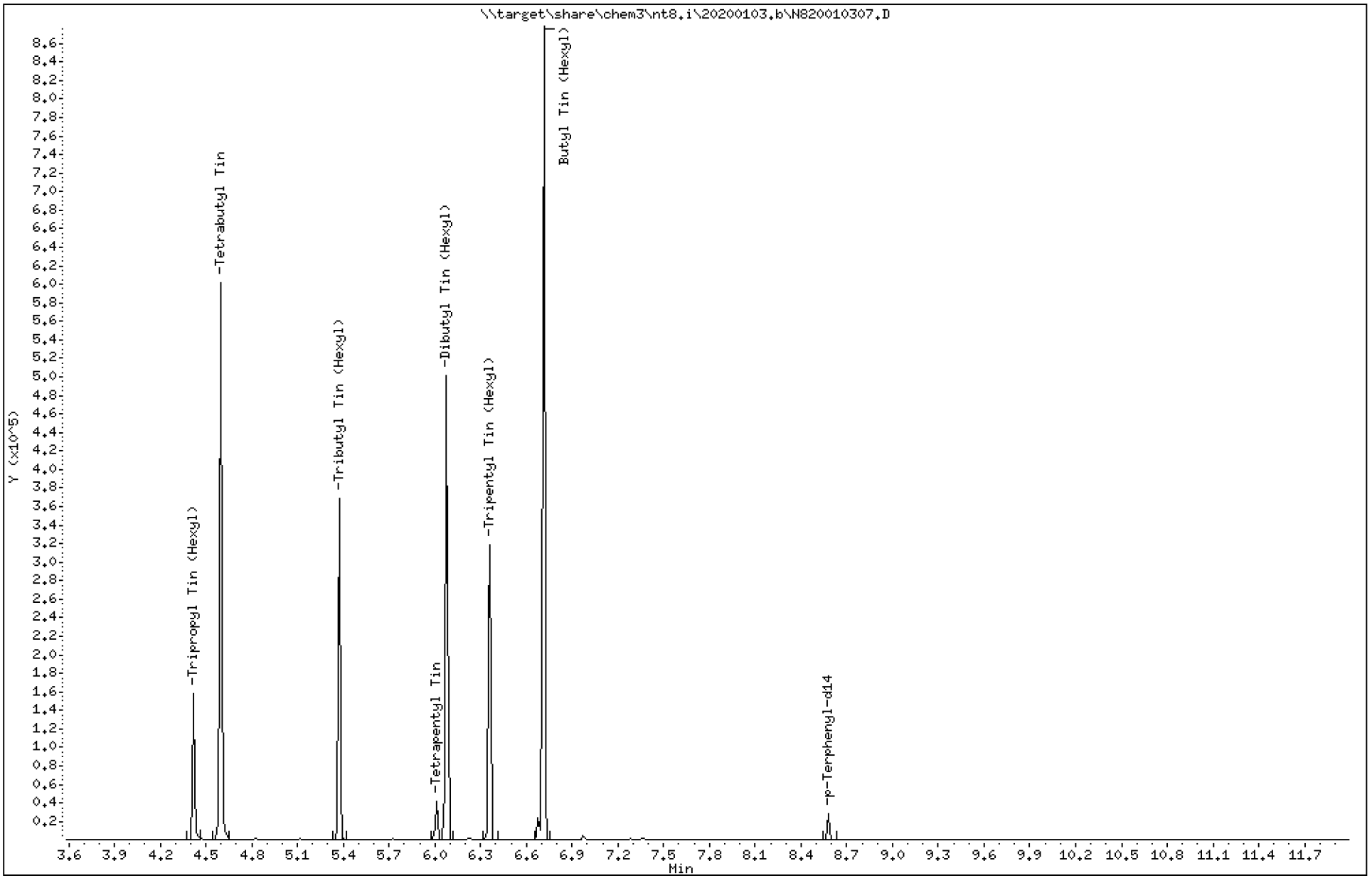
Sample Info: IC4200103

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010307.D
Lab Smp Id: SIA0018-CAL6
Inj Date : 03-JAN-2020 11:39
Operator : JZ Inst ID: nt8.i
Smp Info : IC4200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 7 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: sedmdl.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.419	4.420	(0.735)	81002	4.00000	3.944
	2 Tetrabutyl Tin	289	4.596	4.597	(0.764)	80017	4.00000	3.993
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	66447	4.00000	4.013
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	39335	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.085	6.074	(0.709)	132032	8.00000	7.996
$	6 Tripentyl Tin (Hexyl)	347	6.363	6.352	(0.742)	167068	8.00000	8.003
	7 Butyl Tin (Hexyl)	347	6.714	6.715	(0.783)	187091	8.00000	7.978
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	29071	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010307.D
Lab Smp Id: SIA0018-CAL6
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	39335	-9.26
8 p-Terphenyl-d14	36156	18078	72312	29071	-19.60

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	-0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010307.D

Lab ID: SIA0018-CAL6
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 11:39

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010308.D

Date : 03-JAN-2020 13:23

Client ID:

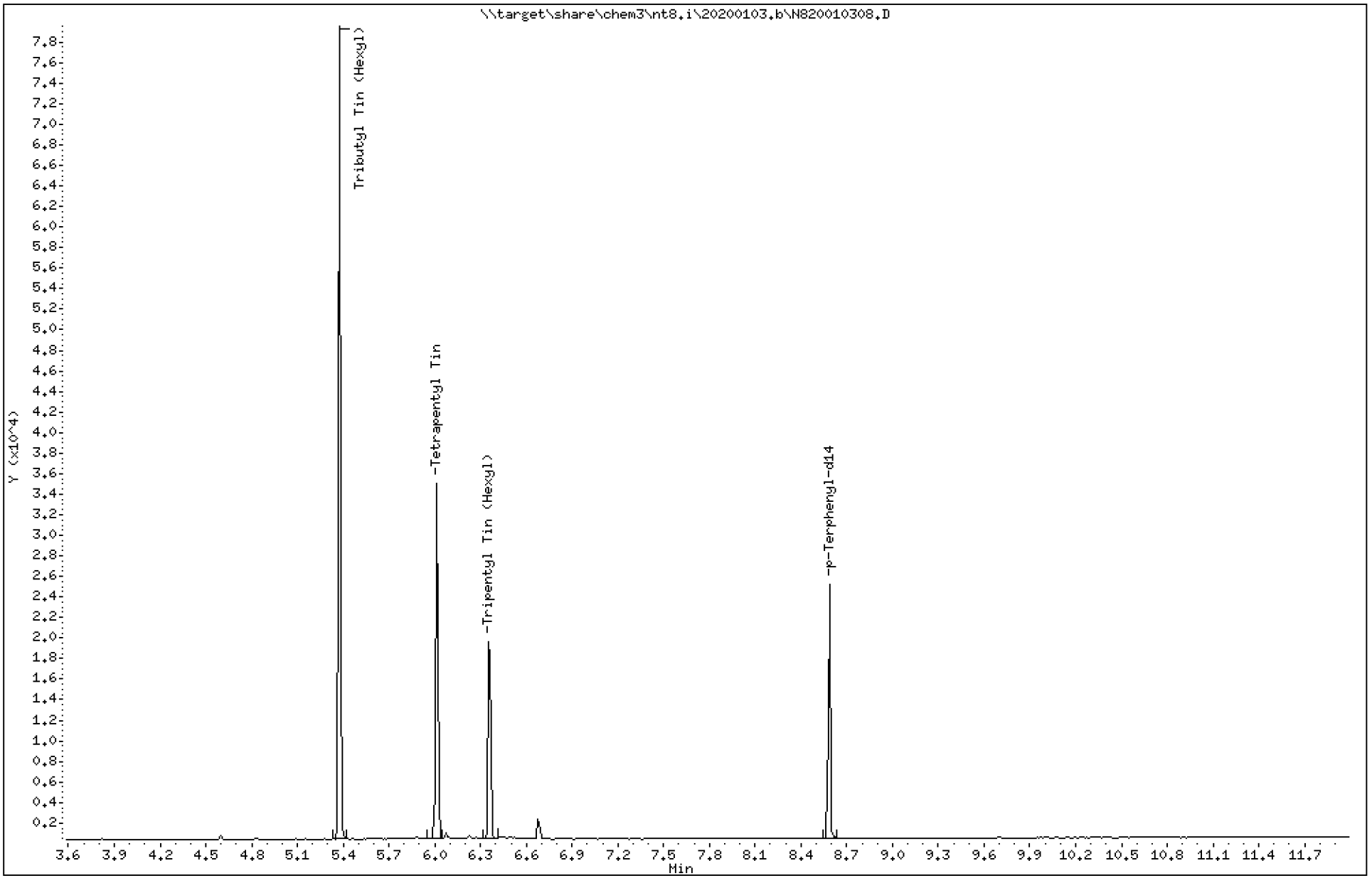
Sample Info: SCV200103

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200103.b\N820010308.D

Date : 03-JAN-2020 13:23

Client ID:

Instrument: nt8.i

Sample Info: SCV200103

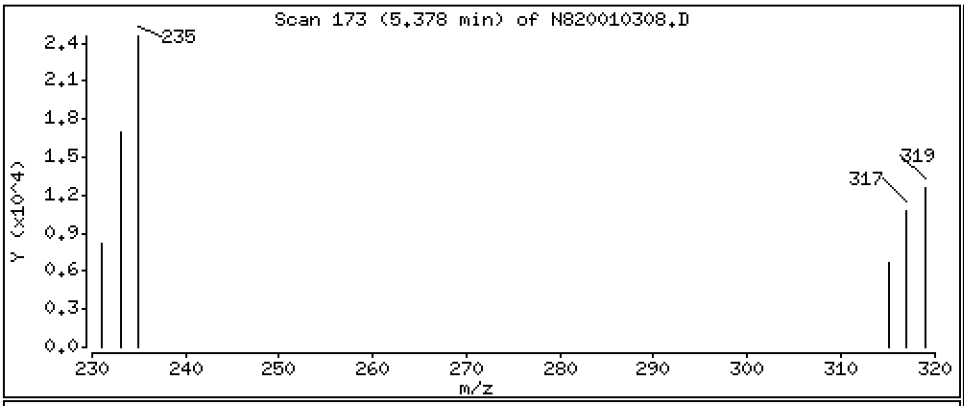
Operator: JZ

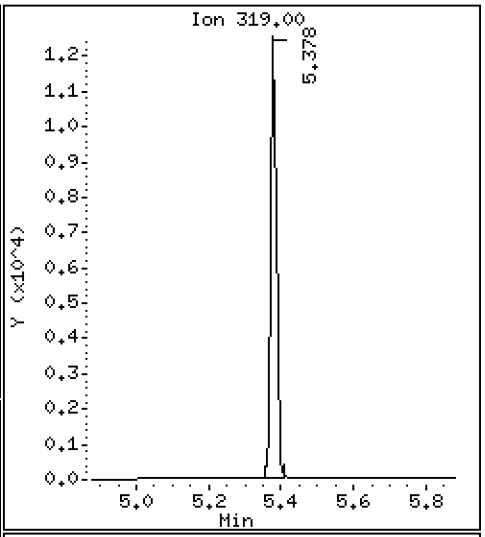
Column phase: ZB-5msi

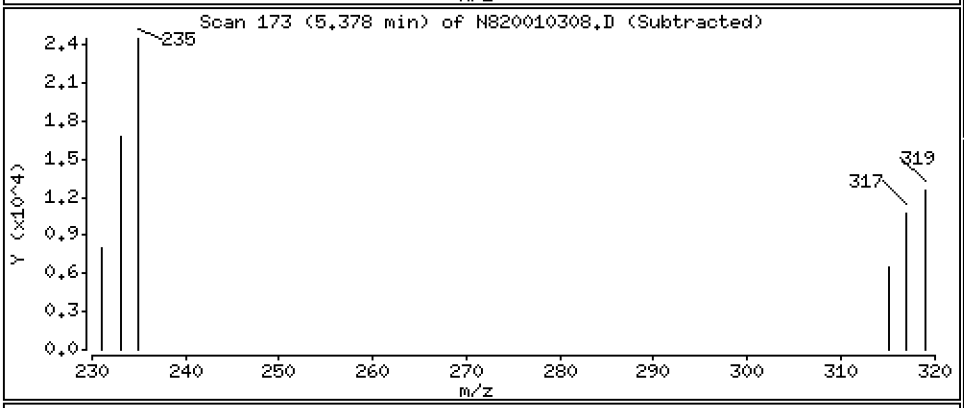
Column diameter: 0.25

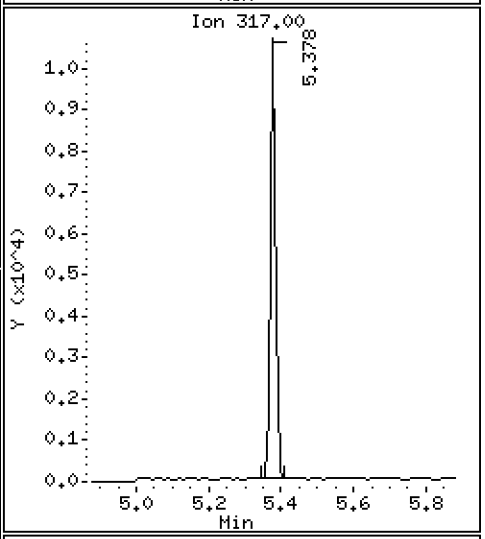
3 Tributyl Tin (Hexyl)

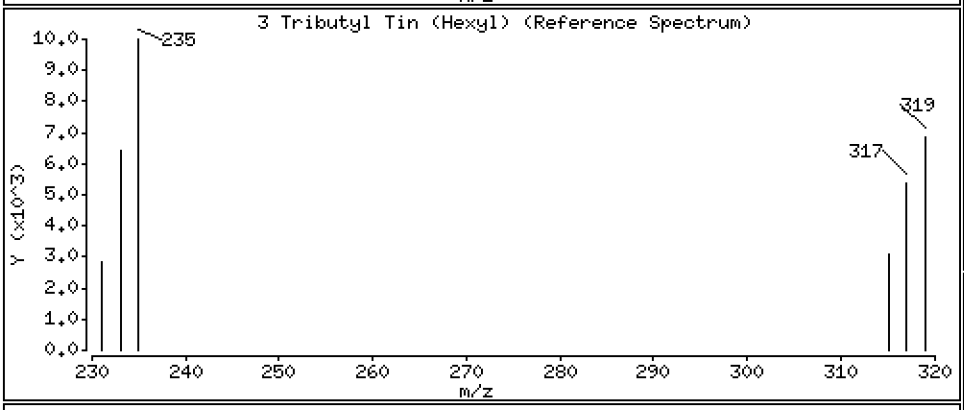
Concentration: 1.048 ug/mL

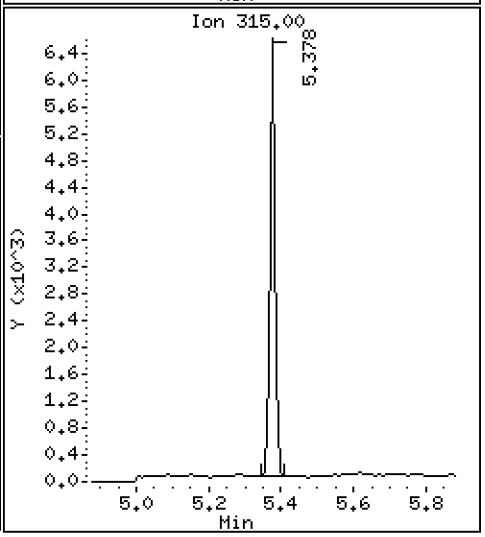


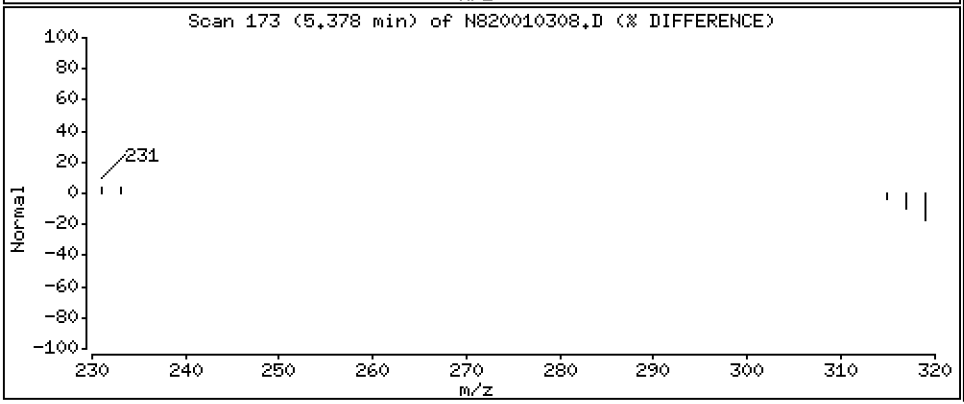












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010308.D
Lab Smp Id: SIA0018-SCV1
Inj Date : 03-JAN-2020 13:23
Operator : JZ Inst ID: nt8.i
Smp Info : SCV200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	Compound Not Detected.					
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	13505	1.04767	1.048
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	30619	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.363	6.352	(0.741)	10605	0.86317	0.8632
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.590	8.577	(1.000)	26292	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010308.D
Lab Smp Id: SIA0018-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	30619	-29.37
8 p-Terphenyl-d14	36156	18078	72312	26292	-27.28

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.59	0.14

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010308.D

Lab ID: SIA0018-SCV1
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 13:23

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Calibration: CK00068
Laboratory ID: SHK0340-SCV1
Sequence: SHK0340
Sequence Name: Secondary Cal Check
Standard ID: H011495

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Tributyltin Ion	0.77300	0.909	17.6	20.00
Tripentyltin	0.79590	0.721	-9.4	20.00

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112508.D

Date : 25-NOV-2019 16:02

Client ID:

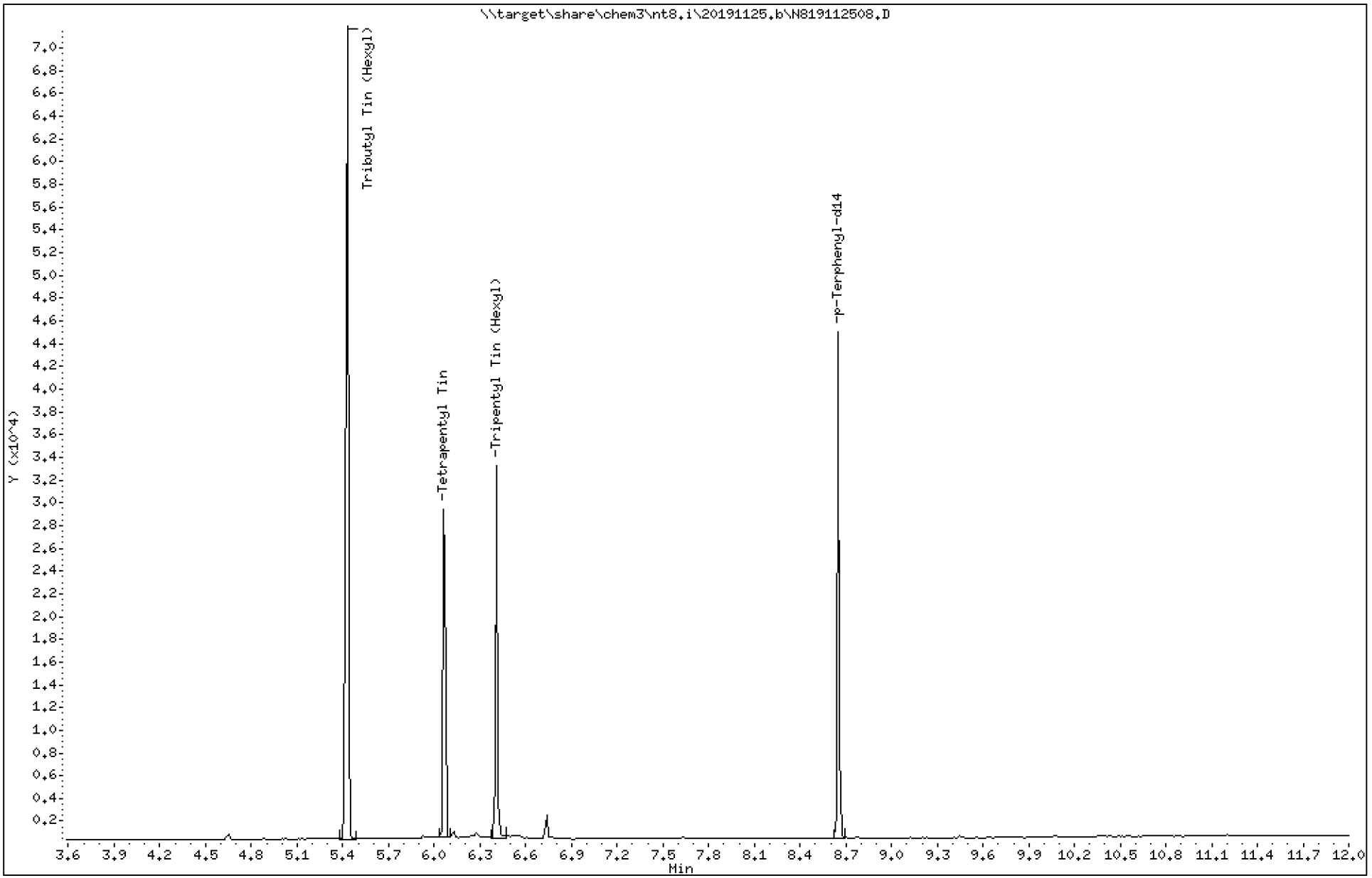
Sample Info: SCV191125

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20191125.b\N819112508.D

Date : 25-NOV-2019 16:02

Client ID:

Instrument: nt8.i

Sample Info: SCV191125

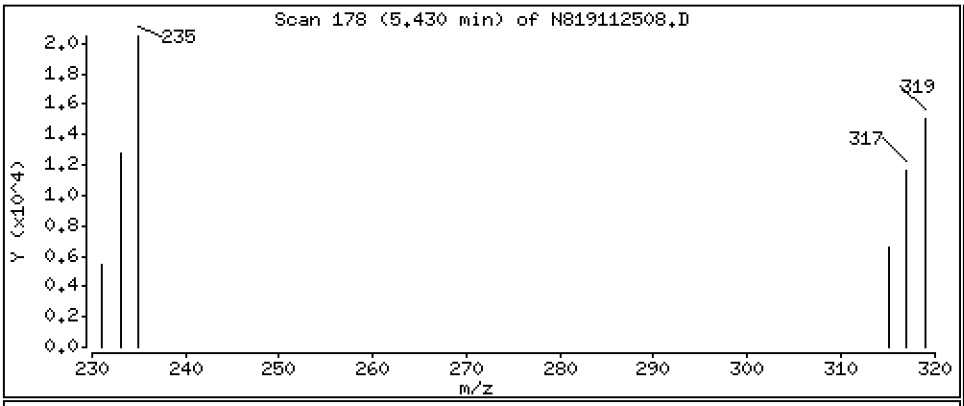
Operator: JZ

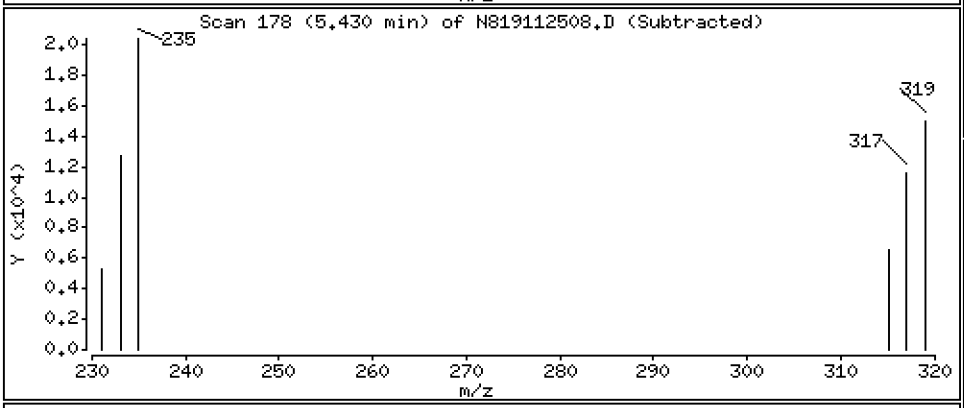
Column phase: ZB-5msi

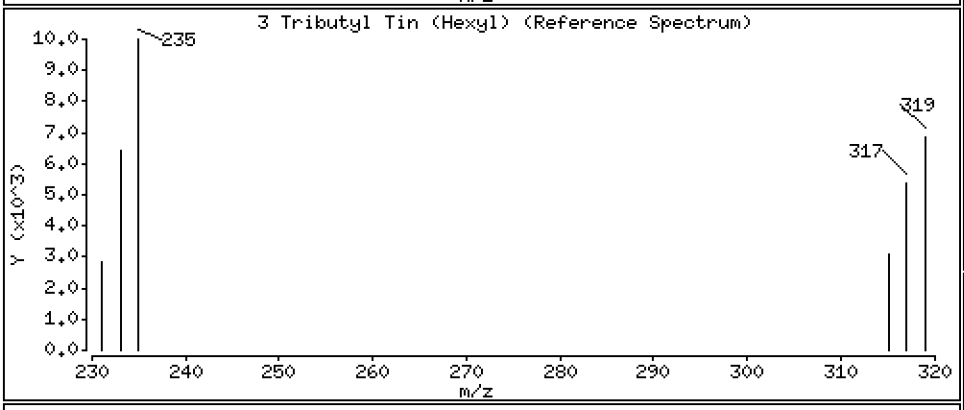
Column diameter: 0.25

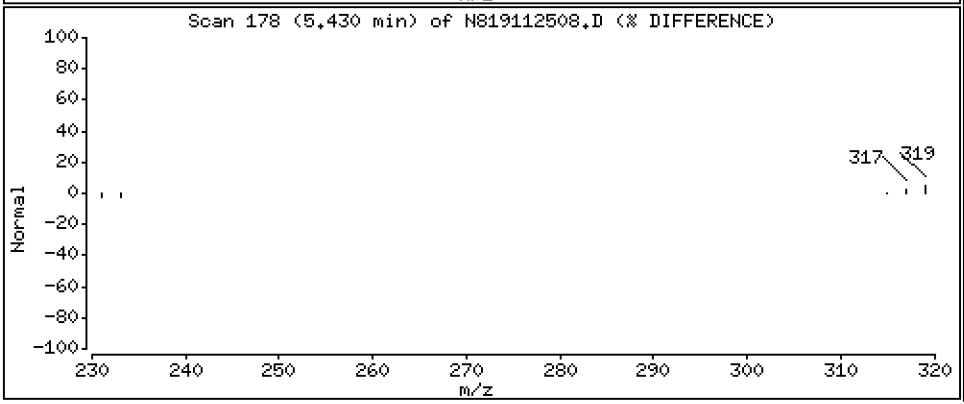
3 Tributyl Tin (Hexyl)

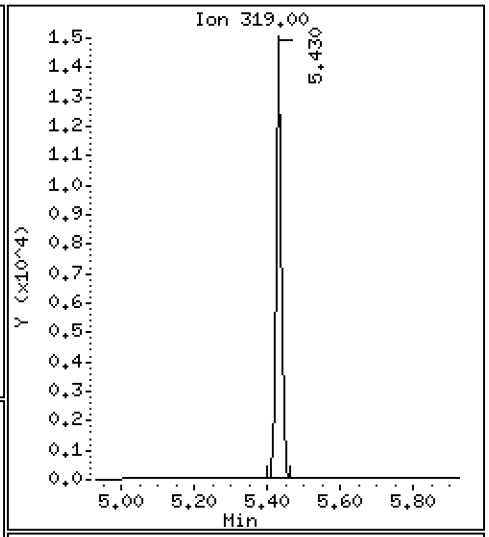
Concentration: 1.176 ug/mL

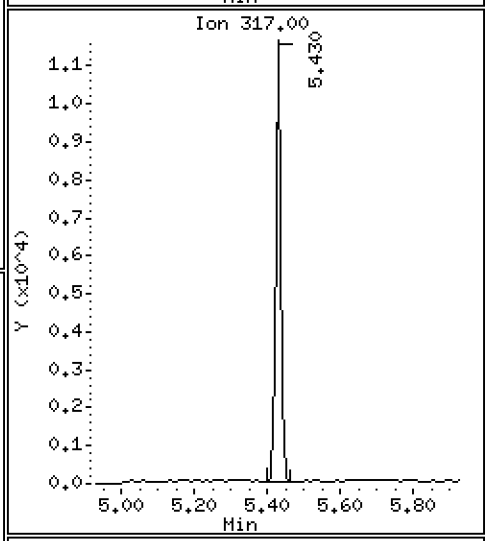


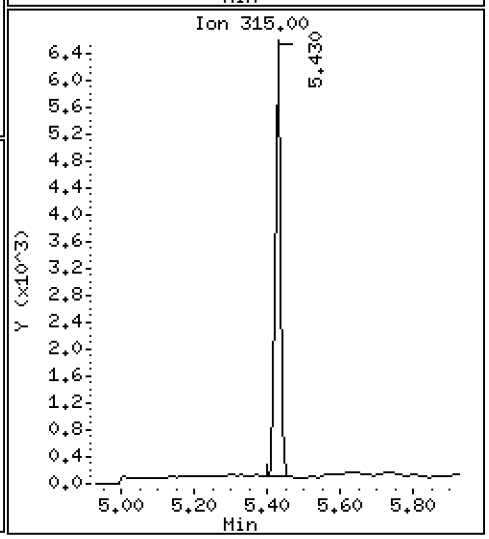












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112508.D
Lab Smp Id: SHK0340-SCV1
Inj Date : 25-NOV-2019 16:02
Operator : JZ Inst ID: nt8.i
Smp Info : SCV191125
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	Compound Not Detected.					
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	13901	1.17634	1.176
*	4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	39133	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	11703	0.90574	0.9057
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	39863	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819112508.D
Lab Smp Id: SHK0340-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
Misc Info:

Calibration Date: 25-NOV-2019
Calibration Time: 14:57
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	39133	-5.91
8 p-Terphenyl-d14	41162	20581	82324	39863	-3.16

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819112508.D

Lab ID: SHK0340-SCV1
nt8.i, 20191125.b\TBT1125.m,   25-NOV-2019 16:02

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N819112507.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Calibration: DA00008
Laboratory ID: SIA0018-SCV1
Sequence: SIA0018
Sequence Name: Secondary Cal Check
Standard ID: I000096

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Tributyltin Ion	0.77300	0.810	4.8	20.00
Tripentyltin	0.79590	0.687	-13.7	20.00

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20200103.b\N820010308.D

Date : 03-JAN-2020 13:23

Client ID:

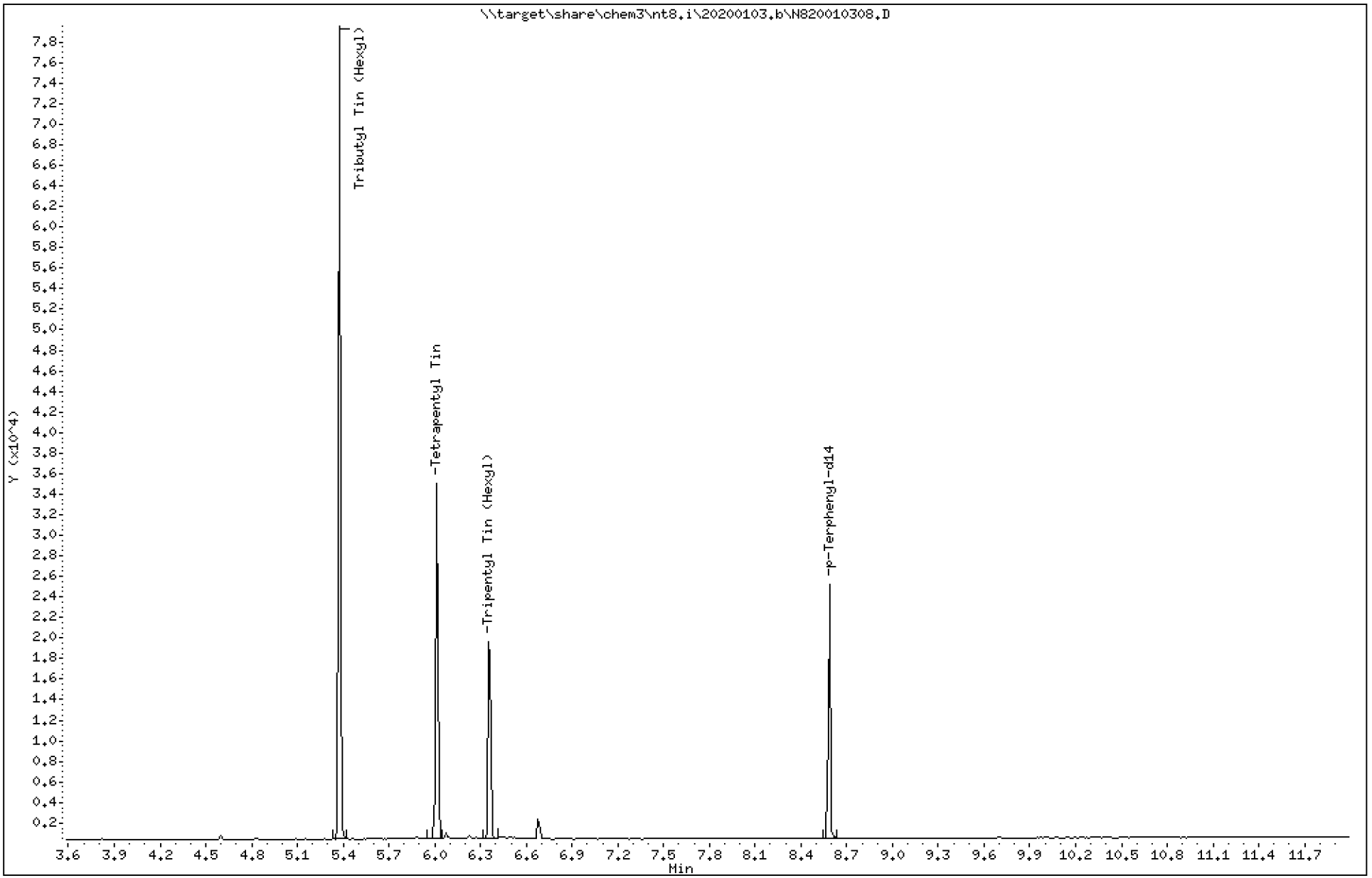
Sample Info: SCV200103

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



Data File: \\target\share\chem3\nt8.i\20200103.b\N820010308.D

Date : 03-JAN-2020 13:23

Client ID:

Instrument: nt8.i

Sample Info: SCV200103

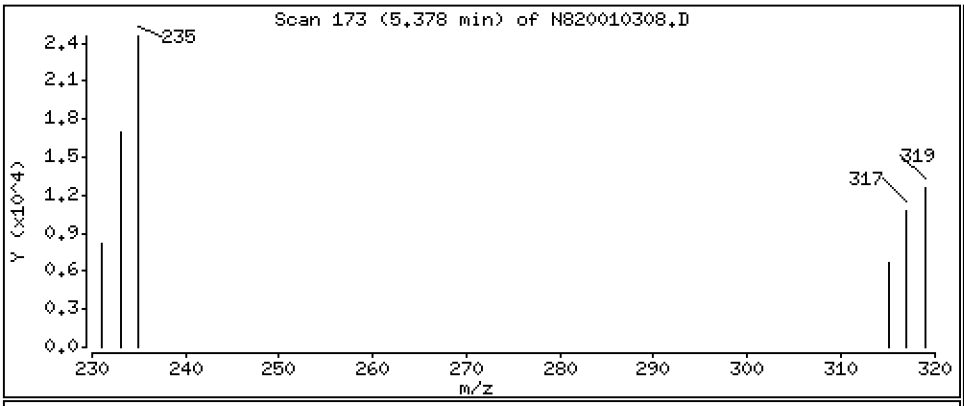
Operator: JZ

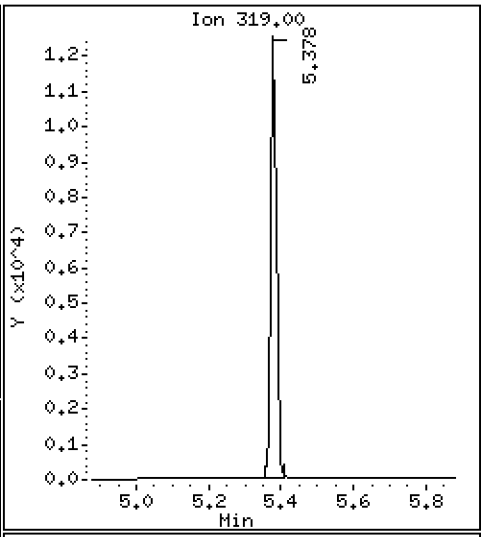
Column phase: ZB-5msi

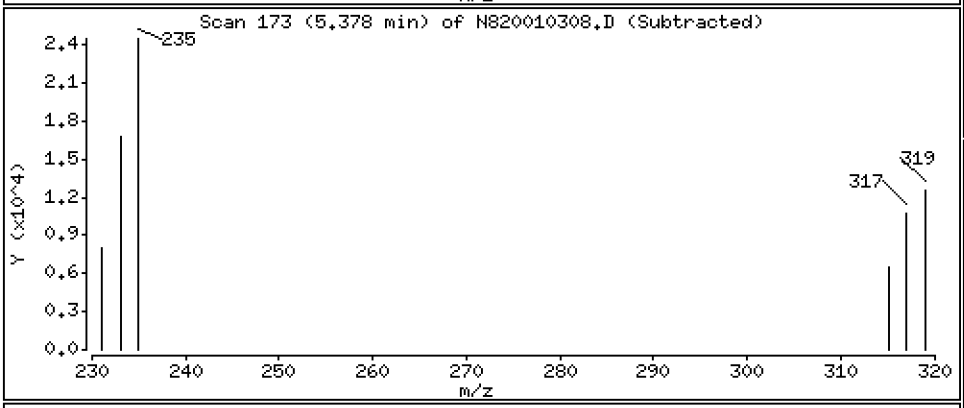
Column diameter: 0.25

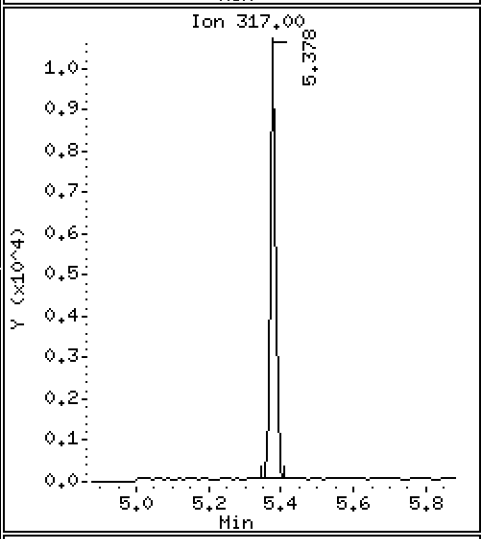
3 Tributyl Tin (Hexyl)

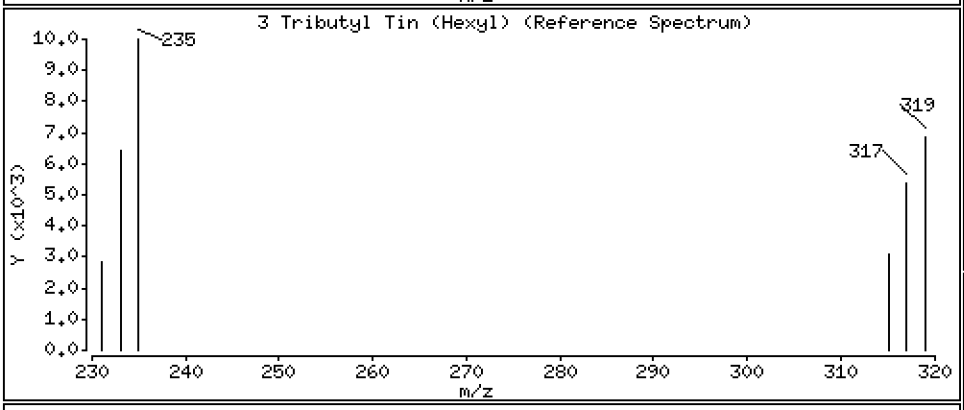
Concentration: 1.048 ug/mL

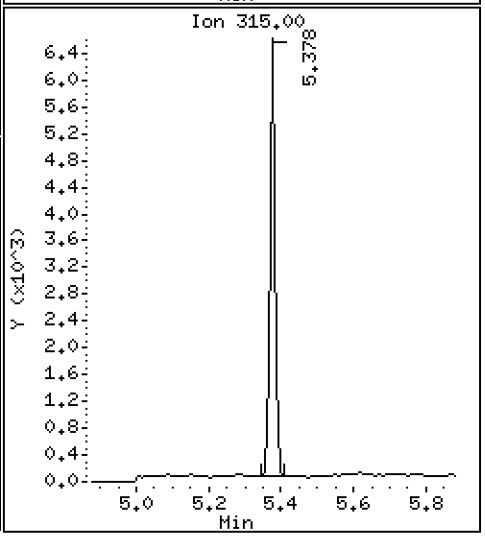


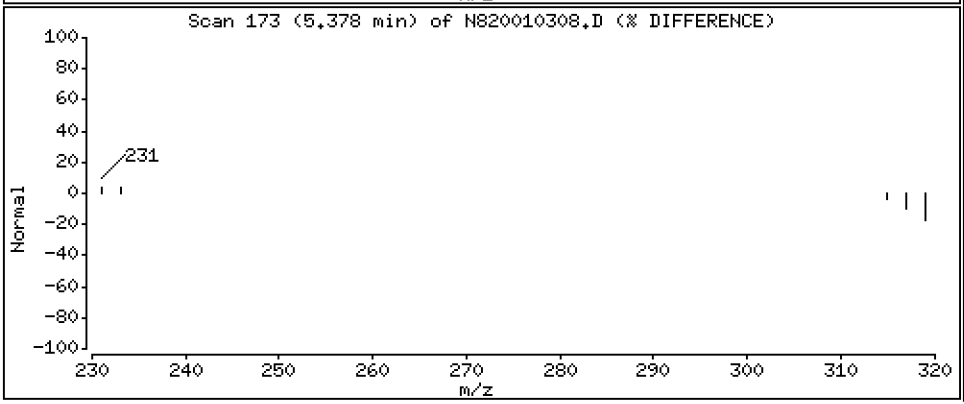












ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200103.b\N820010308.D
Lab Smp Id: SIA0018-SCV1
Inj Date : 03-JAN-2020 13:23
Operator : JZ Inst ID: nt8.i
Smp Info : SCV200103
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Meth Date : 03-Jan-2020 11:57 jianqing Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	Compound Not Detected.					
	2 Tetrabutyl Tin	289	Compound Not Detected.					
	3 Tributyl Tin (Hexyl)	319	5.377	5.378	(0.894)	13505	1.04767	1.048
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	30619	2.00000	
	5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
$	6 Tripentyl Tin (Hexyl)	347	6.363	6.352	(0.741)	10605	0.86317	0.8632
	7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
*	8 p-Terphenyl-d14	244	8.590	8.577	(1.000)	26292	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010308.D
Lab Smp Id: SIA0018-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200103.b\TBT200103.m
Misc Info:

Calibration Date: 03-JAN-2020
Calibration Time: 10:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	30619	-29.37
8 p-Terphenyl-d14	36156	18078	72312	26292	-27.28

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.59	0.14

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010308.D

Lab ID: SIA0018-SCV1
nt8.i, 20200103.b\TBT200103.m,   03-JAN-2020 13:23

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: N820010307.D

On Column LOD for nt8.i, 20200103.b\TBT200103.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

INITIAL CALIBRATION CHECK

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Instrument ID:	NT8	Calibration:	CK00068
Lab File ID:	N819120231.D	Calibration Date:	11/25/2019
Sequence:	SHL0025	Injection Date:	12/02/19
Lab Sample ID:	SHL0025-ICV1	Injection Time:	17:52
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Tributyltin Ion	A	0.77300	0.811	0.6676381	0.6333415	0.01	4.9	+/-20
Tripentyltin	A	1.5918	1.56	0.0648265	0.0633557	0.01	-2.2	+/-20
Tripropyltin	A	0.74432	0.802	0.9011338	0.8420457	0.01	7.7	+/-20
Tetrapentyltin	A	2.0000	2.00	21013.3300	1.0000		0.0	
p-Terphenyl-d14	A	0.20000	0.200	206884.2000	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20191202A.b\N819120231.D

Date : 02-DEC-2019 17:52

Client ID:

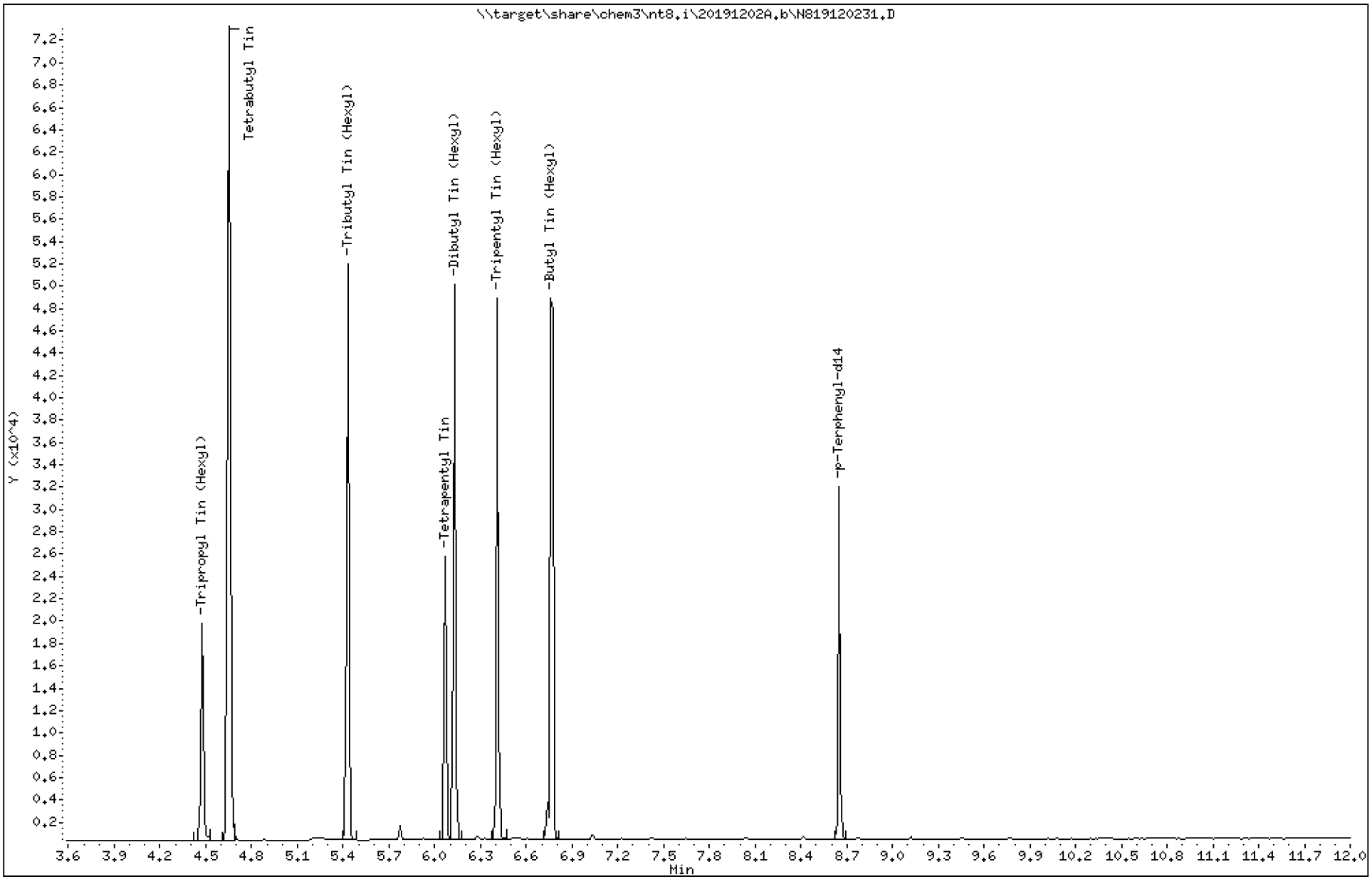
Sample Info: ICV191202A

Column phase: ZB-5msi

Instrument: nt8.i

Operator: JZ

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120231.D
Lab Smp Id: SHL0025-ICV1
Inj Date : 02-DEC-2019 17:52 MS Autotune Date: 27-FEB-2008 03:32
Operator : JZ Inst ID: nt8.i
Smp Info : ICV191202A
Misc Info :
Comment : 2 ul Injection
Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.737)	11994	1.00000	1.077
	2 Tetrabutyl Tin	289	4.648	4.648	(0.766)	10434	1.00000	1.061
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.894)	9021	1.00000	1.049
*	4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	28487	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	11681	2.00000	1.879
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	17789	2.00000	1.955
	7 Butyl Tin (Hexyl)	347	6.772	6.772	(0.783)	18563	2.00000	1.889
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	28078	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120231.D
Lab Smp Id: SHL0025-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Calibration Date: 02-DEC-2019
Calibration Time: 09:59
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	28487	-31.51
8 p-Terphenyl-d14	41162	20581	82324	28078	-31.79

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120231.D

Lab ID: SHL0025-ICV1
nt8.i, 20191202A.b\TBT1125.m,   02-DEC-2019 17:52

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

Instrument: nt8.i Date: 02-DEC-2019 Method: 20191202A.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N819120231.D 02-DEC-2019 17:52

Compound	%D
NO Q-FLAGS	

INITIAL CALIBRATION CHECK

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Instrument ID:	NT8	Calibration:	CK00068
Lab File ID:	N819120302.D	Calibration Date:	11/25/2019
Sequence:	SHL0032	Injection Date:	12/03/19
Lab Sample ID:	SHL0032-ICV1	Injection Time:	09:22
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Tributyltin Ion	A	0.77300	0.843	0.6676381	0.6581143	0.01	9.0	+/-20
Tripentyltin	A	1.5918	1.55	0.0648265	0.0632918	0.01	-2.3	+/-20
Tripropyltin	A	0.74432	0.822	0.9011338	0.8638805	0.01	10.5	+/-20
Tetrapentyltin	A	2.0000	2.00	21013.3300	1.0000		0.0	
p-Terphenyl-d14	A	0.20000	0.200	206884.2000	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20191203.b\N819120302.D

Date : 03-DEC-2019 09:22

Client ID:

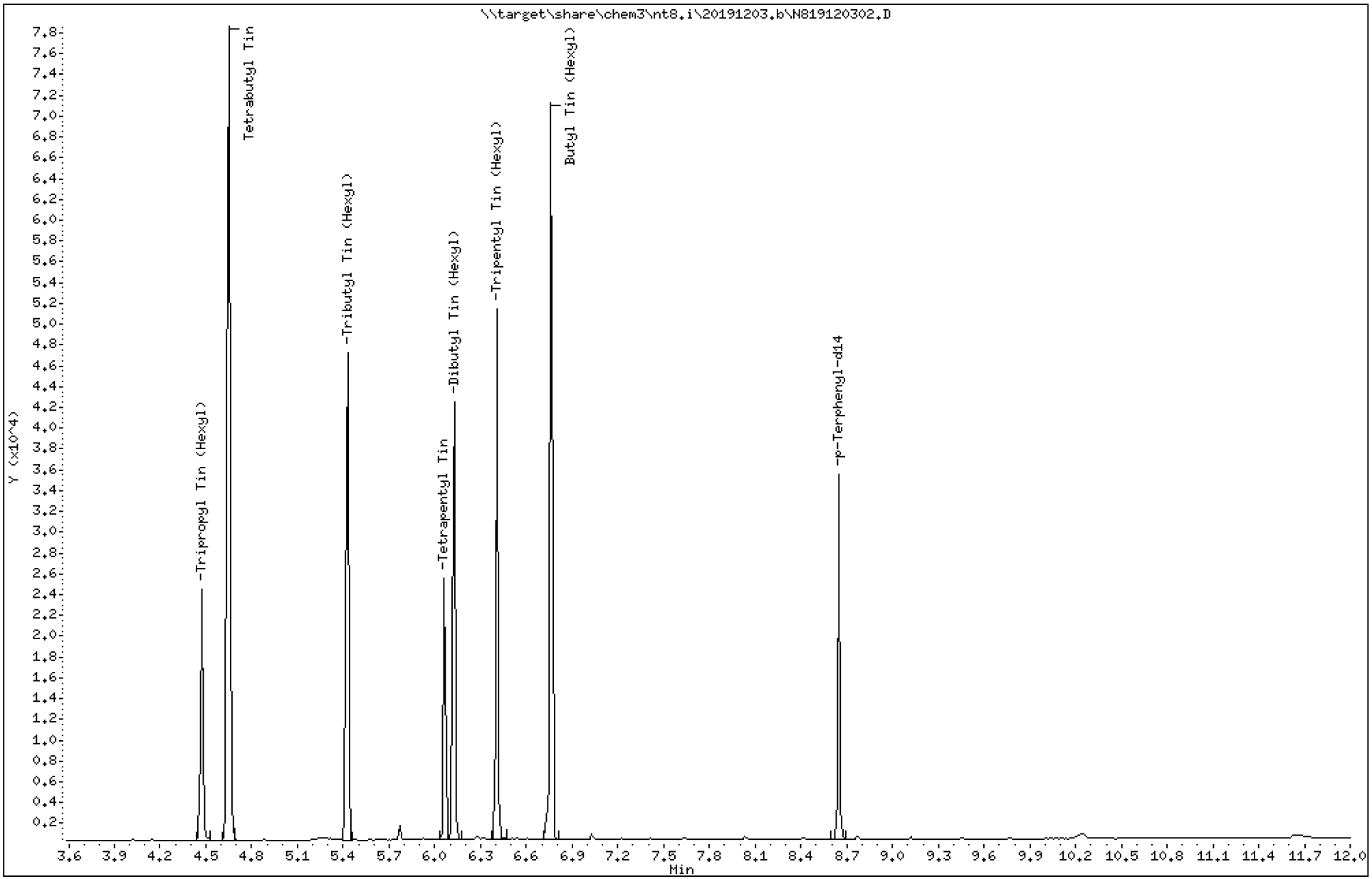
Sample Info: ICV191203

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191203.b\N819120302.D
Lab Smp Id: SHL0032-ICV1
Inj Date : 03-DEC-2019 09:22 MS Autotune Date: 27-FEB-2008 03:32
Operator : JZ Inst ID: nt8.i
Smp Info : ICV191203
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
Meth Date : 03-Dec-2019 11:20 nt8.i Quant Type: ISTD
Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.471	4.471	(0.738)	12997	1.00000	1.105
	2 Tetrabutyl Tin	289	4.648	4.648	(0.767)	11221	1.00000	1.080
	3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	9901	1.00000	1.090
*	4 Tetrapentyl Tin	333	6.058	6.058	(1.000)	30089	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.131	6.131	(0.709)	12906	2.00000	1.913
$	6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	19285	2.00000	1.953
	7 Butyl Tin (Hexyl)	347	6.771	6.771	(0.783)	18712	2.00000	1.755
*	8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	30470	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N819120302.D
Lab Smp Id: SHL0032-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
Misc Info:

Calibration Date: 02-DEC-2019
Calibration Time: 09:59
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	41592	20796	83184	30089	-27.66
8 p-Terphenyl-d14	41162	20581	82324	30470	-25.98

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N819120302.D

Lab ID: SHL0032-ICV1
nt8.i, 20191203.b\TBT1125.m,   03-DEC-2019 09:22

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191203.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191203.b

Instrument: nt8.i Date: 03-DEC-2019 Method: 20191203.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N819120302.D 03-DEC-2019 09:22

Compound	%D
NO Q-FLAGS	

INITIAL CALIBRATION CHECK

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Instrument ID:	NT8	Calibration:	DA00008
Lab File ID:	N820010902.D	Calibration Date:	01/03/2020
Sequence:	SIA0110	Injection Date:	01/09/20
Lab Sample ID:	SIA0110-ICV1	Injection Time:	14:22
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Tributyltin Ion	A	0.77300	0.751	0.9154369	0.8182030	0.01	-2.8	+/-20
Tripentyltin	A	1.5918	1.61	0.1138231	0.0983252	0.01	1.2	+/-20
Tripropyltin	A	0.74430	0.776	1.1882170	1.0880030	0.01	4.2	+/-20
Tetrapentyltin	A	2.0000	2.00	18677.9200	1.0000		0.0	
p-Terphenyl-d14	A	0.20000	0.200	155530.8000	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20200109.b\N820010902.D

Date : 09-JAN-2020 14:22

Client ID:

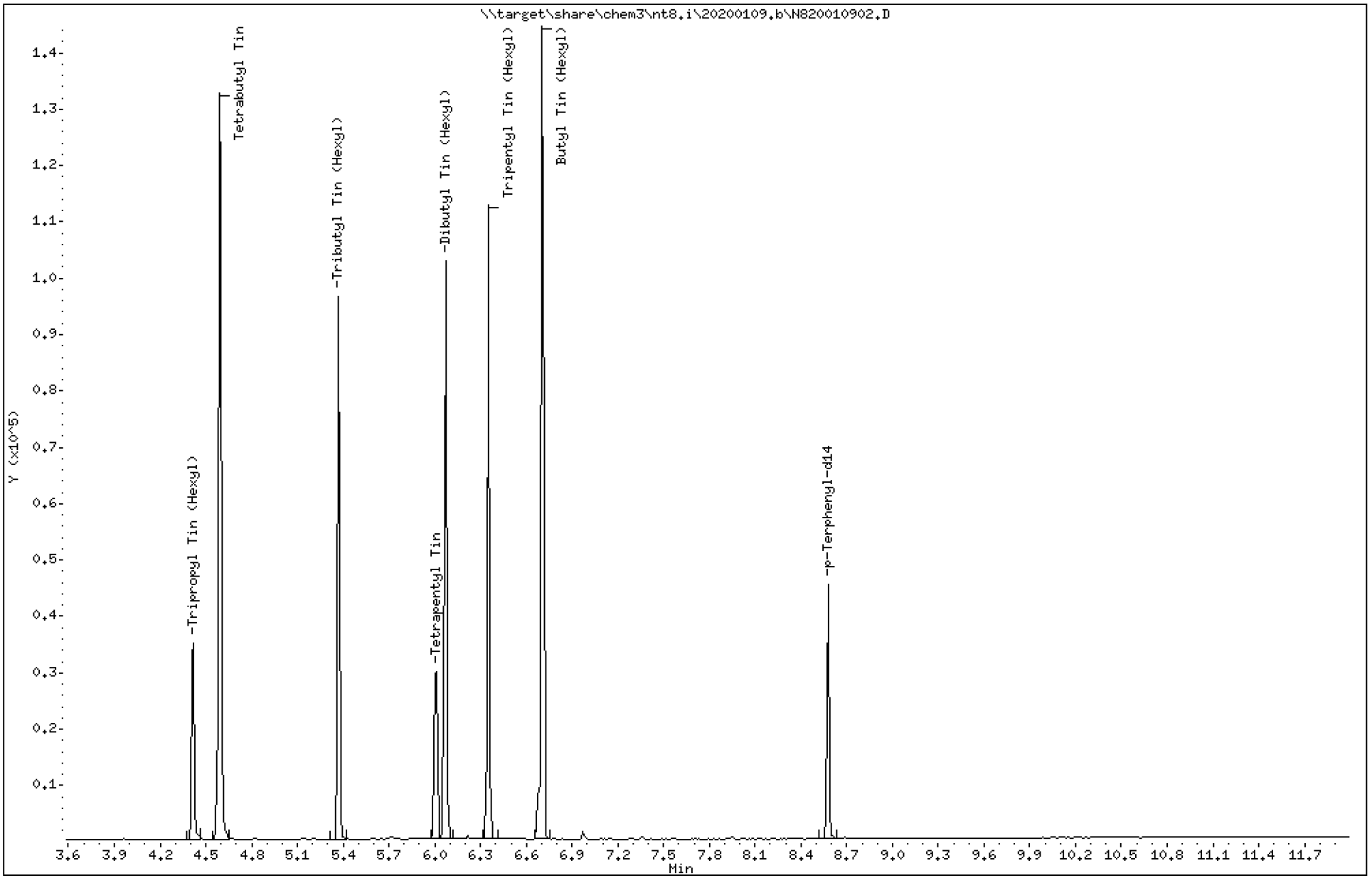
Sample Info: ICV200109

Instrument: nt8.i

Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20200109.b\N820010902.D
Lab Smp Id: SIA0110-ICV1
Inj Date : 09-JAN-2020 14:22
Operator : JZ Inst ID: nt8.i
Smp Info : ICV200109
Misc Info :
Comment   : 2 ul Injection
Method   : \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Meth Date : 09-Jan-2020 14:37 nt8.i Quant Type: ISTD
Cal Date : 03-JAN-2020 11:39 Cal File: N820010307.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: ICAL.sub
Target Version: 4.14
Processing Host: ORGDATA22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 Tripropyl Tin (Hexyl)	291	4.419	4.419	(0.735)	23478	1.00000	1.042
	2 Tetrabutyl Tin	289	4.596	4.596	(0.764)	21686	1.00000	0.9862
	3 Tributyl Tin (Hexyl)	319	5.377	5.377	(0.894)	17656	1.00000	0.9717
*	4 Tetrapentyl Tin	333	6.013	6.013	(1.000)	43158	2.00000	
	5 Dibutyl Tin (Hexyl)	347	6.073	6.073	(0.708)	26421	2.00000	1.868
$	6 Tripentyl Tin (Hexyl)	347	6.351	6.351	(0.740)	39336	2.00000	2.024
	7 Butyl Tin (Hexyl)	347	6.714	6.714	(0.783)	41571	2.00000	1.641
*	8 p-Terphenyl-d14	244	8.577	8.577	(1.000)	40006	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N820010902.D
Lab Smp Id: SIA0110-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20200109.b\TBT200103.m
Misc Info:

Calibration Date: 09-JAN-2020
Calibration Time: 11:04
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	43350	21675	86700	43158	-0.44
8 p-Terphenyl-d14	36156	18078	72312	40006	10.65

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 Tetrapentyl Tin	6.01	5.51	6.51	6.01	0.00
8 p-Terphenyl-d14	8.58	8.08	9.08	8.58	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N820010902.D

Lab ID: SIA0110-ICV1
nt8.i, 20200109.b\TBT200103.m,   09-JAN-2020 14:22

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20200109.b\TBT200103.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20200109.b

Instrument: nt8.i Date: 09-JAN-2020 Method: 20200109.b\TBT200103.m

INITIAL CAL: 03-JAN-2020

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N820010902.D 09-JAN-2020 14:22

Compound	%D
NO Q-FLAGS	

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHK0340	Instrument:	NT8
		Calibration:	CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHK0340-TUN1	N819112501.D	NA	11/25/19 13:20
8270-SIM TBT	SHK0340-CAL1	N819112502.D	NA	11/25/19 14:05
8270-SIM TBT	SHK0340-CAL2	N819112503.D	NA	11/25/19 14:24
8270-SIM TBT	SHK0340-CAL3	N819112504.D	NA	11/25/19 14:41
8270-SIM TBT	SHK0340-CAL4	N819112505.D	NA	11/25/19 14:57
8270-SIM TBT	SHK0340-CAL5	N819112506.D	NA	11/25/19 15:13
8270-SIM TBT	SHK0340-CAL6	N819112507.D	NA	11/25/19 15:29
Secondary Cal Check	SHK0340-SCV1	N819112508.D	NA	11/25/19 16:02

Printed: 11/26/2019 12:09:27PM

ANALYSIS SEQUENCE

SHK0340

Instrument: NT8 Element Column ID: H004092
Calibration ID: CK00068 Tune File: 191025.U
EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHK0340-TUN1	MS Tune	QC		1	H010226		
SHK0340-CAL1	8270-SIM TBT	QC		2	H011459	H004622	
SHK0340-CAL2	8270-SIM TBT	QC		3	H011460	H004622	
SHK0340-CAL3	8270-SIM TBT	QC		4	H011461	H004622	
SHK0340-CAL4	8270-SIM TBT	QC		5	H011462	H004622	
SHK0340-CAL5	8270-SIM TBT	QC		6	H011463	H004622	
SHK0340-CAL6	8270-SIM TBT	QC		7	H011464	H004622	
SHK0340-SCV1	Secondary Cal Check	QC		8	H011495	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

	Time	Filename	LabID	ClientId	DF				
1	1320	N819112501.D	SHK0340-TUN1		1	NO ISTDS FOUND			
2	1405	N819112502.D	SHK0340-CAL1		1	6.07	41416	8.66	42717
3	1424	N819112503.D	SHK0340-CAL2		1	6.07	42942	8.66	40691
4	1441	N819112504.D	SHK0340-CAL3		1	6.07	39128	8.65	40493
5	1457	N819112505.D	SHK0340-CAL4		1	6.07	41592	8.65	41162
6	1513	N819112506.D	SHK0340-CAL5		1	6.07	41672	8.65	41539
7	1529	N819112507.D	SHK0340-CAL6		1	6.07	45410	8.65	41659
8	1602	N819112508.D	SHK0340-SCV1		1	6.06	39133	8.65	39863

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

ARI Job No.: SHK0 Method: TBT1125.m Instrument: nt8.i Date: 25-NOV-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1405	N819112502.D	SHK0340-CAL1		1	NO MANUAL INTEGRATION
1424	N819112503.D	SHK0340-CAL2		1	NO MANUAL INTEGRATION
1441	N819112504.D	SHK0340-CAL3		1	NO MANUAL INTEGRATION
1457	N819112505.D	SHK0340-CAL4		1	NO MANUAL INTEGRATION
1513	N819112506.D	SHK0340-CAL5		1	NO MANUAL INTEGRATION
1529	N819112507.D	SHK0340-CAL6		1	NO MANUAL INTEGRATION
1602	N819112508.D	SHK0340-SCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 26-Nov-2019 12:10

N819112501.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112502.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112503.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112504.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112505.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112506.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112507.D	Data Locked	jianqing, 26-Nov-2019 12:10
N819112508.D	Data Locked	jianqing, 26-Nov-2019 12:10

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHL0025	Instrument:	NT8
		Calibration:	CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHL0025-TUN1	N819110230.D	NA	12/02/19 17:36
Initial Cal Check	SHL0025-ICV1	N819120231.D	NA	12/02/19 17:52
ZZZZZ	BHK0576-BLK1	N819120232.D	Solid	12/02/19 18:09
ZZZZZ	BHK0576-BS1	N819120233.D	Solid	12/02/19 18:30
ZZZZZ	19K0228-01	N819120234.D	Solid	12/02/19 18:47
ZZZZZ	19K0228-03	N819120238.D	Solid	12/02/19 19:52
ZZZZZ	19K0228-04	N819120239.D	Solid	12/02/19 20:08
ZZZZZ	19K0228-05	N819120240.D	Solid	12/02/19 20:24
ZZZZZ	19K0228-06	N819120241.D	Solid	12/02/19 20:41
ZZZZZ	19K0228-07	N819120242.D	Solid	12/02/19 20:57
ZZZZZ	19K0228-11	N819120244.D	Solid	12/02/19 21:29
ZZZZZ	19K0228-12	N819120245.D	Solid	12/02/19 21:46
ZZZZZ	19K0228-13	N819120246.D	Solid	12/02/19 22:02
ZZZZZ	19K0228-14	N819120247.D	Solid	12/02/19 22:18
ZZZZZ	19K0228-15	N819120248.D	Solid	12/02/19 22:34
ZZZZZ	19K0228-16	N819120249.D	Solid	12/02/19 22:51
Blank	BHK0747-BLK1	N819120250.D	Water	12/02/19 23:07
PDI-FB-1911191346	19K0394-01	N819120252.D	Water	12/02/19 23:40
PDI-FB-1911191346	BHK0747-MS1	N819120253.D	Water	12/02/19 23:56
PDI-FB-1911191346	BHK0747-MSD1	N819120254.D	Water	12/03/19 00:12
PDI-RB-1911191254	19K0394-02	N819120255.D	Water	12/03/19 00:28
Calibration Check	SHL0025-CCV1	N819120256.D	NA	12/03/19 00:45

Work Order(s): 19K0394

Checklist for SEQUENCE SHL0025

Checklist: Analyst Checklist-SVOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	YES		JZ	12/03/2019
2	DFTPP abundance and time criteria met (8270D only)	YES		JZ	12/03/2019
3	DDT Breakdown <20% and Peak Tailing <=2 (8270D only)	YES		JZ	12/03/2019
4	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA		JZ	12/03/2019
5	Retention times within windows and Coelution summary checked for all Workorders	YES		JZ	12/03/2019
6	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	YES		JZ	12/03/2019
7	Narrate any Workorders where the Project specific requirements have not been met	NA		JZ	12/03/2019
8	Extraction basis, cleanups, and total solids are correctly entered	YES		JZ	12/03/2019
9	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA		JZ	12/03/2019
10	AUTOCHECK: Blank checked for exceedence of criteria	NR	*	JZ	12/03/2019
	Comments: *No blanks were analyzed.*				
11	AUTOCHECK: Check blank spike recovery	NA	*	JZ	12/03/2019
12	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	JZ	12/03/2019
13	AUTOCHECK: Compounds in method designated as blank spike compounds are present	NA	*	JZ	12/03/2019
14	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	JZ	12/03/2019
15	AUTOCHECK: Matrix spike recoveries within limits	NA	*	JZ	12/03/2019
16	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	JZ	12/03/2019
17	AUTOCHECK: List of compounds listed as spiked are present	NA	*	JZ	12/03/2019
18	AUTOCHECK: Check SRM limits for exceedance	NA	*	JZ	12/03/2019
19	AUTOCHECK: Check Surrogate recoveries	YES	*	JZ	12/03/2019
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	JZ	12/03/2019
21	Data locked, checklist completed and status is analyzed (REVIEWER)	YES		MW	12/03/2019
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		MW	12/03/2019
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NO		MW	12/03/2019
	Comments: *EXCEPTION REPORT REQUIRED*				
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)				12/30/1899
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)				12/30/1899
26	Additional Notes (ANALYST and REVIEWER)	NO		JZ	12/03/2019
	Comments: *Batch BHK0576 : Sample 19K0228-02 batched on "SHL0032". Sample 19K0228-10: Re-ex ordered. Reported to the*				

* = Indicates Automated Response from Element DataSyst

Checklist for SEQUENCE SHL0025 **Checklist: Analyst Checklist-SVOA(rev4)**

#	Checklist Item	Response	Analyst Initials	Date

MDL.
Batch BHK0747: BHK0747-BS1 batched on "SHL0032". Samples 19K0394-01 & 02 received out of holding.
Tripropyl tin surrogate low in two samples. Usually due to blowdown.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 12/3/2019 1:37:51PM

ANALYSIS SEQUENCE

SHL0025

Instrument: NT8
Calibration ID: CK00068
EM Voltage: 2082
Element Column ID: H004092
Tune File: 191025.U

Batch BHK0576: Sample 19K0228-02 batched on " SHL0032". Re-ex for sample 19K0228-10 ordered.
Batch SHK0747: BHK0747-BS1 batched on "SHL0032".

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHL0025-TUN1	MS Tune	QC		1	H010226		
SHL0025-ICV1	Initial Cal Check	QC		2	H011462	H004622	
BHK0576-BLK1	Blank	QC		3		H004622	
BHK0576-BS1	LCS	QC		4		H004622	
19K0228-01	PDI-1142RAB-20-30.4-191112	8270D-SIM Butyl Tins	A 01	5		H004622	
BHK0576-MS1	Matrix Spike	QC		6		H004622	
BHK0576-MSD1	Matrix Spike Dup	QC		7		H004622	
19K0228-03	PDI-142RAB-10-20-191112	8270D-SIM Butyl Tins	A 01	8		H004622	
19K0228-04	PDI-142RAB-20-30.4-191112	8270D-SIM Butyl Tins	A 01	9		H004622	
19K0228-05	PDI-144RAB-00-10-191113	8270D-SIM Butyl Tins	A 01	10		H004622	
19K0228-06	PDI-144RAB-10-20-191113	8270D-SIM Butyl Tins	A 01	11		H004622	
19K0228-07	PDI-144RAB-20-29-191113	8270D-SIM Butyl Tins	A 01	12		H004622	
19K0228-11	PDI-140RAB-10-12.7-191108	8270D-SIM Butyl Tins	A 01	13		H004622	
19K0228-12	PDI-141RAB-00-10-191107	8270D-SIM Butyl Tins	A 01	14		H004622	
19K0228-13	PDI-141RAB-10-17.7-191107	8270D-SIM Butyl Tins	A 01	15		H004622	
19K0228-14	PDI-143RAB-00-10-191111	8270D-SIM Butyl Tins	A 01	16		H004622	
19K0228-15	PDI-143RAB-10-20-191111	8270D-SIM Butyl Tins	A 01	17		H004622	
19K0228-16	PDI-143RAB-20-31.1-191111	8270D-SIM Butyl Tins	A 01	18		H004622	
BHK0747-BLK1	Blank	QC		19		H004622	
19K0394-01	PDI-FB-1911191346	8270D-SIM Butyl Tins	A 01	20		H004622	
BHK0747-MS1	Matrix Spike	QC		21		H004622	
BHK0747-MSD1	Matrix Spike Dup	QC		22		H004622	

Printed: 12/3/2019 1:37:51PM

ANALYSIS SEQUENCE

SHL0025

Instrument: NT8
Element Column ID: H004092
Calibration ID: CK00068
Tune File: 191025.U
EM Voltage: 2082

Batch BHK0576: Sample 19K0228-02 batched on " SHL0032". Re-ex for sample 19K0228-10 ordered.
Batch SHK0747: BHK0747-BS1 batched on "SHL0032".

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
19K0394-02	PDI-RB-1911191254	8270D-SIM Butyl Tins	A 01	23		H004622	
SHL0025-CCV1	Calibration Check	QC		24	H011462	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

	Time	Filename	LabID	ClientId	DF					
1	1736	N819110230.D	SHL0025-TUN1		1	NO ISTDS FOUND				
2	1752	N819120231.D	SHL0025-ICV1		1	6.07	28487	8.65	28078	
3	1809	N819120232.D	BHK0576-BLK1		1	6.06	30880	8.65	28178	
4	1830	N819120233.D	BHK0576-BS1		1	6.07	31968	8.65	27581	
5	1847	N819120234.D	19K0228-01		1	6.08	45346	8.65	35814	
6	1903	N819120235.D	BHK0576-MS1		1	6.08	42449	8.65	34808	
7	1919	N819120236.D	BHK0576-MSD1		1	6.09	53276	8.65	39446	
8	1936	N819120237.D	19K0228-02	SS out, NR	1	6.07	38266	8.65	31369	
9	1952	N819120238.D	19K0228-03		1	6.08	49451	8.65	36917	
10	2008	N819120239.D	19K0228-04		1	6.08	48429	8.65	38431	
11	2024	N819120240.D	19K0228-05		1	6.07	43633	8.65	34015	
12	2041	N819120241.D	19K0228-06		1	6.08	49861	8.65	36479	
13	2057	N819120242.D	19K0228-07		1	6.07	41024	8.65	31724	
14	2113	N819120243.D	19K0228-10	SS out, NR	1	6.07	40931	8.65	34135	
15	2129	N819120244.D	19K0228-11		1	6.07	43880	8.65	34942	
16	2146	N819120245.D	19K0228-12		1	6.07	44202	8.65	36994	
17	2202	N819120246.D	19K0228-13		1	6.09	55256	8.65	40438	
18	2218	N819120247.D	19K0228-14		1	6.07	42233	8.65	32770	
19	2234	N819120248.D	19K0228-15		1	6.07	42590	8.65	33930	
20	2251	N819120249.D	19K0228-16		1	6.07	43882	8.65	35513	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

	Time	Filename	LabID	ClientId	DF					
21	2307	N819120250.D	BHK0747-BLK1		1	6.06	37872	8.65	33262	
22	2323	N819120251.D	BHK0747-BS1	SS out, NR	1	6.06	37362	8.65	34021	
23	2340	N819120252.D	19K0394-01	out of holding	1	6.06	36684	8.65	32176	
24	2356	N819120253.D	BHK0747-MS1		1	6.06	36048	8.65	32457	
25	0012	N819120254.D	BHK0747-MSD1		1	6.06	36715	8.65	32487	
26	0028	N819120255.D	19K0394-02	out of holding	1	6.06	36089	8.65	32193	
27	0045	N819120256.D	SHL0025-CCV1		1	6.06	32557	8.65	29683	

JZ 12/03/19

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

ARI Job No.: SHL0 Method: TBT1125.m Instrument: nt8.i Date: 02-DEC-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1752	N819120231.D	SHL0025-ICV1		1	NO MANUAL INTEGRATION
1809	N819120232.D	BHK0576-BLK1		1	NO MANUAL INTEGRATION
1830	N819120233.D	BHK0576-BS1		1	Butyl Tin (Hexyl),
1847	N819120234.D	19K0228-01		1	NO MANUAL INTEGRATION
1903	N819120235.D	BHK0576-MS1		1	Butyl Tin (Hexyl),
1919	N819120236.D	BHK0576-MSD1		1	Butyl Tin (Hexyl),
1952	N819120238.D	19K0228-03		1	NO MANUAL INTEGRATION
2008	N819120239.D	19K0228-04		1	NO MANUAL INTEGRATION
2024	N819120240.D	19K0228-05		1	NO MANUAL INTEGRATION
2041	N819120241.D	19K0228-06		1	NO MANUAL INTEGRATION
2057	N819120242.D	19K0228-07		1	NO MANUAL INTEGRATION
2129	N819120244.D	19K0228-11		1	NO MANUAL INTEGRATION
2146	N819120245.D	19K0228-12		1	NO MANUAL INTEGRATION
2202	N819120246.D	19K0228-13		1	NO MANUAL INTEGRATION
2218	N819120247.D	19K0228-14		1	NO MANUAL INTEGRATION
2234	N819120248.D	19K0228-15		1	NO MANUAL INTEGRATION
2251	N819120249.D	19K0228-16		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2307	N819120250.D	BHK0747-BLK1		1	NO MANUAL INTEGRATION
2340	N819120252.D	19K0394-01		1	NO MANUAL INTEGRATION
2356	N819120253.D	BHK0747-MS1		1	Butyl Tin (Hexyl),
0012	N819120254.D	BHK0747-MSD1		1	Butyl Tin (Hexyl),
0028	N819120255.D	19K0394-02		1	NO MANUAL INTEGRATION
0045	N819120256.D	SHL0025-CCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 03-Dec-2019 13:43

N819110230.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120231.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120232.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120233.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120234.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120235.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120236.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120238.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120239.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120240.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120241.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120242.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120244.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120245.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120246.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120247.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120248.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120249.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120250.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120252.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120253.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120254.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120255.D	Data Locked	jianqing, 03-Dec-2019 13:43
N819120256.D	Data Locked	jianqing, 03-Dec-2019 13:43

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHL0032	Instrument:	NT8
		Calibration:	CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHL0032-TUN1	N819120301.D	NA	12/03/19 09:10
Initial Cal Check	SHL0032-ICV1	N819120302.D	NA	12/03/19 09:22
Instrument Blank	SHL0032-IBL1	N819120303.D	NA	12/03/19 10:14
ZZZZZ	19K0228-02	N819120304.D	Solid	12/03/19 10:36
ZZZZZ	19K0228-10	N819120305.D	Solid	12/03/19 10:52
LCS	BHK0747-BS1	N819120306.D	Water	12/03/19 11:08
Calibration Check	SHL0032-CCV1	N819120307.D	NA	12/03/19 12:12

Work Order(s):	19K0394

Checklist for SEQUENCE SHL0032

Checklist: Analyst Checklist-SVOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	YES		JZ	12/03/2019
2	DFTPP abundance and time criteria met (8270D only)	YES		JZ	12/03/2019
3	DDT Breakdown <20% and Peak Tailing <=2 (8270D only)	YES		JZ	12/03/2019
4	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA		JZ	12/03/2019
5	Retention times within windows and Coelution summary checked for all Workorders	YES		JZ	12/03/2019
6	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	YES		JZ	12/03/2019
7	Narrate any Workorders where the Project specific requirements have not been met	NA		JZ	12/03/2019
8	Extraction basis, cleanups, and total solids are correctly entered	YES		JZ	12/03/2019
9	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA		JZ	12/03/2019
10	AUTOCHECK: Blank checked for exceedence of criteria	NR	*	JZ	12/03/2019
	Comments: *No blanks were analyzed. Inst. blank run SHL0032-IBL1*				
11	AUTOCHECK: Check blank spike recovery	NO	*	JZ	12/03/2019
	Comments: *LCS Recovery for Butyltin Ion (26.5%) was outside acceptance limits (30-160) in BHK0747-BS1 for 8270D-SIM Butyl Tins* *- Flagged value is not within established control limits.*				
12	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	JZ	12/03/2019
13	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	JZ	12/03/2019
14	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	JZ	12/03/2019
15	AUTOCHECK: Matrix spike recoveries within limits	NO	*	JZ	12/03/2019
	Comments: *Matrix Spike Recovery for Butyltin Ion (28.7%) was outside acceptance limits (30-160) in BHK0576-MS1 for 8270D-SIM Butyl Tins* *- Flagged value is not within established control limits.* *Matrix Spike Recovery for Butyltin Ion (25.4%) was outside acceptance limits (30-160) in BHK0747-MS1 for 8270D-SIM Butyl Tins* *- Flagged value is not within established control limits.*				
16	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	JZ	12/03/2019
17	AUTOCHECK: List of compounds listed as spiked are present	YES	*	JZ	12/03/2019
18	AUTOCHECK: Check SRM limits for exceedance	NA	*	JZ	12/03/2019
19	AUTOCHECK: Check Surrogate recoveries	NO	*	JZ	12/03/2019
	Comments: *Surrogate Recovery for Tripropyltin (24.9%) was outside acceptance limits (30-160) in 19K0228-02 for 8270D-SIM Butyl Tins* *- Flagged value is not within established control limits.*				
20	AUTOCHECK: Checks Surrogate spike list against Analysis	NO	*	JZ	12/03/2019

Work Order(s):	19K0394

Checklist for SEQUENCE SHL0032 **Checklist: Analyst Checklist-SVOA(rev4)**

#	Checklist Item	Response	Analyst Initials	Date
	Comments: *Tripentyltin is listed as a surrogate for method 8270D-SIM Butyl Tins but it was not spiked into sample SHL0032-IBL1* *Tripropyltin is listed as a surrogate for method 8270D-SIM Butyl Tins but it was not spiked into sample SHL0032-IBL1*			
21	Data locked, checklist completed and status is analyzed (REVIEWER)	YES	BB	12/03/2019
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	BB	12/03/2019
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NA	BB	12/03/2019
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA	BB	12/03/2019
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA	BB	12/03/2019
26	Additional Notes (ANALYST and REVIEWER)	NO	JZ	12/03/2019
	Comments: *Batch BHK0576: Sample 19K0228-02 only. Reported to the MDL. Re-ex for sample 19K0228-10 ordered.(12/3/2019)* *Batch BHK0747: BHJK0747-BS1 only.* *IBL included.*			

Printed: 12/3/2019 1:39:06PM

ANALYSIS SEQUENCE

SHL0032

Instrument: NT8
Element Column ID: H004092
Calibration ID: CK00068
Tune File: 191025.U
EM Voltage: 2082

Re-ex for sample 19K0228-10 ordered.

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHL0032-TUN1	MS Tune	QC		1	H010226		
SHL0032-ICV1	Initial Cal Check	QC		2	H011462	H004622	
SHL0032-IBL1	Instrument Blank	QC		3		H004622	
19K0228-02	PDI-142RAB-00-10-191112	8270D-SIM Butyl Tins	A 01	4		H004622	
BHK0747-BS1	LCS	QC		5		H004622	
SHL0032-CCV1	Calibration Check	QC		6	H011462	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191203.b

	Time	Filename	LabID	ClientId	DF					
1	0910	N819120301.D	SHL0032-TUN1		1	NO ISTDS FOUND				
2	0922	N819120302.D	SHL0032-ICV1		1	6.06	30089	8.65	30470	
3	1014	N819120303.D	SHL0032-IBL1		1	6.07	31672	8.65	32069	
4	1036	N819120304.D	19K0228-02		1	6.08	31652	8.65	25068	
5	1052	N819120305.D	19K0228-10		1	6.07	34161	8.65	28553	
6	1108	N819120306.D	BHK0747-BS1		1	6.06	33356	8.65	30164	
7	1212	N819120307.D	SHL0032-CCV1		1	6.07	35492	8.65	30365	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191203.b

ARI Job No.: SHL0 Method: TBT1125.m Instrument: nt8.i Date: 03-DEC-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0922	N819120302.D	SHL0032-ICV1		1	NO MANUAL INTEGRATION
1014	N819120303.D	SHL0032-IBL1		1	NO MANUAL INTEGRATION
1036	N819120304.D	19K0228-02		1	NO MANUAL INTEGRATION
1108	N819120306.D	BHK0747-BS1		1	Butyl Tin (Hexyl),
1212	N819120307.D	SHL0032-CCV1		1	Butyl Tin (Hexyl),

Security Status Report

Date: 03-Dec-2019 13:46

N819120301.D	Data Locked	jianqing, 03-Dec-2019 13:46
N819120302.D	Data Locked	jianqing, 03-Dec-2019 13:46
N819120303.D	Data Locked	jianqing, 03-Dec-2019 13:46
N819120304.D	Data Locked	jianqing, 03-Dec-2019 13:46
N819120306.D	Data Locked	jianqing, 03-Dec-2019 13:46
N819120307.D	Data Locked	jianqing, 03-Dec-2019 13:46

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SIA0018	Instrument:	NT8
		Calibration:	DA00008

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SIA0018-TUN1	N820010301.D	NA	01/03/20 10:03
TBT Cal 4	SIA0018-CAL4	N820010302.D	NA	01/03/20 10:15
TBT Cal 1	SIA0018-CAL1	N820010303.D	NA	01/03/20 10:34
TBT Cal 2	SIA0018-CAL2	N820010304.D	NA	01/03/20 10:50
TBT Cal 3	SIA0018-CAL3	N820010305.D	NA	01/03/20 11:06
TBT Cal 5	SIA0018-CAL5	N820010306.D	NA	01/03/20 11:23
TBT Cal 6	SIA0018-CAL6	N820010307.D	NA	01/03/20 11:39
Secondary Cal Check	SIA0018-SCV1	N820010308.D	NA	01/03/20 13:23

Printed: 1/3/2020 2:19:48PM

ANALYSIS SEQUENCE

SIA0018

Instrument: NT8 Element Column ID: H004092
Calibration ID: DA00008 Tune File: 191025.U
EM Voltage: 2118

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SIA0018-TUN1	MS Tune	QC		1	H010226		
SIA0018-CAL1	TBT Cal 1	QC		2	I000064	H004622	
SIA0018-CAL2	TBT Cal 2	QC		3	I000065	H004622	
SIA0018-CAL3	TBT Cal 3	QC		4	I000066	H004622	
SIA0018-CAL4	TBT Cal 4	QC		5	I000067	H004622	
SIA0018-CAL5	TBT Cal 5	QC		6	I000068	H004622	
SIA0018-CAL6	TBT Cal 6	QC		7	I000069	H004622	
SIA0018-SCV1	Secondary Cal Check	QC		8	I000096	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20200103.b

	Time	Filename	LabID	ClientId	DF				
1	1003	N820010301.D	SIA0018-TUN1		1	NO ISTDS FOUND			
2	1015	N820010302.D	SIA0018-CAL4		1	6.01	43350	8.58	36156
3	1034	N820010303.D	SIA0018-CAL1		1	6.01	35297	8.59	30580
4	1050	N820010304.D	SIA0018-CAL2		1	6.01	34803	8.58	31227
5	1106	N820010305.D	SIA0018-CAL3		1	6.01	34476	8.58	29989
6	1123	N820010306.D	SIA0018-CAL5		1	6.01	36874	8.58	29614
7	1139	N820010307.D	SIA0018-CAL6		1	6.01	39335	8.58	29071
8	1323	N820010308.D	SIA0018-SCV1		1	6.01	30619	8.59	26292

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20200103.b

ARI Job No.: SIA0 Method: TBT200103.m Instrument: nt8.i Date: 03-JAN-2020

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1015	N820010302.D	SIA0018-CAL4		1	NO MANUAL INTEGRATION
1034	N820010303.D	SIA0018-CAL1		1	NO MANUAL INTEGRATION
1050	N820010304.D	SIA0018-CAL2		1	NO MANUAL INTEGRATION
1106	N820010305.D	SIA0018-CAL3		1	NO MANUAL INTEGRATION
1123	N820010306.D	SIA0018-CAL5		1	NO MANUAL INTEGRATION
1139	N820010307.D	SIA0018-CAL6		1	NO MANUAL INTEGRATION
1323	N820010308.D	SIA0018-SCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 03-Jan-2020 14:30

N820010301.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010302.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010303.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010304.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010305.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010306.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010307.D	Data Locked	jianqing, 03-Jan-2020 14:30
N820010308.D	Data Locked	jianqing, 03-Jan-2020 14:30

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SIA0110	Instrument:	NT8
		Calibration:	DA00008

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SIA0110-TUN1	N820010901.D	NA	01/09/20 10:52
Initial Cal Check	SIA0110-ICV1	N820010902.D	NA	01/09/20 14:22
Blank	BIA0050-BLK1	N820010903.D	Solid	01/09/20 14:38
LCS	BIA0050-BS1	N820010904.D	Solid	01/09/20 14:54
PDI-1138RAB-00-10-191118	19K0394-03	N820010905.D	Solid	01/09/20 15:11
PDI-138RAB-00-10-191118	19K0394-04	N820010906.D	Solid	01/09/20 15:27
PDI-138RAB-10-19.1-191118	19K0394-05	N820010907.D	Solid	01/09/20 15:43
PDI-139RAB-00-10-191115	19K0394-06	N820010909.D	Solid	01/09/20 16:16
PDI-139RAB-10-20-191115	19K0394-07	N820010910.D	Solid	01/09/20 16:32
PDI-139RAB-20-25.5-191118	19K0394-08	N820010911.D	Solid	01/09/20 16:49
PDI-145RAB-00-10-191114	19K0394-09	N820010912.D	Solid	01/09/20 17:53
PDI-145RAB-00-10-191114	BIA0050-MS1	N820010913.D	Solid	01/09/20 18:10
PDI-145RAB-00-10-191114	BIA0050-MSD1	N820010914.D	Solid	01/09/20 18:26
PDI-145RAB-10-20-191114	19K0394-10	N820010915.D	Solid	01/09/20 18:42
PDI-145RAB-20-24.7-191114	19K0394-11	N820010916.D	Solid	01/09/20 18:58
Calibration Check	SIA0110-CCV1	N820010917.D	NA	01/09/20 19:15

Work Order(s): 19K0394

Checklist for SEQUENCE SIA0110

Checklist: Analyst Checklist-SVOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	YES		JZ	01/09/2020
2	DFTPP abundance and time criteria met (8270D only)	YES		JZ	01/09/2020
3	DDT Breakdown <20% and Peak Tailing <=2 (8270D only)	YES		JZ	01/09/2020
4	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA		JZ	01/09/2020
5	Retention times within windows and Coelution summary checked for all Workorders	YES		JZ	01/09/2020
6	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	YES		JZ	01/09/2020
7	Narrate any Workorders where the Project specific requirements have not been met	NA		JZ	01/09/2020
8	Extraction basis, cleanups, and total solids are correctly entered	YES		JZ	01/09/2020
9	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	YES		JZ	01/09/2020
10	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	JZ	01/09/2020
11	AUTOCHECK: Check blank spike recovery	YES	*	JZ	01/09/2020
12	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	JZ	01/09/2020
13	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	JZ	01/09/2020
14	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	JZ	01/09/2020
15	AUTOCHECK: Matrix spike recoveries within limits	NA	*	JZ	01/09/2020
16	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	JZ	01/09/2020
17	AUTOCHECK: List of compounds listed as spiked are present	NA	*	JZ	01/09/2020
18	AUTOCHECK: Check SRM limits for exceedance	NA	*	JZ	01/09/2020
19	AUTOCHECK: Check Surrogate recoveries	YES	*	JZ	01/09/2020
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	JZ	01/09/2020
21	Data locked, checklist completed and status is analyzed (REVIEWER)	YES		BB	01/10/2020
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		BB	01/10/2020
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NA		BB	01/10/2020
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA		BB	01/10/2020
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA		BB	01/10/2020
26	Additional Notes (ANALYST and REVIEWER)	NO		JZ	01/09/2020

Comments:
Batch BIA0050: Reported to the MDL. Sample 19K0394-06: run with 3 X dilution. @ 1 X dilution, due to the matrix interferance IS recovery out of QC limit @ high bias (Not reported). PM was informed.
MS/MSD: Recoveries out of QC limits @ low bias. MSD: IS,p-Terphenyl-d14 recovery OK (if against the curve).

* = Indicates Automated Response from Element DataSyst

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHK0340	Instrument:	NT8
Calibration:	CK00068	Calibration Date:	11/25/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHK0340-SCV1 (Water)			Lab File ID: N819112508.D			Analyzed: 11/25/19 16:02		
Tripentyltin	0.79590	90.6	80 - 120	6.409	6.411	-0.0020	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHL0025	Instrument:	NT8
Calibration:	CK00068	Calibration Date:	11/25/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHL0025-ICV1 (Water)				Lab File ID: N819120231.D			Analyzed: 12/02/19 17:52	
Tripentyltin	1.5918	97.8	80 - 120	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	108	80 - 120	4.471	4.472833	-0.0018	N/A	
BHK0747-BLK1 (Water)				Lab File ID: N819120250.D			Analyzed: 12/02/19 23:07	
Tripentyltin	2.2589	70.9	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	76.5	30 - 160	4.502	4.472833	0.0292	N/A	
19K0394-01 (Water)				Lab File ID: N819120252.D			Analyzed: 12/02/19 23:40	
Tripentyltin	2.2589	74.9	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	84.4	30 - 160	4.502	4.472833	0.0292	N/A	
BHK0747-MS1 (Water)				Lab File ID: N819120253.D			Analyzed: 12/02/19 23:56	
Tripentyltin	2.2589	48.6	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	52.4	30 - 160	4.503	4.472833	0.0302	N/A	
BHK0747-MSD1 (Water)				Lab File ID: N819120254.D			Analyzed: 12/03/19 00:12	
Tripentyltin	2.2589	71.2	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	76.8	30 - 160	4.503	4.472833	0.0302	N/A	
19K0394-02 (Water)				Lab File ID: N819120255.D			Analyzed: 12/03/19 00:28	
Tripentyltin	2.2589	62.1	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	70.0	30 - 160	4.492	4.472833	0.0192	N/A	
SHL0025-CCV1 (Water)				Lab File ID: N819120256.D			Analyzed: 12/03/19 00:45	
Tripentyltin	1.5918	102	50 - 150	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	103	50 - 150	4.471	4.472833	-0.0018	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHL0032	Instrument:	NT8
Calibration:	CK00068	Calibration Date:	11/25/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHL0032-ICV1 (Solid)			Lab File ID: N819120302.D			Analyzed: 12/03/19 09:22		
Tripentyltin	1.5918	97.7	80 - 120	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	110	80 - 120	4.471	4.472833	-0.0018	N/A	
SHL0032-IBL1 (Solid)			Lab File ID: N819120303.D			Analyzed: 12/03/19 10:14		
Tripentyltin			30 - 160		6.411	-6.4110	N/A	
Tripropyltin			30 - 160		4.472833	-4.4728	N/A	
BHK0747-BS1 (Water)			Lab File ID: N819120306.D			Analyzed: 12/03/19 11:08		
Tripentyltin	2.2589	32.2	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	41.1	30 - 160	4.502	4.472833	0.0292	N/A	
SHL0032-CCV1 (Solid)			Lab File ID: N819120307.D			Analyzed: 12/03/19 12:12		
Tripentyltin	1.5918	102	50 - 150	6.421	6.411	0.0100	N/A	
Tripropyltin	0.74432	103	50 - 150	4.482	4.472833	0.0092	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SIA0018	Instrument:	NT8
Calibration:	DA00008	Calibration Date:	01/03/2020

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SIA0018-SCV1 (Water)			Lab File ID: N820010308.D			Analyzed: 01/03/20 13:23		
Tripentyltin	0.79590	86.3	80 - 120	6.363	6.355	0.0080	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SIA0110	Instrument:	NT8
Calibration:	DA00008	Calibration Date:	01/03/2020

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SIA0110-ICV1 (Solid)				Lab File ID: N820010902.D			Analyzed: 01/09/20 14:22	
Tripentyltin	1.5918	101	80 - 120	6.351	6.355	-0.0040	N/A	
Tripropyltin	0.74430	104	80 - 120	4.419	4.420833	-0.0018	N/A	
BIA0050-BLK1 (Solid)				Lab File ID: N820010903.D			Analyzed: 01/09/20 14:38	
Tripentyltin	45.178	41.0	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	43.746	47.6	30 - 160	4.45	4.420833	0.0292	N/A	
BIA0050-BS1 (Solid)				Lab File ID: N820010904.D			Analyzed: 01/09/20 14:54	
Tripentyltin	45.178	44.3	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	43.746	50.6	30 - 160	4.45	4.420833	0.0292	N/A	
19K0394-03 (Solid)				Lab File ID: N820010905.D			Analyzed: 01/09/20 15:11	
Tripentyltin	51.229	42.2	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	49.605	48.0	30 - 160	4.45	4.420833	0.0292	N/A	
19K0394-04 (Solid)				Lab File ID: N820010906.D			Analyzed: 01/09/20 15:27	
Tripentyltin	52.102	38.6	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	50.450	39.6	30 - 160	4.44	4.420833	0.0192	N/A	
19K0394-05 (Solid)				Lab File ID: N820010907.D			Analyzed: 01/09/20 15:43	
Tripentyltin	56.074	32.4	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	54.297	34.5	30 - 160	4.44	4.420833	0.0192	N/A	
19K0394-06 (Solid)				Lab File ID: N820010909.D			Analyzed: 01/09/20 16:16	
Tripentyltin	55.170	33.7	30 - 160	6.363	6.355	0.0080	N/A	
Tripropyltin	53.421	30.9	30 - 160	4.44	4.420833	0.0192	N/A	
19K0394-07 (Solid)				Lab File ID: N820010910.D			Analyzed: 01/09/20 16:32	
Tripentyltin	58.966	37.8	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	57.097	38.0	30 - 160	4.45	4.420833	0.0292	N/A	
19K0394-08 (Solid)				Lab File ID: N820010911.D			Analyzed: 01/09/20 16:49	
Tripentyltin	58.888	43.5	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	57.022	43.1	30 - 160	4.45	4.420833	0.0292	N/A	
19K0394-09 (Solid)				Lab File ID: N820010912.D			Analyzed: 01/09/20 17:53	
Tripentyltin	48.737	37.4	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	47.192	31.8	30 - 160	4.44	4.420833	0.0192	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SIA0110	Instrument:	NT8
Calibration:	DA00008	Calibration Date:	01/03/2020

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BIA0050-MS1 (Solid)				Lab File ID: N820010913.D			Analyzed: 01/09/20 18:10	
Tripentyltin	49.512	28.8	30 - 160	6.351	6.355	-0.0040	N/A	*
Tripropyltin	47.943	24.1	30 - 160	4.44	4.420833	0.0192	N/A	*
BIA0050-MSD1 (Solid)				Lab File ID: N820010914.D			Analyzed: 01/09/20 18:26	
Tripentyltin	48.078	40.4	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	46.554	36.9	30 - 160	4.44	4.420833	0.0192	N/A	
19K0394-10 (Solid)				Lab File ID: N820010915.D			Analyzed: 01/09/20 18:42	
Tripentyltin	48.823	42.3	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	47.275	39.6	30 - 160	4.45	4.420833	0.0292	N/A	
19K0394-11 (Solid)				Lab File ID: N820010916.D			Analyzed: 01/09/20 18:58	
Tripentyltin	48.377	40.2	30 - 160	6.351	6.355	-0.0040	N/A	
Tripropyltin	46.844	36.4	30 - 160	4.45	4.420833	0.0292	N/A	
SIA0110-CCV1 (Solid)				Lab File ID: N820010917.D			Analyzed: 01/09/20 19:15	
Tripentyltin	1.5918	103	50 - 150	6.351	6.355	-0.0040	N/A	
Tripropyltin	0.74430	99.6	50 - 150	4.409	4.420833	-0.0118	N/A	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHK0340	Instrument:	NT8
		Calibration:	CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SHK0340-SCV1)		(Water)		Lab File ID: N819112508.D				Analyzed: 11/25/19 16:02	
Tetrapentyltin	39133	6.058	41592	6.07	94	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	39863	8.647	41162	8.647	97	50 - 200	0.000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Sequence: SHL0025
Instrument: NT8
Calibration: CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHL0025-ICV1)		(Water)		Lab File ID: N819120231.D				Analyzed: 12/02/19 17:52	
Tetrapentyltin	28487	6.07	28487	6.07	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	28078	8.647	28078	8.647	100	50 - 200	0.000	+/-0.50	
Blank (BHK0747-BLK1)		(Water)		Lab File ID: N819120250.D				Analyzed: 12/02/19 23:07	
Tetrapentyltin	37872	6.058	28487	6.07	133	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	33262	8.647	28078	8.647	118	50 - 200	0.000	+/-0.50	
PDI-FB-1911191346 (19K0394-01)		(Water)		Lab File ID: N819120252.D				Analyzed: 12/02/19 23:40	
Tetrapentyltin	36684	6.058	28487	6.07	129	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	32176	8.647	28078	8.647	115	50 - 200	0.000	+/-0.50	
Matrix Spike (BHK0747-MS1)		(Water)		Lab File ID: N819120253.D				Analyzed: 12/02/19 23:56	
Tetrapentyltin	36048	6.058	28487	6.07	127	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	32457	8.647	28078	8.647	116	50 - 200	0.000	+/-0.50	
Matrix Spike Dup (BHK0747-MSD1)		(Water)		Lab File ID: N819120254.D				Analyzed: 12/03/19 00:12	
Tetrapentyltin	36715	6.058	28487	6.07	129	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	32487	8.647	28078	8.647	116	50 - 200	0.000	+/-0.50	
PDI-RB-1911191254 (19K0394-02)		(Water)		Lab File ID: N819120255.D				Analyzed: 12/03/19 00:28	
Tetrapentyltin	36089	6.058	28487	6.07	127	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	32193	8.647	28078	8.647	115	50 - 200	0.000	+/-0.50	
Calibration Check (SHL0025-CCV1)		(Water)		Lab File ID: N819120256.D				Analyzed: 12/03/19 00:45	
Tetrapentyltin	32557	6.058	28487	6.07	114	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	29683	8.647	28078	8.647	106	50 - 200	0.000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SHL0032	Instrument:	NT8
		Calibration:	CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHL0032-ICV1)		(Solid)		Lab File ID: N819120302.D				Analyzed: 12/03/19 09:22	
Tetrapentyltin	30089	6.058	30089	6.058	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	30470	8.647	30470	8.647	100	50 - 200	0.000	+/-0.50	
Instrument Blank (SHL0032-IBL1)		(Solid)		Lab File ID: N819120303.D				Analyzed: 12/03/19 10:14	
Tetrapentyltin	31672	6.07	30089	6.058	105	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	32069	8.647	30470	8.647	105	50 - 200	0.000	+/-0.50	
LCS (BHK0747-BS1)		(Water)		Lab File ID: N819120306.D				Analyzed: 12/03/19 11:08	
Tetrapentyltin	33356	6.058	30089	6.058	111	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	30164	8.647	30470	8.647	99	50 - 200	0.000	+/-0.50	
Calibration Check (SHL0032-CCV1)		(Water)		Lab File ID: N819120307.D				Analyzed: 12/03/19 12:12	
Tetrapentyltin	35492	6.07	30089	6.058	118	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	30365	8.647	30470	8.647	100	50 - 200	0.000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0394
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Sequence:	SIA0018	Instrument:	NT8
		Calibration:	DA00008

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SIA0018-SCV1)		(Water)		Lab File ID: N820010308.D				Analyzed: 01/03/20 13:23	
Tetrapentyltin	30619	6.013	43350	6.013	71	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	26292	8.59	36156	8.577	73	50 - 200	0.013	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Sequence: SIA0110
Instrument: NT8
Calibration: DA00008

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SIA0110-ICV1)		(Solid)		Lab File ID: N820010902.D				Analyzed: 01/09/20 14:22	
Tetrapentyltin	43158	6.013	43158	6.013	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	40006	8.577	40006	8.577	100	50 - 200	0.000	+/-0.50	
Blank (BIA0050-BLK1)		(Solid)		Lab File ID: N820010903.D				Analyzed: 01/09/20 14:38	
Tetrapentyltin	37070	6.001	43158	6.013	86	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	32847	8.577	40006	8.577	82	50 - 200	0.000	+/-0.50	
LCS (BIA0050-BS1)		(Solid)		Lab File ID: N820010904.D				Analyzed: 01/09/20 14:54	
Tetrapentyltin	35716	6.001	43158	6.013	83	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	31588	8.577	40006	8.577	79	50 - 200	0.000	+/-0.50	
PDI-1138RAB-00-10-191118 (19K0394-03)		(Solid)		Lab File ID: N820010905.D				Analyzed: 01/09/20 15:11	
Tetrapentyltin	33453	6.013	43158	6.013	78	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	28619	8.578	40006	8.577	72	50 - 200	0.001	+/-0.50	
PDI-138RAB-00-10-191118 (19K0394-04)		(Solid)		Lab File ID: N820010906.D				Analyzed: 01/09/20 15:27	
Tetrapentyltin	34430	6.013	43158	6.013	80	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	28302	8.577	40006	8.577	71	50 - 200	0.000	+/-0.50	
PDI-138RAB-10-19.1-191118 (19K0394-05)		(Solid)		Lab File ID: N820010907.D				Analyzed: 01/09/20 15:43	
Tetrapentyltin	30374	6.013	43158	6.013	70	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	26285	8.577	40006	8.577	66	50 - 200	0.000	+/-0.50	
PDI-139RAB-00-10-191115 (19K0394-06)		(Solid)		Lab File ID: N820010909.D				Analyzed: 01/09/20 16:16	
Tetrapentyltin	27586	6.013	43158	6.013	64	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	21736	8.577	40006	8.577	54	50 - 200	0.000	+/-0.50	
PDI-139RAB-10-20-191115 (19K0394-07)		(Solid)		Lab File ID: N820010910.D				Analyzed: 01/09/20 16:32	
Tetrapentyltin	38858	6.013	43158	6.013	90	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	33192	8.577	40006	8.577	83	50 - 200	0.000	+/-0.50	
PDI-139RAB-20-25.5-191118 (19K0394-08)		(Solid)		Lab File ID: N820010911.D				Analyzed: 01/09/20 16:49	
Tetrapentyltin	42263	6.013	43158	6.013	98	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	34086	8.577	40006	8.577	85	50 - 200	0.000	+/-0.50	
PDI-145RAB-00-10-191114 (19K0394-09)		(Solid)		Lab File ID: N820010912.D				Analyzed: 01/09/20 17:53	
Tetrapentyltin	31539	6.013	43158	6.013	73	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	24813	8.578	40006	8.577	62	50 - 200	0.001	+/-0.50	
Matrix Spike (BIA0050-MS1)		(Solid)		Lab File ID: N820010913.D				Analyzed: 01/09/20 18:10	
Tetrapentyltin	29772	6.013	43158	6.013	69	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	23237	8.577	40006	8.577	58	50 - 200	0.000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Sequence: SIA0110
Instrument: NT8
Calibration: DA00008

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (BIA0050-MSD1)		(Solid)		Lab File ID: N820010914.D				Analyzed: 01/09/20 18:26	
Tetrapentyltin	22023	6.013	43158	6.013	51	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	18133	8.577	40006	8.577	45	50 - 200	0.000	+/-0.50	*
PDI-145RAB-10-20-191114 (19K0394-10)		(Solid)		Lab File ID: N820010915.D				Analyzed: 01/09/20 18:42	
Tetrapentyltin	31874	6.013	43158	6.013	74	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	26736	8.577	40006	8.577	67	50 - 200	0.000	+/-0.50	
PDI-145RAB-20-24.7-191114 (19K0394-11)		(Solid)		Lab File ID: N820010916.D				Analyzed: 01/09/20 18:58	
Tetrapentyltin	29359	6.013	43158	6.013	68	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	24007	8.577	40006	8.577	60	50 - 200	0.000	+/-0.50	
Calibration Check (SIA0110-CCV1)		(Water)		Lab File ID: N820010917.D				Analyzed: 01/09/20 19:15	
Tetrapentyltin	43455	6.001	43158	6.013	101	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	38819	8.577	40006	8.577	97	50 - 200	0.000	+/-0.50	

HOLDING TIME SUMMARY

Analysis: EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0394

Client: Anchor QEA, LLC Project: Gasco PDI

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
PDI-FB-1911191346 19K0394-01	11/19/19 13:46	11/26/19 10:22	11/27/19 12:35	7	7	12/02/19 23:40	5	40	
PDI-RB-1911191254 19K0394-02	11/19/19 12:54	11/26/19 10:22	11/27/19 12:35	7	7	12/03/19 00:28	5	40	
PDI-1138RAB-00-10-191118 19K0394-03	11/18/19 11:40	11/26/19 10:22	01/06/20 12:48	49	365	01/09/20 15:11	3	40	
PDI-138RAB-00-10-191118 19K0394-04	11/18/19 11:40	11/26/19 10:22	01/06/20 12:48	49	365	01/09/20 15:27	3	40	
PDI-138RAB-10-19.1-191118 19K0394-05	11/18/19 12:40	11/26/19 10:22	01/06/20 12:48	49	365	01/09/20 15:43	3	40	
PDI-139RAB-00-10-191115 19K0394-06	11/15/19 12:40	11/26/19 10:22	01/06/20 12:48	52	365	01/09/20 16:16	3	40	
PDI-139RAB-10-20-191115 19K0394-07	11/15/19 14:40	11/26/19 10:22	01/06/20 12:48	51	365	01/09/20 16:32	3	40	
PDI-139RAB-20-25.5-191118 19K0394-08	11/18/19 08:30	11/26/19 10:22	01/06/20 12:48	49	365	01/09/20 16:49	3	40	
PDI-145RAB-00-10-191114 19K0394-09	11/14/19 09:15	11/26/19 10:22	01/06/20 12:48	53	365	01/09/20 17:53	3	40	
PDI-145RAB-10-20-191114 19K0394-10	11/14/19 10:30	11/26/19 10:22	01/06/20 12:48	53	365	01/09/20 18:42	3	40	
PDI-145RAB-20-24.7-191114 19K0394-11	11/14/19 11:05	11/26/19 10:22	01/06/20 12:48	53	365	01/09/20 18:58	3	40	
Matrix Spike BHK0747-MS1	11/19/19 13:46	11/26/19 10:22	11/27/19 12:35	7	7	12/02/19 23:56	5	40	
Matrix Spike Dup BHK0747-MSD1	11/19/19 13:46	11/26/19 10:22	11/27/19 12:35	7	7	12/03/19 00:12	5	40	
Matrix Spike BIA0050-MS1	11/14/19 09:15	11/26/19 10:22	01/06/20 12:48	53	365	01/09/20 18:10	3	40	
Matrix Spike Dup BIA0050-MSD1	11/14/19 09:15	11/26/19 10:22	01/06/20 12:48	53	365	01/09/20 18:26	3	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0394

Client: Anchor QEA, LLC Project: Gasco PDI

Matrix: Solid Instrument: NT8

Analyte	MDL	RL	Units
Tributyltin Ion	0.450	3.86	ug/kg

METHOD DETECTION AND REPORTING LIMITS

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0394

Client: Anchor QEA, LLC Project: Gasco PDI

Matrix: Water Instrument: NT8

Analyte	MDL	RL	Units
Tributyltin Ion	0.043	0.193	ug/L

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-1138RAB-00-10-191118

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-03 A	SDG:	19K0394
Sampled:	11/18/19 11:40	Prepared:	12/03/19 21:25	File ID:	
% Solids:	86.29	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	86.29	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-138RAB-00-10-191118

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-04 A	SDG:	19K0394
Sampled:	11/18/19 11:40	Prepared:	12/03/19 21:25	File ID:	
% Solids:	84.84	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	84.84	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-138RAB-10-19.1-191118

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-05 A	SDG:	19K0394
Sampled:	11/18/19 12:40	Prepared:	12/03/19 21:25	File ID:	
% Solids:	79.14	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	79.14	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-139RAB-00-10-191115

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-06 A	SDG:	19K0394
Sampled:	11/15/19 12:40	Prepared:	12/03/19 21:25	File ID:	
% Solids:	80.76	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	80.76	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-139RAB-10-20-191115

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-07 A	SDG:	19K0394
Sampled:	11/15/19 14:40	Prepared:	12/03/19 21:25	File ID:	
% Solids:	75.41	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	75.41	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-139RAB-20-25.5-191118

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-08 A	SDG:	19K0394
Sampled:	11/18/19 08:30	Prepared:	12/03/19 21:25	File ID:	
% Solids:	75.36	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	75.36	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-145RAB-00-10-191114

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-09 B	SDG:	19K0394
Sampled:	11/14/19 09:15	Prepared:	12/03/19 21:25	File ID:	
% Solids:	90.70	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	90.70	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-145RAB-10-20-191114

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-10 A	SDG:	19K0394
Sampled:	11/14/19 10:30	Prepared:	12/03/19 21:25	File ID:	
% Solids:	91.62	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	91.62	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-145RAB-20-24.7-191114

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Matrix:	Soil	Laboratory ID:	19K0394-11 A	SDG:	19K0394
Sampled:	11/14/19 11:05	Prepared:	12/03/19 21:25	File ID:	
% Solids:	91.92	Preparation:	No Prep Wet Chem	Analyzed:	12/03/19 22:34
Batch:	BHL0068	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	91.92	1	0.04	0.04	

PREPARATION BATCH SUMMARY

SM 2540 G-97

Laboratory: Analytical Resources, Inc. SDG: 19K0394

Client: Anchor QEA, LLC Project: Gasco PDI

Batch: BHL0068 Batch Matrix: Solid Preparation: No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-1138RAB-00-10-191118	19K0394-03		12/03/19 21:25	Use instead of PSEP %TS
PDI-138RAB-00-10-191118	19K0394-04		12/03/19 21:25	Use instead of PSEP %TS
PDI-138RAB-10-19.1-191118	19K0394-05		12/03/19 21:25	Use instead of PSEP %TS
PDI-139RAB-00-10-191115	19K0394-06		12/03/19 21:25	Use instead of PSEP %TS
PDI-139RAB-10-20-191115	19K0394-07		12/03/19 21:25	Use instead of PSEP %TS
PDI-139RAB-20-25.5-191118	19K0394-08		12/03/19 21:25	Use instead of PSEP %TS
PDI-145RAB-00-10-191114	19K0394-09		12/03/19 21:25	Use instead of PSEP %TS
PDI-145RAB-10-20-191114	19K0394-10		12/03/19 21:25	Use instead of PSEP %TS
PDI-145RAB-20-24.7-191114	19K0394-11		12/03/19 21:25	Use instead of PSEP %TS
Blank	BHL0068-BLK1		12/03/19 21:25	
PDI-145RAB-00-10-191114	BHL0068-DUP1		12/03/19 21:25	

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:	BHL0068
Date:	12/3/2019 22:34
Analyst:	KLE

Instrumentation

Drying Ovens:	12	**Analytical Balance:**	BAL2
Muffle Furnace:	N / A		

Batch drying time

record times as mm/dd/yy hh:mm

date/time in oven:	12/3/2019 22:34	
date/time out:	12/4/2019 17:06	
elapsed hrs =	18.5	OK

TS (%) calculated as:
Final dry wt (g) = (Dry Wt - Tare Wt)
TS = (Final Dry Wt)/ (grams Sample-Tare)

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:		12/3/19 21:52	12/3/19 22:02	12/4/19 17:24								
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)	(%)	Note
BHL0068-BLK1	1	1.1690	0.0000	1.1690			0.0000	0.00%								
19K0394-03	2	0.7794	7.7615	6.8043			6.0249	86.29%								
19K0394-04	3	0.7992	8.2924	7.1568			6.3576	84.84%								
19K0394-05	4	0.7985	9.0430	7.3235			6.5250	79.14%								
19K0394-06	5	0.7956	8.7677	7.2337			6.4381	80.76%								
19K0394-07	6	1.1149	7.9137	6.2419			5.1270	75.41%								
19K0394-08	7	0.7926	8.6580	6.7201			5.9275	75.36%								
19K0394-09	8	0.7993	7.0666	6.4839			5.6846	90.70%								
BHL0068-DUP1	9	0.7948	7.4718	6.8258			6.0310	90.32%	RPD=0.4							
19K0394-10	10	0.7949	8.1311	7.5162			6.7213	91.62%								
19K0394-11	11	1.0870	7.9616	7.4059			6.3189	91.92%								
19K0396-01	12	1.1534	7.4963	6.3776			5.2242	82.36%								
19K0396-02	13	1.1260	6.8182	5.5031			4.3771	76.90%								
19K0396-03	14	1.1183	7.6002	5.9506			4.8323	74.55%								
19K0396-04	15	1.1051	6.8129	5.9225			4.8174	84.40%								
19K0396-05	16	1.1357	7.2489	6.3004			5.1647	84.48%								
BHL0068-DUP2	17	1.1168	7.2794	6.3149			5.1981	84.35%	RSD=0.1							
19K0396-06	18	1.0695	6.3589	5.3403			4.2708	80.74%								
19K0396-07	19	0.7909	6.6392	5.6716			4.8807	83.46%								
19K0396-08	20	1.0504	7.1761	6.2503			5.1999	84.89%								
19K0396-09	21	0.7927	9.1859	7.6507			6.8580	81.71%								
19K0396-10	22	1.0449	6.9019	5.7600			4.7151	80.50%								

Form I

METHOD BLANK DATA SHEET

SM 2540 G-97

TotalAnalytes

Blank

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Batch: BHL0068
Laboratory ID: BHL0068-BLK1
Prepared: 12/03/19 21:25
Matrix: Solid
Preparation: No Prep Wet Chem
Analyzed: 12/03/19 22:34
Sequence:
Calibration:
Instrument: BAL2

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	ND	1	0.04	0.04	U

PDI-145RAB-00-10-191114

DUPLICATES

SM 2540 G-97

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Matrix: Solid
Laboratory ID: BHL0068-DUP1
Batch: BHL0068
Lab Source ID: 19K0394-09
Preparation: No Prep Wet Chem
Initial/Final: 10 g / 10 g
Source Sample Name: PDI-145RAB-00-10-191114
% Solids: 90.70

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (%)	C	DUPLICATE CONCENTRATION (%)	C	RPD %	Q
Total Solids	20	90.70		90.33		0.417	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

HOLDING TIME SUMMARY

Analysis: SM 2540 G-97

Laboratory: Analytical Resources, Inc. SDG: 19K0394

Client: Anchor QEA, LLC Project: Gasco PDI

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
PDI-1138RAB-00-10-191118 19K0394-03	11/18/19 11:40	11/26/19 10:22	12/03/19 21:25	15	28	12/03/19 22:34	15	28	
PDI-138RAB-00-10-191118 19K0394-04	11/18/19 11:40	11/26/19 10:22	12/03/19 21:25	15	28	12/03/19 22:34	15	28	
PDI-138RAB-10-19.1-191118 19K0394-05	11/18/19 12:40	11/26/19 10:22	12/03/19 21:25	15	28	12/03/19 22:34	15	28	
PDI-139RAB-00-10-191115 19K0394-06	11/15/19 12:40	11/26/19 10:22	12/03/19 21:25	18	28	12/03/19 22:34	18	28	
PDI-139RAB-10-20-191115 19K0394-07	11/15/19 14:40	11/26/19 10:22	12/03/19 21:25	18	28	12/03/19 22:34	18	28	
PDI-139RAB-20-25.5-191118 19K0394-08	11/18/19 08:30	11/26/19 10:22	12/03/19 21:25	15	28	12/03/19 22:34	16	28	
PDI-145RAB-00-10-191114 19K0394-09	11/14/19 09:15	11/26/19 10:22	12/03/19 21:25	19	28	12/03/19 22:34	20	28	
PDI-145RAB-10-20-191114 19K0394-10	11/14/19 10:30	11/26/19 10:22	12/03/19 21:25	19	28	12/03/19 22:34	20	28	
PDI-145RAB-20-24.7-191114 19K0394-11	11/14/19 11:05	11/26/19 10:22	12/03/19 21:25	19	28	12/03/19 22:34	19	28	
Duplicate BHL0068-DUP1	11/14/19 09:15	11/26/19 10:22	12/03/19 21:25	19	28	12/03/19 22:34	20	28	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

SM 2540 G-97

Laboratory: Analytical Resources, Inc.
SDG: 19K0394
Client: Anchor QEA, LLC
Project: Gasco PDI
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids	0.04	0.04	%