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Electronic Comprehensive Validation Package (eCVP)

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COMPREHENSIVE VALIDATION PACKAGE

Modified TO-15 SIM

INVENTORY SHEET

Work Order #: 1902323A

	Page Nos. From	Page Nos. To
1. Work Order Cover Page & Laboratory Narrative	1	4
a. Lumen Validation Report	--	--
2. Sample Results and Raw Data (Organized by Sample)	5	33
a. ATL Sample Results Form		
b. Target Compound Raw Data		
-Internal Standard Area and Retention Time Summary		
-Surrogate Recovery Summary (If Applicable)		
-Chromatogram(s) and Ion Profiles (If Applicable)		
3. QC Results and Raw Data		
a. Method Blank (Results+ Raw Data)	34	40
b. Surrogate Recover Summary Form (If Applicable)	--	--
c. Internal Standard Summary Form (If Applicable)	41	41
d. Duplicate Results Summary Sheet	42	43
e. Matrix Spike/Matrix Spike Duplicate (Results + Raw Data	--	--
f. Initial Calibration Data (Summary Sheet + Raw Data)	44	96
g. MDL Study (If Applicable)	97	98
h. Continuing Calibration Verification Data (Summary Sheet	99	104
i. Second Source LCS(Summary + Raw Data)	105	117
j. Extraction Logs	--	--
k. Instrument Run Logs/Software Verification	118	118
l. GC/MS Tune (Results + Raw Data)	119	130
4. Shipping/Receiving Documents		
a. Login Receipt Summary Sheet	131	132
b. Chain-of-Custody Records	133	133
c. Sample Log-In Sheet	--	--
d. Misc Shipping/Receiving Records (list of individual records)		
Sample Receipt Discrepancy Report	--	--
5. Other Records (describe or list)		
a. Manual Spectral Defense	--	--
b. Manual Integrations	134	136
c. Manual Calculations	--	--
d. Canister Dilution Factors	137	138
e. Laboratory Corrective Action Request	--	--
f. CAS Number Reference	139	139
g. Variance Table	--	--
h. Canister Certification	140	142
i. Data Review Check Sheet	143	144

Comments:

Completed by:

Vera Belitsky	Vera Belitsky / Document Control	3/4/19
(Signature)	(Print Name & Title)	(Date)

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WORK ORDER #: 1902323A

Work Order Summary

CLIENT:	Mr. Robert DeMott Ramboll Environ 10150 Highland Manor Drive Suite 440 Tampa, FL 33610	**BILL TO:**	Accounts Payable Ramboll Environ 10150 Highland Manor Drive Suite 440 Tampa, FL 33610
PHONE:	813-628-4325	**P.O. #**	
FAX:	813-628-4983	**PROJECT #**	1690010629 SAL
DATE RECEIVED:	02/16/2019	**CONTACT:**	Ausha Scott
DATE COMPLETED:	02/25/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	PD-DN-021419	Modified TO-15 SIM	5.0 "Hg	5 psi
01AA	PD-DN-021419 Lab Duplicate	Modified TO-15 SIM	5.0 "Hg	5 psi
02A	DUP-DN-021419	Modified TO-15 SIM	3.5 "Hg	5 psi
03A	WH-DN-021419	Modified TO-15 SIM	6.0 "Hg	5 psi
04A	Lab Blank	Modified TO-15 SIM	NA	NA
05A	CCV	Modified TO-15 SIM	NA	NA
06A	LCS	Modified TO-15 SIM	NA	NA
06AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Heidi Hayes

Technical Director

DATE: 02/25/19

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA TO-15 Ethylene oxide (SIM)
Ramboll Environ
Workorder# 1902323A

Three 6 Liter Summa Canister (100% Certified) samples were received on February 16, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the SIM acquisition mode for the measurement of Ethylene oxide in ambient air.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Ethylene Oxide is not included on the laboratory's NELAP scope of accreditation for TO-15 SIM. However, TO-15 method and NELAP quality requirements were met.

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for Ethylene Oxide. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN - See Case Narrative

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Table 1

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample Holding Time (Days)	Date Analyzed	Sample Extract Holding Time (Days)	Sample Condition
PD-DN-021419	1902323A-01A	2/15/2019	2/16/2019	NA	7	2/22/2019	NA	Good
PD-DN-021419 Lab Dup	1902323A-01AA	2/15/2019	2/16/2019	NA	7	2/22/2019	NA	Good
DUP-DN-021419	1902323A-02A	2/15/2019	2/16/2019	NA	7	2/22/2019	NA	Good
WH-DN-021419	1902323A-03A	2/15/2019	2/16/2019	NA	7	2/22/2019	NA	Good
Lab Blank	1902323A-04A	NA	NA	NA	NA	2/22/2019	NA	Good
CCV	1902323A-05A	NA	NA	NA	NA	2/22/2019	NA	Good
LCS	1902323A-06A	NA	NA	NA	NA	2/22/2019	NA	Good
LCSD	1902323A-06AA	NA	NA	NA	NA	2/22/2019	NA	Good

Sample Results and Raw Data

MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

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Client ID:	PD-DN-021419		
Lab ID:	1902323A-01A	**Date/Time Analyzed:**	2/22/19 05:22 PM
Date/Time Collected:	2/15/19 10:06 AM	**Dilution Factor:**	1.61
Media:	6 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd2.i / 2022211sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethylene Oxide	75-21-8	0.080	D	0.14	0.18

D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022211sim.d
Lab Smp Id: 1902323A-01A
Inj Date : 22-FEB-2019 17:22
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml N1803
Misc Info : 5.0 Hg->5 psi
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 1
Dil Factor: 1.61000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.246	12.162	(0.799)	44	563	0.06270	0.1009	80.00- 120.00	100.00
12.246	12.162	(0.799)	43	157			0.00- 55.01	27.89
12.222	12.154	(0.798)	29	885			59.74- 119.74	157.19
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	162339	5.94905	5.949	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	166035			73.24- 133.24	102.28
14.335	14.335	(0.936)	83	121804			63.25- 123.25	75.03
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	234920	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	77100			3.63- 63.63	32.82
15.319	15.319	(1.000)	61	65477			3.78- 63.78	27.87
* 7 Fluorobenzene						CAS #: 462-06-6		
19.119	19.103	(1.000)	96	340146	6.00000		80.00- 120.00	100.00
19.119	19.093	(1.000)	70	63999			0.00- 49.55	18.82
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.350	20.207	(1.064)	98	227790	5.26078	5.261	80.00- 120.00	100.00

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 10 Toluene-d8 (continued)								
20.331	20.207	(1.063)	70	30670			0.00- 45.38	13.46
20.350	20.207	(1.064)	100	140905			31.22- 91.22	61.86

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INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022211sim.d
Lab Smp Id: 1902323A-01A
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 5.0 Hg->5 psi

Calibration Date: 22-FEB-2019
Calibration Time: 10:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	234920	-3.92
7 Fluorobenzene	350447	210268	490626	340146	-2.94

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.12	18.79	19.45	19.12	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 25-Feb-2019 13:38

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 22FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id: 1902323A-01A
Level: LOW
Operator: mjb
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: AT12.spk
Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 5.0 Hg->5 psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.949	99.15
$ 10 Toluene-d8	6.000	5.261	87.68

Data File: /chem/msd2.i/22FEB19.b/2022211sim.d

Date : 22-FEB-2019 17:22

Client ID:

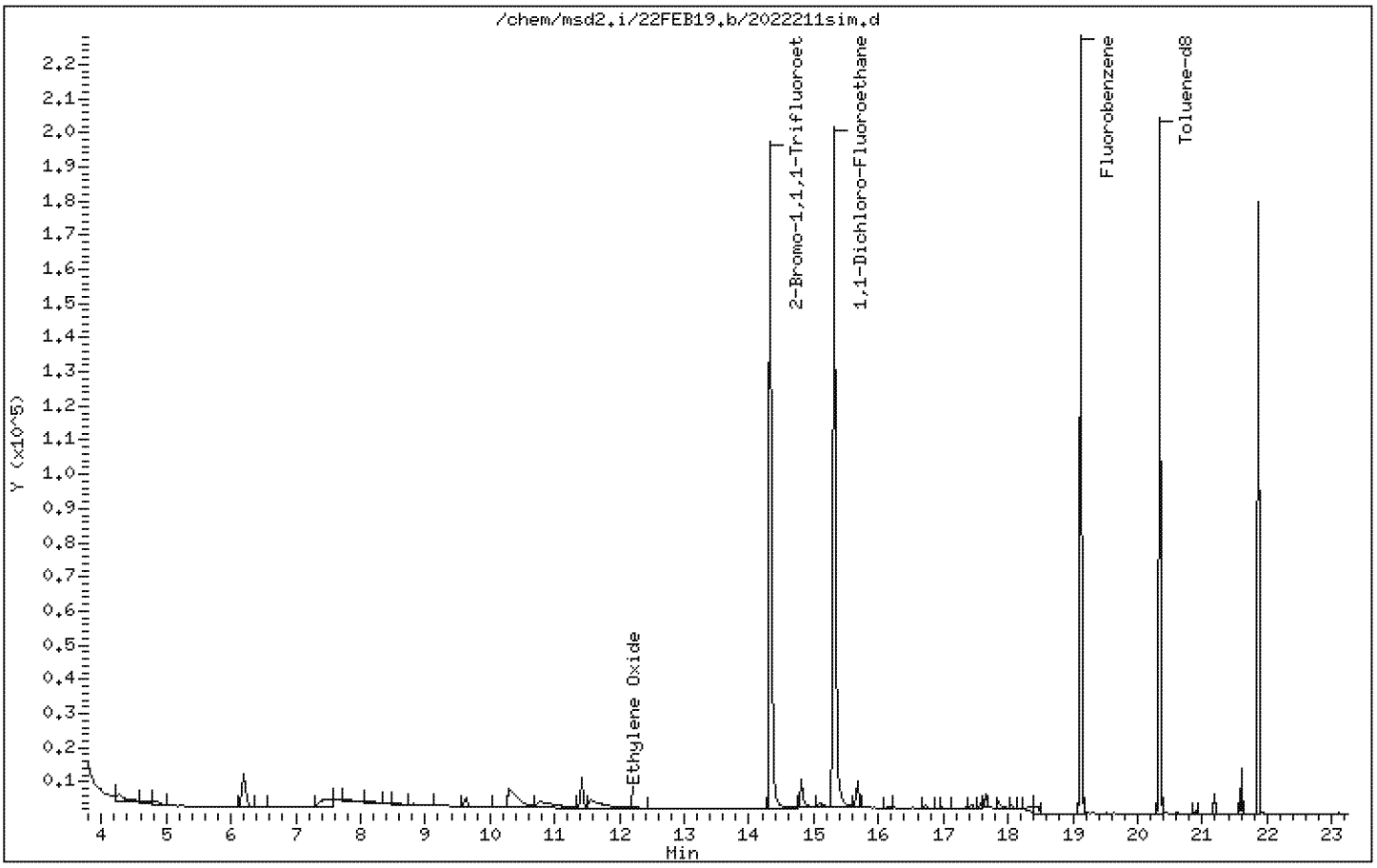
Instrument: msd2.i

Sample Info: 200ml N1803

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/22FEB19.b/2022211sim.d

Date : 22-FEB-2019 17:22

Client ID:

Instrument: msd2.i

Sample Info: 200ml N1803

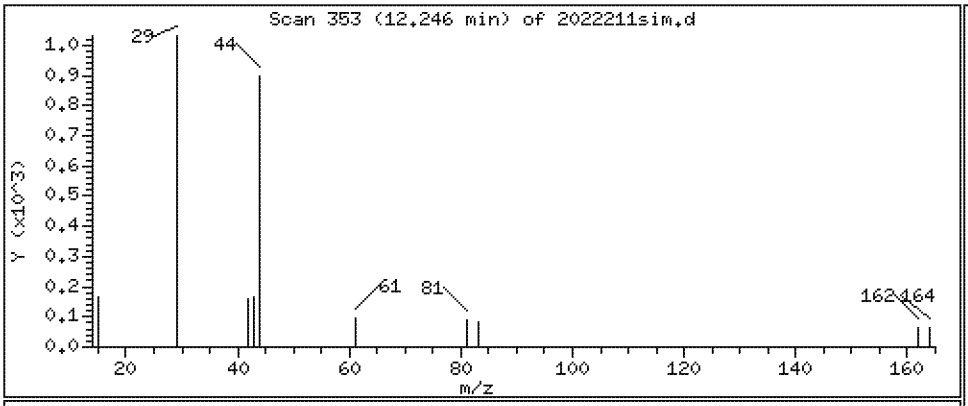
Operator: mjb

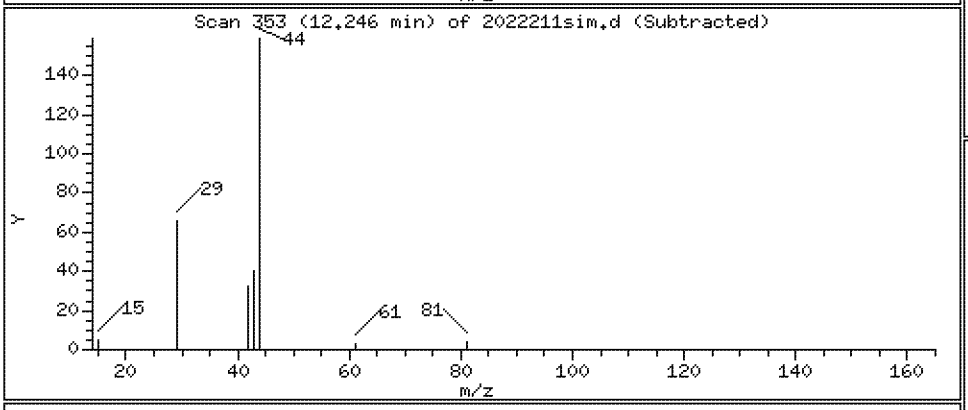
Column phase: RTX-624

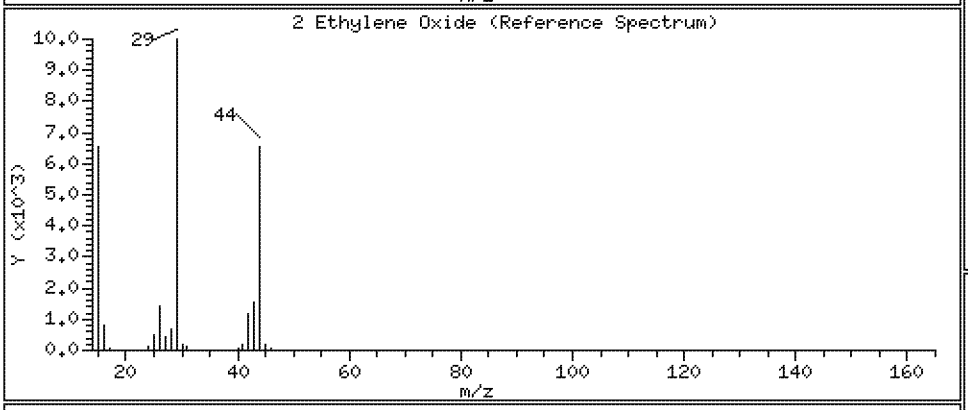
Column diameter: 0.32

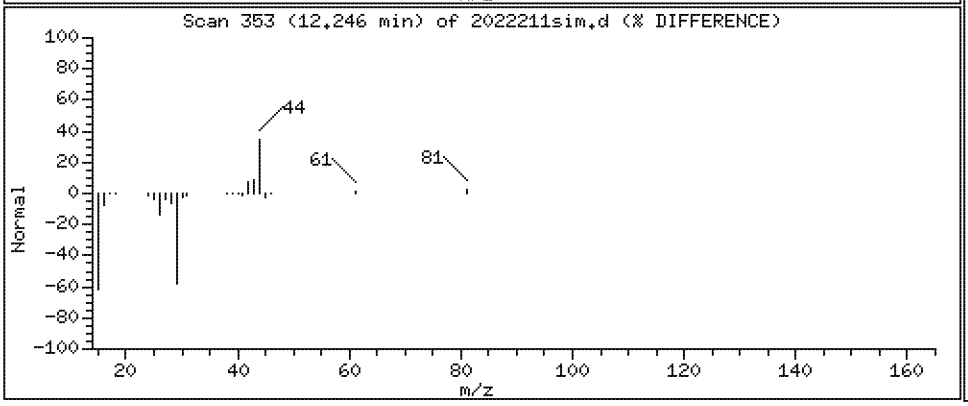
2 Ethylene Oxide

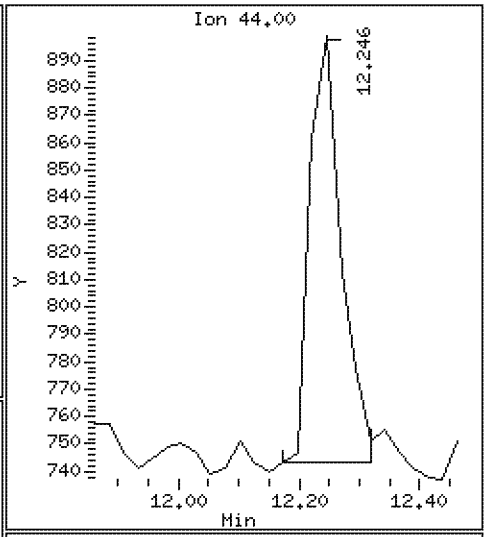
Concentration: 0.1009 PPBV

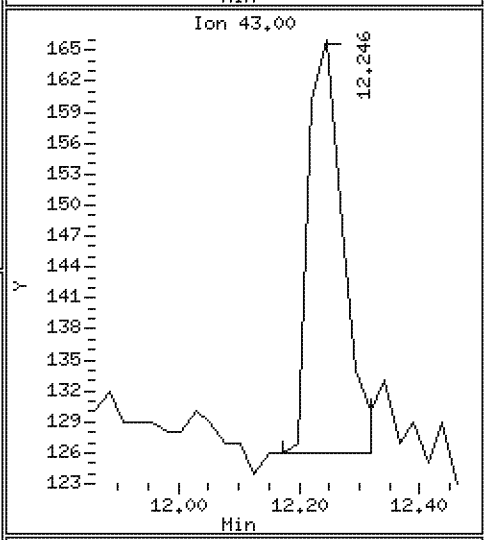


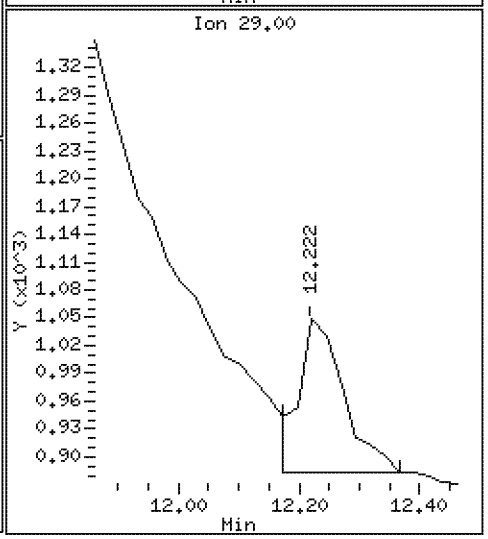












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

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Client ID:	PD-DN-021419 Lab Duplicate		
Lab ID:	1902323A-01AA	**Date/Time Analyzed:**	2/22/19 05:59 PM
Date/Time Collected:	2/15/19 10:06 AM	**Dilution Factor:**	1.61
Media:	6 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd2.i / 2022212sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethylene Oxide	75-21-8	0.080	D	0.14	0.24

D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022212sim.d
Lab Smp Id: 1902323A-01AA
Inj Date : 22-FEB-2019 17:59
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml N1803
Misc Info : 5.0 Hg->5 psi
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 1
Dil Factor: 1.61000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.246	12.162	(0.799)	44	763	0.08436	0.1358	80.00- 120.00	100.00
12.246	12.162	(0.799)	43	142			0.00- 55.01	18.68
12.246	12.154	(0.799)	29	849			59.74- 119.74	111.32
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	165916	6.03231	6.032	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	169622			73.24- 133.24	102.23
14.335	14.335	(0.936)	83	124762			63.25- 123.25	75.20
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	236782	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	77350			3.63- 63.63	32.67
15.319	15.319	(1.000)	61	66170			3.78- 63.78	27.95
* 7 Fluorobenzene						CAS #: 462-06-6		
19.119	19.103	(1.000)	96	354198	6.00000		80.00- 120.00	100.00
19.119	19.093	(1.000)	70	66151			0.00- 49.55	18.68
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.350	20.207	(1.064)	98	242637	5.38137	5.381	80.00- 120.00	100.00

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 10 Toluene-d8 (continued)								
20.331	20.207	(1.063)	70	30841			0.00- 45.38	12.71
20.350	20.207	(1.064)	100	152003			31.22- 91.22	62.65

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022212sim.d
Lab Smp Id: 1902323A-01AA
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 5.0 Hg->5 psi

Calibration Date: 22-FEB-2019
Calibration Time: 10:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	236782	-3.16
7 Fluorobenzene	350447	210268	490626	354198	1.07

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.12	18.79	19.45	19.12	-0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 25-Feb-2019 11:35

US32APPTV002

RECOVERY REPORT

Client Name: Client SDG: 22FEB19
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1902323A-01AA
Level: LOW Operator: mjb
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT12.spk Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 5.0 Hg->5 psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	6.032	100.54
$ 10 Toluene-d8	6.000	5.381	89.69

Data File: /chem/msd2.i/22FEB19.b/2022212sim.d

Date : 22-FEB-2019 17:59

Client ID:

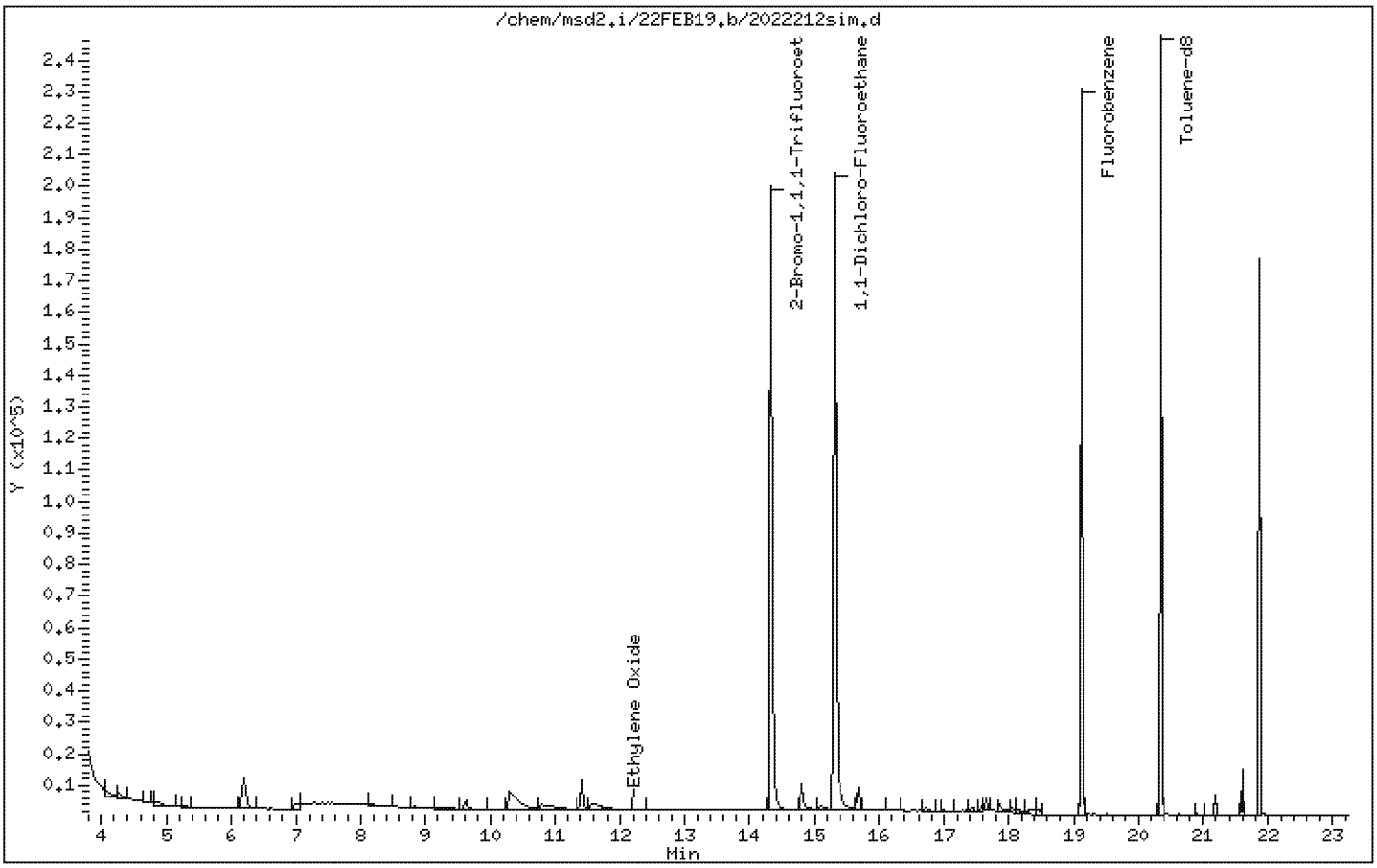
Instrument: msd2.i

Sample Info: 200ml N1803

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/22FEB19.b/2022212sim.d

Date : 22-FEB-2019 17:59

Client ID:

Instrument: msd2.i

Sample Info: 200ml N1803

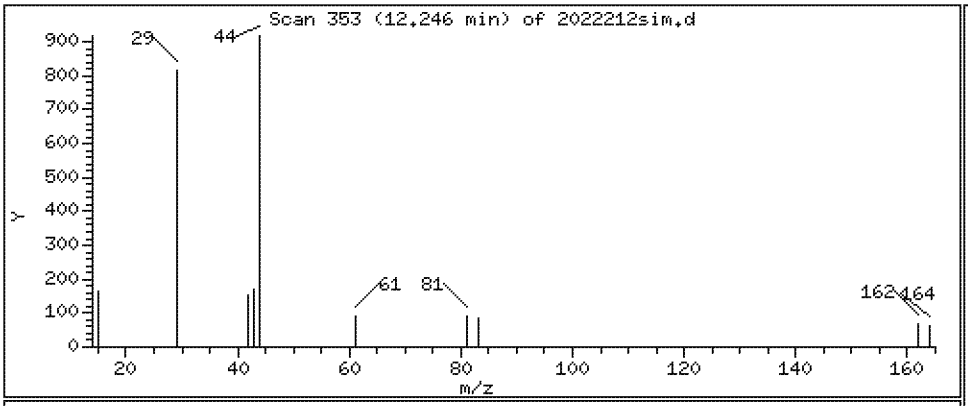
Operator: mjb

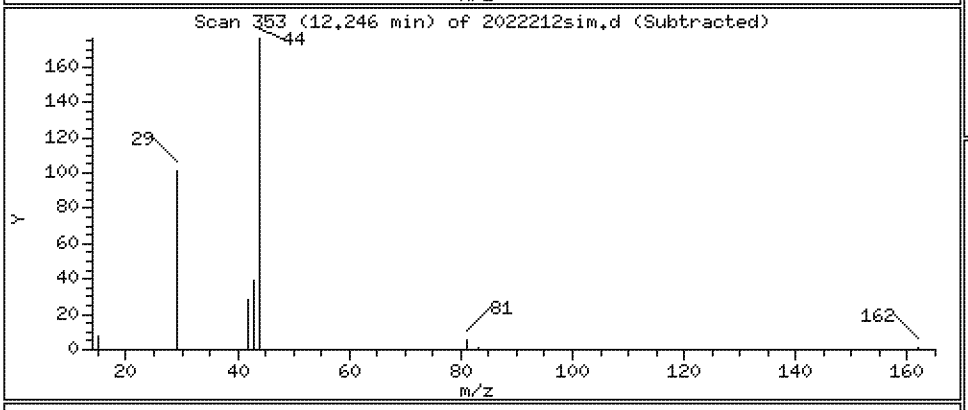
Column phase: RTX-624

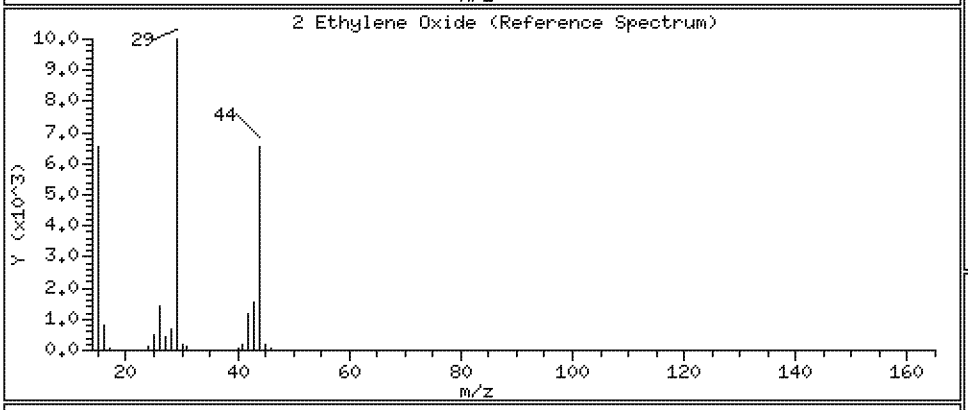
Column diameter: 0.32

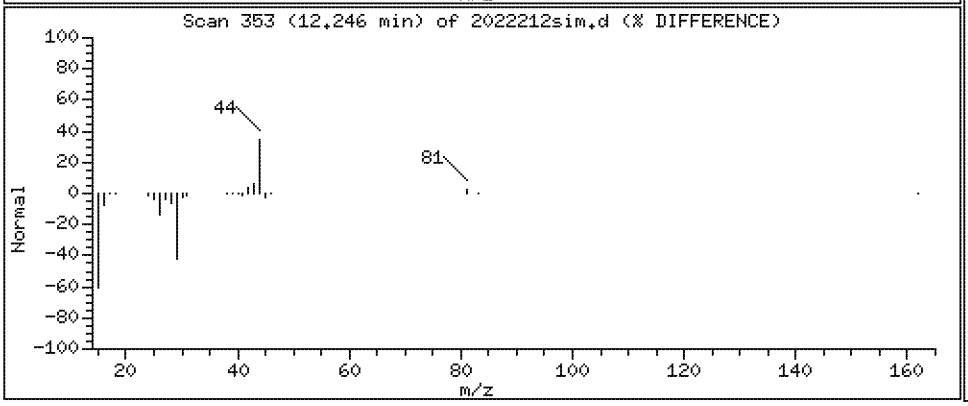
2 Ethylene Oxide

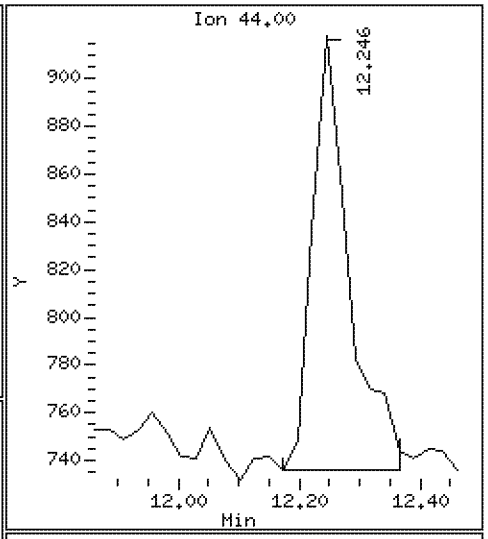
Concentration: 0.1358 PPBV

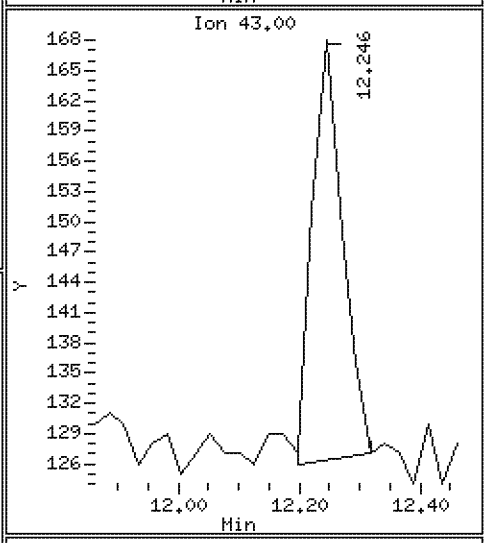


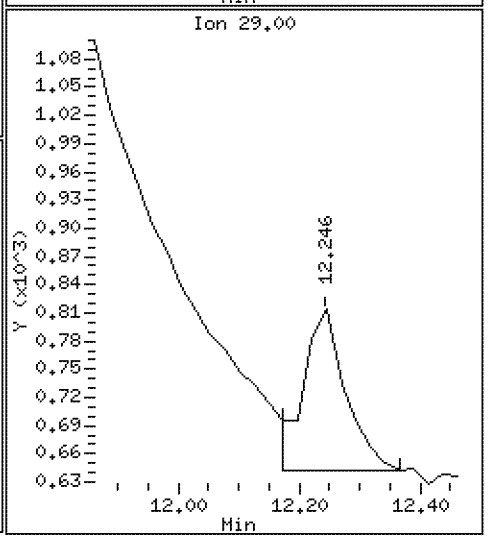












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	DUP-DN-021419		
Lab ID:	1902323A-02A	**Date/Time Analyzed:**	2/22/19 06:36 PM
Date/Time Collected:	2/15/19 10:07 AM	**Dilution Factor:**	1.52
Media:	6 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd2.i / 2022213sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethylene Oxide	75-21-8	0.075	D	0.14	0.24

D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022213sim.d
Lab Smp Id: 1902323A-02A
Inj Date : 22-FEB-2019 18:36
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml 6L1278
Misc Info : 3.5 Hg->5 psi
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 3
Dil Factor: 1.52000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.246	12.162	(0.799)	44	790	0.08855	0.1346	80.00- 120.00	100.00
12.246	12.162	(0.799)	43	211			0.00- 55.01	26.78
12.246	12.154	(0.799)	29	994			59.74- 119.74	125.69
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	162042	5.97030	5.970	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	166651			73.24- 133.24	102.84
14.335	14.335	(0.936)	83	122826			63.25- 123.25	75.80
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	233656	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	76511			3.63- 63.63	32.75
15.319	15.319	(1.000)	61	65292			3.78- 63.78	27.94
* 7 Fluorobenzene						CAS #: 462-06-6		
19.119	19.103	(1.000)	96	342757	6.00000		80.00- 120.00	100.00
19.119	19.093	(1.000)	70	63932			0.00- 49.55	18.65
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.207	(1.063)	98	246719	5.65454	5.654	80.00- 120.00	100.00

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 10 Toluene-d8 (continued)								
20.331	20.207	(1.063)	70	30567			0.00- 45.38	12.39
20.331	20.207	(1.063)	100	140794			31.22- 91.22	57.07

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022213sim.d
Lab Smp Id: 1902323A-02A
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 3.5 Hg->5 psi

Calibration Date: 22-FEB-2019
Calibration Time: 10:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	233656	-4.44
7 Fluorobenzene	350447	210268	490626	342757	-2.19

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.12	18.79	19.45	19.12	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 25-Feb-2019 11:35

US32APPTV002

RECOVERY REPORT

Client Name: Client SDG: 22FEB19
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1902323A-02A
Level: LOW Operator: mjb
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT12.spk Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 3.5 Hg->5 psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.970	99.50
$ 10 Toluene-d8	6.000	5.654	94.24

Data File: /chem/msd2.i/22FEB19.b/2022213sim.d

Date : 22-FEB-2019 18:36

Client ID:

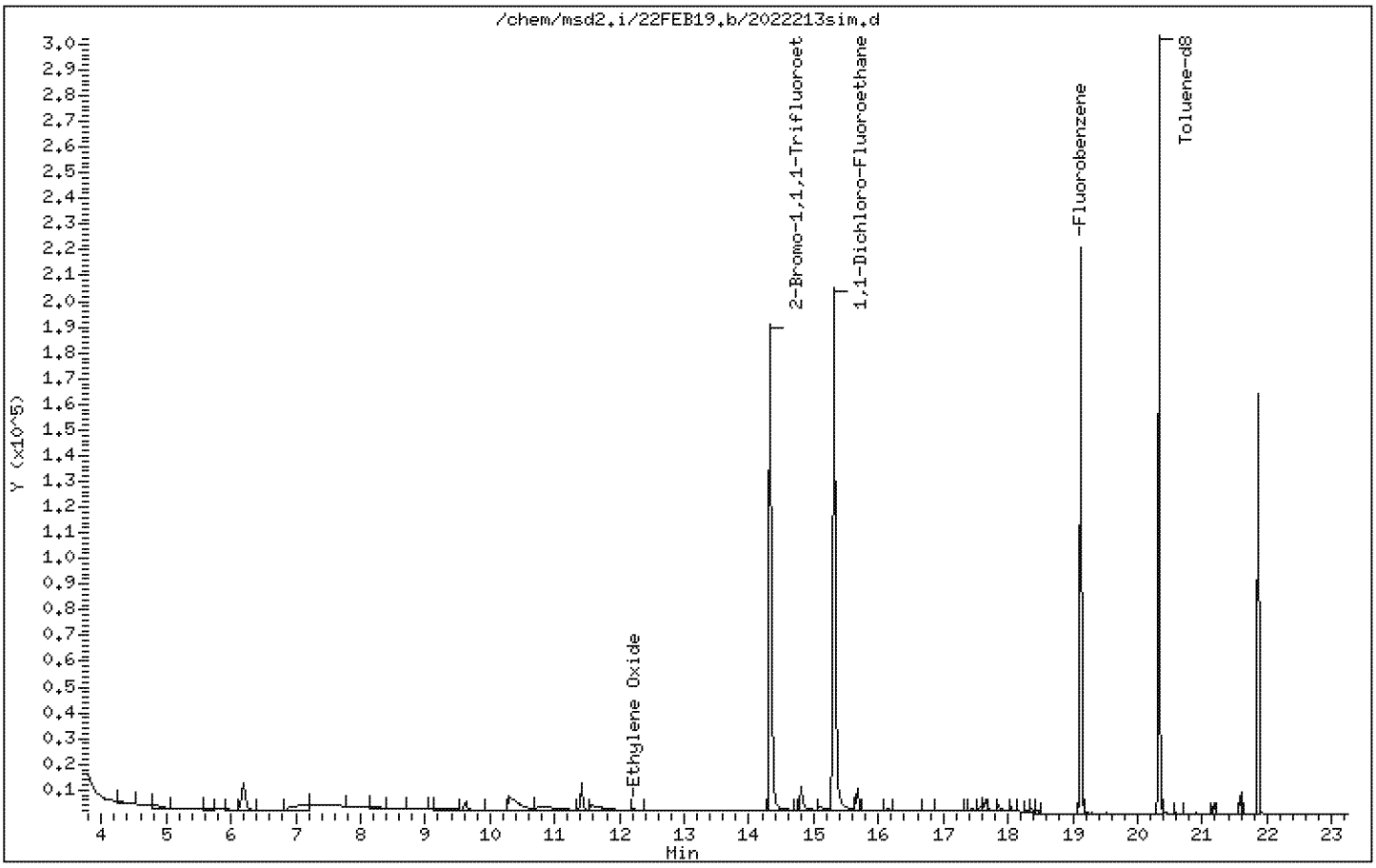
Instrument: msd2.i

Sample Info: 200ml 6L1278

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/22FEB19.b/2022213sim.d

Date : 22-FEB-2019 18:36

Client ID:

Instrument: msd2.i

Sample Info: 200ml 6L1278

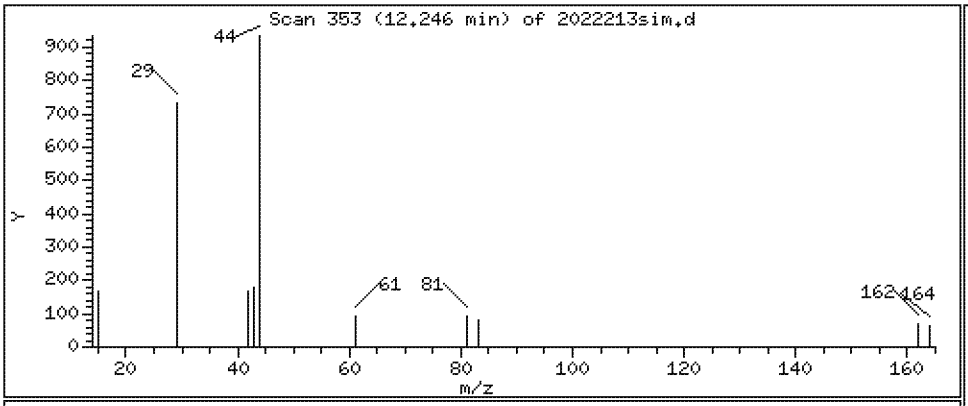
Operator: mjb

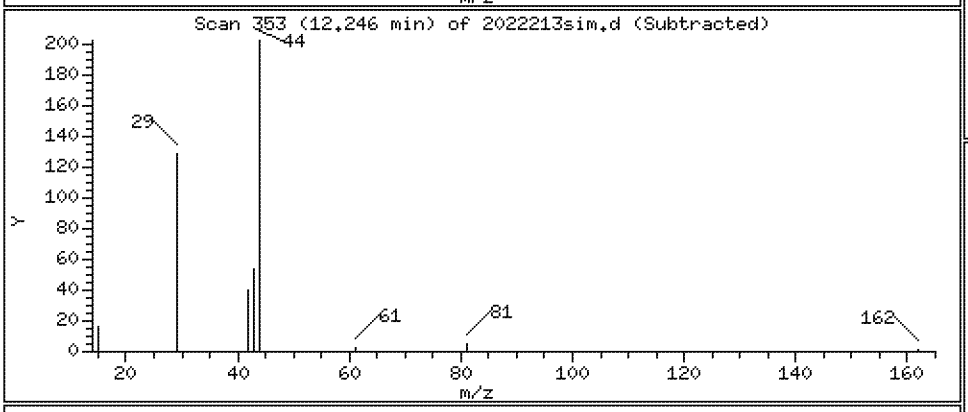
Column phase: RTX-624

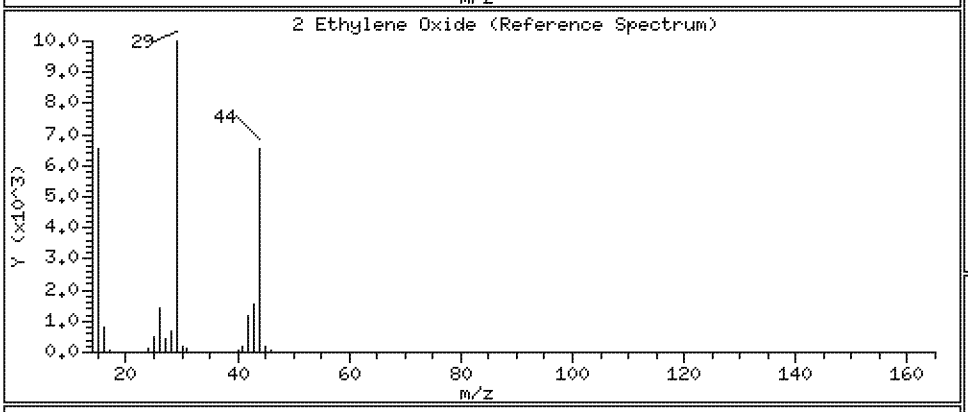
Column diameter: 0.32

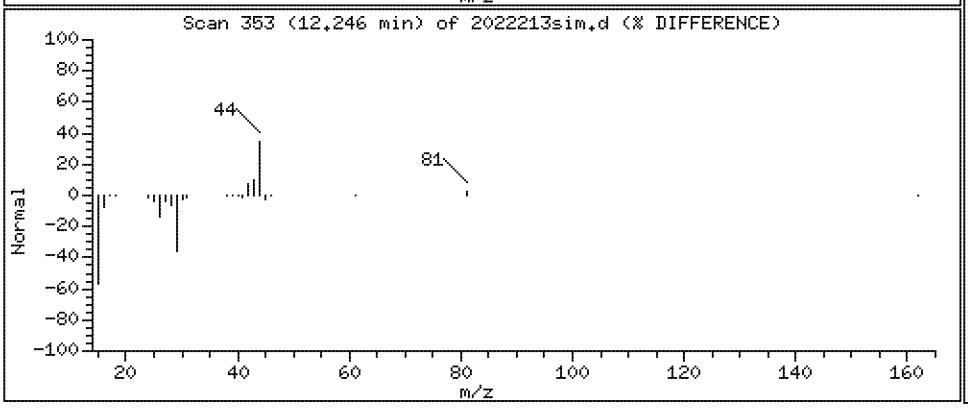
2 Ethylene Oxide

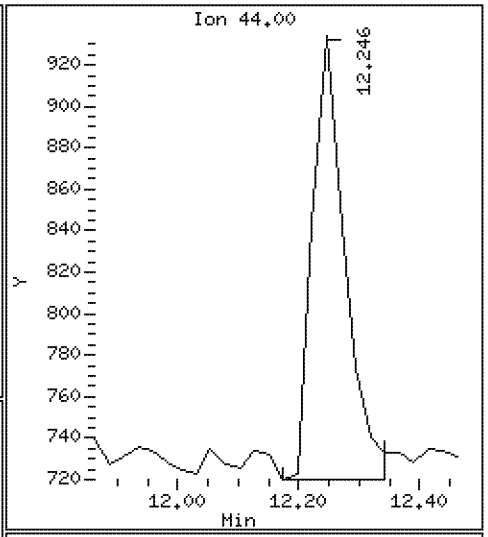
Concentration: 0.1346 PPBV

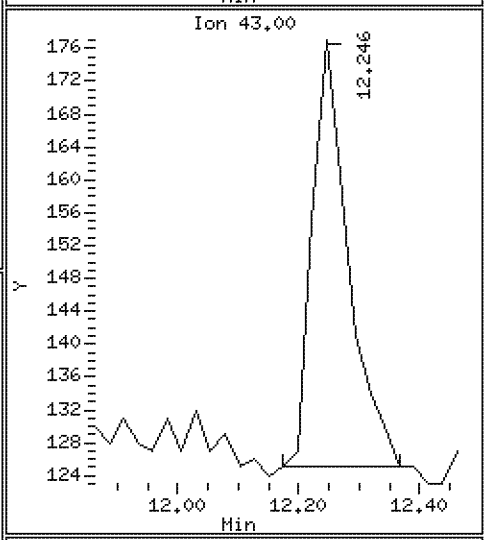


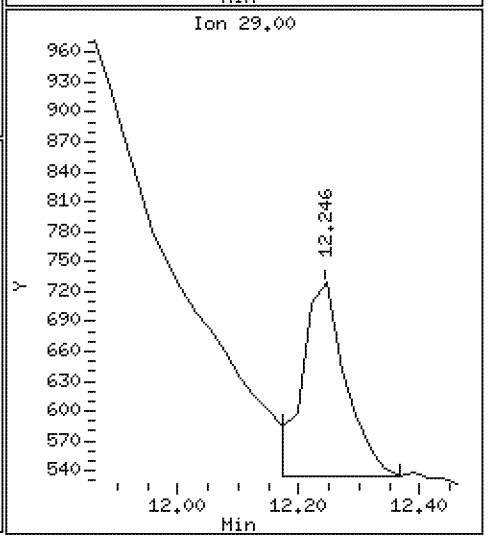












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	WH-DN-021419		
Lab ID:	1902323A-03A	**Date/Time Analyzed:**	2/22/19 07:14 PM
Date/Time Collected:	2/15/19 08:50 AM	**Dilution Factor:**	1.68
Media:	6 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd2.i / 2022214sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethylene Oxide	75-21-8	0.083	D	0.15	0.57

D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022214sim.d
Lab Smp Id: 1902323A-03A
Inj Date : 22-FEB-2019 19:14
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml 6L1209
Misc Info : 6.0 Hg->5 psi
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 4
Dil Factor: 1.68000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.222	12.162	(0.798)	44	1695	0.18777	0.3154	80.00- 120.00	100.00
12.222	12.162	(0.798)	43	461			0.00- 55.01	27.19
12.222	12.154	(0.798)	29	1578			59.74- 119.74	93.12
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.334	14.335	(0.936)	164	161550	5.88682	5.887	80.00- 120.00	100.00
14.334	14.335	(0.936)	162	165286			73.24- 133.24	102.31
14.334	14.335	(0.936)	83	121689			63.25- 123.25	75.33
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	236249	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	77200			3.63- 63.63	32.68
15.319	15.319	(1.000)	61	66613			3.78- 63.78	28.20
* 7 Fluorobenzene						CAS #: 462-06-6		
19.118	19.103	(1.000)	96	341578	6.00000		80.00- 120.00	100.00
19.118	19.093	(1.000)	70	63991			0.00- 49.55	18.73
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.207	(1.063)	98	252145	5.79883	5.799	80.00- 120.00	100.00

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 10 Toluene-d8 (continued)								
20.331	20.207	(1.063)	70	29262			0.00- 45.38	11.61
20.331	20.207	(1.063)	100	146012			31.22- 91.22	57.91

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022214sim.d
Lab Smp Id: 1902323A-03A
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 6.0 Hg->5 psi

Calibration Date: 22-FEB-2019
Calibration Time: 10:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	236249	-3.37
7 Fluorobenzene	350447	210268	490626	341578	-2.53

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.12	18.79	19.45	19.12	-0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 25-Feb-2019 11:35

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 22FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id: 1902323A-03A
Level: LOW
Operator: mjb
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: AT12.spk
Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 6.0 Hg->5 psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.887	98.11
$ 10 Toluene-d8	6.000	5.799	96.65

Data File: /chem/msd2.i/22FEB19.b/2022214sim.d

Date : 22-FEB-2019 19:14

Client ID:

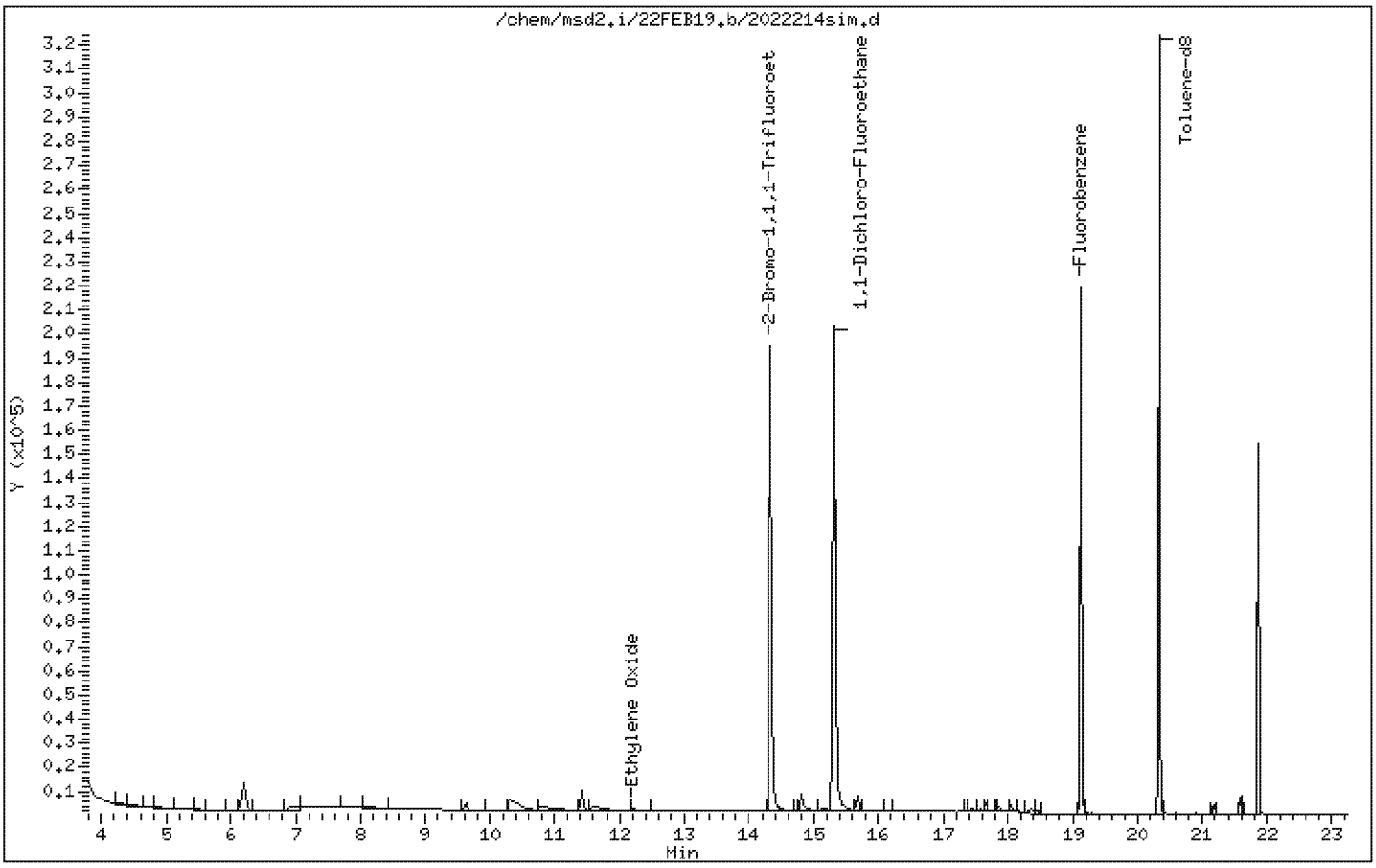
Instrument: msd2.i

Sample Info: 200ml 6L1209

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/22FEB19.b/2022214sim.d

Date : 22-FEB-2019 19:14

Client ID:

Instrument: msd2.i

Sample Info: 200ml 6L1209

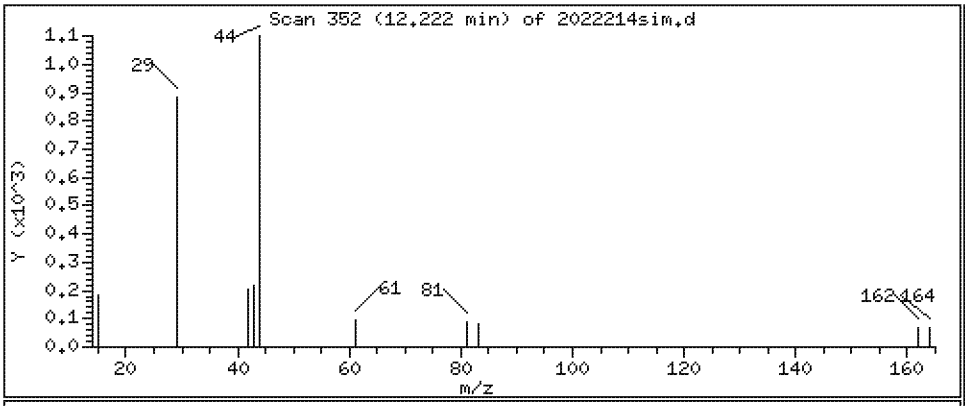
Operator: mjb

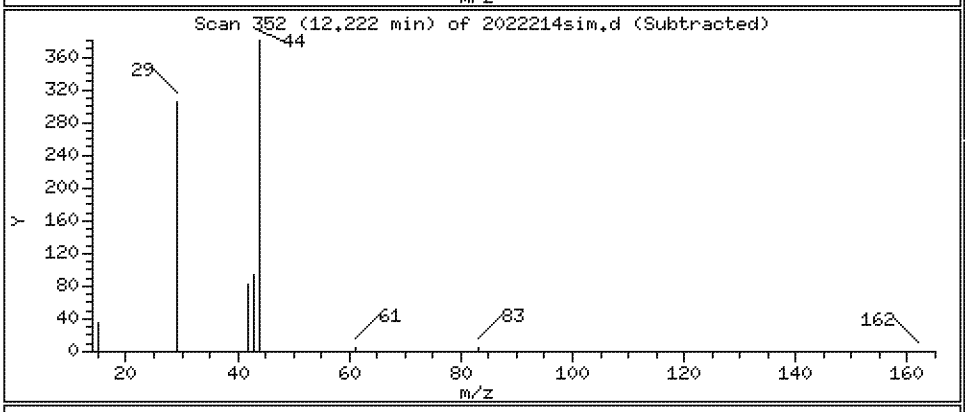
Column phase: RTX-624

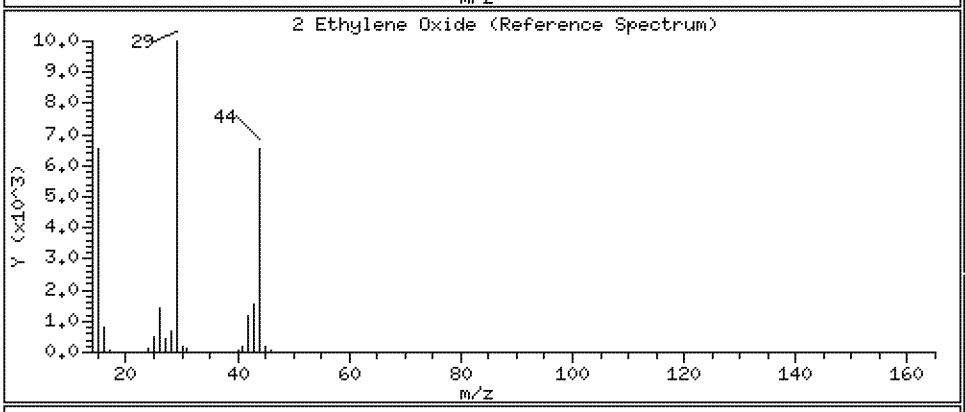
Column diameter: 0.32

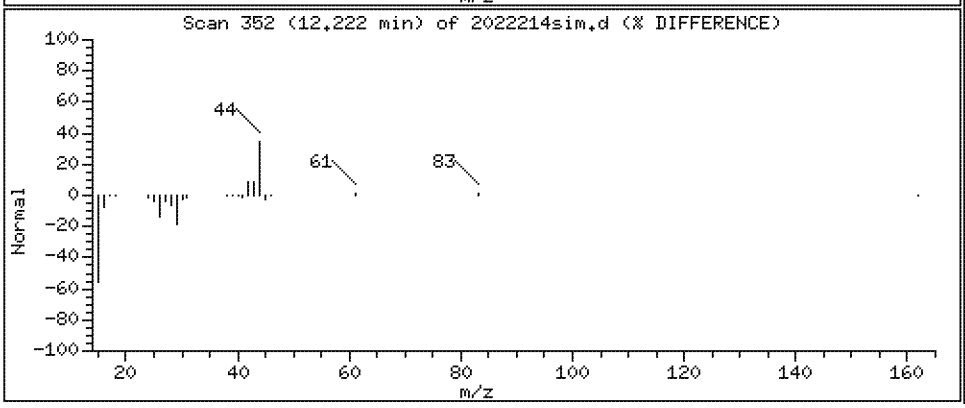
2 Ethylene Oxide

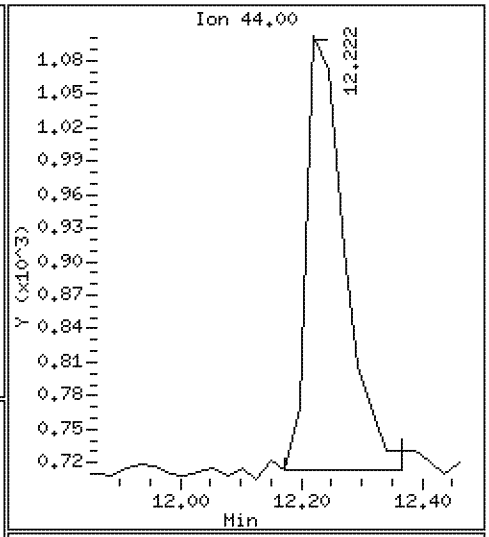
Concentration: 0.3154 PPBV

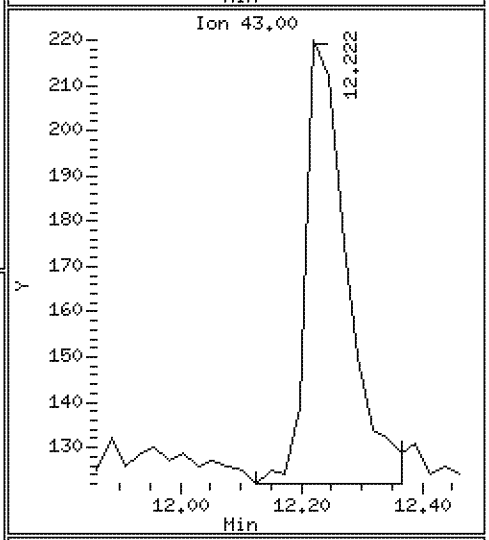


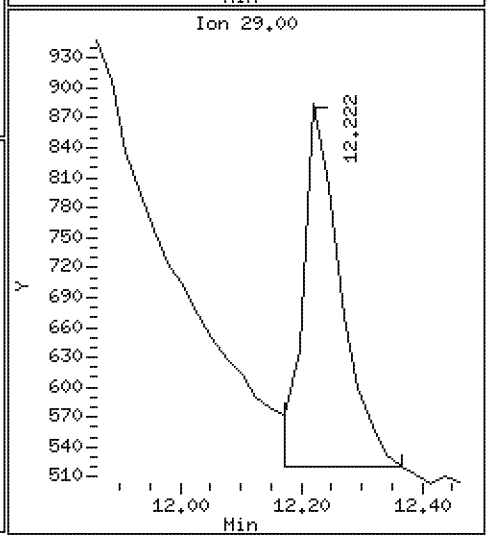












QC Results and Raw Data

MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	Lab Blank		
Lab ID:	1902323A-04A	**Date/Time Analyzed:**	2/22/19 01:42 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2022207sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethylene Oxide	75-21-8	0.049	D	0.090	Not Detected

D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022207sim.d
Lab Smp Id: Lab Blank Client Smp ID: Lab Blank
Inj Date : 22-FEB-2019 13:42
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml 5411
Misc Info : Humid
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 16 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	168238	5.89684	5.897	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	173015			73.24- 133.24	102.84
14.335	14.335	(0.936)	83	127081			63.25- 123.25	75.54
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	245612	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	80510			3.63- 63.63	32.78
15.319	15.319	(1.000)	61	68907			3.78- 63.78	28.06
* 7 Fluorobenzene						CAS #: 462-06-6		
18.967	19.103	(1.000)	96	280052	6.00000		80.00- 120.00	100.00(H)
18.967	19.093	(1.000)	70	51450			0.00- 49.55	18.37
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.198	20.207	(1.065)	98	250765	7.03411	7.034	80.00- 120.00	100.00(M1)
20.198	20.207	(1.065)	70	27365			0.00- 45.38	10.91
20.198	20.207	(1.065)	100	154864			31.22- 91.22	61.76

QC Flag Legend

M1- Compound response manually integrated because
    Target system did not integrate.
H - Operator selected an alternate compound hit.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022207sim.d
Lab Smp Id: Lab Blank
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: Humid

Calibration Date: 22-FEB-2019
Calibration Time: 10:51
Client Smp ID: Lab Blank
Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	245612	0.45
7 Fluorobenzene	350447	210268	490626	280052	-20.09

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.12	18.79	19.45	18.97	-0.79

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 22-Feb-2019 15:25

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 22FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id: Lab Blank
Client Smp ID: Lab Blank
Level: LOW
Operator: mjb
Data Type: MS DATA
SampleType: BLANK
SpikeList File: AT12.spk
Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: Humid

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.897	98.28
$ 10 Toluene-d8	6.000	7.034	117.24

Data File: /chem/msd2.i/22FEB19.b/2022207sim.d

Date : 22-FEB-2019 13:42

Client ID: Lab Blank

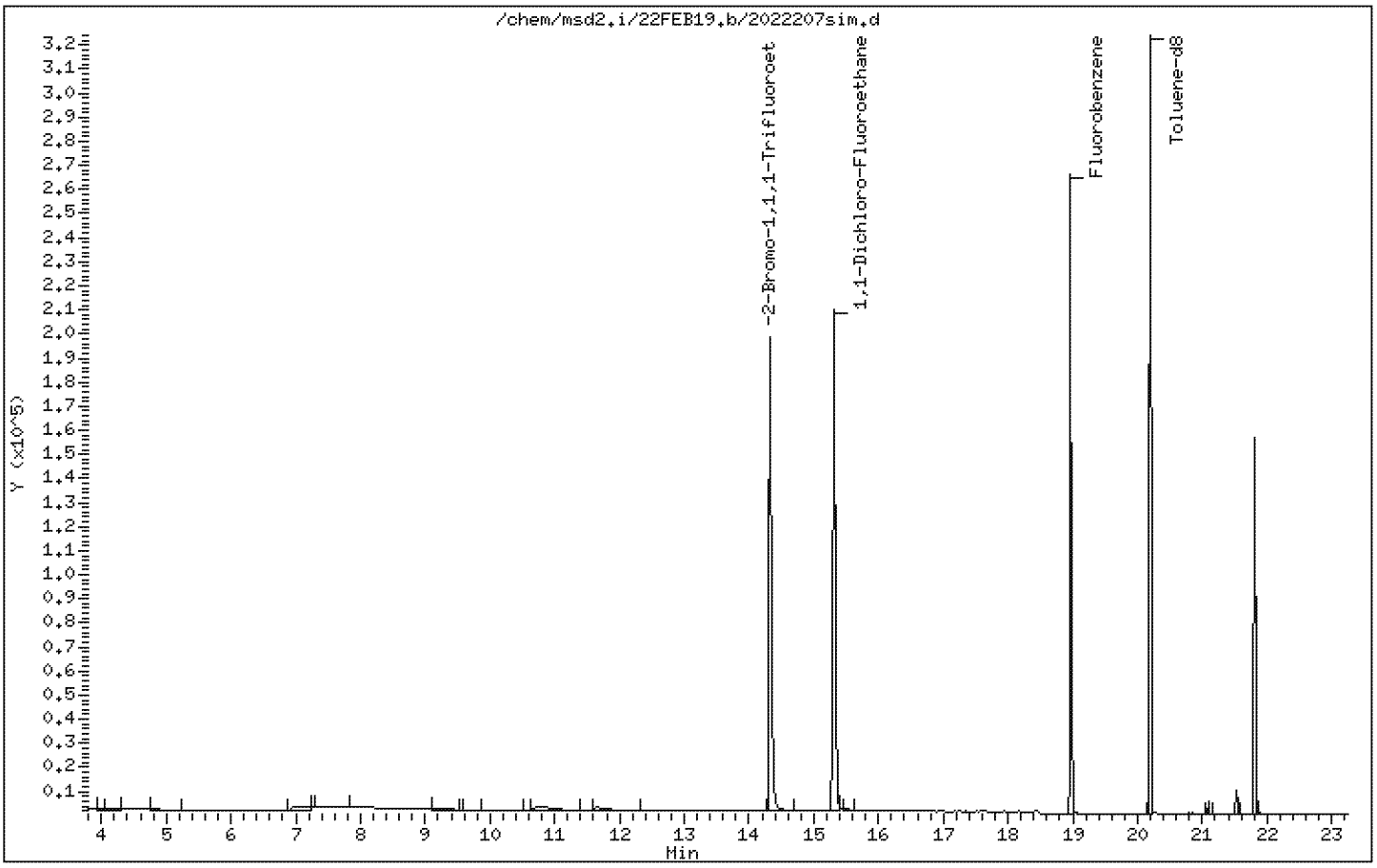
Instrument: msd2.i

Sample Info: 200ml 5411

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



LEVEL-IV VALIDATABLE

Modified EPA Method TO-15 GC/MS SIM

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:	AIR TOXICS, LTD	SDG No:	1902323A
Lab File ID:	2022203sim.d	Date Analyzed:	02/22/2019
Instrument ID:	msd2.i	Time Analyzed:	10:51 AM

		Freon 141b Area	#	RT	#	Fluorobenzene Area	#	RT	#	Area	#	RT	#
	24-HOUR STD	244500		15.32		350447		19.12					
	UPPER LIMIT	342300		15.65		490626		19.45					
	LOWER LIMIT	146700		14.99		210268		18.79					
	CLIENT SAMPLE NO												
01	PD-DN-021419	234920		15.32		340146		19.12					
02	PD-DN-021419 Lab Duplicate	236782		15.32		354198		19.12					
03	DUP-DN-021419	233656		15.32		342757		19.12					
04	WH-DN-021419	236249		15.32		341578		19.12					
05	Lab Blank	245612		15.32		280052		18.97					
06	CCV	244500		15.32		350447		19.12					
07	LCS	252734		15.32		389441		19.12					
08	LCSD	246610		15.32		303548		18.97					
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													

'Area Upper Limit=+40% of internal standard area'
'Area Lower Limit=-40% of internal standard area'

RT Upper Limit=+0.33 minutes of internal standard RT
RT Lower Limit=-0.33 minutes of internal standard RT

* Designates values outside of QC limits

SAMPLE RESULTS/SAMPLE RESULTS DUPLICATE

Lab Name: Air Toxics Ltd.

Lab File ID: 2022212sim.d & 2022211sim.d

Lab Sample ID: 01A & 01AA

Dilution: 1.61 & 1.61

Client Sample ID: &

Date Analyzed: 2/22/19 & 2/22/19

CAS Number	Compound	Original Amount	Original Flags	Duplicate Amount	Duplicate Flags	RPD	Result Less Than 5X RL
625-86-5	2,5-Dimethylfuran	ND	U	ND	U	0	
75-21-8	Ethylene Oxide	0.101		0.1358		-->29<--	Y

Note: The results appearing in the Amount columns are the raw, unrounded numbers acquired from the instrument.

SAMPLE RESULTS/SAMPLE RESULTS DUPLICATE

Lab Name: Air Toxics Ltd.

Lab File ID: 2022205sim.d & 2022204sim.d

Lab Sample ID: &

Dilution: 1.00 & 1.00

Client Sample ID: LCS & LCSD

Date Analyzed: 2/22/19 & 2/22/19

CAS Number	Compound	Original Amount	Original Flags	Duplicate Amount	Duplicate Flags	RPD	Result Less Than 5X RL
625-86-5	2,5-Dimethylfuran	ND		ND		0	
75-21-8	Ethylene Oxide	92		93		1.1	

Note: The results appearing in the Amount columns are the raw, unrounded numbers acquired from the instrument.

US32APPTV002

INITIAL CALIBRATION DATA

Start Cal Date : 13-FEB-2019 11:01
End Cal Date : 14-FEB-2019 12:10
Quant Method : ISTD
Origin : Disabled
Target Version : 3.60
Integrator : HP RTE
Method file : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Cal Date : 14-Feb-2019 15:33 udib
Curve Type : Average

Calibration File Names:
Level 5: /chem/msd2.i/14FEB19.b/2021402sim.d
Level 6: /chem/msd2.i/14FEB19.b/2021403sim.d
Level 7: /chem/msd2.i/14FEB19.b/2021404sim.d
Level 8: /chem/msd2.i/14FEB19.b/2021405sim.d
Level 12: /chem/msd2.i/13FEB19.b/2021307sim.d
Level 15: /chem/msd2.i/13FEB19.b/2021308sim.d

Compound	0.05000 Level 5	0.10000 Level 6	0.50000 Level 7	1.000 Level 8	5.000 Level 12	20.000 Level 15	RRF	% RSD
1 Acetaldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
2 Ethylene Oxide	0.29716	0.27973	0.18952	0.19692	0.22550	0.18723	0.22934	20.970
9 2,5-Dimethylfuran	0.28912	0.27252	0.29660	0.27425	+++++	+++++	0.28312	4.123
$ 3 2-Bromo-1,1,1-Trifluoroethane	0.69125	0.69903	0.69574	0.70279	0.69345	0.69948	0.69696	0.612
$ 6 1,2-Dichloroethane-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 10 Toluene-d8	0.72349	0.72171	0.75445	0.85548	+++++	+++++	0.76378	8.242
$ 12 4-Bromofluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

Calibration History

Method : /chem/msd2.i/14FEB19.b/219s10213eo.m
Start Cal Date: 13-FEB-2019 11:01
End Cal Date : 14-FEB-2019 12:10

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 5 , Cal Amount: 0.05000		
14-FEB-2019 10:20	25df	/chem/msd2.i/14FEB19.b/2021402sim.d
13-FEB-2019 11:01	eocrv	/chem/msd2.i/13FEB19.b/2021303sim.d

Injection Date	Sublist	Calibration File
Cal Level: 6 , Cal Amount: 0.10000		
14-FEB-2019 10:58	25df	/chem/msd2.i/14FEB19.b/2021403sim.d
13-FEB-2019 11:39	eocrv	/chem/msd2.i/13FEB19.b/2021304sim.d

Injection Date	Sublist	Calibration File
Cal Level: 7 , Cal Amount: 0.50000		
14-FEB-2019 11:33	25df	/chem/msd2.i/14FEB19.b/2021404sim.d
13-FEB-2019 12:14	eocrv	/chem/msd2.i/13FEB19.b/2021305sim.d

Injection Date	Sublist	Calibration File
Cal Level: 8 , Cal Amount: 1.00000		
14-FEB-2019 12:10	25df	/chem/msd2.i/14FEB19.b/2021405sim.d
13-FEB-2019 12:51	eocrv	/chem/msd2.i/13FEB19.b/2021306sim.d

Injection Date	Sublist	Calibration File
Cal Level: 12, Cal Amount: 5.00000		
13-FEB-2019 13:28	eocrv	/chem/msd2.i/13FEB19.b/2021307sim.d

Injection Date	Sublist	Calibration File
Cal Level: 15, Cal Amount: 20.00000		
13-FEB-2019 14:04	eocrv	/chem/msd2.i/13FEB19.b/2021308sim.d

Initial Calibration Narrative
219s0213eo.m

A six point initial calibration was analyzed on MSD-2 on 02/13/19 for Ethylene Oxide. A four point initial calibration was analyzed on MSD-2 on 02/14/19 for 2,5-Dimethylfuran.

The instrument was set up to do Full Scan and Selective Ion Monitoring (SIM) simultaneously.

ICAL: 0 out.

ICV: 0 out

File: 2021311sim; 200ml: #3018-613 (1.0ppbv->1.0ppbv);

BFB tune file:
1. 2021301
2. 2021401

The MDL study was analyzed on 10/15/18, 10/16/18 and 10/17/18.

Initial Calibration Narrative
219l0213eo.m

A one-point calibration was analyzed on MSD-2 on 02/13/19 for trans-2-Butene.

US32APPTV002

INITIAL CALIBRATION DATA

Start Cal Date : 13-FEB-2019 11:01
End Cal Date : 14-FEB-2019 12:10
Quant Method : ISTD
Origin : Disabled
Target Version : 3.60
Integrator : HP RTE
Method file : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Cal Date : 14-Feb-2019 15:33 udib
Curve Type : Average

OB 2/15/19

2/15/19

Calibration File Names:
Level 5: /chem/msd2.i/14FEB19.b/2021402sim.d
Level 6: /chem/msd2.i/14FEB19.b/2021403sim.d
Level 7: /chem/msd2.i/14FEB19.b/2021404sim.d
Level 8: /chem/msd2.i/14FEB19.b/2021405sim.d
Level 12: /chem/msd2.i/13FEB19.b/2021307sim.d
Level 15: /chem/msd2.i/13FEB19.b/2021308sim.d

	Compound	0.05000 Level 5	0.10000 Level 6	0.50000 Level 7	1.000 Level 8	5.000 Level 12	20.000 Level 15	___ RRF	% RSD
	1 Acetaldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	2 Ethylene Oxide	0.29716	0.27973	0.18952	0.19692	0.22550	0.18723	0.22934	20.970
	9 2,5-Dimethylfuran	0.28912	0.27252	0.23660	0.27425	+++++	+++++	0.28312	4.123
$	3 2-Bromo-1,1,1-Trifluoroethane	0.69125	0.69903	0.69574	0.70279	0.69345	0.69948	0.69696	0.612
$	6 1,2-Dichloroethane-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$	10 Toluene-d8	0.72349	0.72171	0.75445	0.85548	+++++	+++++	0.76378	8.242
$	12 4-Bromofluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ED_002475_00000140-00050

MSD2

Method TO-15/TO-14	
SOP# 132	
Vacuum:	NA

BFB verification of 176/174 ratio: (100,366/104,416)*100%=96.09%

IS/S Std.#:	2810-905	Exp. Date:		5/9/19

1,1-Dichloro-Flouroethane: 300,829

Chlorobenzene-d5: NA

Please check all standards

Surrogate# 2810-905	Exp. Date:	5/9/19	Surrogate# NA	Exp. Date:	NA
CCV# 3018-601	Exp. Date:	3/1/19	LCS# 3	Exp. Date:	
CCV# NA	Exp. Date:	NA	LCS# NA	Exp. Date:	
CCV sp2# NA	Exp. Date:	NA	LCS sp2# NA	Exp. Date:	NA
CCV sp3# NA	Exp. Date:	NA	LCS sp3# NA	Exp. Date:	NA

Verified CCV vs ICAL mid-point(~40%): db

Method: 219l0213eo.m / 219s0213eo.m

Use	File #	Enter/Scan Sample IDs	Canister# or Std ID	Cart Pos.	Pressure	ml	DF	Verify Load	Loaded Init	Date Analyzed	Time Analyzed	Review Init	Comments
√	2021301	BFB	#2810-905	16	7.0ng	200ml	1.00	db	db	2/13/19	0935	db	exp. 05/09/19.
X	2021302	ICAL Level 4	#3084-18	1	0.02ppbv(0.1ppbv)	40ml	1.00	db	db	2/13/19	1026	db	exp. 3/7/19;
√	2021303	ICAL Level 5	#3084-18	1	0.05ppbv(0.1ppbv)	100ml	1.00	db	db	2/13/19	1101	db	EO
√	2021304	ICAL Level 6	#3084-18	1	0.1ppbv(0.1ppbv)	200ml	1.00	db	db	2/13/19	1139	db	
√	2021305	ICAL Level 7	#3018-601	6	0.5ppbv(1.0ppbv)	100ml	1.00	db	db	2/13/19	1214	db	exp. 3/1/19
√	2021306	ICAL Level 8	#3018-601	6	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/13/19	1251	db	
√	2021307	ICAL Level 12	#3018-608	3	5.0ppbv(25ppbv)	40ml	1.00	db	db	2/13/19	1328	db	exp. 3/7/19;
√	2021308	ICAL Level 15	#3018-608	3	20ppbv(25ppbv)	160ml	1.00	db	db	2/13/19	1404	db	
X	2021309	System Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1514	db	
√	2021310	System Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1551	db	
√	2021311	ICV	#3018-613	6	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/13/19	1628	db	exp. 3/12/19 EO ICV
X	2021312	ICAL Level 5	#3045-195	5	0.05ppbv(0.5ppbv)	20ml	1.00	db	db	2/13/19	1702	db	exp. 3/16/19
X	2021313	ICAL Level 7	#3045-195	5	0.5ppbv(0.5ppbv)	200ml	1.00	db	db	2/13/19	1739	db	
X	2021314	ICAL Level 9	#3018-529	8	2.0ppbv(2.0ppbv)	200ml	1.00	db	db	2/13/19	1816	db	
X	2021315	System Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1853	db	
√	2021316	Lab Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1930	db	
√	2021317	6L Cert	a0603	7	E.O.	200ml	1.00	db	db	2/13/19	2006	db	
T	2021318	Test Std.	#3084-18	1	0.05ppbv(0.1ppbv)	100ml	1.00	db	db	2/13/19	2041	db	
√	2021319	ICAL Level 12	#3084-578	1	5.0ppbv(5.0ppbv)	200ml	1.00	db	db	2/14/19	0813	db	trans-2-Butene only

2/14/19

MSD2

Method TO-15/TO-14	
SOP# 132	
Vacuum:	NA

BFB verification of 176/174 ratio: (109,784/114,968)*100%=95.49%

IS/S Std.#:	2810-905	Exp. Date:		5/9/19
1,1-Dichloro-Flouroethane: 288,480				
Fluorobenzene: 415,327				

Please check all standards

Surrogate# 2810-905	Exp. Date:	5/9/19	Surrogate# NA	Exp. Date:	NA
CCV# 3018-601	Exp. Date:	3/1/19	LCS# 3	Exp. Date:	
CCV# NA	Exp. Date:	NA	LCS# NA	Exp. Date:	
CCV sp2# NA	Exp. Date:	NA	LCS sp2# NA	Exp. Date:	NA
CCV sp3# NA	Exp. Date:	NA	LCS sp3# NA	Exp. Date:	NA

Verified CCV vs ICAL mid-point(+40%): db

Method: 21910213eo.m / 21960213eo.m

Use	File #	Enter/Scan Sample IDs	Canister# or Std ID	Cart Pos.	Pressure	ml	DF	Verify Load	Loaded Init	Date Analyzed	Time Analyzed	Review init	Comments
√	2021401	BFB	#2810-905	16	7.0ng	200ml	1.00	db	db	2/14/19	0937	db	exp. 05/09/19.
√	2021402	ICAL Level 5	#3045-195	5	0.05ppbv(0.5ppbv)	20ml	1.00	db	db	2/14/19	1020	db	exp. 2/16/19;
√	2021403	ICAL Level 6	#3045-195	5	0.1ppbv(0.5ppbv)	40ml	1.00	db	db	2/14/19	1058	db	
√	2021404	ICAL Level 7	#3045-195	5	0.25ppbv(0.5ppbv)	100ml	1.00	db	db	2/14/19	1133	db	
√	2021405	ICAL Level 8	#3045-195	5	0.5ppbv(0.5ppbv)	200ml	1.00	db	db	2/14/19	1210	db	
√	2021406	CCV	#3018-601	3	1.0ppbv(1.0ppbv)	100ml	1.00	db	db	2/14/19	1342	db	exp. 3/1/19
√	2021407	LCS	#3018-613	4	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/14/19	1419	db	exp. 3/12/19
√	2021408	LCSD	#3018-613	4	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/14/19	1456	db	
X	2021409	System Blank	5411	16	Humid	200ml	1.00	db	db	2/14/19	1549	db	
√	2021410	Lab Blank	5411	16	Humid	200ml	1.00	db	db	2/14/19	1626	db	
√	2021411	1902183-01A	O0334	6	8.5 Hg->5 psi	200ml	1.87	db	db	2/14/19	1703	db	
√	2021412	1902183-02A	O0114	7	14.0 Hg->5 psi	200ml	2.51	db	db	2/14/19	1739	db	
√	2021413	1902183-03A	N1772	9	11.0 Hg->5 psi	200ml	2.12	db	db	2/14/19	1816	db	
√	2021414	1902185-01A	N3478	10	8.5 Hg->5 psi	200ml	1.87	db	db	2/14/19	1853	db	
√	2021415	1902185-02A	O0385	11	1.5 Hg->5 psi	200ml	1.41	db	db	2/14/19	1930	db	
√	2021416	1902185-03A	N1744	12	4.5 Hg->5 psi	200ml	1.58	db	db	2/14/19	2007	db	
P	2021417	Manifold Cert	N2841	6	M012	200ml	1.00	db	db	2/15/19	0918	db	Zero Air

GA

2/15/19

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021311sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 16:28
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3018-613;ICV
Misc Info : 1.0ppbv(1.0ppbv) ;notics
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 14:04 Cal File: 2021308sim.d
Als bottle: 6 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.174	12.170	(0.795)	44	10812	0.91202	0.9120	80.00- 120.00	100.00
12.174	12.170	(0.795)	43	2693			0.00- 55.01	24.91
12.174	12.158	(0.795)	29	8469			59.74- 119.74	78.33
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	212011	5.88487	5.885	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	217815			73.24- 133.24	102.74
14.335	14.335	(0.936)	83	172411			63.25- 123.25	81.32
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	310146	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	101596			3.63- 63.63	32.76
15.319	15.319	(1.000)	61	95340			3.78- 63.78	30.74
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.109	(1.000)	96	424616	6.00000		80.00- 120.00	100.00
19.119	19.093	(1.000)	70	78277			0.00- 49.55	18.43

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021311sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Calibration Date: 13-FEB-2019
Calibration Time: 12:51
Level: LOW
Sample Type: AIR
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv) ;notics

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	310146	3.10
7 Fluorobenzene	420806	252484	589128	424616	0.91

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	-0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 15-Feb-2019 11:38

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 13FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id:
Level: LOW
Operator: db
Data Type: MS DATA
SampleType: LCS
SpikeList File: LCS.spk
Quant Type: ISTD
Sublist File: eocrv.sub
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv) ;notics

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
2 Ethylene Oxide	1.000	0.9120	91.20

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.885	98.08

Data File: /chem/msd2.i/13FEB19.b/2021311sim.d

Date : 13-FEB-2019 16:28

Client ID:

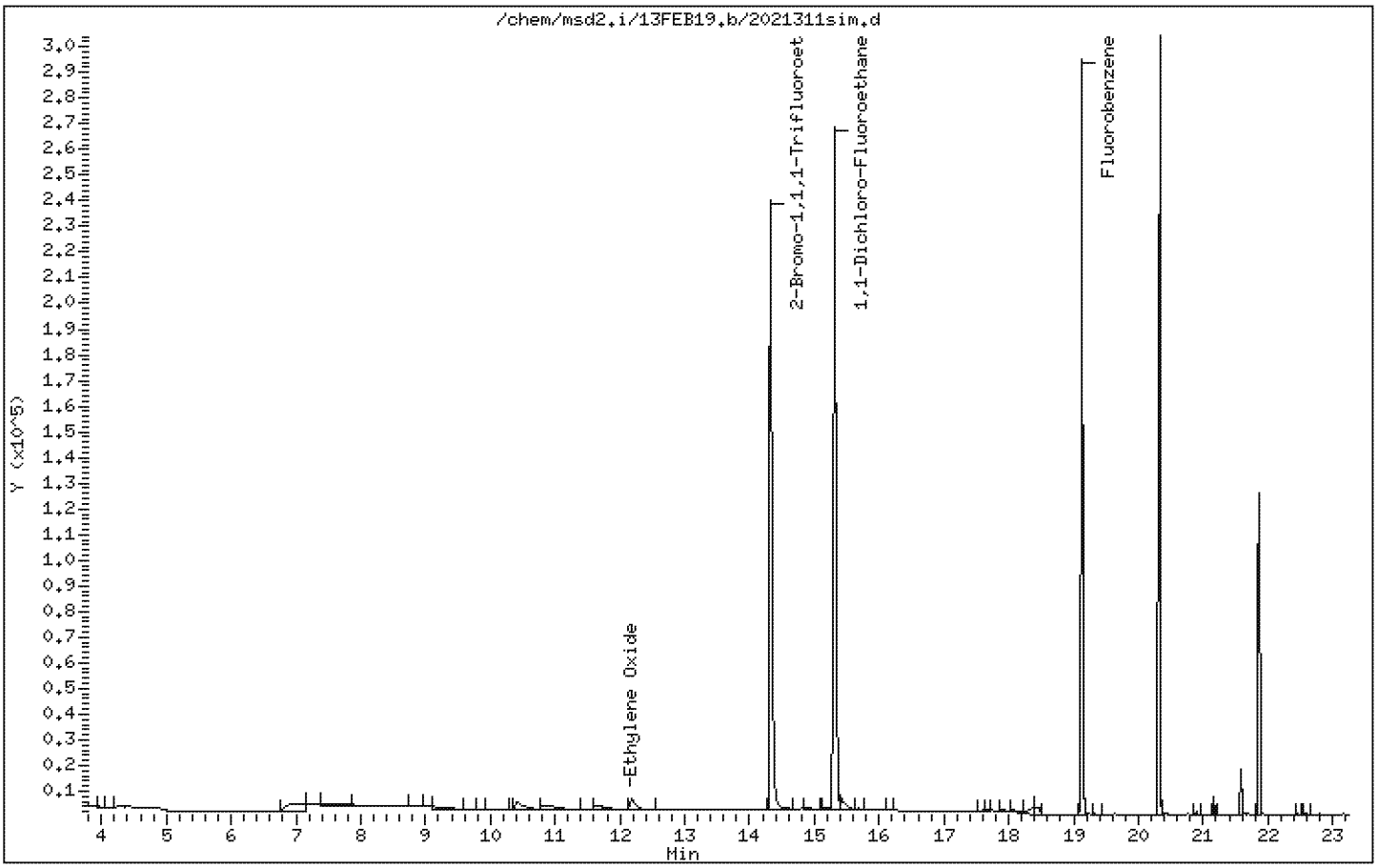
Instrument: msd2.i

Sample Info: 200ml #3018-613;ICV

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021311sim.d

Date : 13-FEB-2019 16:28

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3018-613;ICV

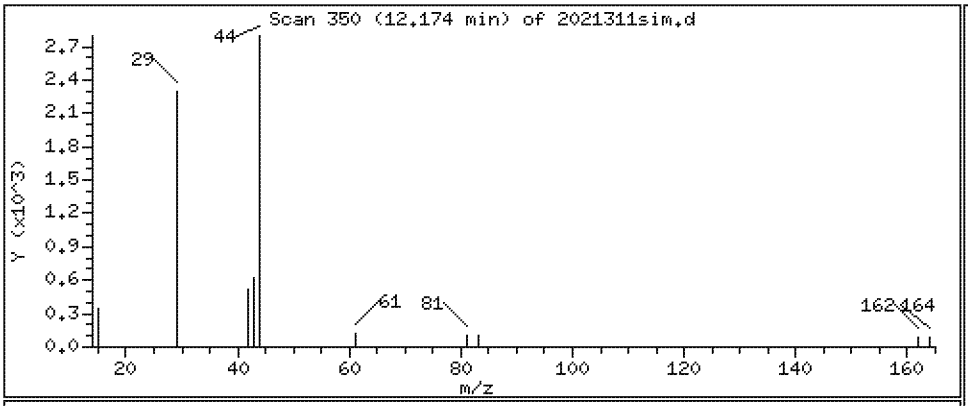
Operator: db

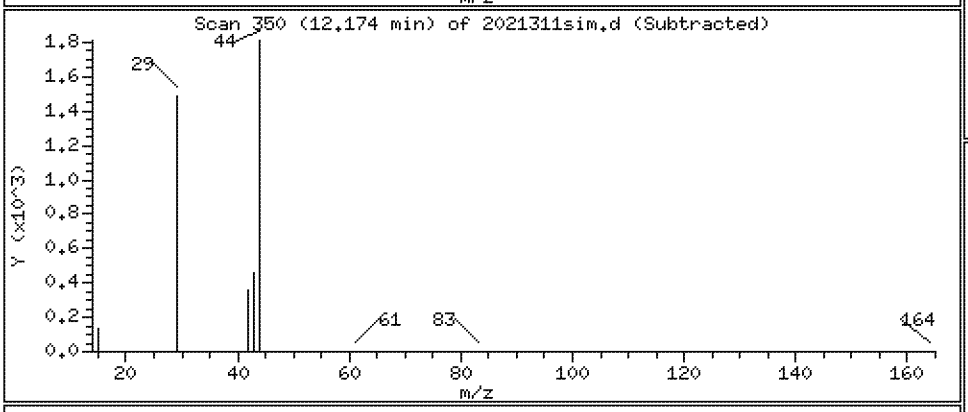
Column phase: RTX-624

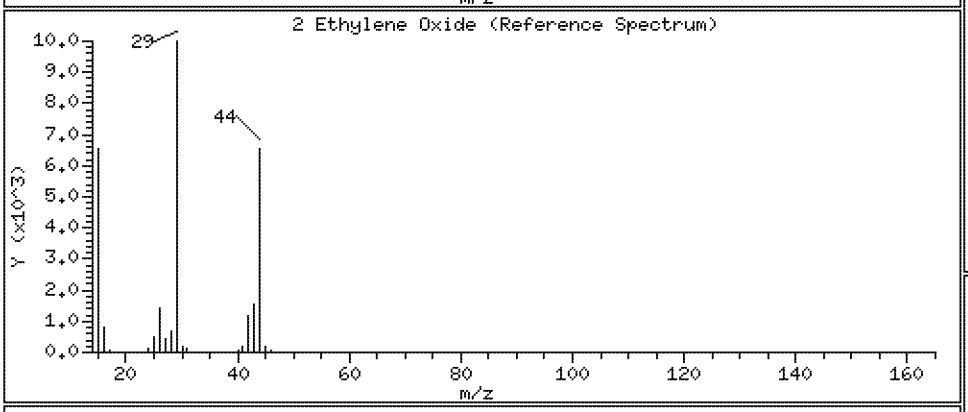
Column diameter: 0.32

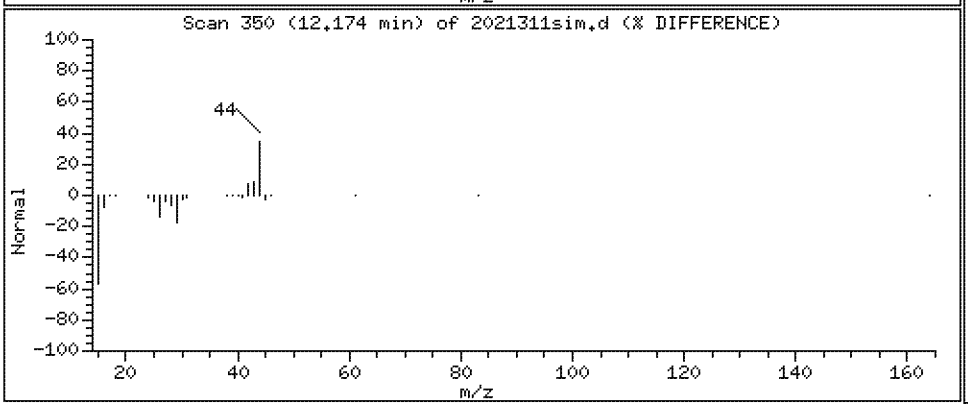
2 Ethylene Oxide

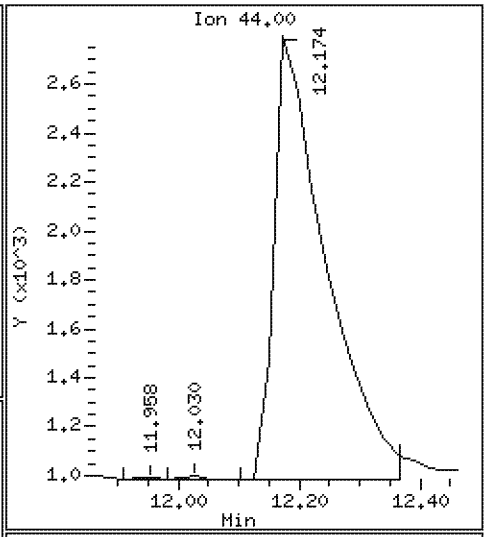
Concentration: 0.9120 PPBV

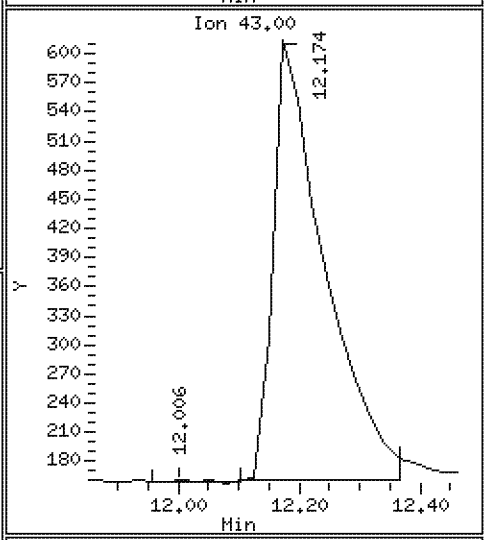


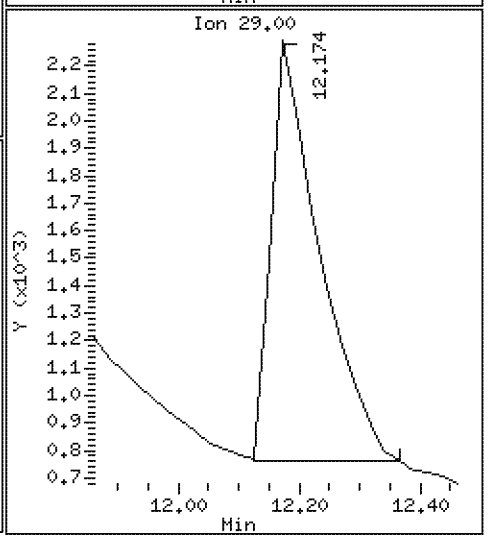












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021402sim.d
Lab Smp Id: ICAL Level 5
Inj Date : 14-FEB-2019 10:20
Operator : db Inst ID: msd2.i
Smp Info : 20ml #3045-195
Misc Info : 0.05ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 10:20 Cal File: 2021402sim.d
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.081	(1.000)	96	418376	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	79127			0.00- 49.55	18.91
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.592	19.443	(1.024)	96	1008	0.05000	0.05106	80.00- 120.00	100.00(T)
19.592	19.549	(1.024)	95	870			61.88- 121.88	86.31
19.592	19.549	(1.024)	53	607			70.24- 130.24	60.22
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.215	(1.062)	98	302689	6.00000	5.683	80.00- 120.00	100.00(T)
20.312	20.279	(1.061)	70	38694			0.00- 45.38	12.78
20.331	20.298	(1.062)	100	190361			31.22- 91.22	62.89

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021402sim.d
Lab Smp Id: ICAL Level 5
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.05ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	418376	2.94

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	19.14	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/14FEB19.b/2021402sim.d

Date : 14-FEB-2019 10:20

Client ID:

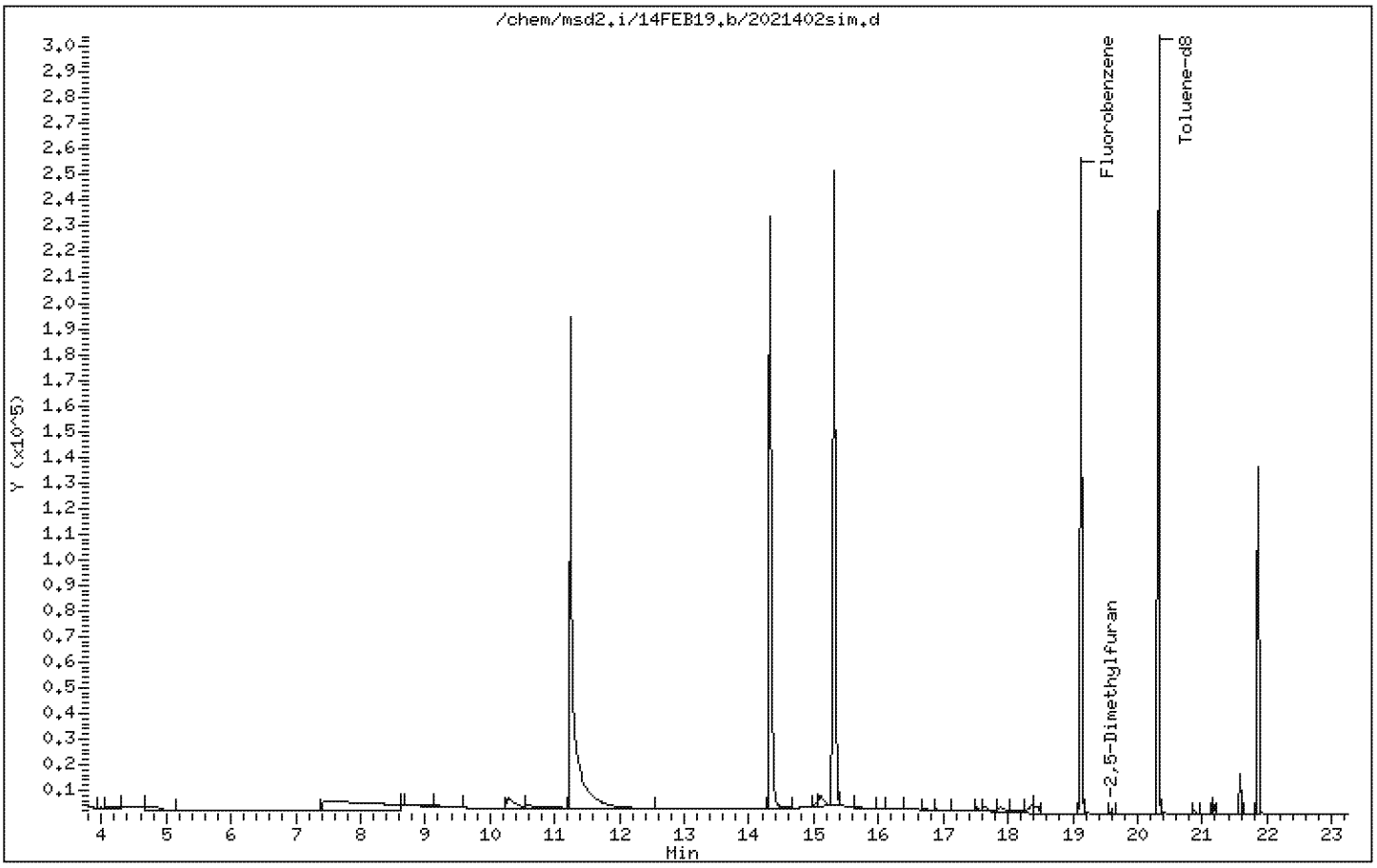
Instrument: msd2.i

Sample Info: 20ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021402sim.d

Date : 14-FEB-2019 10:20

Client ID:

Instrument: msd2.i

Sample Info: 20ml #3045-195

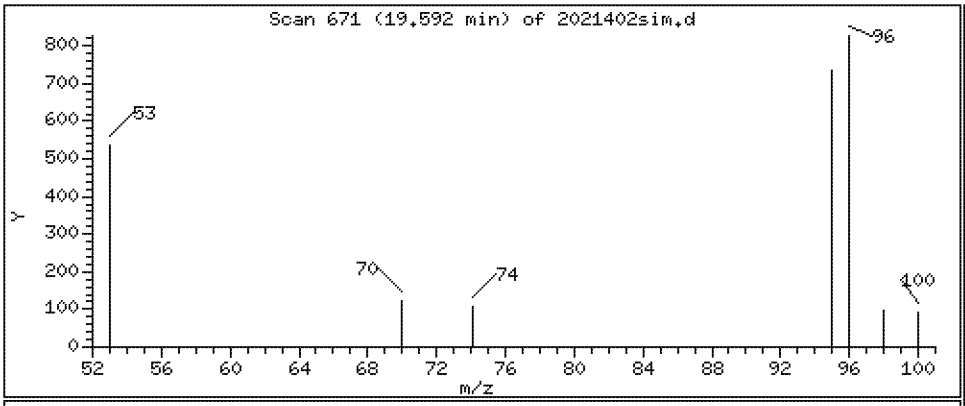
Operator: db

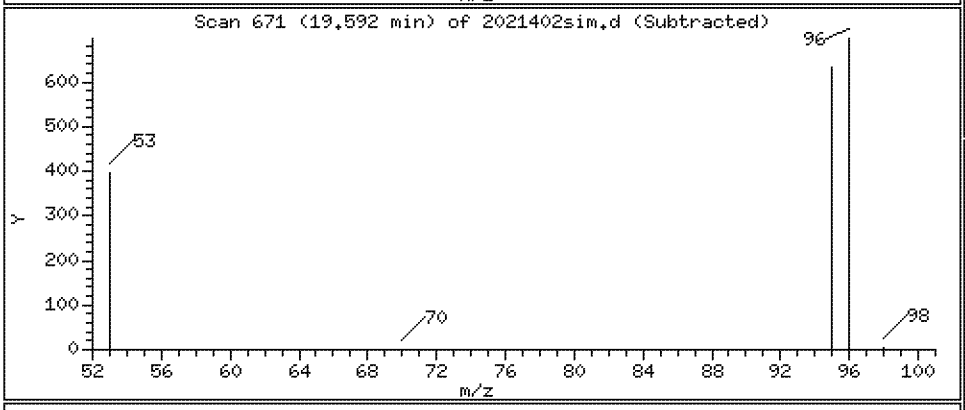
Column phase: RTX-624

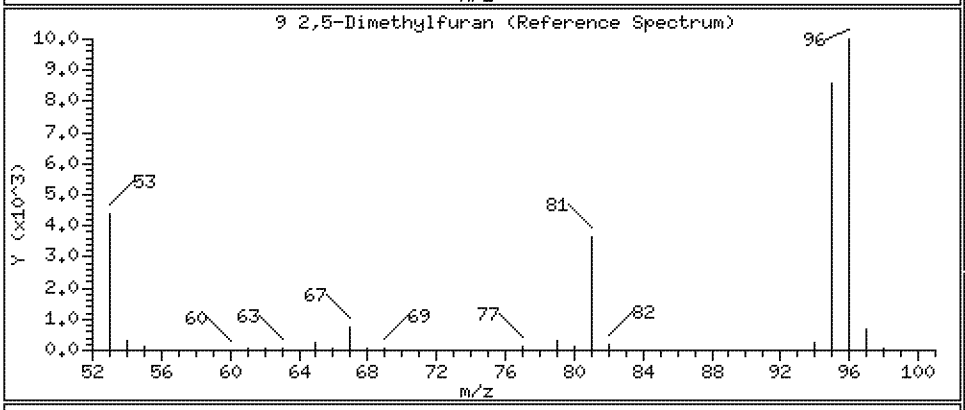
Column diameter: 0.32

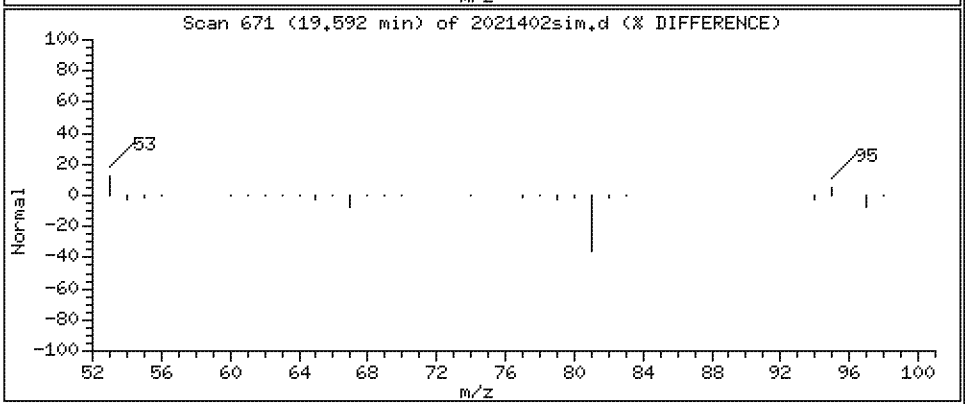
9 2,5-Dimethylfuran

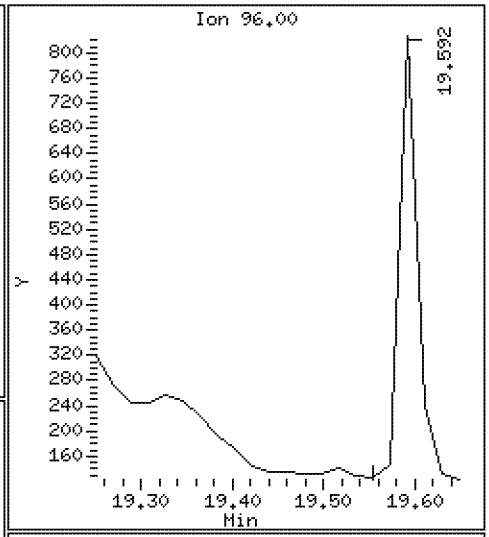
Concentration: 0.05106 PPBV

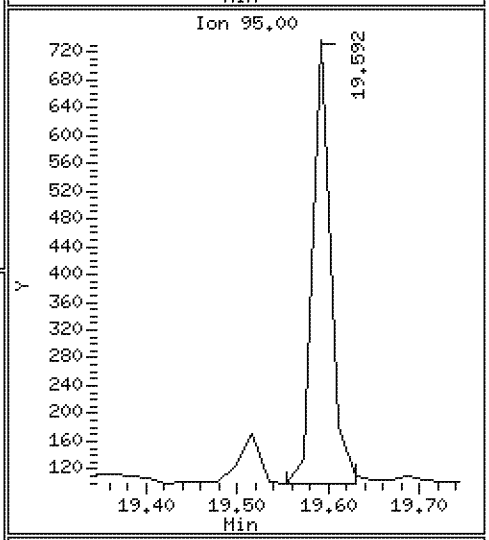


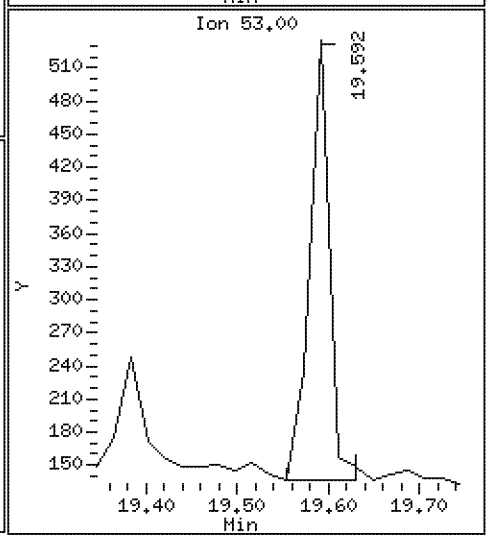












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021303sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 11:01
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3084-18;ICAL Level 5
Misc Info : 0.05ppbv (0.1ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 11:01 Cal File: 2021303sim.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.246	12.222	(0.799)	44	752	0.05000	0.06014	80.00- 120.00	100.00
12.246	12.222	(0.799)	43	184			0.00- 55.01	24.47
12.222	12.198	(0.798)	29	1230			59.74- 119.74	163.56
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	209914	6.00000	5.950	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	215266			73.24- 133.24	102.55
14.335	14.335	(0.936)	83	170520			63.25- 123.25	81.23
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	303671	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	99618			3.63- 63.63	32.80
15.319	15.319	(1.000)	61	93296			3.78- 63.78	30.72
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	412906	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	76596			0.00- 49.55	18.55

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021303sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.05ppbv (0.1ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	303671	0.94
7 Fluorobenzene	420806	252484	589128	412906	-1.88

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/13FEB19.b/2021303sim.d

Date : 13-FEB-2019 11:01

Client ID:

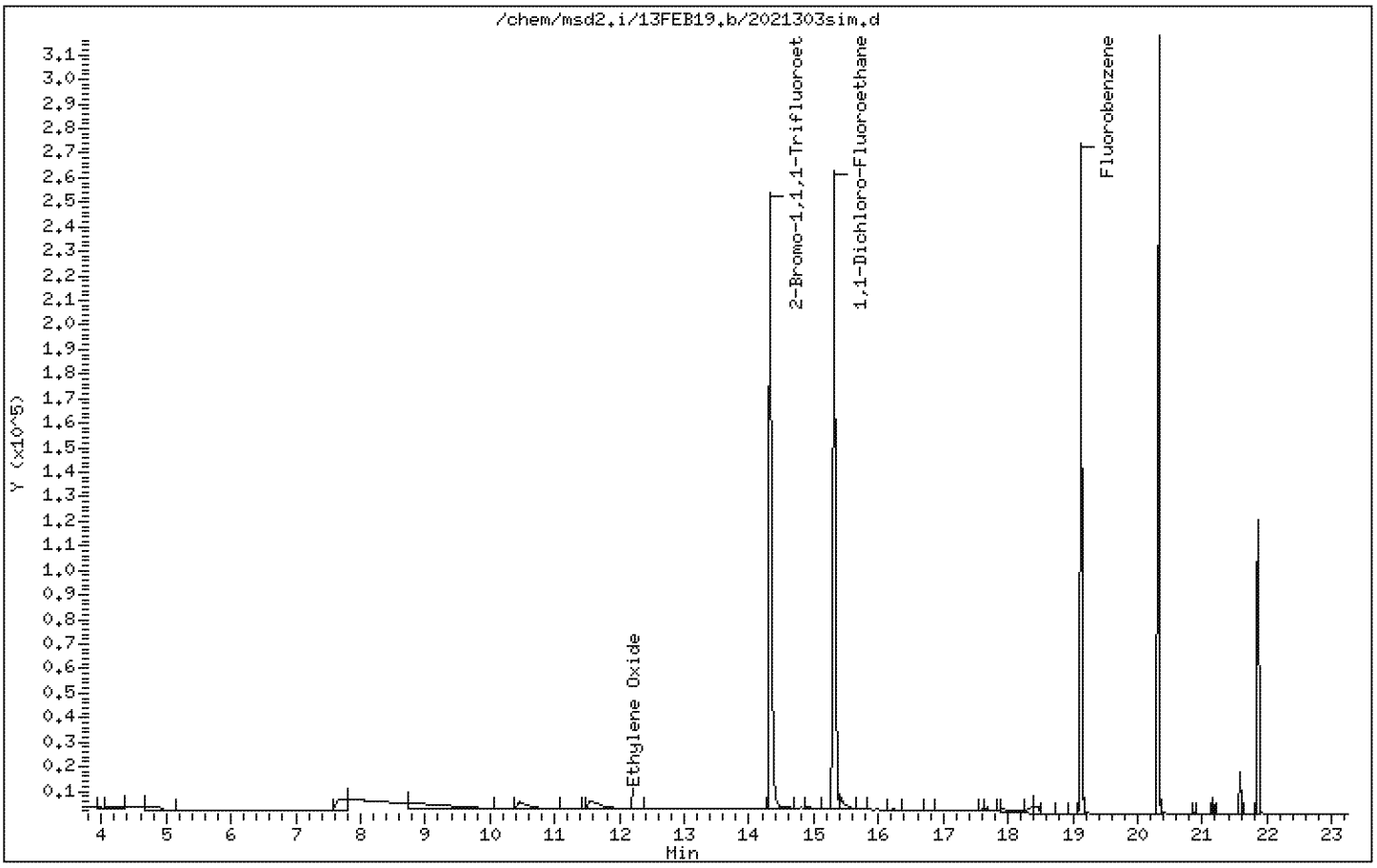
Instrument: msd2.i

Sample Info: 100ml #3084-18;ICAL Level 5

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021303sim.d

Date : 13-FEB-2019 11:01

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3084-18;ICAL Level 5

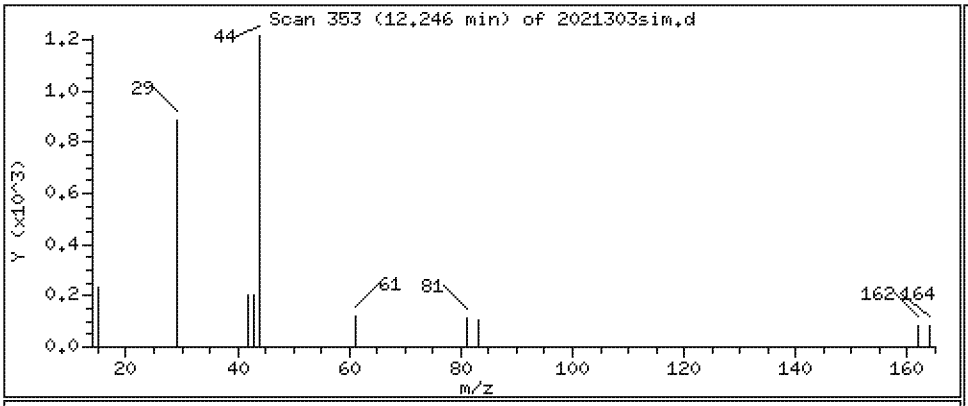
Operator: db

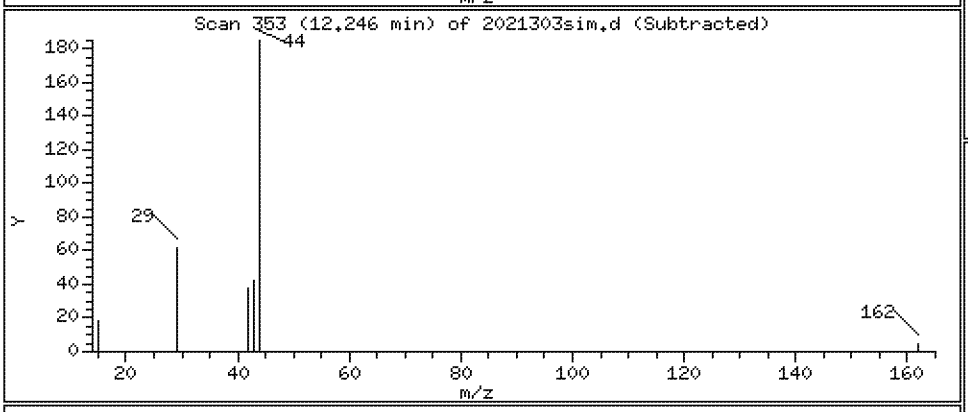
Column phase: RTX-624

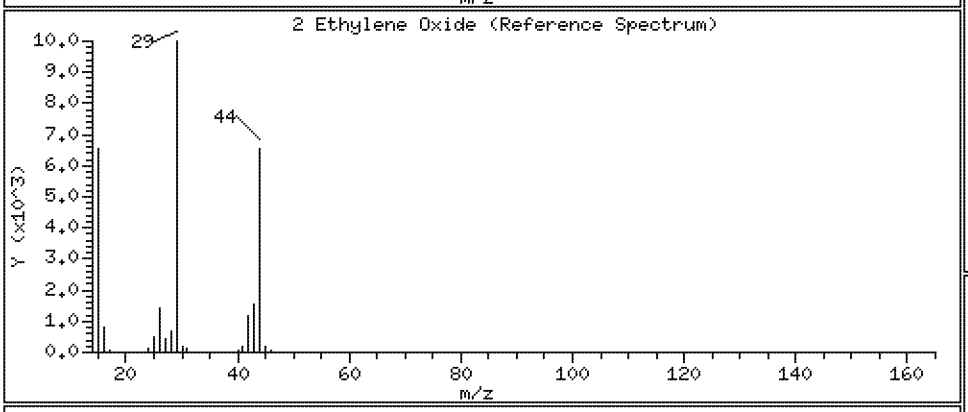
Column diameter: 0.32

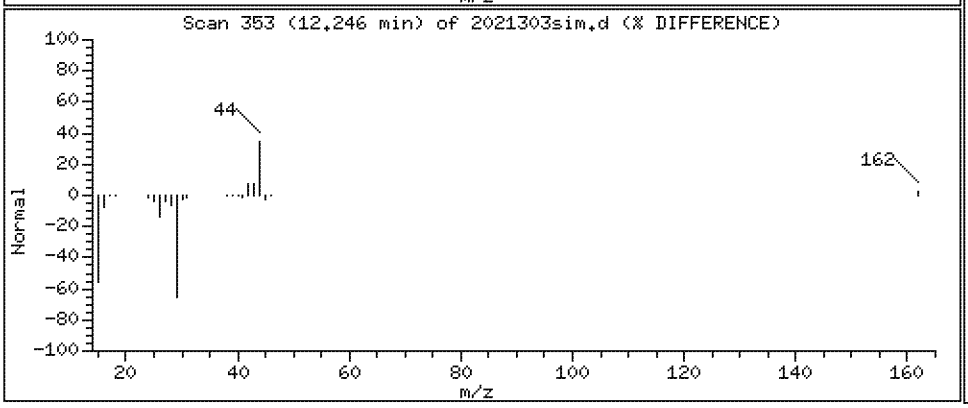
2 Ethylene Oxide

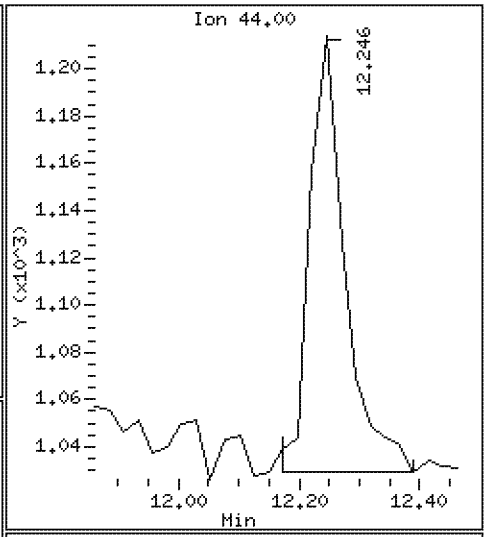
Concentration: 0.06014 PPBV

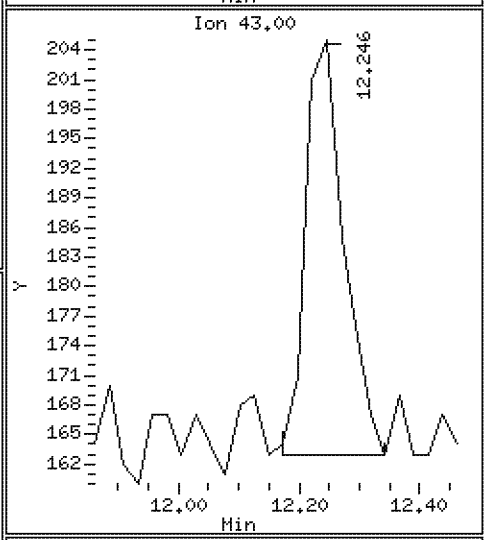


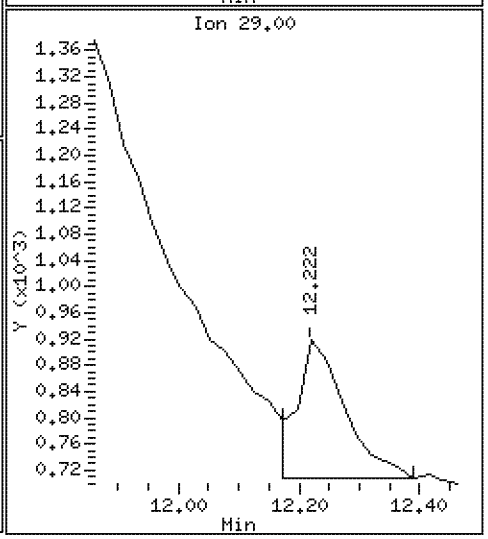












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021403sim.d
Lab Smp Id: ICAL Level 6
Inj Date : 14-FEB-2019 10:58
Operator : db Inst ID: msd2.i
Smp Info : 40ml #3045-195
Misc Info : 0.1ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 10:58 Cal File: 2021403sim.d
Als bottle: 5 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
19.137	19.081	(1.000)	96	422065	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	79626			0.00- 49.55	18.87
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.592	19.454	(1.024)	96	1917	0.10000	0.09625	80.00- 120.00	100.00(T)
19.592	19.549	(1.024)	95	1668			61.88- 121.88	87.01
19.592	19.549	(1.024)	53	1159			70.24- 130.24	60.46
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.223	(1.062)	98	304610	6.00000	5.670	80.00- 120.00	100.00(T)
20.312	20.279	(1.061)	70	37838			0.00- 45.38	12.42
20.331	20.298	(1.062)	100	192504			31.22- 91.22	63.20

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021403sim.d
Lab Smp Id: ICAL Level 6
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.1ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	422065	3.84

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	19.14	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/14FEB19.b/2021403sim.d

Date : 14-FEB-2019 10:58

Client ID:

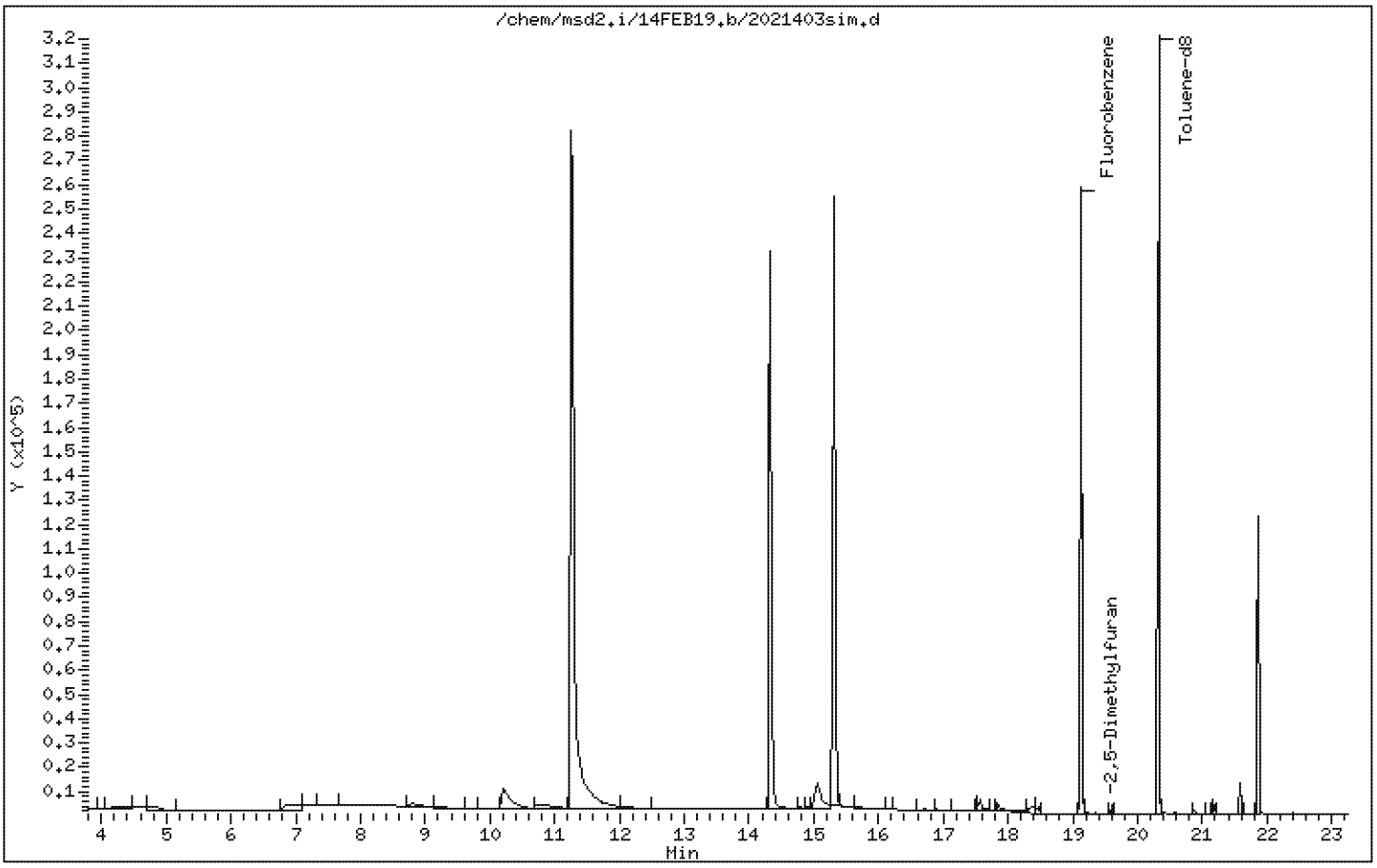
Instrument: msd2.i

Sample Info: 40ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021403sim.d

Date : 14-FEB-2019 10:58

Client ID:

Instrument: msd2.i

Sample Info: 40ml #3045-195

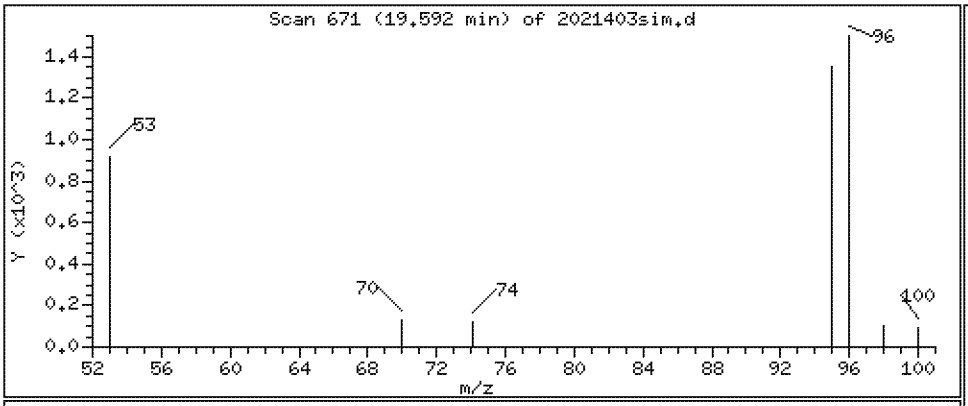
Operator: db

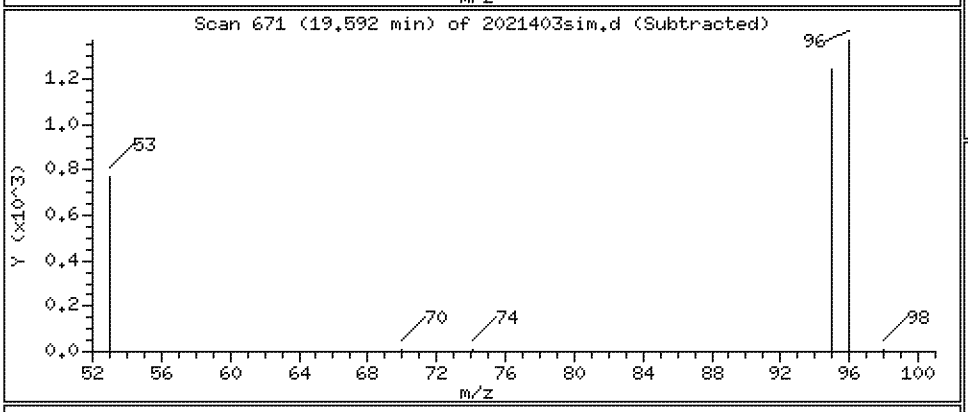
Column phase: RTX-624

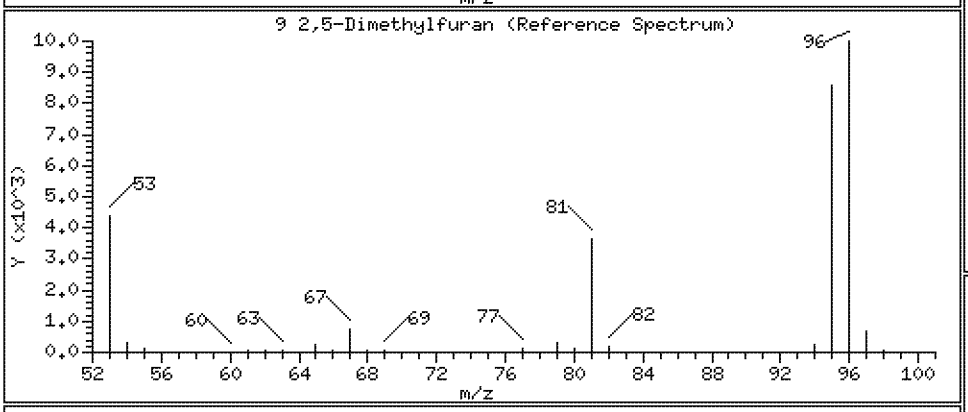
Column diameter: 0.32

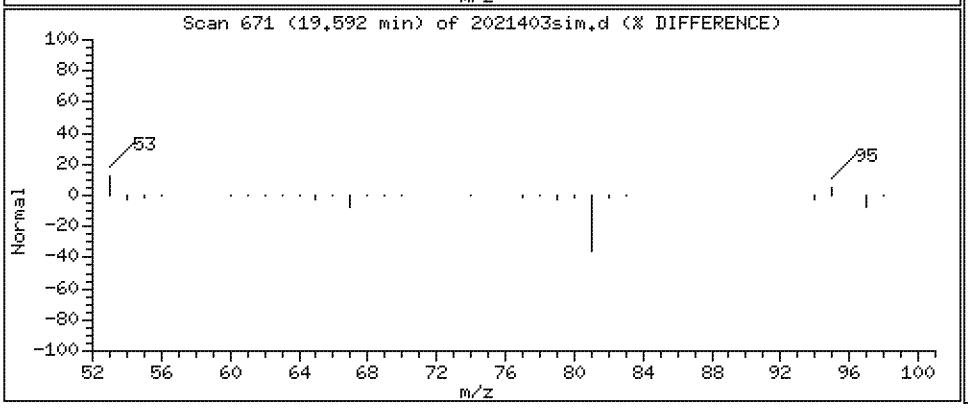
9 2,5-Dimethylfuran

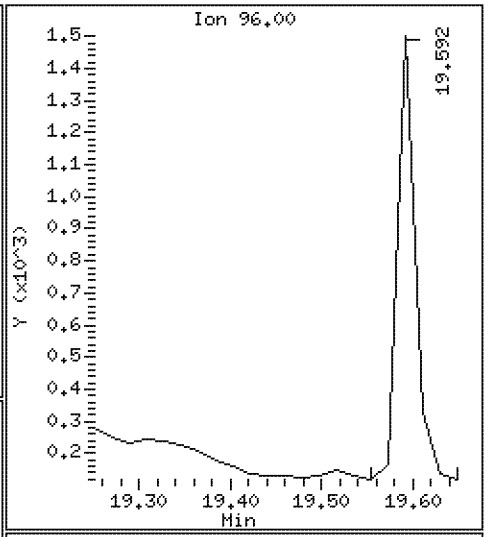
Concentration: 0.09625 PPBV

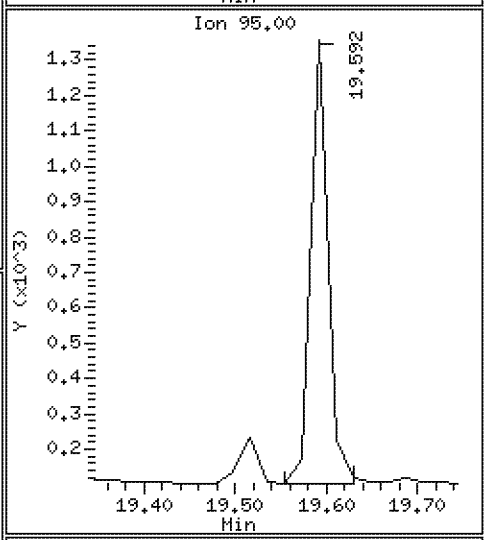


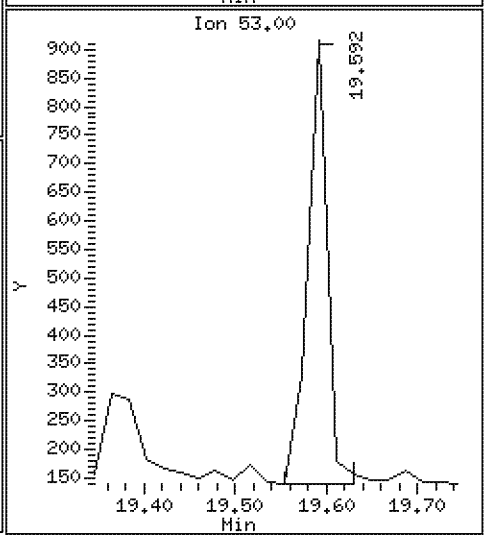












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021304sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 11:39
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3084-18;ICAL Level 6
Misc Info : 0.1ppbv (0.1ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 11:39 Cal File: 2021304sim.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.270	12.238	(0.801)	44	1396	0.10000	0.1084	80.00- 120.00	100.00
12.270	12.238	(0.801)	43	328			0.00- 55.01	23.50
12.270	12.222	(0.801)	29	1596			59.74- 119.74	114.33
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	209313	6.00000	6.012	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	214972			73.24- 133.24	102.70
14.335	14.335	(0.936)	83	170536			63.25- 123.25	81.47
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	299433	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	97916			3.63- 63.63	32.70
15.319	15.319	(1.000)	61	92676			3.78- 63.78	30.95
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	406219	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	74578			0.00- 49.55	18.36

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021304sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.1ppbv (0.1ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	299433	-0.46
7 Fluorobenzene	420806	252484	589128	406219	-3.47

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/13FEB19.b/2021304sim.d

Date : 13-FEB-2019 11:39

Client ID:

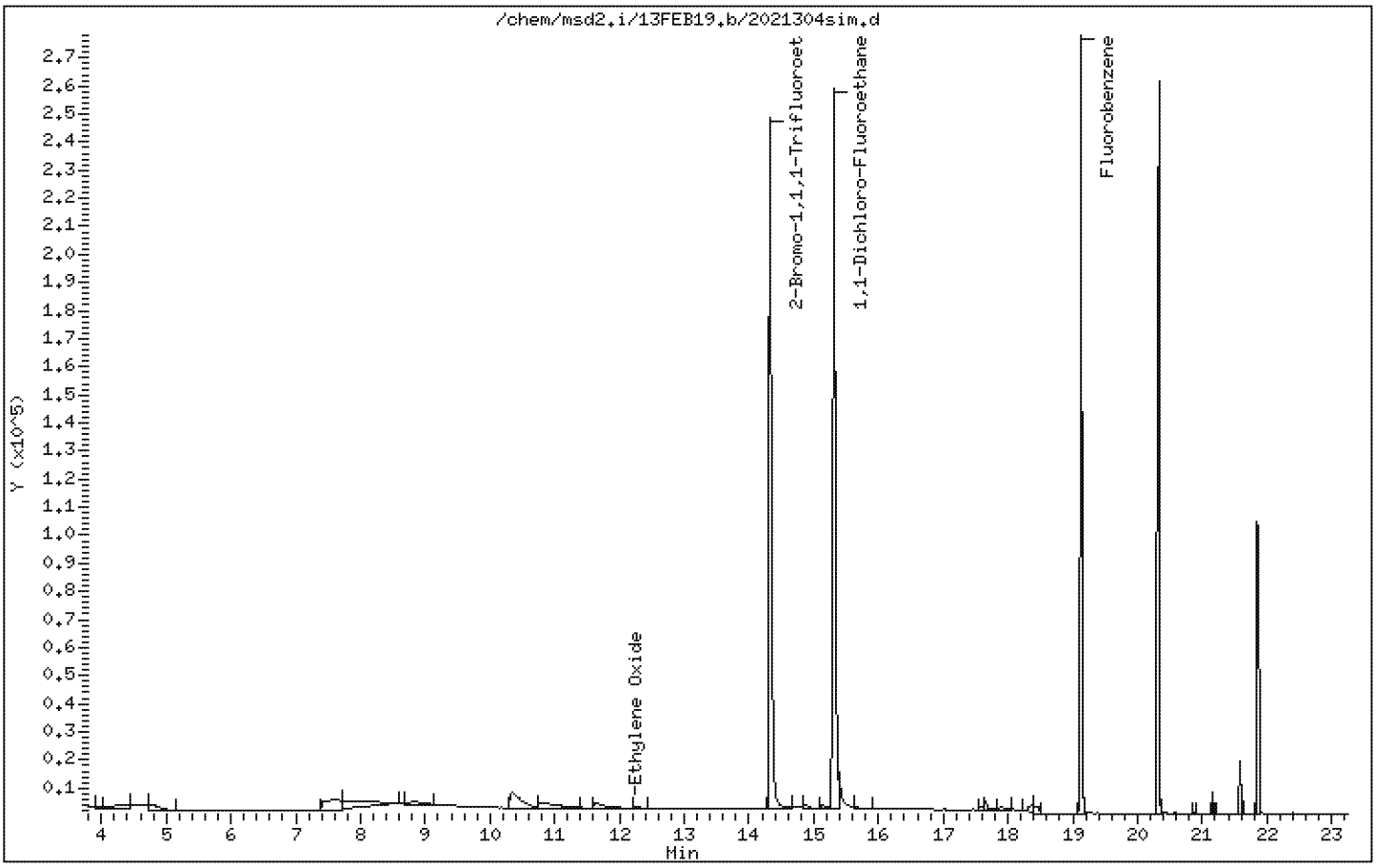
Instrument: msd2.i

Sample Info: 200ml #3084-18;ICAL Level 6

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021304sim.d

Date : 13-FEB-2019 11:39

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3084-18;ICAL Level 6

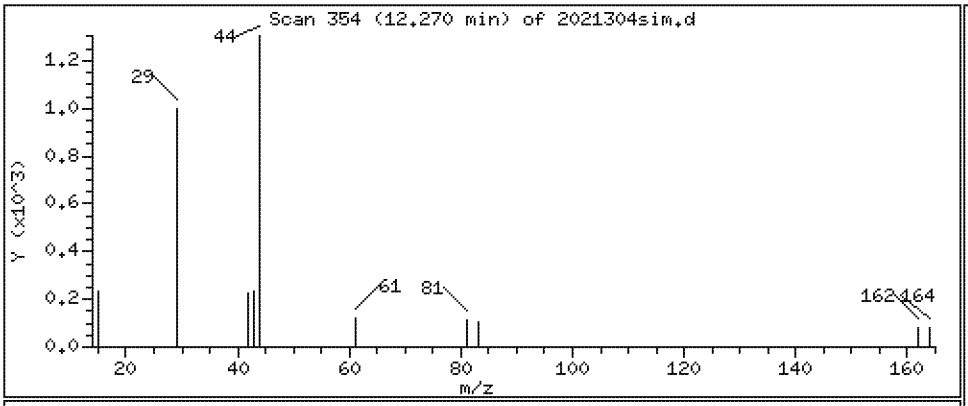
Operator: db

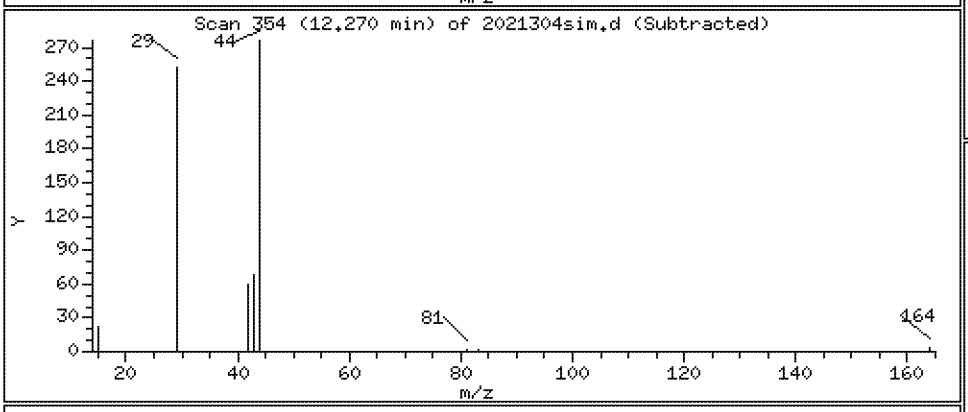
Column phase: RTX-624

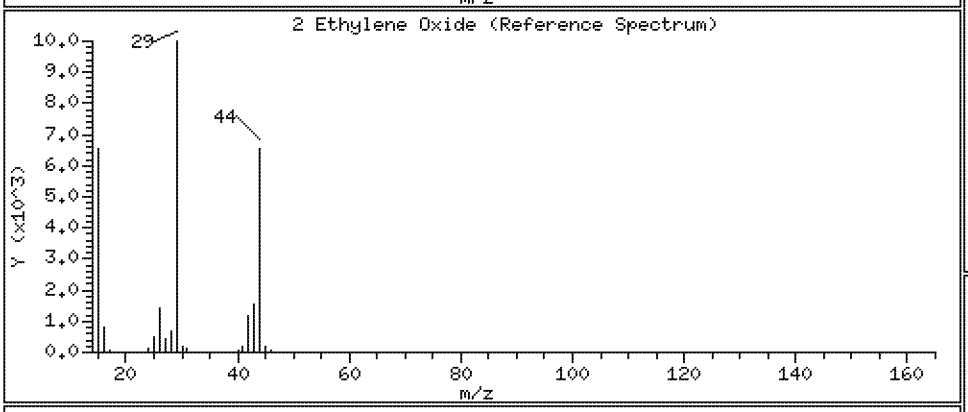
Column diameter: 0.32

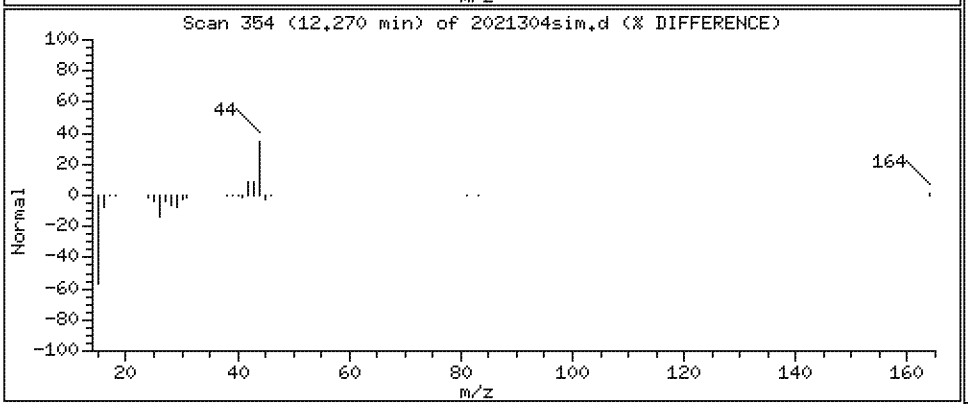
2 Ethylene Oxide

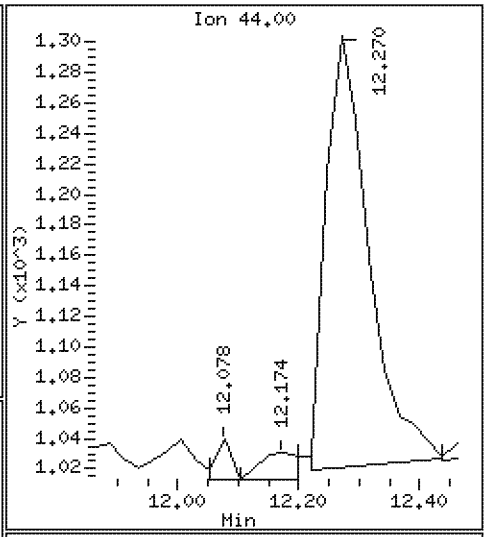
Concentration: 0.1084 PPBV

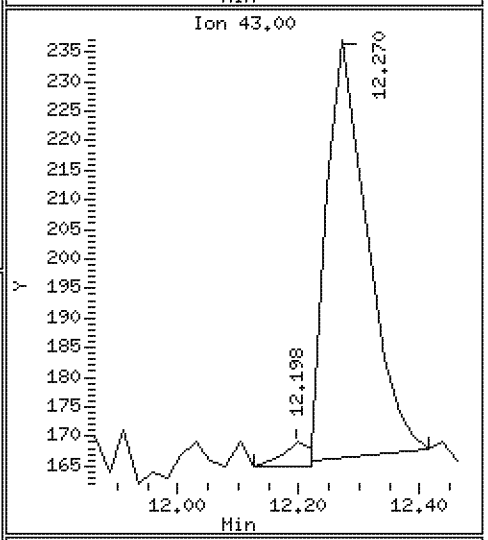


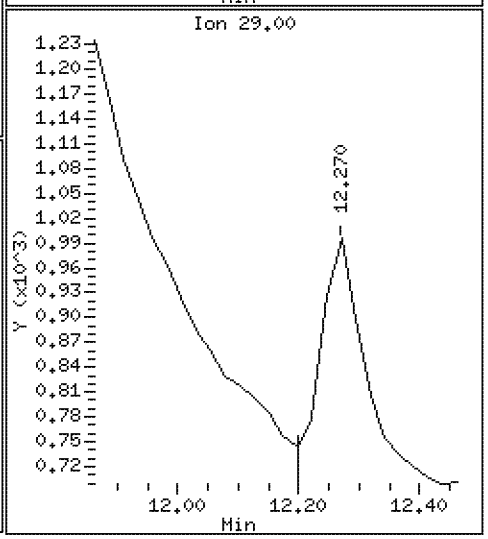












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021404sim.d
Lab Smp Id: ICAL Level 7
Inj Date : 14-FEB-2019 11:33
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3045-195
Misc Info : 0.25ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 11:33 Cal File: 2021404sim.d
Als bottle: 5 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
19.137	19.081	(1.000)	96	406443	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	76643			0.00- 49.55	18.86
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.592	19.454	(1.024)	96	5023	0.25000	0.2619	80.00- 120.00	100.00(T)
19.592	19.549	(1.024)	95	4502			61.88- 121.88	89.63
19.592	19.549	(1.024)	53	3065			70.24- 130.24	61.02
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.223	(1.062)	98	306642	6.00000	5.927	80.00- 120.00	100.00(T)
20.312	20.279	(1.061)	70	39012			0.00- 45.38	12.72
20.331	20.298	(1.062)	100	193123			31.22- 91.22	62.98

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021404sim.d
Lab Smp Id: ICAL Level 7
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.25ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	406443	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	19.14	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/14FEB19.b/2021404sim.d

Date : 14-FEB-2019 11:33

Client ID:

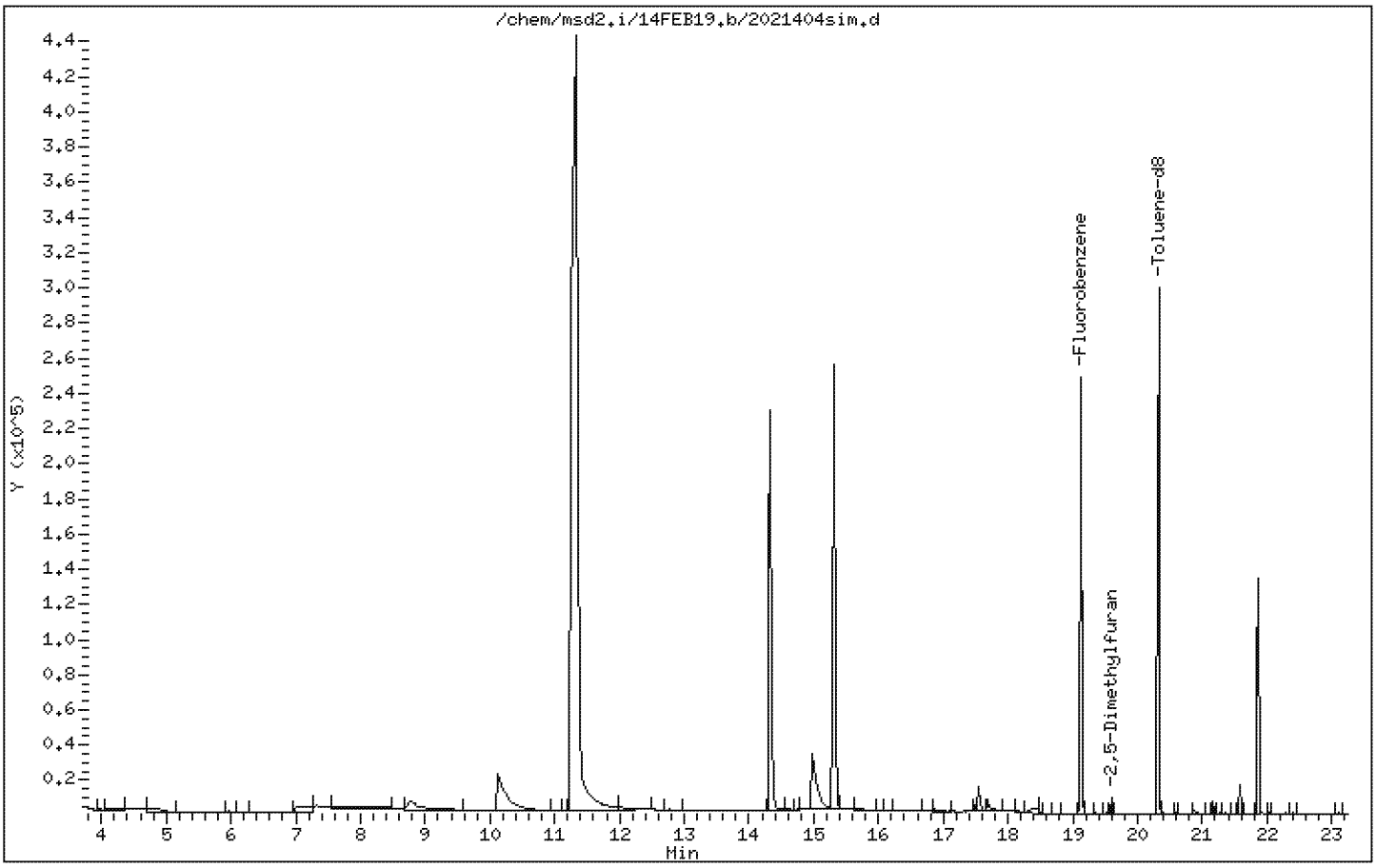
Instrument: msd2.i

Sample Info: 100ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021404sim.d

Date : 14-FEB-2019 11:33

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3045-195

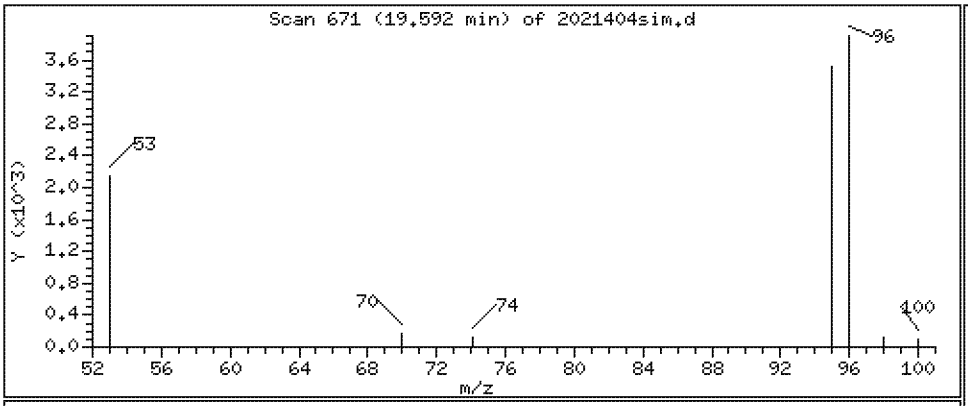
Operator: db

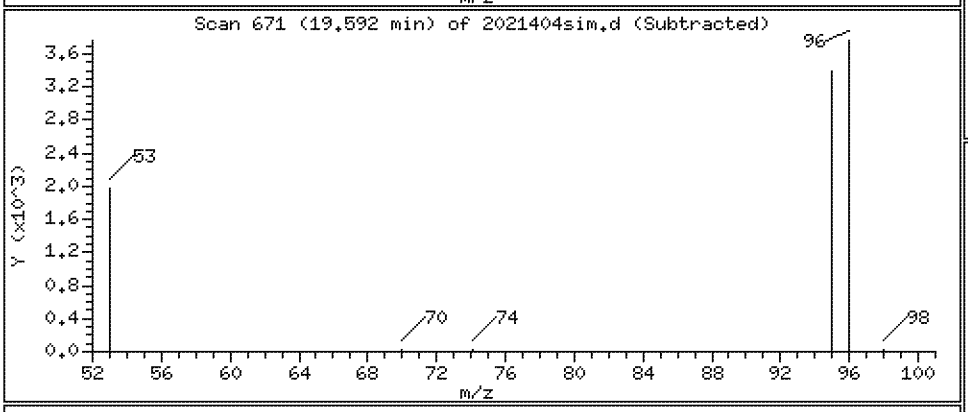
Column phase: RTX-624

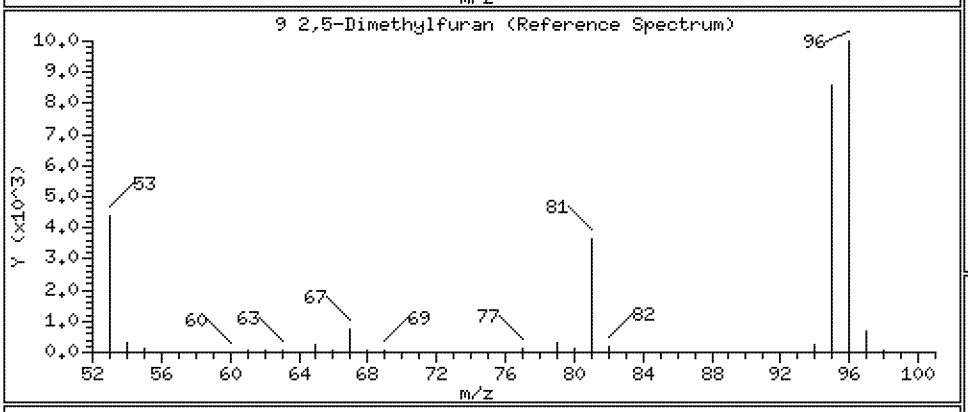
Column diameter: 0.32

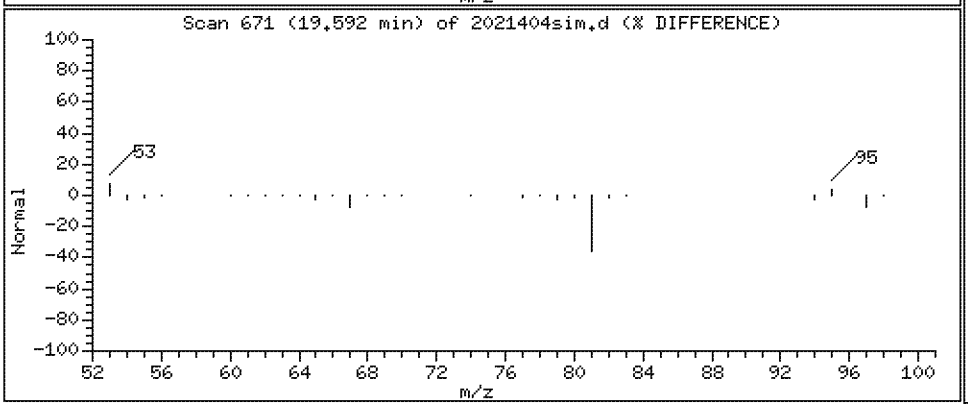
9 2,5-Dimethylfuran

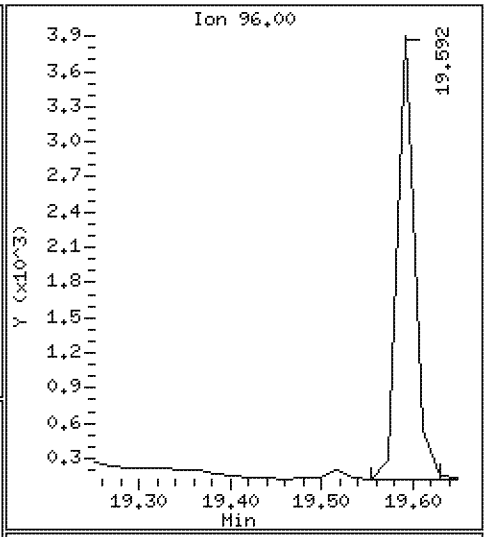
Concentration: 0.2619 PPBV

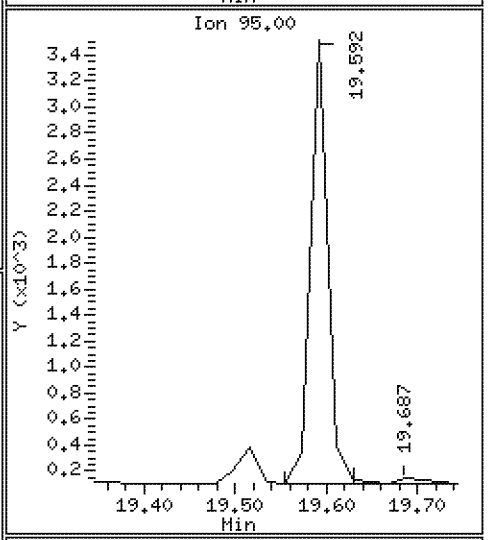


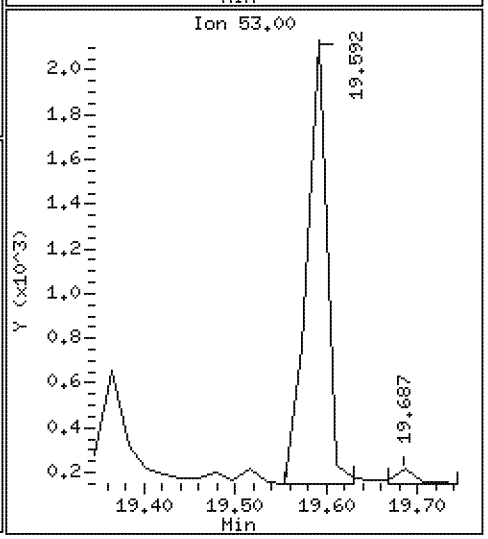












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021305sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 12:14
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3018-601;ICAL Level 7
Misc Info : 1.0ppbv (1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 12:14 Cal File: 2021305sim.d
Als bottle: 6 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.198	12.228	(0.796)	44	4701	0.50000	0.3935	80.00- 120.00	100.00
12.198	12.228	(0.796)	43	1230			0.00- 55.01	26.16
12.198	12.216	(0.796)	29	4952			59.74- 119.74	105.34
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	207095	6.00000	5.987	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	213324			73.24- 133.24	103.01
14.335	14.335	(0.936)	83	168845			63.25- 123.25	81.53
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	297663	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	97407			3.63- 63.63	32.72
15.319	15.319	(1.000)	61	92545			3.78- 63.78	31.09
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	394596	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	74615			0.00- 49.55	18.91

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021305sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv (1.0ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	297663	-1.05
7 Fluorobenzene	420806	252484	589128	394596	-6.23

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	-0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/13FEB19.b/2021305sim.d

Date : 13-FEB-2019 12:14

Client ID:

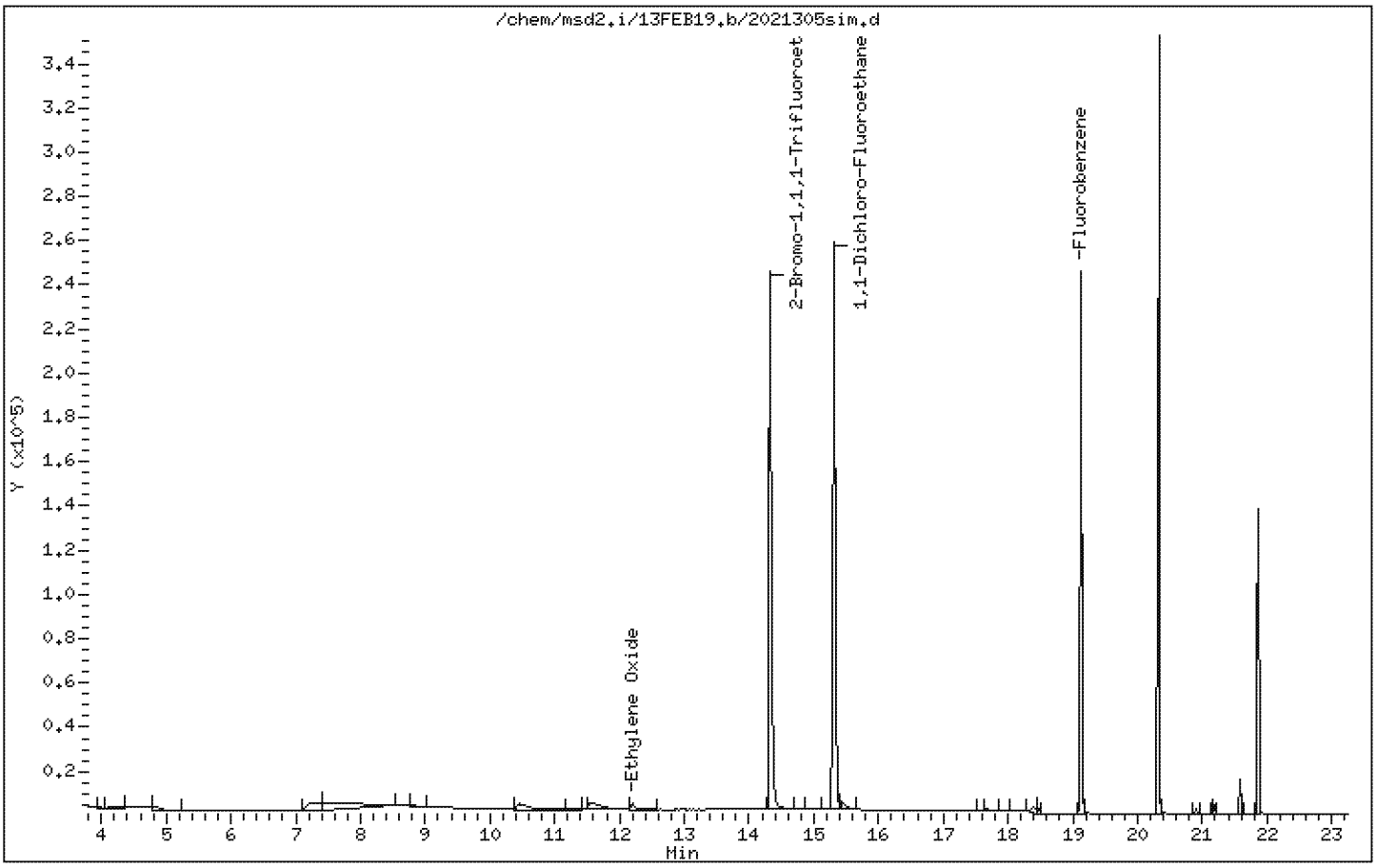
Instrument: msd2.i

Sample Info: 100ml #3018-601;ICAL Level 7

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021305sim.d

Date : 13-FEB-2019 12:14

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3018-601;ICAL Level 7

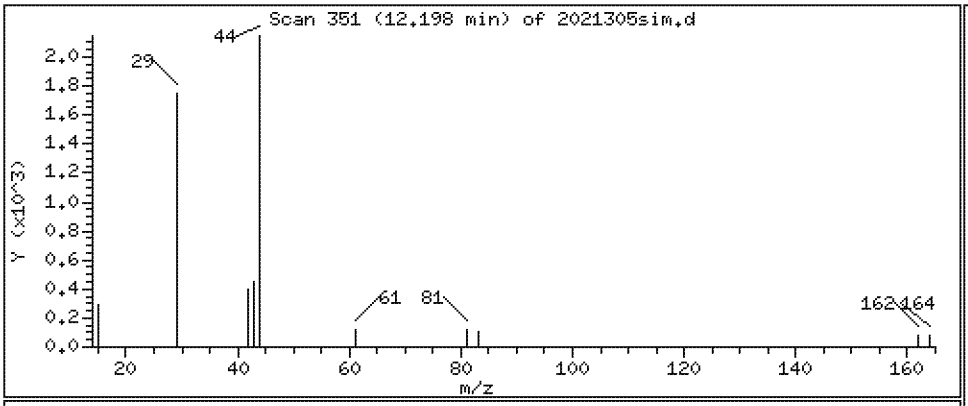
Operator: db

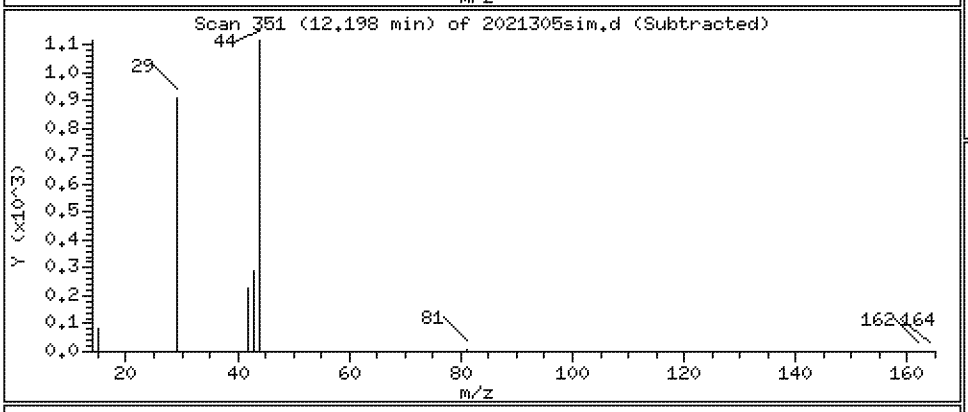
Column phase: RTX-624

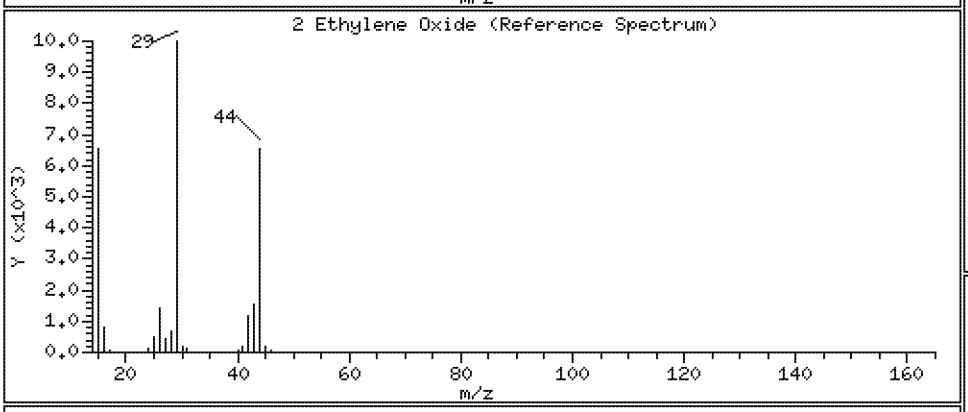
Column diameter: 0.32

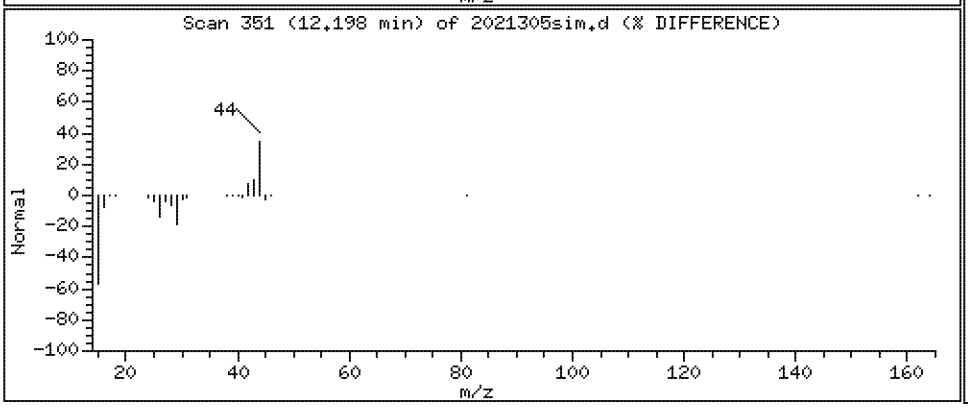
2 Ethylene Oxide

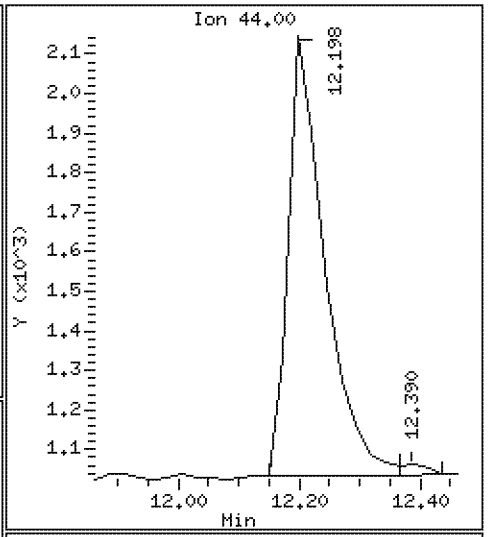
Concentration: 0.3935 PPBV

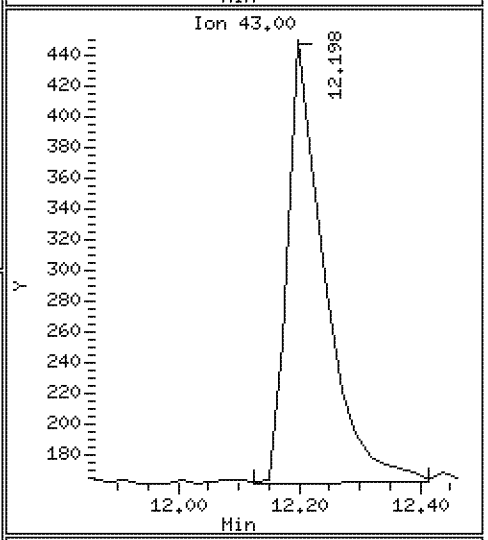


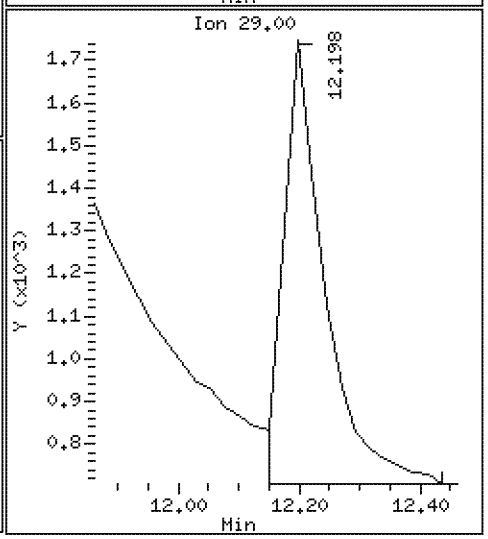












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021405sim.d
Lab Smp Id: ICAL Level 8
Inj Date : 14-FEB-2019 12:10
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3045-195
Misc Info : 0.5ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 5 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
18.967	19.081	(1.000)	96	456234	6.00000		80.00- 120.00	100.00(TH)
18.967	19.068	(1.000)	70	82032			0.00- 49.55	17.98
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.422	19.454	(1.014)	96	10427	0.50000	0.4843	80.00- 120.00	100.00(TH)
19.422	19.549	(1.014)	95	9190			61.88- 121.88	88.14
19.422	19.549	(1.014)	53	7408			70.24- 130.24	71.05
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.198	20.223	(1.054)	98	390300	6.00000	6.720	80.00- 120.00	100.00(T)
20.179	20.279	(1.053)	70	42317			0.00- 45.38	10.84
20.198	20.298	(1.054)	100	246034			31.22- 91.22	63.04

QC Flag Legend

T - Target compound detected outside RT window.
H - Operator selected an alternate compound hit.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021405sim.d
Lab Smp Id: ICAL Level 8
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.5ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	456234	12.25

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	18.97	-0.89

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/14FEB19.b/2021405sim.d

Date : 14-FEB-2019 12:10

Client ID:

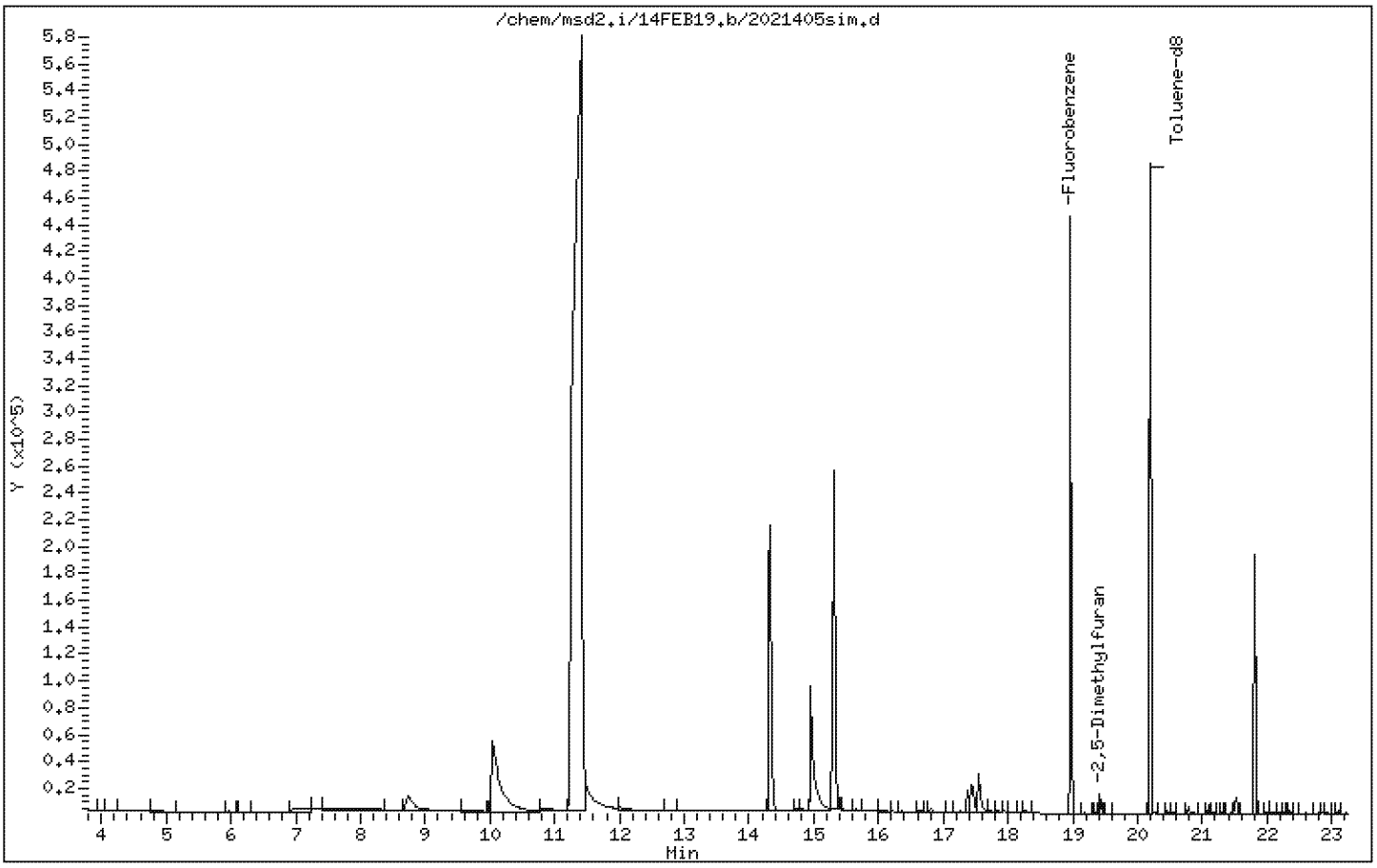
Instrument: msd2.i

Sample Info: 200ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021405sim.d

Date : 14-FEB-2019 12:10

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3045-195

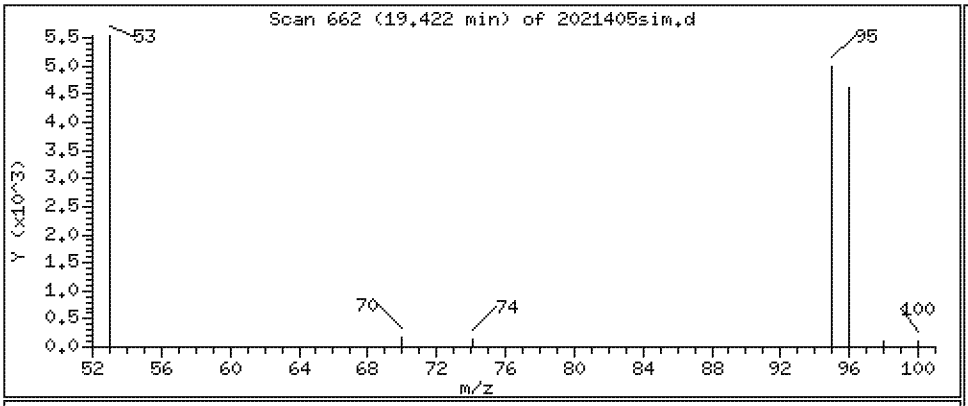
Operator: db

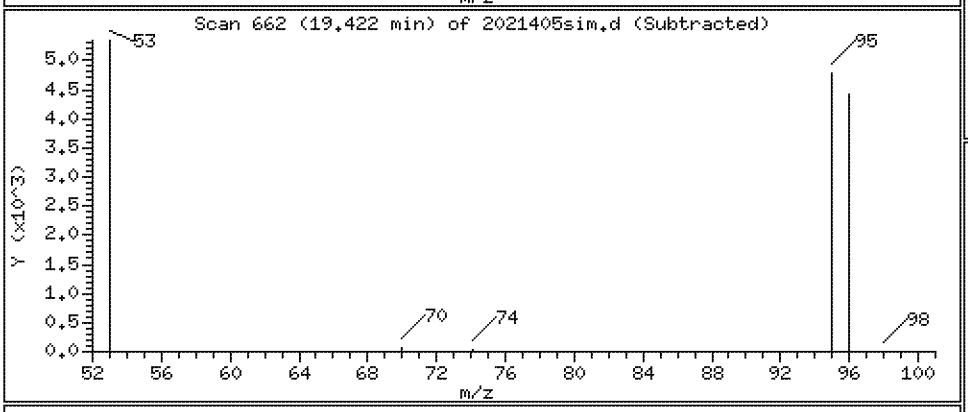
Column phase: RTX-624

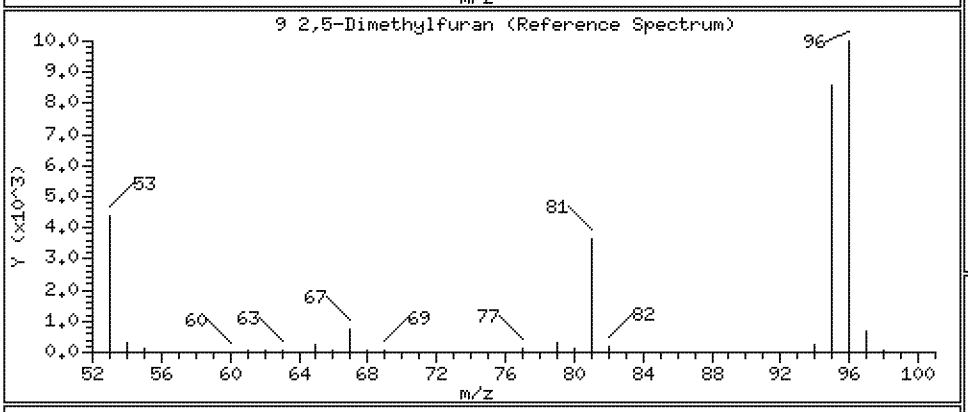
Column diameter: 0.32

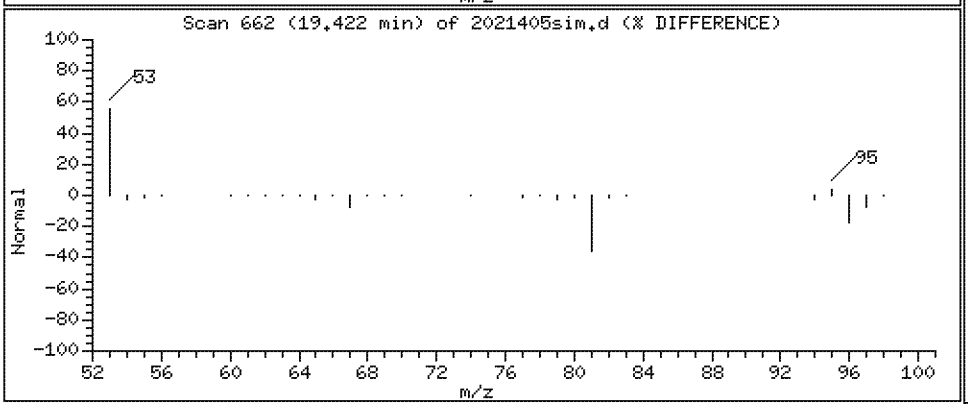
9 2,5-Dimethylfuran

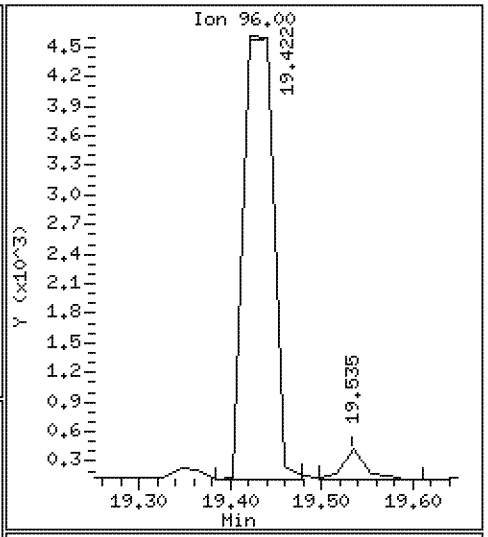
Concentration: 0.4843 PPBV

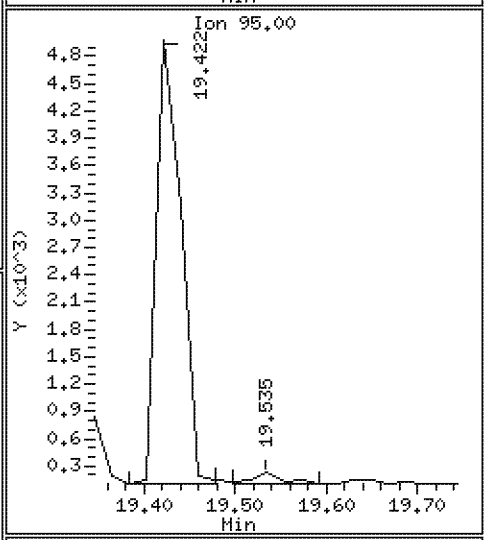


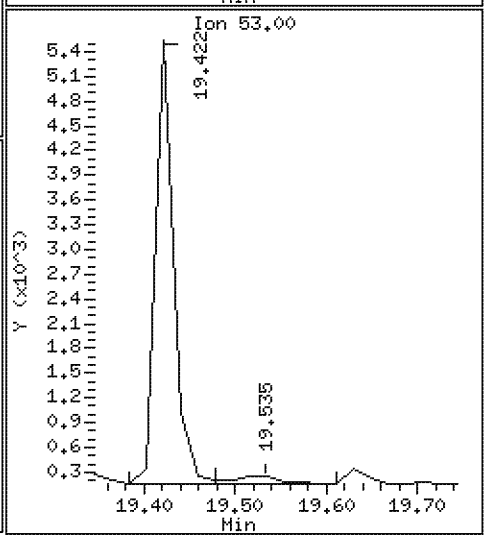












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021306sim.d
Lab Smp Id: ICAL Level 8
Inj Date : 13-FEB-2019 12:51
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3018-601
Misc Info : 1.0ppbv (1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:23 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 12:51 Cal File: 2021306sim.d
Als bottle: 6 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

	RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
	2 Ethylene Oxide						CAS #: 75-21-8		
	12.198	12.198	(0.796)	44	9873	1.00000	1.000	80.00- 120.00	100.00
	12.198	12.198	(0.796)	43	2437			0.00- 55.01	24.68
	12.174	12.174	(0.795)	29	8754			59.74- 119.74	88.67
$	3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
	14.335	14.335	(0.936)	164	211421	6.00000	6.000	80.00- 120.00	100.00
	14.335	14.335	(0.936)	162	217375			73.24- 133.24	102.82
	14.335	14.335	(0.936)	83	172211			63.25- 123.25	81.45
*	4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
	15.319	15.319	(1.000)	81	300829	6.00000		80.00- 120.00	100.00
	15.319	15.319	(1.000)	83	98552			3.63- 63.63	32.76
	15.319	15.319	(1.000)	61	93450			3.78- 63.78	31.06
*	7 Fluorobenzene						CAS #: 462-06-6		
	19.138	19.138	(1.000)	96	420806	6.00000		80.00- 120.00	100.00
	19.119	19.119	(1.000)	70	78357			0.00- 49.55	18.62

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021306sim.d
Lab Smp Id: ICAL Level 8
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv (1.0ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	300829	0.00
7 Fluorobenzene	420806	252484	589128	420806	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/13FEB19.b/2021306sim.d

Date : 13-FEB-2019 12:51

Client ID:

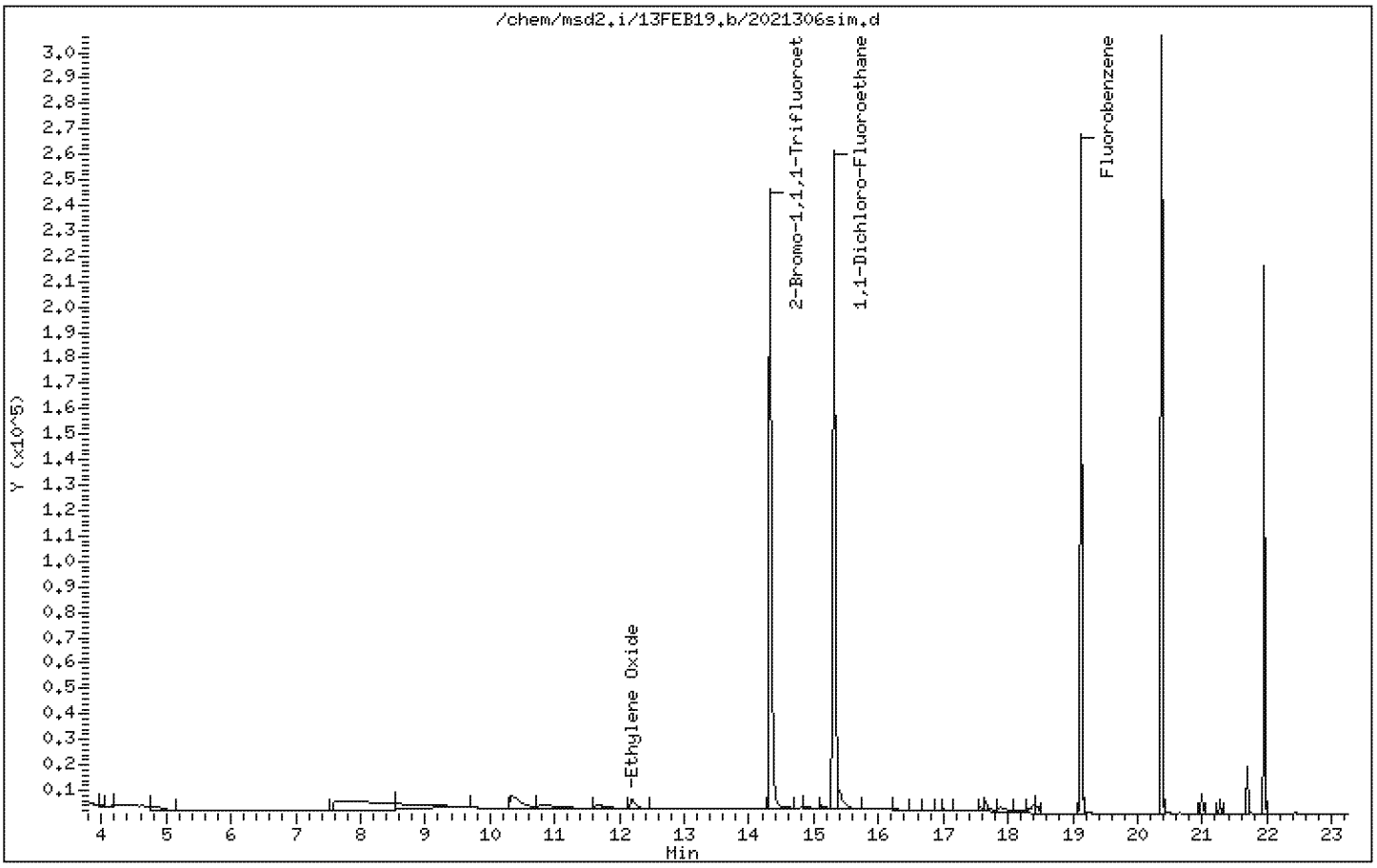
Instrument: msd2.i

Sample Info: 200ml #3018-601

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021306sim.d

Date : 13-FEB-2019 12:51

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3018-601

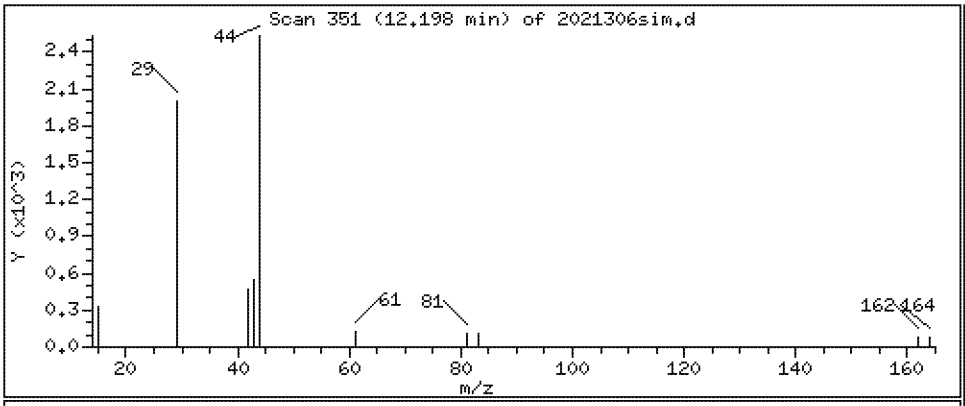
Operator: db

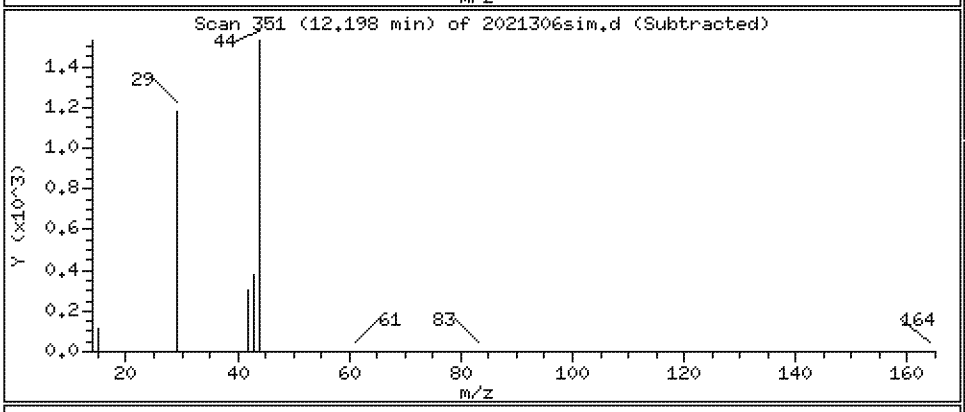
Column phase: RTX-624

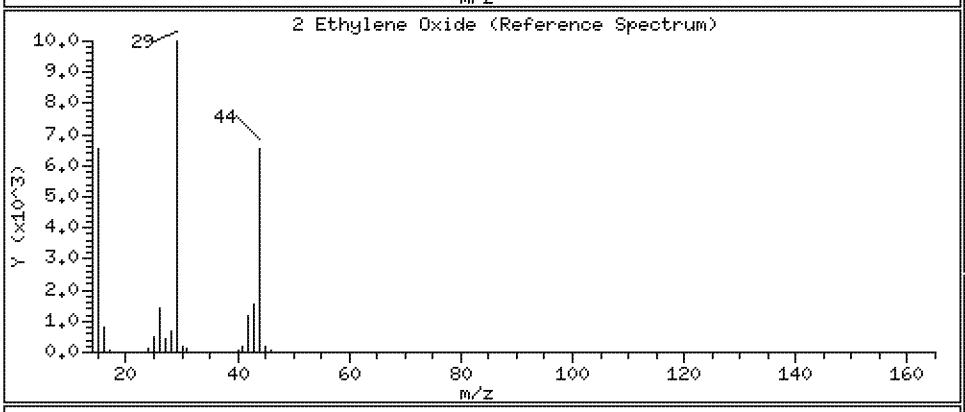
Column diameter: 0.32

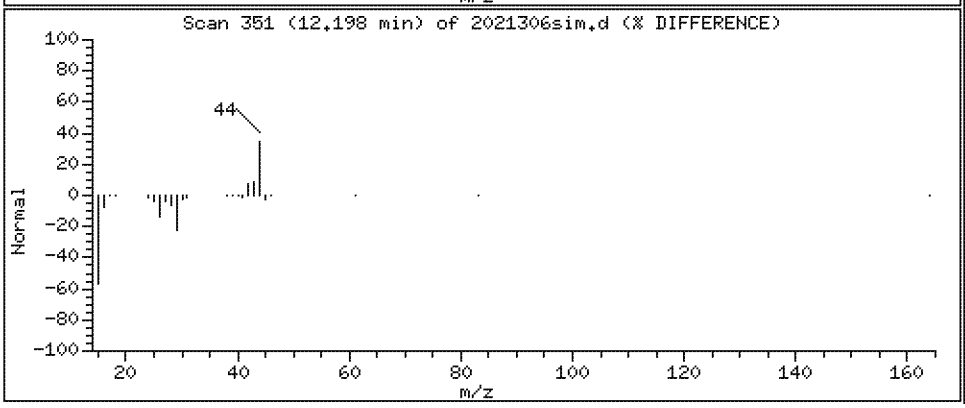
2 Ethylene Oxide

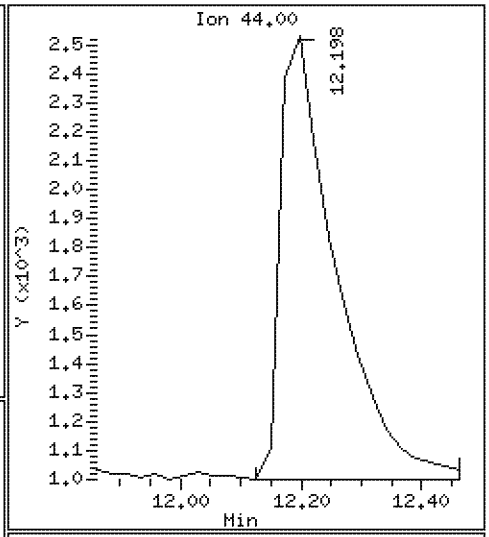
Concentration: 1.000 PPBV

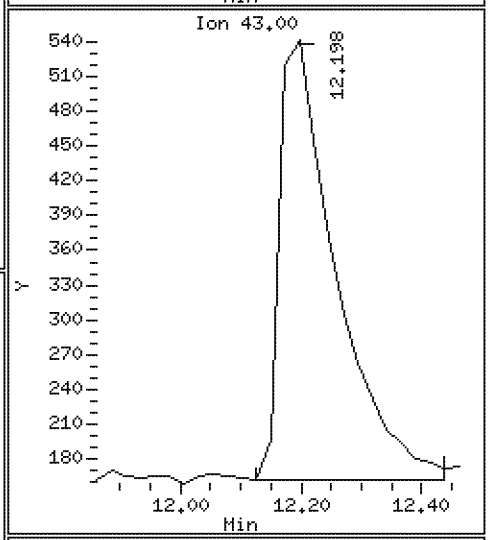


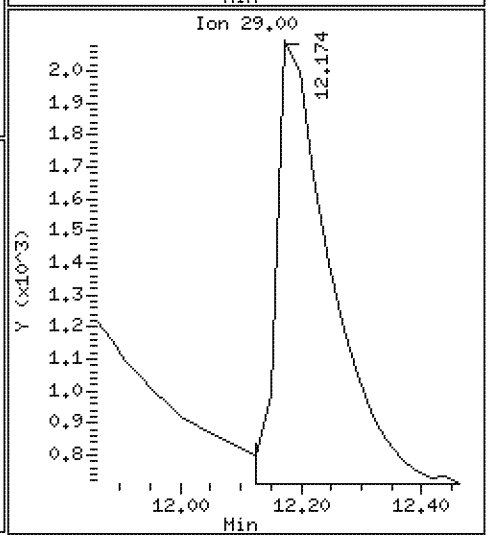












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021307sim.d
Lab Smp Id: ICAL Level 12
Inj Date : 13-FEB-2019 13:28
Operator : db Inst ID: msd2.i
Smp Info : 40ml #3018-608
Misc Info : 5.0ppbv (25ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 13:28 Cal File: 2021307sim.d
Als bottle: 3 Calibration Sample, Level: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.078	12.198	(0.788)	44	55225	5.00000	4.742	80.00- 120.00	100.00(T)
12.078	12.198	(0.788)	43	13768			0.00- 55.01	24.93
12.078	12.188	(0.788)	29	47010			59.74- 119.74	85.12
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	203788	6.00000	5.974	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	209094			73.24- 133.24	102.60
14.335	14.335	(0.936)	83	165328			63.25- 123.25	81.13
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	293877	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	96007			3.63- 63.63	32.67
15.319	15.319	(1.000)	61	91681			3.78- 63.78	31.20
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	397347	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	74063			0.00- 49.55	18.64

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021307sim.d
Lab Smp Id: ICAL Level 12
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 5.0ppbv (25ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	293877	-2.31
7 Fluorobenzene	420806	252484	589128	397347	-5.57

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/13FEB19.b/2021307sim.d

Date : 13-FEB-2019 13:28

Client ID:

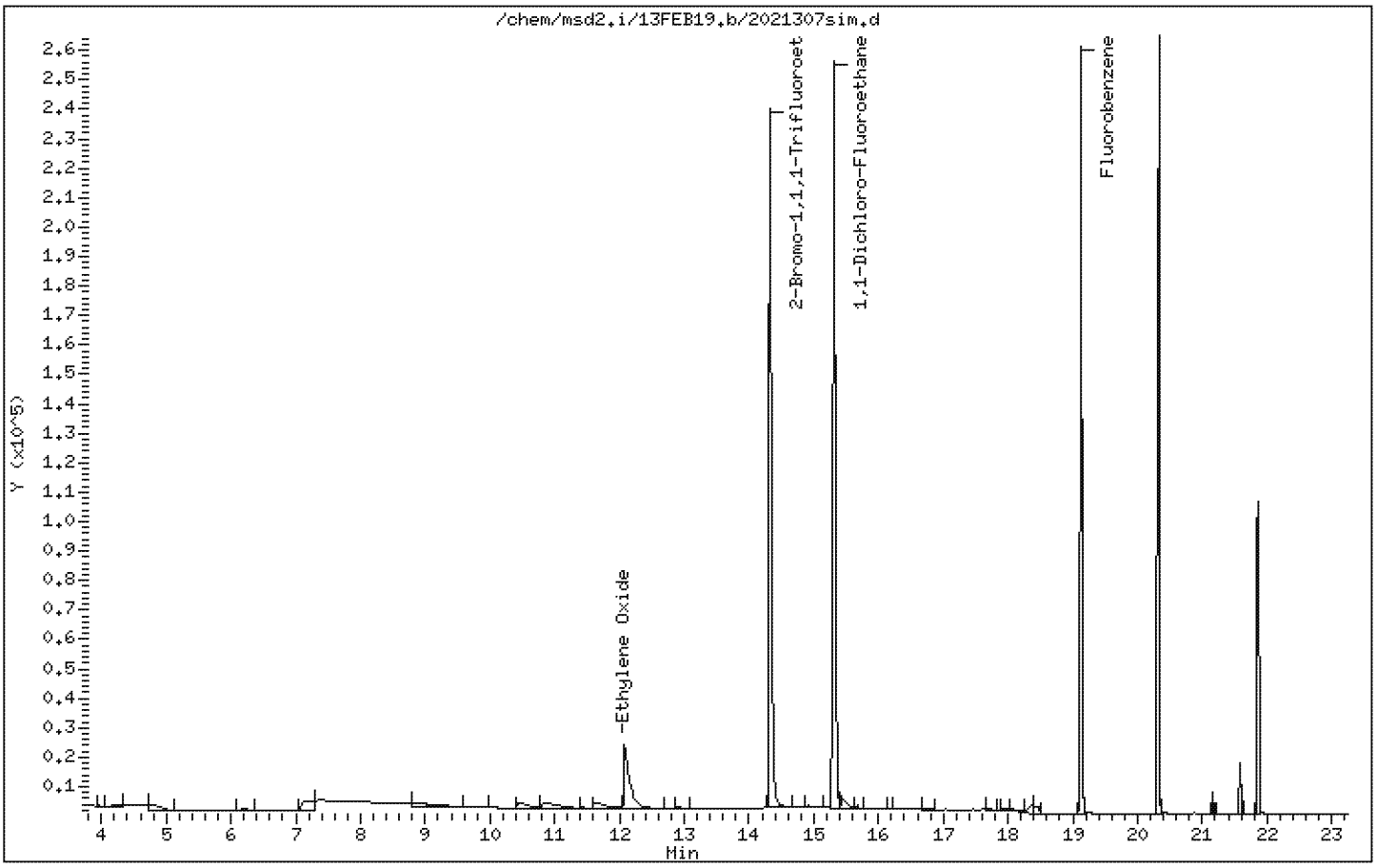
Instrument: msd2.i

Sample Info: 40ml #3018-608

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021307sim.d

Date : 13-FEB-2019 13:28

Client ID:

Instrument: msd2.i

Sample Info: 40ml #3018-608

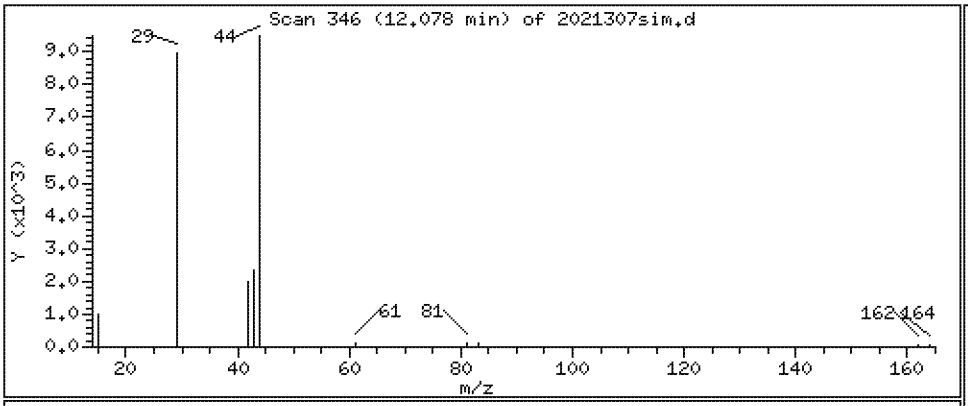
Operator: db

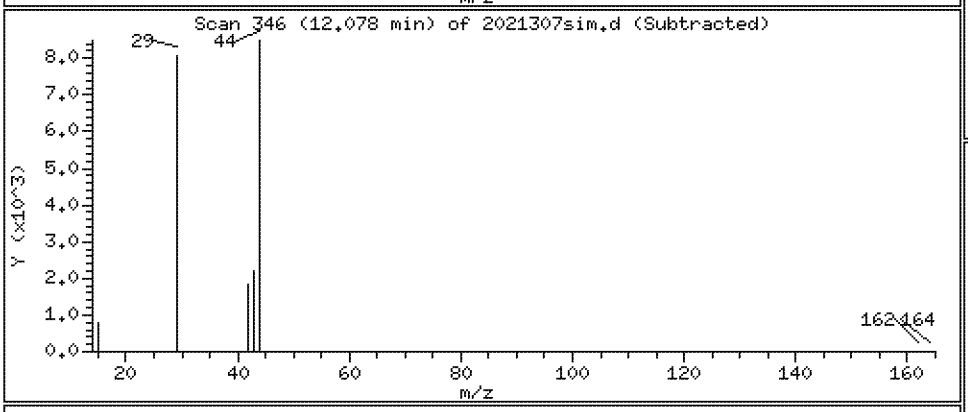
Column phase: RTX-624

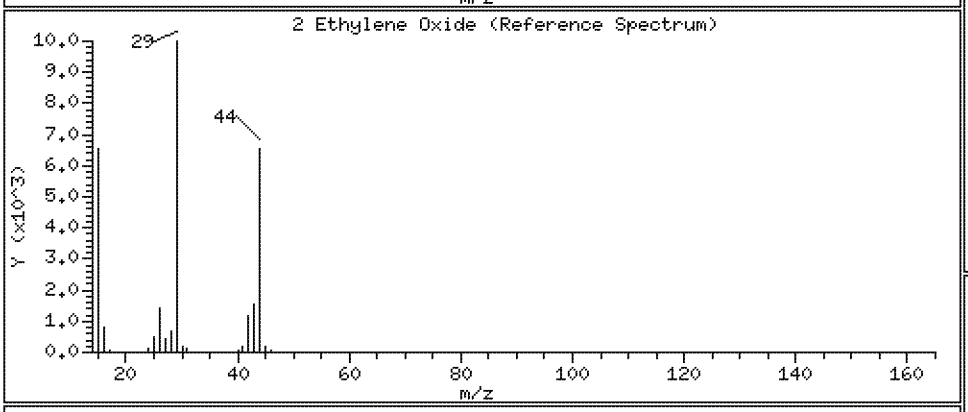
Column diameter: 0.32

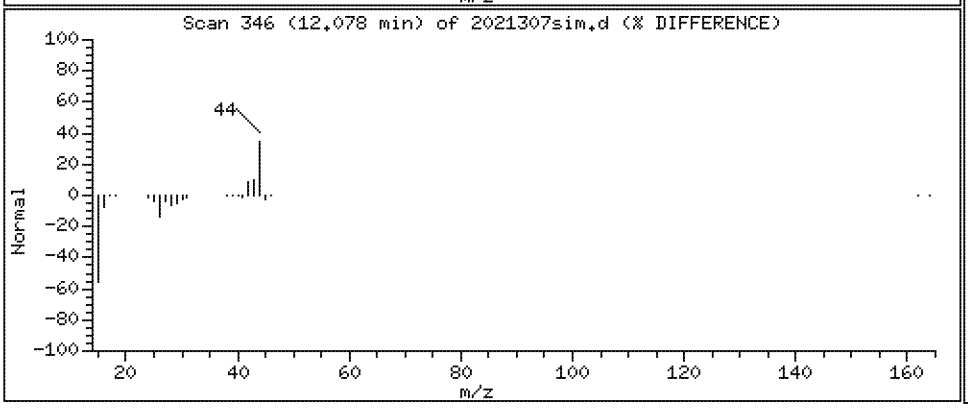
2 Ethylene Oxide

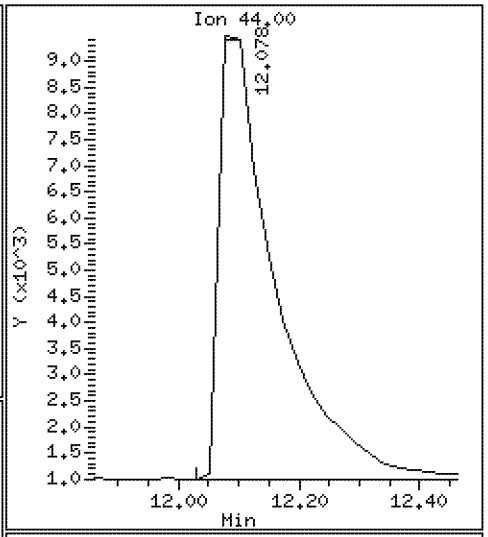
Concentration: 4.742 PPBV

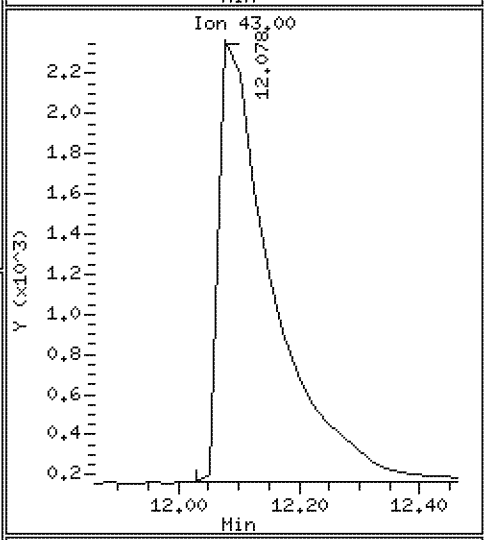


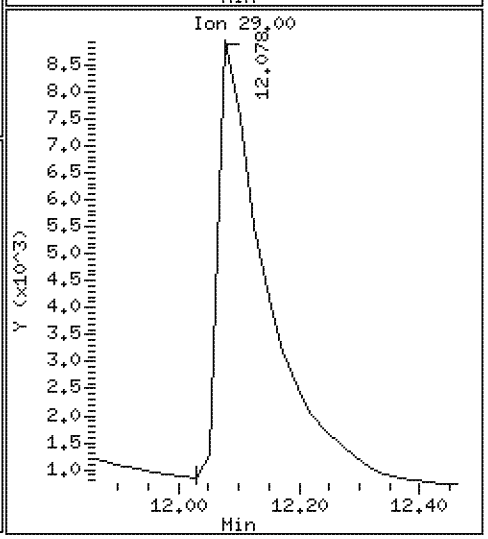












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021308sim.d
Lab Smp Id: ICAL Level 15
Inj Date : 13-FEB-2019 14:04
Operator : db Inst ID: msd2.i
Smp Info : 160ml #3018-516
Misc Info : 20ppbv (25ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 14:04 Cal File: 2021308sim.d
Als bottle: 3 Calibration Sample, Level: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.030	12.170	(0.785)	44	190674	20.0000	16.327	80.00- 120.00	100.00(TA)
12.030	12.170	(0.785)	43	47444			0.00- 55.01	24.88
12.006	12.158	(0.784)	29	162645			59.74- 119.74	85.30
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	213706	6.00000	6.022	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	220521			73.24- 133.24	103.19
14.335	14.335	(0.936)	83	174729			63.25- 123.25	81.76
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	305520	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	100259			3.63- 63.63	32.82
15.319	15.319	(1.000)	61	94756			3.78- 63.78	31.01
* 7 Fluorobenzene						CAS #: 462-06-6		
18.967	19.109	(1.000)	96	404112	6.00000		80.00- 120.00	100.00(TH)
18.967	19.093	(1.000)	70	73706			0.00- 49.55	18.24

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
H - Operator selected an alternate compound hit.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021308sim.d
Lab Smp Id: ICAL Level 15
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 20ppbv (25ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	305520	1.56
7 Fluorobenzene	420806	252484	589128	404112	-3.97

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.14	18.81	19.47	18.97	-0.89

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/13FEB19.b/2021308sim.d

Date : 13-FEB-2019 14:04

Client ID:

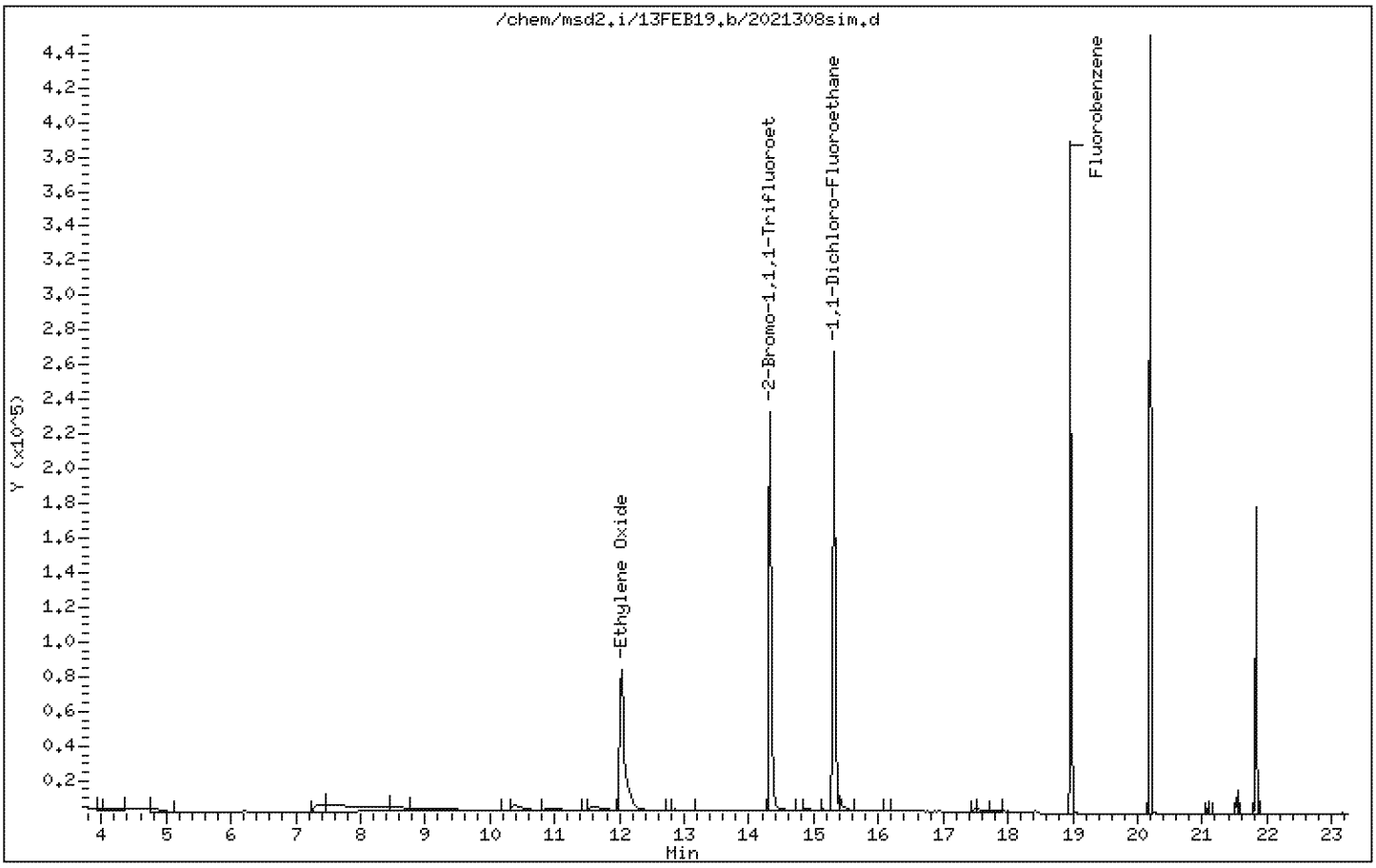
Instrument: msd2.i

Sample Info: 160ml #3018-516

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021308sim.d

Date : 13-FEB-2019 14:04

Client ID:

Instrument: msd2.i

Sample Info: 160ml #3018-516

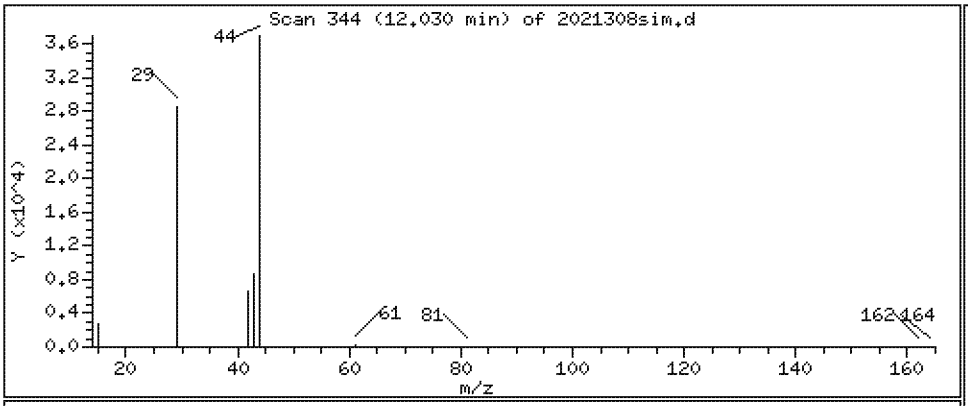
Operator: db

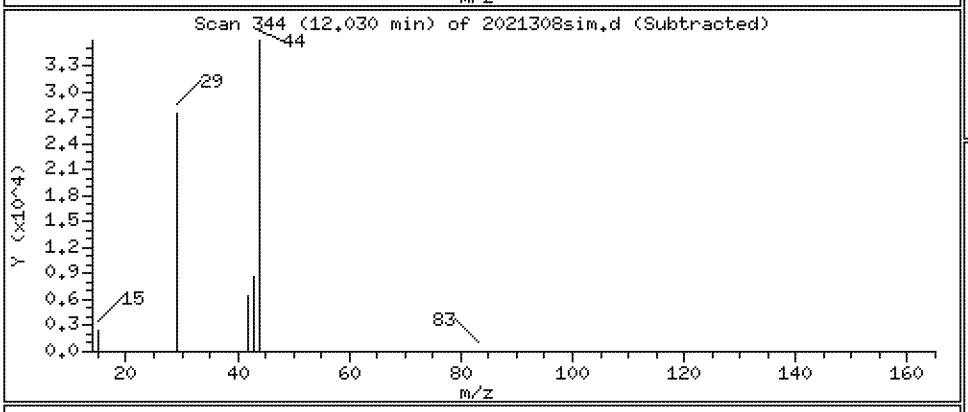
Column phase: RTX-624

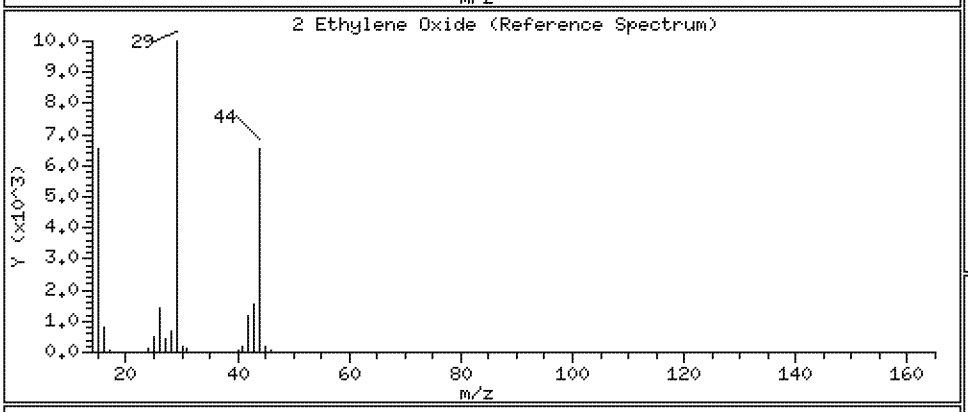
Column diameter: 0.32

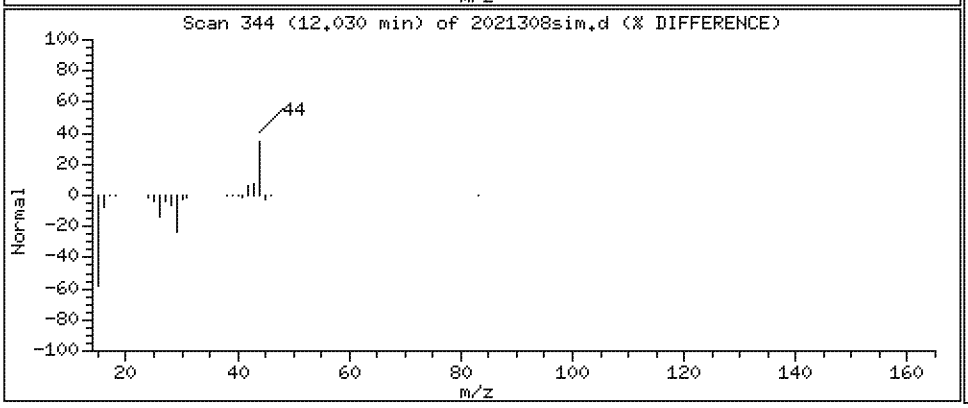
2 Ethylene Oxide

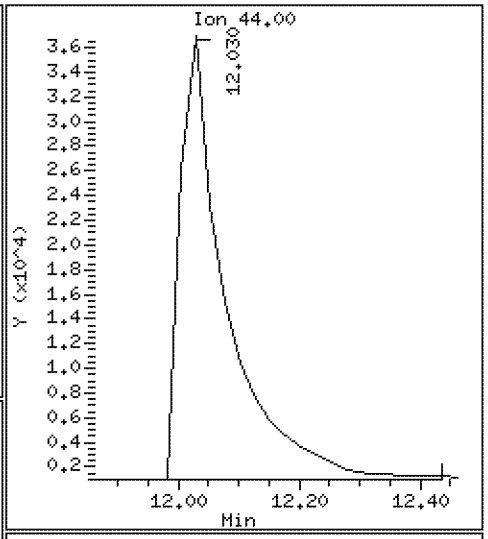
Concentration: 16.327 PPBV

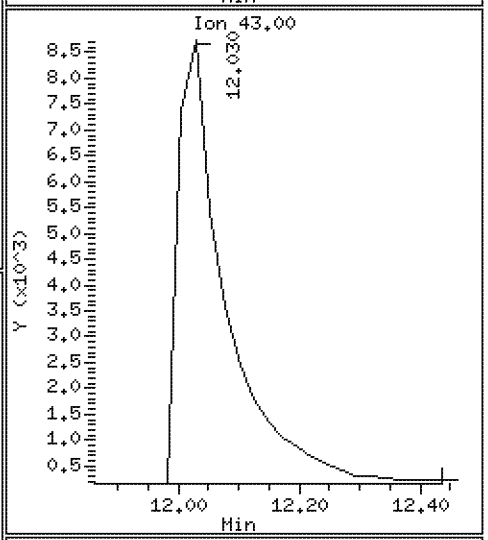


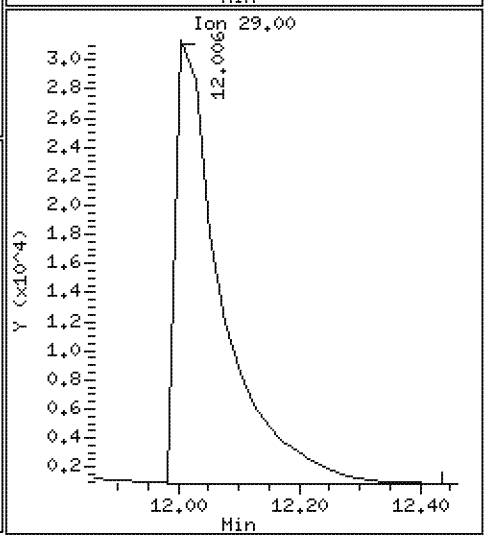












MSD-2 E.O. MDL SIM
200ml Loads
100ml # 3018-448 0.1ppbv → 0.05ppbv

ED_002475_00000140-00099

Report Date : 17-Oct-2018 15:05

US32APPTV002
METHOD DETECTION LIMIT SUMMARY REPORT

Method File: /chem/msd2.i/15oct18a.b/21811015eo.m/218s1015eo.m
Batch File: /chem/msd2.i/15oct18a.b
Inst ID: msd2.i

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08
FILENAME:	2101523sim	2101524sim	2101525sim	2101608sim	2101609sim	2101610sim	2101707sim	2101708sim
INJ.DATE:	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	17-OCT-2018	17-OCT-2018
INJ.TIME:	01:16	01:52	02:29	14:01	14:39	15:16	13:27	14:04

	Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08	AVG CONC	STD DEV	MDL (ppbv)	RL (ppbv)	MDL BLK (ppt)
	1 Acetaldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
	2 Ethylene Oxide	63.66	67.40	79.02	63.40	68.78	65.11	84.26	76.00	70.95	7.63	23.48	0.05	27.44
!$	3 2-Bromo-1,1,1-Trifluor	4949.55	4932.57	4952.54	4894.14	4893.07	4912.58	4837.64	4887.98	4907.51	37.98	113.88		
!*	4 1,1-Dichloro-Fluoroeth	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	0.00	0.00		
!*	5 Bromochloromethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!$	6 1,2-Dichloroethane-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!*	7 1,4-Difluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!$	8 Toluene-d8	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!*	9 Chlorobenzene-d5	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!$	10 4-Bromofluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		

Reviewer 1 Diane Bottom Date: 10/18/18
Reviewer 2 [illegible] Date: 10/18/18

MDL Verification - File 2101714 (0.04ppbv)

msD-2 E.O. Sim Blank
units - pptv

ED_002475_00000140-00100

Report Date : 18-OCT-2018 10:55 Page 1

US32APPTV002

SPIKED METHOD DETECTION LIMIT SUMMARY REPORT

Method File: /chem/msd2.i/17oct18.b/21811015eo.m/218s1015eo.m
Batch File: /chem/msd2.i/17oct18.b
Instrument Names: msd2.i
Student T 2.998 for 8 Replicates with 99% Confidence

Spiked ID(s) Spiked Vol(s)

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08
FILENAME:	2101520simEPALB	2101521simEPALB	2101522simEPALB	2101605simEPALB	2101606simEPALB	2101607simEPALB	2101705simEPALB	2101706simEPALB
INJ.DATE:	15-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	17-OCT-2018	17-OCT-2018
INJ.TIME:	23:25	00:02	00:39	12:09	12:47	13:25	12:12	12:50

pptv

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08	AVG CONC	STD DEV	SPK AMT	RL	RATIO	MDL	
1 Ethylene Oxide	0.000000	0.000000	23.59	13.27	13.22	27.44	20.00	17.19	14.34	10.08	0.000000	20.00	0.475	30.21	Ratio 1 to 20 Fai
$ 2 2-Bromo-1,1,1-Trifluoroethane	4955.00	4953.90	4936.00	4896.30	4866.60	4911.20	4839.60	4829.40	4898.50	49.42	0.000000	20.00	33.06	148.16	
* 3 1,1-Dichloro-Fluoroethane	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	0.000000	0.000000	20.00	1.00	0.000000	

Reviewer 1 Diane Bates Date: 10/18/18
Reviewer 2 [illegible] Date: 10/18/18

MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	CCV		
Lab ID:	1902323A-05A	**Date/Time Analyzed:**	2/22/19 10:51 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2022203sim

Compound	CAS#	%Recovery
Ethylene Oxide	75-21-8	76

D: Analyte not within the DoD scope of accreditation.

Report Date: 22-Feb-2019 11:27

US32APPTV002

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd2.i Injection Date: 22-FEB-2019 10:51
Lab File ID: 2022203sim.d Init. Cal. Date(s): 13-FEB-2019 14-FEB-2019
Analysis Type: AIR Init. Cal. Times: 11:01 12:10
Lab Sample ID: CCV Quant Type: ISTD
Method: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m

COMPOUND	RRF / AMOUNT	RF1	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
2 Ethylene Oxide	0.22934	0.17429	0.010	24.00628	30.00000	Averaged
$ 3 2-Bromo-1,1,1-Trifluoroetha	0.69696	0.66983	0.010	3.89270	30.00000	Averaged

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022203sim.d
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 22-FEB-2019 10:51
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml #3018-601
Misc Info : 1.0ppbv(1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 12 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.174	12.162	(0.795)	44	7102	1.00000	0.7599	80.00- 120.00	100.00
12.174	12.162	(0.795)	43	1813			0.00- 55.01	25.54
12.174	12.154	(0.795)	29	5517			59.74- 119.74	77.69
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	163772	6.00000	5.766	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	167296			73.24- 133.24	102.15
14.335	14.335	(0.936)	83	121801			63.25- 123.25	74.37
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	244500	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	79944			3.63- 63.63	32.70
15.319	15.319	(1.000)	61	69257			3.78- 63.78	28.33
* 7 Fluorobenzene						CAS #: 462-06-6		
19.119	19.103	(1.000)	96	350447	6.00000		80.00- 120.00	100.00
19.119	19.093	(1.000)	70	64735			0.00- 49.55	18.47

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022203sim.d
Lab Smp Id: CCV
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

Calibration Date: 22-FEB-2019
Calibration Time: 10:51
Client Smp ID: CCV
Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	244500	0.00
7 Fluorobenzene	350447	210268	490626	350447	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.12	18.79	19.45	19.12	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/22FEB19.b/2022203sim.d

Date : 22-FEB-2019 10:51

Client ID: CCV

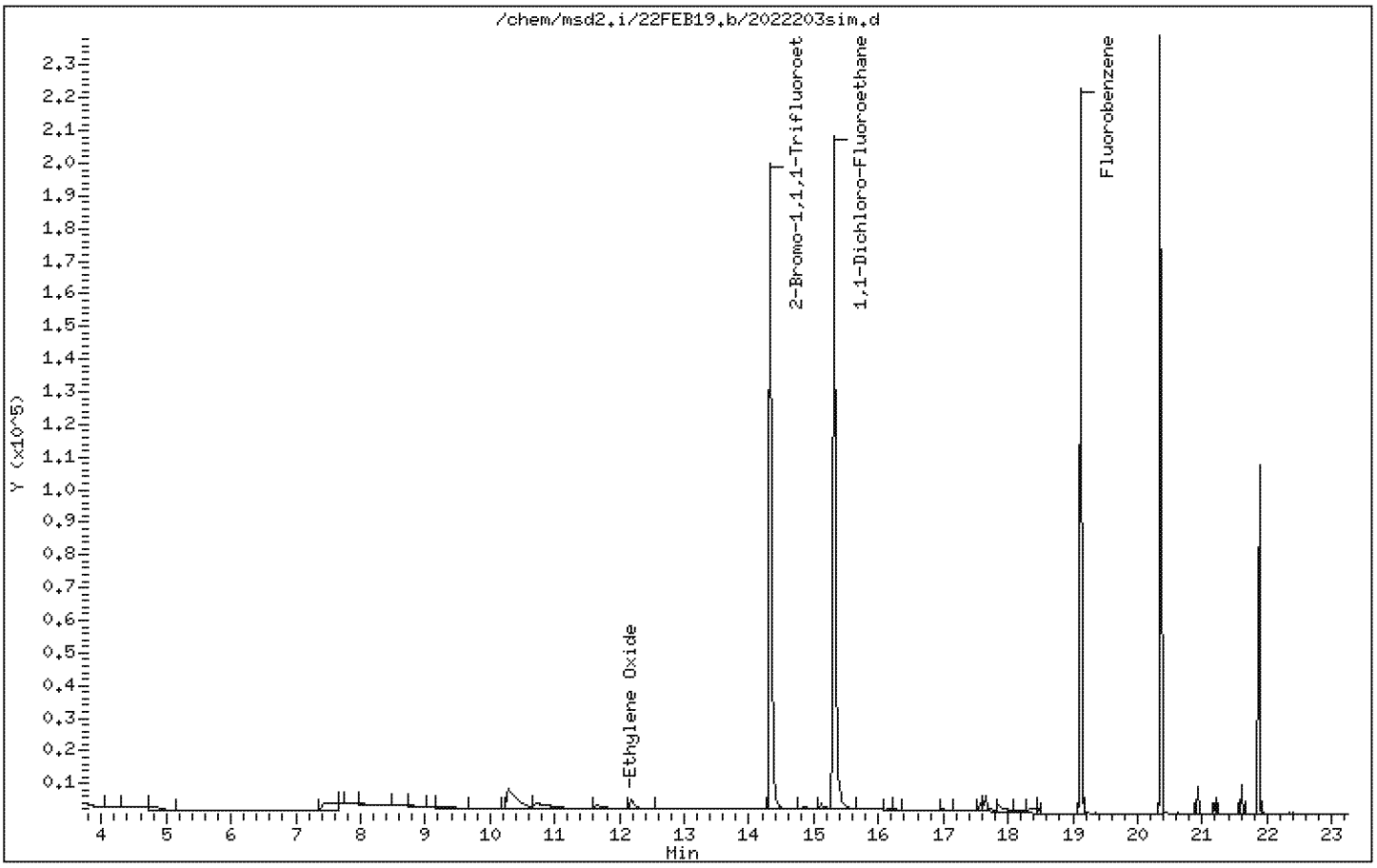
Instrument: msd2.i

Sample Info: 200ml #3018-601

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/22FEB19.b/2022203sim.d

Date : 22-FEB-2019 10:51

Client ID: CCV

Instrument: msd2.i

Sample Info: 200ml #3018-601

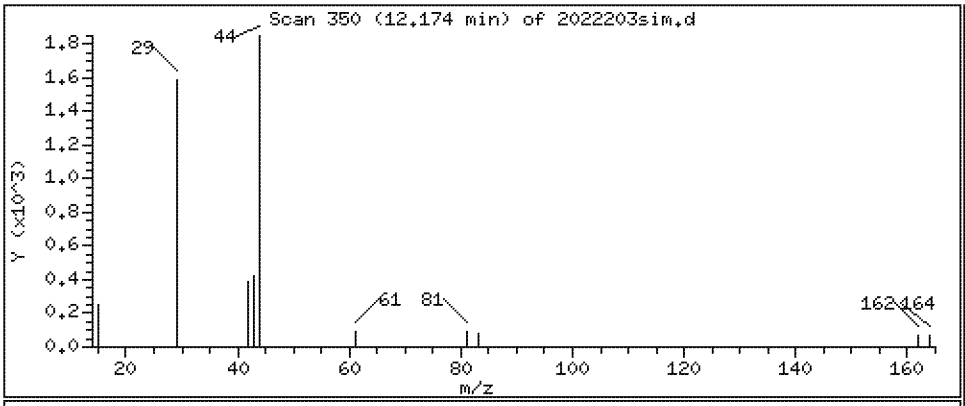
Operator: mjb

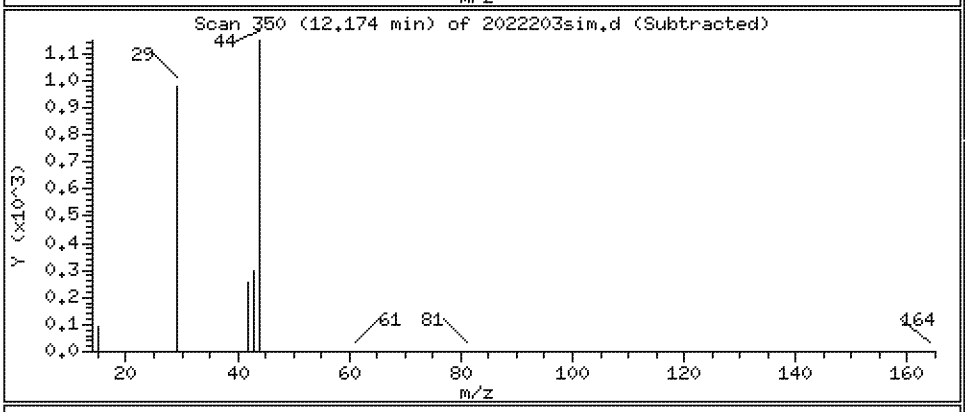
Column phase: RTX-624

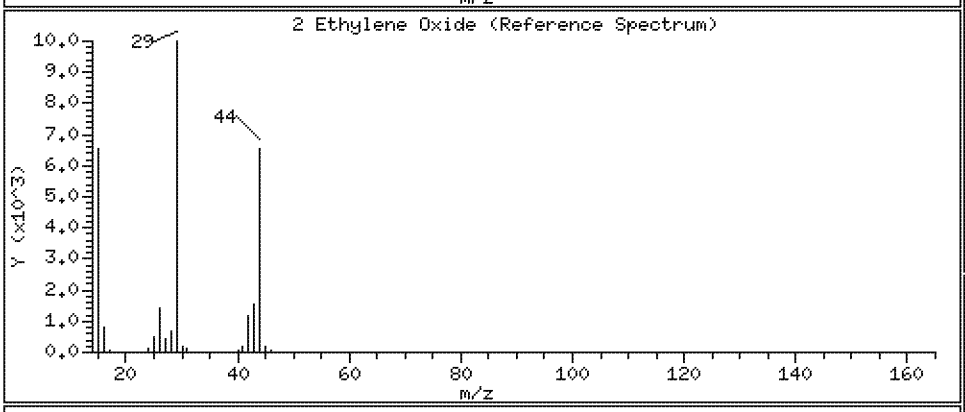
Column diameter: 0.32

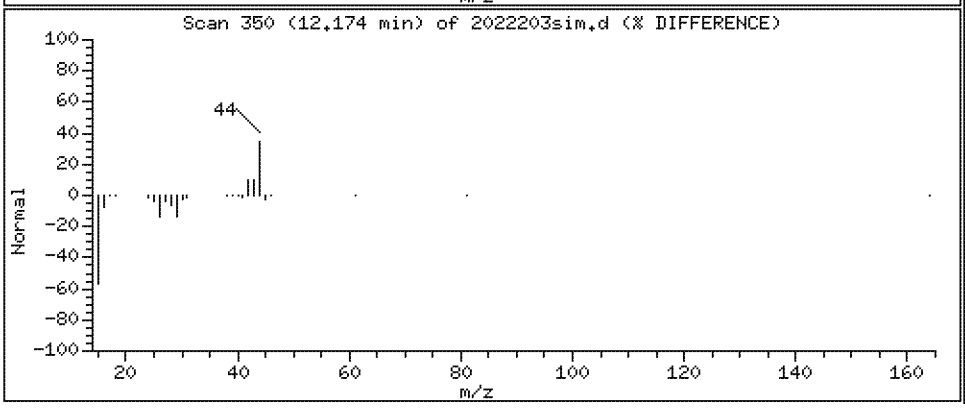
2 Ethylene Oxide

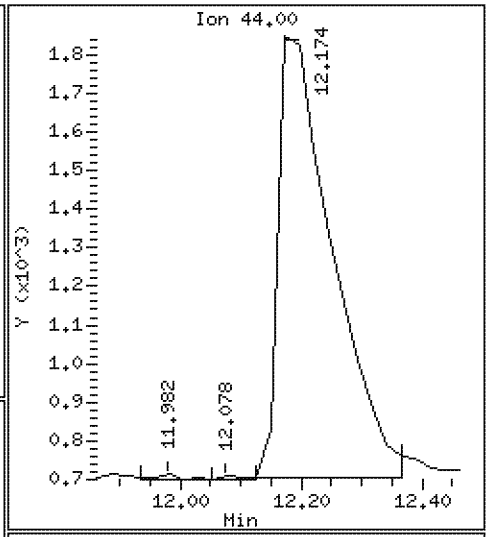
Concentration: 0.7599 PPBV

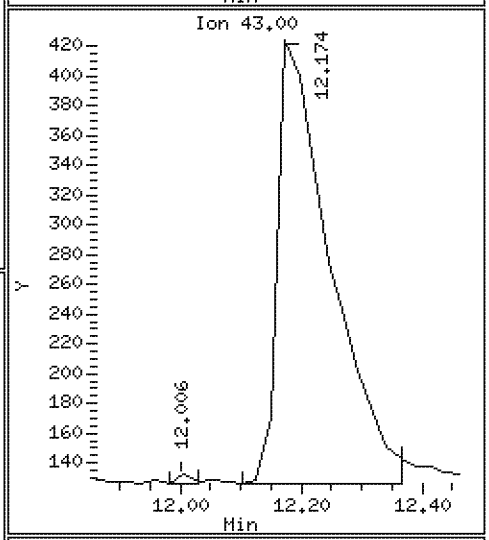


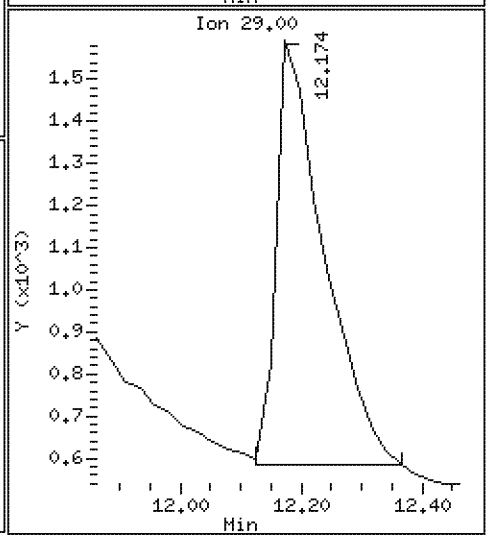












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	LCS		
Lab ID:	1902323A-06A	**Date/Time Analyzed:**	2/22/19 11:28 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2022204sim

Compound	CAS#	%Recovery
Ethylene Oxide	75-21-8	92

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 22FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id: LCS
Client Smp ID: LCS
Level: LOW
Operator: mjb
Data Type: MS DATA
SampleType: LCS
SpikeList File: LCS.spk
Quant Type: ISTD
Sublist File: eocrv.sub
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
2 Ethylene Oxide	1.000	0.9216	92.16

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.769	96.15

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022204sim.d
Lab Smp Id: LCS Client Smp ID: LCS
Inj Date : 22-FEB-2019 11:28
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml #3018-613
Misc Info : 1.0ppbv(1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 11 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.174	12.162	(0.795)	44	8903	0.92159	0.9216	80.00- 120.00	100.00
12.174	12.162	(0.795)	43	2156			0.00- 55.01	24.22
12.174	12.154	(0.795)	29	7190			59.74- 119.74	80.76
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	169359	5.76885	5.769	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	173039			73.24- 133.24	102.17
14.335	14.335	(0.936)	83	126820			63.25- 123.25	74.88
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	252734	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	82919			3.63- 63.63	32.81
15.319	15.319	(1.000)	61	71814			3.78- 63.78	28.41
* 7 Fluorobenzene						CAS #: 462-06-6		
19.119	19.103	(1.000)	96	389441	6.00000		80.00- 120.00	100.00
19.119	19.093	(1.000)	70	72398			0.00- 49.55	18.59

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022204sim.d
Lab Smp Id: LCS
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

Calibration Date: 22-FEB-2019
Calibration Time: 10:51
Client Smp ID: LCS
Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	252734	3.37
7 Fluorobenzene	350447	210268	490626	389441	11.13

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.12	18.79	19.45	19.12	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/22FEB19.b/2022204sim.d

Date : 22-FEB-2019 11:28

Client ID: LCS

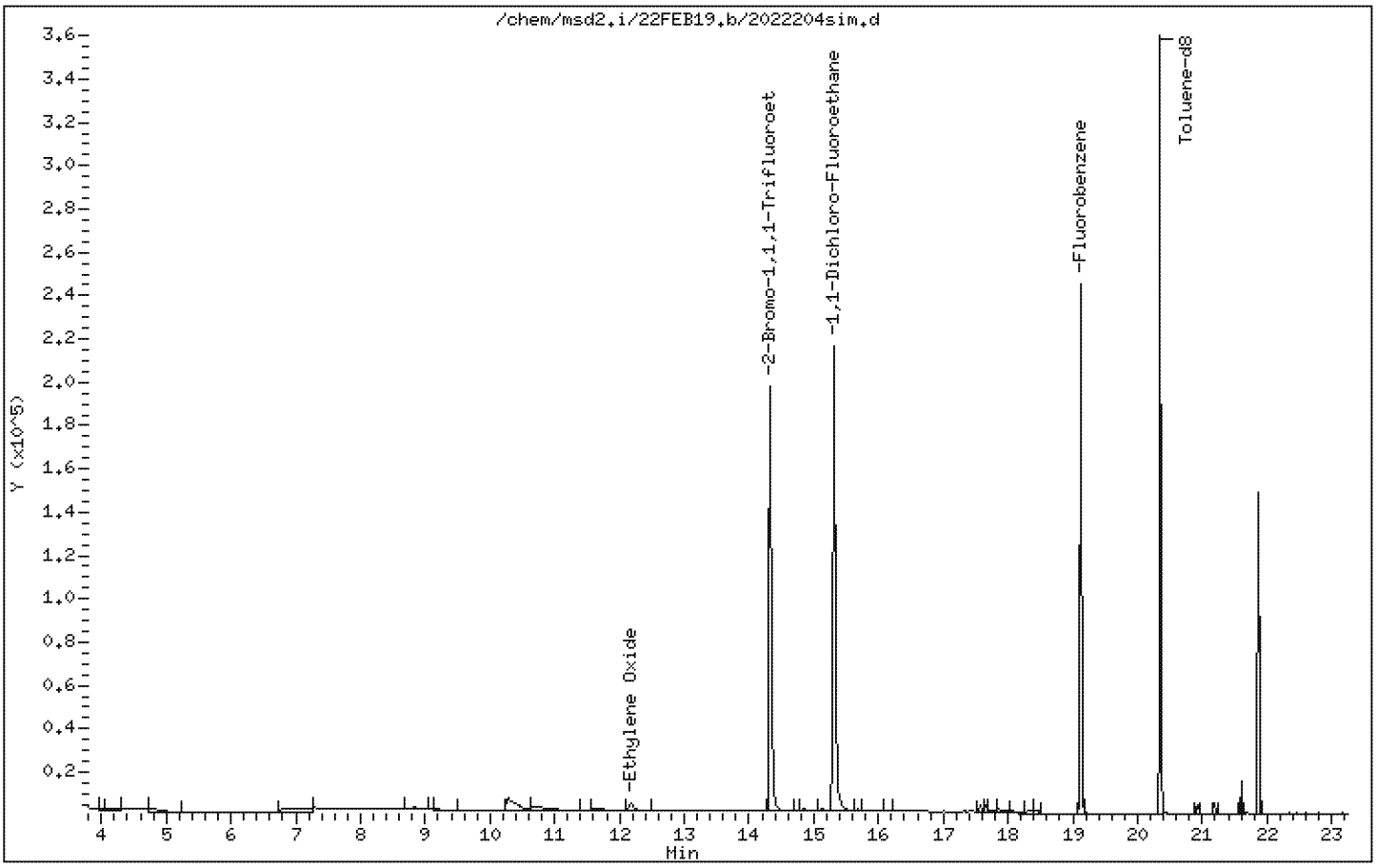
Instrument: msd2.i

Sample Info: 200ml #3018-613

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/22FEB19.b/2022204sim.d

Date : 22-FEB-2019 11:28

Client ID: LCS

Instrument: msd2.i

Sample Info: 200ml #3018-613

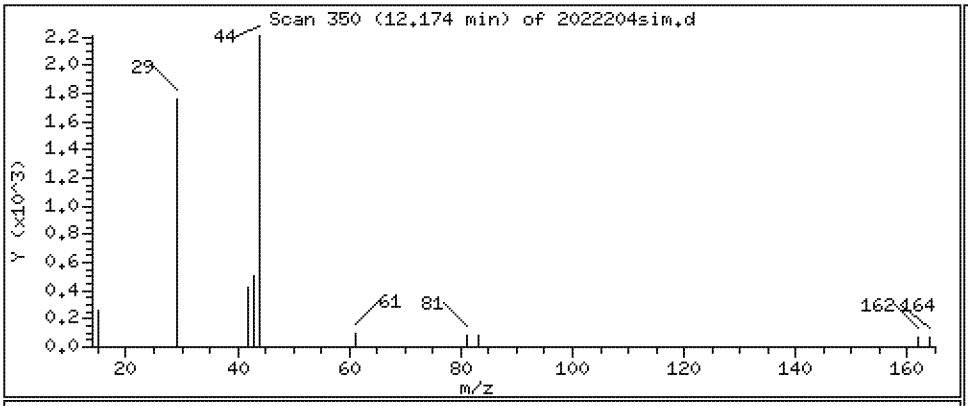
Operator: mjb

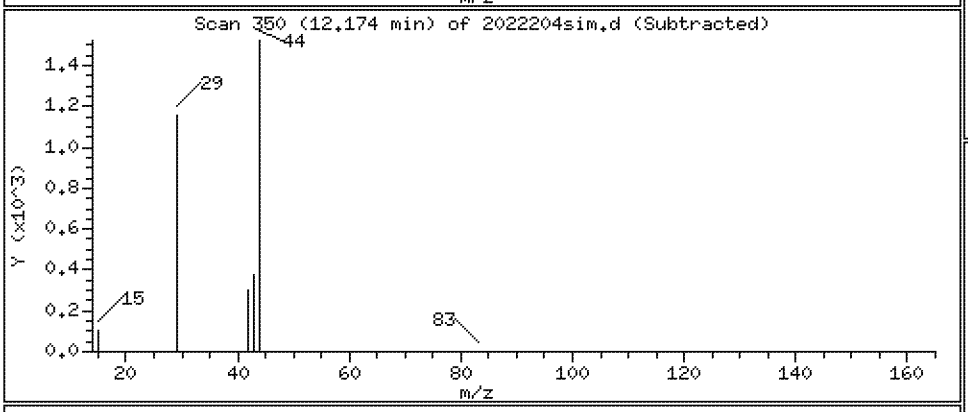
Column phase: RTX-624

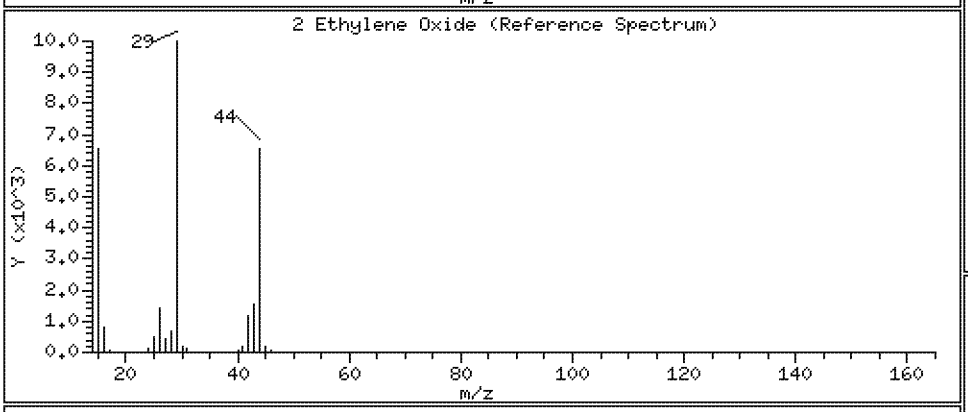
Column diameter: 0.32

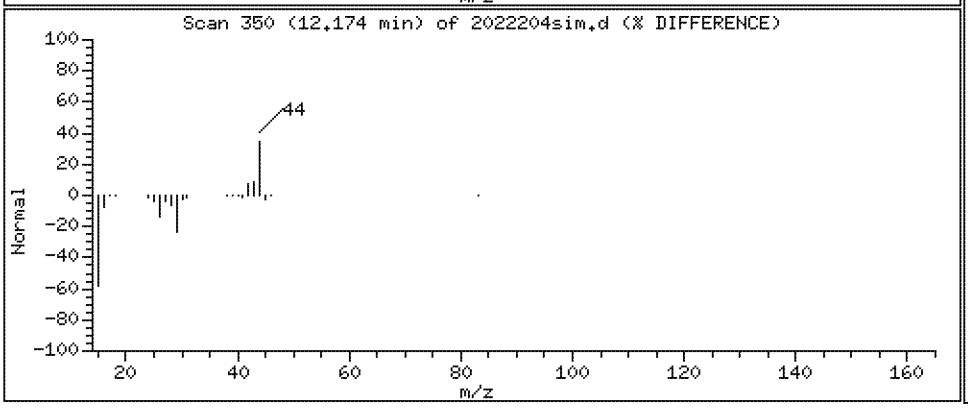
2 Ethylene Oxide

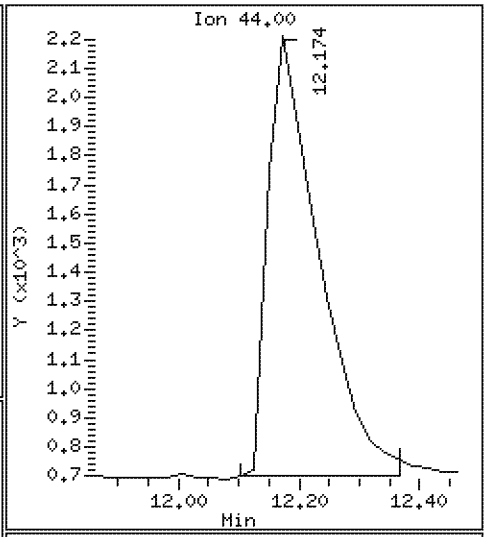
Concentration: 0.9216 PPBV

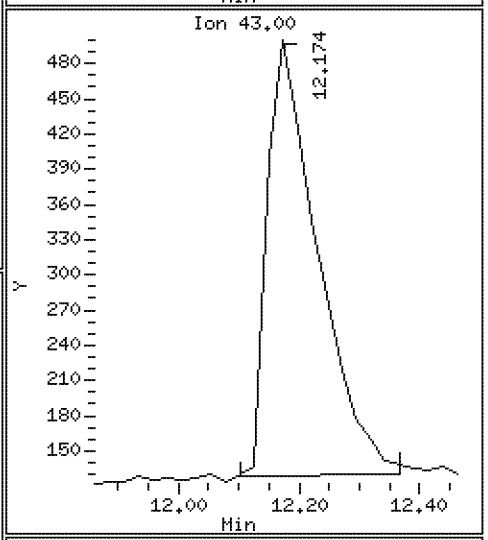


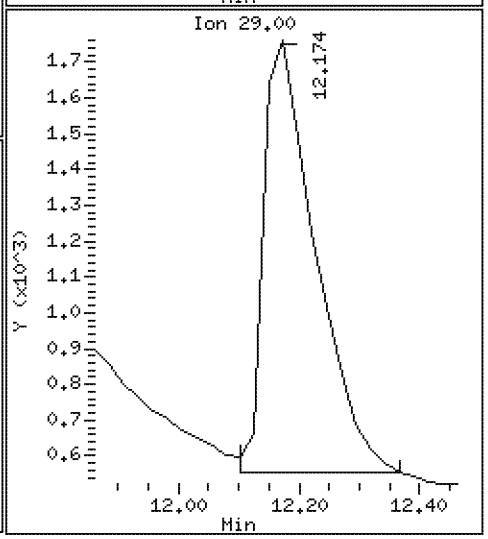












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	LCSD		
Lab ID:	1902323A-06AA	**Date/Time Analyzed:**	2/22/19 12:06 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2022205sim

Compound	CAS#	%Recovery
Ethylene Oxide	75-21-8	93

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

Report Date: 27-Feb-2019 14:53

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 22FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id: LCSD
Client Smp ID: LCSD
Level: LOW
Operator: mjb
Data Type: MS DATA
SampleType: LCSD
SpikeList File: LCS.spk
Quant Type: ISTD
Sublist File: eocrv.sub
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
2 Ethylene Oxide	1.000	0.9291	92.91

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.921	98.68

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/22FEB19.b/2022205sim.d
Lab Smp Id: LCSD Client Smp ID: LCSD
Inj Date : 22-FEB-2019 12:06
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml #3018-613
Misc Info : 1.0ppbv(1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/22FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 22-Feb-2019 11:27 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 11 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.174	12.162	(0.795)	44	8758	0.92910	0.9291	80.00- 120.00	100.00
12.174	12.162	(0.795)	43	2242			0.00- 55.01	25.60
12.174	12.154	(0.795)	29	7005			59.74- 119.74	79.98
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	169616	5.92108	5.921	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	173603			73.24- 133.24	102.35
14.335	14.335	(0.936)	83	126834			63.25- 123.25	74.78
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	246610	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	80637			3.63- 63.63	32.70
15.319	15.319	(1.000)	61	70380			3.78- 63.78	28.54
* 7 Fluorobenzene						CAS #: 462-06-6		
18.967	19.103	(1.000)	96	303548	6.00000		80.00- 120.00	100.00(H)
18.967	19.093	(1.000)	70	55627			0.00- 49.55	18.33

QC Flag Legend

H - Operator selected an alternate compound hit.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2022205sim.d
Lab Smp Id: LCSD
Analysis Type: VOA
Quant Type: ISTD
Operator: mjb
Method File: /chem/msd2.i/22FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

Calibration Date: 22-FEB-2019
Calibration Time: 10:51
Client Smp ID: LCSD
Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	244500	146700	342300	246610	0.86
7 Fluorobenzene	350447	210268	490626	303548	-13.38

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.12	18.79	19.45	18.97	-0.79

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msd2.i/22FEB19.b/2022205sim.d

Date : 22-FEB-2019 12:06

Client ID: LCSD

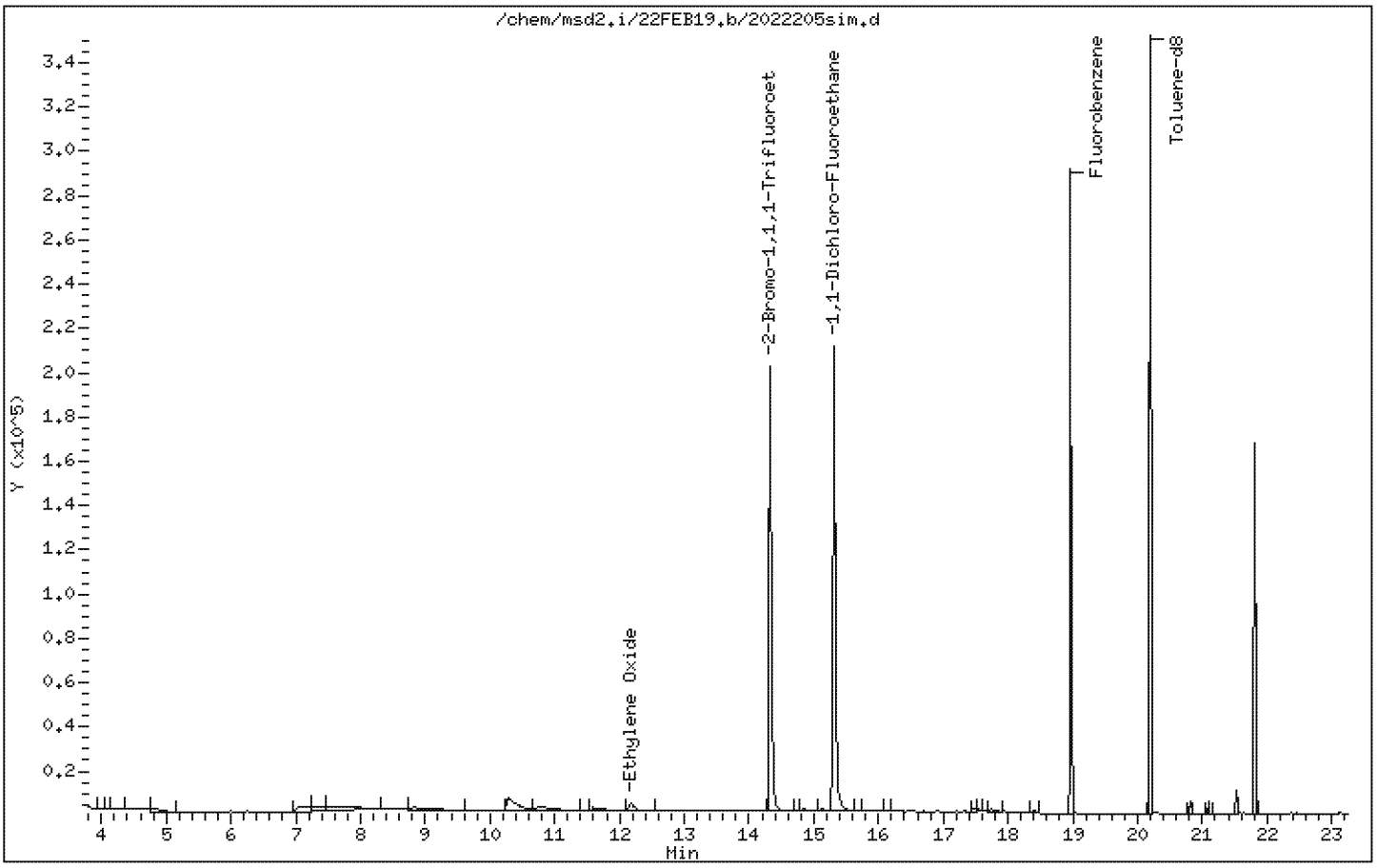
Instrument: msd2.i

Sample Info: 200ml #3018-613

Operator: mjb

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/22FEB19.b/2022205sim.d

Date : 22-FEB-2019 12:06

Client ID: LCSD

Instrument: msd2.i

Sample Info: 200ml #3018-613

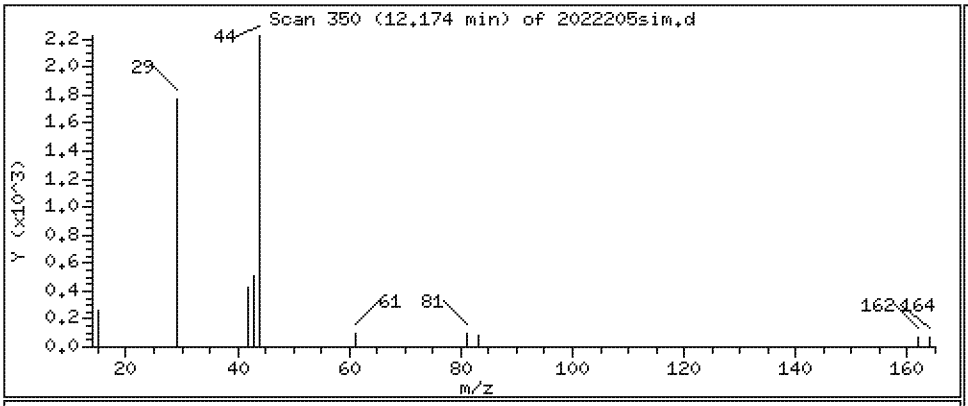
Operator: mjb

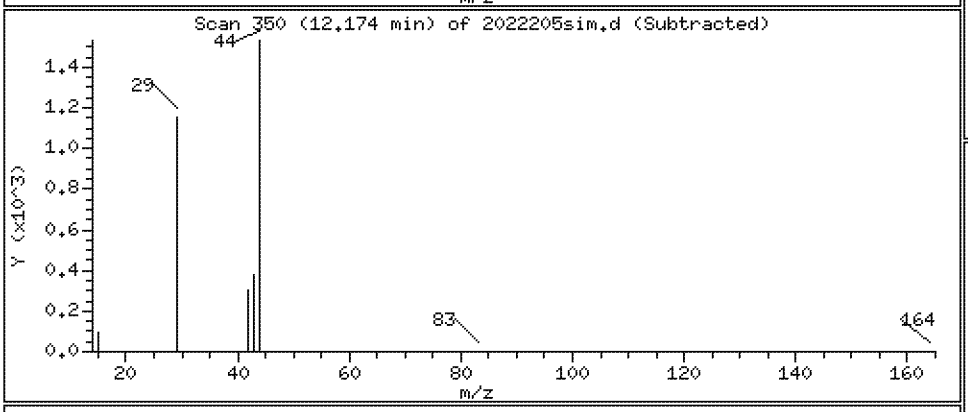
Column phase: RTX-624

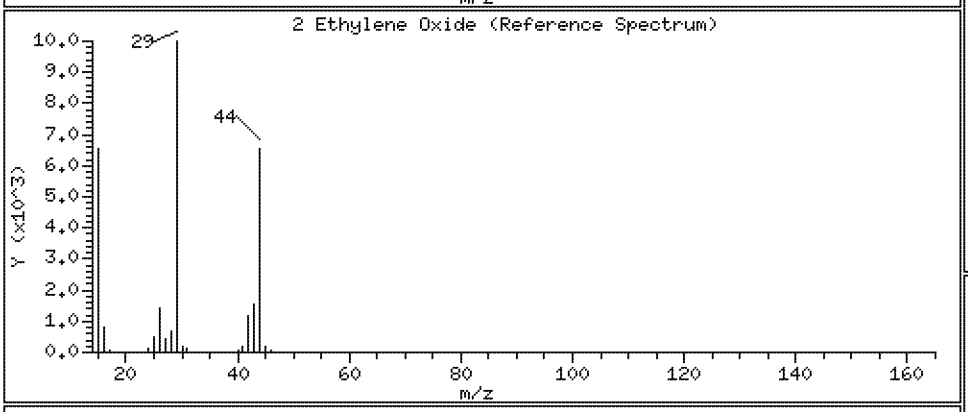
Column diameter: 0.32

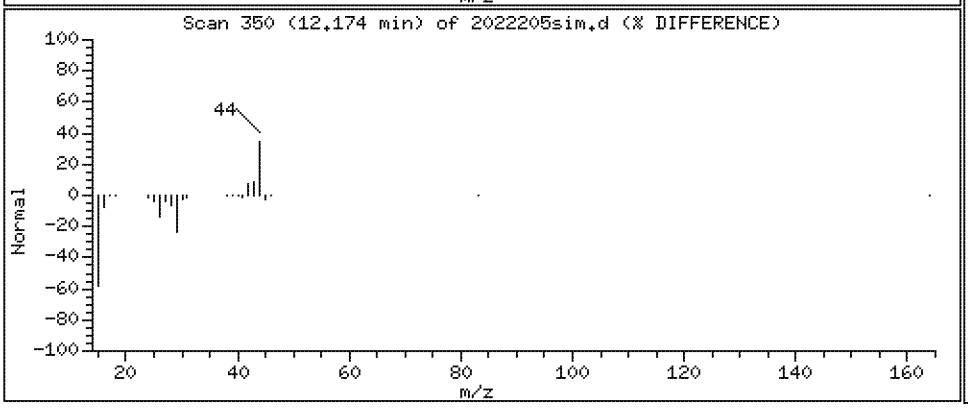
2 Ethylene Oxide

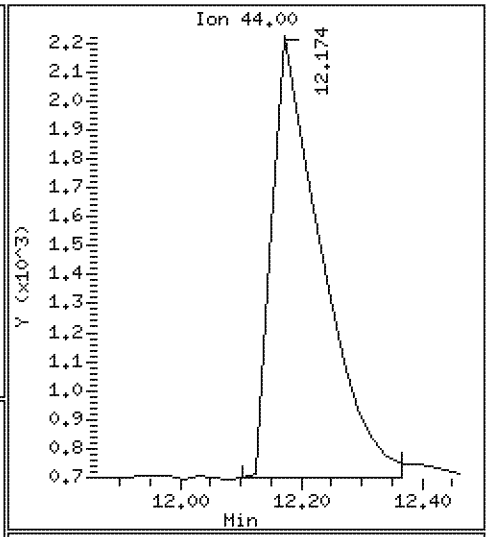
Concentration: 0.9291 PPBV

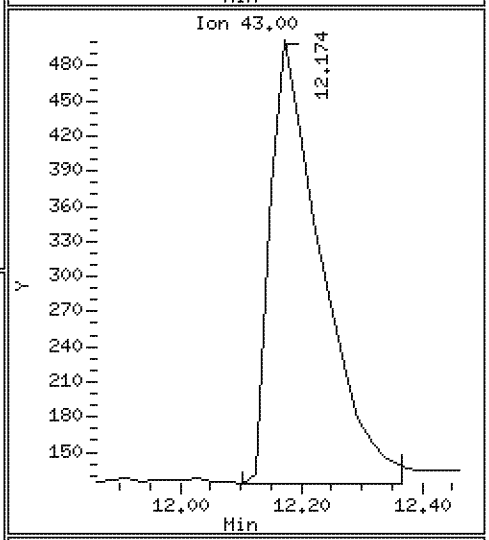


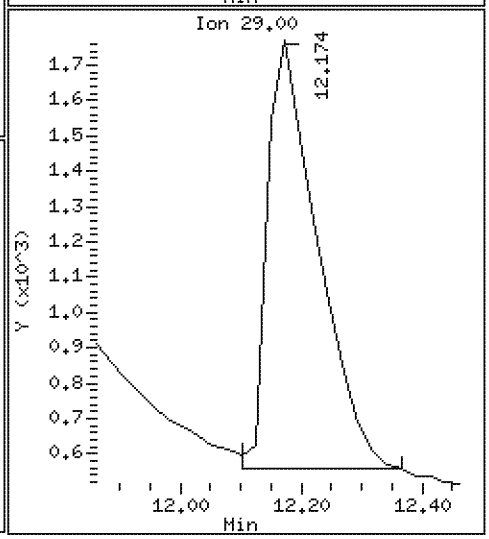












ED_002475_00000140-00120

MSD2

BFB verification of 176/174 ratio: (92448/94680)*100%= 97.64%					Method TO-15/TO-14
					SOP# 132
IS/S Std.#.	2810-905	Exp. Date:		5/9/19	Vacuum: NA

1,1-Dichloro-Flouroethene; 244500

Fluorobenzene: 350447

Please check all standards

Surrogate# 2810-905	Exp. Date:	5/9/19	Surrogate# NA	Exp. Date:	NA
CCV# 3018-601	Exp. Date:	3/1/19	LCS# 3	Exp. Date:	
CCV# NA	Exp. Date:	NA	LCS# NA	Exp. Date:	
CCV sp2# NA	Exp. Date:	NA	LCS sp2# NA	Exp. Date:	NA
CCV sp3# NA	Exp. Date:	NA	LCS sp3# NA	Exp. Date:	NA

Verified CCV vs ICAL mid-point(-40%): mjb

Method: 21910213eo.m / 21910213eo.m

Use	File #	Enter/Scan Sample IDs	Canister# or Std ID	Cart Pos.	Pressure	ml	DF	Verify Load	Loaded Init	Date Analyzed	Time Analyzed	Review Init	Comments
√	2022501	system Blank	34382	16	Humid	200ml	1.00	mjb	mjb	02/22/19	0911	mjb	
√	2022502	BFB	#2810-905	16	14ng	200ml	1.00	mjb	mjb	02/22/19	1013	mjb/hh	exp. 05/09/19. 0 out
√	2022503	CCV	#3018-601	12	1.0ppbv(1.0ppbv)	200ml	1.00	mjb	mjb	02/22/19	1051	mjb/hh	exp. 3/1/19; 0 out
√	2022504	LCS	#3018-613	11	1.0ppbv(1.0ppbv)	200ml	1.00	mjb	mjb	02/22/19	1128	mjb/hh	exp. 3/12/19 0 out
√	2022505	LCSD	#3018-613	11	1.0ppbv(1.0ppbv)	100ml	1.00	mjb	mjb	02/22/19	1206	mjb/hh	
X	2022506	CCV	#3084-41	10	0.25ppbv(0.5ppbv)	100ml	1.00	mjb	mjb	02/22/19	1305	mjb	exp. 5/16/19 Bad Standard
√	2022507	Lab Blank	34382	16	Humid	200ml	1.00	mjb	mjb	02/22/19	1342	mjb/hh	
√	2022508	CCV Test	3084-40	8	Humid	200ml	1.00	mjb	mjb	02/22/19	1432	mjb	exp. 5/16/19
√	2022509	system Blank	34382	16	Humid	200ml	1.00	mjb	mjb	02/22/19	1509	mjb	
√	2022510	1902413-02A	O0414	6	13.9 Hg->4.9 psi	200ml	2.48	gh	mjb	02/22/19	1644	mjb/hh	Green Dot, initial:4.8 final:4.5
√	2022511	1902323-01A	N1803	1	5.0 Hg->5 psi	200ml	1.61	gh	mjb	02/22/19	1722	mjb/hh	
√	2022512	1902323-01AA	N1803	1	5.0 Hg->5 psi	200ml	~~2.04~~	gh	mjb	02/22/19	1759	mjb/hh	D.F. = 1.61 transcription error
√	2022513	1902323-02A	6L1278	3	3.5 Hg->5 psi	200ml	1.52	gh	mjb	02/22/19	1836	mjb/hh	
√	2022514	1902323-03A	6L1209	4	6.0 Hg->5 psi	200ml	1.68	gh	mjb	02/22/19	1914	mjb/hh	
√	2022515	1902413-01A	O0328	5	6.7 Hg->5.2 psi	200ml	1.74	gh	mjb	02/22/19	1951	mjb/hh	
√	2022516	6L Cert	O0637	7	Humid	200ml	1.00	gh	mjb	02/22/19	2058	mjb/hh	
√	2022517	6L Cert	N2746	9	Humid	200ml	1.00	mjb	mjb	02/22/19	2137	mjb/hh	
√	2022518	6L Cert	N2816	13	Humid	200ml	1.00	mjb	mjb	02/22/19	2215	mjb/hh	
√	2022519	6L Cert	N0084	16	Humid	200ml	1.00	mjb	mjb	02/22/19	2252	mjb/hh	
√	2022520	6L Cert	N2764	1	Humid	200ml	1.00	mjb	gh	02/22/19	2329	mjb/hh	
√	2022521	6L Cert	O0445	3	Humid	200ml	1.00	mjb	gh	02/23/19	0006	mjb/hh	
√	2022522	6L Cert	1384	4	Humid	200ml	1.00	mjb	gh	02/23/19	0043	mjb/hh	
√	2022523	6L Cert	1621	5	Humid	200ml	1.00	mjb	gh	02/23/19	0120	mjb/hh	
√	2022524	6L Cert	N2800	7	Humid	200ml	1.00	mjb	gh	02/23/19	0157	mjb/hh	

MJB 2-25-19 Transcription error: File names incorrect; should have pre-fix 20222##.d

MJB 2/25/19

US32APPTV002

Data file : /chem/msd2.i/13FEB19.b/2021301.d
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 13-FEB-2019 09:35
Operator : db Inst ID: msd2.i
Smp Info : 200ml #2810-905;BFB;BFB
Misc Info : 14ng
Comment :
Method : /chem/msd2.i/13FEB19.b/bfbrtx1.m
Meth Date : 02-Nov-2018 10:50 ushn Quant Type: ESTD
Cal Date : Cal File:
Als bottle: 16 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * Uf * Vf * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Uf	1.00000	ng unit correction factor
Vf	1.00000	Volumetric correction factor

Cpnd Variable Local Compound Variable

RT	EXP RT	DLT RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
21.821	21.821	0.000	95	105872			100.00- 100.00	100.00
21.821	29.232	-7.411	50	23723			8.00- 40.00	22.41
21.821	29.232	-7.411	75	47144			30.00- 66.00	44.53
21.821	29.232	-7.411	96	7051			5.00- 9.00	6.66
21.821	29.232	-7.411	173	1013			0.00- 1.99	0.97
21.821	29.232	-7.411	174	104417			50.00- 120.00	98.63
21.821	29.232	-7.411	175	7374			4.00- 9.00	7.06
21.821	29.232	-7.411	176	100343			93.00- 101.00	96.10
21.821	29.232	-7.411	177	6331			5.00- 9.00	6.31

Data File: /chem/msd2.i/13FEB19.b/2021301.d

Date : 13-FEB-2019 09:35

Client ID: BFB

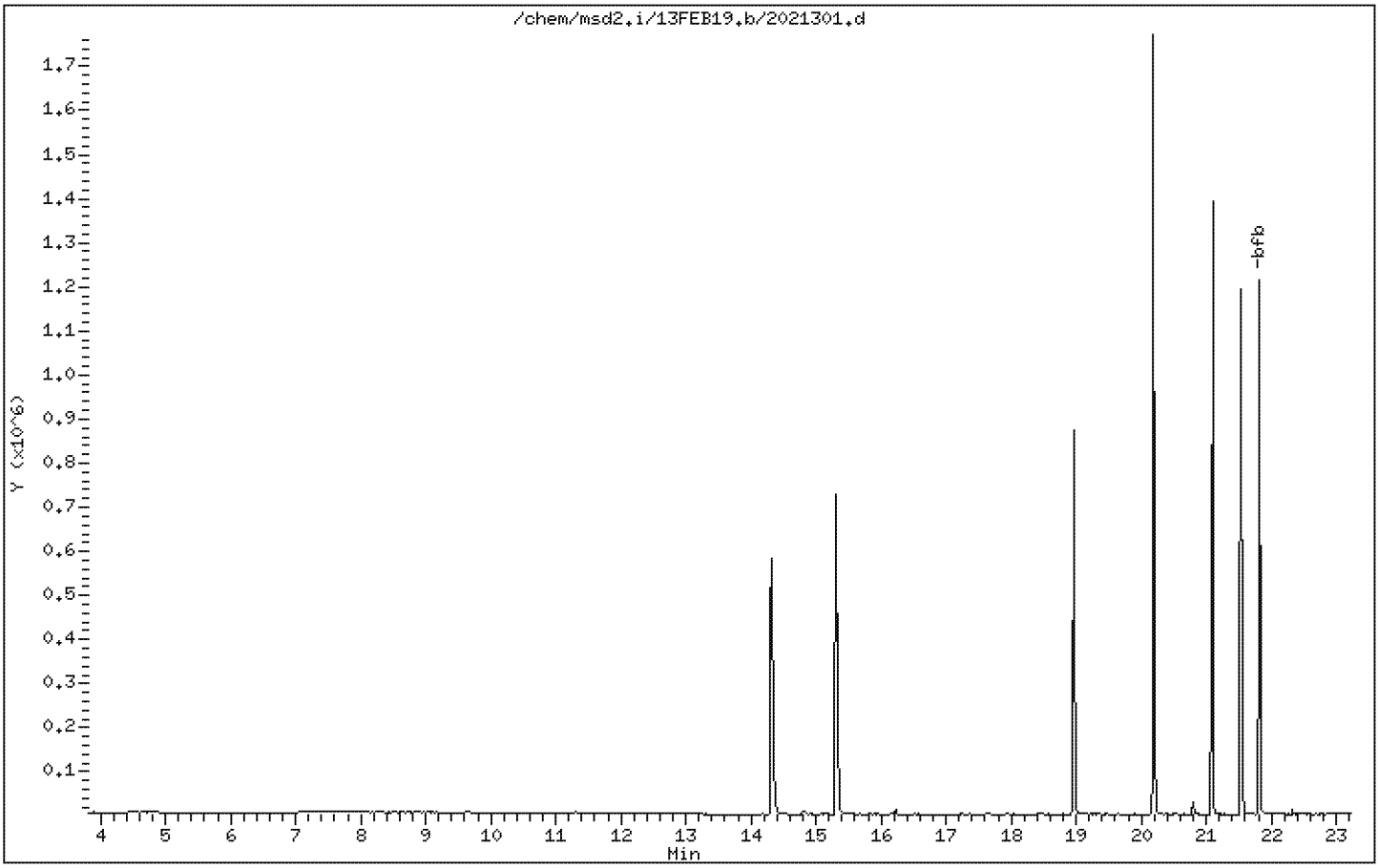
Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB;BFB

Operator: db

Column phase:

Column diameter: 2.00



Data File: /chem/msd2.i/13FEB19.b/2021301.d

Date : 13-FEB-2019 09:35

Client ID: BFB

Instrument: msd2.i

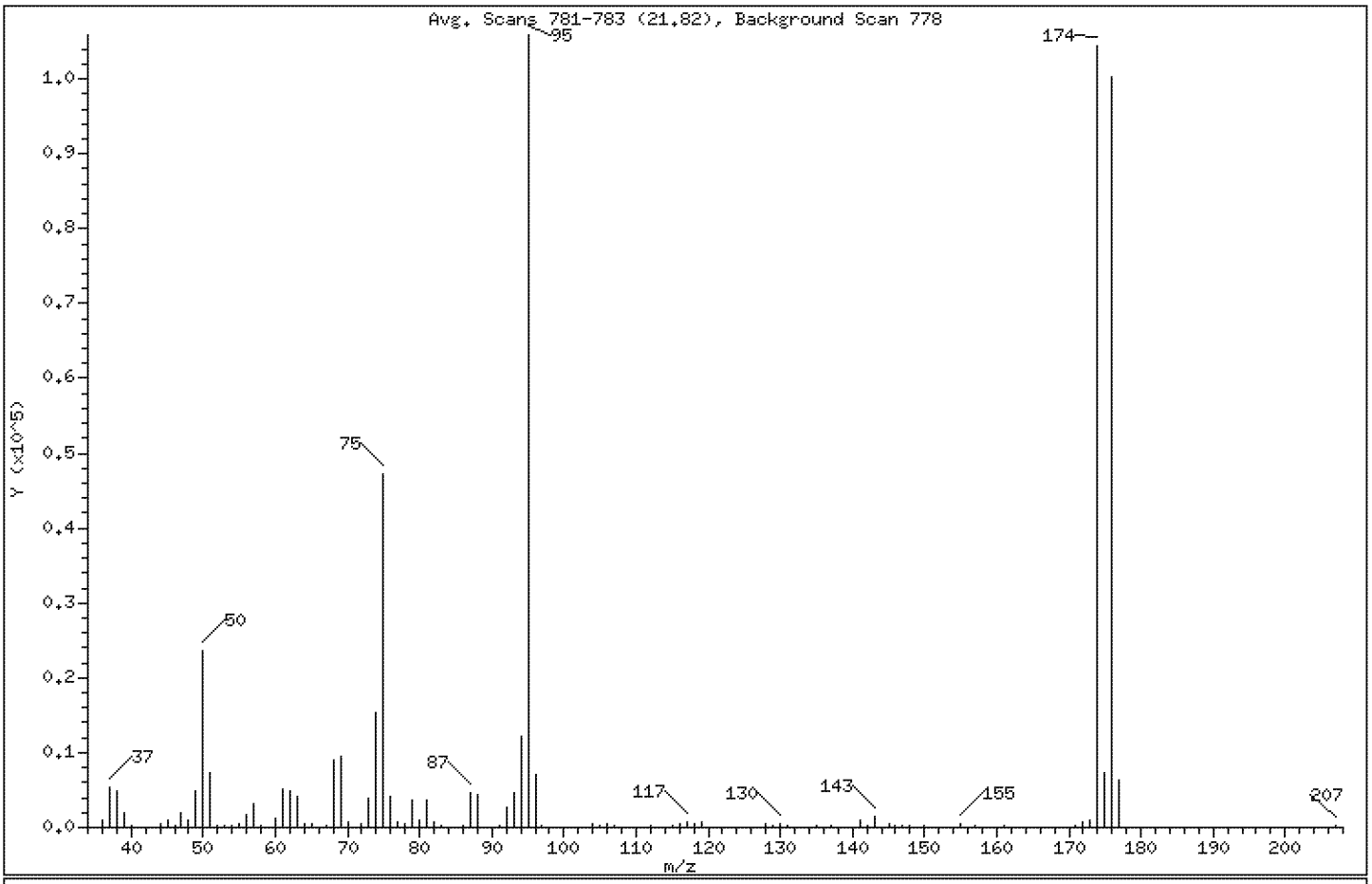
Sample Info: 200ml #2810-905;BFB;BFB

Operator: db

Column phase:

Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	22.41
75	30.00 - 66.00% of mass 95	44.53
96	5.00 - 9.00% of mass 95	6.66
173	Less than 1.99% of mass 174	0.96 (0.97)
174	50.00 - 120.00% of mass 95	98.63
175	4.00 - 9.00% of mass 174	6.97 (7.06)
176	93.00 - 101.00% of mass 174	94.78 (96.10)
177	5.00 - 9.00% of mass 176	5.98 (6.31)

Data File: /chem/msd2.i/13FEB19.b/2021301.d

Date : 13-FEB-2019 09:35

Client ID: BFB

Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB;BFB

Operator: db

Column phase:

Column diameter: 2.00

Data File: 2021301.d
Spectrum: Avg. Scans 781-783 (21.82), Background Scan 778
Location of Maximum: 95.00
Number of points: 104

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	52	65.00	471	96.00	7051	143.00	1549
36.00	888	66.00	119	97.00	278	145.00	422
37.00	5277	67.00	271	103.00	77	146.00	246
38.00	4913	68.00	9066	104.00	545	147.00	148
39.00	1998	69.00	9597	105.00	218	148.00	279
40.00	203	70.00	851	106.00	524	149.00	78
41.00	13	71.00	61	107.00	166	150.00	131
44.00	569	72.00	504	110.00	64	154.00	83
45.00	1068	73.00	3796	111.00	81	155.00	377
46.00	188	74.00	15308	112.00	137	156.00	52
47.00	1948	75.00	47144	113.00	100	157.00	281
48.00	865	76.00	4152	115.00	161	158.00	96
49.00	4872	77.00	657	116.00	463	159.00	104
50.00	23720	78.00	439	117.00	806	161.00	196
51.00	7298	79.00	3671	118.00	482	171.00	161
52.00	357	80.00	954	119.00	653	172.00	624
53.00	220	81.00	3713	126.00	50	173.00	1013
54.00	202	82.00	647	127.00	59	174.00	104416
55.00	376	83.00	125	128.00	433	175.00	7374
56.00	1777	86.00	153	129.00	285	176.00	100336
57.00	3109	87.00	4634	130.00	468	177.00	6331
58.00	176	88.00	4494	131.00	220	178.00	121
60.00	1124	91.00	364	135.00	243	207.00	127
61.00	5130	92.00	2769	137.00	224		
62.00	4925	93.00	4547	140.00	89		
63.00	4126	94.00	12210	141.00	1057		
64.00	593	95.00	105872	142.00	126		

US32APPTV002

Data file : /chem/msd2.i/14FEB19.b/2021401.d
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 14-FEB-2019 09:37
Operator : db Inst ID: msd2.i
Smp Info : 200ml #2810-905;BFB
Misc Info : 14ng
Comment :
Method : /chem/msd2.i/14FEB19.b/bfbrtx1.m
Meth Date : 02-Nov-2018 10:50 ushn Quant Type: ESTD
Cal Date : Cal File:
Als bottle: 16 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * Uf * Vf * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Uf	1.00000	ng unit correction factor
Vf	1.00000	Volumetric correction factor

Cpnd Variable Local Compound Variable

RT	EXP RT	DLT RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
21.821	21.821	0.000	95	116580			100.00- 100.00	100.00
21.821	29.232	-7.411	50	25376			8.00- 40.00	21.77
21.821	29.232	-7.411	75	51732			30.00- 66.00	44.37
21.821	29.232	-7.411	96	7900			5.00- 9.00	6.78
21.821	29.232	-7.411	173	1157			0.00- 1.99	1.01
21.821	29.232	-7.411	174	114969			50.00- 120.00	98.62
21.821	29.232	-7.411	175	8270			4.00- 9.00	7.19
21.821	29.232	-7.411	176	109788			93.00- 101.00	95.49
21.821	29.232	-7.411	177	6974			5.00- 9.00	6.35

Data File: /chem/msd2.i/14FEB19.b/2021401.d

Date : 14-FEB-2019 09:37

Client ID: BFB

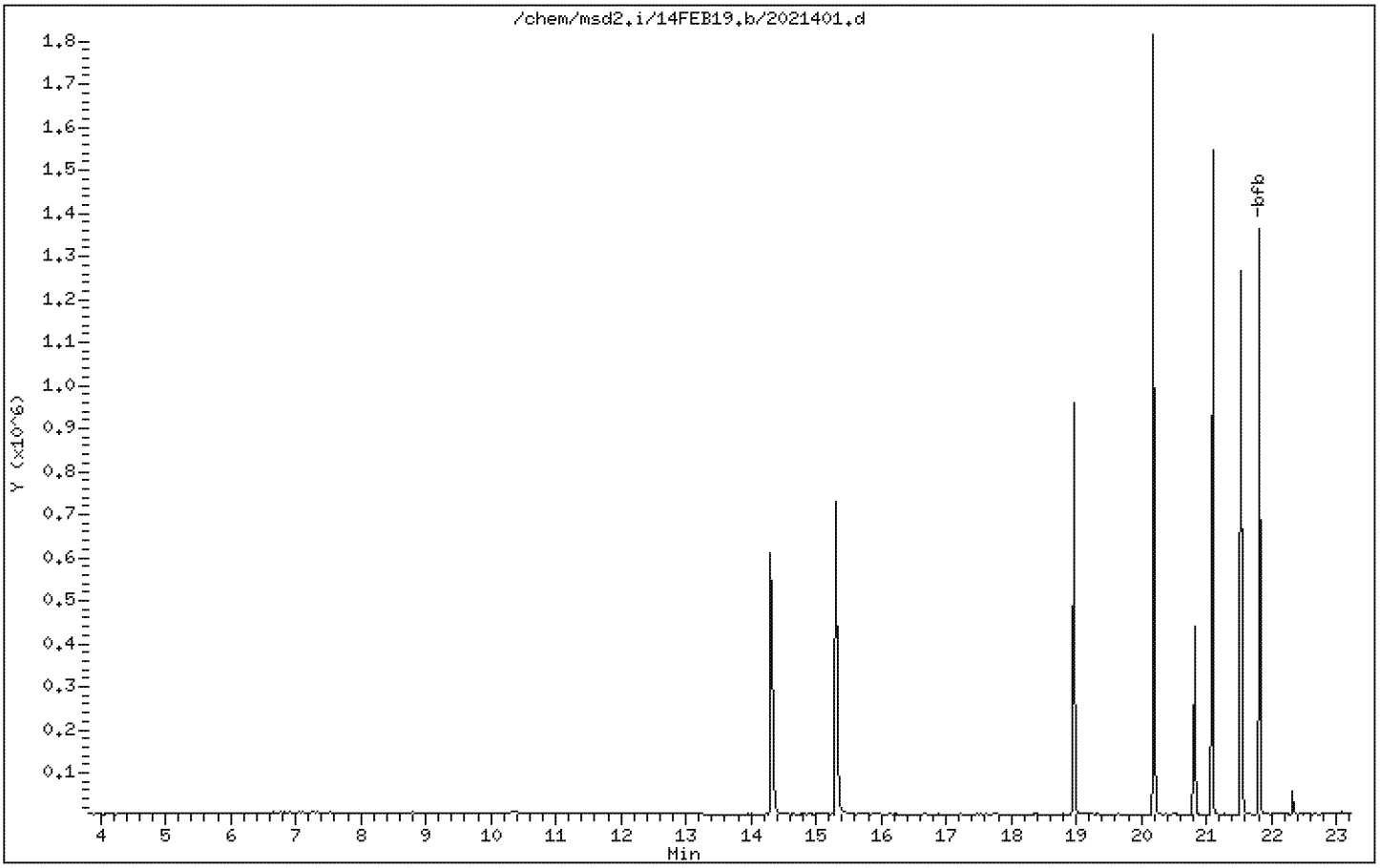
Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB

Operator: db

Column phase:

Column diameter: 2.00



Data File: /chem/msd2.i/14FEB19.b/2021401.d

Date : 14-FEB-2019 09:37

Client ID: BFB

Instrument: msd2.i

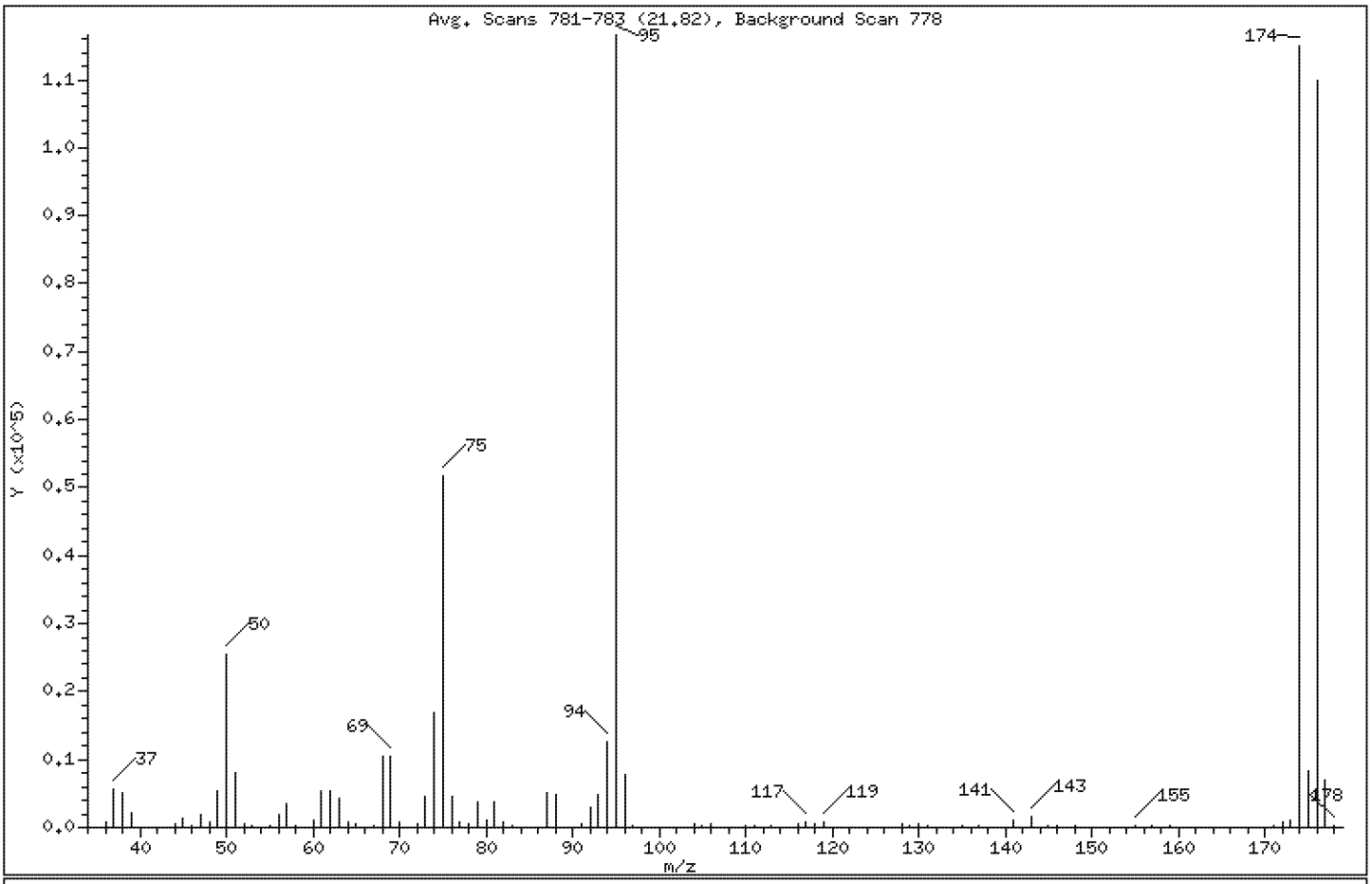
Sample Info: 200ml #2810-905;BFB

Operator: db

Column phase:

Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	21.77
75	30.00 - 66.00% of mass 95	44.37
96	5.00 - 9.00% of mass 95	6.78
173	Less than 1.99% of mass 174	0.99 (1.01)
174	50.00 - 120.00% of mass 95	98.62
175	4.00 - 9.00% of mass 174	7.09 (7.19)
176	93.00 - 101.00% of mass 174	94.17 (95.49)
177	5.00 - 9.00% of mass 176	5.98 (6.35)

Data File: /chem/msd2.i/14FEB19.b/2021401.d

Date : 14-FEB-2019 09:37

Client ID: BFB Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB

Operator: db

Column phase: Column diameter: 2.00

Data File: 2021401.d
Spectrum: Avg. Scans 781-783 (21.82), Background Scan 778
Location of Maximum: 95.00
Number of points: 105

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	59	65.00	585	96.00	7900	142.00	126
36.00	749	66.00	62	97.00	198	143.00	1650
37.00	5527	67.00	306	103.00	57	144.00	86
38.00	5196	68.00	10403	104.00	585	145.00	394
39.00	2176	69.00	10437	105.00	183	146.00	253
40.00	123	70.00	814	106.00	533	147.00	88
41.00	39	72.00	577	107.00	79	148.00	345
43.00	75	73.00	4631	110.00	150	149.00	83
44.00	540	74.00	16944	111.00	159	150.00	132
45.00	1232	75.00	51728	112.00	89	153.00	86
46.00	179	76.00	4524	113.00	155	154.00	70
47.00	1998	77.00	828	115.00	110	155.00	362
48.00	776	78.00	490	116.00	485	156.00	83
49.00	5283	79.00	3836	117.00	899	157.00	306
50.00	25376	80.00	984	118.00	443	159.00	154
51.00	8083	81.00	3868	119.00	694	161.00	112
52.00	448	82.00	907	123.00	50	171.00	167
53.00	268	83.00	167	124.00	80	172.00	695
55.00	321	86.00	120	126.00	76	173.00	1157
56.00	1832	87.00	5200	128.00	516	174.00	114968
57.00	3395	88.00	4769	129.00	221	175.00	8270
58.00	199	90.00	54	130.00	518	176.00	109784
60.00	1064	91.00	437	131.00	266	177.00	6974
61.00	5331	92.00	3065	135.00	213	178.00	258
62.00	5364	93.00	4752	137.00	203		
63.00	4317	94.00	12713	140.00	106		
64.00	685	95.00	116576	141.00	1202		

US32APPTV002

Data file : /chem/msd2.i/22FEB19.b/2022202.d
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 22-FEB-2019 10:13
Operator : mjb Inst ID: msd2.i
Smp Info : 200ml #2810-905;BFB
Misc Info : 14ng
Comment :
Method : /chem/msd2.i/22FEB19.b/bfbrtx1.m
Meth Date : 02-Nov-2018 10:50 ushn Quant Type: ESTD
Cal Date : Cal File:
Als bottle: 16 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Sample Matrix: WATER
Processing Host: us32apptv003

Concentration Formula: Amt * DF * Uf * Vf * Vi * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Uf	1.00000	ng unit correction factor
Vf	1.00000	Volumetric correction factor
Vi	1.00000	Injection Volume

Cpnd Variable Local Compound Variable

RT	EXP RT	DLT RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
21.878	21.821	0.057	95	91653			100.00- 100.00	96.80
21.878	29.232	-7.354	50	18624			8.00- 40.00	20.32
21.878	29.232	-7.354	75	39723			30.00- 66.00	43.34
21.878	29.232	-7.354	96	6199			5.00- 9.00	6.76
21.878	29.232	-7.354	173	993			0.00- 1.99	1.05
21.878	29.232	-7.354	174	94687			50.00- 120.00	103.31
21.878	29.232	-7.354	175	6807			4.00- 9.00	7.19
21.878	29.232	-7.354	176	92449			93.00- 101.00	97.64
21.878	29.232	-7.354	177	5911			5.00- 9.00	6.39

Data File: /chem/msd2.i/22FEB19.b/2022202.d

Date : 22-FEB-2019 10:13

Client ID: BFB

Instrument: msd2.i

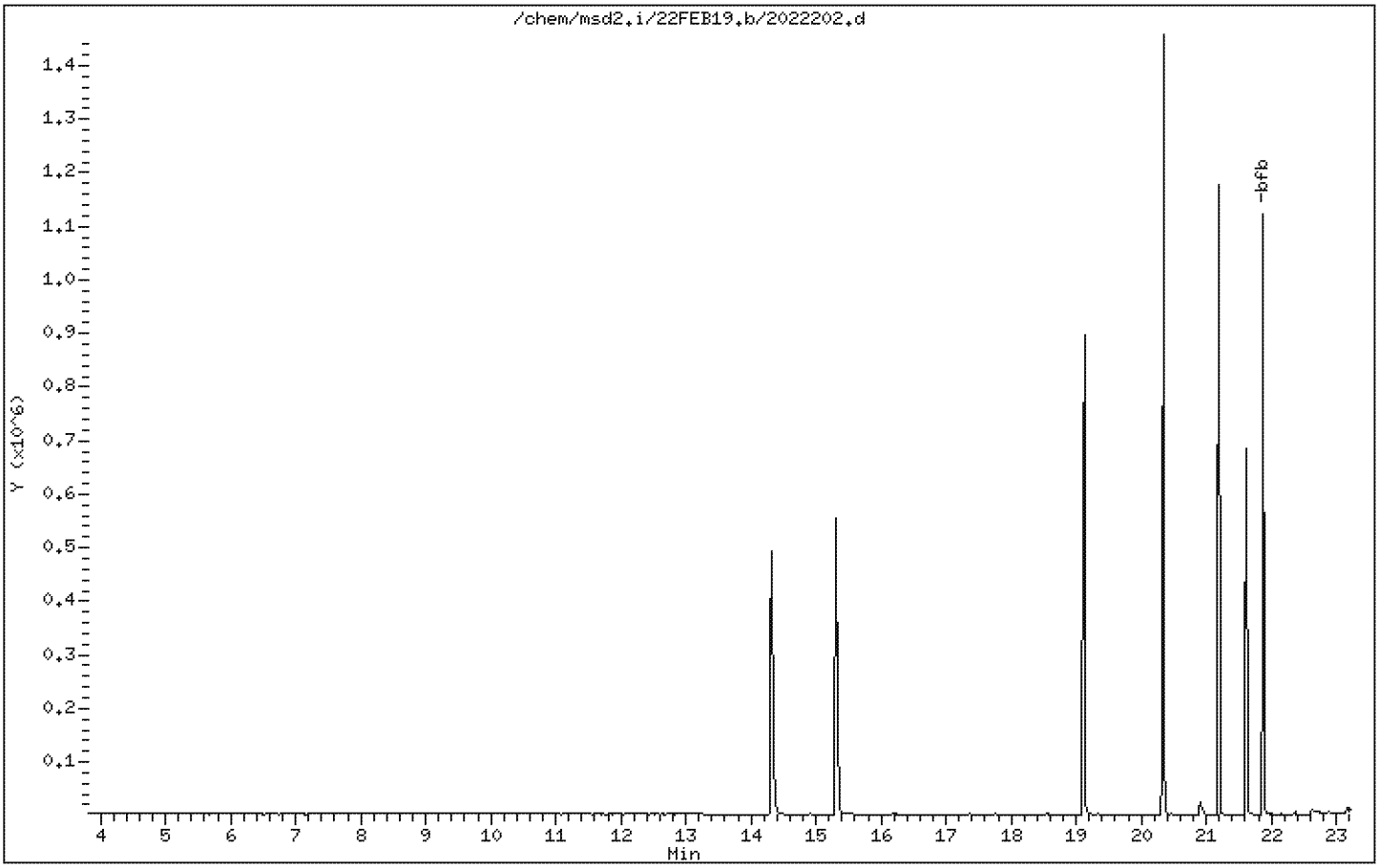
Sample Info: 200ml #2810-905;BFB

Volume Injected (uL): 1.0

Operator: mjb

Column phase:

Column diameter: 2.00



Data File: /chem/msd2.i/22FEB19.b/2022202.d

Date : 22-FEB-2019 10:13

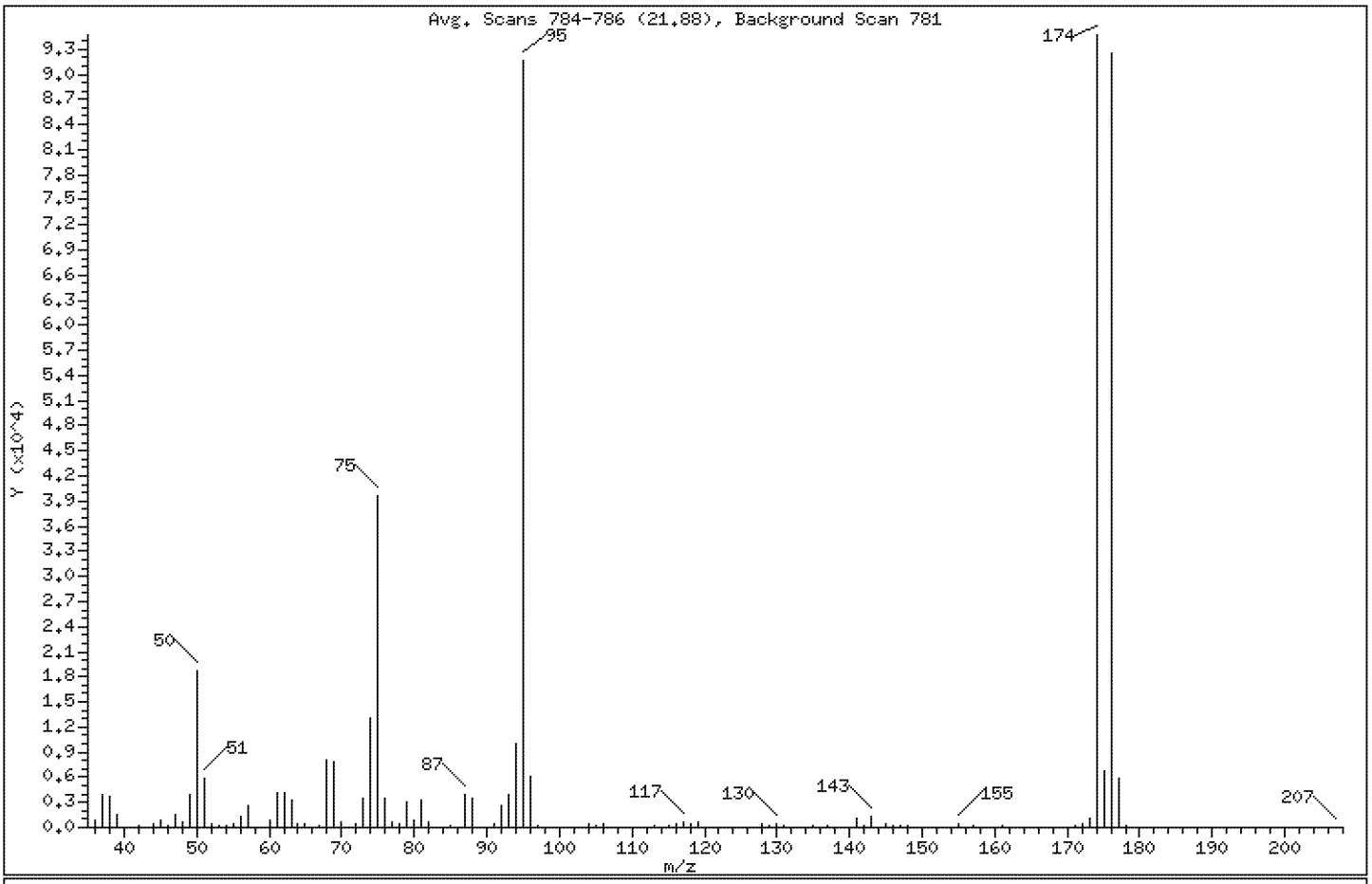
Client ID: BFB | Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB

Volume Injected (uL): 1.0 | Operator: mjb

Column phase: | Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	20.32
75	30.00 - 66.00% of mass 95	43.34
96	5.00 - 9.00% of mass 95	6.76
173	Less than 1.99% of mass 174	1.08 (1.05)
174	50.00 - 120.00% of mass 95	103.31
175	4.00 - 9.00% of mass 174	7.43 (7.19)
176	93.00 - 101.00% of mass 174	100.87 (97.64)
177	5.00 - 9.00% of mass 176	6.45 (6.39)

Data File: /chem/msd2.i/22FEB19.b/2022202.d

Date : 22-FEB-2019 10:13

Client ID: BFB

Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB

Volume Injected (uL): 1.0

Operator: mjb

Column phase:

Column diameter: 2.00

Data File: 2022202.d
Spectrum: Avg. Scans 784-786 (21.88), Background Scan 781
Location of Maximum: 174.00
Number of points: 104

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	857	65.00	384	96.00	6199	144.00	50
37.00	3880	67.00	296	97.00	237	145.00	454
38.00	3643	68.00	8048	103.00	55	146.00	224
39.00	1457	69.00	7833	104.00	389	147.00	143
40.00	52	70.00	611	105.00	127	148.00	270
42.00	117	72.00	424	106.00	383	149.00	82
43.00	58	73.00	3581	107.00	83	150.00	95
44.00	462	74.00	13150	110.00	69	153.00	63
45.00	859	75.00	39720	111.00	67	154.00	73
46.00	137	76.00	3561	112.00	76	155.00	344
47.00	1441	77.00	547	113.00	136	156.00	65
48.00	604	78.00	422	115.00	132	157.00	242
49.00	3835	79.00	3131	116.00	395	159.00	73
50.00	18624	80.00	798	117.00	667	161.00	110
51.00	5775	81.00	3184	118.00	379	171.00	188
52.00	351	82.00	602	119.00	583	172.00	522
53.00	168	83.00	69	124.00	56	173.00	993
54.00	114	85.00	173	128.00	372	174.00	94680
55.00	418	86.00	93	129.00	200	175.00	6807
56.00	1230	87.00	3917	130.00	477	176.00	92448
57.00	2629	88.00	3464	131.00	193	177.00	5911
58.00	65	89.00	51	135.00	240	178.00	160
60.00	875	91.00	397	137.00	224	207.00	64
61.00	4146	92.00	2683	140.00	52		
62.00	4182	93.00	3908	141.00	1076		
63.00	3306	94.00	9940	142.00	118		
64.00	511	95.00	91648	143.00	1395		

Shipping/ Receiving Documents

eurofins | Air Toxics

Eurofins Air Toxics, Inc. Sample Receipt Confirmation Cover Page

Thank you for choosing Eurofins Air Toxics, Inc. (EATL). We have received your samples and have listed any Sample Receipt Descrepancies below.

In order to expedite analysis and reporting, please review the attached information for accuracy.

For corrections call: **Air Toxics, Ltd. at 916-985-1000**

EATL will proceed with the analysis as specified on the Chain of Custody (COC) and Sample Receipt Summary page.

Please note : The Sample Receipt Confirmation, including the total workorder charge, is subject to change upon secondary review. Our aim is to provide a confirmation to you in a timely manner. Sample Receipt Discrepancies, if any, may not include discrepancies regarding sample receipt pressure(s). Additionally, the COC will be provided with the final report.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 6:30 A.M to 5:30 P.M. PST

eurofins | Air Toxics

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1902323

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

page--of ---

Client: Ramboll
Project Name: SIAL
Project Manager: Robert De Mott Project # 1690106 29
Sampler: C. Banzkiewicz
Site Name:

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Standard _____ Rush ✓ _____(specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information Date	Start Sampling Information Time	Stop Sampling Information Date	Stop Sampling Information Time	Canister Vacuum/Pressure Initial (in Hg)	Canister Vacuum/Pressure Final (in Hg)	Lab Use Only Receipt	Lab Use Only Final (psig) Gas: N_2 / He	Requested Analyses: Ethylene Oxide	Requested Analyses: 2,5 Dimethylfuran		
01A	PD - DN - 021419	6L0949	21919	2/14/19	1006	2/15/19	1006	27.0	5.5			✓	✓		
02A	DUP - DN - 021419	6L1278	30604	2/14/19	1007	2/15/19	1007	28.5	5.0			✓	✓		
03A	WH - DN - 021419	6L1209	22874	2/14/19	955	2/15/19	950	25	5.0			✓	✓		

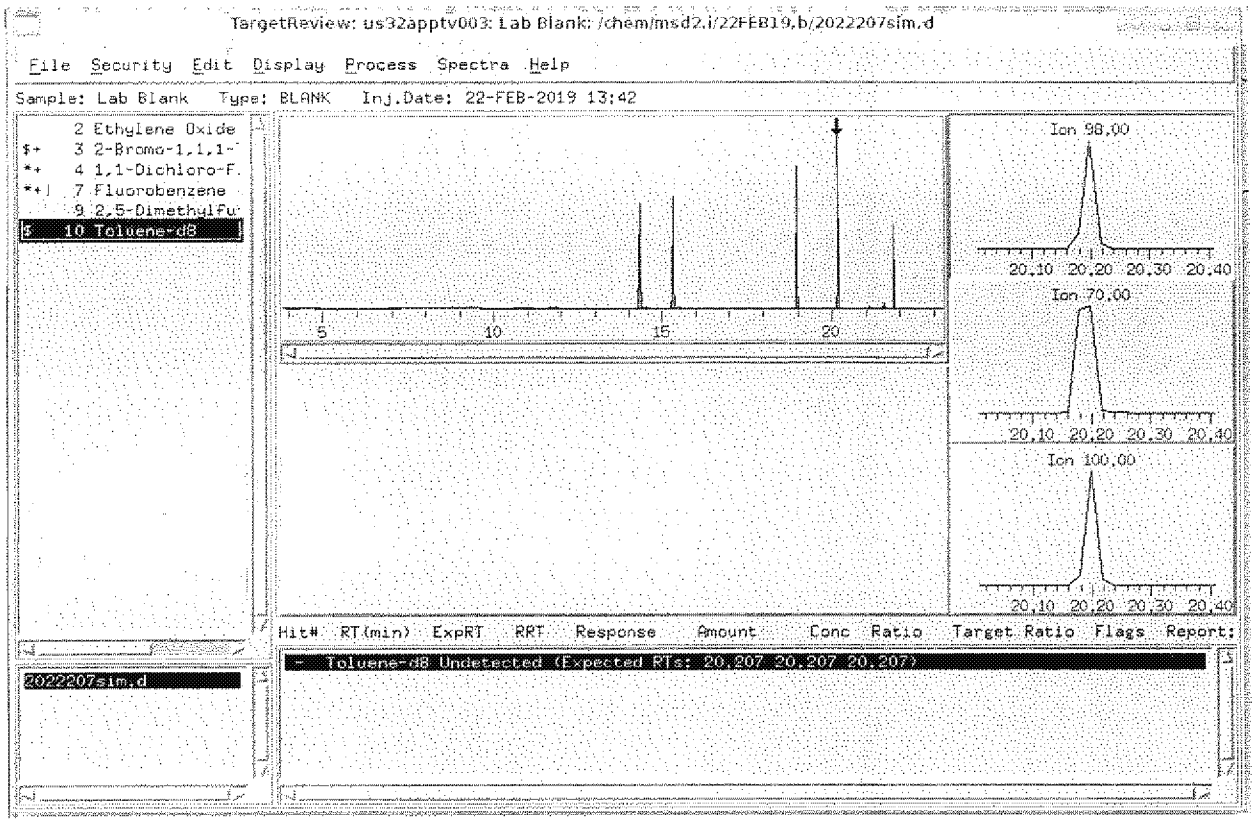
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
[signature] To FedEx	2/15/19		[signature] ZAV	2/16/19	1040
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

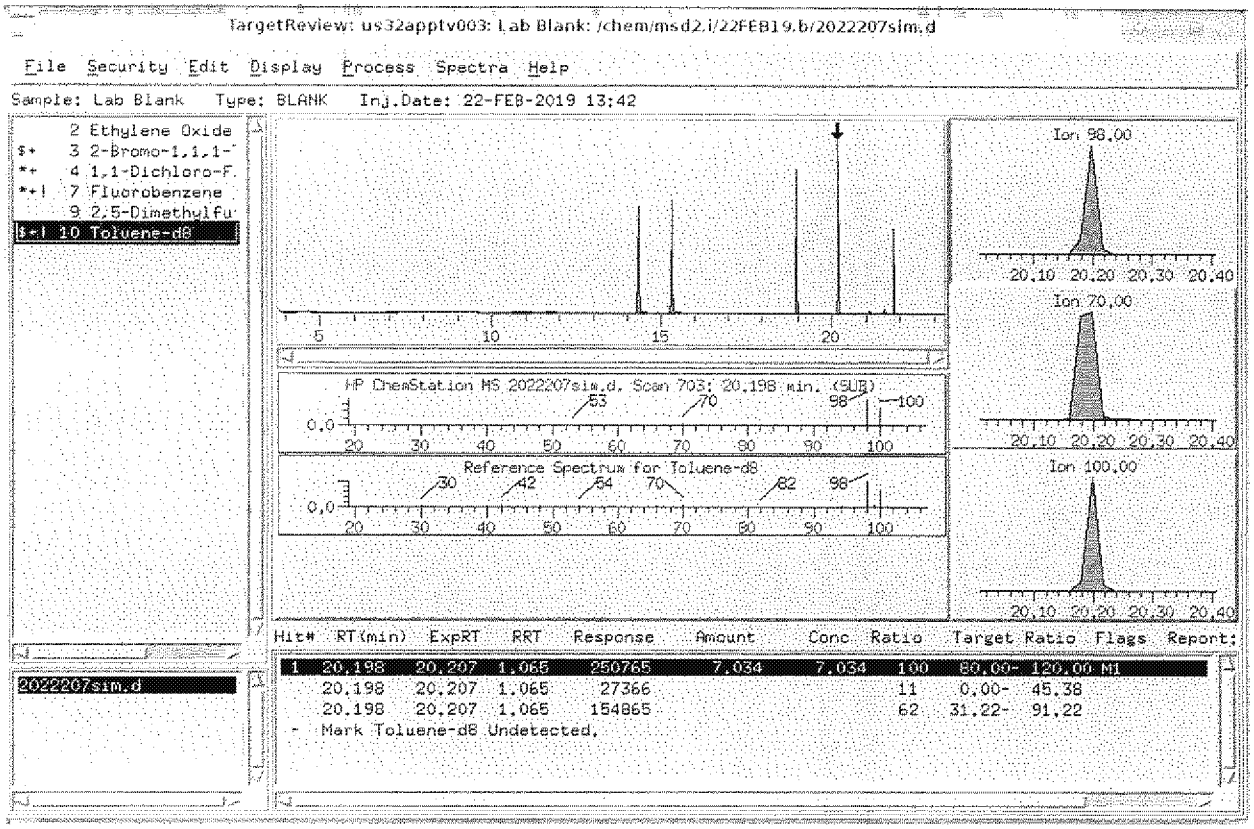
Shipper Name: FedEx | Custody Seals Intact? | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Other Records



Before: mjb 2/22/19



After

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	✓
Corrected Peak Integration	

mb 2/22/19

SB 2/22/19

DILUTION FACTORS

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Vacuum}} = \frac{14.7\text{ psi} + \text{Final Pressure (psi)}}{14.7\text{ psi} - [(\text{Initial Pressure ("Hg)})\ (14.7\text{ psi} / 30\text{ "Hg})]}$$

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Pressure}} = \frac{14.7\text{ psi} + \text{Final Pressure (psi)}}{14.7\text{ psi} + \text{Initial Pressure (psi)}}$$

Initial Vacuum ("Hg)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.5	1.36	1.71	2.05
1.0	1.39	1.74	2.09
1.5	1.41	1.77	2.13
2.0	1.44	1.80	2.16
2.5	1.46	1.83	2.20
3.0	1.49	1.87	2.24
3.5	1.52	1.90	2.29
4.0	1.55	1.94	2.33
4.5	1.58	1.98	2.38
5.0	1.61	2.02	2.42
5.5	1.64	2.06	2.47
6.0	1.68	2.10	2.53
6.5	1.71	2.15	2.58
7.0	1.75	2.19	2.64
7.5	1.79	2.24	2.69
8.0	1.83	2.29	2.76
8.5	1.87	2.34	2.82
9.0	1.91	2.40	2.89
9.5	1.96	2.46	2.96
10.0	2.01	2.52	3.03
10.5	2.06	2.59	3.11
11.0	2.12	2.65	3.19
11.5	2.17	2.72	3.28
12.0	2.23	2.80	3.37
12.5	2.30	2.88	3.46
13.0	2.36	2.97	3.57
13.5	2.44	3.06	3.67
14.0	2.51	3.15	3.79
14.5	2.59	3.25	3.91
15.0	2.68	3.36	4.04
15.5	2.77	3.48	4.18
16.0	2.87	3.60	4.33
16.5	2.98	3.73	4.49
17.0	3.09	3.88	4.66
17.5	3.22	4.03	4.85
18.0	3.35	4.20	5.05
18.5	3.50	4.38	5.27
19.0	3.65	4.58	5.51
19.5	3.83	4.80	5.77
20.0	4.02	5.04	6.06
20.5	4.23	5.31	6.38

Initial Vacuum ("Hg)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
21.0	4.47	5.60	6.73
21.5	4.73	5.93	7.13
22.0	5.03	6.30	7.58
22.5	5.36	6.72	8.08
23.0	5.74	7.20	8.66
23.5	6.19	7.76	9.32
24.0	6.70	8.40	10.10
24.5	7.31	9.17	11.02
25.0	8.04	10.08	12.12
25.5	8.93	11.20	13.47
26.0	10.05	12.60	15.15
26.5	11.49	14.40	17.32
27.0	13.40	16.80	20.20
27.5	16.08	20.16	24.24
28.0	20.10	25.20	30.31
28.5	26.80	33.61	40.41
29.0	40.20	50.41	60.61

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.2	1.32	1.66	1.99
0.4	1.30	1.64	1.97
0.6	1.29	1.61	1.94
0.8	1.27	1.59	1.92
1.0	1.25	1.57	1.89
1.2	1.24	1.55	1.87
1.4	1.22	1.53	1.84
1.6	1.21	1.52	1.82
1.8	1.19	1.50	1.80
2.0	1.18	1.48	1.78
2.2	1.17	1.46	1.76
2.4	1.15	1.44	1.74
2.6	1.14	1.43	1.72
2.8	1.13	1.41	1.70
3.0	1.11	1.40	1.68
3.2	1.10	1.38	1.66
3.4	1.09	1.36	1.64
3.6	1.08	1.35	1.62
3.8	1.06	1.34	1.61
4.0	1.05	1.32	1.59

DILUTION FACTORS

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Pressure}} = \frac{14.7\text{ psi} + \text{Final Pressure (psi)}}{14.7\text{ psi} + \text{Initial Pressure (psi)}}$$

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.2	1.32	1.66	1.99
0.4	1.30	1.64	1.97
0.6	1.29	1.61	1.94
0.8	1.27	1.59	1.92
1.0	1.25	1.57	1.89
1.2	1.24	1.55	1.87
1.4	1.22	1.53	1.84
1.6	1.21	1.52	1.82
1.8	1.19	1.50	1.80
2.0	1.18	1.48	1.78
2.2	1.17	1.46	1.76
2.4	1.15	1.44	1.74
2.6	1.14	1.43	1.72
2.8	1.13	1.41	1.70
3.0	1.11	1.40	1.68
3.2	1.10	1.38	1.66
3.4	1.09	1.36	1.64
3.6	1.08	1.35	1.62
3.8	1.06	1.34	1.61
4.0	1.05	1.32	1.59
4.2	1.04	1.31	1.57
4.4	1.03	1.29	1.55
4.6	1.02	1.28	1.54
4.8	1.01	1.27	1.52
5.0	1.00	1.25	1.51
5.2	NA	1.24	1.49
5.4	NA	1.23	1.48
5.6	NA	1.22	1.46
5.8	NA	1.20	1.45
6.0	NA	1.19	1.43
6.2	NA	1.18	1.42
6.4	NA	1.17	1.41
6.6	NA	1.16	1.39
6.8	NA	1.15	1.38
7.0	NA	1.14	1.37
7.2	NA	1.13	1.36
7.4	NA	1.12	1.34

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
7.6	NA	1.11	1.33
7.8	NA	1.10	1.32
8.0	NA	1.09	1.31
8.2	NA	1.08	1.30
8.4	NA	1.07	1.29
8.6	NA	1.06	1.27
8.8	NA	1.05	1.26
9.0	NA	1.04	1.25
9.2	NA	1.03	1.24
9.4	NA	1.02	1.23
9.6	NA	1.02	1.22
9.8	NA	1.01	1.21
10.0	NA	1.00	1.20
10.2	NA	NA	1.19
10.4	NA	NA	1.18
10.6	NA	NA	1.17
10.8	NA	NA	1.16
11.0	NA	NA	1.16
11.2	NA	NA	1.15
11.4	NA	NA	1.14
11.6	NA	NA	1.13
11.8	NA	NA	1.12
12.0	NA	NA	1.11
12.2	NA	NA	1.10
12.4	NA	NA	1.10
12.6	NA	NA	1.09
12.8	NA	NA	1.08
13.0	NA	NA	1.07
13.2	NA	NA	1.06
13.4	NA	NA	1.06
13.6	NA	NA	1.05
13.8	NA	NA	1.04
14.0	NA	NA	1.03
14.2	NA	NA	1.03
14.4	NA	NA	1.02
14.6	NA	NA	1.01
14.8	NA	NA	1.01

Compound Listing

Modified TO-15 SIM (Sp)-Ethylene Oxide & 2,5-Dimethylfuran

CAS Number	Compound	Detection Limit ppbv	Type
75-21-8	Ethylene Oxide	0.050	
625-86-5	2,5-Dimethylfuran	0.050	

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1-800-985-5955

Media Certification Report

Canister Number: 200ml N1803
Can#: 123682-1803
Date : 02/06/19 8:07
Data File: 2020517sim.d

Name	CAS	Conc.	Units
Ethylene Oxide	75-21-8	ND	ppbv

All canisters have been certified according to the project-specific requirements and/or Standard Operating Procedures.

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Media Certification Report

Canister Number: 200ml N0112
Can#: 123682-6L1278
Date : 02/05/19 18:51
Data File: 2020508sim.d

Name	CAS	Conc.	Units
Ethylene Oxide	75-21-8	ND	ppbv

**** All canisters have been certified according to the project-specific requirements and/or Standard Operating Procedures.***

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www.airtoxics.com
1-800-985-5955

Media Certification Report

Canister Number: 200ml 6L1209
Can#: 123682-6L1209
Date : 02/06/19 8:44
Data File: 2020518sim.d

Name	CAS	Conc.	Units
Ethylene Oxide	75-21-8	ND	ppbv

** All canisters have been certified according to the project-specific requirements and/or Standard Operating Procedures.*

Eurofins Air Toxics	Data Review Checklist			Release Date: 10/12/18
Workorder # 1902323A	Form F1.27	Revision #16	Revision Date: 10/12/18	Page 1 of 2

S1	S2	S3	S4	D	Section 1 – Spec Out				
					Initials/Instrument/Date	S1: MSD2 mjb 2/25/19	S2:	S3:	S4:
✓					Project Identification (PID), Project Requirements Table (PRT), Daily QC and ICAL met Criteria				
✓					Lumen QC and ICAL evaluation (ref. SOP/Method) report initialed and in folder				
✓					Manual Integrations included and approved				
✓					Chain of Custody verified for special comments/notes and analyses requested (add comments below)				
✓					Non-standard Target sublist verified (MDL, LOD, RL, control limits, etc.)				
✓					Verified standard expiration dates				

Profile, analyses, reporting, special notes and unusual circumstances: S1: Ø at EO

A1	A2	A3	A4	D	Section 2 – Sample Analysis				
					Initials/Date	A1: mjb 2/25/19	A2:	A3:	A4:
✓				✓	IS/Surr Recoveries, Dilution Factors, Load Volumes, leg(s) of instrument, Initial/Final Pressures, Canister #s Verified and dilution ranges are met per SOP (ex. Over-ranged/overdiluted)				
NA				NA	a) Tedlar Bag IDs verified against COC b) Tedlar Bag ID confirmed with loading sequence/leg(s) of instrument				
NA				NA	Manual Integrations/Bag or Can Dilution Forms/Re-pressurization Forms/Bag-Can Transfer Forms present (circle all that apply)				
✓					12/24 Hr clock time & Hold Time met for all samples				
✓				✓	Re-analysis of sample(s) has been evaluated for comparability and/or sample(s) has/have been checked for trends (Inf/Eff), field dups/trip blanks, samples following bad loads on CIAAs have been verified (system blks, confirmation runs).				
✓				✓	All runs have been evaluated for potential carry-over (TPHg/non-Target/over-range compounds/ etc.)				

Analytical and special notes: A1: 01A-03A Dup/AnB 01A/01AA Dup Good

D1	D2	D3	D4	T	3T	Section 3 – Target Data Reduction	Technical Review Needed? Circle one: Yes/No		T: 2-25-19	
						Initials/Instrument/ Date	D1: 2/25/19	D2:	D3:	D4:
NA				NA		CAR # (if applicable)				
✓				✓		Spectra Verified (documentation of spectral defense included if applicable)				
NA				NA		TICs resemble reference spectra/ TICs between sample dups. are consistent (if applicable)				
✓				✓		Lab Narrative is correct 2-25-19				
NA				NA		TPH/NMOC calculations complete and included in folder 2-25-19				

Special notes: Sample Calc. -01A: ~~349~~ 563 / 2-25-19 234920 x 6 ppbV / 0.22934 x 1.61 = ~~0.1348~~ ppbV 0.1009 ppbV ✓

A	3T	Section 4- Atlas Data Entry	Lumen verified and included in folder	Circle one: Yes/No
		Initials/Date: 2-25-19	3rd Tier: (needed only for DOD or per client request)	
NA		Sample Discrepancy Report (SDR) complete and approved (if applicable)		
NA		Manually entered results are checked		
✓		At least one result per sample is verified against Target quant sheets		
✓		Appropriate data qualifier flags are applied		
✓		Final Invoice is correct/ Final PDF report, COC and EDD reviewed and correct		

Special Notes:

Note (1) *Please check all the appropriate boxes. Indicate "NA" for any statement that doesn't apply*
Note (2) 3rd Tier Report Reviewer and Write Up Reviewer must be separate individuals for DoD & Client Specific Projects

Workorder # :				**Reason for Reissue:**
W	T	3T	Q	
				Reissue Request form Present
				Client or QA or Lab contact present with reason for reissue
				Review all affected data
				Report header has correct R1, R2 etc
				The Lab Narrative clearly explains the reissue (Date, Reason and whether client requested)
				Date for Reissue in Report Header matches date in Lab Narrative
				Check Project Profile for correct reporting instructions (multiple clients, # hardcopies, etc)
				Corrective Action issued - #
				The reissued workorder has been approved by QA Manager or a Technical Director

Additional Comments:

Write Up (Initials/Date)	**Tech Review** (Initials/Date)	***3rd Tier Review** ** 3rd Tier Report Review is for DoD & Client Specific projects only* (Initials/Date)	**QA Review** (Initials/Date)

Workorder # :				**Reason for Reissue:**
W	T	3T	Q	
				Reissue Request form Present
				Client or QA or Lab contact present with reason for reissue
				Review all affected data
				Report header has correct R1, R2 etc
				The Lab Narrative clearly explains the reissue (Date, Reason and whether client requested)
				Date for Reissue in Report Header matches date in Lab Narrative
				Check Project Profile for correct reporting instructions (multiple clients, # hardcopies, etc)
				Corrective Action issued - #
				The reissued workorder has been approved by QA Manager or a Technical Director

Additional Comments:

Write Up (Initials/Date)	**Tech Review** (Initials/Date)	***3rd Tier Review** ** 3rd Tier Report Review is for DoD & Client Specific projects only* (Initials/Date)	**QA Review** (Initials/Date)

Note (1) *Please check all the appropriate boxes. Indicate "NA" for any statement that doesn't apply*
Note (2) 3rd Tier Report Reviewer and Write Up Reviewer must be separate individuals for DoD & Client Specific Projects

Not Applicable