

Data Path : Z:\VOASRV\HPCHEM1\MSVOA\_L\DATA\VL031519\  
 Data File : VL033322.D  
 Acq On : 15 Mar 2019 6:07  
 Operator : SY/AP  
 Sample : VSTDIC0.03  
 Misc : 400ml/MSVOA\_L  
 ALS Vial : 1 Sample Multiplier: 1

Instrument :  
 MSVOA\_L  
 ClientSampleId :  
 VSTDIC0.03

Quant Time: Mar 15 06:48:02 2019  
 Quant Method : Z:\VOASRV\HPCHEM1\MSVOA\_L\METHODS\VL031419AIR.M  
 Quant Title : AIR ANALYSIS BY METHOD TO-15 Instrument: MSVOA\_L Fri Mar 15 04:20:36 2019  
 QLast Update : Fri Mar 15 04:20:36 2019  
 Response via : Initial Calibration

| Internal Standards      | R.T.  | QIon | Response | Conc  | Units | Dev(Min) |
|-------------------------|-------|------|----------|-------|-------|----------|
| 1) Bromochloromethane   | 5.76  | 49   | 860061   | 10.00 | ppbv  | 0.00     |
| 33) 1,4-Difluorobenzene | 7.29  | 114  | 1926140  | 10.00 | ppbv  | 0.00     |
| 55) Chlorobenzene-d5    | 12.24 | 117  | 1834487  | 10.00 | ppbv  | 0.00     |

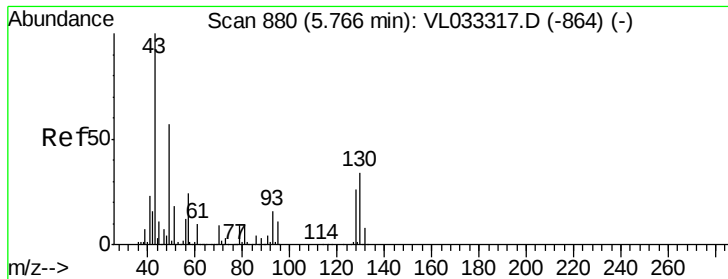
System Monitoring Compounds

|                             |        |       |          |          |      |         |
|-----------------------------|--------|-------|----------|----------|------|---------|
| 68) 1-Bromo-4-Fluorobenzene | 14.58  | 95    | 1527983  | 10.89    | ppbv | 0.00    |
| Spiked Amount               | 10.000 | Range | 65 - 135 | Recovery | =    | 108.90% |

| Target Compounds              |       |     |        |       |        | Qvalue |
|-------------------------------|-------|-----|--------|-------|--------|--------|
| 2) Dichlorodifluoromethane    | 3.08  | 85  | 7641   | 0.050 | ppbv   | 91     |
| 3) Chlorodifluoromethane      | 3.02  | 51  | 4713   | 0.043 | ppbv   | 97     |
| 4) Chloromethane              | 3.17  | 50  | 3053   | 0.052 | ppbv   | 99     |
| 5) Vinyl Chloride             | 3.30  | 62  | 1442   | 0.024 | ppbv # | 73     |
| 6) Bromomethane               | 3.52  | 94  | 936    | 0.026 | ppbv   | 90     |
| 8) Dichlorotetrafluoroethane  | 3.23  | 85  | 6207   | 0.044 | ppbv   | 86     |
| 9) Propene                    | 3.04  | 41  | 2720   | 0.056 | ppbv   | 92     |
| 11) Trichlorofluoromethane    | 4.00  | 101 | 6696   | 0.043 | ppbv # | 79     |
| 13) Ethanol                   | 3.67  | 45  | 654    | 0.043 | ppbv # | 38     |
| 15) Acetone                   | 3.93  | 43  | 9271   | 0.079 | ppbv   | 97     |
| 18) 1,1-Dichloroethene        | 4.35  | 96  | 1081   | 0.023 | ppbv # | 48     |
| 20) Methylene Chloride        | 4.41  | 84  | 5473   | 0.116 | ppbv # | 85     |
| 21) Allyl Chloride            | 4.48  | 41  | 1916   | 0.027 | ppbv # | 33     |
| 22) trans-1,2-Dichloroethene  | 4.97  | 96  | 970    | 0.021 | ppbv # | 69     |
| 26) Hexane                    | 5.78  | 57  | 2056   | 0.021 | ppbv # | 1      |
| 27) Carbon Disulfide          | 4.62  | 76  | 2511   | 0.024 | ppbv # | 2      |
| 29) Chloroform                | 5.85  | 83  | 5906   | 0.038 | ppbv # | 42     |
| 37) 1,2-Dichloroethane        | 6.41  | 62  | 3724   | 0.033 | ppbv # | 83     |
| 39) 1,2-Dichloropropane       | 7.29  | 63  | 516984 | 7.217 | ppbv # | 22     |
| 63) 1,1,2,2-Tetrachloroethane | 13.84 | 83  | 3254   | 0.021 | ppbv # | 25     |
| 65) tert-Butylbenzene         | 16.92 | 119 | 5138   | 0.020 | ppbv # | 82     |
| 80) Naphthalene,2-methyl-     | 25.14 | 142 | 1446   | 0.028 | ppbv   | 94     |

(#) = qualifier out of range (m) = manual integration (+) = signals summed





#1

Bromochloromethane

Concen: 10.000 ppbv

RT: 5.76 min Scan# 879

Delta R.T. -0.00 min

Lab File: VL033322.D

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Instrument :

MSVOA\_L

ClientSampleId :

VSTDIC0.03

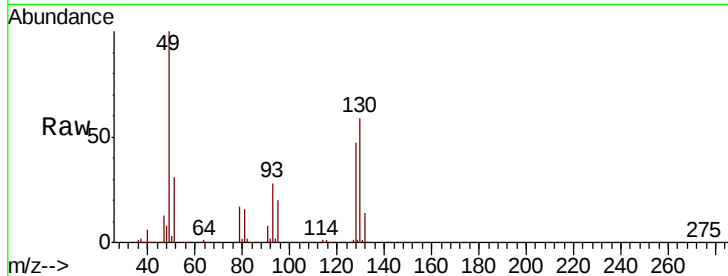
Tgt Ion: 49 Resp: 860061

Ion Ratio Lower Upper

49 100

128 46.8 23.2 69.6

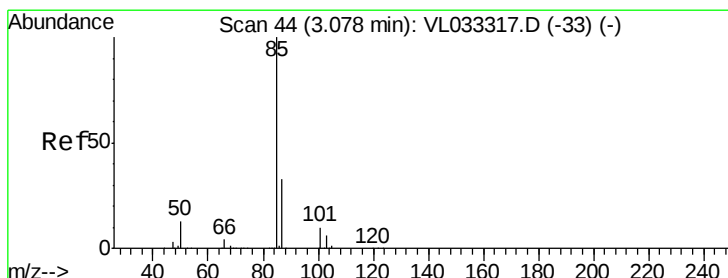
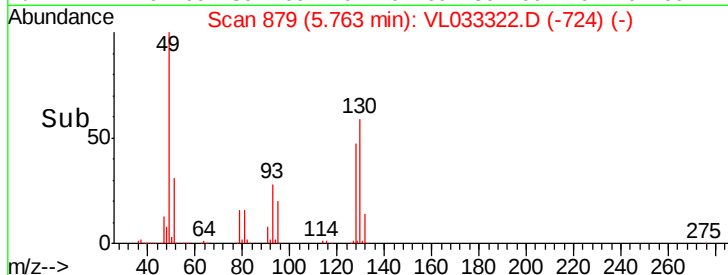
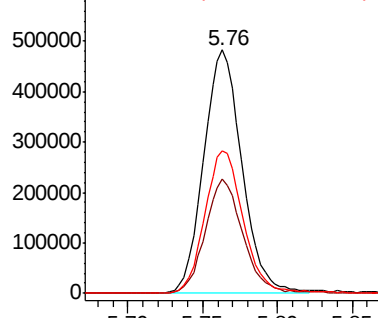
130 59.3 30.1 90.5



Abundance Ion 49.10 (48.80 to 49.80): VL0

Ion 128.00 (127.70 to 128.70): VL0

Ion 130.00 (129.70 to 130.70): VL0



#2

Dichlorodifluoromethane

Concen: 0.050 ppbv

RT: 3.08 min Scan# 44

Delta R.T. 0.00 min

Lab File: VL033322.D

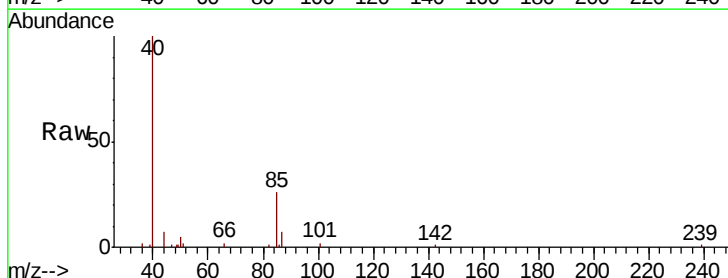
Acq: 15 Mar 2019 6:07

Tgt Ion: 85 Resp: 7641

Ion Ratio Lower Upper

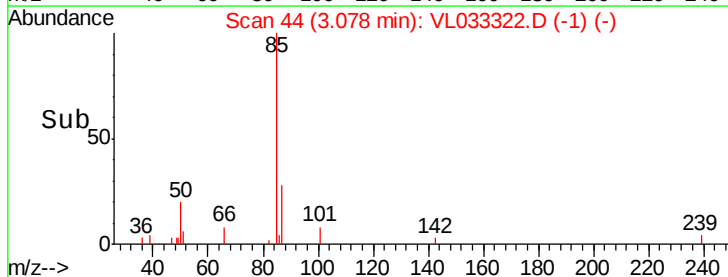
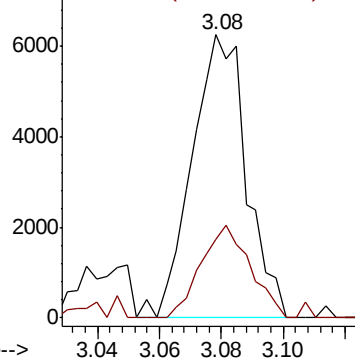
85 100

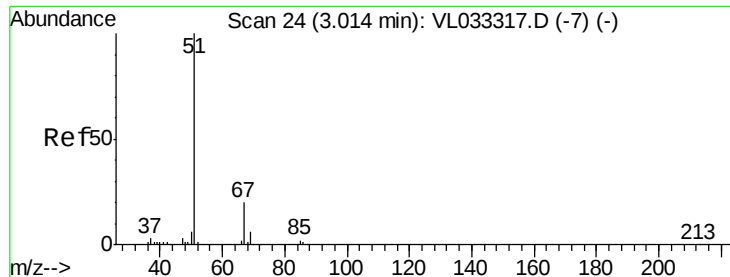
87 27.9 26.4 39.6



Abundance Ion 85.00 (84.70 to 85.70): VL0

Ion 87.00 (86.70 to 87.70): VL0

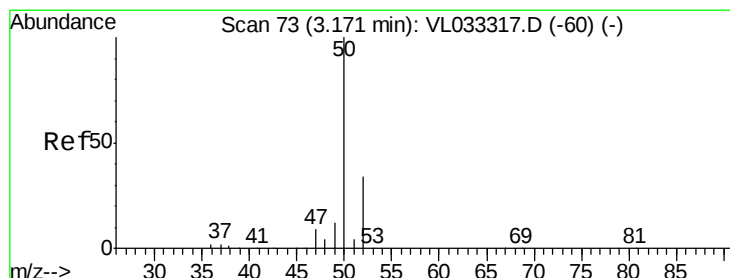
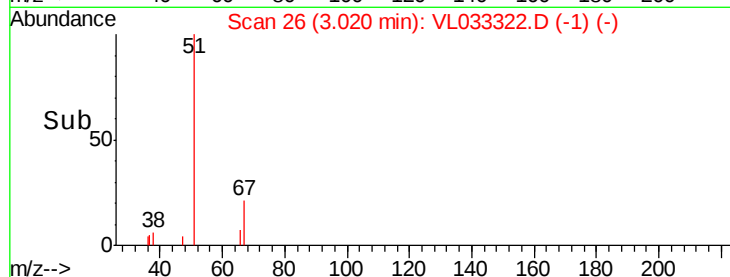
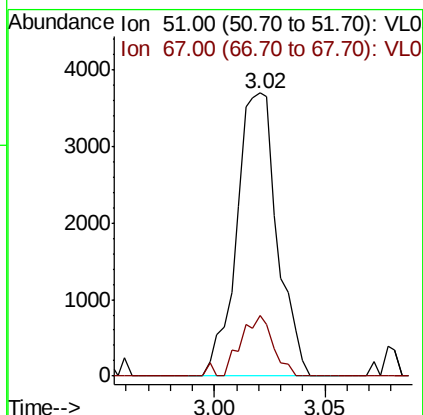
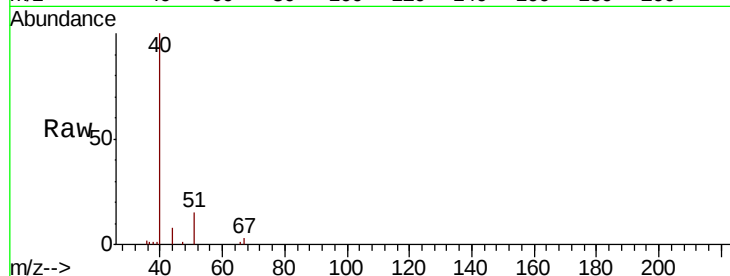




#3  
Chlorodifluoromethane  
Concen: 0.043 ppbv  
RT: 3.02 min Scan# 26  
Delta R.T. 0.01 min  
Lab File: VL033322.D  
Acq: 15 Mar 2019 6:07

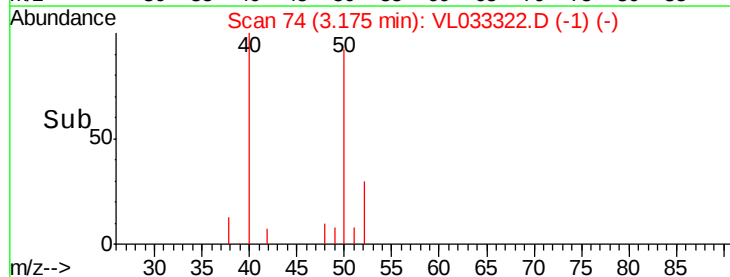
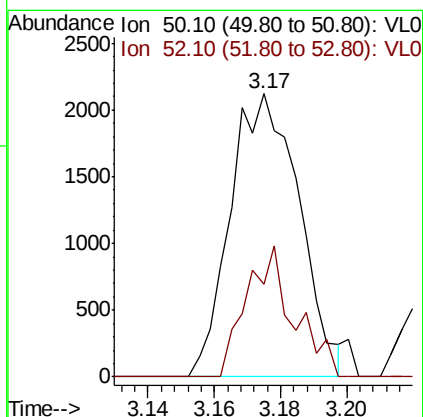
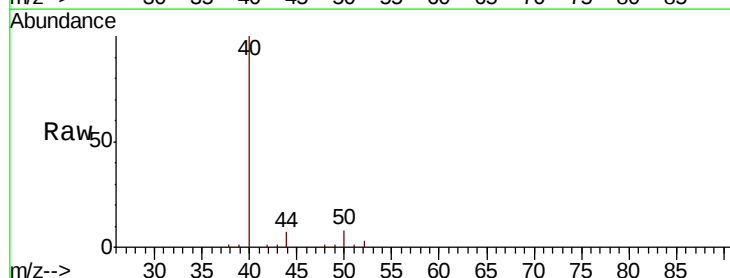
Instrument :  
MSVOA\_L  
ClientSampleId :  
VSTDIC0.03

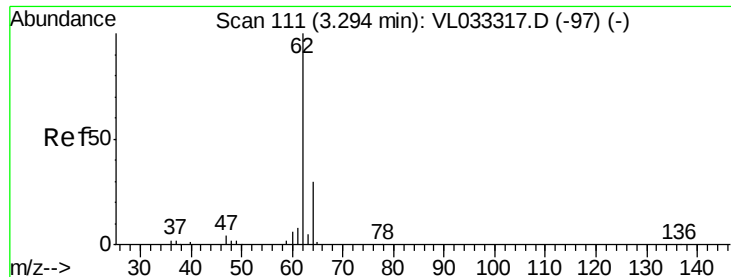
Tgt Ion: 51 Resp: 4713  
Ion Ratio Lower Upper  
51 100  
67 17.5 15.1 22.7



#4  
Chloromethane  
Concen: 0.052 ppbv  
RT: 3.17 min Scan# 74  
Delta R.T. 0.00 min  
Lab File: VL033322.D  
Acq: 15 Mar 2019 6:07

Tgt Ion: 50 Resp: 3053  
Ion Ratio Lower Upper  
50 100  
52 32.7 26.8 40.2





#5

Vinyl Chloride

Concen: 0.024 ppbv

RT: 3.30 min Scan# 113

Delta R.T. 0.01 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

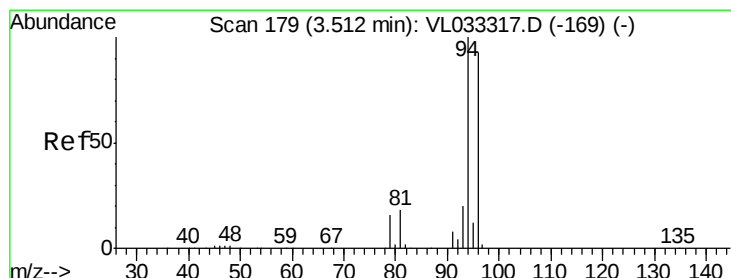
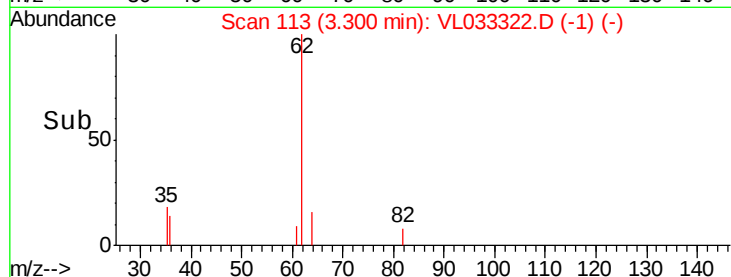
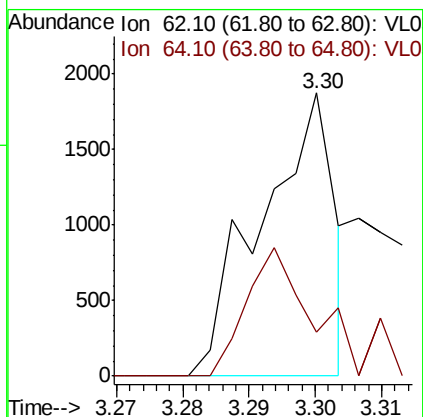
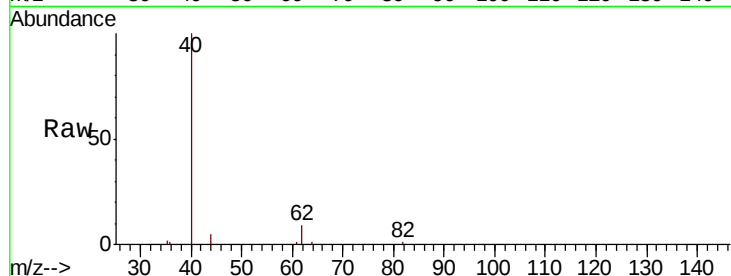
VSTDIC0.03

Tgt Ion: 62 Resp: 1442

Ion Ratio Lower Upper

62 100

64 15.5 24.3 36.5#



#6

Bromomethane

Concen: 0.026 ppbv

RT: 3.52 min Scan# 181

Delta R.T. 0.01 min

Lab File: VL033322.D

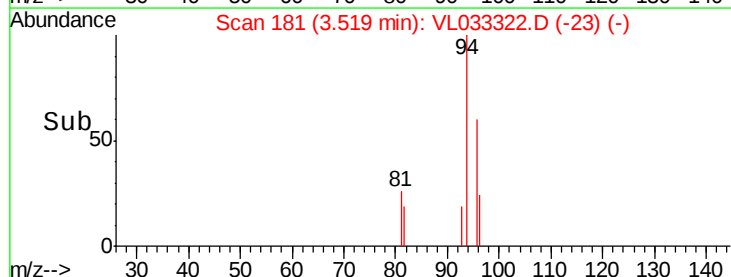
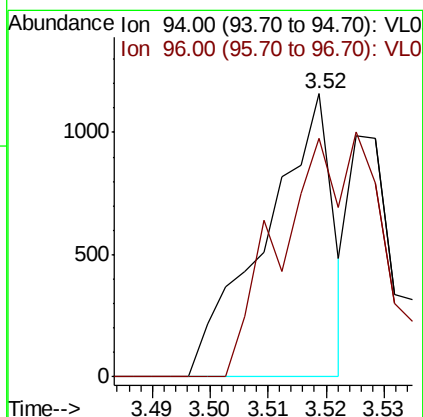
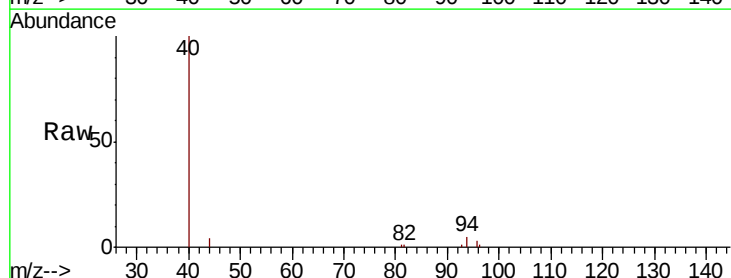
Acq: 15 Mar 2019 6:07

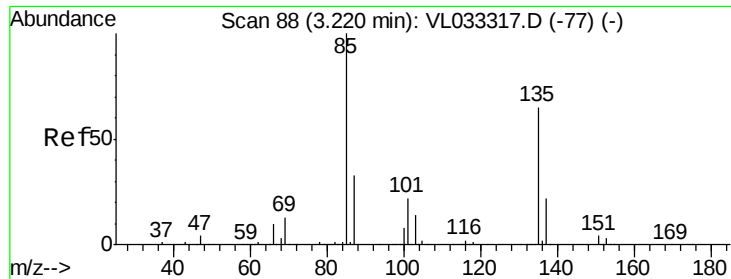
Tgt Ion: 94 Resp: 936

Ion Ratio Lower Upper

94 100

96 84.2 74.8 112.2





#8

Dichlorotetrafluoroethane

Concen: 0.044 ppbv

RT: 3.23 min Scan# 90

Delta R.T. 0.01 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

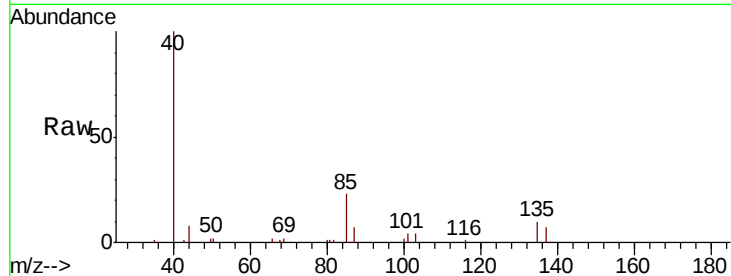
VSTDIC0.03

Tgt Ion: 85 Resp: 6207

Ion Ratio Lower Upper

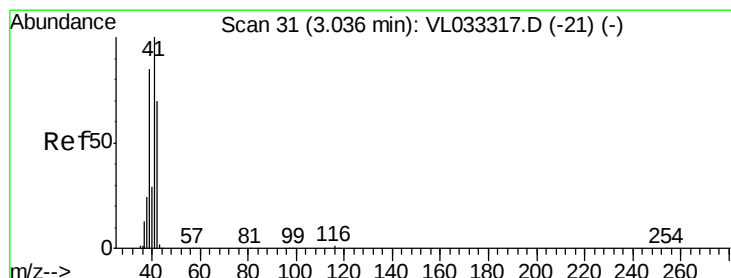
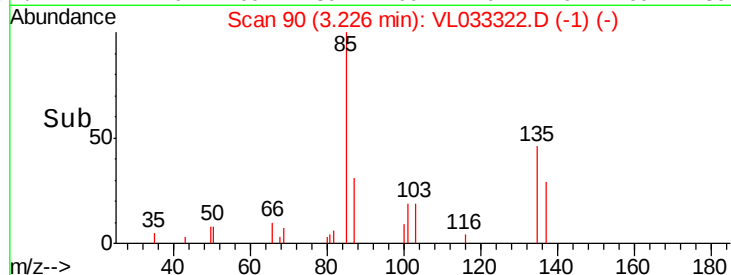
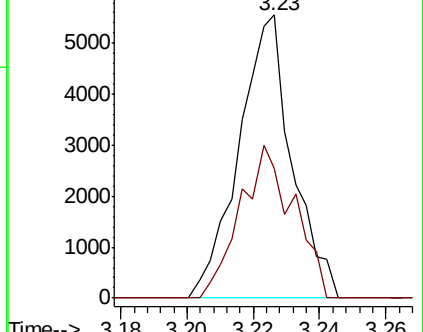
85 100

135 54.6 52.6 79.0



Abundance Ion 85.00 (84.70 to 85.70): VL0

Ion 135.00 (134.70 to 135.70): V



#9

Propene

Concen: 0.056 ppbv

RT: 3.04 min Scan# 31

Delta R.T. 0.00 min

Lab File: VL033322.D

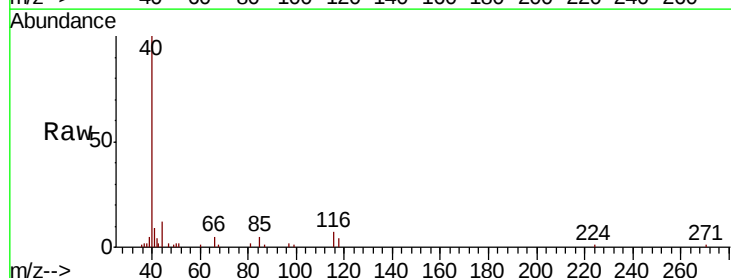
Acq: 15 Mar 2019 6:07

Tgt Ion: 41 Resp: 2720

Ion Ratio Lower Upper

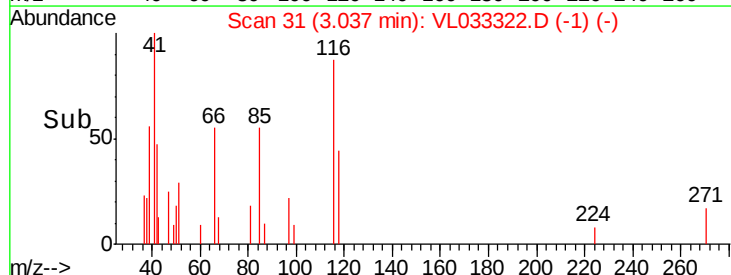
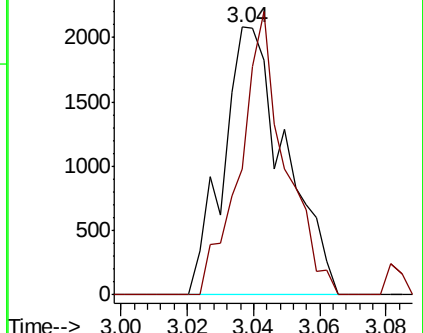
41 100

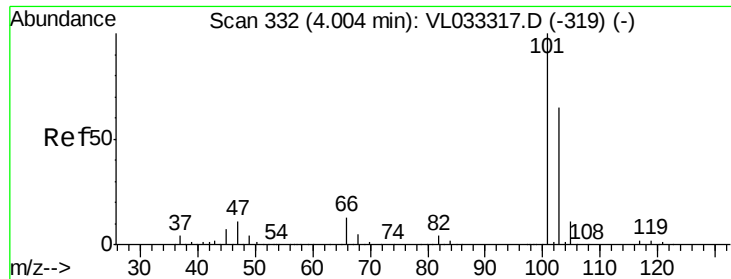
42 75.9 55.5 83.3



Abundance Ion 41.10 (40.80 to 41.80): VL0

Ion 42.10 (41.80 to 42.80): VL0





#11

Trichlorofluoromethane

Concen: 0.043 ppbv

RT: 4.00 min Scan# 332

Delta R.T. 0.00 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

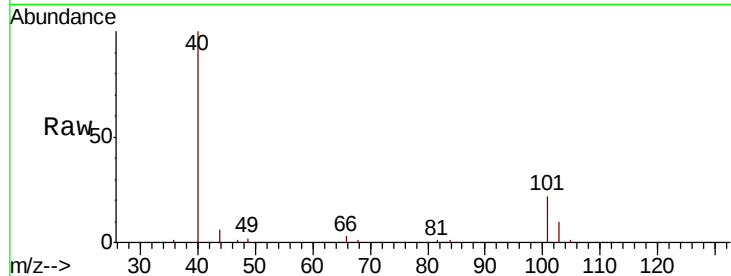
VSTDIC0.03

Tgt Ion: 101 Resp: 6696

Ion Ratio Lower Upper

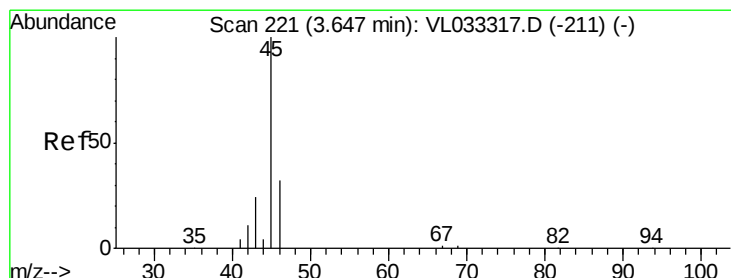
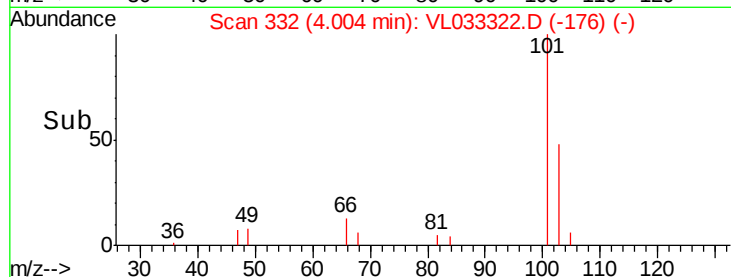
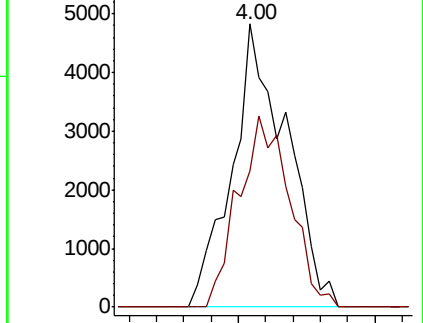
101 100

103 48.2 51.8 77.6#



Abundance Ion 101.00 (100.70 to 101.70): V

Ion 103.00 (102.70 to 103.70): V



#13

Ethanol

Concen: 0.043 ppbv

RT: 3.67 min Scan# 227

Delta R.T. 0.02 min

Lab File: VL033322.D

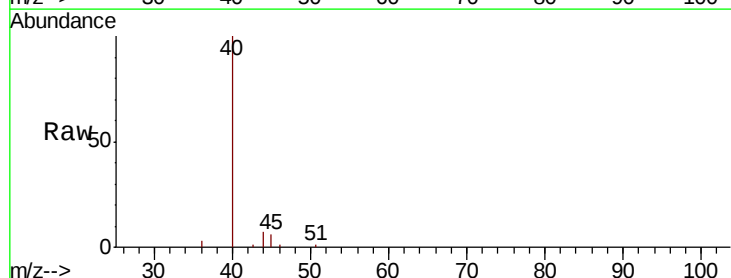
Acq: 15 Mar 2019 6:07

Tgt Ion: 45 Resp: 654

Ion Ratio Lower Upper

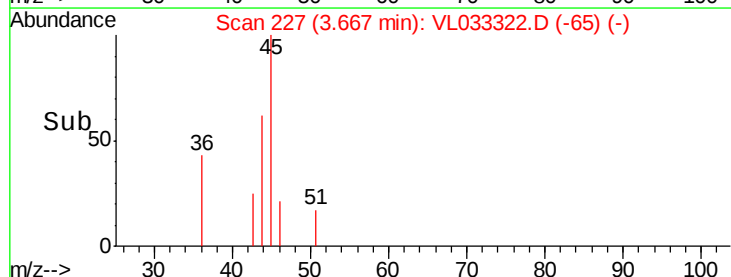
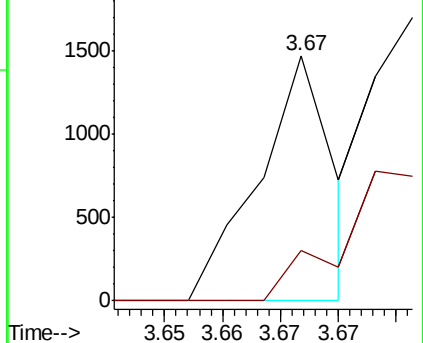
45 100

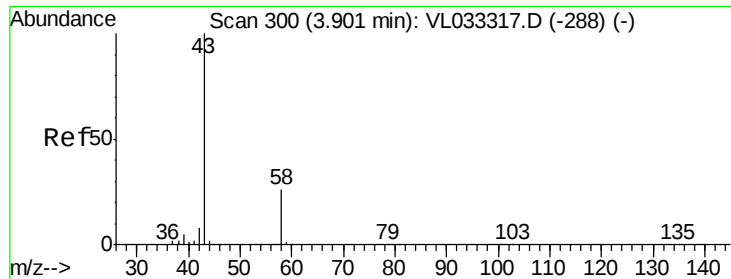
46 0.0 14.7 58.9#



Abundance Ion 45.10 (44.80 to 45.80): VL0

Ion 46.10 (45.80 to 46.80): VL0





#15

Acetone

Concen: 0.079 ppbv

RT: 3.93 min Scan# 309

Delta R.T. 0.03 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

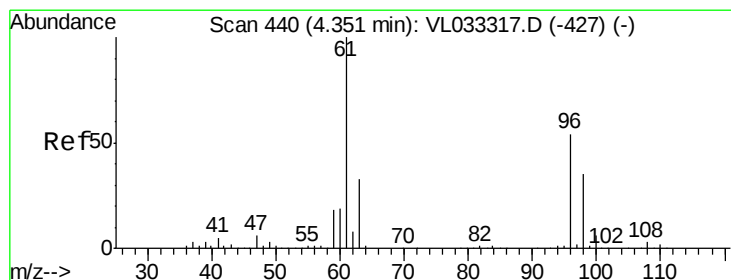
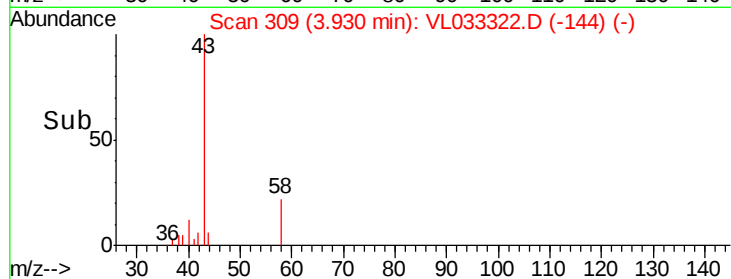
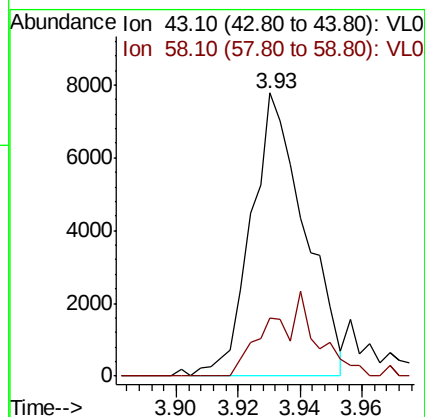
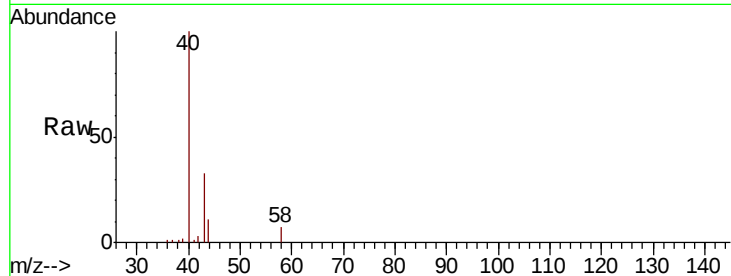
VSTDIC0.03

Tgt Ion: 43 Resp: 9271

Ion Ratio Lower Upper

43 100

58 27.0 20.3 30.5



#18

1,1-Dichloroethene

Concen: 0.023 ppbv

RT: 4.35 min Scan# 441

Delta R.T. 0.00 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

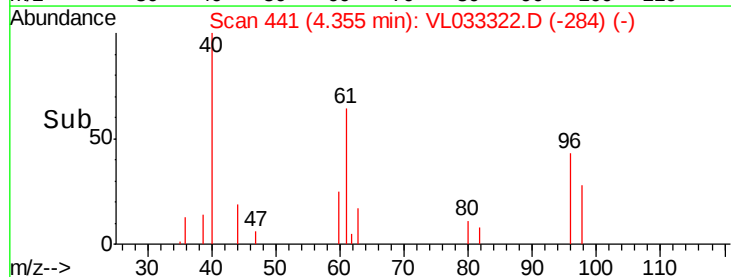
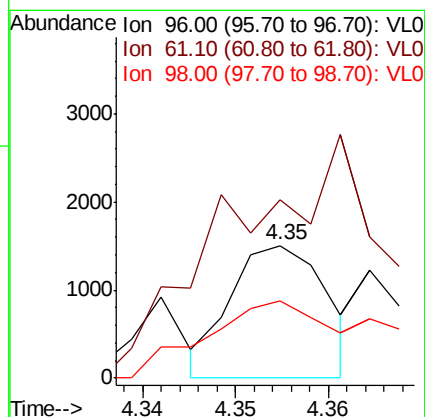
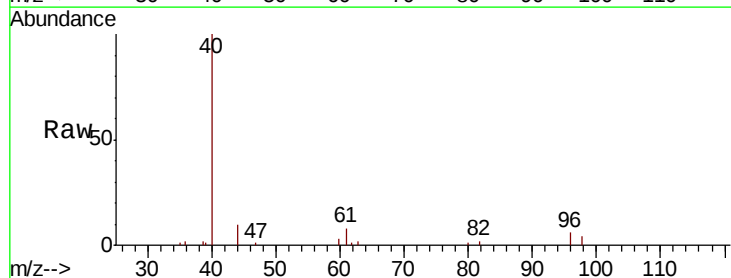
Tgt Ion: 96 Resp: 1081

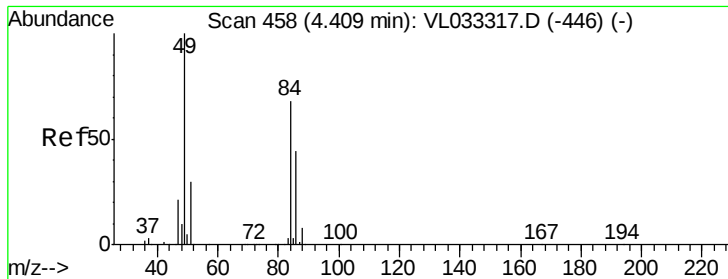
Ion Ratio Lower Upper

96 100

61 98.3 148.9 223.3#

98 44.0 51.4 77.0#

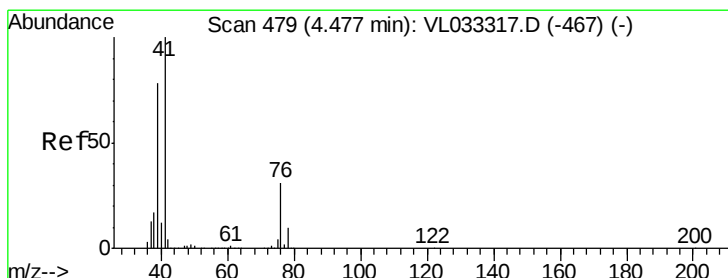
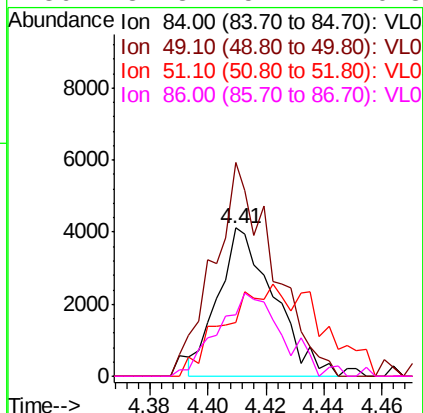
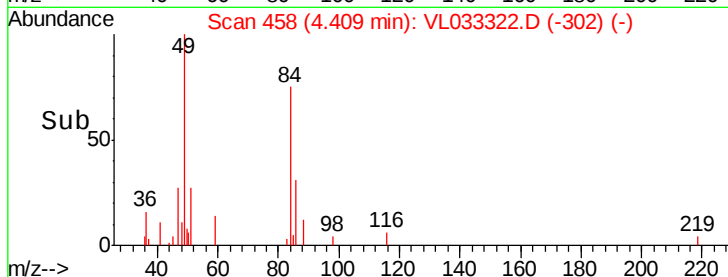
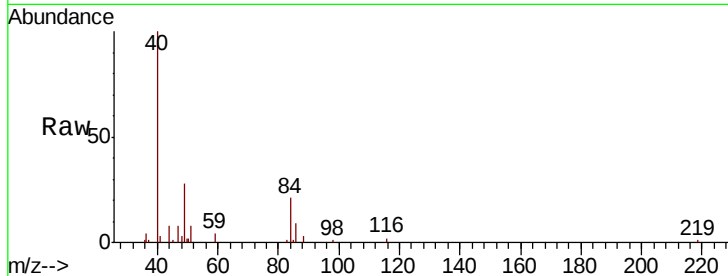




#20  
Methylene Chloride  
Concen: 0.116 ppbv  
RT: 4.41 min Scan# 458  
Delta R.T. 0.00 min  
Lab File: VL033322.D  
Acq: 15 Mar 2019 6:07

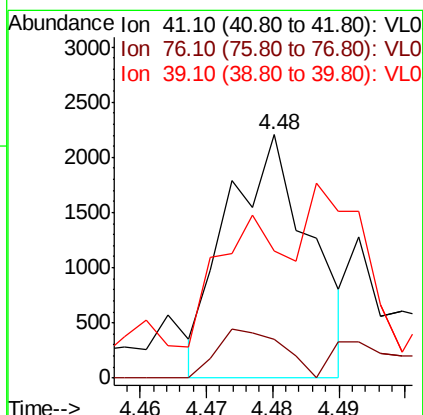
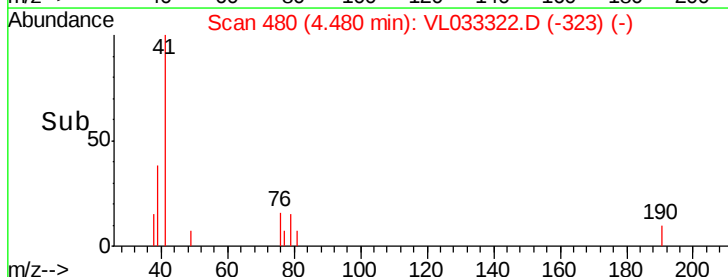
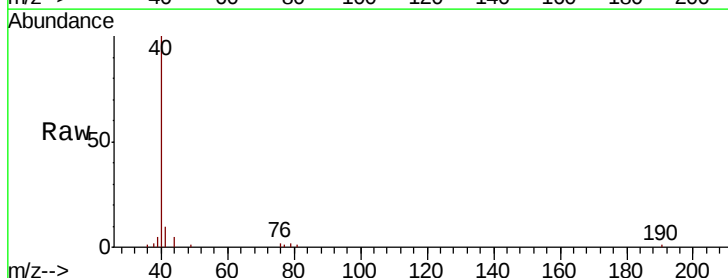
Instrument :  
MSVOA\_L  
ClientSampleId :  
VSTDIC0.03

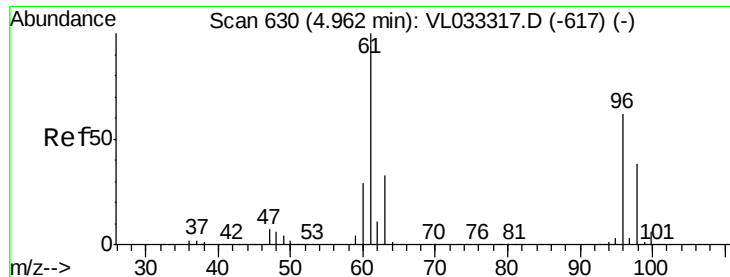
Tgt Ion: 84 Resp: 5473  
Ion Ratio Lower Upper  
84 100  
49 144.2 117.0 175.6  
51 23.6 35.3 52.9#  
86 37.3 51.2 76.8#



#21  
Allyl Chloride  
Concen: 0.027 ppbv  
RT: 4.48 min Scan# 480  
Delta R.T. 0.00 min  
Lab File: VL033322.D  
Acq: 15 Mar 2019 6:07

Tgt Ion: 41 Resp: 1916  
Ion Ratio Lower Upper  
41 100  
76 28.8 24.1 36.1  
39 0.0 65.0 97.4#





#22

trans-1,2-Dichloroethene

Concen: 0.021 ppbv

RT: 4.97 min Scan# 632

Delta R.T. 0.01 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

VSTDIC0.03

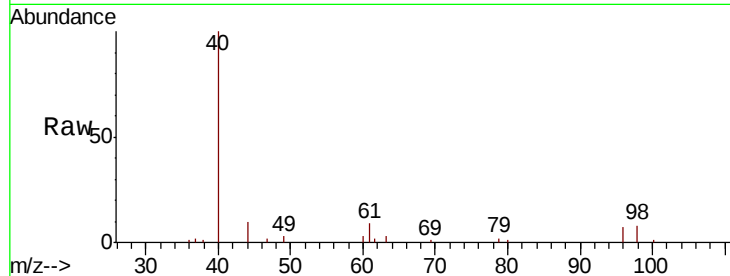
Tgt Ion: 96 Resp: 970

Ion Ratio Lower Upper

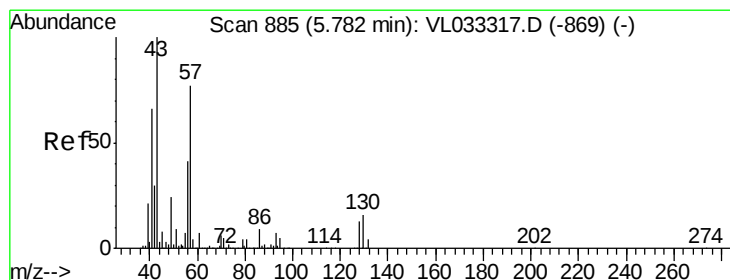
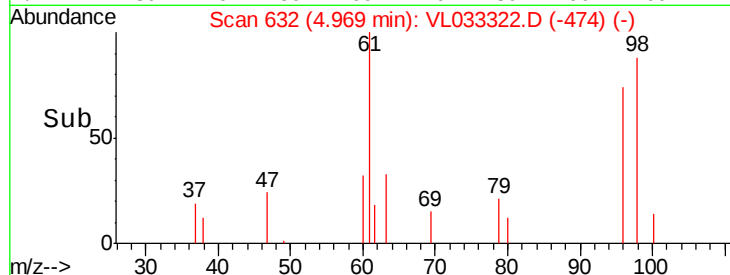
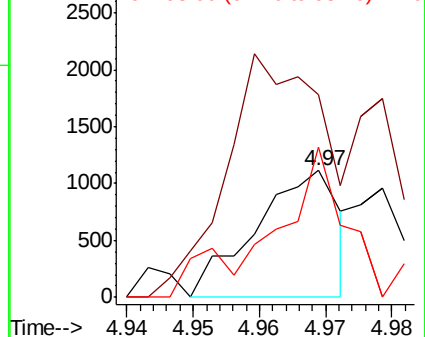
96 100

61 122.3 129.8 194.8#

98 87.4 49.2 73.8#



Abundance Ion 96.00 (95.70 to 96.70): VL0  
Ion 61.10 (60.80 to 61.80): VL0  
Ion 98.00 (97.70 to 98.70): VL0



#26

Hexane

Concen: 0.021 ppbv

RT: 5.78 min Scan# 883

Delta R.T. -0.01 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Tgt Ion: 57 Resp: 2056

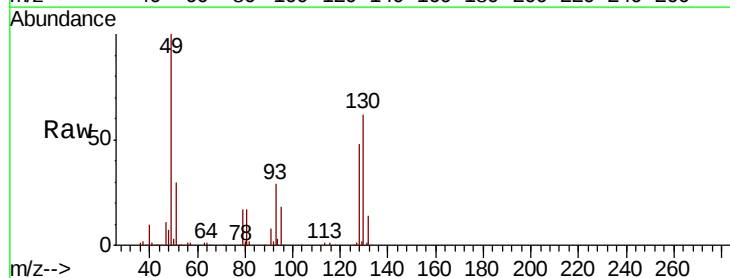
Ion Ratio Lower Upper

57 100

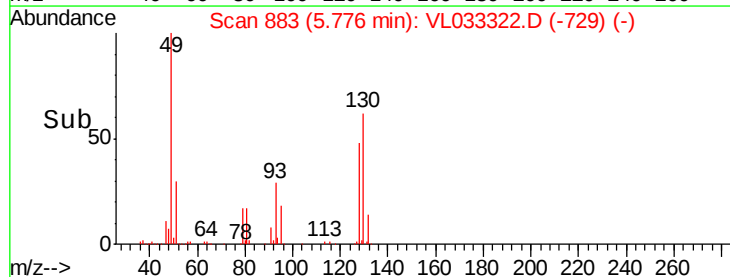
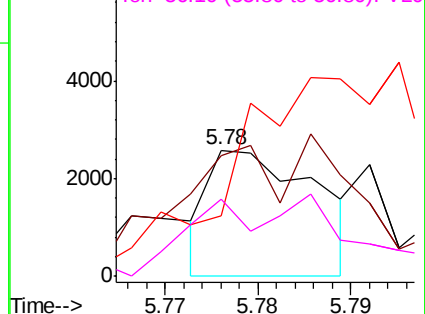
41 0.0 71.8 107.6#

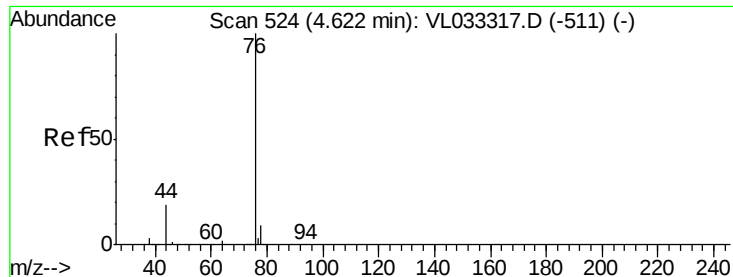
43 0.0 182.1 273.1#

56 0.0 42.2 63.2#



Abundance Ion 57.10 (56.80 to 57.80): VL0  
Ion 41.10 (40.80 to 41.80): VL0  
Ion 43.10 (42.80 to 43.80): VL0  
Ion 56.10 (55.80 to 56.80): VL0





#27

Carbon Disulfide

Concen: 0.024 ppbv

RT: 4.62 min Scan# 525

Delta R.T. 0.00 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

VSTDIC0.03

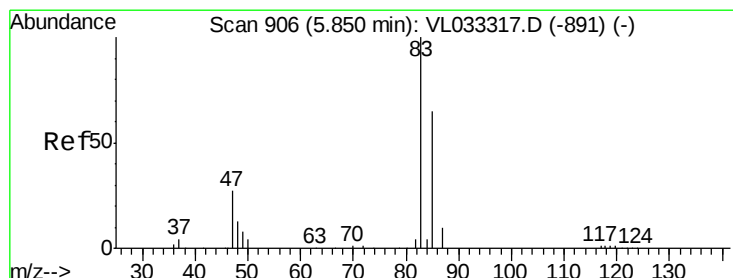
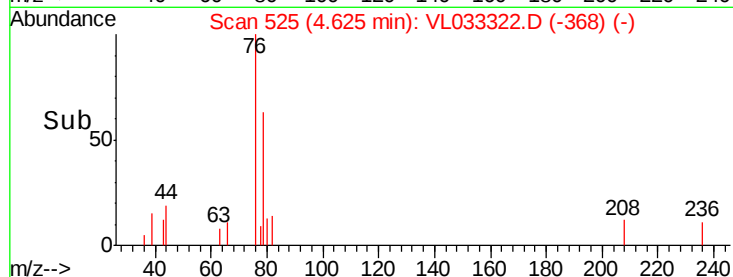
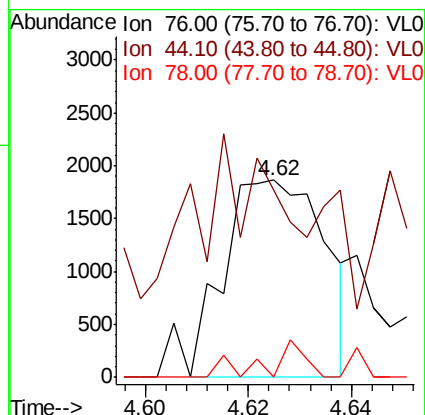
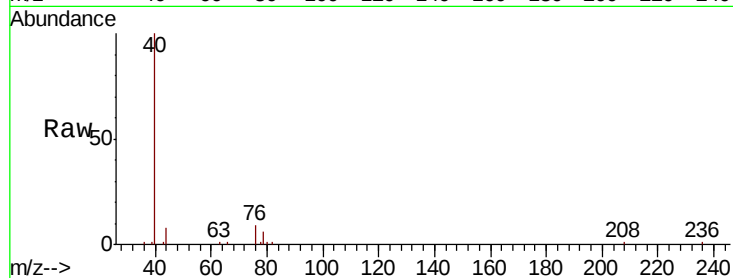
Tgt Ion: 76 Resp: 2511

Ion Ratio Lower Upper

76 100

44 83.8 15.0 22.6#

78 10.7 7.4 11.2



#29

Chloroform

Concen: 0.038 ppbv

RT: 5.85 min Scan# 905

Delta R.T. -0.00 min

Lab File: VL033322.D

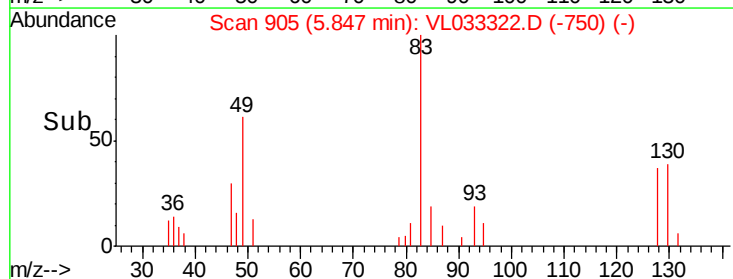
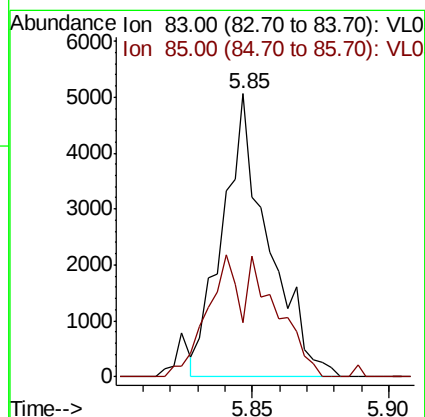
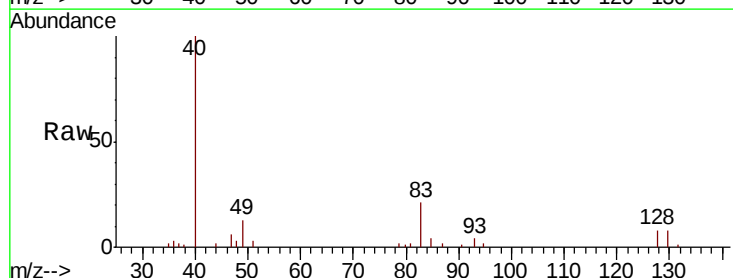
Acq: 15 Mar 2019 6:07

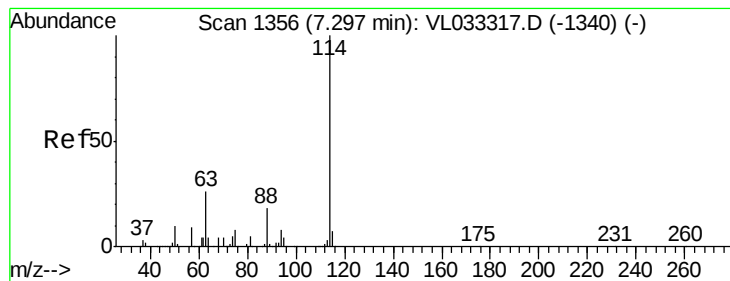
Tgt Ion: 83 Resp: 5906

Ion Ratio Lower Upper

83 100

85 19.3 51.8 77.8#





#33

1,4-Difluorobenzene

Concen: 10.000 ppbv

RT: 7.29 min Scan# 1354

Delta R.T. -0.01 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

VSTDIC0.03

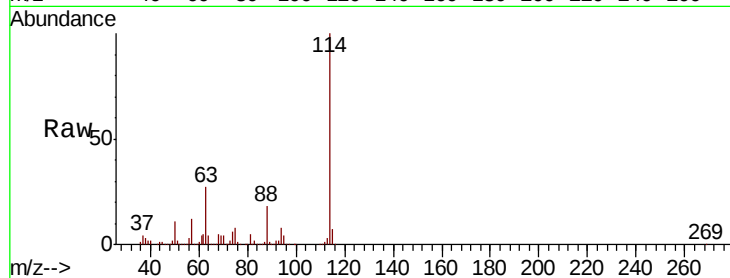
Tgt Ion:114 Resp: 1926140

Ion Ratio Lower Upper

114 100

63 26.9 21.5 32.3

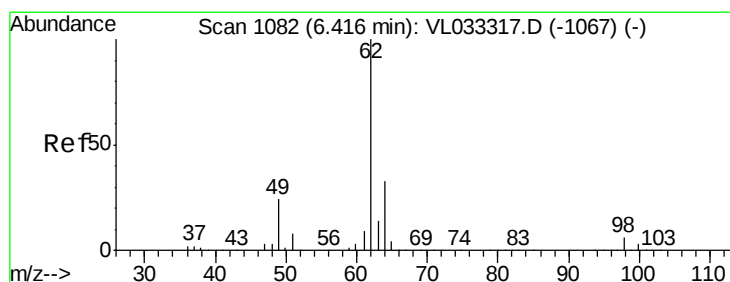
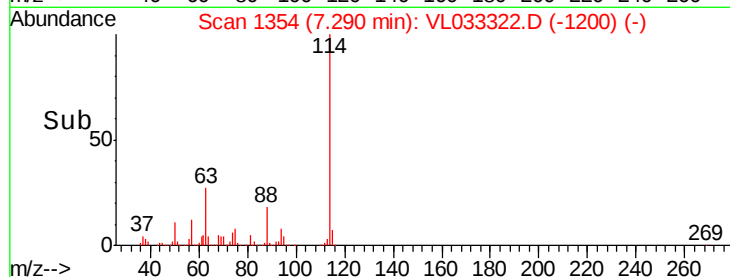
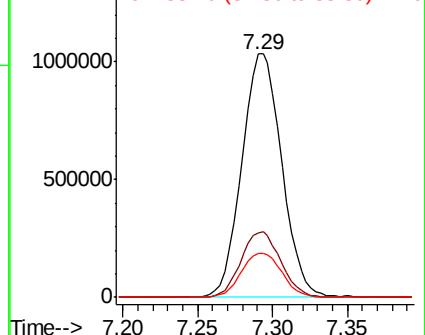
88 18.5 14.6 22.0



Abundance Ion 114.10 (113.80 to 114.80): VL0

Ion 63.10 (62.80 to 63.80): VL0

Ion 88.10 (87.80 to 88.80): VL0



#37

1,2-Dichloroethane

Concen: 0.033 ppbv

RT: 6.41 min Scan# 1080

Delta R.T. -0.01 min

Lab File: VL033322.D

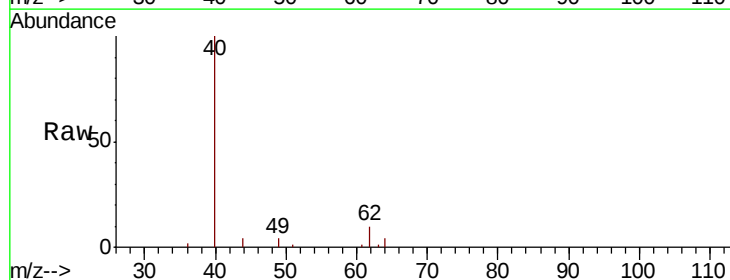
Acq: 15 Mar 2019 6:07

Tgt Ion: 62 Resp: 3724

Ion Ratio Lower Upper

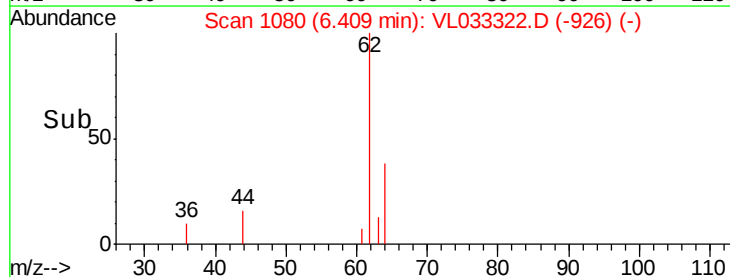
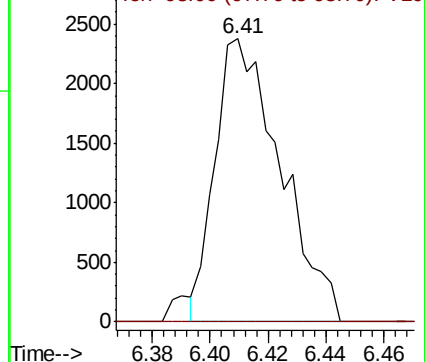
62 100

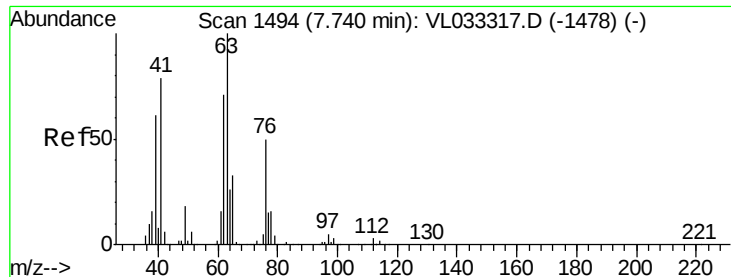
98 0.0 4.6 6.8#



Abundance Ion 62.10 (61.80 to 62.80): VL0

Ion 98.00 (97.70 to 98.70): VL0





#39

1,2-Dichloropropane

Concen: 7.217 ppbv

RT: 7.29 min Scan# 1355

Delta R.T. -0.45 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

Instrument :

MSVOA\_L

ClientSampleId :

VSTDIC0.03

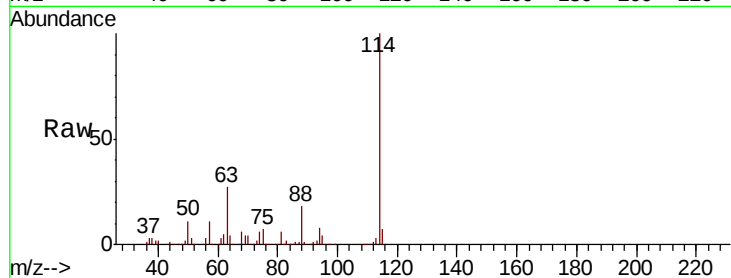
Tgt Ion: 63 Resp: 516984

Ion Ratio Lower Upper

63 100

41 0.0 63.5 95.3#

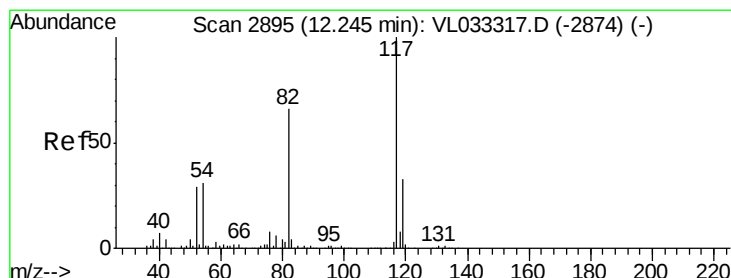
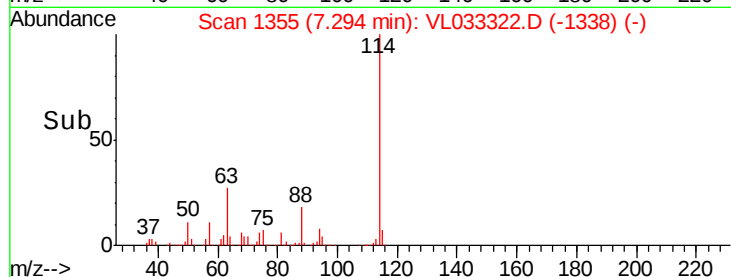
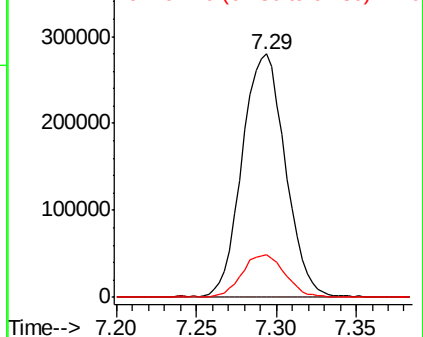
62 17.5 56.5 84.7#



Abundance Ion 63.10 (62.80 to 63.80): VL0

Ion 41.10 (40.80 to 41.80): VL0

Ion 62.10 (61.80 to 62.80): VL0



#55

Chlorobenzene-d5

Concen: 10.000 ppbv

RT: 12.24 min Scan# 2894

Delta R.T. -0.00 min

Lab File: VL033322.D

Acq: 15 Mar 2019 6:07

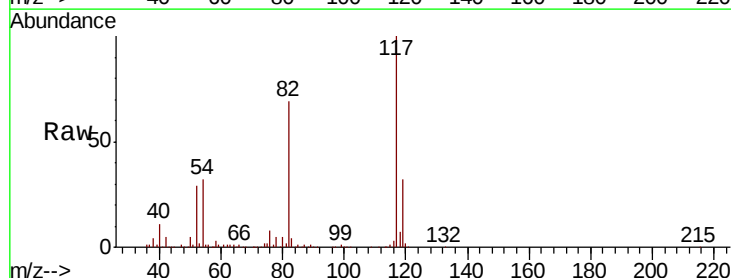
Tgt Ion: 117 Resp: 1834487

Ion Ratio Lower Upper

117 100

82 68.4 53.3 79.9

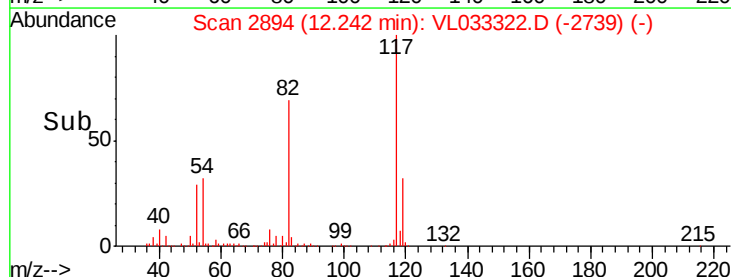
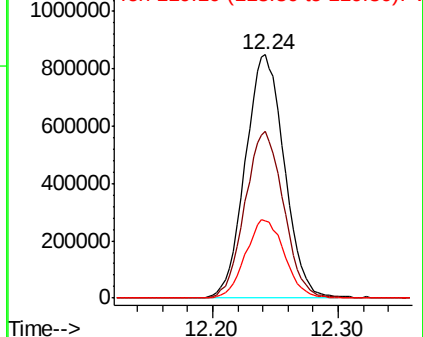
119 32.5 27.7 41.5

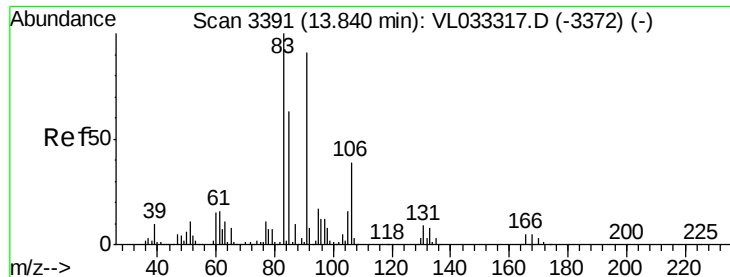


Abundance Ion 117.10 (116.80 to 117.80): V

Ion 82.10 (81.80 to 82.80): VL0

Ion 119.10 (118.80 to 119.80): V

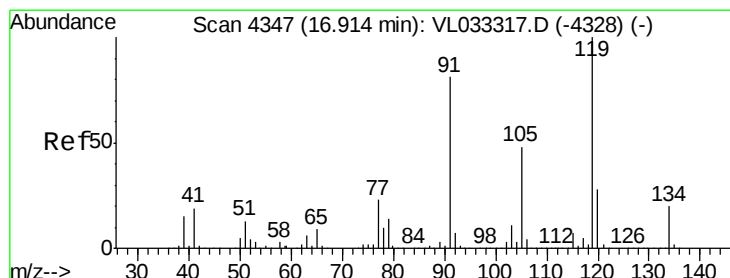
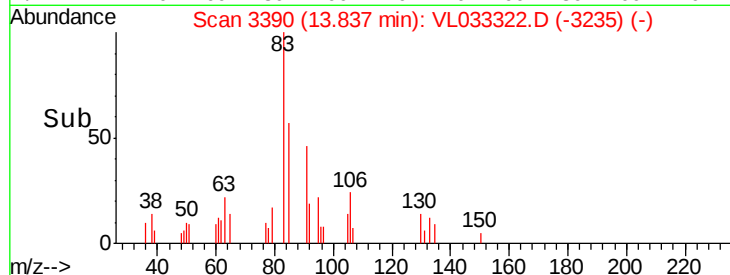
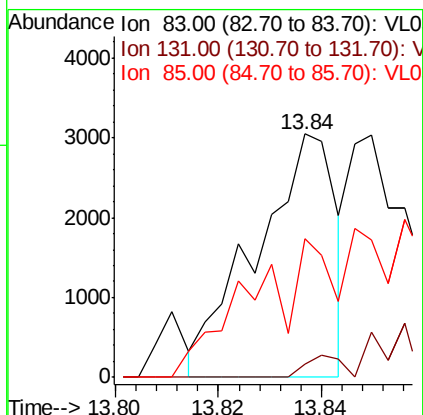
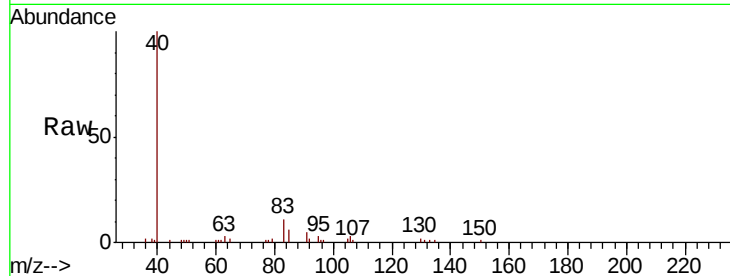




#63  
1,1,2,2-Tetrachloroethane  
Concen: 0.021 ppbv  
RT: 13.84 min Scan# 3390  
Delta R.T. -0.00 min  
Lab File: VL033322.D  
Acq: 15 Mar 2019 6:07

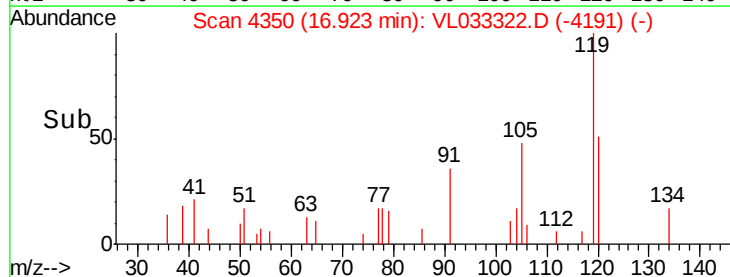
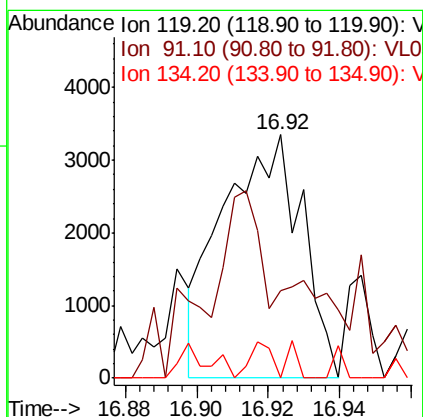
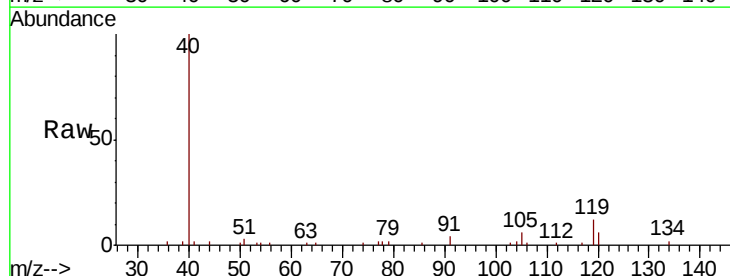
Instrument :  
MSVOA\_L  
ClientSampleId :  
VSTDIC0.03

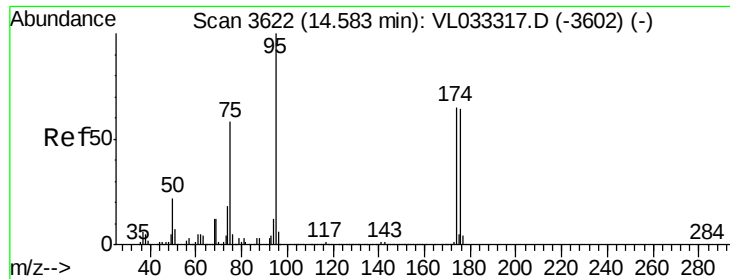
Tgt Ion: 83 Resp: 3254  
Ion Ratio Lower Upper  
83 100  
131 0.0 4.5 13.5#  
85 0.0 32.5 97.5#



#65  
tert-Butylbenzene  
Concen: 0.020 ppbv  
RT: 16.92 min Scan# 4350  
Delta R.T. 0.01 min  
Lab File: VL033322.D  
Acq: 15 Mar 2019 6:07

Tgt Ion: 119 Resp: 5138  
Ion Ratio Lower Upper  
119 100  
91 101.9 67.5 101.3#  
134 13.8 15.5 23.3#

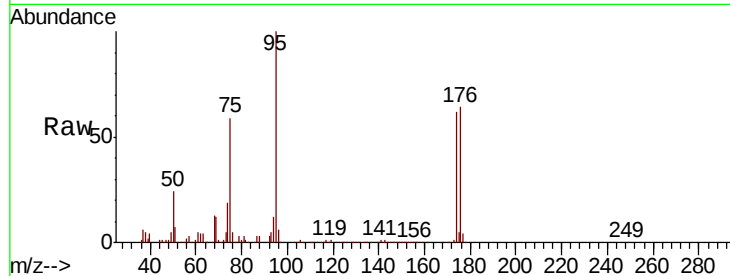




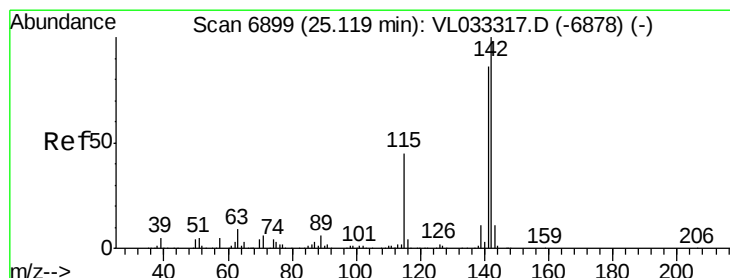
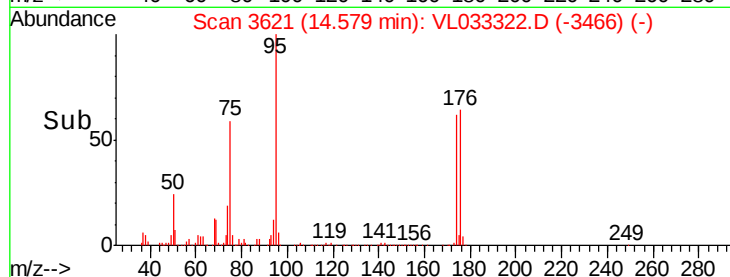
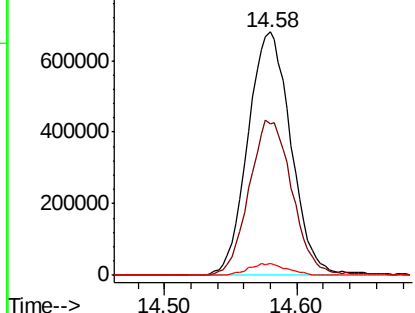
#68  
 1-Bromo-4-Fluorobenzene  
 Concen: 10.892 ppbv  
 RT: 14.58 min Scan# 3621  
 Delta R.T. -0.00 min  
 Lab File: VL033322.D  
 Acq: 15 Mar 2019 6:07

Instrument :  
 MSVOA\_L  
 ClientSampleId :  
 VSTDIC0.03

Tgt Ion: 95 Resp: 1527983  
 Ion Ratio Lower Upper  
 95 100  
 174 64.4 52.2 78.4  
 175 4.7 3.8 5.6

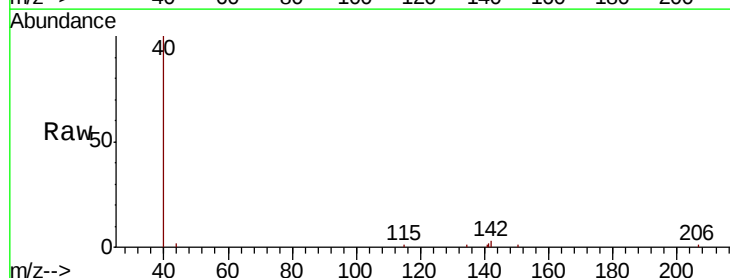


Abundance Ion 95.10 (94.80 to 95.80): VL0  
 Ion 174.00 (173.70 to 174.70): V  
 Ion 175.00 (174.70 to 175.70): V



#80  
 Naphthalene, 2-methyl-  
 Concen: 0.028 ppbv  
 RT: 25.14 min Scan# 6906  
 Delta R.T. 0.02 min  
 Lab File: VL033322.D  
 Acq: 15 Mar 2019 6:07

Tgt Ion: 142 Resp: 1446  
 Ion Ratio Lower Upper  
 142 100  
 141 81.7 67.4 101.0  
 115 34.7 33.8 50.8



Abundance Ion 142.00 (141.70 to 142.70): V  
 Ion 141.00 (140.70 to 141.70): V  
 Ion 115.00 (114.70 to 115.70): V

