Quantitation Report (QT Reviewed)

Data Path : Z:\svoasrv\HPCHEM1\BNA_N\Data\BN111324\
Data File : BN035062.D
Acq On : 13 Nov 2024 12:40
Operator : RC/JU
Sample : SSTDICC0.1
Misc :
ALS Vial : 2 Sample Multiplier: 1

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Quant Time: Nov 13 16:42:46 2024
Quant Method : Z:\svoasrv\HPCHEM1\BNA_N\Methods\8270-SIM-BN111324.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Nov 13 16:42:01 2024
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) 1,4-Dichlorobenzene-d4	7.553	152	1991	0.400	ng		0.00
7) Naphthalene-d8	10.319	136	4930	0.400	ng		0.00
13) Acenaphthene-d10	14.186	164	3629	0.400	ng		0.00
19) Phenanthrene-d10	16.939	188	10187	0.400	ng		0.00
29) Chrysene-d12	21.131	240	11121	0.400	ng	#	0.00
35) Perylene-d12	23.304	264	13104	0.400	ng		0.00
System Monitoring Compounds							
4) 2-Fluorophenol	5.177	112	534	0.106	ng		0.00
5) Phenol-d6	6.737	99	629	0.099	ng		0.00
8) Nitrobenzene-d5	8.696	82	441	0.103	ng		0.00
11) 2-Methylnaphthalene-d10	11.916	152	855	0.097	ng		0.00
14) 2,4,6-Tribromophenol	15.686	330	255	0.097	ng		0.00
15) 2-Fluorobiphenyl	12.807	172	1543	0.105	ng		0.00
27) Fluoranthene-d10	18.976	212	3046	0.098	ng		0.00
31) Terphenyl-d14	19.584	244	2331	0.100	ng		0.00
Target Compounds							Qvalue
2) 1,4-Dioxane	3.177	88	204	0.113	ng		93
3) n-Nitrosodimethylamine	3.480	42	182	0.108	ng	#	90
6) bis(2-Chloroethyl)ether	6.990	93	484	0.102	ng		99
9) Naphthalene	10.362	128	1341	0.104	ng	#	89
10) Hexachlorobutadiene	10.660	225	399	0.106	ng	#	99
12) 2-Methylnaphthalene	11.992	142	914	0.096	ng		96
16) Acenaphthylene	13.908	152	1556	0.100	ng		99
17) Acenaphthene	14.250	154	1024	0.101	ng		98
18) Fluorene	15.245	166	1546	0.103	ng		99
20) 4,6-Dinitro-2-methylph...	15.330	198	172	0.081	ng	#	1
21) 4-Bromophenyl-phenylether	16.145	248	651	0.100	ng		97
22) Hexachlorobenzene	16.244	284	701	0.104	ng		98
23) Atrazine	16.418	200	577	0.099	ng	#	91
24) Pentachlorophenol	16.592	266	269	0.085	ng		94
25) Phenanthrene	16.977	178	2723	0.102	ng		100
26) Anthracene	17.063	178	2335	0.095	ng		98
28) Fluoranthene	19.003	202	3554	0.096	ng		100
30) Pyrene	19.366	202	3722	0.101	ng		98
32) Benzo(a)anthracene	21.122	228	3952	0.102	ng		97
33) Chrysene	21.167	228	3918	0.102	ng		96
34) Bis(2-ethylhexyl)phtha...	21.077	149	2250	0.112	ng	#	99
36) Indeno(1,2,3-cd)pyrene	25.455	276	5271	0.101	ng		96
37) Benzo(b)fluoranthene	22.657	252	4345	0.099	ng	#	82
38) Benzo(k)fluoranthene	22.701	252	4395	0.100	ng	#	78
39) Benzo(a)pyrene	23.204	252	3841	0.099	ng	#	77
40) Dibenzo(a,h)anthracene	25.467	278	4089	0.099	ng	#	85
41) Benzo(g,h,i)perylene	26.099	276	4521	0.103	ng	#	94

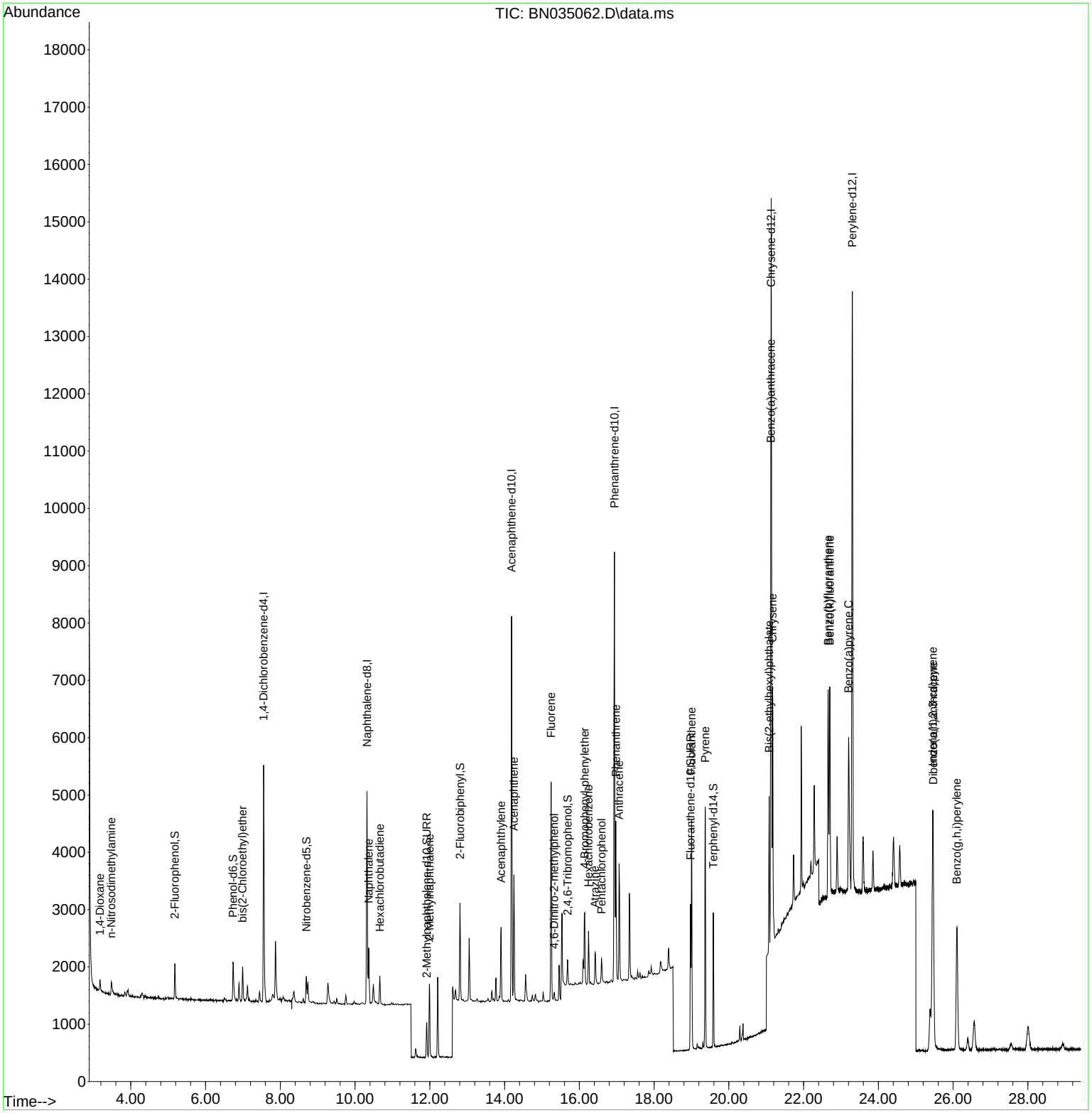
(#) = qualifier out of range (m) = manual integration (+) = signals summed

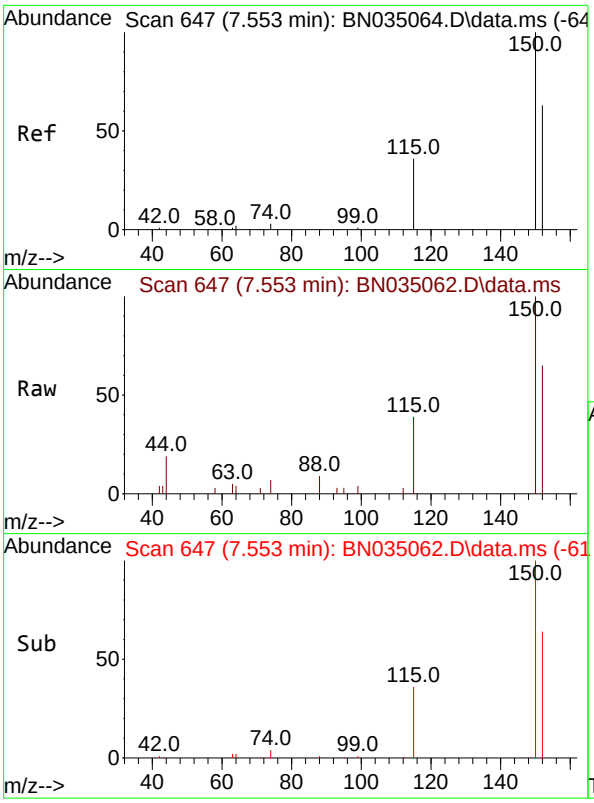
Quantitation Report (QT Reviewed)

Data Path : Z:\svoasrv\HPCHEM1\BNA_N\Data\BN111324\
Data File : BN035062.D
Acq On : 13 Nov 2024 12:40
Operator : RC/JU
Sample : SSTDICC0.1
Misc :
ALS Vial : 2 Sample Multiplier: 1

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Quant Time: Nov 13 16:42:46 2024
Quant Method : Z:\svoasrv\HPCHEM1\BNA_N\Methods\8270-SIM-BN111324.M
Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION
QLast Update : Wed Nov 13 16:42:01 2024
Response via : Initial Calibration



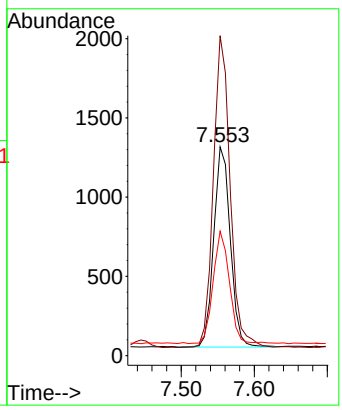


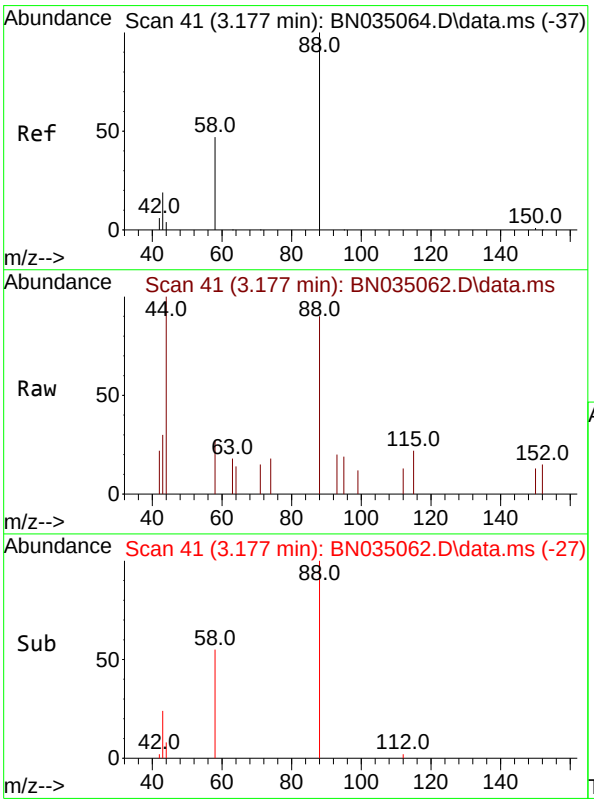
#1
1,4-Dichlorobenzene-d4
Concen: 0.400 ng
RT: 7.553 min Scan# 64
Delta R.T. 0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:152 Resp: 1991

Ion	Ratio	Lower	Upper
152	100		
150	153.3	124.5	186.7
115	59.6	47.8	71.6

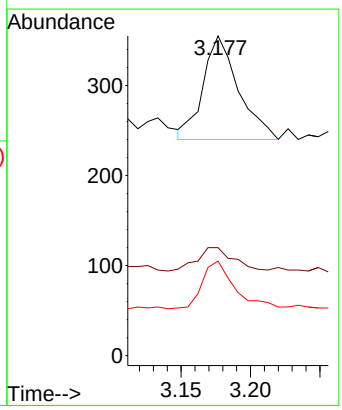


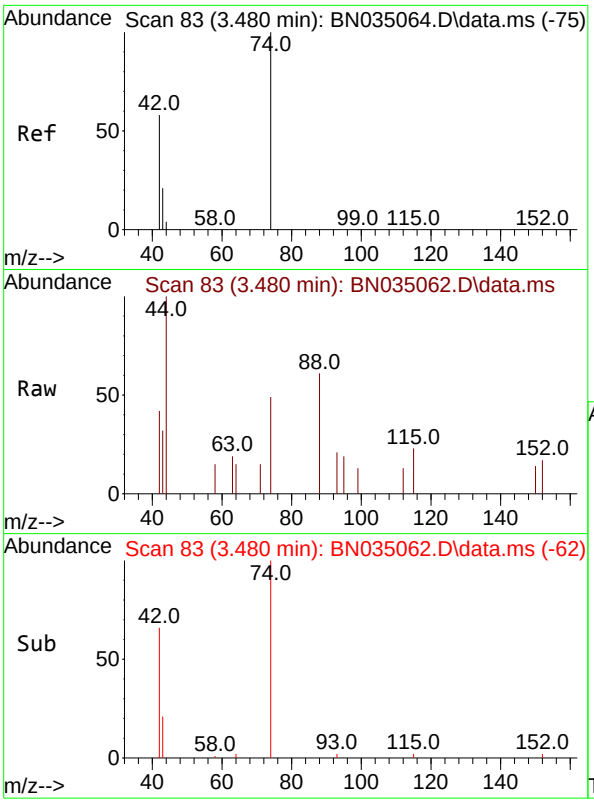


#2
1,4-Dioxane
Concen: 0.113 ng
RT: 3.177 min Scan# 41
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion: 88 Resp: 204

Ion	Ratio	Lower	Upper
88	100		
43	23.0	16.9	25.3
58	42.6	39.0	58.4



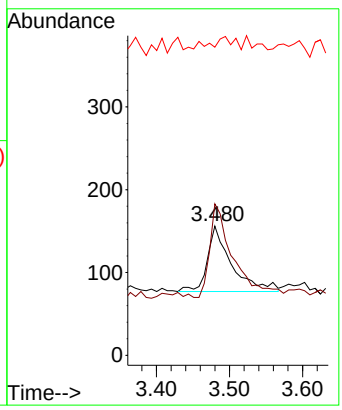


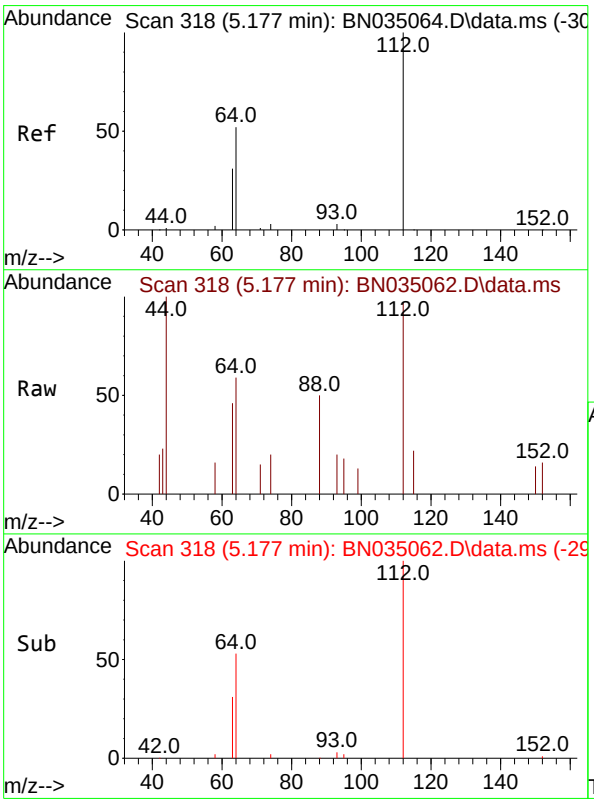
#3
n-Nitrosodimethylamine
Concen: 0.108 ng
RT: 3.480 min Scan# 8
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion: 42 Resp: 182

Ion	Ratio	Lower	Upper
42	100		
74	139.0	120.8	181.2
44	12.6	2.9	4.3#

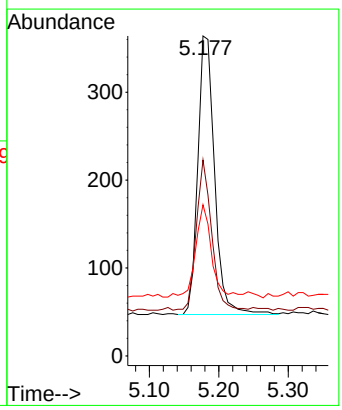


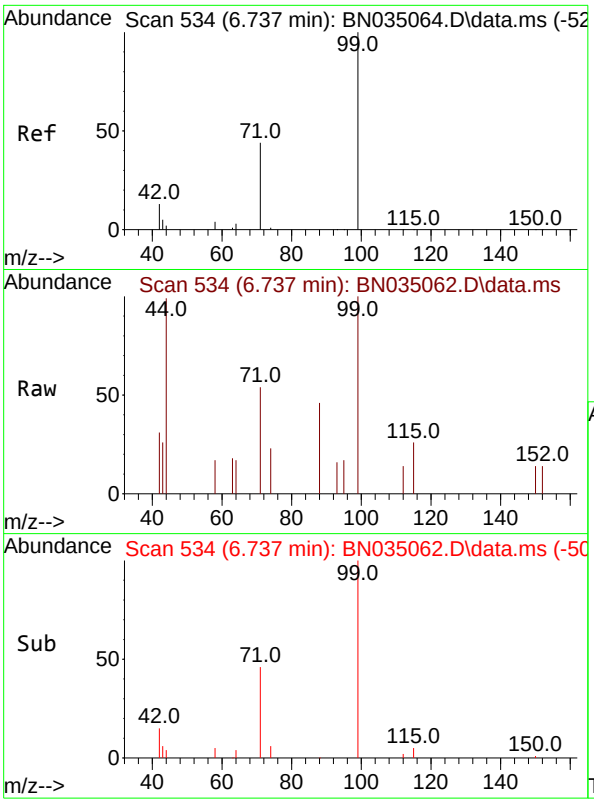


#4
2-Fluorophenol
Concen: 0.106 ng
RT: 5.177 min Scan# 318
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:112 Resp: 534

Ion	Ratio	Lower	Upper
112	100		
64	48.9	39.7	59.5
63	31.1	23.0	34.4



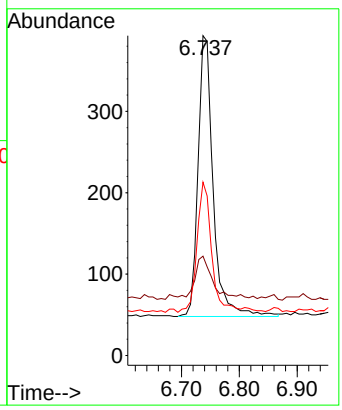


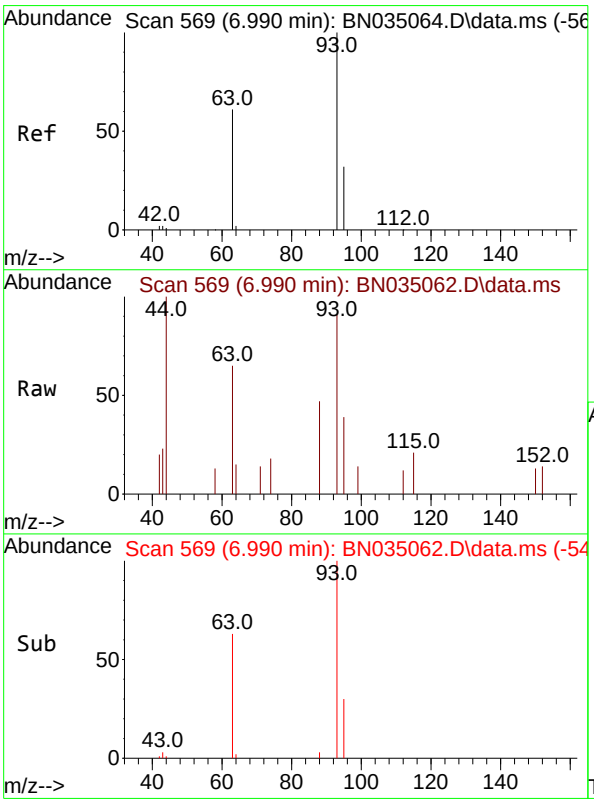
#5
Phenol-d6
Concen: 0.099 ng
RT: 6.737 min Scan# 5
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion: 99 Resp: 629

Ion	Ratio	Lower	Upper
99	100		
42	19.6	11.4	17.0#
71	44.5	34.6	51.8

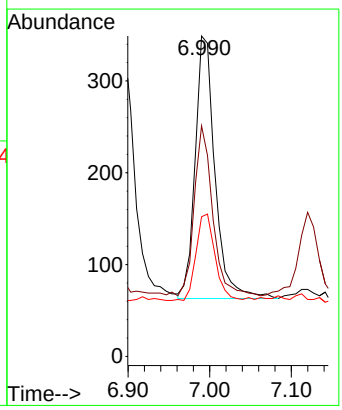


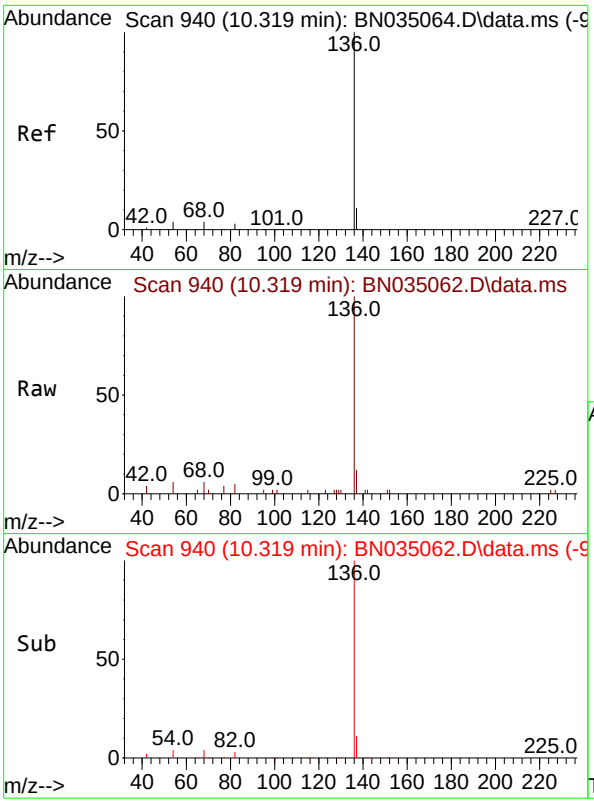


#6
bis(2-Chloroethyl)ether
Concen: 0.102 ng
RT: 6.990 min Scan# 569
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion: 93 Resp: 484

Ion	Ratio	Lower	Upper
93	100		
63	60.1	47.4	71.2
95	31.8	26.2	39.4



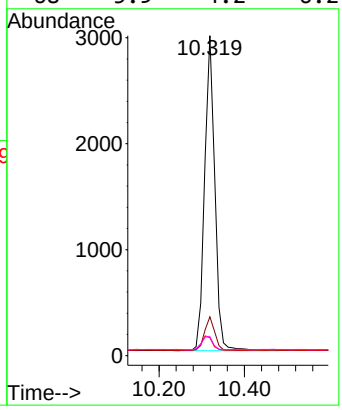


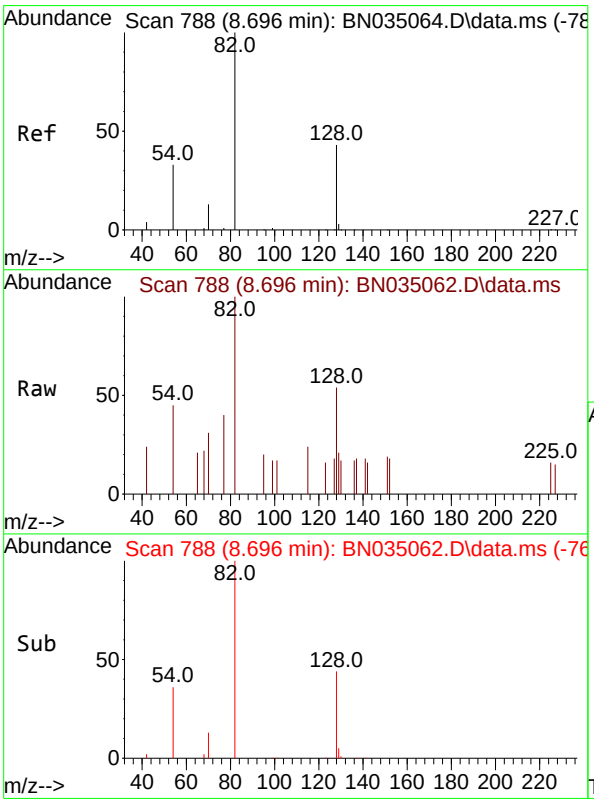
#7
Naphthalene-d8
Concen: 0.400 ng
RT: 10.319 min Scan# 94
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:136 Resp: 4930

Ion	Ratio	Lower	Upper
136	100		
137	12.2	9.8	14.8
54	5.6	4.0	6.0
68	5.9	4.2	6.2

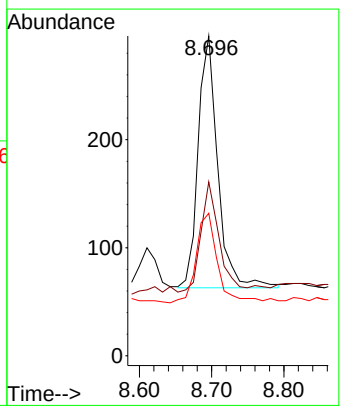


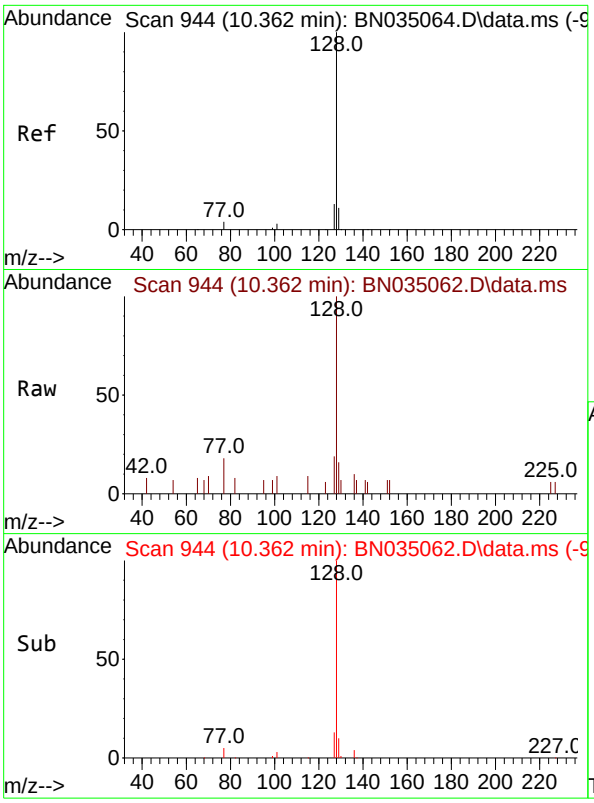


#8
Nitrobenzene-d5
Concen: 0.103 ng
RT: 8.696 min Scan# 788
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion: 82 Resp: 441

Ion	Ratio	Lower	Upper
82	100		
128	54.4	36.5	54.7
54	44.6	28.7	43.1#



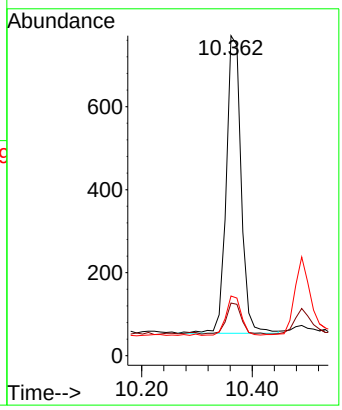


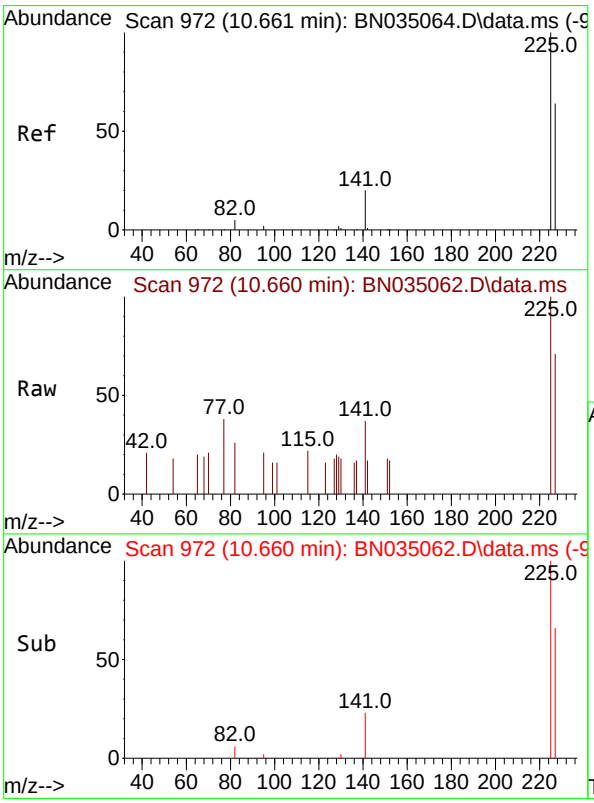
#9
Naphthalene
Concen: 0.104 ng
RT: 10.362 min Scan# 94
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:128 Resp: 1341

Ion	Ratio	Lower	Upper
128	100		
129	16.5	9.6	14.4#
127	18.7	11.6	17.4#

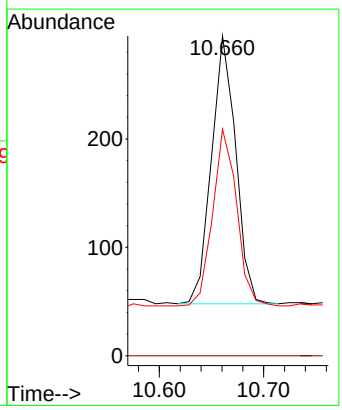


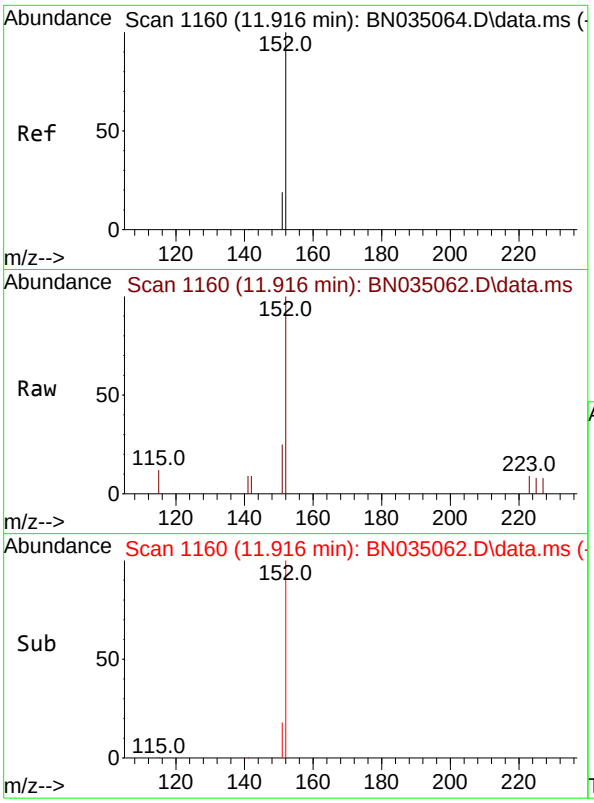


#10
Hexachlorobutadiene
Concen: 0.106 ng
RT: 10.660 min Scan# 972
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:225 Resp: 399

Ion	Ratio	Lower	Upper
225	100		
223	0.0	0.0	0.0
227	65.4	51.5	77.3



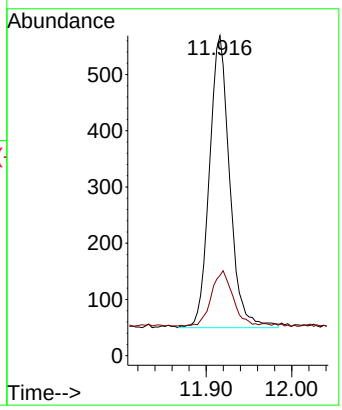


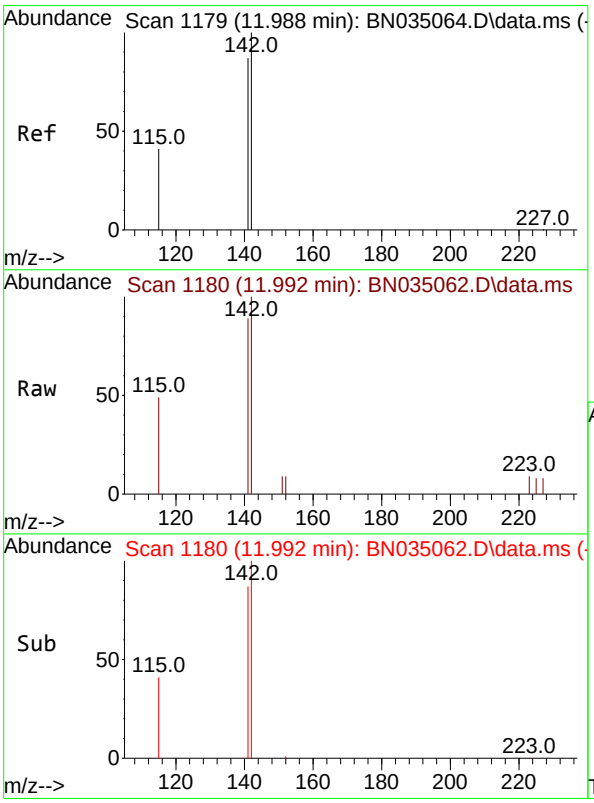
#11
2-Methylnaphthalene-d10
Concen: 0.097 ng
RT: 11.916 min Scan# 11
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:152 Resp: 855

Ion	Ratio	Lower	Upper
152	100		
151	20.2	16.2	24.4

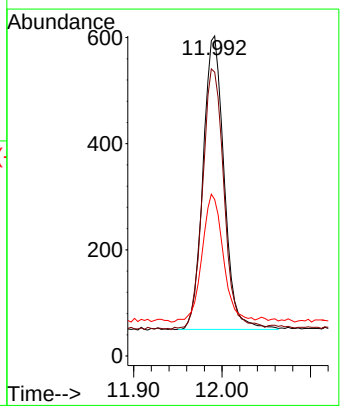


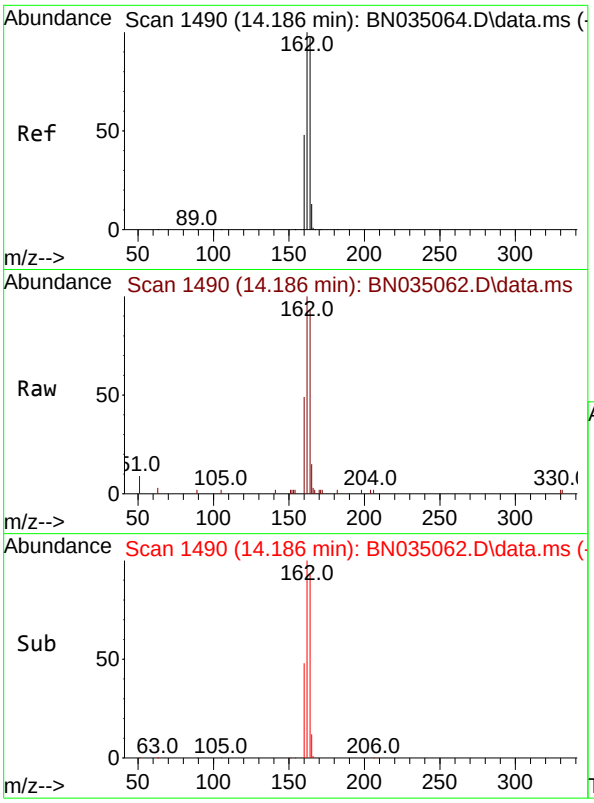


#12
2-Methylnaphthalene
Concen: 0.096 ng
RT: 11.992 min Scan# 1180
Delta R.T. 0.004 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:142 Resp: 914

Ion	Ratio	Lower	Upper
142	100		
141	88.7	70.1	105.1
115	48.9	34.4	51.6



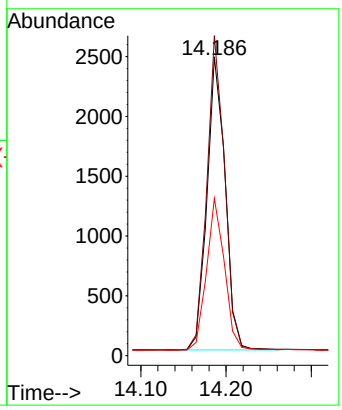


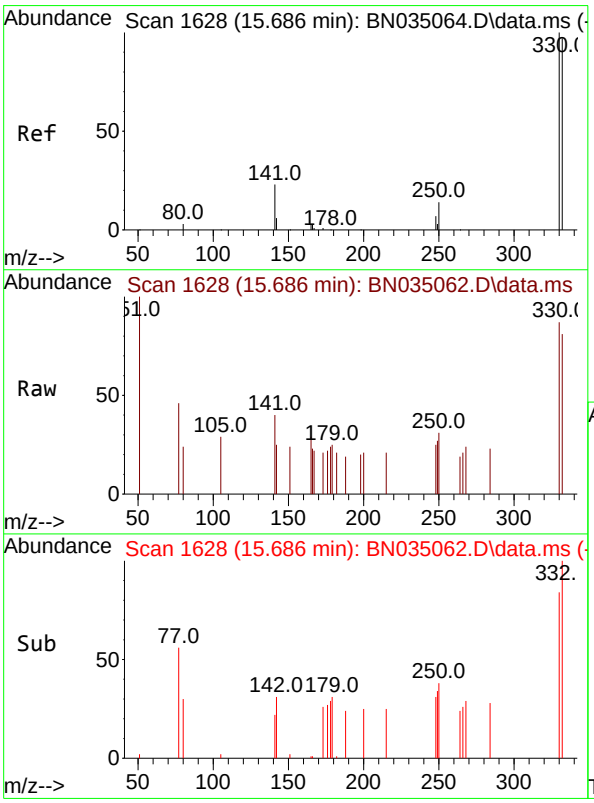
#13
Acenaphthene-d10
Concen: 0.400 ng
RT: 14.186 min Scan# 14
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:164 Resp: 3629

Ion	Ratio	Lower	Upper
164	100		
162	107.1	82.2	123.2
160	52.6	40.2	60.4

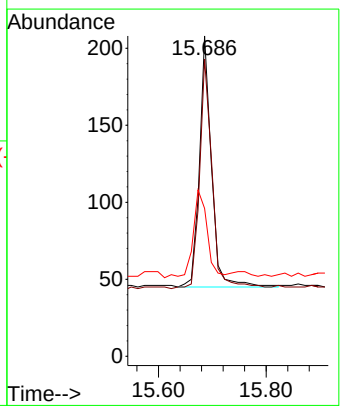


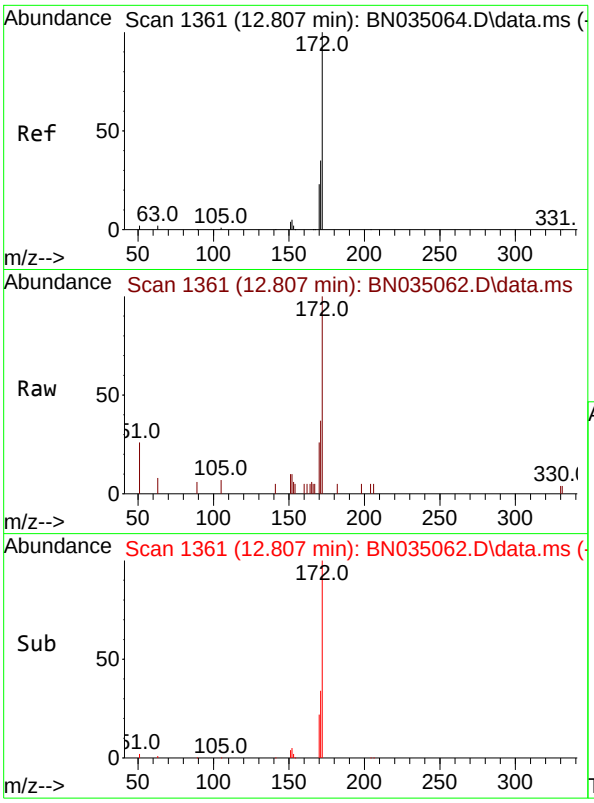


#14
2,4,6-Tribromophenol
Concen: 0.097 ng
RT: 15.686 min Scan# 1628
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:330 Resp: 255

Ion	Ratio	Lower	Upper
330	100		
332	90.6	76.9	115.3
141	37.6	29.6	44.4



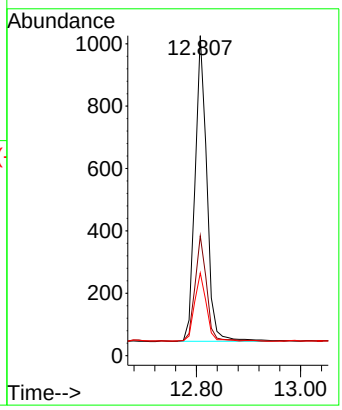


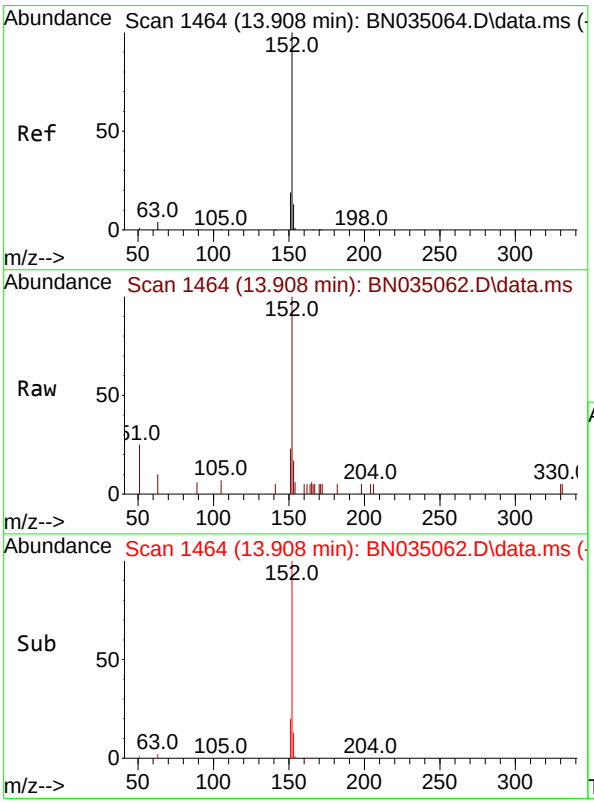
#15
2-Fluorobiphenyl
Concen: 0.105 ng
RT: 12.807 min Scan# 1
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:172 Resp: 1543

Ion	Ratio	Lower	Upper
172	100		
171	37.4	28.2	42.4
170	25.8	19.0	28.6

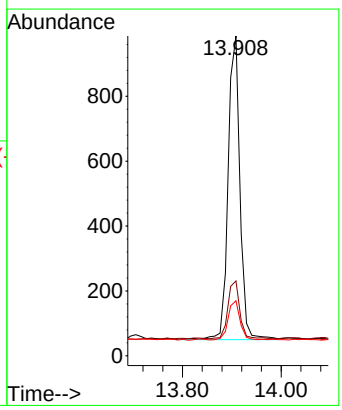


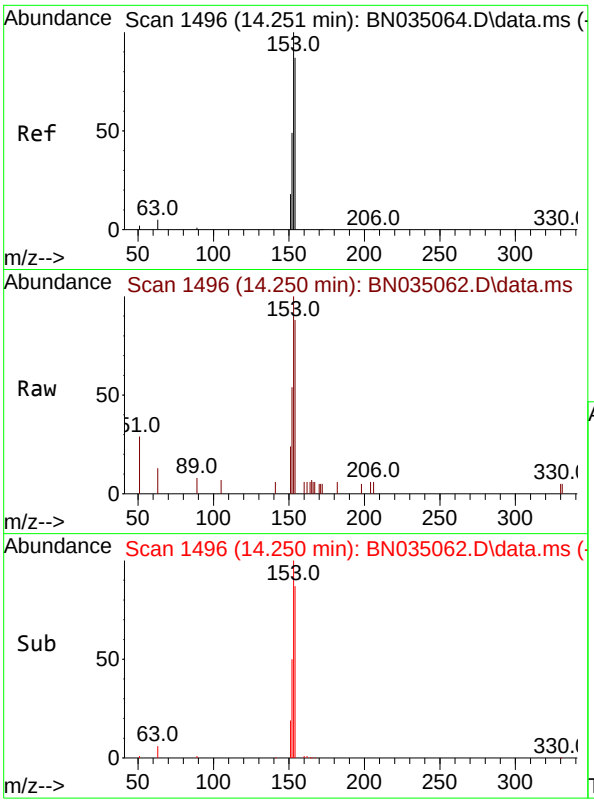


#16
Acenaphthylene
Concen: 0.100 ng
RT: 13.908 min Scan# 1464
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:152 Resp: 1556

Ion	Ratio	Lower	Upper
152	100		
151	19.2	15.8	23.8
153	13.2	10.2	15.4



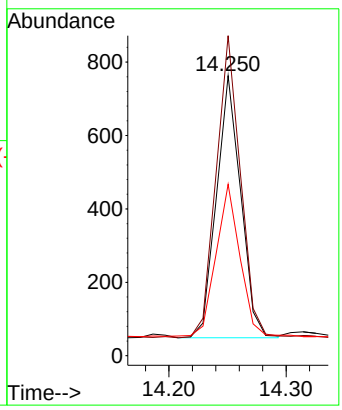


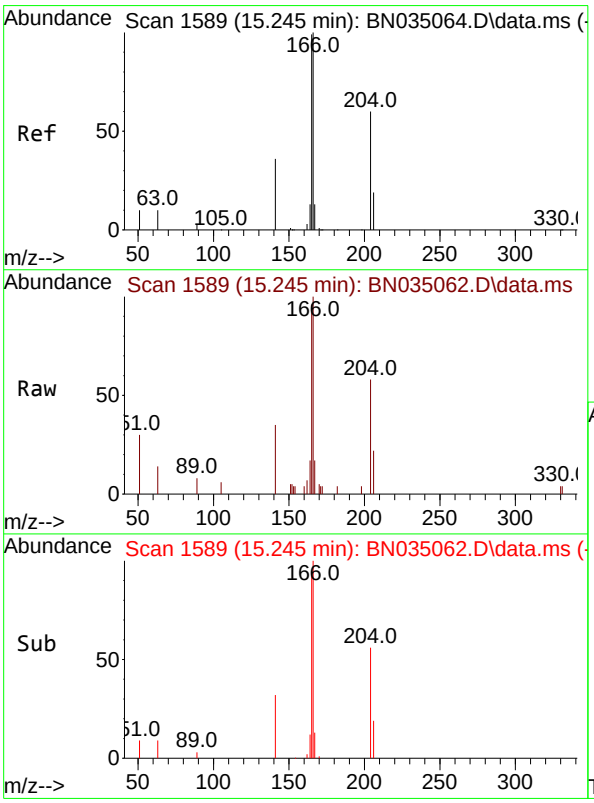
#17
Acenaphthene
Concen: 0.101 ng
RT: 14.250 min Scan# 14
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:154 Resp: 1024

Ion	Ratio	Lower	Upper
154	100		
153	116.6	91.6	137.4
152	57.9	45.8	68.6

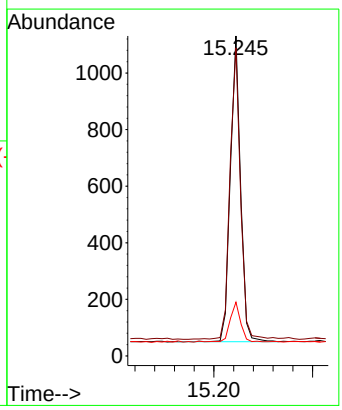


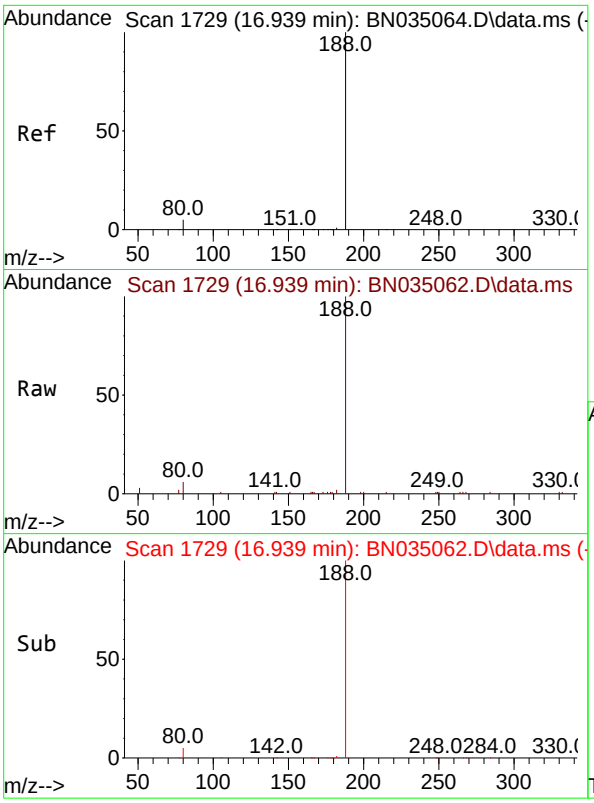


#18
Fluorene
Concen: 0.103 ng
RT: 15.245 min Scan# 1589
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:166 Resp: 1546

Ion	Ratio	Lower	Upper
166	100		
165	97.9	79.1	118.7
167	12.9	10.6	16.0



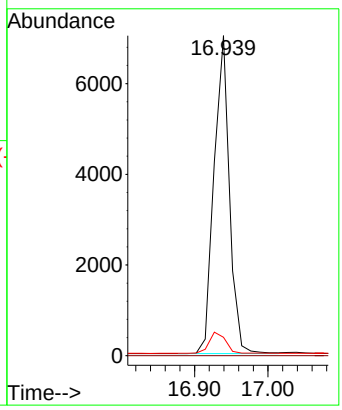


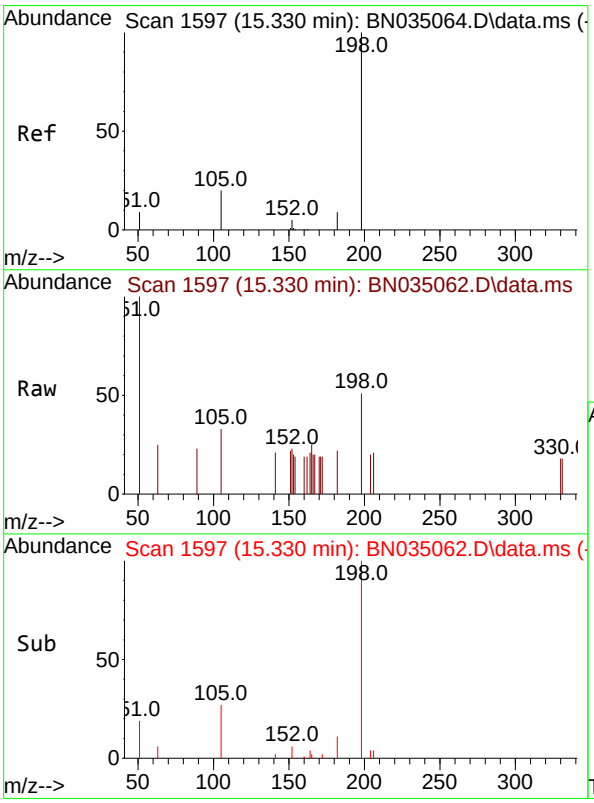
#19
Phenanthrene-d10
Concen: 0.400 ng
RT: 16.939 min Scan# 1
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:188 Resp: 10187

Ion	Ratio	Lower	Upper
188	100		
94	0.0	0.0	0.0
80	5.7	4.3	6.5

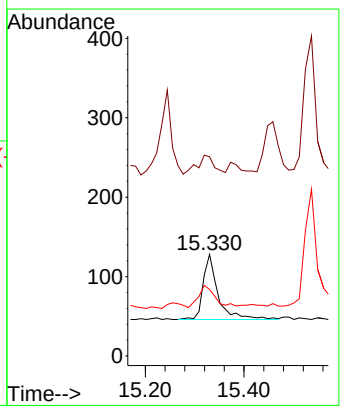


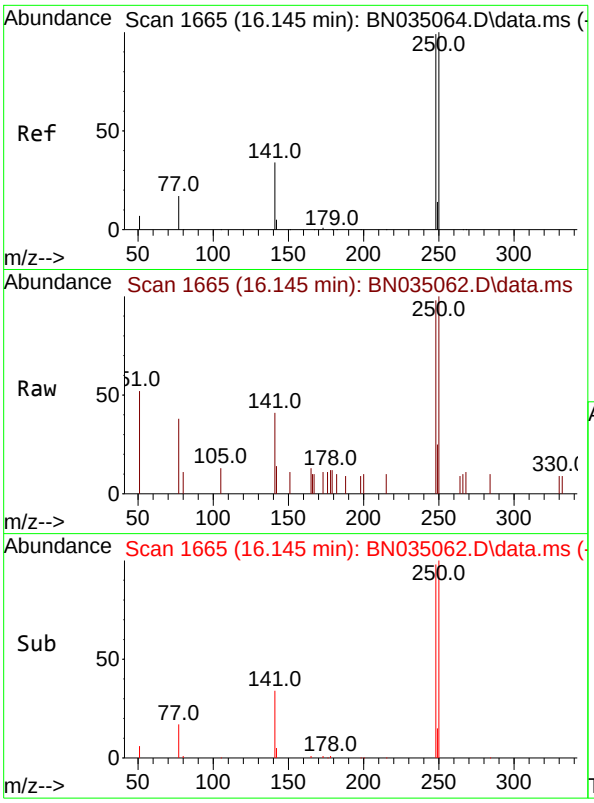


#20
4,6-Dinitro-2-methylphenol
Concen: 0.081 ng
RT: 15.330 min Scan# 1597
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:198 Resp: 172

Ion	Ratio	Lower	Upper
198	100		
51	196.1	29.9	44.9#
105	65.6	23.7	35.5#



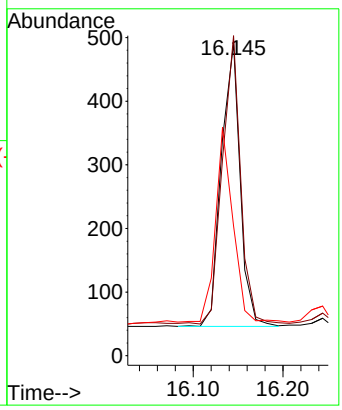


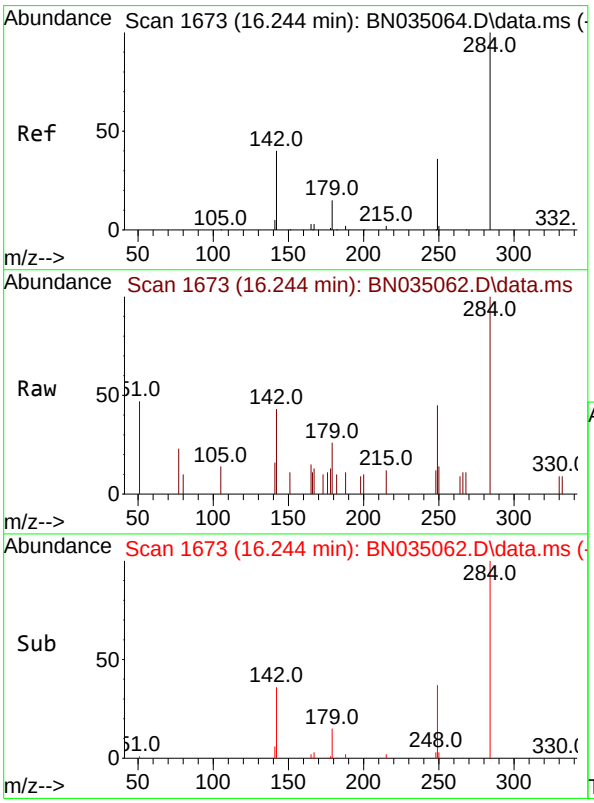
#21
4-Bromophenyl-phenylether
Concen: 0.100 ng
RT: 16.145 min Scan# 1
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:248 Resp: 651

Ion	Ratio	Lower	Upper
248	100		
250	102.4	81.2	121.8
141	41.5	29.1	43.7

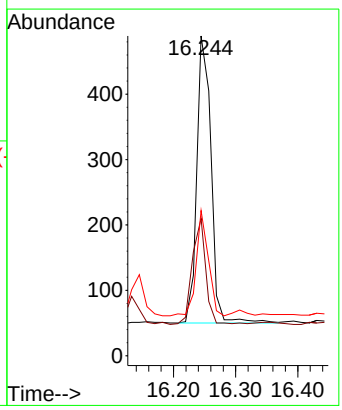


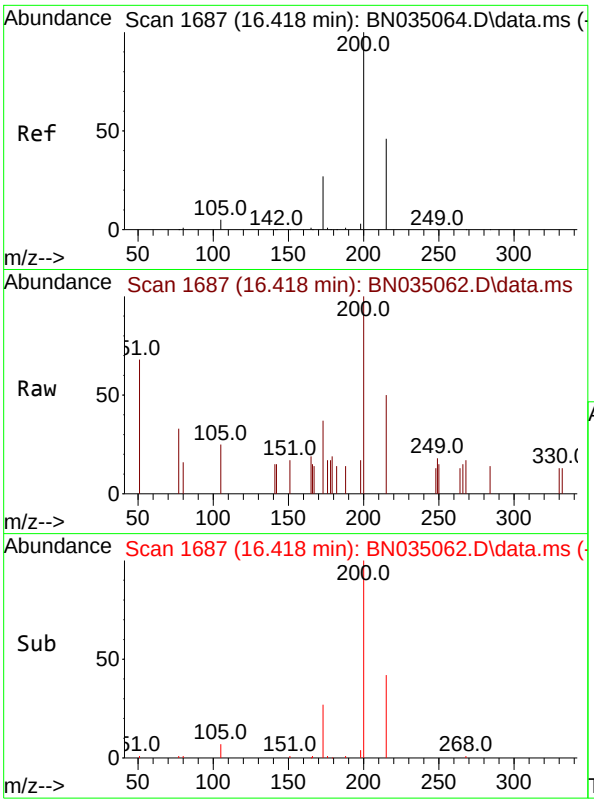


#22
Hexachlorobenzene
Concen: 0.104 ng
RT: 16.244 min Scan# 1673
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:284 Resp: 701

Ion	Ratio	Lower	Upper
284	100		
142	34.5	28.2	42.4
249	31.4	26.2	39.2



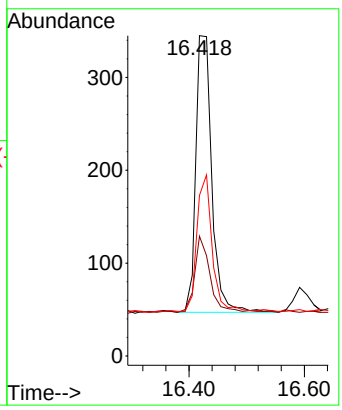


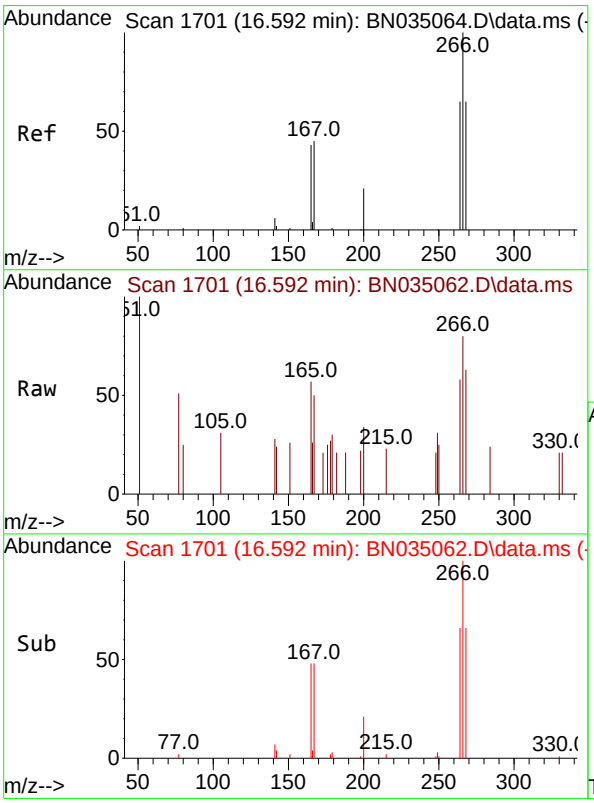
#23
Atrazine
Concen: 0.099 ng
RT: 16.418 min Scan# 1
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:200 Resp: 577

Ion	Ratio	Lower	Upper
200	100		
173	37.4	22.6	33.8#
215	50.1	37.8	56.6

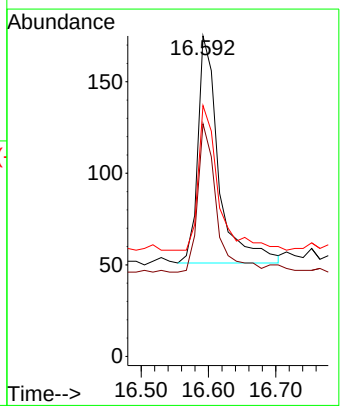


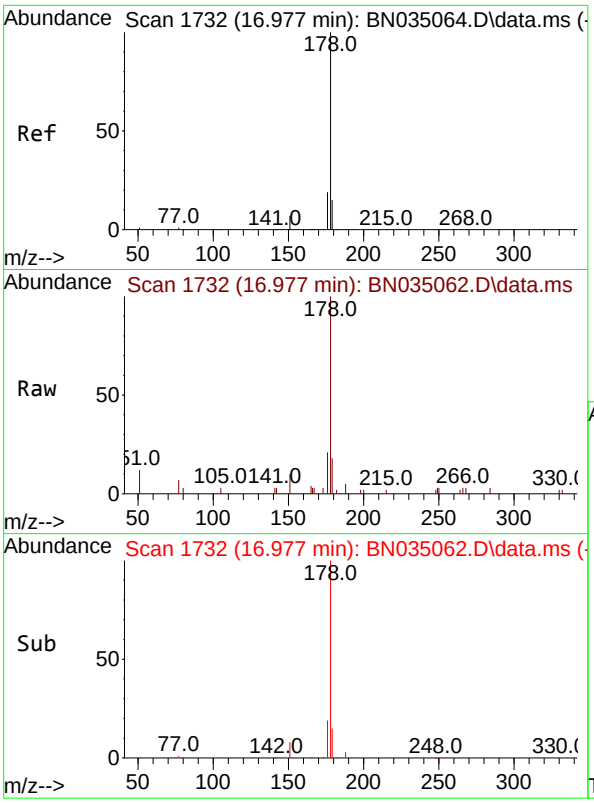


#24
Pentachlorophenol
Concen: 0.085 ng
RT: 16.592 min Scan# 1701
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:266 Resp: 269

Ion	Ratio	Lower	Upper
266	100		
264	58.4	49.4	74.0
268	60.2	52.6	79.0



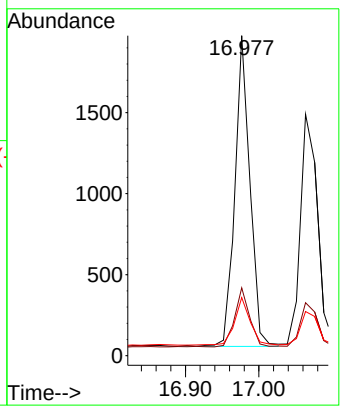


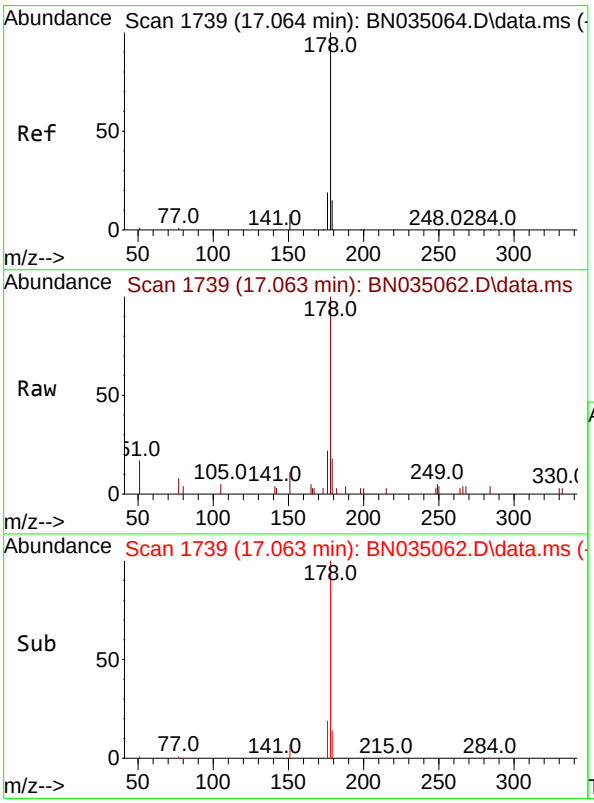
#25
Phenanthrene
Concen: 0.102 ng
RT: 16.977 min Scan# 1
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:178 Resp: 2723

Ion	Ratio	Lower	Upper
178	100		
176	18.9	15.2	22.8
179	15.9	12.6	18.8

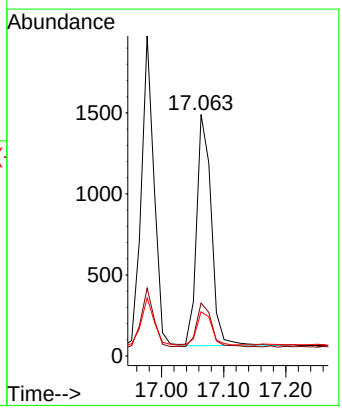


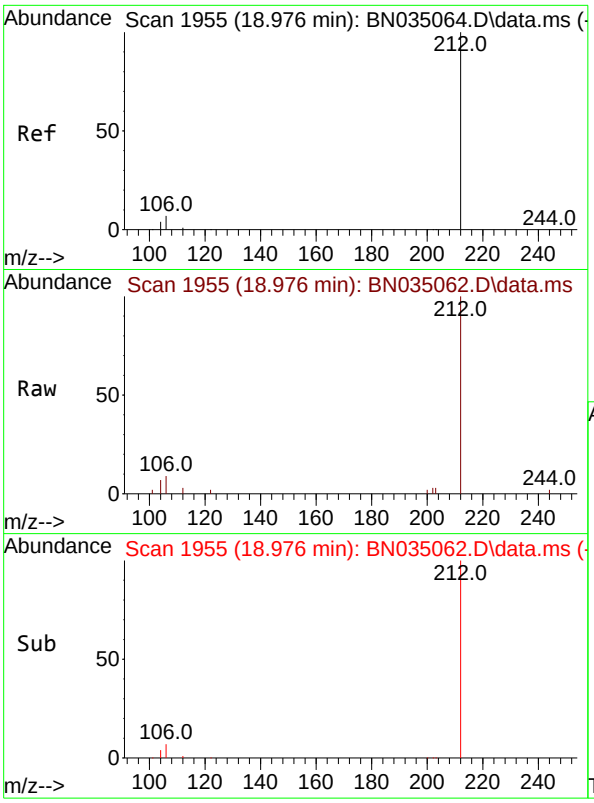


#26
Anthracene
Concen: 0.095 ng
RT: 17.063 min Scan# 1739
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:178 Resp: 2335

Ion	Ratio	Lower	Upper
178	100		
176	19.6	14.6	22.0
179	14.8	12.2	18.2



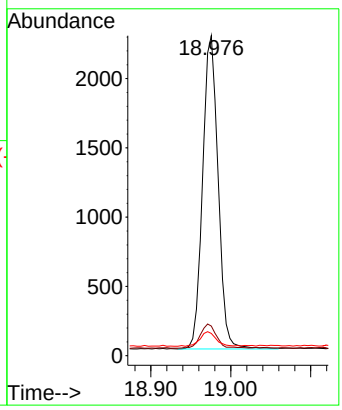


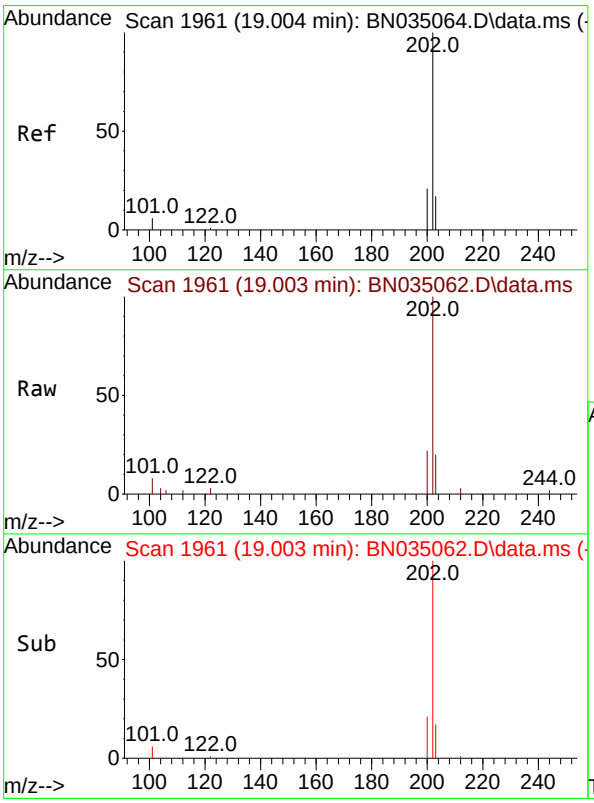
#27
Fluoranthene-d10
Concen: 0.098 ng
RT: 18.976 min Scan# 1
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:212 Resp: 3046

Ion	Ratio	Lower	Upper
212	100		
106	7.8	6.0	9.0
104	4.8	3.5	5.3

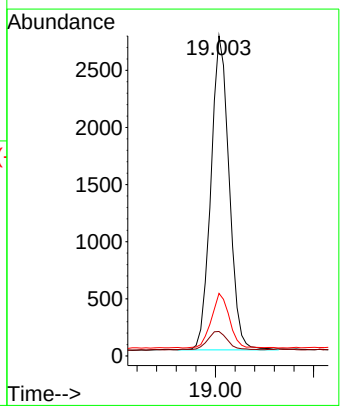


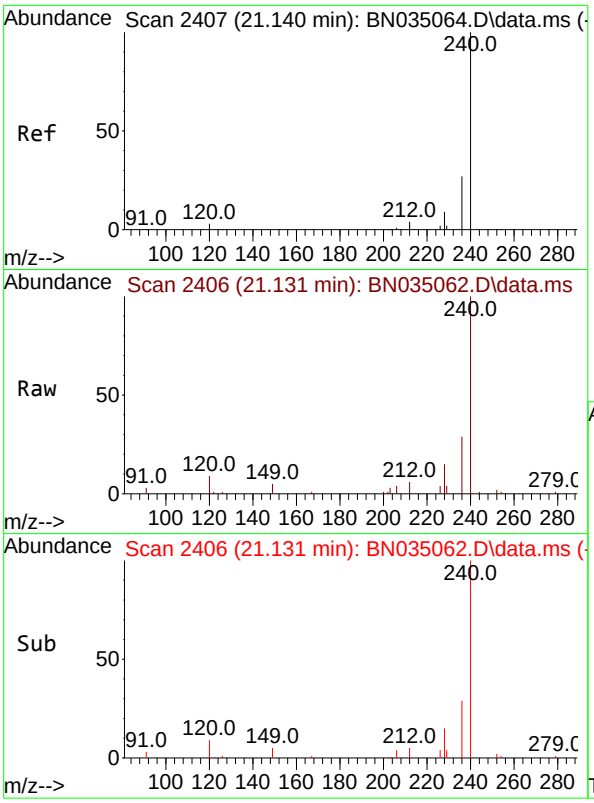


#28
Fluoranthene
Concen: 0.096 ng
RT: 19.003 min Scan# 1961
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:202 Resp: 3554

Ion	Ratio	Lower	Upper
202	100		
101	6.7	5.2	7.8
203	17.2	13.8	20.8



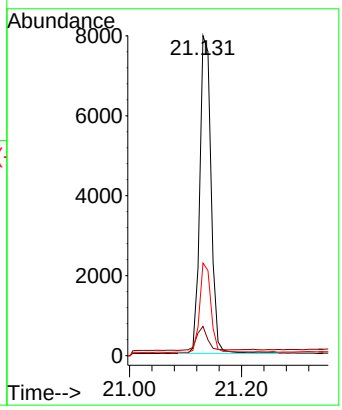


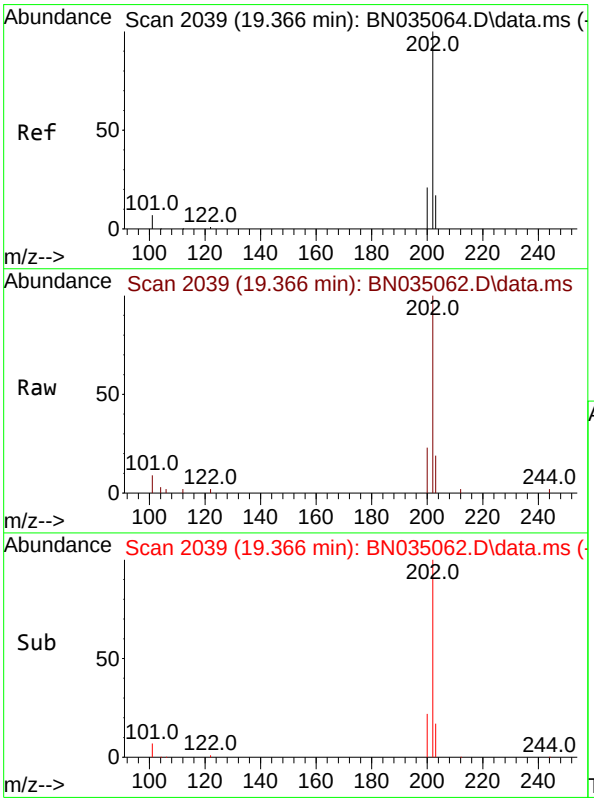
#29
Chrysene-d12
Concen: 0.400 ng
RT: 21.131 min Scan# 24
Delta R.T. -0.009 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:240 Resp: 11121

Ion	Ratio	Lower	Upper
240	100		
120	9.1	3.8	5.6#
236	28.9	22.2	33.2

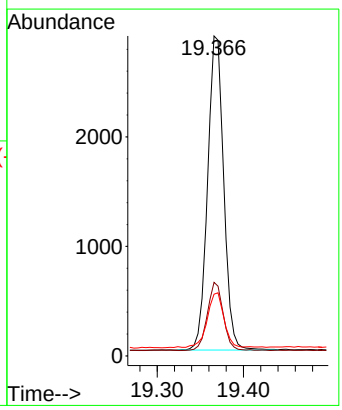


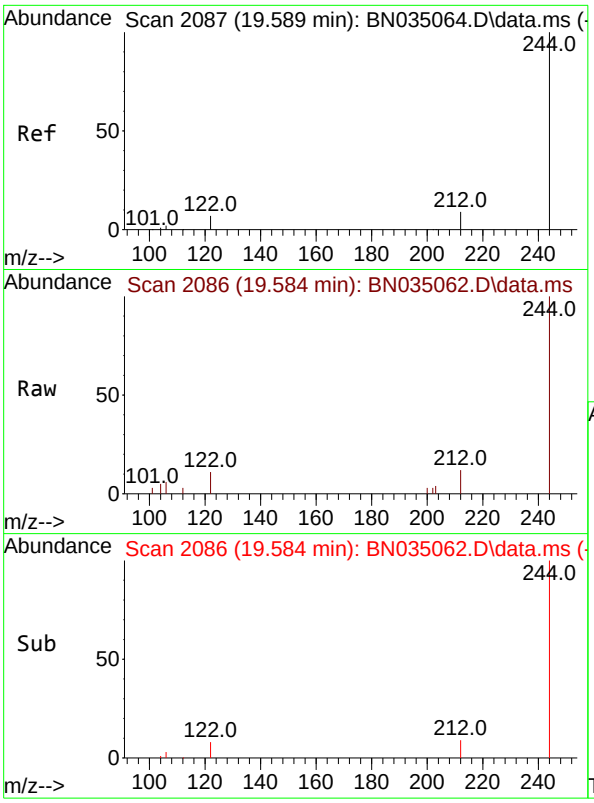


#30
Pyrene
Concen: 0.101 ng
RT: 19.366 min Scan# 2039
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:202 Resp: 3722

Ion	Ratio	Lower	Upper
202	100		
200	21.3	16.7	25.1
203	18.8	14.2	21.4



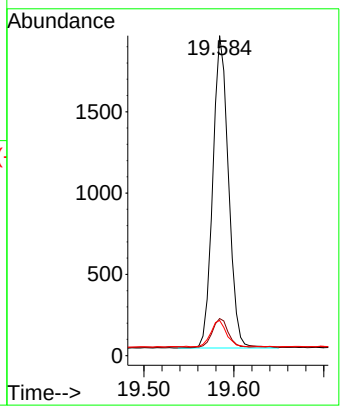


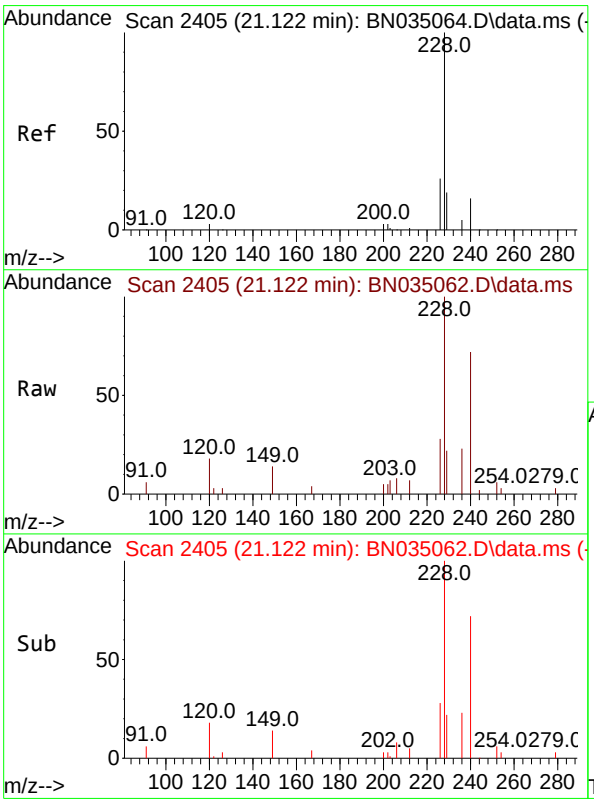
#31
Terphenyl-d14
Concen: 0.100 ng
RT: 19.584 min Scan# 2
Delta R.T. -0.005 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:244 Resp: 2331

Ion	Ratio	Lower	Upper
244	100		
212	11.6	7.6	11.4#
122	11.0	6.1	9.1#

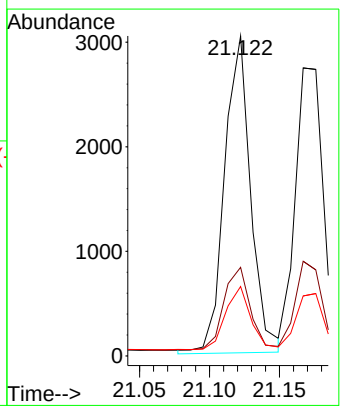


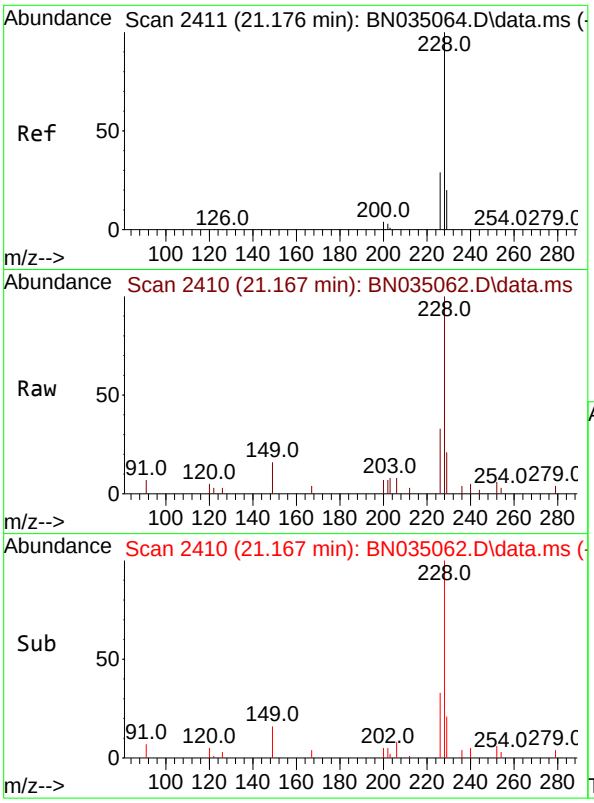


#32
Benzo(a)anthracene
Concen: 0.102 ng
RT: 21.122 min Scan# 2405
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:228 Resp: 3952

Ion	Ratio	Lower	Upper
228	100		
226	27.7	21.4	32.0
229	21.7	15.7	23.5



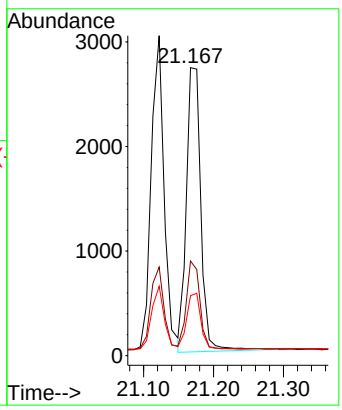


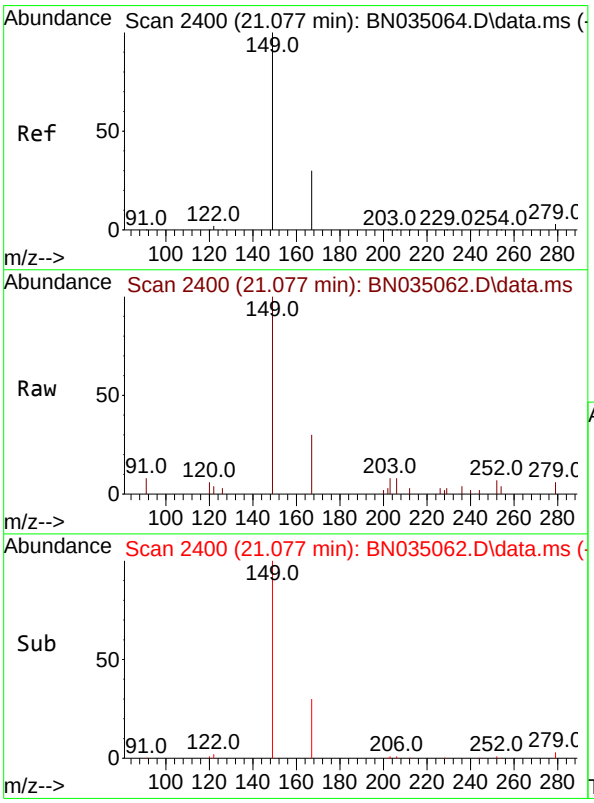
#33
Chrysene
Concen: 0.102 ng
RT: 21.167 min Scan# 24
Delta R.T. -0.009 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:228 Resp: 3918

Ion	Ratio	Lower	Upper
228	100		
226	32.9	23.7	35.5
229	20.8	16.2	24.4

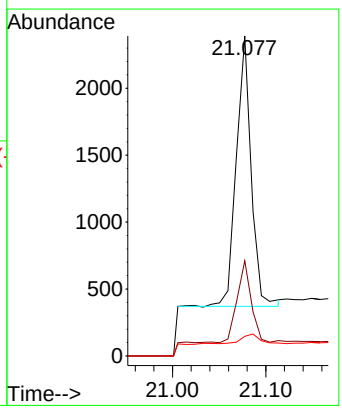


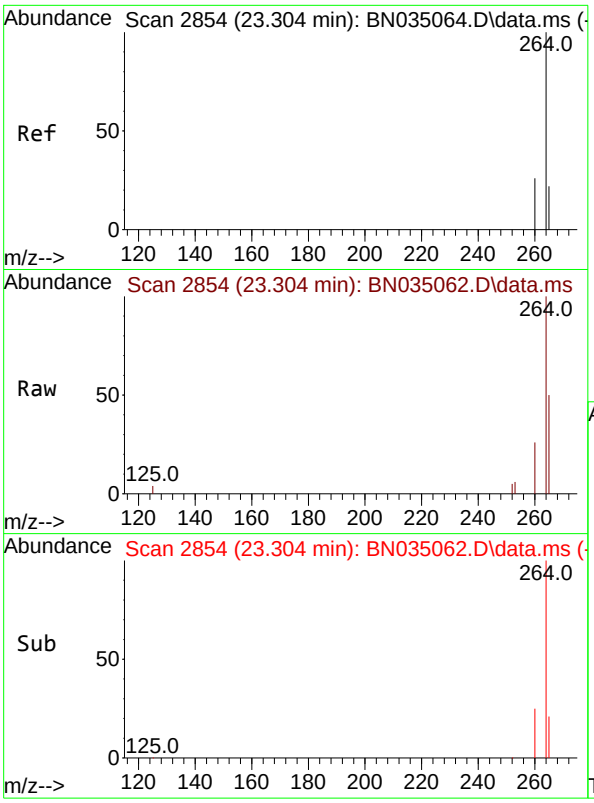


#34
Bis(2-ethylhexyl)phthalate
Concen: 0.112 ng
RT: 21.077 min Scan# 2400
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:149 Resp: 2250

Ion	Ratio	Lower	Upper
149	100		
167	29.3	23.2	34.8
279	5.8	3.2	4.8#



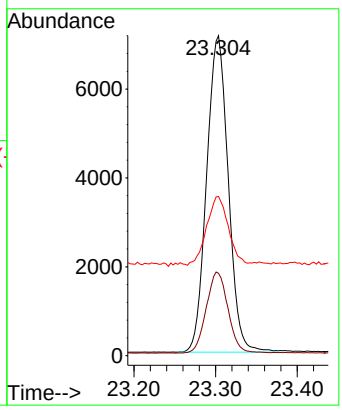


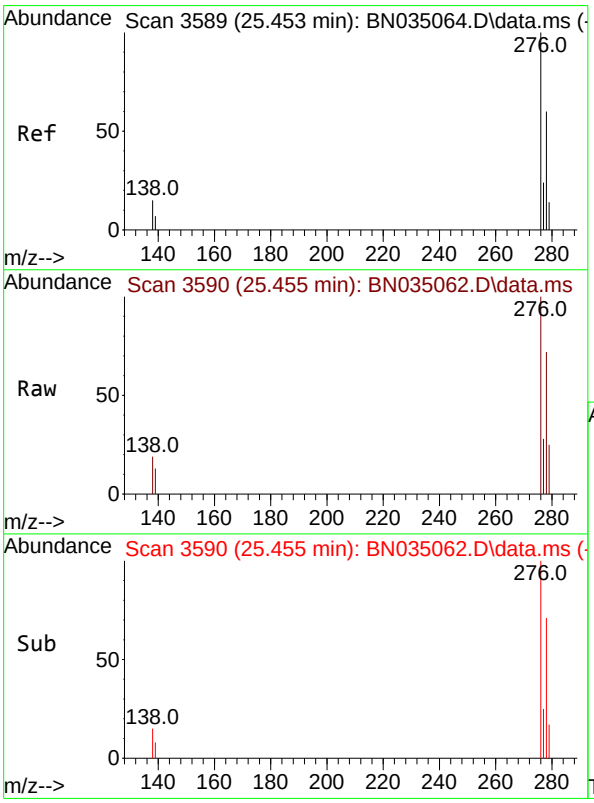
#35
Perylene-d12
Concen: 0.400 ng
RT: 23.304 min Scan# 2
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:264 Resp: 13104

Ion	Ratio	Lower	Upper
264	100		
260	25.7	20.9	31.3
265	49.8	35.4	53.2

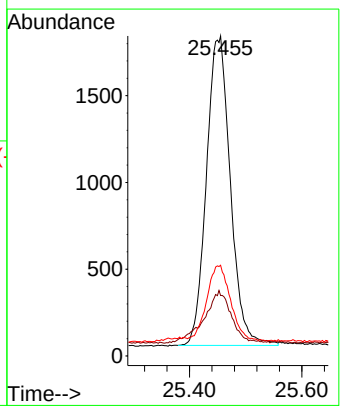


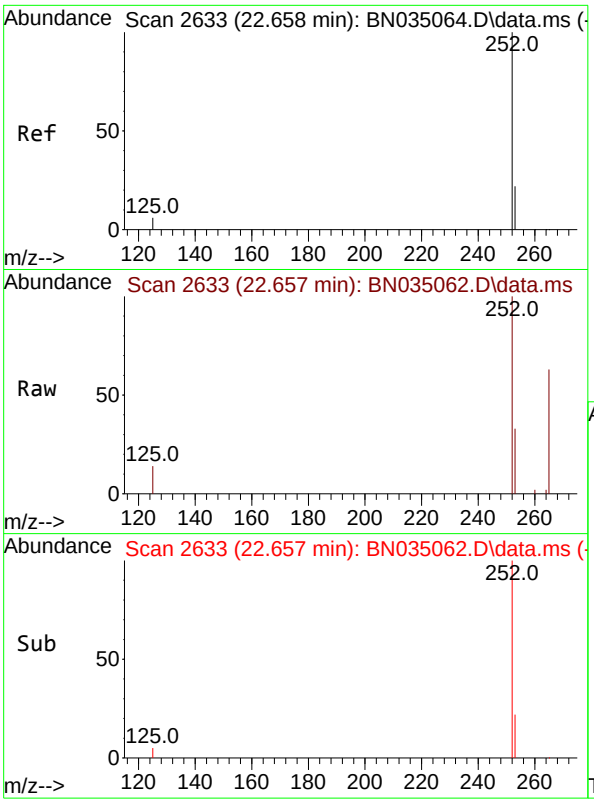


#36
Indeno(1,2,3-cd)pyrene
Concen: 0.101 ng
RT: 25.455 min Scan# 3590
Delta R.T. 0.003 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:276 Resp: 5271

Ion	Ratio	Lower	Upper
276	100		
138	19.3	13.0	19.4
277	23.9	19.8	29.6



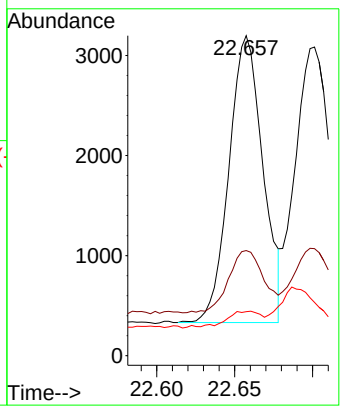


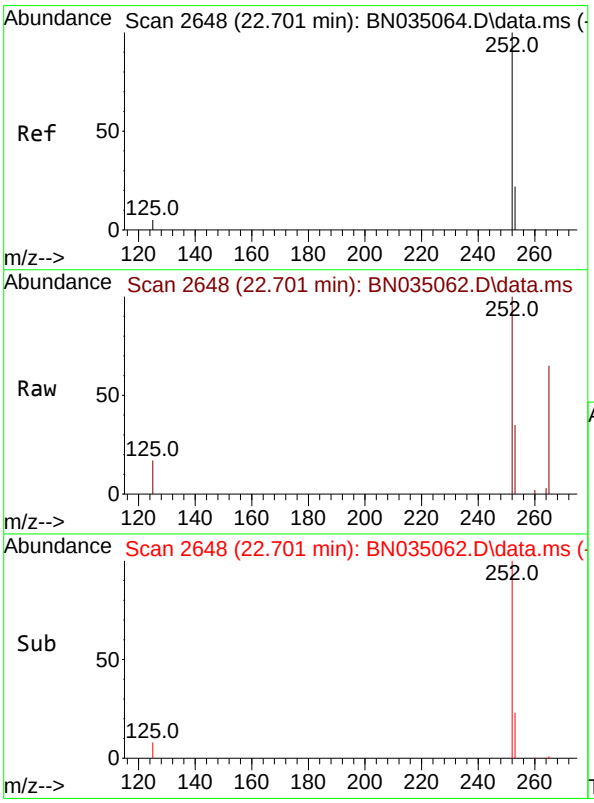
#37
Benzo(b)fluoranthene
Concen: 0.099 ng
RT: 22.657 min Scan# 2
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:252 Resp: 4345

Ion	Ratio	Lower	Upper
252	100		
253	32.9	19.3	28.9#
125	13.8	6.2	9.2#

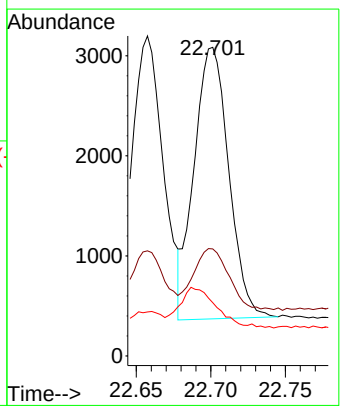


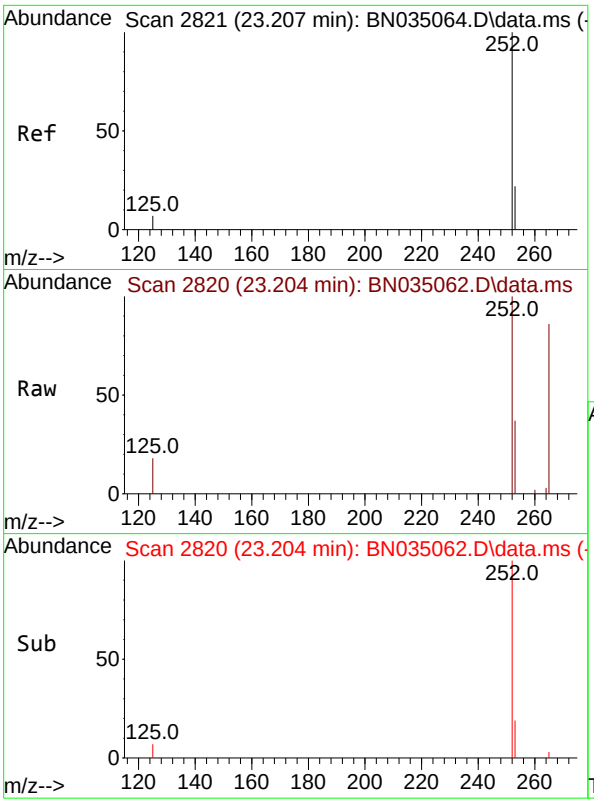


#38
Benzo(k)fluoranthene
Concen: 0.100 ng
RT: 22.701 min Scan# 2648
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:252 Resp: 4395

Ion	Ratio	Lower	Upper
252	100		
253	34.7	19.5	29.3#
125	17.3	6.5	9.7#



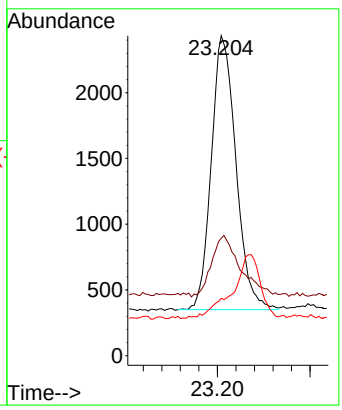


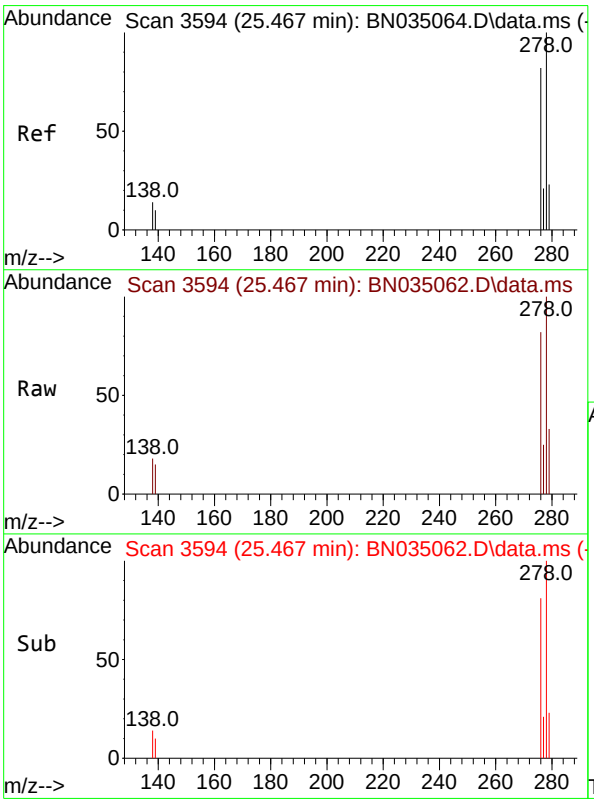
#39
Benzo(a)pyrene
Concen: 0.099 ng
RT: 23.204 min Scan# 2
Delta R.T. -0.003 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:252 Resp: 3841

Ion	Ratio	Lower	Upper
252	100		
253	36.7	20.1	30.1#
125	18.0	7.5	11.3#

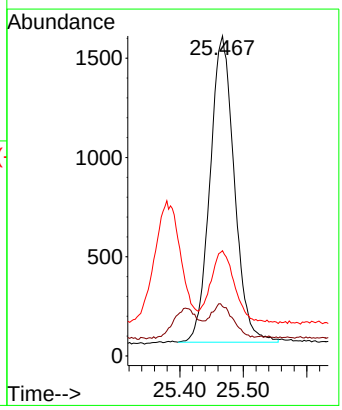


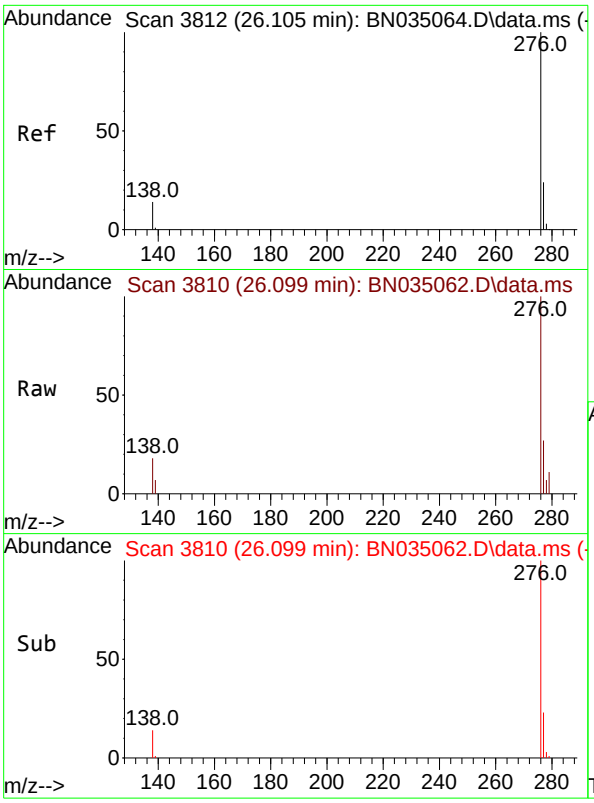


#40
Dibenzo(a,h)anthracene
Concen: 0.099 ng
RT: 25.467 min Scan# 3594
Delta R.T. -0.000 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Tgt Ion:278 Resp: 4089

Ion	Ratio	Lower	Upper
278	100		
139	15.4	9.3	13.9#
279	32.9	19.7	29.5#





#41
Benzo(g,h,i)perylene
Concen: 0.103 ng
RT: 26.099 min Scan# 3
Delta R.T. -0.006 min
Lab File: BN035062.D
Acq: 13 Nov 2024 12:40

Instrument :
BNA_N
ClientSampleId :
SSTDICC0.1

Tgt Ion:276 Resp: 4521

Ion	Ratio	Lower	Upper
276	100		
277	27.4	19.9	29.9
138	18.0	11.6	17.4#