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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC5514

Sampling Date: 04/19/23



Report to:

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Total number of pages in report: 632



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)
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Test results relate only to samples analyzed.

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Sample Summary

AECOM, INC.

Job No: FC5514

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5514-1	04/19/23	10:00 EM	04/25/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2304W3
FC5514-2	04/19/23	10:00 EM	04/25/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2304W3
FC5514-3	04/19/23	10:55 CL	04/25/23	AQ	Ground Water	AF-RHMW04-WGN01LF-2304W3
FC5514-4	04/19/23	12:10 EM	04/25/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2304W3
FC5514-5	04/19/23	14:40 CL	04/25/23	AQ	Ground Water	AF-RHMW06-WGN01LF-2304W3

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC5514

Site: N6274223F0104 RH Fire Suppression System

Report Date: 5/1/2023 10:45:50 AM

On 04/25/2023, 5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 16.2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5514 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA DRAFT 1633

Matrix: AQ

Batch ID: OP96603

Sample(s) FC5514-3MS, FC5522-4DUP were used as the QC samples indicated.

OP96603-BS for d7-MeFOSE: Outside control limits.

OP96603-BS for d9-EtFOSE: Outside control limits.

OP96603-LLBS for d7-MeFOSE: Outside control limits.

OP96603-LLBS for d9-EtFOSE: Outside control limits.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

Kim Benham, Client Services (*Signature on File*)

Summary of Hits

Job Number: FC5514
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/19/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC5514-1 **AF-RHMW12A-WGN01LF-2304W3**

Perfluoropentanoic acid	3.9 J	7.0	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.1 J	3.5	1.8	ng/l	EPA DRAFT 1633

FC5514-2 **AF-RHMW12A-WGFD01LF-2304W3**

Perfluoropentanoic acid	4.0 J	7.0	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.2 J	3.5	1.8	ng/l	EPA DRAFT 1633

FC5514-3 **AF-RHMW04-WGN01LF-2304W3**

No hits reported in this sample.

FC5514-4 **AF-RHMW16-WGN01LF-2304W3**

No hits reported in this sample.

FC5514-5 **AF-RHMW06-WGN01LF-2304W3**

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW12A-WGN01LF-2304W3		
Lab Sample ID:	FC5514-1	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q17075.D	1	04/28/23 18:37	MV	04/27/23 10:00	OP96603	S6Q258
Run #2							

Run #	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	3.9	7.0	1.8	0.82	ng/l	J
307-24-4	Perfluorohexanoic acid	1.1	3.5	1.8	0.44	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2304W3		
Lab Sample ID:	FC5514-1	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	7.0	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	7.0	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	7.0	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	7.0	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	7.0	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	7.0	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	88%		20-150%
	13C5-PFPeA	106%		20-150%
	13C5-PFHxA	108%		20-150%
	13C4-PFHpA	104%		20-150%
	13C8-PFOA	105%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	98%		20-150%
	13C7-PFUnDA	98%		20-150%
	13C2-PFDoDA	78%		20-150%
	13C2-PFTeDA	72%		20-150%
	13C3-PFBS	106%		20-150%
	13C3-PFHxS	105%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2304W3		
Lab Sample ID:	FC5514-1	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	109%		20-150%
	13C8-FOSA	59%		20-150%
	d3-MeFOSA	43%		20-150%
	d5-EtFOSA	42%		20-150%
	d3-MeFOSAA	108%		20-150%
	d5-EtFOSAA	97%		20-150%
	d7-MeFOSE	30%		20-150%
	d9-EtFOSE	33%		20-150%
	13C2-4:2FTS	110%		20-180%
	13C2-6:2FTS	113%		20-180%
	13C2-8:2FTS	93%		20-180%
	13C3-HFPO-DA	100%		20-150%

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 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW12A-WGFD01LF-2304W3		
Lab Sample ID:	FC5514-2	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q17076.D	1	04/28/23 18:52	MV	04/27/23 10:00	OP96603	S6Q258
Run #2							

Run #	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	4.0	7.0	1.8	0.82	ng/l	J
307-24-4	Perfluorohexanoic acid	1.2	3.5	1.8	0.44	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2304W3		
Lab Sample ID:	FC5514-2	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	7.0	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	7.0	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	7.0	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	7.0	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	7.0	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	7.0	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	84%		20-150%
	13C5-PFPeA	102%		20-150%
	13C5-PFHxA	100%		20-150%
	13C4-PFHpA	103%		20-150%
	13C8-PFOA	103%		20-150%
	13C9-PFNA	98%		20-150%
	13C6-PFDA	92%		20-150%
	13C7-PFUnDA	74%		20-150%
	13C2-PFDoDA	67%		20-150%
	13C2-PFTeDA	68%		20-150%
	13C3-PFBS	104%		20-150%
	13C3-PFHxS	101%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2304W3	
Lab Sample ID:	FC5514-2	Date Sampled: 04/19/23
Matrix:	AQ - Ground Water	Date Received: 04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	97%		20-150%
	13C8-FOSA	57%		20-150%
	d3-MeFOSA	40%		20-150%
	d5-EtFOSA	40%		20-150%
	d3-MeFOSAA	80%		20-150%
	d5-EtFOSAA	74%		20-150%
	d7-MeFOSE	25%		20-150%
	d9-EtFOSE	27%		20-150%
	13C2-4:2FTS	103%		20-180%
	13C2-6:2FTS	110%		20-180%
	13C2-8:2FTS	103%		20-180%
	13C3-HFPO-DA	96%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW04-WGN01LF-2304W3		
Lab Sample ID:	FC5514-3	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q17077.D	1	04/28/23 19:06	MV	04/27/23 10:00	OP96603	S6Q258
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2304W3		
Lab Sample ID:	FC5514-3	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.91	ng/l	
919005-14-4	ADONA	3.6 U	7.3	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.3	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	7.3	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.3	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.3	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.3	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.3	1.8	0.71	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	18	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	91	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	91	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	102%		20-150%
	13C5-PFPeA	105%		20-150%
	13C5-PFHxA	104%		20-150%
	13C4-PFHpA	106%		20-150%
	13C8-PFOA	112%		20-150%
	13C9-PFNA	91%		20-150%
	13C6-PFDA	95%		20-150%
	13C7-PFUnDA	84%		20-150%
	13C2-PFDoDA	74%		20-150%
	13C2-PFTeDA	75%		20-150%
	13C3-PFBS	98%		20-150%
	13C3-PFHxS	100%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2304W3	
Lab Sample ID:	FC5514-3	Date Sampled: 04/19/23
Matrix:	AQ - Ground Water	Date Received: 04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	98%		20-150%
	13C8-FOSA	51%		20-150%
	d3-MeFOSA	35%		20-150%
	d5-EtFOSA	31%		20-150%
	d3-MeFOSAA	88%		20-150%
	d5-EtFOSAA	80%		20-150%
	d7-MeFOSE	27%		20-150%
	d9-EtFOSE	29%		20-150%
	13C2-4:2FTS	101%		20-180%
	13C2-6:2FTS	103%		20-180%
	13C2-8:2FTS	95%		20-180%
	13C3-HFPO-DA	103%		20-150%

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-RHMW16-WGN01LF-2304W3		
Lab Sample ID:	FC5514-4	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q17079.D	1	04/28/23 19:35	MV	04/27/23 10:00	OP96603	S6Q258
Run #2							

Run #	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2304W3		Date Sampled:	04/19/23
Lab Sample ID:	FC5514-4	Date Received:	04/25/23	
Matrix:	AQ - Ground Water	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	7.0	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	7.0	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	7.0	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	7.0	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	7.0	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	7.0	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	102%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	105%		20-150%
	13C4-PFHpA	100%		20-150%
	13C8-PFOA	101%		20-150%
	13C9-PFNA	98%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	99%		20-150%
	13C2-PFDoDA	86%		20-150%
	13C2-PFTeDA	84%		20-150%
	13C3-PFBS	101%		20-150%
	13C3-PFHxS	98%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2304W3		Date Sampled:	04/19/23
Lab Sample ID:	FC5514-4		Date Received:	04/25/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	107%		20-150%
	13C8-FOSA	51%		20-150%
	d3-MeFOSA	44%		20-150%
	d5-EtFOSA	42%		20-150%
	d3-MeFOSAA	105%		20-150%
	d5-EtFOSAA	98%		20-150%
	d7-MeFOSE	35%		20-150%
	d9-EtFOSE	37%		20-150%
	13C2-4:2FTS	104%		20-180%
	13C2-6:2FTS	105%		20-180%
	13C2-8:2FTS	94%		20-180%
	13C3-HFPO-DA	100%		20-150%

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 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	AF-RHMW06-WGN01LF-2304W3		
Lab Sample ID:	FC5514-5	Date Sampled:	04/19/23
Matrix:	AQ - Ground Water	Date Received:	04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6Q17081.D	1	04/28/23 20:04	MV	04/27/23 10:00	OP96603	S6Q258
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2304W3		Date Sampled:	04/19/23
Lab Sample ID:	FC5514-5	Date Received:	04/25/23	
Matrix:	AQ - Ground Water	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	101%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	110%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	112%		20-150%
	13C9-PFNA	100%		20-150%
	13C6-PFDA	106%		20-150%
	13C7-PFUnDA	95%		20-150%
	13C2-PFDoDA	83%		20-150%
	13C2-PFTeDA	79%		20-150%
	13C3-PFBS	103%		20-150%
	13C3-PFHxS	109%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2304W3	
Lab Sample ID:	FC5514-5	Date Sampled: 04/19/23
Matrix:	AQ - Ground Water	Date Received: 04/25/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		20-150%
	13C8-FOSA	43%		20-150%
	d3-MeFOSA	37%		20-150%
	d5-EtFOSA	36%		20-150%
	d3-MeFOSAA	95%		20-150%
	d5-EtFOSAA	97%		20-150%
	d7-MeFOSE	26%		20-150%
	d9-EtFOSE	31%		20-150%
	13C2-4:2FTS	108%		20-180%
	13C2-6:2FTS	106%		20-180%
	13C2-8:2FTS	103%		20-180%
	13C3-HFPO-DA	109%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

FC5514

COC #: 2304W3AFSG06

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes		
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PFAS EPA Draft 1633</div> <div style="border: 1px solid black; padding: 5px;"> <p style="font-size: 2em; margin: 0;">EPA</p> <p style="font-size: 1.5em; margin: 0;">04/19/23</p> </div> <div style="font-size: 0.8em;"> <p>DW - Drinking Water</p> <p>GW - Ground Water</p> <p>WW - Water</p> <p>SW - Surface Water</p> <p>SO - Soil</p> <p>SL - Sludge</p> <p>OI - Oil</p> <p>LIQ - Other Liquid</p> <p>AIR - Air</p> <p>SOL - Other Solid</p> <p>WP - Wipe</p> </div> </div>										<p>DW - Drinking Water</p> <p>GW - Ground Water</p> <p>WW - Water</p> <p>SW - Surface Water</p> <p>SO - Soil</p> <p>SL - Sludge</p> <p>OI - Oil</p> <p>LIQ - Other Liquid</p> <p>AIR - Air</p> <p>SOL - Other Solid</p> <p>WP - Wipe</p>		
Address: 1001 Bishop St. ste 1600		Street														
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii														
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810														
Project Manager: Watson Tanii Email: watson.tanii@aecom.com		Client Purchase Order #														
Phone #: 303-796-4624 / 808-954-4512		Fax #														
Sampler(s) Name(s) (Printed)		Sampler 1: <i>Elie Masha</i> Sampler 2: <i>Zoe Desorme</i>														
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HDI	NICH	HNCS	PSSO4	NACH-ZNAC	DI WATER	MEDI	LAB USE ONLY
4	AF-RHMW16-WGN01LF-2304W3	04/19/23	1210	Zoe Desorme	GW	3		X								

CSR: Elvin Kumar

Response Date: 04/25/23

Response: Per client, Ok to proceed with analysis

5.1
5

SM001
Rev. Date 05/24/17

FC5514: Chain of Custody
Page 6 of 6

QC Evaluation: DOD QSM5.x Limits

Job Number: FC5514
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/19/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
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No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC5514

5.2
5

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- TDCA Retention Time Checks
- Ion Ratio Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-IBLK	6Q17059.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-IBLK	6Q17059.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	95% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	109% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	102% 20-150%
	13C2-PFTeDA	97% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	115% 20-150%
	13C8-FOSA	112% 20-150%
	d3-MeFOSA	106% 20-150%
	d5-EtFOSA	106% 20-150%
	d3-MeFOSAA	112% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	103% 20-150%
	d9-EtFOSE	109% 20-150%
	13C2-4:2FTS	102% 20-180%
	13C2-6:2FTS	109% 20-180%
	13C2-8:2FTS	108% 20-180%
	13C3-HFPO-DA	102% 20-150%

Continuing Calibration Blank

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17071.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17071.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	91% 20-150%
	13C9-PFNA	108% 20-150%
	13C6-PFDA	96% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	93% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	106% 20-150%
	13C3-PFHxS	106% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSAA	103% 20-150%
	d5-EtFOSAA	108% 20-150%
	13C2-4:2FTS	120% 20-180%
	13C2-6:2FTS	109% 20-180%
	13C2-8:2FTS	106% 20-180%

Method Blank Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MB	6Q17074.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Method Blank Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MB	6Q17074.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	108% 20-150%
	13C5-PFPeA	110% 20-150%
	13C5-PFHxA	109% 20-150%
	13C4-PFHpA	108% 20-150%
	13C8-PFOA	112% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	94% 20-150%
	13C2-PFTeDA	77% 20-150%
	13C3-PFBS	108% 20-150%
	13C3-PFHxS	112% 20-150%
	13C8-PFOS	103% 20-150%
	13C8-FOSA	41% 20-150%
	d3-MeFOSA	28% 20-150%
	d5-EtFOSA	26% 20-150%
	d3-MeFOSAA	95% 20-150%
	d5-EtFOSAA	90% 20-150%
	d7-MeFOSE	20% 20-150%
	d9-EtFOSE	23% 20-150%
	13C2-4:2FTS	118% 20-180%
	13C2-6:2FTS	115% 20-180%
	13C2-8:2FTS	112% 20-180%
	13C3-HFPO-DA	104% 20-150%

6.1.3
6

Blank Spike Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-LLBS	6Q17073.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0303	101	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0149	99	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0072	96	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0077	103	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0089	119	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0076	101	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0077	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0074	99	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0073	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0074	99	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0082	109	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0068	102	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0075	106	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0074	108	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0072	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0063	91	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0072	100	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0073	101	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0059	81	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0286	102	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0277	97	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0305	106	40-150
754-91-6	PFOSA	0.0075	0.0083	111	40-150
31506-32-8	MeFOSA	0.015	0.0147	98	40-150
4151-50-2	EtFOSA	0.015	0.0159	106	40-150
2355-31-9	MeFOSAA	0.0075	0.0077	103	40-150
2991-50-6	EtFOSAA	0.0075	0.0068	91	40-150
24448-09-7	MeFOSE	0.0375	0.0398	106	40-150
1691-99-2	EtFOSE	0.0375	0.0342	91	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0146	97	40-150
919005-14-4	ADONA	0.0142	0.0147	104	40-150
377-73-1	PFMPA	0.015	0.0146	97	40-150
863090-89-5	PFMBA	0.015	0.0150	100	40-150
151772-58-6	NFDHA	0.015	0.0145	97	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0148	106	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0139	98	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-LLBS	6Q17073.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0132	99	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0313	83	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.160	85	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.155	83	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	109%	20-150%
	13C5-PFPeA	105%	20-150%
	13C5-PFHxA	103%	20-150%
	13C4-PFHpA	104%	20-150%
	13C8-PFOA	96%	20-150%
	13C9-PFNA	103%	20-150%
	13C6-PFDA	119%	20-150%
	13C7-PFUnDA	114%	20-150%
	13C2-PFDoDA	105%	20-150%
	13C2-PFTeDA	87%	20-150%
	13C3-PFBS	109%	20-150%
	13C3-PFHxS	105%	20-150%
	13C8-PFOS	106%	20-150%
	13C8-FOSA	42%	20-150%
	d3-MeFOSA	30%	20-150%
	d5-EtFOSA	24%	20-150%
	d3-MeFOSAA	109%	20-150%
	d5-EtFOSAA	108%	20-150%
	d7-MeFOSE	16%* a	20-150%
	d9-EtFOSE	19%* a	20-150%
	13C2-4:2FTS	112%	20-180%
	13C2-6:2FTS	112%	20-180%
	13C2-8:2FTS	108%	20-180%
	13C3-HFPO-DA	99%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-BS	6Q17072.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.100	100	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0505	101	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0236	94	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0255	102	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0247	99	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0248	99	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0257	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0234	94	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0263	105	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0247	99	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0237	95	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0216	97	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0233	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0216	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0253	106	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0259	112	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0256	106	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0256	106	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0221	91	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.106	113	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0859	90	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.100	104	40-150
754-91-6	PFOSA	0.025	0.0288	115	40-150
31506-32-8	MeFOSA	0.05	0.0518	104	40-150
4151-50-2	EtFOSA	0.05	0.0502	100	40-150
2355-31-9	MeFOSAA	0.025	0.0256	102	40-150
2991-50-6	EtFOSAA	0.025	0.0233	93	40-150
24448-09-7	MeFOSE	0.125	0.130	104	40-150
1691-99-2	EtFOSE	0.125	0.121	97	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0508	102	40-150
919005-14-4	ADONA	0.0473	0.0477	101	40-150
377-73-1	PFMPA	0.05	0.0490	98	40-150
863090-89-5	PFMBA	0.05	0.0498	100	40-150
151772-58-6	NFDHA	0.05	0.0506	101	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0505	108	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0479	101	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-BS	6Q17072.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0437	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0985	79	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.524	84	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.473	76	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	107%	20-150%
	13C5-PFPeA	104%	20-150%
	13C5-PFHxA	104%	20-150%
	13C4-PFHpA	102%	20-150%
	13C8-PFOA	107%	20-150%
	13C9-PFNA	109%	20-150%
	13C6-PFDA	112%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	98%	20-150%
	13C2-PFTeDA	87%	20-150%
	13C3-PFBS	111%	20-150%
	13C3-PFHxS	109%	20-150%
	13C8-PFOS	108%	20-150%
	13C8-FOSA	49%	20-150%
	d3-MeFOSA	44%	20-150%
	d5-EtFOSA	42%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	114%	20-150%
	d7-MeFOSE	15%* a	20-150%
	d9-EtFOSE	16%* a	20-150%
	13C2-4:2FTS	101%	20-180%
	13C2-6:2FTS	115%	20-180%
	13C2-8:2FTS	101%	20-180%
	13C3-HFPO-DA	98%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MS	6Q17078.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5514-3	6Q17077.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	FC5514-3 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0926	0.0955	103	40-150
2706-90-3	Perfluoropentanoic acid	0.0073 U	0.0463	0.0467	101	40-150
307-24-4	Perfluorohexanoic acid	0.0036 U	0.0231	0.0218	94	40-150
375-85-9	Perfluoroheptanoic acid	0.0036 U	0.0231	0.0251	108	40-150
335-67-1	Perfluorooctanoic acid	0.0036 U	0.0231	0.0249	108	40-150
375-95-1	Perfluorononanoic acid	0.0036 U	0.0231	0.0241	104	40-150
335-76-2	Perfluorodecanoic acid	0.0036 U	0.0231	0.0271	117	40-150
2058-94-8	Perfluoroundecanoic acid	0.0036 U	0.0231	0.0249	108	40-150
307-55-1	Perfluorododecanoic acid	0.0036 U	0.0231	0.0228	98	40-150
72629-94-8	Perfluorotridecanoic acid	0.0036 U	0.0231	0.0236	102	40-150
376-06-7	Perfluorotetradecanoic acid	0.0036 U	0.0231	0.0266	115	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0036 U	0.0205	0.0214	104	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	0.0218	0.0246	113	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0036 U	0.0212	0.0229	108	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U	0.0221	0.0265	120	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U	0.0215	0.0213	99	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0036 U	0.0223	0.0211	95	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0036 U	0.0223	0.0212	95	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	0.0225	0.0216	96	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0868	0.0929	107	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.088	0.105	119	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0889	0.0937	105	40-150
754-91-6	PFOSA	0.0036 U	0.0231	0.0247	107	40-150
31506-32-8	MeFOSA	0.0073 U	0.0463	0.0512	111	40-150
4151-50-2	EtFOSA	0.0073 U	0.0463	0.0428	92	40-150
2355-31-9	MeFOSAA	0.0045 U	0.0231	0.0252	109	40-150
2991-50-6	EtFOSAA	0.0045 U	0.0231	0.0235	102	40-150
24448-09-7	MeFOSE	0.036 U	0.116	0.119	103	40-150
1691-99-2	EtFOSE	0.036 U	0.116	0.121	105	40-150
13252-13-6	HFPO-DA (GenX)	0.0036 U	0.0463	0.0457	99	40-150
919005-14-4	ADONA	0.0073 U	0.0438	0.0457	104	40-150
377-73-1	PFMPA	0.0073 U	0.0463	0.0459	99	40-150
863090-89-5	PFMBA	0.0073 U	0.0463	0.0474	102	40-150
151772-58-6	NFDHA	0.0073 U	0.0463	0.0457	99	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U	0.0433	0.0391	90	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U	0.0438	0.0337	77	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MS	6Q17078.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5514-3	6Q17077.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	FC5514-3 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0073 U	0.0412	0.0416	101	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	0.116	0.0874	76	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.091 U	0.579	0.450	78	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U	0.579	0.403	70	40-150

CAS No.	ID Standard Recoveries	MS	FC5514-3	Limits
	13C4-PFBA	96%	102%	20-150%
	13C5-PFPeA	107%	105%	20-150%
	13C5-PFHxA	108%	104%	20-150%
	13C4-PFHpA	104%	106%	20-150%
	13C8-PFOA	99%	112%	20-150%
	13C9-PFNA	97%	91%	20-150%
	13C6-PFDA	89%	95%	20-150%
	13C7-PFUnDA	81%	84%	20-150%
	13C2-PFDoDA	77%	74%	20-150%
	13C2-PFTeDA	74%	75%	20-150%
	13C3-PFBS	111%	98%	20-150%
	13C3-PFHxS	100%	100%	20-150%
	13C8-PFOS	88%	98%	20-150%
	13C8-FOSA	39%	51%	20-150%
	d3-MeFOSA	29%	35%	20-150%
	d5-EtFOSA	33%	31%	20-150%
	d3-MeFOSAA	82%	88%	20-150%
	d5-EtFOSAA	77%	80%	20-150%
	d7-MeFOSE	22%	27%	20-150%
	d9-EtFOSE	24%	29%	20-150%
	13C2-4:2FTS	105%	101%	20-180%
	13C2-6:2FTS	99%	103%	20-180%
	13C2-8:2FTS	94%	95%	20-180%
	13C3-HFPO-DA	100%	103%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-DUP	6Q17080.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5522-4	6Q17087.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	FC5522-4 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0074 U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0037 U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0037 U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0037 U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0037 U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0037 U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0037 U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0037 U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0037 U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0037 U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0037 U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0046 U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0037 U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0037 U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0037 U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0037 U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0037 U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0046 U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	ND		nc	30
754-91-6	PFOSA	0.0037 U	ND		nc	30
31506-32-8	MeFOSA	0.0074 U	ND		nc	30
4151-50-2	EtFOSA	0.0074 U	ND		nc	30
2355-31-9	MeFOSAA	0.0046 U	ND		nc	30
2991-50-6	EtFOSAA	0.0046 U	ND		nc	30
24448-09-7	MeFOSE	0.037 U	ND		nc	30
1691-99-2	EtFOSE	0.037 U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0037 U	ND		nc	30
919005-14-4	ADONA	0.0074 U	ND		nc	30
377-73-1	PFMPA	0.0074 U	ND		nc	30
863090-89-5	PFMBA	0.0074 U	ND		nc	30
151772-58-6	NFDHA	0.0074 U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0074 U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0074 U	ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-DUP	6Q17080.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5522-4	6Q17087.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5514-1, FC5514-2, FC5514-3, FC5514-4, FC5514-5

CAS No.	Compound	FC5522-4 ug/l	DUP Q ug/l	Q RPD	Limits
113507-82-7	PFEESA	0.0074 U	ND	nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	ND	nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.093 U	ND	nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.093 U	ND	nc	30

CAS No.	ID Standard Recoveries	DUP	FC5522-4	Limits
	13C4-PFBA	98%	100%	20-150%
	13C5-PFPeA	106%	108%	20-150%
	13C5-PFHxA	107%	108%	20-150%
	13C4-PFHpA	102%	107%	20-150%
	13C8-PFOA	107%	105%	20-150%
	13C9-PFNA	106%	101%	20-150%
	13C6-PFDA	96%	94%	20-150%
	13C7-PFUnDA	80%	88%	20-150%
	13C2-PFDoDA	76%	84%	20-150%
	13C2-PFTeDA	68%	77%	20-150%
	13C3-PFBS	112%	102%	20-150%
	13C3-PFHxS	103%	102%	20-150%
	13C8-PFOS	88%	98%	20-150%
	13C8-FOSA	36%	44%	20-150%
	d3-MeFOSA	27%	31%	20-150%
	d5-EtFOSA	27%	33%	20-150%
	d3-MeFOSAA	81%	82%	20-150%
	d5-EtFOSAA	85%	86%	20-150%
	d7-MeFOSE	20%	26%	20-150%
	d9-EtFOSE	24%	27%	20-150%
	13C2-4:2FTS	105%	104%	20-180%
	13C2-6:2FTS	107%	107%	20-180%
	13C2-8:2FTS	99%	98%	20-180%
	13C3-HFPO-DA	98%	100%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17070.D	Injection Time:	17:25
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	78317	2.90	58371	5.47	87768	7.06	28425	7.59	24754	8.08
Check Std ^c	80508	2.90	58127	5.48	82517	7.08	28386	7.59	23971	8.08
Upper Limit ^d	156634	3.30	116742	5.88	175536	7.48	56850	7.99	49508	8.48
Lower Limit ^e	23495	2.50	17511	5.08	26330	6.68	8528	7.19	7426	7.68

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S6Q258-ICCB	81442	2.90	59103	5.47	95786	7.08	27938	7.59	25988	8.08	1
OP96603-BS	73687	2.90	55956	5.47	77551	7.08	26399	7.59	23140	8.08	1
OP96603-LLBS	74197	2.90	56547	5.47	85328	7.08	27822	7.59	21299	8.08	1
OP96603-MB	75144	2.90	54512	5.47	80645	7.06	28084	7.59	22692	8.08	1
FC5514-1	75432	2.90	56938	5.47	84158	7.06	28267	7.59	23425	8.08	1
FC5514-2	79159	2.91	57753	5.47	89722	7.06	28785	7.59	24400	8.08	1
FC5514-3	74577	2.90	55766	5.48	80414	7.08	28275	7.59	22749	8.08	1
OP96603-MS	73897	2.90	54269	5.47	81287	7.06	25907	7.59	22236	8.08	1
FC5514-4	73021	2.90	53652	5.47	82005	7.06	27002	7.59	22377	8.08	1
OP96603-DUP	74053	2.90	54666	5.47	82238	7.08	27498	7.59	23395	8.08	1
FC5514-5	76587	2.91	56066	5.47	82711	7.06	28952	7.59	22838	8.08	1

- IS 1 = 13C3-PFBA
- IS 2 = 13C2-PFHxA
- IS 3 = 13C4-PFOA
- IS 4 = 13C5-PFNA
- IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
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Injection Standard Area Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17070.D	Injection Time:	17:25
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9722	7.18	15123	8.24
Check Std ^c	9596	7.19	15280	8.24
Upper Limit ^d	19444	7.59	30246	8.64
Lower Limit ^e	2917	6.79	4537	7.84

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q258-ICCB	9156	7.19	15222	8.23	1
OP96603-BS	8892	7.18	12959	8.24	1
OP96603-LLBS	8896	7.18	13900	8.24	1
OP96603-MB	8956	7.18	14379	8.24	1
FC5514-1	9257	7.18	13222	8.23	1
FC5514-2	9456	7.18	14391	8.24	1
FC5514-3	9314	7.19	13608	8.24	1
OP96603-MS	8691	7.18	13340	8.23	1
FC5514-4	9188	7.18	12656	8.24	1
OP96603-DUP	9033	7.18	13578	8.24	1
FC5514-5	9678	7.18	14874	8.23	1

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
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TDCA Retention Time Check

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.228	--	--
TDCA	6.775	1.453	1.000
TCDCA	6.626	1.602	1.000
TUDCA	5.774	2.454	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q258-IC258	6Q17050.D	04/28/23	12:35	00:29	Mass Calibration Verification
S6Q258-IC258	6Q17051.D	04/28/23	12:50	00:44	Initial cal 1
S6Q258-IC258	6Q17052.D	04/28/23	13:04	00:58	Initial cal 2
S6Q258-IC258	6Q17053.D	04/28/23	13:19	01:13	Initial cal 3
S6Q258-ICC258	6Q17054.D	04/28/23	13:33	01:27	Initial cal 4
S6Q258-IC258	6Q17055.D	04/28/23	13:48	01:42	Initial cal 5
S6Q258-IC258	6Q17056.D	04/28/23	14:02	01:56	Initial cal 6
S6Q258-IC258	6Q17057.D	04/28/23	14:17	02:11	Initial cal 7
S6Q258-IC258	6Q17058.D	04/28/23	14:31	02:25	Initial cal 8
S6Q258-IBLK	6Q17059.D	04/28/23	14:46	02:40	Instrument Blank
S6Q258-ICV258	6Q17060.D	04/28/23	15:00	02:54	Initial cal verification 4
S6Q258-ICV258	6Q17061.D	04/28/23	15:15	03:09	Initial cal verification 20
S6Q258-CC258	6Q17062.D	04/28/23	15:29	03:23	Continuing cal 4
S6Q258-CC258	6Q17063.D	04/28/23	15:44	03:38	Continuing cal 1.0LL
OP96604-BS	6Q17064.D	04/28/23	15:58	03:52	Blank Spike
OP96604-LLBS	6Q17065.D	04/28/23	16:13	04:07	Blank Spike
OP96604-MB	6Q17066.D	04/28/23	16:27	04:21	Method Blank
ZZZZZZ	6Q17067.D	04/28/23	16:42	04:36	(unrelated sample)
ZZZZZZ	6Q17068.D	04/28/23	16:56	04:50	(unrelated sample)
ZZZZZZ	6Q17069.D	04/28/23	17:11	05:05	(unrelated sample)
S6Q258-CC258	6Q17070.D	04/28/23	17:25	05:19	Continuing cal 4
S6Q258-ICCB	6Q17071.D	04/28/23	17:40	05:34	Continuing Calibration Blank
OP96603-BS	6Q17072.D	04/28/23	17:54	05:48	Blank Spike
OP96603-LLBS	6Q17073.D	04/28/23	18:09	06:03	Blank Spike
OP96603-MB	6Q17074.D	04/28/23	18:23	06:17	Method Blank
FC5514-1	6Q17075.D	04/28/23	18:37	06:31	AF-RHMW12A-WGN01LF-2304W3
FC5514-2	6Q17076.D	04/28/23	18:52	06:46	AF-RHMW12A-WGFD01LF-2304W3
FC5514-3	6Q17077.D	04/28/23	19:06	07:00	AF-RHMW04-WGN01LF-2304W3
OP96603-MS	6Q17078.D	04/28/23	19:21	07:15	Matrix Spike
FC5514-4	6Q17079.D	04/28/23	19:35	07:29	AF-RHMW16-WGN01LF-2304W3
OP96603-DUP	6Q17080.D	04/28/23	19:50	07:44	Duplicate
FC5514-5	6Q17081.D	04/28/23	20:04	07:58	AF-RHMW06-WGN01LF-2304W3
S6Q258-CC258	6Q17082.D	04/28/23	20:19	08:13	Continuing cal 4
S6Q258-ICCB	6Q17083.D	04/28/23	20:33	08:27	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17084.D	04/28/23	20:48	08:42	(unrelated sample)
ZZZZZZ	6Q17085.D	04/28/23	21:02	08:56	(unrelated sample)
ZZZZZZ	6Q17086.D	04/28/23	21:17	09:11	(unrelated sample)
FC5522-4	6Q17087.D	04/28/23	21:31	09:25	(used for QC only; not part of job FC5514)
ZZZZZZ	6Q17088.D	04/28/23	21:46	09:40	(unrelated sample)
ZZZZZZ	6Q17089.D	04/28/23	22:00	09:54	(unrelated sample)
ZZZZZZ	6Q17090.D	04/28/23	22:15	10:09	(unrelated sample)
S6Q258-CC258	6Q17091.D	04/28/23	22:29	10:23	Continuing cal 4
S6Q258-ICCB	6Q17092.D	04/28/23	22:44	10:38	Continuing Calibration Blank
OP96579-BS	6Q17093.D	04/28/23	22:58	10:52	Blank Spike
OP96579-LLBS	6Q17094.D	04/28/23	23:13	11:07	Blank Spike
OP96579-MB	6Q17095.D	04/28/23	23:27	11:21	Method Blank
ZZZZZZ	6Q17096.D	04/28/23	23:42	11:36	(unrelated sample)
ZZZZZZ	6Q17097.D	04/28/23	23:56	11:50	(unrelated sample)
ZZZZZZ	6Q17098.D	04/29/23	00:11	12:05	(unrelated sample)
ZZZZZZ	6Q17099.D	04/29/23	00:25	12:19	(unrelated sample)
FC5240-5	6Q17100.D	04/29/23	00:40	12:34	(used for QC only; not part of job FC5514)
OP96579-MS	6Q17101.D	04/29/23	00:54	12:48	Matrix Spike
OP96579-MSD	6Q17102.D	04/29/23	01:09	13:03	Matrix Spike Duplicate
S6Q258-CC258	6Q17103.D	04/29/23	01:23	13:17	Continuing cal 4
S6Q258-ICCB	6Q17104.D	04/29/23	01:38	13:32	Continuing Calibration Blank
ZZZZZZ	6Q17105.D	04/29/23	01:52	13:46	(unrelated sample)
ZZZZZZ	6Q17106.D	04/29/23	02:07	14:01	(unrelated sample)
ZZZZZZ	6Q17107.D	04/29/23	02:21	14:15	(unrelated sample)
ZZZZZZ	6Q17108.D	04/29/23	02:36	14:30	(unrelated sample)
ZZZZZZ	6Q17109.D	04/29/23	02:50	14:44	(unrelated sample)
ZZZZZZ	6Q17110.D	04/29/23	03:04	14:58	(unrelated sample)
ZZZZZZ	6Q17111.D	04/29/23	03:19	15:13	(unrelated sample)
ZZZZZZ	6Q17112.D	04/29/23	03:33	15:27	(unrelated sample)
ZZZZZZ	6Q17113.D	04/29/23	03:48	15:42	(unrelated sample)
ZZZZZZ	6Q17114.D	04/29/23	04:02	15:56	(unrelated sample)
S6Q258-CC258	6Q17115.D	04/29/23	04:17	16:11	Continuing cal 4
S6Q258-CC258	6Q17116.D	04/29/23	04:31	16:25	Continuing cal 1.0LL
S6Q258-ICCB	6Q17117.D	04/29/23	04:46	16:40	Continuing Calibration Blank
ZZZZZZ	6Q17118.D	04/29/23	05:00	16:54	(unrelated sample)
OP96566-BS	6Q17119.D	04/29/23	05:15	17:09	Blank Spike
OP96566-LLBS	6Q17120.D	04/29/23	05:29	17:23	Blank Spike
OP96566-MB	6Q17121.D	04/29/23	05:44	17:38	Method Blank
ZZZZZZ	6Q17122.D	04/29/23	05:58	17:52	(unrelated sample)
FC5200-2	6Q17123.D	04/29/23	06:13	18:07	(used for QC only; not part of job FC5514)
OP96566-MS	6Q17124.D	04/29/23	06:27	18:21	Matrix Spike
OP96566-MSD	6Q17125.D	04/29/23	06:42	18:36	Matrix Spike Duplicate
ZZZZZZ	6Q17126.D	04/29/23	06:56	18:50	(unrelated sample)
ZZZZZZ	6Q17127.D	04/29/23	07:11	19:05	(unrelated sample)

6.6.1
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TDCA Retention Time Check

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q258-CC258	6Q17128.D	04/29/23	07:25	19:19	Continuing cal 4
S6Q258-ICCB	6Q17129.D	04/29/23	07:40	19:34	Continuing Calibration Blank
ZZZZZZ	6Q17130.D	04/29/23	07:54	19:48	(unrelated sample)
ZZZZZZ	6Q17131.D	04/29/23	08:09	20:03	(unrelated sample)
ZZZZZZ	6Q17132.D	04/29/23	08:23	20:17	(unrelated sample)
ZZZZZZ	6Q17133.D	04/29/23	08:38	20:32	(unrelated sample)
ZZZZZZ	6Q17134.D	04/29/23	08:52	20:46	(unrelated sample)
ZZZZZZ	6Q17135.D	04/29/23	09:07	21:01	(unrelated sample)
ZZZZZZ	6Q17136.D	04/29/23	09:21	21:15	(unrelated sample)
ZZZZZZ	6Q17137.D	04/29/23	09:35	21:29	(unrelated sample)
ZZZZZZ	6Q17138.D	04/29/23	09:50	21:44	(unrelated sample)
ZZZZZZ	6Q17139.D	04/29/23	10:04	21:58	(unrelated sample)
S6Q258-CC258	6Q17140.D	04/29/23	10:19	22:13	Continuing cal 4
S6Q258-ICCB	6Q17141.D	04/29/23	10:33	22:27	Continuing Calibration Blank
ZZZZZZ	6Q17142.D	04/29/23	10:48	22:42	(unrelated sample)
ZZZZZZ	6Q17143.D	04/29/23	11:02	22:56	(unrelated sample)
ZZZZZZ	6Q17144.D	04/29/23	11:17	23:11	(unrelated sample)
ZZZZZZ	6Q17145.D	04/29/23	11:31	23:25	(unrelated sample)
S6Q258-ECC258	6Q17146.D	04/29/23	11:46	23:40	Ending cal 4
S6Q258-ICCB	6Q17147.D	04/29/23	12:00	23:54	Continuing Calibration Blank

6.6.1
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Ion Ratio Summary

Job Number: FC5514
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios	
		PFPeA	PFHxA
S6Q258-ICC258	6Q17054.D	0	4.7
FC5514-1	6Q17075.D	0	4.9
FC5514-2	6Q17076.D	0	4.7
FC5514-3	6Q17077.D		
FC5514-4	6Q17079.D		
FC5514-5	6Q17081.D		

6.7.1

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Isotope Dilution Standard Recovery Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC5514-1	6Q17075.D	88	106	108	104	105	103	98	98
FC5514-2	6Q17076.D	84	102	100	103	103	98	92	74
FC5514-3	6Q17077.D	102	105	104	106	112	91	95	84
FC5514-4	6Q17079.D	102	104	105	100	101	98	103	99
FC5514-5	6Q17081.D	101	110	110	110	112	100	106	95
OP96603-BS	6Q17072.D	107	104	104	102	107	109	112	103
OP96603-DUP	6Q17080.D	98	106	107	102	107	106	96	80
OP96603-LLBS	6Q17073.D	109	105	103	104	96	103	119	114
OP96603-MB	6Q17074.D	108	110	109	108	112	101	104	104
OP96603-MS	6Q17078.D	96	107	108	104	99	97	89	81
S6Q258-IBLK	6Q17059.D	99	98	95	100	97	95	109	104
S6Q258-ICCB	6Q17071.D	100	101	99	98	91	108	96	98

Isotope Dilution Standards **Recovery Limits**

S1 = 13C4-PFBA	20-150%
S2 = 13C5-PFPeA	20-150%
S3 = 13C5-PFHxA	20-150%
S4 = 13C4-PFHpA	20-150%
S5 = 13C8-PFOA	20-150%
S6 = 13C9-PFNA	20-150%
S7 = 13C6-PFDA	20-150%
S8 = 13C7-PFUnDA	20-150%

6.8.1
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Isotope Dilution Standard Recovery Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC5514-1	6Q17075.D	78	72	106	105	109	59	43	42
FC5514-2	6Q17076.D	67	68	104	101	97	57	40	40
FC5514-3	6Q17077.D	74	75	98	100	98	51	35	31
FC5514-4	6Q17079.D	86	84	101	98	107	51	44	42
FC5514-5	6Q17081.D	83	79	103	109	96	43	37	36
OP96603-BS	6Q17072.D	98	87	111	109	108	49	44	42
OP96603-DUP	6Q17080.D	76	68	112	103	88	36	27	27
OP96603-LLBS	6Q17073.D	105	87	109	105	106	42	30	24
OP96603-MB	6Q17074.D	94	77	108	112	103	41	28	26
OP96603-MS	6Q17078.D	77	74	111	100	88	39	29	33
S6Q258-IBLK	6Q17059.D	102	97	105	101	115	112	106	106
S6Q258-ICCB	6Q17071.D	93	92	106	106	102	100		

Isotope Dilution Standards	Recovery Limits
S9 = 13C2-PFDoDA	20-150%
S10 = 13C2-PFTeDA	20-150%
S11 = 13C3-PFBS	20-150%
S12 = 13C3-PFHxS	20-150%
S13 = 13C8-PFOS	20-150%
S14 = 13C8-FOSA	20-150%
S15 = d3-MeFOSA	20-150%
S16 = d5-EtFOSA	20-150%

6.8.1

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Isotope Dilution Standard Recovery Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC5514-1	6Q17075.D	108	97	30	33	110	113	93	100
FC5514-2	6Q17076.D	80	74	25	27	103	110	103	96
FC5514-3	6Q17077.D	88	80	27	29	101	103	95	103
FC5514-4	6Q17079.D	105	98	35	37	104	105	94	100
FC5514-5	6Q17081.D	95	97	26	31	108	106	103	109
OP96603-BS	6Q17072.D	114	114	15* a	16* a	101	115	101	98
OP96603-DUP	6Q17080.D	81	85	20	24	105	107	99	98
OP96603-LLBS	6Q17073.D	109	108	16* b	19* b	112	112	108	99
OP96603-MB	6Q17074.D	95	90	20	23	118	115	112	104
OP96603-MS	6Q17078.D	82	77	22	24	105	99	94	100
S6Q258-IBLK	6Q17059.D	112	111	103	109	102	109	108	102
S6Q258-ICCB	6Q17071.D	103	108			120	109	106	

Isotope Dilution Standards **Recovery Limits**

S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-180%
S22 = 13C2-6:2FTS	20-180%
S23 = 13C2-8:2FTS	20-180%
S24 = 13C3-HFPO-DA	20-150%

- (a) Outside control limits.
- (b) Outside control limits.

Initial Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD												
D:\MassHunter\Methods	1633_042823_S6Q258.quantmethod.xml	D:\MassHunter\Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d	Avg RF	0.2679	0.3411	0.3350	0.3345	0.3343	0.3560	0.3555	0.3586	0.3354	8.704												
D:\MassHunter\Data\042823_1633_S6Q258	6Q17052.d	D:\MassHunter\Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d	Avg RF	0.5534	0.6958	0.6738	0.6926	0.6719	0.7184	0.7327	0.7144	0.6816	8.215												
D:\MassHunter\Data\042823_1633_S6Q258	6Q17053.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d	Avg RF	0.0705	0.0853	0.0839	0.0854	0.0832	0.0888	0.0918	0.0923	0.0852	8.051												
D:\MassHunter>Data\042823_1633_S6Q258	6Q17054.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d	Avg RF	1.0890	1.4118	1.3529	1.3948	1.3510	1.4354	1.4393	1.4213	1.3619	8.470												
D:\MassHunter>Data\042823_1633_S6Q258	6Q17055.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d	Avg RF	0.7289	0.9372	0.9302	0.9062	0.9000	0.9747	0.9719	0.9602	0.9137	8.724												
D:\MassHunter>Data\042823_1633_S6Q258	6Q17056.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d	Avg RF	0.0924	0.1059	0.1085	0.1138	0.1070	0.1098	0.1087	0.1109	0.1071	5.978												
D:\MassHunter>Data\042823_1633_S6Q258	6Q17057.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter>Data\042823_1633_S6Q258\6Q17058.d	Avg RF	0.9337	0.9749	0.9719	1.0248	0.9391	0.9855	1.0140	1.0640	0.9885	4.456												
I M4-PFBA	T PFBA	I M5-PFPeA	T PFMPA	T 3:3FTCA	T PFPeA	T PFMBa	I M5-PFHxA	T NFDHA	T PFHxA	T PFEEA	T 5:3FTCA	T 7:3FTCA	I M4-PFHpA	T PFHpA	I M8-PFOA	T PFOA	I M9-PFNA	T PFNA	I M6-PFDA	T PFDA	I M7-PFUnDA	T PFUnDA	I M2-PFDaDA				
Linear	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Linear	Avg RF	Avg RF	Avg RF	Avg RF	Linear	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF	Avg RF			
1.1133	1.1505	1.1505	1.1505	1.1505	1.1505	1.1505	1.1505	1.1133	1.0704	1.1403	1.2726	1.1895	1.2058	1.1026	14.493	0.8160	0.8859	0.8472	0.9255	0.9835	1.3223	1.3435	1.5213	1.5016	1.5263	14.580	
0.8648	0.8133	0.8891	0.8812	0.8525	0.9464	0.9452	0.8669	0.7745	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669	0.8669

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Initial Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9498	1.0097	1.0351	0.9922	0.9618	0.9909	1.0005	0.9995	0.9799	5.757
T PFTfDA	Avg RF	0.8800	1.0800	1.2190	1.1538	1.0259	1.1082	1.1040	1.1060	1.0846	9.191
I M2-PFTeDA	Avg RF	1.2297	1.1654	1.2744	1.3445	1.2487	1.2752	1.2903	1.2780	1.2633	4.095
T PFTeDA	Avg RF					ISTD					
I M8-FOSA	Avg RF	0.7241	0.8823	0.9240	0.9311	0.8719	0.9530	0.9337	0.9460	0.8958	8.387
T FOSA	Avg RF					ISTD					
I M3-PFBS	Avg RF	0.9900	1.0604	1.2037	1.0909	1.1495	1.1758	1.1649	1.1391	1.1218	6.272
T PFBS	Avg RF					ISTD					
I M3-PFHxS	Avg RF	1.1142	1.3575	1.3874	1.5015	1.5088	1.5119	1.4605	1.5403	1.4227	9.850
T PFPeS	Avg RF	1.1307	1.3584	1.3234	1.4038	1.4542	1.3938	1.3439	1.4907	1.3624	8.000
T PFHxS	Avg RF					ISTD					
I M8-PFOS	Avg RF	1.2396	1.3892	1.3410	1.4022	1.2683	1.3583	1.4681	1.3727	1.3549	5.406
T PFHpS	Avg RF	1.0820	1.2982	1.2020	1.2763	1.0582	1.1692	1.3780	1.1940	1.2072	8.952
T PFOS	Avg RF	1.0741	1.3189	1.1382	1.2830	1.1067	1.2770	1.2832	1.1724	1.2067	7.842
T PFNS	Avg RF	0.6543	0.7949	0.7473	0.8889	0.7690	0.8238	0.8851	0.8109	0.7968	9.574
T PFDS	Avg RF	0.3631	0.4108	0.4266	0.4292	0.3881	0.4113	0.4587	0.4085	0.4120	6.908
T PFDoDS	Avg RF					ISTD					
I M2-4:2FTS	Avg RF	6.5839	7.6224	7.8025	7.9899	7.3204	7.4323	8.6434	7.1239	7.5648	8.115
T 4:2FTS	Avg RF					ISTD					
I M2-6:2FTS	Avg RF	4.1902	6.3557	5.4667	5.5760	5.7874	5.7764	5.7730	5.0746	5.5000	11.640
T 6:2FTS	Avg RF					ISTD					
I M2-8:2FTS	Avg RF	2.8828	3.2021	3.5036	2.7950	2.8896	3.1162	2.8608	2.5513	2.9752	9.772
T 8:2FTS	Avg RF					ISTD					
I M3-MeFOSAA	Avg RF	0.7488	0.8086	0.9885	0.9908	0.9644	1.0654	0.8877	1.0569	0.9389	12.177
T MeFOSAA	Avg RF					ISTD					
I M3-HFO-DA	Avg RF	0.7655	0.9574	0.9633	0.9421	0.9699	1.0051	0.9504	1.0235	0.9471	8.284
T HFO-DA	Avg RF	12.49	15.97	15.35	14.99	14.26	16.20	15.95	15.64	15.11	8.140
T ADONA	Avg RF	4.5509	5.4384	5.6390	5.0224	5.2393	6.0500	5.6295	5.8389	5.4260	8.840
T 9Cl-PF3ONS	Avg RF	2.9355	3.5787	3.4026	3.1114	3.3245	3.8064	3.6531	3.6416	3.4317	8.646
T 11Cl-PF3OUds	Avg RF					ISTD					
I M5-EFOSAA	Avg RF	0.8151	0.8287	0.8485	0.8176	0.8298	0.8342	0.8912	0.9334	0.8498	4.878
T EFOSAA	Avg RF					ISTD					
I M7-MeFOSE	Avg RF	0.9092	1.1285	1.0835	1.1583	1.0690	1.1657	1.2295	1.1758	1.1149	8.767
T MeFOSE	Avg RF					ISTD					
I M9-EFOSE	Avg RF	0.8167	0.9916	1.0152	1.0782	1.0195	1.1330	1.1697	1.1051	1.0411	10.546
T EFOSE	Avg RF					ISTD					

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Initial Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EFOSA	Avg RF	0.8405	1.0777	1.0264	1.0291	1.0321	1.0467	1.0742	1.0933	1.0275	7.751
I M3-MeFOSA											
T MeFOSA	Avg RF	0.9407	1.2197	1.1872	1.1241	1.0857	1.2316	1.1625	1.0488	1.1250	8.691
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7903	0.7879	0.7270	0.7454	0.7269	0.7189	0.7652	0.6985	0.7450	4.476
S 13C8-PFOS	Linear	0.7137	0.7546	0.7912	0.7201	0.7735	0.8167	0.6829	0.7728	0.7532	5.909
S d5-EFOSAA	Linear	0.6302	0.6081	0.6178	0.6172	0.6210	0.6769	0.5686	0.6141	0.6192	4.797
S 13C8-FOSA	Linear	1.7538	1.5938	1.7258	1.6348	1.6338	1.6719	1.5682	1.6403	1.6528	3.784
S d7-MeFOSE	Linear	0.6867	0.6498	0.7120	0.6546	0.6687	0.6688	0.5965	0.6121	0.6561	5.736
S d3-MeFOSA	Linear	0.6243	0.5990	0.6188	0.6231	0.6151	0.6209	0.6012	0.6926	0.6244	4.675
S d9-EFOSE	Linear	0.8665	0.8296	0.8886	0.7917	0.8021	0.7952	0.7007	0.7397	0.8018	7.705
S d5-EFOSA	Linear	0.8058	0.7425	0.8013	0.7734	0.7622	0.7789	0.7360	0.7337	0.7667	3.673
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.1568	1.1544	1.1564	1.1628	1.1436	1.1619	1.1553	1.1522	1.1554	0.518
I 18O2-PFHxS											
S 13C2-4:2FTS	Linear	0.1129	0.1153	0.1170	0.1111	0.1183	0.1191	0.1123	0.1132	0.1149	2.588
S 13C3-PBBS	Linear	2.2665	2.3040	2.3580	2.4059	2.4195	2.3877	2.3536	2.3177	2.3516	2.248
S 13C2-6:2FTS	Linear	1.4406	0.1308	0.1465	0.1452	0.1401	0.1383	0.1339	0.1407	0.1395	3.772
S 13C3-PFHxS	Linear	1.3206	1.3271	1.3864	1.2862	1.2901	1.3283	1.3885	1.3092	1.3308	2.917
S 13C2-8:2FTS	Linear	0.1435	0.1461	0.1444	0.1534	0.1524	0.1529	0.1530	0.1545	0.1500	3.015
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.9585	0.9611	0.9486	1.0038	0.9762	0.9130	0.9632	0.9945	0.9648	2.916
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.7786	0.8626	0.8880	0.8692	0.7998	0.8172	0.7811	0.7994	0.8245	5.178
S 13C7-PFUDA	Linear	1.0685	0.9958	1.2025	1.0666	1.0377	1.0530	1.0243	0.9958	1.0555	6.235
S 13C2-PFDODA	Linear	1.0581	1.0451	1.0450	1.0252	1.0476	1.0464	1.0199	1.0342	1.0402	1.224
S 13C2-PFTeDA	Linear	0.7095	0.7556	0.7513	0.6867	0.6777	0.6779	0.6828	0.6881	0.7037	4.591
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.9341	0.9486	0.9675	0.9838	1.0250	0.9371	0.8831	0.9444	0.9530	4.334
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.5571	0.5550	0.5831	0.5706	0.5635	0.5470	0.5535	0.5380	0.5585	2.502
S 13C5-PFHxA	Linear	1.1550	1.1888	1.2842	1.2108	1.2140	1.1963	1.2317	1.1655	1.2058	3.360
S 13C3-HPOo-DA	Linear	0.1732	0.1704	0.1838	0.1884	0.1763	0.1694	0.1790	0.1754	0.1770	3.692
S 13C4-PFHpA	Linear	1.0091	0.9868	1.1117	1.0591	1.0424	1.0061	0.9782	0.9878	1.0226	4.465

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PFBA	Linear	$y = 1.155425 * x$	
S 13C5-PFPeA	Linear	$y = 0.558470 * x$	
S 13C2-4:2FTS	Linear	$y = 0.114918 * x$	
S 13C3-PFBS	Linear	$y = 2.351622 * x$	
S 13C5-PFHxA	Linear	$y = 1.205792 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.176981 * x$	
S 13C4-PFHpA	Linear	$y = 1.022642 * x$	
S 13C2-6:2FTS	Linear	$y = 0.139493 * x$	
S 13C8-PFOA	Linear	$y = 0.964849 * x$	
T PFOA	Linear	$y = 1.207189 * x - 0.032197$	5.8267
S 13C3-PFHxS	Linear	$y = 1.336806 * x$	
S 13C9-PFNA	Linear	$y = 0.952962 * x$	
S 13C2-8:2FTS	Linear	$y = 0.150038 * x$	
S 13C6-PFDA	Linear	$y = 0.824480 * x$	
S d3-MeFOSAA	Linear	$y = 0.745011 * x$	
S 13C8-PFOS	Linear	$y = 0.753188 * x$	
S d5-EFOSAA	Linear	$y = 0.619235 * x$	
S 13C7-PFUnDA	Linear	$y = 1.055532 * x$	
S 13C2-PFDoDA	Linear	$y = 1.040185 * x$	
S 13C8-FOSA	Linear	$y = 1.652821 * x$	
S 13C2-PFTeDA	Linear	$y = 0.703707 * x$	
S d7-MeFOSE	Linear	$y = 0.656143 * x$	
S d3-MeFOSA	Linear	$y = 0.624386 * x$	
S d9-EFOSE	Linear	$y = 0.801762 * x$	
S d5-EFOSA	Linear	$y = 0.766720 * x$	

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Verification

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17060.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17060
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.234	4.7	104.7
13C2-6:2FTS	5.000	5.301	6.0	106.0
13C2-8:2FTS	5.000	4.809	-3.8	96.2
13C2-PFDoDA	1.250	1.183	-5.4	94.6
13C2-PFTeDA	1.250	1.244	-0.4	99.6
13C3-PFBS	2.500	2.504	0.1	100.1
13C3-PFHxS	2.500	2.427	-2.9	97.1
13C4-PFBA	10.000	10.046	0.5	100.5
13C4-PFHpA	2.500	2.558	2.3	102.3
13C5-PFHxA	2.500	2.530	1.2	101.2
13C5-PFPeA	5.000	5.075	1.5	101.5
13C6-PFDA	1.250	1.242	-0.6	99.4
13C7-PFUnDA	1.250	1.170	-6.4	93.6
13C8-FOSA	2.500	2.671	6.9	106.9
13C8-PFOA	2.500	2.446	-2.2	97.8
13C8-PFOS	2.500	2.730	9.2	109.2
13C9-PFNA	1.250	1.182	-5.5	94.5
4:2FTS	9.375	9.308	-0.7	99.3
6:2FTS	9.500	9.660	1.7	101.7
8:2FTS	9.600	10.700	11.5	111.5
d3-MeFOSAA	5.000	5.154	3.1	103.1
EtFOSAA	2.500	2.414	-3.4	96.6
FOSA	2.500	2.487	-0.5	99.5
MeFOSAA	2.500	2.554	2.1	102.1
PFBA	10.000	10.284	2.8	102.8
PFBS	2.218	2.313	4.3	104.3
PFDA	2.500	2.799	12.0	112.0
PFDoDA	2.500	2.618	4.7	104.7
PFDS	2.413	2.277	-5.6	94.4
PFHpA	2.500	2.604	4.2	104.2
PFHpS	2.383	2.331	-2.2	97.8
PFHxA	2.500	2.460	-1.6	98.4
PFHxS	2.285	2.364	3.4	103.4
PFNA	2.500	2.371	-5.1	94.9
PFNS	2.405	2.305	-4.2	95.8
PFOA	2.500	2.418	-3.3	96.7
PFOS	2.320	2.101	-9.5	90.5

Initial Calibration Verification

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17060.D

PFPeA	5.000	5.052	1.0	101.0
PFPeS	2.353	2.508	6.6	106.6
PFTeDA	2.500	2.513	0.5	100.5
PFTTrDA	2.500	2.674	7.0	107.0
PFUnDA	2.500	2.679	7.2	107.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.865	3.0	103.0
13C3-HFPO-DA	10.000	9.937	-0.6	99.4
9C1-PF3ONS	4.675	4.608	-1.4	98.6
ADONA	4.725	5.002	5.9	105.9
HFPO-DA	5.000	4.983	-0.3	99.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.498	0.1	100.1
5:3FTCA	62.400	65.148	4.4	104.4
7:3FTCA	62.400	62.032	-0.6	99.4
d3-MeFOSA	2.500	2.506	0.2	100.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.761	-4.8	95.2
EtFOSE	12.500	12.382	-0.9	99.1
MeFOSA	5.000	5.161	3.2	103.2
MeFOSE	12.500	12.211	-2.3	97.7
PFDoDS	2.425	2.321	-4.3	95.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.349	7.0	107.0
d7-MeFOSE	25.000	26.758	7.0	107.0
d9-EtFOSE	25.000	25.966	3.9	103.9
d5-EtFOSA	2.500	2.685	7.4	107.4
NFDHA	5.000	5.183	3.7	103.7
PFMBA	5.000	5.052	1.0	101.0
PFMPA	5.000	5.075	1.5	101.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.519	1.6	101.6

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17061.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17061
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.978	-0.4	99.6
13C2-6:2FTS	5.000	5.087	1.7	101.7
13C2-8:2FTS	5.000	5.498	10.0	110.0
13C2-PFDoDA	1.250	1.324	5.9	105.9
13C2-PFTeDA	1.250	1.283	2.6	102.6
13C3-PFBS	2.500	2.511	0.4	100.4
13C3-PFHxS	2.500	2.501	0.0	100.0
13C4-PFBA	10.000	10.058	0.6	100.6
13C4-PFHpA	2.500	2.401	-4.0	96.0
13C5-PFHxA	2.500	2.424	-3.0	97.0
13C5-PFPeA	5.000	5.018	0.4	100.4
13C6-PFDA	1.250	1.293	3.5	103.5
13C7-PFUnDA	1.250	1.247	-0.3	99.7
13C8-FOSA	2.500	2.609	4.4	104.4
13C8-PFOA	2.500	2.400	-4.0	96.0
13C8-PFOS	2.500	2.644	5.8	105.8
13C9-PFNA	1.250	1.152	-7.8	92.2
4:2FTS	20.000	22.440	12.2	112.2
6:2FTS	20.000	20.540	2.7	102.7
8:2FTS	20.000	18.805	-6.0	94.0
d3-MeFOSAA	5.000	5.415	8.3	108.3
EtFOSAA	20.000	20.650	3.3	103.3
FOSA	20.000	22.297	11.5	111.5
MeFOSAA	20.000	21.114	5.6	105.6
PFBA	20.000	20.356	1.8	101.8
PFBS	20.000	22.108	10.5	110.5
PFDA	20.000	22.578	12.9	112.9
PFDoDA	20.000	16.948	-15.3	84.7
PFDS	20.000	21.172	5.9	105.9
PFHpA	20.000	21.830	9.1	109.1
PFHpS	20.000	20.356	1.8	101.8
PFHxA	20.000	21.281	6.4	106.4
PFHxS	20.000	22.516	12.6	112.6
PFNA	20.000	20.748	3.7	103.7
PFNS	20.000	22.361	11.8	111.8
PFOA	20.000	20.811	4.1	104.1
PFOS	20.000	19.189	-4.1	95.9

Initial Calibration Verification

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17061.D

PFPeA	20.000	22.219	11.1	111.1
PFPeS	20.000	22.436	12.2	112.2
PFTeDA	20.000	21.508	7.5	107.5
PFTTrDA	20.000	18.424	-7.9	92.1
PFUnDA	20.000	21.105	5.5	105.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.934	4.7	104.7
13C3-HFPO-DA	10.000	10.271	2.7	102.7
9C1-PF3ONS	20.000	21.243	6.2	106.2
ADONA	20.000	20.743	3.7	103.7
HFPO-DA	20.000	18.852	-5.7	94.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.761	3.8	103.8
5:3FTCA	20.000	24.581	22.9	122.9
7:3FTCA	20.000	22.291	11.5	111.5
d3-MeFOSA	2.500	2.648	5.9	105.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	20.742	3.7	103.7
EtFOSE	100.000	110.844	10.8	110.8
MeFOSA	20.000	20.657	3.3	103.3
MeFOSE	100.000	112.253	12.3	112.3
PFDODS	20.000	20.303	1.5	101.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.698	14.0	114.0
d7-MeFOSE	25.000	25.753	3.0	103.0
d9-EtFOSE	25.000	25.659	2.6	102.6
d5-EtFOSA	2.500	2.632	5.3	105.3
NFDHA	20.000	22.831	14.2	114.2
PFMBA	20.000	21.829	9.1	109.1
PFMPA	20.000	21.503	7.5	107.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	19.879	-0.6	99.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17062.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17062
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.117	2.3	102.3
13C2-6:2FTS	5.000	5.440	8.8	108.8
13C2-8:2FTS	5.000	4.852	-3.0	97.0
13C2-PFDoDA	1.250	1.216	-2.7	97.3
13C2-PFTeDA	1.250	1.258	0.6	100.6
13C3-PFBS	2.500	2.512	0.5	100.5
13C3-PFHxS	2.500	2.533	1.3	101.3
13C4-PFBA	10.000	10.068	0.7	100.7
13C4-PFHpA	2.500	2.468	-1.3	98.7
13C5-PFHxA	2.500	2.432	-2.7	97.3
13C5-PFPeA	5.000	4.946	-1.1	98.9
13C6-PFDA	1.250	1.230	-1.6	98.4
13C7-PFUnDA	1.250	1.274	1.9	101.9
13C8-FOSA	2.500	2.643	5.7	105.7
13C8-PFOA	2.500	2.604	4.1	104.1
13C8-PFOS	2.500	2.616	4.6	104.6
13C9-PFNA	1.250	1.262	1.0	101.0
4:2FTS	9.375	9.528	1.6	101.6
6:2FTS	9.500	9.026	-5.0	95.0
8:2FTS	9.600	10.083	5.0	105.0
d3-MeFOSAA	5.000	5.612	12.2	112.2
EtFOSAA	2.500	2.377	-4.9	95.1
FOSA	2.500	2.471	-1.2	98.8
MeFOSAA	2.500	2.430	-2.8	97.2
PFBA	10.000	10.213	2.1	102.1
PFBS	2.218	2.251	1.5	101.5
PFDA	2.500	2.532	1.3	101.3
PFDoDA	2.500	2.457	-1.7	98.3
PFDS	2.413	2.594	7.5	107.5
PFHpA	2.500	2.496	-0.1	99.9
PFHpS	2.383	2.402	0.8	100.8
PFHxA	2.500	2.478	-0.9	99.1
PFHxS	2.285	2.240	-2.0	98.0
PFNA	2.500	2.570	2.8	102.8
PFNS	2.405	2.409	0.2	100.2
PFOA	2.500	2.424	-3.0	97.0
PFOS	2.320	2.532	9.2	109.2

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17062.D

PFPeA	5.000	5.020	0.4	100.4
PFPeS	2.353	2.307	-1.9	98.1
PFTeDA	2.500	2.622	4.9	104.9
PFTTrDA	2.500	2.440	-2.4	97.6
PFUnDA	2.500	2.599	4.0	104.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.762	0.8	100.8
13C3-HFPO-DA	10.000	9.627	-3.7	96.3
9C1-PF3ONS	4.675	4.885	4.5	104.5
ADONA	4.725	4.763	0.8	100.8
HFPO-DA	5.000	5.016	0.3	100.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.039	-3.5	96.5
5:3FTCA	62.400	66.731	6.9	106.9
7:3FTCA	62.400	62.565	0.3	100.3
d3-MeFOSA	2.500	2.523	0.9	100.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.111	2.2	102.2
EtFOSE	12.500	13.178	5.4	105.4
MeFOSA	5.000	5.351	7.0	107.0
MeFOSE	12.500	12.828	2.6	102.6
PFDoDS	2.425	2.532	4.4	104.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.712	14.2	114.2
d7-MeFOSE	25.000	26.214	4.9	104.9
d9-EtFOSE	25.000	25.998	4.0	104.0
d5-EtFOSA	2.500	2.657	6.3	106.3
NFDHA	5.000	4.959	-0.8	99.2
PFMBA	5.000	4.948	-1.0	99.0
PFMPA	5.000	4.896	-2.1	97.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.664	4.8	104.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17063.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17063
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.216	4.3	104.3
13C2-6:2FTS	5.000	5.074	1.5	101.5
13C2-8:2FTS	5.000	5.844	16.9	116.9
13C2-PFDoDA	1.250	1.296	3.6	103.6
13C2-PFTeDA	1.250	1.161	-7.1	92.9
13C3-PFBS	2.500	2.452	-1.9	98.1
13C3-PFHxS	2.500	2.586	3.4	103.4
13C4-PFBA	10.000	10.014	0.1	100.1
13C4-PFHpA	2.500	2.542	1.7	101.7
13C5-PFHxA	2.500	2.551	2.0	102.0
13C5-PFPeA	5.000	5.026	0.5	100.5
13C6-PFDA	1.250	1.288	3.1	103.1
13C7-PFUnDA	1.250	1.350	8.0	108.0
13C8-FOSA	2.500	2.520	0.8	100.8
13C8-PFOA	2.500	2.496	-0.2	99.8
13C8-PFOS	2.500	2.494	-0.3	99.7
13C9-PFNA	1.250	1.251	0.1	100.1
4:2FTS	0.750	0.615	-18.0	82.0
6:2FTS	0.760	0.616	-18.9	81.1
8:2FTS	0.768	0.572	-25.5	74.5
d3-MeFOSAA	5.000	5.070	1.4	101.4
EtFOSAA	0.200	0.179	-10.7	89.3
FOSA	0.200	0.170	-15.1	84.9
MeFOSAA	0.200	0.151	-24.6	75.4
PFBA	0.800	0.643	-19.6	80.4
PFBS	0.177	0.153	-13.4	86.6
PFDA	0.200	0.196	-2.0	98.0
PFDoDA	0.200	0.166	-17.1	82.9
PFDS	0.193	0.169	-12.3	87.7
PFHpA	0.200	0.148	-25.8	74.2
PFHpS	0.191	0.135	-29.5	70.5
PFHxA	0.200	0.146	-26.9	73.1
PFHxS	0.183	0.153	-16.6	83.4
PFNA	0.200	0.163	-18.3	81.7
PFNS	0.192	0.136	-29.2	70.8
PFOA	0.200	0.174	-13.0	87.0
PFOS	0.186	0.175	-5.9	94.1

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17063.D

PFPeA	0.400	0.339	-15.3	84.7
PFPeS	0.188	0.147	-21.9	78.1
PFTeDA	0.200	0.190	-5.0	95.0
PFTTrDA	0.200	0.161	-19.7	80.3
PFUnDA	0.200	0.164	-17.9	82.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.330	-12.8	87.2
13C3-HFPO-DA	10.000	9.619	-3.8	96.2
9C1-PF3ONS	0.367	0.374	1.7	101.7
ADONA	0.378	0.318	-15.8	84.2
HFPO-DA	0.400	0.308	-23.0	77.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.800	-19.8	80.2
5:3FTCA	4.992	4.515	-9.5	90.5
7:3FTCA	4.992	3.849	-22.9	77.1
d3-MeFOSA	2.500	2.454	-1.9	98.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.346	-13.5	86.5
EtFOSE	1.000	0.831	-16.9	83.1
MeFOSA	0.400	0.341	-14.8	85.2
MeFOSE	1.000	0.886	-11.4	88.6
PFDoDS	0.194	0.157	-19.0	81.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.828	-3.4	96.6
d7-MeFOSE	25.000	24.571	-1.7	98.3
d9-EtFOSE	25.000	25.161	0.6	100.6
d5-EtFOSA	2.500	2.422	-3.1	96.9
NFDHA	0.400	0.315	-21.3	78.7
PFMBA	0.400	0.313	-21.8	78.2
PFMPA	0.400	0.323	-19.3	80.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.266	-25.2	74.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17070.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17070
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.197	3.9	103.9
13C2-6:2FTS	5.000	5.218	4.4	104.4
13C2-8:2FTS	5.000	5.006	0.1	100.1
13C2-PFDoDA	1.250	1.258	0.6	100.6
13C2-PFTeDA	1.250	1.303	4.3	104.3
13C3-PFBS	2.500	2.496	-0.1	99.9
13C3-PFHxS	2.500	2.433	-2.7	97.3
13C4-PFBA	10.000	9.868	-1.3	98.7
13C4-PFHpA	2.500	2.388	-4.5	95.5
13C5-PFHxA	2.500	2.401	-3.9	96.1
13C5-PFPeA	5.000	4.967	-0.7	99.3
13C6-PFDA	1.250	1.254	0.3	100.3
13C7-PFUnDA	1.250	1.365	9.2	109.2
13C8-FOSA	2.500	2.465	-1.4	98.6
13C8-PFOA	2.500	2.643	5.7	105.7
13C8-PFOS	2.500	2.609	4.3	104.3
13C9-PFNA	1.250	1.289	3.1	103.1
4:2FTS	9.375	9.249	-1.3	98.7
6:2FTS	9.500	9.591	1.0	101.0
8:2FTS	9.600	9.427	-1.8	98.2
d3-MeFOSAA	5.000	4.707	-5.9	94.1
EtFOSAA	2.500	2.515	0.6	100.6
FOSA	2.500	2.438	-2.5	97.5
MeFOSAA	2.500	2.649	6.0	106.0
PFBA	10.000	10.182	1.8	101.8
PFBS	2.218	2.255	1.7	101.7
PFDA	2.500	2.787	11.5	111.5
PFDoDA	2.500	2.473	-1.1	98.9
PFDS	2.413	2.360	-2.2	97.8
PFHpA	2.500	2.659	6.4	106.4
PFHpS	2.383	2.138	-10.3	89.7
PFHxA	2.500	2.565	2.6	102.6
PFHxS	2.285	2.328	1.9	101.9
PFNA	2.500	2.298	-8.1	91.9
PFNS	2.405	2.328	-3.2	96.8
PFOA	2.500	2.522	0.9	100.9
PFOS	2.320	2.093	-9.8	90.2

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17070.D

PFPeA	5.000	5.126	2.5	102.5
PFPeS	2.353	2.519	7.1	107.1
PFTeDA	2.500	2.425	-3.0	97.0
PFTTrDA	2.500	2.702	8.1	108.1
PFUnDA	2.500	2.300	-8.0	92.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.593	-2.8	97.2
13C3-HFPO-DA	10.000	9.931	-0.7	99.3
9C1-PF3ONS	4.675	4.761	1.8	101.8
ADONA	4.725	4.713	-0.2	99.8
HFPO-DA	5.000	4.705	-5.9	94.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.414	-0.5	99.5
5:3FTCA	62.400	66.308	6.3	106.3
7:3FTCA	62.400	66.964	7.3	107.3
d3-MeFOSA	2.500	2.342	-6.3	93.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.995	-0.1	99.9
EtFOSE	12.500	12.438	-0.5	99.5
MeFOSA	5.000	5.111	2.2	102.2
MeFOSE	12.500	12.766	2.1	102.1
PFDoDS	2.425	2.346	-3.3	96.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.910	-1.8	98.2
d7-MeFOSE	25.000	24.249	-3.0	97.0
d9-EtFOSE	25.000	25.030	0.1	100.1
d5-EtFOSA	2.500	2.414	-3.5	96.5
NFDHA	5.000	5.303	6.1	106.1
PFMBA	5.000	5.082	1.6	101.6
PFMPA	5.000	5.100	2.0	102.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.785	7.5	107.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17082.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17082
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.405	8.1	108.1
13C2-6:2FTS	5.000	5.147	2.9	102.9
13C2-8:2FTS	5.000	5.407	8.1	108.1
13C2-PFDoDA	1.250	1.237	-1.0	99.0
13C2-PFTeDA	1.250	1.221	-2.3	97.7
13C3-PFBS	2.500	2.558	2.3	102.3
13C3-PFHxS	2.500	2.546	1.8	101.8
13C4-PFBA	10.000	9.946	-0.5	99.5
13C4-PFHpA	2.500	2.492	-0.3	99.7
13C5-PFHxA	2.500	2.563	2.5	102.5
13C5-PFPeA	5.000	5.170	3.4	103.4
13C6-PFDA	1.250	1.211	-3.1	96.9
13C7-PFUnDA	1.250	1.144	-8.5	91.5
13C8-FOSA	2.500	2.780	11.2	111.2
13C8-PFOA	2.500	2.548	1.9	101.9
13C8-PFOS	2.500	2.579	3.1	103.1
13C9-PFNA	1.250	1.227	-1.8	98.2
4:2FTS	9.375	9.127	-2.6	97.4
6:2FTS	9.500	9.088	-4.3	95.7
8:2FTS	9.600	9.312	-3.0	97.0
d3-MeFOSAA	5.000	5.919	18.4	118.4
EtFOSAA	2.500	2.621	4.8	104.8
FOSA	2.500	2.431	-2.8	97.2
MeFOSAA	2.500	2.312	-7.5	92.5
PFBA	10.000	10.228	2.3	102.3
PFBS	2.218	2.351	6.0	106.0
PFDA	2.500	2.731	9.2	109.2
PFDoDA	2.500	2.327	-6.9	93.1
PFDS	2.413	2.578	6.8	106.8
PFHpA	2.500	2.551	2.0	102.0
PFHpS	2.383	2.449	2.8	102.8
PFHxA	2.500	2.399	-4.0	96.0
PFHxS	2.285	2.310	1.1	101.1
PFNA	2.500	2.402	-3.9	96.1
PFNS	2.405	2.564	6.6	106.6
PFOA	2.500	2.390	-4.4	95.6
PFOS	2.320	2.448	5.5	105.5

Continuing Calibration Summary

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17082.D

PFPeA	5.000	5.022	0.4	100.4
PFPeS	2.353	2.475	5.2	105.2
PFTeDA	2.500	2.525	1.0	101.0
PFTTrDA	2.500	2.519	0.7	100.7
PFUnDA	2.500	2.957	18.3	118.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.020	6.2	106.2
13C3-HFPO-DA	10.000	9.626	-3.7	96.3
9C1-PF3ONS	4.675	5.272	12.8	112.8
ADONA	4.725	5.162	9.3	109.3
HFPO-DA	5.000	4.990	-0.2	99.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.061	-3.4	96.6
5:3FTCA	62.400	63.964	2.5	102.5
7:3FTCA	62.400	63.816	2.3	102.3
d3-MeFOSA	2.500	2.801	12.0	112.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.054	1.1	101.1
EtFOSE	12.500	12.694	1.6	101.6
MeFOSA	5.000	4.720	-5.6	94.4
MeFOSE	12.500	12.210	-2.3	97.7
PFDODS	2.425	2.801	15.5	115.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.321	6.4	106.4
d7-MeFOSE	25.000	27.528	10.1	110.1
d9-EtFOSE	25.000	27.011	8.0	108.0
d5-EtFOSA	2.500	2.659	6.4	106.4
NFDHA	5.000	5.007	0.1	100.1
PFMBA	5.000	4.995	-0.1	99.9
PFMPA	5.000	4.940	-1.2	98.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.409	-0.9	99.1

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q258-RT	6Q17048.D	04/28/23 12:06	n/a	Retention Time Marker
S6Q258-RT	6Q17049.D	04/28/23 12:21	n/a	Retention Time Marker
S6Q258-IC258	6Q17050.D	04/28/23 12:35	n/a	Mass Calibration Verification
S6Q258-IC258	6Q17051.D	04/28/23 12:50	n/a	Initial cal 1
S6Q258-IC258	6Q17052.D	04/28/23 13:04	n/a	Initial cal 2
S6Q258-IC258	6Q17053.D	04/28/23 13:19	n/a	Initial cal 3
S6Q258-ICC258	6Q17054.D	04/28/23 13:33	n/a	Initial cal 4
S6Q258-IC258	6Q17055.D	04/28/23 13:48	n/a	Initial cal 5
S6Q258-IC258	6Q17056.D	04/28/23 14:02	n/a	Initial cal 6
S6Q258-IC258	6Q17057.D	04/28/23 14:17	n/a	Initial cal 7
S6Q258-IC258	6Q17058.D	04/28/23 14:31	n/a	Initial cal 8
S6Q258-IBLK	6Q17059.D	04/28/23 14:46	n/a	Instrument Blank
S6Q258-ICV258	6Q17060.D	04/28/23 15:00	n/a	Initial cal verification 4
S6Q258-ICV258	6Q17061.D	04/28/23 15:15	n/a	Initial cal verification 20
S6Q258-CC258	6Q17062.D	04/28/23 15:29	n/a	Continuing cal 4
S6Q258-CC258	6Q17063.D	04/28/23 15:44	n/a	Continuing cal 1.0LL
OP96604-BS	6Q17064.D	04/28/23 15:58	OP96604	Blank Spike
OP96604-LLBS	6Q17065.D	04/28/23 16:13	OP96604	Blank Spike
OP96604-MB	6Q17066.D	04/28/23 16:27	OP96604	Method Blank
ZZZZZZ	6Q17067.D	04/28/23 16:42	OP96604	(unrelated sample)
ZZZZZZ	6Q17068.D	04/28/23 16:56	OP96604	(unrelated sample)
ZZZZZZ	6Q17069.D	04/28/23 17:11	OP96604	(unrelated sample)
S6Q258-CC258	6Q17070.D	04/28/23 17:25	n/a	Continuing cal 4
S6Q258-ICCB	6Q17071.D	04/28/23 17:40	n/a	Continuing Calibration Blank
OP96603-BS	6Q17072.D	04/28/23 17:54	OP96603	Blank Spike
OP96603-LLBS	6Q17073.D	04/28/23 18:09	OP96603	Blank Spike
OP96603-MB	6Q17074.D	04/28/23 18:23	OP96603	Method Blank
FC5514-1	6Q17075.D	04/28/23 18:37	OP96603	AF-RHMW12A-WGN01LF-2304W3
FC5514-2	6Q17076.D	04/28/23 18:52	OP96603	AF-RHMW12A-WGFD01LF-2304W3
FC5514-3	6Q17077.D	04/28/23 19:06	OP96603	AF-RHMW04-WGN01LF-2304W3
OP96603-MS	6Q17078.D	04/28/23 19:21	OP96603	Matrix Spike
FC5514-4	6Q17079.D	04/28/23 19:35	OP96603	AF-RHMW16-WGN01LF-2304W3
OP96603-DUP	6Q17080.D	04/28/23 19:50	OP96603	Duplicate
FC5514-5	6Q17081.D	04/28/23 20:04	OP96603	AF-RHMW06-WGN01LF-2304W3
S6Q258-CC258	6Q17082.D	04/28/23 20:19	n/a	Continuing cal 4
S6Q258-ICCB	6Q17083.D	04/28/23 20:33	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17084.D	04/28/23 20:48	OP96603	(unrelated sample)
ZZZZZZ	6Q17085.D	04/28/23 21:02	OP96603	(unrelated sample)
ZZZZZZ	6Q17086.D	04/28/23 21:17	OP96603	(unrelated sample)
FC5522-4	6Q17087.D	04/28/23 21:31	OP96603	(used for QC only; not part of job FC5514)
ZZZZZZ	6Q17088.D	04/28/23 21:46	OP96603	(unrelated sample)
ZZZZZZ	6Q17089.D	04/28/23 22:00	OP96603	(unrelated sample)
ZZZZZZ	6Q17090.D	04/28/23 22:15	OP96603	(unrelated sample)
S6Q258-CC258	6Q17091.D	04/28/23 22:29	n/a	Continuing cal 4
S6Q258-ICCB	6Q17092.D	04/28/23 22:44	n/a	Continuing Calibration Blank
OP96579-BS	6Q17093.D	04/28/23 22:58	OP96579	Blank Spike

Run Sequence Report

Job Number: FC5514
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP96579-LLBS	6Q17094.D	04/28/23 23:13	OP96579	Blank Spike
OP96579-MB	6Q17095.D	04/28/23 23:27	OP96579	Method Blank
ZZZZZZ	6Q17096.D	04/28/23 23:42	OP96579	(unrelated sample)
ZZZZZZ	6Q17097.D	04/28/23 23:56	OP96579	(unrelated sample)
ZZZZZZ	6Q17098.D	04/29/23 00:11	OP96579	(unrelated sample)
ZZZZZZ	6Q17099.D	04/29/23 00:25	OP96579	(unrelated sample)
FC5240-5	6Q17100.D	04/29/23 00:40	OP96579	(used for QC only; not part of job FC5514)
OP96579-MS	6Q17101.D	04/29/23 00:54	OP96579	Matrix Spike
OP96579-MSD	6Q17102.D	04/29/23 01:09	OP96579	Matrix Spike Duplicate
S6Q258-CC258	6Q17103.D	04/29/23 01:23	n/a	Continuing cal 4
S6Q258-ICCB	6Q17104.D	04/29/23 01:38	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17105.D	04/29/23 01:52	OP96579	(unrelated sample)
ZZZZZZ	6Q17106.D	04/29/23 02:07	OP96579	(unrelated sample)
ZZZZZZ	6Q17107.D	04/29/23 02:21	OP96579	(unrelated sample)
ZZZZZZ	6Q17108.D	04/29/23 02:36	OP96579	(unrelated sample)
ZZZZZZ	6Q17109.D	04/29/23 02:50	OP96579	(unrelated sample)
ZZZZZZ	6Q17110.D	04/29/23 03:04	OP96579	(unrelated sample)
ZZZZZZ	6Q17111.D	04/29/23 03:19	OP96579	(unrelated sample)
ZZZZZZ	6Q17112.D	04/29/23 03:33	OP96579	(unrelated sample)
ZZZZZZ	6Q17113.D	04/29/23 03:48	OP96579	(unrelated sample)
ZZZZZZ	6Q17114.D	04/29/23 04:02	OP96579	(unrelated sample)
S6Q258-CC258	6Q17115.D	04/29/23 04:17	n/a	Continuing cal 4
S6Q258-CC258	6Q17116.D	04/29/23 04:31	n/a	Continuing cal 1.0LL
S6Q258-ICCB	6Q17117.D	04/29/23 04:46	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17118.D	04/29/23 05:00	OP96491	(unrelated sample)
OP96566-BS	6Q17119.D	04/29/23 05:15	OP96566	Blank Spike
OP96566-LLBS	6Q17120.D	04/29/23 05:29	OP96566	Blank Spike
OP96566-MB	6Q17121.D	04/29/23 05:44	OP96566	Method Blank
ZZZZZZ	6Q17122.D	04/29/23 05:58	OP96566	(unrelated sample)
FC5200-2	6Q17123.D	04/29/23 06:13	OP96566	(used for QC only; not part of job FC5514)
OP96566-MS	6Q17124.D	04/29/23 06:27	OP96566	Matrix Spike
OP96566-MSD	6Q17125.D	04/29/23 06:42	OP96566	Matrix Spike Duplicate
ZZZZZZ	6Q17126.D	04/29/23 06:56	OP96566	(unrelated sample)
ZZZZZZ	6Q17127.D	04/29/23 07:11	OP96566	(unrelated sample)
S6Q258-CC258	6Q17128.D	04/29/23 07:25	n/a	Continuing cal 4
S6Q258-ICCB	6Q17129.D	04/29/23 07:40	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17130.D	04/29/23 07:54	OP96566	(unrelated sample)
ZZZZZZ	6Q17131.D	04/29/23 08:09	OP96566	(unrelated sample)
ZZZZZZ	6Q17132.D	04/29/23 08:23	OP96566	(unrelated sample)
ZZZZZZ	6Q17133.D	04/29/23 08:38	OP96566	(unrelated sample)
ZZZZZZ	6Q17134.D	04/29/23 08:52	OP96566	(unrelated sample)
ZZZZZZ	6Q17135.D	04/29/23 09:07	OP96566	(unrelated sample)
ZZZZZZ	6Q17136.D	04/29/23 09:21	OP96566	(unrelated sample)
ZZZZZZ	6Q17137.D	04/29/23 09:35	OP96566	(unrelated sample)
ZZZZZZ	6Q17138.D	04/29/23 09:50	OP96566	(unrelated sample)
ZZZZZZ	6Q17139.D	04/29/23 10:04	OP96566	(unrelated sample)

6-10-1

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Run Sequence Report

Job Number: FC5514
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q258-CC258	6Q17140.D	04/29/23 10:19	n/a	Continuing cal 4
S6Q258-ICCB	6Q17141.D	04/29/23 10:33	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17142.D	04/29/23 10:48	OP96566	(unrelated sample)
ZZZZZZ	6Q17143.D	04/29/23 11:02	OP96566	(unrelated sample)
ZZZZZZ	6Q17144.D	04/29/23 11:17	OP96566	(unrelated sample)
ZZZZZZ	6Q17145.D	04/29/23 11:31	OP96566	(unrelated sample)
S6Q258-ECC258	6Q17146.D	04/29/23 11:46	n/a	Ending cal 4
S6Q258-ICCB	6Q17147.D	04/29/23 12:00	n/a	Continuing Calibration Blank

6.10.1
6

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17075.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 6:37:57 PM
 Sample Name : FC5514-1
 Vial : P3-A4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	153949	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67115	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	73859	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60634	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	85063	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27806	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18939	1.25 µg/L	0.000
M7-PFUnDA	8.517	570.0 -> 525.1	24251	1.25 µg/L	-0.013
M2-PFDoDA	8.960	615.1 -> 570.0	19086	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	11853	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	12954	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23111	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12921	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10851	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2333	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2915	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2589	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21353	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40384	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	15924	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	25846	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	35509	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	4234	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	3523	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13222	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	75432	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9257	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	84158	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	23425	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28267	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56938	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2333	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2915	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2589	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	19086	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.3%		
13C2-PFTeDA	9.689	715.2 -> 670.0	11853	0.90 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.9%		
13C3-PFBS	5.398	302.1 -> 79.9	23111	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	12921	2.62 µg/L	0.000

7.1.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C4-PFBA	2.910	216.8 -> 171.9	153949	8.83 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C4-PFHpA	6.419	367.1 -> 322.0	60634	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFHxA	5.468	318.0 -> 273.0	73859	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFPeA	4.270	268.3 -> 223.0	67115	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C6-PFDA	8.076	519.1 -> 474.1	18939	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C7-PFUnDA	8.517	570.0 -> 525.1	24251	1.23 µg/L	-0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-FOSA	9.611	506.1 -> 77.8	12954	1.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 59.3%	
13C8-PFOA	7.062	421.1 -> 376.0	85063	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-PFOS	8.226	507.1 -> 79.9	10851	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C9-PFNA	7.594	472.1 -> 427.0	27806	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21353	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40384	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSA	10.728	515.0 -> 219.0	3523	1.07 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 42.7%	
d5-EtFOSAA	8.330	589.2 -> 419.0	15924	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	25846	7.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 29.8%	
d9-EtFOSE	10.894	639.2 -> 58.9	35509	8.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 33.5%	
d5-EtFOSA	10.960	531.1 -> 219.0	4234	1.04 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.8%	

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.423	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.470	449.0 -> 98.9	3729	0.13	µg/L	99
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	184	-	-	-
		398.7 -> 79.9				
PFNA	8.217	398.7 -> 98.9	-	-	-	-
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	µg/L	m	1
		548.8 -> 79.9				
PFOA	7.711	548.8 -> 98.9	-	-	-	-
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	0	µg/L	m	1
		498.9 -> 79.9				
PFPeA	4.273	498.9 -> 98.8	-	-	-	-
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	8140	0.45	µg/L	100
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	-	-	-
		713.1 -> 168.9				
PFTrDA	9.904	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9				
PFUnDA	9.115	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	-	-	-
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	-	-	-
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	-	-	-
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	-	-	-
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	-	-	-
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	-	-	-
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	-	-	-
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	-	-	-
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	-	-	-
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	-	-	-
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	-	-	-
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	-	-	-
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	-	-	-
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	-	-	-
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

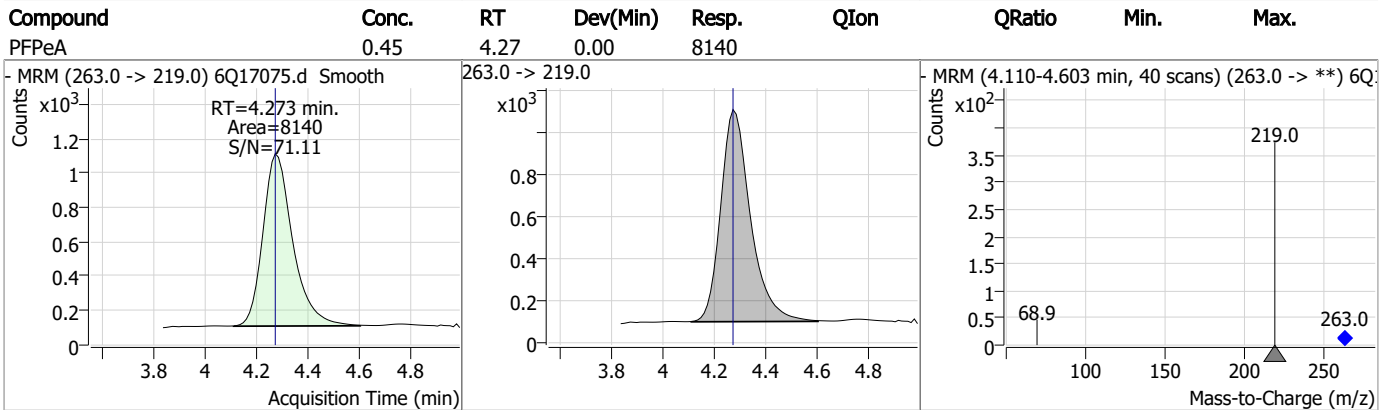
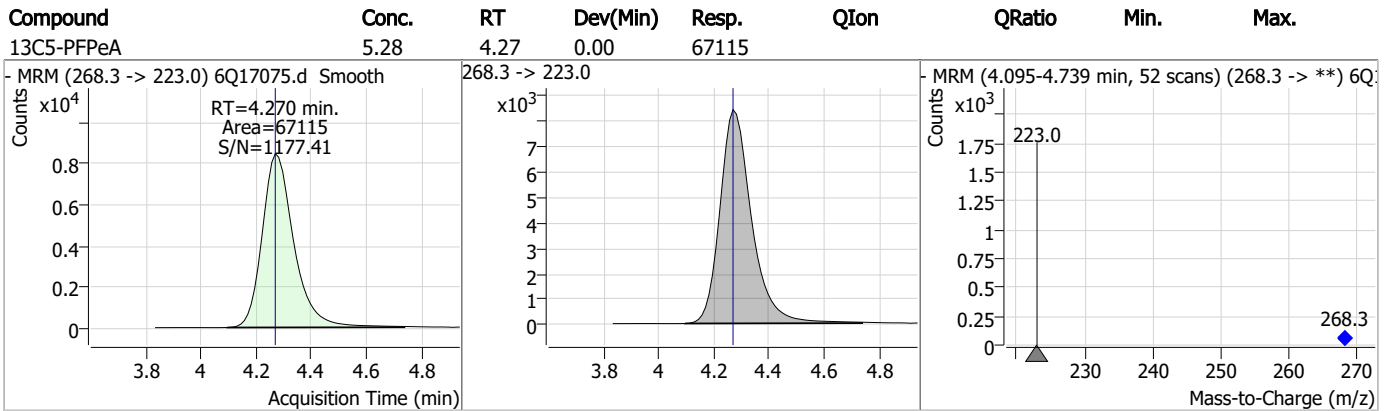
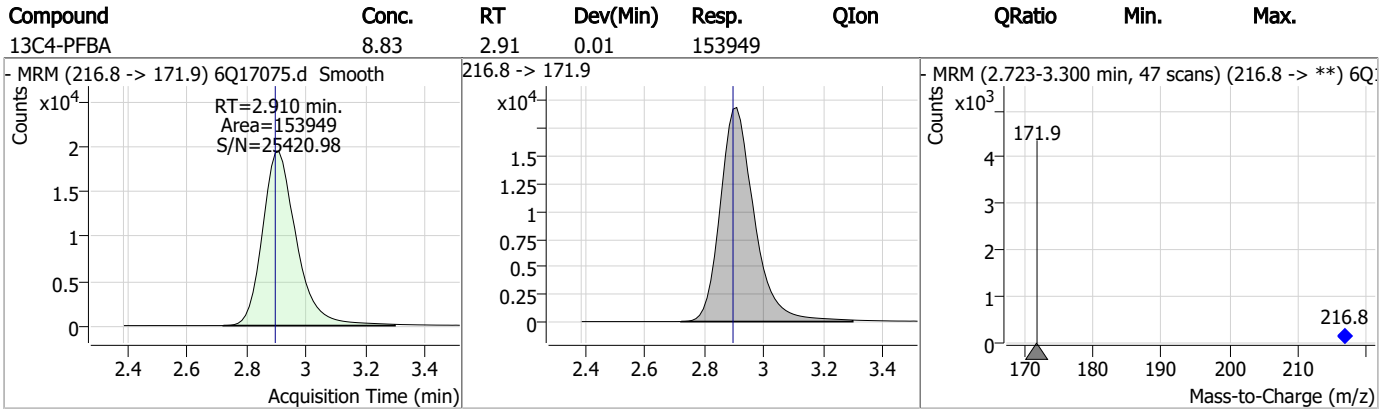
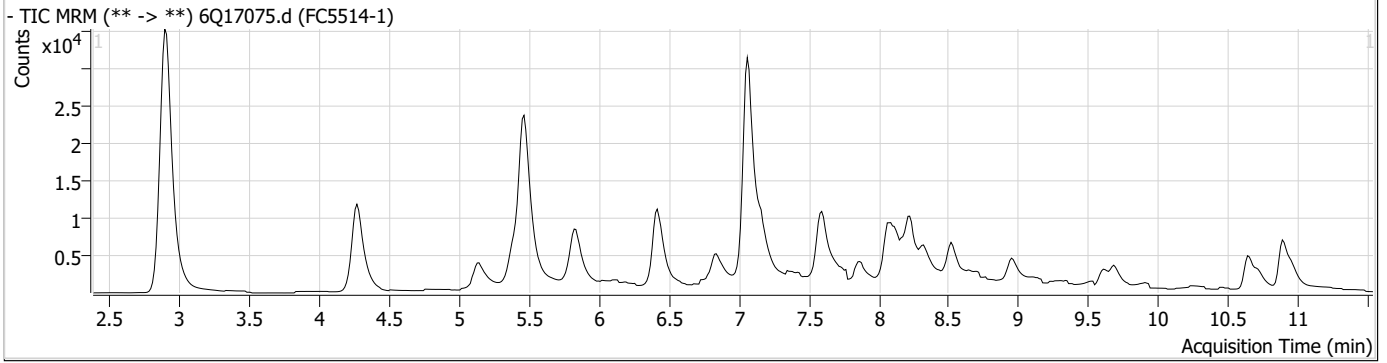
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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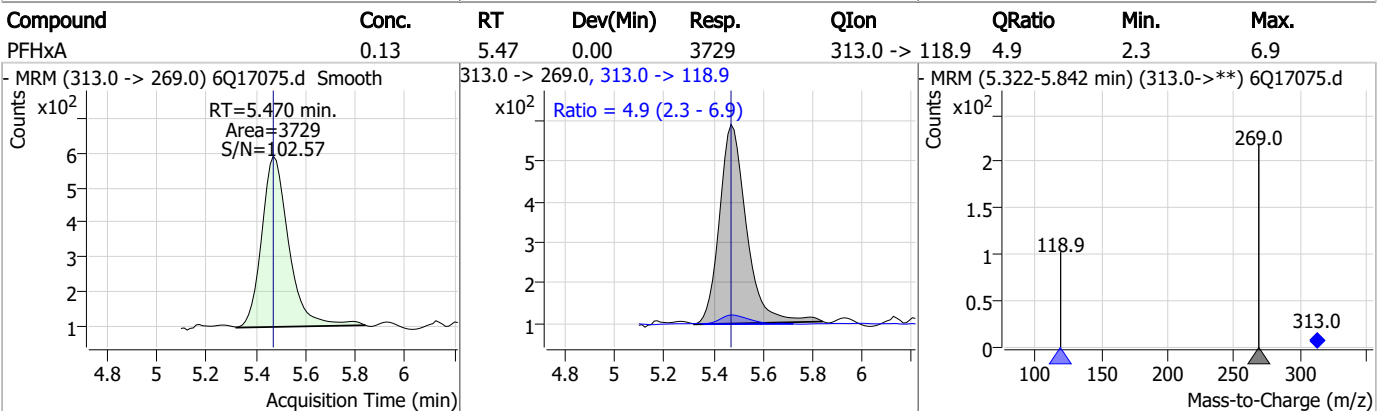
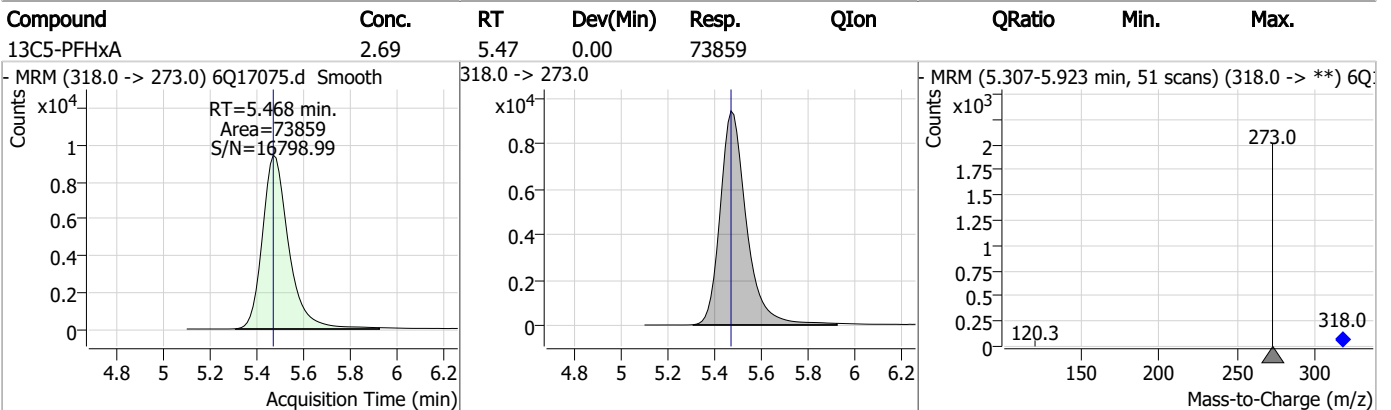
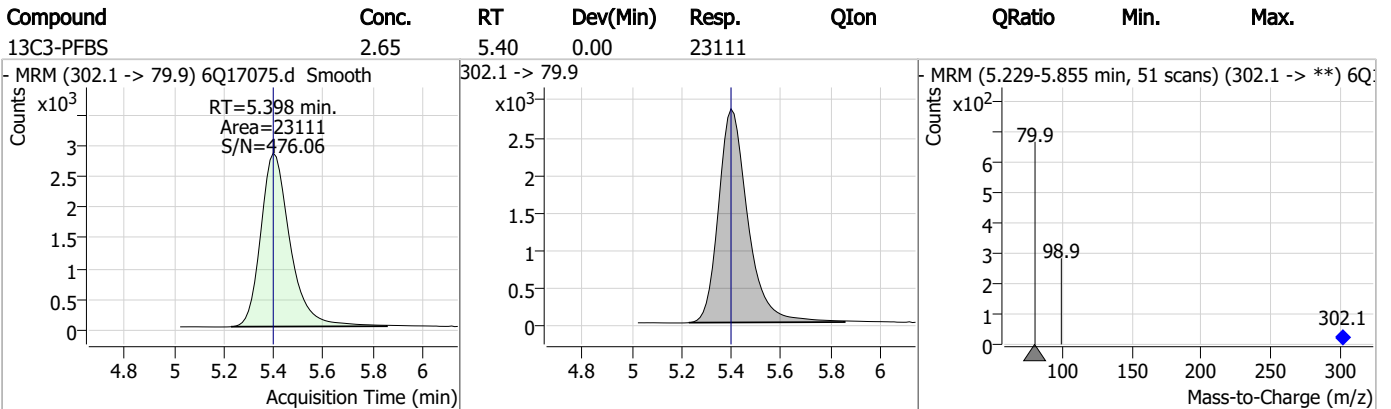
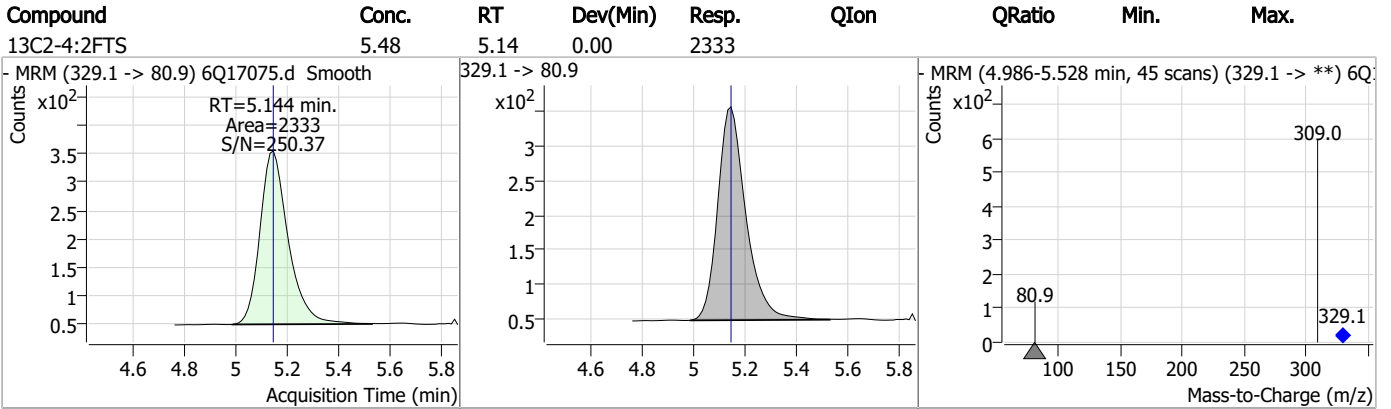
7.1.1
7



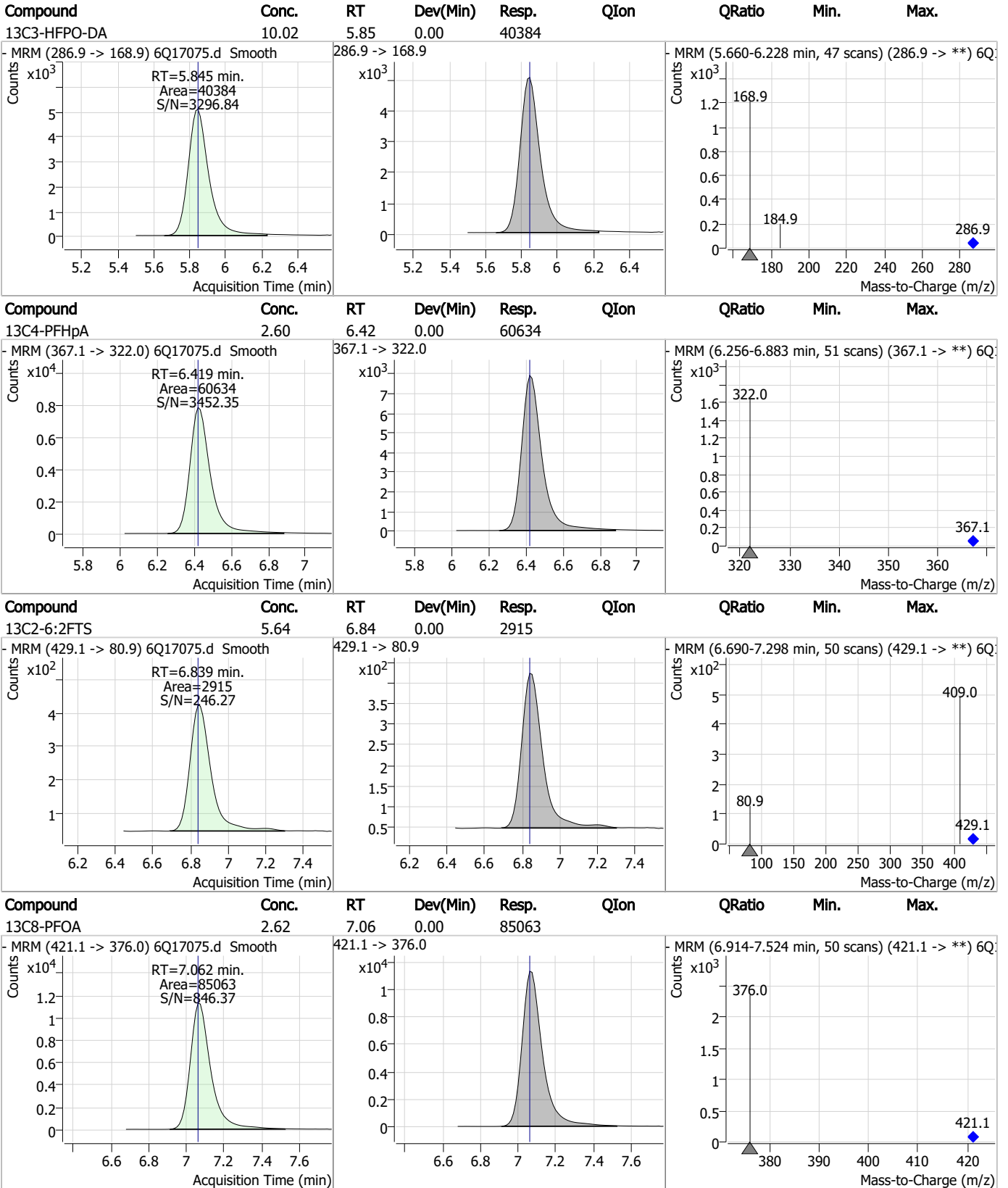
Perfluorinated Compounds by LC/MS/MS



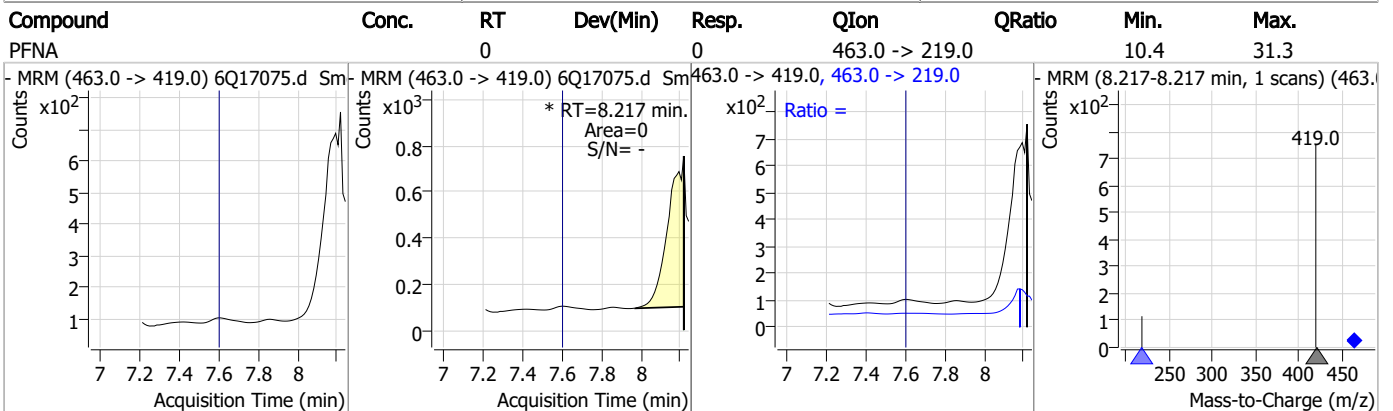
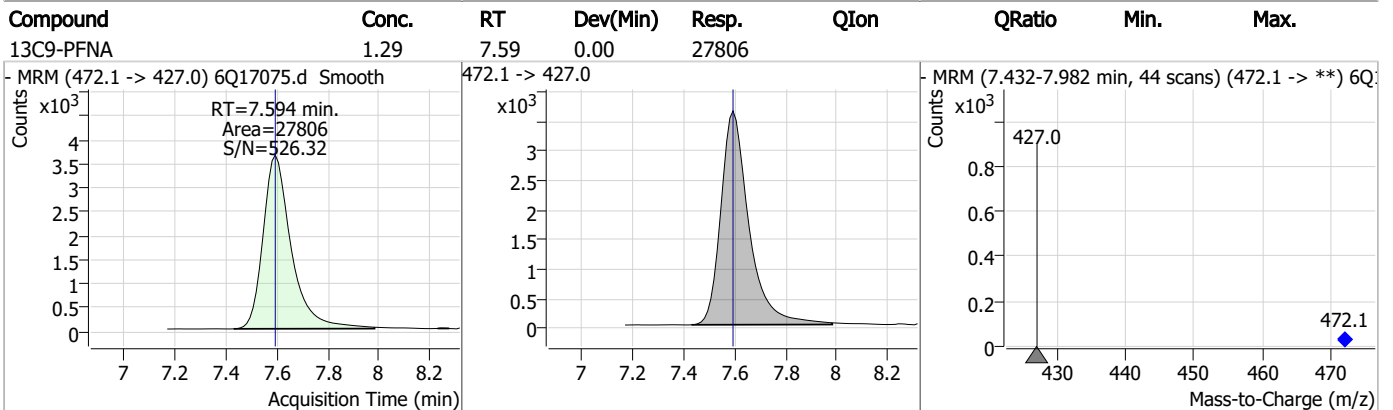
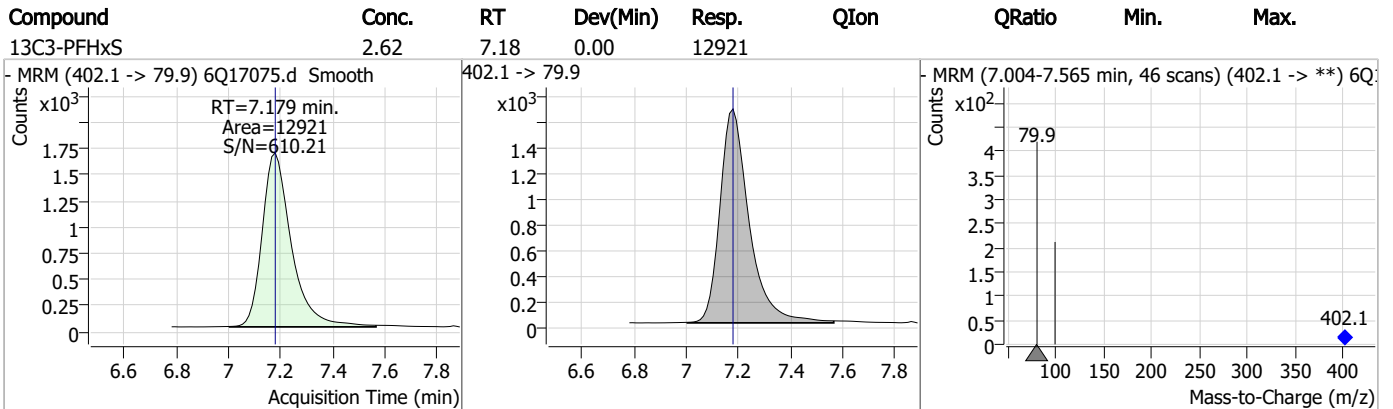
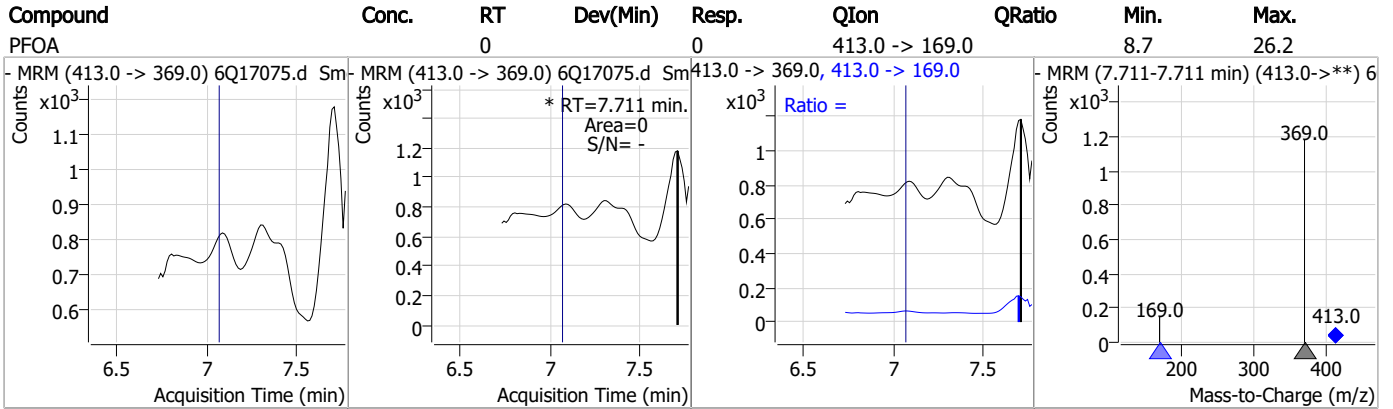
Perfluorinated Compounds by LC/MS/MS



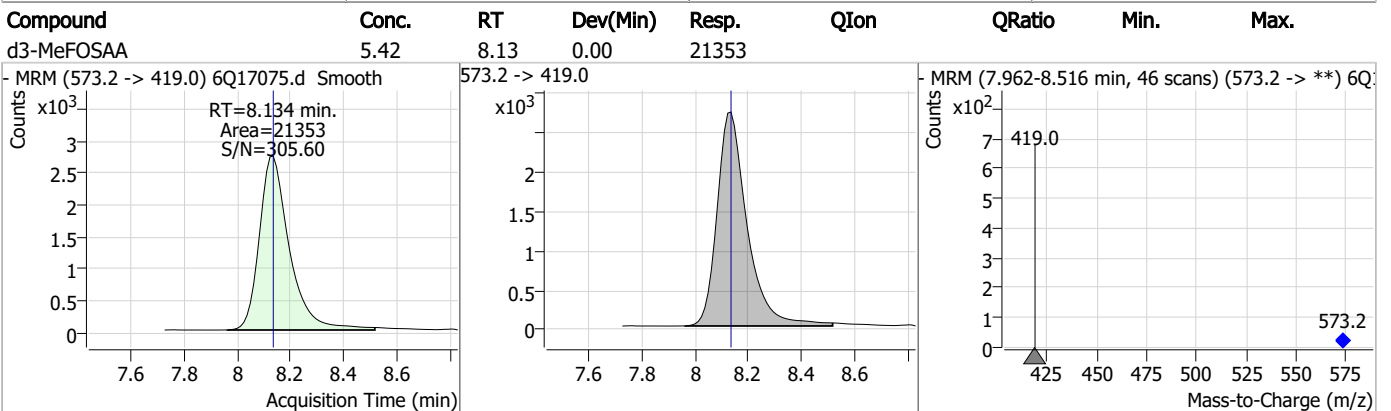
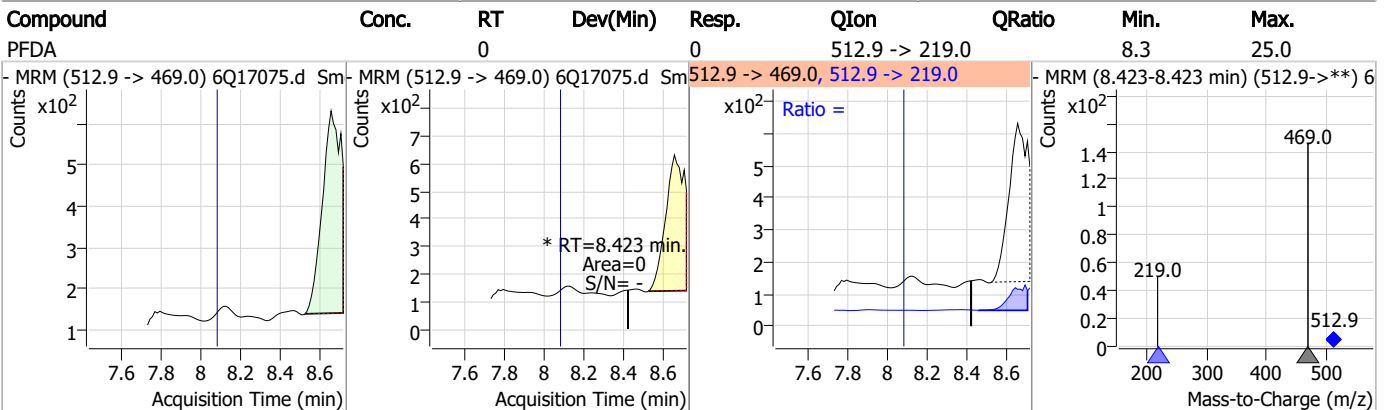
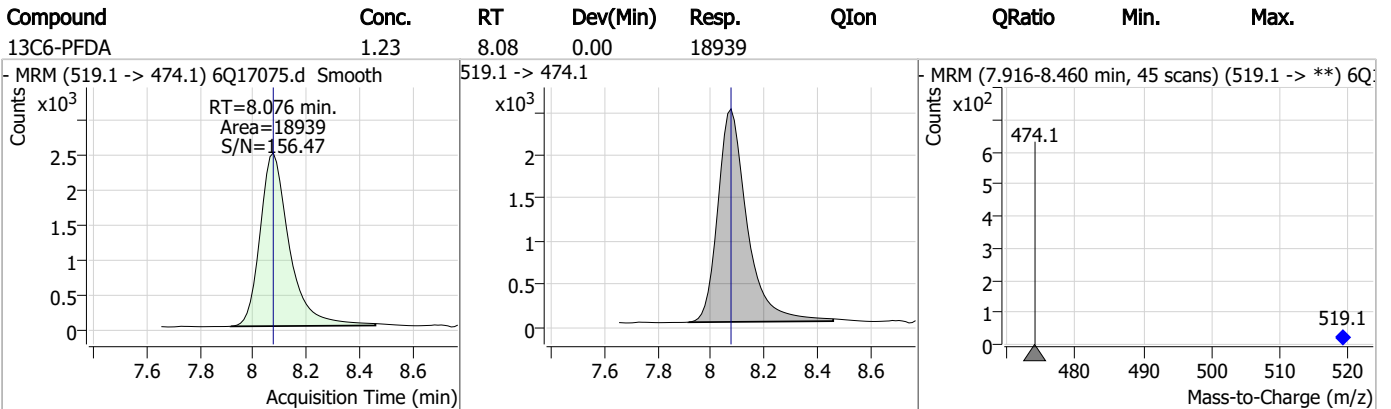
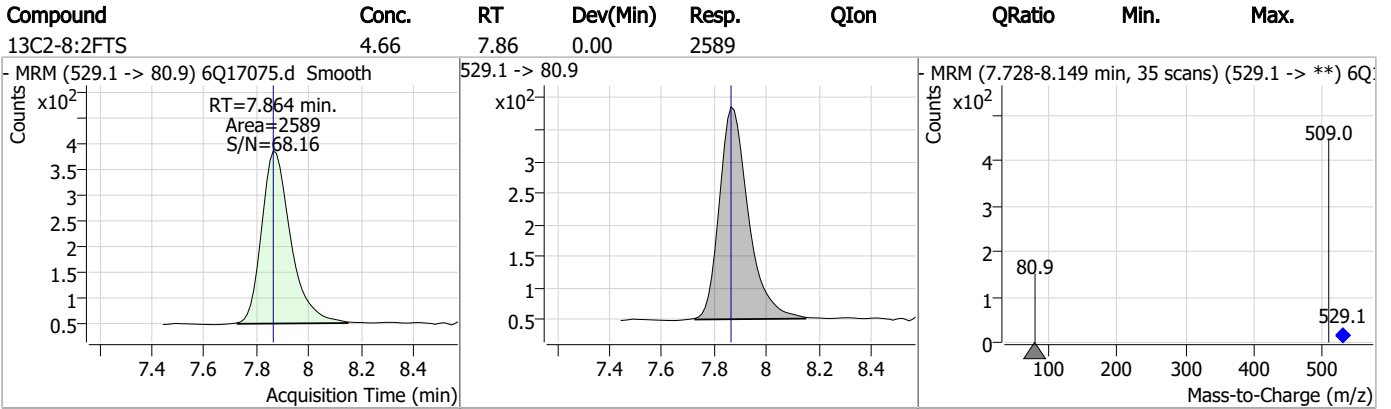
Perfluorinated Compounds by LC/MS/MS



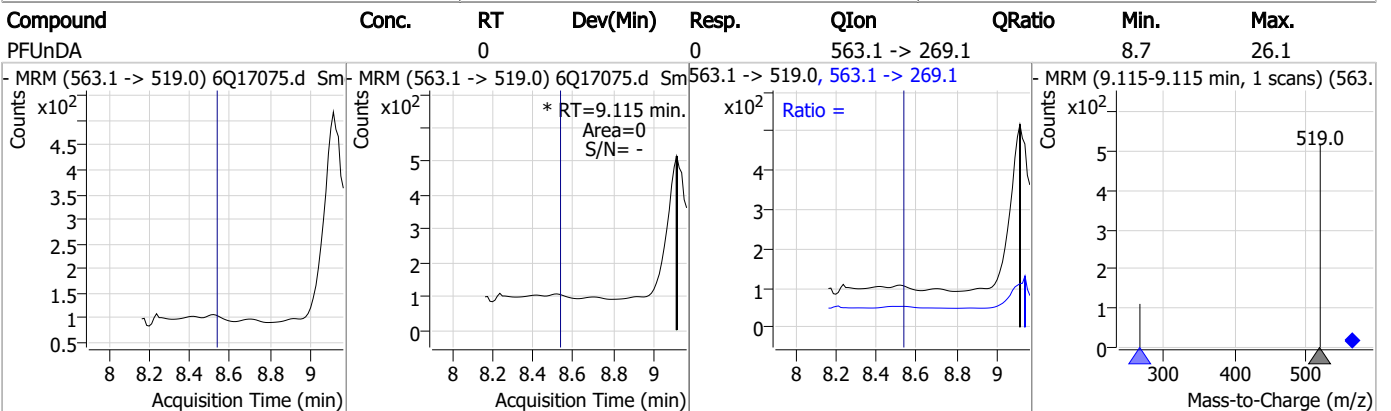
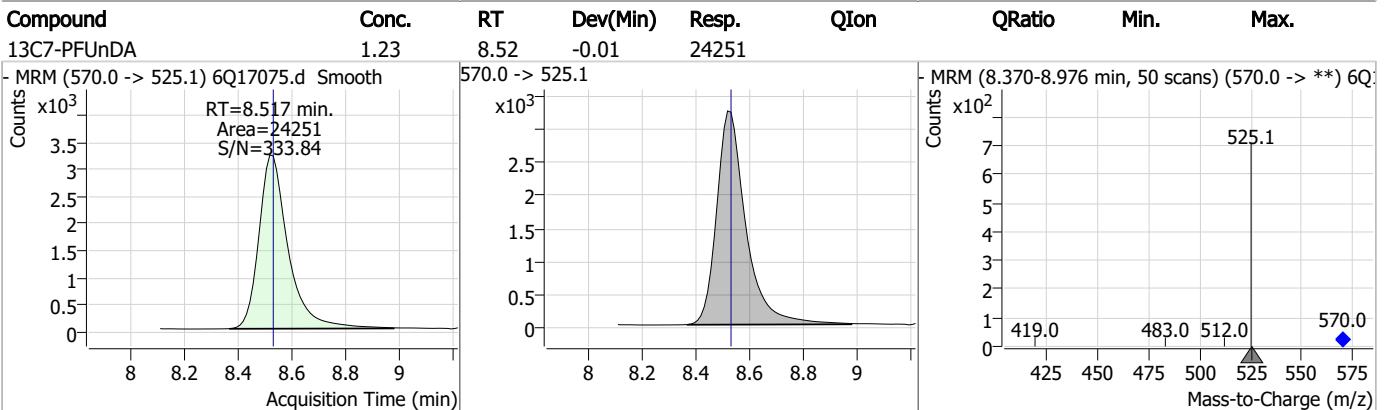
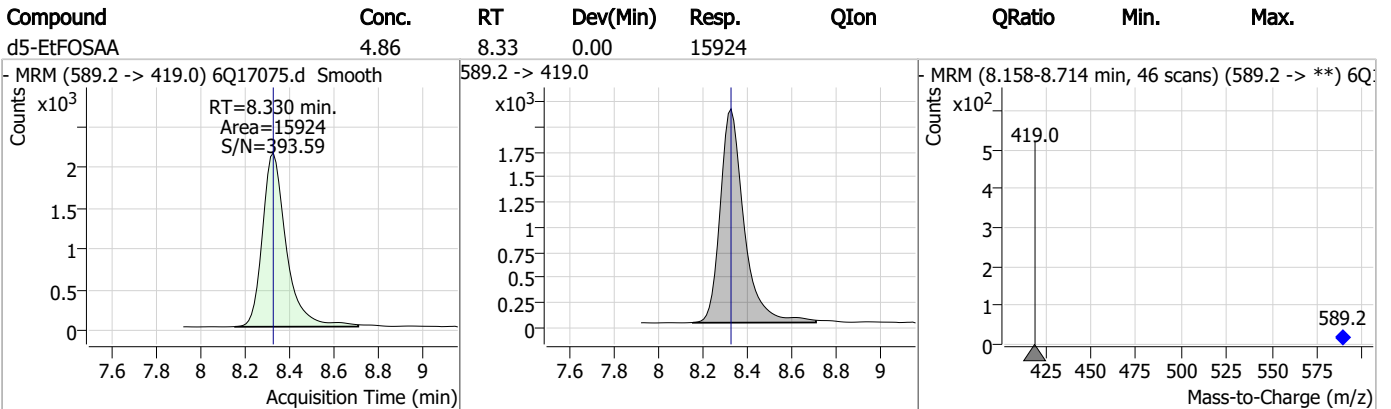
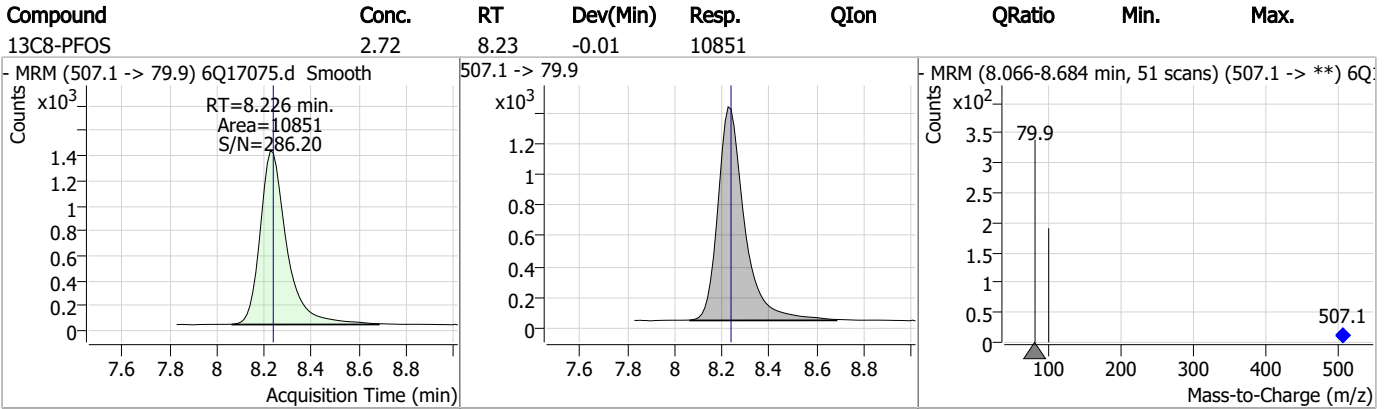
Perfluorinated Compounds by LC/MS/MS



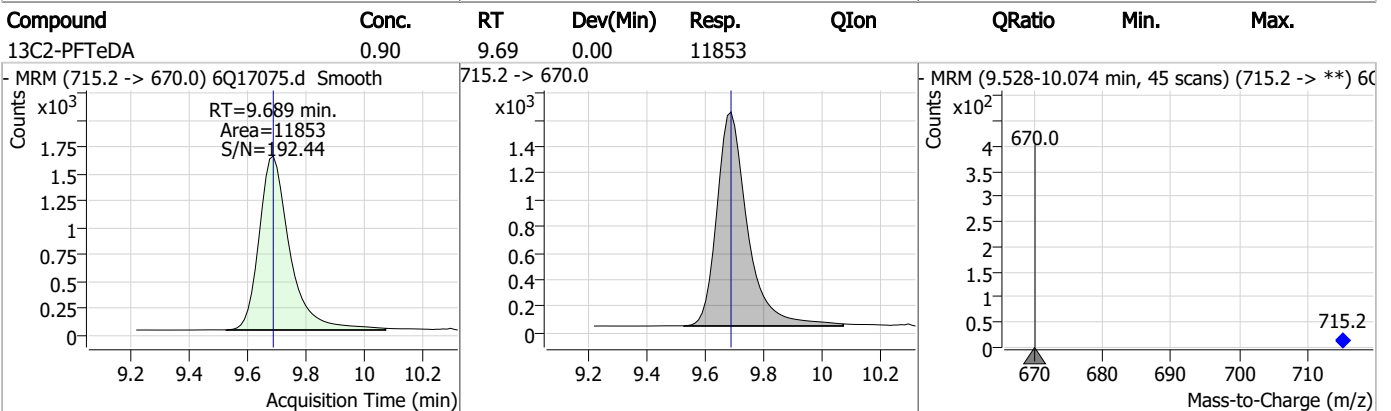
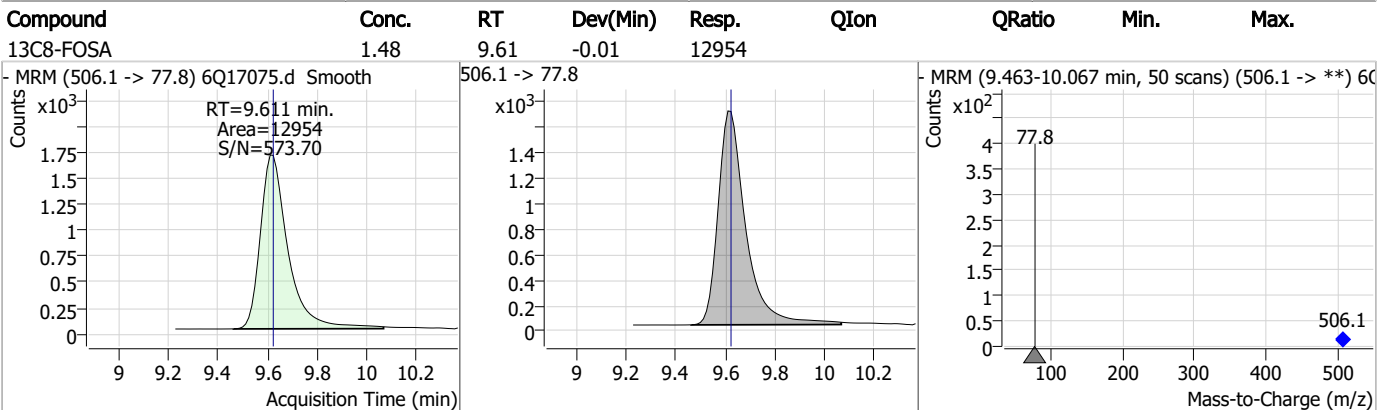
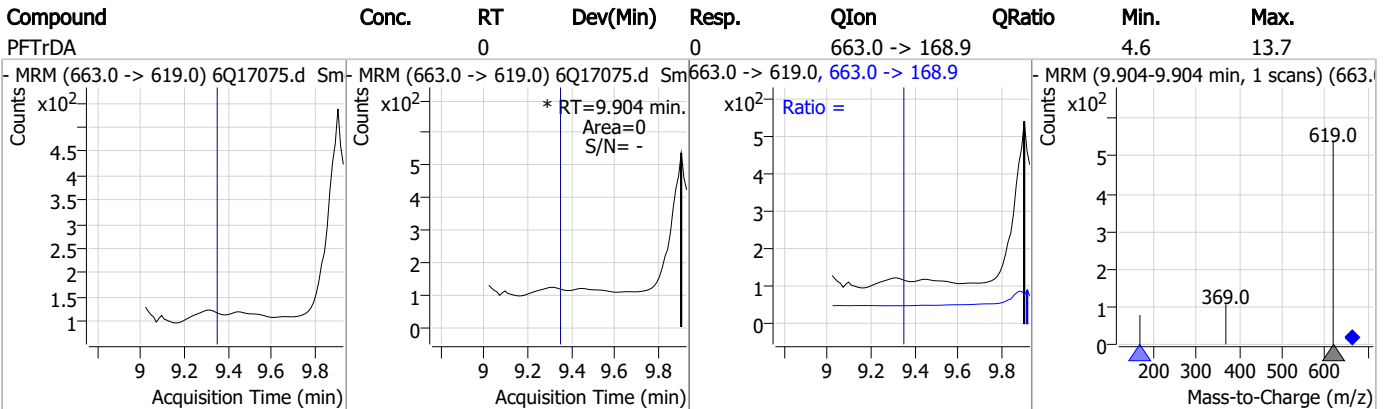
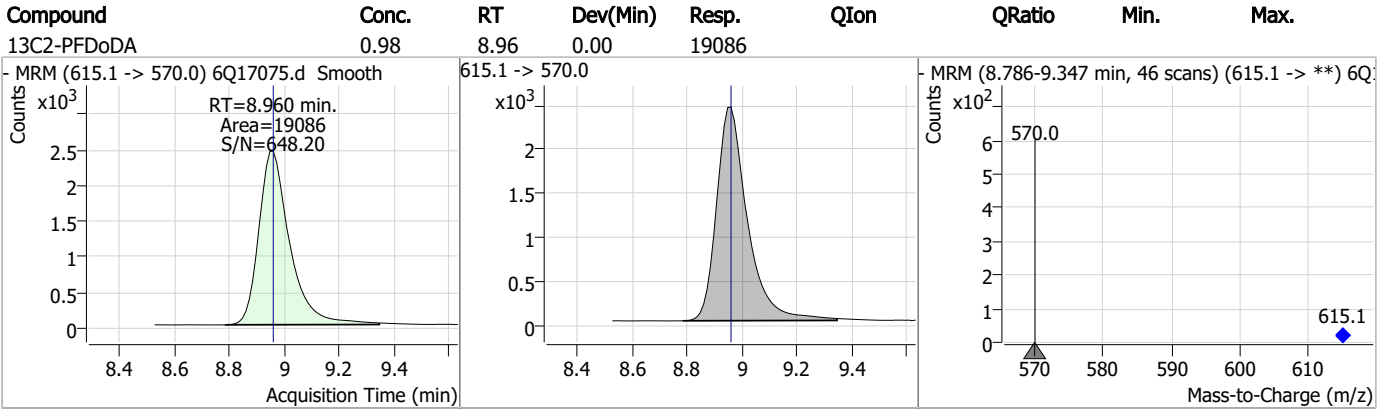
Perfluorinated Compounds by LC/MS/MS



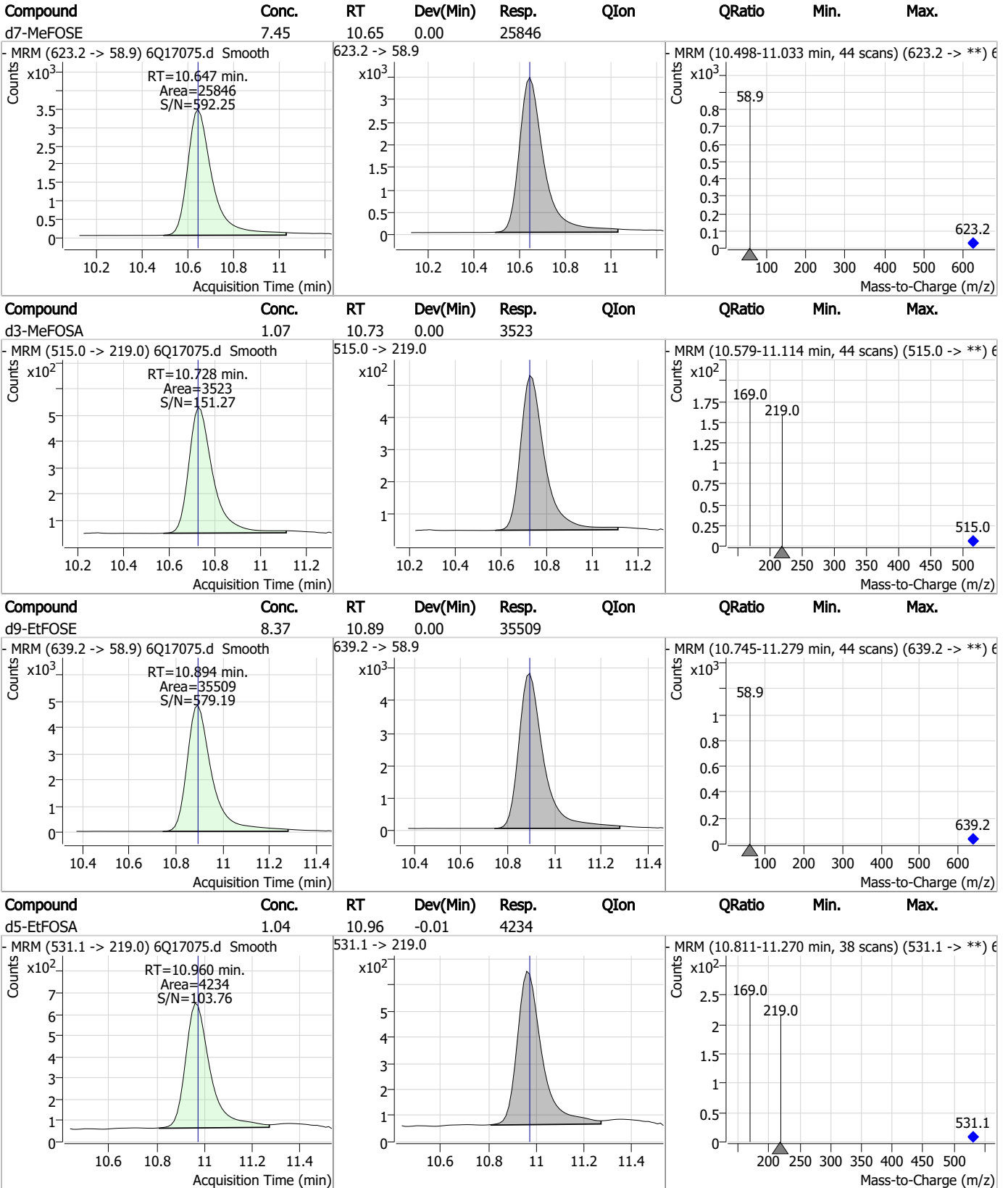
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17076.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 6:52:28 PM
 Sample Name : FC5514-2
 Vial : P3-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	154215	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65674	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69781	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60918	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	89441	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	26760	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18446	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	19073	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	17059	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	11741	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	13537	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23198	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12648	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10557	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2237	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2902	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2911	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	17210	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39231	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	13191	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	23197	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	31372	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	4421	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	3554	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14391	2.50 µg/L	0.000
13C3-PFBA	2.914	216.0 -> 172.0	79159	5.00 µg/L	0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9456	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	89722	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24400	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28785	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	57753	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2237	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2902	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2911	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	17059	0.84 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 67.2%		
13C2-PFTeDA	9.689	715.2 -> 670.0	11741	0.85 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.4%		
13C3-PFBS	5.398	302.1 -> 79.9	23198	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12648	2.51 µg/L	0.000



7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C4-PFBA	2.910	216.8 -> 171.9	154215	8.43 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 84.3%		
13C4-PFHpA	6.419	367.1 -> 322.0	60918	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C5-PFHxA	5.468	318.0 -> 273.0	69781	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C5-PFPeA	4.270	268.3 -> 223.0	65674	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C6-PFDA	8.076	519.1 -> 474.1	18446	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C7-PFUnDA	8.530	570.0 -> 525.1	19073	0.93 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.1%		
13C8-FOSA	9.623	506.1 -> 77.8	13537	1.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 56.9%		
13C8-PFOA	7.062	421.1 -> 376.0	89441	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C8-PFOS	8.239	507.1 -> 79.9	10557	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C9-PFNA	7.594	472.1 -> 427.0	26760	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
d3-MeFOSAA	8.134	573.2 -> 419.0	17210	4.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.3%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	39231	9.60 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
d3-MeFOSA	10.728	515.0 -> 219.0	3554	0.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 39.6%		
d5-EtFOSAA	8.330	589.2 -> 419.0	13191	3.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 74.0%		
d7-MeFOSE	10.647	623.2 -> 58.9	23197	6.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 24.6%		
d9-EtFOSE	10.894	639.2 -> 58.9	31372	6.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 27.2%		
d5-EtFOSA	10.960	531.1 -> 219.0	4421	1.00 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 40.1%		

7.12
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.708	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.470	449.0 -> 98.9	3743	0.14	µg/L	100
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.180	398.7 -> 98.9	0		µg/L	m
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	4.273	498.9 -> 98.8	8214	0.46	µg/L	100
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	9.904	663.0 -> 619.0	0		µg/L	m
		663.0 -> 168.9				
PFUnDA	9.115	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.2
7



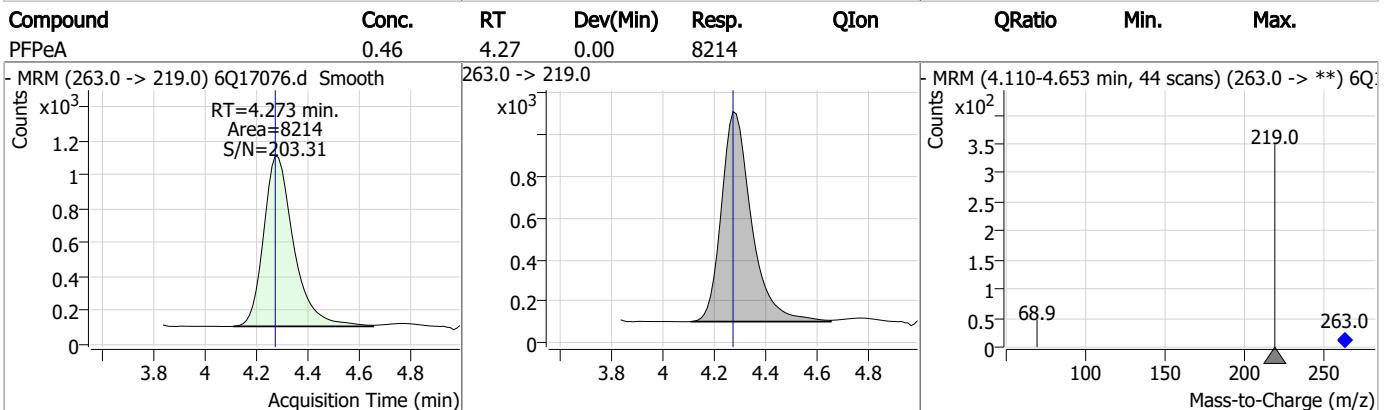
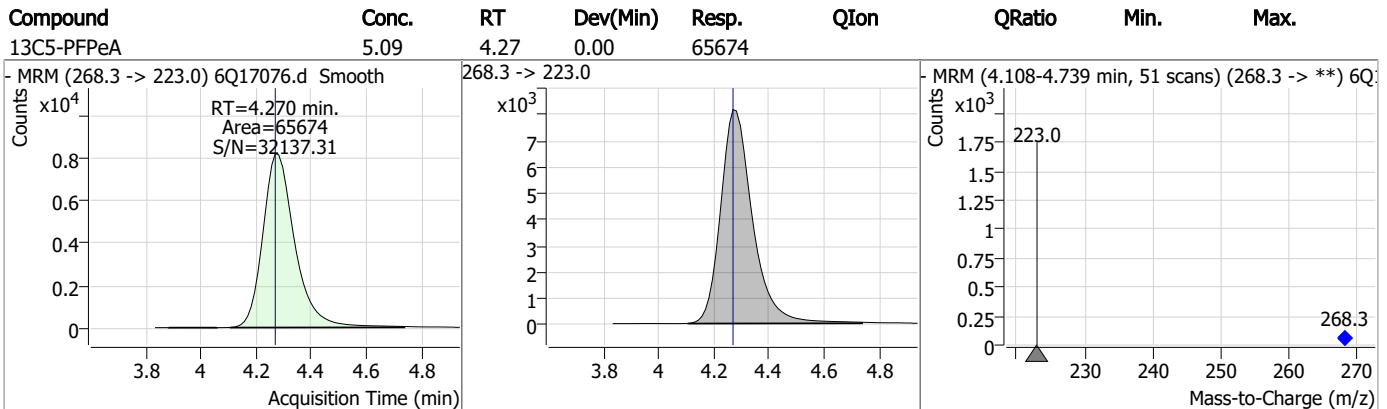
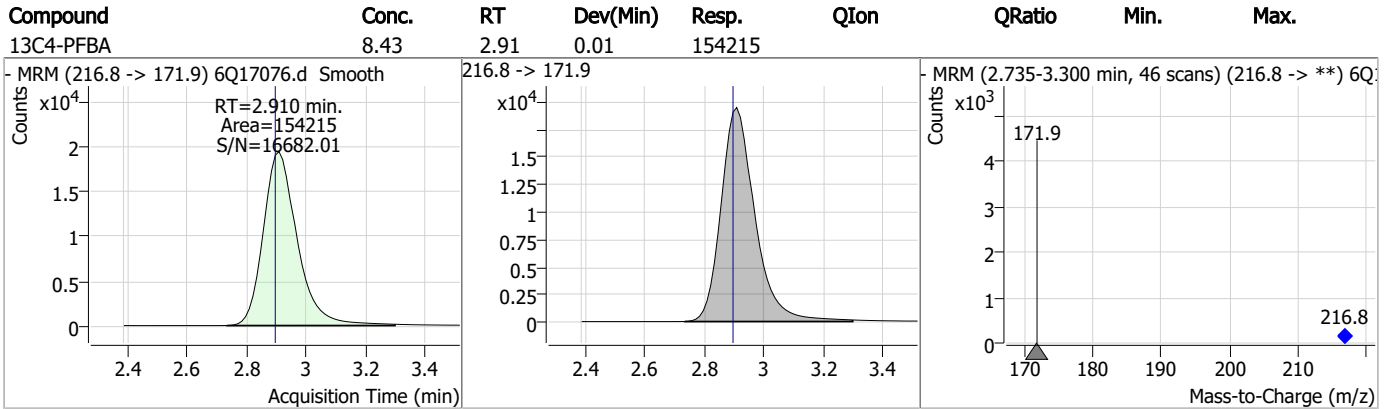
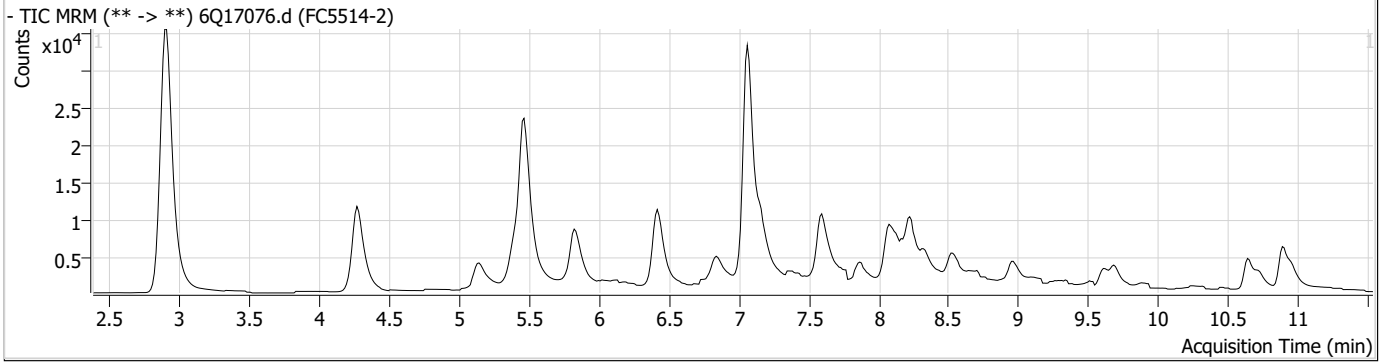
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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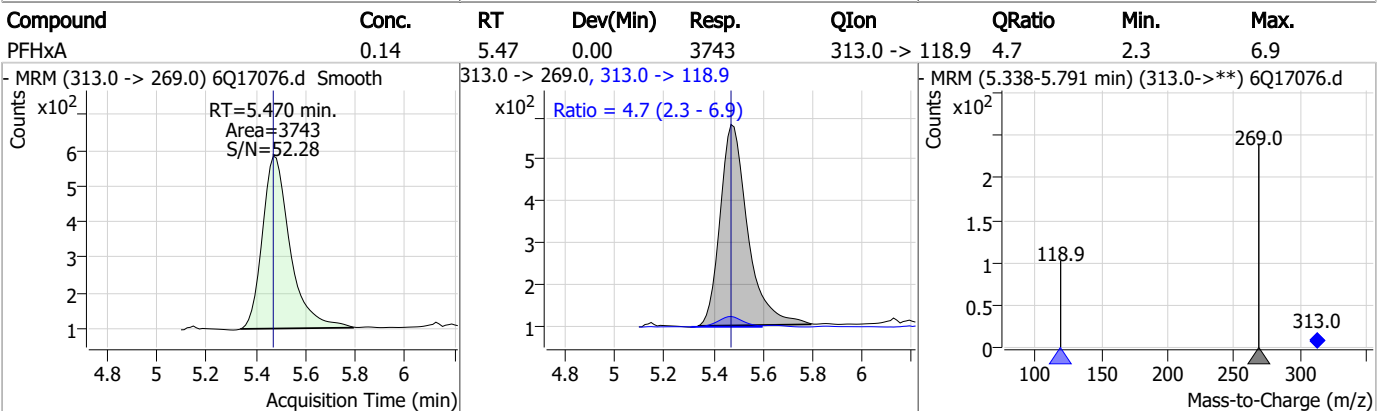
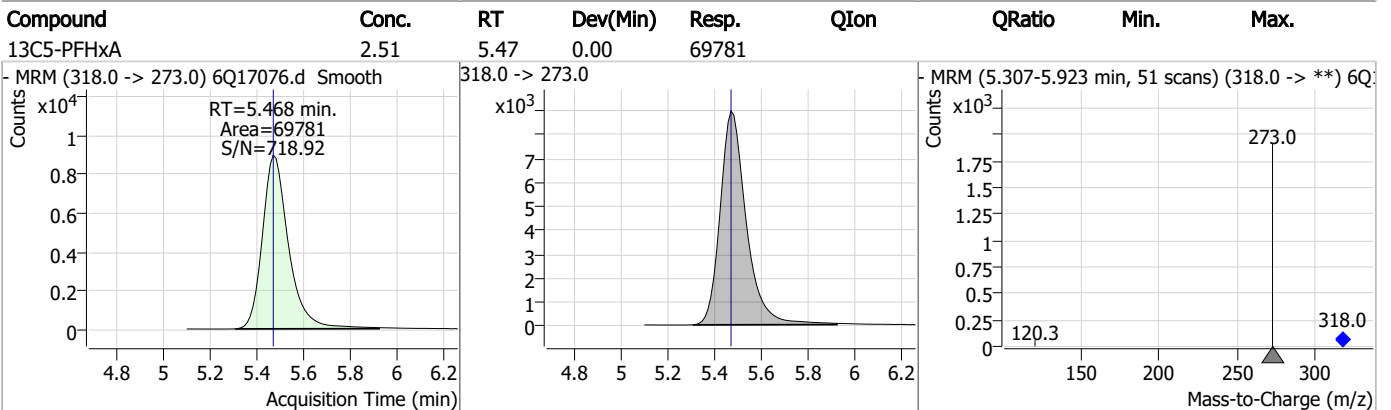
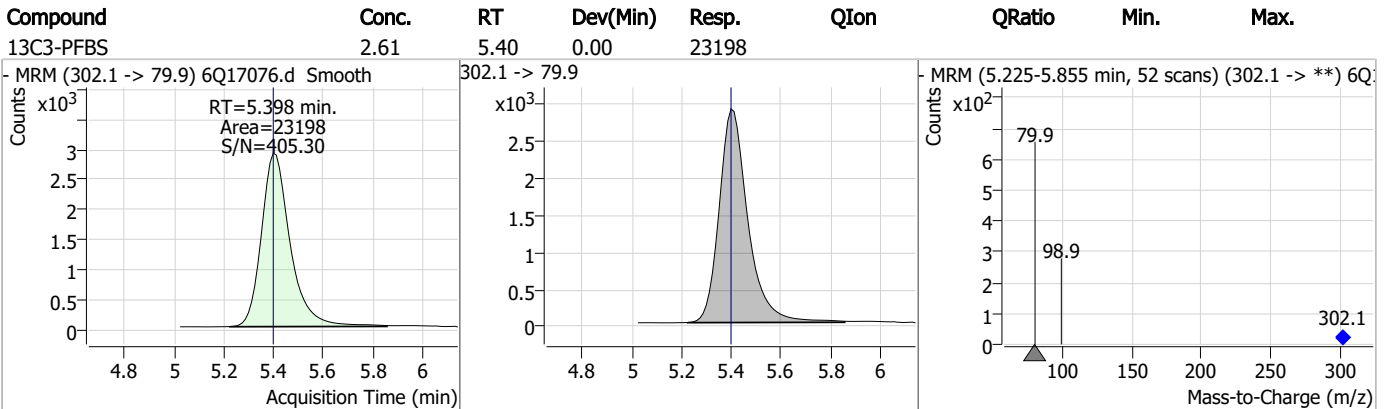
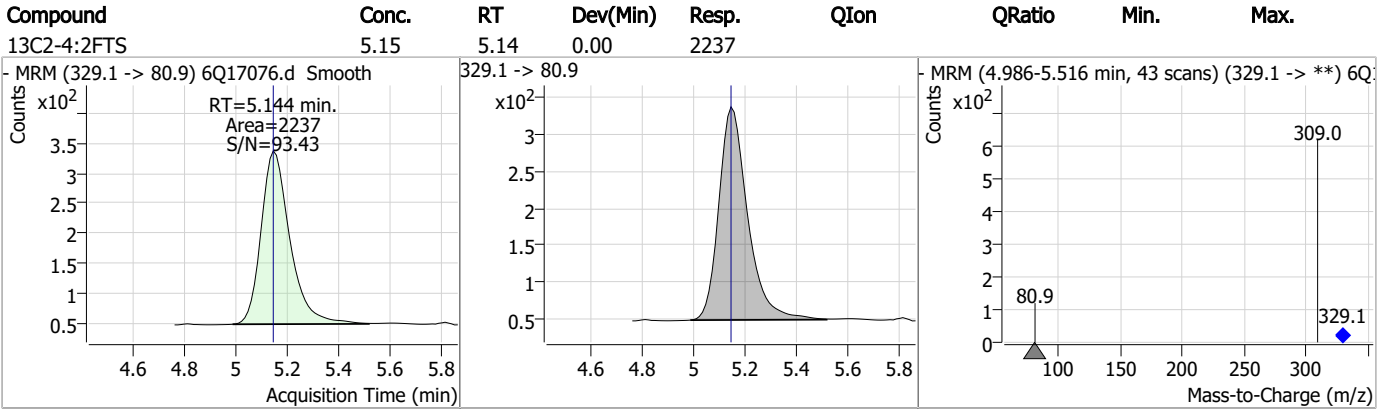
7.1.2

7

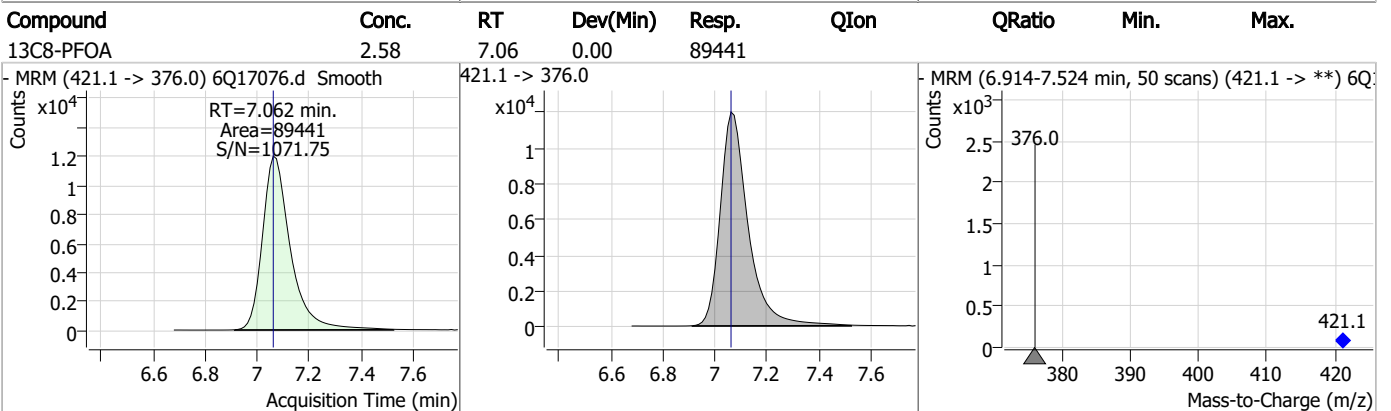
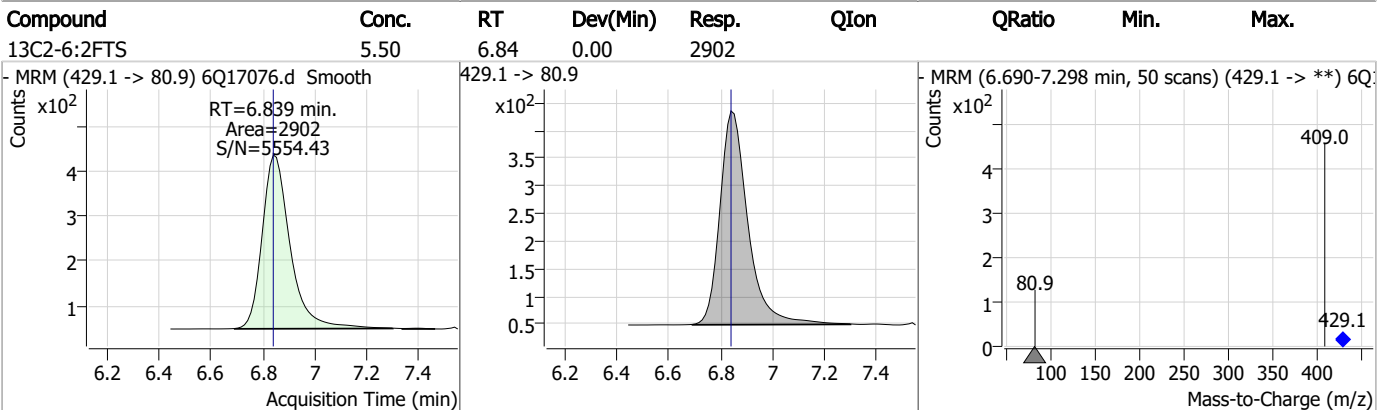
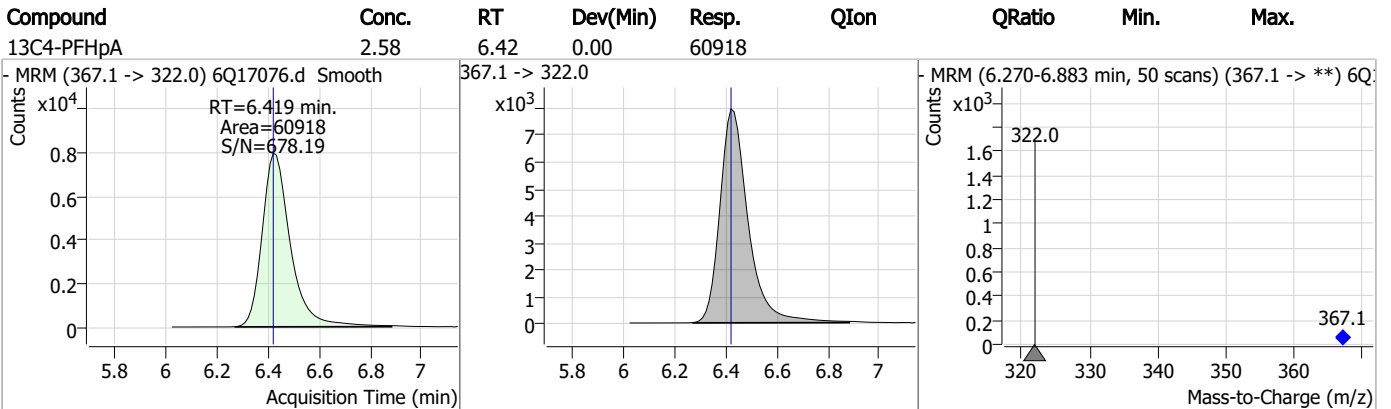
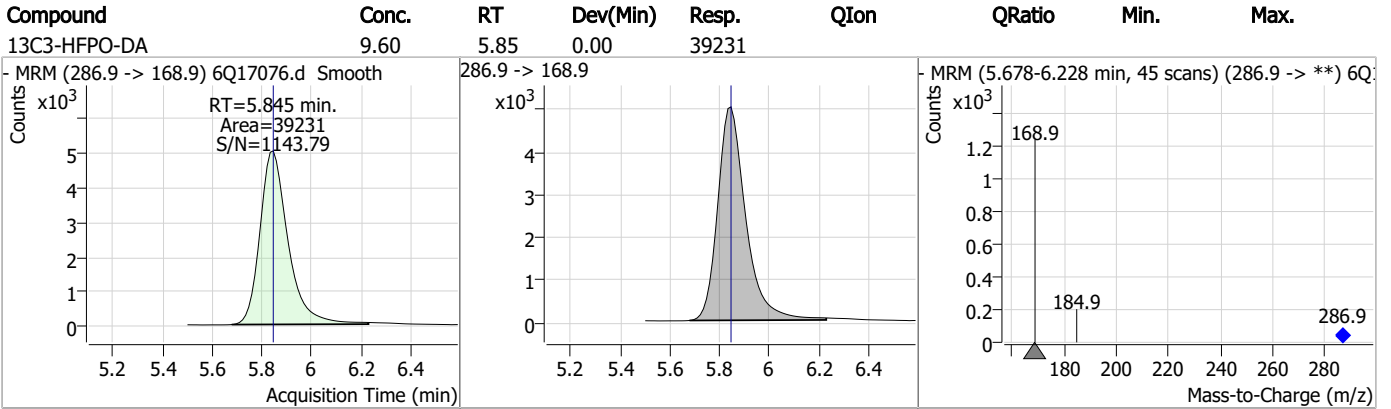
Perfluorinated Compounds by LC/MS/MS



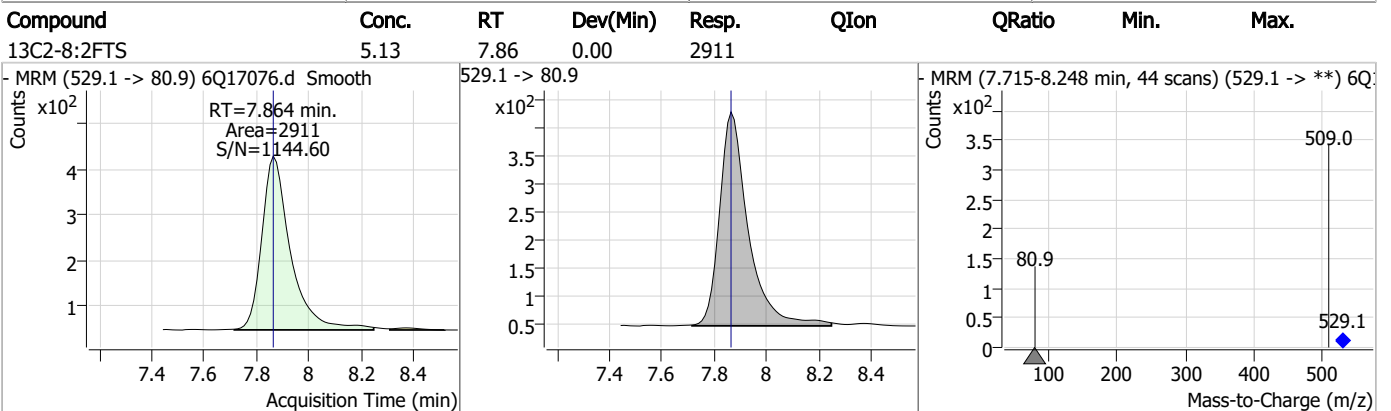
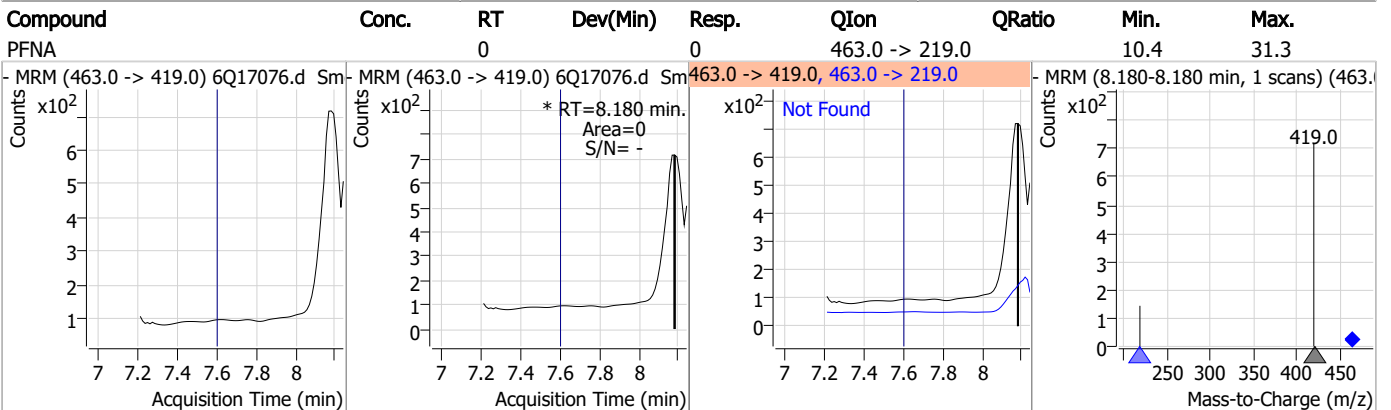
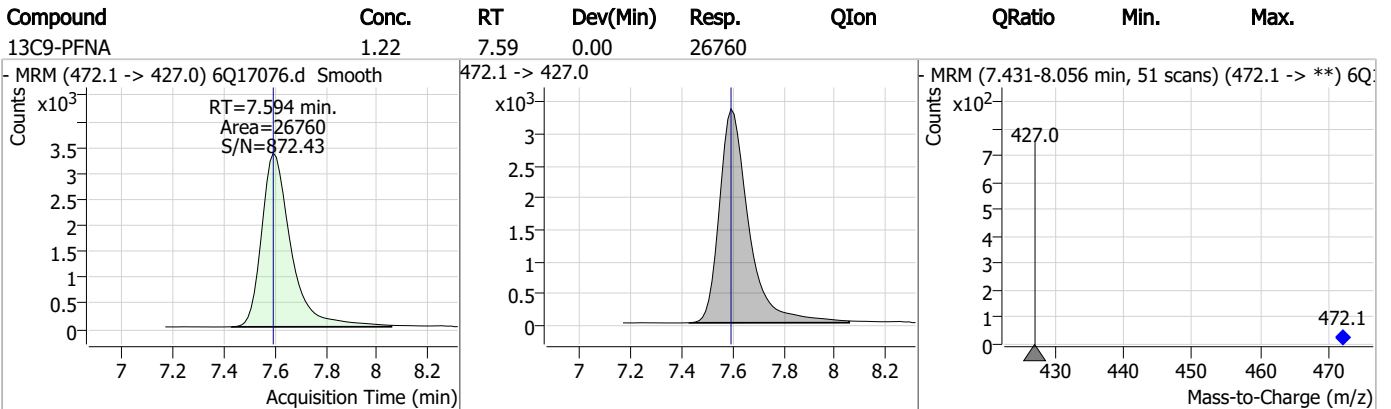
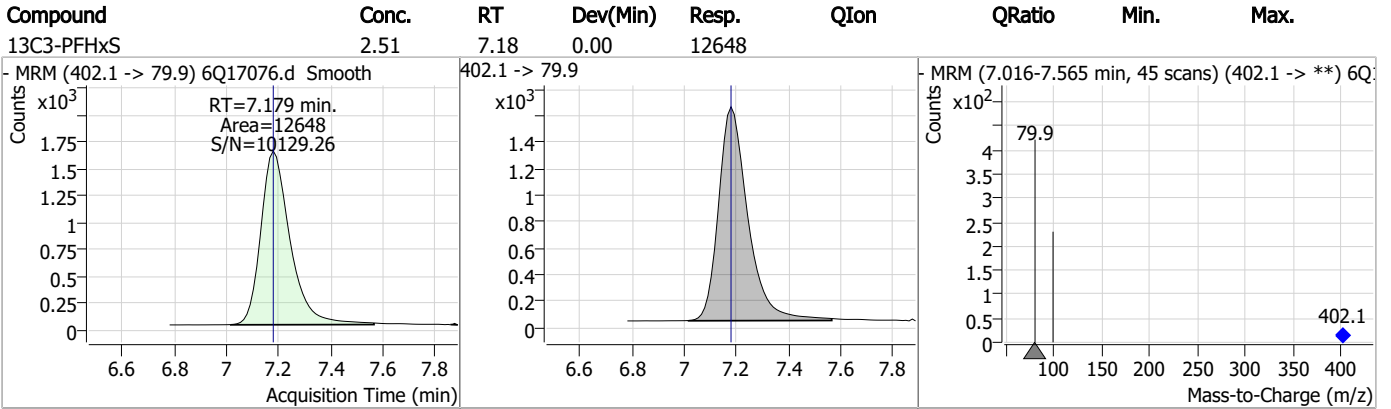
Perfluorinated Compounds by LC/MS/MS



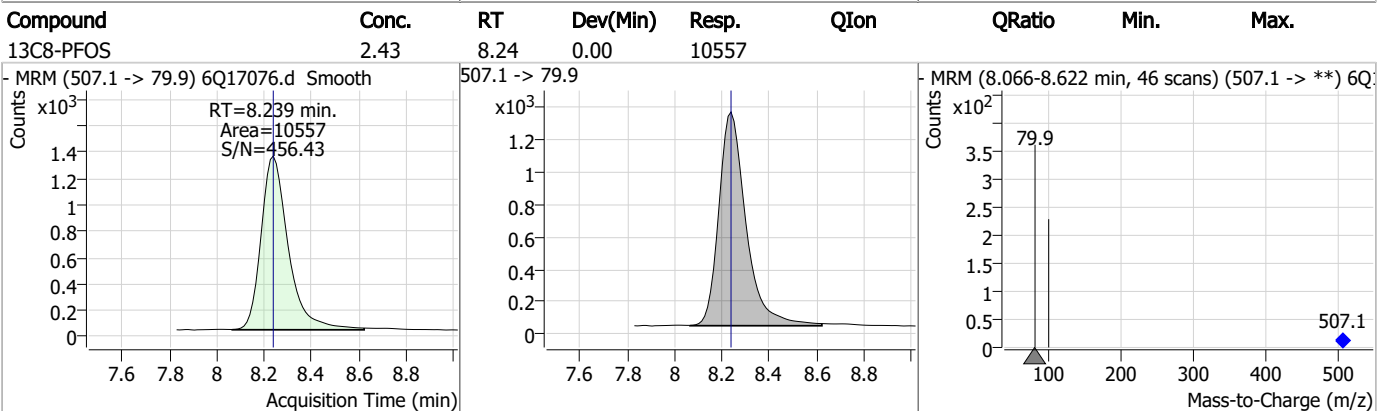
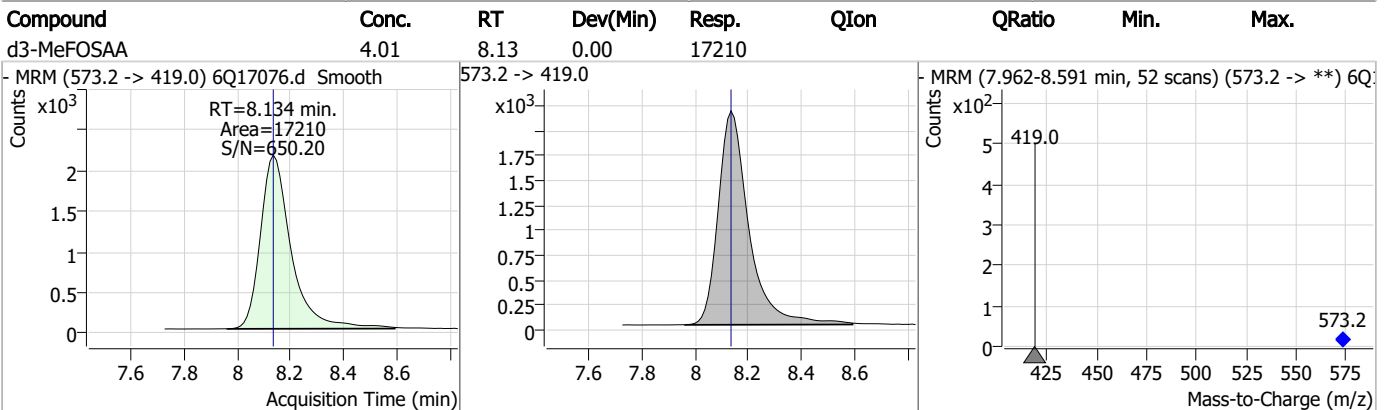
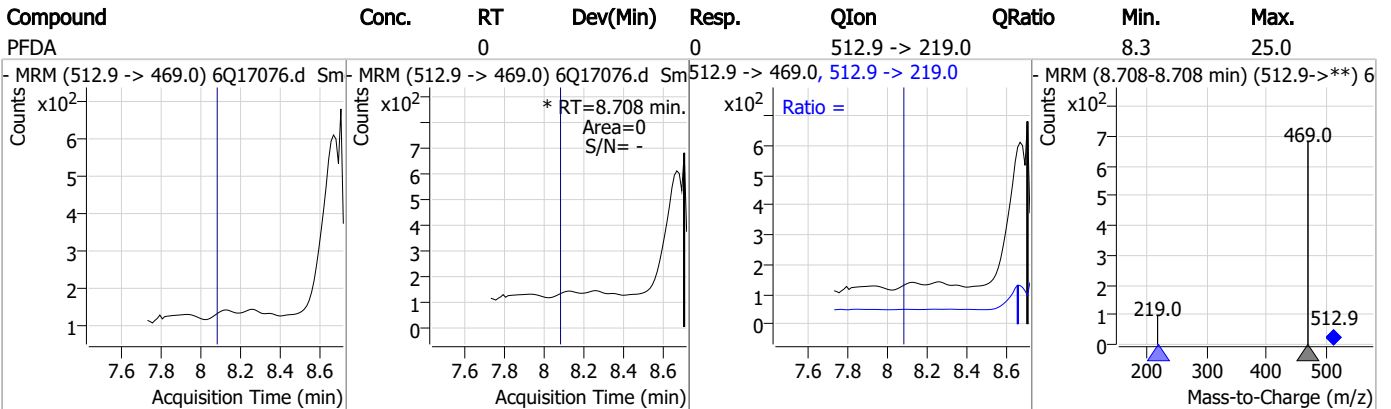
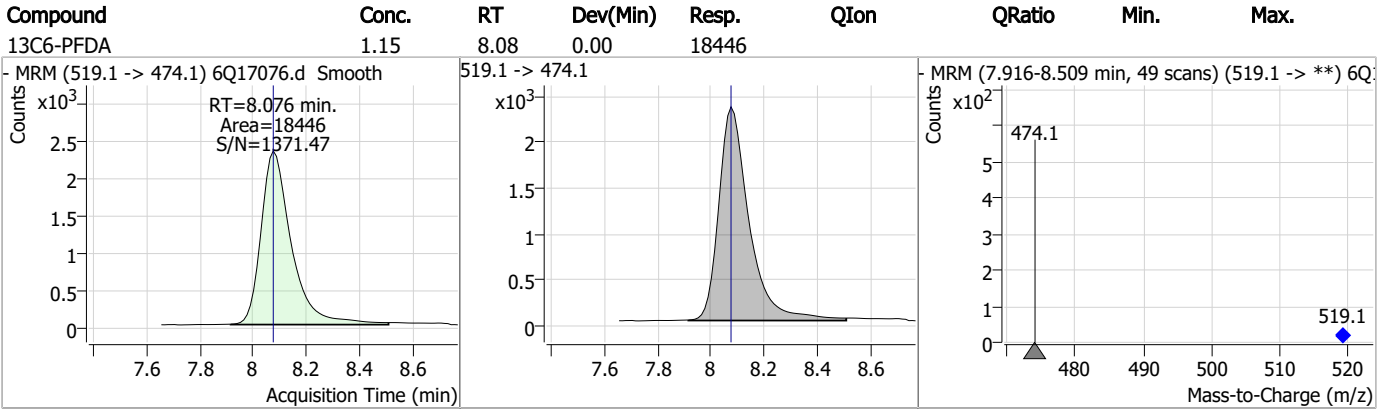
Perfluorinated Compounds by LC/MS/MS



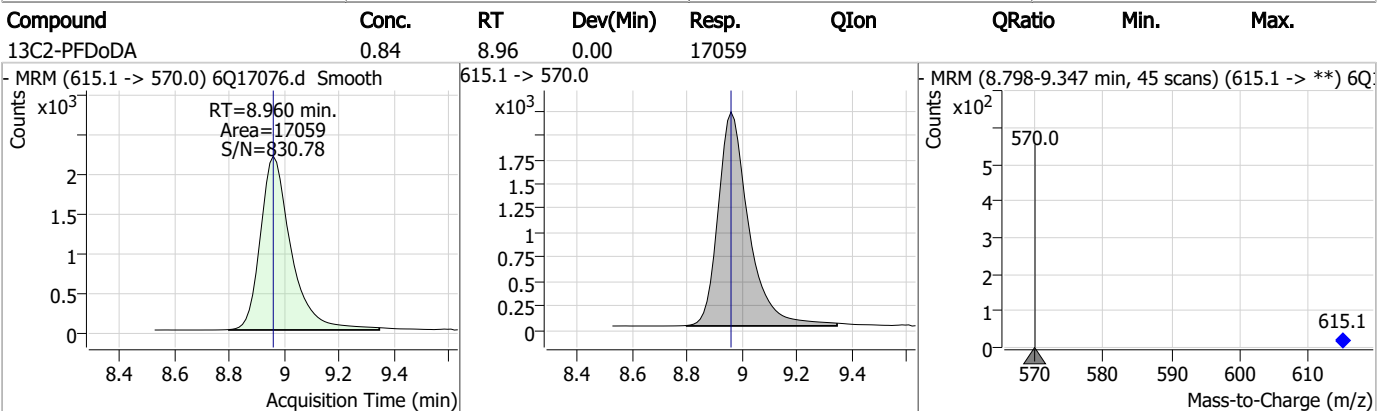
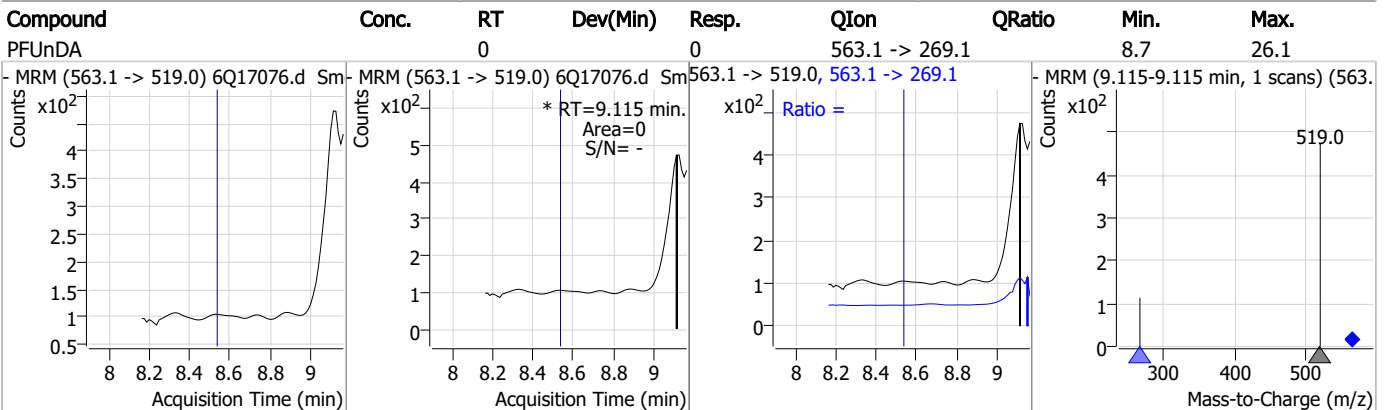
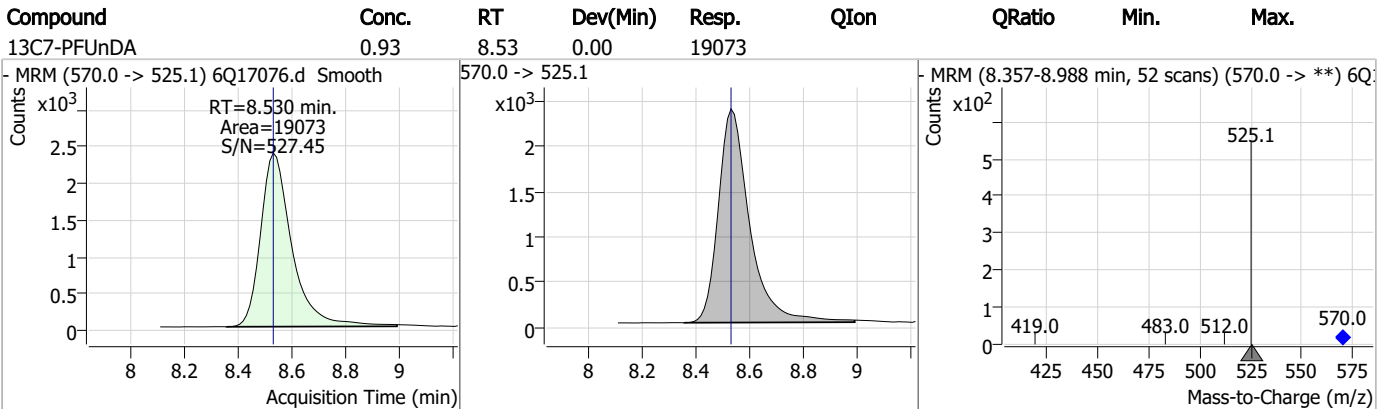
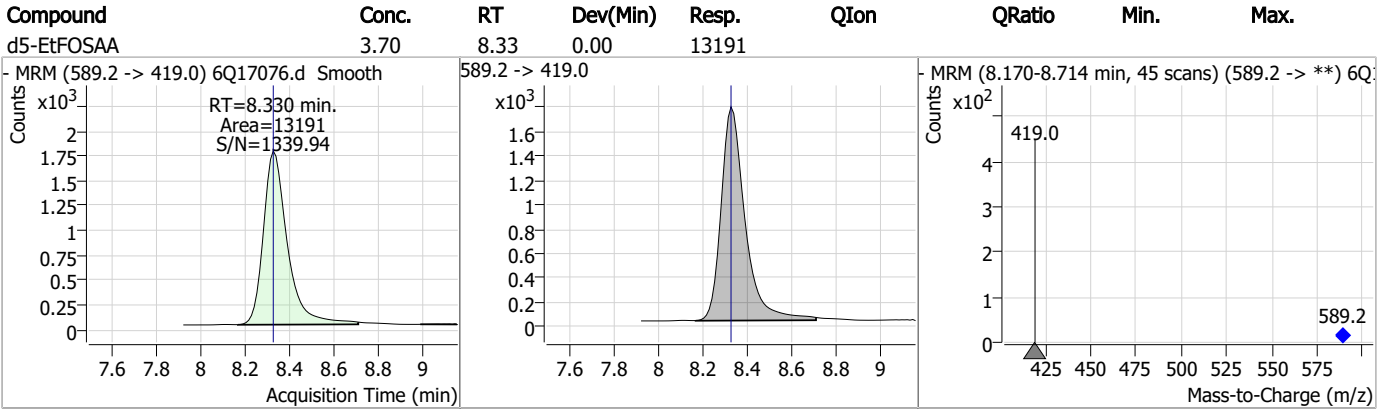
Perfluorinated Compounds by LC/MS/MS



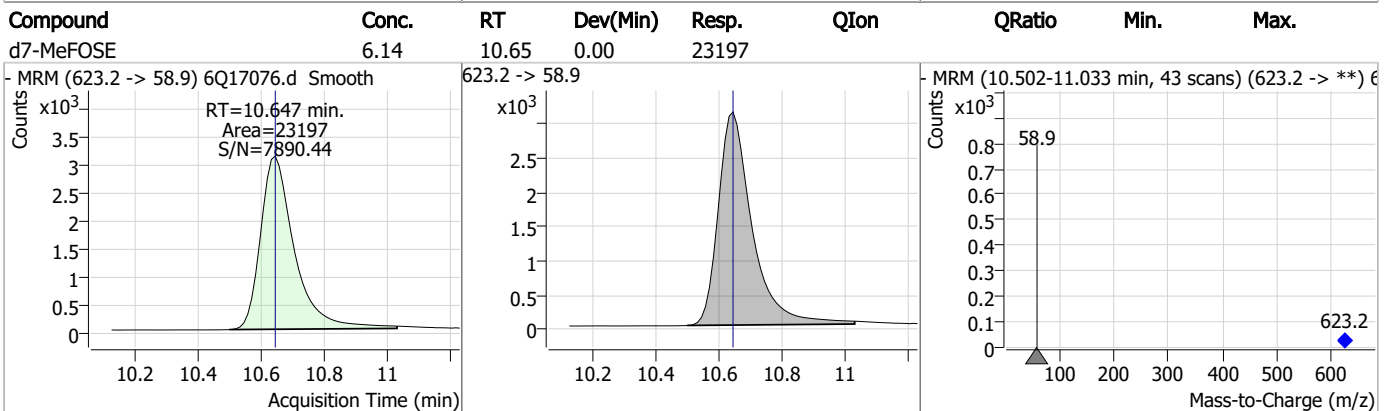
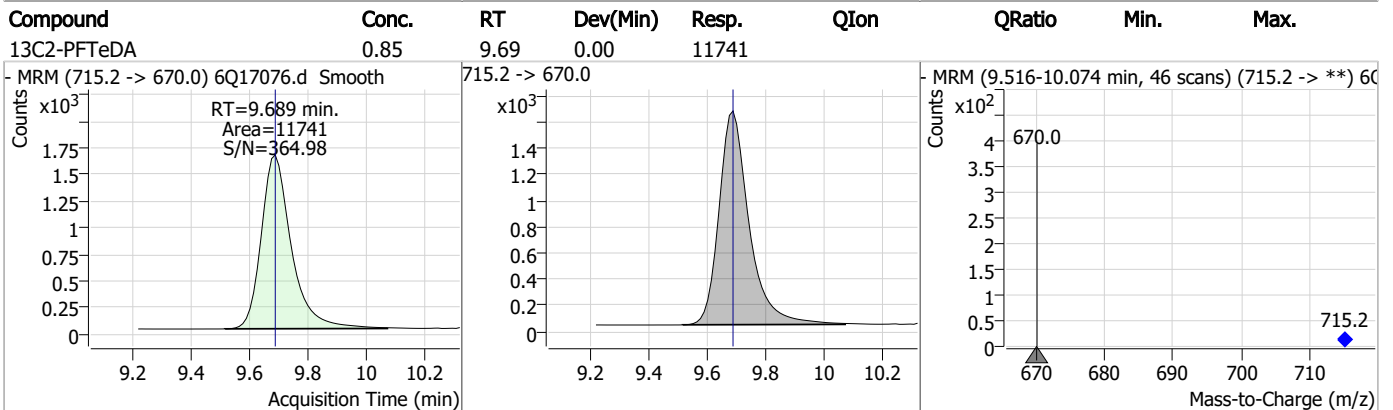
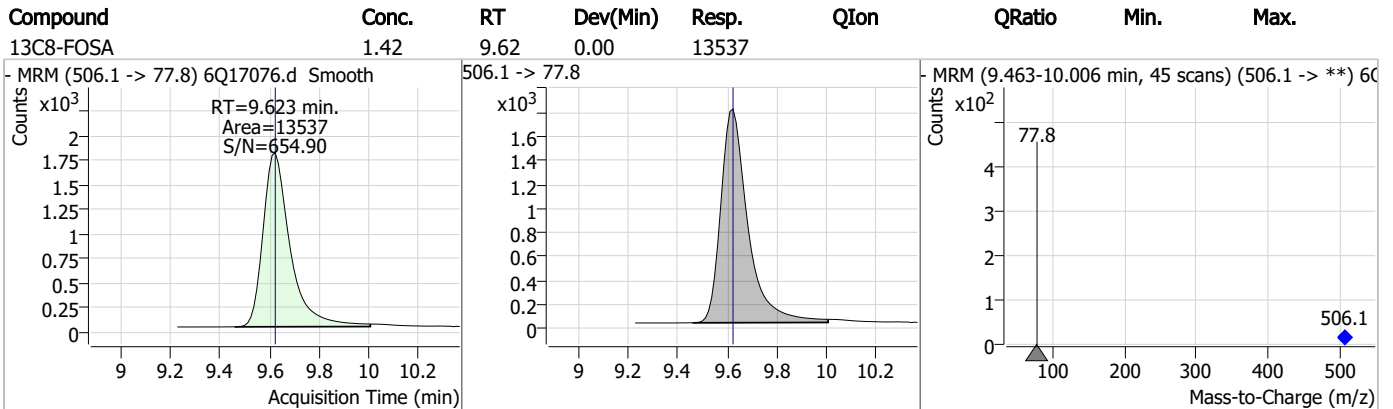
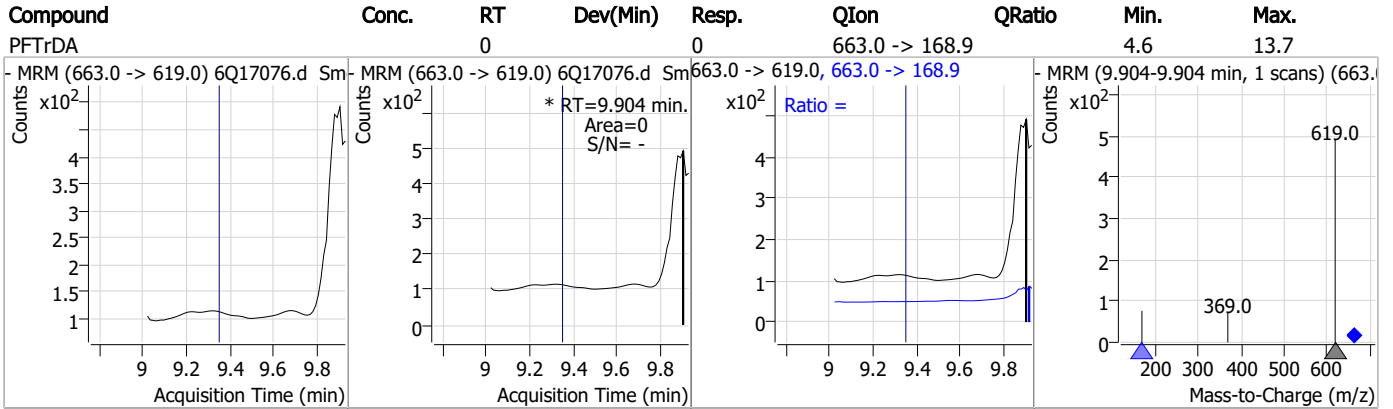
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



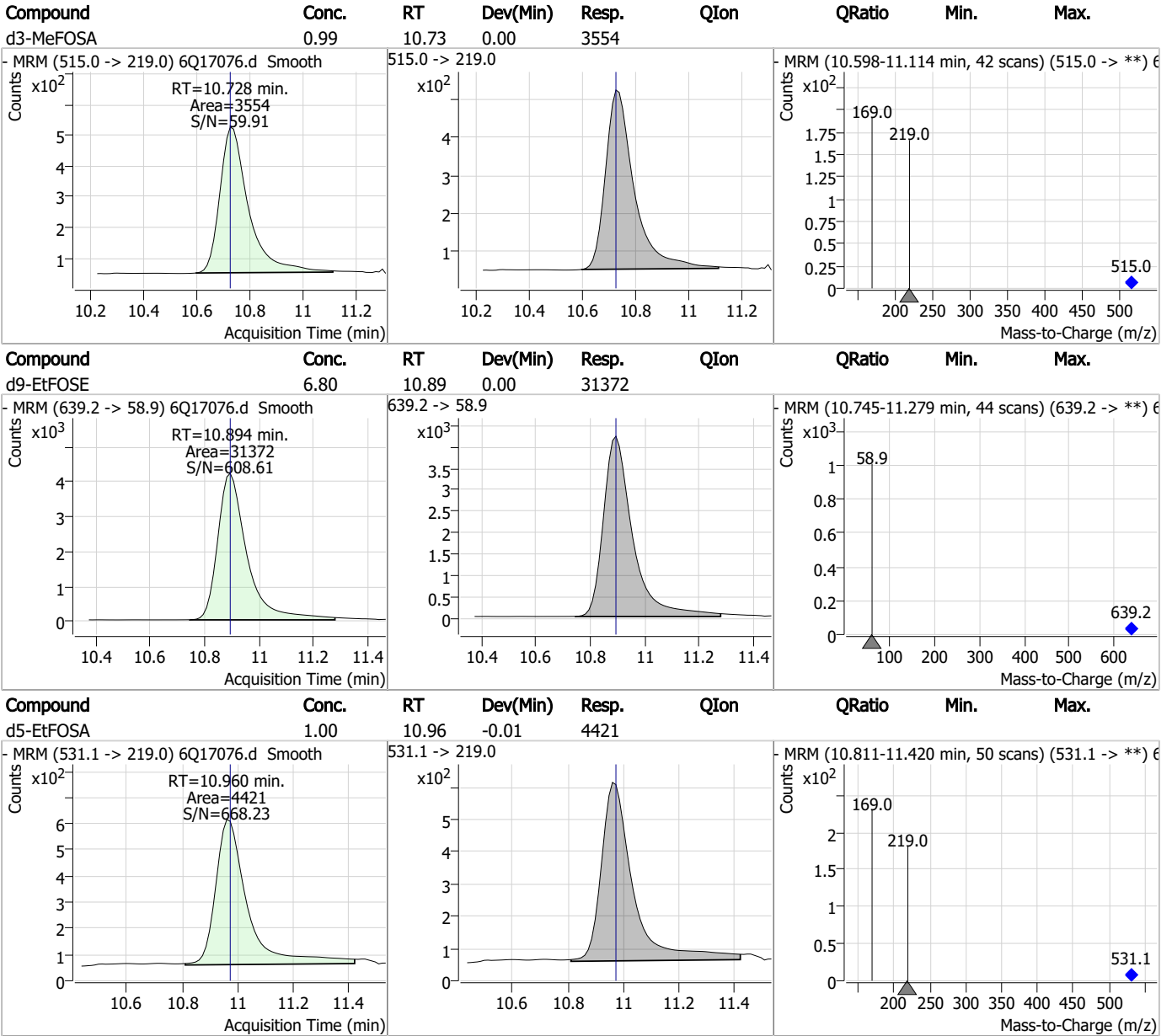
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 7:06:58 PM
 Sample Name : FC5514-3
 Vial : P3-A6
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	175617	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65432	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69708	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60472	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	86582	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	24595	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	17830	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	20167	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	17511	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	12043	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	11467	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21565	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12348	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10050	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2152	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2672	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2642	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	17905	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40533	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	13545	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	23987	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	32022	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	3242	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	2962	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13608	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74577	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9314	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	80414	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	22749	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28275	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	55766	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2152	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2672	5.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2642	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFDoDA	8.960	615.1 -> 570.0	17511	0.93 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.0%		
13C2-PFTeDA	9.689	715.2 -> 670.0	12043	0.94 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.2%		
13C3-PFBS	5.398	302.1 -> 79.9	21565	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12348	2.49 µg/L	0.000

7.1.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFBA	2.910	216.8 -> 171.9	175617	10.19 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFHpA	6.419	367.1 -> 322.0	60472	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFHxA	5.468	318.0 -> 273.0	69708	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	65432	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C6-PFDA	8.076	519.1 -> 474.1	17830	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	20167	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 84.0%	
13C8-FOSA	9.623	506.1 -> 77.8	11467	1.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 51.0%	
13C8-PFOA	7.074	421.1 -> 376.0	86582	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C8-PFOS	8.239	507.1 -> 79.9	10050	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C9-PFNA	7.594	472.1 -> 427.0	24595	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	17905	4.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40533	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	2962	0.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 34.9%	
d5-EtFOSAA	8.342	589.2 -> 419.0	13545	4.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
d7-MeFOSE	10.647	623.2 -> 58.9	23987	6.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 26.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	32022	7.34 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 29.3%	
d5-EtFOSA	10.973	531.1 -> 219.0	3242	0.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 31.1%	

7.13
7

Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.695	512.9 -> 469.0	0	µg/L	m 1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.217	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.724	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.115	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.3

7

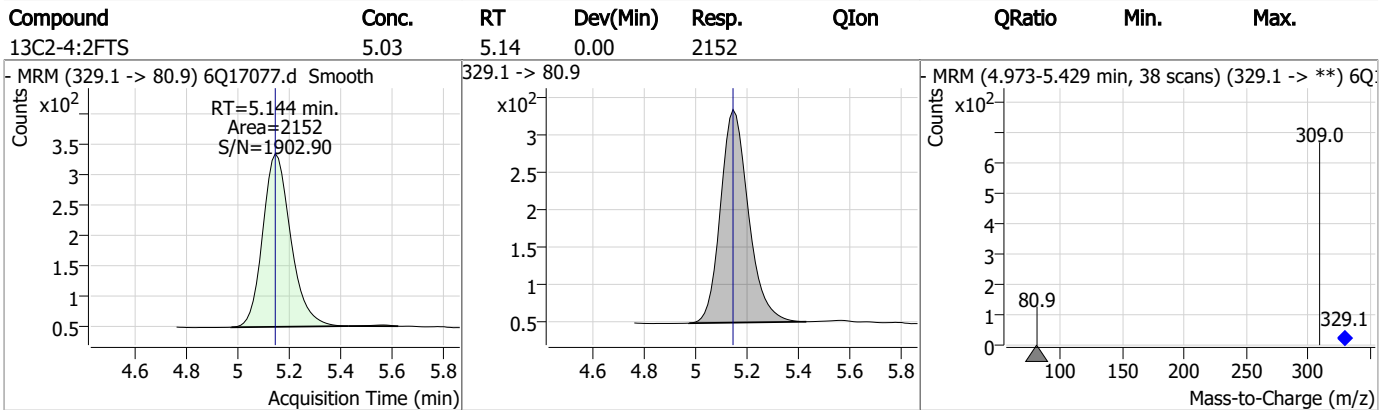
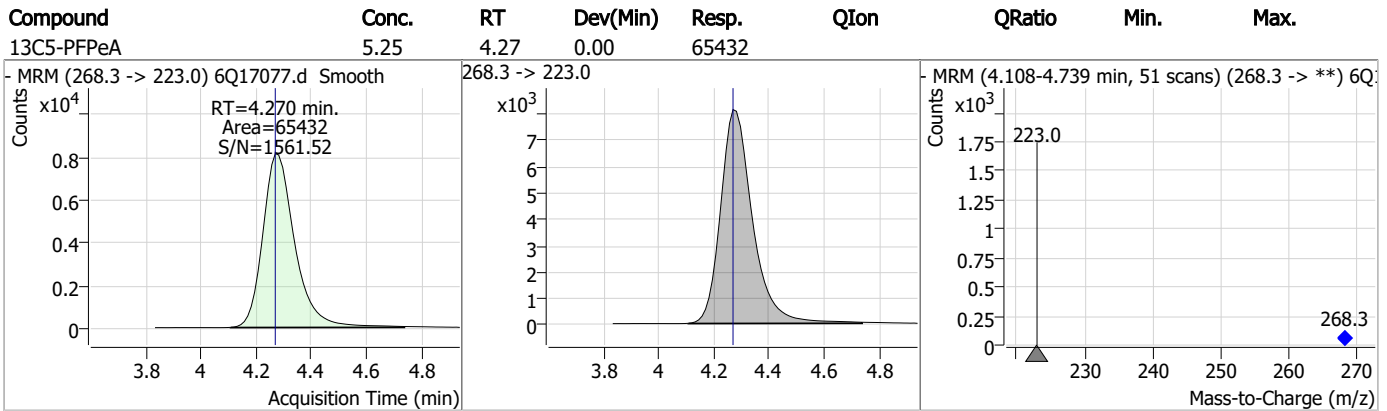
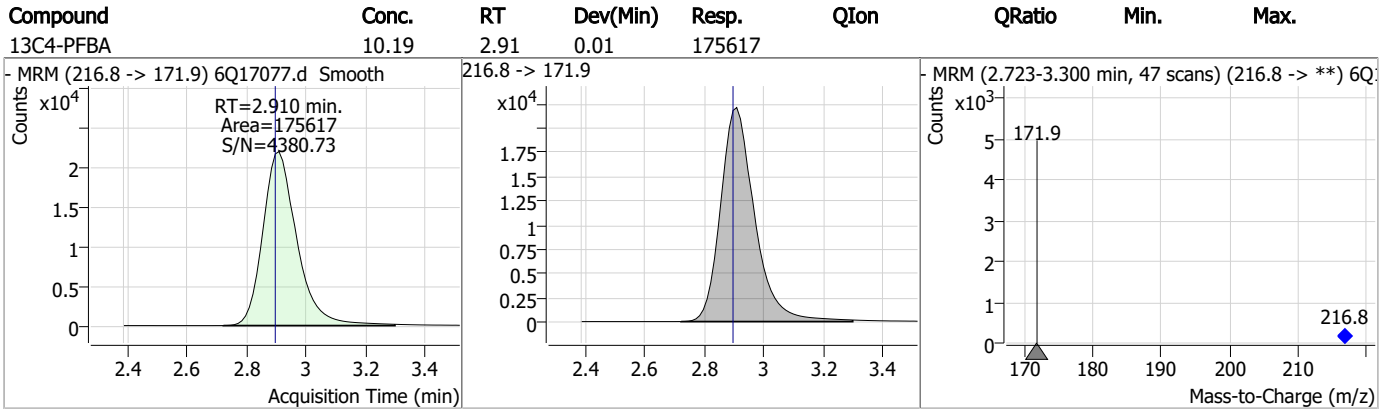
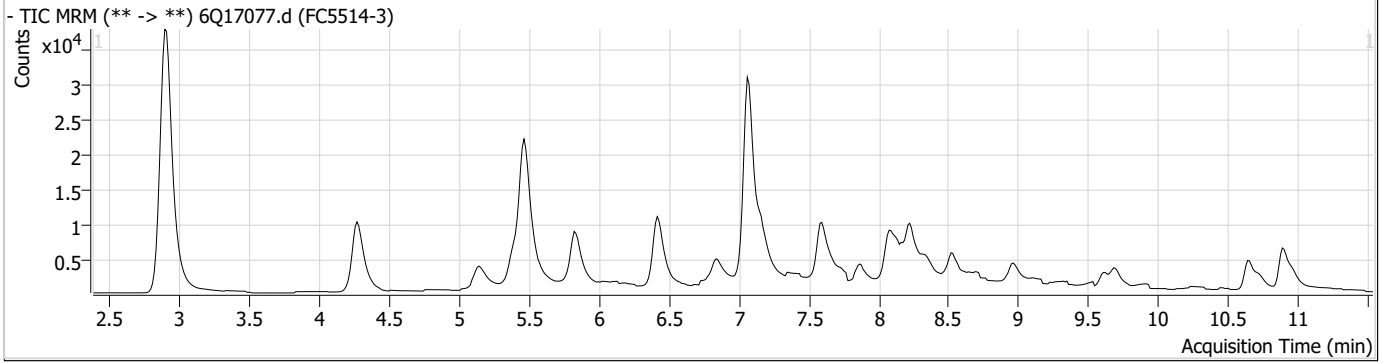
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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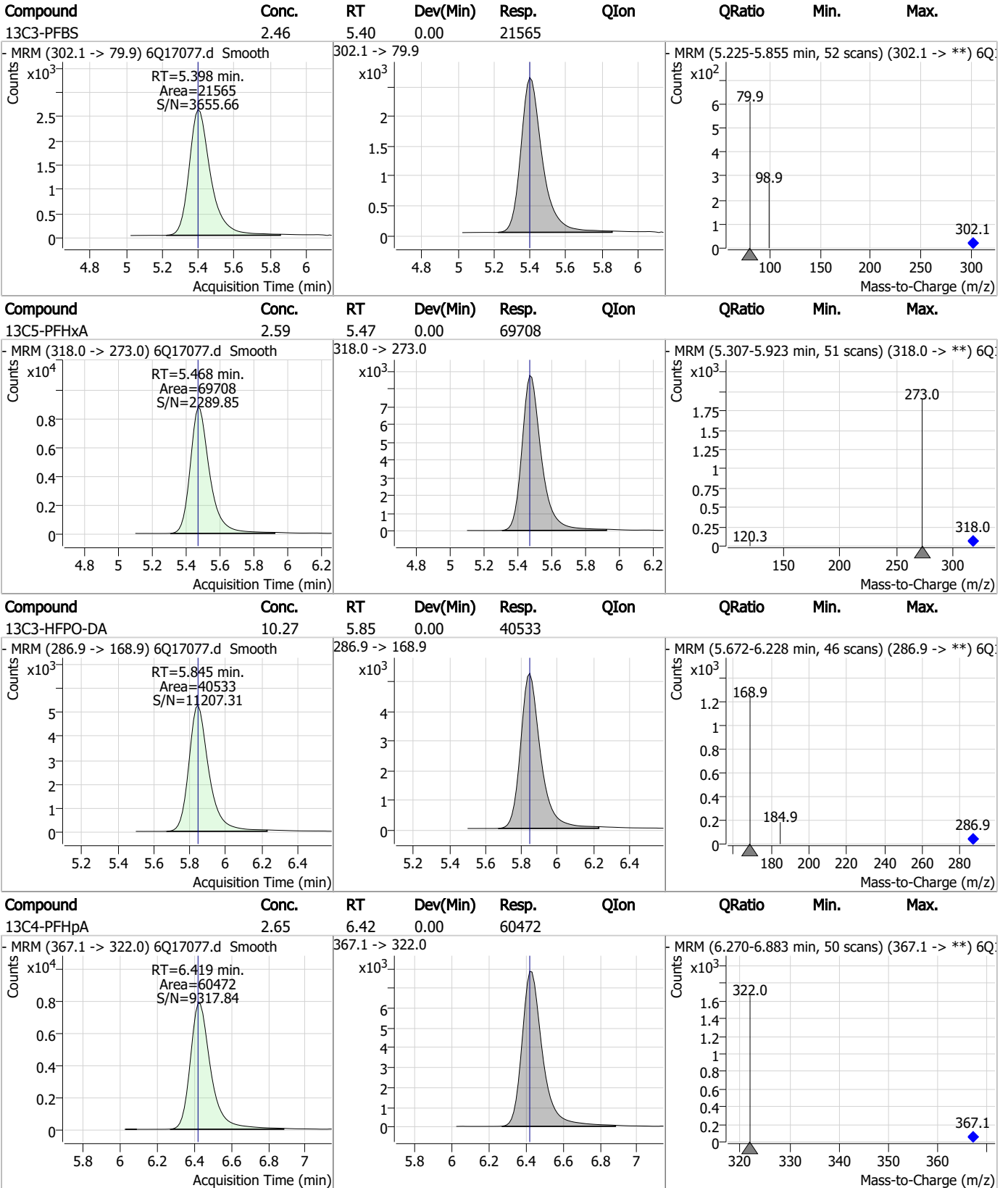
7.1.3
7



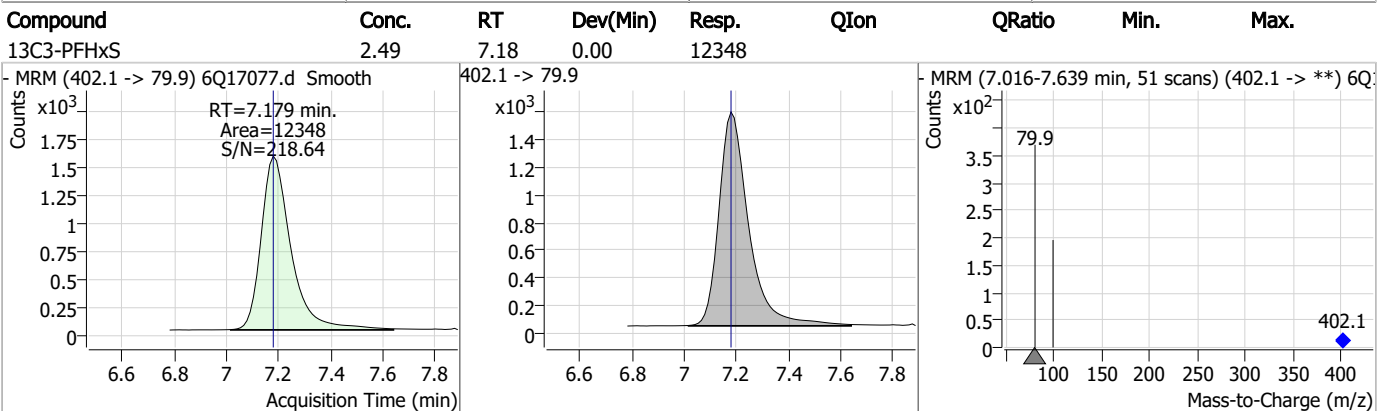
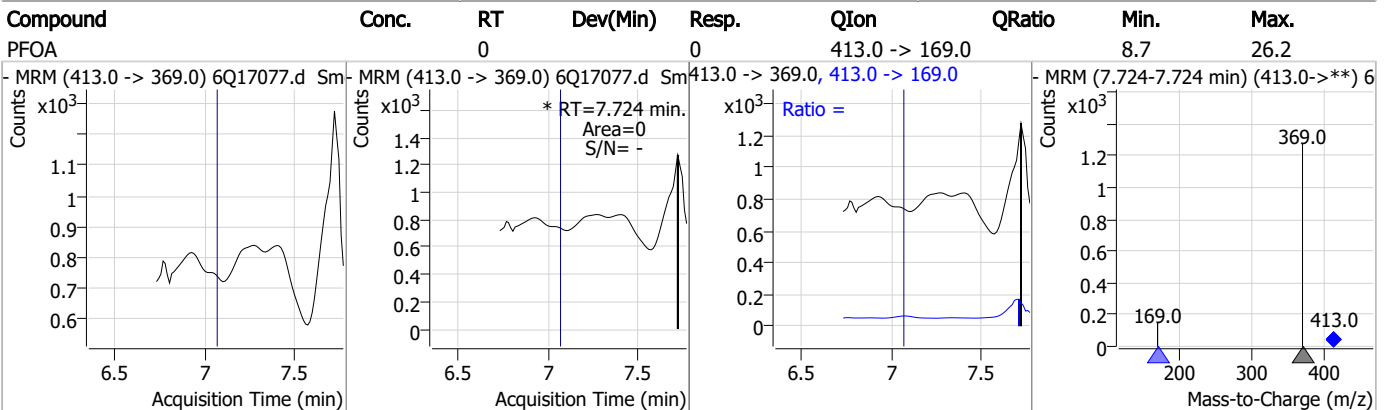
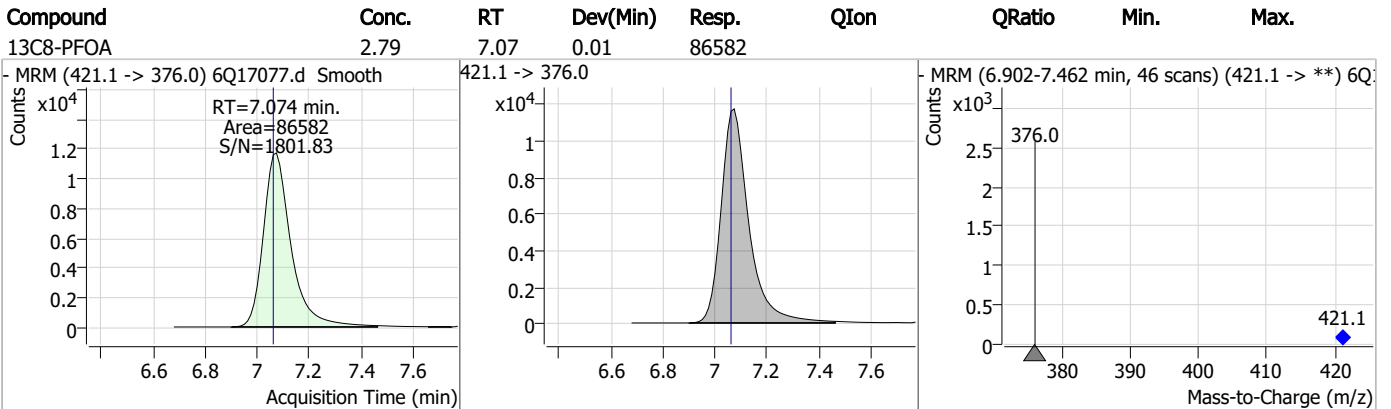
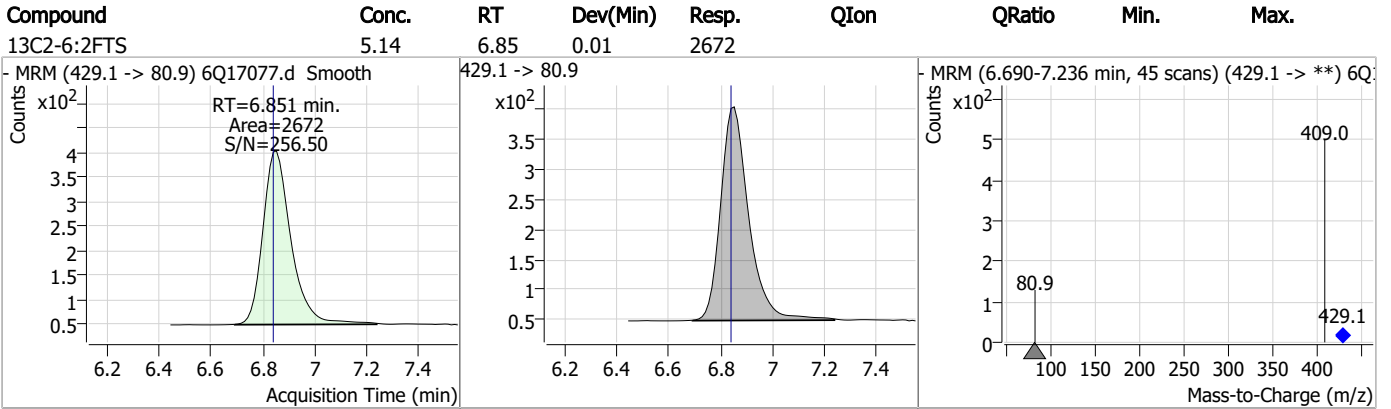
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



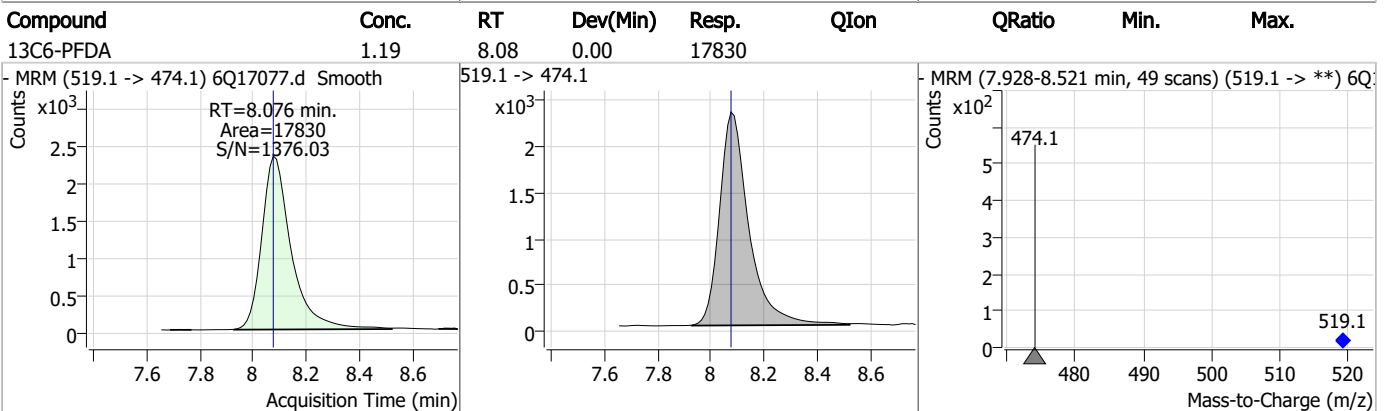
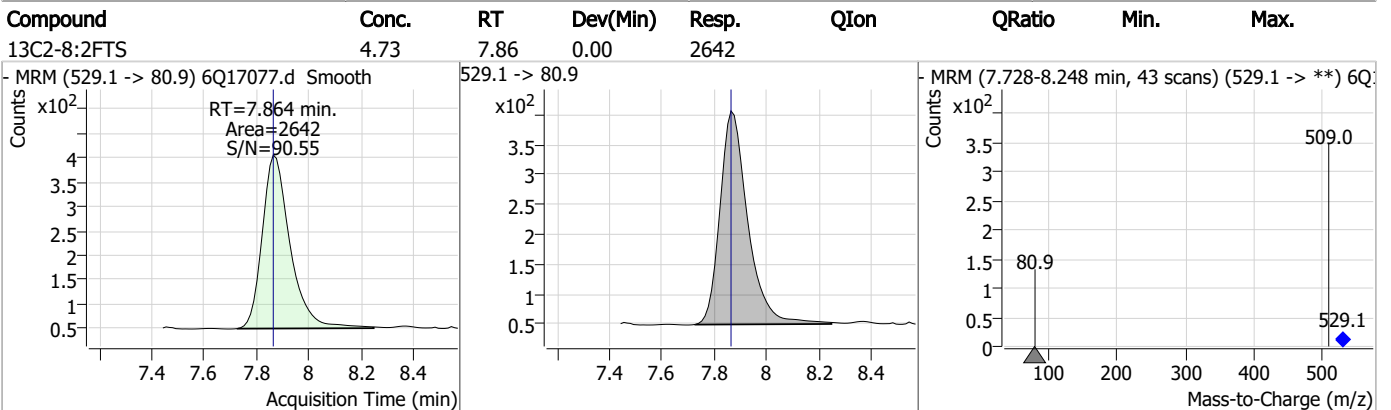
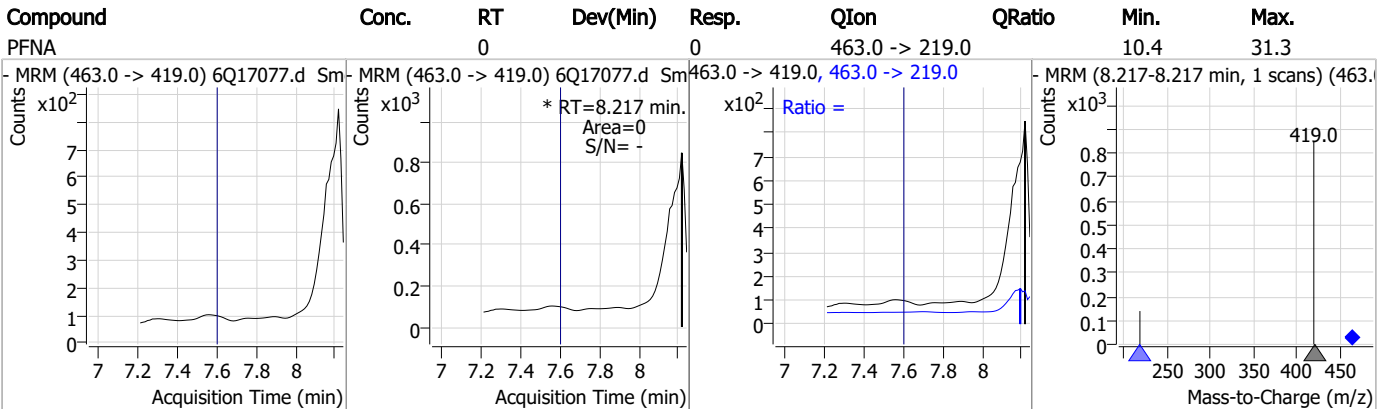
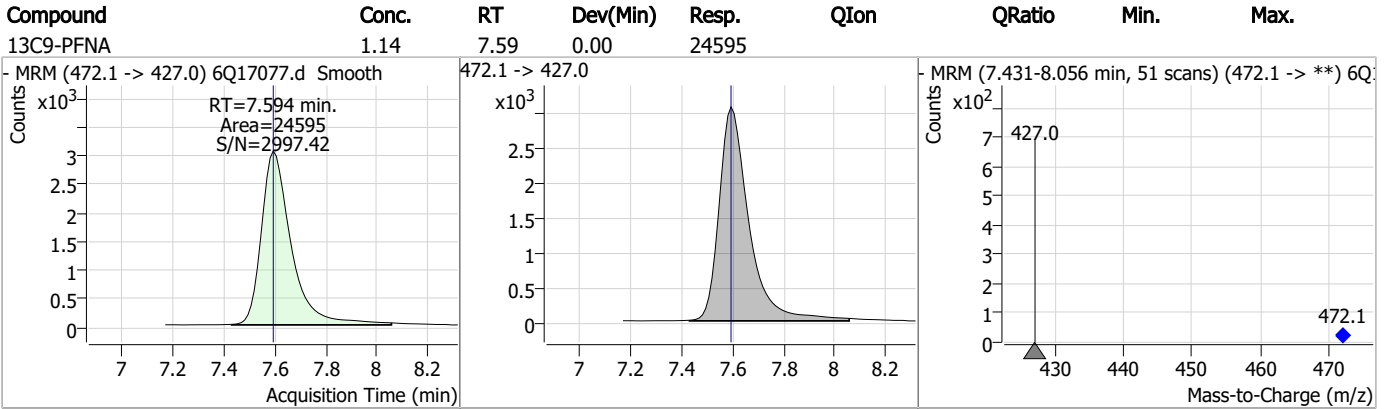
Perfluorinated Compounds by LC/MS/MS



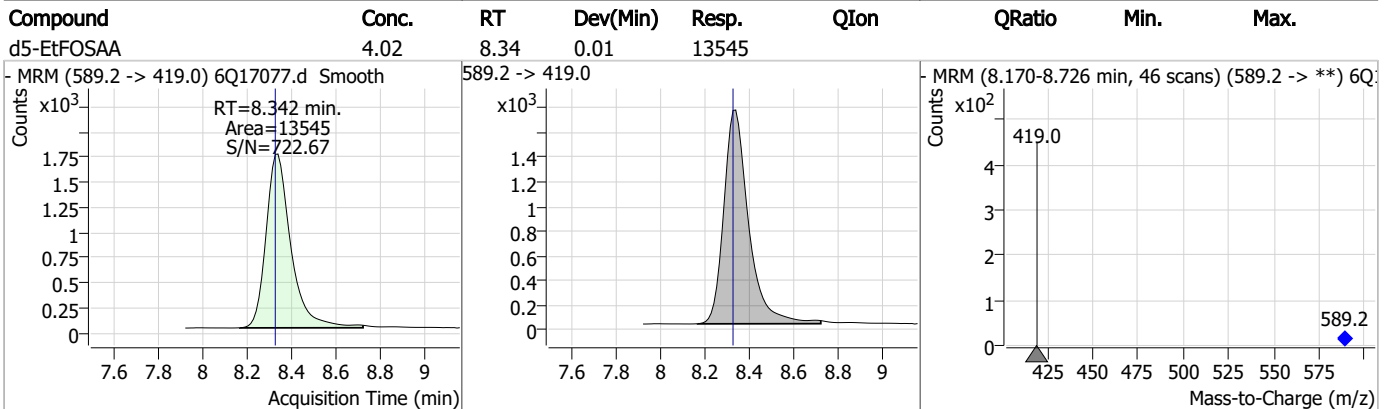
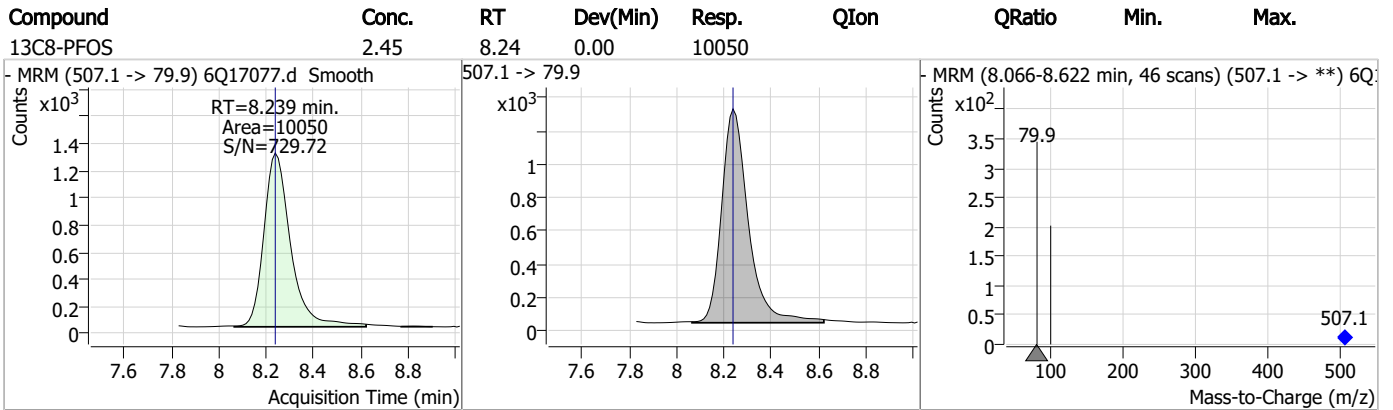
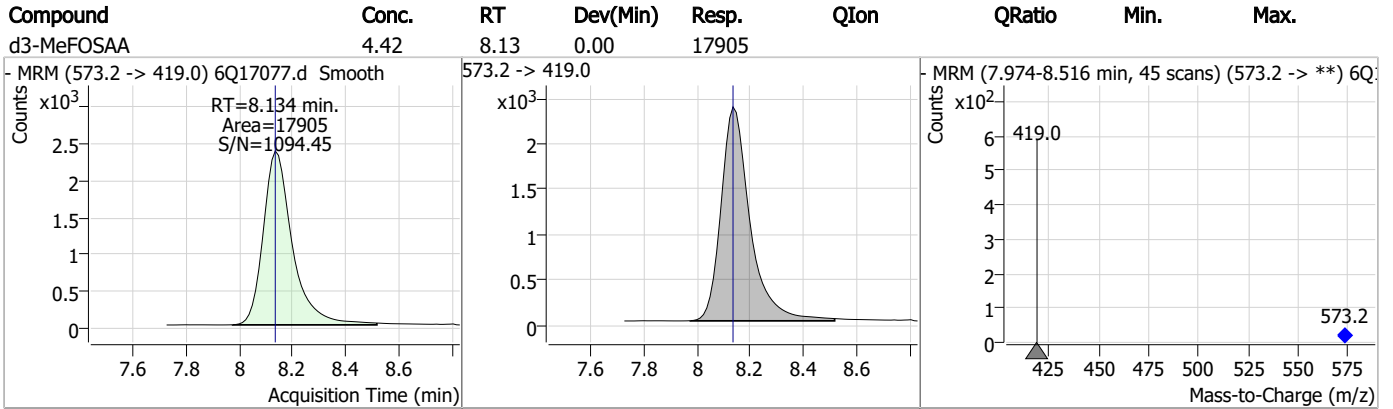
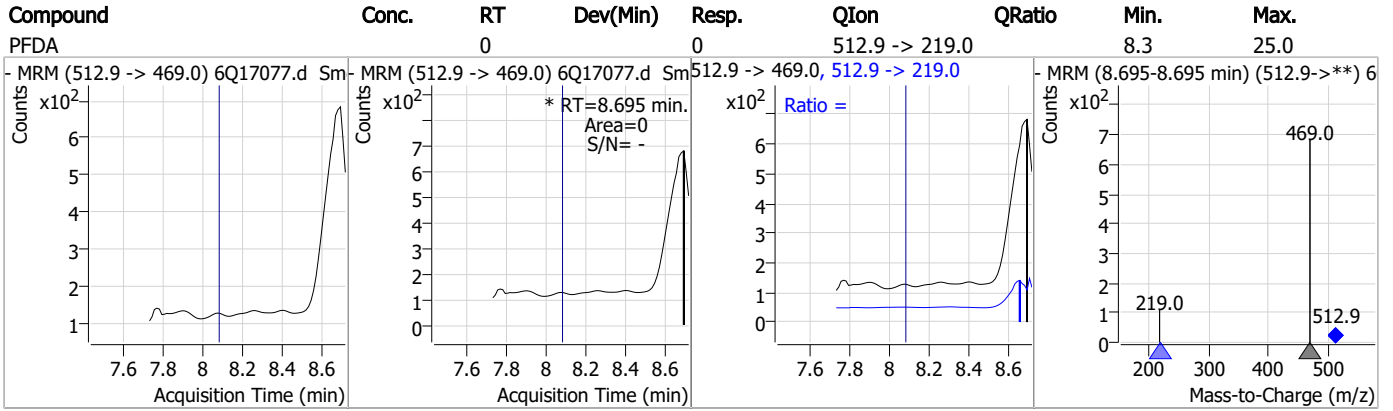
7.1.3

7

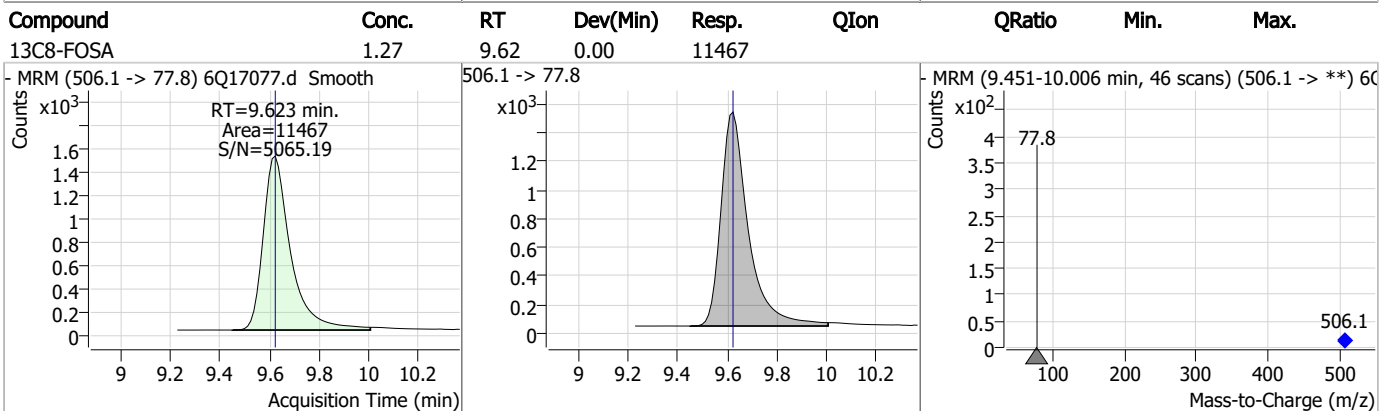
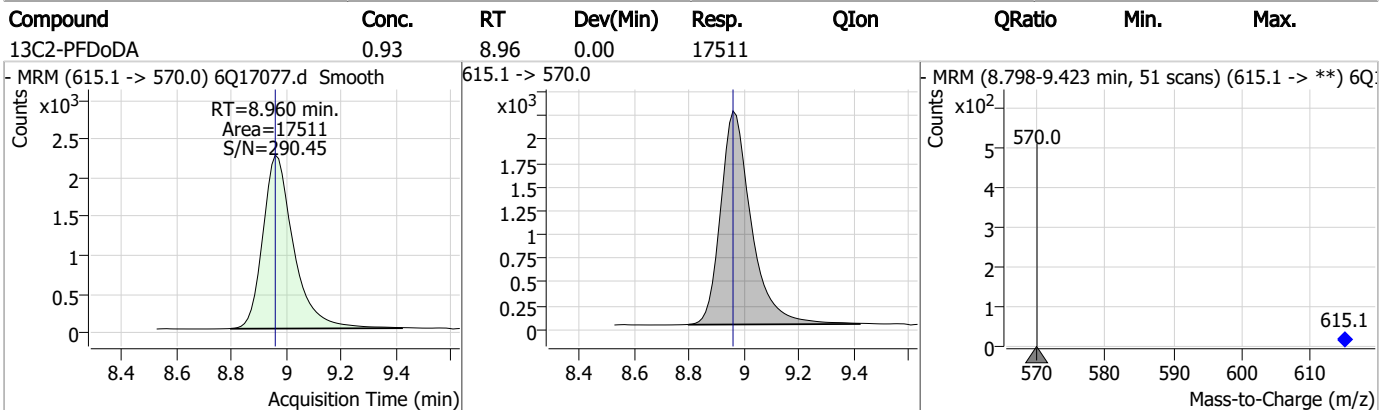
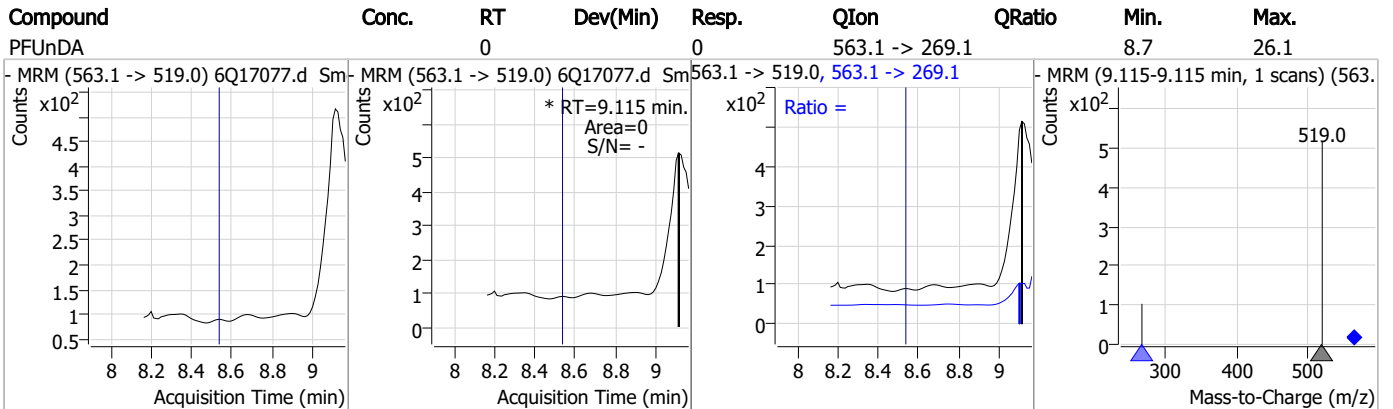
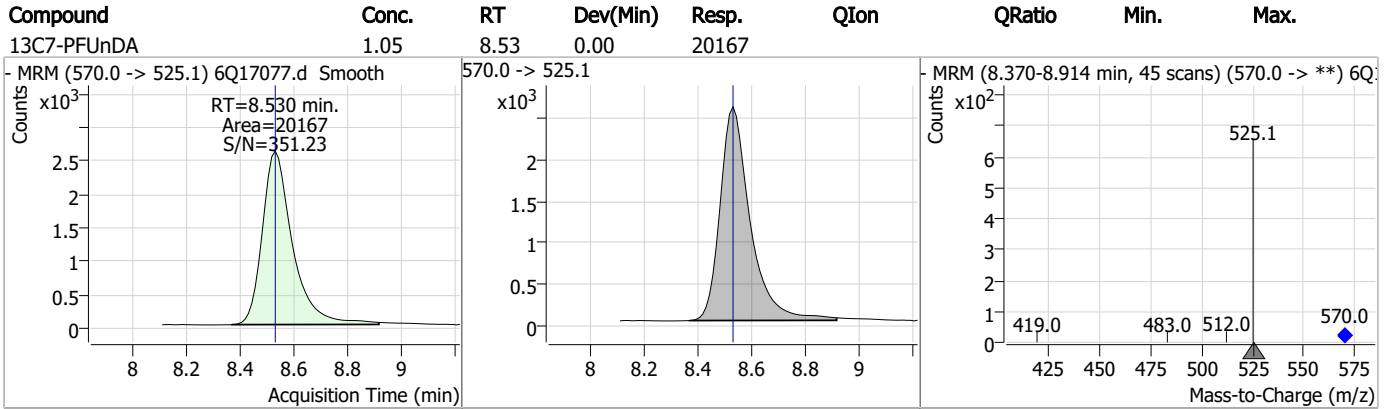
Perfluorinated Compounds by LC/MS/MS



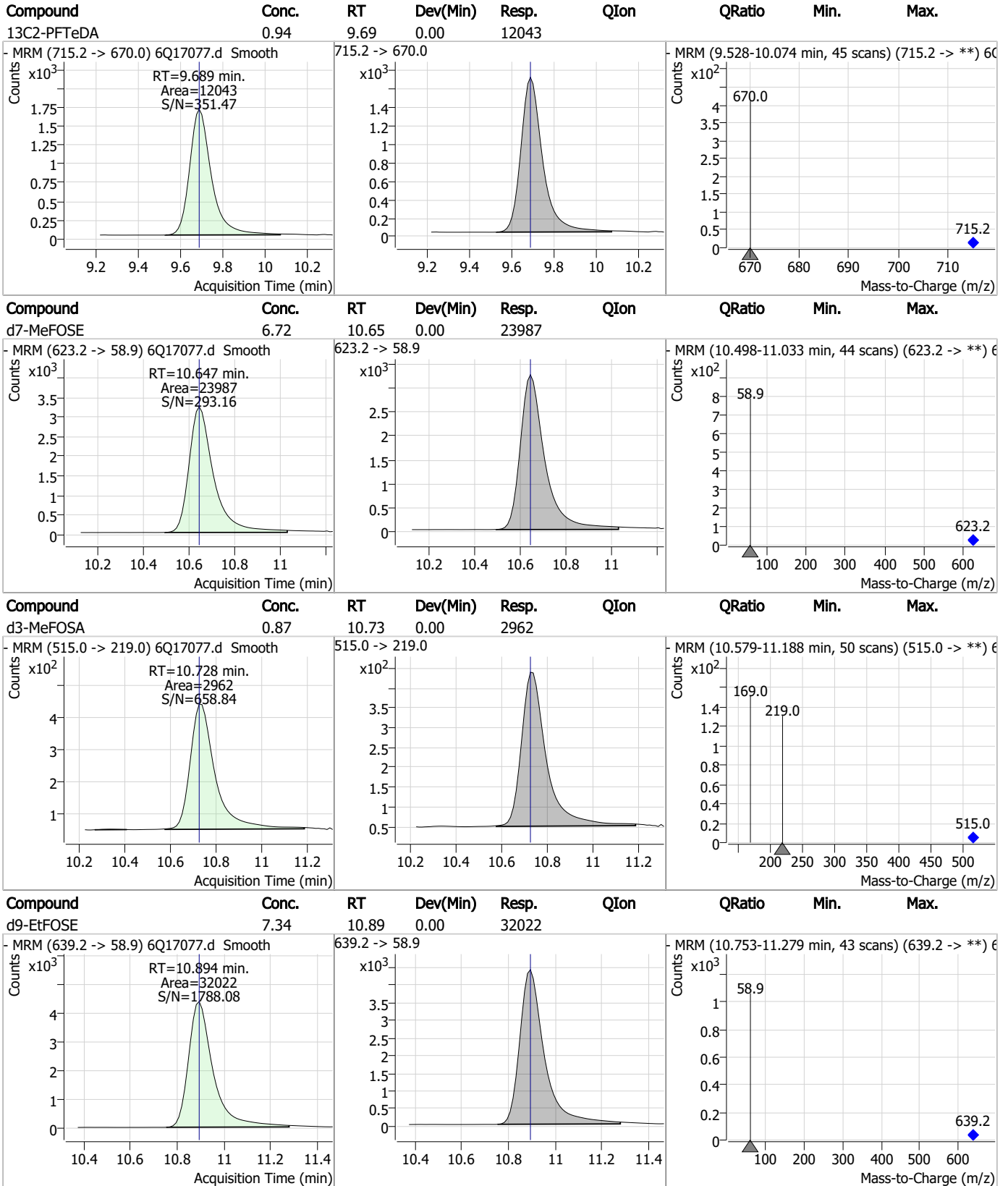
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



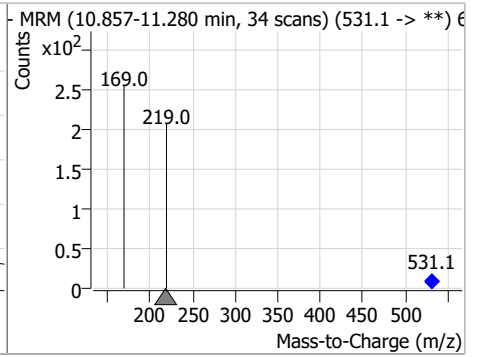
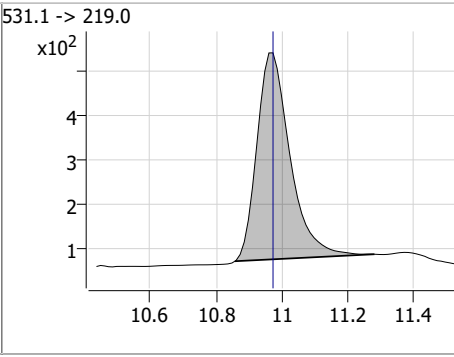
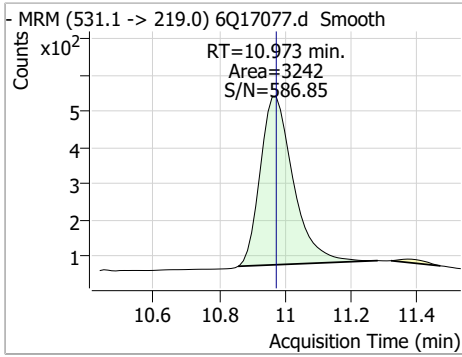
7.1.3

7



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	0.78	10.97	0.00	3242				



7.1.3
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17079.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 7:35:56 PM
 Sample Name : FC5514-4
 Vial : P3-A8
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	172089	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	62438	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	68056	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	55094	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	80016	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	25231	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18947	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	23449	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	19986	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	13201	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	10656	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21869	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12038	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10241	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2194	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2701	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2595	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	19861	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38047	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	15344	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	29016	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	37975	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	4055	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	3472	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	12656	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	73021	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9188	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	82005	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22377	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27002	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	53652	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2194	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2701	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2595	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	19986	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.9%		
13C2-PFTeDA	9.689	715.2 -> 670.0	13201	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.8%		
13C3-PFBS	5.398	302.1 -> 79.9	21869	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	12038	2.46 µg/L	0.000

7.14
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFBA	2.897	216.8 -> 171.9	172089	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	55094	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.468	318.0 -> 273.0	68056	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	62438	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C6-PFDA	8.076	519.1 -> 474.1	18947	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	23449	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-FOSA	9.623	506.1 -> 77.8	10656	1.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 50.9%	
13C8-PFOA	7.062	421.1 -> 376.0	80016	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOS	8.226	507.1 -> 79.9	10241	2.69 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C9-PFNA	7.594	472.1 -> 427.0	25231	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	19861	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38047	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSA	10.741	515.0 -> 219.0	3472	1.10 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 43.9%	
d5-EtFOSAA	8.342	589.2 -> 419.0	15344	4.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d7-MeFOSE	10.647	623.2 -> 58.9	29016	8.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 34.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	37975	9.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 37.4%	
d5-EtFOSA	10.973	531.1 -> 219.0	4055	1.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.8%	

7.14
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.658	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.168	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.326	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	9.917	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9				
PFUnDA	9.139	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.4
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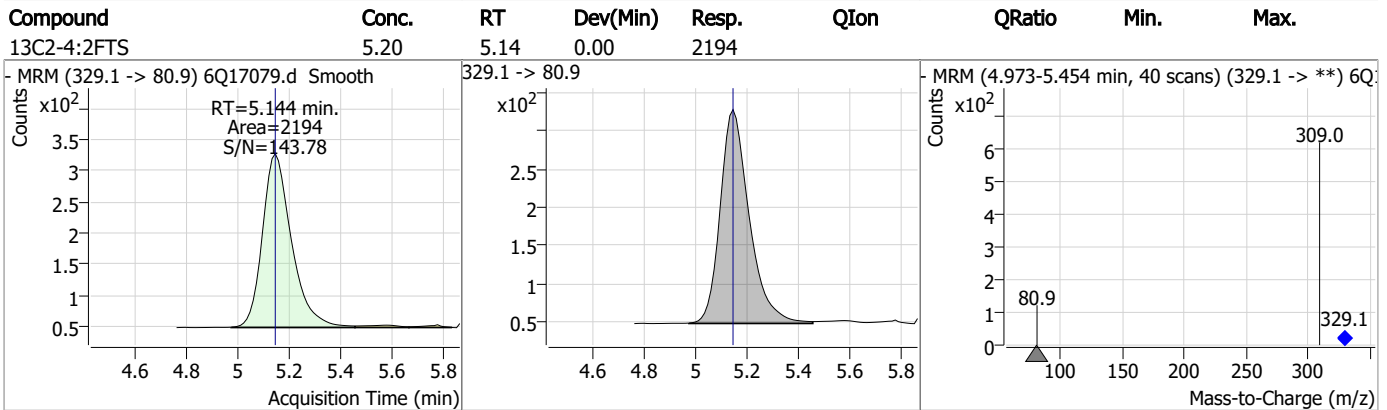
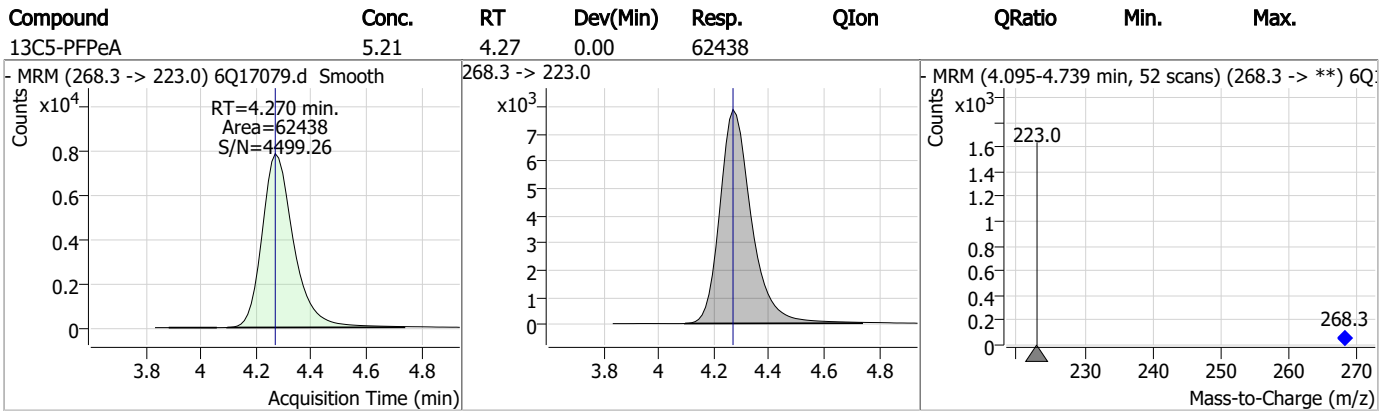
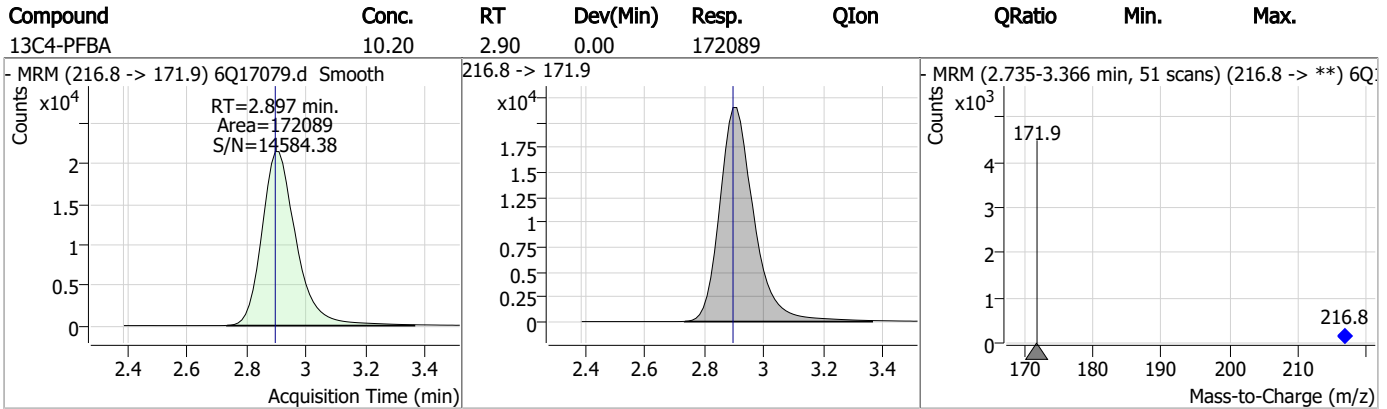
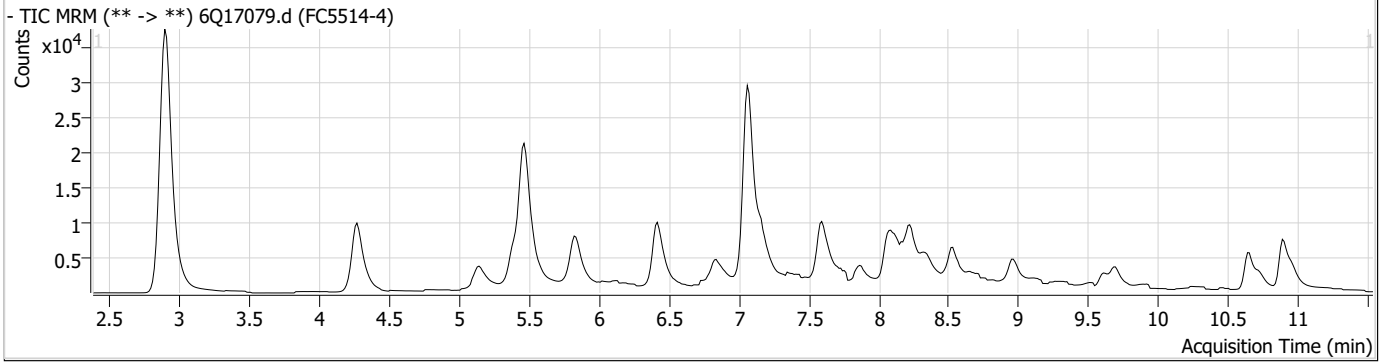
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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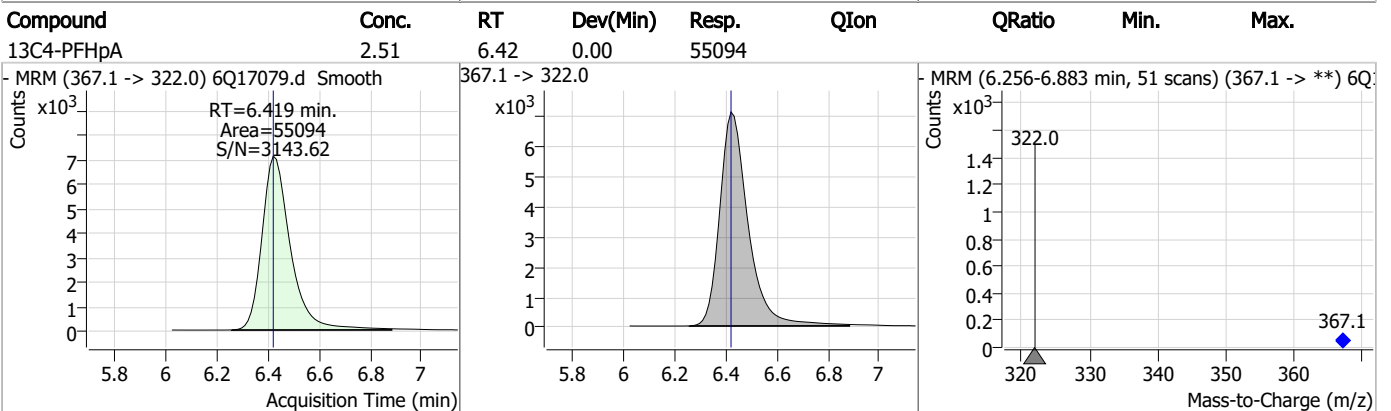
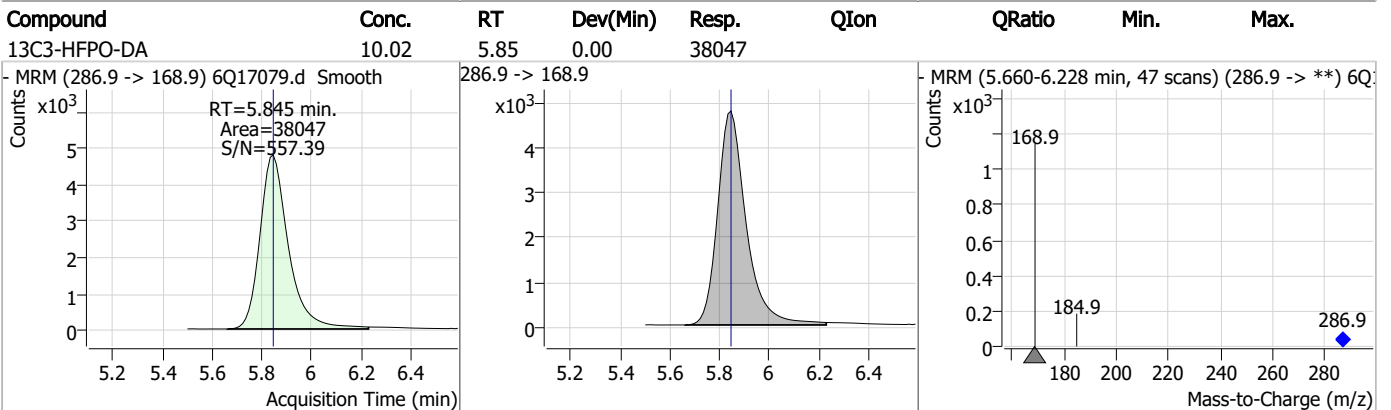
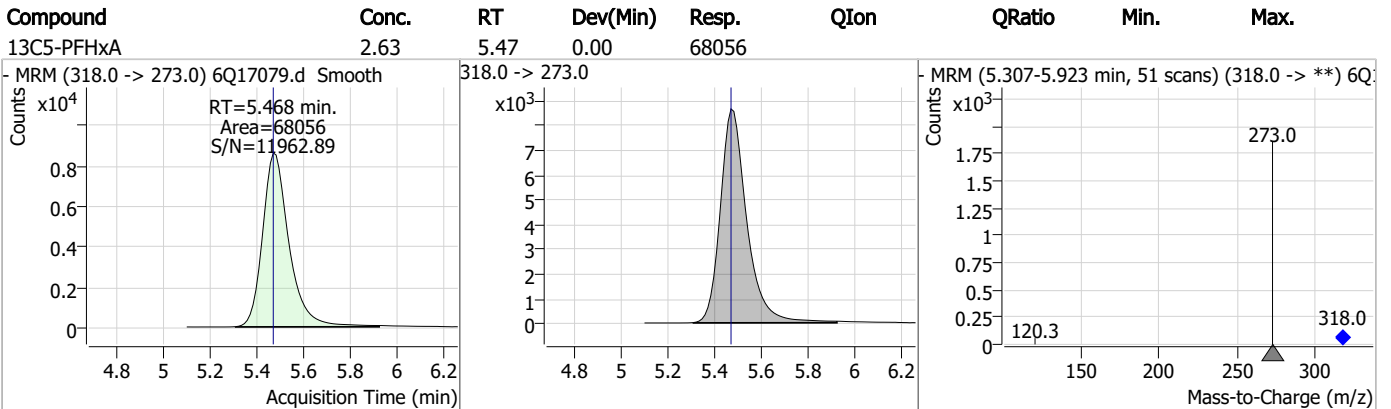
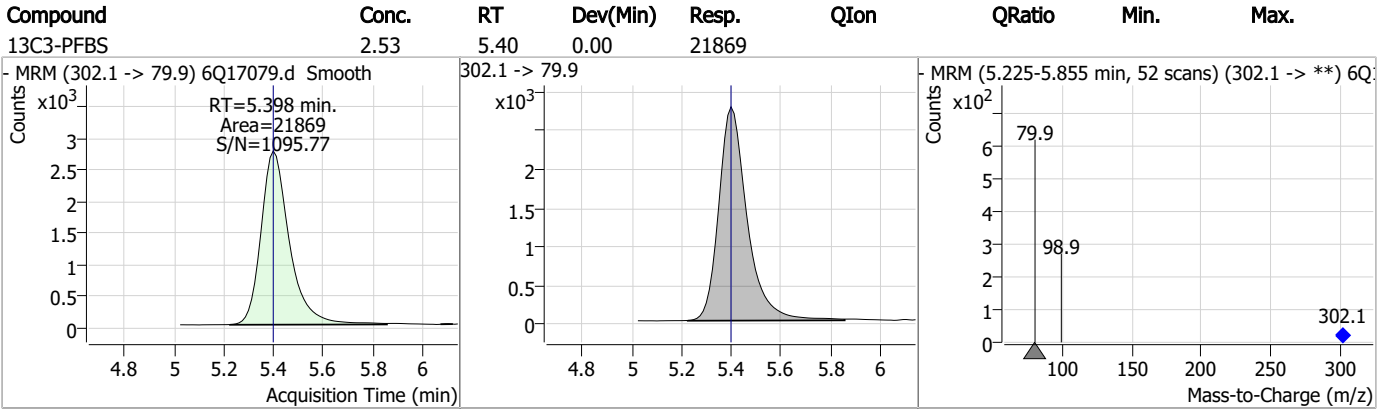
7.1.4
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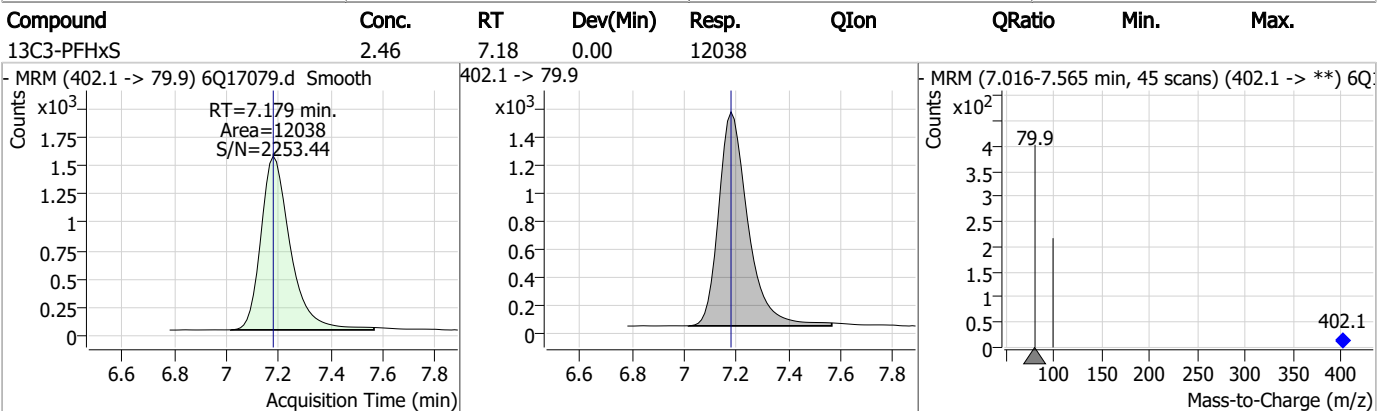
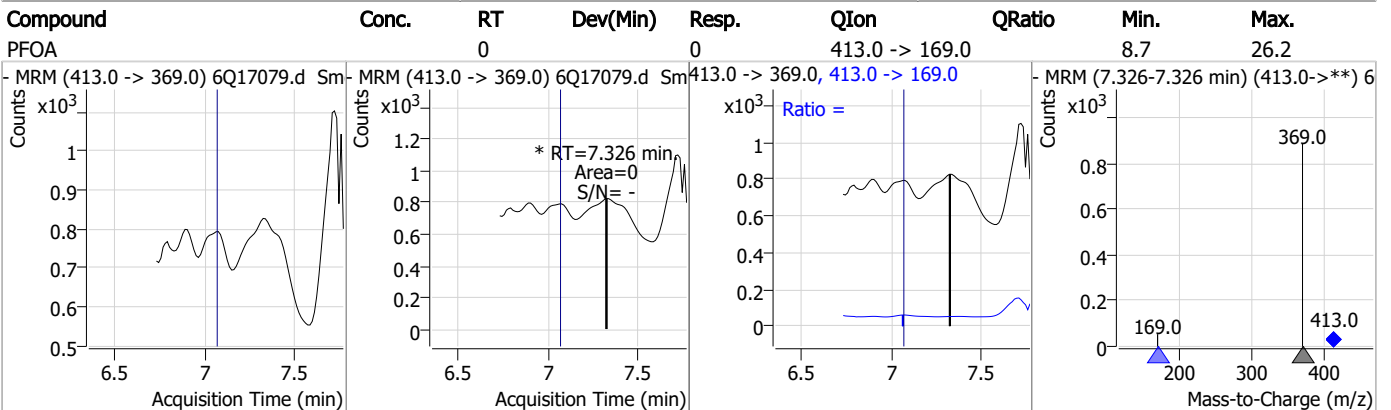
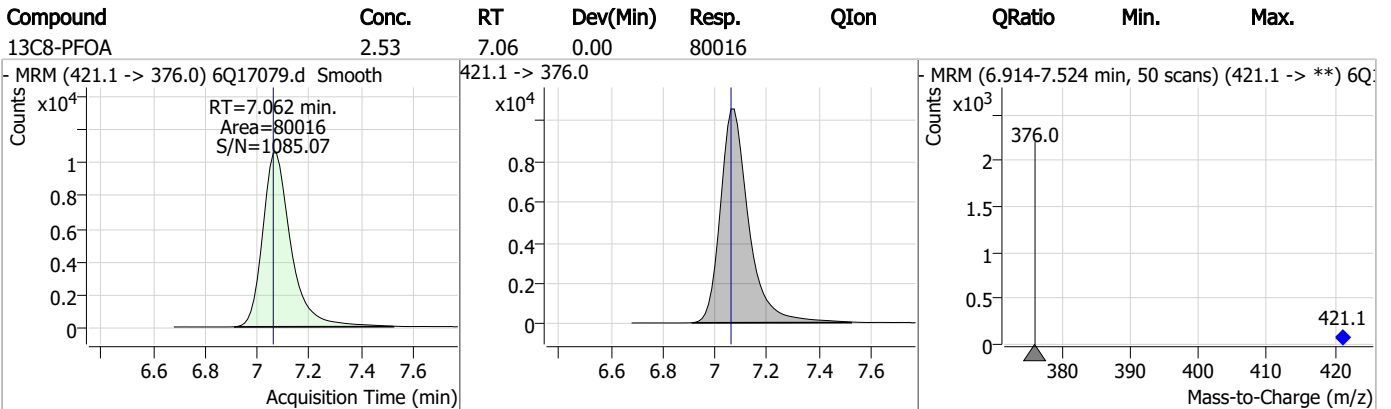
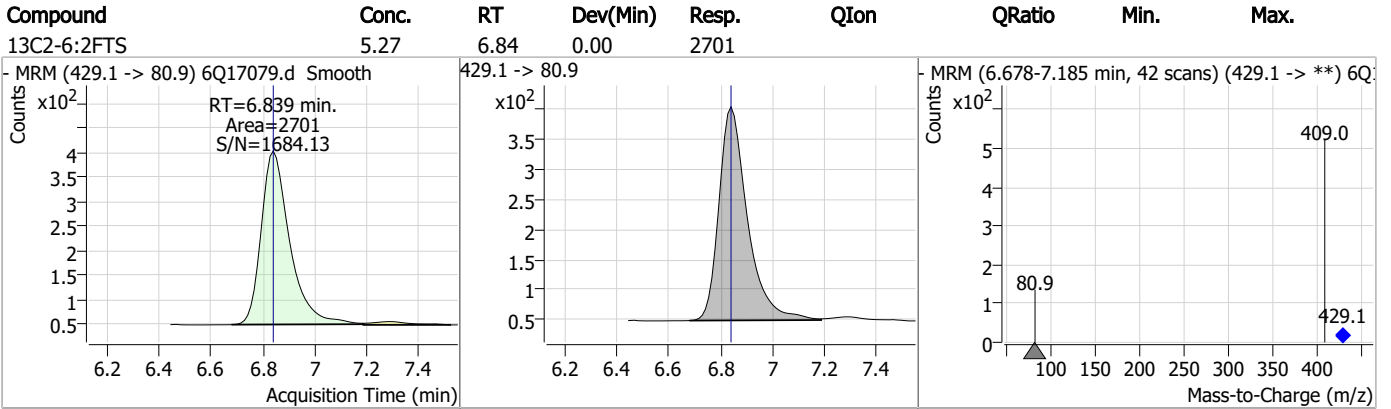
Perfluorinated Compounds by LC/MS/MS



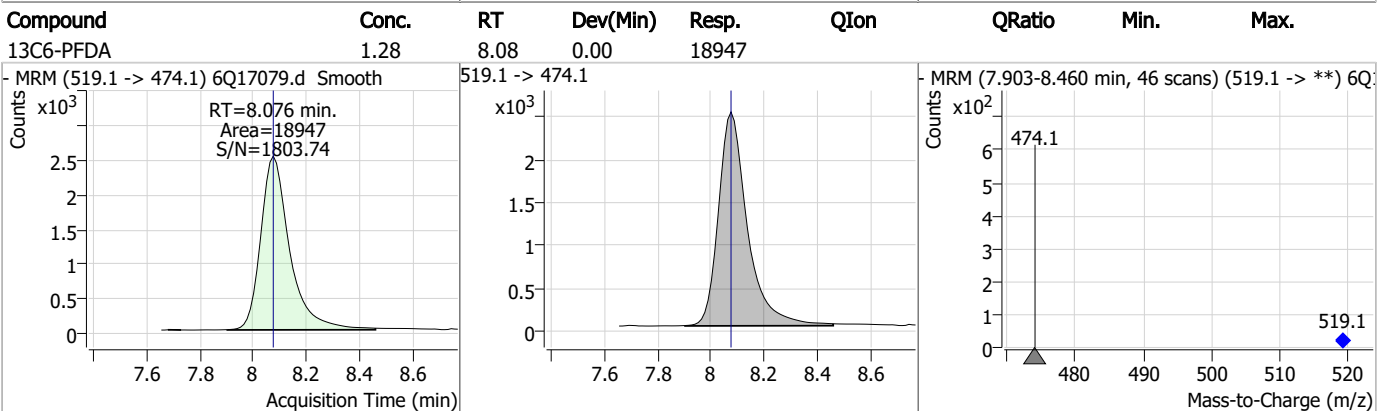
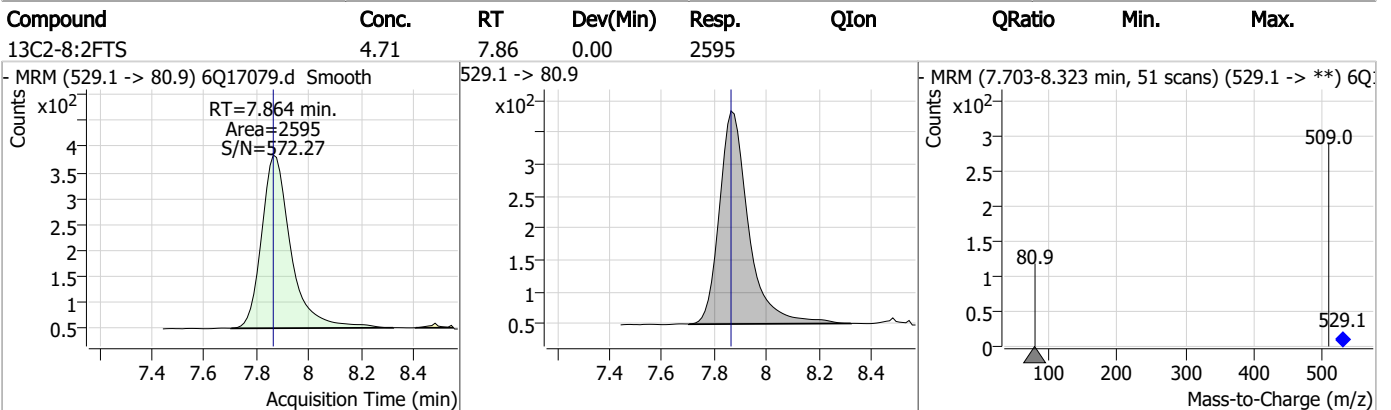
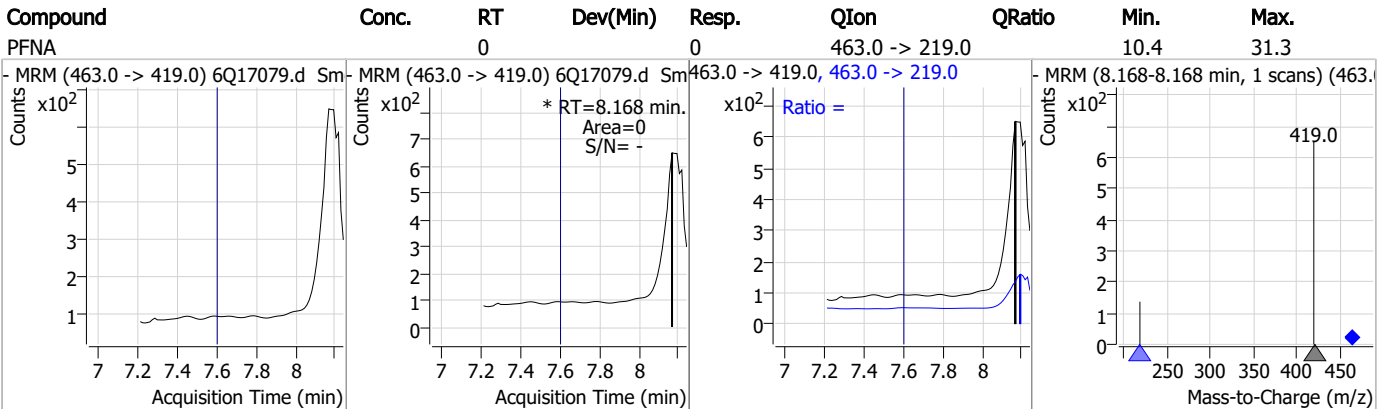
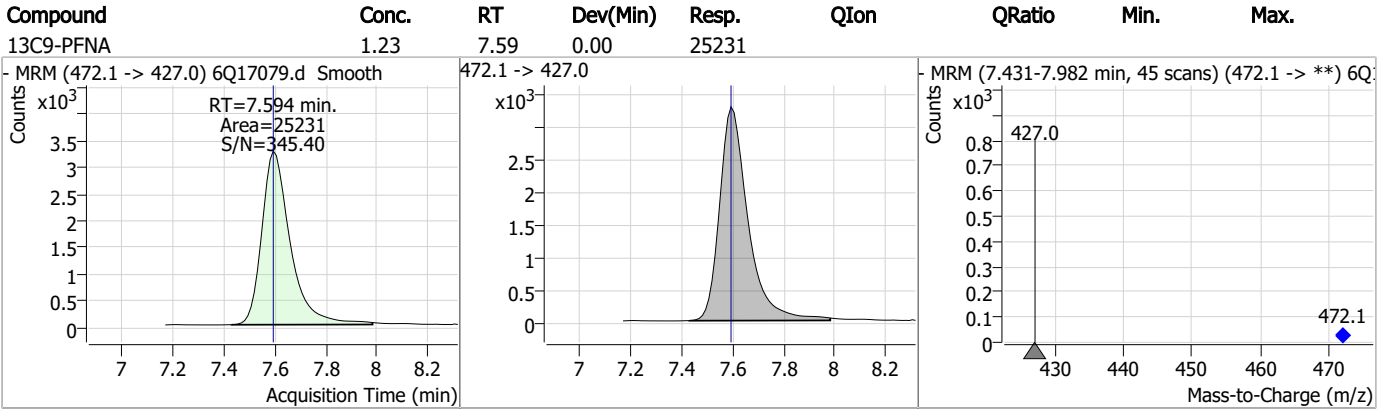
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

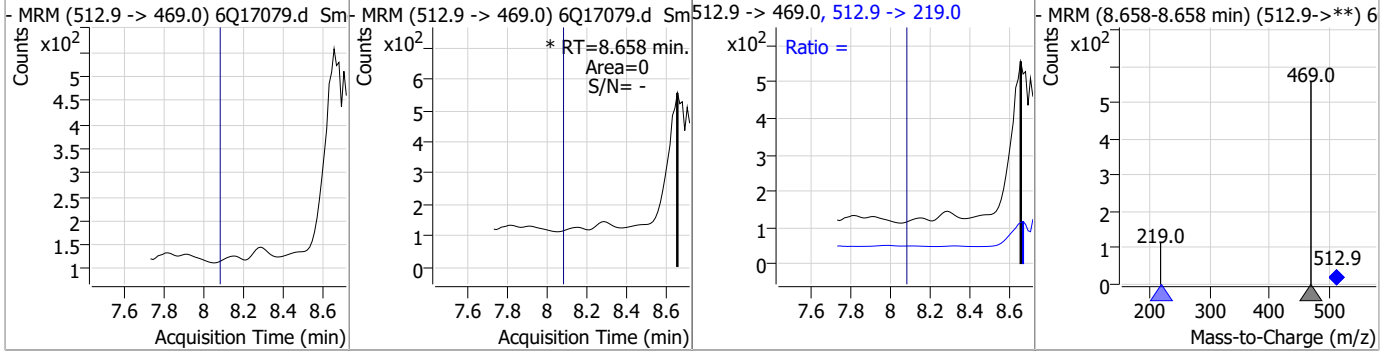


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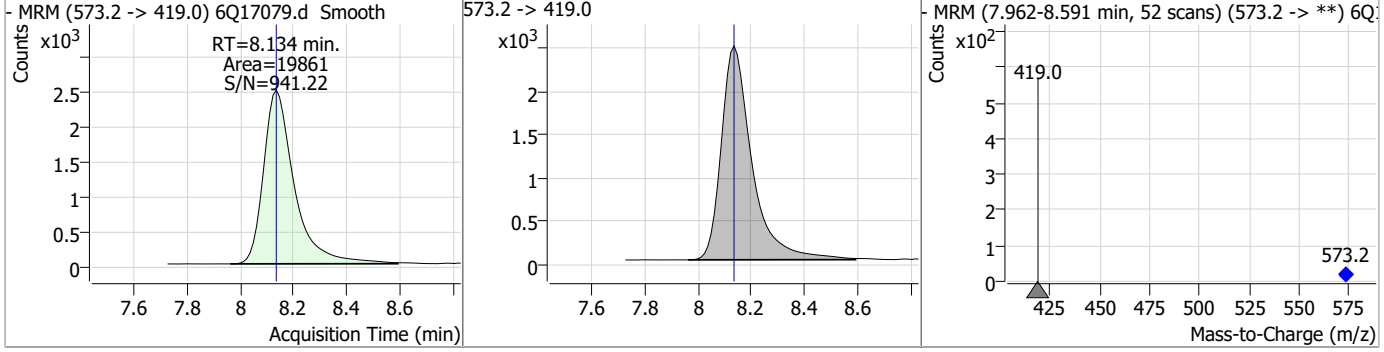
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Perfluorinated Compounds by LC/MS/MS

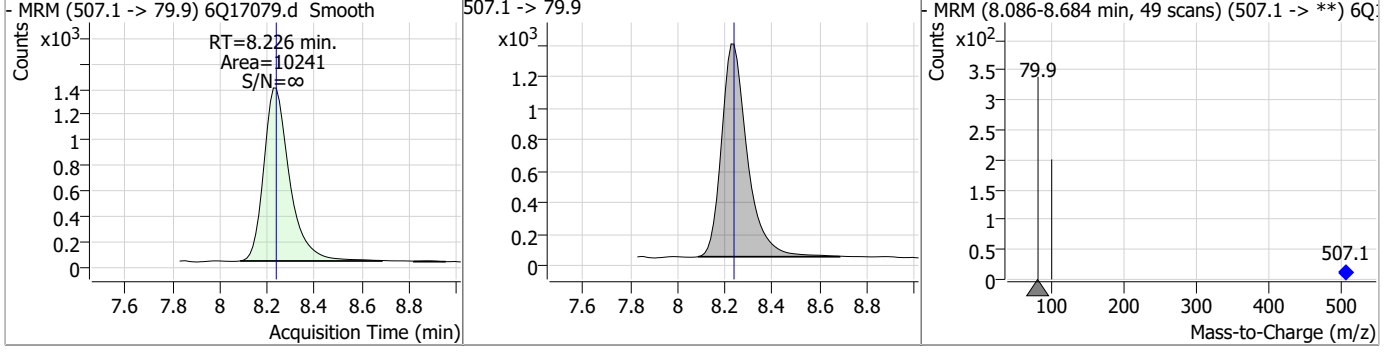
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0	8.3		0	512.9 -> 219.0		8.3	25.0



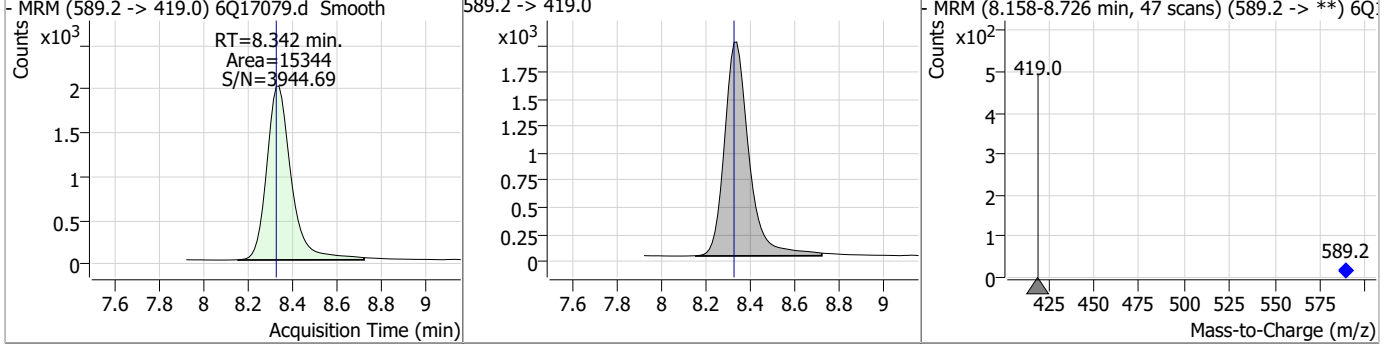
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.27	8.13	0.00	19861				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.69	8.23	-0.01	10241				

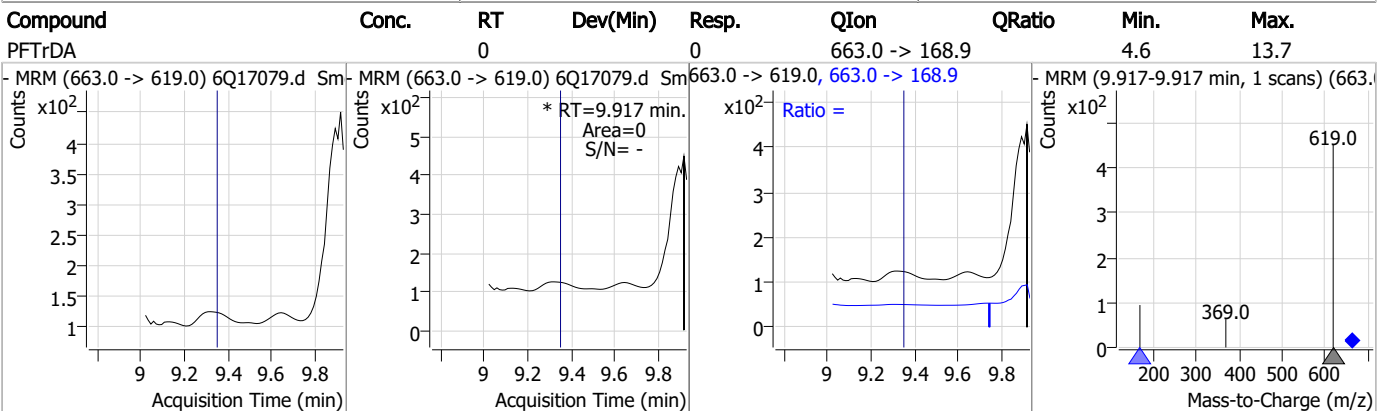
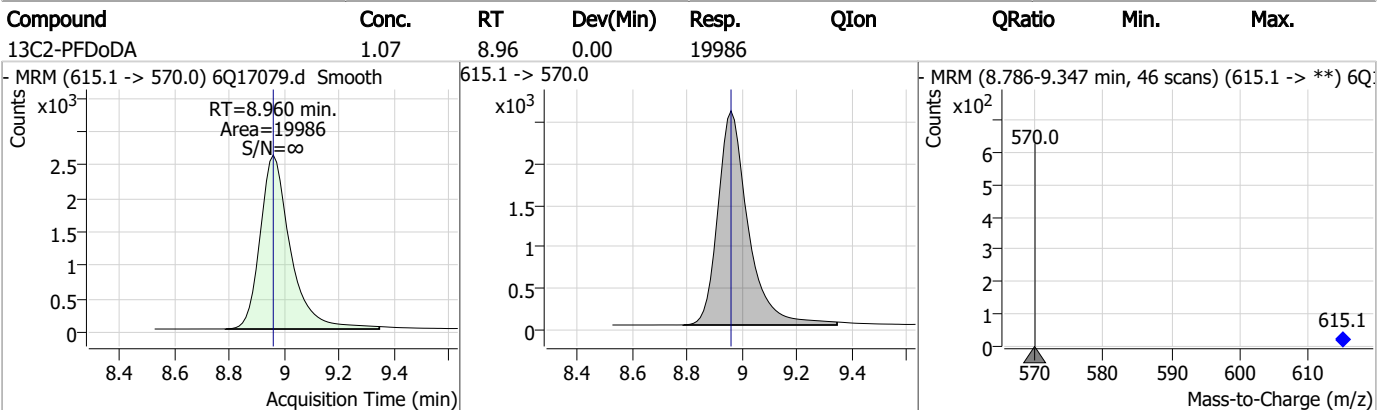
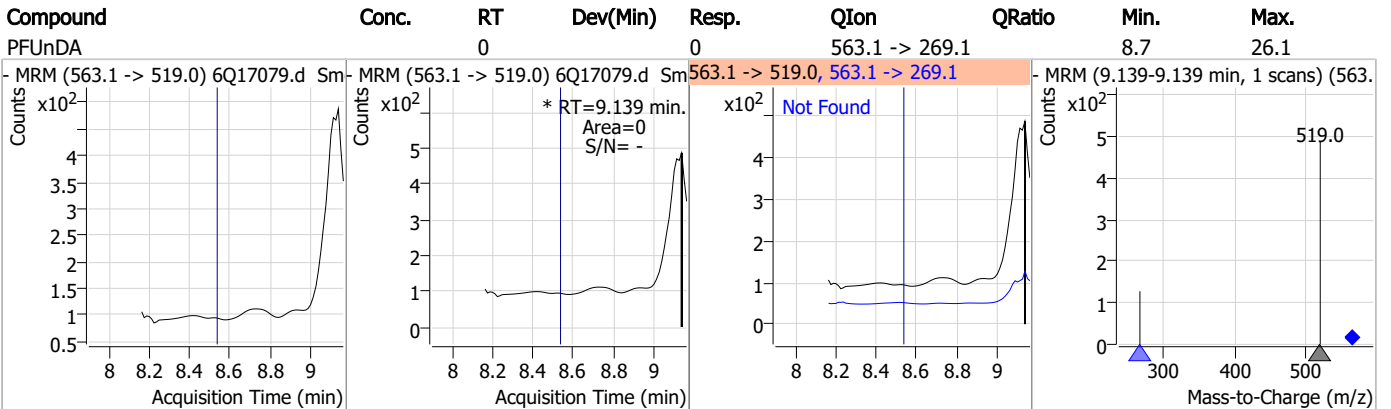
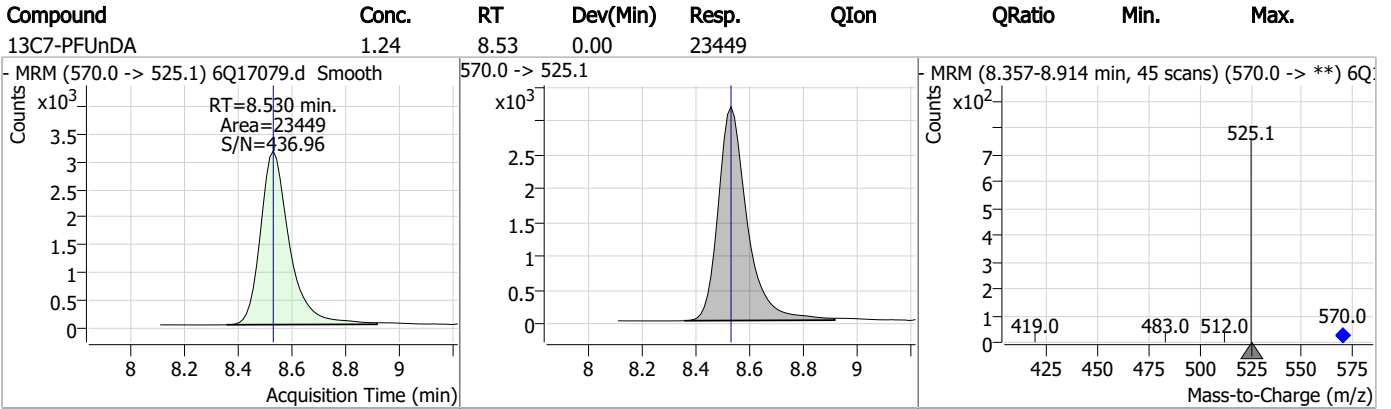


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.89	8.34	0.01	15344				

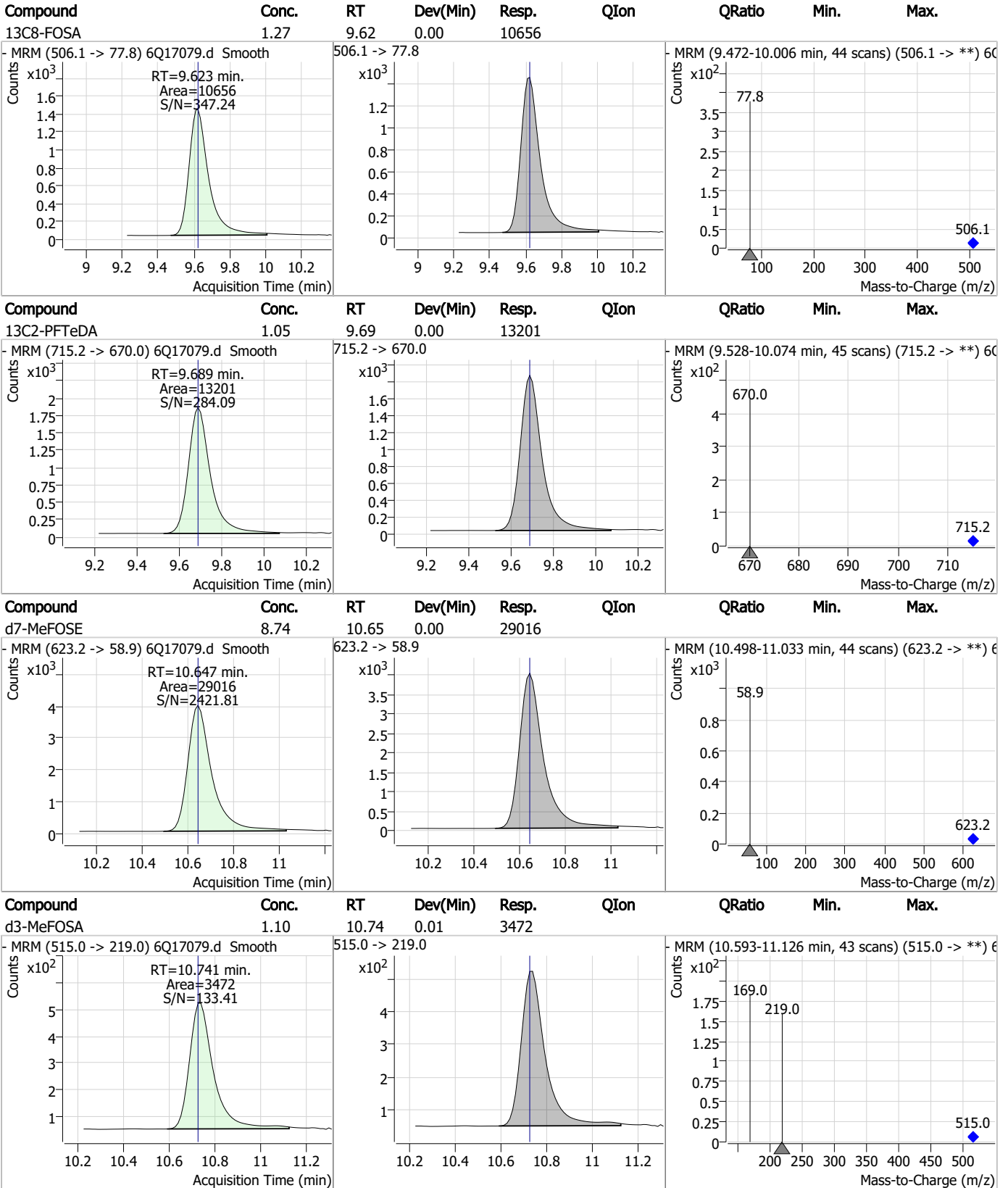


7.1.4
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

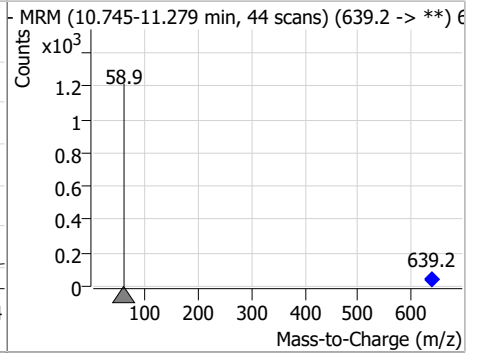
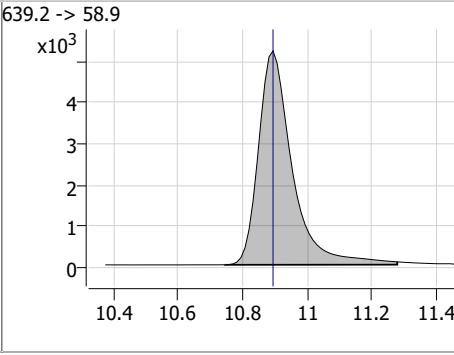
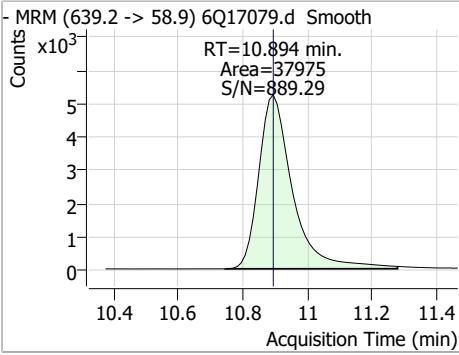


7.1.4

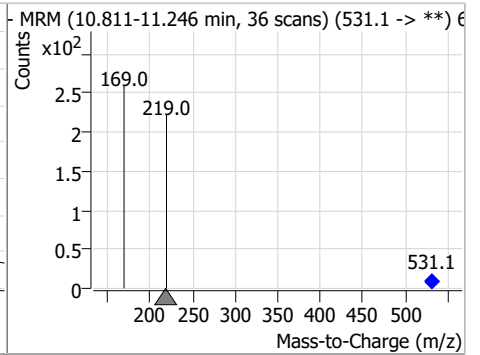
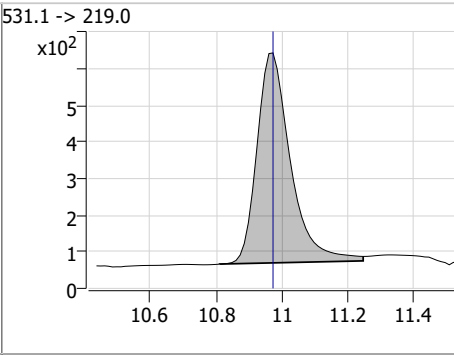
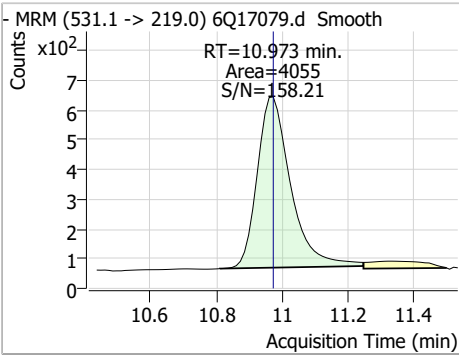
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	9.36	10.89	0.00	37975				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	1.04	10.97	0.00	4055				



7.1.4

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17081.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 8:04:54 PM
 Sample Name : FC5514-5
 Vial : P3-B1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	178296	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	69021	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	74411	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	62995	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	89235	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27504	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19874	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	23014	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	19640	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	12733	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	10682	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23345	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	14041	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10699	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2412	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2871	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2985	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21104	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	43426	10.00 µg/L	-0.012
M5-EtFOSAA	8.330	589.2 -> 419.0	17837	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	25649	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	37237	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	4087	2.50 µg/L	-0.012
M3-MeFOSA	10.741	515.0 -> 219.0	3447	2.50 µg/L	0.012
13C4-PFOS	8.227	502.8 -> 79.9	14874	2.50 µg/L	-0.012
13C3-PFBA	2.914	216.0 -> 172.0	76587	5.00 µg/L	0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9678	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	82711	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22838	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28952	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56066	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2412	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2871	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2985	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFDoDA	8.960	615.1 -> 570.0	19640	1.03 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	12733	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.2%		
13C3-PFBS	5.398	302.1 -> 79.9	23345	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	14041	2.73 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C4-PFBA	2.910	216.8 -> 171.9	178296	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	62995	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C5-PFHxA	5.468	318.0 -> 273.0	74411	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C5-PFPeA	4.270	268.3 -> 223.0	69021	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C6-PFDA	8.076	519.1 -> 474.1	19874	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C7-PFUnDA	8.530	570.0 -> 525.1	23014	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-FOSA	9.623	506.1 -> 77.8	10682	1.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 43.5%	
13C8-PFOA	7.062	421.1 -> 376.0	89235	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10699	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C9-PFNA	7.594	472.1 -> 427.0	27504	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21104	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C3-HFPO-DA	5.833	286.9 -> 168.9	43426	10.94 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSA	10.741	515.0 -> 219.0	3447	0.93 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 37.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17837	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	25649	6.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 26.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	37237	7.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 31.2%	
d5-EtFOSA	10.960	531.1 -> 219.0	4087	0.90 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 35.8%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.695	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.180	398.7 -> 98.9	0	μg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	493	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.5
7



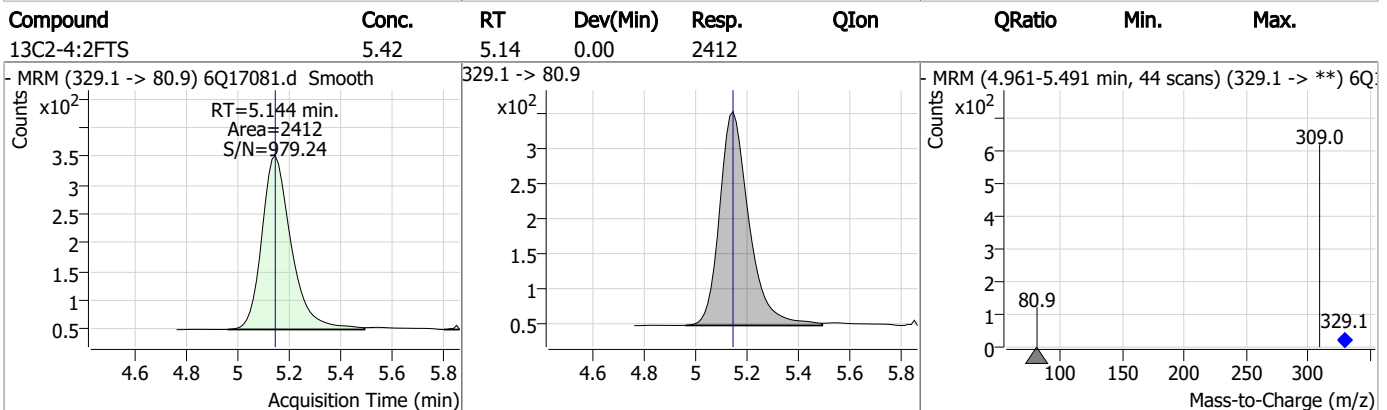
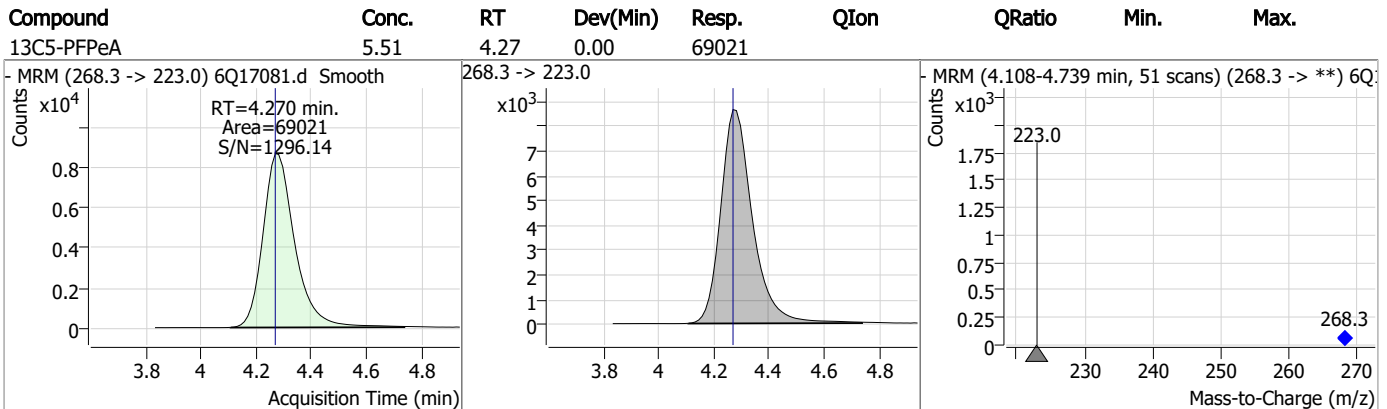
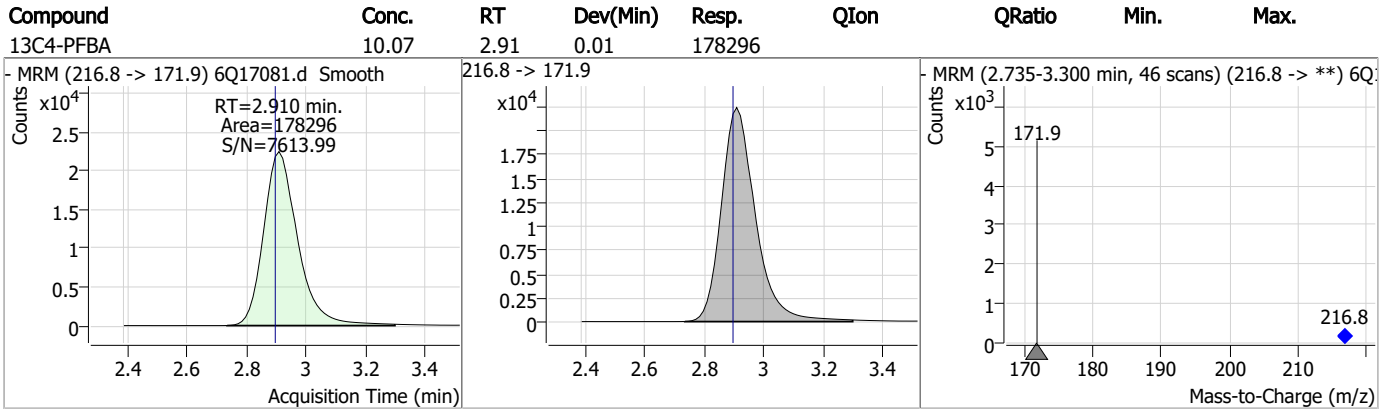
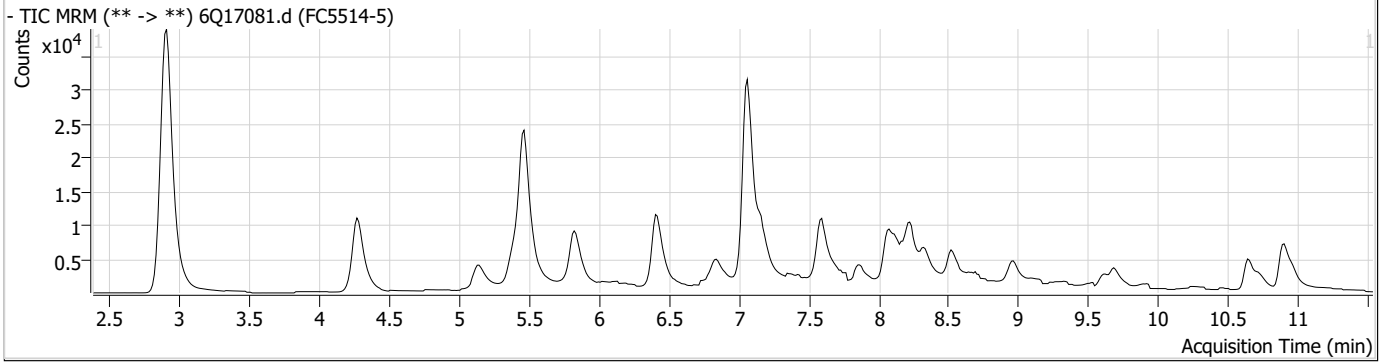
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.5
7



Perfluorinated Compounds by LC/MS/MS

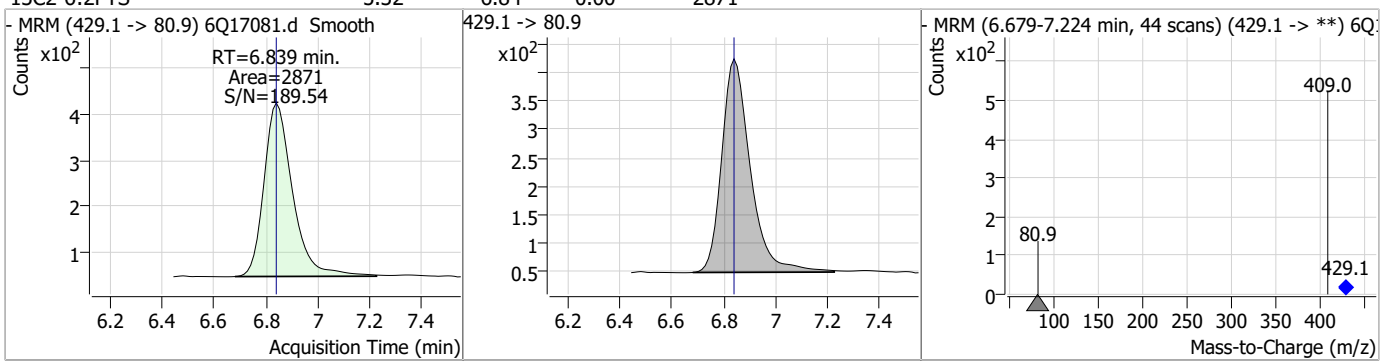


Perfluorinated Compounds by LC/MS/MS

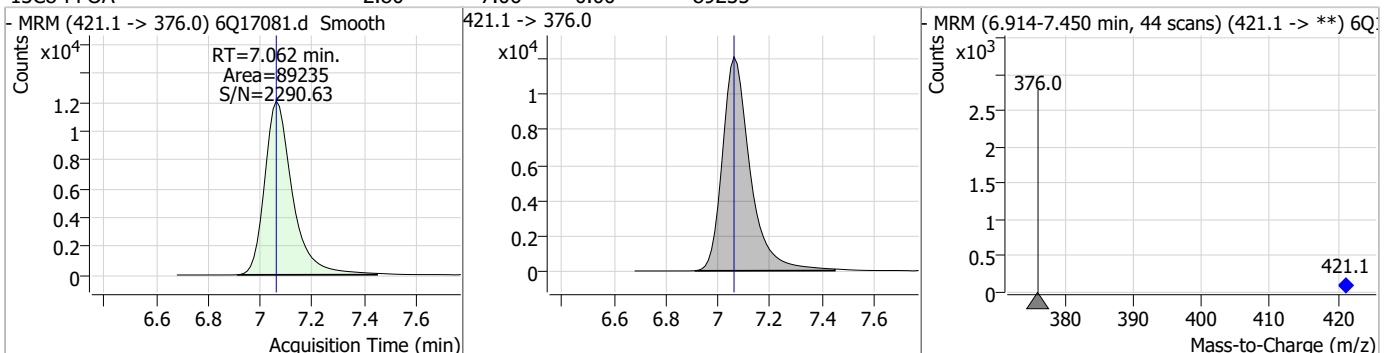
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.56	5.40	0.00	23345				
13C5-PFHxA	2.75	5.47	0.00	74411				
13C3-HFPO-DA	10.94	5.83	-0.01	43426				
13C4-PFHpA	2.75	6.42	0.00	62995				

Perfluorinated Compounds by LC/MS/MS

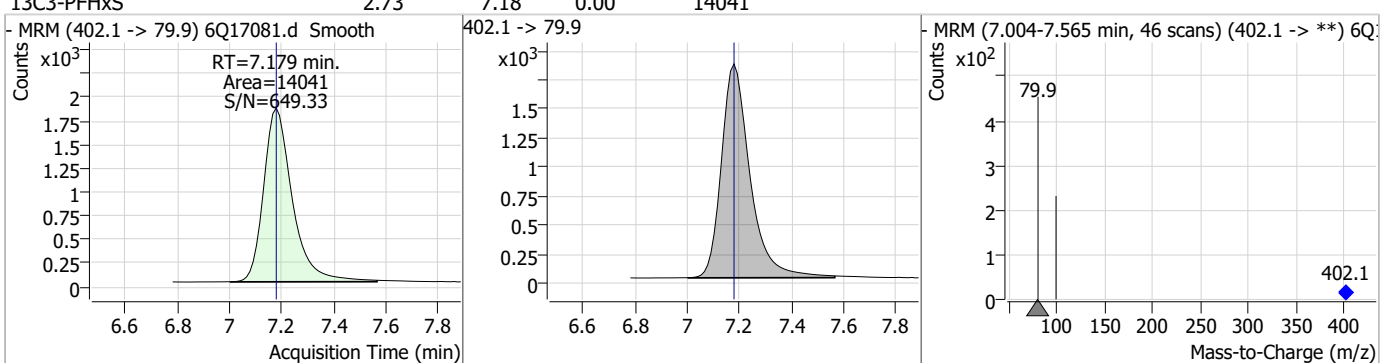
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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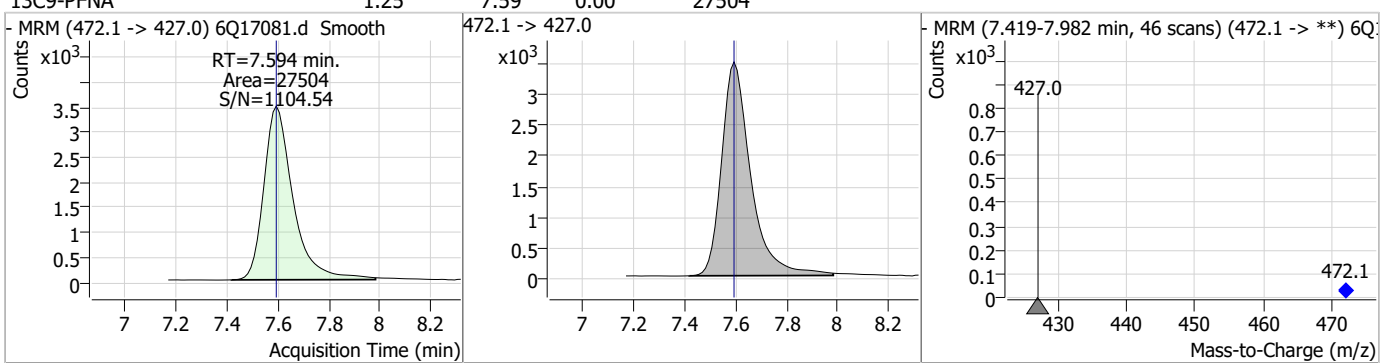
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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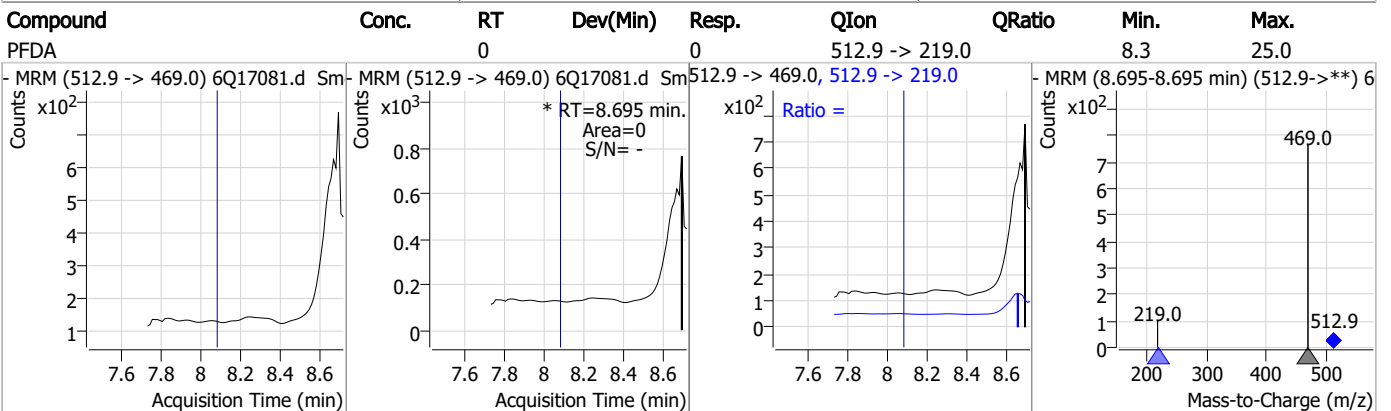
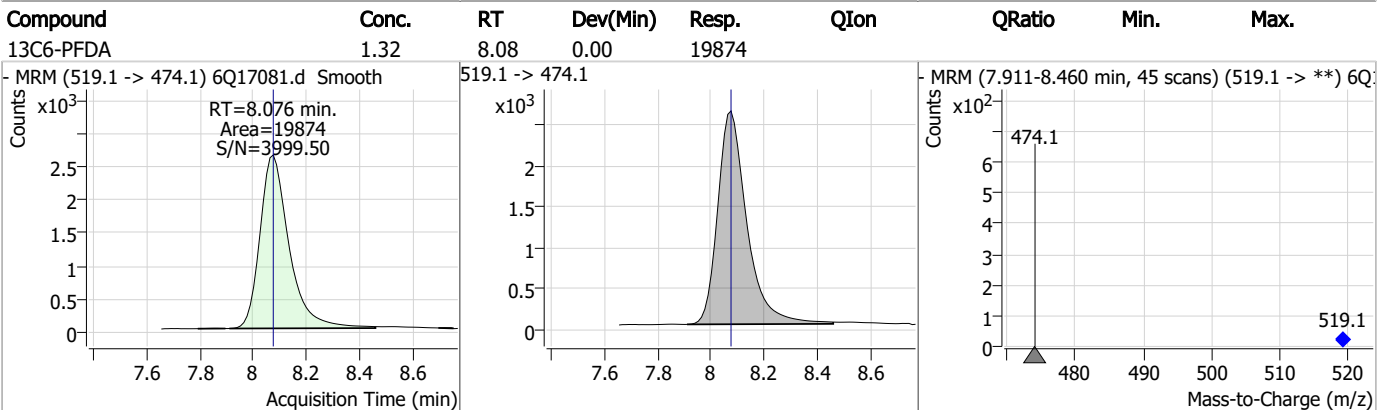
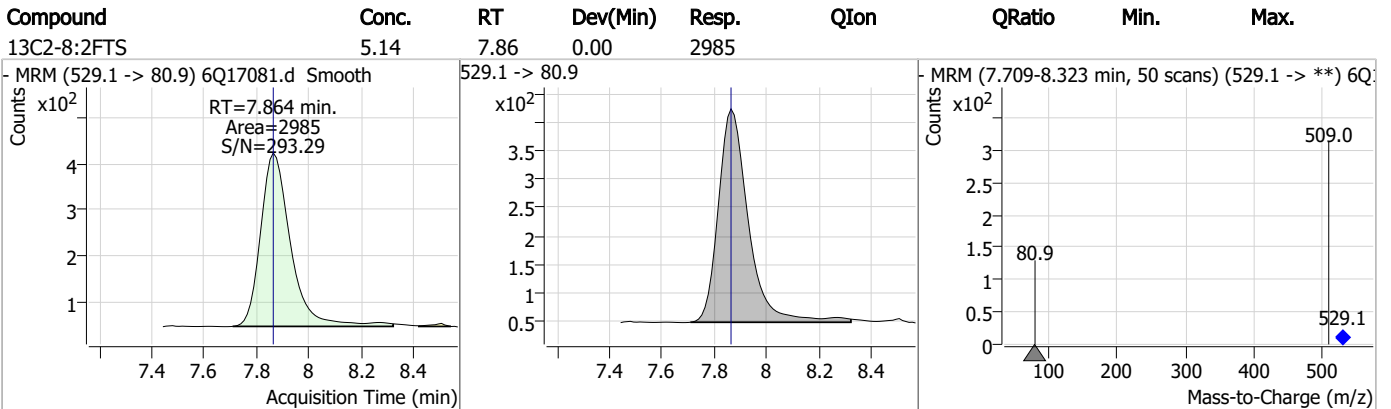
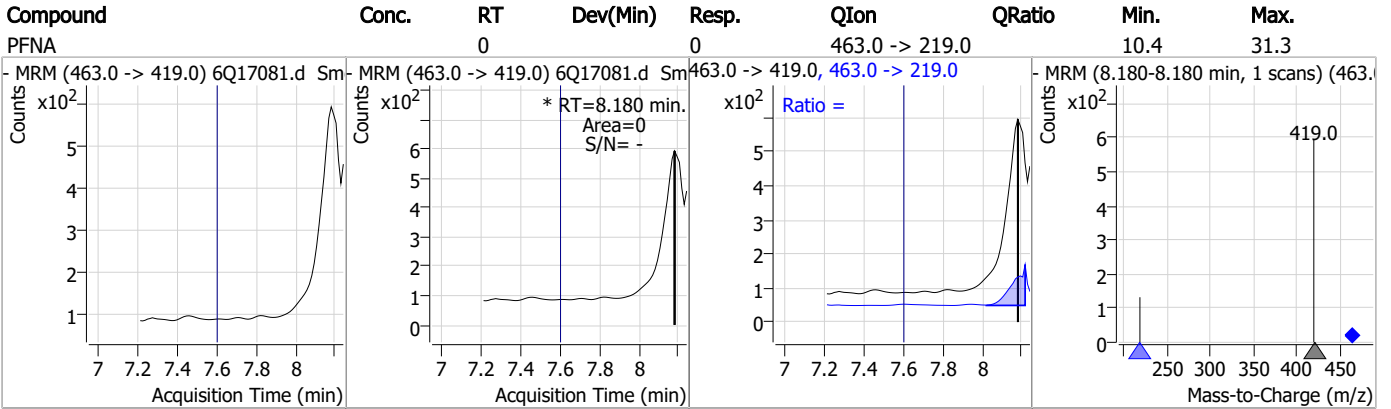


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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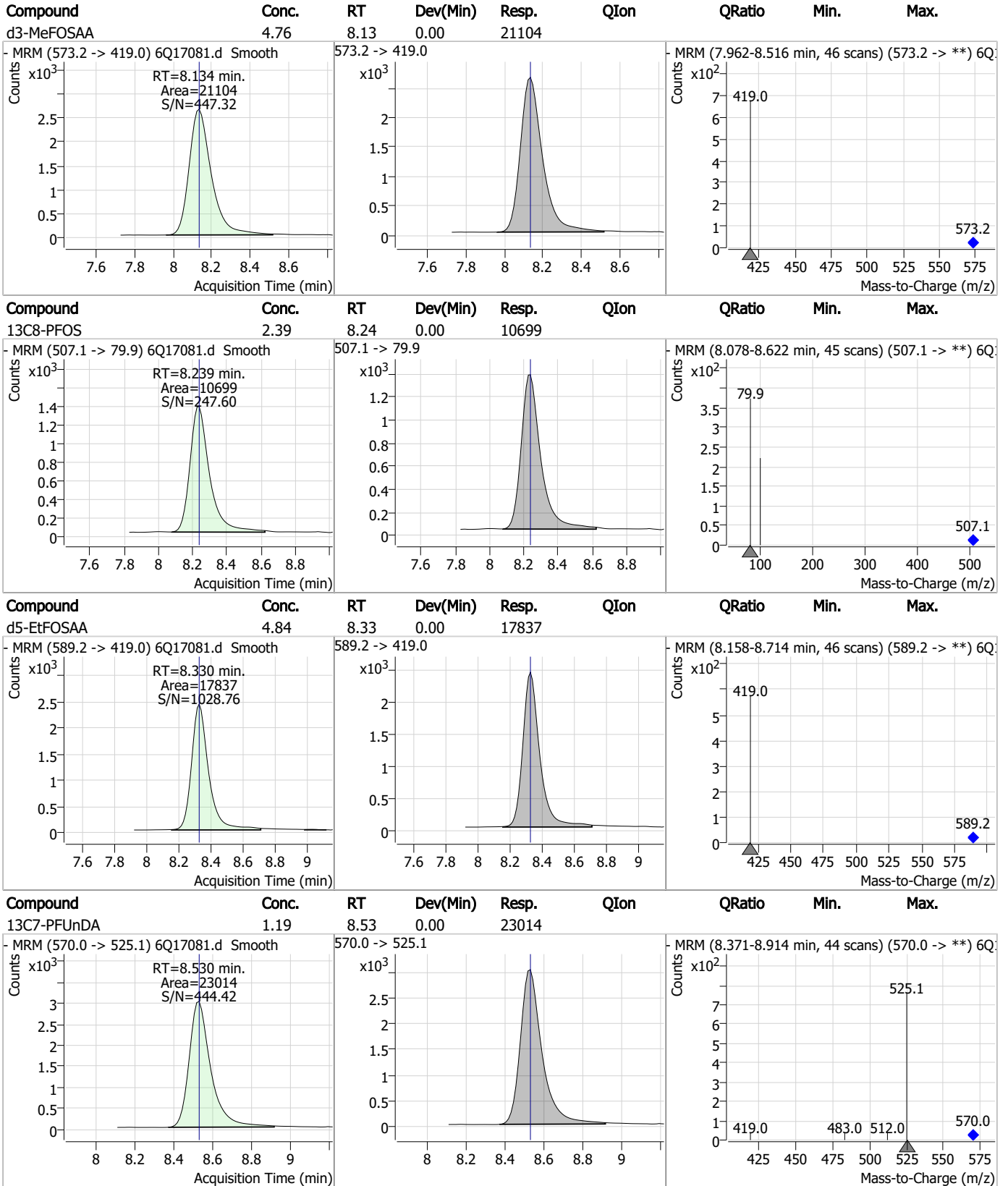


7.1.5
7

Perfluorinated Compounds by LC/MS/MS

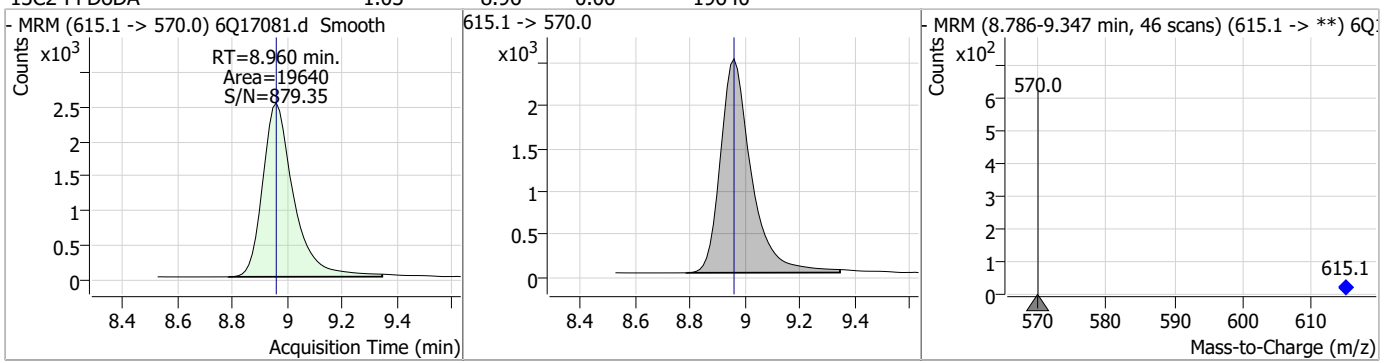


Perfluorinated Compounds by LC/MS/MS

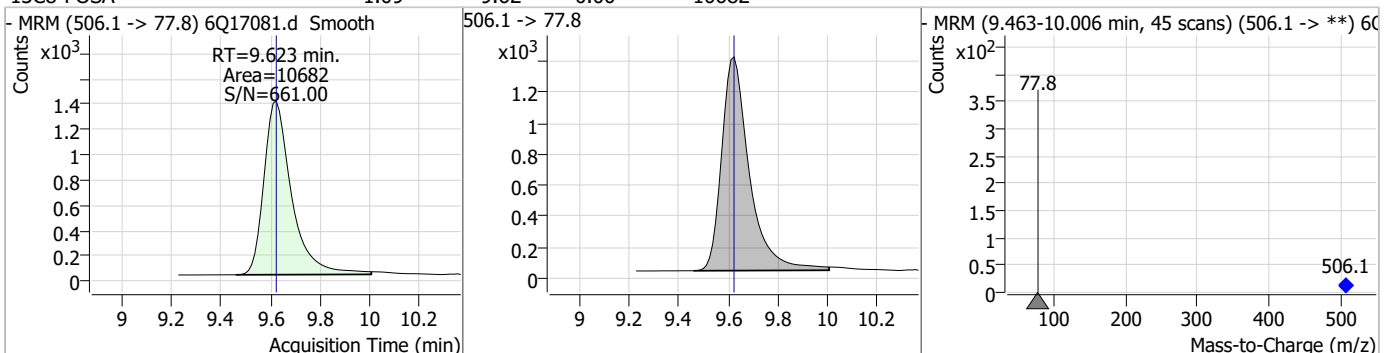


Perfluorinated Compounds by LC/MS/MS

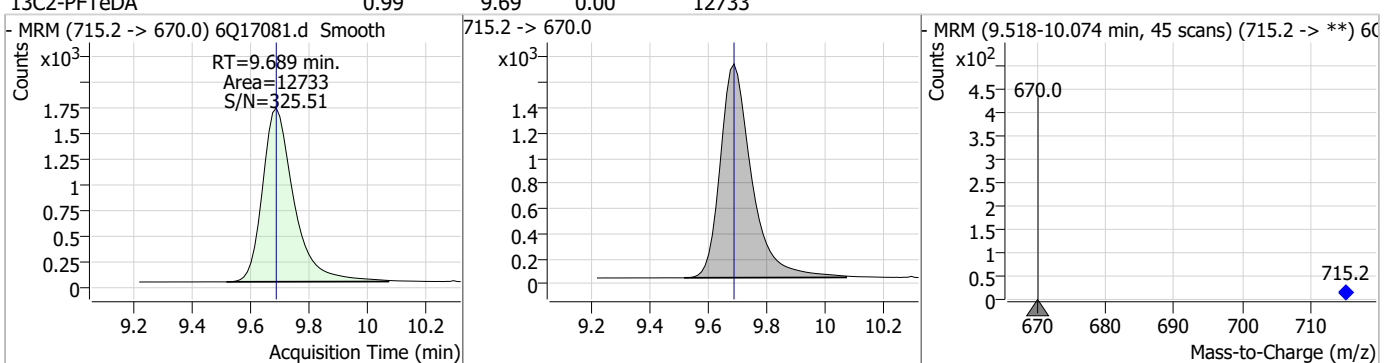
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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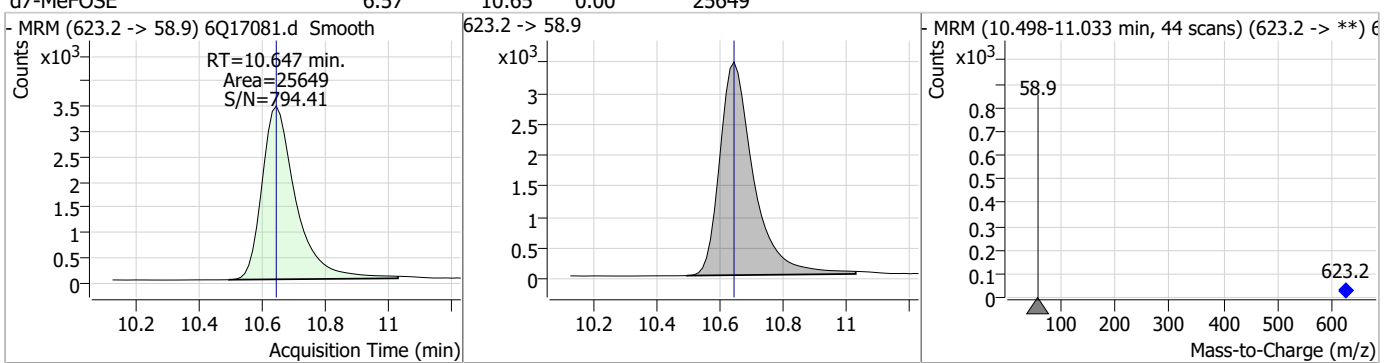
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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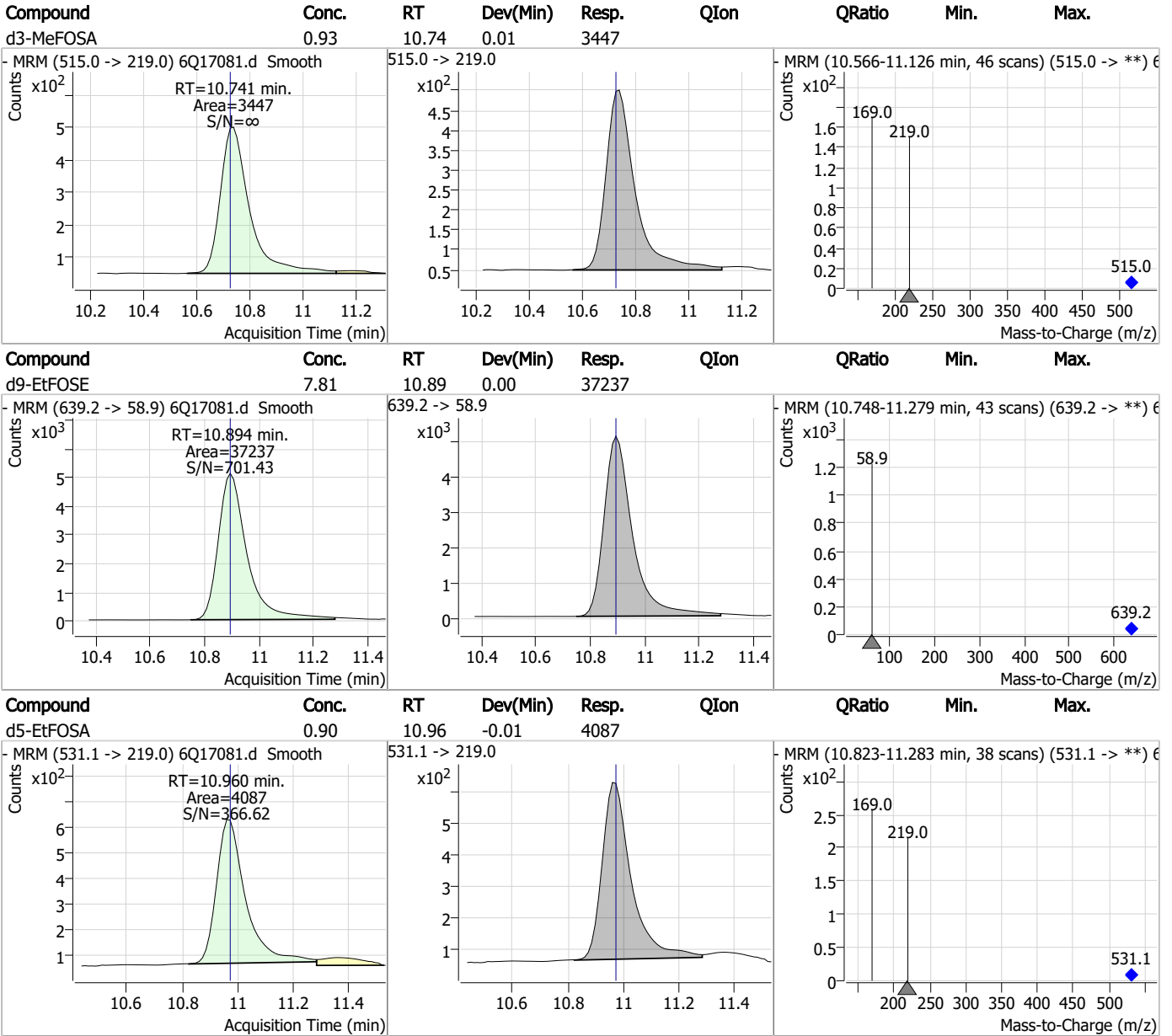


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.5
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Perfluorinated Compounds by LC/MS/MS



7.1.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17074.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 6:23:28 PM
 Sample Name : op96603-mb
 Vial : P3-A3
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	188202	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66905	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	71870	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60240	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	87248	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27099	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19469	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24995	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	22091	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	12327	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	9826	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22659	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13349	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11157	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2420	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2884	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3016	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	20409	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40142	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	15952	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	19316	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	26530	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	2829	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	2545	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14379	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	75144	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8956	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	80645	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22692	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28084	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54512	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2420	5.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.6%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2884	5.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3016	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	22091	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	12327	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.2%		
13C3-PFBS	5.398	302.1 -> 79.9	22659	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	13349	2.80 µg/L	0.000

7.2.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C4-PFBA	2.910	216.8 -> 171.9	188202	10.84 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C4-PFHpA	6.419	367.1 -> 322.0	60240	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C5-PFHxA	5.468	318.0 -> 273.0	71870	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C5-PFPeA	4.270	268.3 -> 223.0	66905	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C6-PFDA	8.076	519.1 -> 474.1	19469	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24995	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-FOSA	9.623	506.1 -> 77.8	9826	1.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.3%	
13C8-PFOA	7.062	421.1 -> 376.0	87248	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-PFOS	8.226	507.1 -> 79.9	11157	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C9-PFNA	7.594	472.1 -> 427.0	27099	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	20409	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40142	10.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d3-MeFOSA	10.728	515.0 -> 219.0	2545	0.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 28.3%	
d5-EtFOSAA	8.330	589.2 -> 419.0	15952	4.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
d7-MeFOSE	10.647	623.2 -> 58.9	19316	5.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 20.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	26530	5.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.0%	
d5-EtFOSA	10.973	531.1 -> 219.0	2829	0.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 25.7%	

7.2.1
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Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.695	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.152	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.1
7

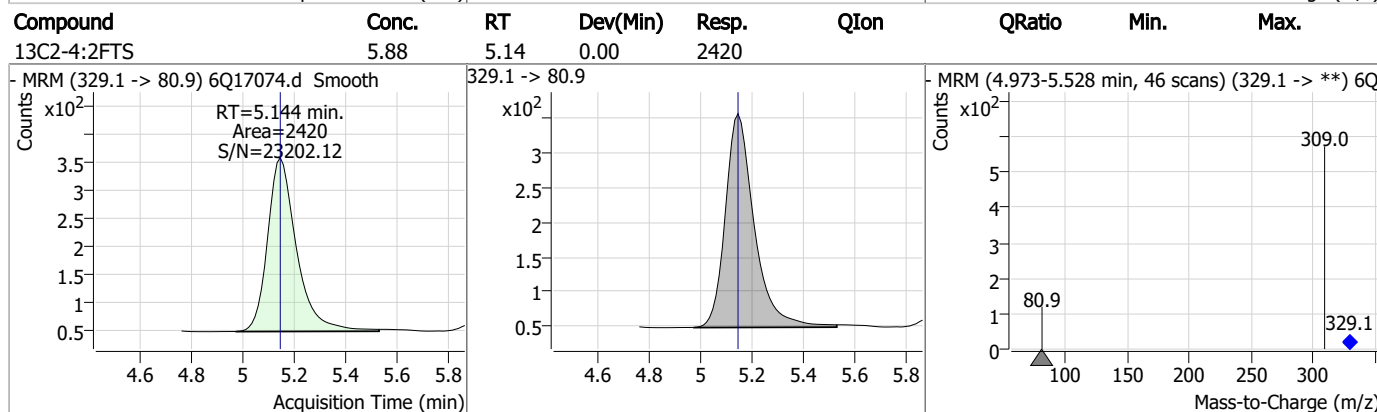
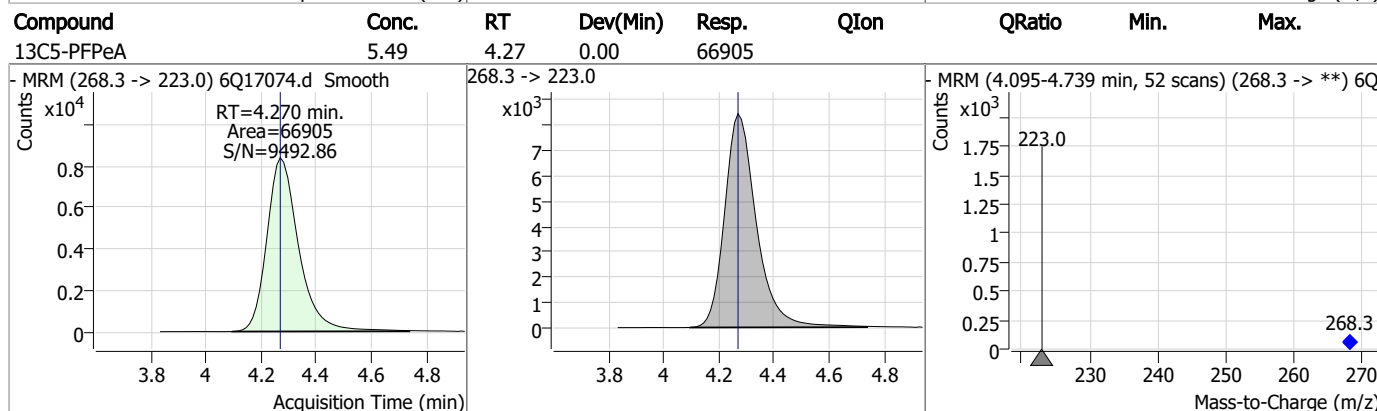
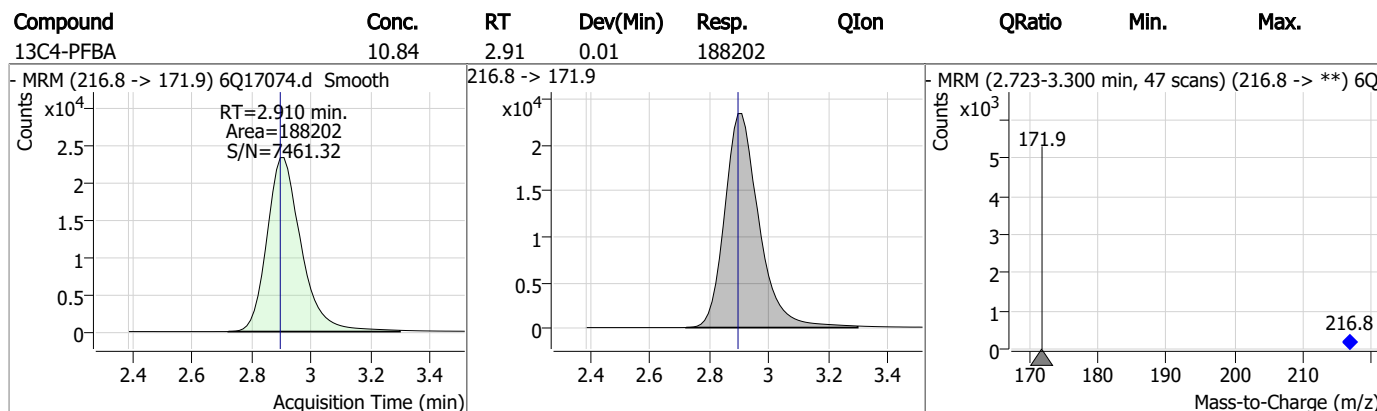
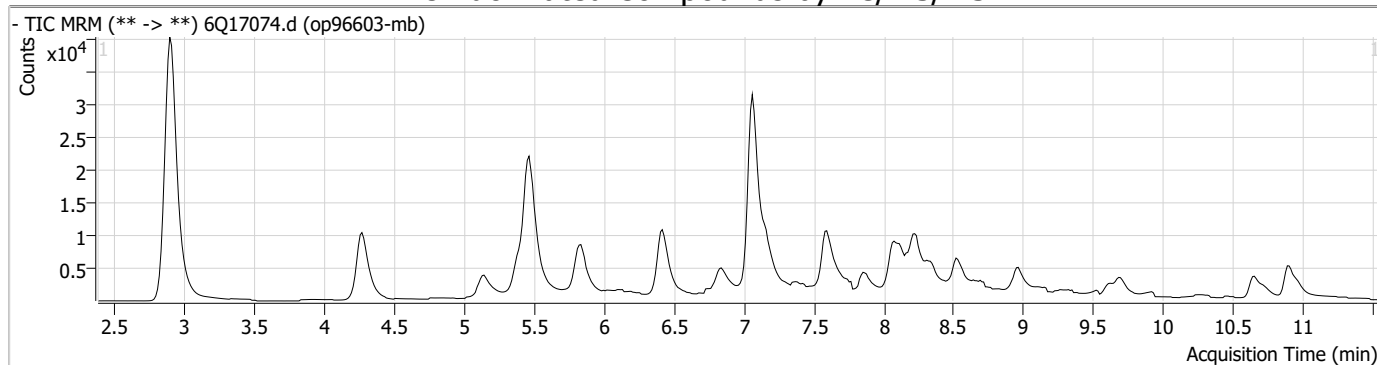
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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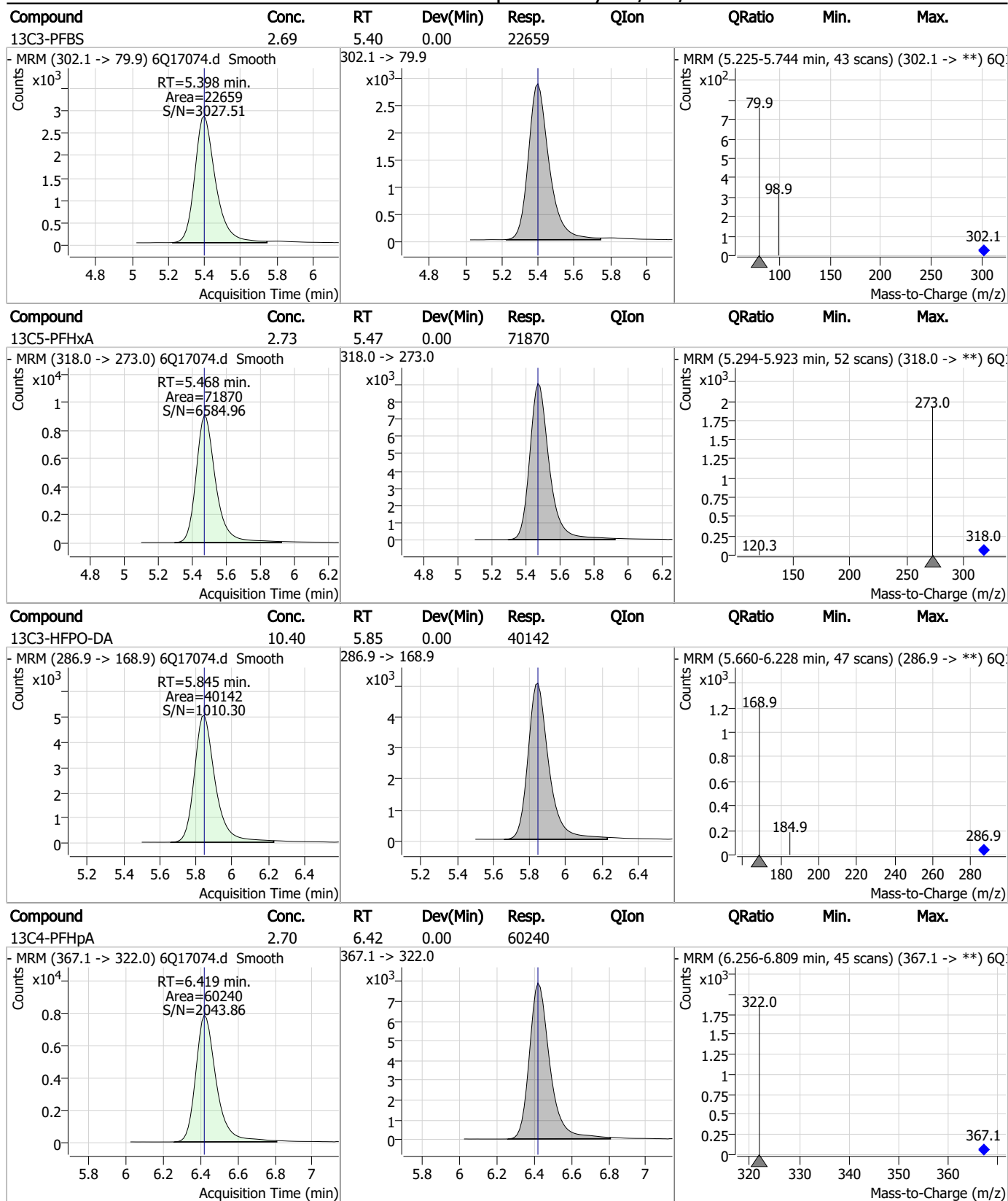
7.2.1

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Perfluorinated Compounds by LC/MS/MS

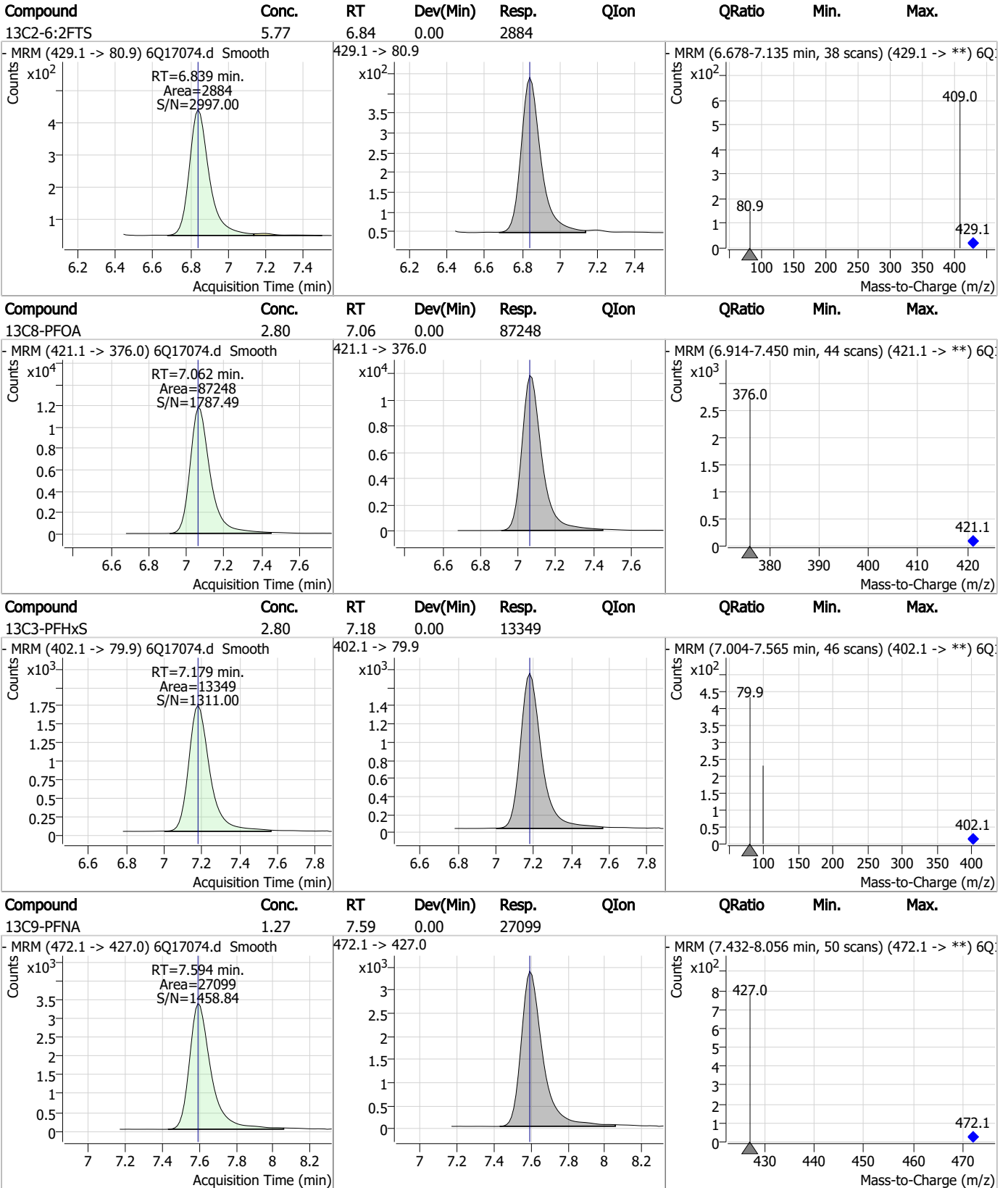


Perfluorinated Compounds by LC/MS/MS



7.2.1
7

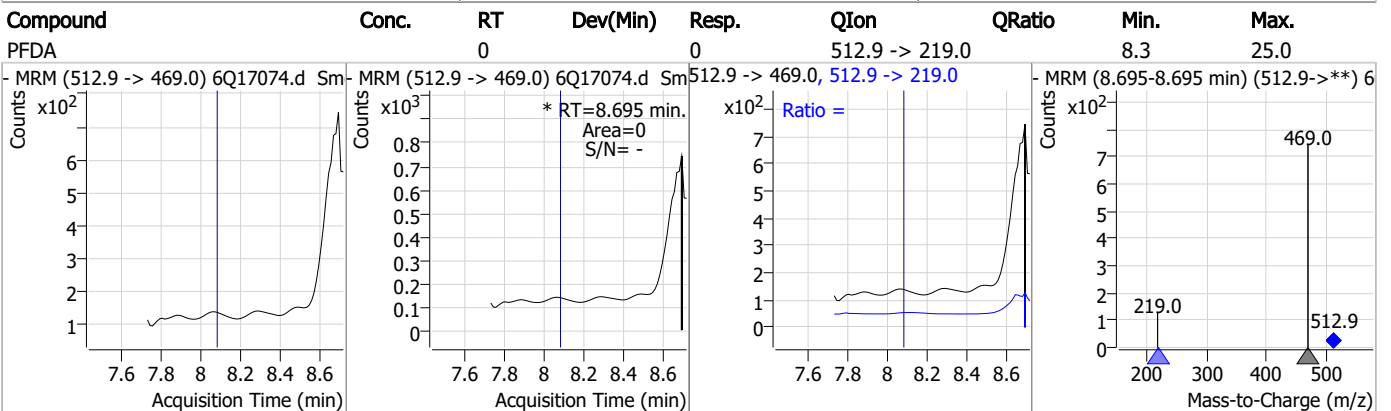
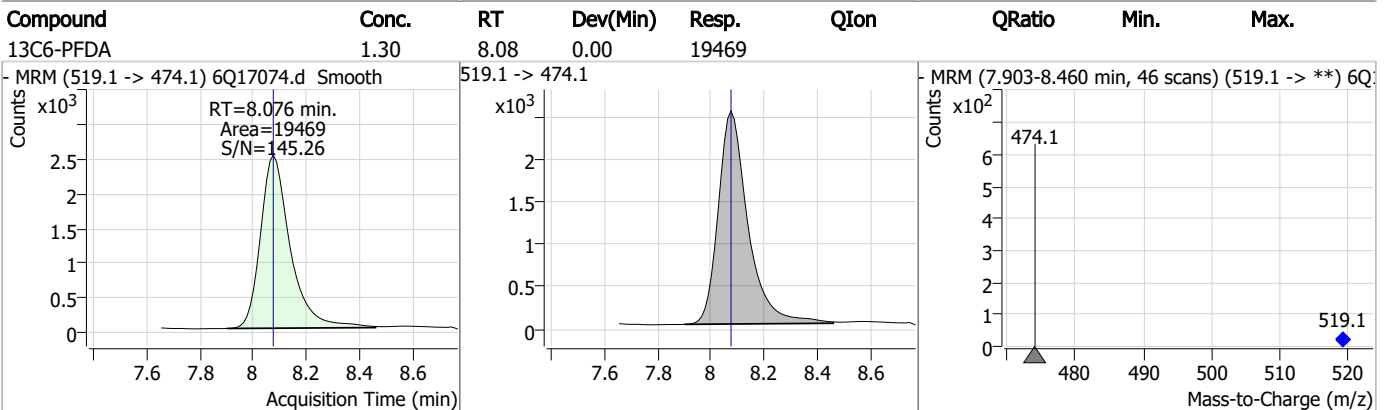
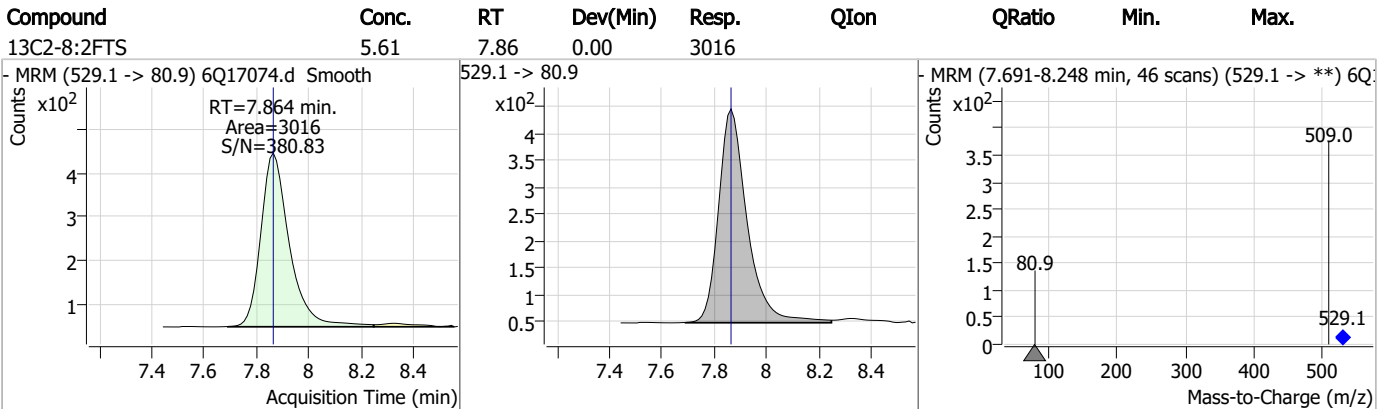
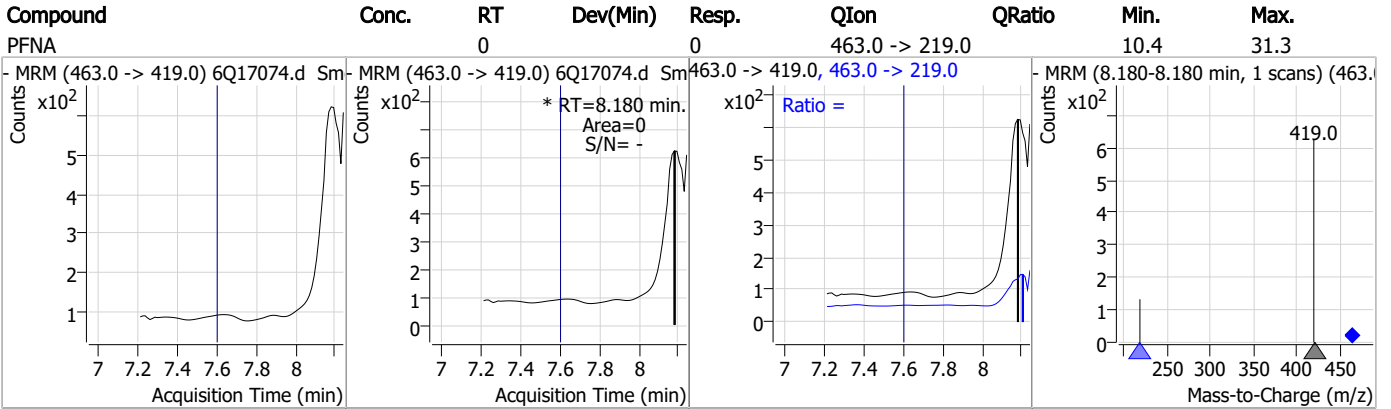
Perfluorinated Compounds by LC/MS/MS



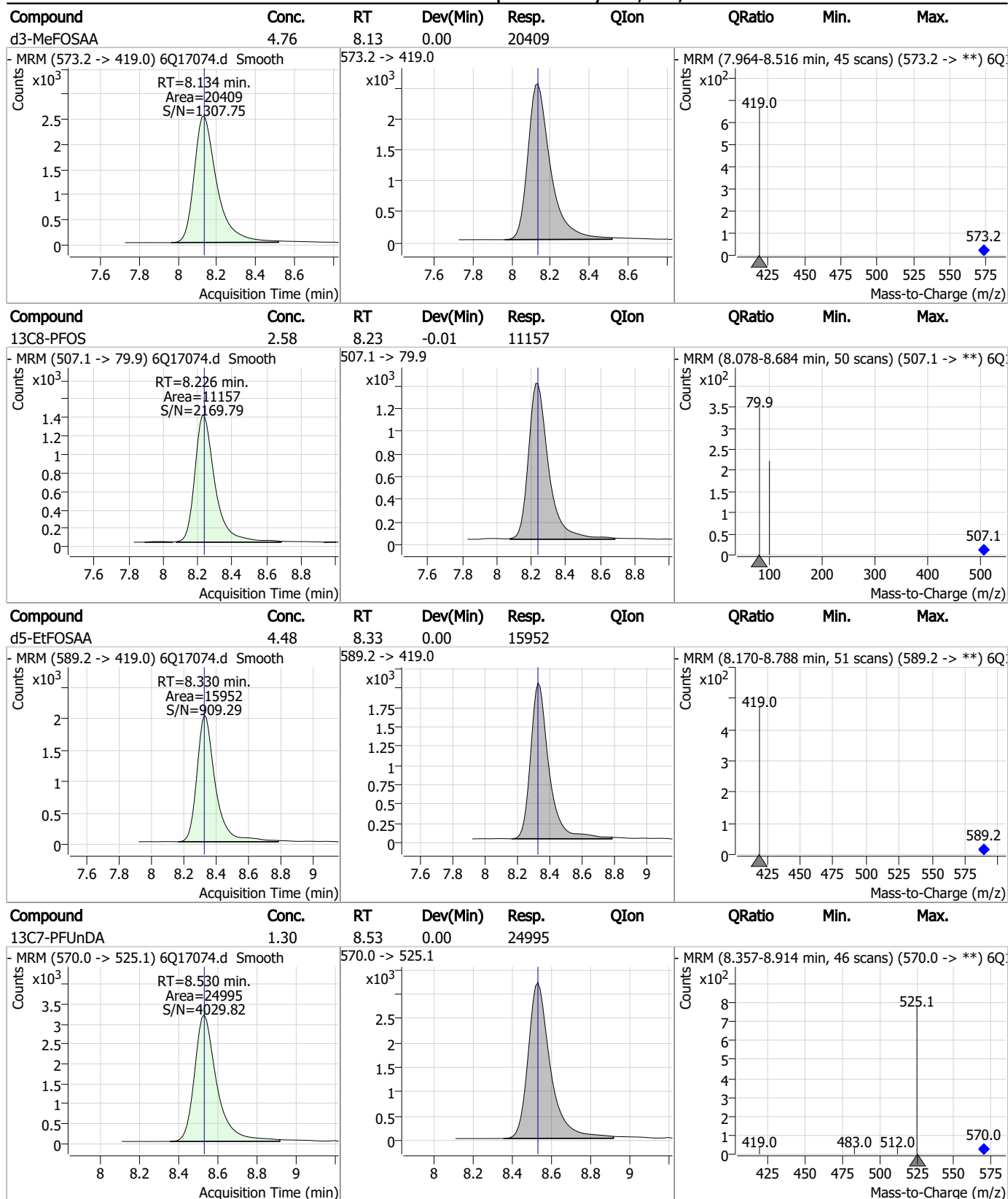
7.2.1

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Perfluorinated Compounds by LC/MS/MS

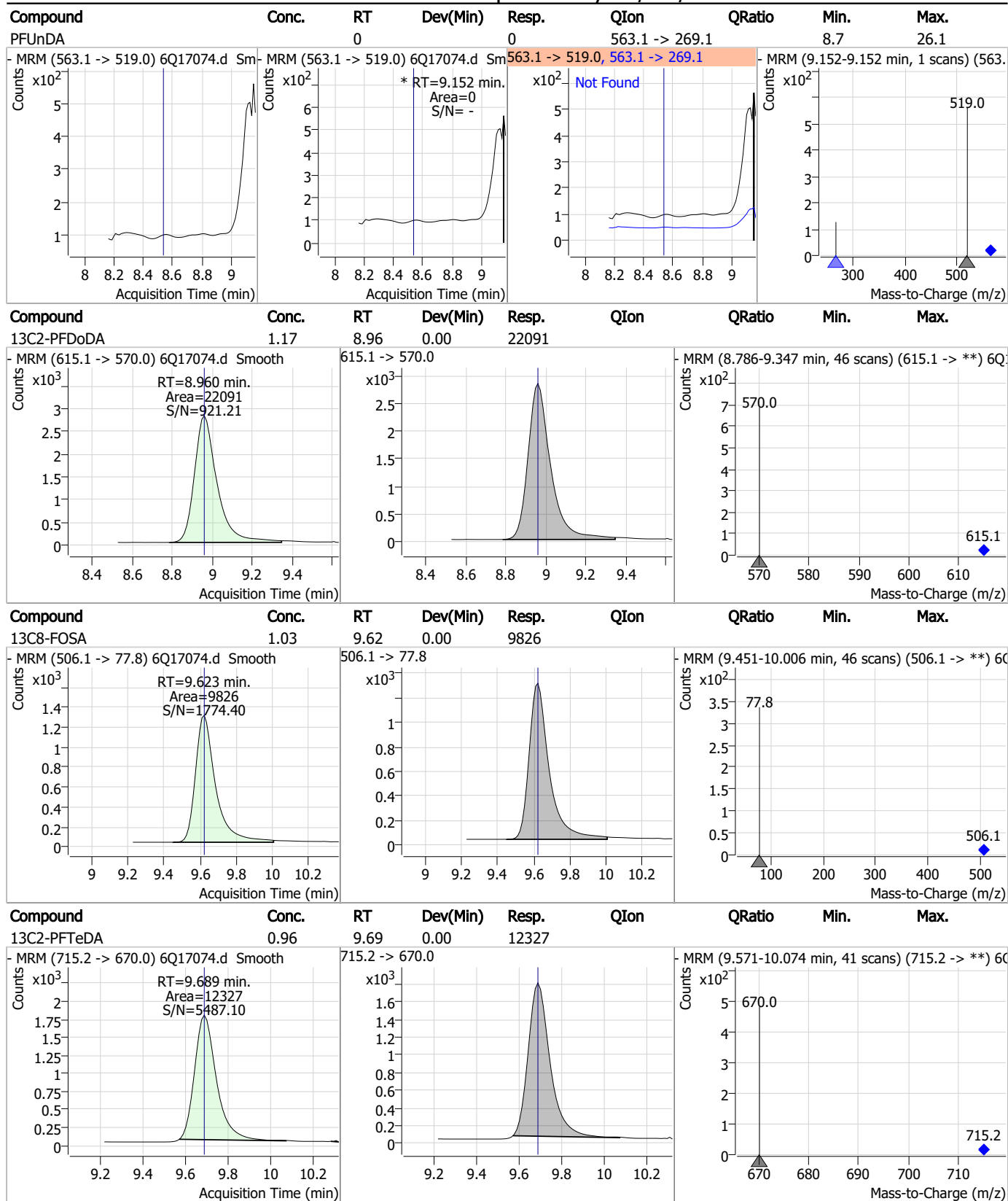


Perfluorinated Compounds by LC/MS/MS



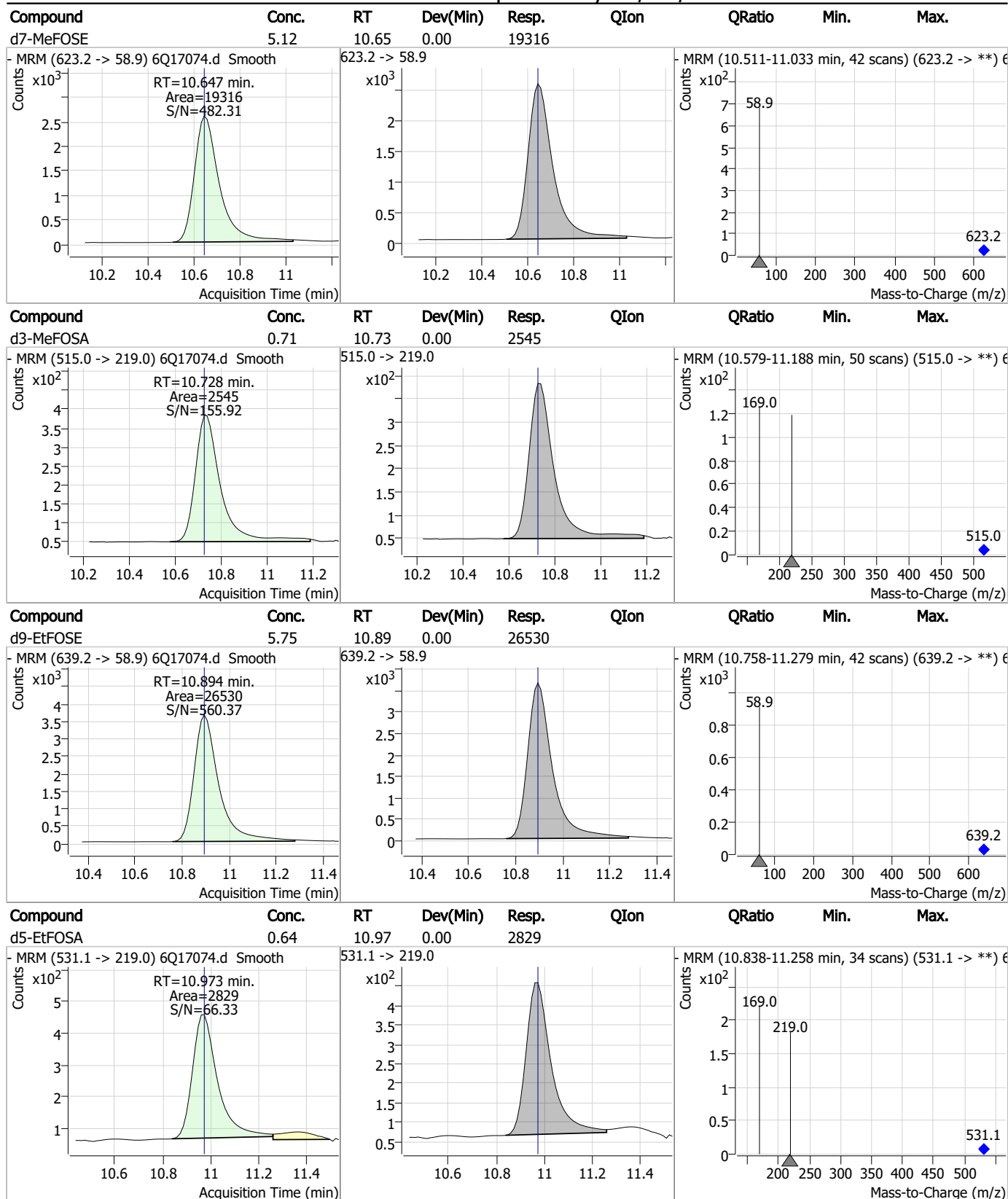
7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17059.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:46:13 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	184264	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	65966	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	68453	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	61577	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84416	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	26676	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21481	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26217	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25328	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16333	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	25721	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23760	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12982	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11985	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2268	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2945	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3142	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23059	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	43471	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18997	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	93375	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	120838	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11258	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9180	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13878	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	80797	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9664	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	90270	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	23942	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29317	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	60055	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2268	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2945	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3142	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25328	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16333	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.398	302.1 -> 79.9	23760	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12982	2.52 µg/L	0.000

7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFBA	2.910	216.8 -> 171.9	184264	9.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	61577	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.480	318.0 -> 273.0	68453	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C5-PFPeA	4.283	268.3 -> 223.0	65966	4.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.076	519.1 -> 474.1	21481	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26217	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-FOSA	9.611	506.1 -> 77.8	25721	2.80 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-PFOA	7.062	421.1 -> 376.0	84416	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOS	8.239	507.1 -> 79.9	11985	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C9-PFNA	7.594	472.1 -> 427.0	26676	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23059	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	43471	10.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	10.728	515.0 -> 219.0	9180	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18997	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	93375	25.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	120838	27.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	11258	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	

7.22
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Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.658	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.115	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	10.907	630.0 -> 58.9	1282	0.25 µg/L	m	100
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.2
7

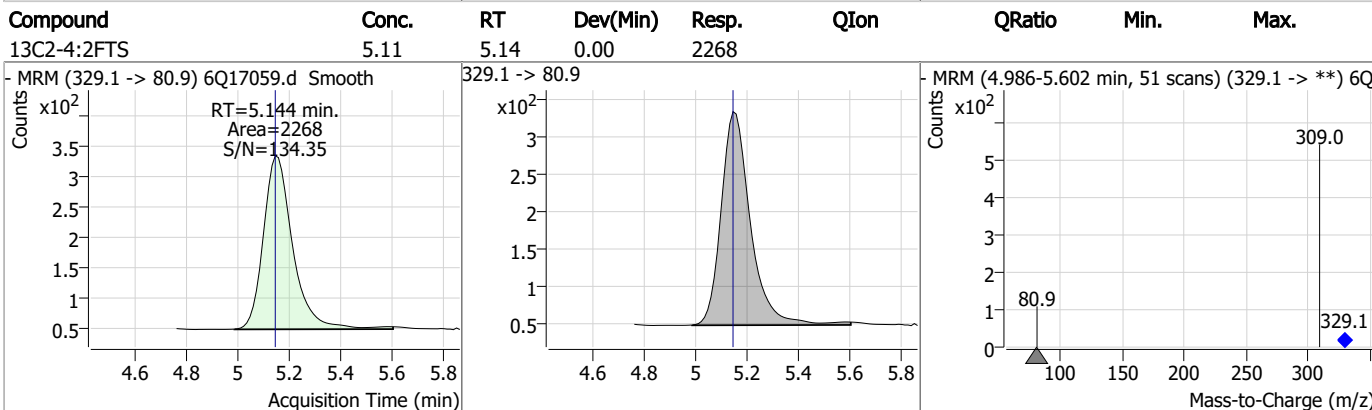
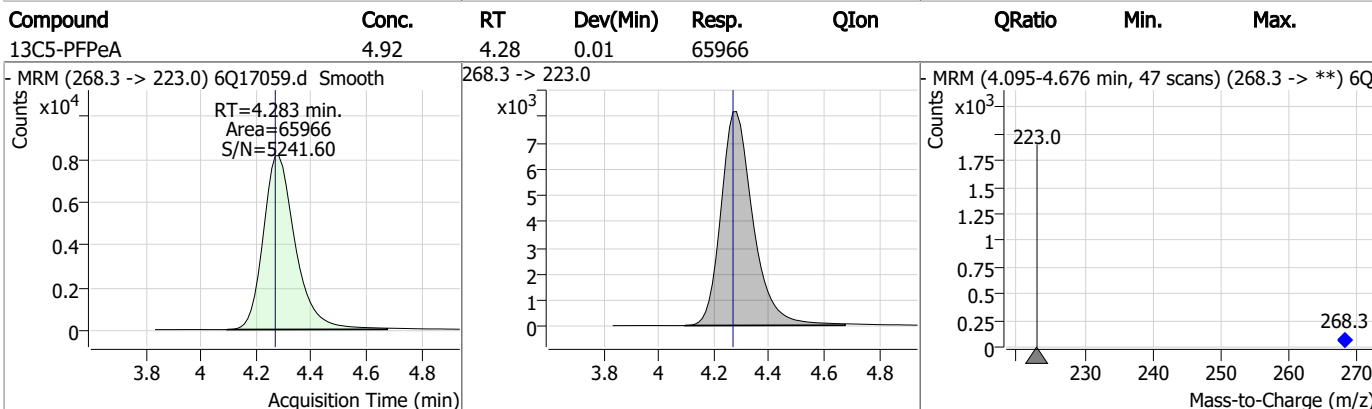
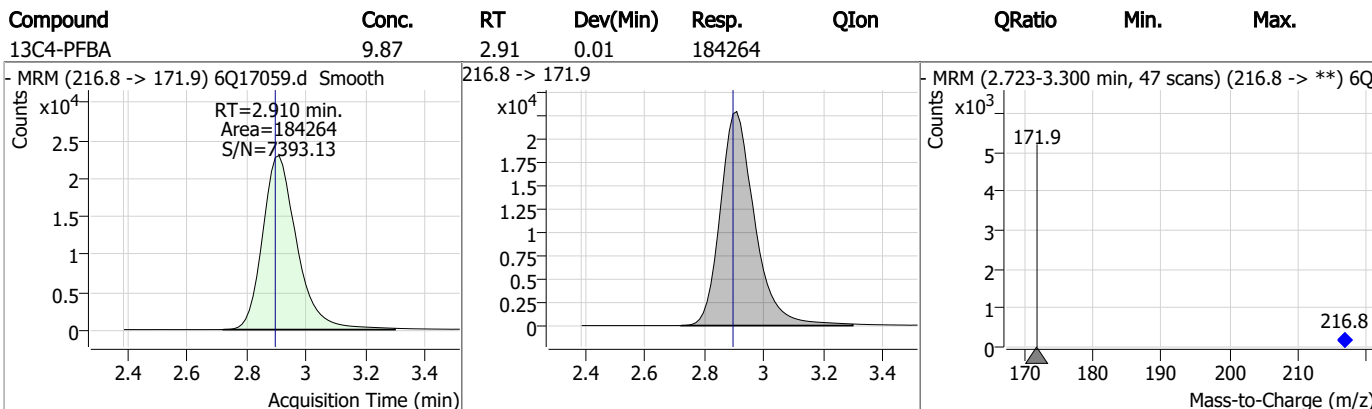
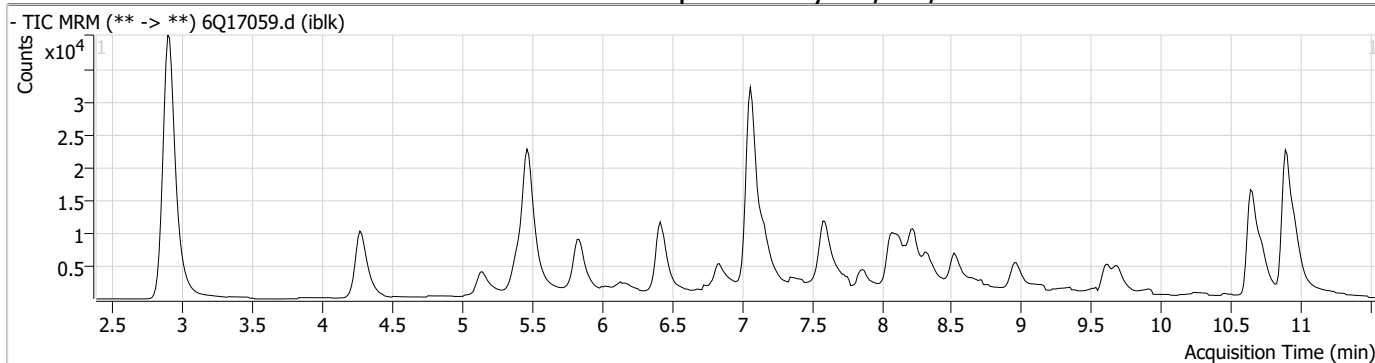
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.2

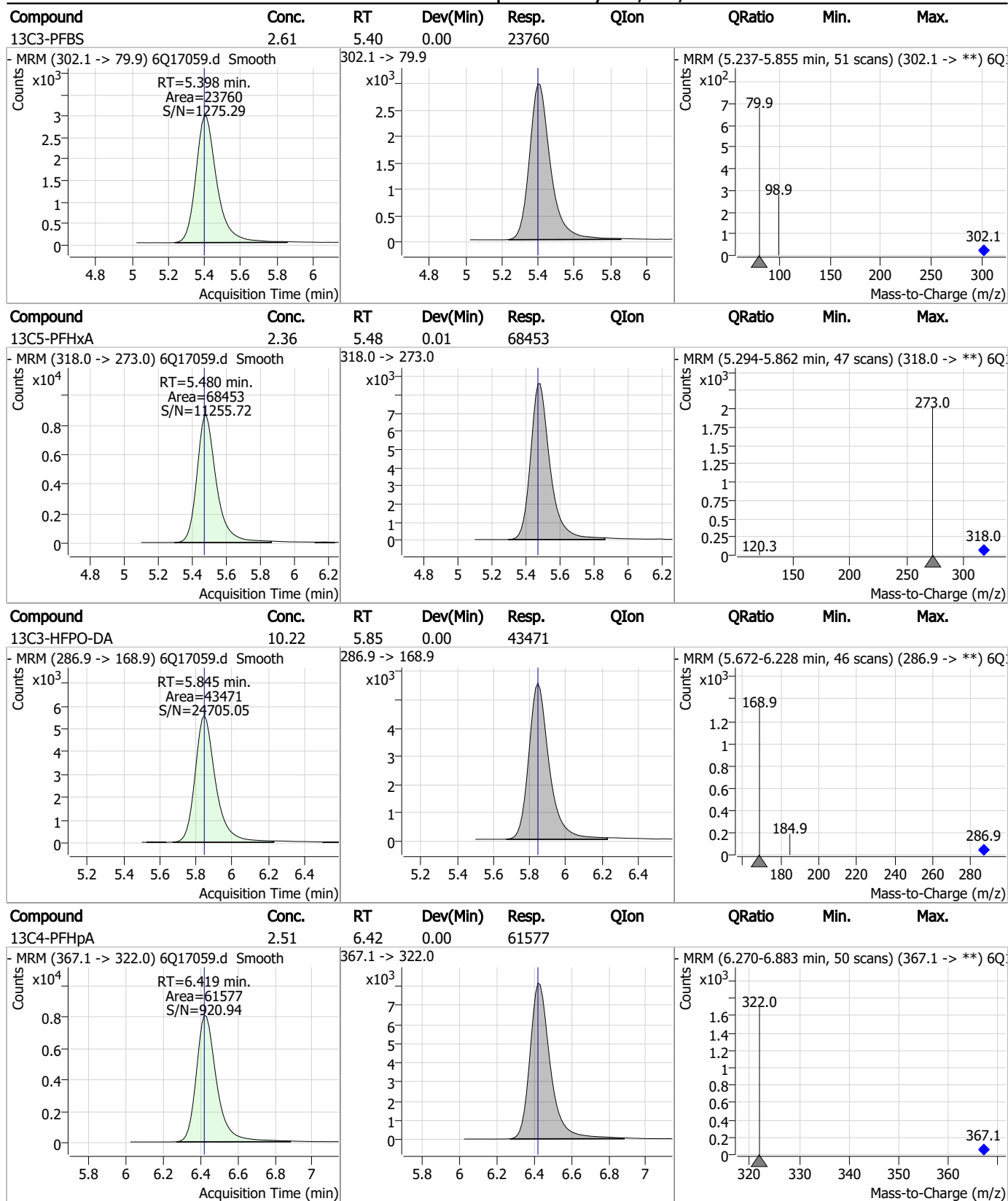
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

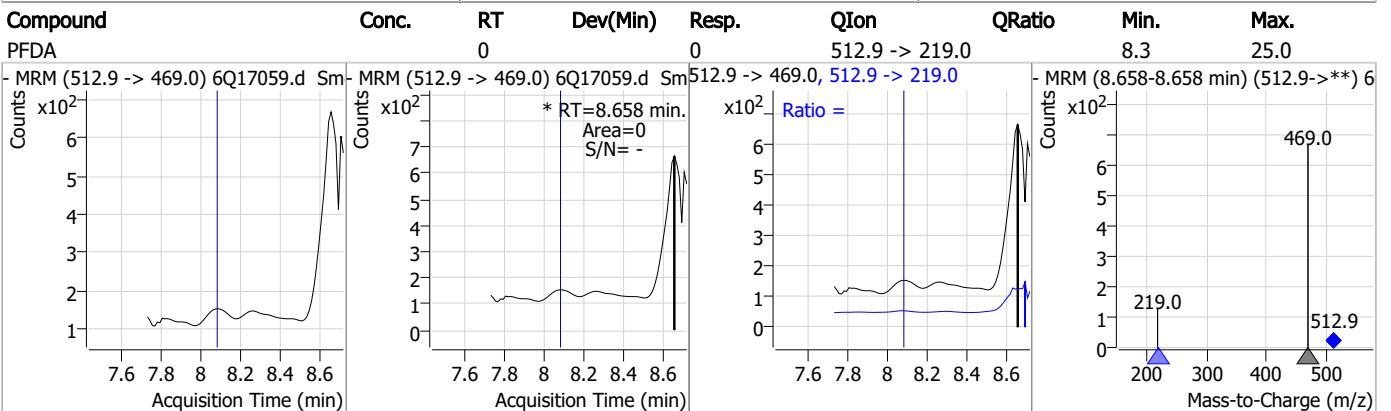
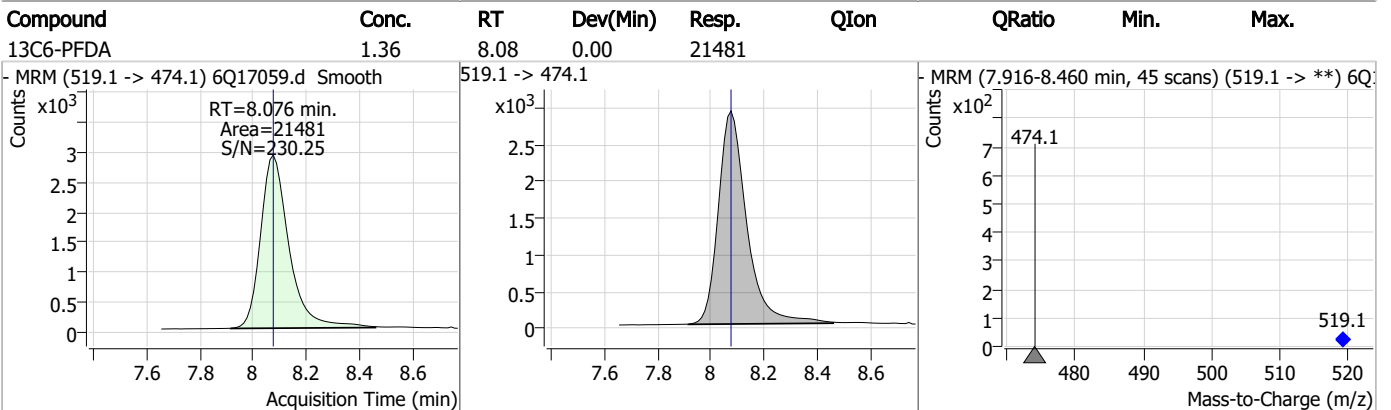
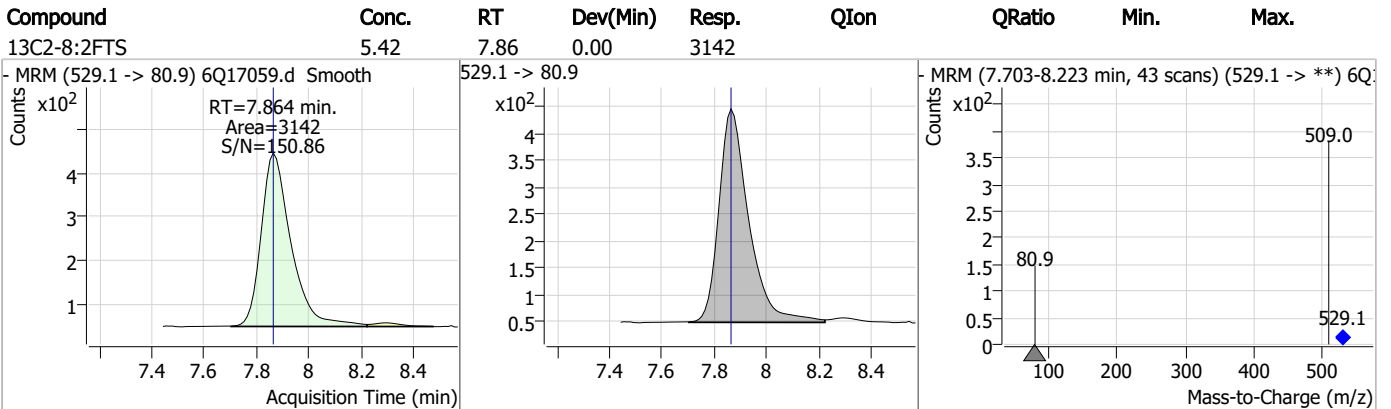
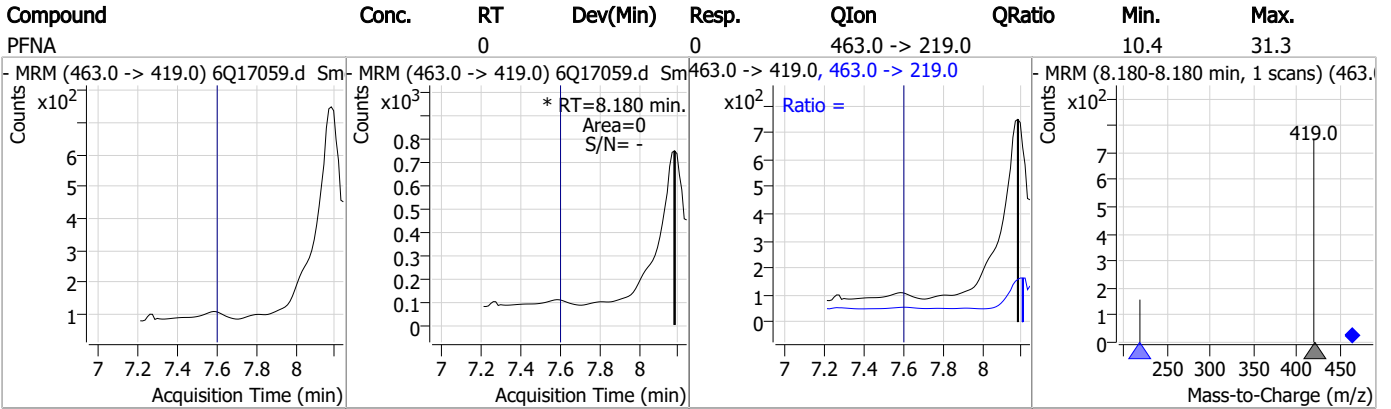
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.46	6.84	0.00	2945				
13C8-PFOA	2.42	7.06	0.00	84416				
13C3-PFHxS	2.52	7.18	0.00	12982				
13C9-PFNA	1.19	7.59	0.00	26676				

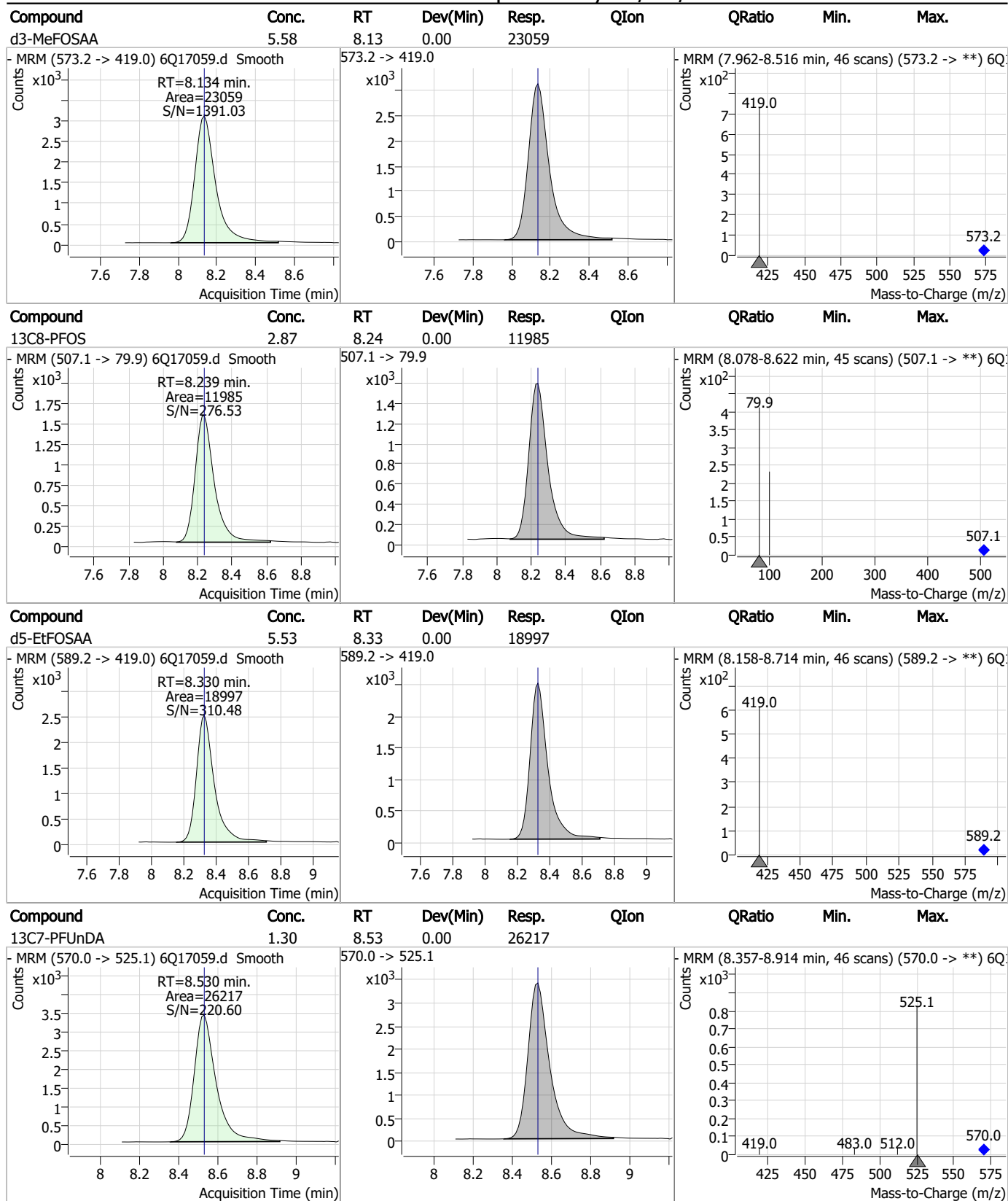
7.2.2
7



Perfluorinated Compounds by LC/MS/MS



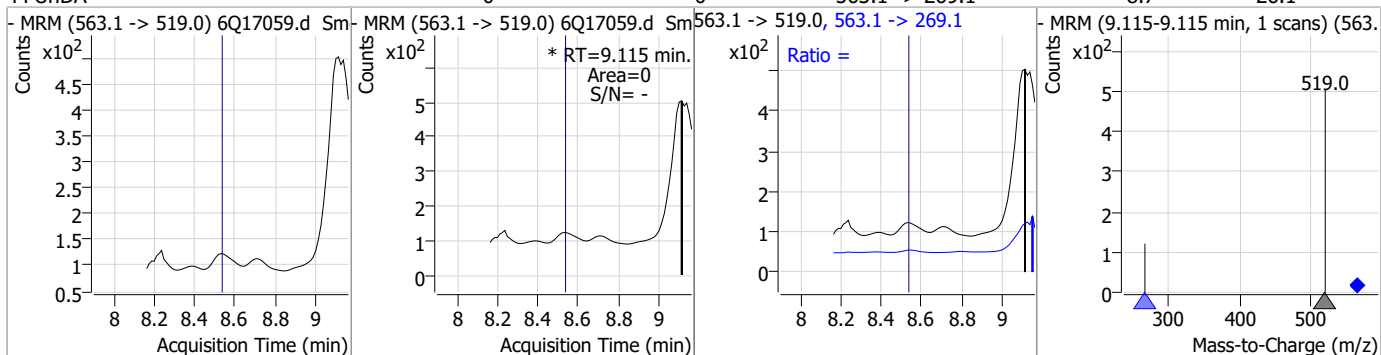
Perfluorinated Compounds by LC/MS/MS



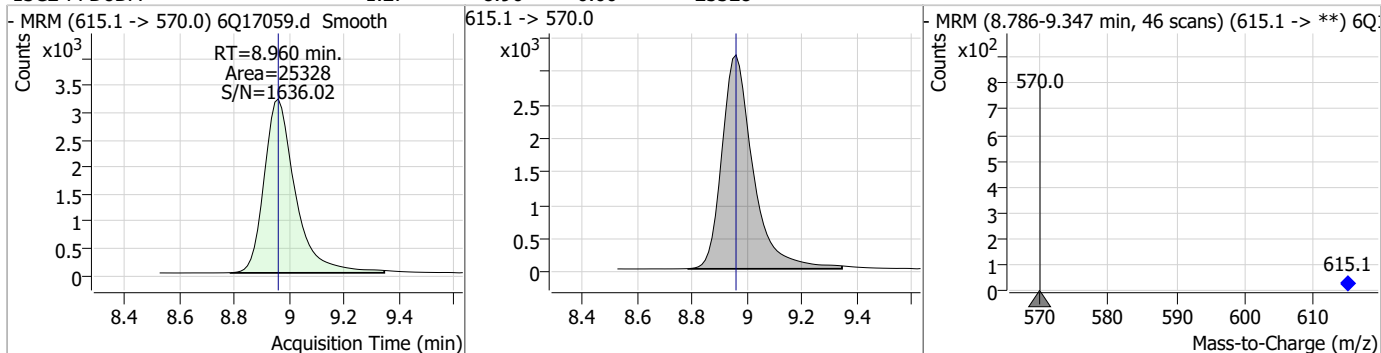
7.2.2
7

Perfluorinated Compounds by LC/MS/MS

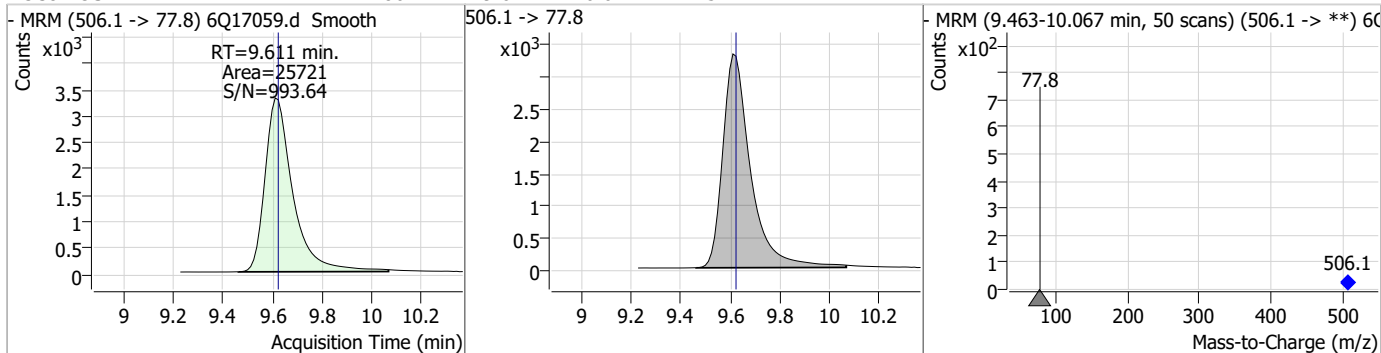
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0	0		0	563.1 -> 269.1		8.7	26.1



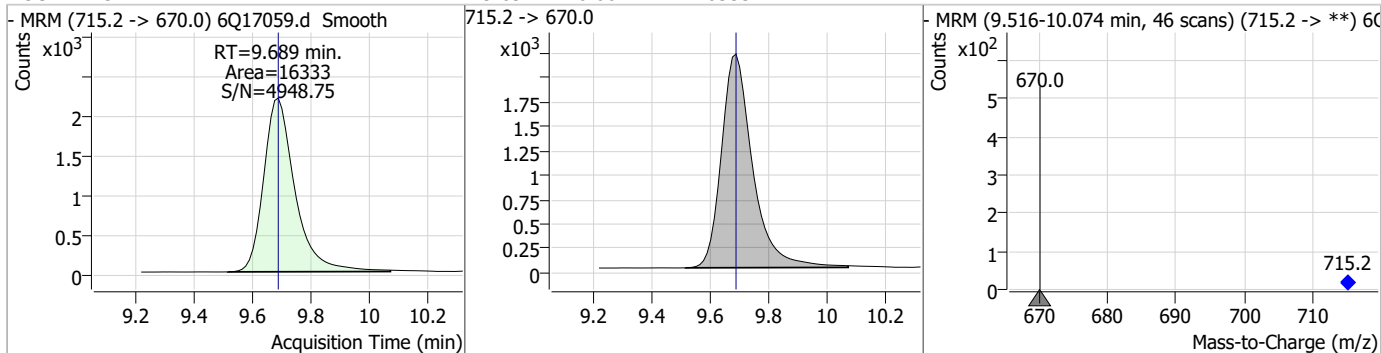
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	8.96	0.00	25328				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.80	9.61	-0.01	25721				

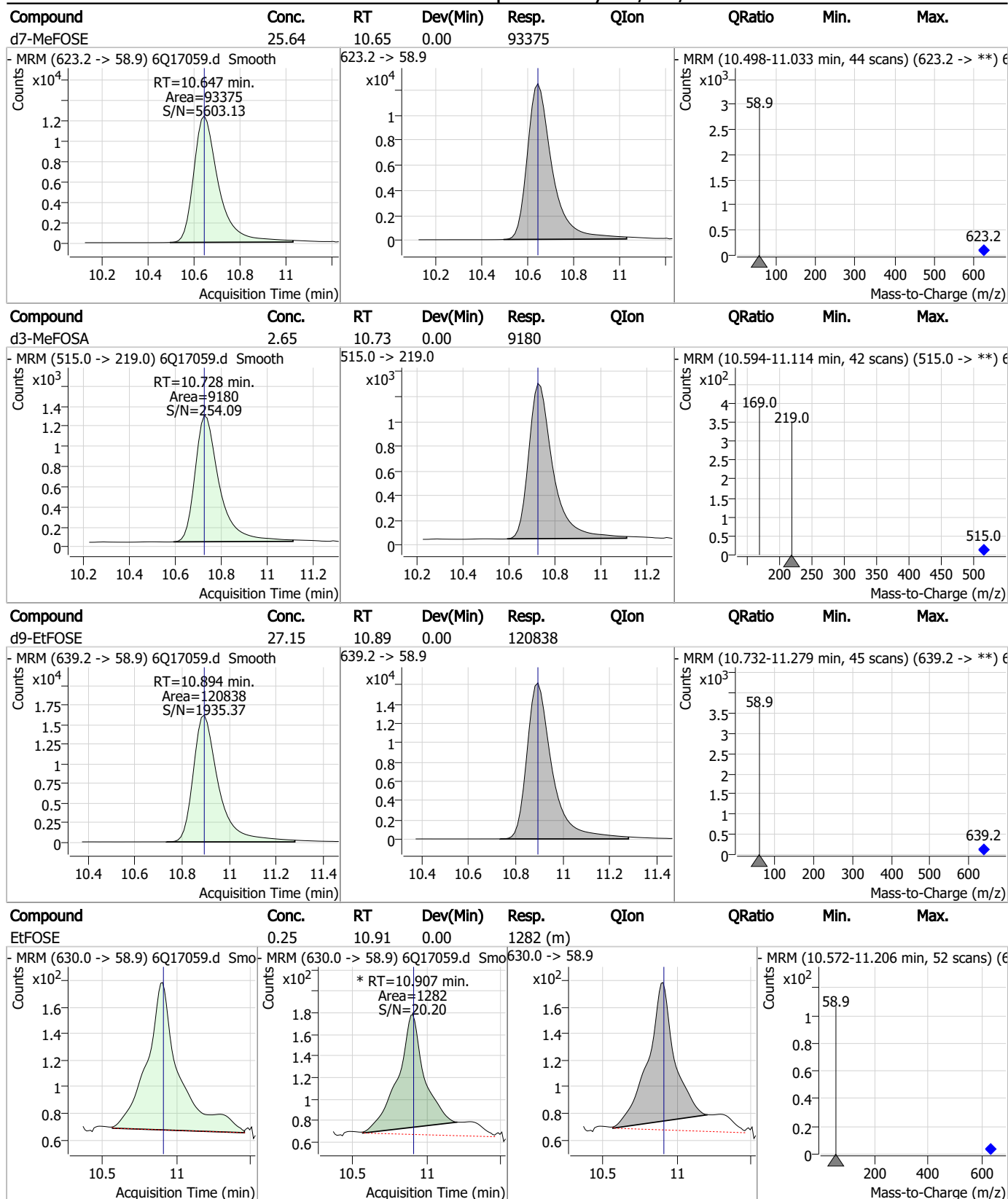


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.69	0.00	16333				



7.2.2
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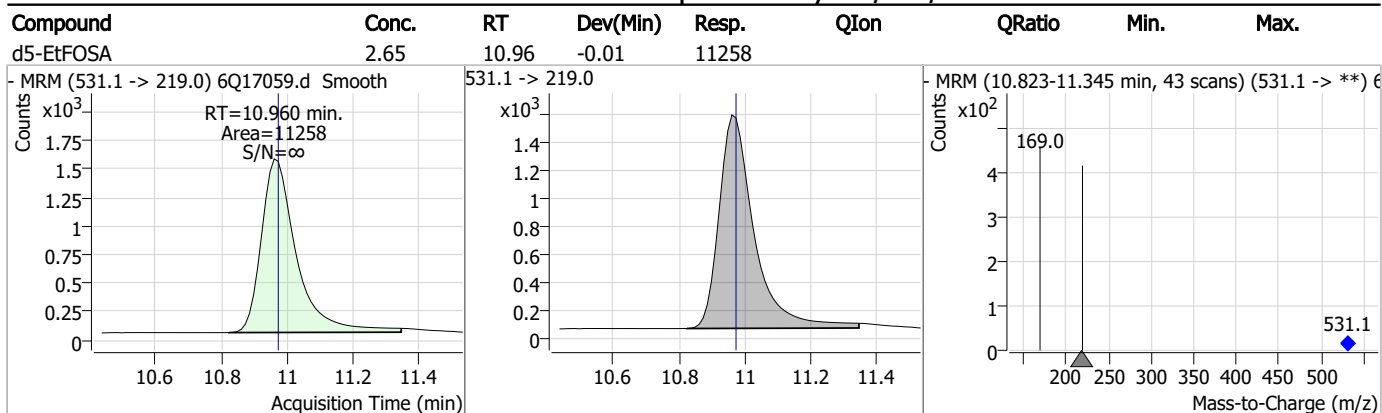
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS



7.22
7

Manual Integration Approval Summary

Sample Number: S6Q258-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q17059.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:46 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSE	1691-99-2		10.91	Split peak

7.2.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17071.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 5:40:02 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	187889	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66414	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	70678	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	59132	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84140	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	28775	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20653	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26760	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25194	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16882	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25200	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22719	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12954	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11745	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2534	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2779	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2924	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23291	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39056	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	20266	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	97100	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122433	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11690	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9209	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	15222	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	81442	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9156	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	95786	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25988	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27938	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59103	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2534	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2779	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2924	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25194	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16882	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C3-PFBS	5.398	302.1 -> 79.9	22719	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12954	2.66 µg/L	0.000

7.2.3
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C4-PFBA	2.910	216.8 -> 171.9	187889	9.98 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.431	367.1 -> 322.0	59132	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C5-PFHxA	5.480	318.0 -> 273.0	70678	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	66414	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C6-PFDA	8.076	519.1 -> 474.1	20653	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26760	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-FOSA	9.623	506.1 -> 77.8	25200	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOA	7.074	421.1 -> 376.0	84140	2.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C8-PFOS	8.226	507.1 -> 79.9	11745	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C9-PFNA	7.594	472.1 -> 427.0	28775	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23291	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39056	9.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	9209	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	20266	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	97100	24.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d9-EtFOSE	10.894	639.2 -> 58.9	122433	25.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d5-EtFOSA	10.960	531.1 -> 219.0	11690	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.683	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.2.3
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.352	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	0	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	9.904	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9				
PFUnDA	9.115	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed



7.2.3
7

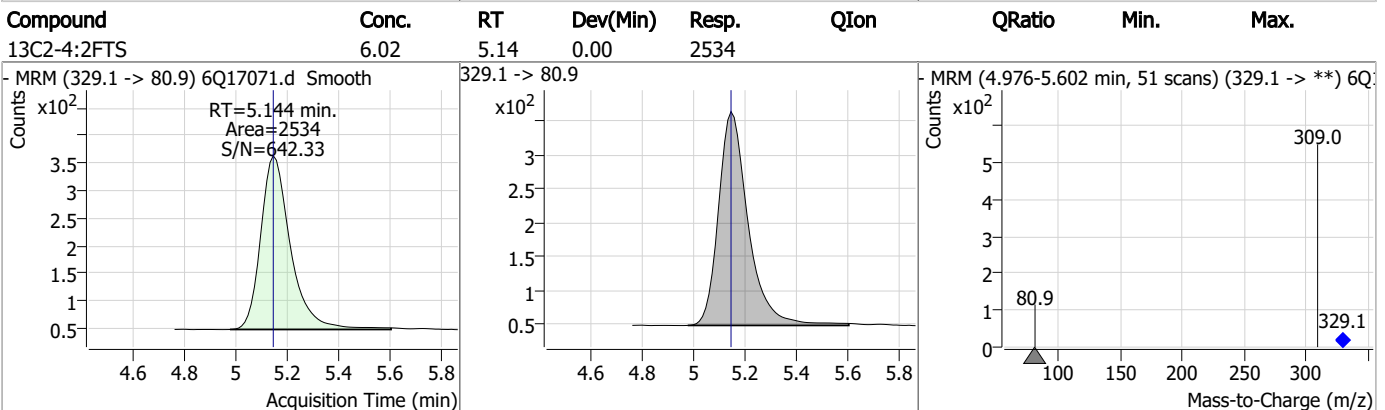
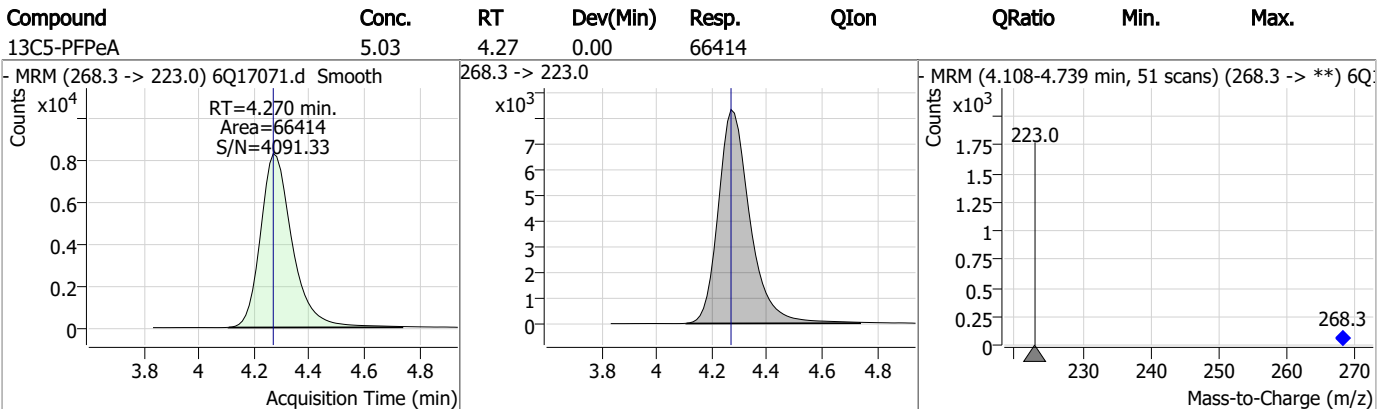
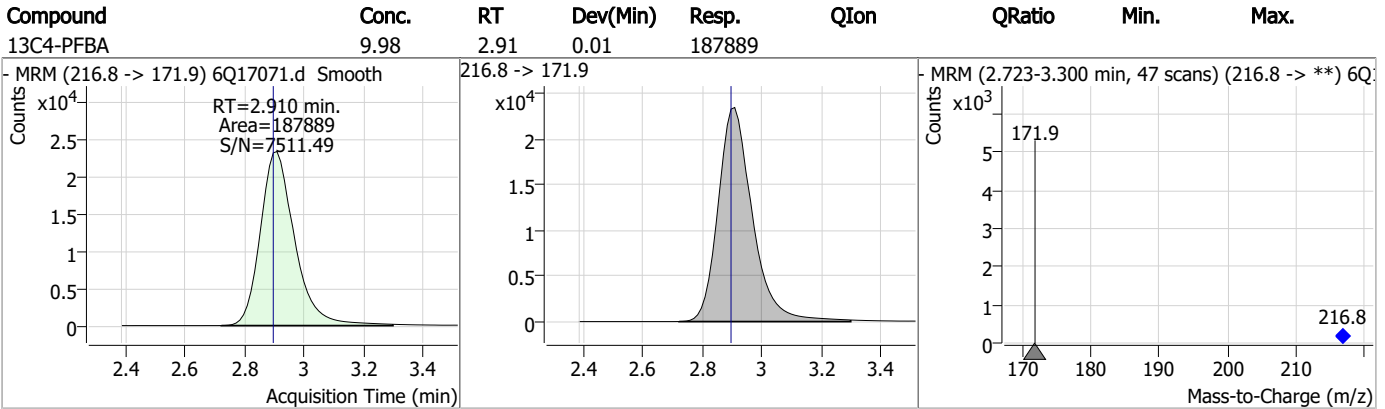
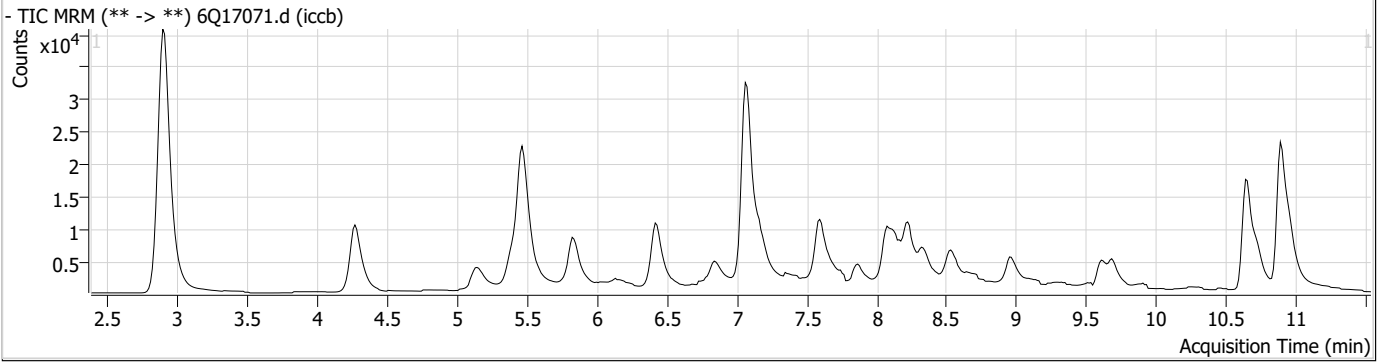
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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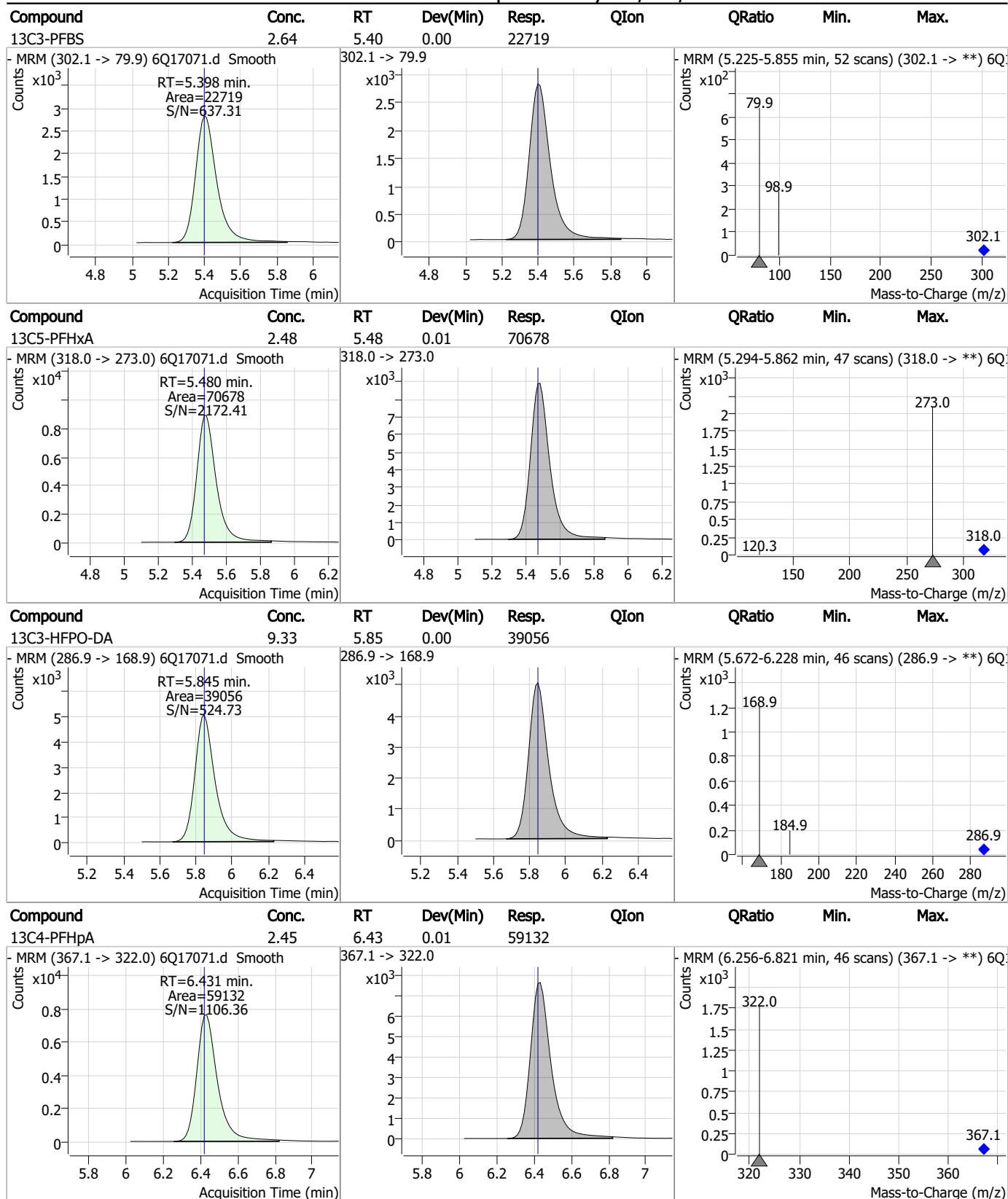
7.2.3

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Perfluorinated Compounds by LC/MS/MS

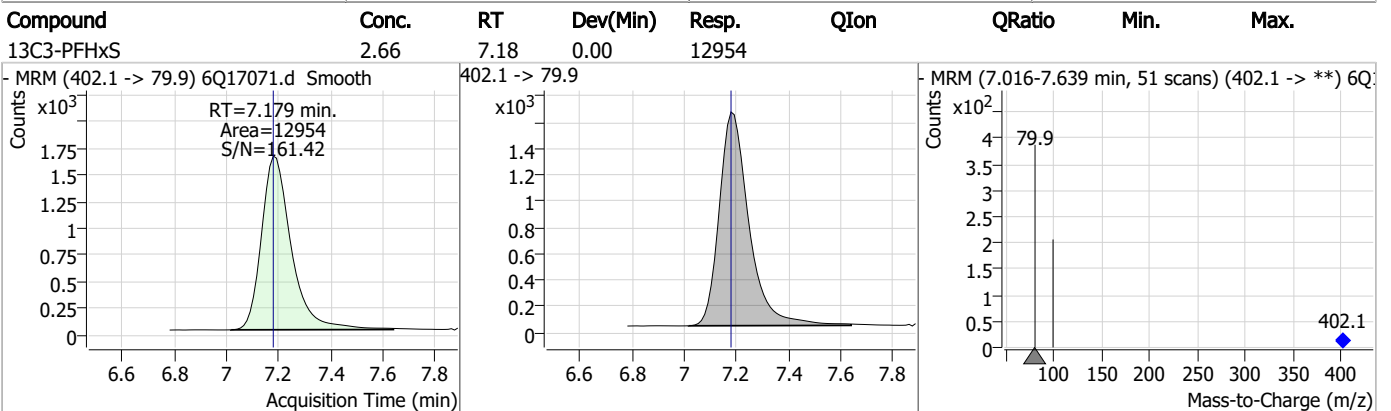
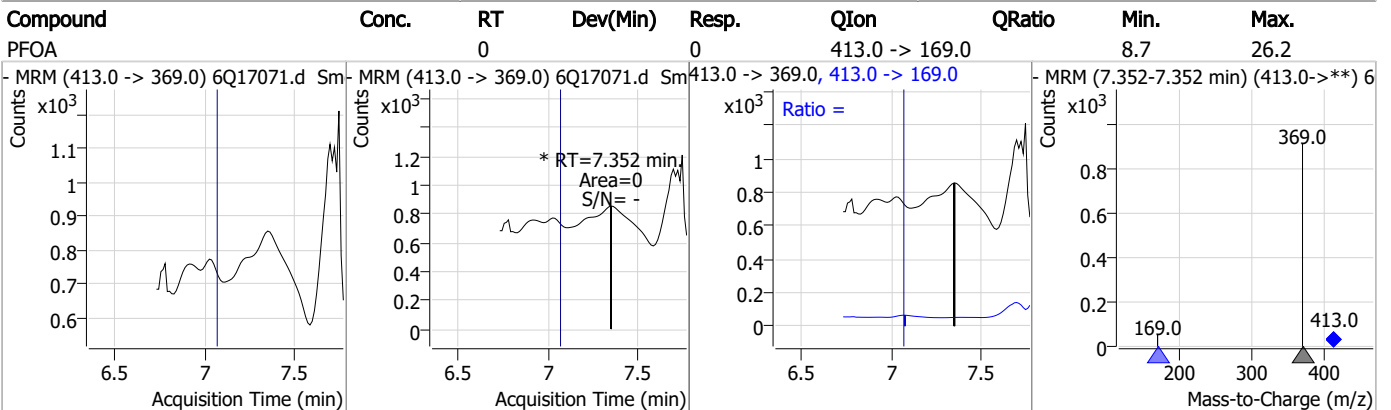
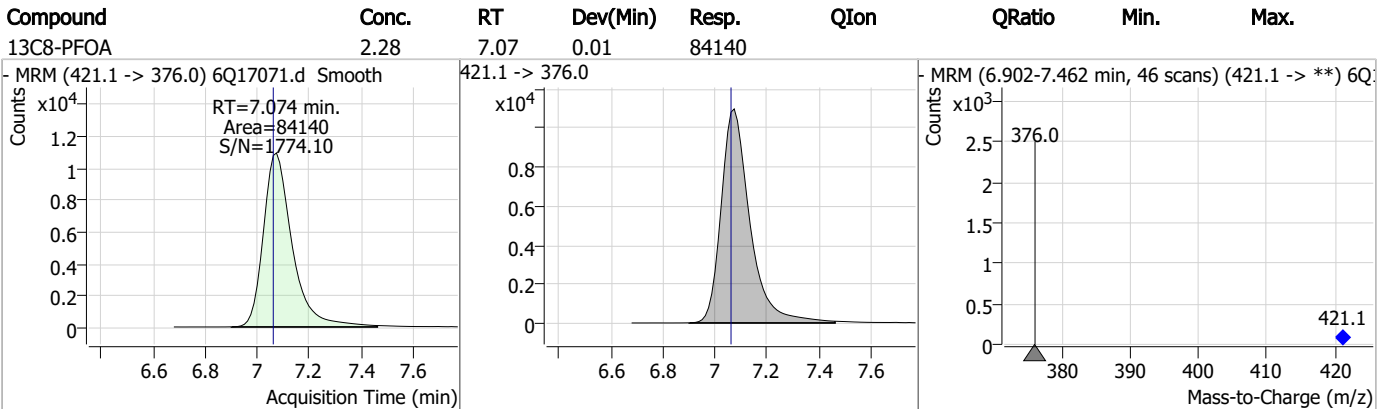
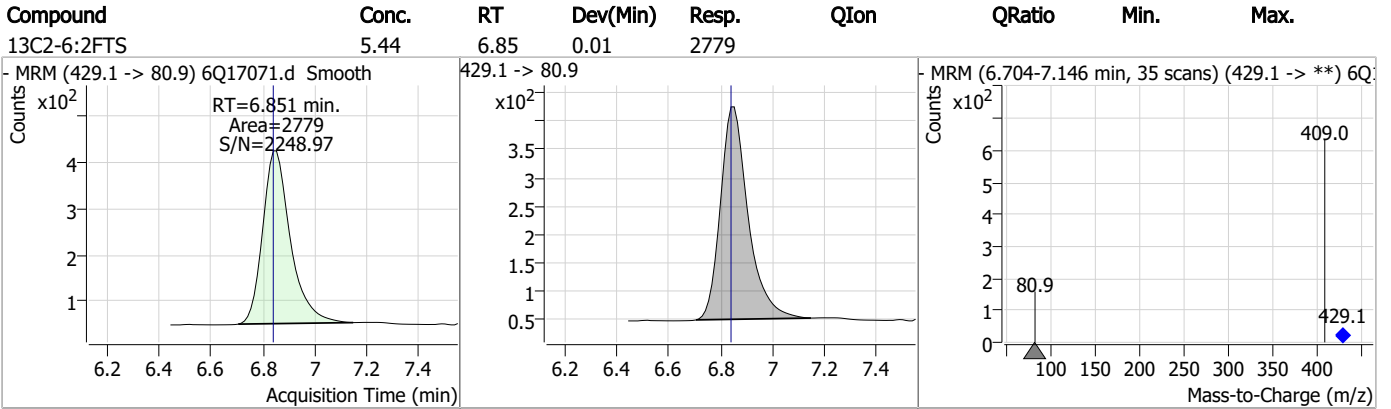


Perfluorinated Compounds by LC/MS/MS



7.2.3
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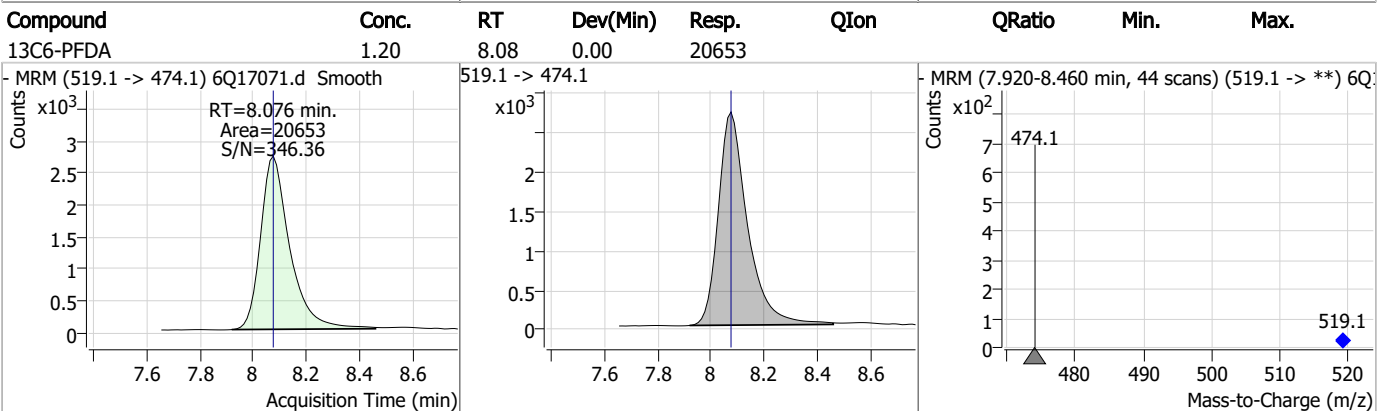
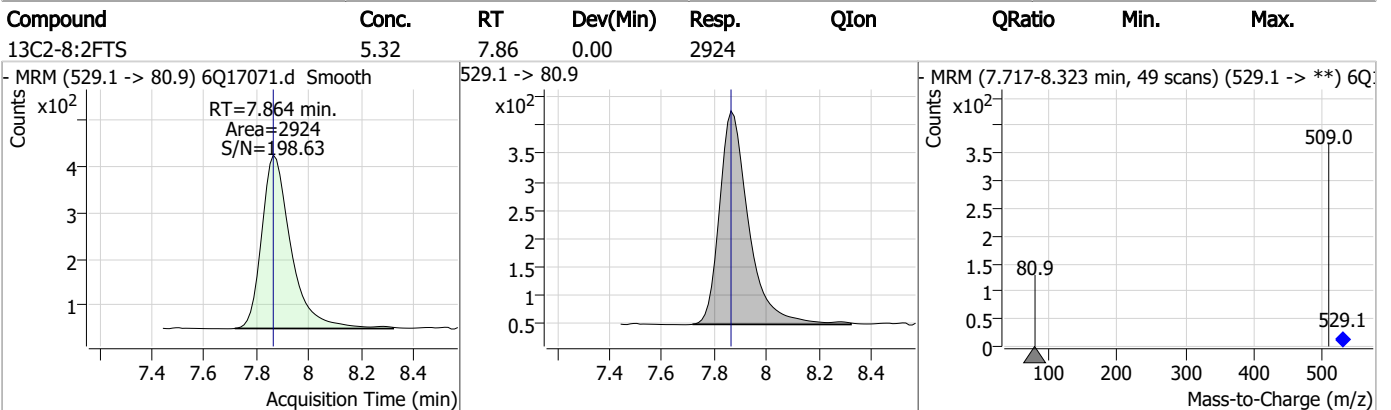
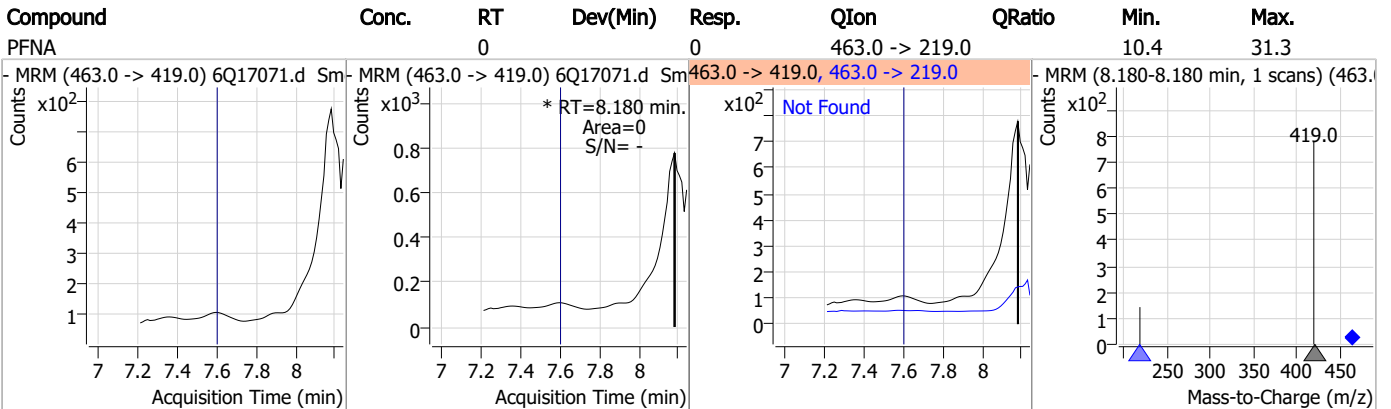
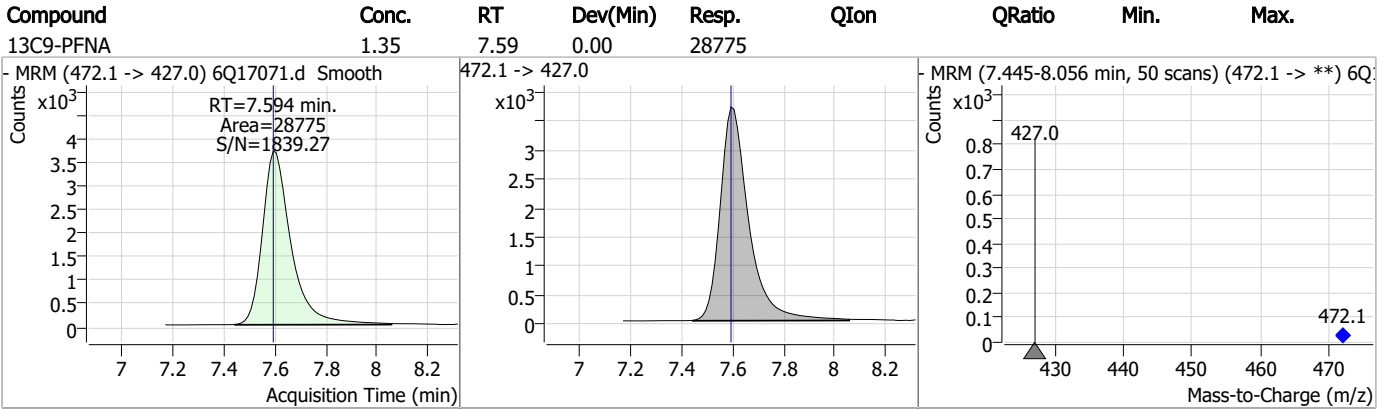
Perfluorinated Compounds by LC/MS/MS



7.2.3

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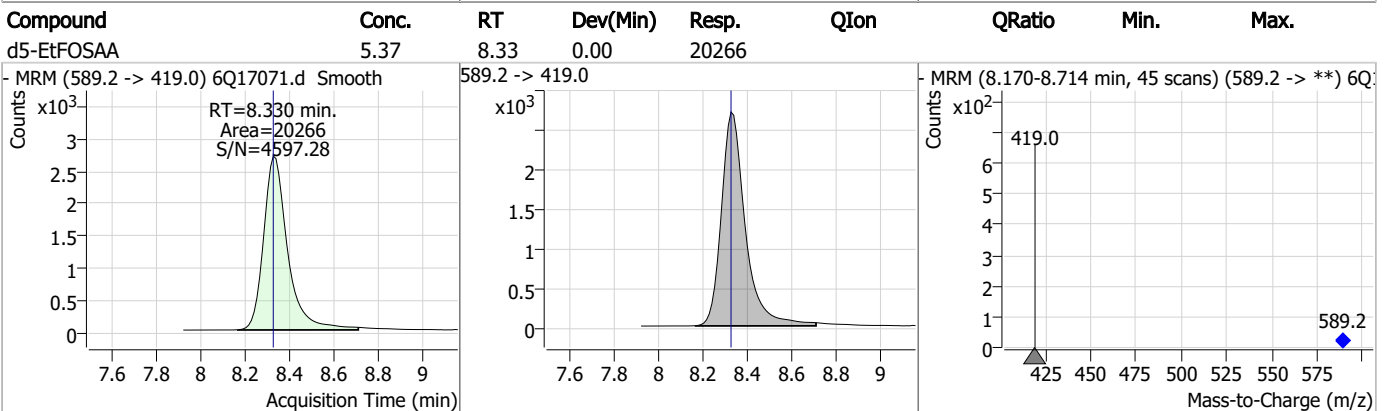
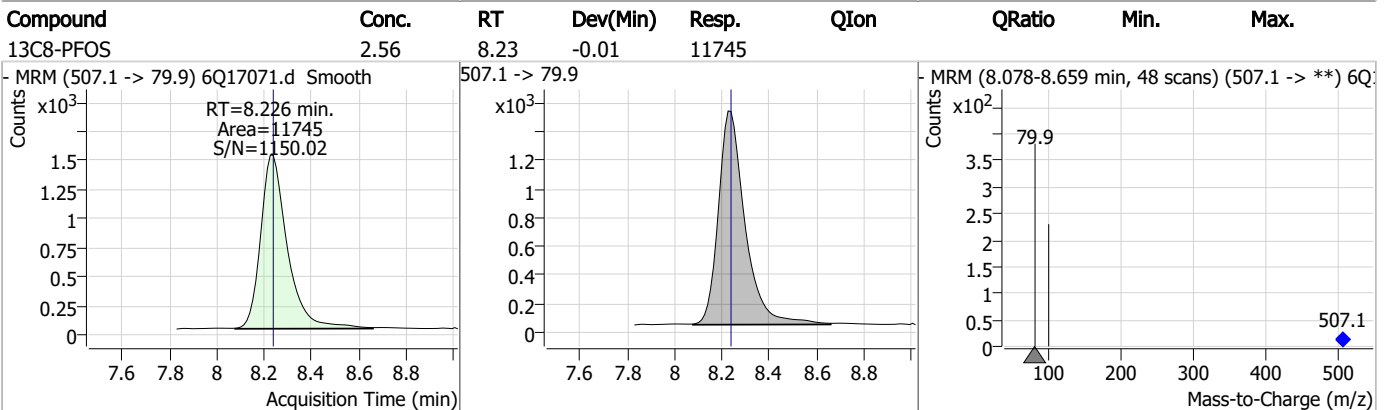
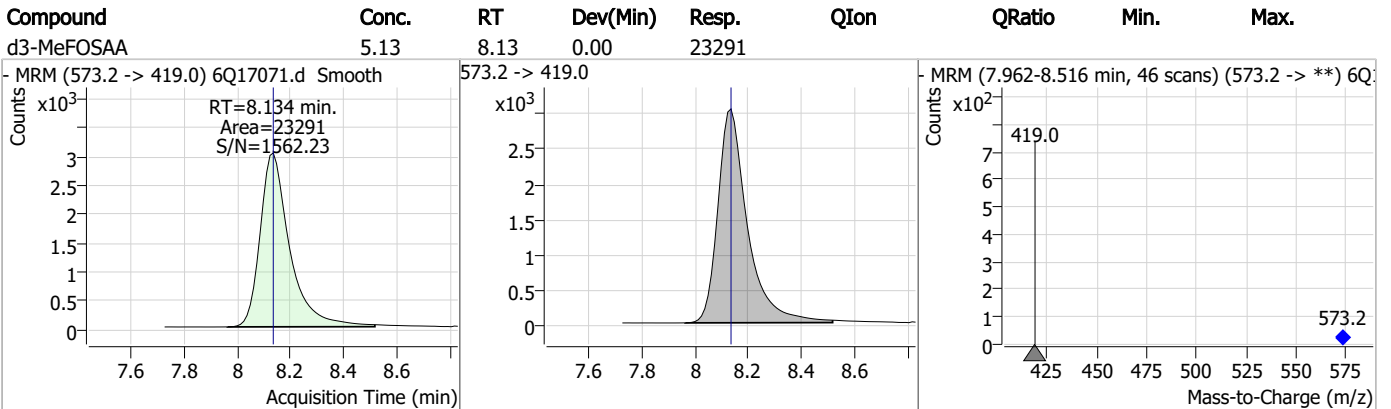
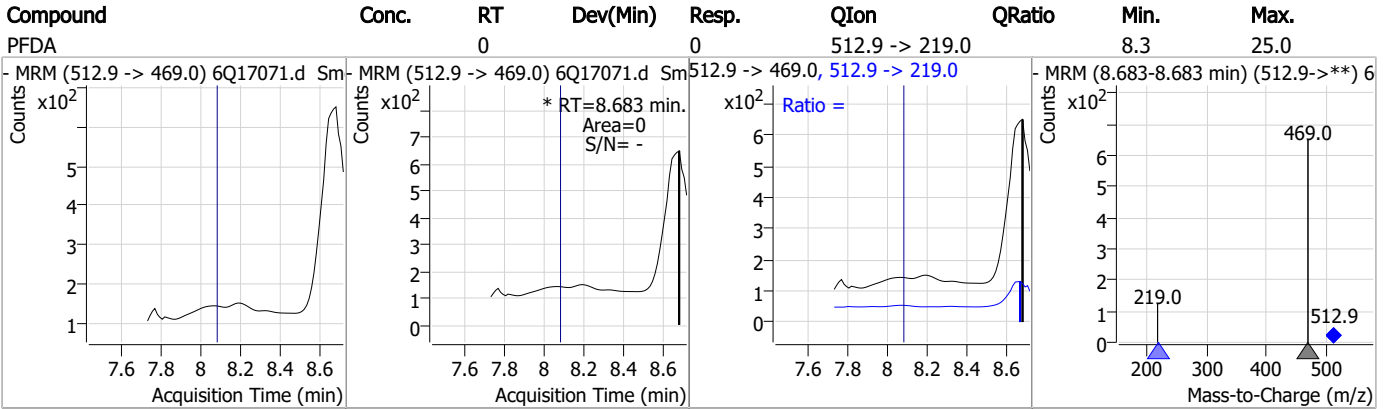
Perfluorinated Compounds by LC/MS/MS



7.2.3

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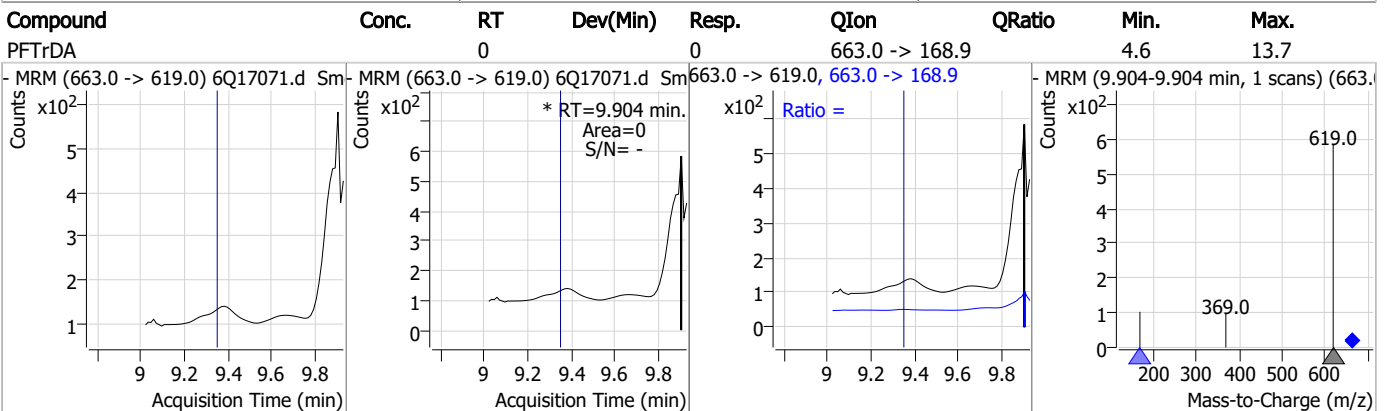
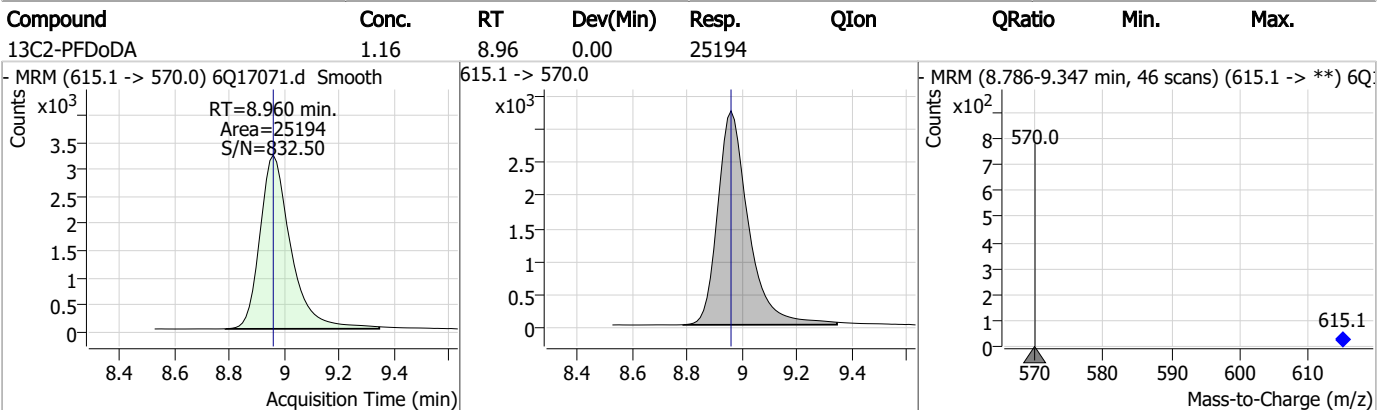
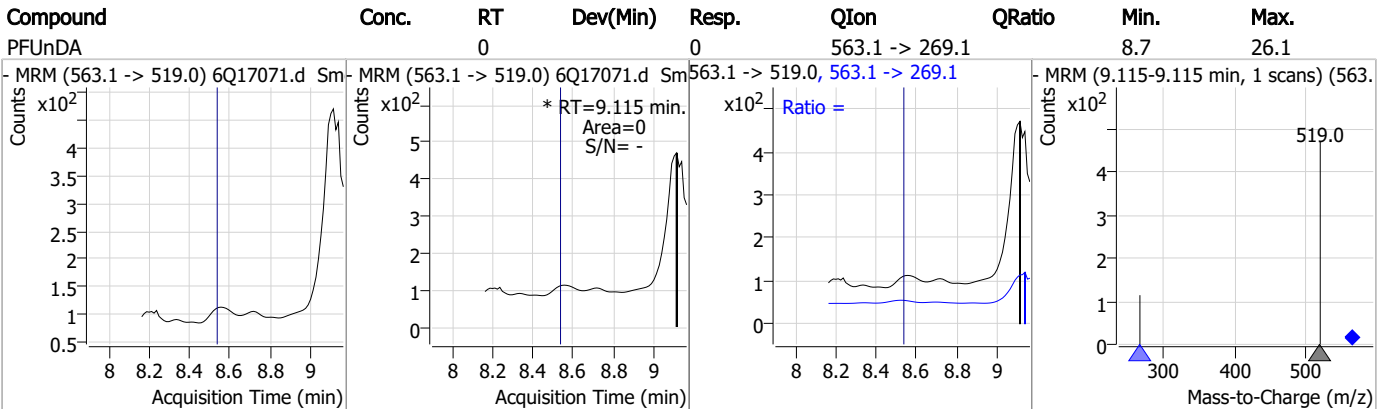
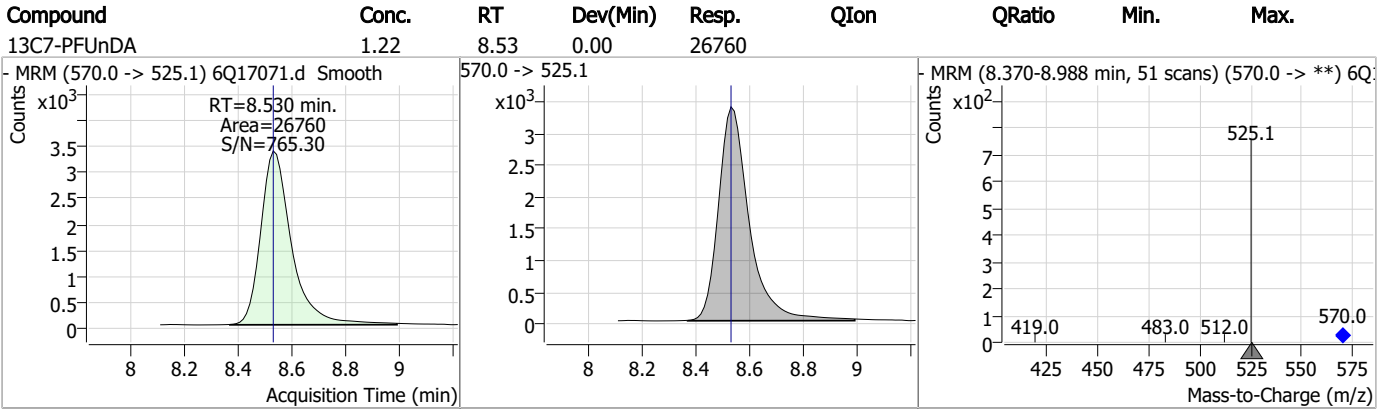
Perfluorinated Compounds by LC/MS/MS



7.2.3

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Perfluorinated Compounds by LC/MS/MS



7.2.3

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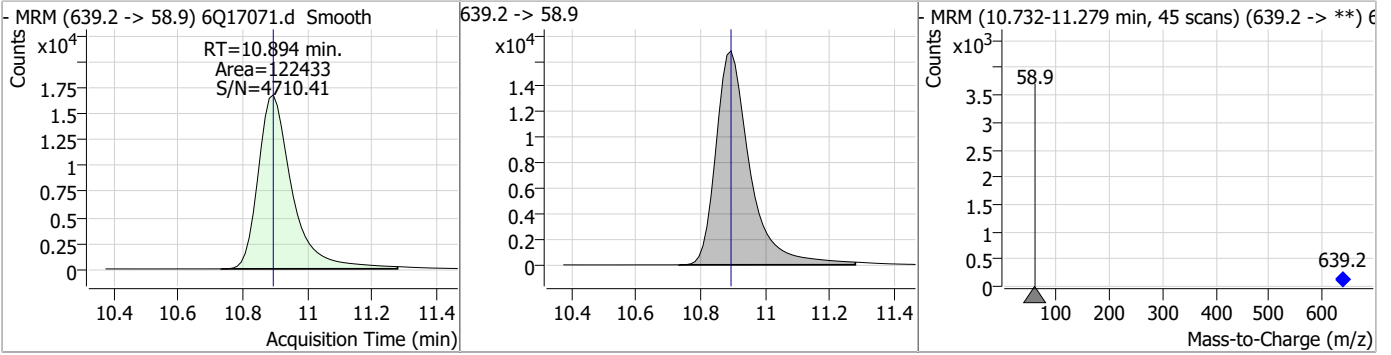
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.50	9.62	0.00	25200				
- MRM (506.1 -> 77.8) 6Q17071.d Smooth Counts x10 ³ RT=9.623 min. Area=25200 S/N=36988.62			506.1 -> 77.8 x10 ³			- MRM (9.451-10.006 min, 46 scans) (506.1 -> **) 6Q17071.d Smooth Counts x10 ² 77.8 506.1		
13C2-PFTeDA	1.15	9.69	0.00	16882				
- MRM (715.2 -> 670.0) 6Q17071.d Smooth Counts x10 ³ RT=9.689 min. Area=16882 S/N=477.75			715.2 -> 670.0 x10 ³			- MRM (9.528-10.074 min, 45 scans) (715.2 -> **) 6Q17071.d Smooth Counts x10 ² 670.0 715.2		
d7-MeFOSE	24.30	10.65	0.00	97100				
- MRM (623.2 -> 58.9) 6Q17071.d Smooth Counts x10 ⁴ RT=10.647 min. Area=97100 S/N=7107.61			623.2 -> 58.9 x10 ⁴			- MRM (10.498-11.033 min, 44 scans) (623.2 -> **) 6Q17071.d Smooth Counts x10 ³ 58.9 623.2		
d3-MeFOSA	2.42	10.73	0.00	9209				
- MRM (515.0 -> 219.0) 6Q17071.d Smooth Counts x10 ³ RT=10.728 min. Area=9209 S/N=577.20			515.0 -> 219.0 x10 ³			- MRM (10.579-11.114 min, 44 scans) (515.0 -> **) 6Q17071.d Smooth Counts x10 ² 169.0 515.0		

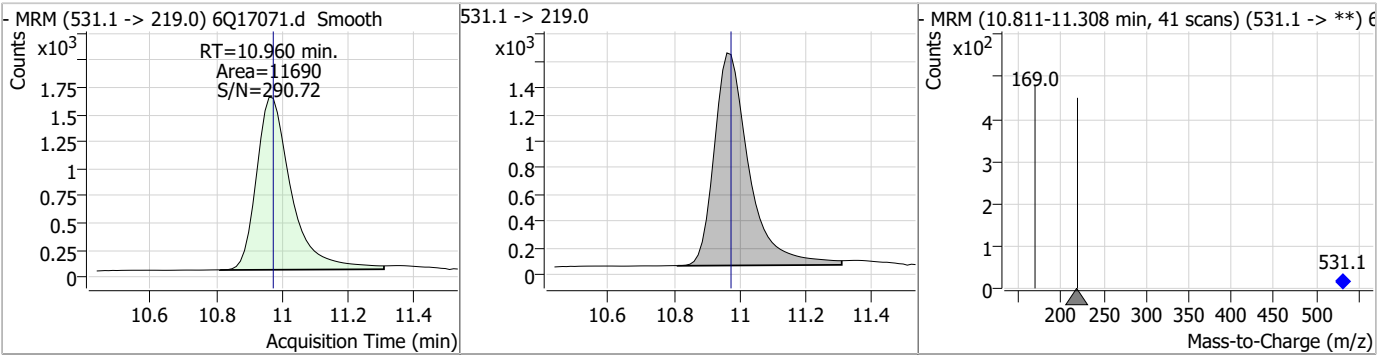
7.2.3
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.08	10.89	0.00	122433				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.50	10.96	-0.01	11690				



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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17072.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 5:54:31 PM
 Sample Name : op96603-bs
 Vial : P3-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	182931	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	64876	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70285	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	58366	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	79967	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27355	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21329	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25049	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	23621	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	14231	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	10403	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23191	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12909	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10569	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2073	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2852	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2700	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22085	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38924	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18372	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	12722	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	16864	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	4150	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	3552	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	12959	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	73687	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8892	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	77551	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23140	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26399	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55956	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2073	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2852	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2700	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	23621	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.689	715.2 -> 670.0	14231	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.4%		
13C3-PFBS	5.398	302.1 -> 79.9	23191	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12909	2.73 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C4-PFBA	2.910	216.8 -> 171.9	182931	10.74 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C4-PFHpA	6.419	367.1 -> 322.0	58366	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.468	318.0 -> 273.0	70285	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	64876	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C6-PFDA	8.076	519.1 -> 474.1	21329	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.8%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25049	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-FOSA	9.623	506.1 -> 77.8	10403	1.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 48.6%	
13C8-PFOA	7.074	421.1 -> 376.0	79967	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOS	8.239	507.1 -> 79.9	10569	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C9-PFNA	7.594	472.1 -> 427.0	27355	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22085	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38924	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	3552	1.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 43.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18372	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	12722	3.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 15.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	16864	4.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 16.2%	
d5-EtFOSA	10.960	531.1 -> 219.0	4150	1.04 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	33101	10.55 µg/L	98
		327.1 -> 80.9	11940		
6:2FTS	6.839	427.1 -> 407.0	26951	8.59 µg/L	95
		427.1 -> 80.9	8906		
8:2FTS	7.865	527.1 -> 507.0	16060	10.00 µg/L	92
		527.1 -> 80.8	7381		
EtFOSAA	8.343	584.2 -> 419.1	7263	2.33 µg/L	100
		584.2 -> 526.0	3783		
FOSA	9.614	498.1 -> 77.9	10720	2.88 µg/L	100
		498.1 -> 478.0	313		
MeFOSAA	8.136	570.1 -> 419.0	10630	2.56 µg/L	94
		570.1 -> 483.0	1831		
PFBA	2.906	212.8 -> 168.9	61560	10.03 µg/L	100
PFBS	5.400	298.7 -> 79.9	22496	2.16 µg/L	98
		298.7 -> 98.8	8983		
PFDA	8.077	512.9 -> 469.0	59470	2.57 µg/L	97
		512.9 -> 219.0	9165		
PFDoDA	8.961	613.1 -> 569.0	48752	2.63 µg/L	97
		613.1 -> 319.0	6433		
PFDS	9.125	599.0 -> 79.9	8609	2.56 µg/L	98

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4177	2.55	µg/L	97
		363.1 -> 319.0	73481			
PFHpS	7.734	363.1 -> 169.0	11825	2.53	µg/L	92
		449.0 -> 79.9	14491			
PFHxA	5.470	449.0 -> 98.9	6579	2.36	µg/L	100
		313.0 -> 269.0	65609			
PFHxS	7.180	313.0 -> 118.9	3116	2.16	µg/L	m
		398.7 -> 79.9	15224			
PFNA	7.595	398.7 -> 98.9	7681	2.48	µg/L	98
		463.0 -> 419.0	46870			
PFNS	8.694	463.0 -> 219.0	10259	2.56	µg/L	96
		548.8 -> 79.9	13057			
PFOA	7.076	548.8 -> 98.9	6846	2.47	µg/L	97
		413.0 -> 369.0	92624			
PFOS	8.228	413.0 -> 169.0	17362	2.59	µg/L	m
		498.9 -> 79.9	13212			
PFPeA	4.273	498.9 -> 98.8	6558	5.05	µg/L	100
		263.0 -> 219.0	89205			
PFPeS	6.484	349.1 -> 79.9	17112	2.33	µg/L	97
		349.1 -> 98.9	7983			
PFTeDA	9.690	713.1 -> 669.0	34129	2.37	µg/L	98
		713.1 -> 168.9	2814			
PFTrDA	9.345	663.0 -> 619.0	50710	2.47	µg/L	99
		663.0 -> 168.9	4513			
PFUnDA	8.531	563.1 -> 519.0	40660	2.34	µg/L	99
		563.1 -> 269.1	6828			
11CI-PF3OUdS	9.398	630.9 -> 450.9	63995	4.79	µg/L	97
		632.9 -> 452.9	19517			
9CI-PF3ONS	8.569	530.8 -> 351.0	106654	5.05	µg/L	98
		532.8 -> 353.0	32808			
ADONA	6.681	376.9 -> 250.9	280272	4.77	µg/L	97
		376.9 -> 84.8	76363			
HFPO-DA	5.846	284.9 -> 168.9	18745	5.08	µg/L	95
		284.9 -> 184.9	2234			
3:3FTCA	3.784	241.0 -> 177.0	10885	9.85	µg/L	98
		241.0 -> 117.0	1382			
5:3FTCA	6.160	341.0 -> 237.1	235635	52.40	µg/L	94
		341.0 -> 217.0	168830			
7:3FTCA	7.573	441.0 -> 316.9	96723	47.34	µg/L	96
		441.0 -> 336.9	202912			
EtFOSA	10.962	526.0 -> 219.0	8571	5.02	µg/L	98
		526.0 -> 169.0	10596			
EtFOSE	10.907	630.0 -> 58.9	8501	12.10	µg/L	100
		511.9 -> 219.0	8277			
MeFOSA	10.730	511.9 -> 169.0	11486	5.18	µg/L	m
		616.1 -> 58.9	7368			
MeFOSE	10.661	699.1 -> 79.9	3858	12.99	µg/L	100
		699.1 -> 98.8	2016			
PFDoDS	9.817	295.0 -> 201.0	15226	2.21	µg/L	93
		295.0 -> 84.9	3881			
NFDHA	5.350	279.0 -> 85.1	59005	5.06	µg/L	97
		229.0 -> 84.9	43362			
PFMBA	4.687	314.8 -> 134.9	153132	4.98	µg/L	100
		314.8 -> 82.9	5404			
PFMPA	3.438			4.90	µg/L	100
PFEESA	5.949			4.37	µg/L	99

= Qualifier out of range, m = manually integrated, + = Area summed

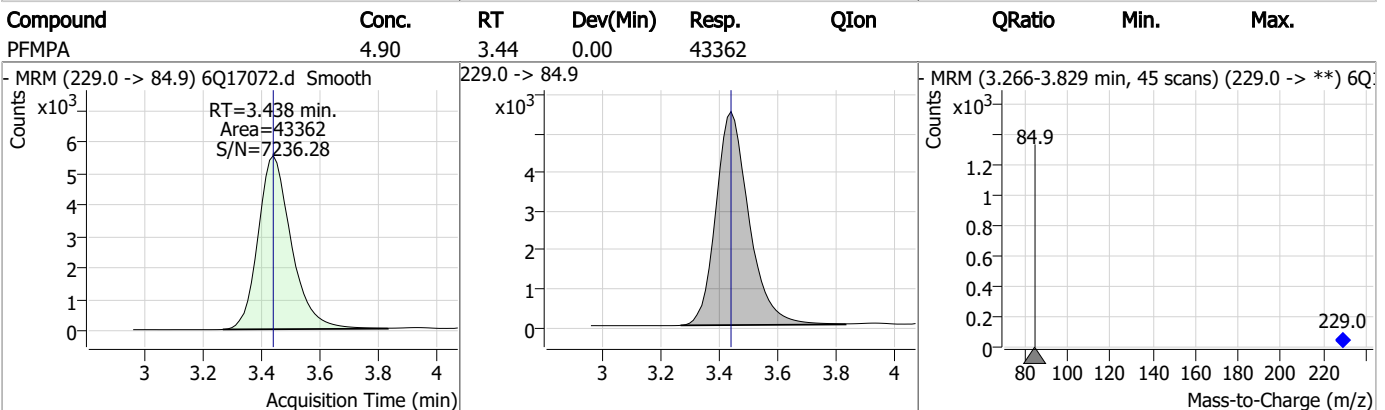
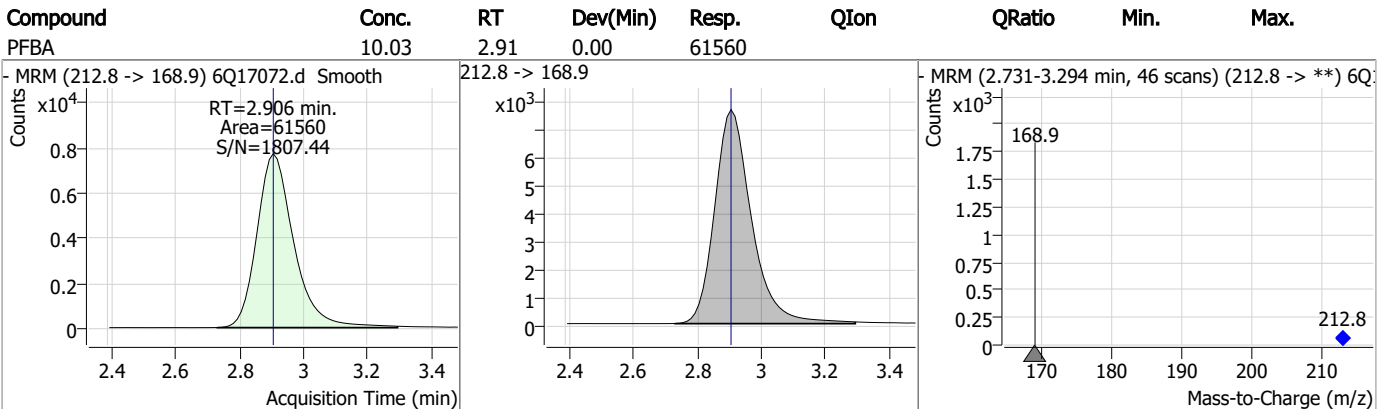
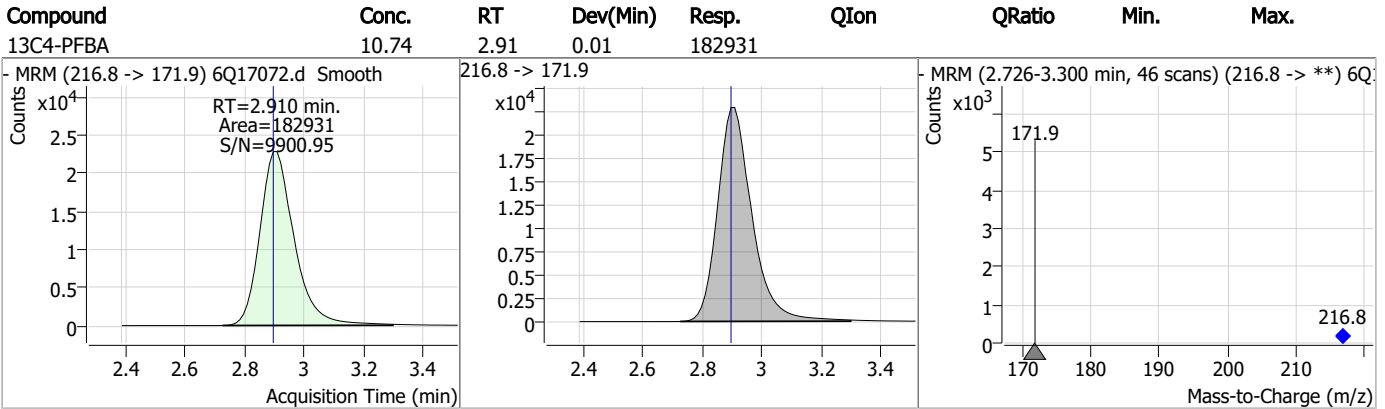
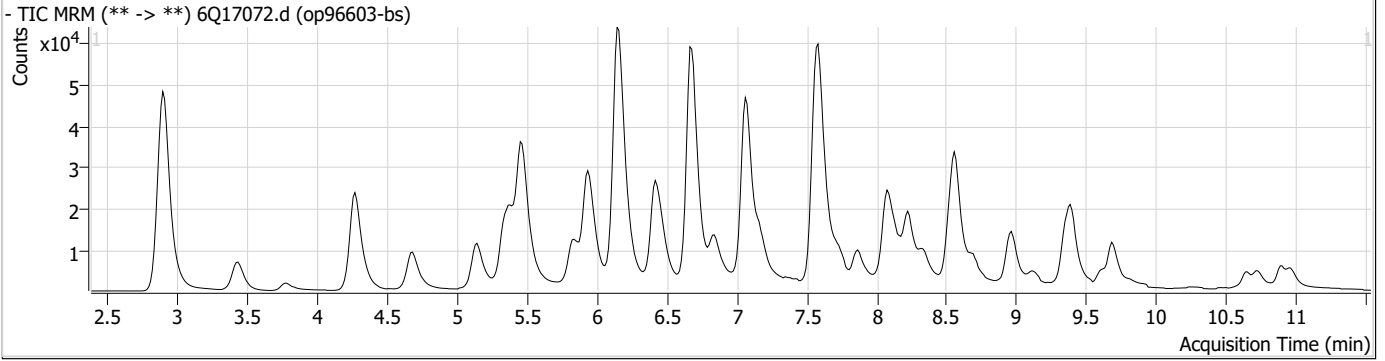
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.3.1

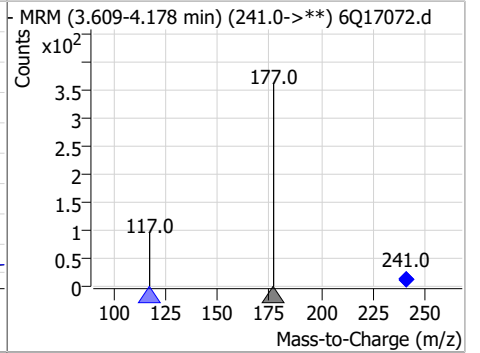
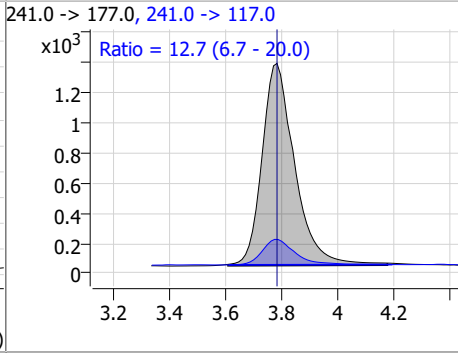
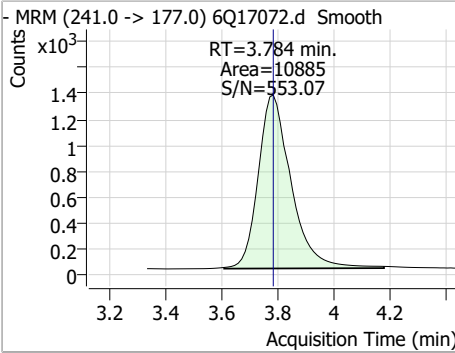
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Perfluorinated Compounds by LC/MS/MS

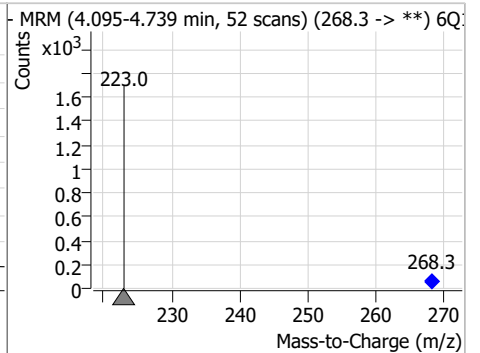
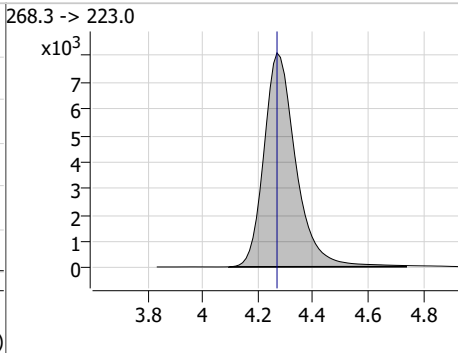
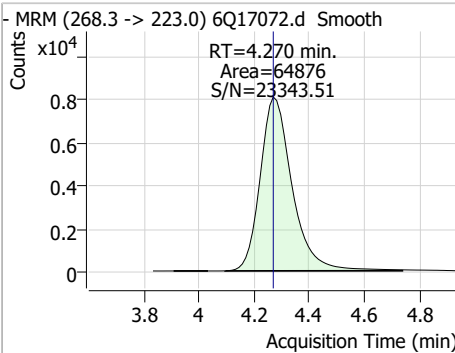


Perfluorinated Compounds by LC/MS/MS

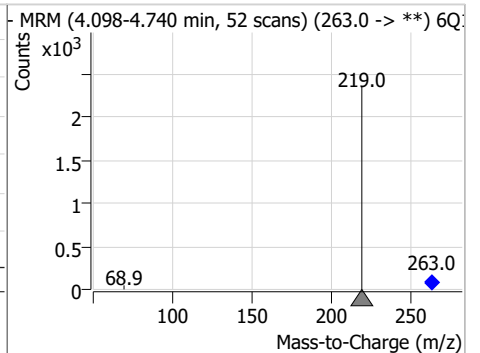
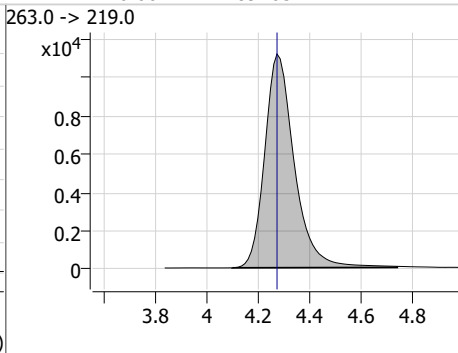
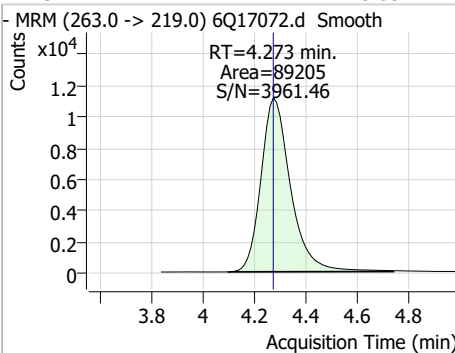
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	9.85	3.78	0.00	10885	241.0 -> 117.0	12.7	6.7	20.0



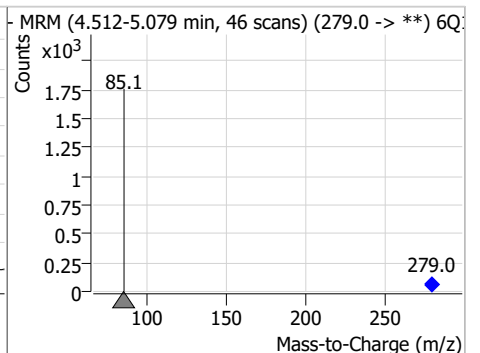
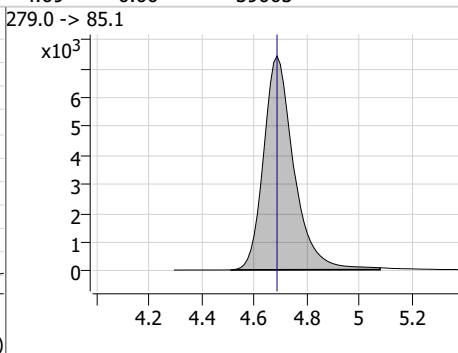
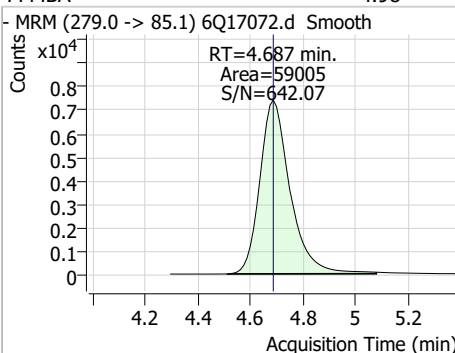
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.19	4.27	0.00	64876				



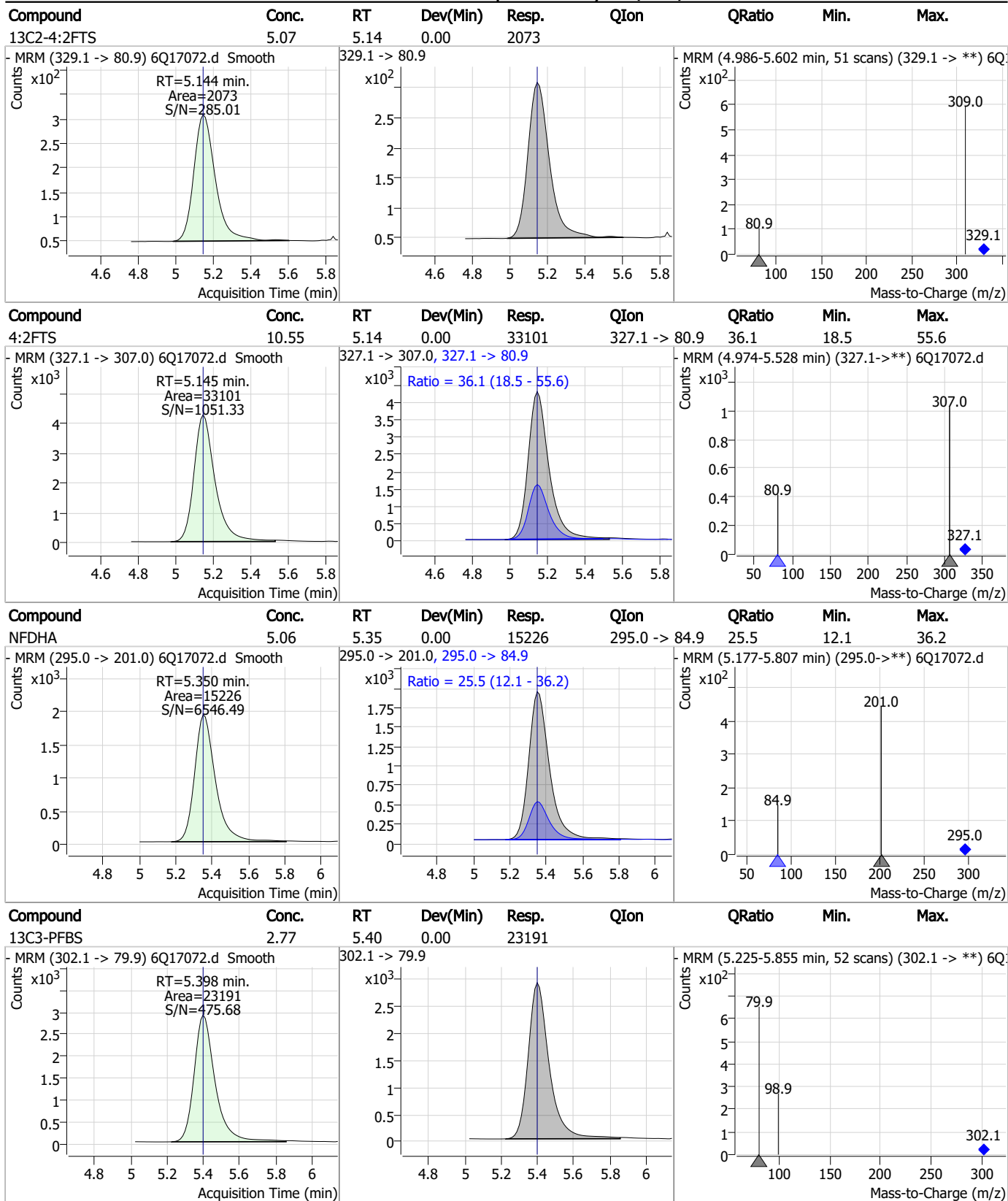
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.05	4.27	0.00	89205				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.98	4.69	0.00	59005				



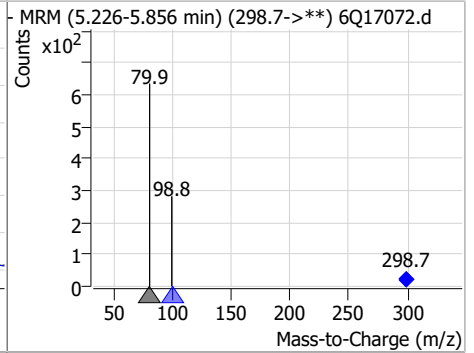
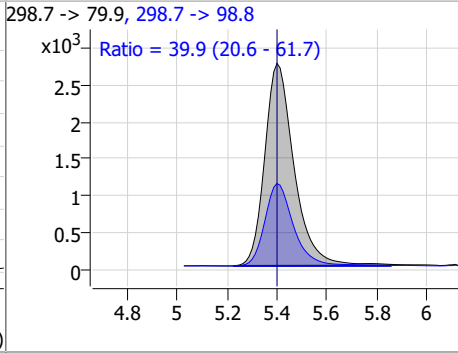
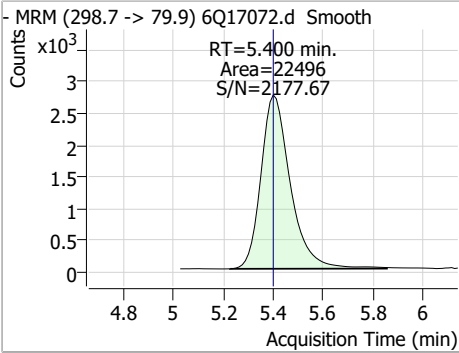
Perfluorinated Compounds by LC/MS/MS



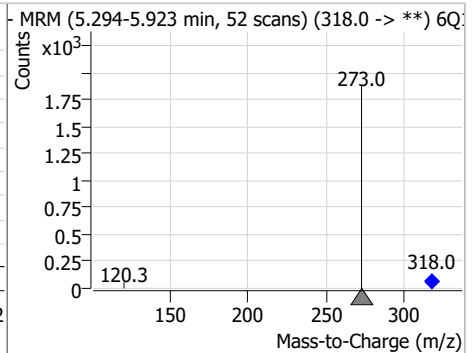
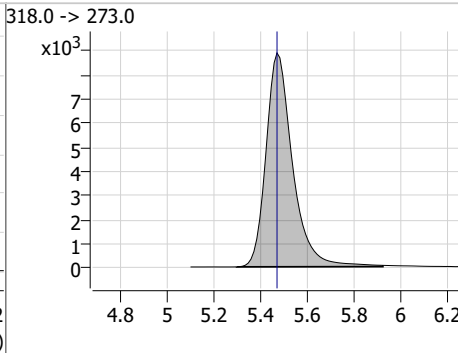
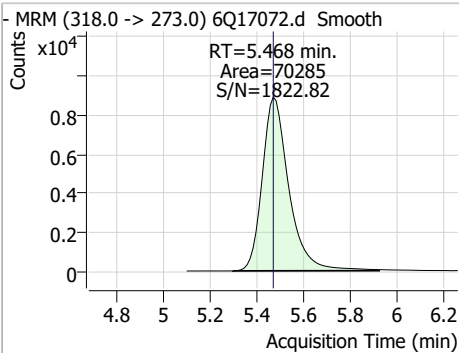
7.3.1
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Perfluorinated Compounds by LC/MS/MS

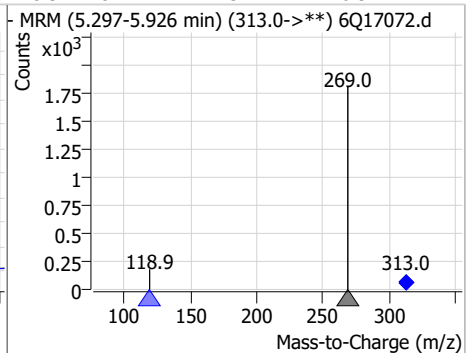
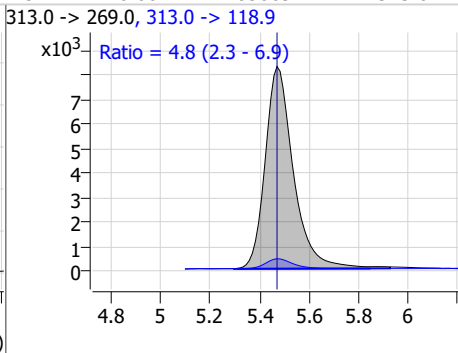
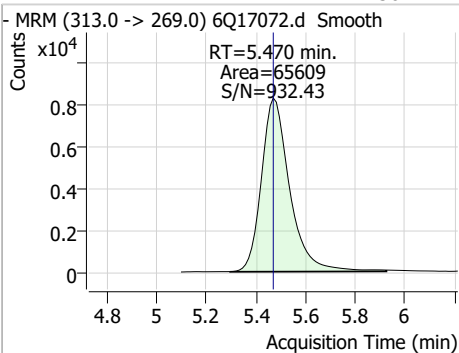
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.40	0.00	22496	298.7 -> 98.8	39.9	20.6	61.7



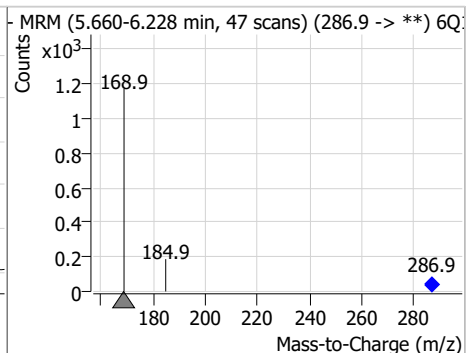
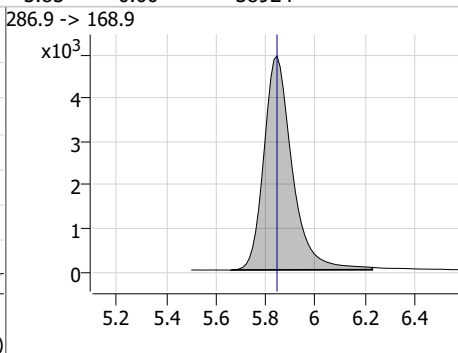
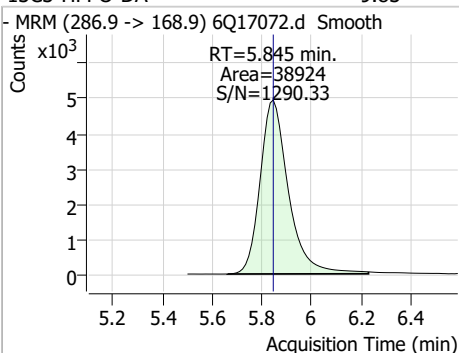
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.60	5.47	0.00	70285	318.0 -> 273.0	4.8	2.3	6.9



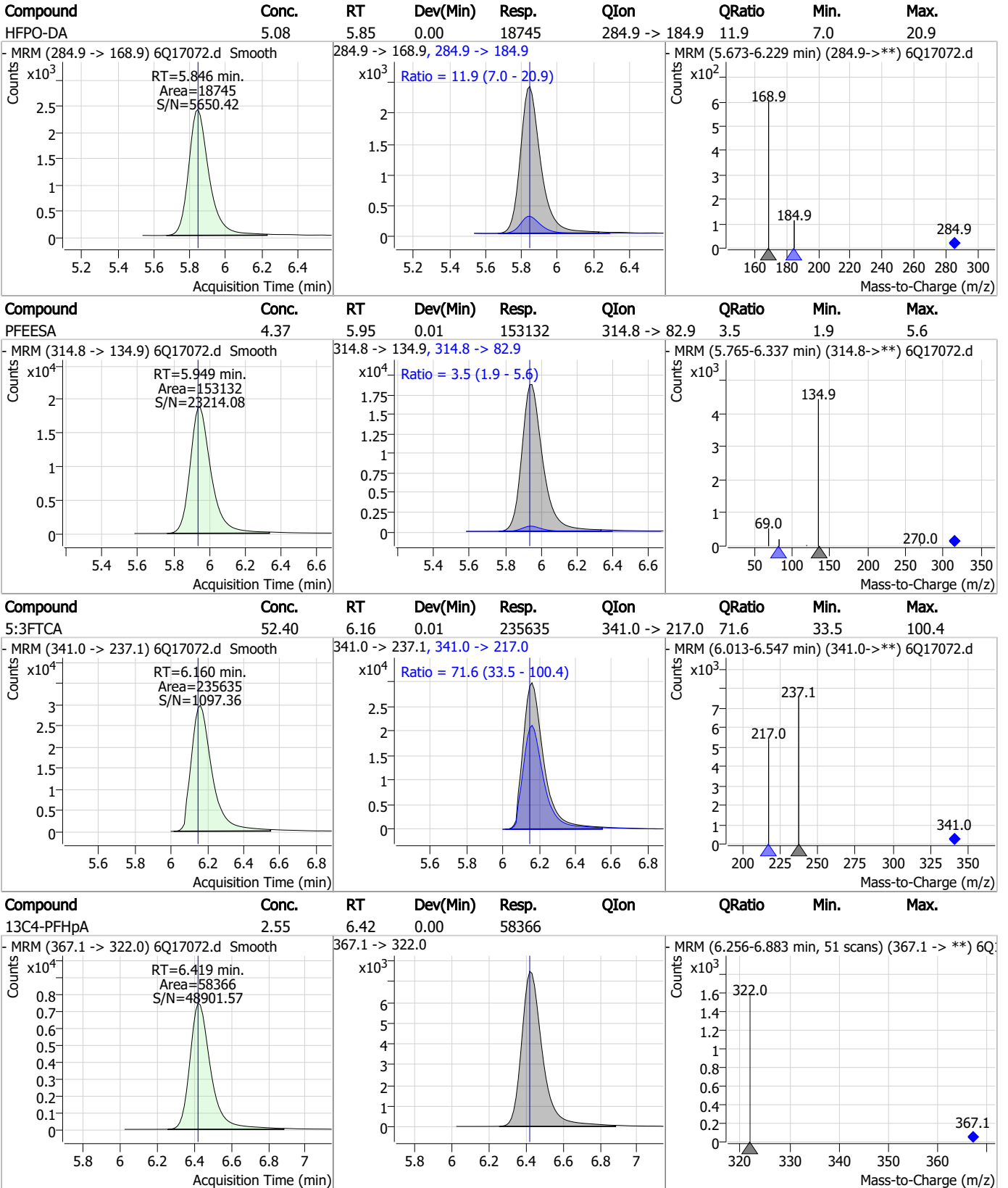
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.47	0.00	65609	313.0 -> 118.9	4.8	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.83	5.85	0.00	38924	286.9 -> 168.9	4.8	2.3	6.9



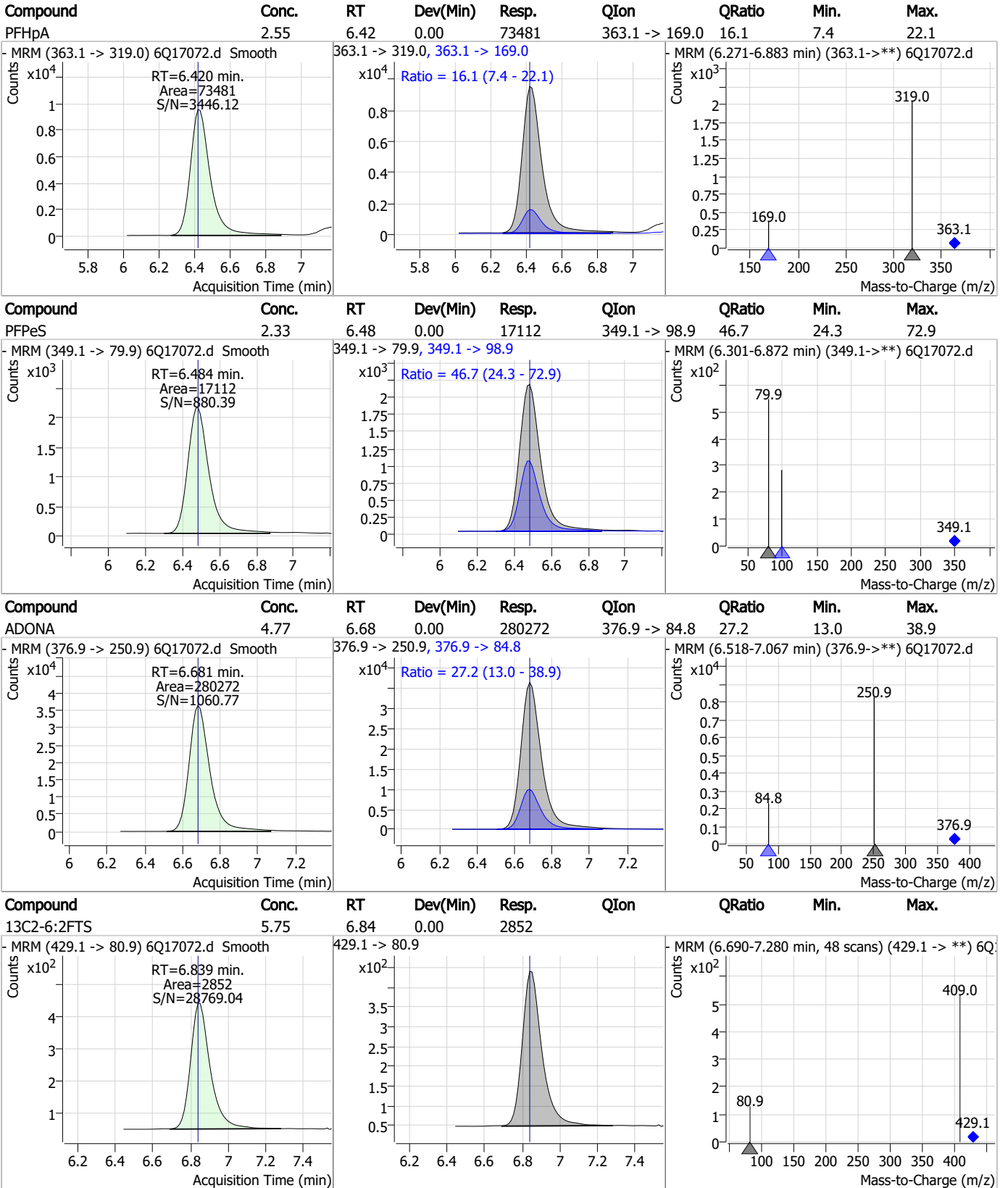
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

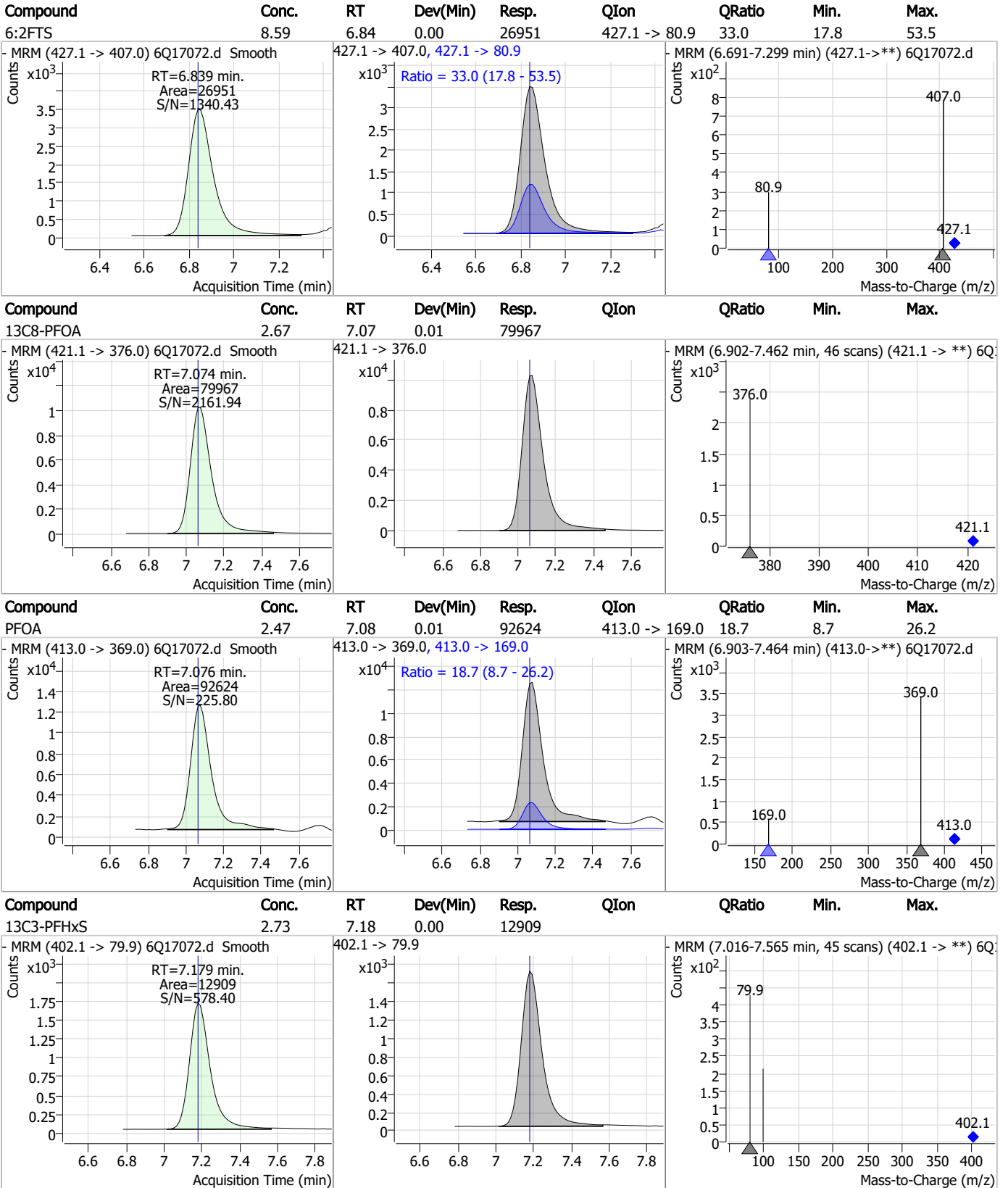


7.3.1

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Perfluorinated Compounds by LC/MS/MS

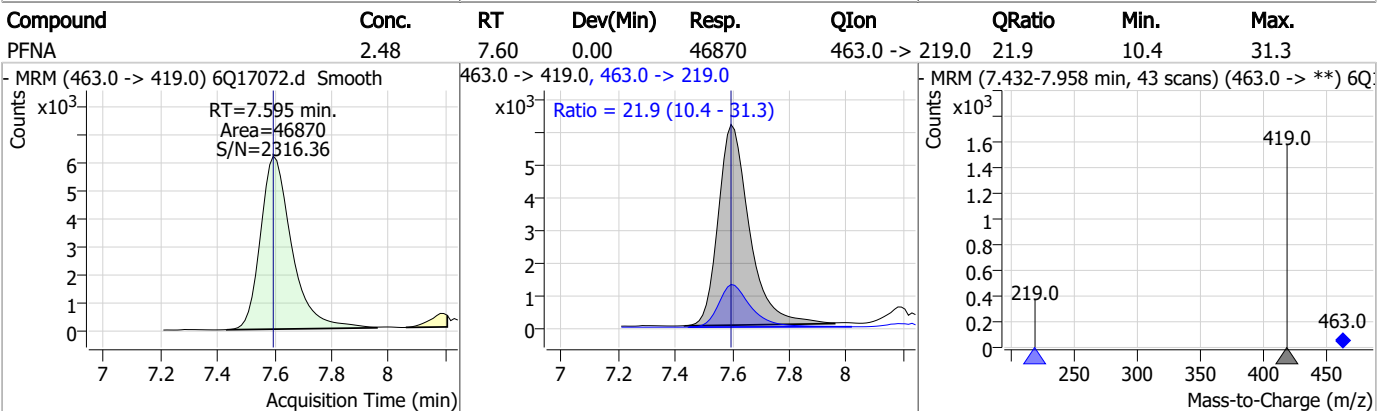
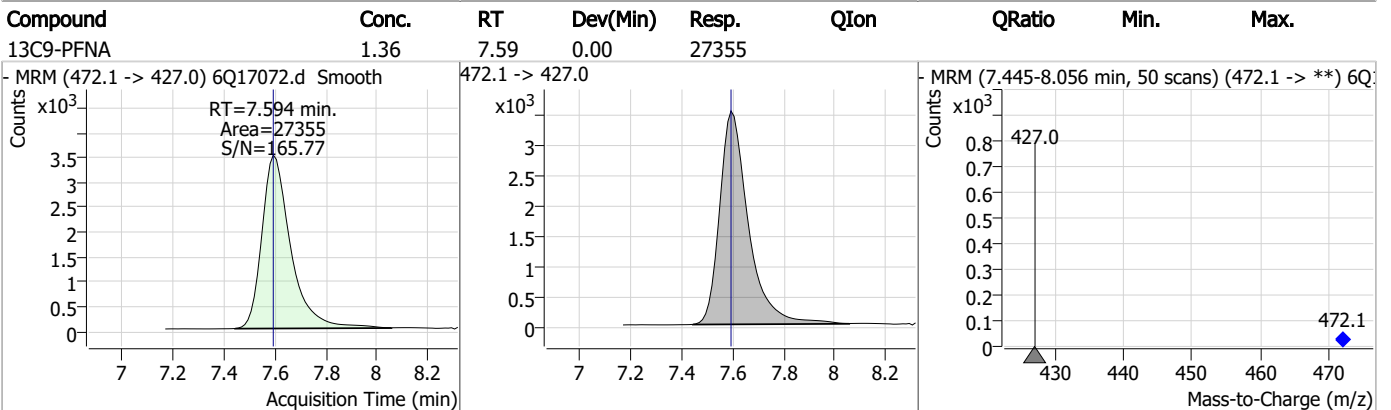
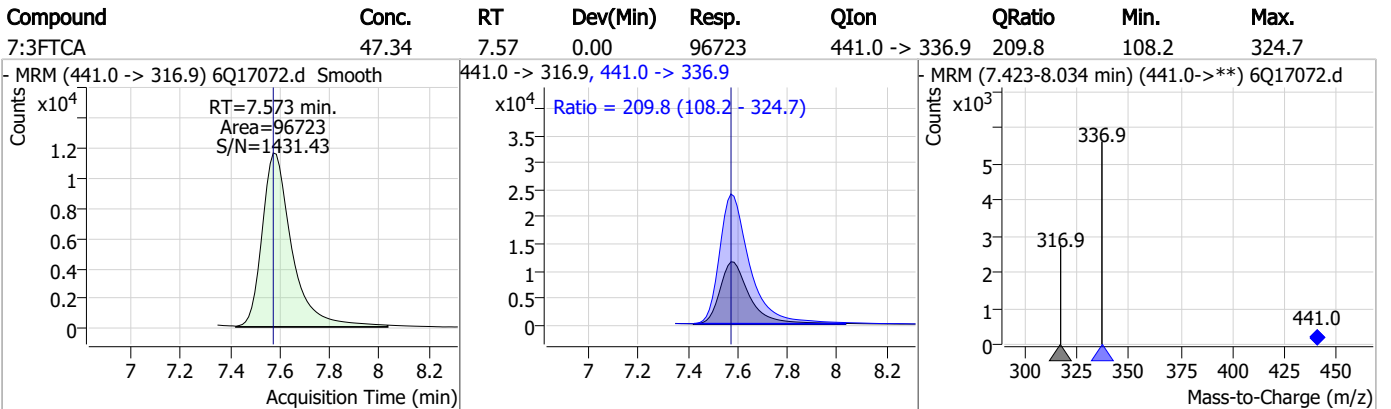
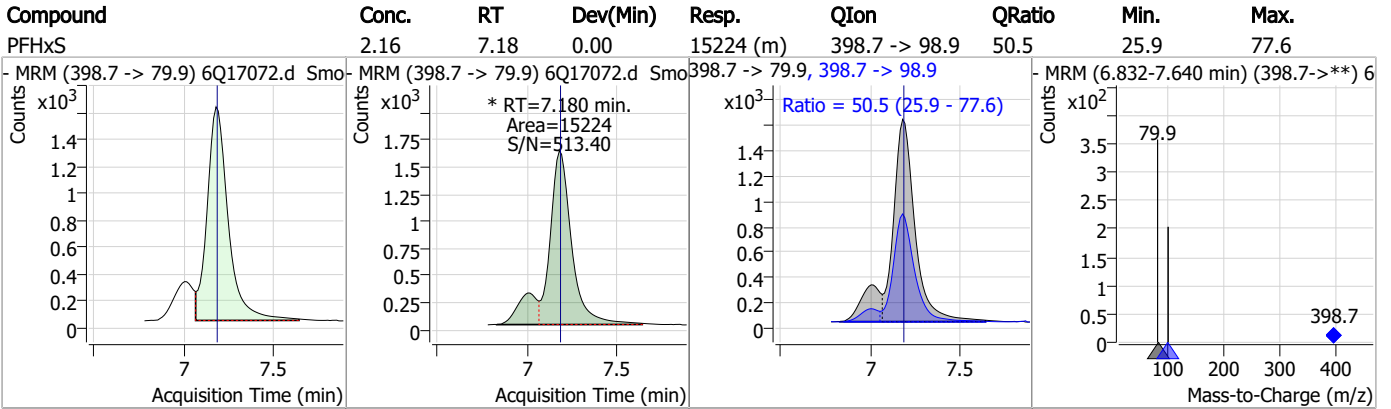


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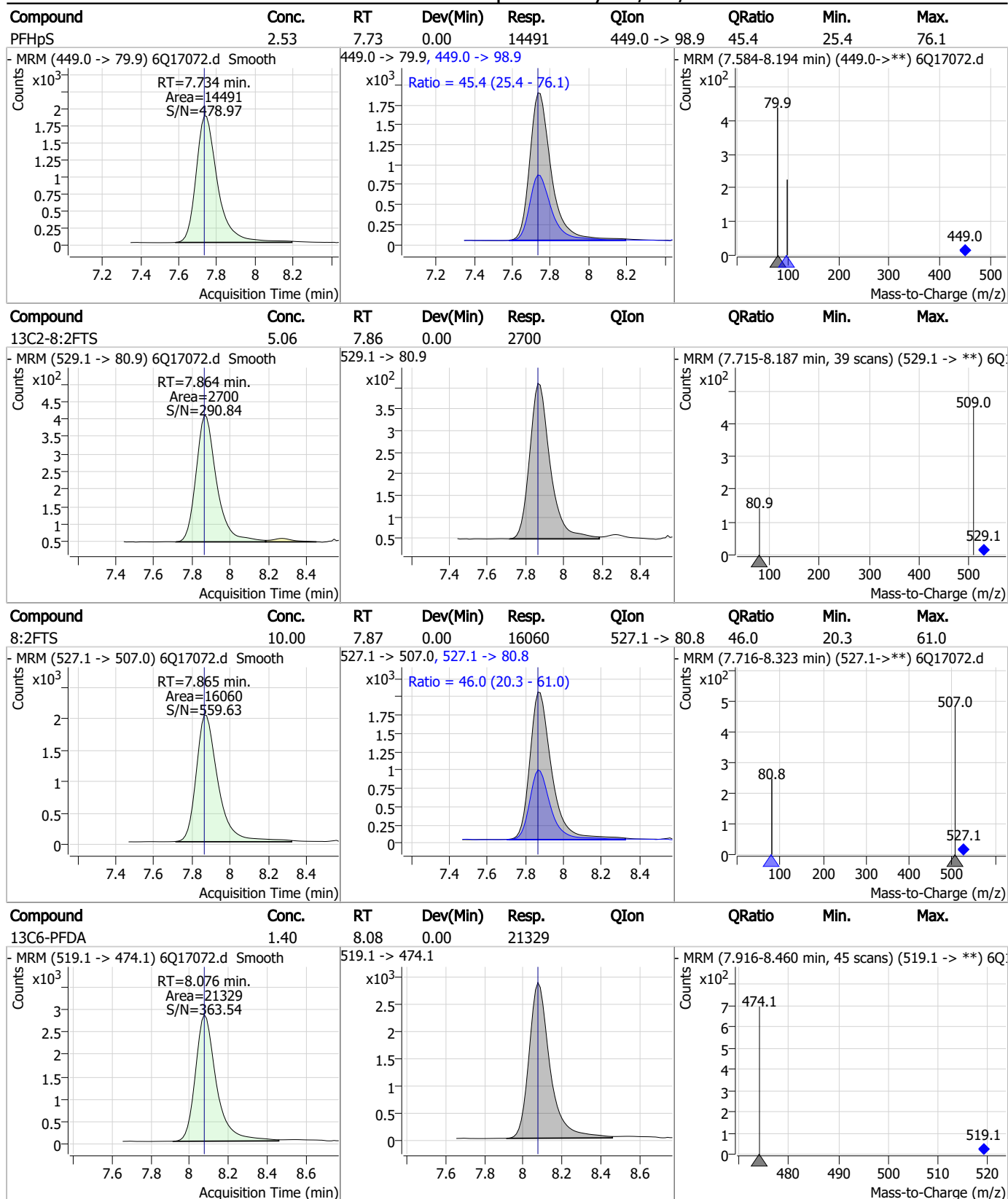
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Perfluorinated Compounds by LC/MS/MS

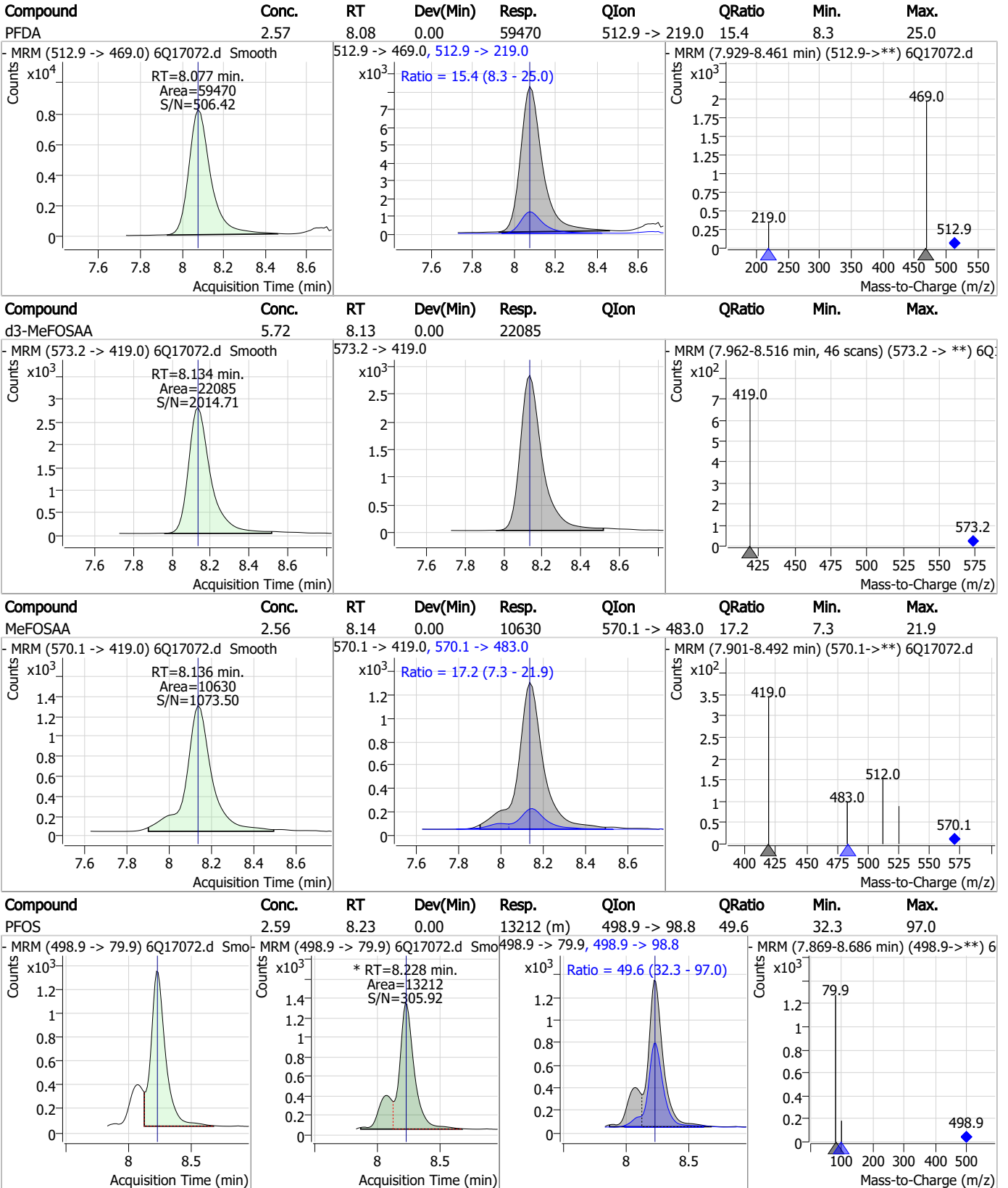


Perfluorinated Compounds by LC/MS/MS



7.3.1

Perfluorinated Compounds by LC/MS/MS

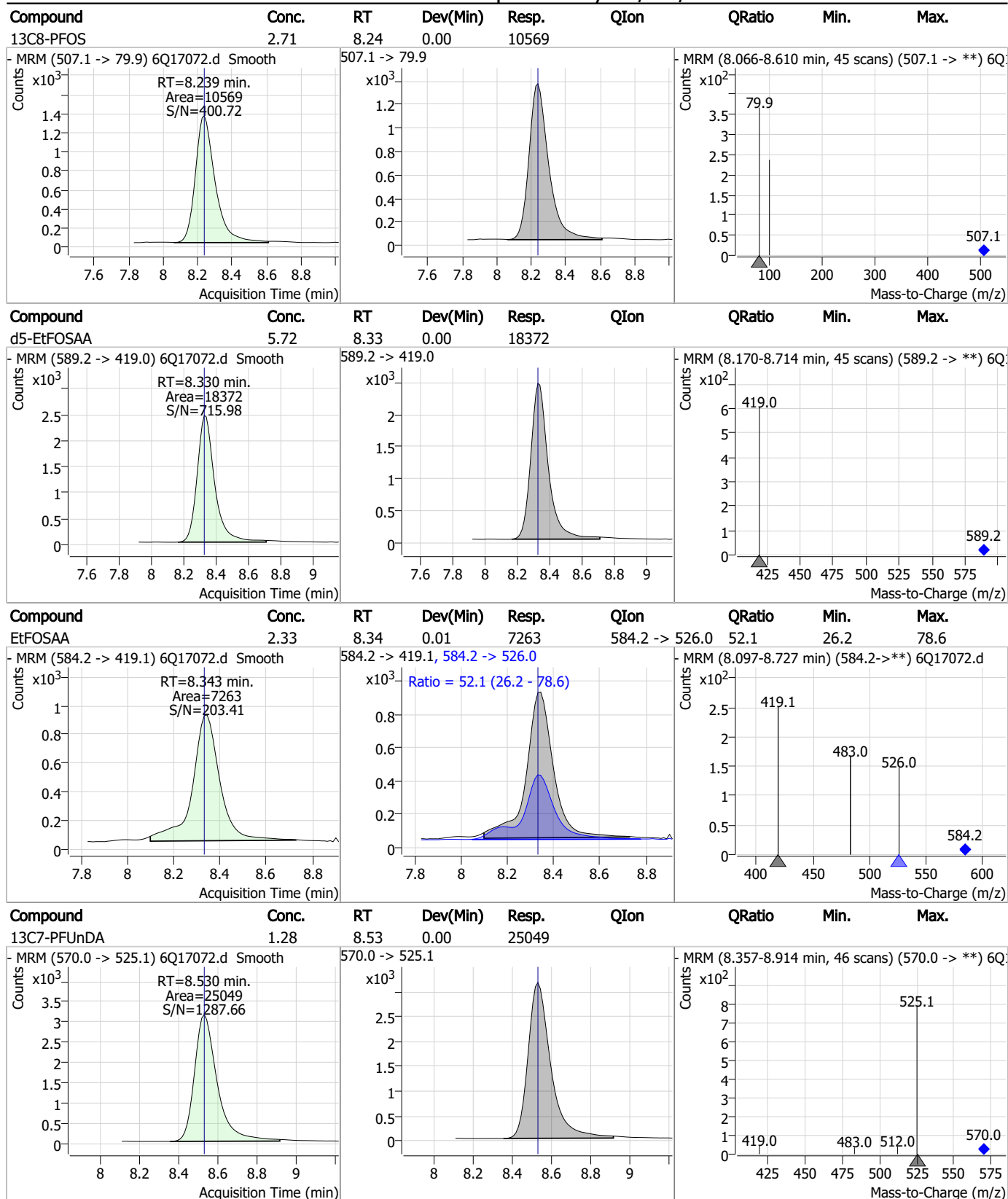


7.3.1

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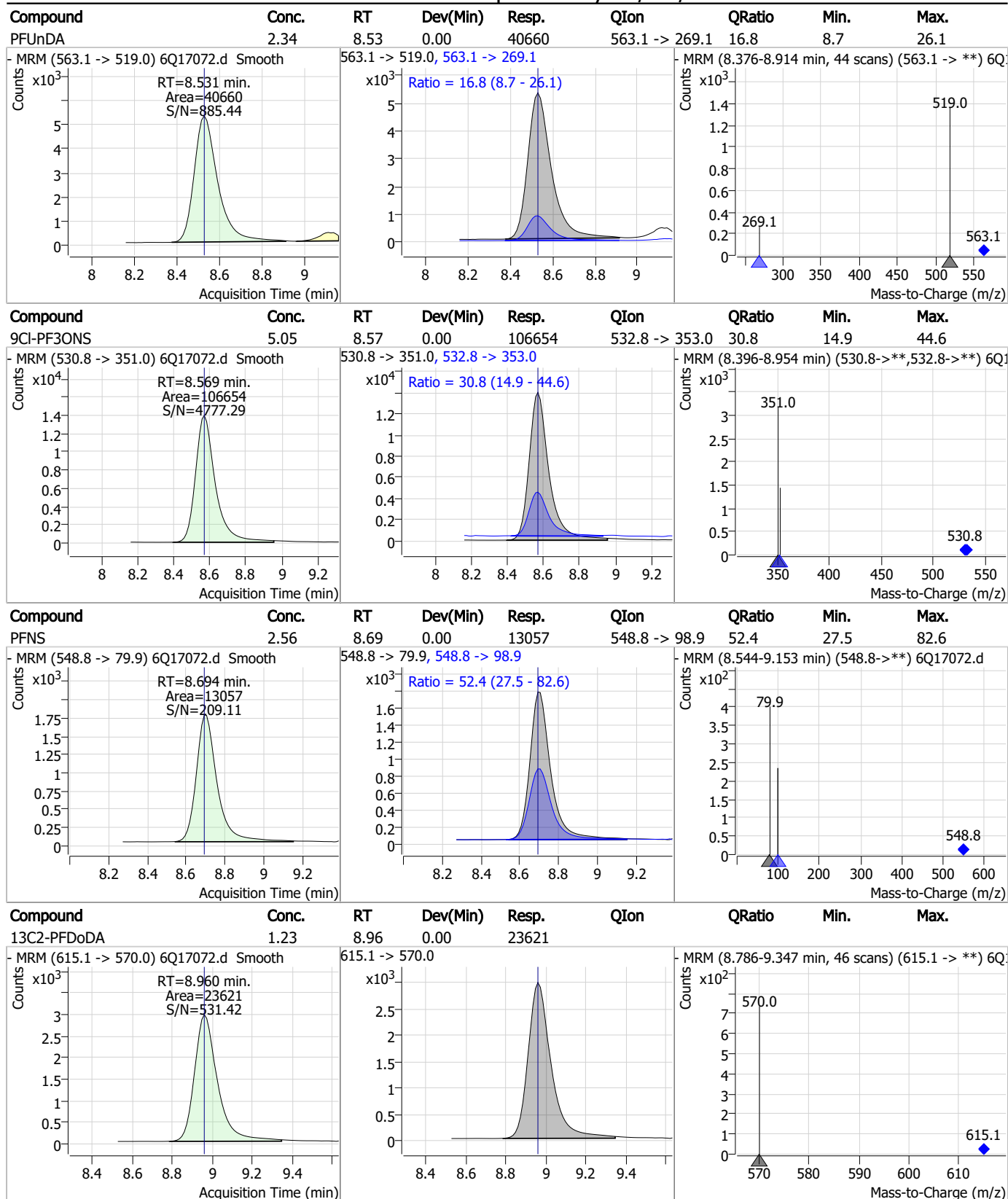


Perfluorinated Compounds by LC/MS/MS



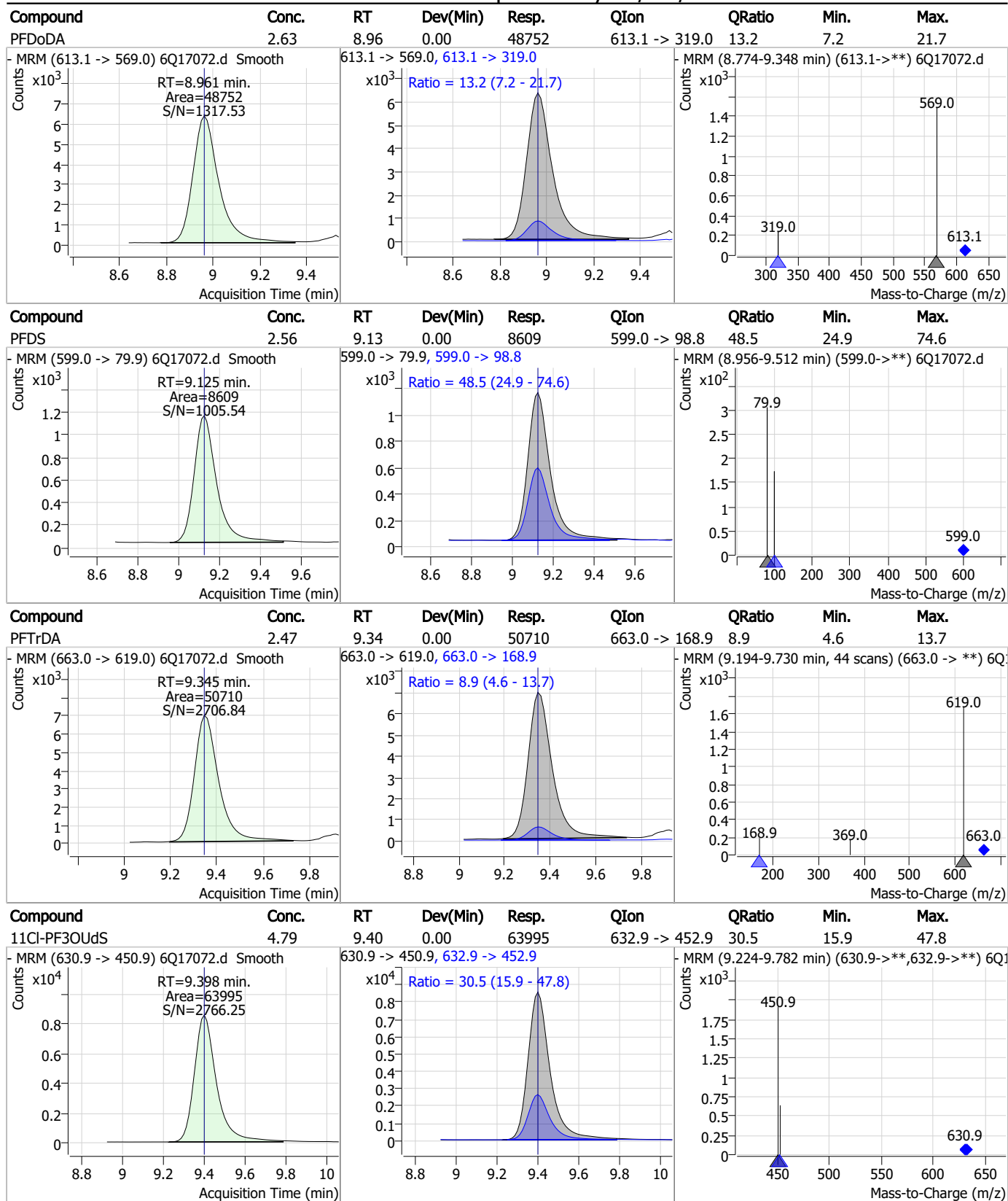
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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Perfluorinated Compounds by LC/MS/MS

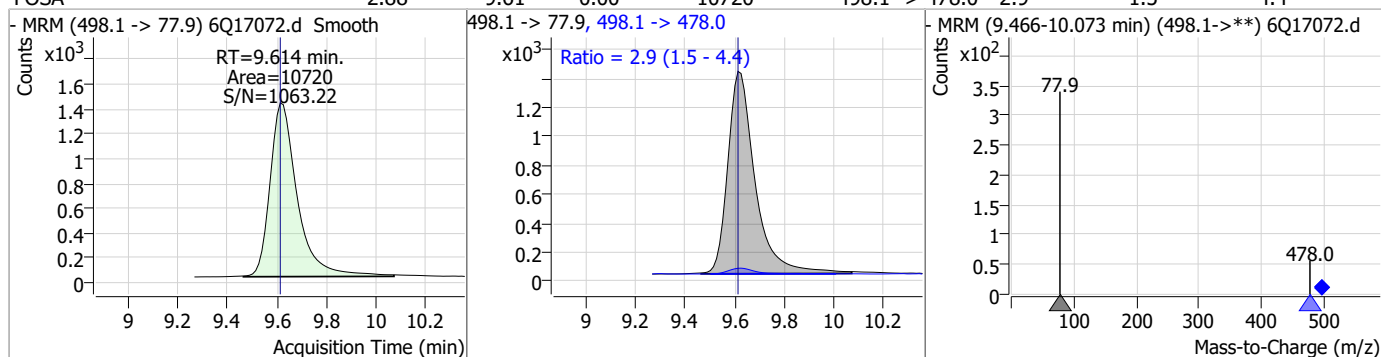


7.3.1
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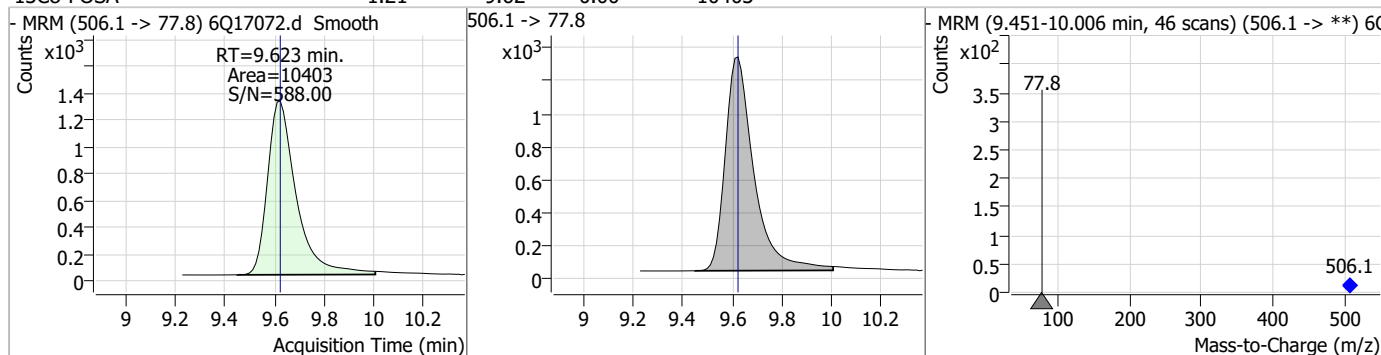


Perfluorinated Compounds by LC/MS/MS

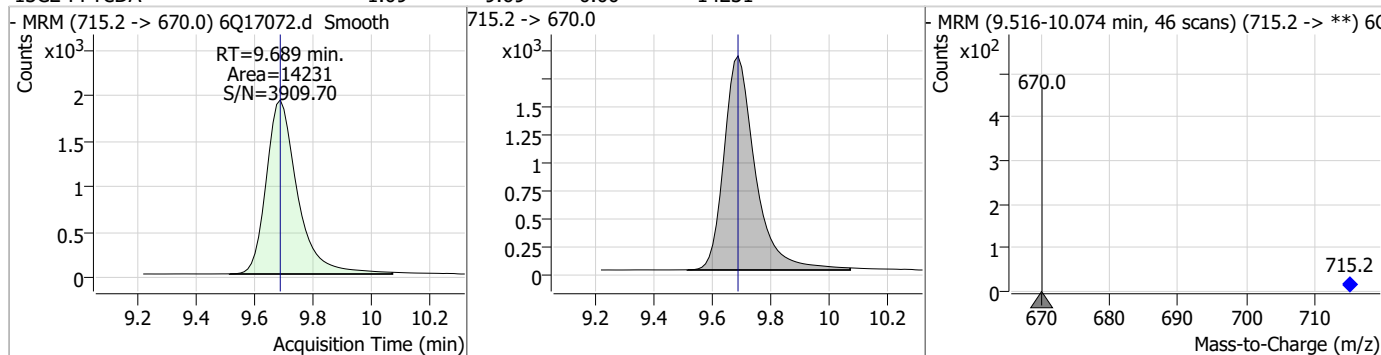
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.88	9.61	0.00	10720	498.1 -> 478.0	2.9	1.5	4.4



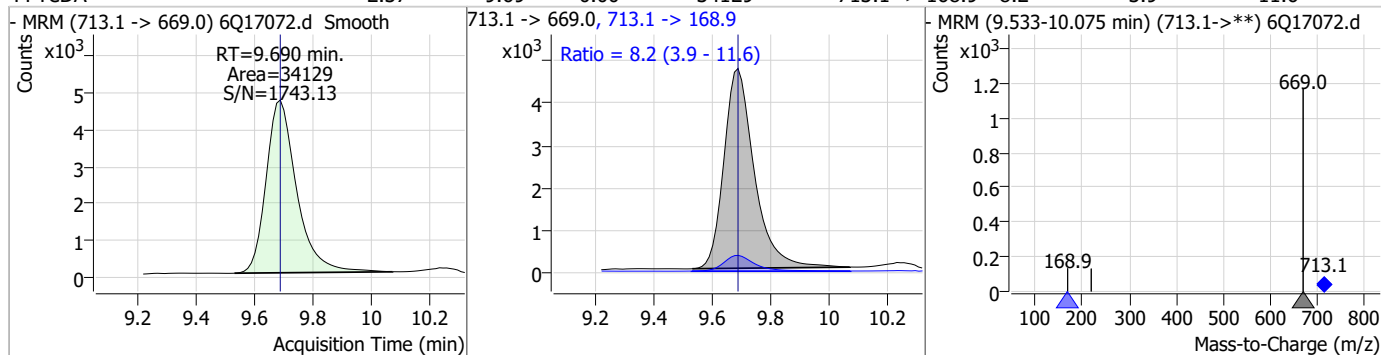
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.21	9.62	0.00	10403				



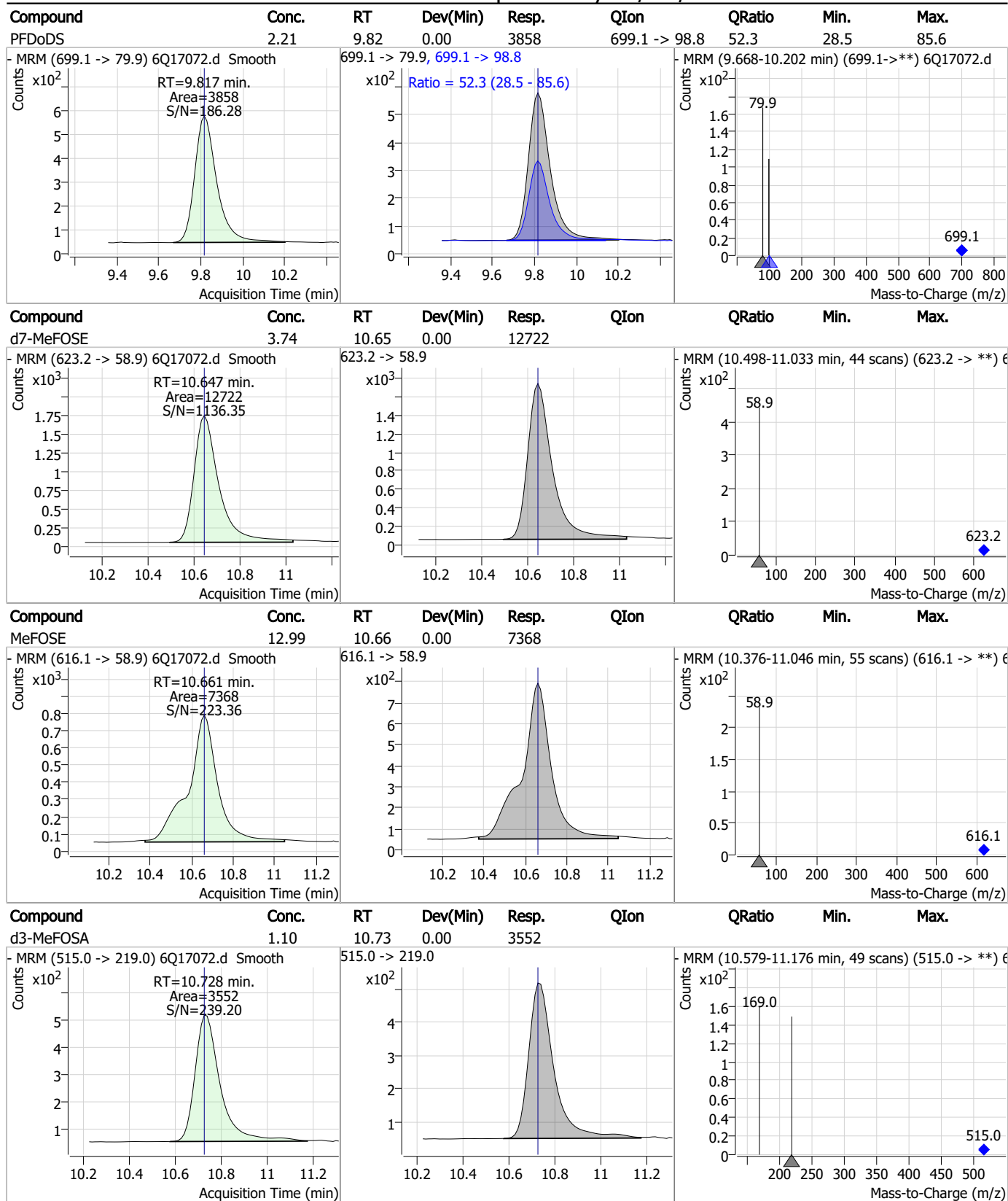
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.09	9.69	0.00	14231				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.37	9.69	0.00	34129	713.1 -> 168.9	8.2	3.9	11.6

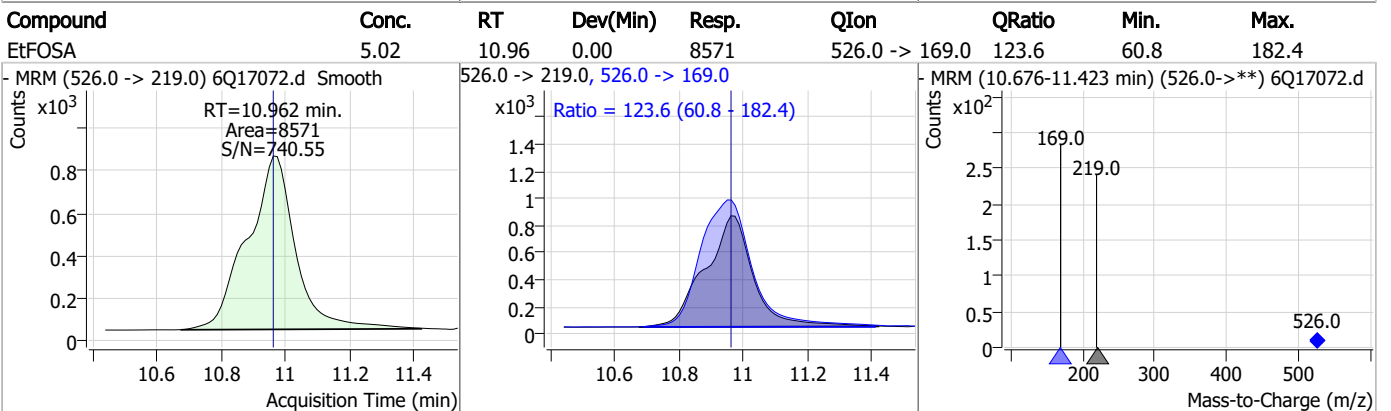
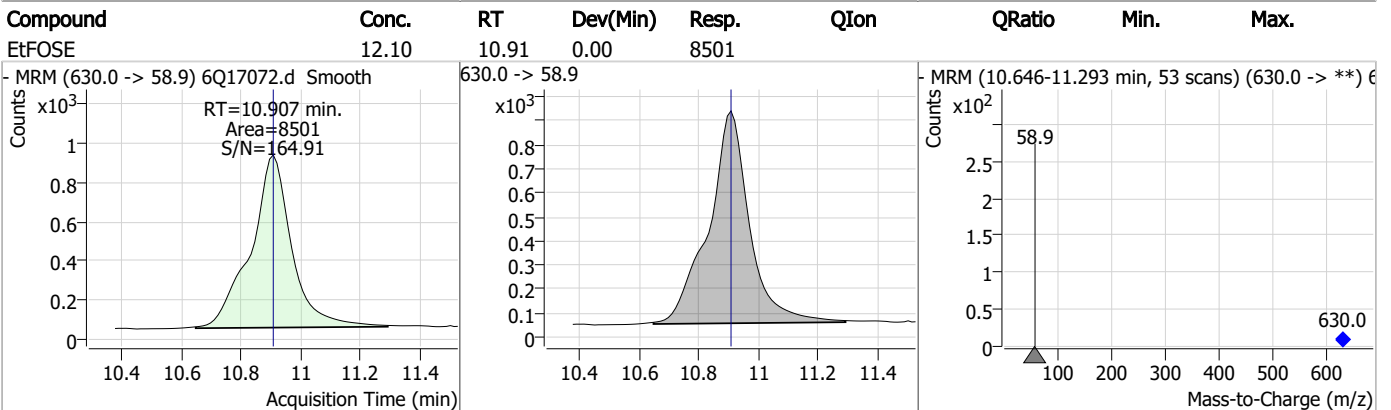
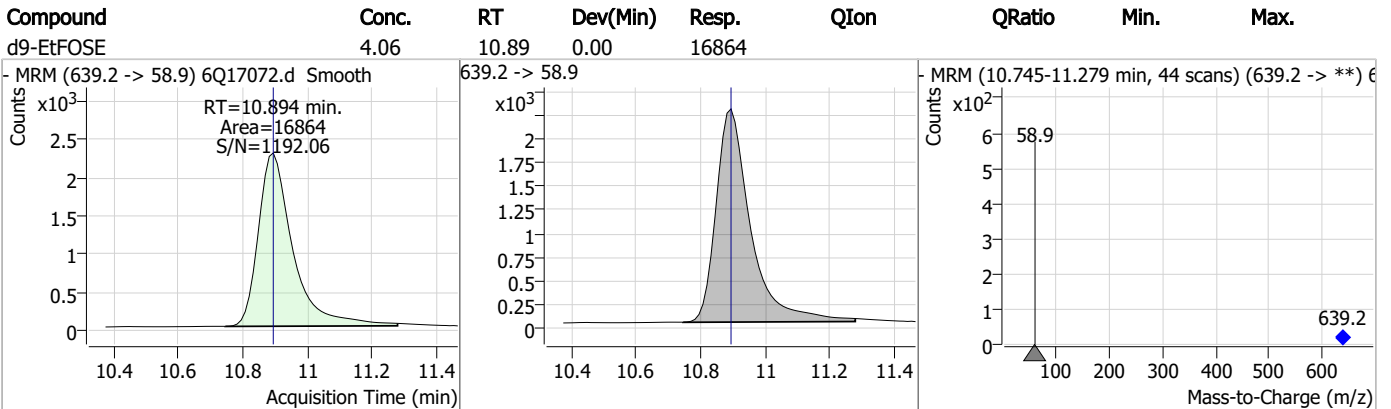
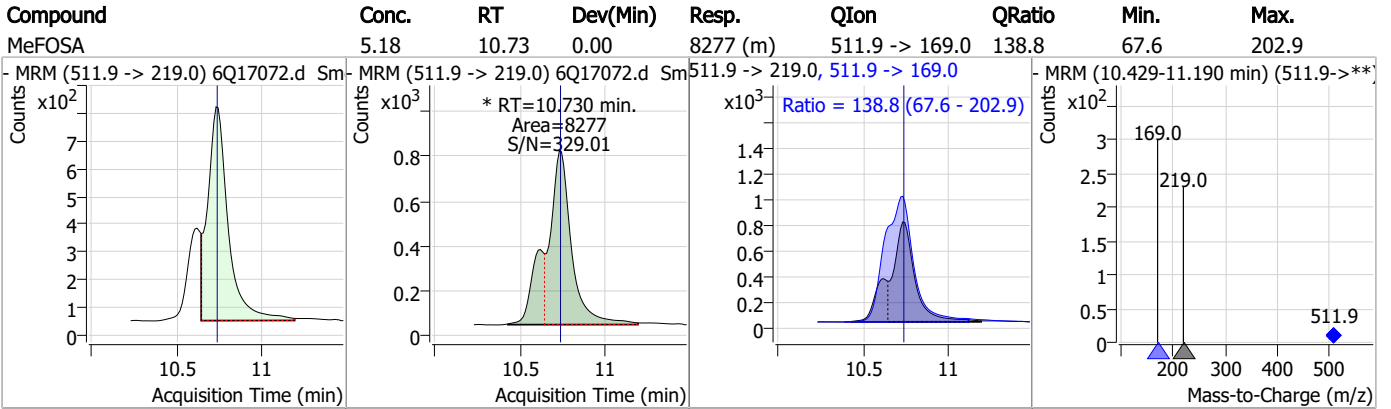


Perfluorinated Compounds by LC/MS/MS



7.3.1
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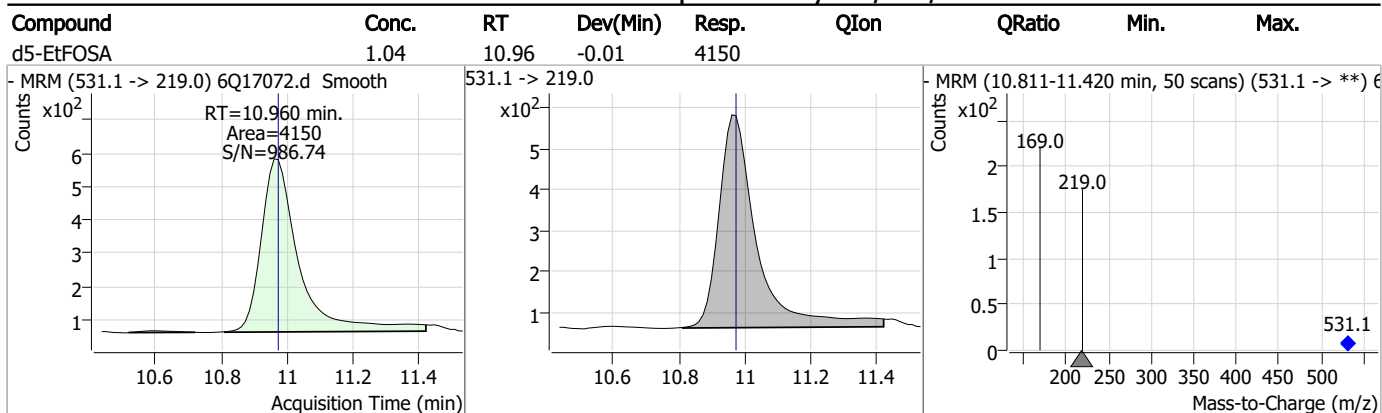
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP96603-BS Method: EPA DRAFT 1633
Lab FileID: 6Q17072.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 17:54 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.3.1.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17073.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 6:09:00 PM
 Sample Name : op96603-llbs:3
 Vial : P3-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186309	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66521	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70347	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60194	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	78872	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27407	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20879	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25540	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	23173	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	13010	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	9711	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22903	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12373	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11136	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2283	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2776	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2876	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22620	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39623	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	18560	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	14861	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	20736	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	2532	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2599	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13900	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74197	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8896	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	85328	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	21299	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27822	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56547	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.144	329.1 -> 80.9	2283	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2776	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2876	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-PFDoDA	8.960	615.1 -> 570.0	23173	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	13010	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C3-PFBS	5.398	302.1 -> 79.9	22903	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12373	2.61 µg/L	0.000

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7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C4-PFBA	2.910	216.8 -> 171.9	186309	10.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	60194	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFHxA	5.468	318.0 -> 273.0	70347	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	66521	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C6-PFDA	8.076	519.1 -> 474.1	20879	1.49 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25540	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C8-FOSA	9.623	506.1 -> 77.8	9711	1.06 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 42.3%	
13C8-PFOA	7.074	421.1 -> 376.0	78872	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOS	8.239	507.1 -> 79.9	11136	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C9-PFNA	7.594	472.1 -> 427.0	27407	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22620	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39623	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	10.728	515.0 -> 219.0	2599	0.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 30.0%	
d5-EtFOSAA	8.342	589.2 -> 419.0	18560	5.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	14861	4.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 16.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	20736	4.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 18.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	2532	0.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 23.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	9891	2.86 µg/L	99
		327.1 -> 80.9	3596		
6:2FTS	6.839	427.1 -> 407.0	8466	2.77 µg/L	99
		427.1 -> 80.9	2975		
8:2FTS	7.865	527.1 -> 507.0	5219	3.05 µg/L	99
		527.1 -> 80.8	2144		
EtFOSAA	8.343	584.2 -> 419.1	2150	0.68 µg/L	83
		584.2 -> 526.0	1392		
FOSA	9.614	498.1 -> 77.9	2884	0.83 µg/L	100
		498.1 -> 478.0	87		
MeFOSAA	8.136	570.1 -> 419.0	3260	0.77 µg/L	92
		570.1 -> 483.0	578		
PFBA	2.906	212.8 -> 168.9	18960	3.03 µg/L	100
PFBS	5.400	298.7 -> 79.9	6977	0.68 µg/L	98
		298.7 -> 98.8	2777		
PFDA	8.077	512.9 -> 469.0	17354	0.76 µg/L	93
		512.9 -> 219.0	2379		
PFDODA	8.961	613.1 -> 569.0	13324	0.73 µg/L	97
		613.1 -> 319.0	2121		
PFDS	9.125	599.0 -> 79.9	2592	0.73 µg/L	97

7.3.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	1231	0.77	µg/L	95
		363.1 -> 319.0	22835			
PFHpS	7.734	363.1 -> 169.0	3808	0.72	µg/L	96
		449.0 -> 79.9	4327			
PFHxA	5.470	449.0 -> 98.9	2081	0.72	µg/L	99
		313.0 -> 269.0	20077			
PFHxS	7.180	313.0 -> 118.9	859	0.74	µg/L	95
		398.7 -> 79.9	4964			
PFNA	7.595	398.7 -> 98.9	2401	0.76	µg/L	93
		463.0 -> 419.0	14374			
PFNS	8.694	463.0 -> 219.0	2555	0.72	µg/L	99
		548.8 -> 79.9	3881			
PFOA	7.076	548.8 -> 98.9	2100	0.89	µg/L	99
		413.0 -> 369.0	31347			
PFOS	8.240	413.0 -> 169.0	5281	0.63	µg/L	99
		498.9 -> 79.9	3363			
PFPeA	4.273	498.9 -> 98.8	2153	1.49	µg/L	100
		263.0 -> 219.0	27081			
PFPeS	6.484	349.1 -> 79.9	5274	0.75	µg/L	95
		349.1 -> 98.9	2385			
PFTeDA	9.690	713.1 -> 669.0	10796	0.82	µg/L	99
		713.1 -> 168.9	863			
PFTrDA	9.345	663.0 -> 619.0	14870	0.74	µg/L	99
		663.0 -> 168.9	1338			
PFUnDA	8.531	563.1 -> 519.0	13133	0.74	µg/L	91
		563.1 -> 269.1	1785			
11CI-PF3OUdS	9.398	630.9 -> 450.9	18860	1.39	µg/L	96
		632.9 -> 452.9	5637			
9CI-PF3ONS	8.569	530.8 -> 351.0	31811	1.48	µg/L	96
		532.8 -> 353.0	10064			
ADONA	6.681	376.9 -> 250.9	88054	1.47	µg/L	96
		376.9 -> 84.8	24452			
HFPO-DA	5.846	284.9 -> 168.9	5492	1.46	µg/L	97
		284.9 -> 184.9	703			
3:3FTCA	3.784	241.0 -> 177.0	3551	3.13	µg/L	98
		241.0 -> 117.0	444			
5:3FTCA	6.160	341.0 -> 237.1	72180	16.04	µg/L	99
		341.0 -> 217.0	47789			
7:3FTCA	7.573	441.0 -> 316.9	31788	15.55	µg/L	90
		441.0 -> 336.9	63579			
EtFOSA	10.975	526.0 -> 219.0	1655	1.59	µg/L	96
		526.0 -> 169.0	2088			
EtFOSE	10.907	630.0 -> 58.9	2954	3.42	µg/L	100
		511.9 -> 219.0	1721			
MeFOSA	10.730	511.9 -> 169.0	2392	1.47	µg/L	97
		616.1 -> 58.9	2637			
MeFOSE	10.661	699.1 -> 79.9	1089	3.98	µg/L	100
		699.1 -> 98.8	611			
PFDoDS	9.817	295.0 -> 201.0	4362	0.59	µg/L	99
		295.0 -> 84.9	1060			
NFDHA	5.350	279.0 -> 85.1	18244	1.45	µg/L	100
		229.0 -> 84.9	13254			
PFMBA	4.687	314.8 -> 134.9	46292	1.32	µg/L	99
		314.8 -> 82.9	1621			

= Qualifier out of range, m = manually integrated, + = Area summed

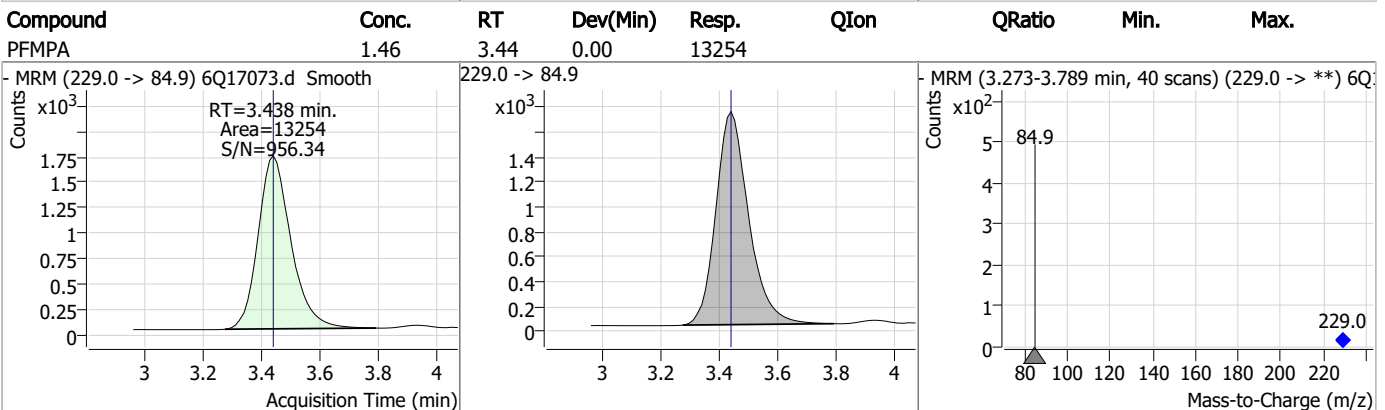
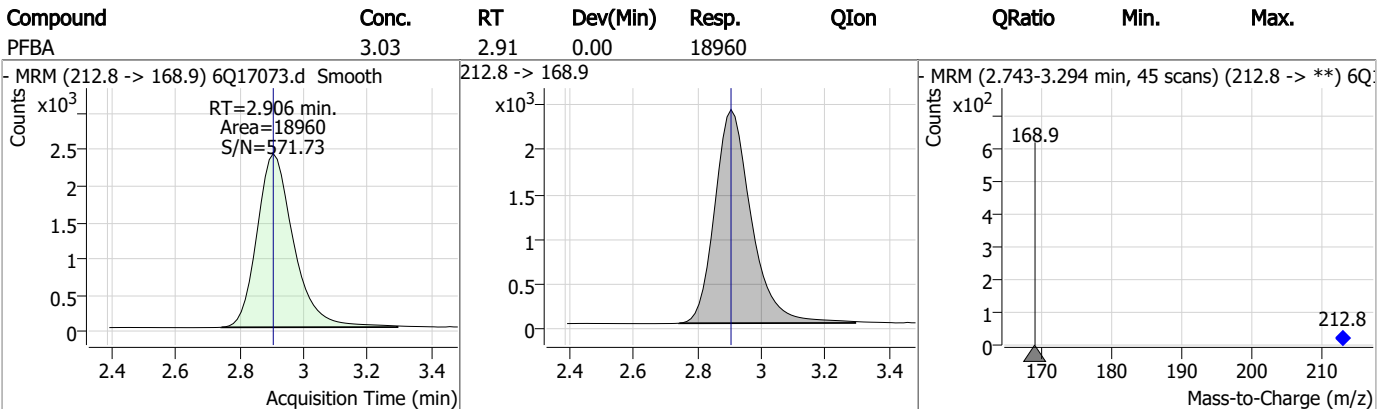
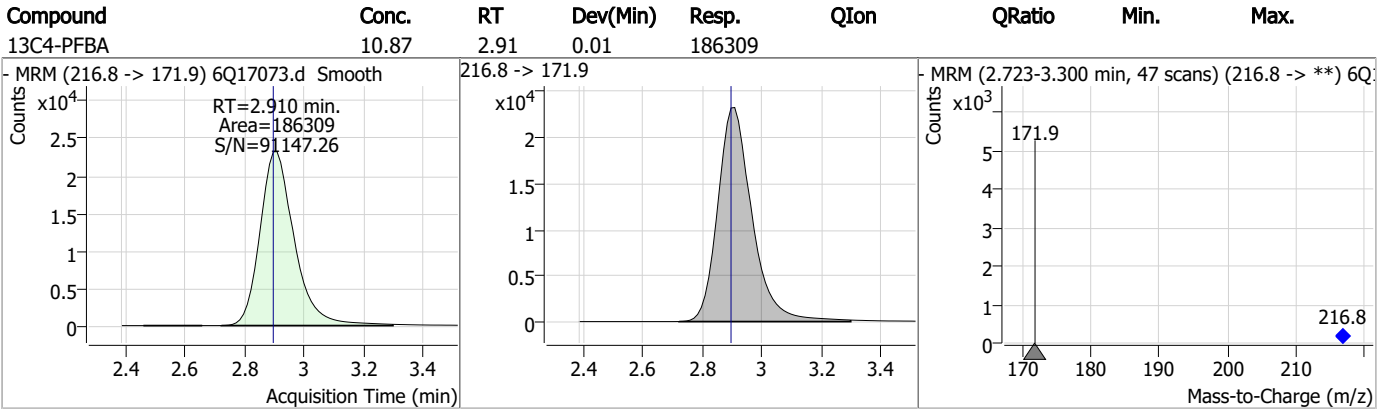
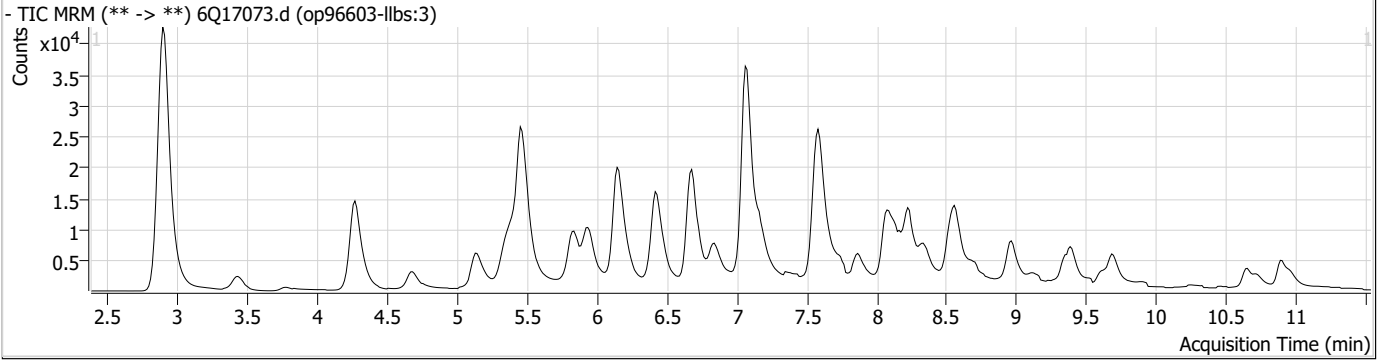
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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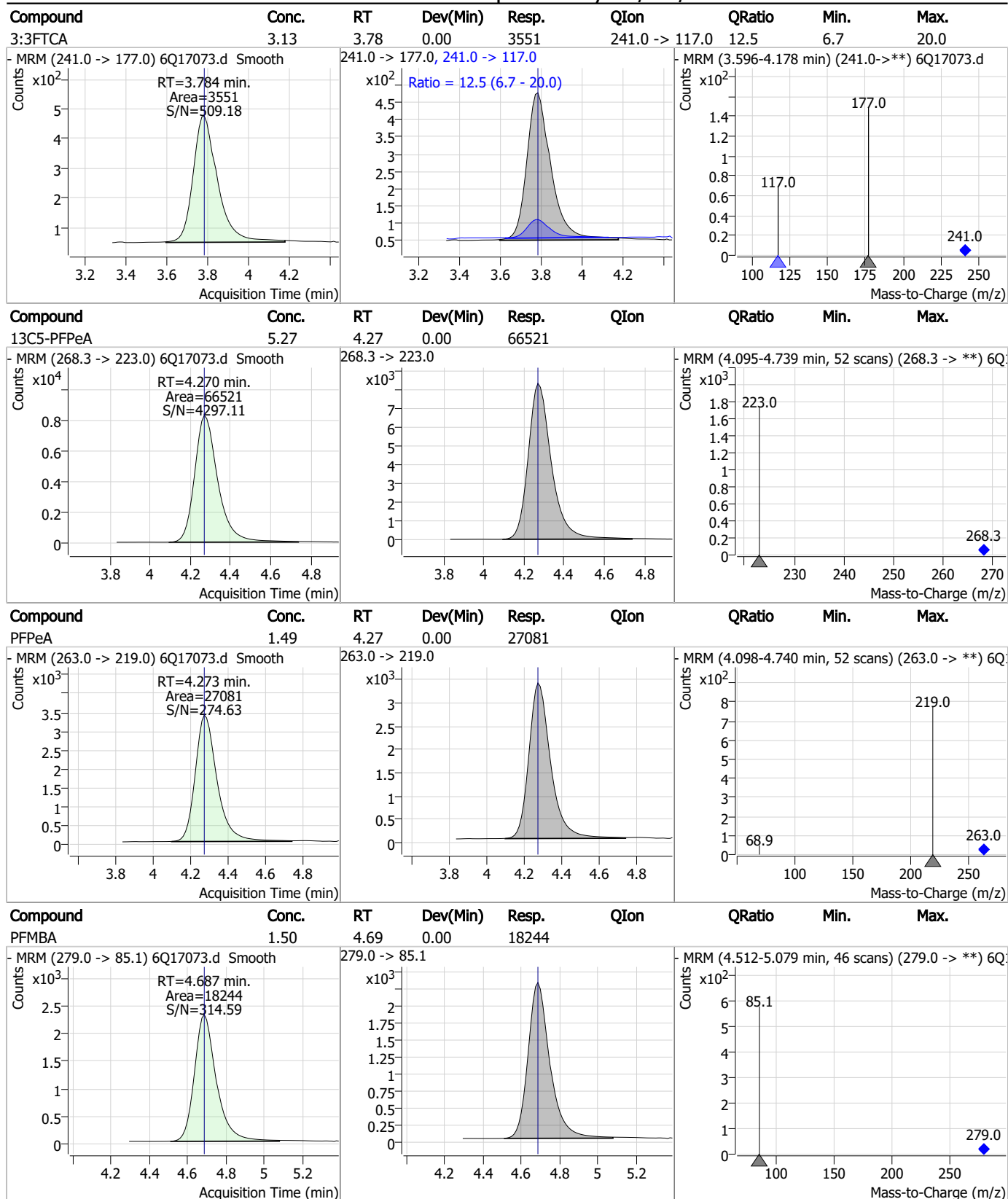
7.3.2

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Perfluorinated Compounds by LC/MS/MS

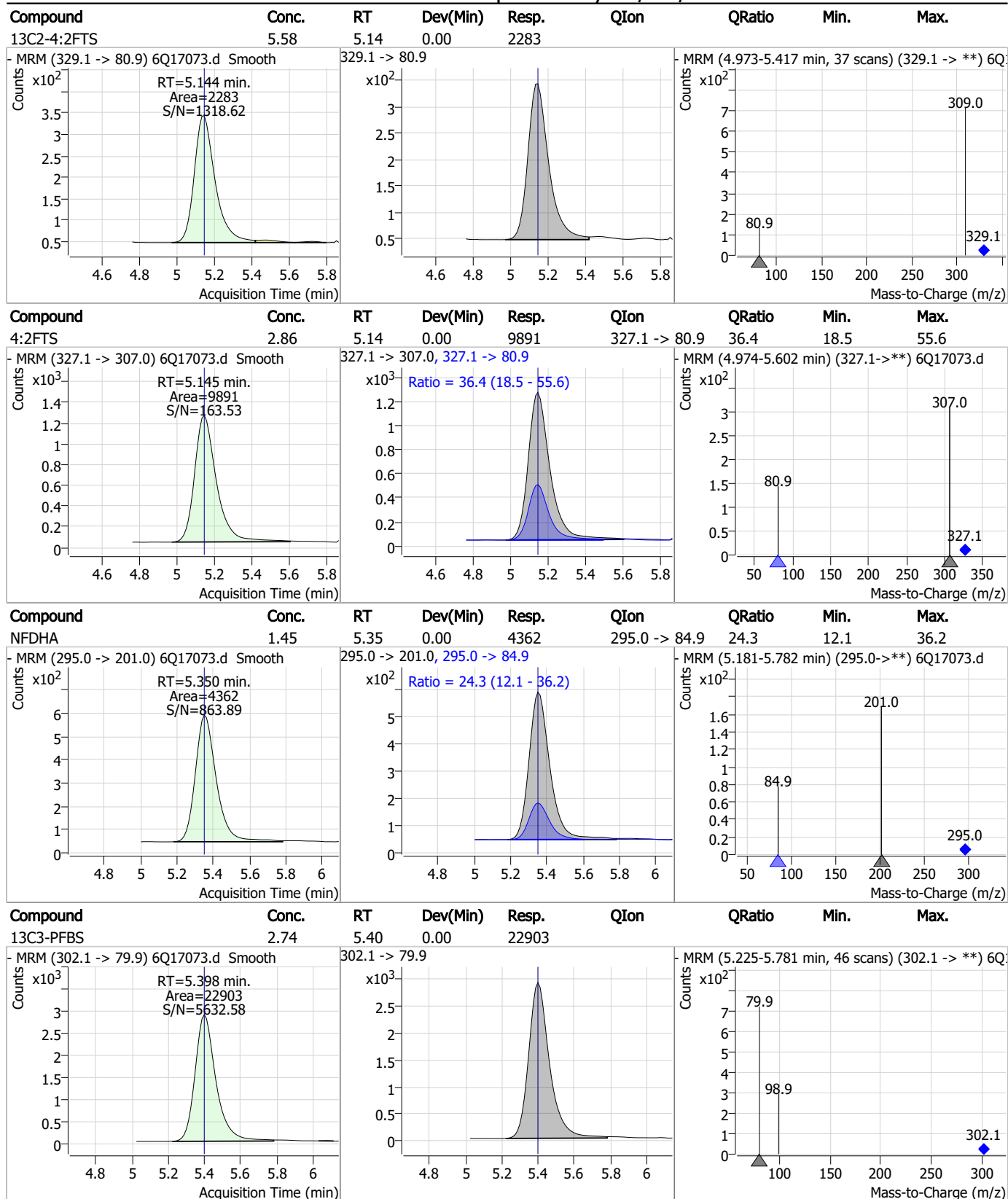


Perfluorinated Compounds by LC/MS/MS



7.3.2
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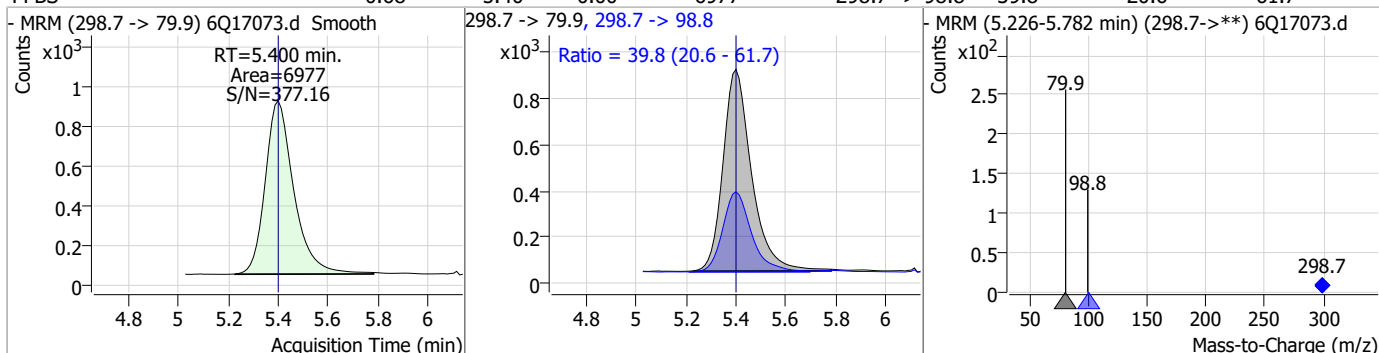
Perfluorinated Compounds by LC/MS/MS



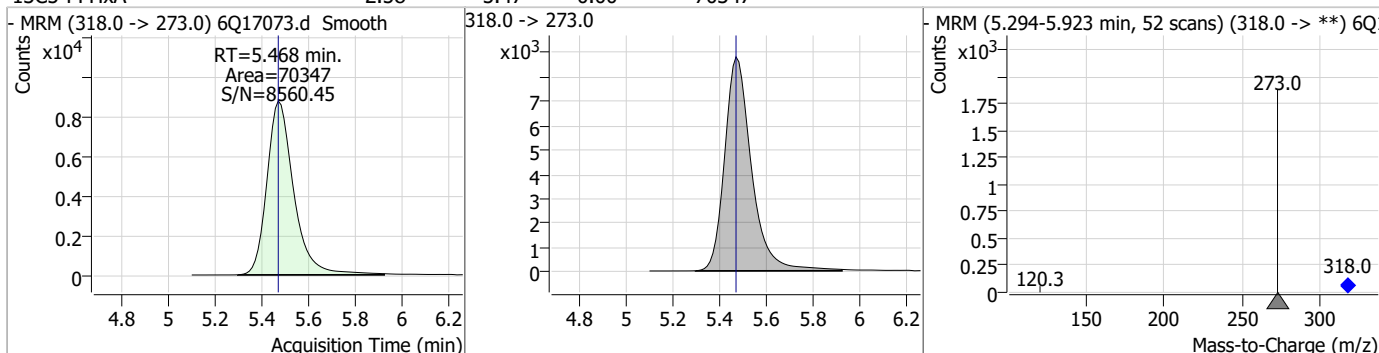
7.3.2
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Perfluorinated Compounds by LC/MS/MS

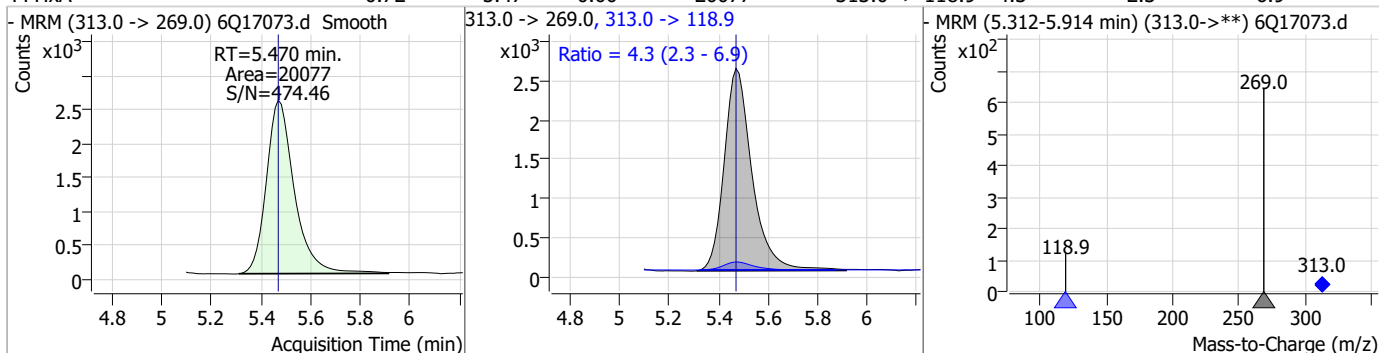
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.68	5.40	0.00	6977	298.7 -> 98.8	39.8	20.6	61.7



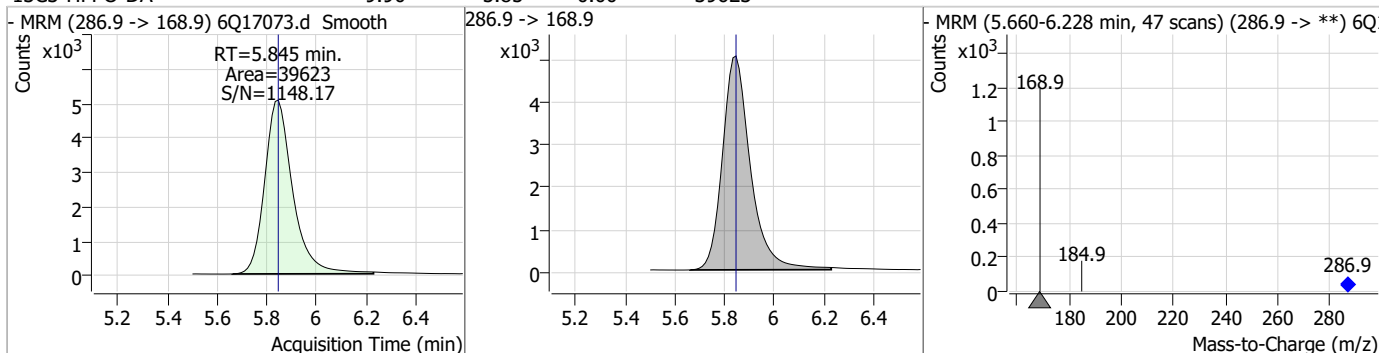
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.58	5.47	0.00	70347				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.72	5.47	0.00	20077	313.0 -> 118.9	4.3	2.3	6.9

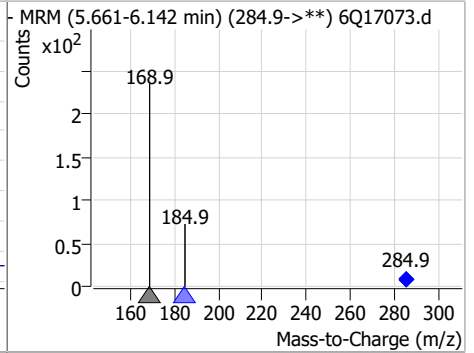
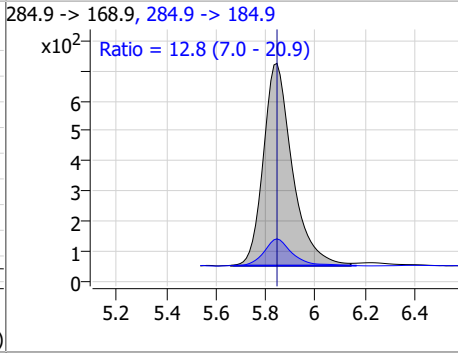
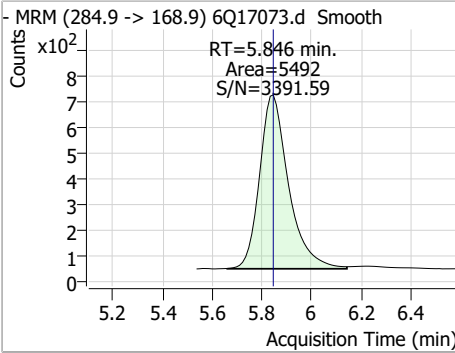


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.90	5.85	0.00	39623				

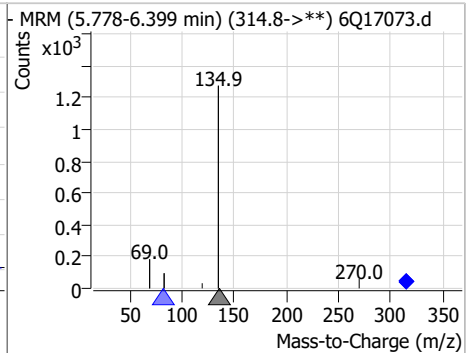
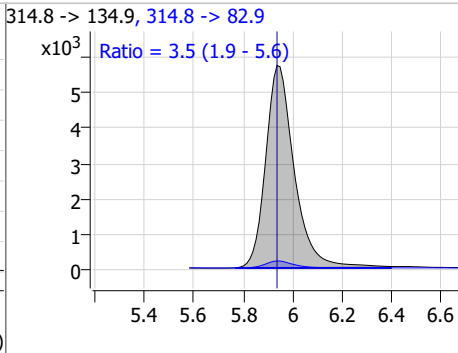
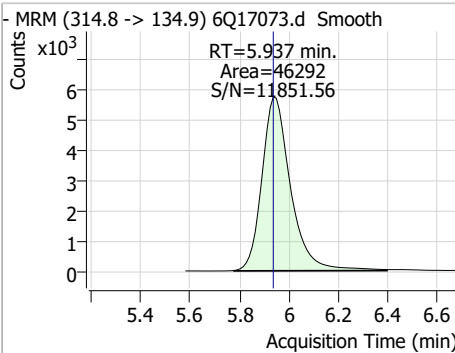


Perfluorinated Compounds by LC/MS/MS

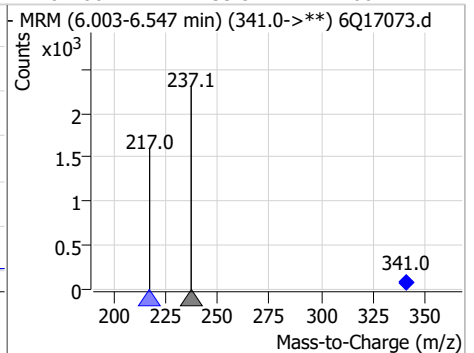
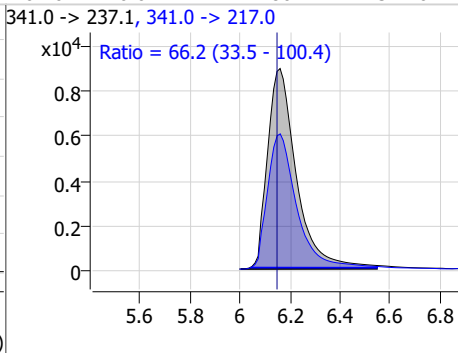
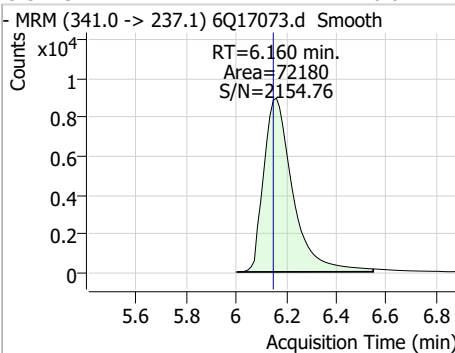
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.46	5.85	0.00	5492	284.9 -> 184.9	12.8	7.0	20.9



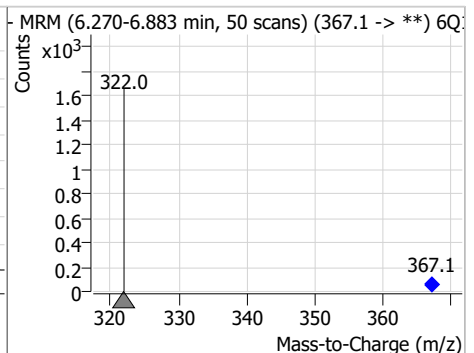
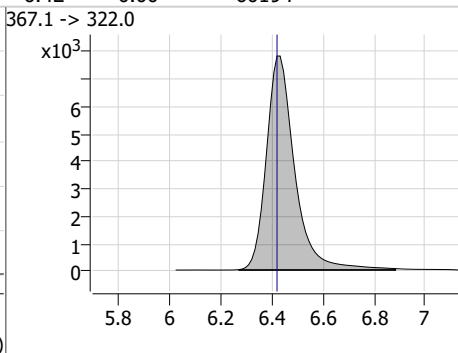
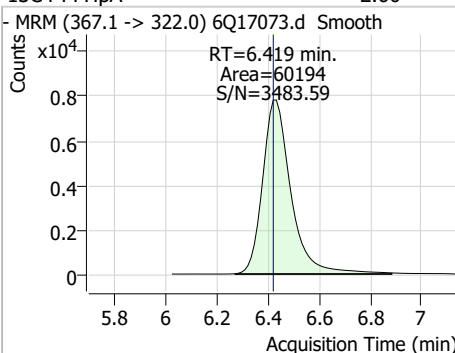
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	1.32	5.94	0.00	46292	314.8 -> 82.9	3.5	1.9	5.6



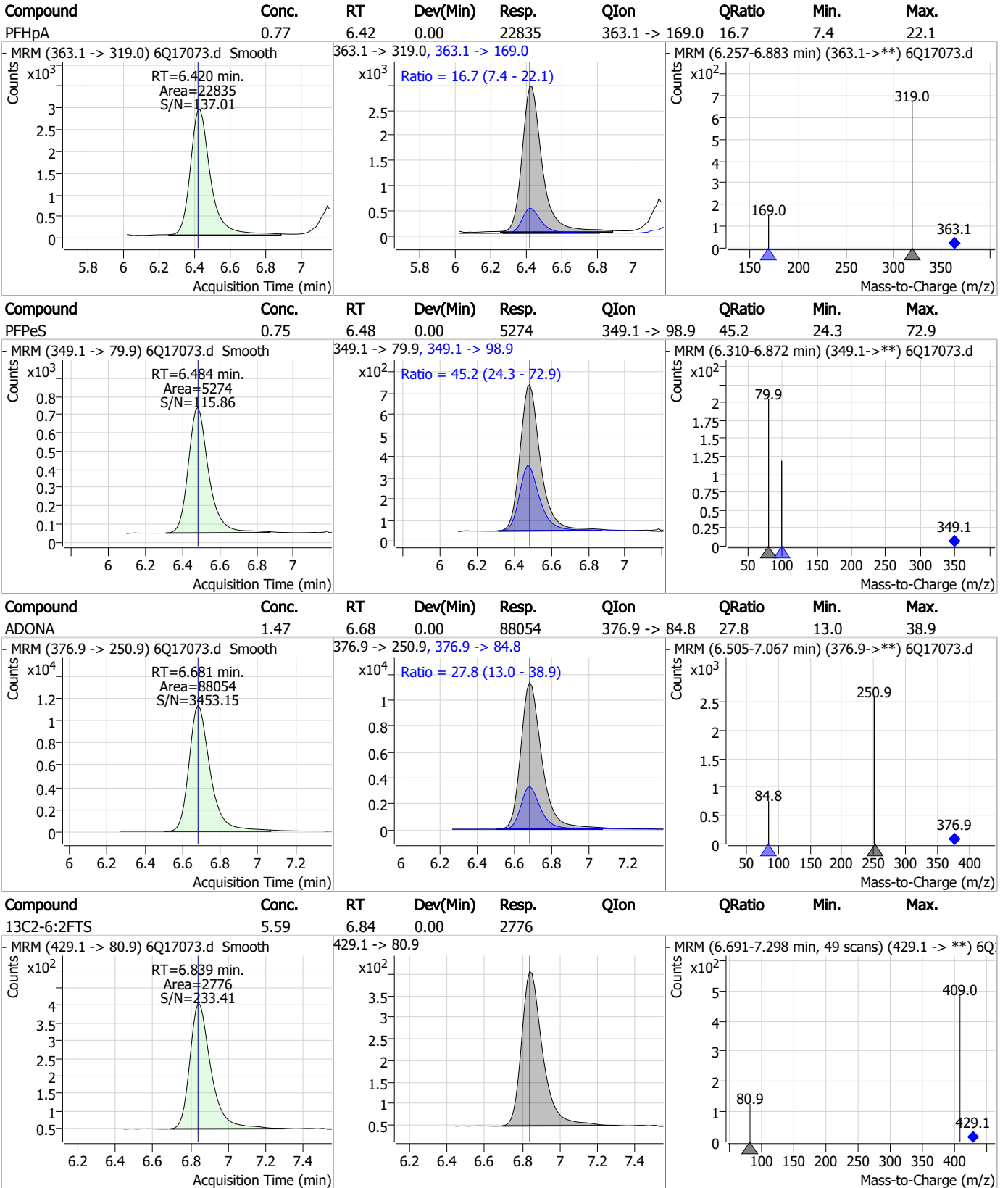
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	16.04	6.16	0.01	72180	341.0 -> 217.0	66.2	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.60	6.42	0.00	60194	367.1 -> 322.0			



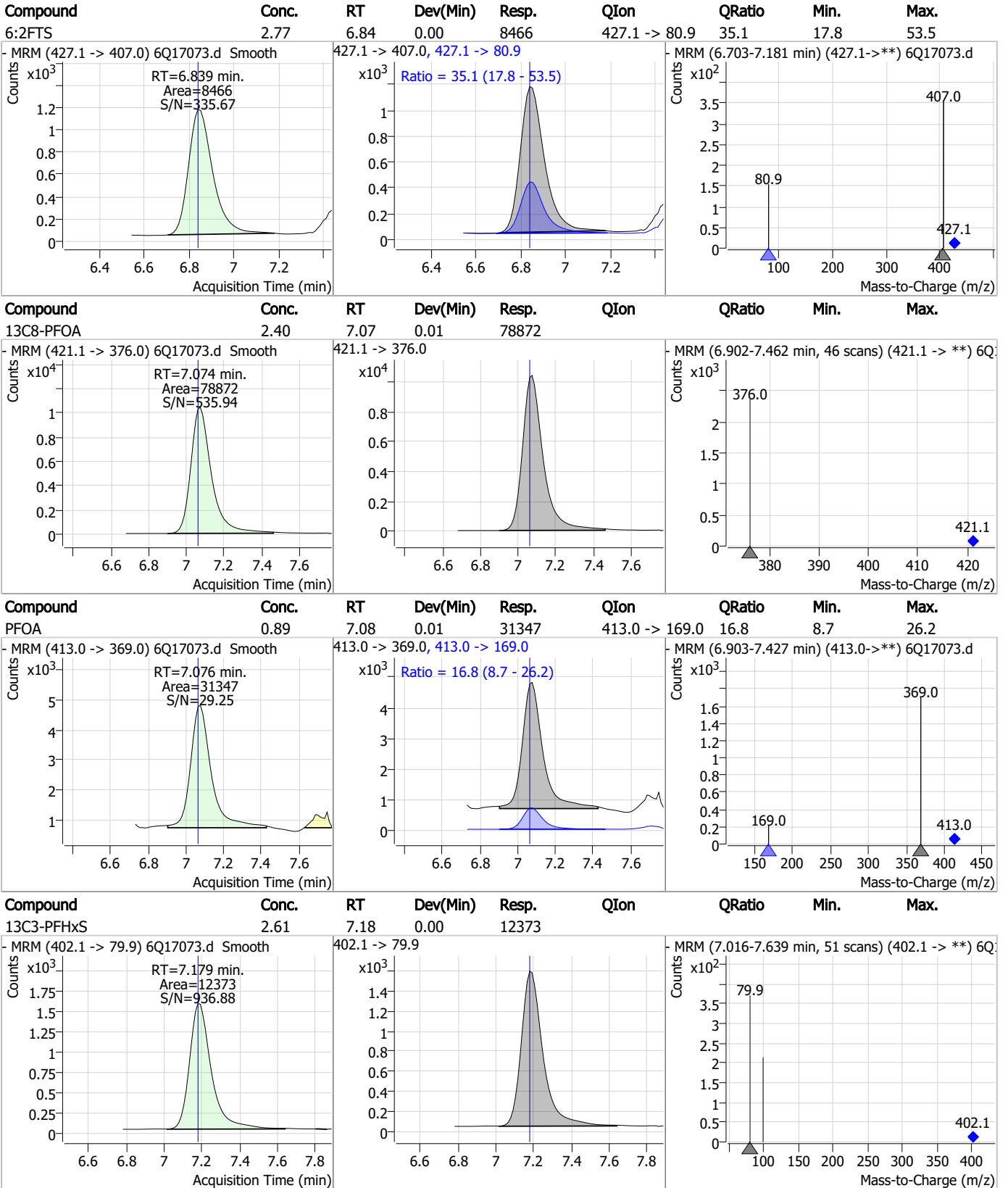
Perfluorinated Compounds by LC/MS/MS



7.3.2
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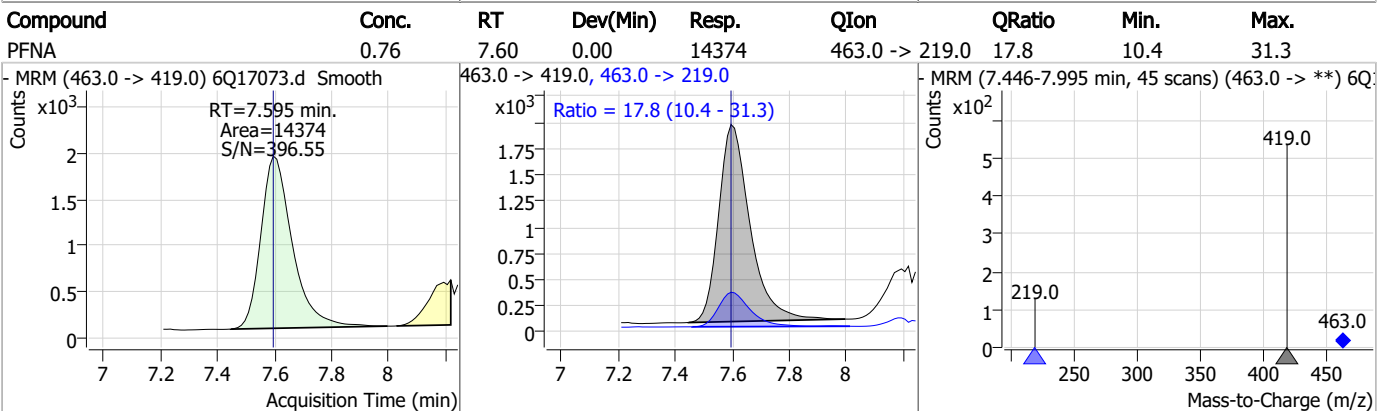
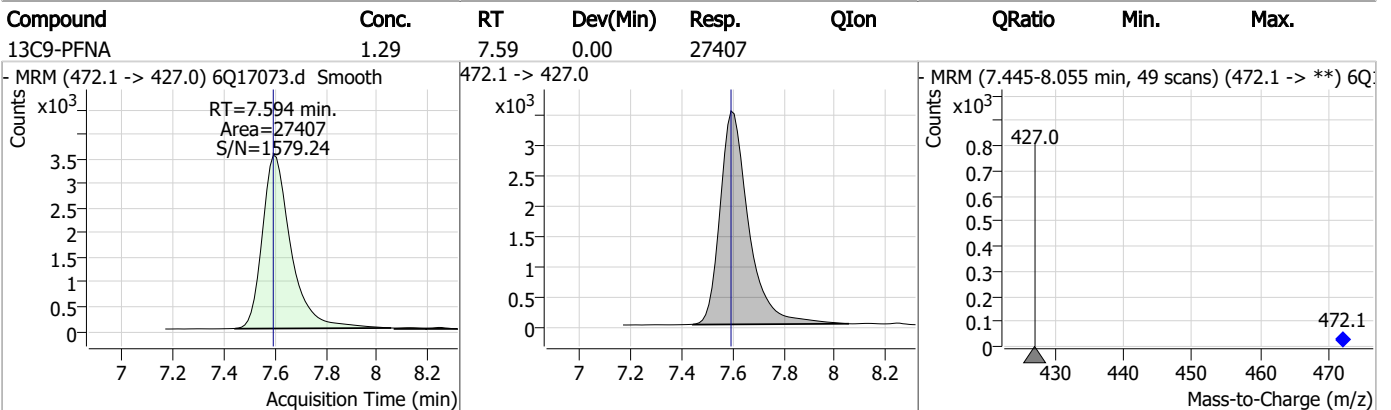
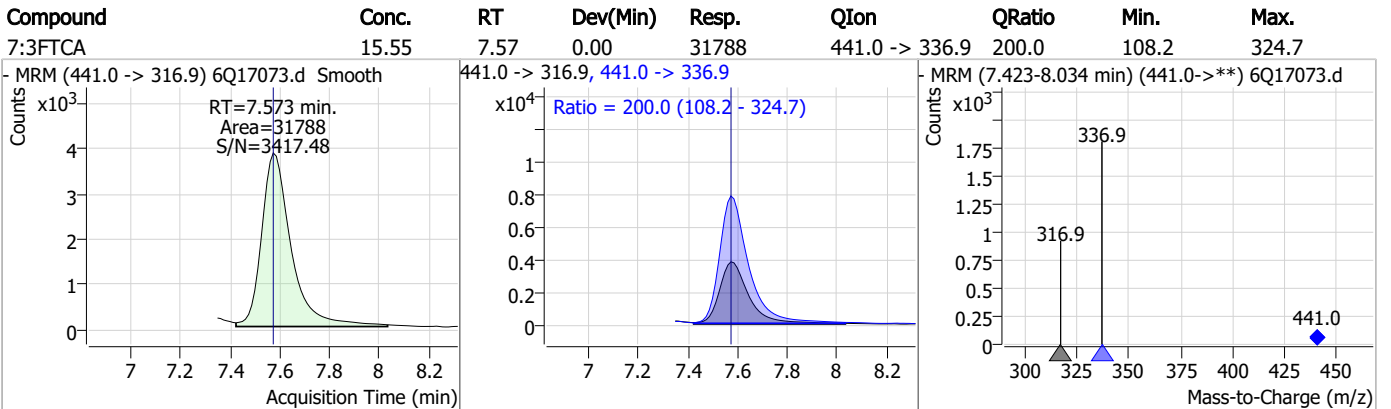
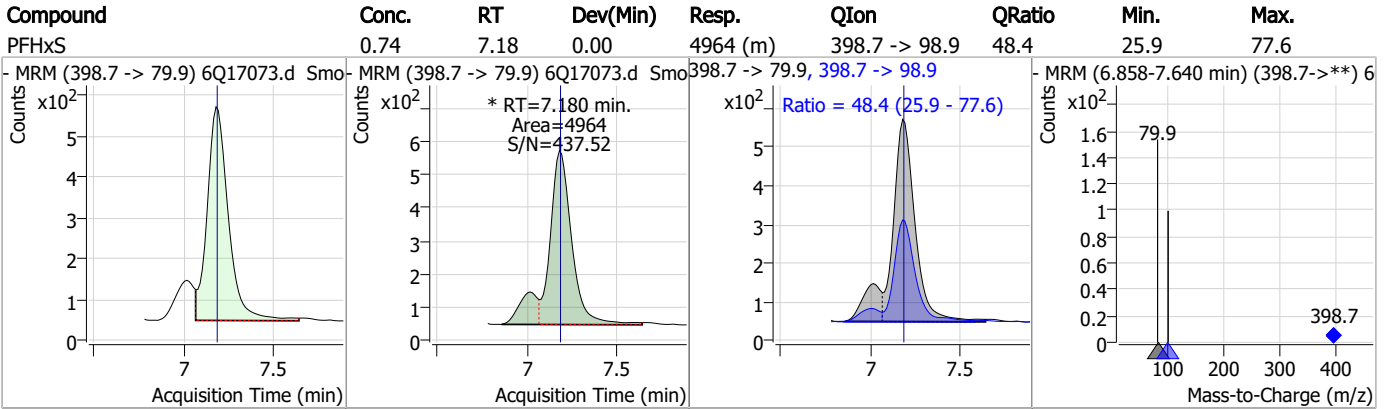
Perfluorinated Compounds by LC/MS/MS



7.3.2



Perfluorinated Compounds by LC/MS/MS

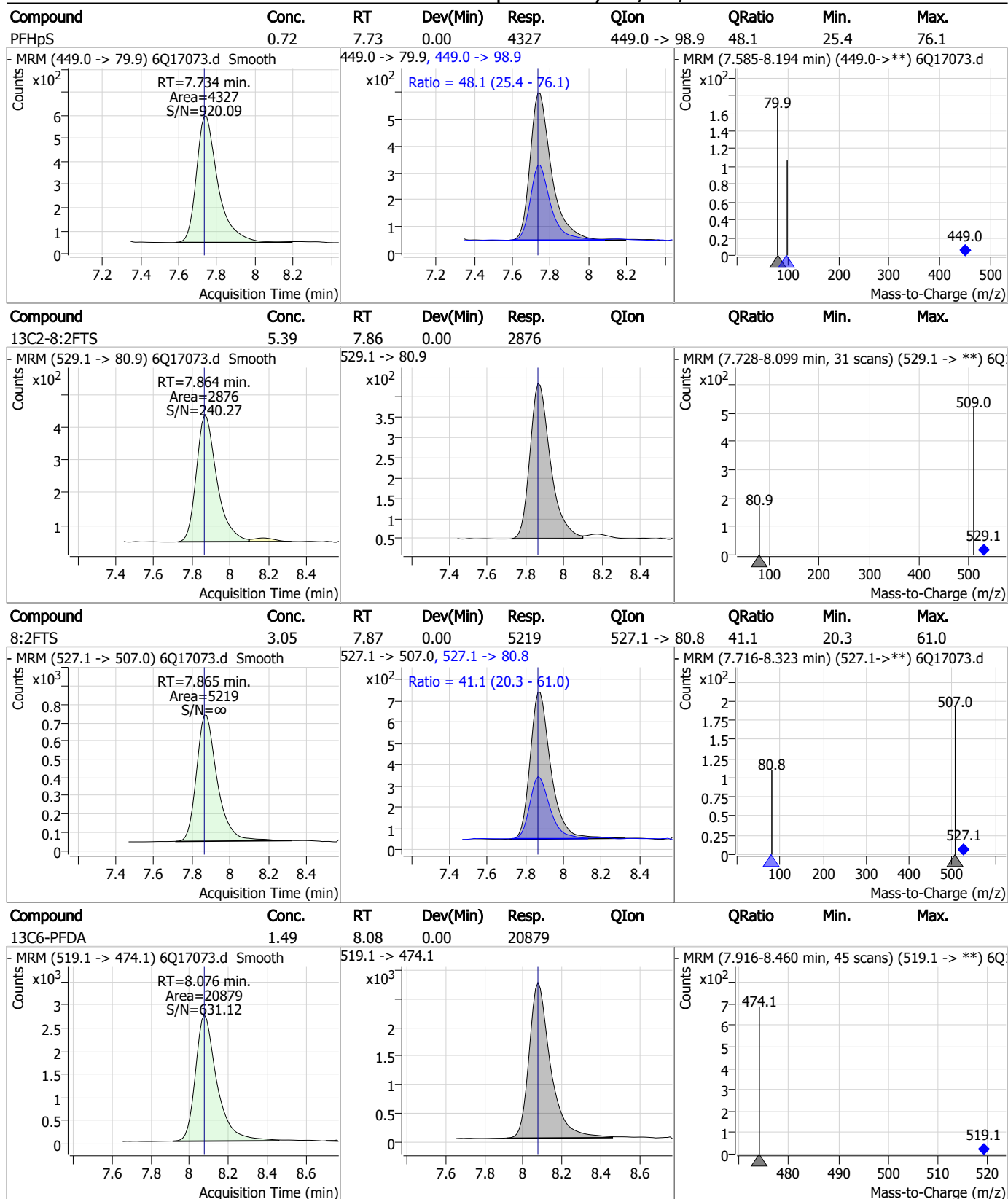


7.3.2

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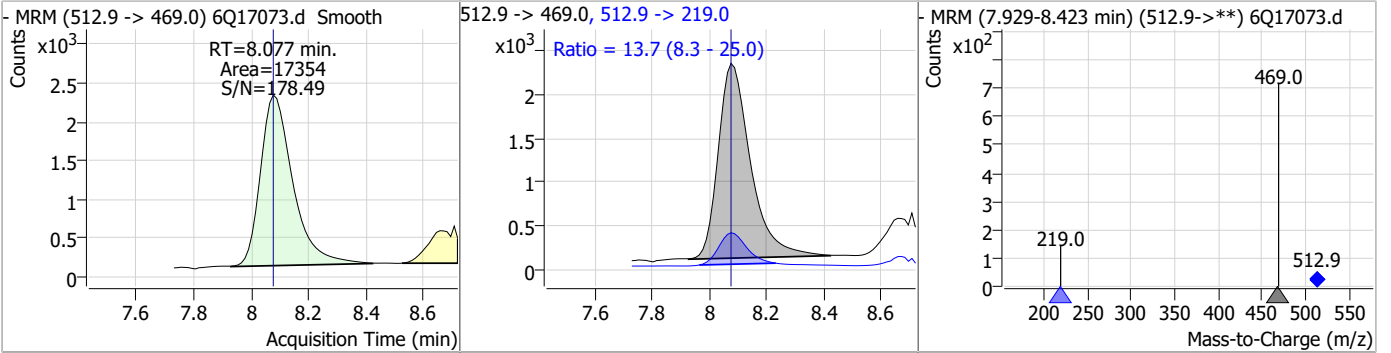
Perfluorinated Compounds by LC/MS/MS



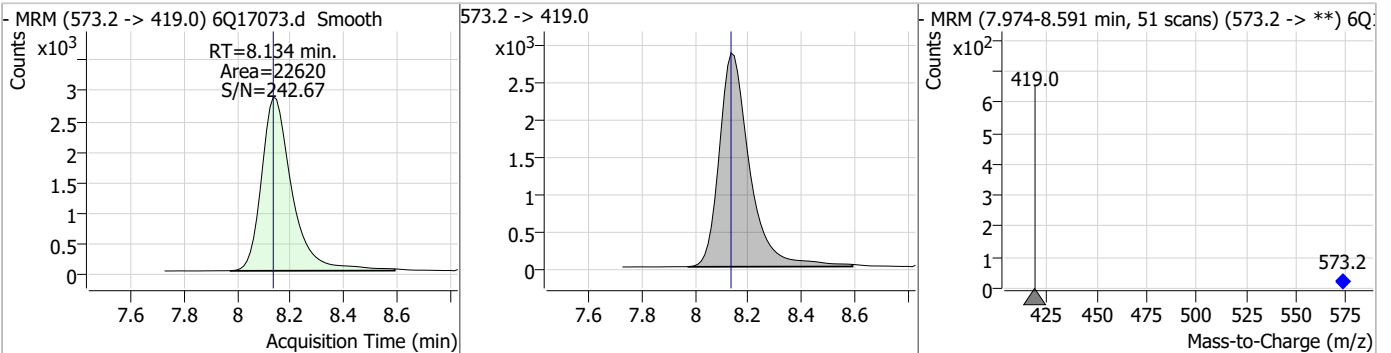
7.3.2
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Perfluorinated Compounds by LC/MS/MS

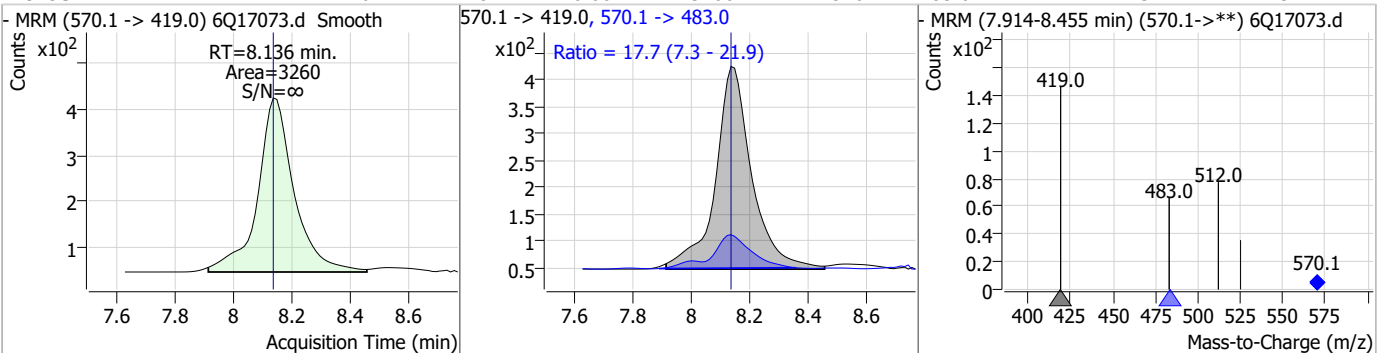
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.76	8.08	0.00	17354	512.9 -> 219.0	13.7	8.3	25.0



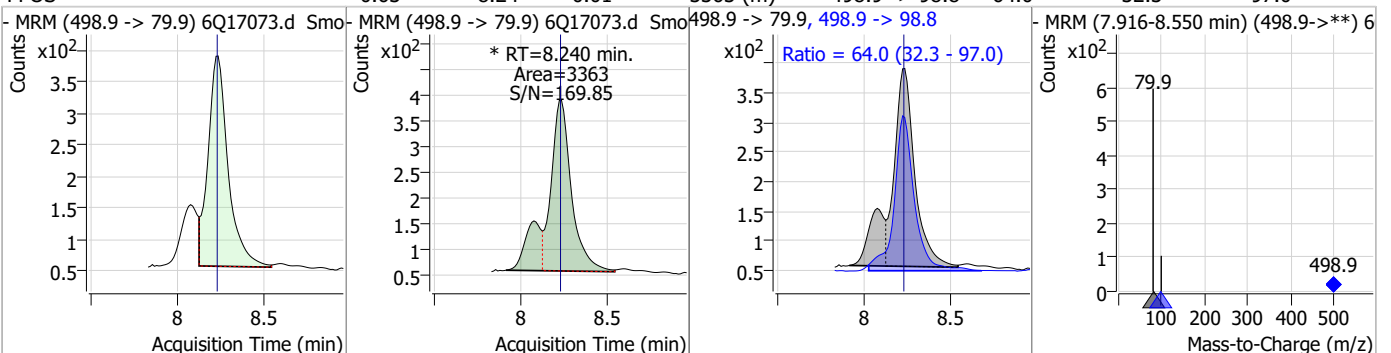
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.46	8.13	0.00	22620				



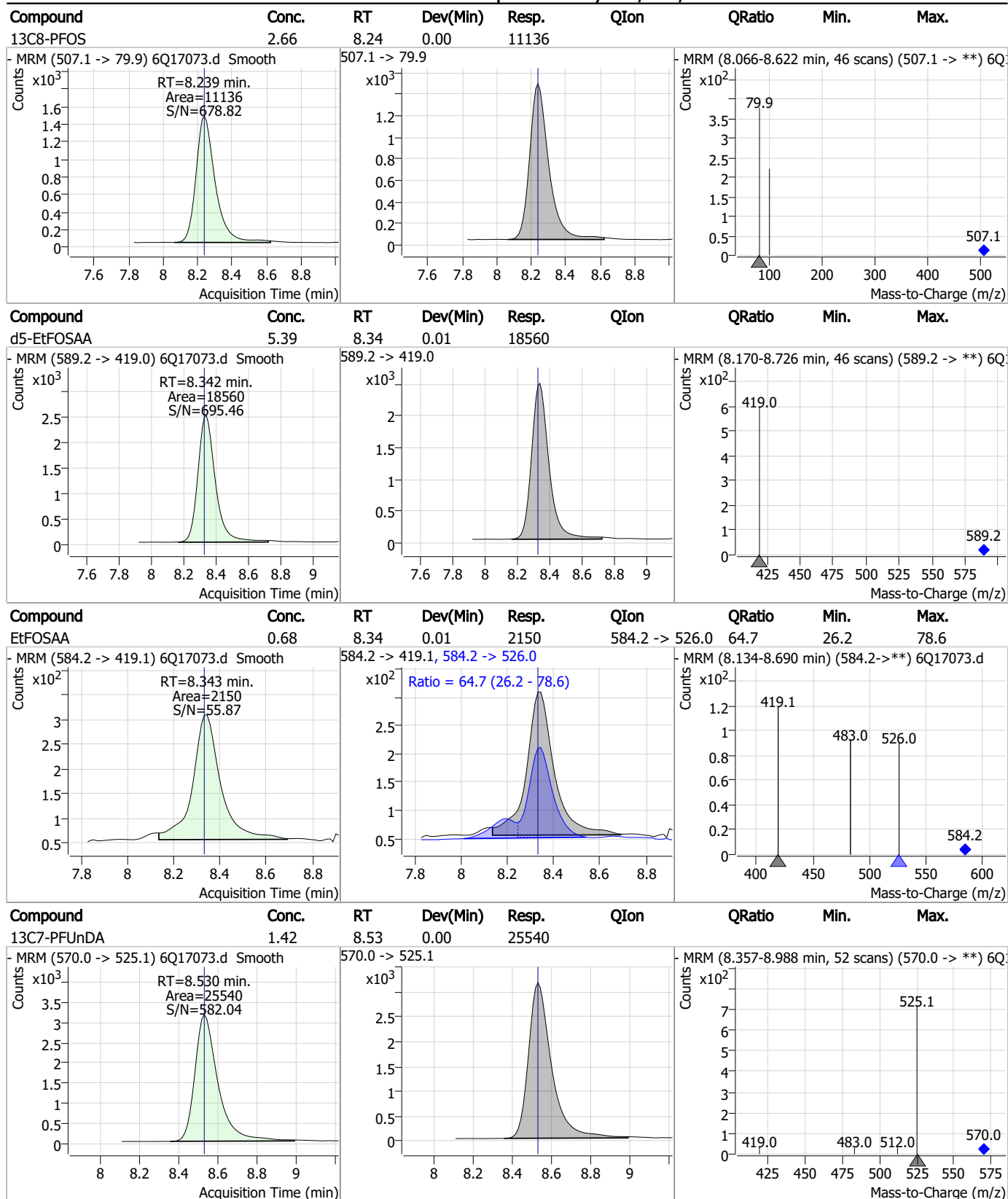
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.77	8.14	0.00	3260	570.1 -> 483.0	17.7	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.63	8.24	0.01	3363 (m)	498.9 -> 98.8	64.0	32.3	97.0



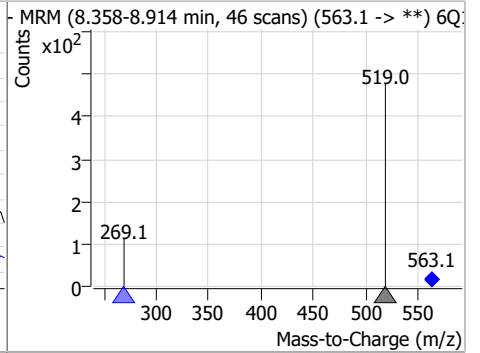
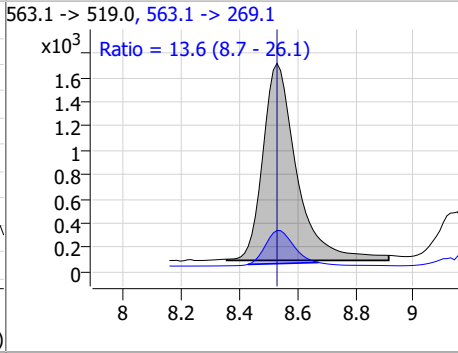
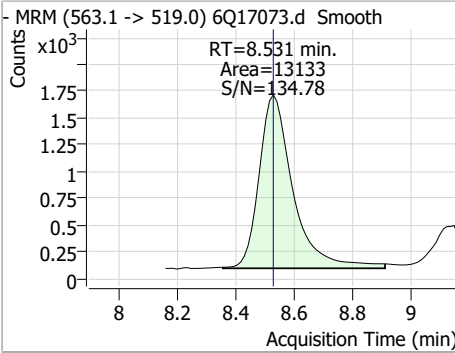
Perfluorinated Compounds by LC/MS/MS



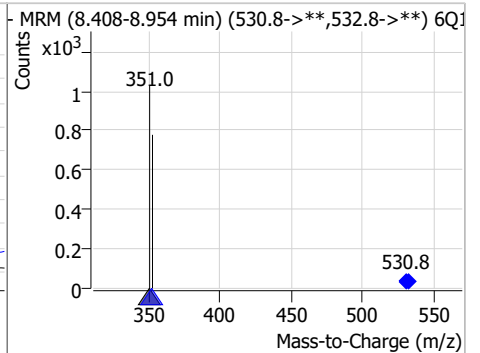
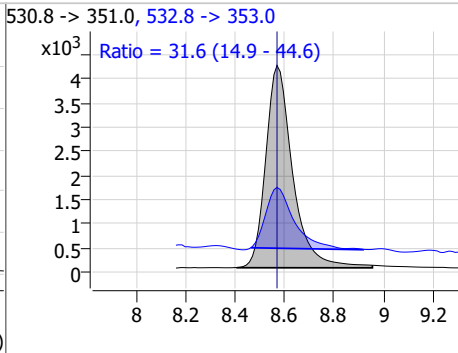
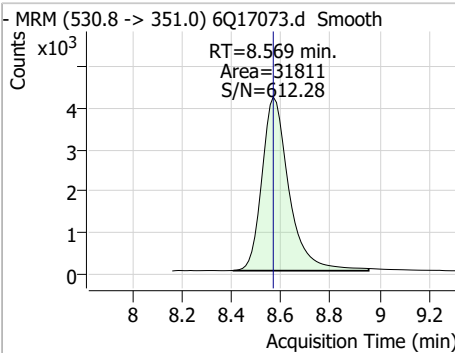
7.3.2
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Perfluorinated Compounds by LC/MS/MS

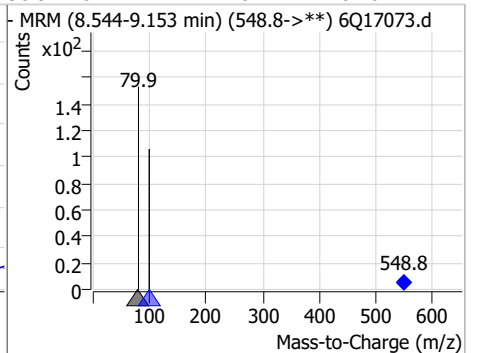
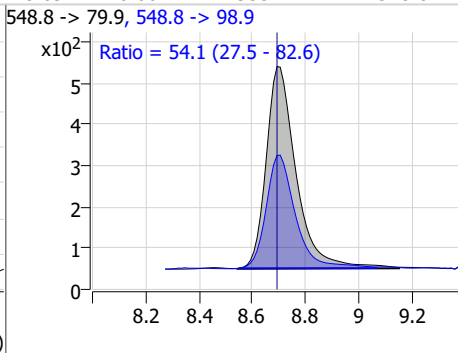
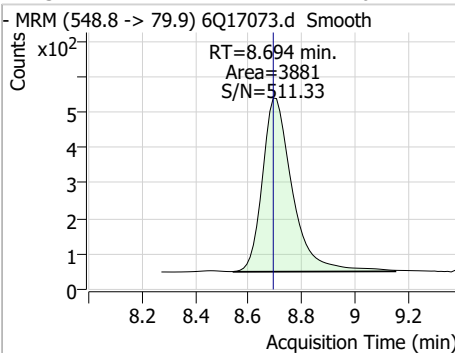
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.74	8.53	0.00	13133	563.1 -> 269.1	13.6	8.7	26.1



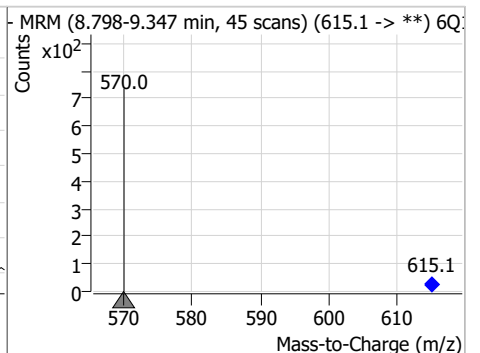
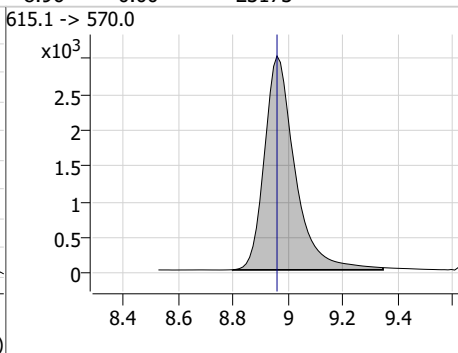
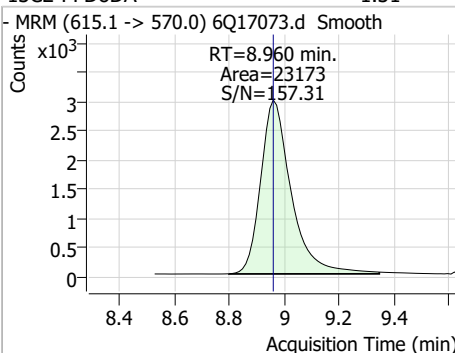
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	1.48	8.57	0.00	31811	532.8 -> 353.0	31.6	14.9	44.6



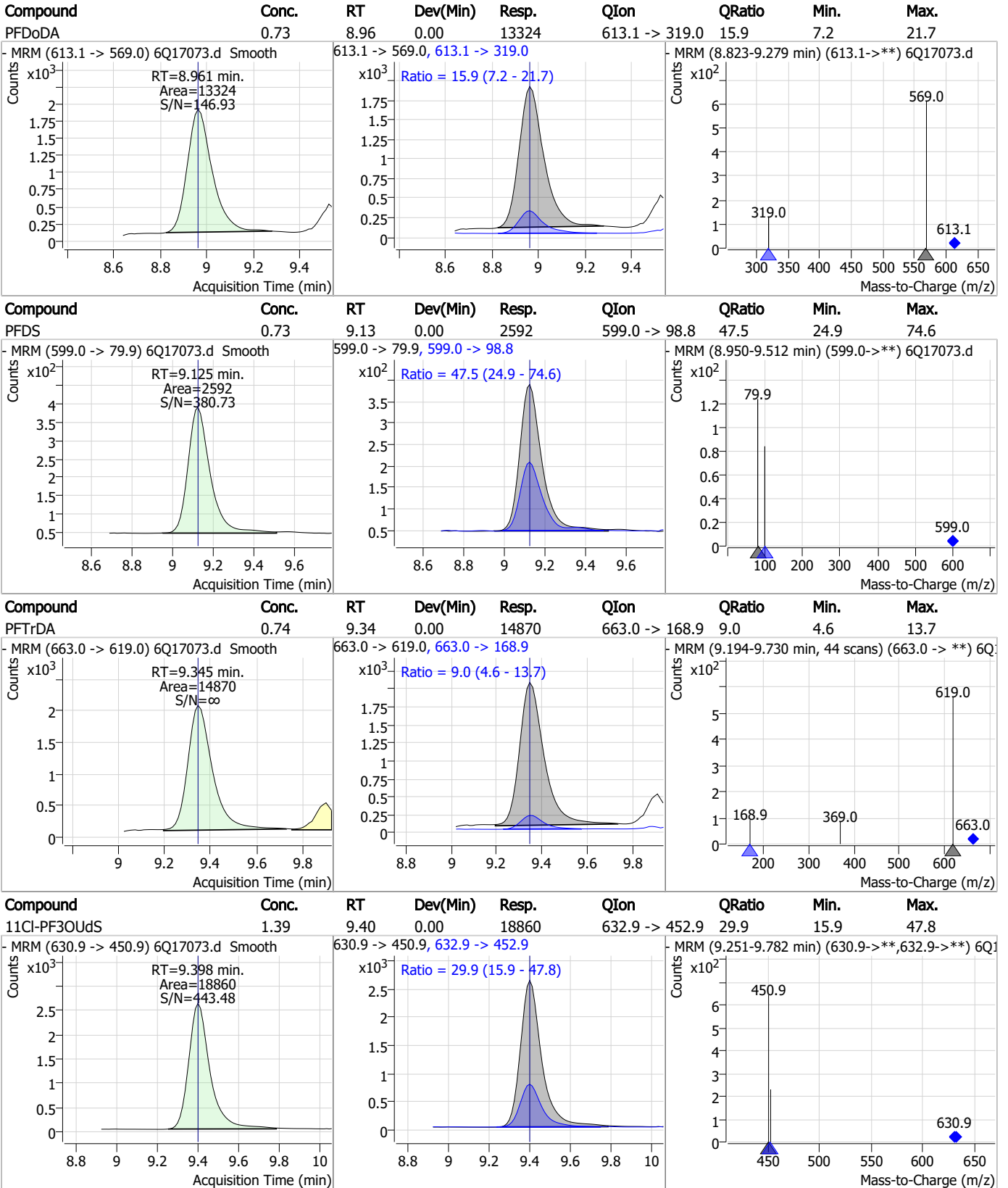
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.72	8.69	0.00	3881	548.8 -> 98.9	54.1	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.31	8.96	0.00	23173	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

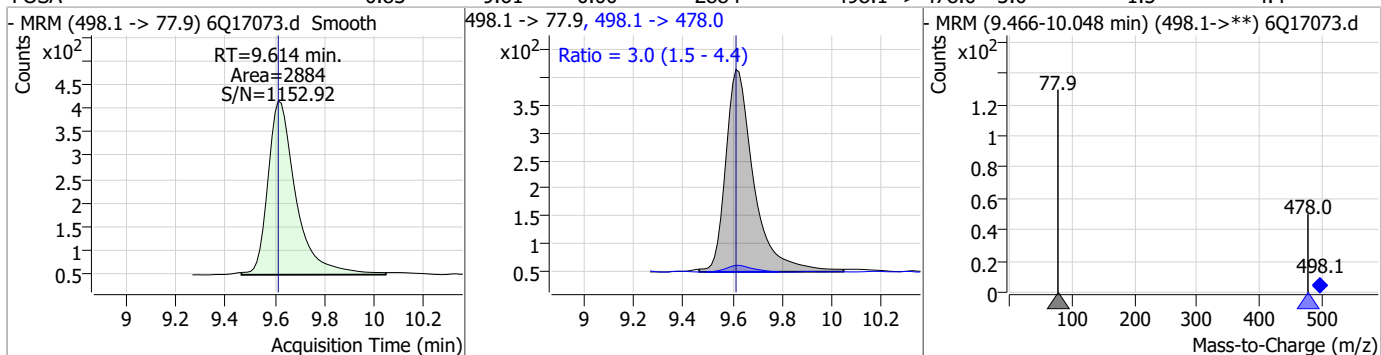


7.3.2
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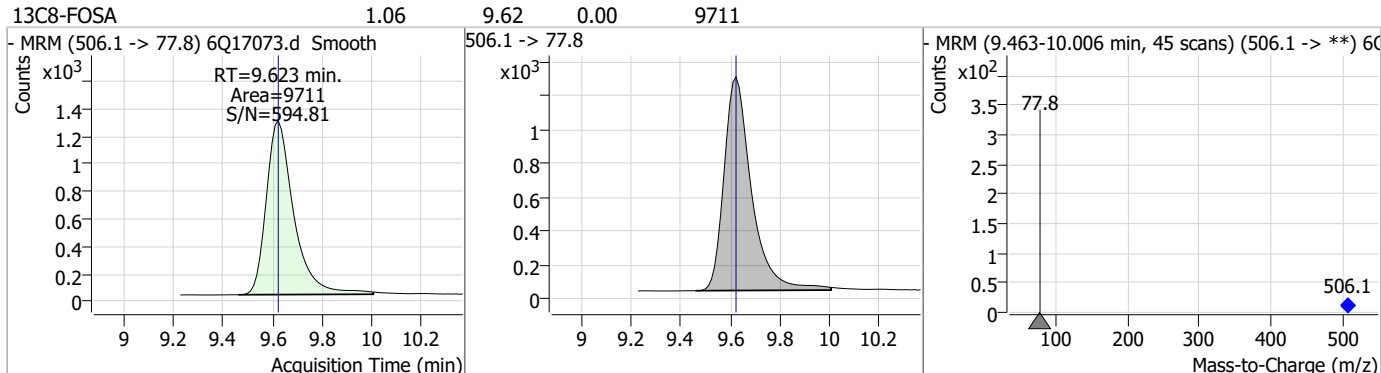


Perfluorinated Compounds by LC/MS/MS

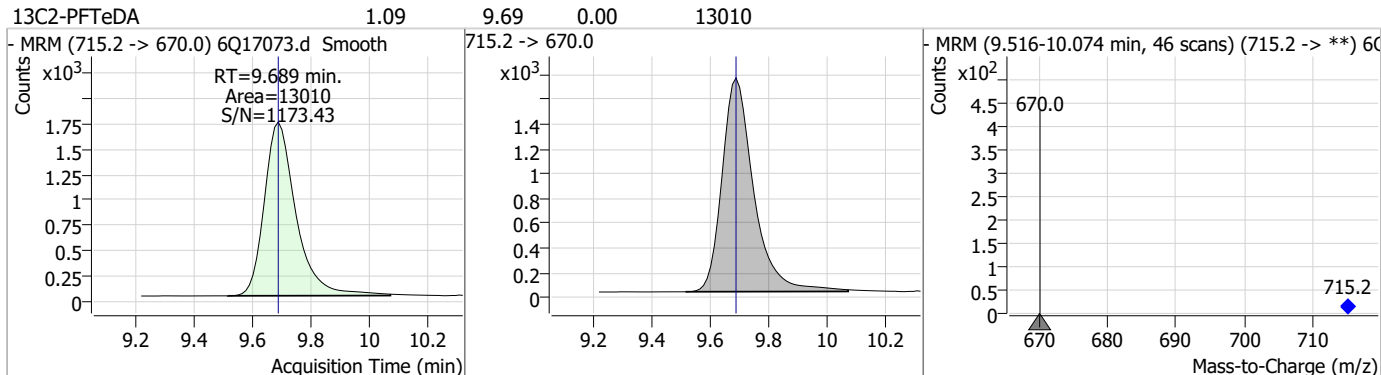
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.83	9.61	0.00	2884	498.1 -> 478.0	3.0	1.5	4.4



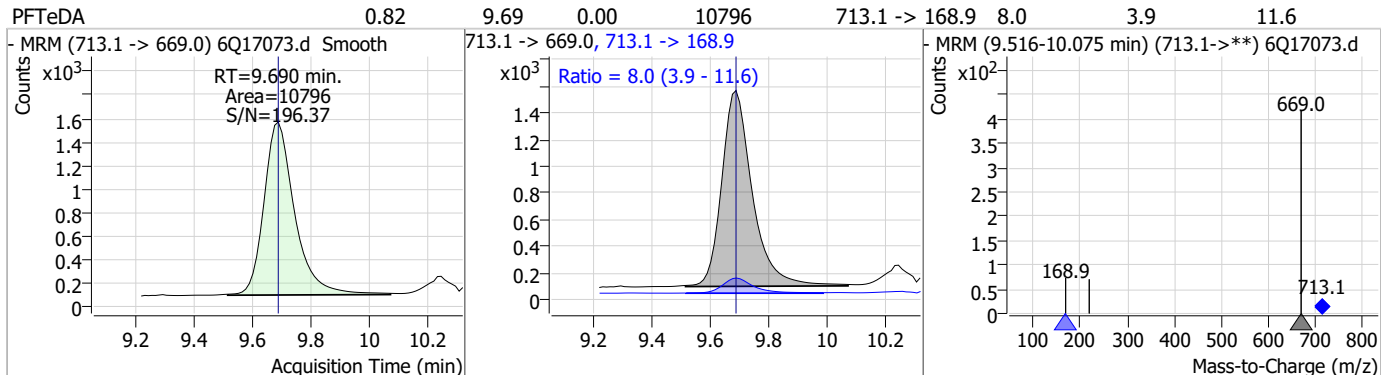
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.06	9.62	0.00	9711				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.09	9.69	0.00	13010				

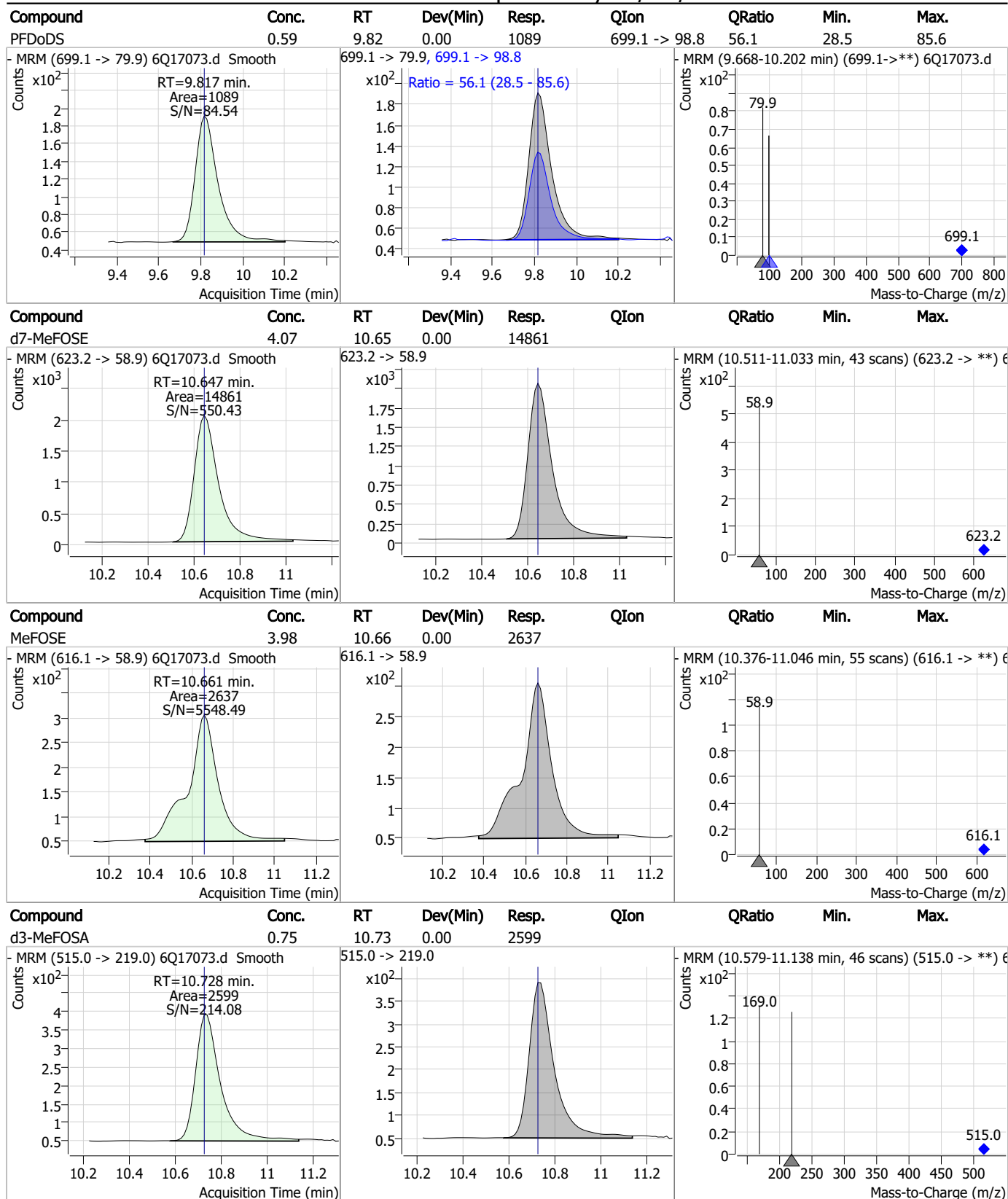


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.82	9.69	0.00	10796	713.1 -> 168.9	8.0	3.9	11.6



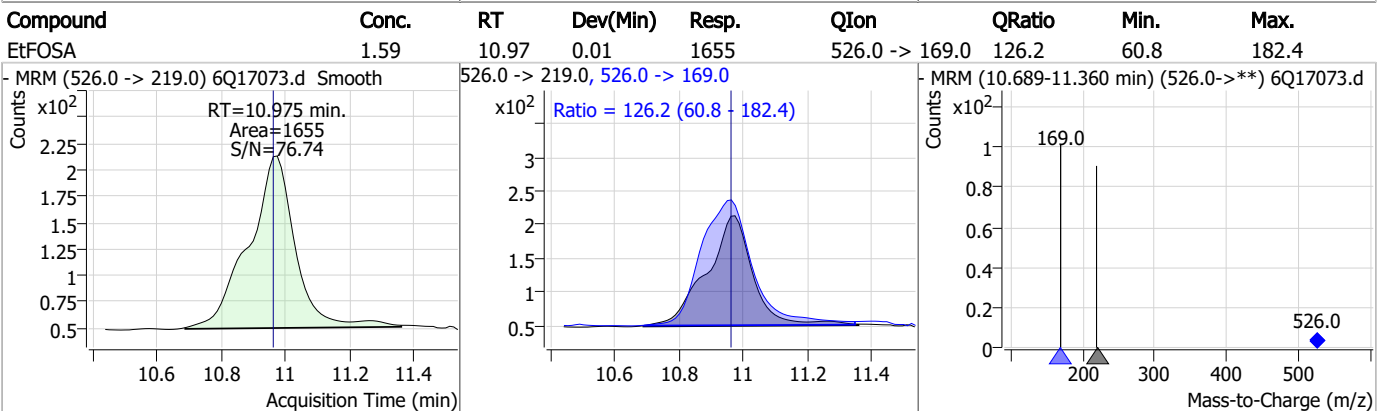
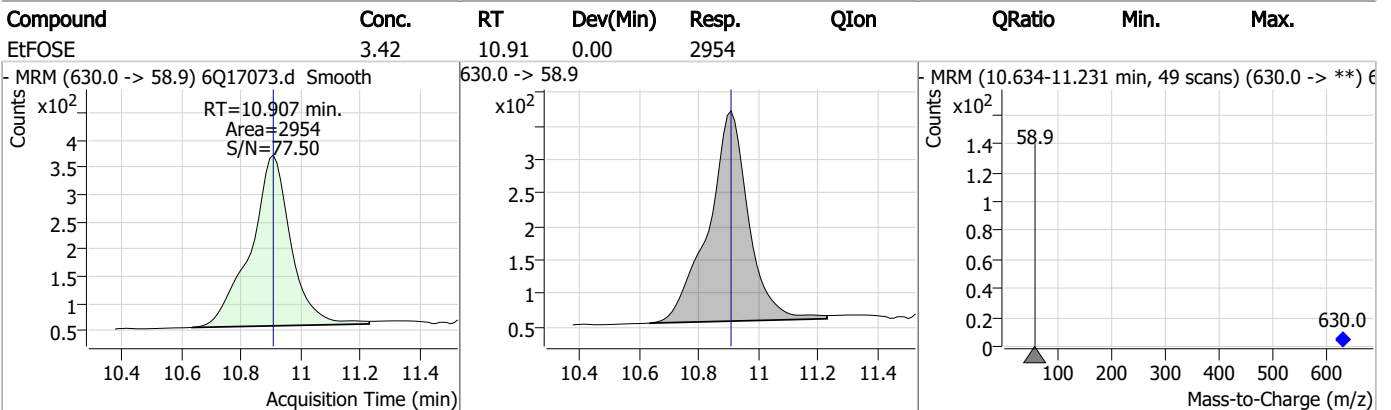
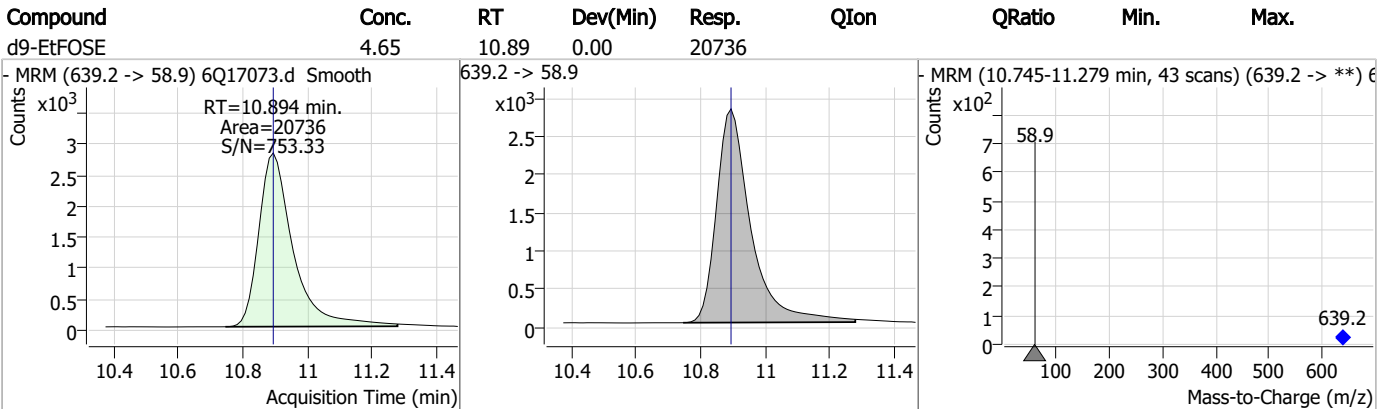
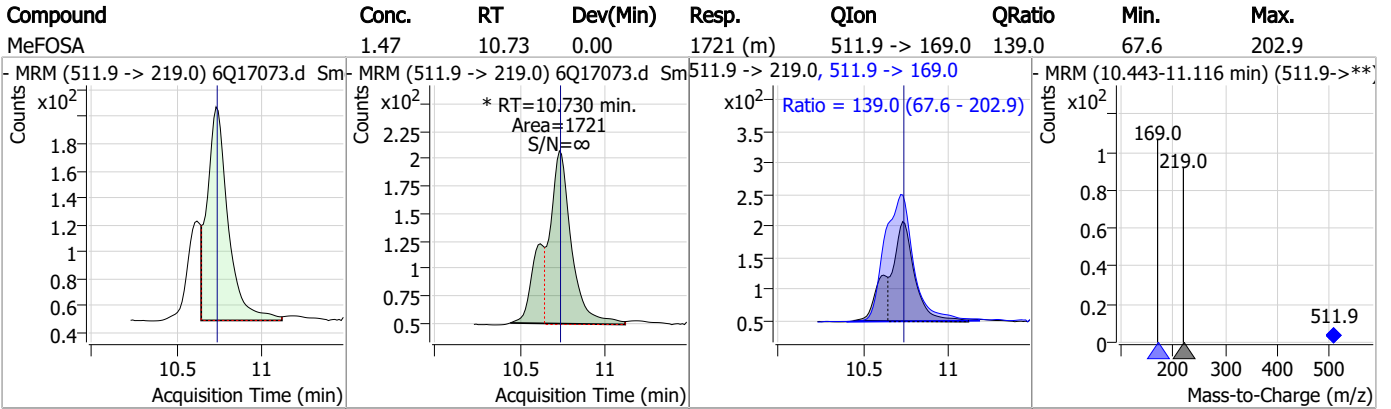
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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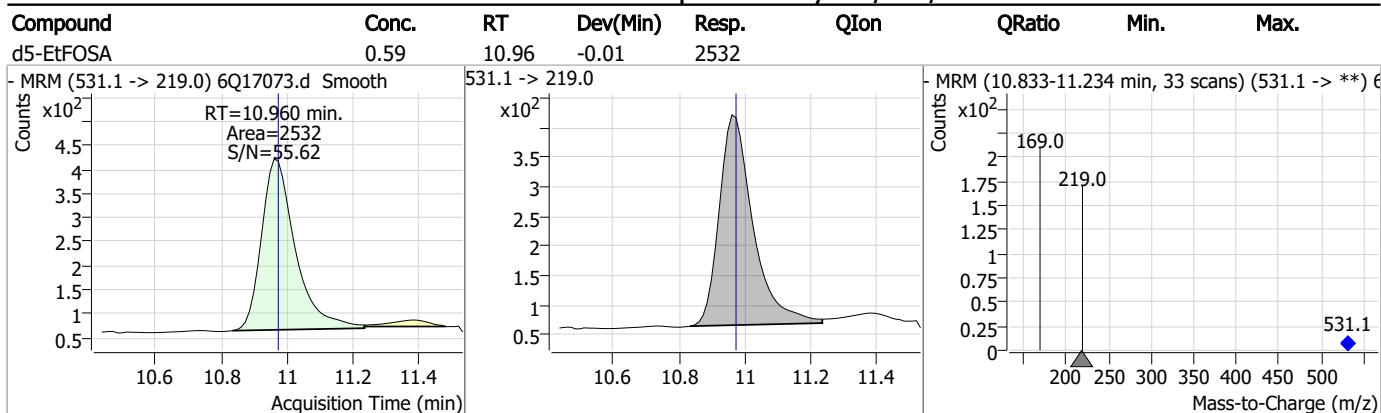
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP96603-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q17073.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 18:09 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17078.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 7:21:28 PM
 Sample Name : op96603-ms
 Vial : P3-A7
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	164293	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	64746	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70713	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	57501	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	77906	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	24045	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16238	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	18973	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	17798	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	11556	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	8541	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22731	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11576	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	8863	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2092	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2403	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2449	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	16331	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38424	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	12780	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	18953	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	25502	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	3340	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2412	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13340	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	73897	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8691	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	81287	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22236	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	25907	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54269	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2092	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2403	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2449	4.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	17798	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.0%		
13C2-PFTeDA	9.689	715.2 -> 670.0	11556	0.92 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.9%		
13C3-PFBS	5.398	302.1 -> 79.9	22731	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	11576	2.50 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFBA	2.897	216.8 -> 171.9	164293	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C4-PFHpA	6.419	367.1 -> 322.0	57501	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	70713	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C5-PFPeA	4.270	268.3 -> 223.0	64746	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C6-PFDA	8.076	519.1 -> 474.1	16238	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	18973	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 80.8%	
13C8-FOSA	9.623	506.1 -> 77.8	8541	0.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 38.7%	
13C8-PFOA	7.062	421.1 -> 376.0	77906	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.226	507.1 -> 79.9	8863	2.21 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C9-PFNA	7.594	472.1 -> 427.0	24045	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	16331	4.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38424	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSA	10.728	515.0 -> 219.0	2412	0.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 29.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	12780	3.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 77.4%	
d7-MeFOSE	10.647	623.2 -> 58.9	18953	5.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 21.7%	
d9-EtFOSE	10.894	639.2 -> 58.9	25502	5.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	3340	0.82 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 32.7%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	31760	10.03 µg/L	96
		327.1 -> 80.9	12536		
6:2FTS	6.839	427.1 -> 407.0	29891	11.31 µg/L	91
		427.1 -> 80.9	9157		
8:2FTS	7.865	527.1 -> 507.0	14752	10.12 µg/L	96
		527.1 -> 80.8	5620		
EtFOSAA	8.343	584.2 -> 419.1	5509	2.54 µg/L	98
		584.2 -> 526.0	2962		
FOSA	9.614	498.1 -> 77.9	8175	2.67 µg/L	100
		498.1 -> 478.0	237		
MeFOSAA	8.136	570.1 -> 419.0	8360	2.73 µg/L	89
		570.1 -> 483.0	1609		
PFBA	2.906	212.8 -> 168.9	56820	10.31 µg/L	100
PFBS	5.400	298.7 -> 79.9	23550	2.31 µg/L	93
		298.7 -> 98.8	8683		
PFDA	8.077	512.9 -> 469.0	51647	2.93 µg/L	96
		512.9 -> 219.0	7710		
PFDODA	8.961	613.1 -> 569.0	34364	2.46 µg/L	97
		613.1 -> 319.0	4617		
PFDS	9.125	599.0 -> 79.9	6464	2.29 µg/L	99

7.4.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3152	2.71	µg/L	99
		363.1 -> 319.0	76984			
PFHpS	7.734	363.1 -> 169.0	11139	2.86	µg/L	97
		449.0 -> 79.9	13746			
PFHxA	5.470	449.0 -> 98.9	6696	2.36	µg/L	99
		313.0 -> 269.0	65959			
PFHxS	7.180	313.0 -> 118.9	3224	2.47	µg/L	m
		398.7 -> 79.9	15596			
PFNA	7.595	398.7 -> 98.9	7737	2.61	µg/L	100
		463.0 -> 419.0	43380			
PFNS	8.694	463.0 -> 219.0	9050	2.28	µg/L	99
		548.8 -> 79.9	9745			
PFOA	7.063	548.8 -> 98.9	5316	2.69	µg/L	98
		413.0 -> 369.0	98659			
PFOS	8.228	413.0 -> 169.0	16338	2.30	µg/L	m
		498.9 -> 79.9	9853			
PFPeA	4.273	498.9 -> 98.8	5672	5.05	µg/L	100
		263.0 -> 219.0	88981			
PFPeS	6.472	349.1 -> 79.9	17484	2.65	µg/L	94
		349.1 -> 98.9	7797			
PFTeDA	9.690	713.1 -> 669.0	33581	2.88	µg/L	100
		713.1 -> 168.9	2601			
PFTrDA	9.345	663.0 -> 619.0	39438	2.55	µg/L	99
		663.0 -> 168.9	3551			
PFUnDA	8.531	563.1 -> 519.0	35442	2.69	µg/L	95
		563.1 -> 269.1	5371			
11CI-PF3OUdS	9.398	630.9 -> 450.9	48033	3.64	µg/L	97
		632.9 -> 452.9	14652			
9CI-PF3ONS	8.569	530.8 -> 351.0	87961	4.22	µg/L	97
		532.8 -> 353.0	24536			
ADONA	6.681	376.9 -> 250.9	286613	4.94	µg/L	97
		376.9 -> 84.8	78202			
HFPO-DA	5.846	284.9 -> 168.9	17976	4.94	µg/L	99
		284.9 -> 184.9	2587			
3:3FTCA	3.784	241.0 -> 177.0	10410	9.44	µg/L	97
		241.0 -> 117.0	1260			
5:3FTCA	6.160	341.0 -> 237.1	219838	48.59	µg/L	95
		341.0 -> 217.0	156014			
7:3FTCA	7.573	441.0 -> 316.9	89559	43.57	µg/L	96
		441.0 -> 336.9	188719			
EtFOSA	10.962	526.0 -> 219.0	6338	4.62	µg/L	94
		526.0 -> 169.0	8100			
EtFOSE	10.907	630.0 -> 58.9	13872	13.06	µg/L	100
		511.9 -> 219.0	6004			
MeFOSA	10.730	511.9 -> 169.0	8149	5.53	µg/L	m
		616.1 -> 58.9	10873			
MeFOSE	10.661	699.1 -> 79.9	3411	12.86	µg/L	100
		699.1 -> 98.8	1901			
PFDoDS	9.817	295.0 -> 201.0	14941	2.34	µg/L	98
		295.0 -> 84.9	3834			
NFDHA	5.350	279.0 -> 85.1	60584	4.93	µg/L	97
		229.0 -> 84.9	43747			
PFMBA	4.687	314.8 -> 134.9	158627	5.12	µg/L	100
		314.8 -> 82.9	5584			
PFMPA	3.438			4.96	µg/L	100
PFEESA	5.937			4.50	µg/L	99

= Qualifier out of range, m = manually integrated, + = Area summed

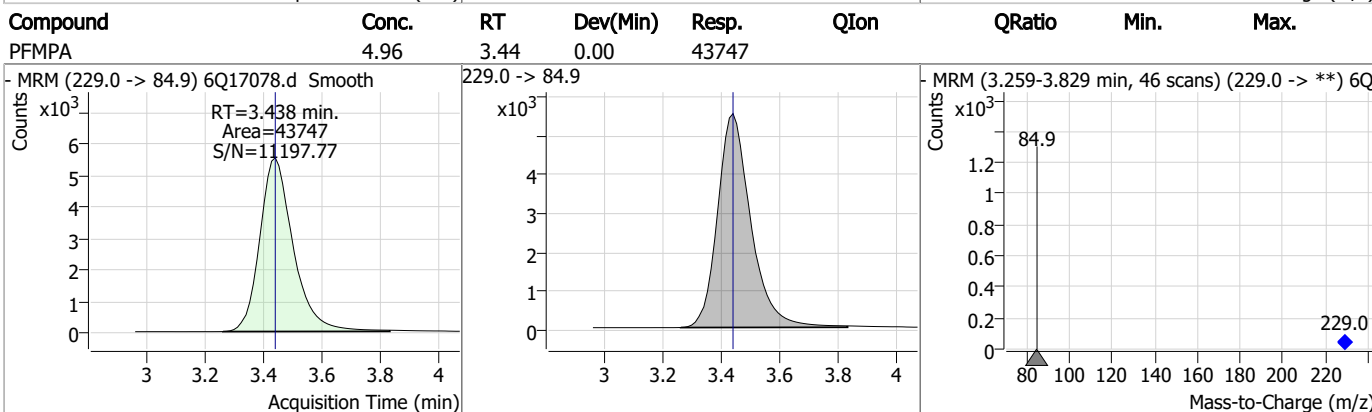
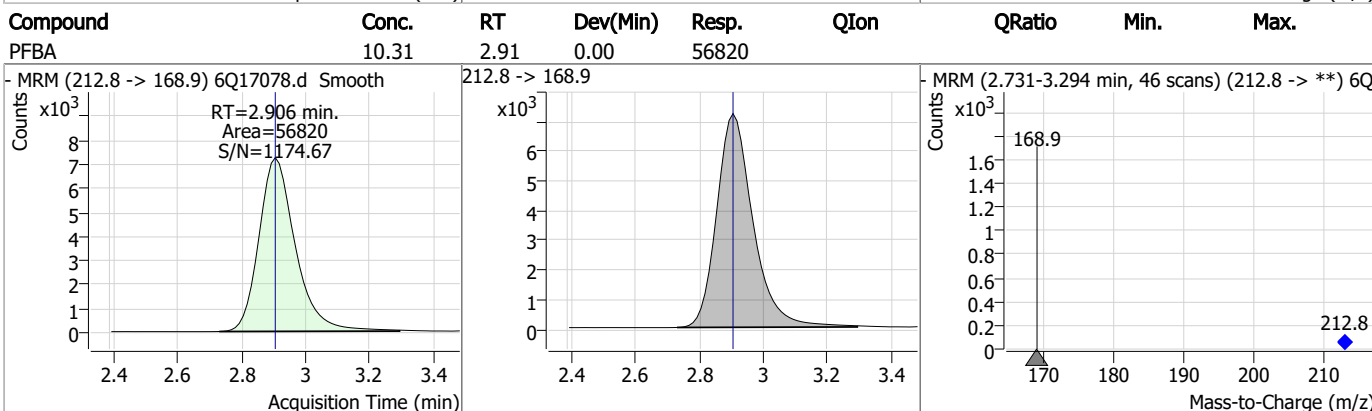
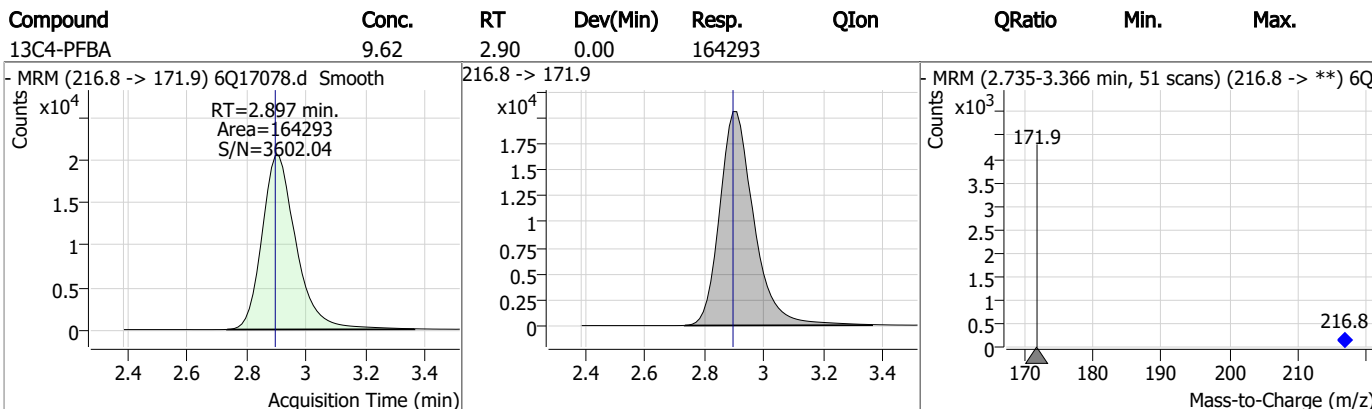
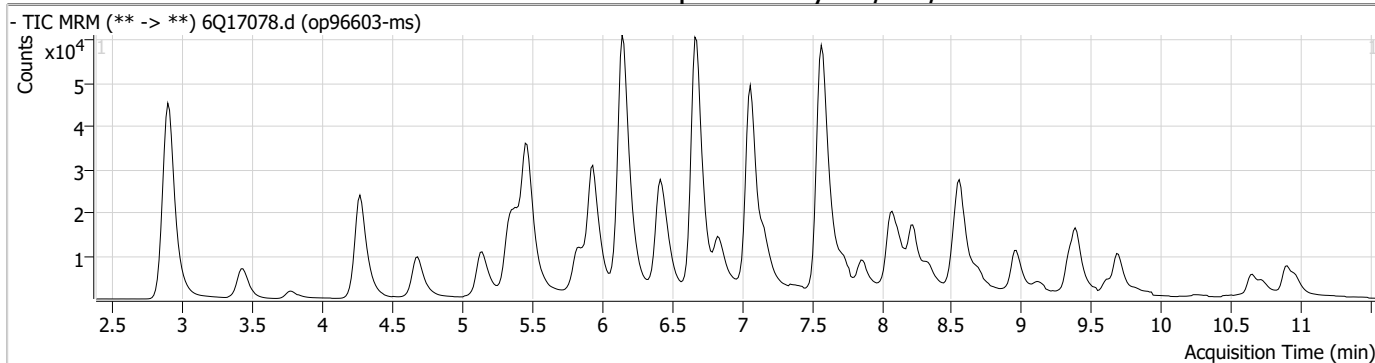
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.4.1

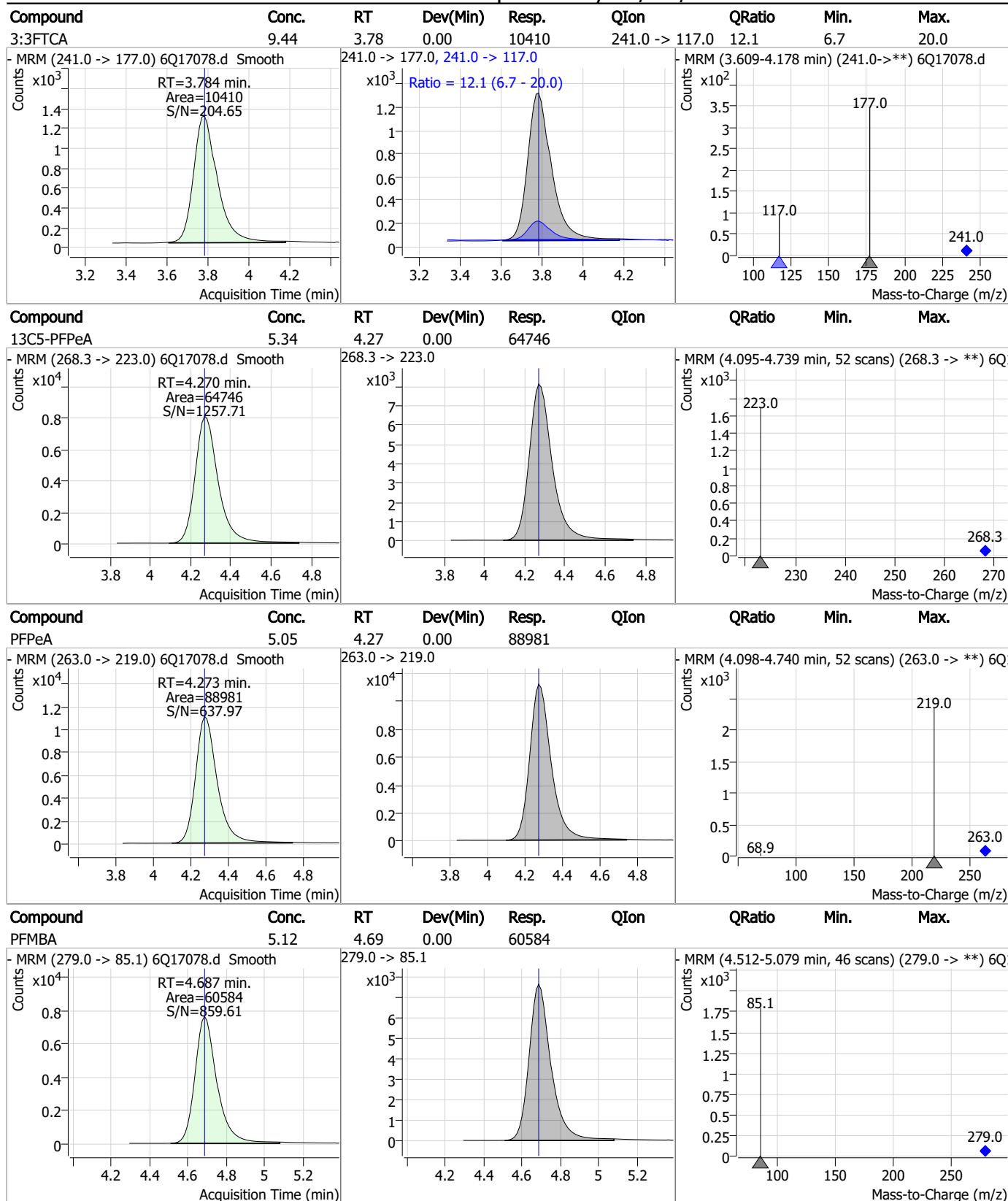
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Perfluorinated Compounds by LC/MS/MS



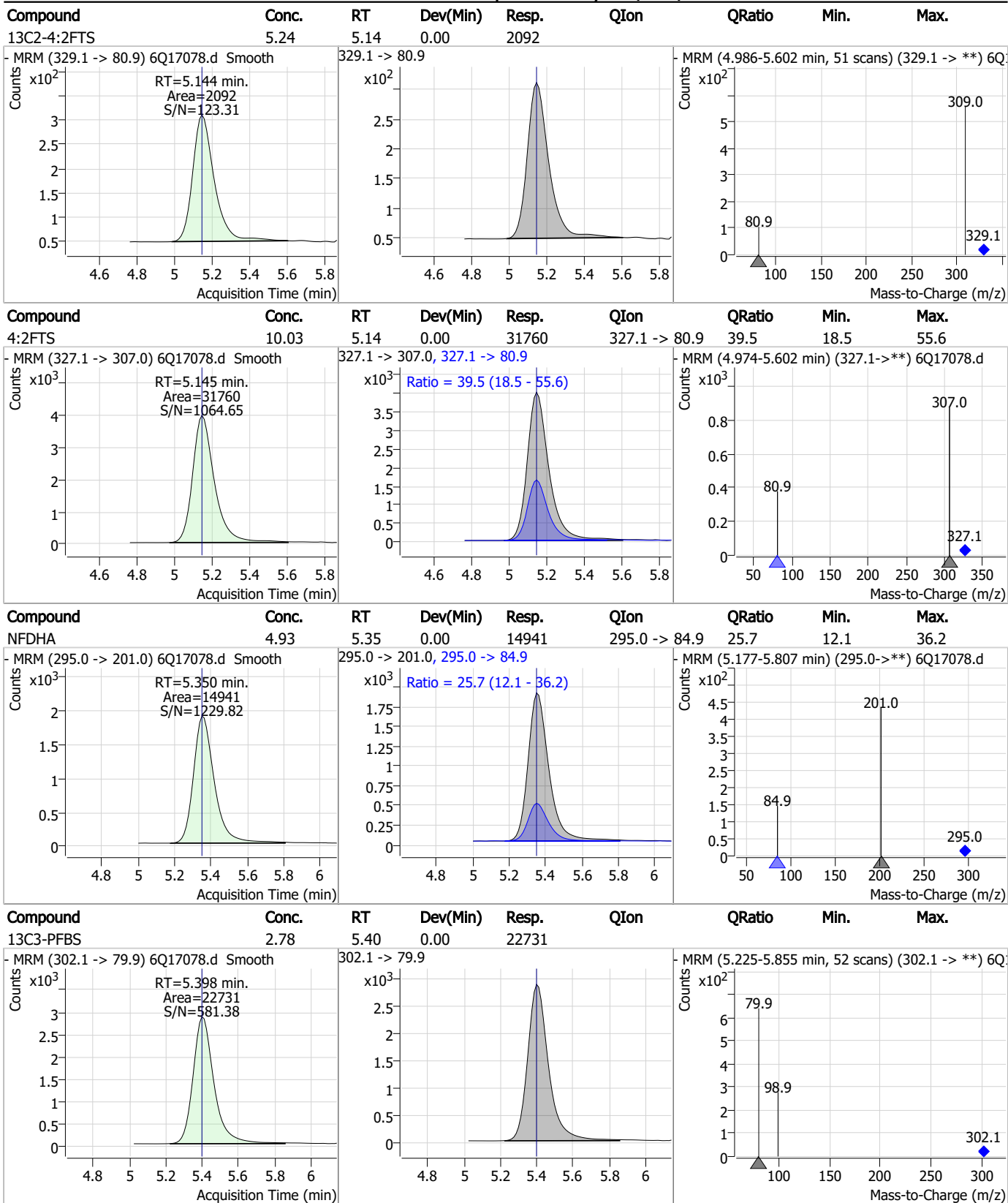
7.4.1
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Perfluorinated Compounds by LC/MS/MS



7.4.1
7

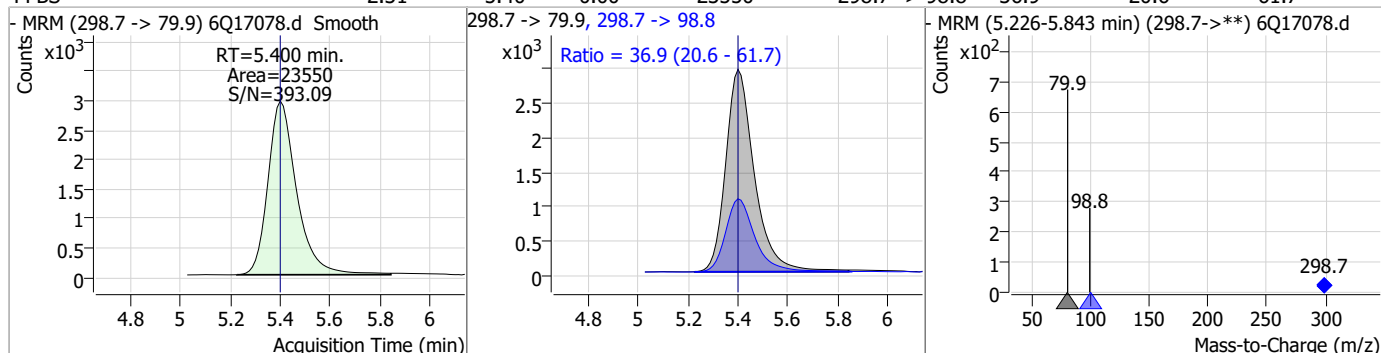
Perfluorinated Compounds by LC/MS/MS



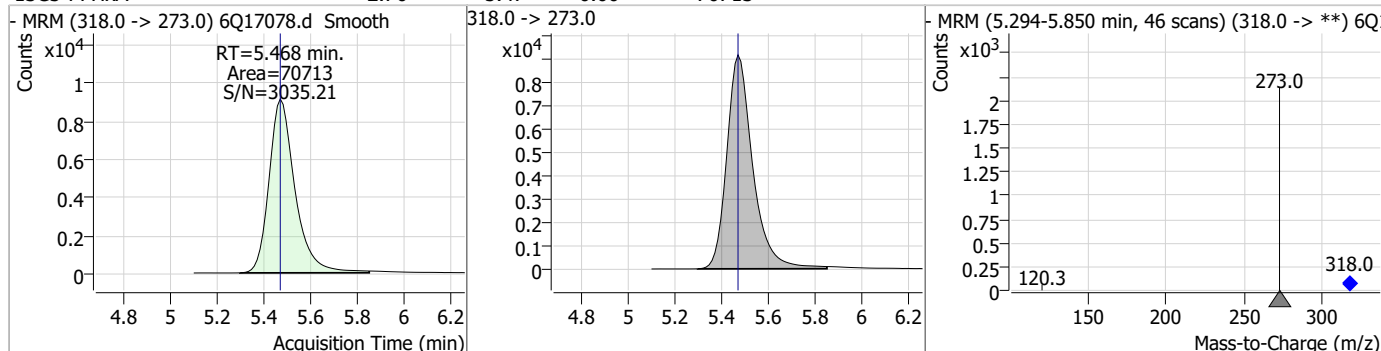
7.4.1
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Perfluorinated Compounds by LC/MS/MS

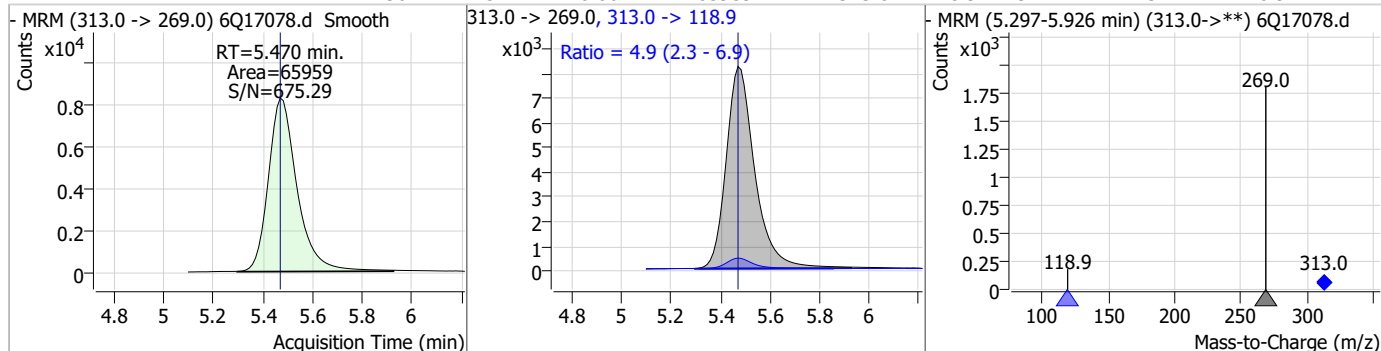
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.31	5.40	0.00	23550	298.7 -> 98.8	36.9	20.6	61.7



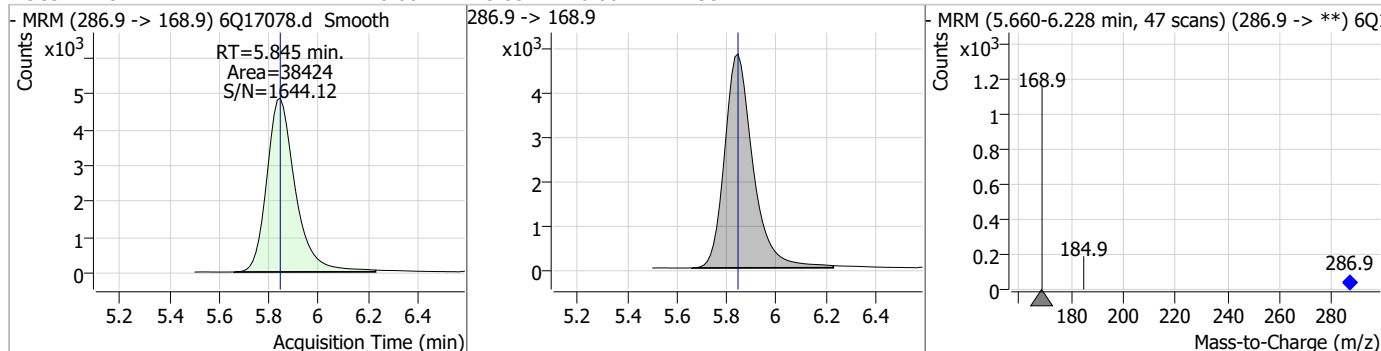
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.70	5.47	0.00	70713				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.47	0.00	65959	313.0 -> 118.9	4.9	2.3	6.9

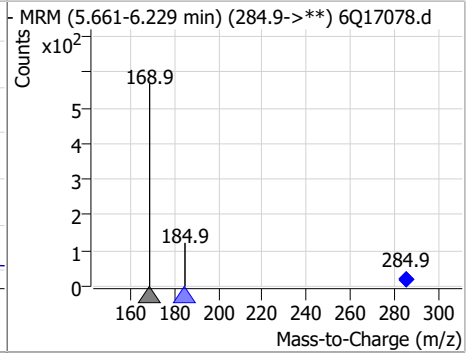
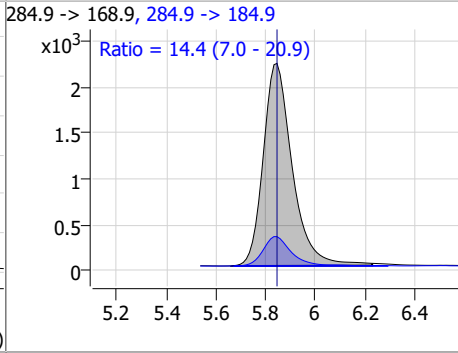
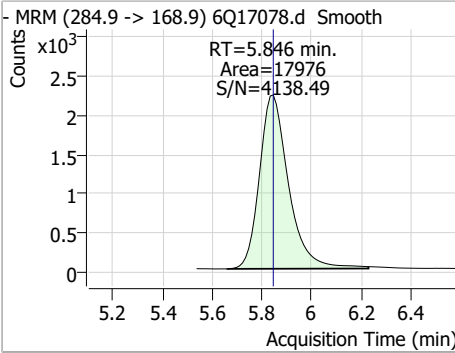


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.00	5.85	0.00	38424				

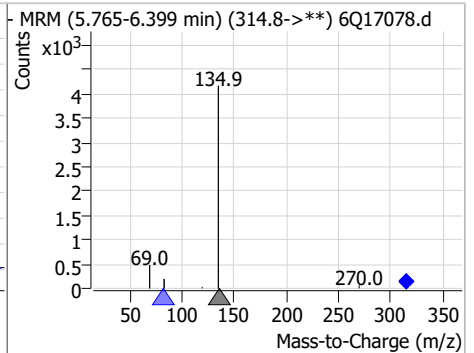
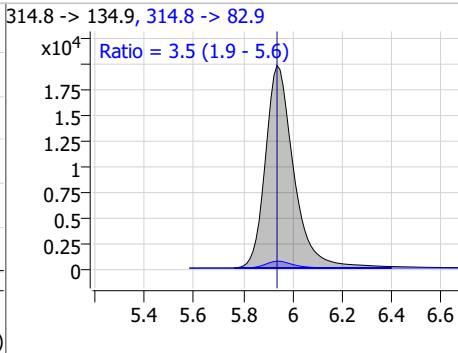
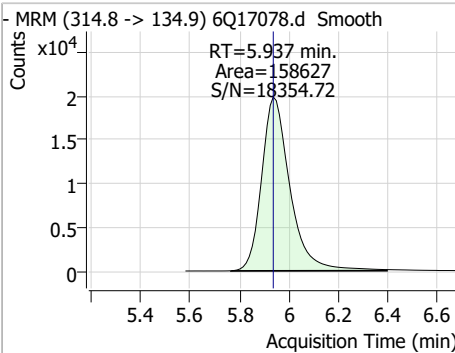


Perfluorinated Compounds by LC/MS/MS

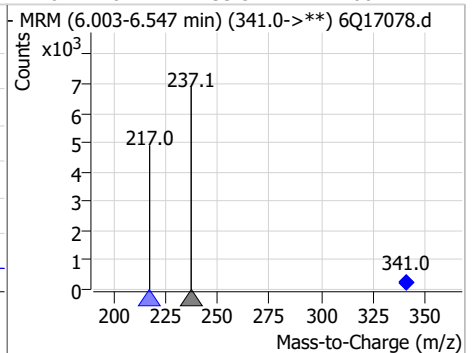
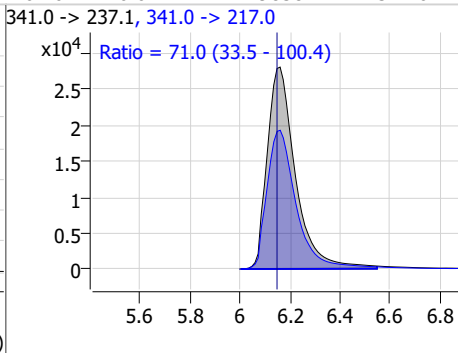
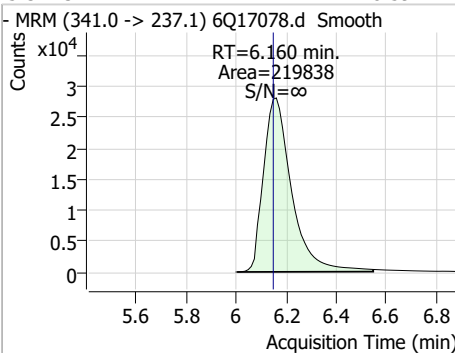
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.94	5.85	0.00	17976	284.9 -> 184.9	14.4	7.0	20.9



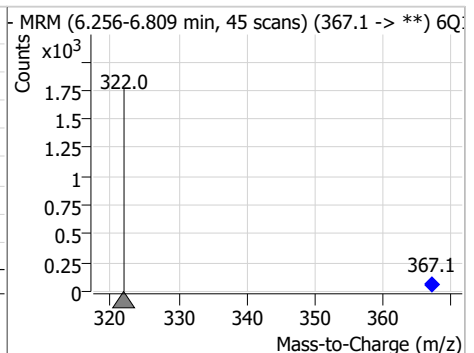
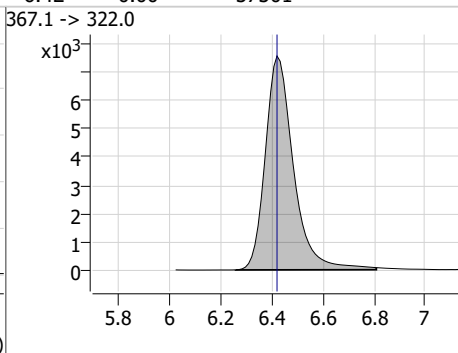
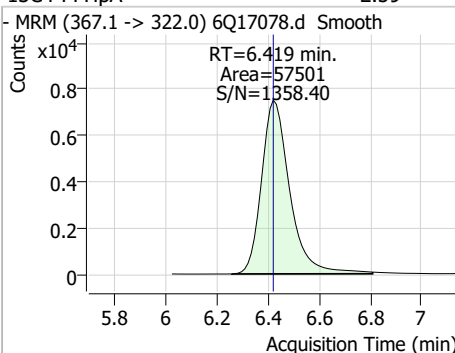
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.50	5.94	0.00	158627	314.8 -> 82.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	48.59	6.16	0.01	219838	341.0 -> 217.0	71.0	33.5	100.4

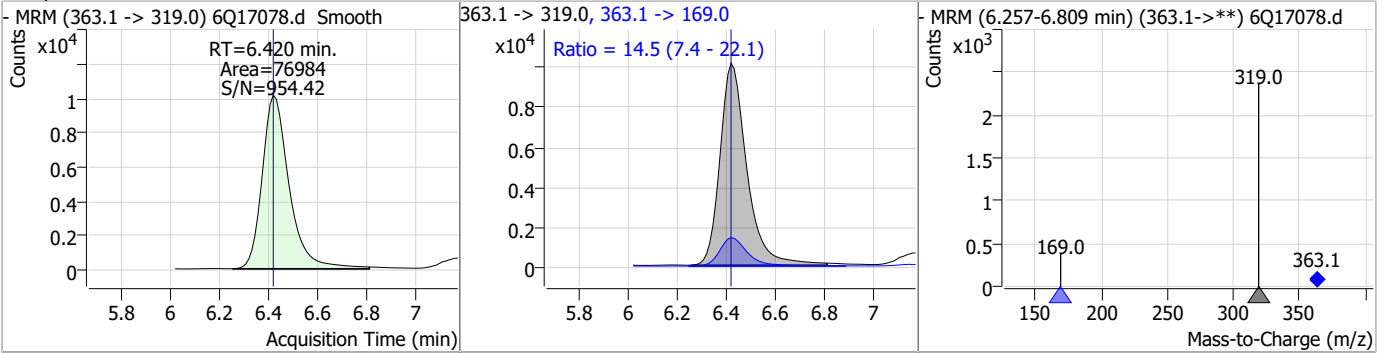


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.59	6.42	0.00	57501	367.1 -> 322.0			

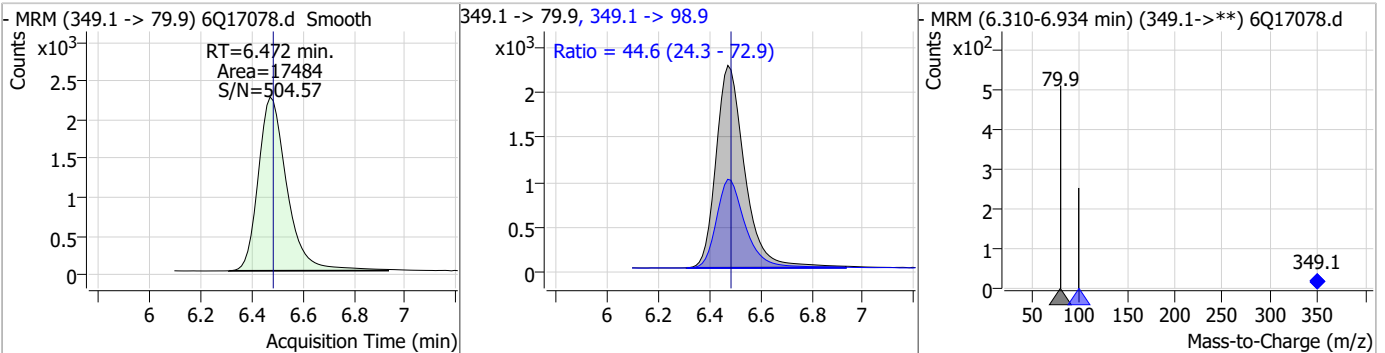


Perfluorinated Compounds by LC/MS/MS

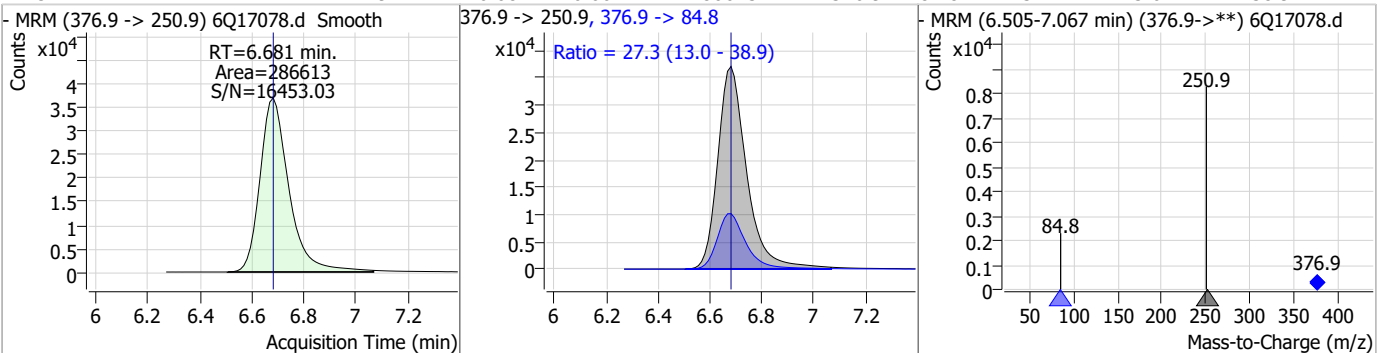
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.71	6.42	0.00	76984	363.1 -> 169.0	14.5	7.4	22.1



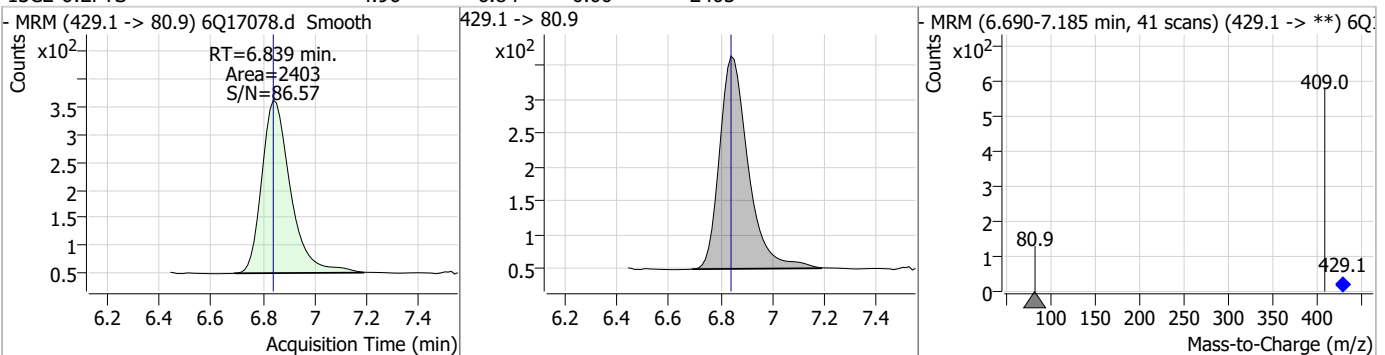
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.65	6.47	-0.01	17484	349.1 -> 98.9	44.6	24.3	72.9



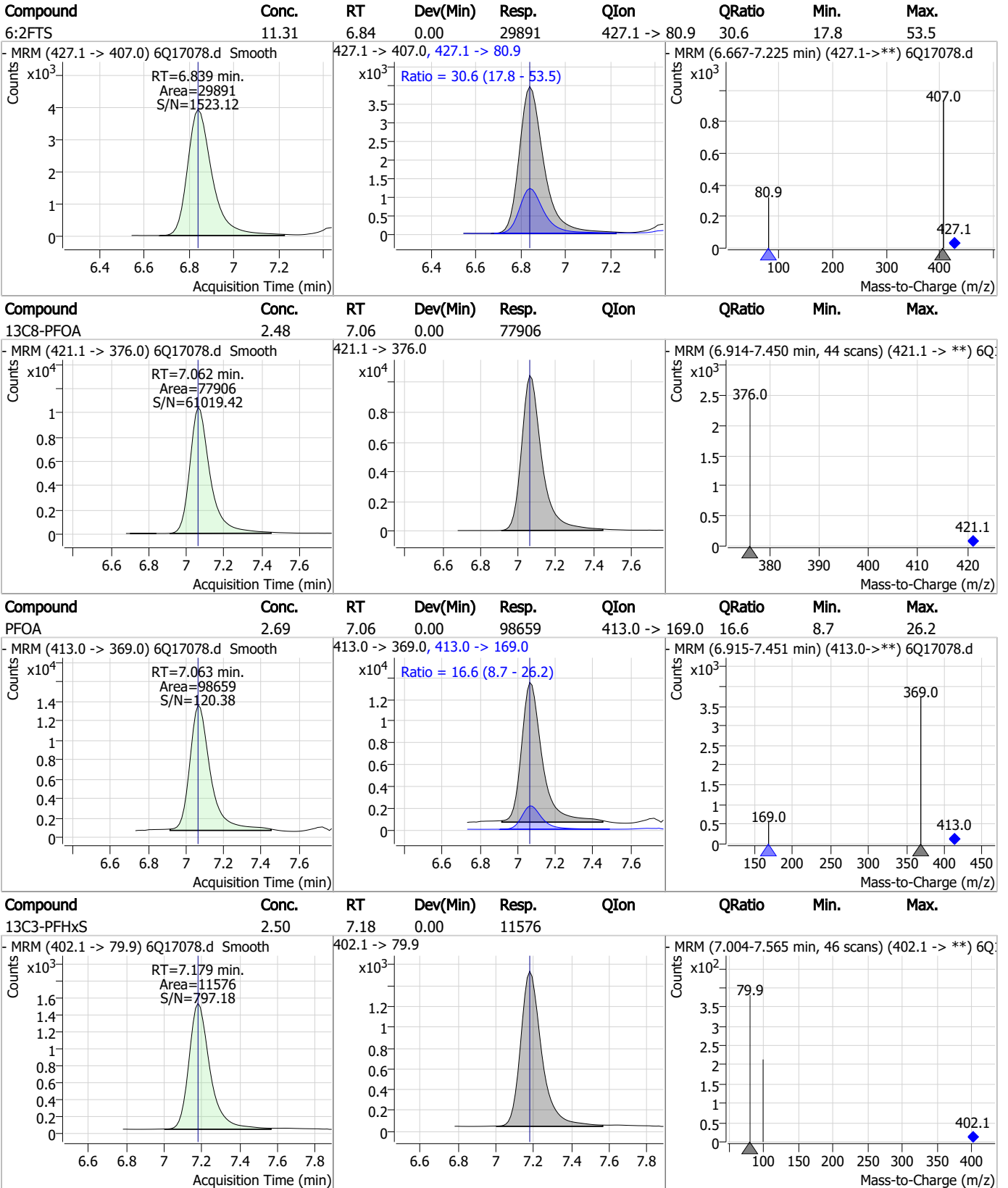
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.94	6.68	0.00	286613	376.9 -> 84.8	27.3	13.0	38.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.96	6.84	0.00	2403	429.1 -> 80.9			



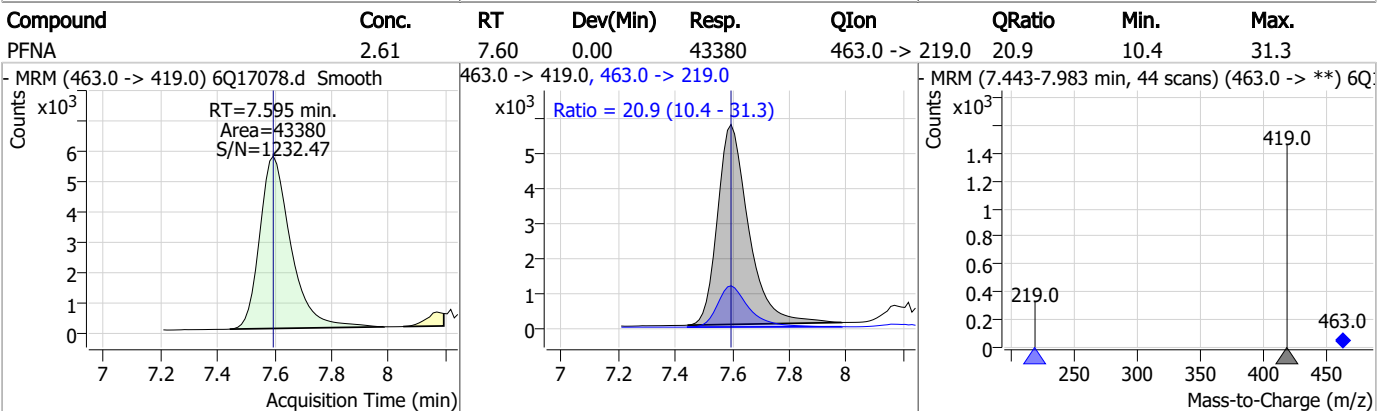
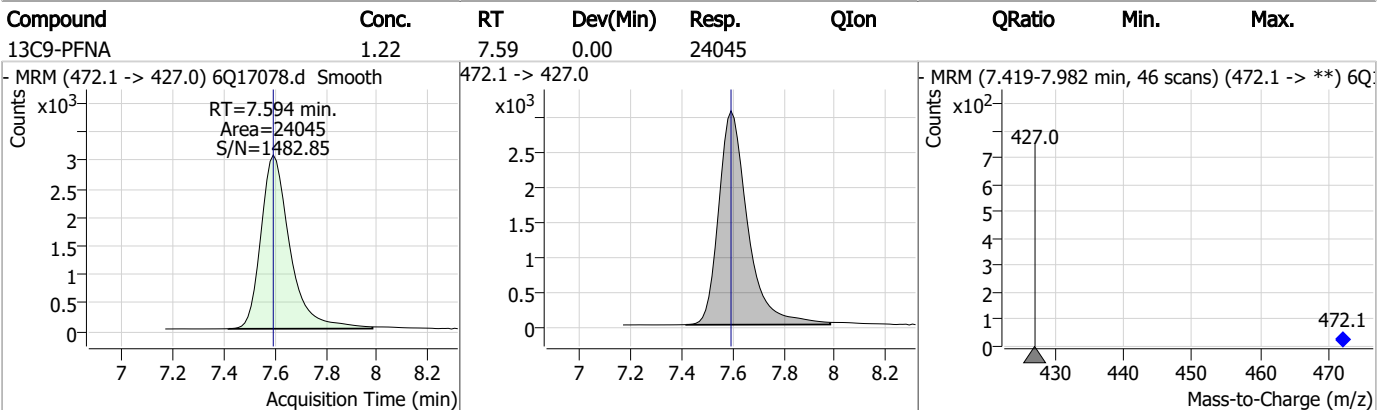
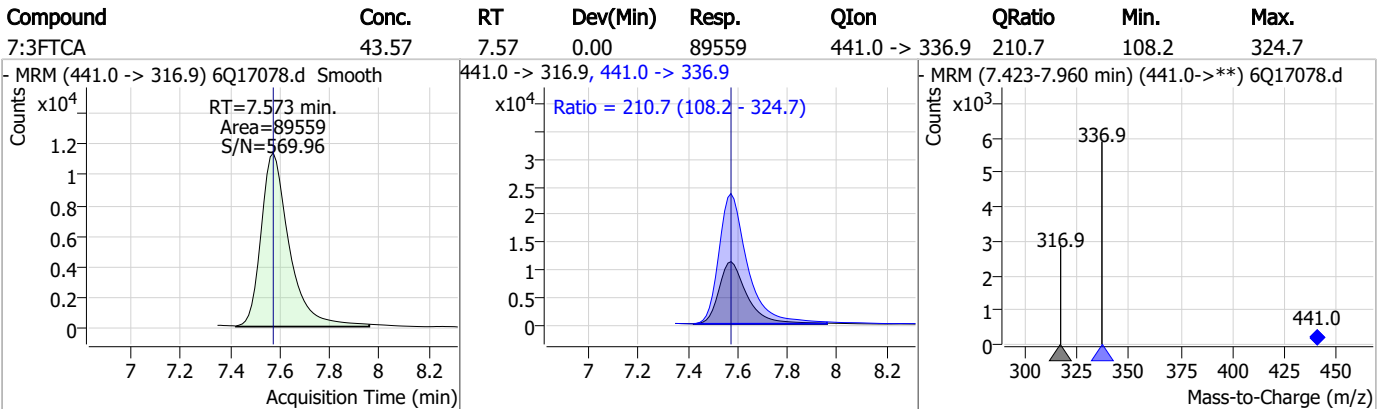
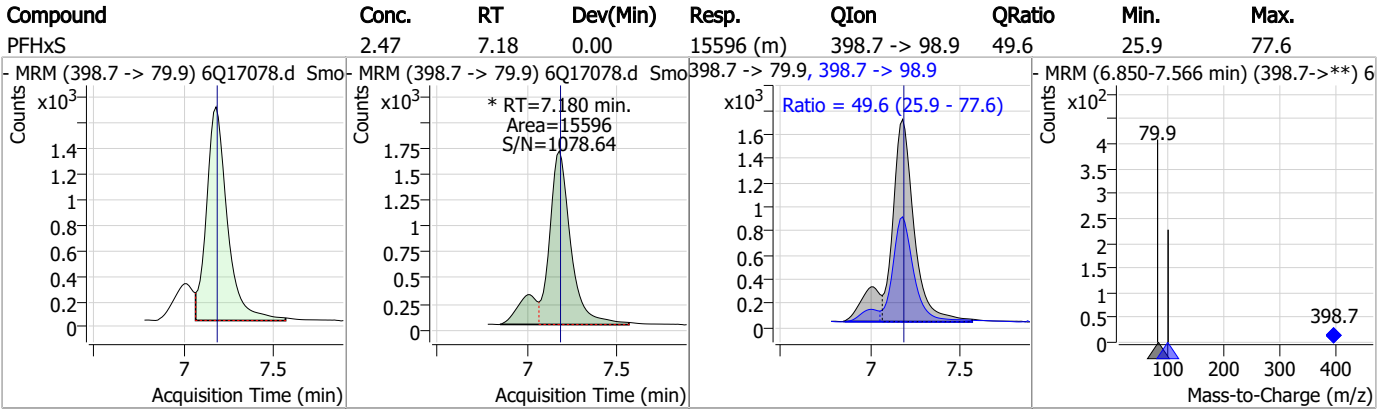
Perfluorinated Compounds by LC/MS/MS



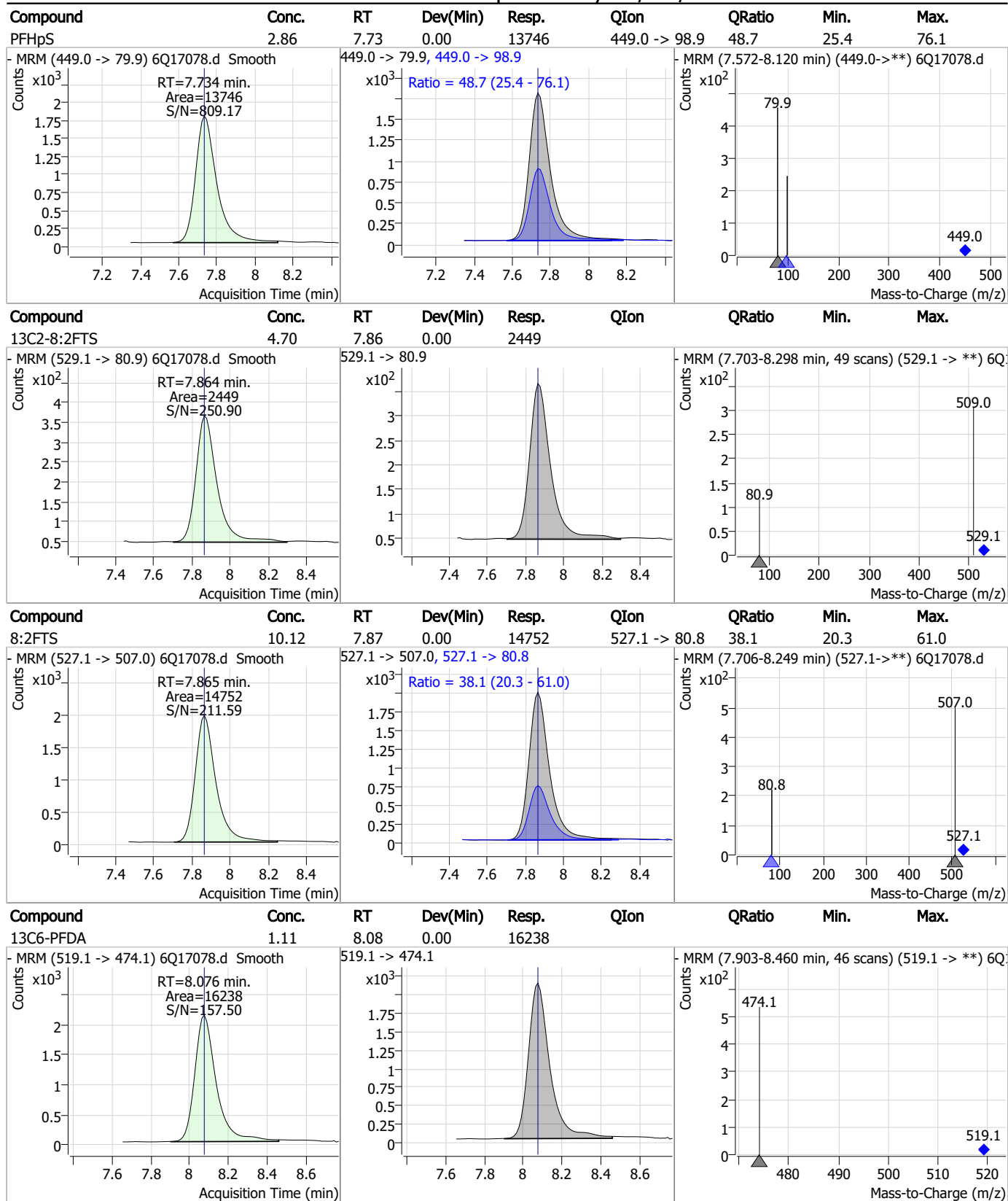
7.4.1

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Perfluorinated Compounds by LC/MS/MS



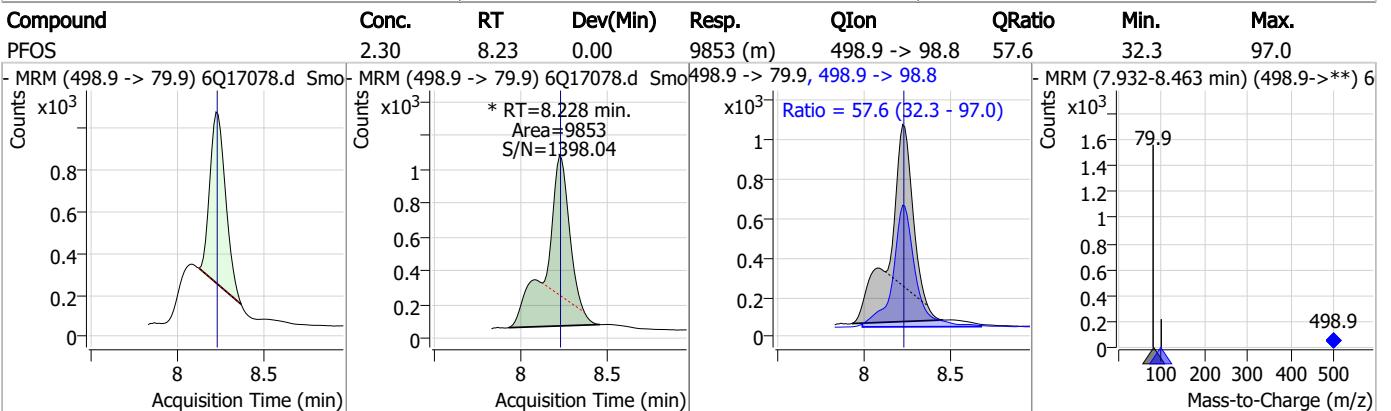
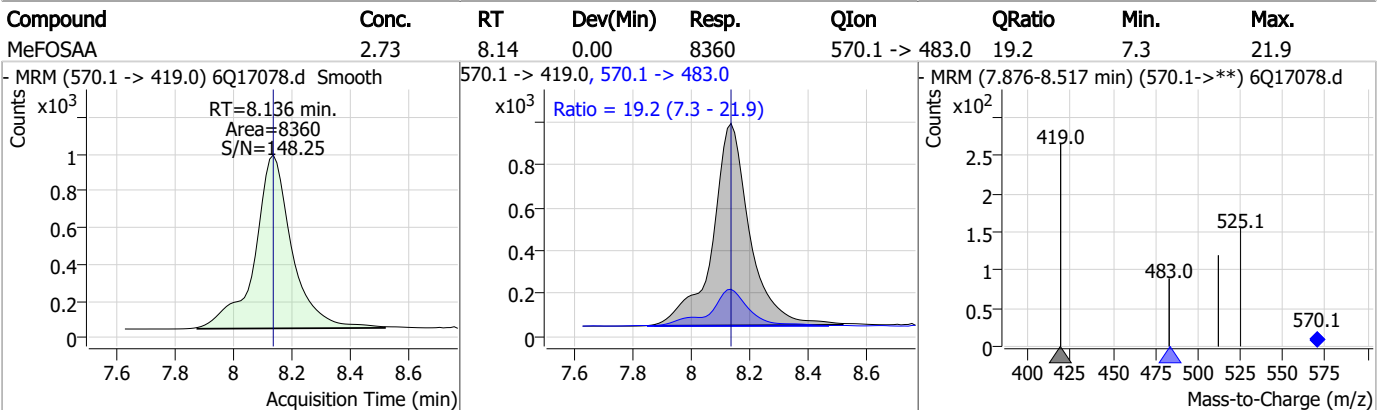
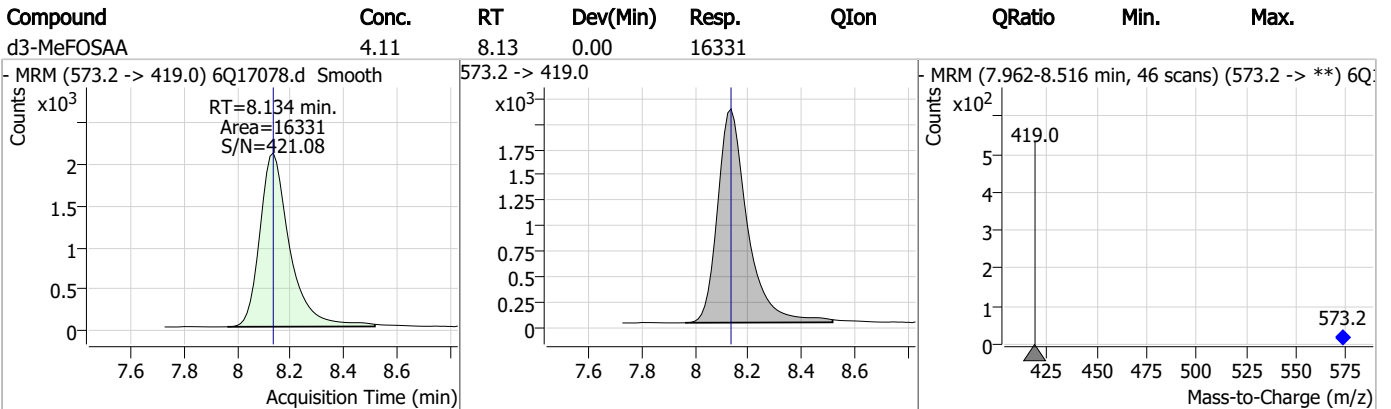
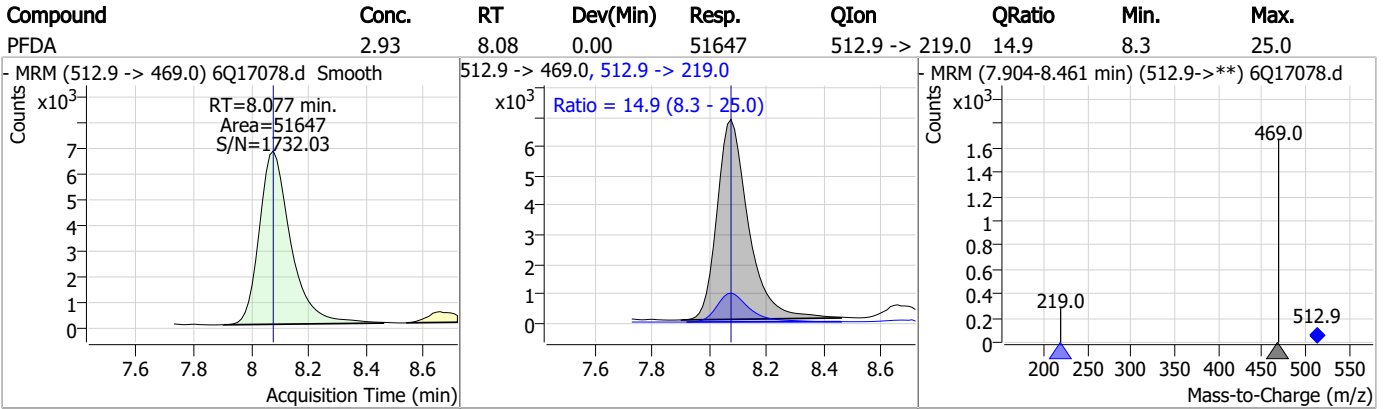
Perfluorinated Compounds by LC/MS/MS



7.4.1

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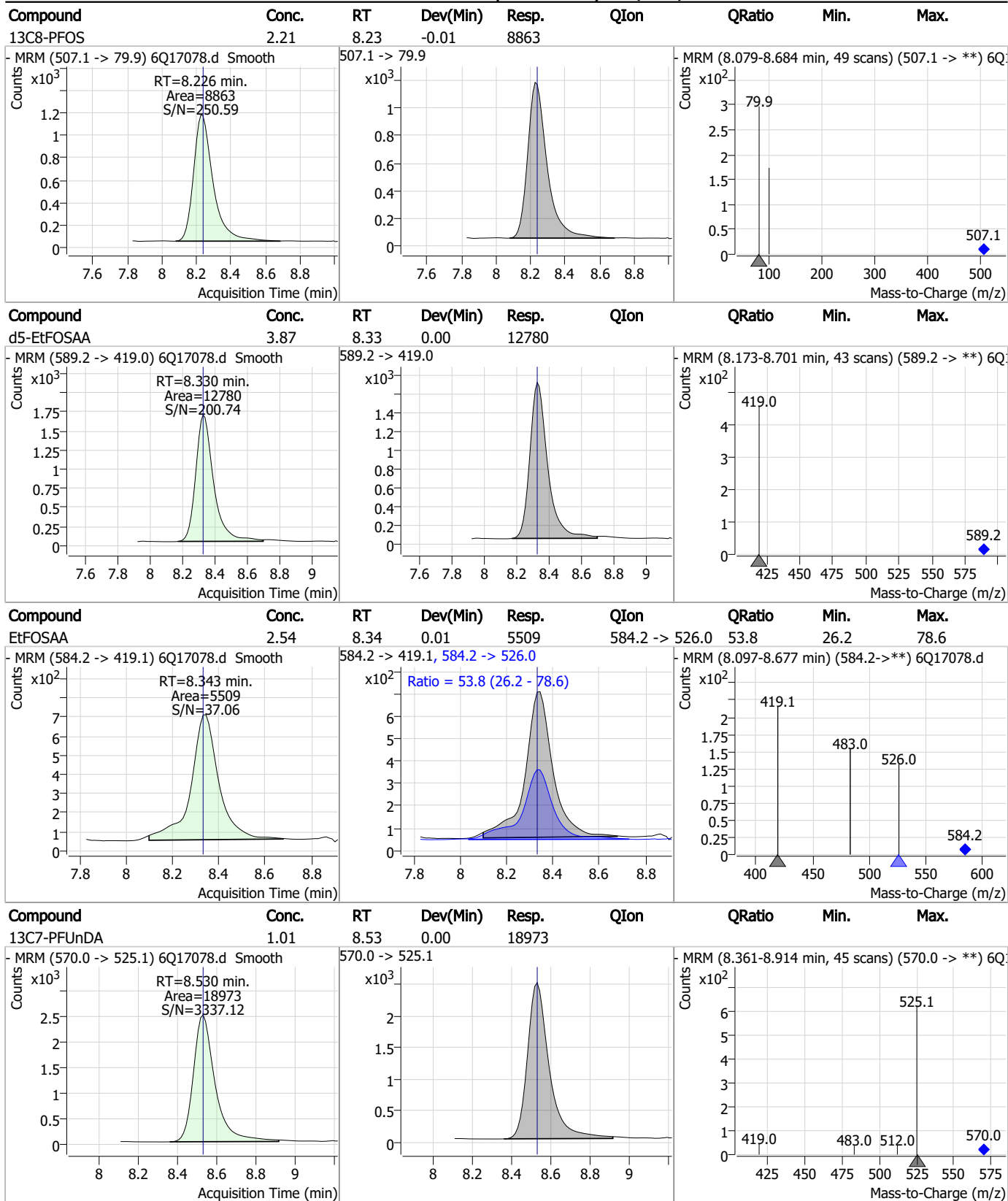
Perfluorinated Compounds by LC/MS/MS



7.4.1

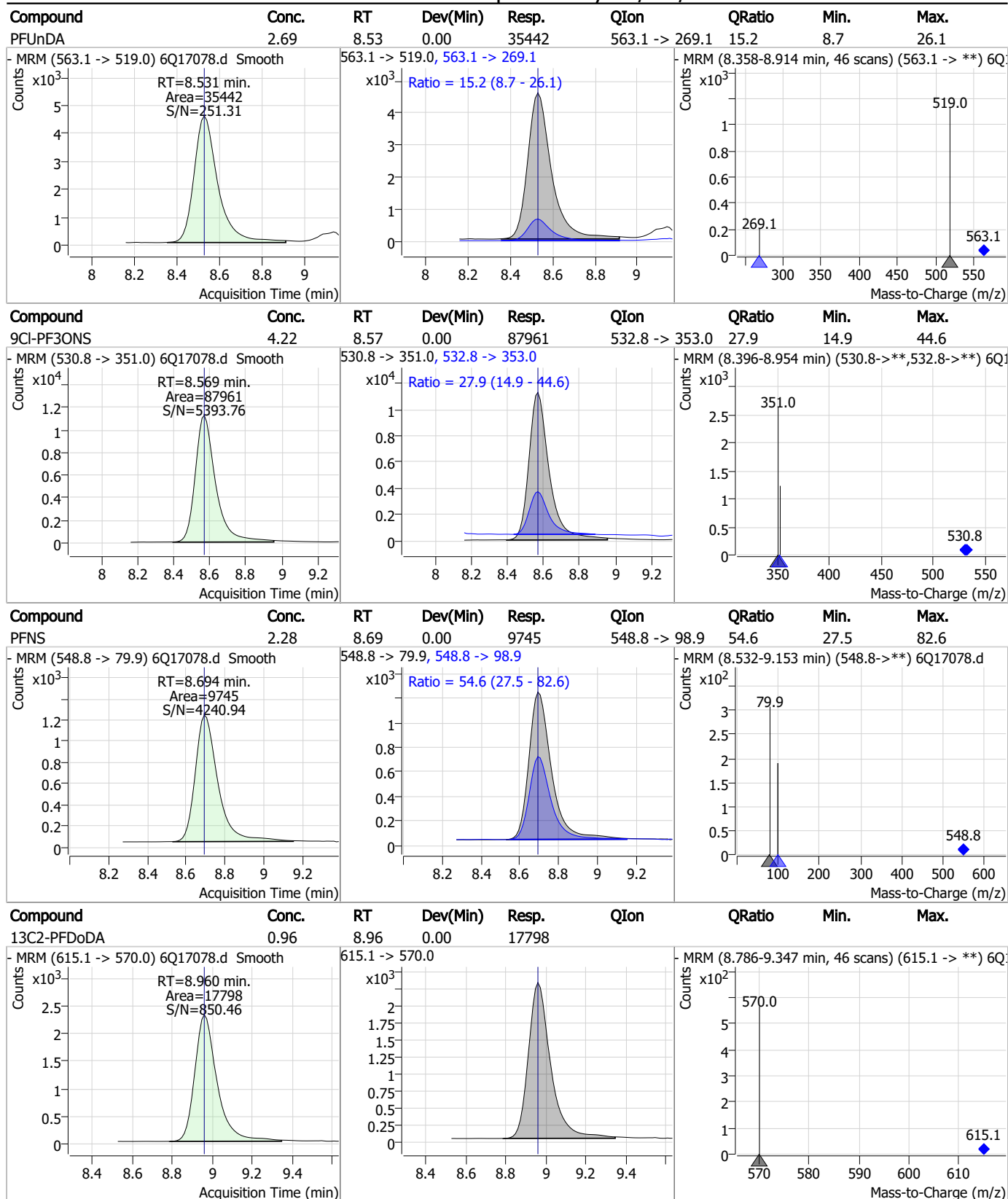
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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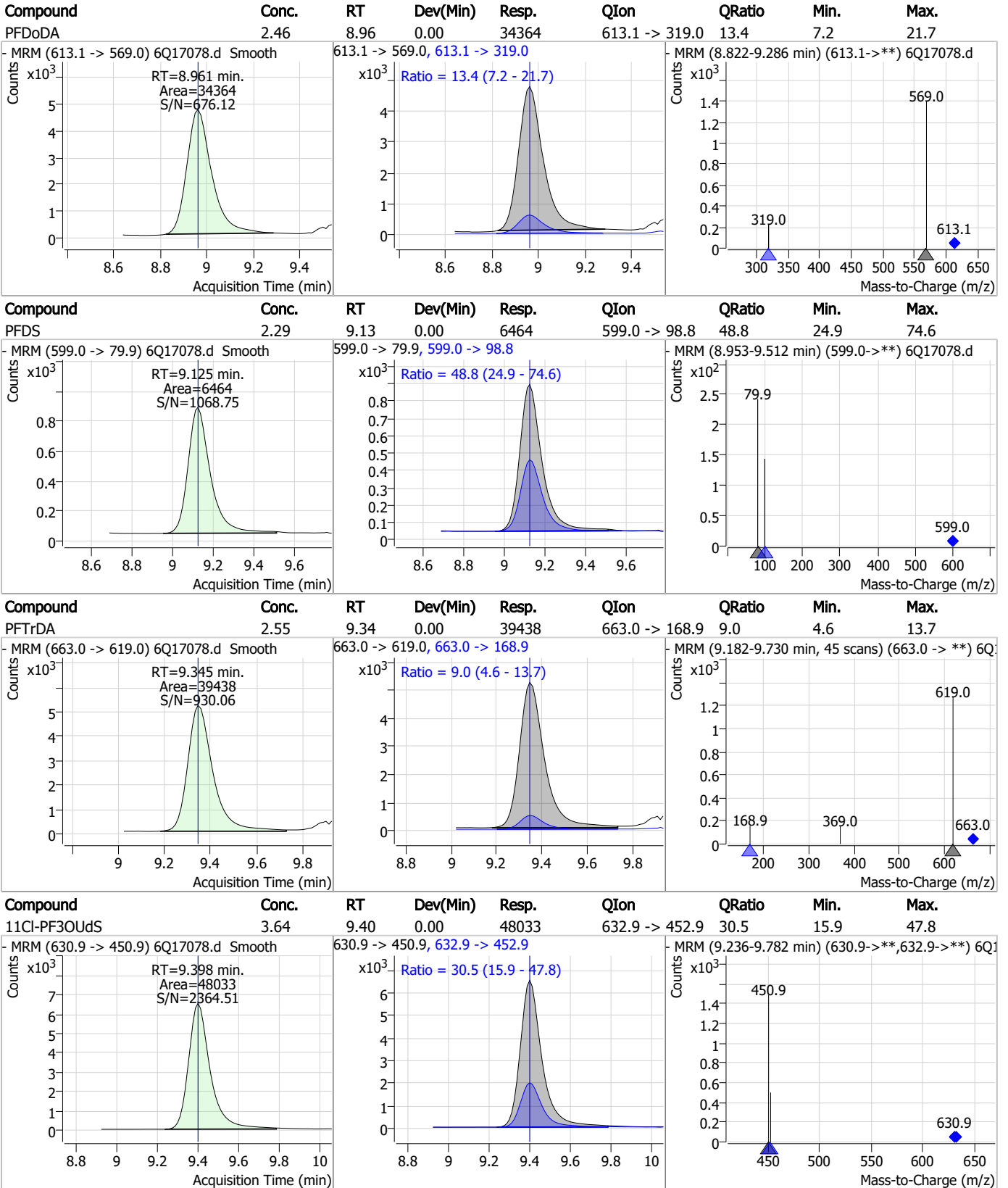
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS

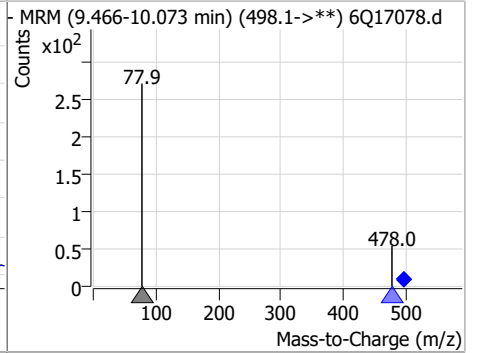
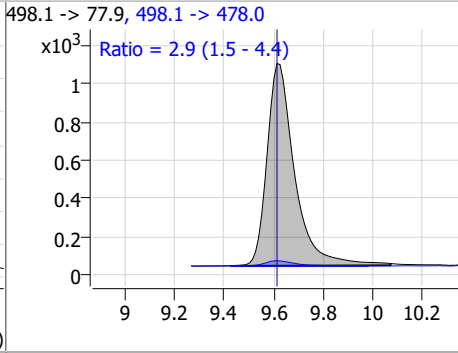
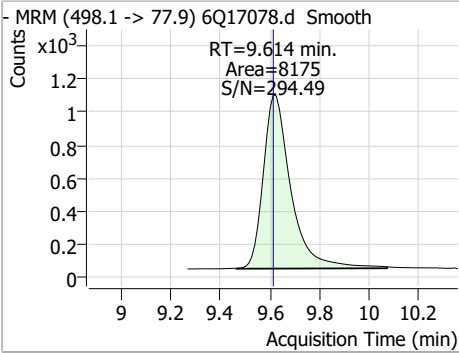


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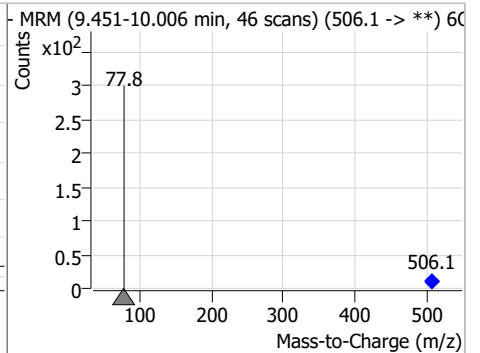
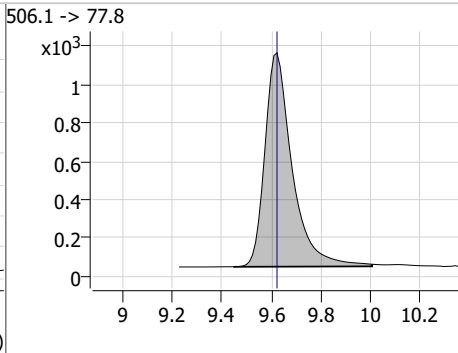
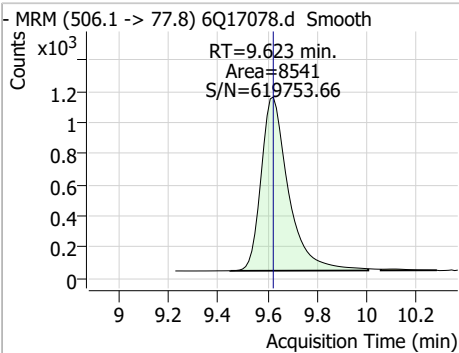
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Perfluorinated Compounds by LC/MS/MS

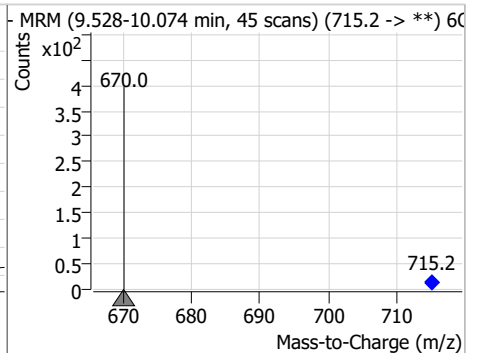
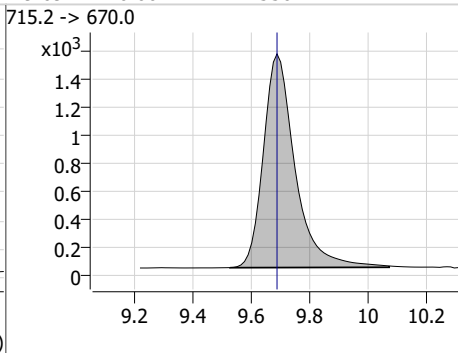
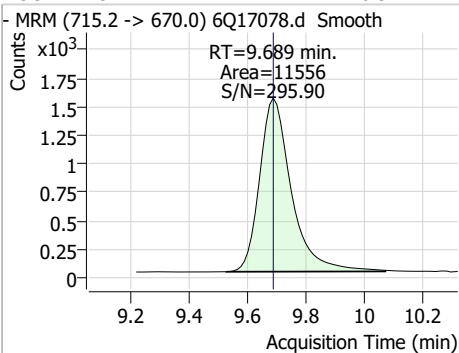
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.67	9.61	0.00	8175	498.1 -> 478.0	2.9	1.5	4.4



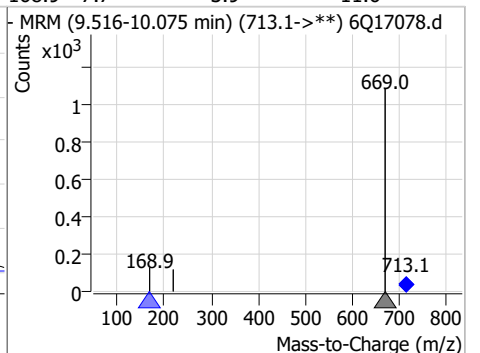
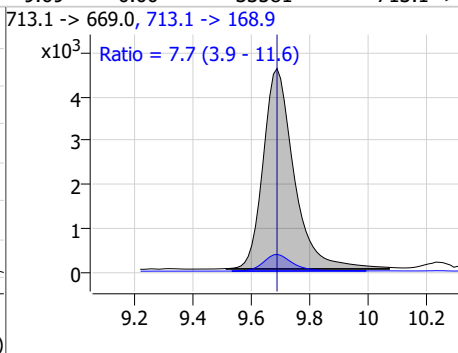
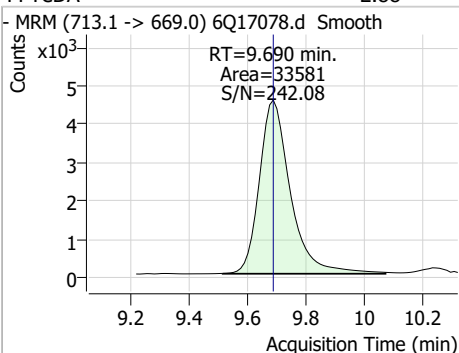
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	0.97	9.62	0.00	8541				



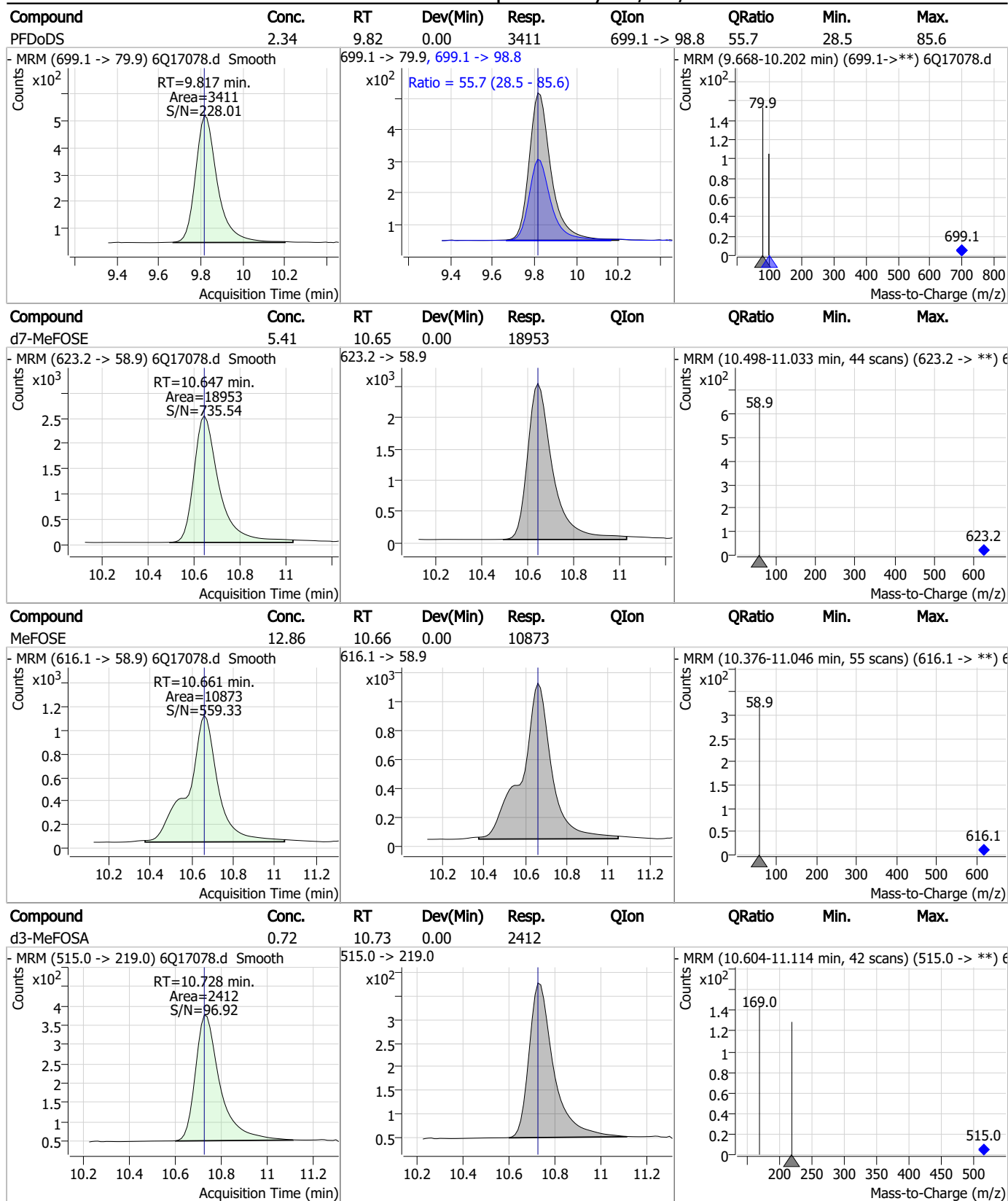
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.92	9.69	0.00	11556				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.88	9.69	0.00	33581	713.1 -> 168.9	7.7	3.9	11.6

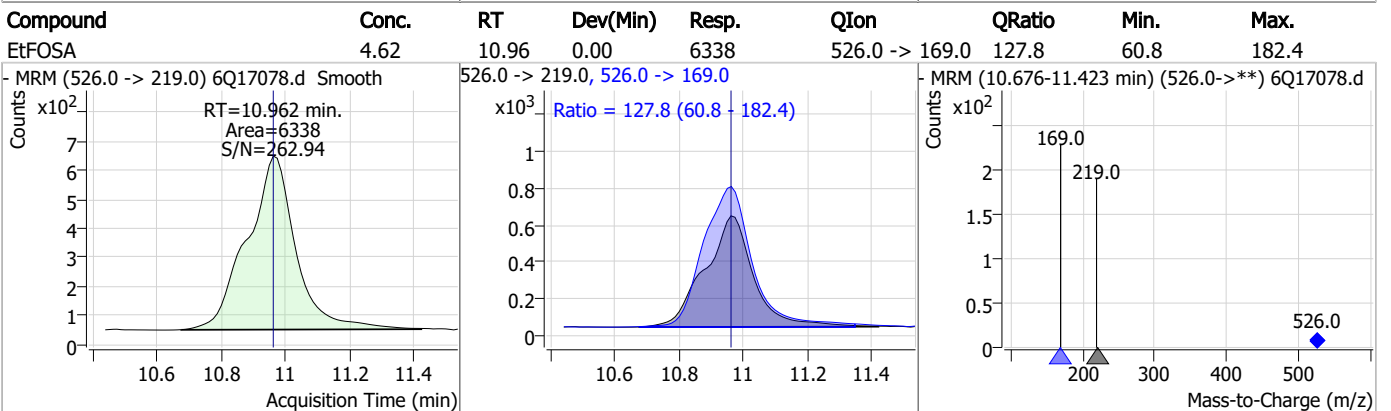
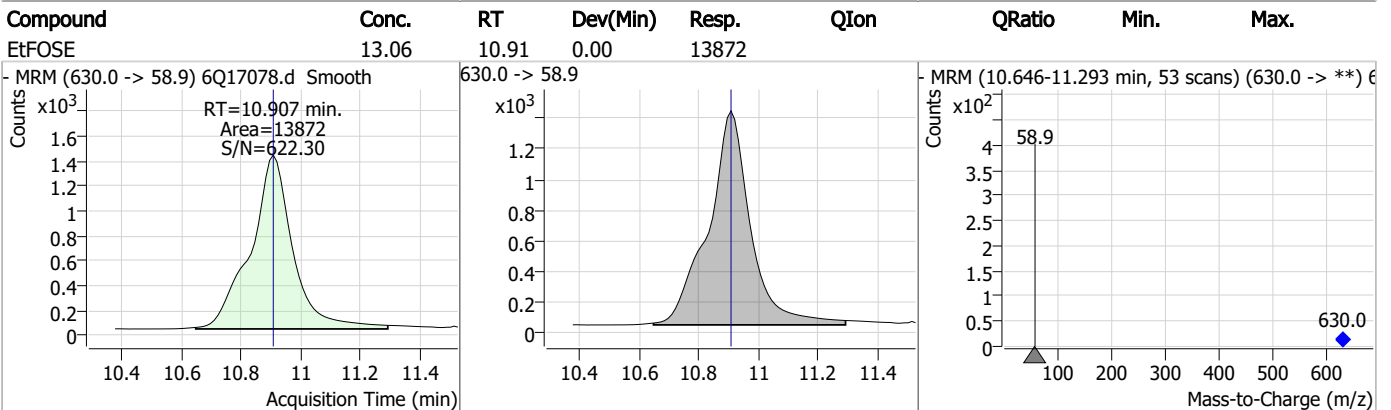
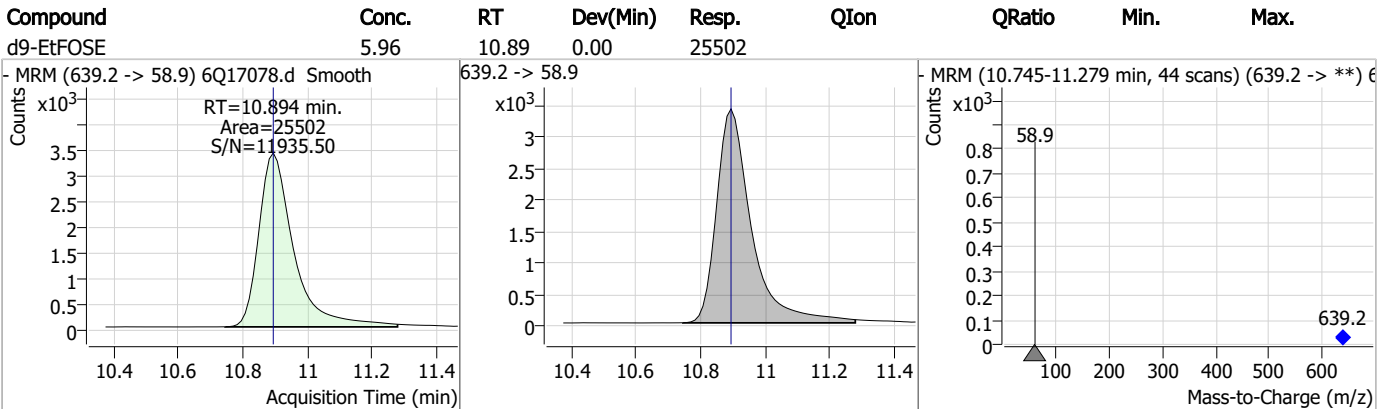
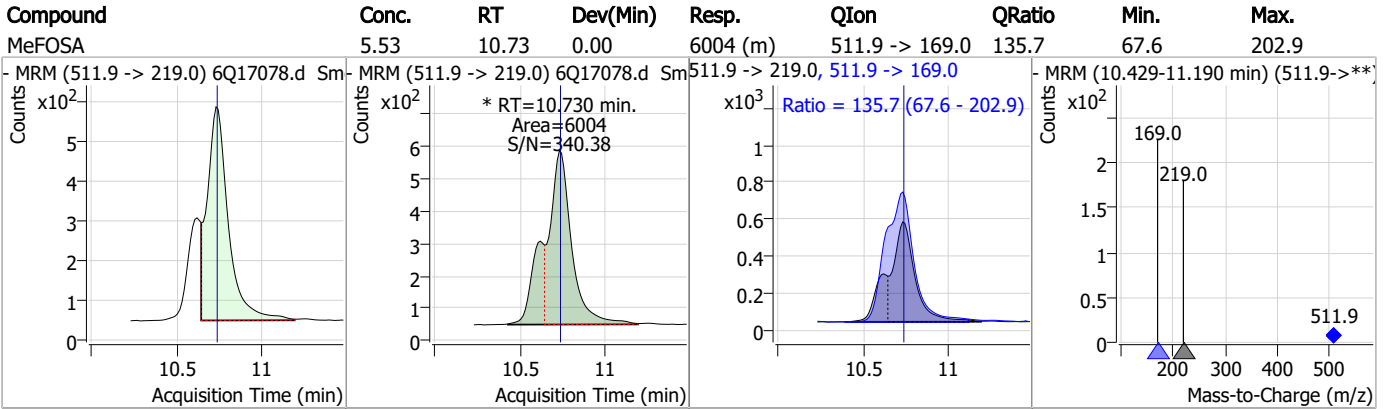


Perfluorinated Compounds by LC/MS/MS



7.4.1
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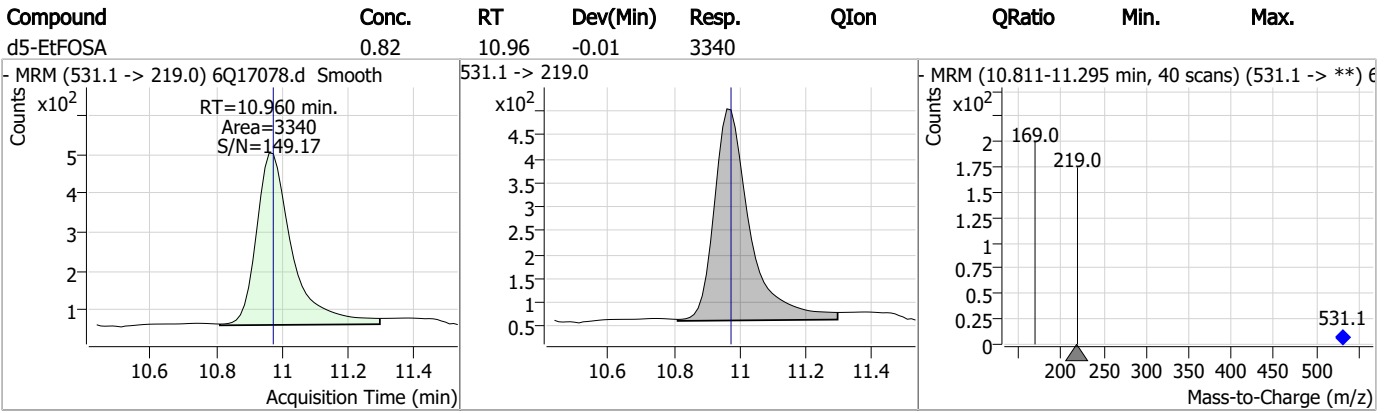
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS



7.4.1
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Manual Integration Approval Summary

Sample Number: OP96603-MS Method: EPA DRAFT 1633
Lab FileID: 6Q17078.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 19:21 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.4.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17080.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 7:50:25 PM
 Sample Name : op96603-dup
 Vial : P3-A9
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	167434	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	64680	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70788	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	56864	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84900	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27729	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18586	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	19742	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	18390	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	11207	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	8144	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23747	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12359	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	8982	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2176	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2687	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2685	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	16425	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	37851	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	14236	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	17542	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	25649	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	2821	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	2257	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	13578	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74053	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9033	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	82238	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23395	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27498	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54666	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2176	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2687	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2685	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	18390	0.94 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	11207	0.85 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.1%		
13C3-PFBS	5.398	302.1 -> 79.9	23747	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C3-PFHxS	7.179	402.1 -> 79.9	12359	2.57 µg/L	0.000

7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C4-PFBA	2.910	216.8 -> 171.9	167434	9.78	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C4-PFHpA	6.419	367.1 -> 322.0	56864	2.54	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C5-PFHxA	5.468	318.0 -> 273.0	70788	2.68	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%		
13C5-PFPeA	4.270	268.3 -> 223.0	64680	5.30	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C6-PFDA	8.076	519.1 -> 474.1	18586	1.20	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C7-PFUnDA	8.530	570.0 -> 525.1	19742	1.00	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.9%		
13C8-FOSA	9.623	506.1 -> 77.8	8144	0.91	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 36.3%		
13C8-PFOA	7.062	421.1 -> 376.0	84900	2.67	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C8-PFOS	8.239	507.1 -> 79.9	8982	2.20	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.8%		
13C9-PFNA	7.594	472.1 -> 427.0	27729	1.32	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%		
d3-MeFOSAA	8.134	573.2 -> 419.0	16425	4.06	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.2%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	37851	9.78	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
d3-MeFOSA	10.741	515.0 -> 219.0	2257	0.67	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 26.6%		
d5-EtFOSAA	8.330	589.2 -> 419.0	14236	4.23	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.7%		
d7-MeFOSE	10.647	623.2 -> 58.9	17542	4.92	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 19.7%		
d9-EtFOSE	10.894	639.2 -> 58.9	25649	5.89	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.6%		
d5-EtFOSA	10.973	531.1 -> 219.0	2821	0.68	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 27.1%		

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	8.695	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	0			
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.193	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	552			
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	9.139	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.5.1
7

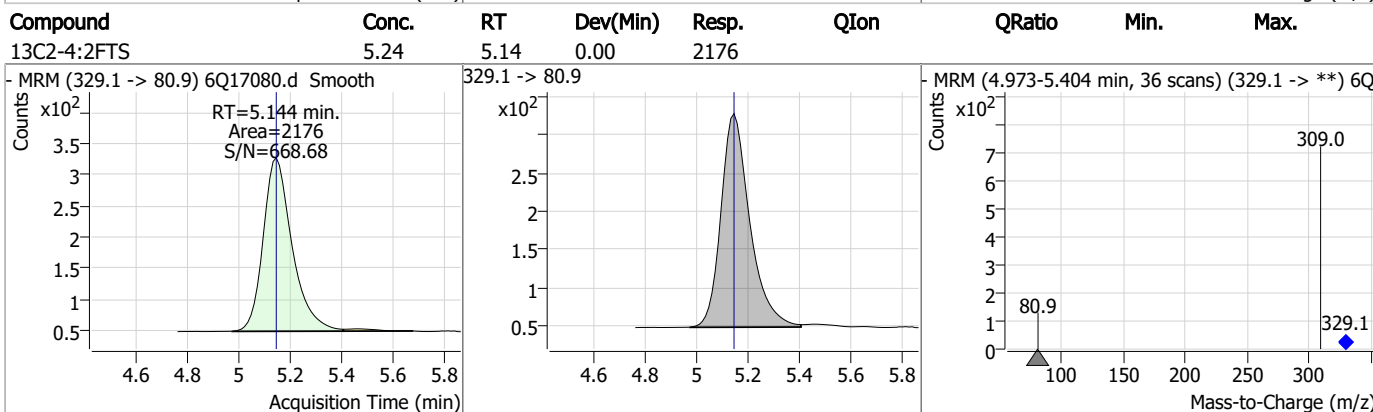
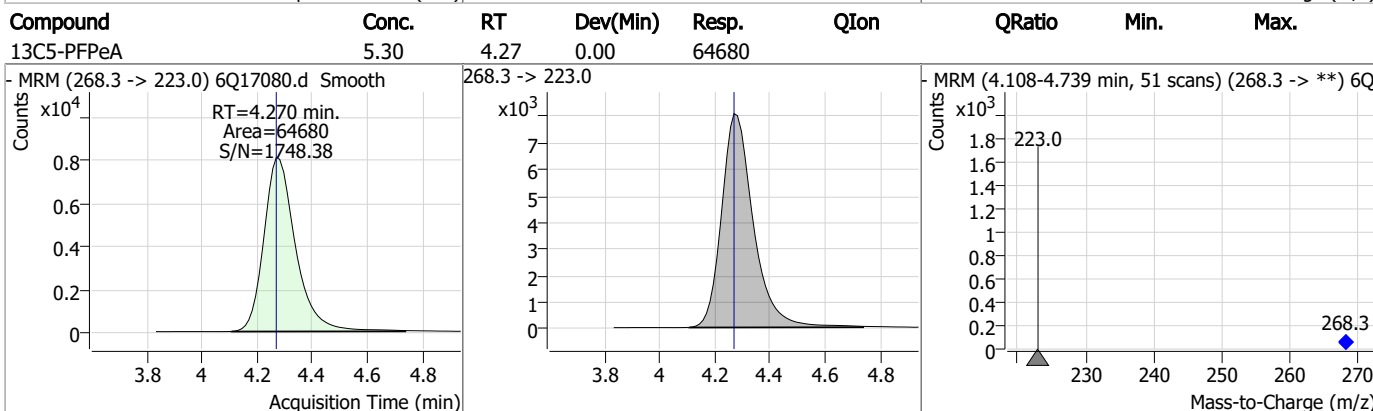
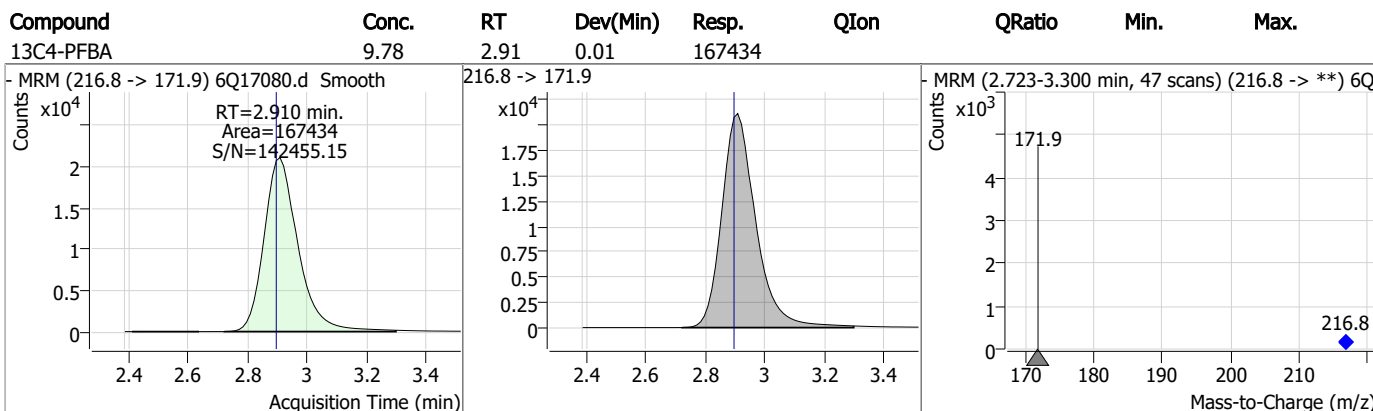
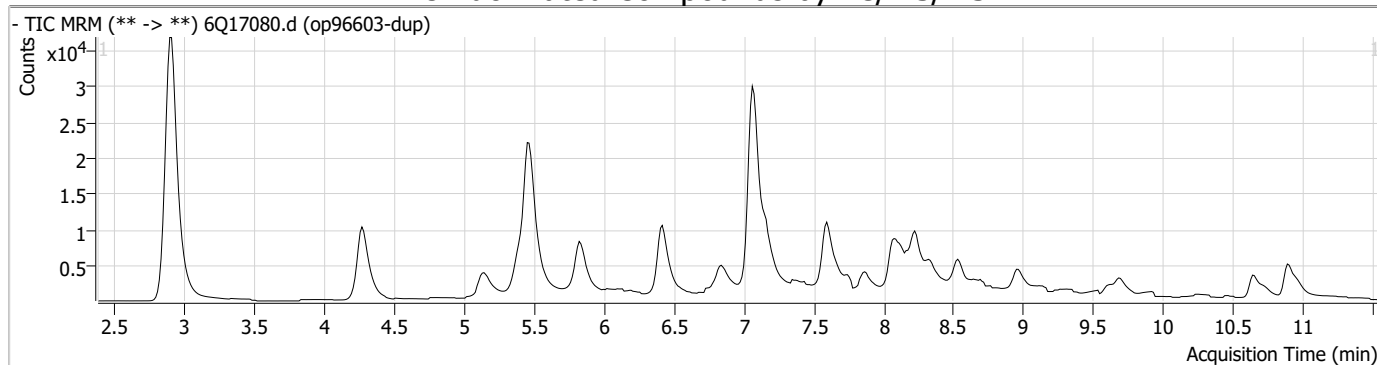
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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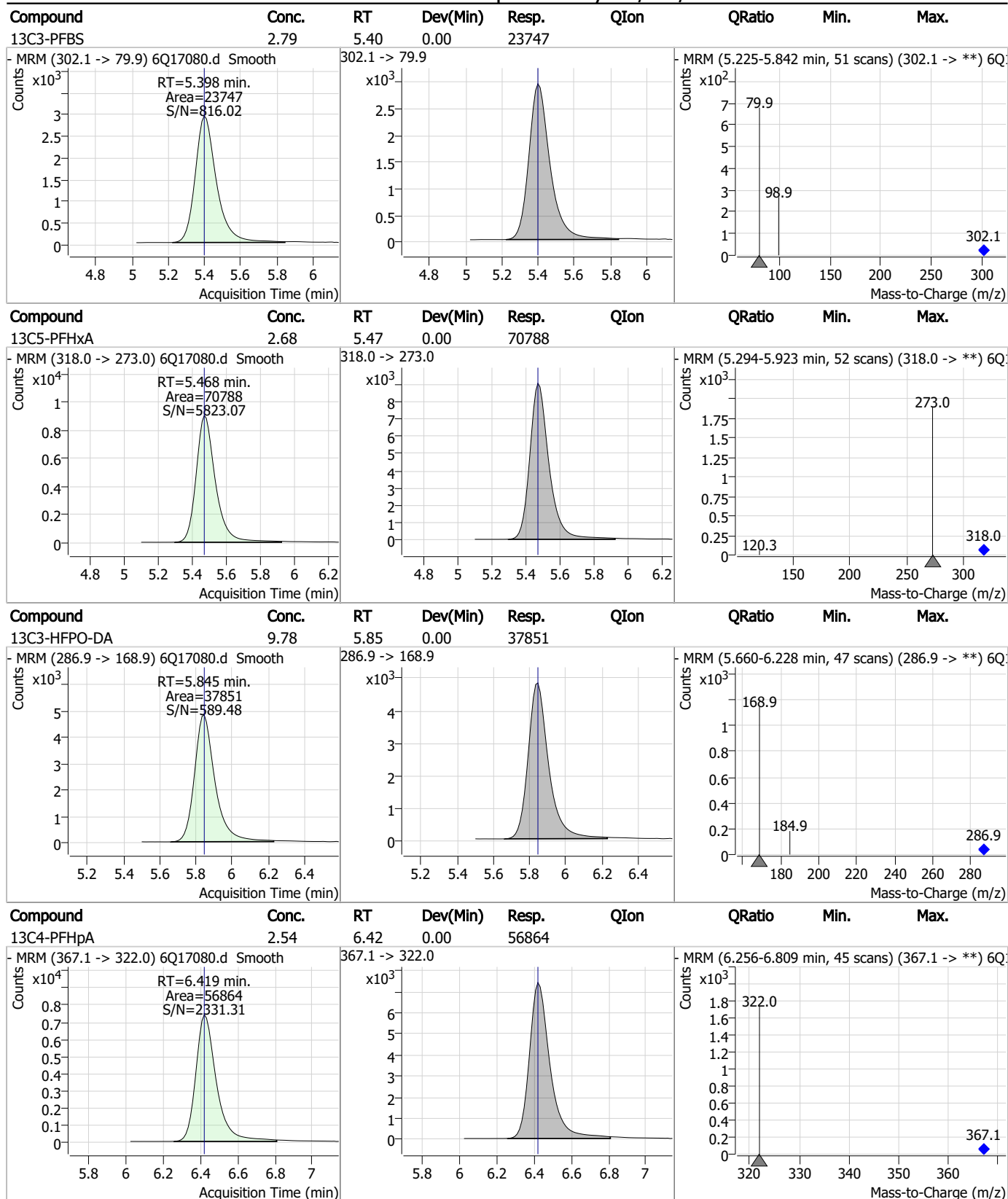
7.5.1

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Perfluorinated Compounds by LC/MS/MS

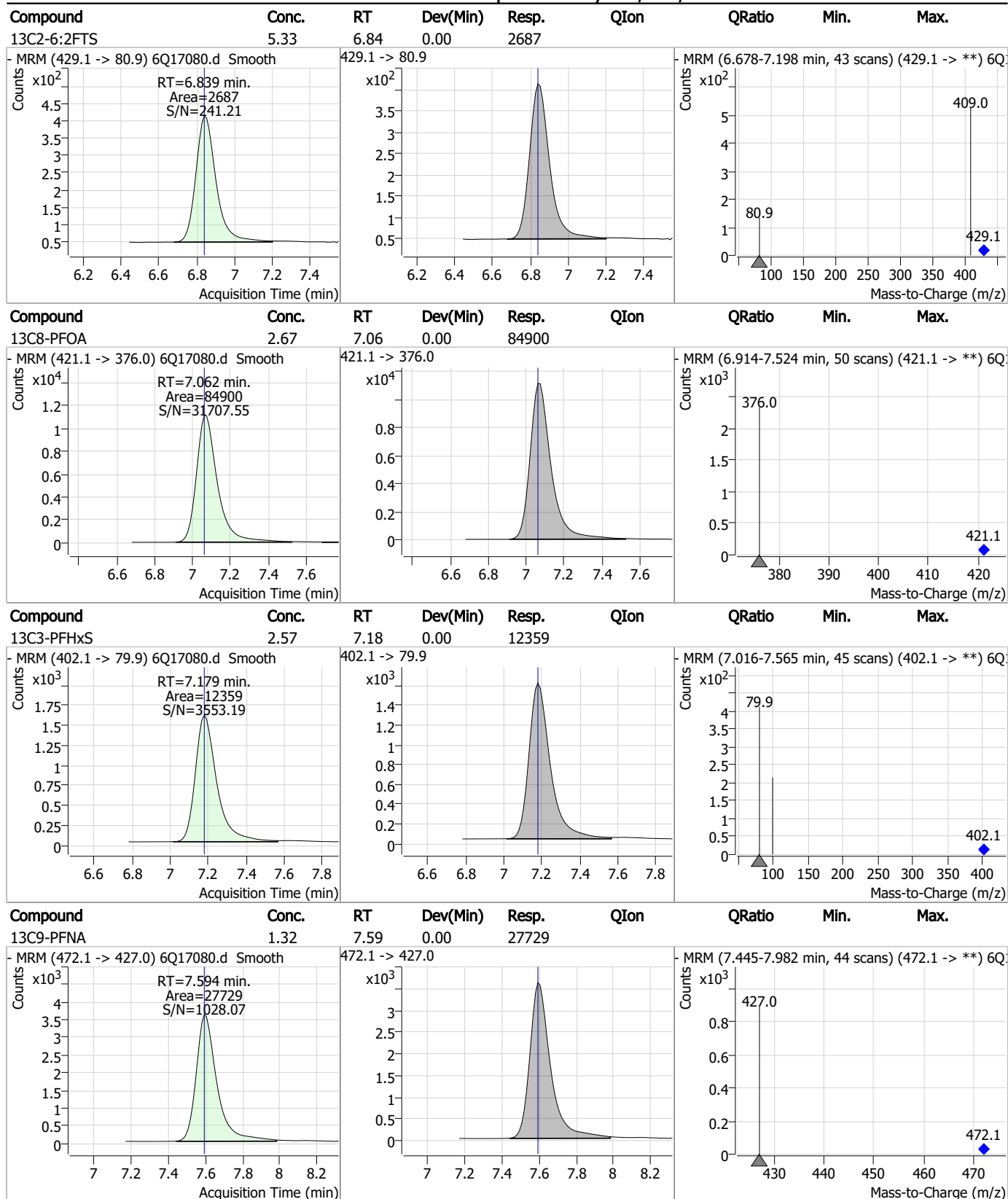


Perfluorinated Compounds by LC/MS/MS



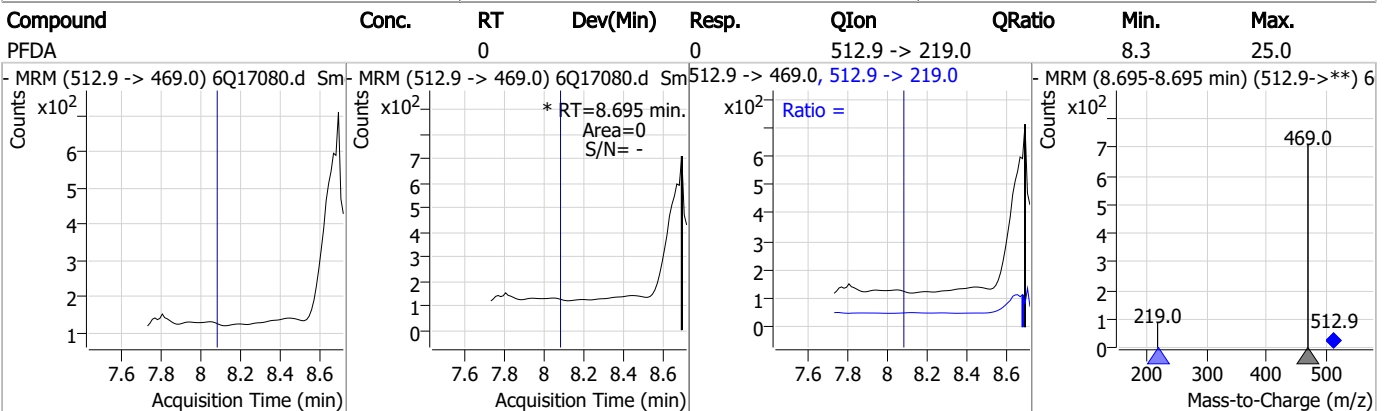
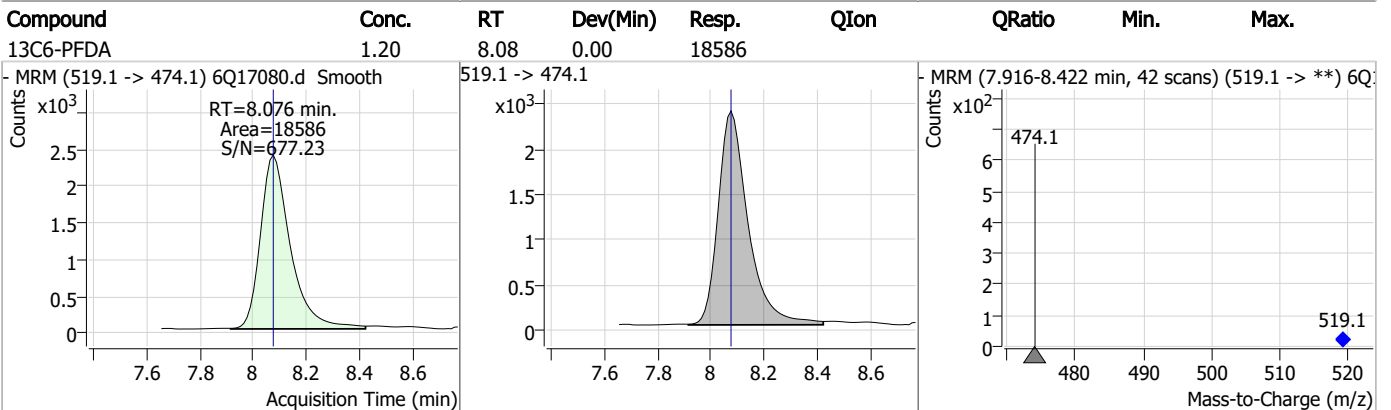
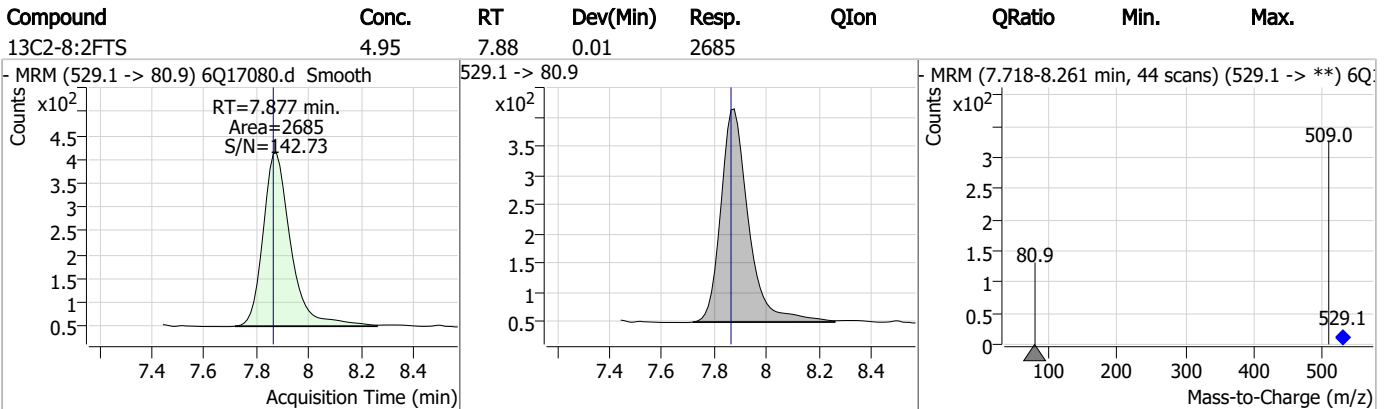
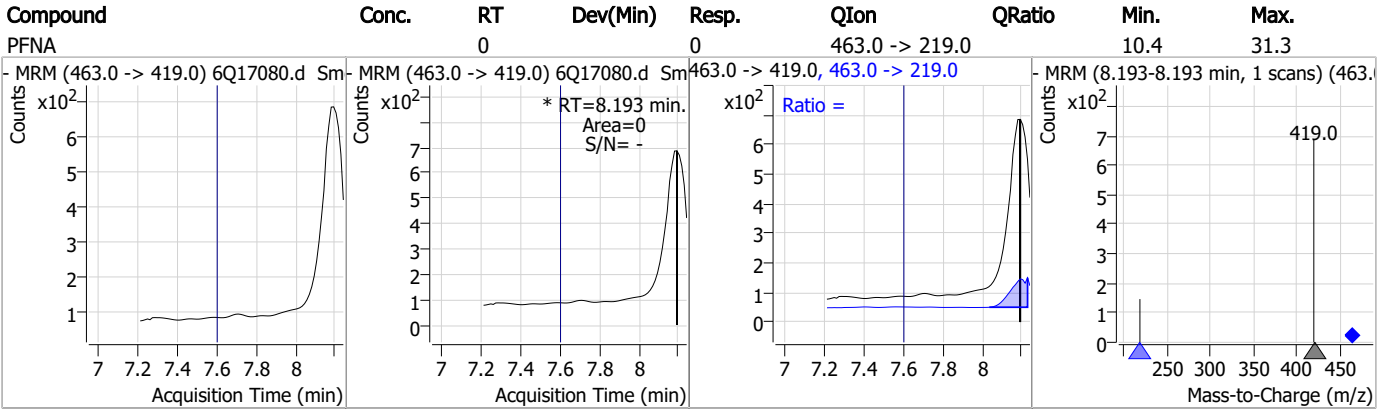
7.5.1
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Perfluorinated Compounds by LC/MS/MS

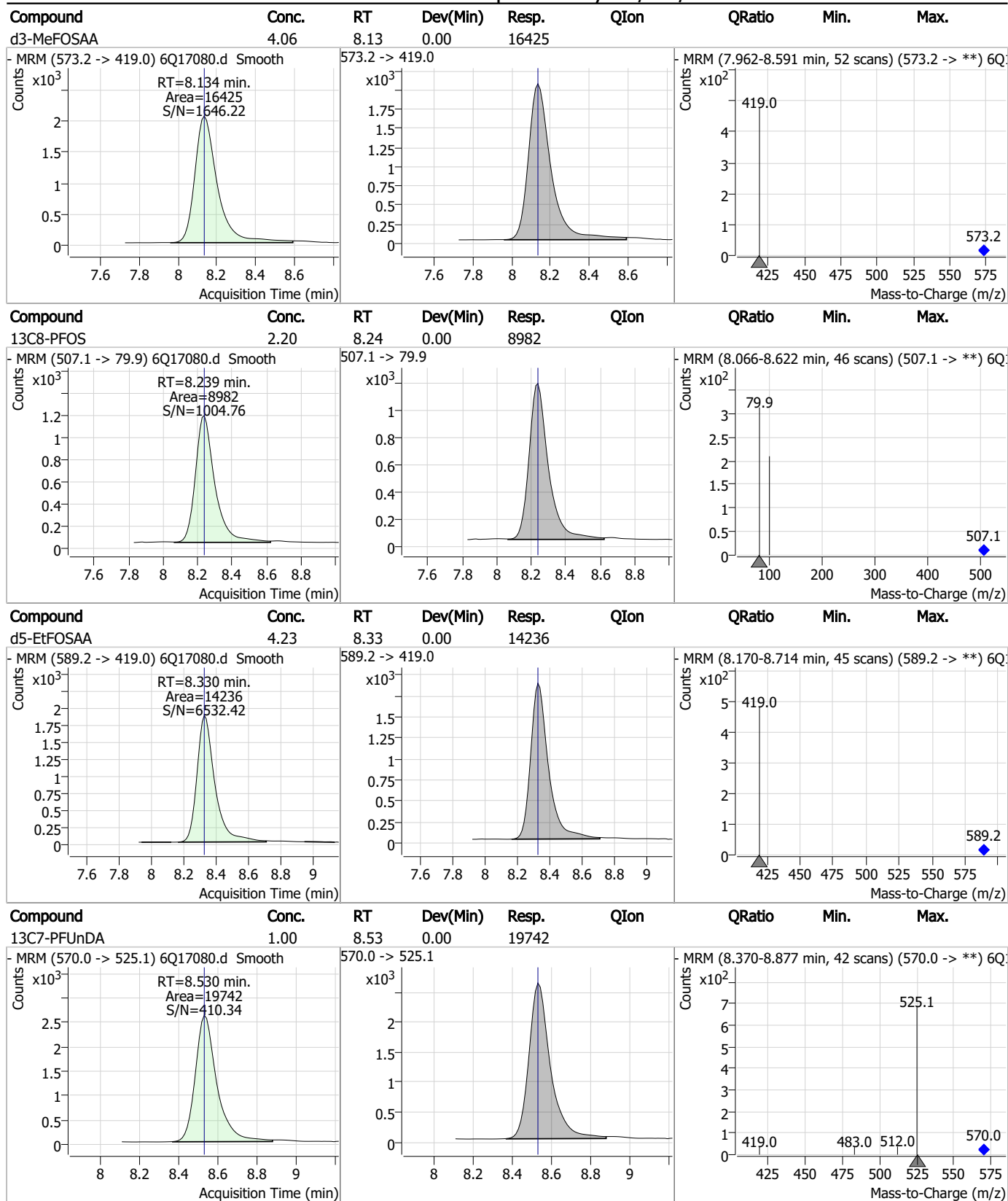


7.5.1
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Perfluorinated Compounds by LC/MS/MS



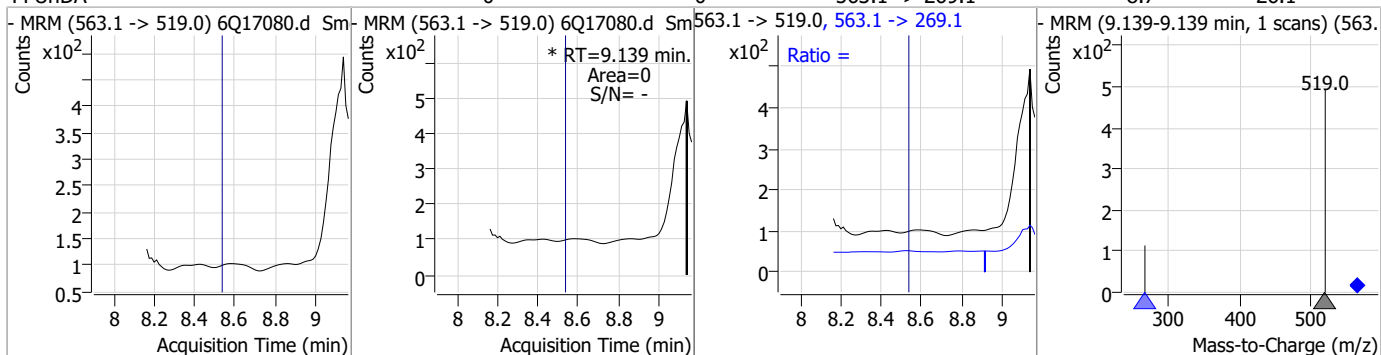
Perfluorinated Compounds by LC/MS/MS



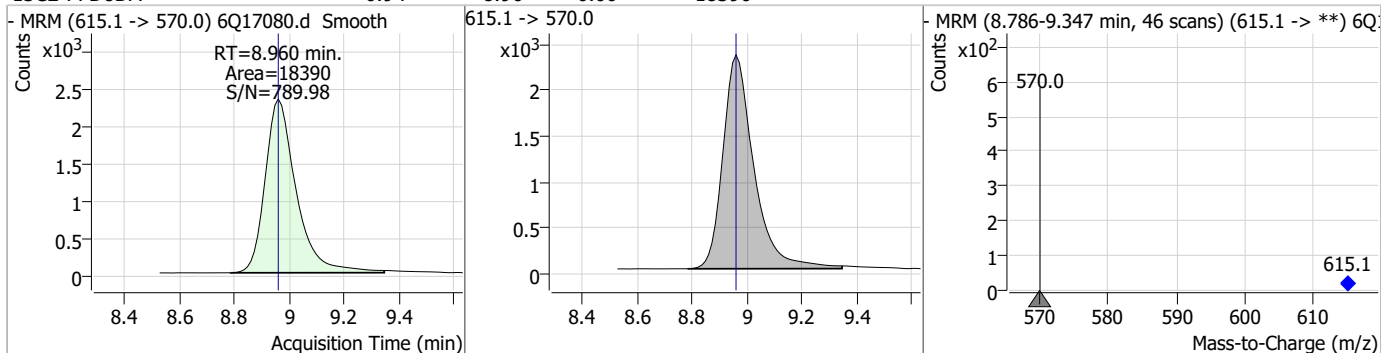
7.5.1
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Perfluorinated Compounds by LC/MS/MS

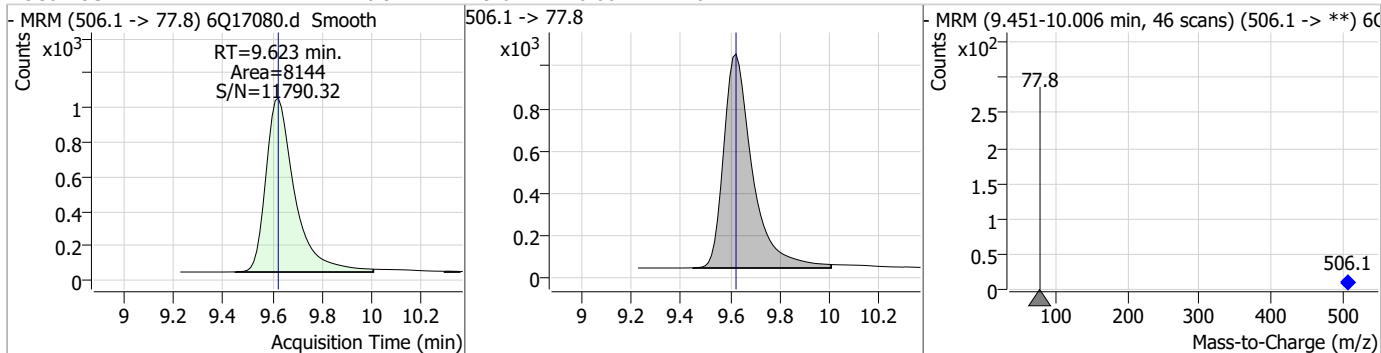
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0	0		0	563.1 -> 269.1		8.7	26.1



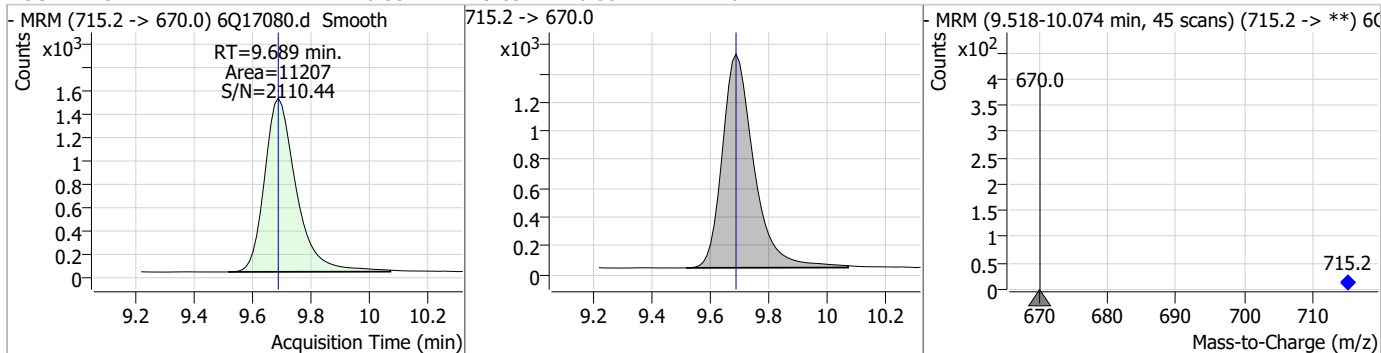
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.94	8.96	0.00	18390				



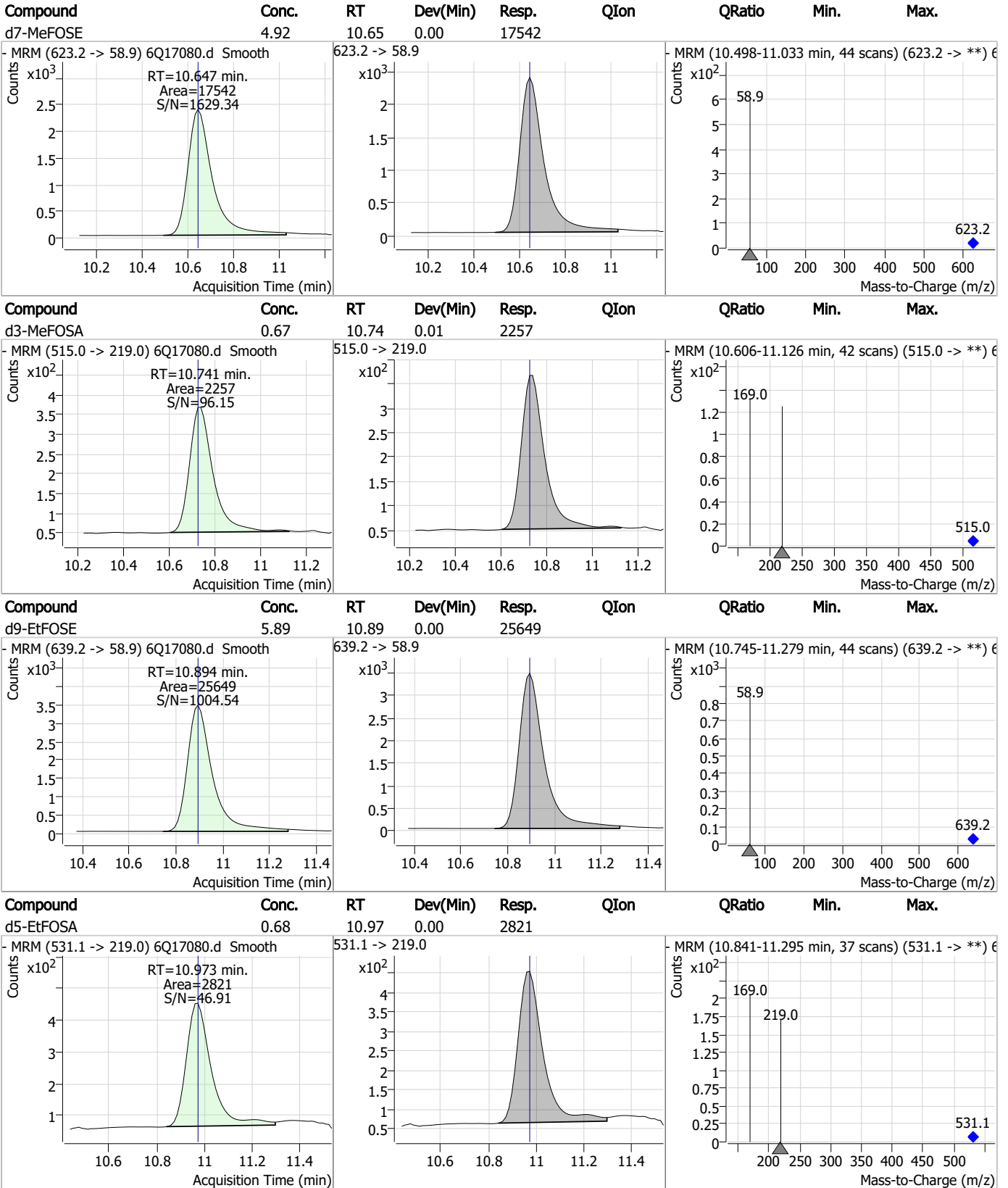
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	0.91	9.62	0.00	8144				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.85	9.69	0.00	11207				



Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 04/30/23 23:39

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17048.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:06:49 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q258 TDCA.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.226	507.1 -> 79.9	16002	2.50 µg/L	-0.012
13C4-PFOS	8.227	502.8 -> 79.9	20090	2.50 µg/L	-0.012
System Monitoring Compounds					
13C8-PFOS	8.226	507.1 -> 79.9	16002	2.02 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.8%		
Target Compounds					
PFOS	8.228	498.9 -> 79.9 498.9 -> 98.8	16996 8673	3.11 µg/L m	82
TCDCa	6.626	498.9 -> 79.9	3136	4.25 ng/ml	100
TDCA	6.775	498.9 -> 79.9	4950	7.40 ng/ml	100
TUDCA	5.774	498.9 -> 79.9	5418	3.82 ng/ml	100

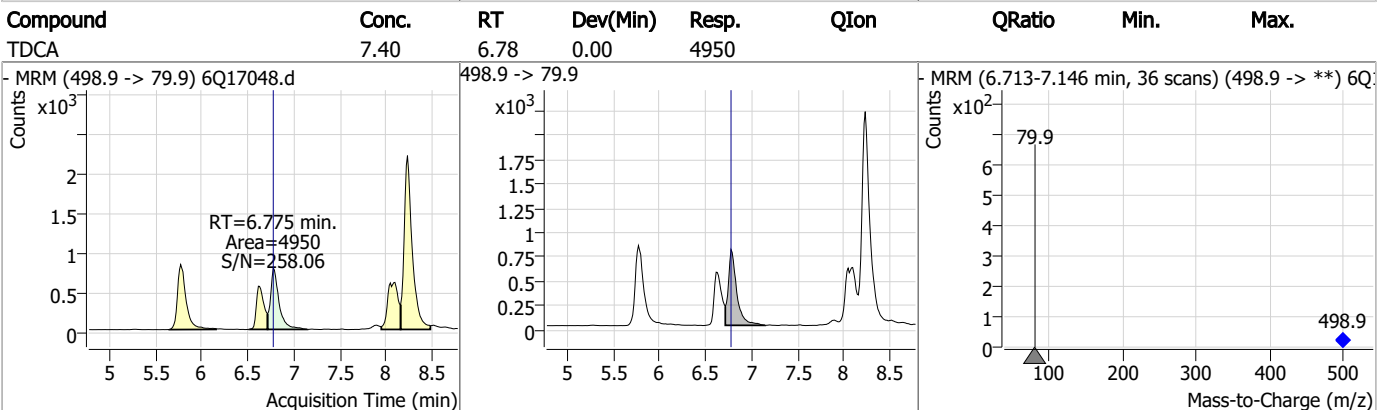
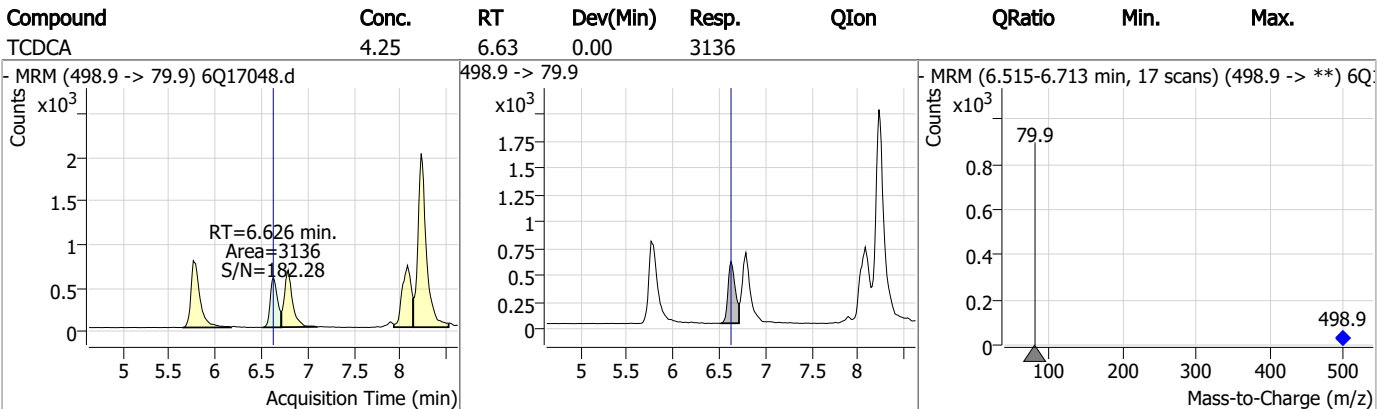
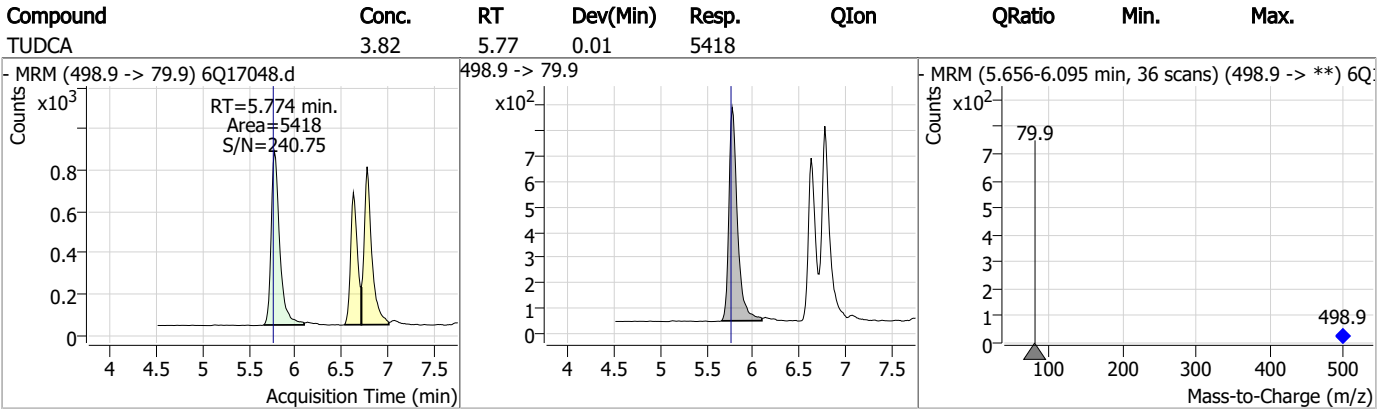
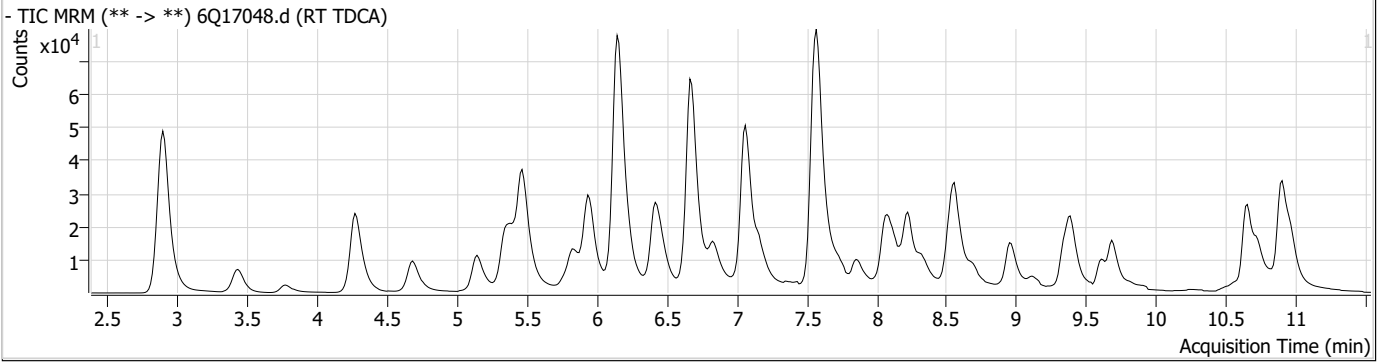
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.1

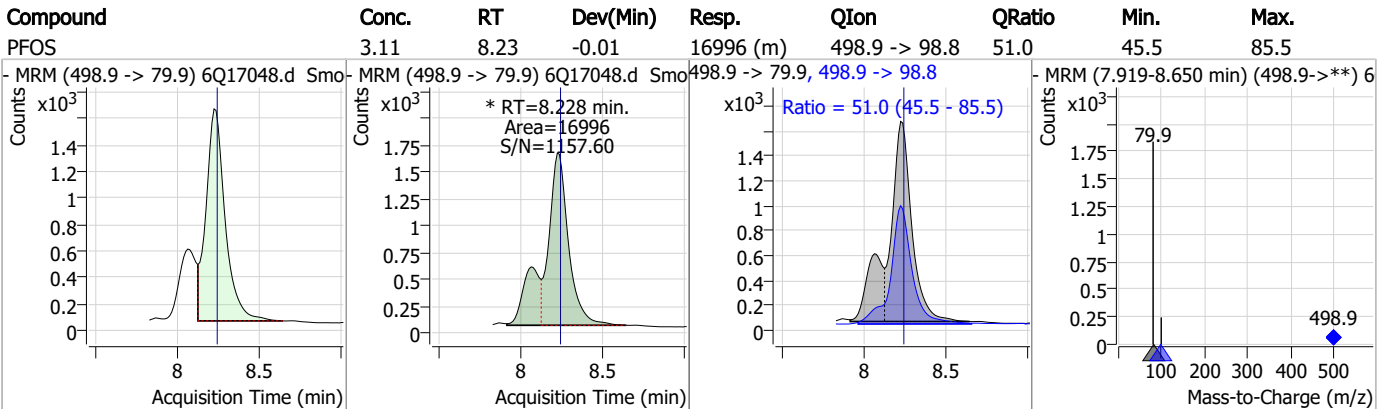
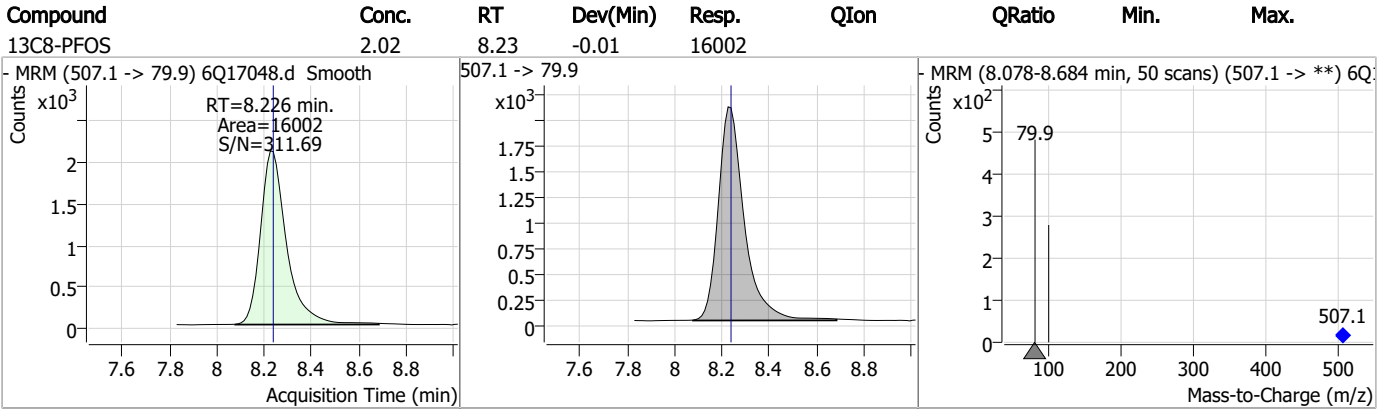
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.1

7



Manual Integration Approval Summary

Sample Number: S6Q258-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17048.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 12:06 Supervisor approved: 04/30/23 23:39 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17049.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:21:19 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	171083	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	62201	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	64326	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	57751	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	79741	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	25663	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20362	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26150	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25196	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17054	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24114	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22749	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11896	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10763	2.50 µg/L	0.000
M2-4:2FTS	5.157	329.1 -> 80.9	2117	5.00 µg/L	0.012
M2-6:2FTS	6.839	429.1 -> 80.9	2602	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2983	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	19657	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39060	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18274	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	89275	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	110708	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	10680	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9461	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14092	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	75322	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9185	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	83641	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22953	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26302	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55131	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.157	329.1 -> 80.9	2117	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2602	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2983	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25196	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17054	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22749	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	11896	2.43 µg/L	0.000



7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C4-PFBA	2.910	216.8 -> 171.9	171083	9.83 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.419	367.1 -> 322.0	57751	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.468	318.0 -> 273.0	64326	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFPeA	4.270	268.3 -> 223.0	62201	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.076	519.1 -> 474.1	20362	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26150	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-FOSA	9.623	506.1 -> 77.8	24114	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOA	7.074	421.1 -> 376.0	79741	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10763	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.594	472.1 -> 427.0	25663	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	19657	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39060	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	9461	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18274	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d7-MeFOSE	10.647	623.2 -> 58.9	89275	24.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d9-EtFOSE	10.894	639.2 -> 58.9	110708	24.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	10680	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	161089	50.29 µg/L	100
		327.1 -> 80.9	59753		
6:2FTS	6.839	427.1 -> 407.0	144708	50.55 µg/L	95
		427.1 -> 80.9	47633		
8:2FTS	7.865	527.1 -> 507.0	85122	47.96 µg/L	99
		527.1 -> 80.8	35097		
EtFOSAA	8.331	584.2 -> 419.1	41169	13.26 µg/L	99
		584.2 -> 526.0	21718		
FOSA	9.614	498.1 -> 77.9	277513	32.12 µg/L	99
		498.1 -> 478.0	7576		
MeFOSAA	8.136	570.1 -> 419.0	54891	14.87 µg/L	89
		570.1 -> 483.0	10430		
PFBA	2.906	212.8 -> 168.9	313891	54.71 µg/L	100
PFBS	5.400	298.7 -> 79.9	115522	11.32 µg/L	96
		298.7 -> 98.8	44913		
PFDA	8.077	512.9 -> 469.0	309357	13.98 µg/L	100
		512.9 -> 219.0	51661		
PFDoDA	8.961	613.1 -> 569.0	267403	13.54 µg/L	99
		613.1 -> 319.0	37690		
PFDS	9.125	599.0 -> 79.9	45824	13.36 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8	23398		
PFHpA	6.420	363.1 -> 319.0	379066	13.30 µg/L	98
		363.1 -> 169.0	58738		
PFHpS	7.734	449.0 -> 79.9	76363	13.09 µg/L	95
		449.0 -> 98.9	36076		
PFHxA	5.470	313.0 -> 269.0	364382	14.33 µg/L	99
		313.0 -> 118.9	16079		
PFHxS	7.180	398.7 -> 79.9	69625	10.74 µg/L	98
		398.7 -> 98.9	34896		
PFNA	7.583	463.0 -> 419.0	272781	15.37 µg/L	100
		463.0 -> 219.0	56502		
PFNS	8.694	548.8 -> 79.9	69480	13.37 µg/L	100
		548.8 -> 98.9	38403		
PFOA	7.063	413.0 -> 369.0	1020780	26.58 µg/L	99
		413.0 -> 169.0	172403		
PFOS	8.240	498.9 -> 79.9	54204	10.43 µg/L	98
		498.9 -> 98.8	34321		
PFPeA	4.273	263.0 -> 219.0	457335	26.99 µg/L	100
PFPeS	6.484	349.1 -> 79.9	84715	12.51 µg/L	98
		349.1 -> 98.9	40297		
PFTeDA	9.690	713.1 -> 669.0	236649	13.73 µg/L	99
		713.1 -> 168.9	17343		
PFTrDA	9.345	663.0 -> 619.0	304546	13.93 µg/L	99
		663.0 -> 168.9	26425		
PFUnDA	8.531	563.1 -> 519.0	226163	12.47 µg/L	99
		563.1 -> 269.1	40725		
11CI-PF3OUdS	9.398	630.9 -> 450.9	349446	26.07 µg/L	98
		632.9 -> 452.9	107433		
9CI-PF3ONS	8.569	530.8 -> 351.0	553273	26.10 µg/L	98
		532.8 -> 353.0	171603		
ADONA	6.681	376.9 -> 250.9	1485563	25.18 µg/L	98
		376.9 -> 84.8	397204		
HFPO-DA	5.846	284.9 -> 168.9	96123	25.98 µg/L	98
		284.9 -> 184.9	12798		
3:3FTCA	3.784	241.0 -> 177.0	70658	66.70 µg/L	97
		241.0 -> 117.0	8689		
5:3FTCA	6.160	341.0 -> 237.1	1422375	345.57 µg/L	97
		341.0 -> 217.0	991188		
7:3FTCA	7.573	441.0 -> 316.9	673865	360.39 µg/L	95
		441.0 -> 336.9	1403411		
EtFOSA	10.962	526.0 -> 219.0	208567	47.51 µg/L	91
		526.0 -> 169.0	275120		
EtFOSE	10.907	630.0 -> 58.9	410058	88.94 µg/L	100
MeFOSA	10.730	511.9 -> 219.0	184326	43.29 µg/L	99
		511.9 -> 169.0	251723		
MeFOSE	10.661	616.1 -> 58.9	369093	92.70 µg/L	100
PFDoS	9.817	699.1 -> 79.9	23237	13.10 µg/L	97
		699.1 -> 98.8	12700		
NFDHA	5.350	295.0 -> 201.0	74421	27.00 µg/L	96
		295.0 -> 84.9	19459		
PFMBA	4.687	279.0 -> 85.1	309902	27.27 µg/L	100
PFMPA	3.438	229.0 -> 84.9	228374	26.93 µg/L	100
PFEESA	5.937	314.8 -> 134.9	813277	25.34 µg/L	99
		314.8 -> 82.9	26166		

= Qualifier out of range, m = manually integrated, + = Area summed

7.6.2
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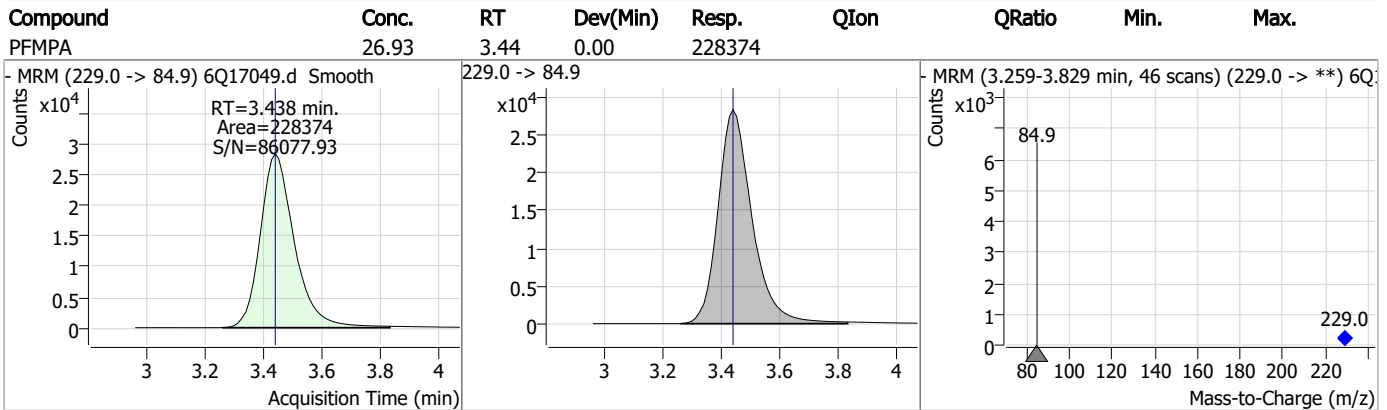
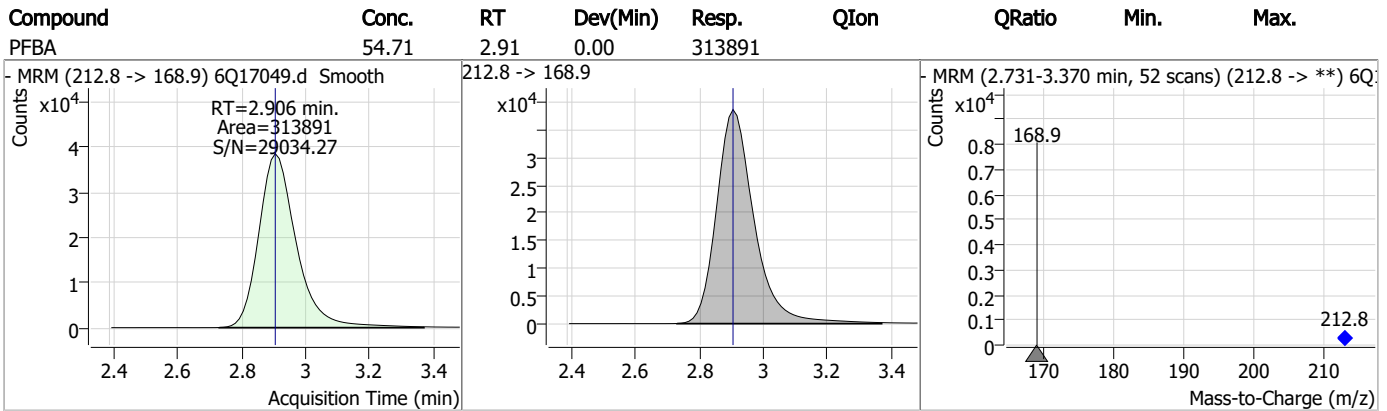
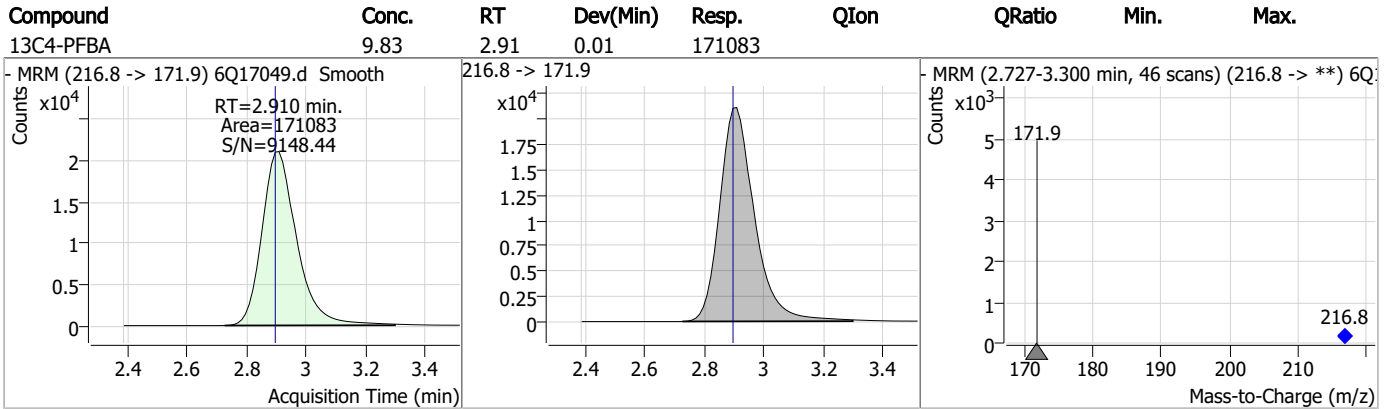
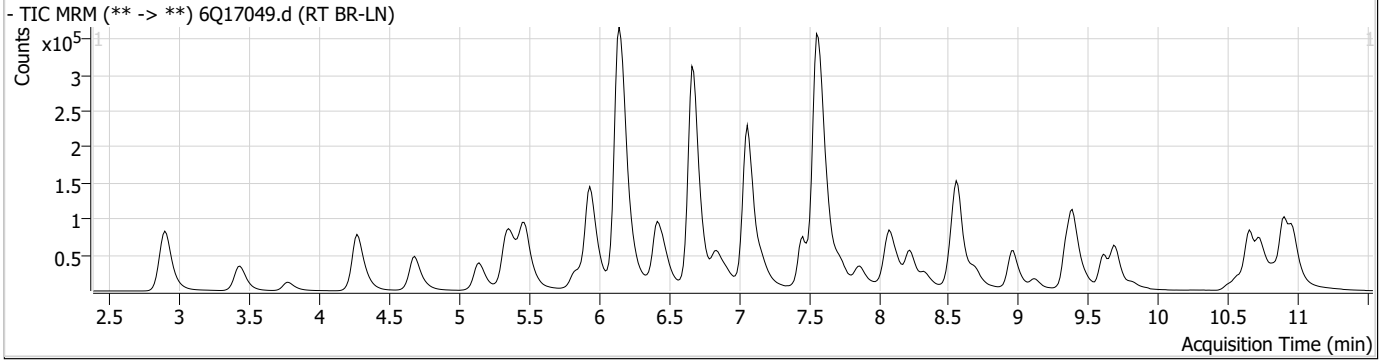
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.2

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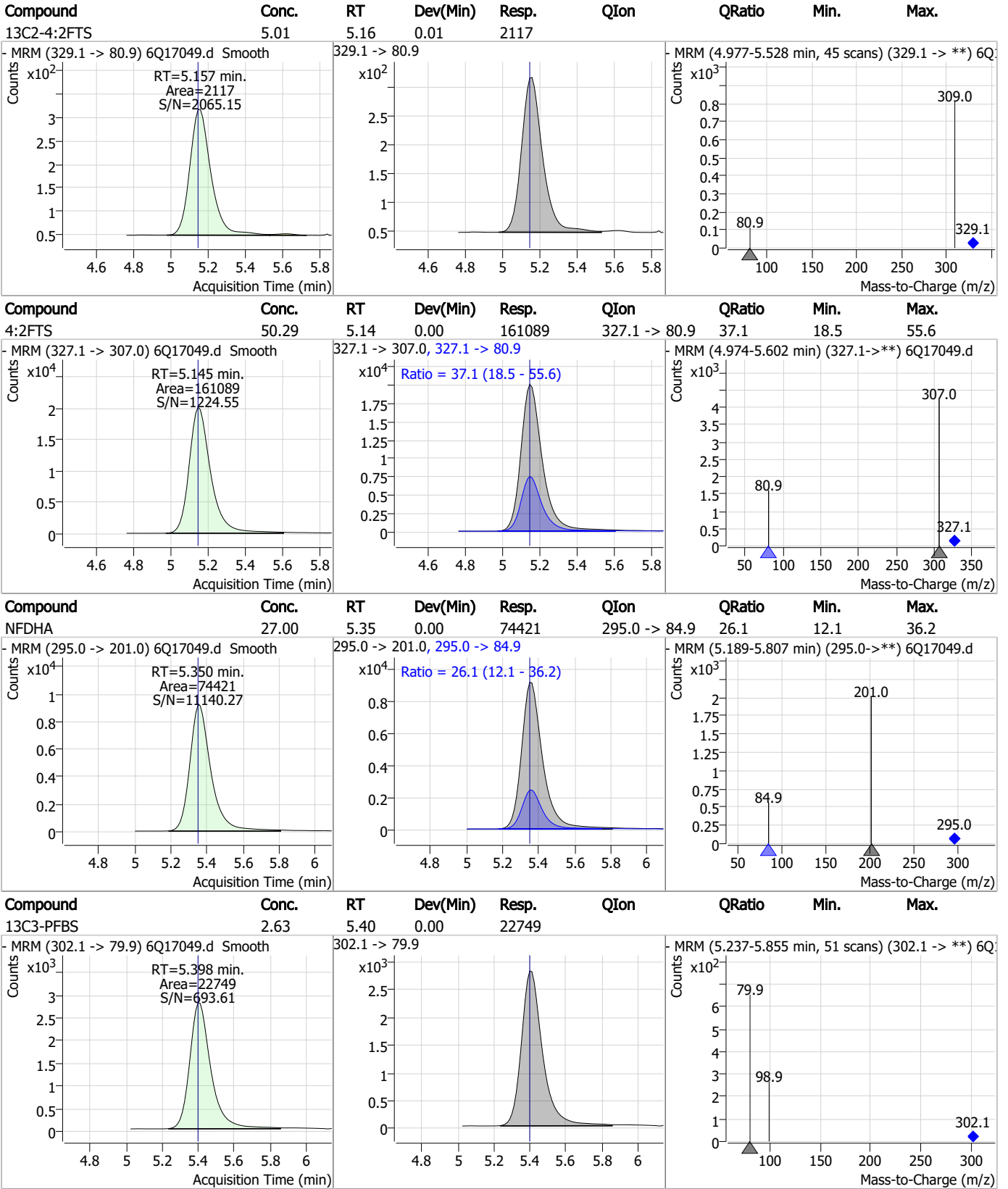
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	66.70	3.78	0.00	70658	241.0 -> 117.0	12.3	6.7	20.0
13C5-PFPeA	5.05	4.27	0.00	62201				
PFPeA	26.99	4.27	0.00	457335				
PFMBA	27.27	4.69	0.00	309902				

Perfluorinated Compounds by LC/MS/MS

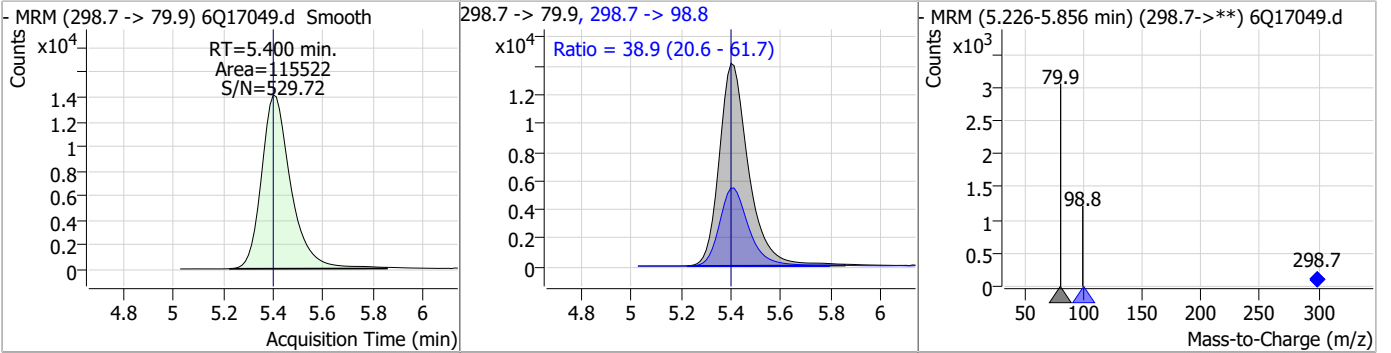


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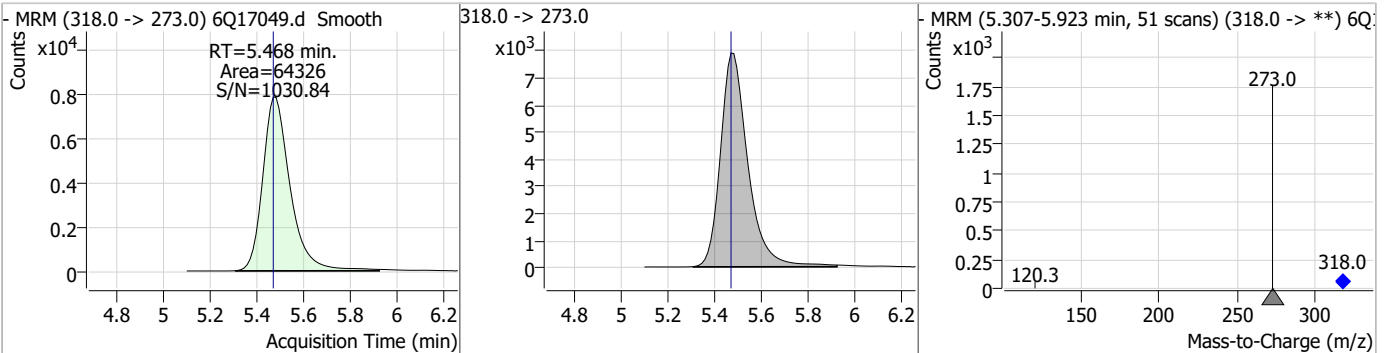
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Perfluorinated Compounds by LC/MS/MS

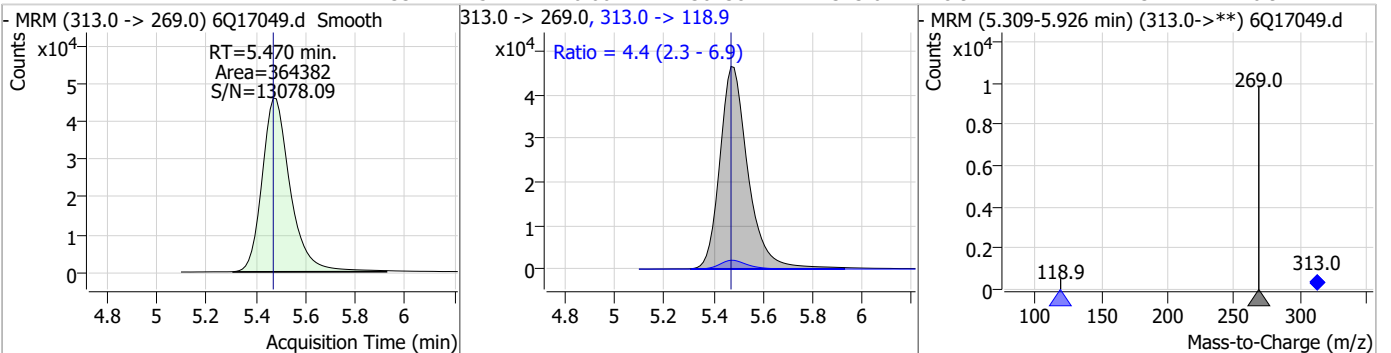
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.32	5.40	0.00	115522	298.7 -> 98.8	38.9	20.6	61.7



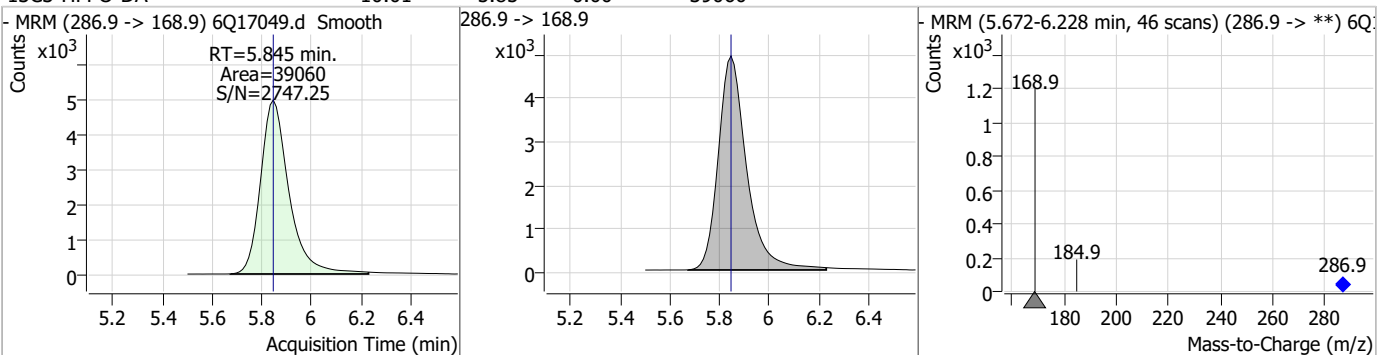
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.47	0.00	64326				



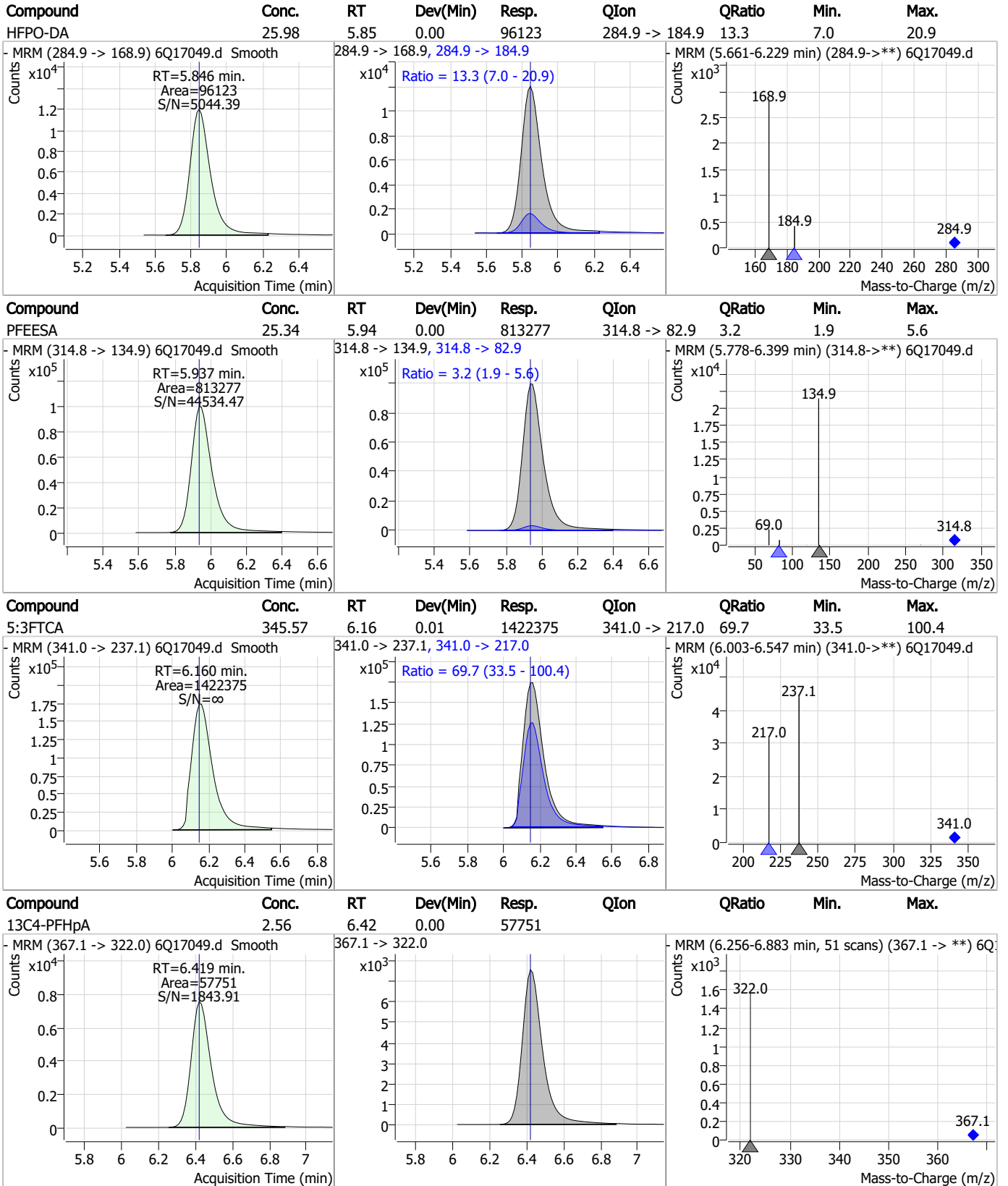
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.33	5.47	0.00	364382	313.0 -> 118.9	4.4	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.01	5.85	0.00	39060				



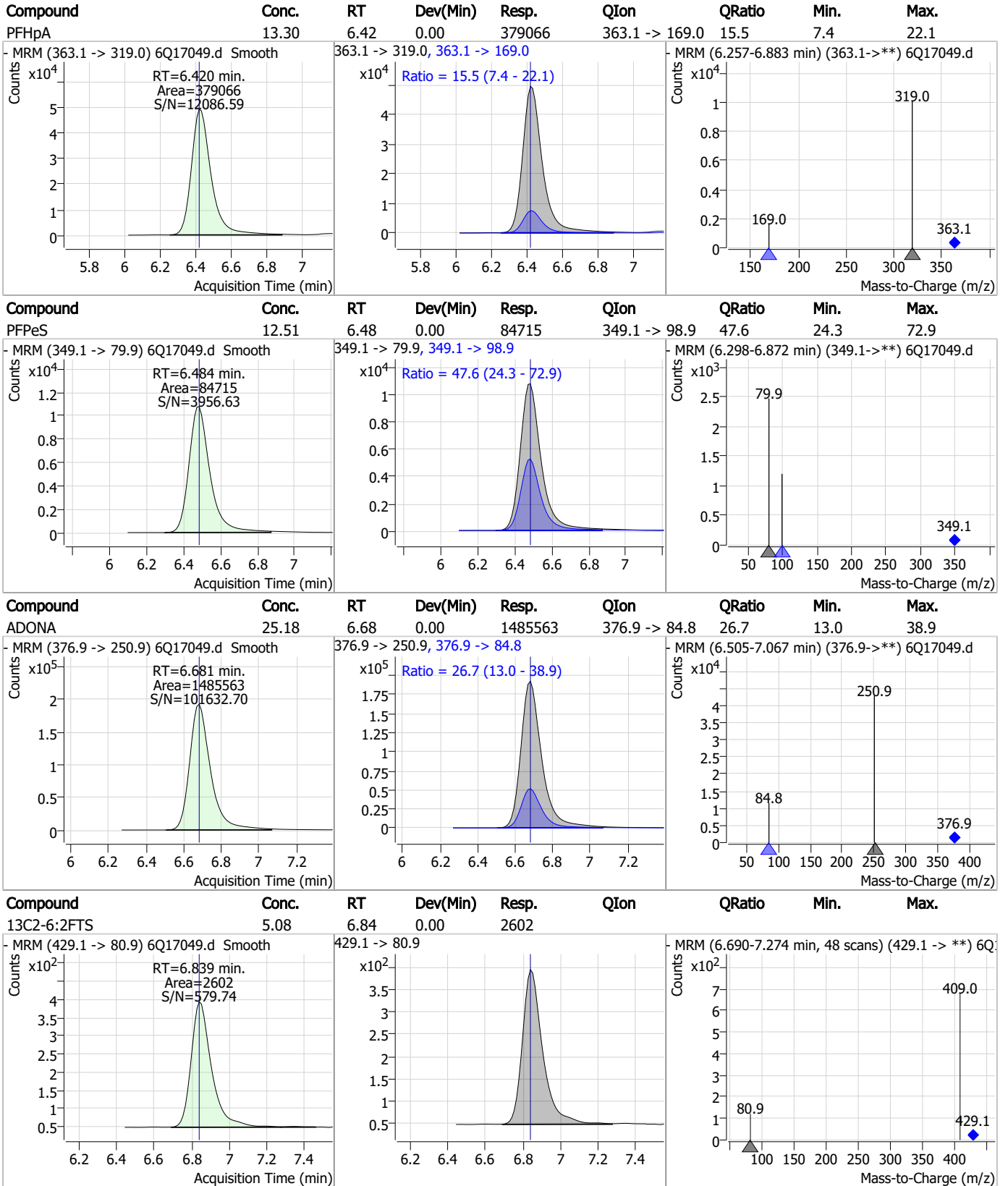
Perfluorinated Compounds by LC/MS/MS



7.6.2

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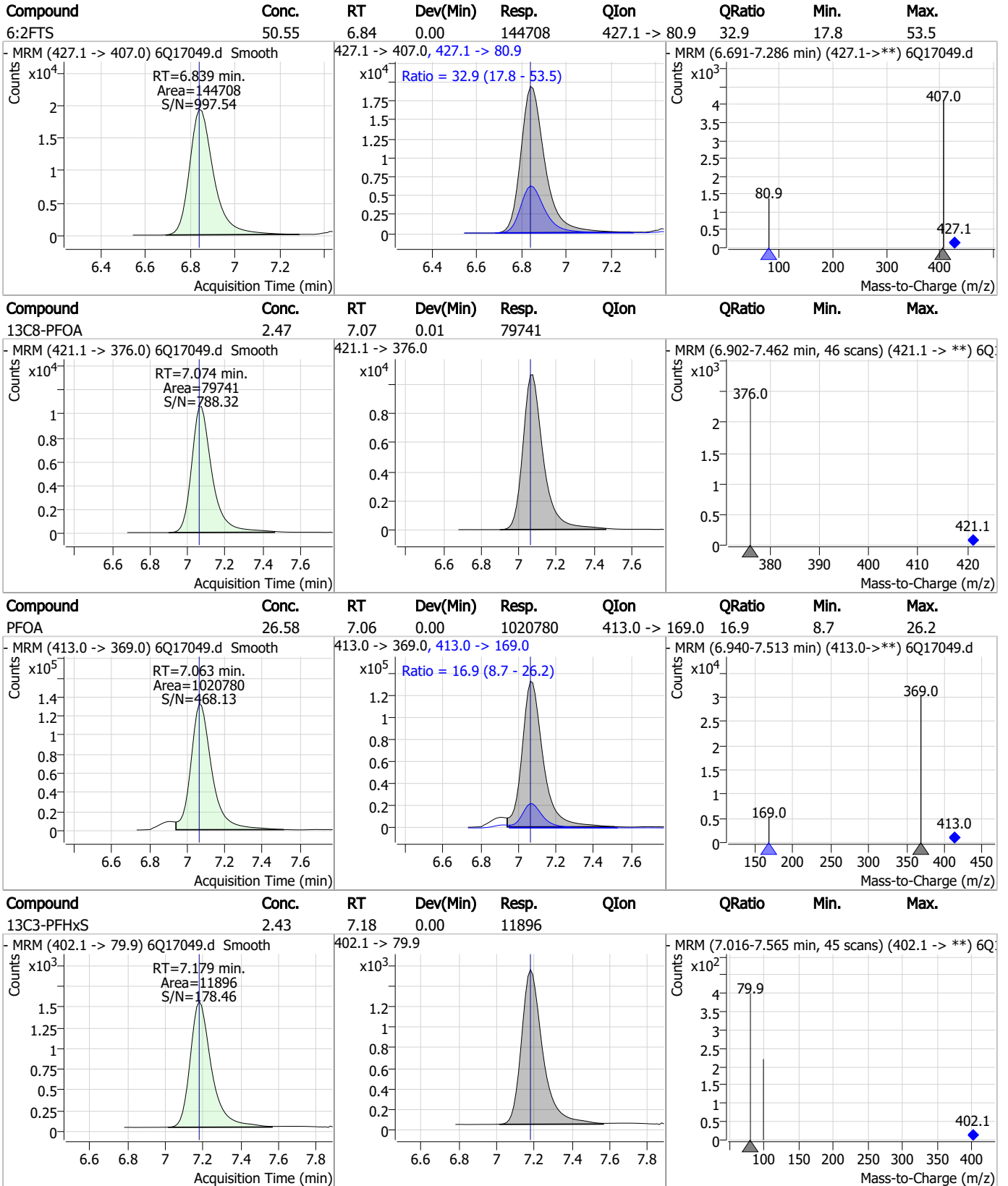
Perfluorinated Compounds by LC/MS/MS



7.6.2

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Perfluorinated Compounds by LC/MS/MS

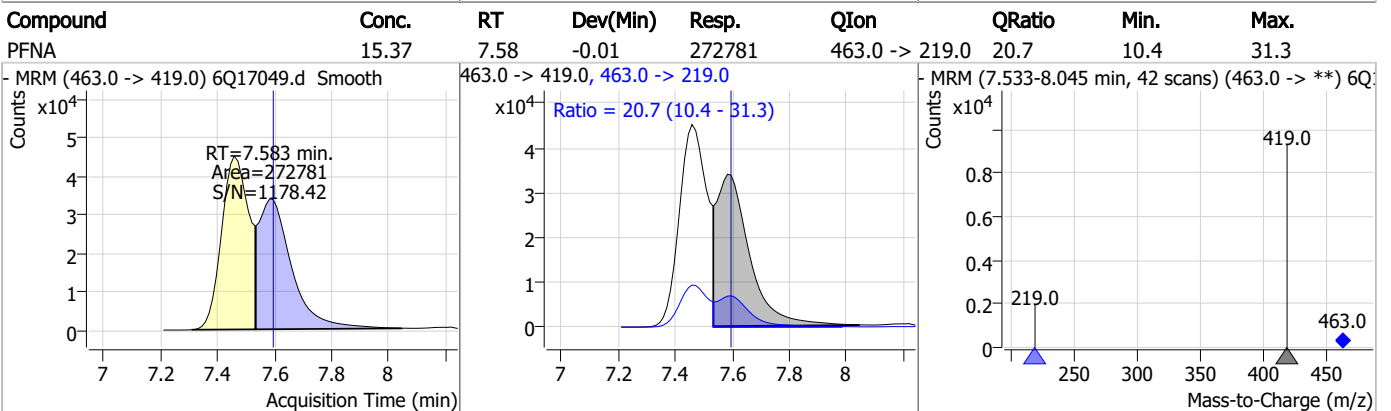
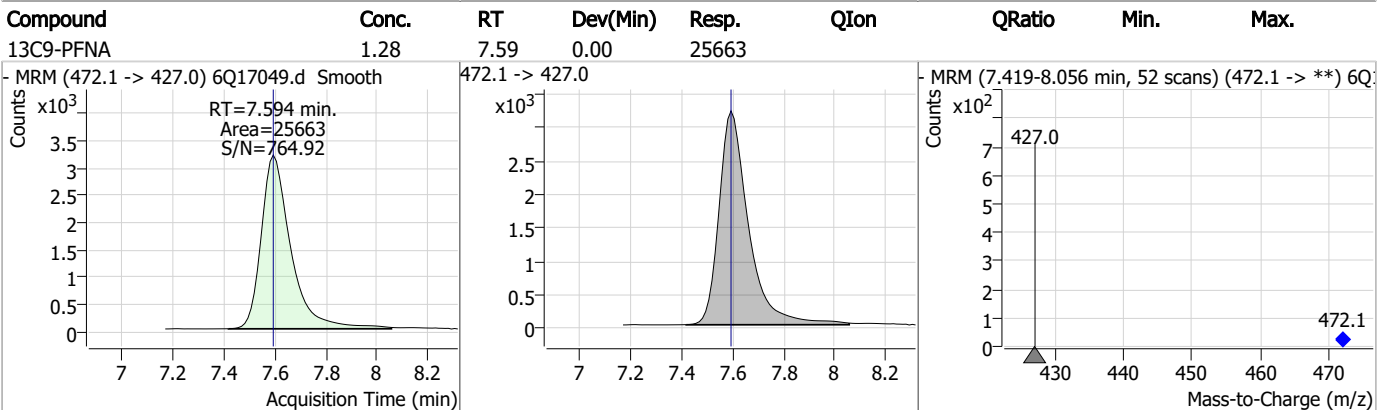
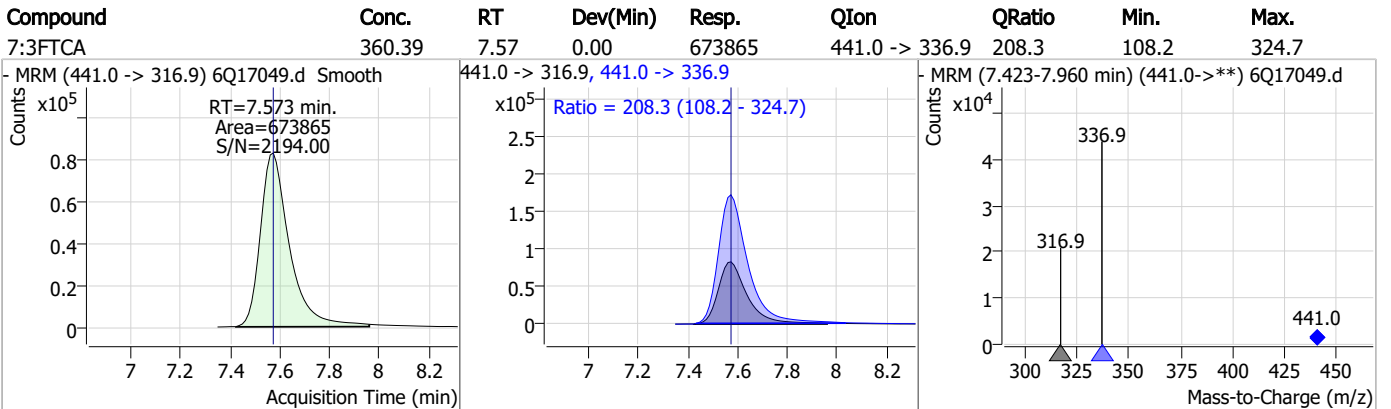
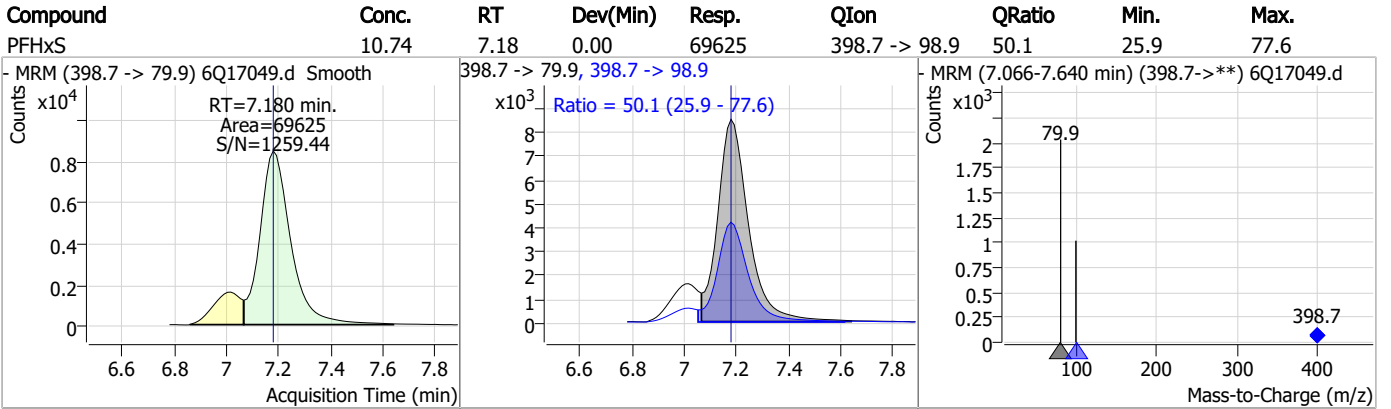


7.6.2

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Perfluorinated Compounds by LC/MS/MS



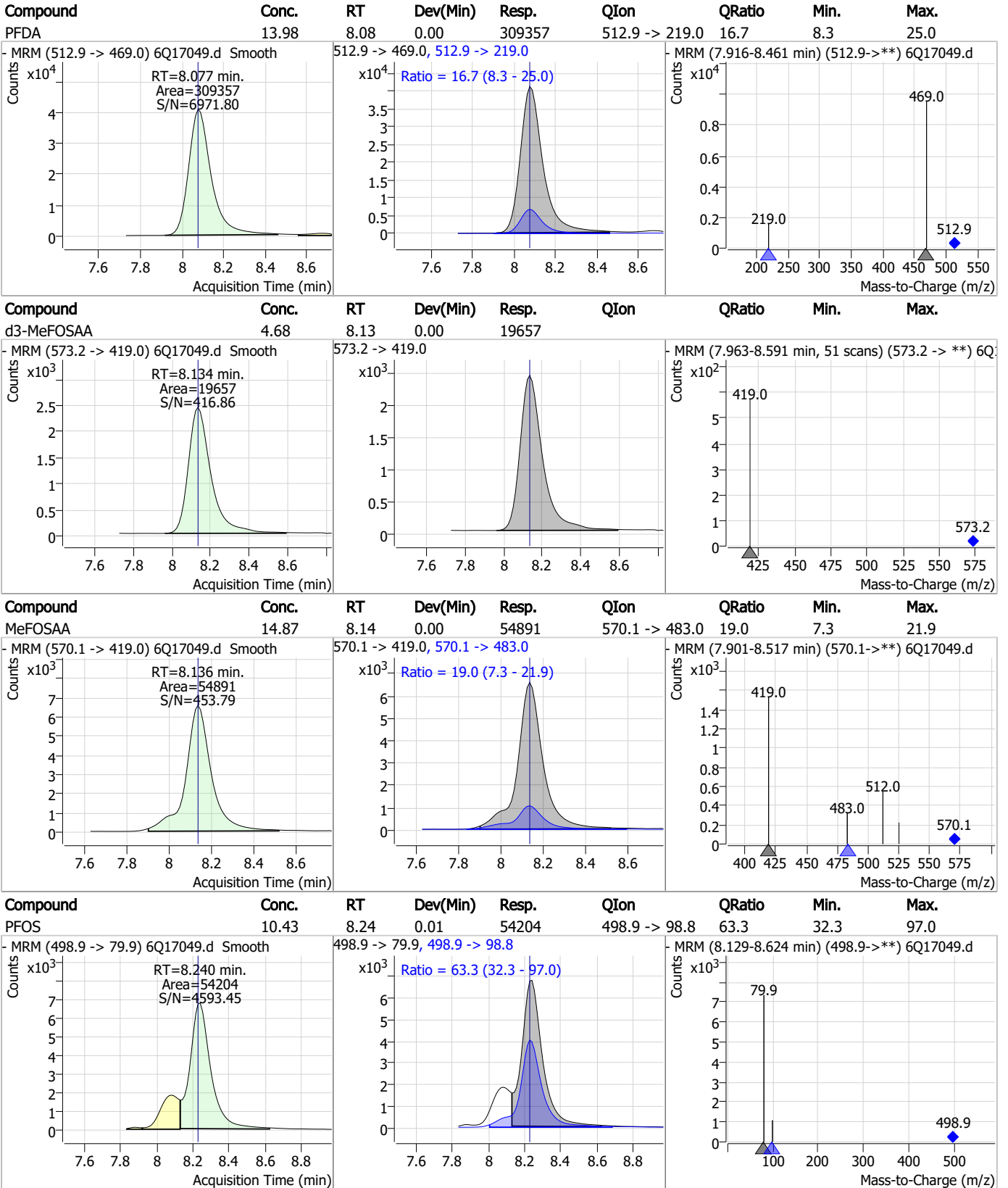
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	13.09	7.73	0.00	76363	449.0 -> 98.9	47.2	25.4	76.1
13C2-8:2FTS	5.41	7.86	0.00	2983				
8:2FTS	47.96	7.87	0.00	85122	527.1 -> 80.8	41.2	20.3	61.0
13C6-PFDA	1.34	8.08	0.00	20362				

7.6.2

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Perfluorinated Compounds by LC/MS/MS

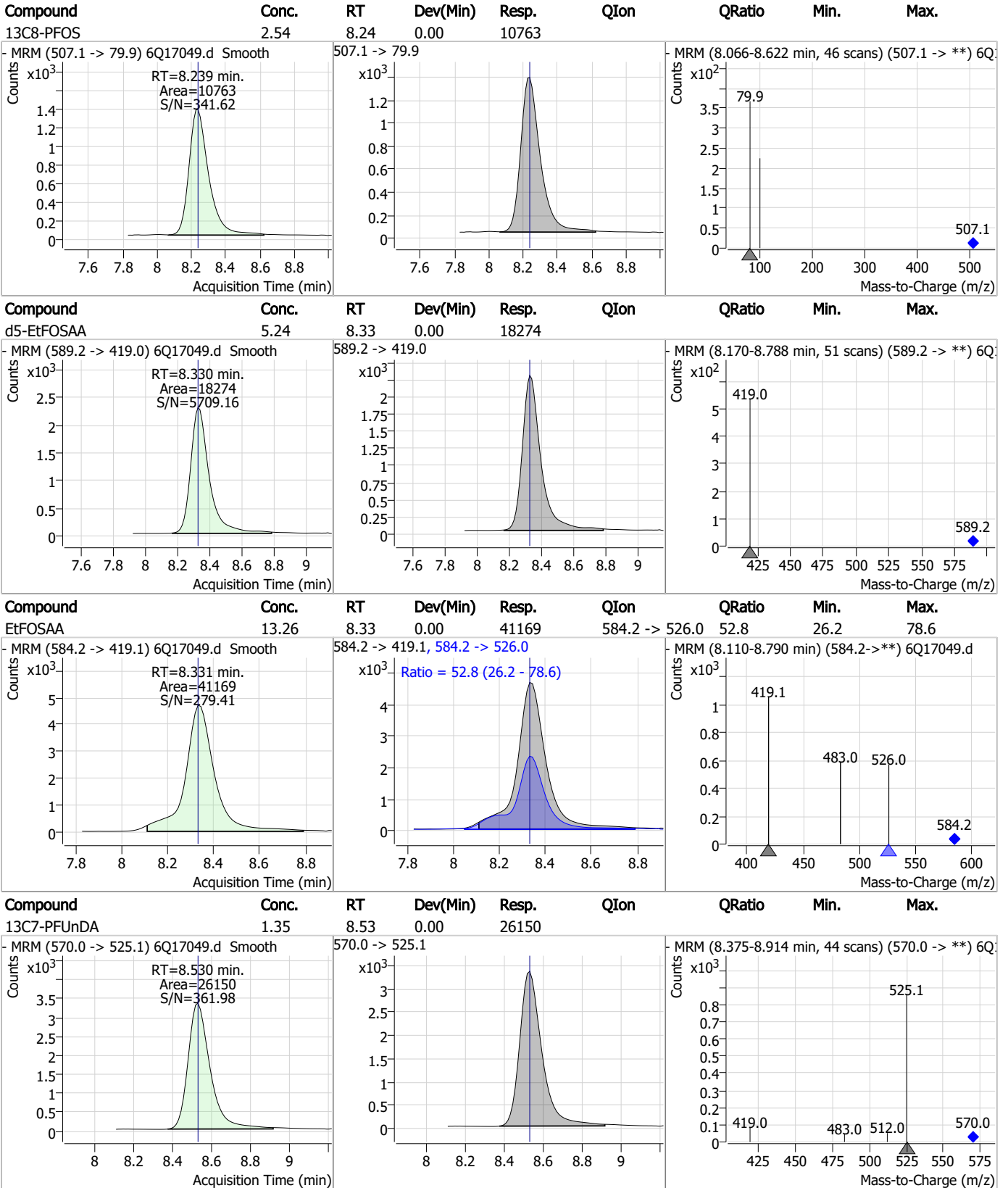


7.6.2

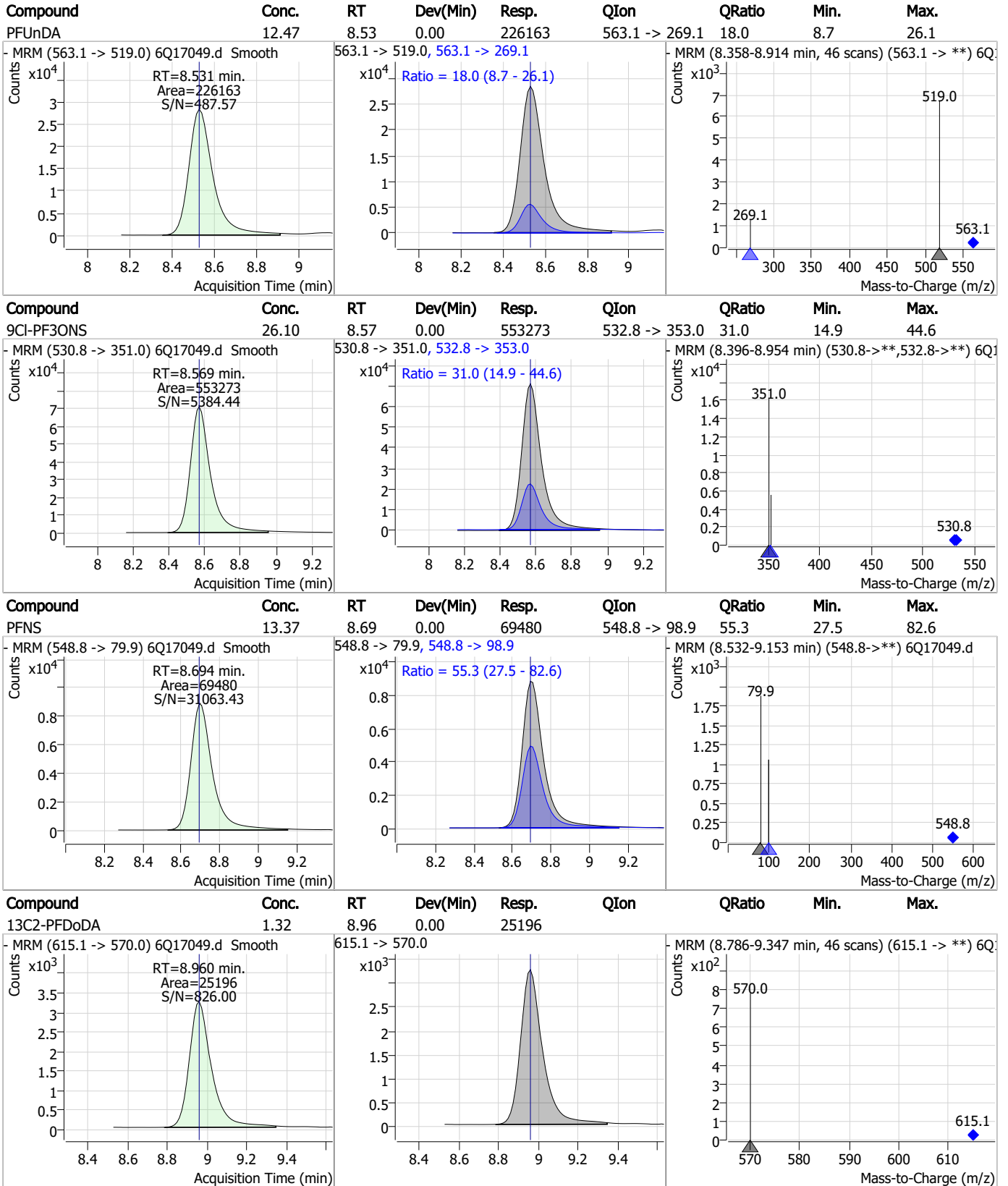
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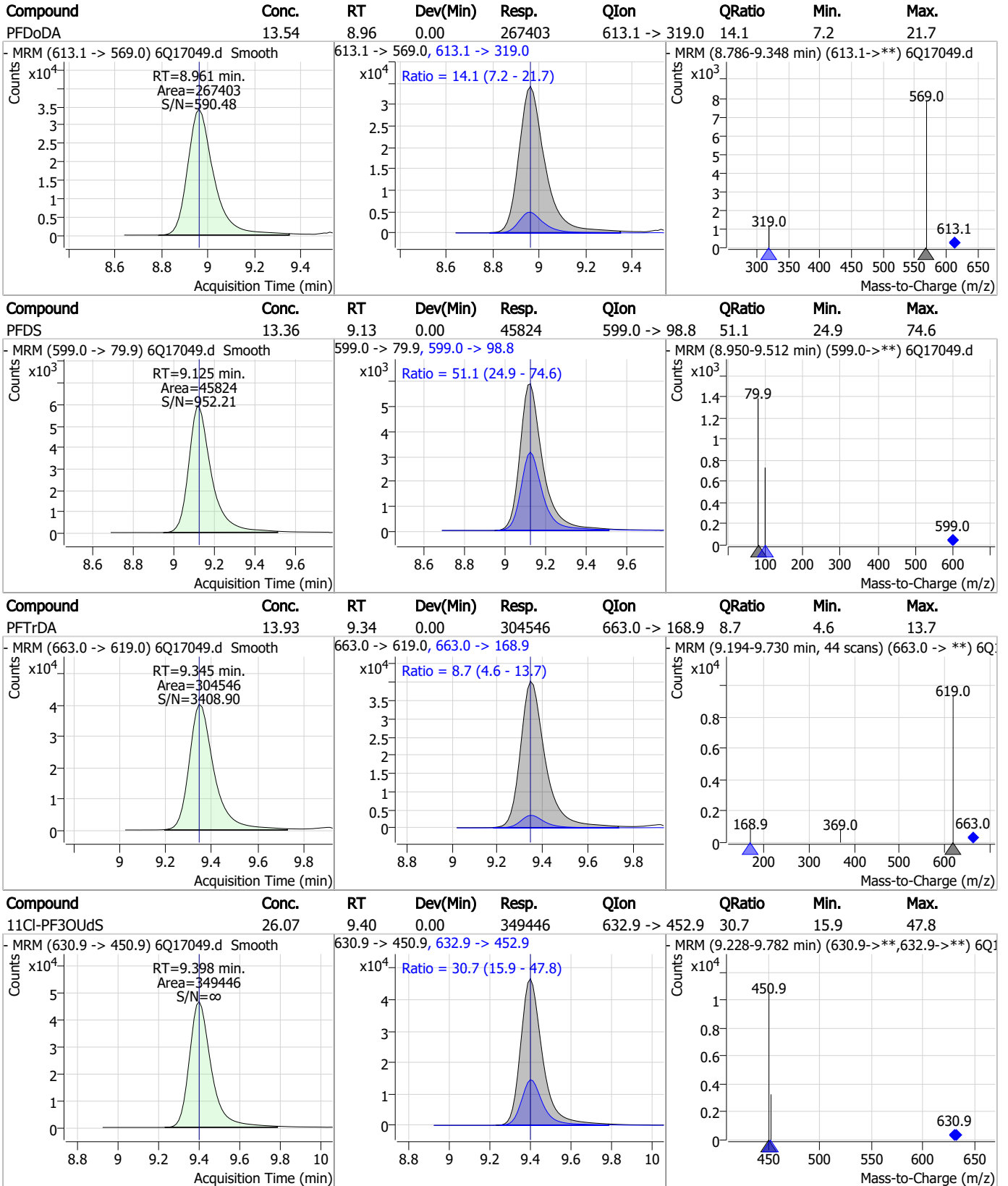
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

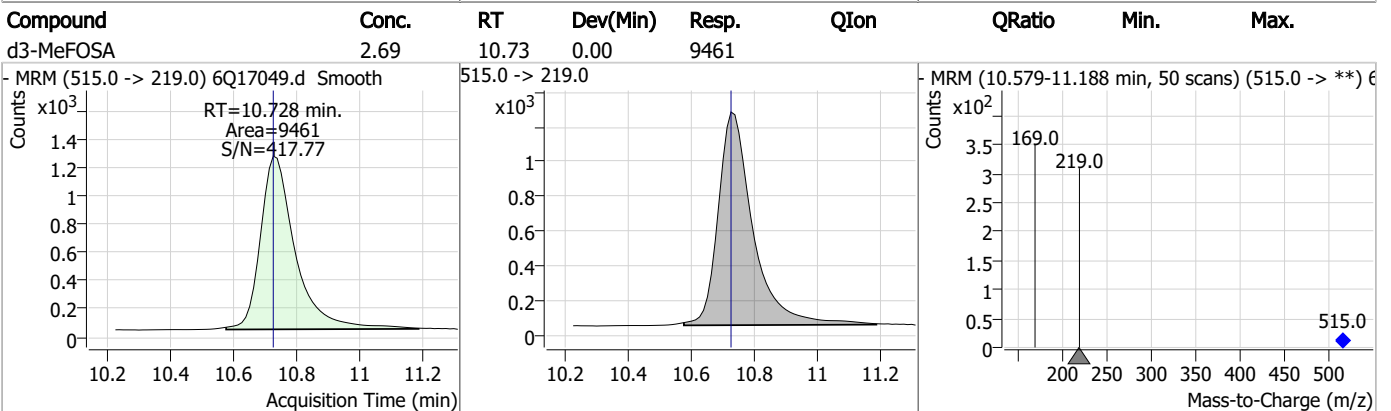
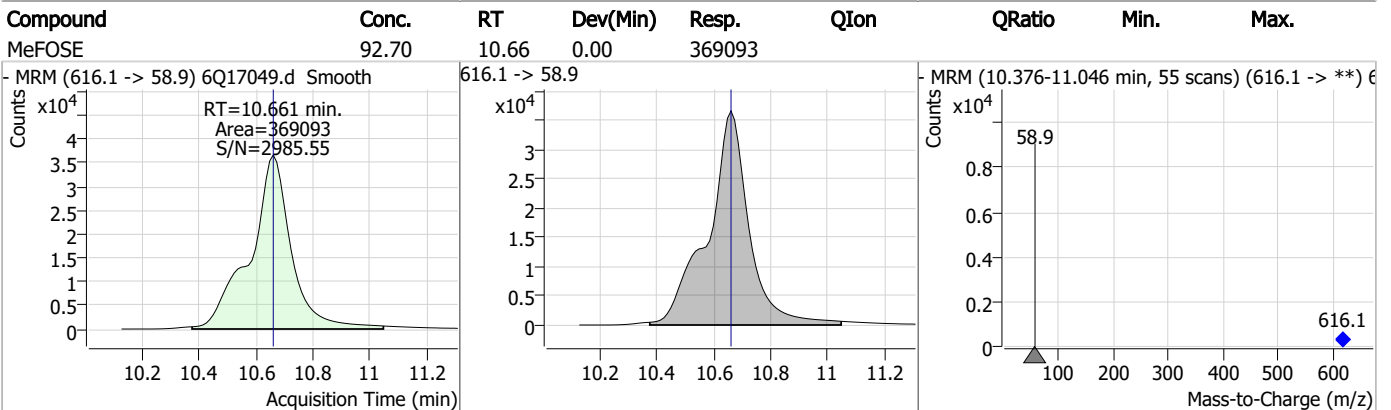
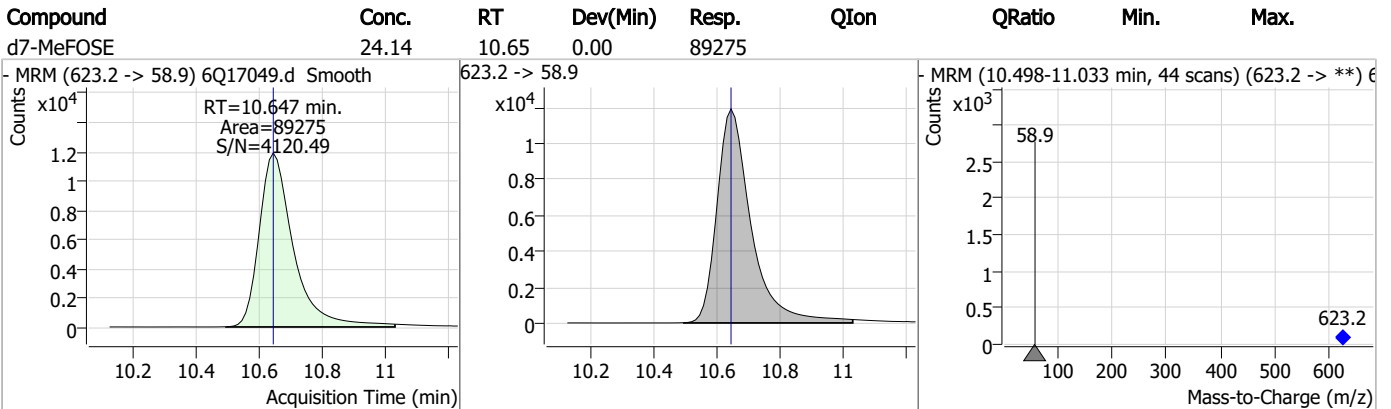
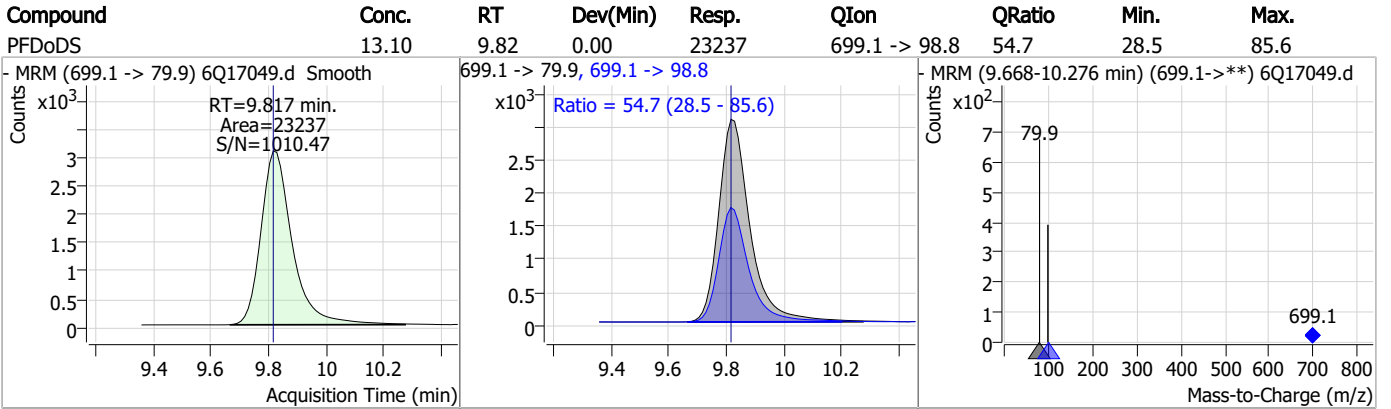
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Perfluorinated Compounds by LC/MS/MS

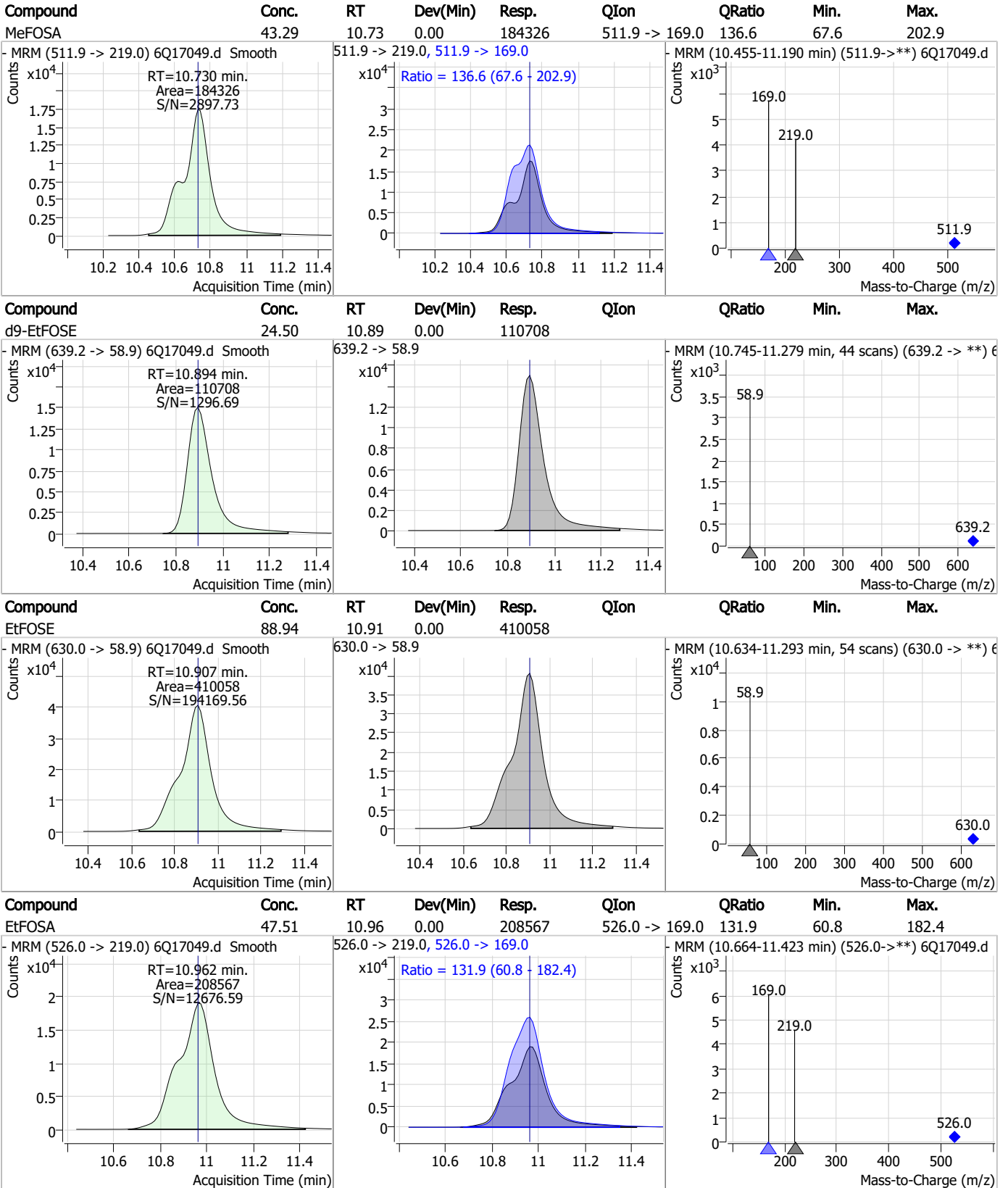
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	32.12	9.61	0.00	277513	498.1 -> 478.0	2.7	1.5	4.4
13C8-FOSA	2.59	9.62	0.00	24114				
13C2-PFTeDA	1.32	9.69	0.00	17054				
PFTeDA	13.73	9.69	0.00	236649	713.1 -> 168.9	7.3	3.9	11.6

7.6.2
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Perfluorinated Compounds by LC/MS/MS



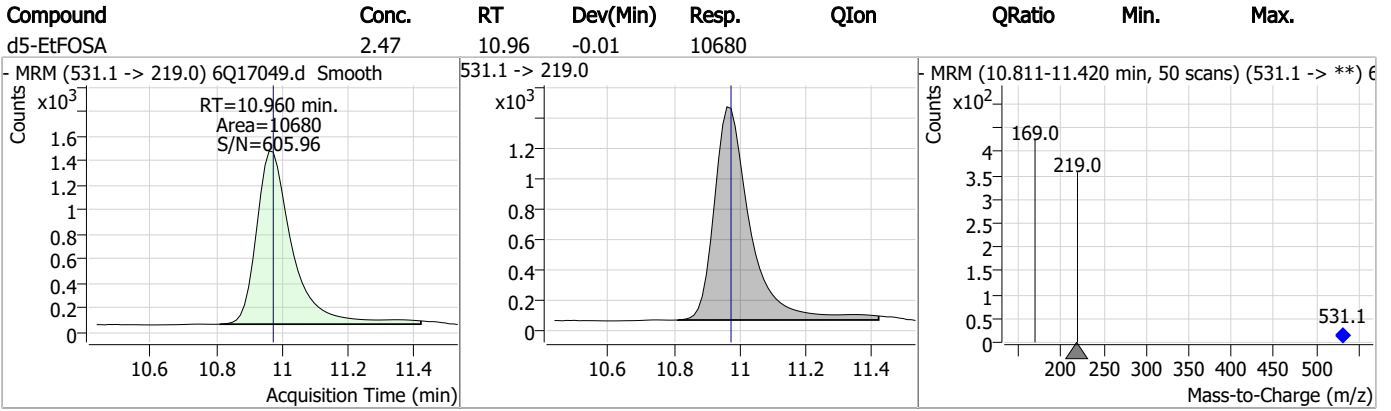
Perfluorinated Compounds by LC/MS/MS



7.6.2

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Perfluorinated Compounds by LC/MS/MS



7.6.2

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QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 21 April 2023 16:42:07
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.73E+0 [R] (Torr); 3.15E-5 [H] (Torr)

Source Parameters

Parameter	Positive	Negative
Gas Temp (°C)	220	220
Gas Flow (l/min)	14	14
Nebulizer (psi)	20	20
Capillary (V)	3000	3000
Nozzle Voltage (V)	1500	1500
Sheath Gas Temp (°C)	250	250
Sheath Gas Flow (l/min)	11	11

Positive Results

Analyzer: MS1 Polarity: Positive Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	118.11	0.02	Pass	0.70	0.68	-0.02	Pass	1712349
322.05	322.09	0.04	Pass	0.70	0.69	-0.01	Pass	1367900
622.03	621.91	-0.12	Pass	0.70	0.70	0.00	Pass	1874880
922.01	921.91	-0.10	Pass	0.70	0.70	0.00	Pass	1041451
1521.97	1521.86	-0.11	Pass	0.70	0.66	-0.04	Pass	158214
2121.93	2121.78	-0.15	Pass	0.70	0.70	0.00	Pass	43141

Analyzer: MS2 Polarity: Positive Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	58.14	0.07	Pass	0.70	0.57	-0.13	Pass	556605
118.09	118.06	-0.03	Pass	0.70	0.63	-0.07	Pass	1970997
322.05	322.01	-0.04	Pass	0.70	0.71	0.01	Pass	1666060
622.03	621.98	-0.05	Pass	0.70	0.71	0.01	Pass	1905375
922.01	921.91	-0.10	Pass	0.70	0.75	0.05	Pass	819505
1521.97	1521.90	-0.07	Pass	0.70	0.72	0.02	Pass	190618
2121.93	2121.83	-0.10	Pass	0.70	0.71	0.01	Pass	48061

Analyzer: MS1 Polarity: Positive Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	118.13	0.04	Pass	1.20	1.40	0.20	Pass	3602917
322.05	322.00	-0.05	Pass	1.20	1.52	0.32	Pass	2388617
622.03	622.00	-0.03	Pass	1.20	1.53	0.33	Pass	3421723
922.01	921.93	-0.08	Pass	1.20	1.40	0.20	Pass	2494574
1521.97	1521.88	-0.09	Pass	1.20	1.29	0.09	Pass	531796
2121.93	2121.82	-0.11	Pass	1.20	1.11	-0.09	Pass	207195

Analyzer: MS2 Polarity: Positive Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	58.11	0.04	Pass	1.20	1.16	-0.04	Pass	909874
118.09	118.03	-0.06	Pass	1.20	1.26	0.06	Pass	2956146
322.05	322.09	0.04	Pass	1.20	1.43	0.23	Pass	2346697
622.03	621.90	-0.13	Pass	1.20	1.24	0.04	Pass	3186612
922.01	922.01	0.00	Pass	1.20	1.34	0.14	Pass	1549696
1521.97	1521.92	-0.05	Pass	1.20	1.29	0.09	Pass	390217
2121.93	2121.75	-0.18	Pass	1.20	1.23	0.03	Pass	134355

Analyzer: MS1 Polarity: Positive Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	117.89	-0.20	Pass	2.50	2.50	0.00	Pass	5097401
322.05	321.99	-0.06	Pass	2.50	3.17	0.67	Pass	3138893
622.03	621.96	-0.07	Pass	2.50	3.03	0.53	Pass	4167132
922.01	921.90	-0.11	Pass	2.50	3.00	0.50	Pass	3418628
1521.97	1521.84	-0.13	Pass	2.50	2.71	0.21	Pass	1054324
2121.93	2121.60	-0.33	Pass	2.50	2.73	0.23	Pass	577744

7.7.1

QQQ Check Tune Report



Analyzer: MS2 Polarity: Positive Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	57.92	-0.15	Pass	2.50	2.59	0.09	Pass	1318333
118.09	118.00	-0.09	Pass	2.50	2.63	0.13	Pass	5069616
322.05	322.23	0.18	Pass	2.50	2.82	0.32	Pass	3102879
622.03	621.99	-0.04	Pass	2.50	2.72	0.22	Pass	4250991
922.01	922.01	0.00	Pass	2.50	2.73	0.23	Pass	2895443
1521.97	1521.89	-0.08	Pass	2.50	2.84	0.34	Pass	1085946
2121.93	2121.74	-0.19	Pass	2.50	2.84	0.34	Pass	675885

7.7.1
7

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.97	-0.02	Pass	0.70	0.70	0.00	Pass	280663
302.00	301.94	-0.06	Pass	0.70	0.77	0.07	Pass	1174361
601.98	601.95	-0.03	Pass	0.70	0.74	0.04	Pass	3314113
1033.99	1033.95	-0.04	Pass	0.70	0.66	-0.04	Pass	1111513
1633.95	1633.89	-0.06	Pass	0.70	0.68	-0.02	Pass	1041900
2233.91	2233.76	-0.15	Pass	0.70	0.72	0.02	Pass	475314

Analyzer: MS2 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.02	0.02	Pass	0.70	0.74	0.04	Pass	79084
112.99	112.97	-0.02	Pass	0.70	0.75	0.05	Pass	336048
302.00	301.94	-0.06	Pass	0.70	0.63	-0.07	Pass	1854456
601.98	601.99	0.01	Pass	0.70	0.66	-0.04	Pass	3616583
1033.99	1033.85	-0.14	Pass	0.70	0.78	0.08	Pass	1197307
1633.95	1633.76	-0.19	Pass	0.70	0.80	0.10	Pass	1551614
2233.91	2233.69	-0.22	Pass	0.70	0.80	0.10	Pass	879381

Analyzer: MS1 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.88	-0.11	Pass	1.20	1.14	-0.06	Pass	371210
302.00	301.96	-0.04	Pass	1.20	1.54	0.34	Pass	1841827
601.98	601.93	-0.05	Pass	1.20	1.72	0.52	Pass	4338111
1033.99	1033.98	-0.01	Pass	1.20	1.63	0.43	Pass	1752240
1633.95	1633.73	-0.22	Pass	1.20	1.51	0.31	Pass	2128895
2233.91	2233.90	-0.01	Pass	1.20	1.47	0.27	Pass	1236282

Analyzer: MS2 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.09	0.09	Pass	1.20	1.13	-0.07	Pass	132092
112.99	113.04	0.05	Pass	1.20	1.21	0.01	Pass	432295
302.00	301.95	-0.05	Pass	1.20	1.22	0.02	Pass	2083166
601.98	602.00	0.02	Pass	1.20	1.30	0.10	Pass	4539558
1033.99	1034.01	0.02	Pass	1.20	1.23	0.03	Pass	1859414
1633.95	1633.89	-0.06	Pass	1.20	1.17	-0.03	Pass	2404725
2233.91	2233.80	-0.11	Pass	1.20	1.06	-0.14	Pass	1445876

Analyzer: MS1 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	113.11	0.12	Pass	2.50	2.40	-0.10	Pass	332508
302.00	301.99	-0.01	Pass	2.50	2.53	0.03	Pass	1674144
601.98	601.94	-0.04	Pass	2.50	2.57	0.07	Pass	5262626
1033.99	1034.04	0.05	Pass	2.50	2.37	-0.13	Pass	2286888
1633.95	1633.92	-0.03	Pass	2.50	2.69	0.19	Pass	2589242
2233.91	2233.71	-0.20	Pass	2.50	2.72	0.22	Pass	1428495

Analyzer: MS2 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	68.99	-0.01	Pass	2.50	2.65	0.15	Pass	168726
112.99	112.91	-0.08	Pass	2.50	2.48	-0.02	Pass	829124
302.00	301.92	-0.08	Pass	2.50	2.58	0.08	Pass	2833231
601.98	601.93	-0.05	Pass	2.50	2.82	0.32	Pass	6188038
1033.99	1033.90	-0.09	Pass	2.50	2.35	-0.15	Pass	3393113
1633.95	1633.83	-0.12	Pass	2.50	2.27	-0.23	Pass	5263089
2233.91	2233.57	-0.34	Pass	2.50	2.27	-0.23	Pass	3433253

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17051.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:50:16 PM
 Sample Name : ic258-1
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186819	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66641	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69077	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60355	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84734	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27394	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18971	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26035	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25781	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17287	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	26073	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22557	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13242	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10610	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2247	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2798	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2856	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23497	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41439	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18738	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	102084	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	128810	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11979	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9281	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	14866	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80751	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9952	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	88403	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24365	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29325	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59809	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2247	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2798	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2856	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25781	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17287	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFBS	5.398	302.1 -> 79.9	22557	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	13242	2.50 µg/L	0.000

7.7.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFBA	2.910	216.8 -> 171.9	186819	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.419	367.1 -> 322.0	60355	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69077	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C5-PFPeA	4.270	268.3 -> 223.0	66641	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C6-PFDA	8.076	519.1 -> 474.1	18971	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26035	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-FOSA	9.623	506.1 -> 77.8	26073	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-PFOA	7.062	421.1 -> 376.0	84734	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.226	507.1 -> 79.9	10610	2.37 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C9-PFNA	7.594	472.1 -> 427.0	27394	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23497	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	41439	9.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSA	10.741	515.0 -> 219.0	9281	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18738	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	102084	26.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d9-EtFOSE	10.894	639.2 -> 58.9	128810	27.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d5-EtFOSA	10.973	531.1 -> 219.0	11979	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.1%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2219	0.65 µg/L	95
		327.1 -> 80.9	754		
6:2FTS	6.839	427.1 -> 407.0	1782	0.58 µg/L	m 93
		427.1 -> 80.9	710		
8:2FTS	7.865	527.1 -> 507.0	1265	0.74 µg/L	93
		527.1 -> 80.8	457		
EtFOSAA	8.331	584.2 -> 419.1	611	0.19 µg/L	96
		584.2 -> 526.0	337		
FOSA	9.614	498.1 -> 77.9	1510	0.16 µg/L	98
		498.1 -> 478.0	54		
MeFOSAA	8.136	570.1 -> 419.0	704	0.16 µg/L	100
		570.1 -> 483.0	103		
PFBA	2.906	212.8 -> 168.9	4004	0.64 µg/L	100
PFBS	5.400	298.7 -> 79.9	1581	0.16 µg/L	100
		298.7 -> 98.8	651		
PFDA	8.077	512.9 -> 469.0	3202	0.16 µg/L	84
		512.9 -> 219.0	751		
PFDODA	8.961	613.1 -> 569.0	3505	0.17 µg/L	92
		613.1 -> 319.0	395		
PFDS	9.125	599.0 -> 79.9	536	0.16 µg/L	m 91

7.7.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	233			
PFHpA	6.420	363.1 -> 319.0	4833	0.16	µg/L	99
		363.1 -> 169.0	705			
PFHpS	7.734	449.0 -> 79.9	1005	0.17	µg/L	84
		449.0 -> 98.9	402			
PFHxA	5.470	313.0 -> 269.0	5160	0.19	µg/L	99
		313.0 -> 118.9	224			
PFHxS	7.180	398.7 -> 79.9	1096	0.15	µg/L	m 98
		398.7 -> 98.9	553			
PFNA	7.595	463.0 -> 419.0	2858	0.15	µg/L	99
		463.0 -> 219.0	590			
PFNS	8.694	548.8 -> 79.9	875	0.17	µg/L	82
		548.8 -> 98.9	370			
PFOA	7.063	413.0 -> 369.0	5042	0.19	µg/L	m 90
		413.0 -> 169.0	1111			
PFOS	8.253	498.9 -> 79.9	854	0.17	µg/L	m 87
		498.9 -> 98.8	463			
PFPeA	4.273	263.0 -> 219.0	5806	0.32	µg/L	100
PFPeS	6.472	349.1 -> 79.9	1110	0.15	µg/L	100
		349.1 -> 98.9	536			
PFTeDA	9.690	713.1 -> 669.0	3401	0.19	µg/L	99
		713.1 -> 168.9	251			
PFTrDA	9.358	663.0 -> 619.0	3630	0.16	µg/L	97
		663.0 -> 168.9	293			
PFUnDA	8.531	563.1 -> 519.0	3096	0.17	µg/L	93
		563.1 -> 269.1	444			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	4598	0.32	µg/L	93
		632.9 -> 452.9	1288			
9Cl-PF3ONS	8.569	530.8 -> 351.0	6928	0.31	µg/L	79
		532.8 -> 353.0	2844			
ADONA	6.681	376.9 -> 250.9	19563	0.31	µg/L	99
		376.9 -> 84.8	4948			
HFPO-DA	5.846	284.9 -> 168.9	1269	0.32	µg/L	100
		284.9 -> 184.9	176			
3:3FTCA	3.784	241.0 -> 177.0	938	0.83	µg/L	95
		241.0 -> 117.0	144			
5:3FTCA	6.160	341.0 -> 237.1	19892	4.50	µg/L	92
		341.0 -> 217.0	14528			
7:3FTCA	7.573	441.0 -> 316.9	8675	4.32	µg/L	99
		441.0 -> 336.9	18680			
EtFOSA	10.975	526.0 -> 219.0	1611	0.33	µg/L	94
		526.0 -> 169.0	1849			
EtFOSE	10.907	630.0 -> 58.9	4208	0.78	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	1397	0.33	µg/L	100
		511.9 -> 169.0	1895			
MeFOSE	10.661	616.1 -> 58.9	3713	0.82	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	299	0.17	µg/L	92
		699.1 -> 98.8	189			
NFDHA	5.350	295.0 -> 201.0	1022	0.35	µg/L	85
		295.0 -> 84.9	324			
PFMBA	4.687	279.0 -> 85.1	3886	0.32	µg/L	100
PFMPA	3.438	229.0 -> 84.9	2950	0.32	µg/L	100
PFEESA	5.937	314.8 -> 134.9	10269	0.30	µg/L	98
		314.8 -> 82.9	433			

= Qualifier out of range, m = manually integrated, + = Area summed

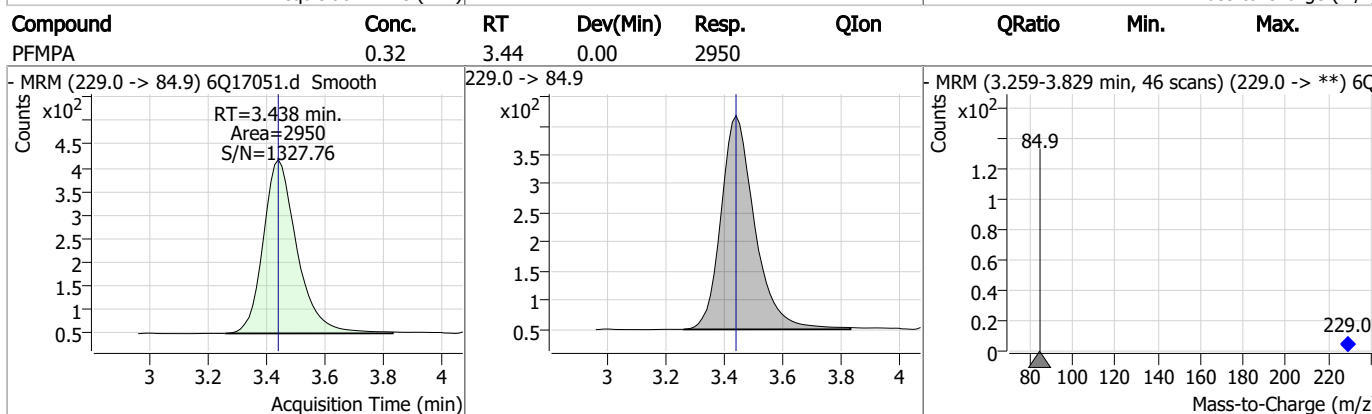
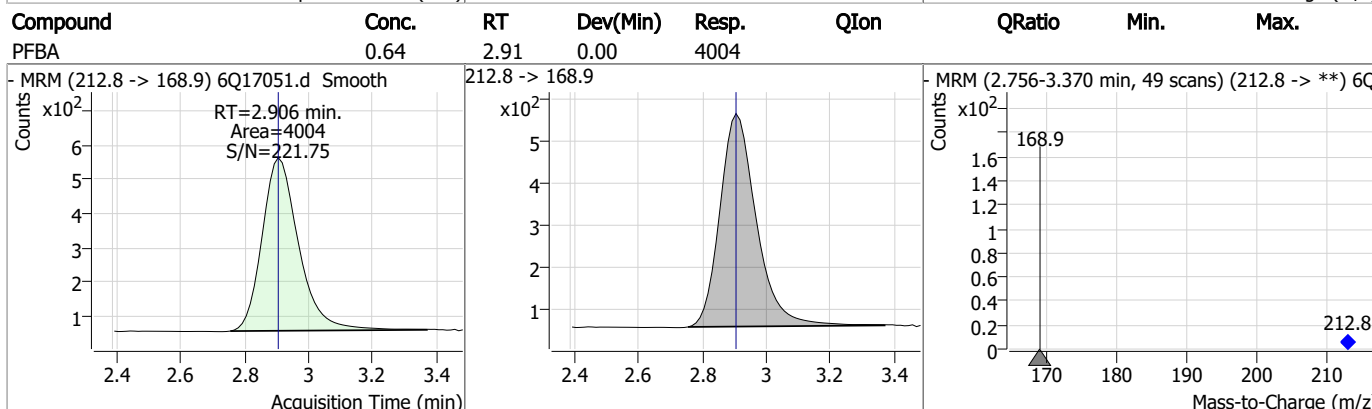
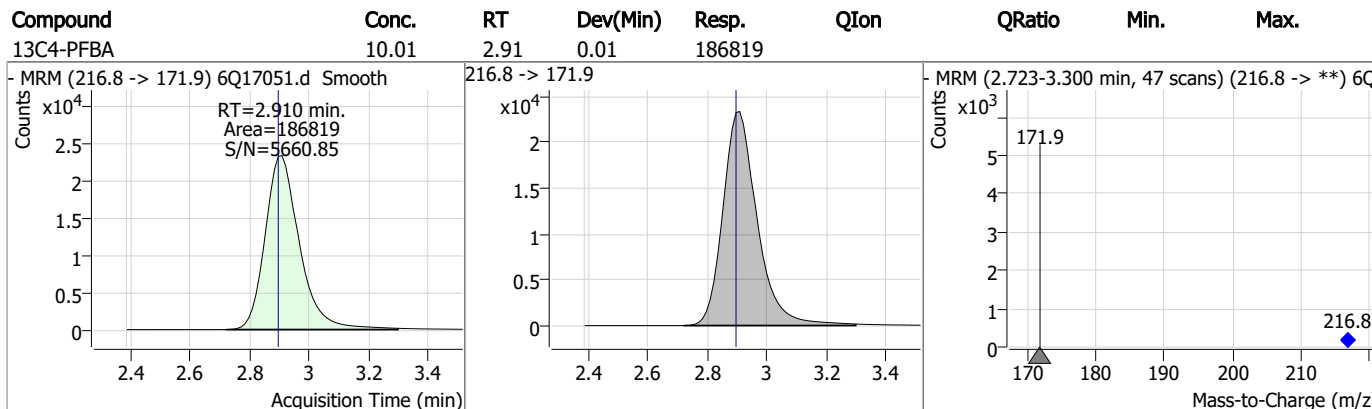
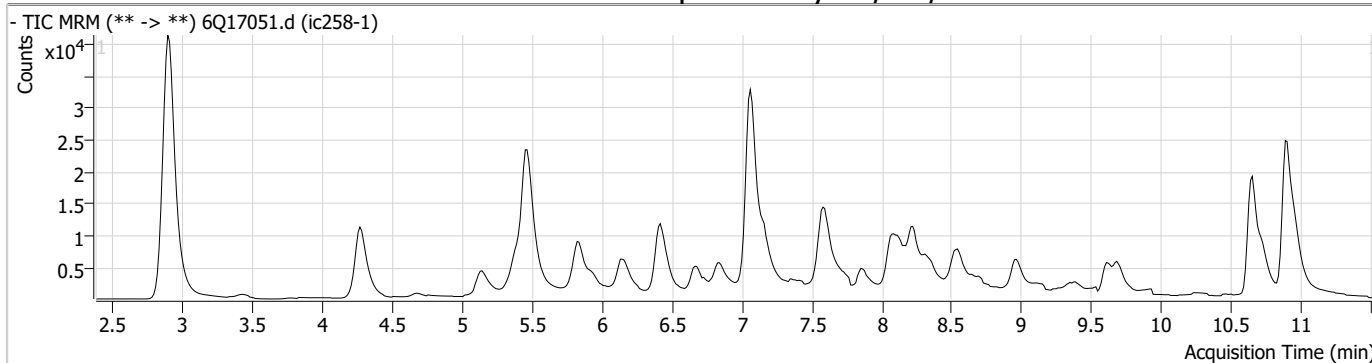
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.2
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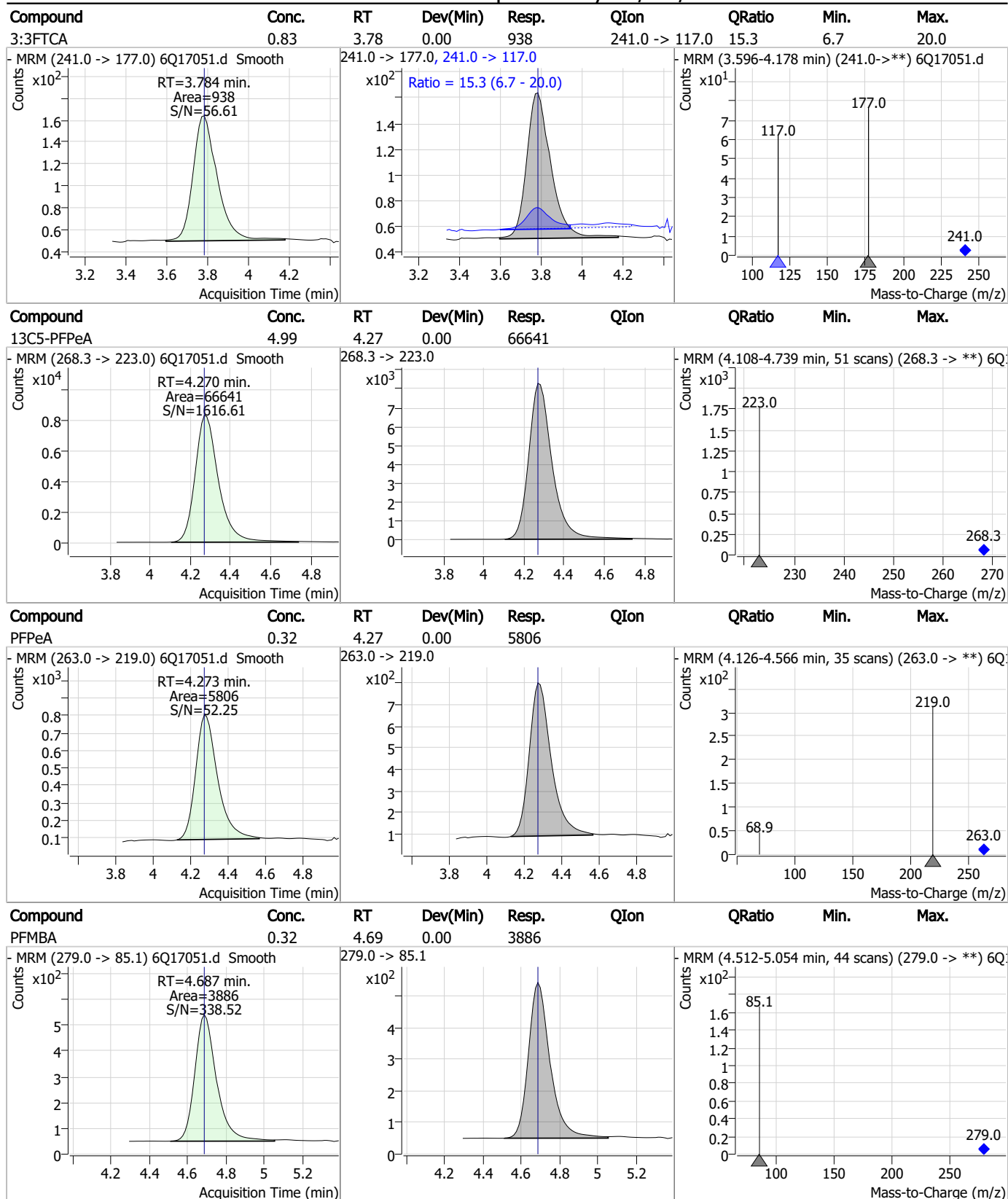


Perfluorinated Compounds by LC/MS/MS



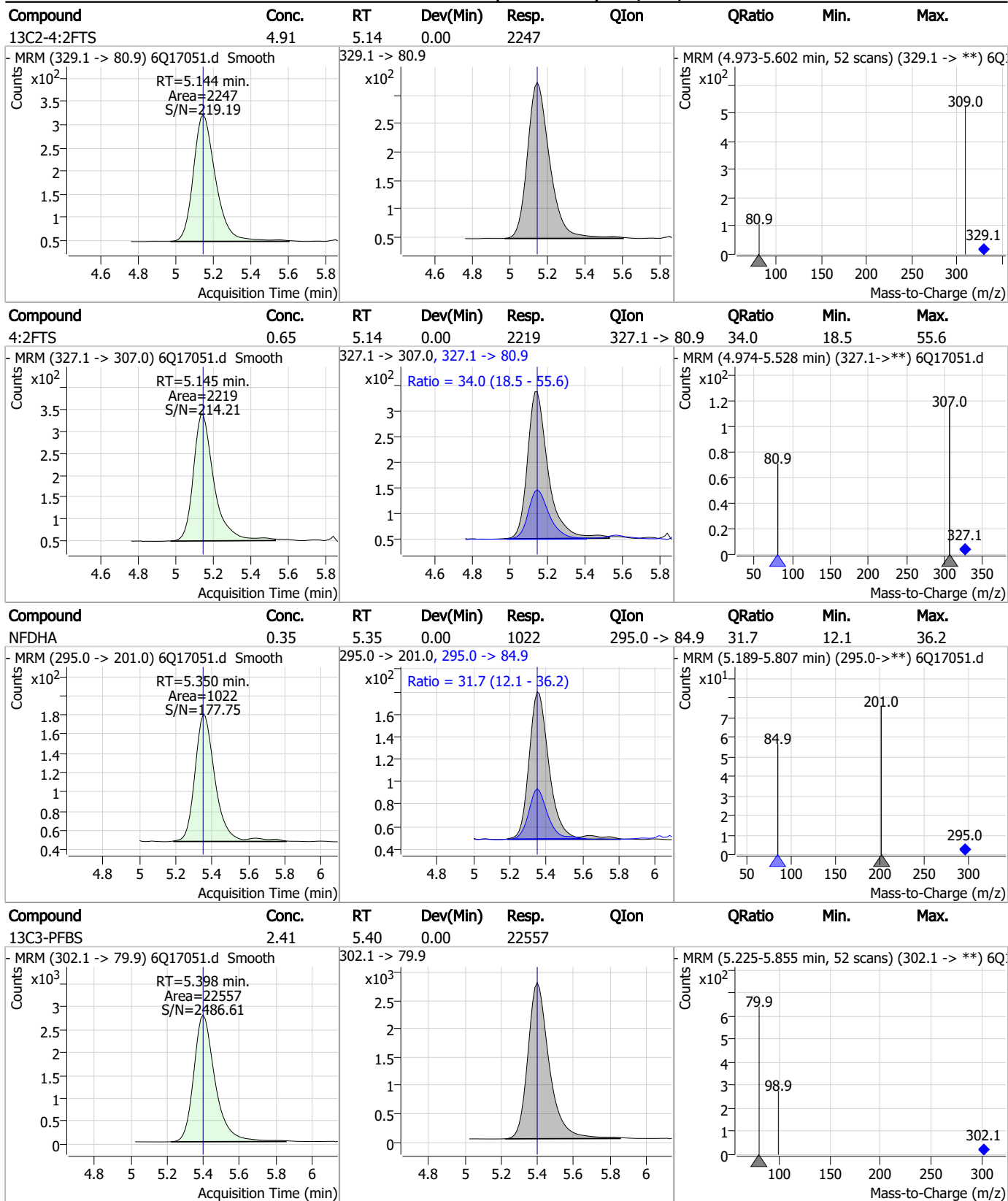
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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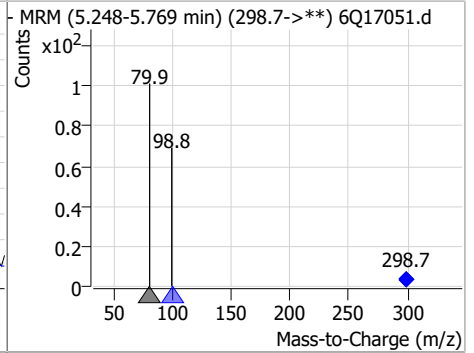
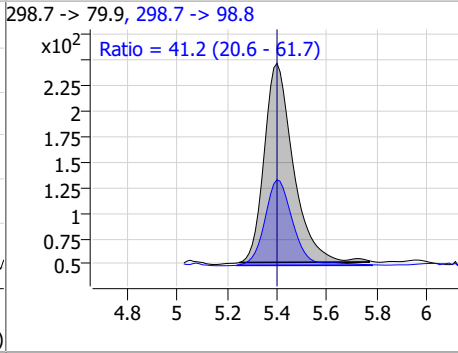
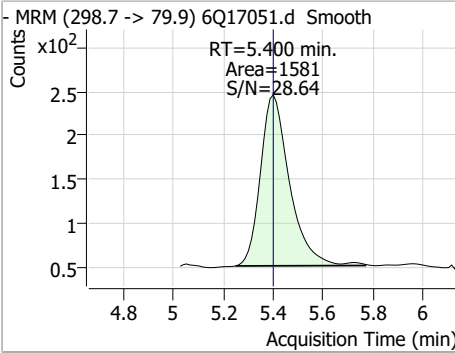
Perfluorinated Compounds by LC/MS/MS



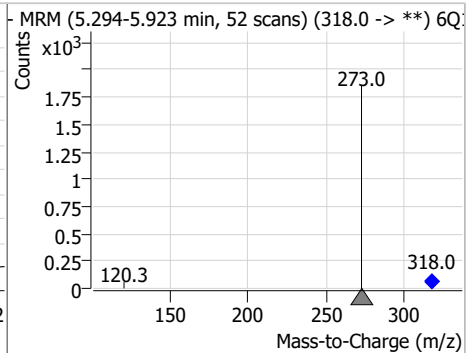
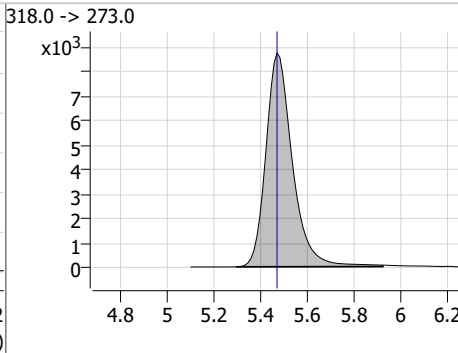
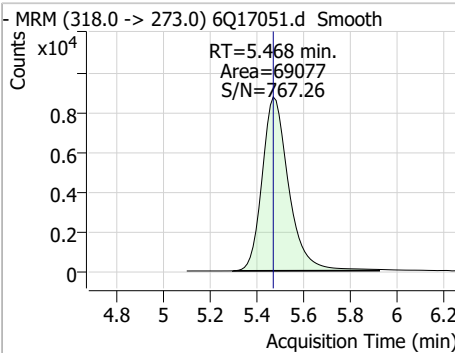
7.7.2
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Perfluorinated Compounds by LC/MS/MS

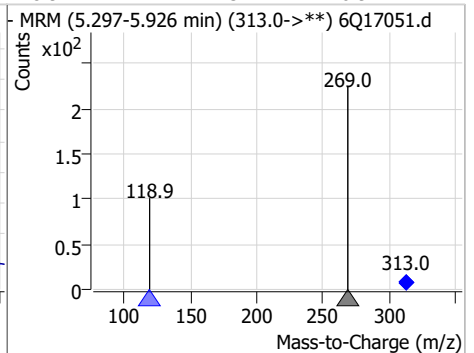
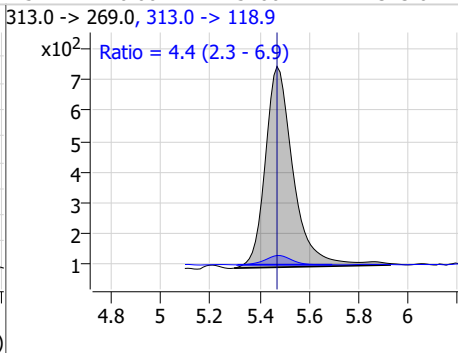
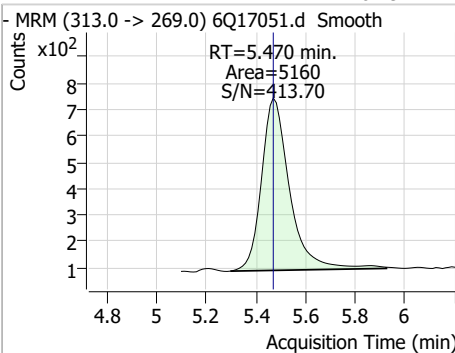
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.40	0.00	1581	298.7 -> 98.8	41.2	20.6	61.7



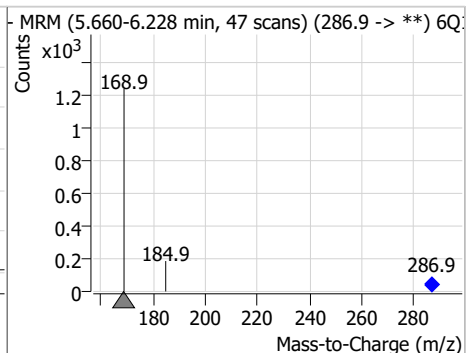
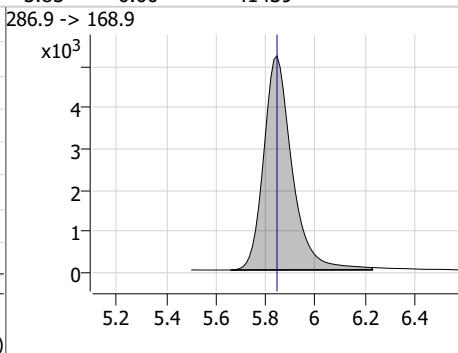
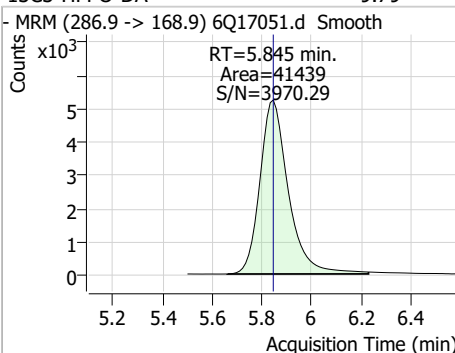
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.47	0.00	69077				



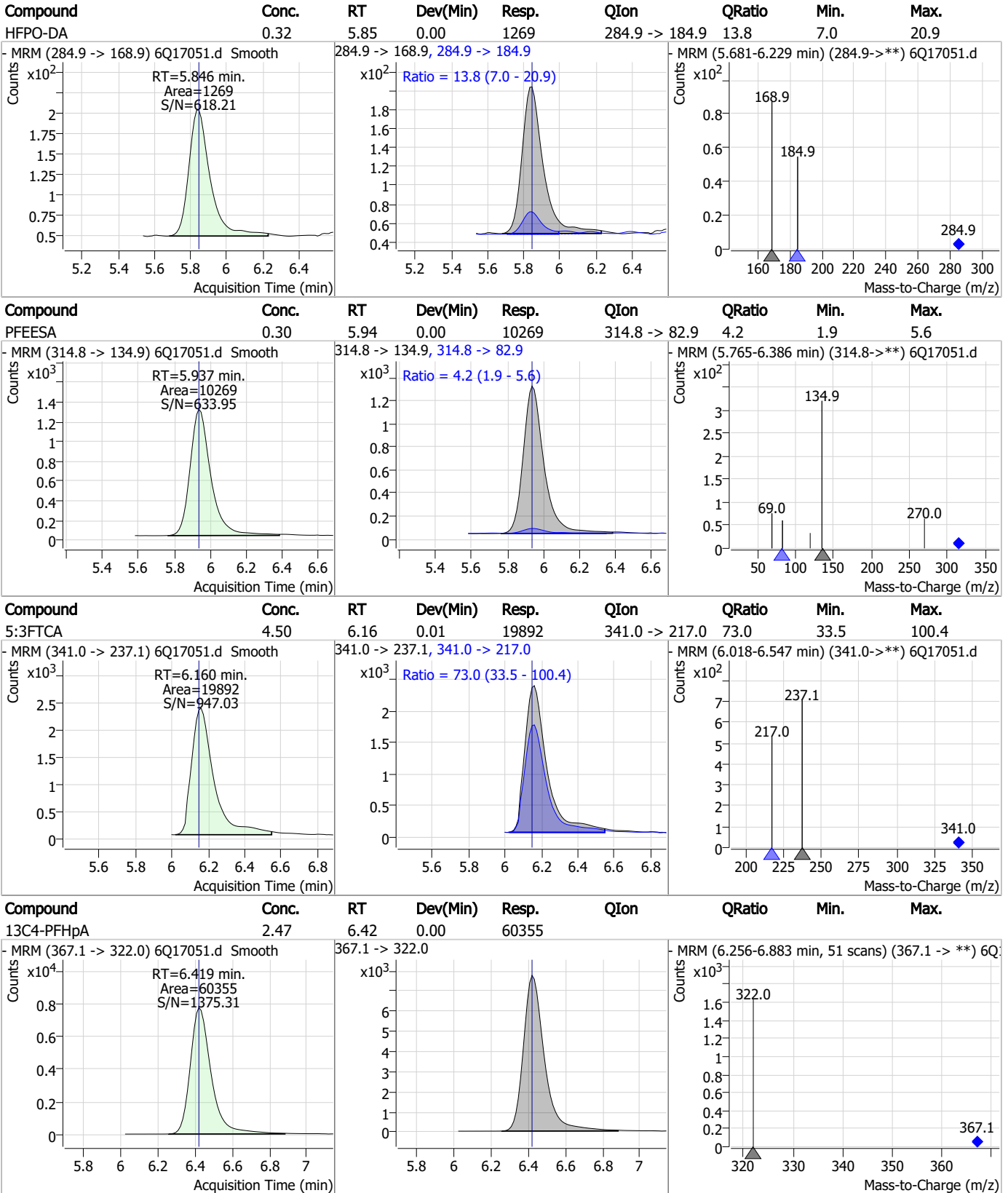
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.47	0.00	5160	313.0 -> 118.9	4.4	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.79	5.85	0.00	41439				



Perfluorinated Compounds by LC/MS/MS

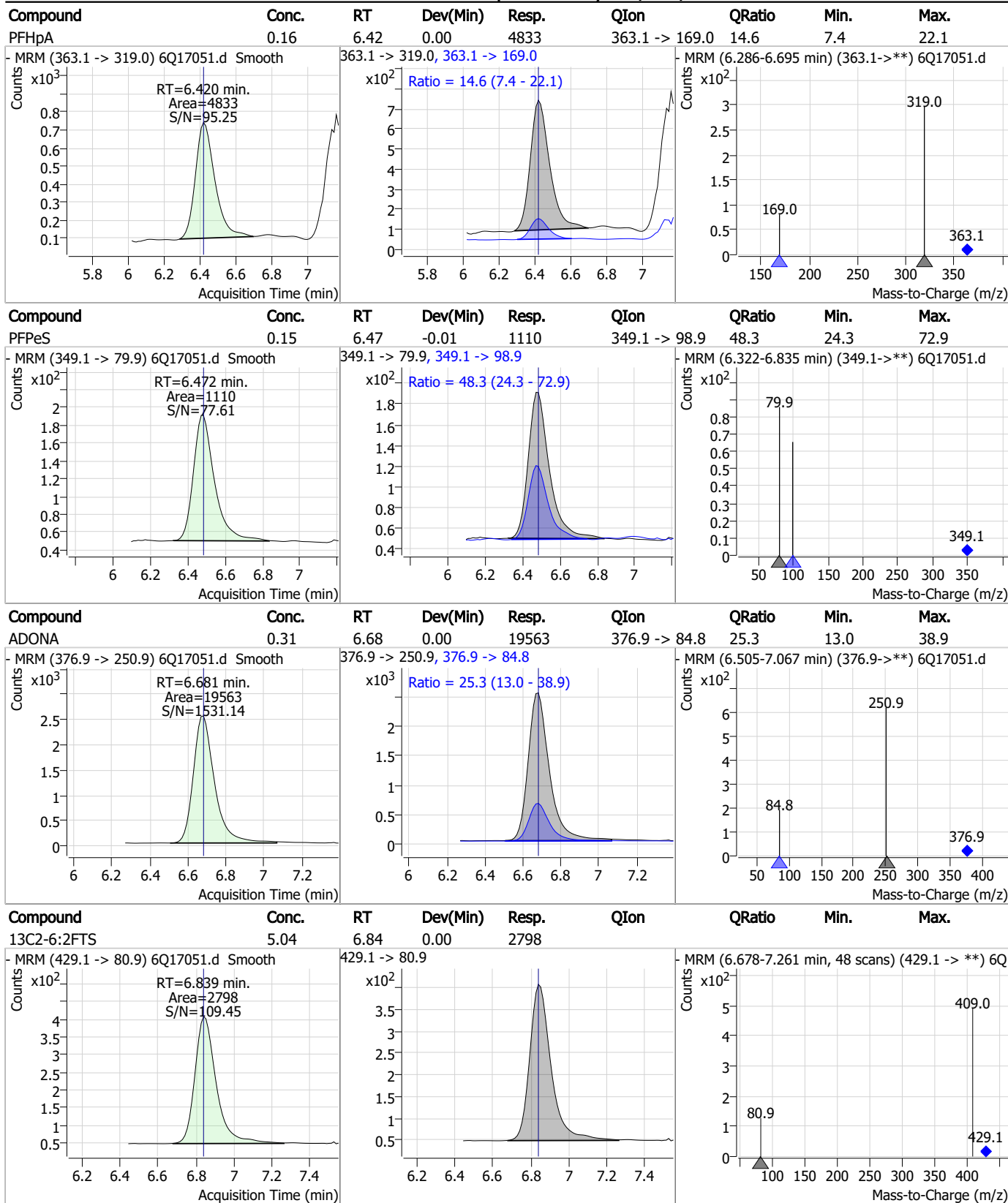


7.7.2

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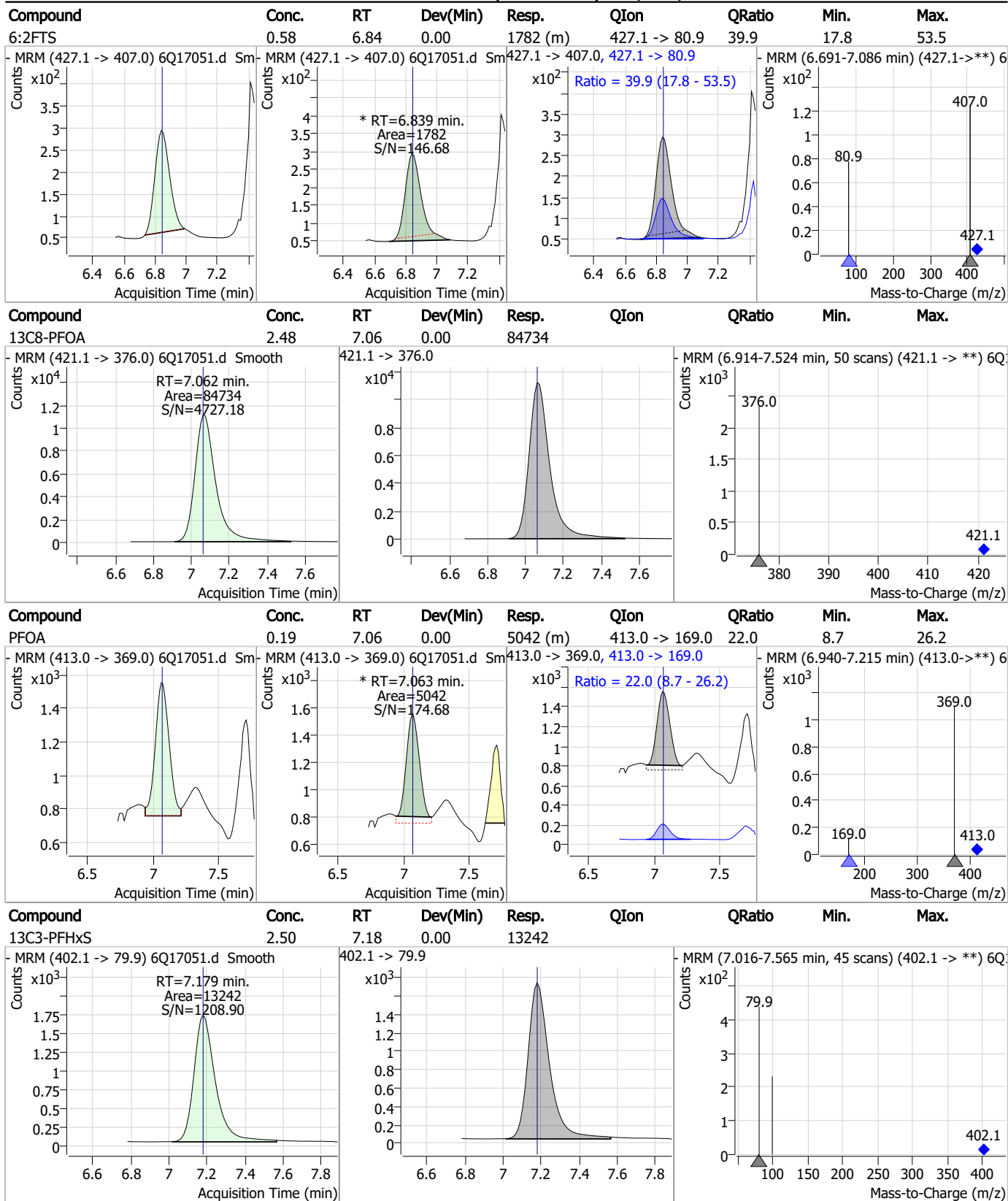


Perfluorinated Compounds by LC/MS/MS



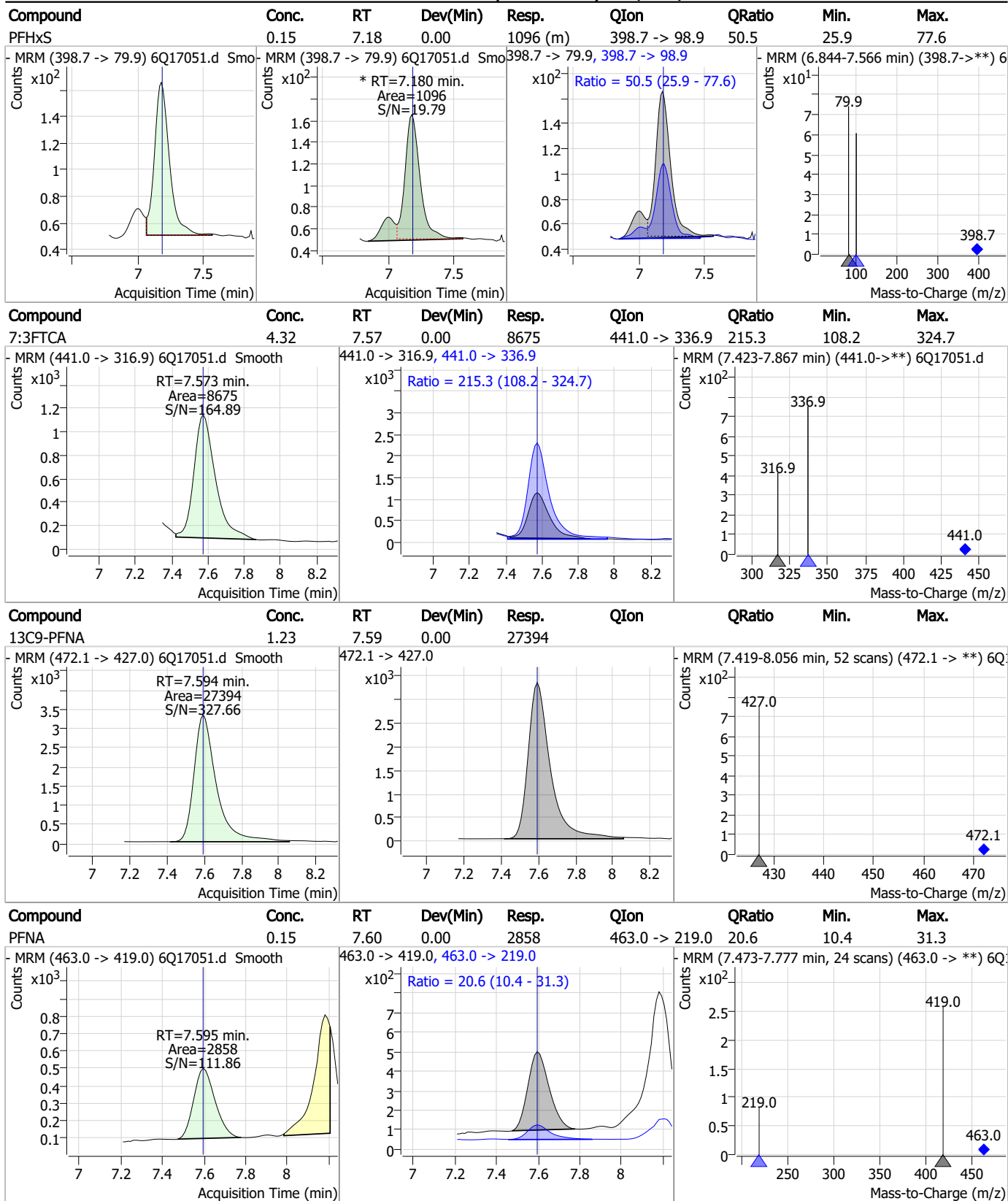
7.7.2
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Perfluorinated Compounds by LC/MS/MS



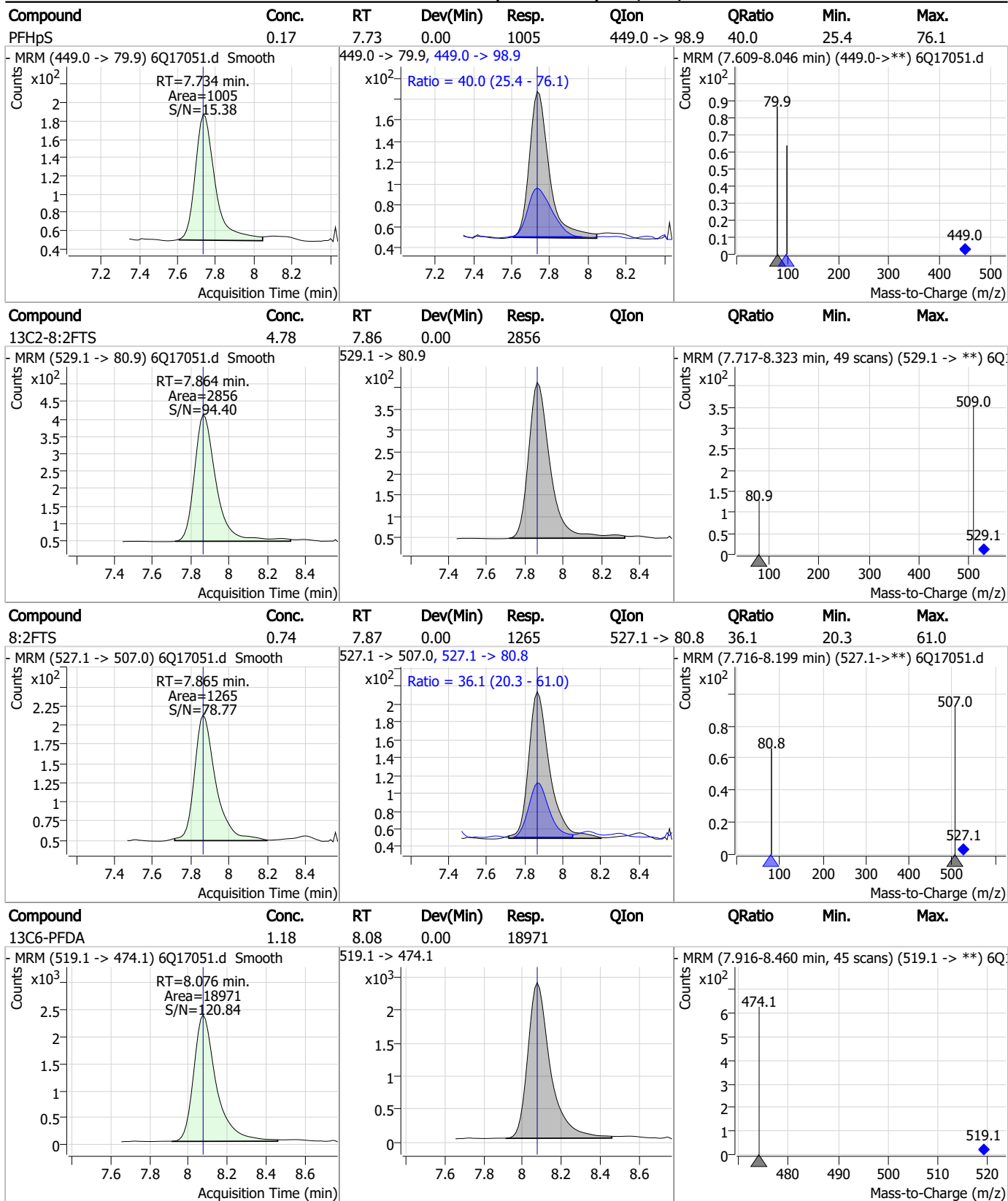
7.7.2
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Perfluorinated Compounds by LC/MS/MS



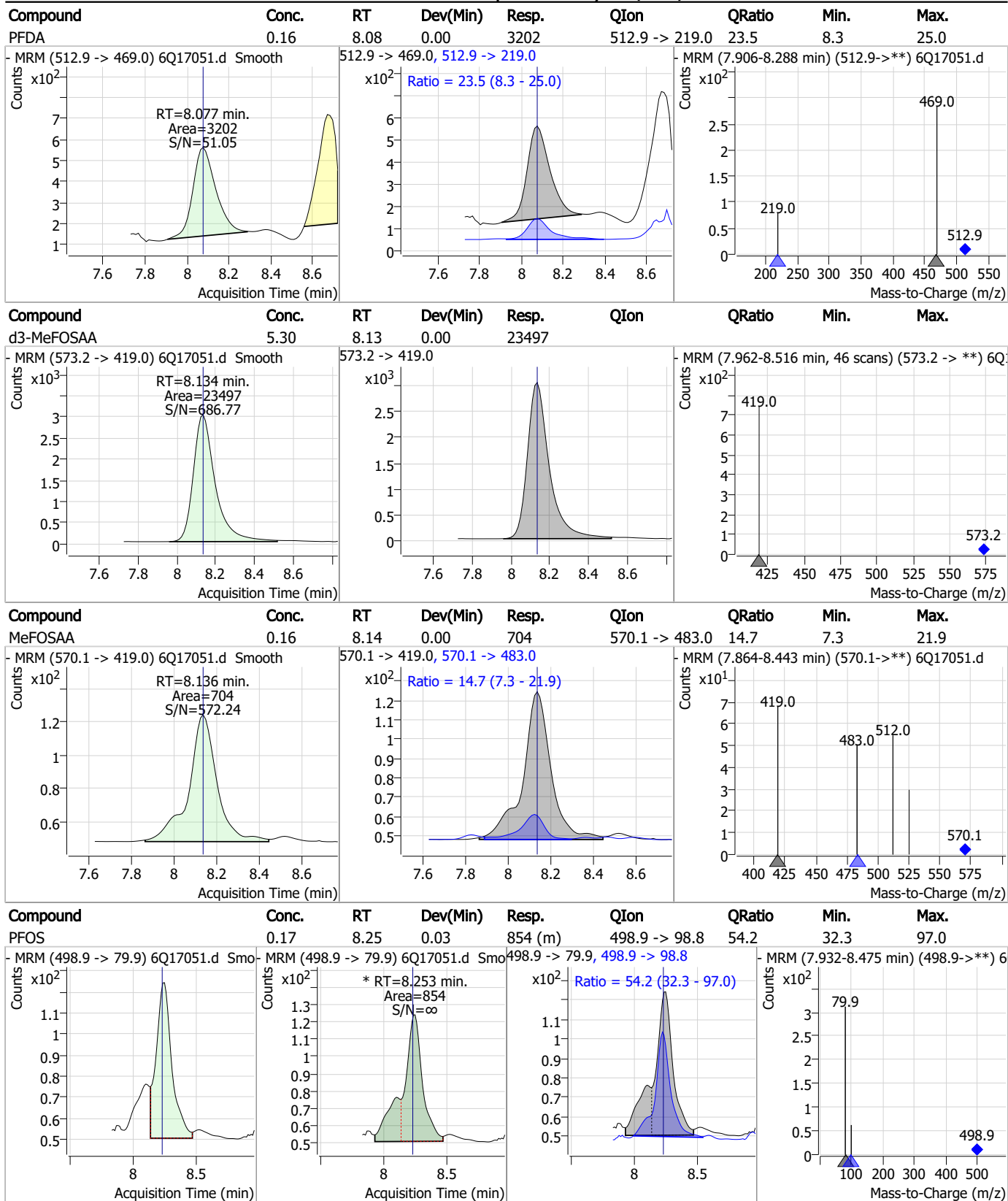
7.7.2
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Perfluorinated Compounds by LC/MS/MS



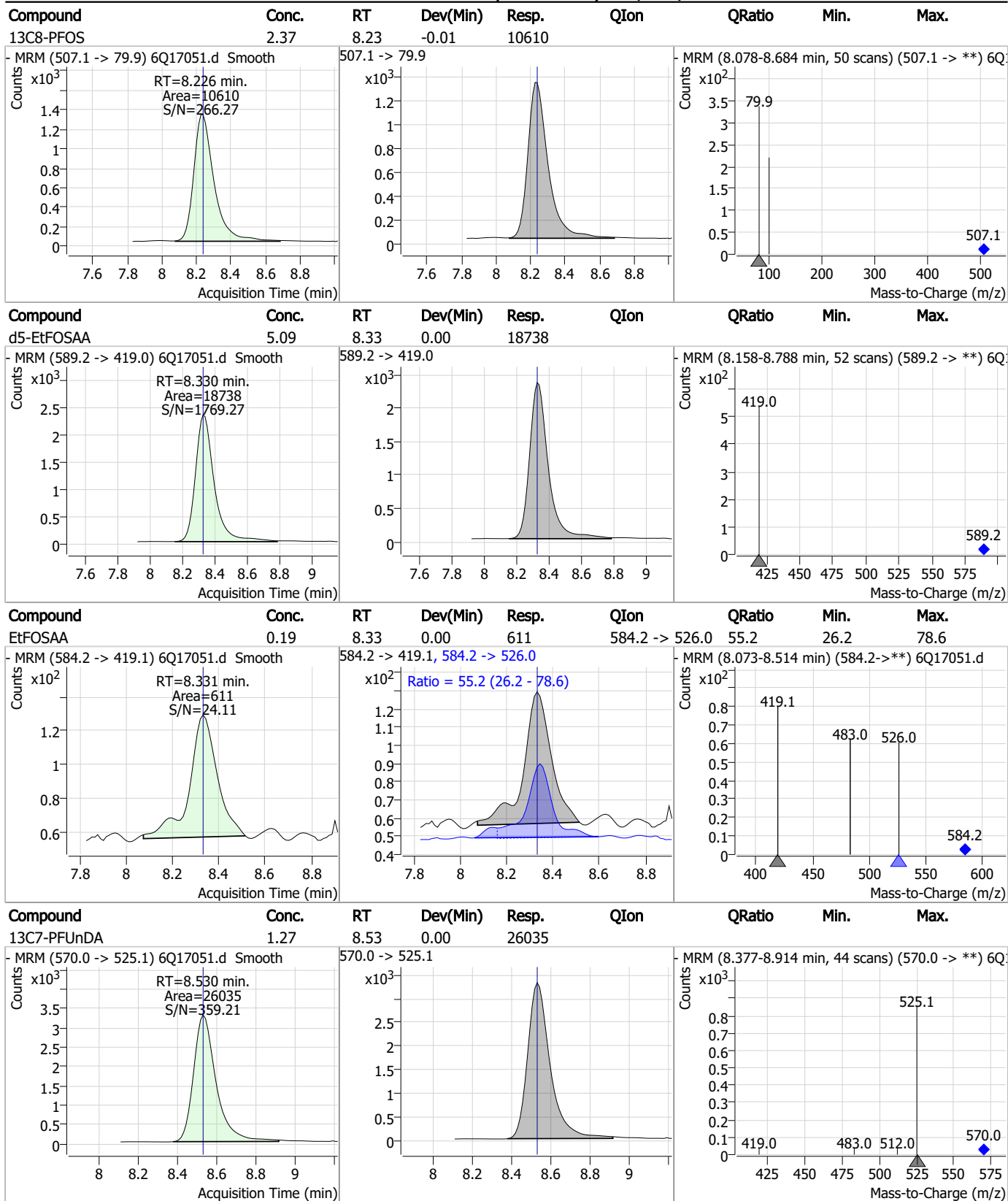
7.7.2
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Perfluorinated Compounds by LC/MS/MS



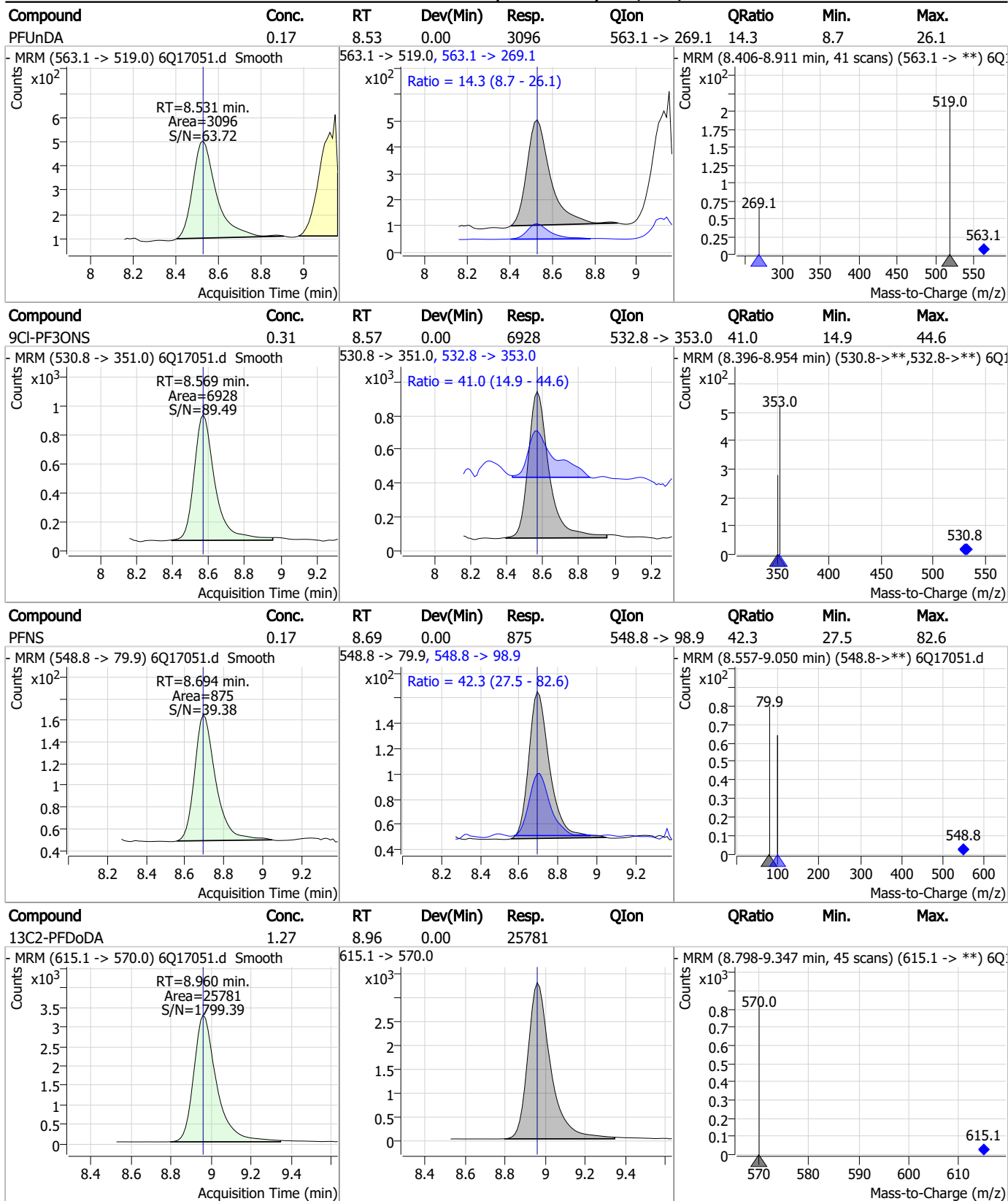
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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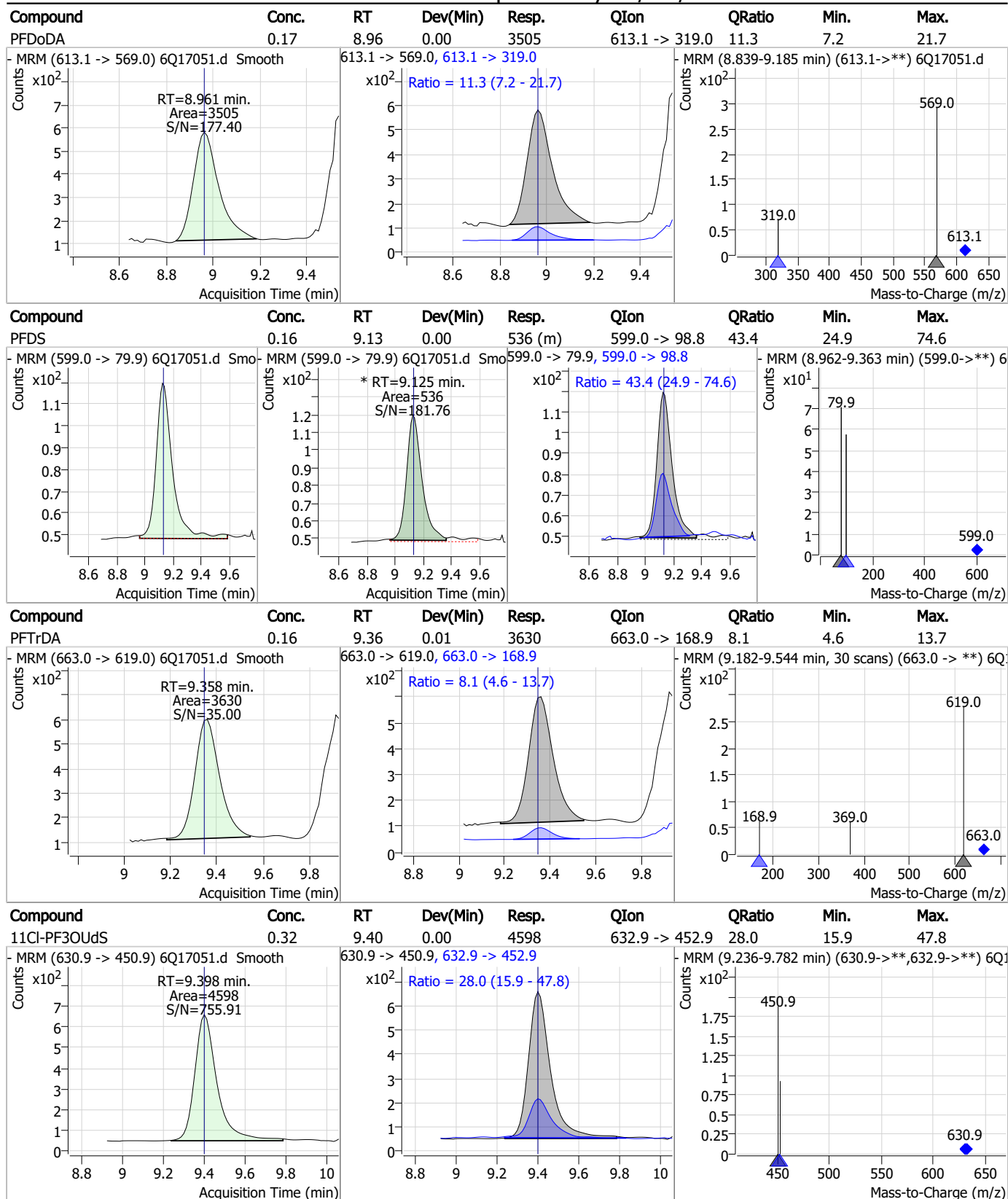
Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS

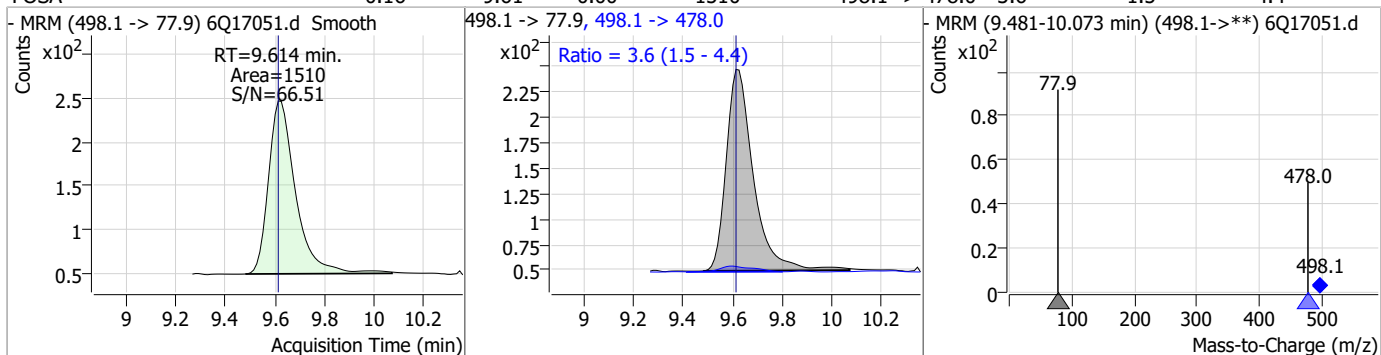


7.7.2
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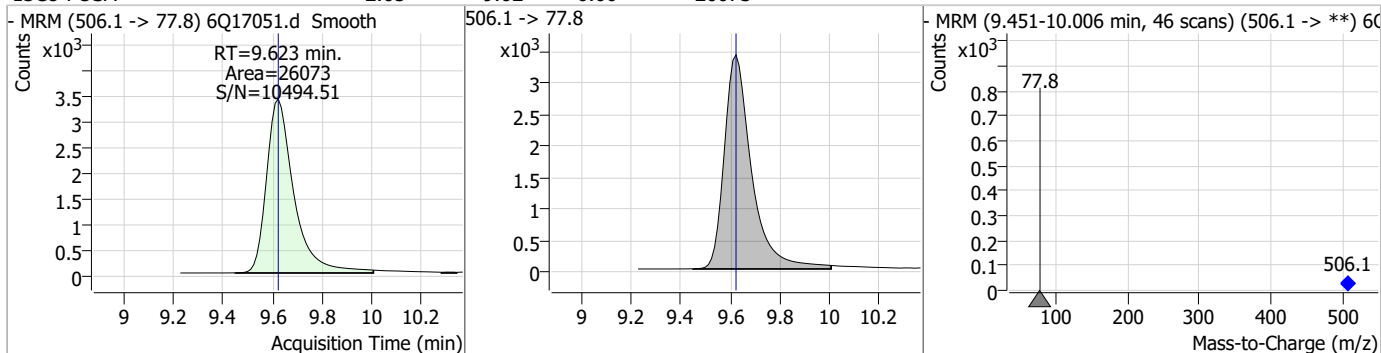


Perfluorinated Compounds by LC/MS/MS

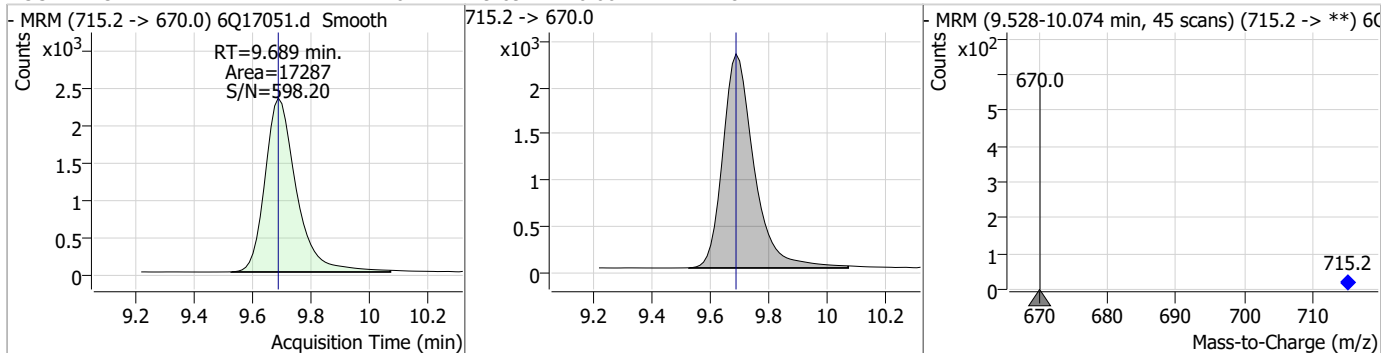
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.16	9.61	0.00	1510	498.1 -> 478.0	3.6	1.5	4.4



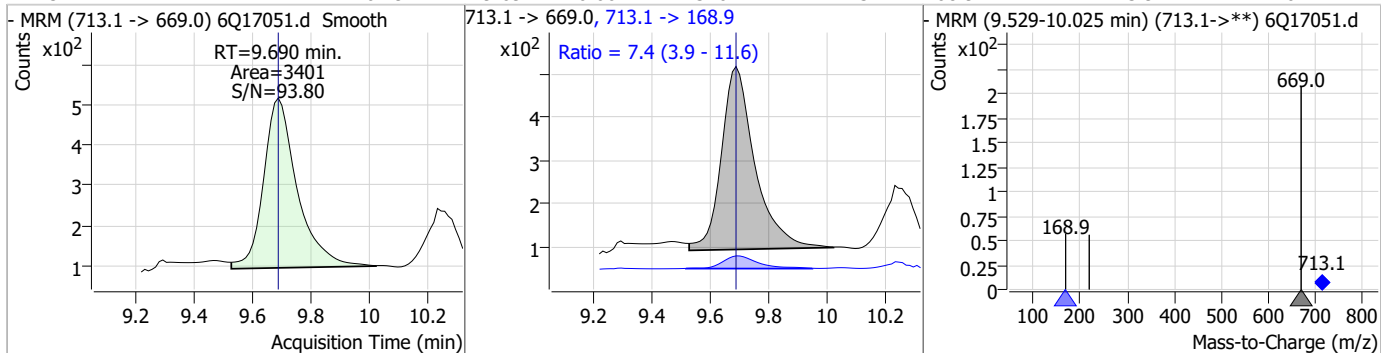
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.65	9.62	0.00	26073				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.69	0.00	17287				



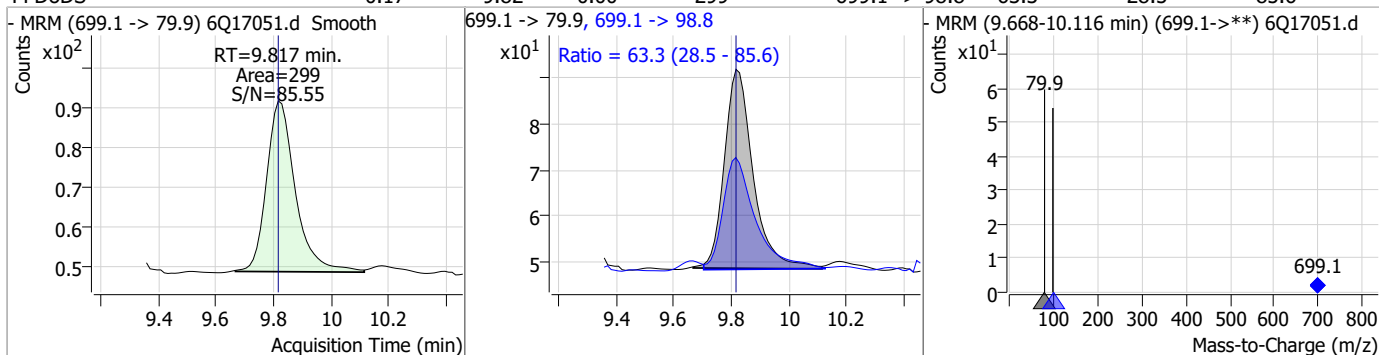
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.69	0.00	3401	713.1 -> 168.9	7.4	3.9	11.6



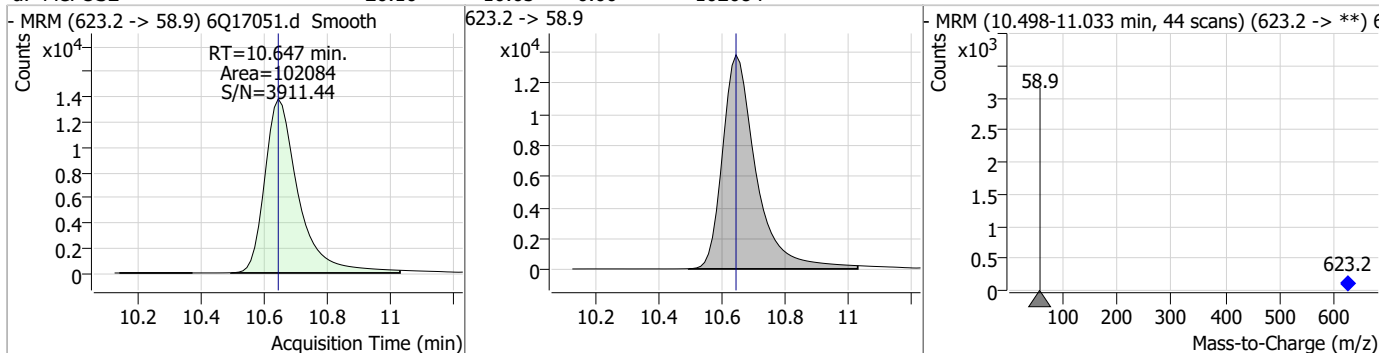
7.7.2
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Perfluorinated Compounds by LC/MS/MS

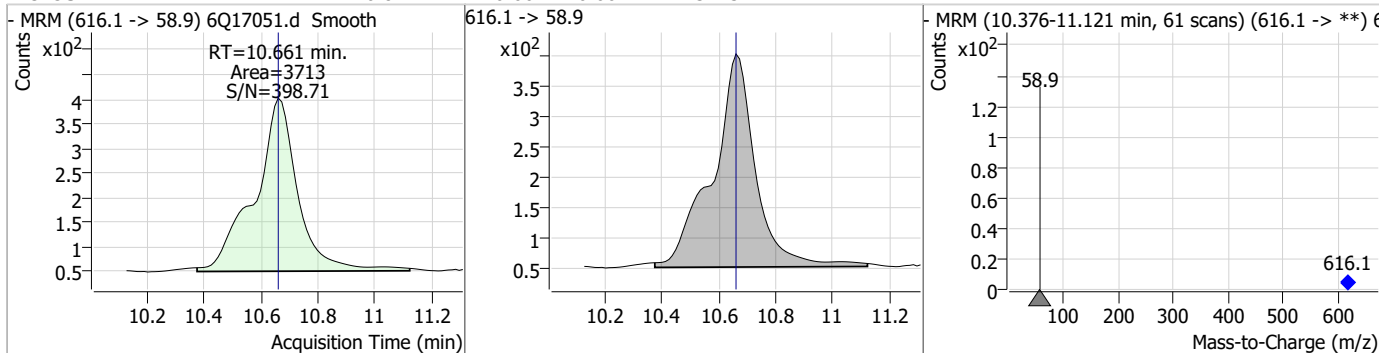
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.17	9.82	0.00	299	699.1 -> 98.8	63.3	28.5	85.6



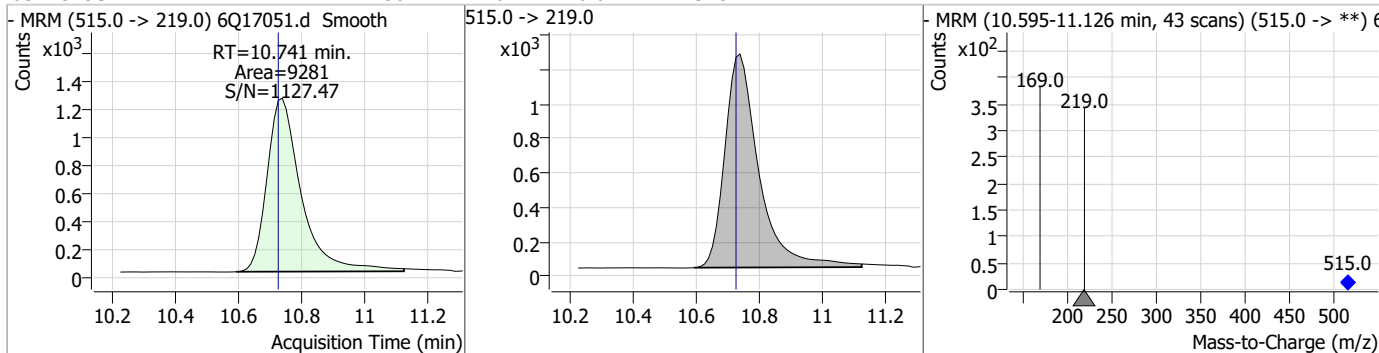
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.16	10.65	0.00	102084				



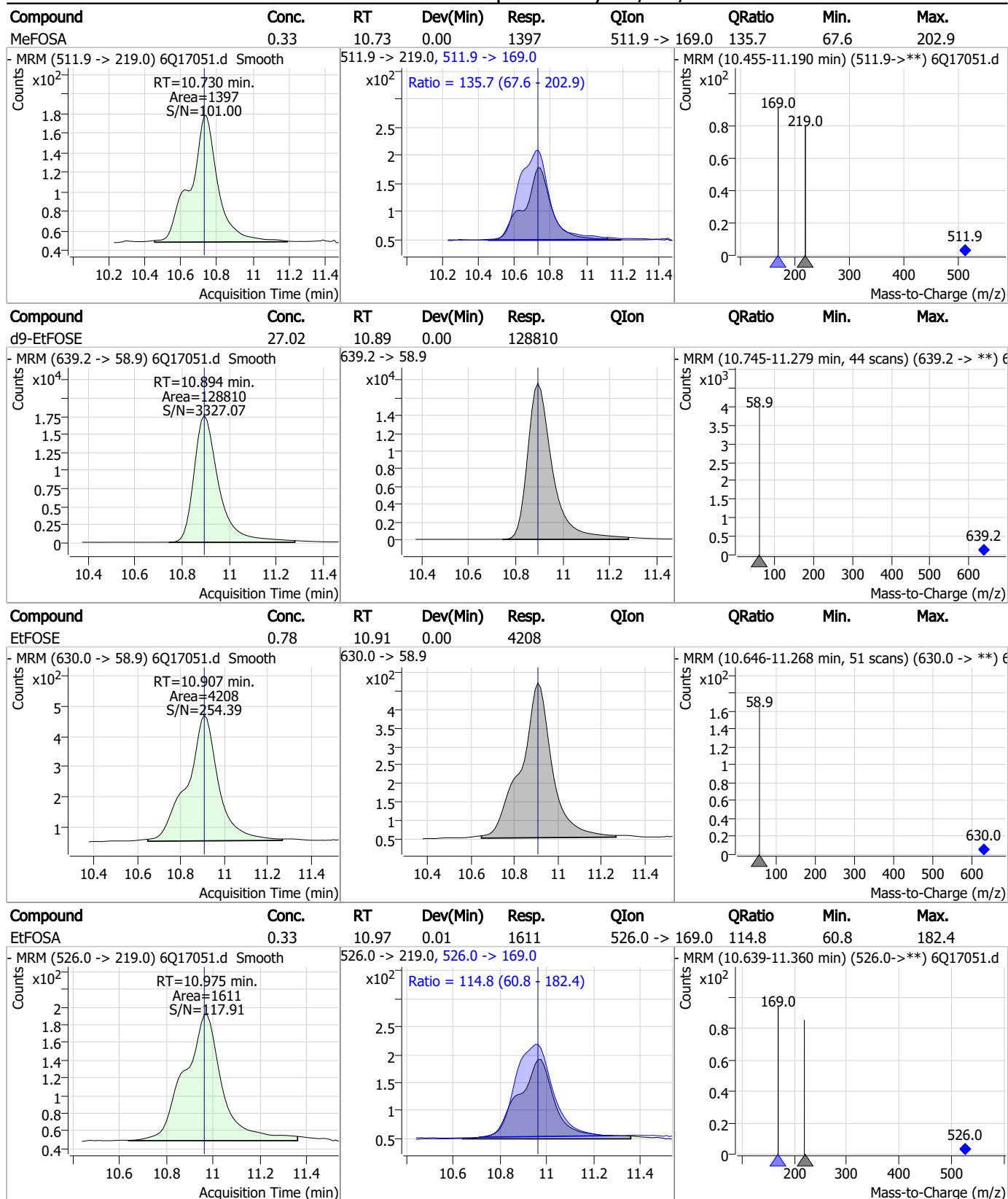
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.82	10.66	0.00	3713				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	10.74	0.01	9281				



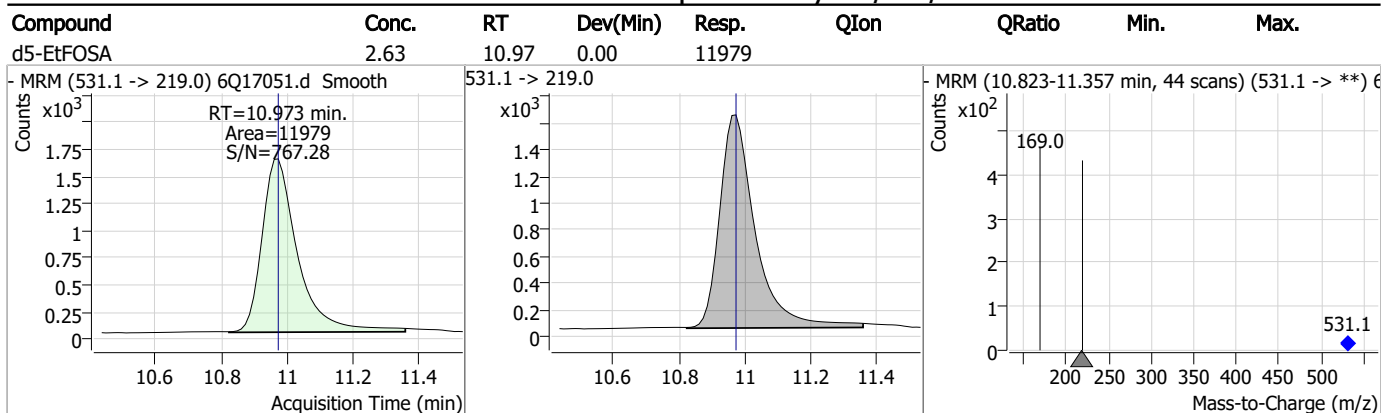
Perfluorinated Compounds by LC/MS/MS



7.7.2

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Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17051.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 12:50 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
6:2 Fluorotelomer sulfonate	27619-97-2		6.84	Poor instrument integration
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.25	Split peak
Perfluorodecanesulfonic acid	335-77-3		9.12	Poor instrument integration

7.7.2.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17052.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:04:45 PM
 Sample Name : ic258-2
 Vial : P1-A3
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	191249	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	68489	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	73356	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	60888	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	87189	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27968	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	22037	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25442	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26702	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	19305	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	25553	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23778	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13696	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	12098	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2380	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2699	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3016	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	25263	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42056	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19497	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	104174	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	133008	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11903	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9604	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	16032	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	82834	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	10320	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	90721	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25548	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29483	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	61704	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2380	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2699	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3016	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26702	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	19305	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C3-PFBS	5.398	302.1 -> 79.9	23778	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	13696	2.49 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFBA	2.910	216.8 -> 171.9	191249	9.99 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.431	367.1 -> 322.0	60888	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C5-PFHxA	5.480	318.0 -> 273.0	73356	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C5-PFPeA	4.270	268.3 -> 223.0	68489	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.076	519.1 -> 474.1	22037	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25442	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.611	506.1 -> 77.8	25553	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOA	7.074	421.1 -> 376.0	87189	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOS	8.239	507.1 -> 79.9	12098	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.594	472.1 -> 427.0	27968	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	25263	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42056	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	9604	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19497	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	104174	24.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	133008	25.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d5-EtFOSA	10.960	531.1 -> 219.0	11903	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	5443	1.51 µg/L	93
		327.1 -> 80.9	2238		
6:2FTS	6.839	427.1 -> 407.0	5215	1.76 µg/L	93
		427.1 -> 80.9	1642		
8:2FTS	7.865	527.1 -> 507.0	2967	1.65 µg/L	92
		527.1 -> 80.8	1064		
EtFOSAA	8.343	584.2 -> 419.1	1293	0.39 µg/L	92
		584.2 -> 526.0	747		
FOSA	9.614	498.1 -> 77.9	3607	0.39 µg/L	97
		498.1 -> 478.0	67		
MeFOSAA	8.136	570.1 -> 419.0	1634	0.34 µg/L	83
		570.1 -> 483.0	351		
PFBA	2.906	212.8 -> 168.9	10438	1.63 µg/L	100
PFBS	5.412	298.7 -> 79.9	3580	0.34 µg/L	99
		298.7 -> 98.8	1498		
PFDA	8.077	512.9 -> 469.0	7589	0.32 µg/L	96
		512.9 -> 219.0	1386		
PFDODA	8.961	613.1 -> 569.0	8628	0.41 µg/L	96
		613.1 -> 319.0	1115		
PFDS	9.125	599.0 -> 79.9	1485	0.39 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	689			
PFHpA	6.432	363.1 -> 319.0	11942	0.40	µg/L	93
		363.1 -> 169.0	2110			
PFHpS	7.746	449.0 -> 79.9	2561	0.39	µg/L	91
		449.0 -> 98.9	1149			
PFHxA	5.483	313.0 -> 269.0	11443	0.39	µg/L	98
		313.0 -> 118.9	596			
PFHxS	7.180	398.7 -> 79.9	2724	0.36	µg/L	m 87
		398.7 -> 98.9	1152			
PFNA	7.595	463.0 -> 419.0	7817	0.40	µg/L	96
		463.0 -> 219.0	1768			
PFNS	8.694	548.8 -> 79.9	2457	0.42	µg/L	89
		548.8 -> 98.9	1167			
PFOA	7.063	413.0 -> 369.0	15132	0.43	µg/L	m 97
		413.0 -> 169.0	2836			
PFOS	8.228	498.9 -> 79.9	2331	0.40	µg/L	m 84
		498.9 -> 98.8	1216			
PFPeA	4.273	263.0 -> 219.0	15471	0.83	µg/L	100
PFPeS	6.484	349.1 -> 79.9	2796	0.36	µg/L	100
		349.1 -> 98.9	1356			
PFTeDA	9.690	713.1 -> 669.0	7199	0.37	µg/L	100
		713.1 -> 168.9	555			
PFTrDA	9.345	663.0 -> 619.0	9228	0.40	µg/L	98
		663.0 -> 168.9	779			
PFUnDA	8.531	563.1 -> 519.0	7041	0.40	µg/L	99
		563.1 -> 269.1	1250			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	11378	0.79	µg/L	95
		632.9 -> 452.9	3287			
9Cl-PF3ONS	8.569	530.8 -> 351.0	17108	0.75	µg/L	88
		532.8 -> 353.0	3995			
ADONA	6.681	376.9 -> 250.9	50774	0.80	µg/L	99
		376.9 -> 84.8	12974			
HFPO-DA	5.846	284.9 -> 168.9	3221	0.81	µg/L	99
		284.9 -> 184.9	468			
3:3FTCA	3.784	241.0 -> 177.0	2332	2.00	µg/L	96
		241.0 -> 117.0	269			
5:3FTCA	6.160	341.0 -> 237.1	48920	10.42	µg/L	88
		341.0 -> 217.0	37403			
7:3FTCA	7.573	441.0 -> 316.9	21351	10.01	µg/L	89
		441.0 -> 336.9	42303			
EtFOSA	10.962	526.0 -> 219.0	4105	0.84	µg/L	97
		526.0 -> 169.0	5149			
EtFOSE	10.907	630.0 -> 58.9	10551	1.90	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	3748	0.87	µg/L	95
		511.9 -> 169.0	4864			
MeFOSE	10.661	616.1 -> 58.9	9404	2.02	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	771	0.39	µg/L	94
		699.1 -> 98.8	473			
NFDHA	5.350	295.0 -> 201.0	2486	0.79	µg/L	98
		295.0 -> 84.9	632			
PFMBA	4.687	279.0 -> 85.1	10270	0.82	µg/L	100
PFMPA	3.438	229.0 -> 84.9	7625	0.82	µg/L	100
PFEESA	5.949	314.8 -> 134.9	26589	0.73	µg/L	100
		314.8 -> 82.9	1021			

= Qualifier out of range, m = manually integrated, + = Area summed

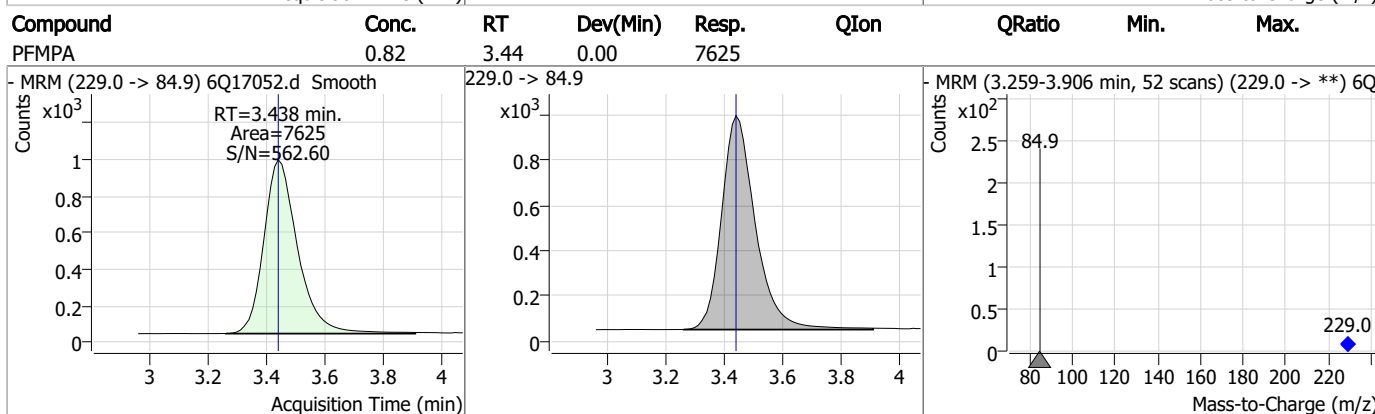
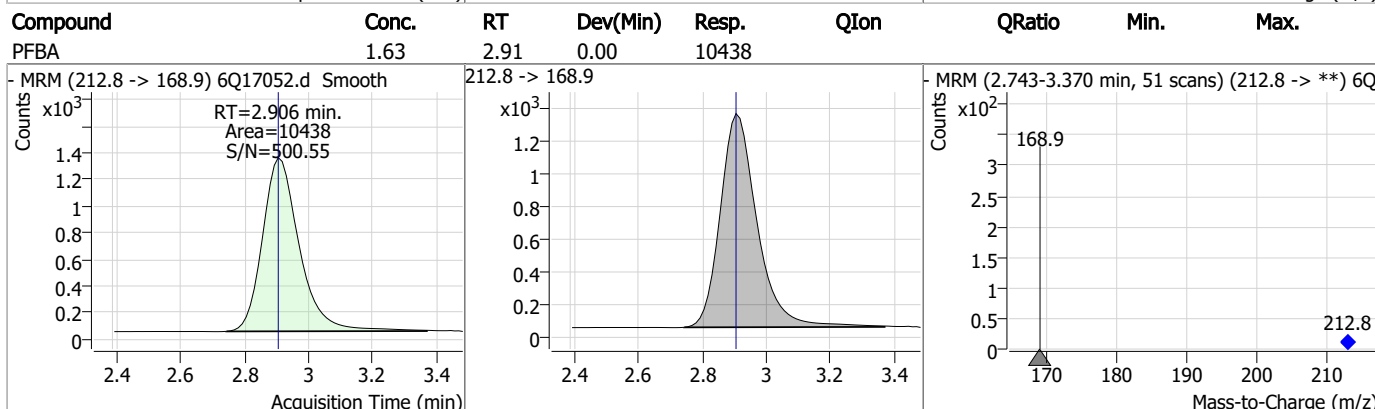
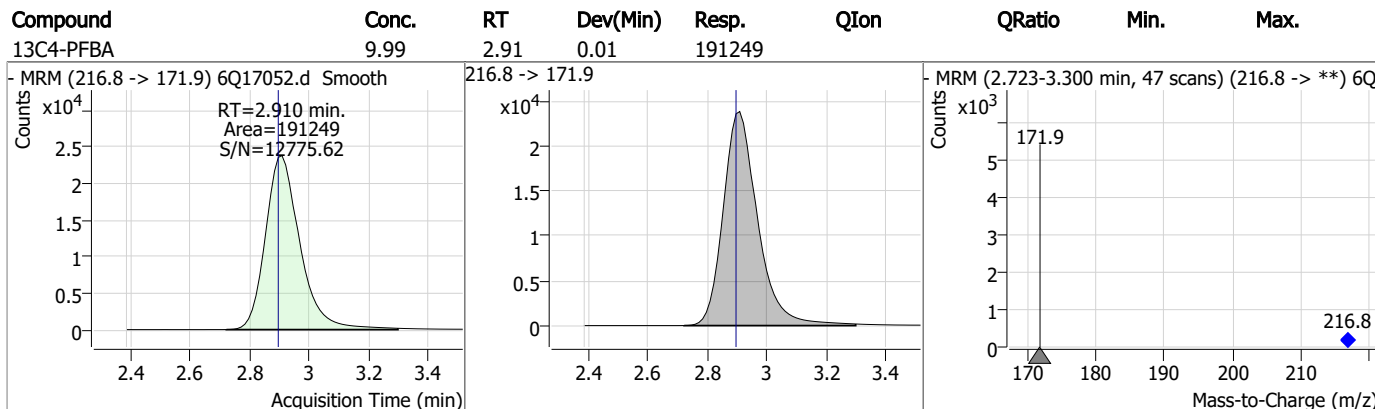
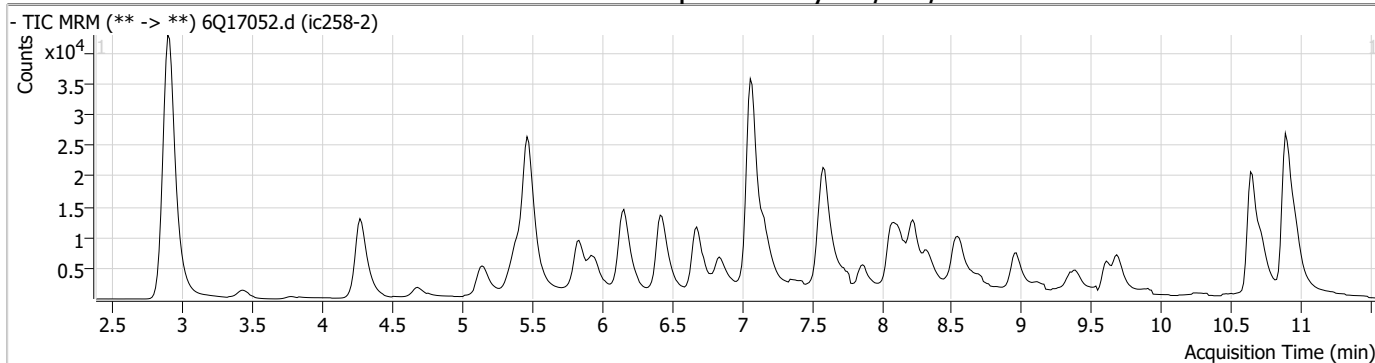
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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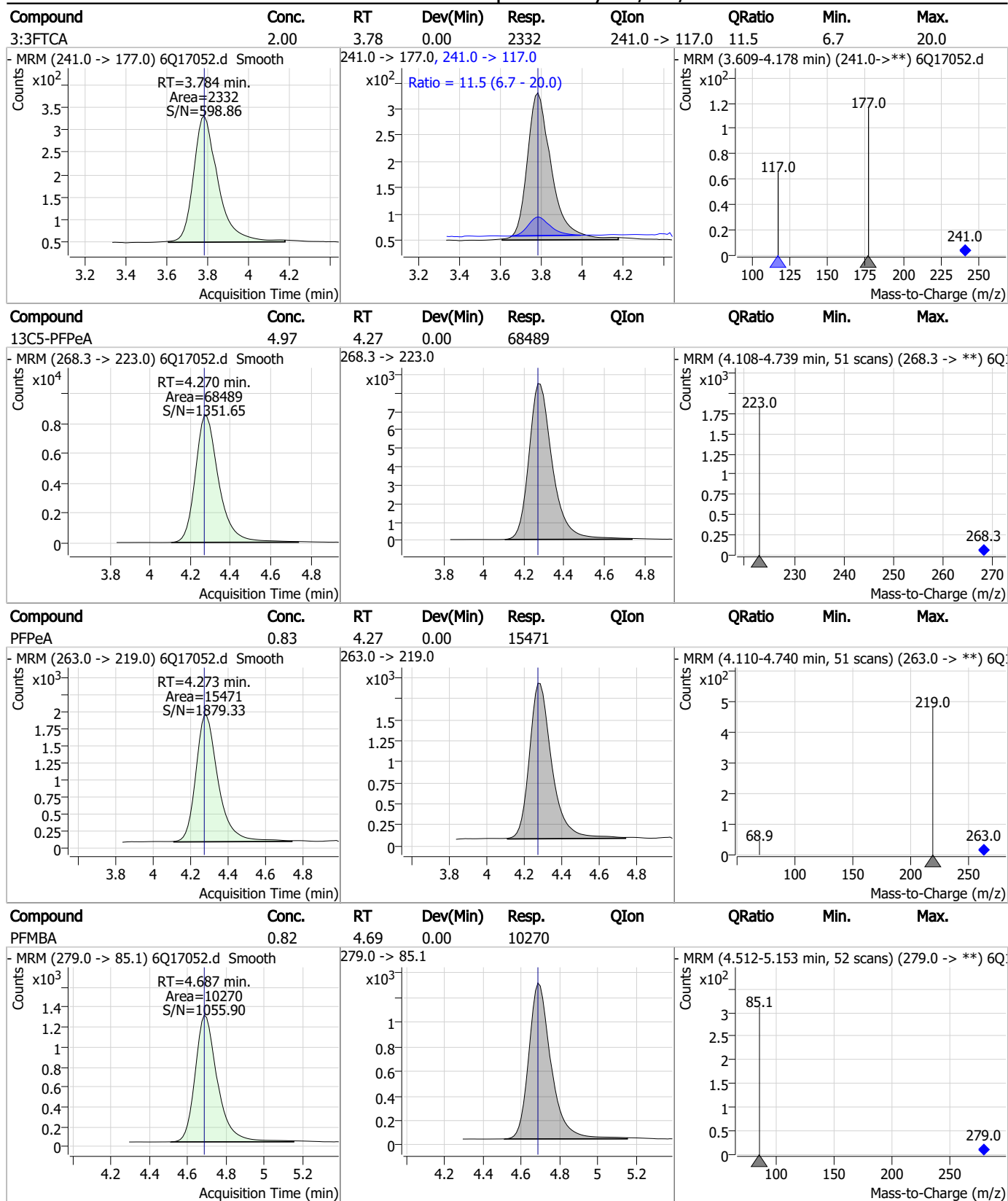
7.7.3

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Perfluorinated Compounds by LC/MS/MS

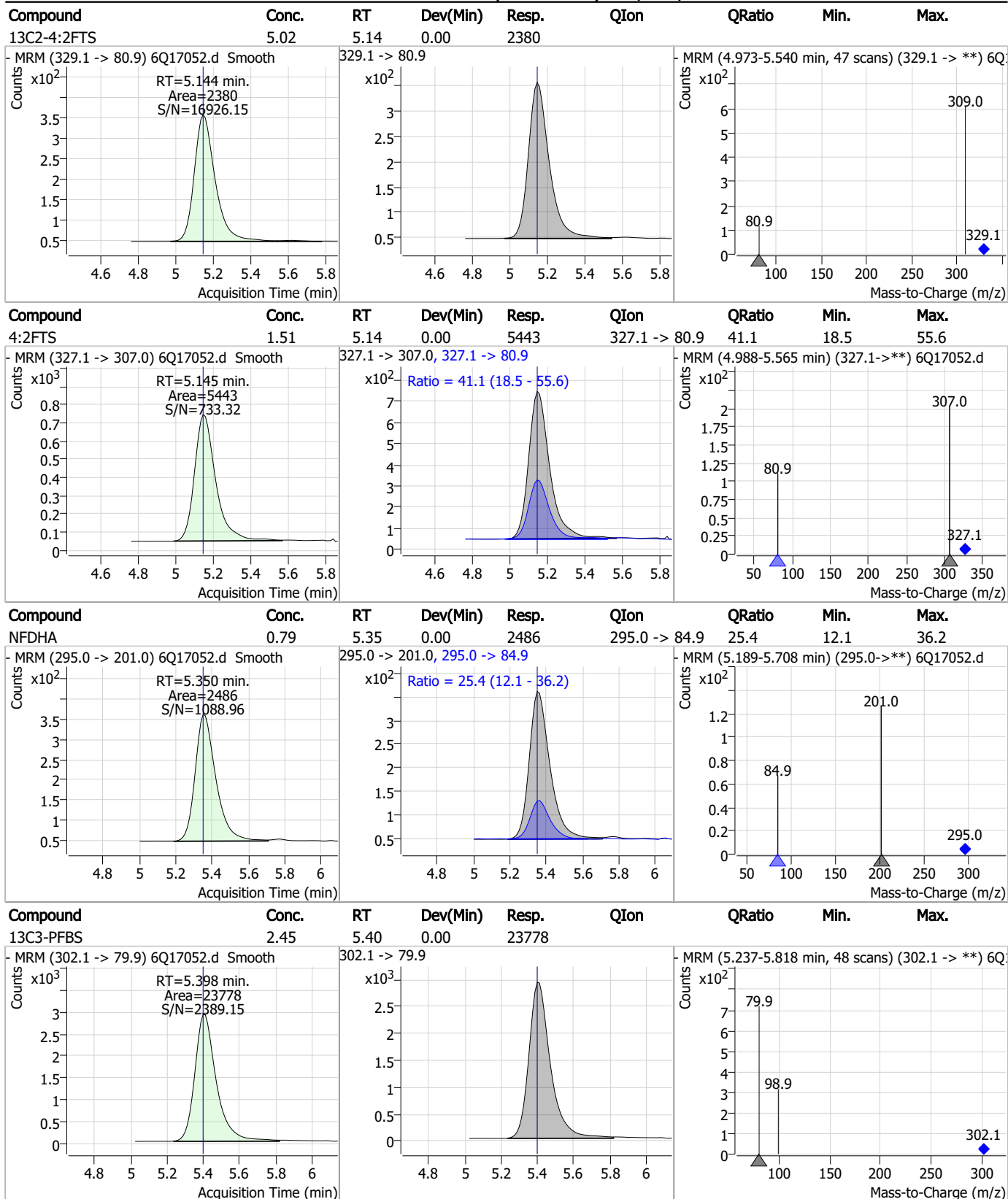


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

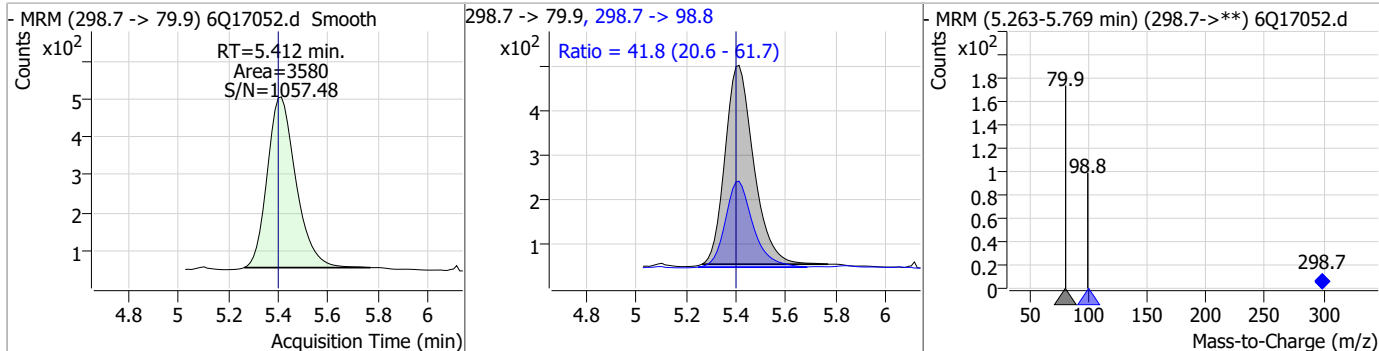
Perfluorinated Compounds by LC/MS/MS



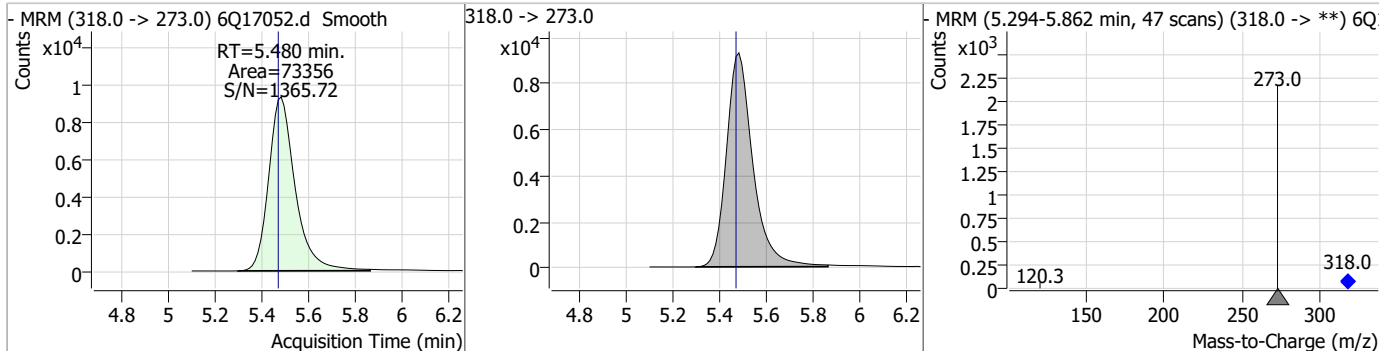
7.7.3
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Perfluorinated Compounds by LC/MS/MS

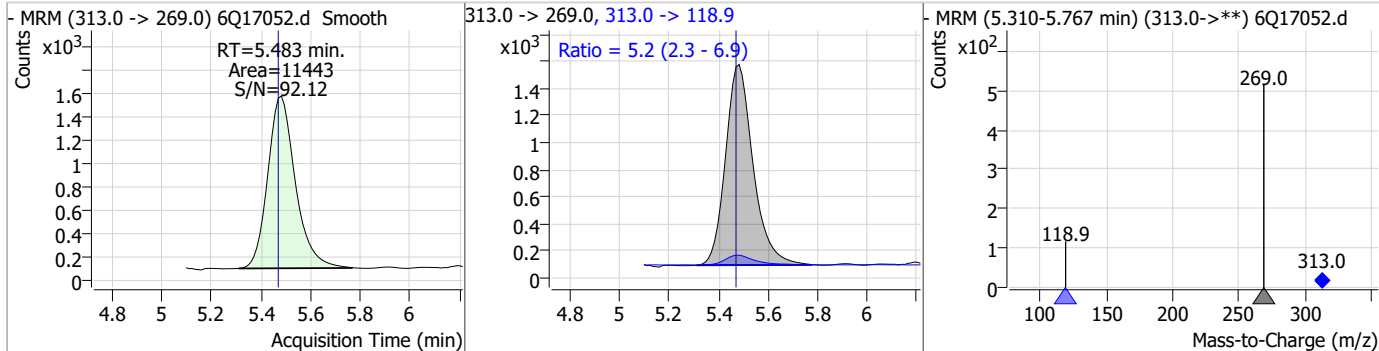
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.34	5.41	0.01	3580	298.7 -> 98.8	41.8	20.6	61.7



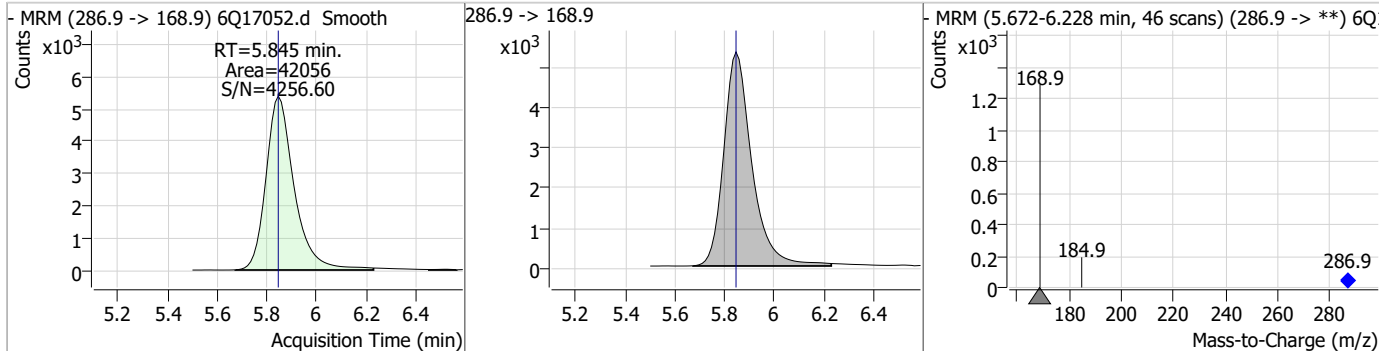
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.48	0.01	73356	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.39	5.48	0.01	11443	313.0 -> 118.9	5.2	2.3	6.9



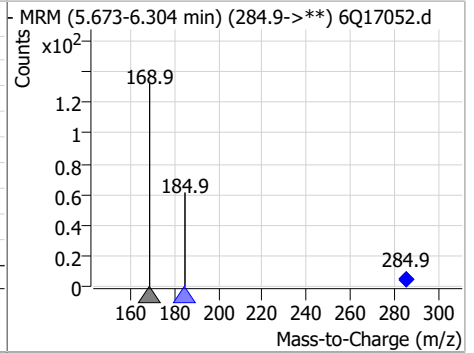
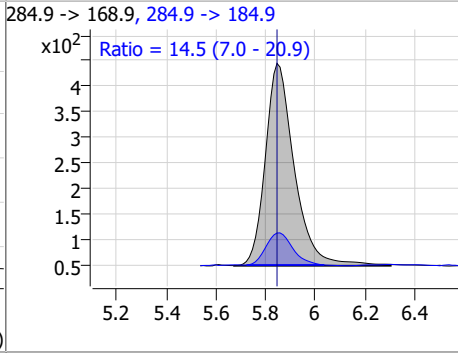
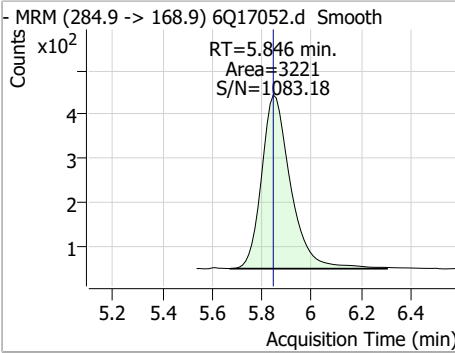
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	42056	286.9 -> 168.9			



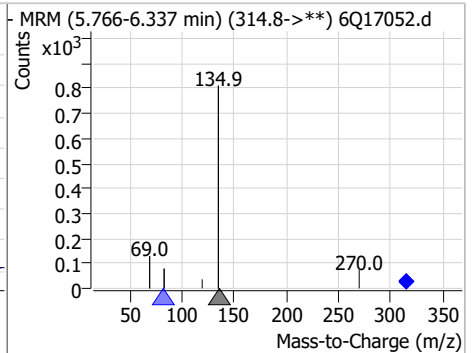
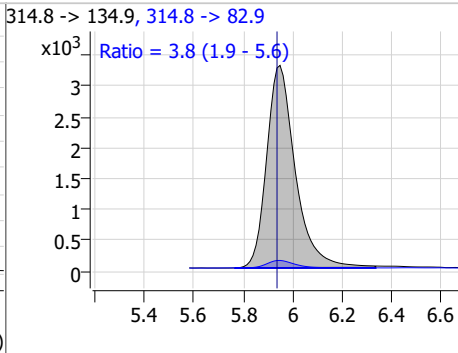
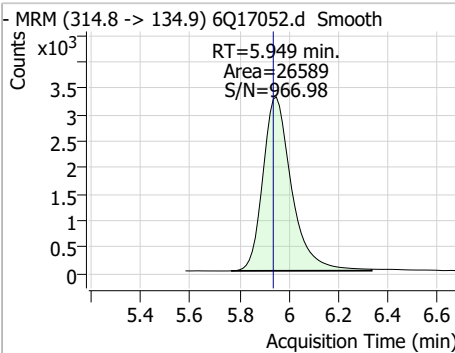
7.7.3
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Perfluorinated Compounds by LC/MS/MS

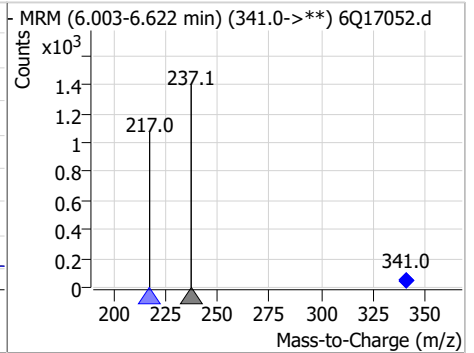
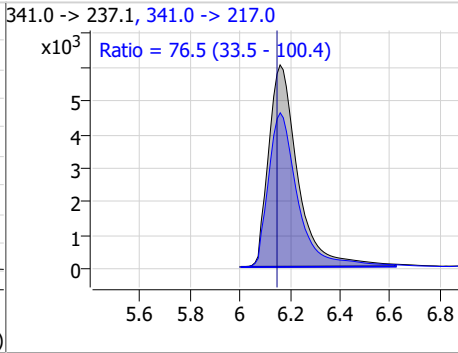
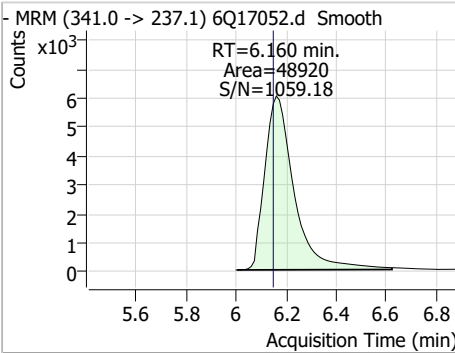
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.81	5.85	0.00	3221	284.9 -> 184.9	14.5	7.0	20.9



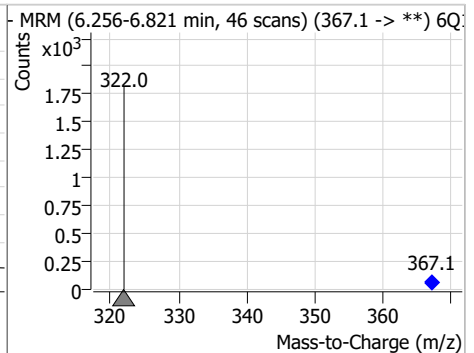
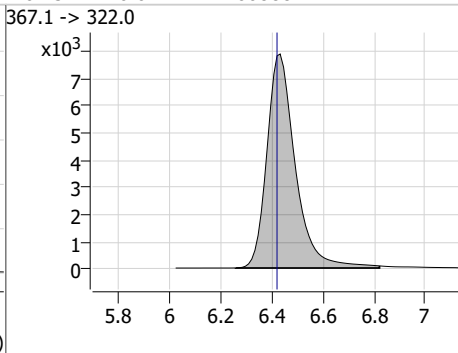
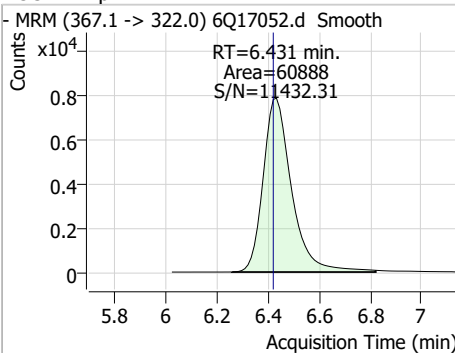
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.73	5.95	0.01	26589	314.8 -> 82.9	3.8	1.9	5.6



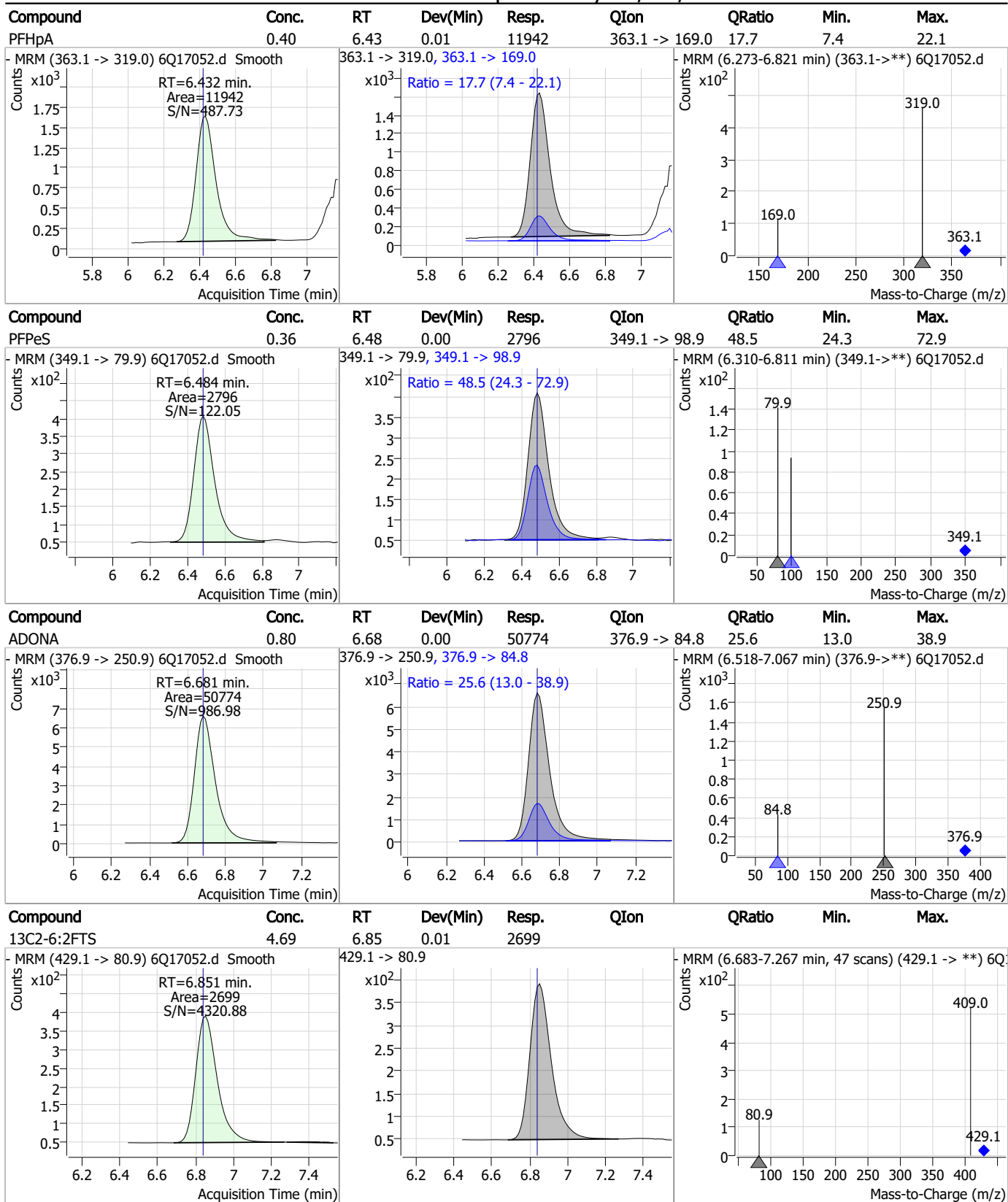
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	10.42	6.16	0.01	48920	341.0 -> 217.0	76.5	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.43	0.01	60888	367.1 -> 322.0			

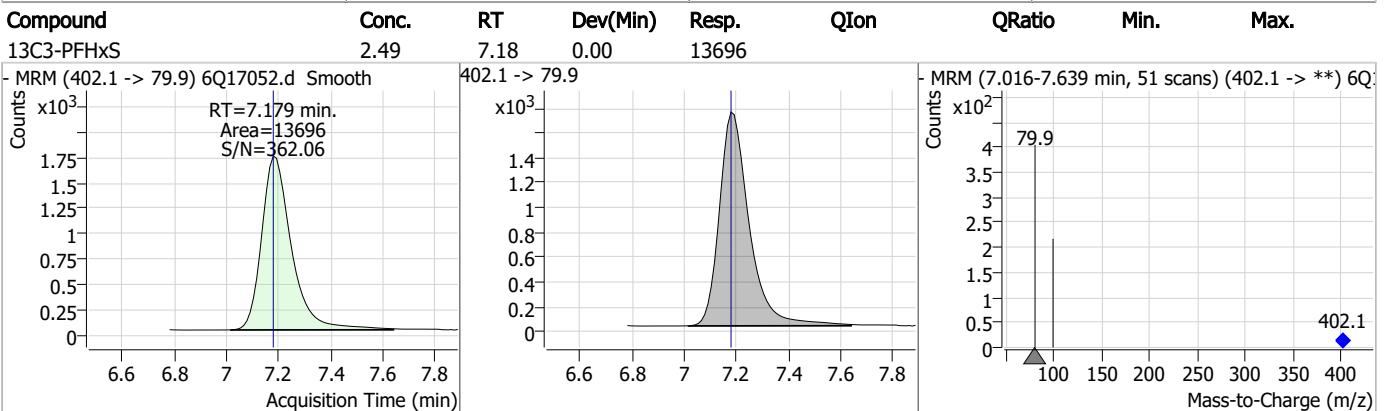
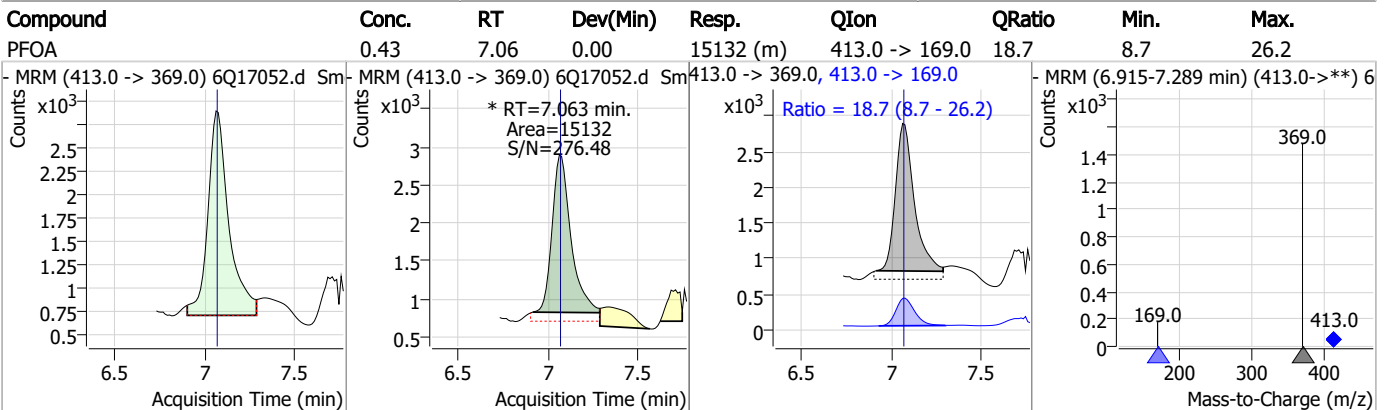
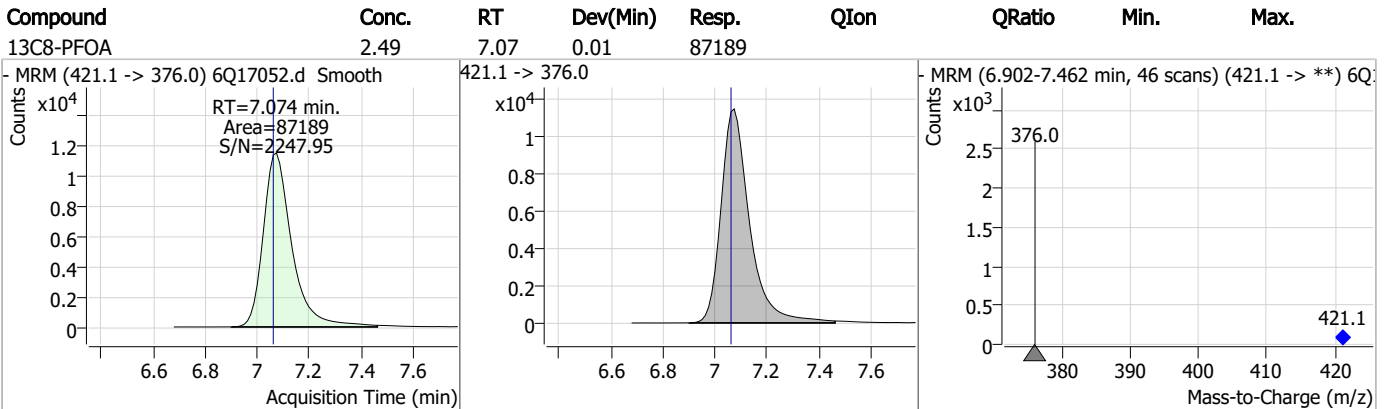
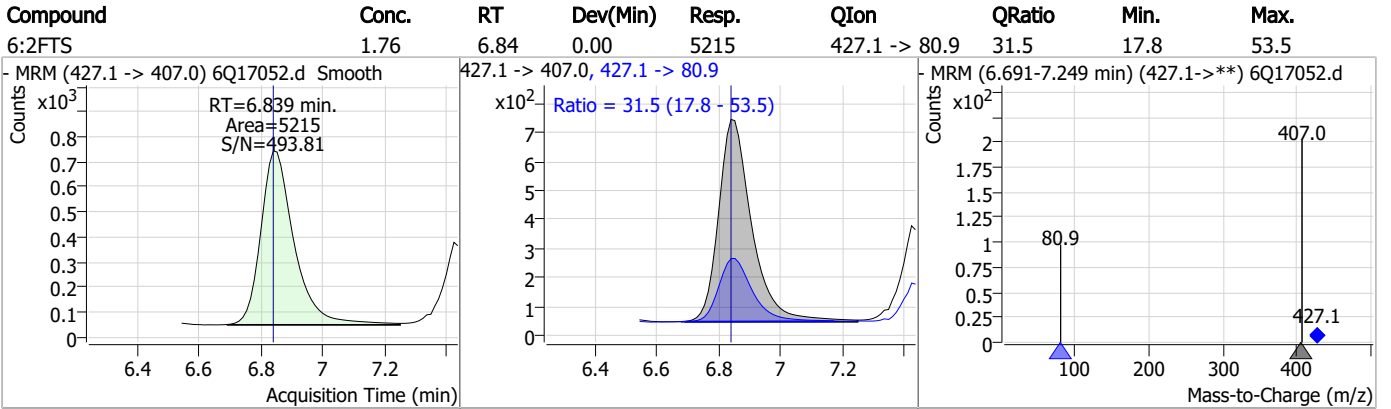


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS

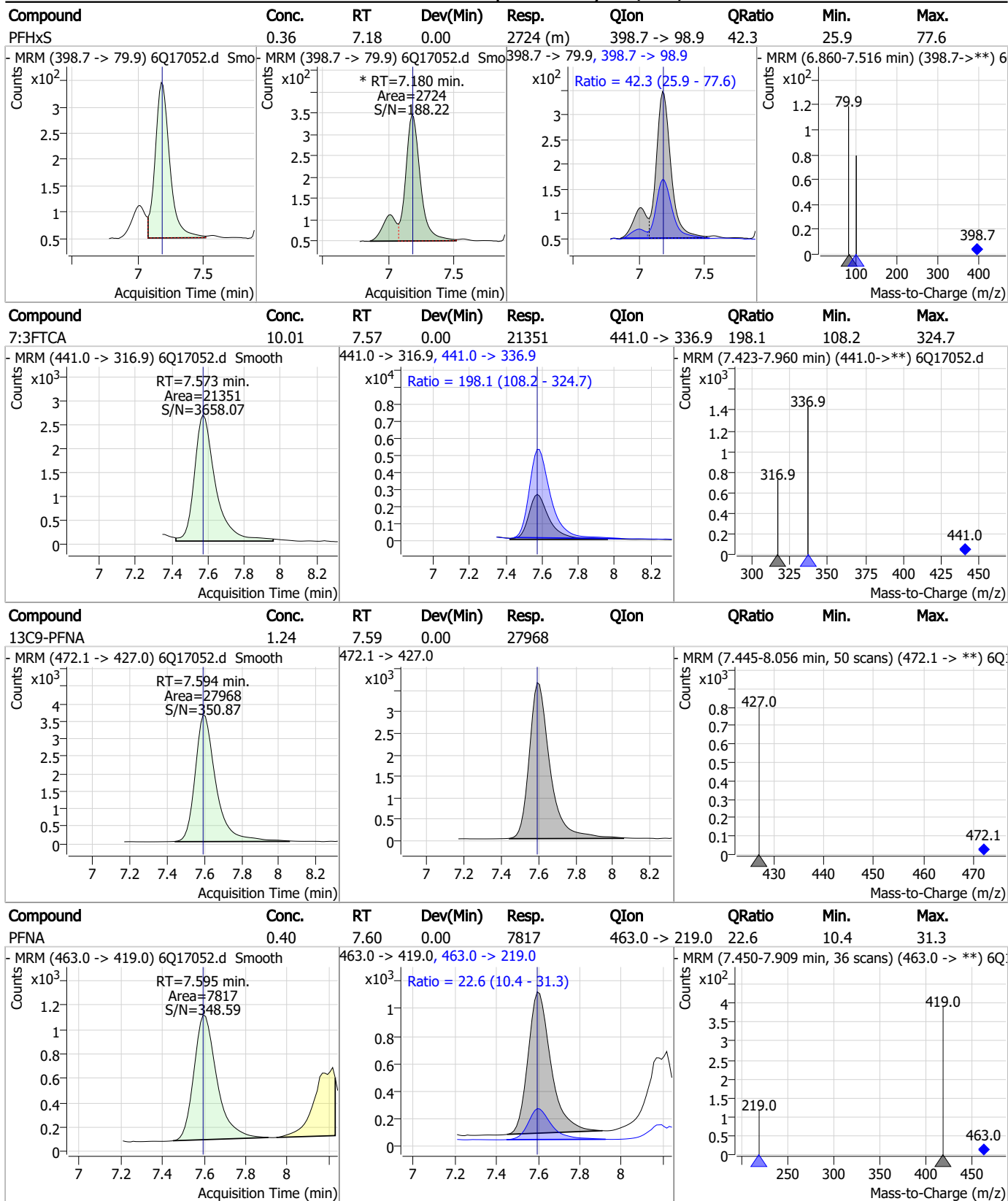


7.7.3

7



Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS

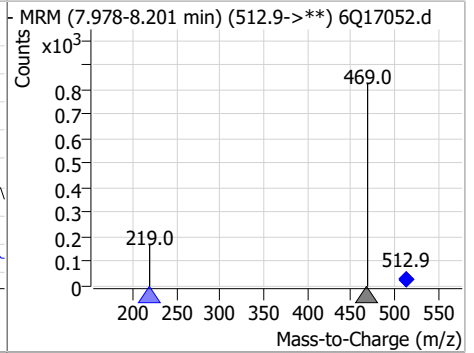
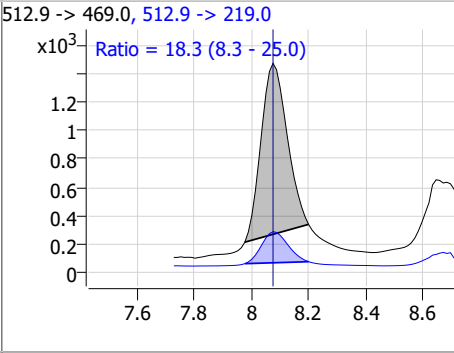
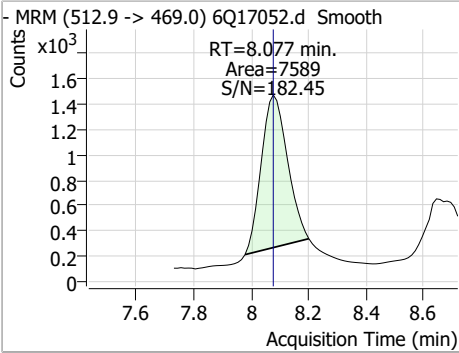
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.39	7.75	0.01	2561	449.0 -> 98.9	44.9	25.4	76.1
- MRM (449.0 -> 79.9) 6Q17052.d Smooth			449.0 -> 79.9, 449.0 -> 98.9			- MRM (7.584-8.132 min) (449.0->**) 6Q17052.d		
13C2-8:2FTS	4.87	7.86	0.00	3016				
- MRM (529.1 -> 80.9) 6Q17052.d Smooth			529.1 -> 80.9			- MRM (7.715-8.162 min, 37 scans) (529.1 -> **) 6Q17052.d		
8:2FTS	1.65	7.87	0.00	2967	527.1 -> 80.8	35.9	20.3	61.0
- MRM (527.1 -> 507.0) 6Q17052.d Smooth			527.1 -> 507.0, 527.1 -> 80.8			- MRM (7.731-8.323 min) (527.1->**) 6Q17052.d		
13C6-PFDA	1.31	8.08	0.00	22037				
- MRM (519.1 -> 474.1) 6Q17052.d Smooth			519.1 -> 474.1			- MRM (7.903-8.460 min, 46 scans) (519.1 -> **) 6Q17052.d		

7.7.3

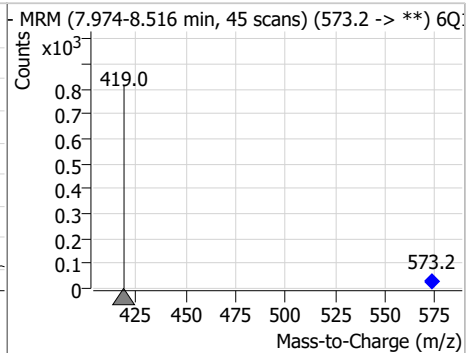
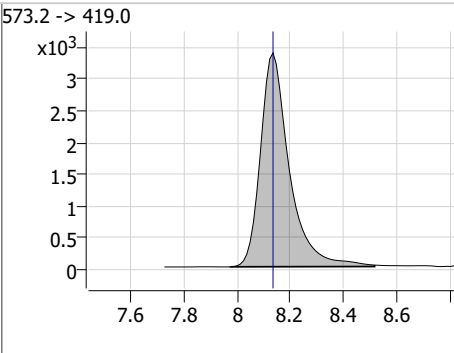
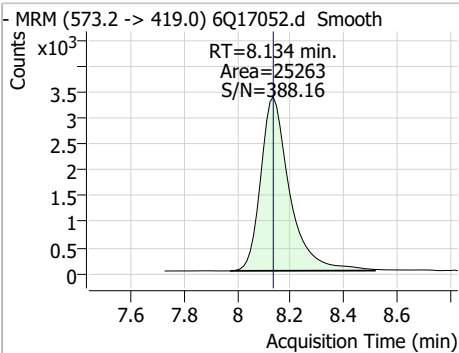
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Perfluorinated Compounds by LC/MS/MS

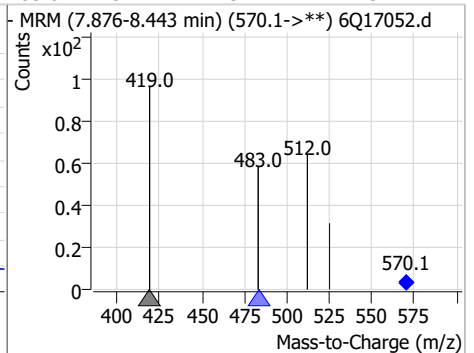
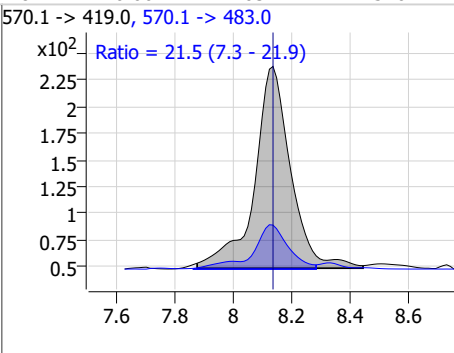
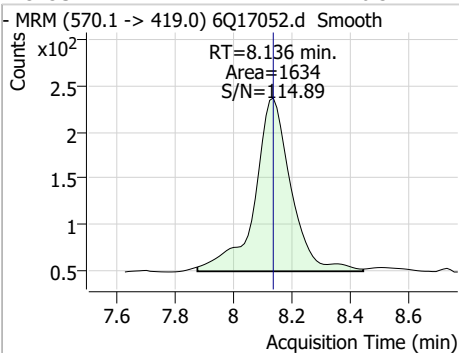
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.32	8.08	0.00	7589	512.9 -> 219.0	18.3	8.3	25.0



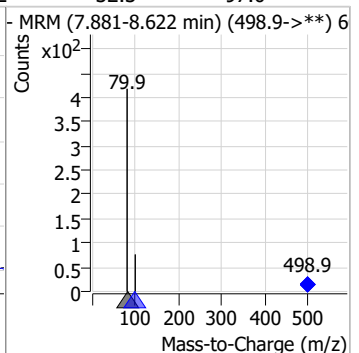
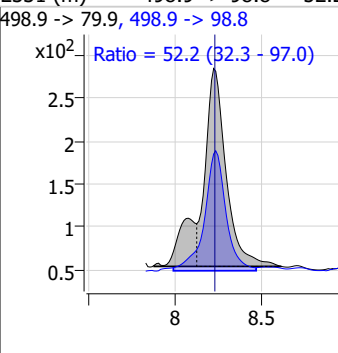
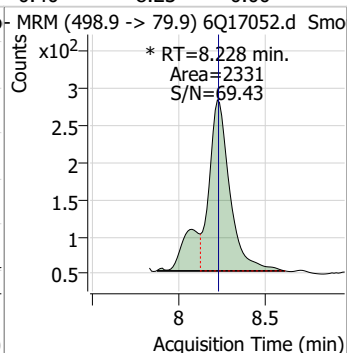
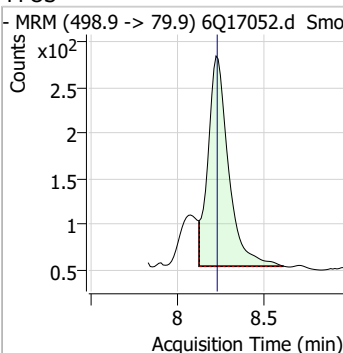
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.29	8.13	0.00	25263				



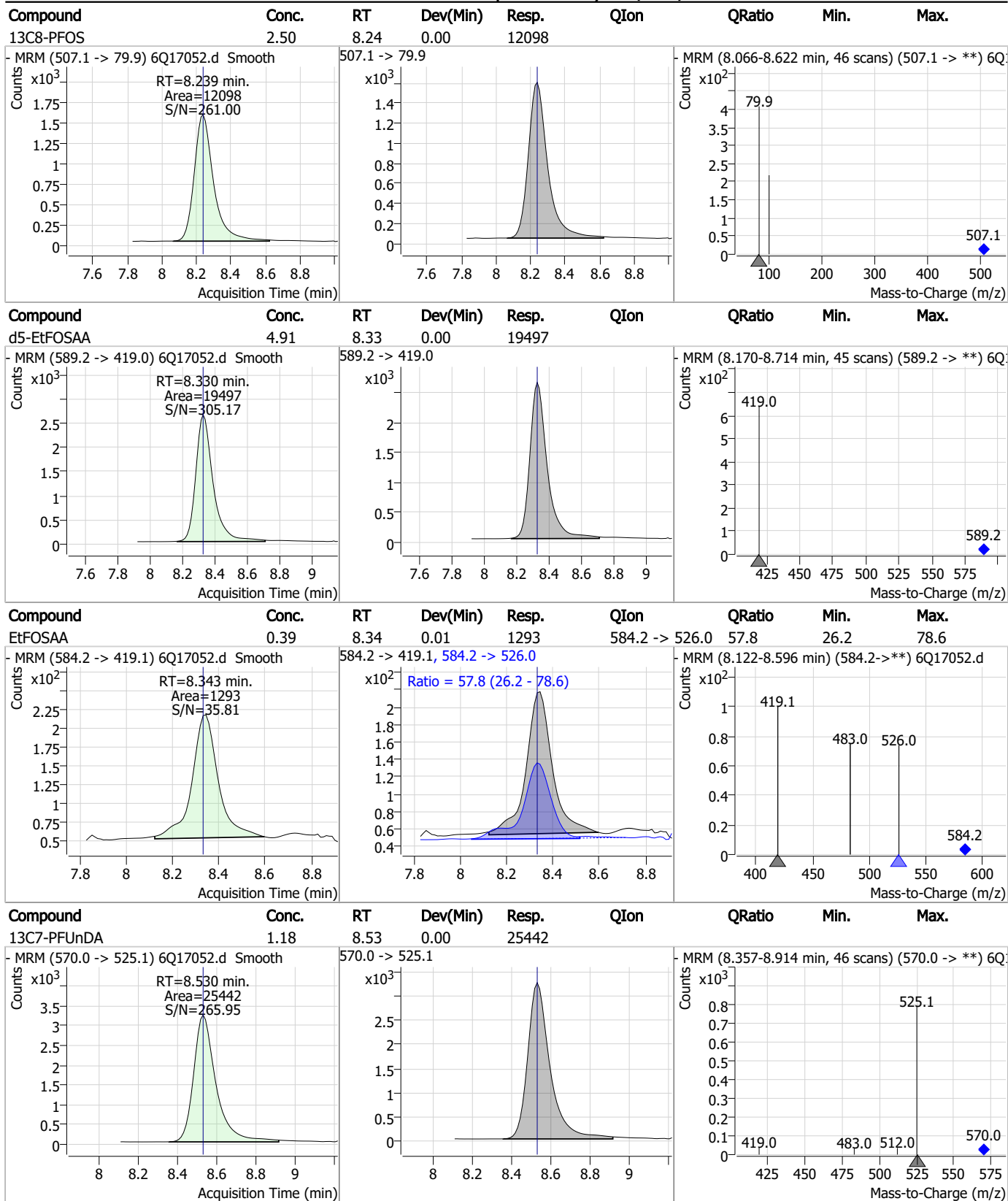
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.34	8.14	0.00	1634	570.1 -> 483.0	21.5	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	8.23	0.00	2331 (m)	498.9 -> 98.8	52.2	32.3	97.0

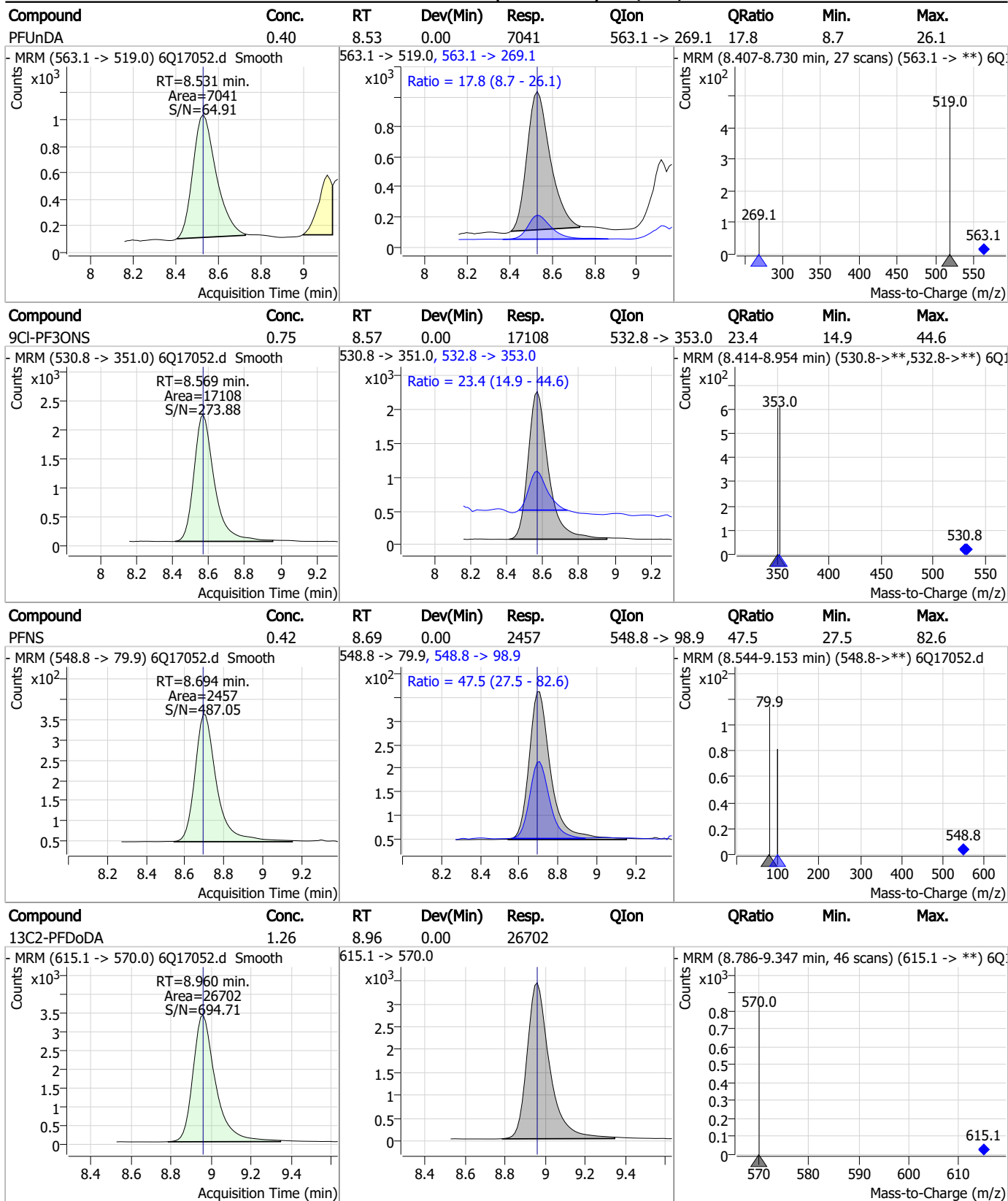


Perfluorinated Compounds by LC/MS/MS



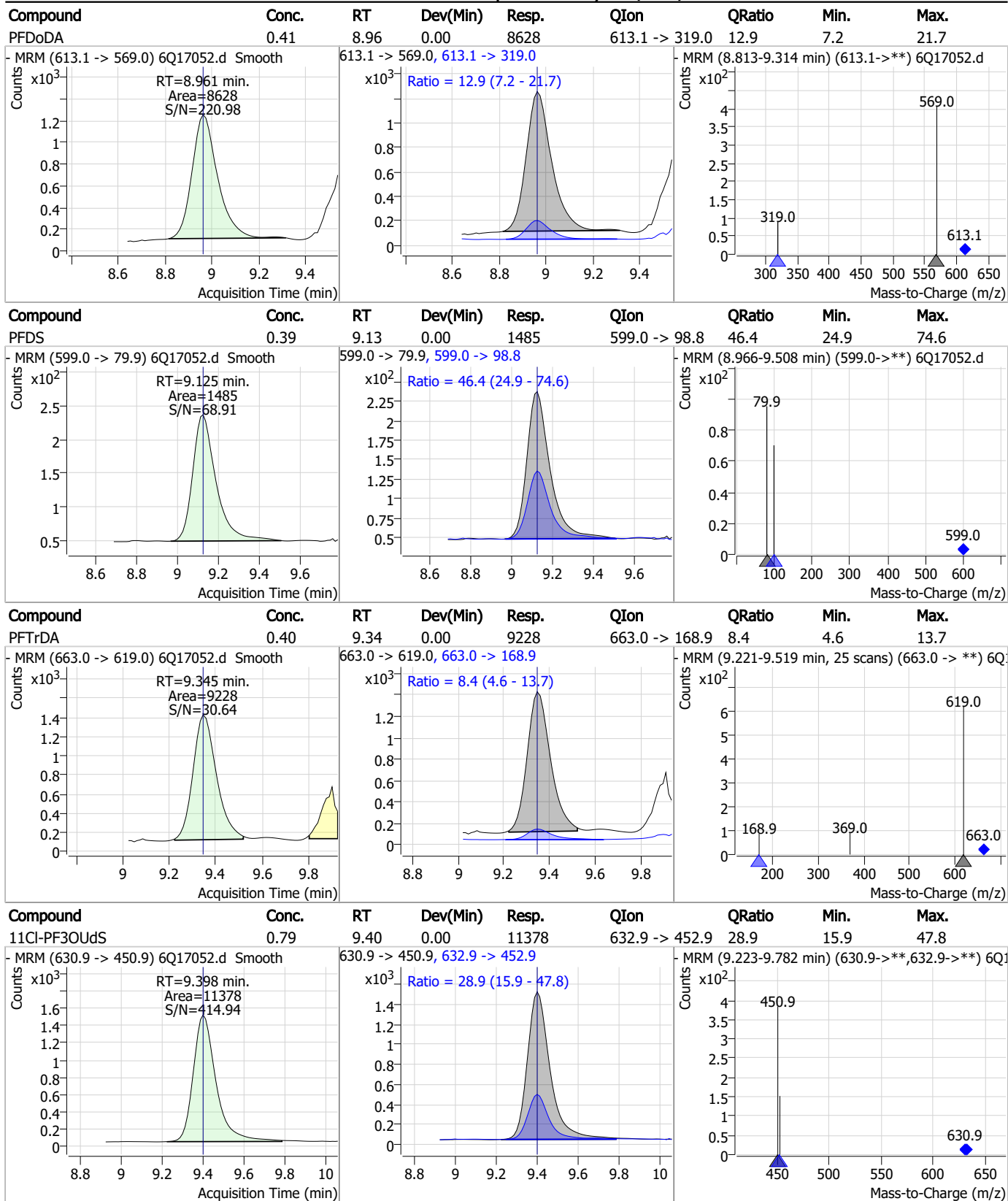
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



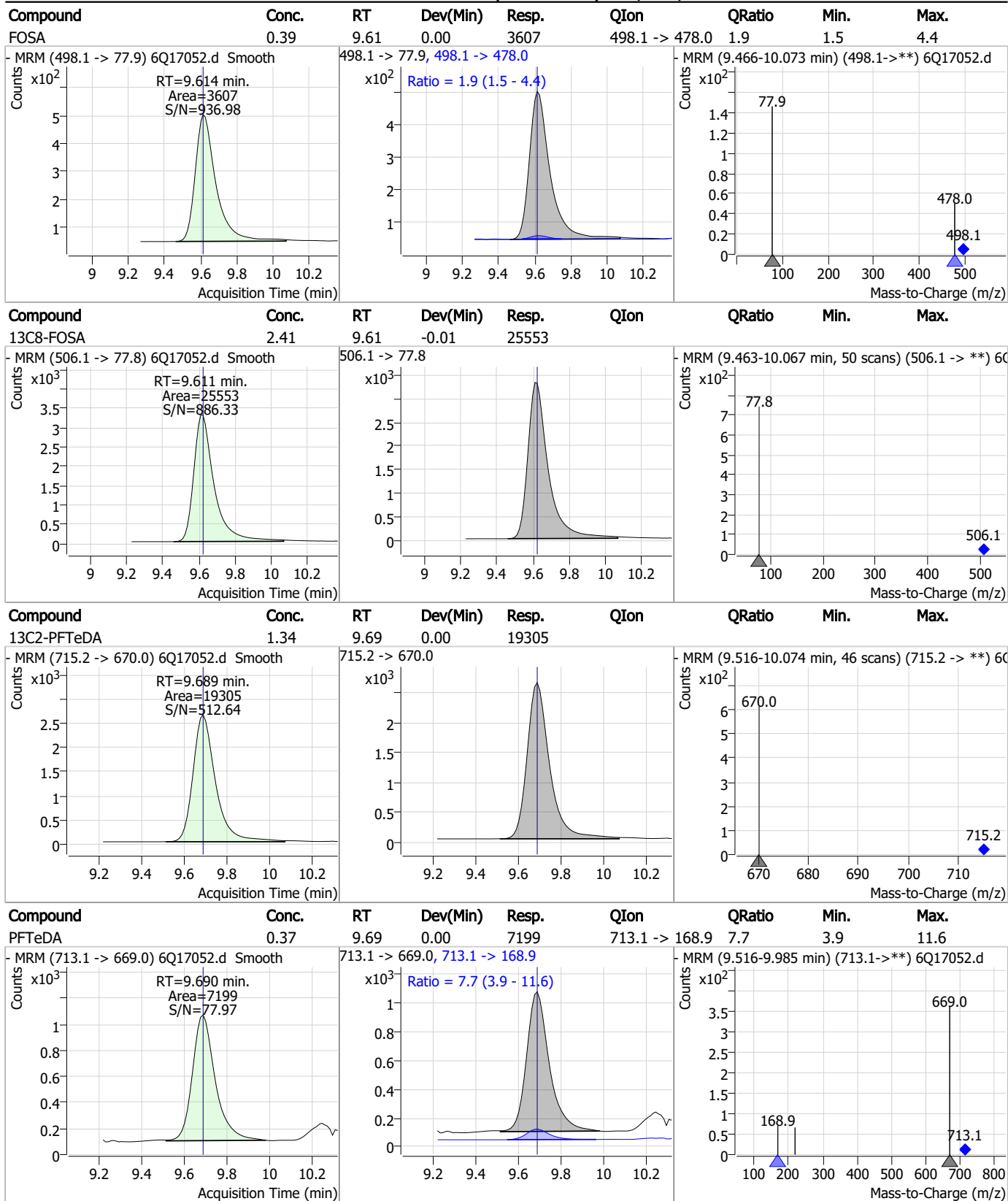
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



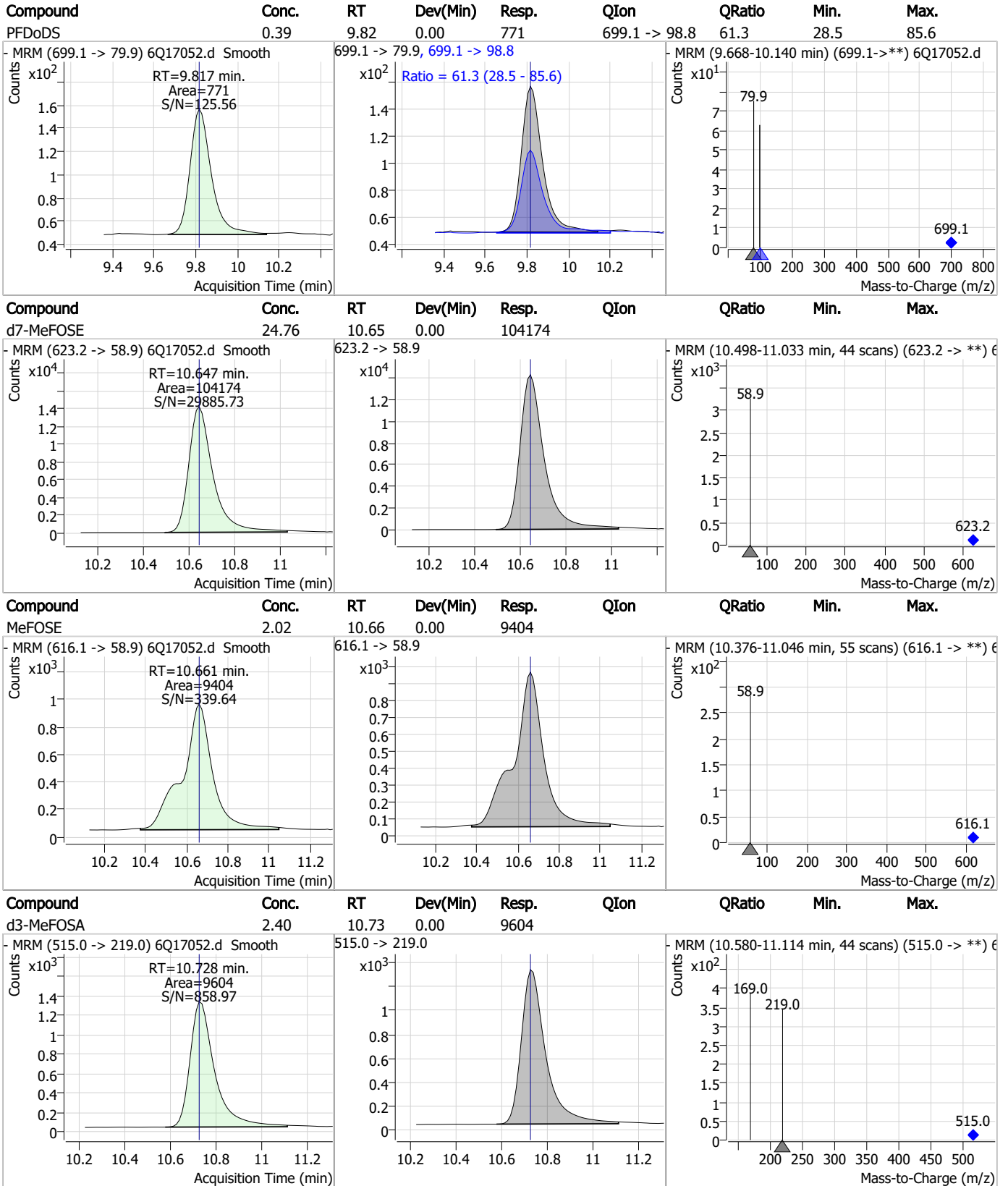
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
7

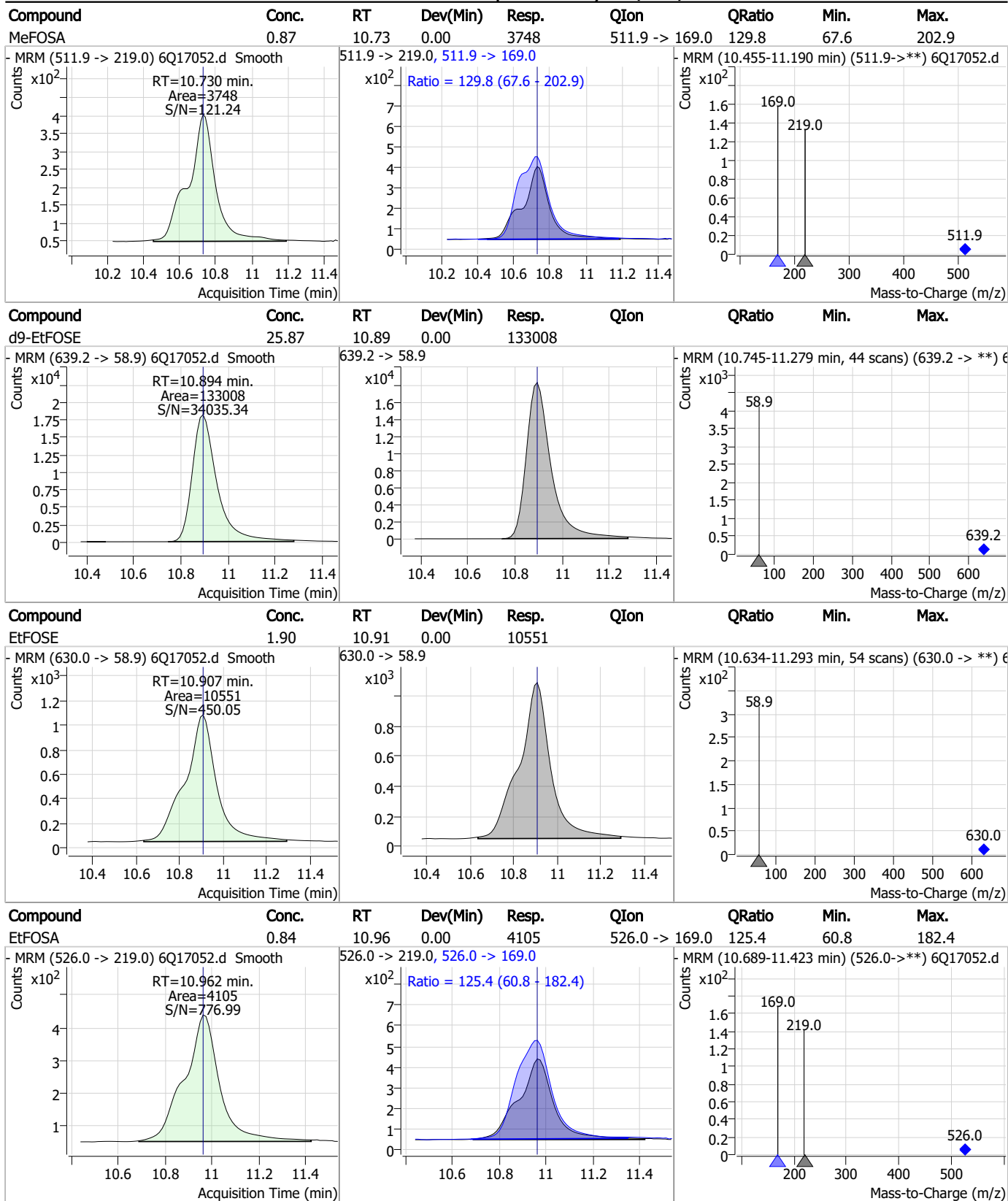
Perfluorinated Compounds by LC/MS/MS



7.7.3

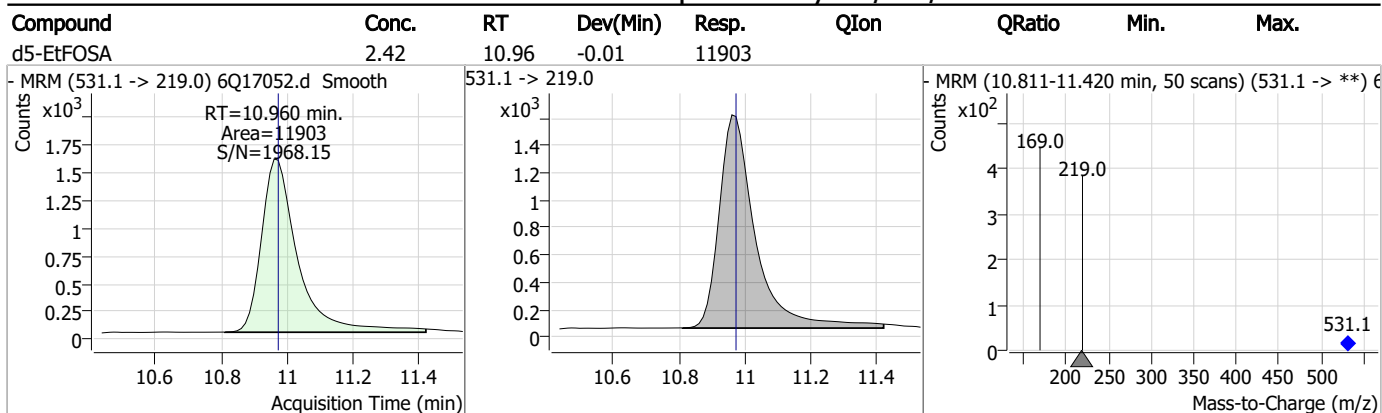
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17052.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:04 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17053.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:19:14 PM
 Sample Name : ic258-3
 Vial : P1-A4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	191572	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67974	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	74853	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	64801	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	85689	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	28510	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21004	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	28444	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24718	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17772	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	26081	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23225	2.50 µg/L	0.000
M3-PFHxS	7.191	402.1 -> 79.9	13656	2.50 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	11956	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2305	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2886	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2845	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21974	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42854	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18672	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	107605	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	134292	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	12109	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9352	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15112	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	82831	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9850	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	90328	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23654	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29469	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58289	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2305	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2886	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2845	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24718	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17772	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFBS	5.398	302.1 -> 79.9	23225	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-PFHxS	7.191	402.1 -> 79.9	13656	2.60 µg/L	0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	2.910	216.8 -> 171.9	191572	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.431	367.1 -> 322.0	64801	2.72 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	74853	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	67974	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C6-PFDA	8.076	519.1 -> 474.1	21004	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	28444	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-FOSA	9.623	506.1 -> 77.8	26081	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOA	7.074	421.1 -> 376.0	85689	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOS	8.239	507.1 -> 79.9	11956	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C9-PFNA	7.594	472.1 -> 427.0	28510	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21974	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42854	10.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSA	10.728	515.0 -> 219.0	9352	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18672	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	107605	27.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	134292	27.71 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	12109	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	16860	4.84 µg/L	98
		327.1 -> 80.9	6076		
6:2FTS	6.851	427.1 -> 407.0	14989	4.72 µg/L	99
		427.1 -> 80.9	5421		
8:2FTS	7.865	527.1 -> 507.0	9570	5.65 µg/L	94
		527.1 -> 80.8	3539		
EtFOSAA	8.343	584.2 -> 419.1	3961	1.25 µg/L	92
		584.2 -> 526.0	2303		
FOSA	9.614	498.1 -> 77.9	12049	1.29 µg/L	99
		498.1 -> 478.0	383		
MeFOSAA	8.136	570.1 -> 419.0	5431	1.32 µg/L	87
		570.1 -> 483.0	1089		
PFBA	2.906	212.8 -> 168.9	32090	4.99 µg/L	100
PFBS	5.400	298.7 -> 79.9	12402	1.19 µg/L	97
		298.7 -> 98.8	4874		
PFDA	8.077	512.9 -> 469.0	27773	1.22 µg/L	94
		512.9 -> 219.0	5281		
PFDODA	8.961	613.1 -> 569.0	25585	1.32 µg/L	98
		613.1 -> 319.0	3480		
PFDS	9.125	599.0 -> 79.9	4310	1.13 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2140			
PFHpA	6.432	363.1 -> 319.0	37275	1.17	µg/L	95
		363.1 -> 169.0	6278			
PFHpS	7.746	449.0 -> 79.9	7638	1.18	µg/L	97
		449.0 -> 98.9	4032			
PFHxA	5.470	313.0 -> 269.0	36373	1.23	µg/L	100
		313.0 -> 118.9	1707			
PFHxS	7.192	398.7 -> 79.9	8263	1.11	µg/L	m 99
		398.7 -> 98.9	4186			
PFNA	7.595	463.0 -> 419.0	23263	1.18	µg/L	100
		463.0 -> 219.0	4812			
PFNS	8.706	548.8 -> 79.9	6549	1.13	µg/L	98
		548.8 -> 98.9	3506			
PFOA	7.076	413.0 -> 369.0	47697	1.22	µg/L	97
		413.0 -> 169.0	8907			
PFOS	8.240	498.9 -> 79.9	6668	1.15	µg/L	m 84
		498.9 -> 98.8	3482			
PFPeA	4.273	263.0 -> 219.0	45980	2.48	µg/L	100
PFPeS	6.484	349.1 -> 79.9	8912	1.15	µg/L	99
		349.1 -> 98.9	4281			
PFTeDA	9.690	713.1 -> 669.0	22648	1.26	µg/L	99
		713.1 -> 168.9	1703			
PFTrDA	9.358	663.0 -> 619.0	30131	1.40	µg/L	96
		663.0 -> 168.9	2293			
PFUnDA	8.531	563.1 -> 519.0	23133	1.17	µg/L	98
		563.1 -> 269.1	3831			
11CI-PF3OUdS	9.398	630.9 -> 450.9	34449	2.34	µg/L	96
		632.9 -> 452.9	11770			
9CI-PF3ONS	8.569	530.8 -> 351.0	56487	2.43	µg/L	99
		532.8 -> 353.0	16982			
ADONA	6.681	376.9 -> 250.9	155433	2.40	µg/L	97
		376.9 -> 84.8	42362			
HFPO-DA	5.846	284.9 -> 168.9	10320	2.54	µg/L	94
		284.9 -> 184.9	1174			
3:3FTCA	3.784	241.0 -> 177.0	7118	6.15	µg/L	99
		241.0 -> 117.0	920			
5:3FTCA	6.160	341.0 -> 237.1	150845	31.49	µg/L	92
		341.0 -> 217.0	111042			
7:3FTCA	7.573	441.0 -> 316.9	68001	31.25	µg/L	99
		441.0 -> 336.9	146321			
EtFOSA	10.962	526.0 -> 219.0	12429	2.50	µg/L	93
		526.0 -> 169.0	16155			
EtFOSE	10.907	630.0 -> 58.9	34082	6.09	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	11103	2.64	µg/L	100
		511.9 -> 169.0	15014			
MeFOSE	10.661	616.1 -> 58.9	29147	6.07	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	2475	1.26	µg/L	94
		699.1 -> 98.8	1298			
NFDHA	5.350	295.0 -> 201.0	8125	2.53	µg/L	99
		295.0 -> 84.9	1939			
PFMBA	4.687	279.0 -> 85.1	31615	2.55	µg/L	100
PFMPA	3.438	229.0 -> 84.9	22901	2.47	µg/L	100
PFEESA	5.949	314.8 -> 134.9	82814	2.22	µg/L	99
		314.8 -> 82.9	2883			

= Qualifier out of range, m = manually integrated, + = Area summed

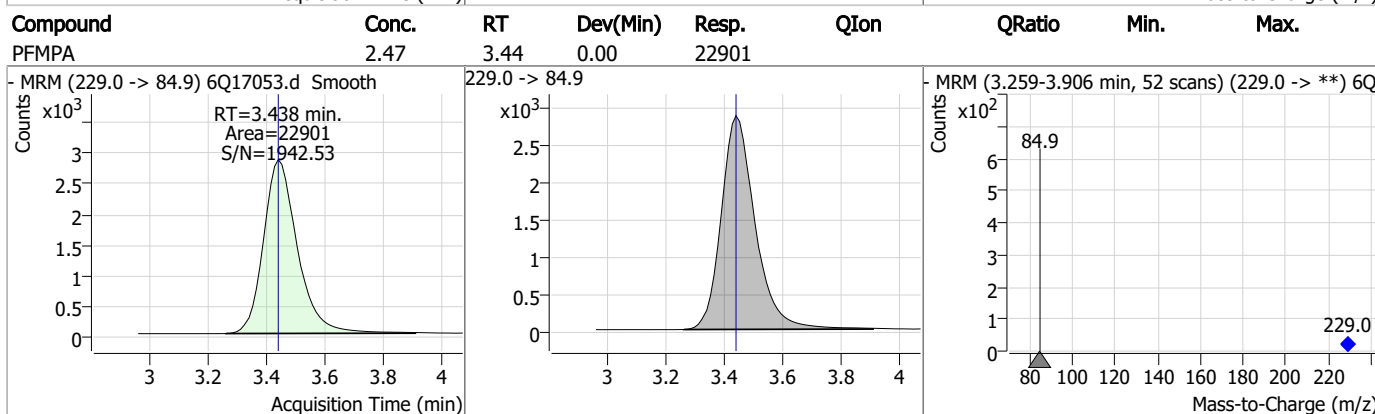
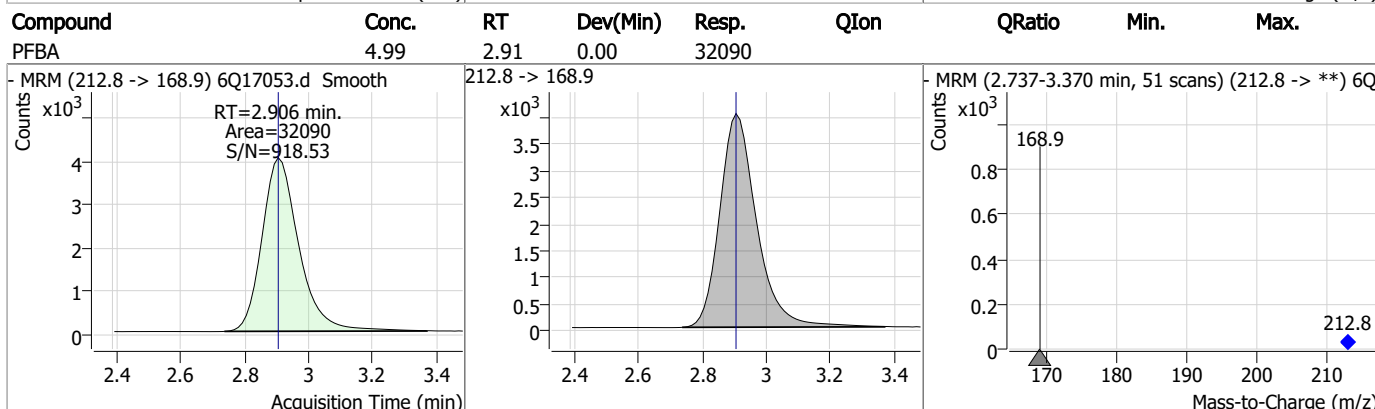
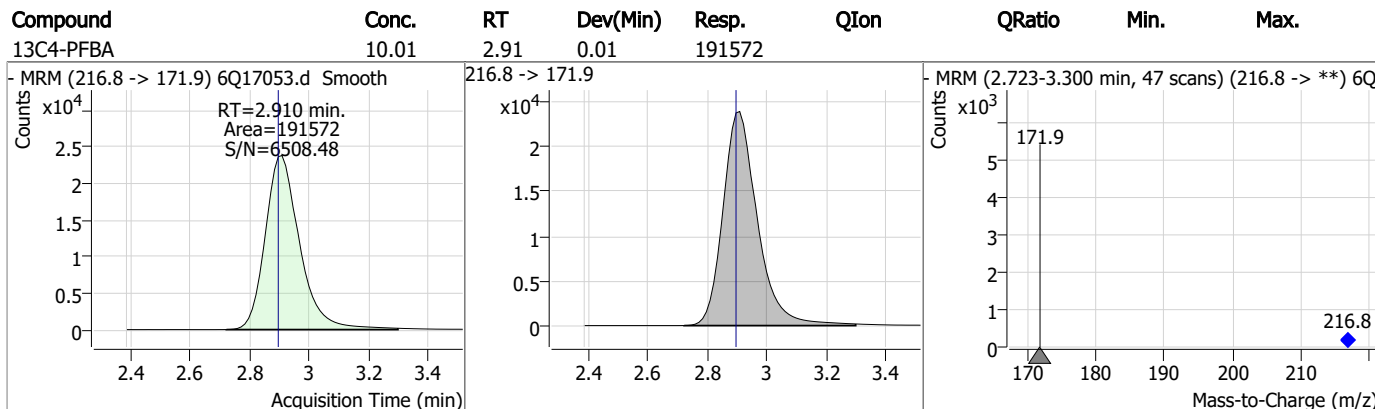
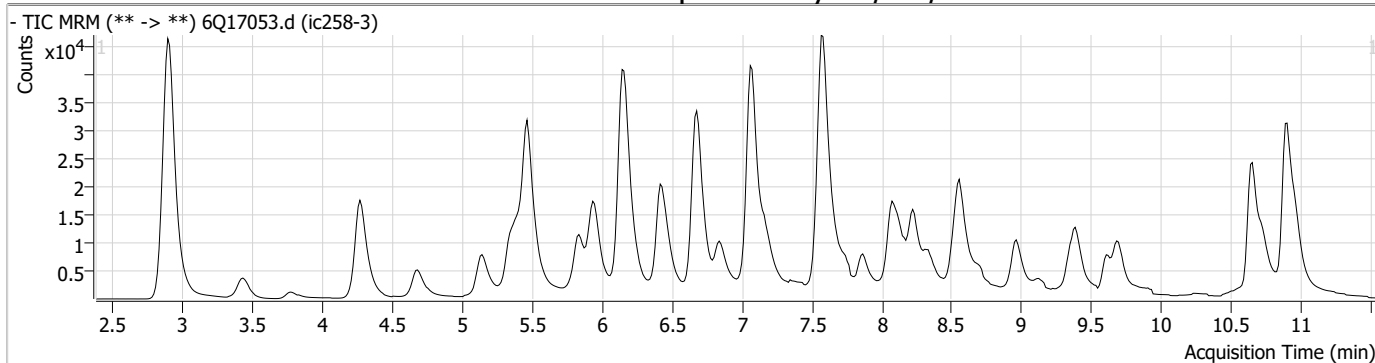
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.4

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Perfluorinated Compounds by LC/MS/MS

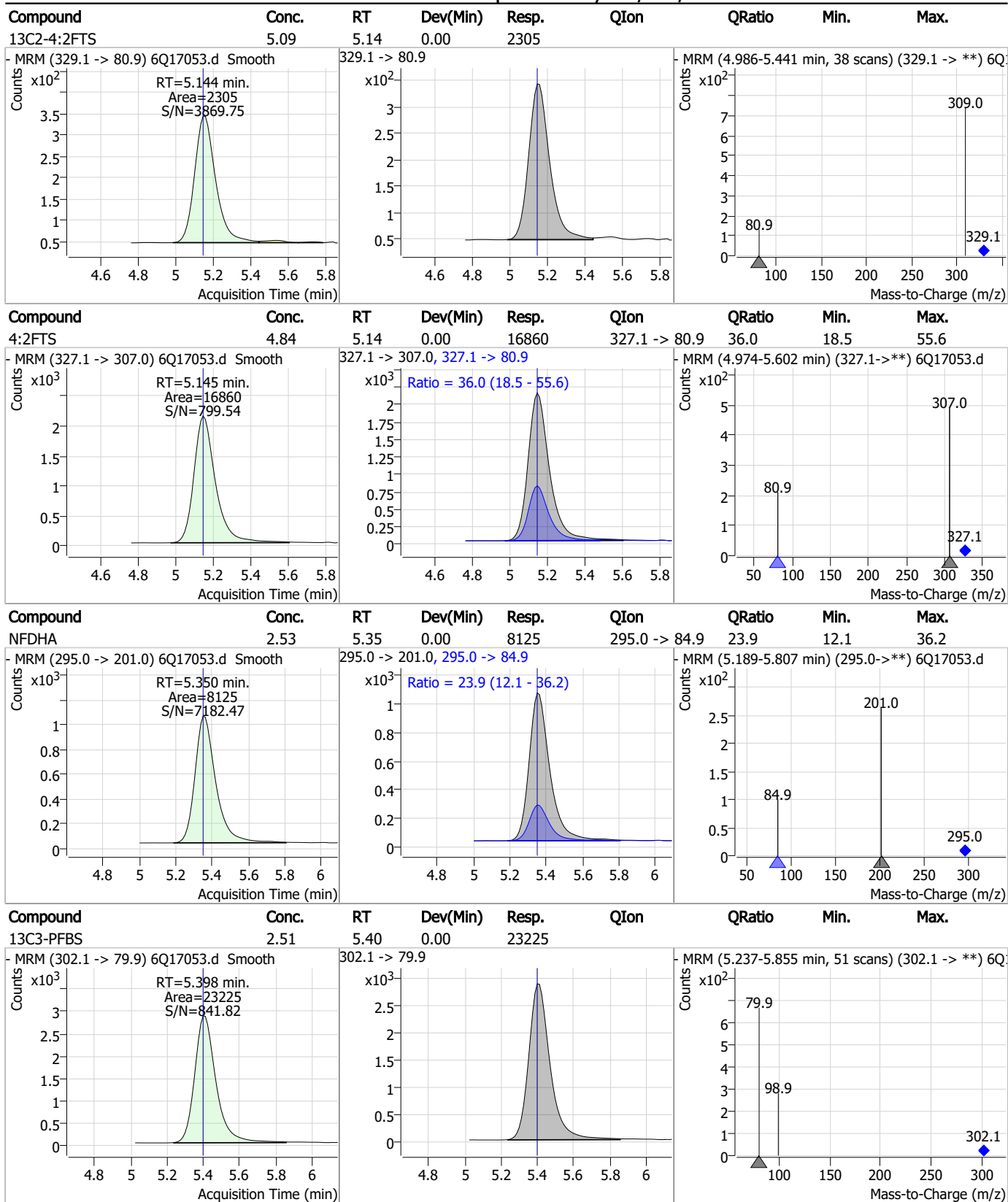


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	6.15	3.78	0.00	7118	241.0 -> 117.0	12.9	6.7	20.0
13C5-PFPeA	5.22	4.27	0.00	67974				
PFPeA	2.48	4.27	0.00	45980				
PFMBA	2.55	4.69	0.00	31615				

7.7.4
7

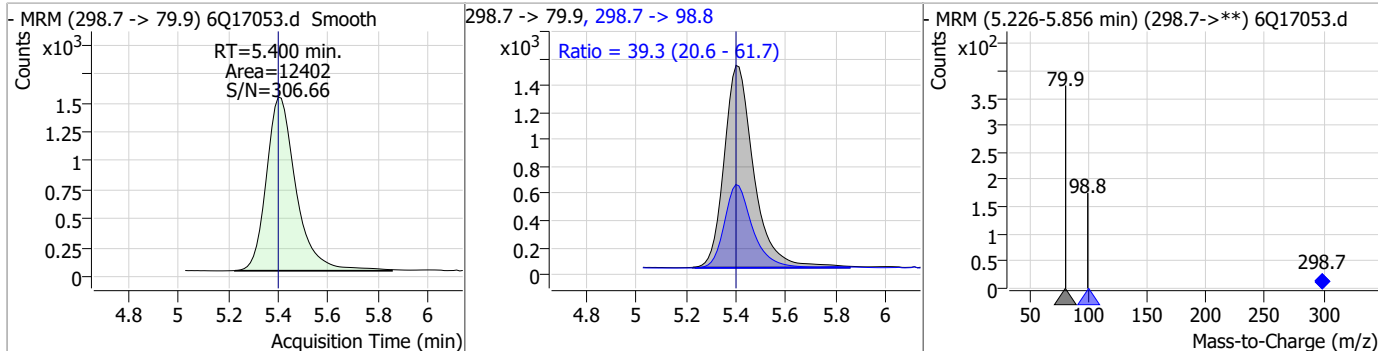
Perfluorinated Compounds by LC/MS/MS



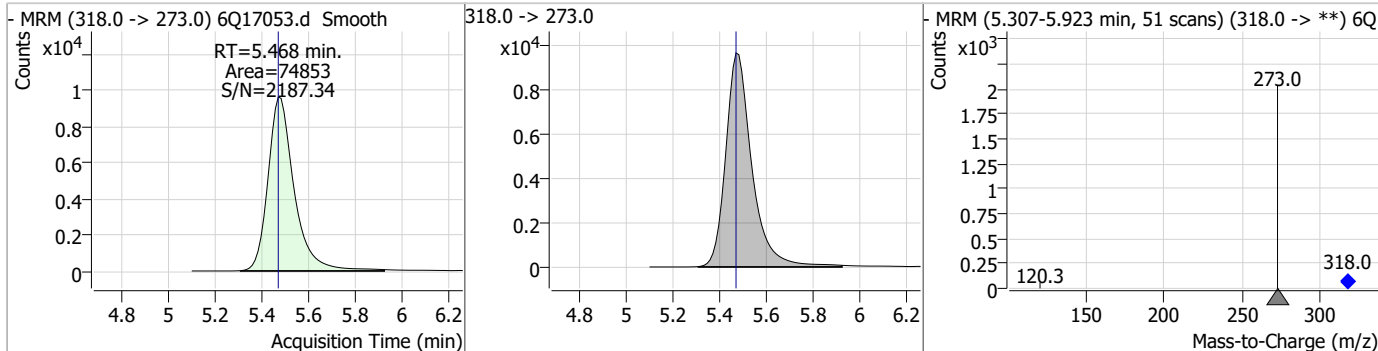
7.7.4
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Perfluorinated Compounds by LC/MS/MS

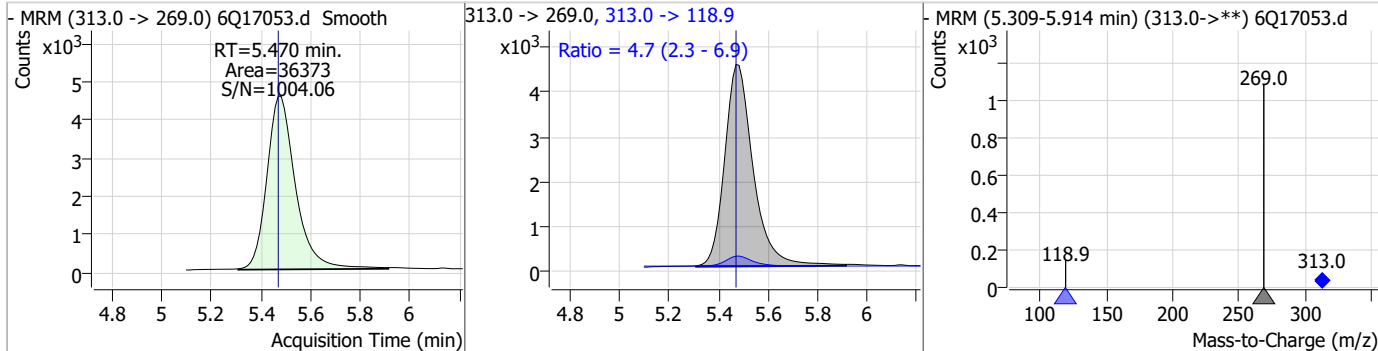
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.19	5.40	0.00	12402	298.7 -> 98.8	39.3	20.6	61.7



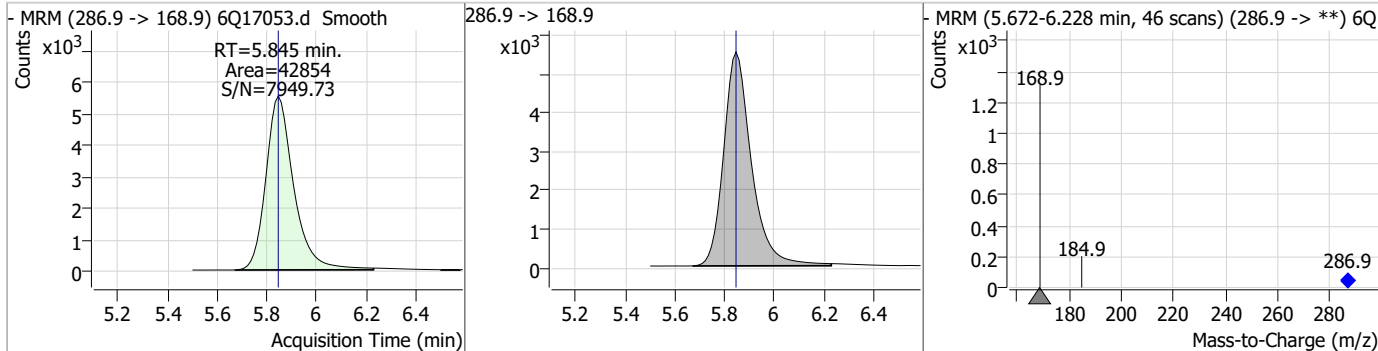
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.66	5.47	0.00	74853				



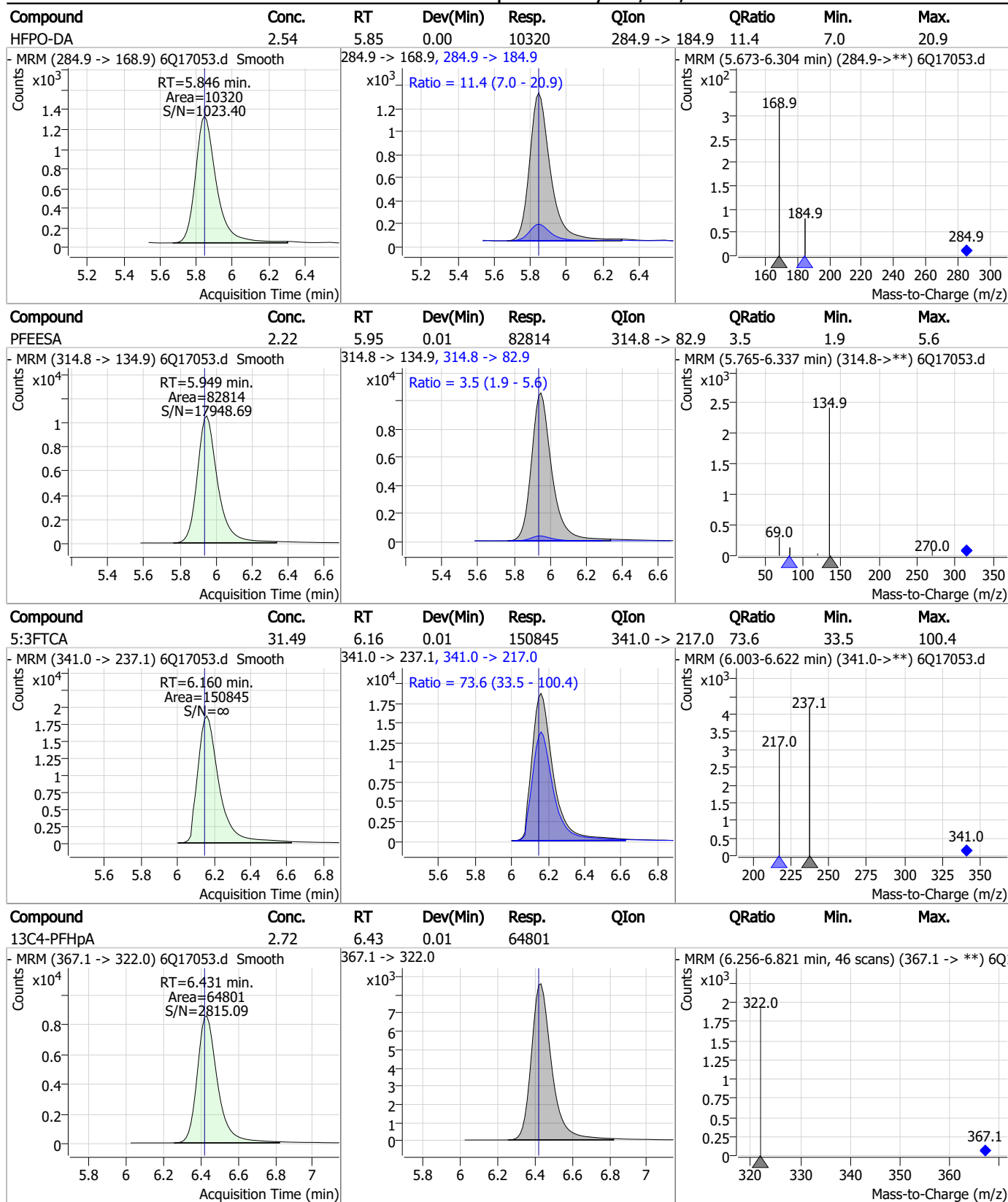
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.23	5.47	0.00	36373	313.0 -> 118.9	4.7	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.39	5.85	0.00	42854				



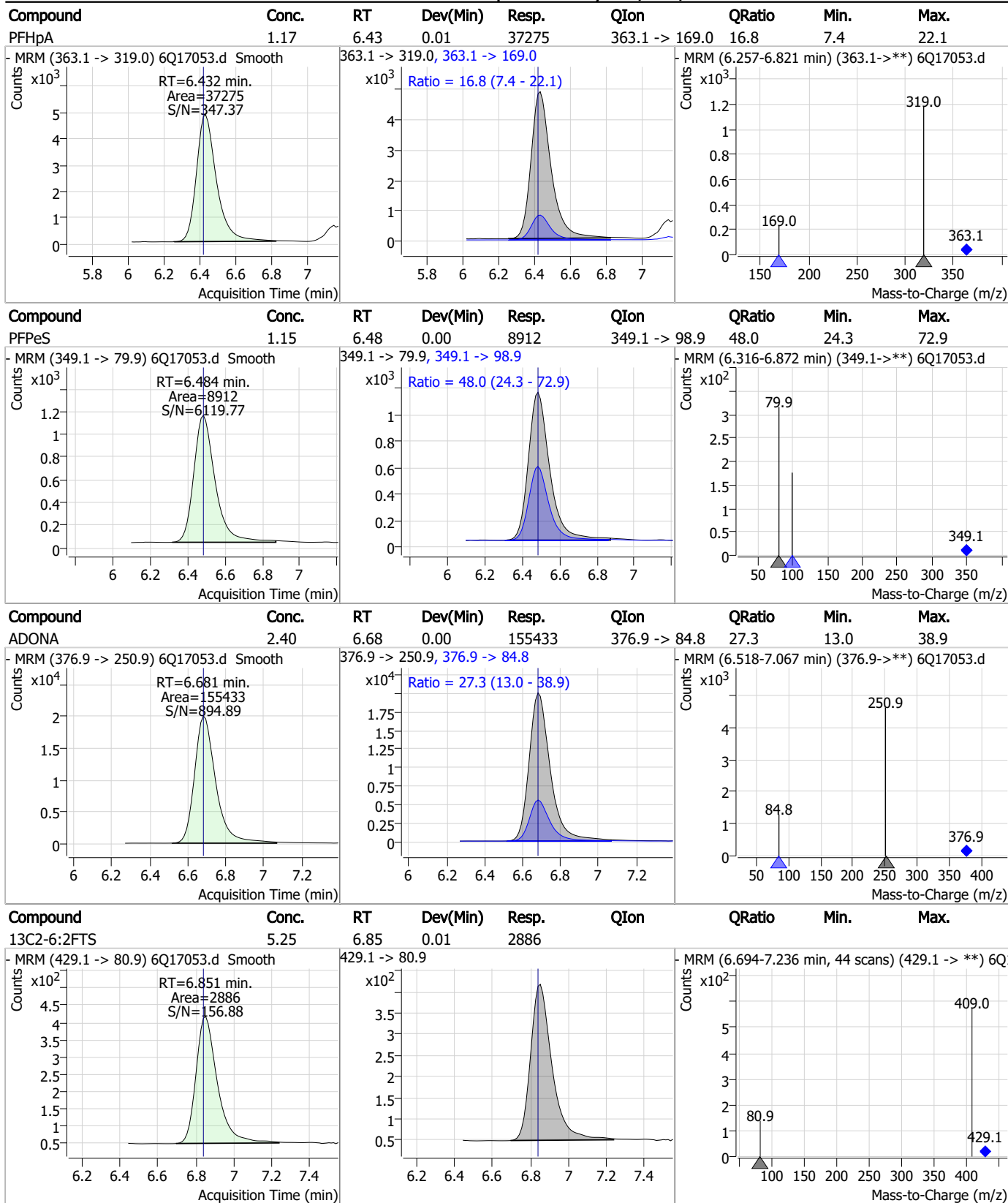
Perfluorinated Compounds by LC/MS/MS



7.7.4

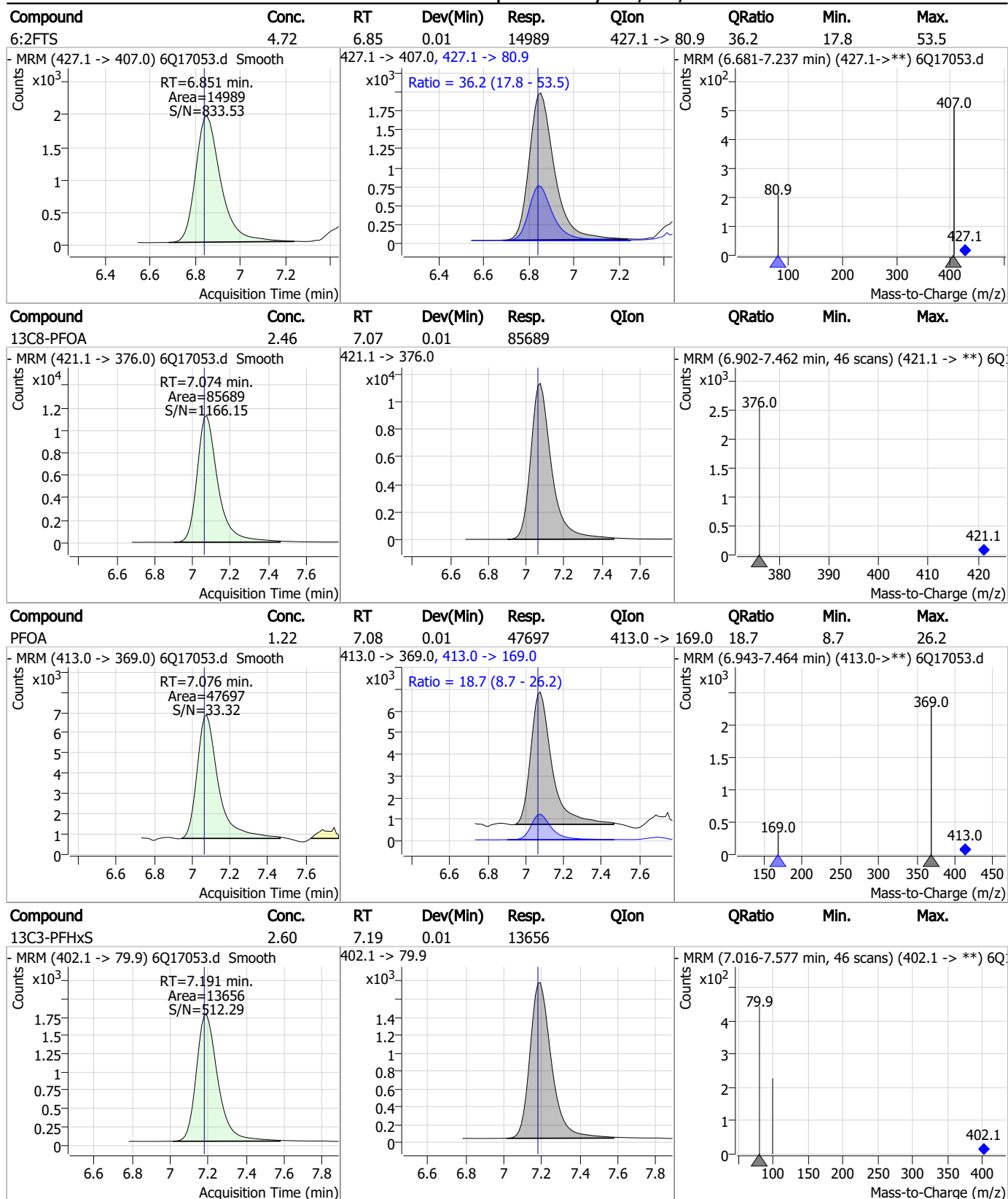
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Perfluorinated Compounds by LC/MS/MS



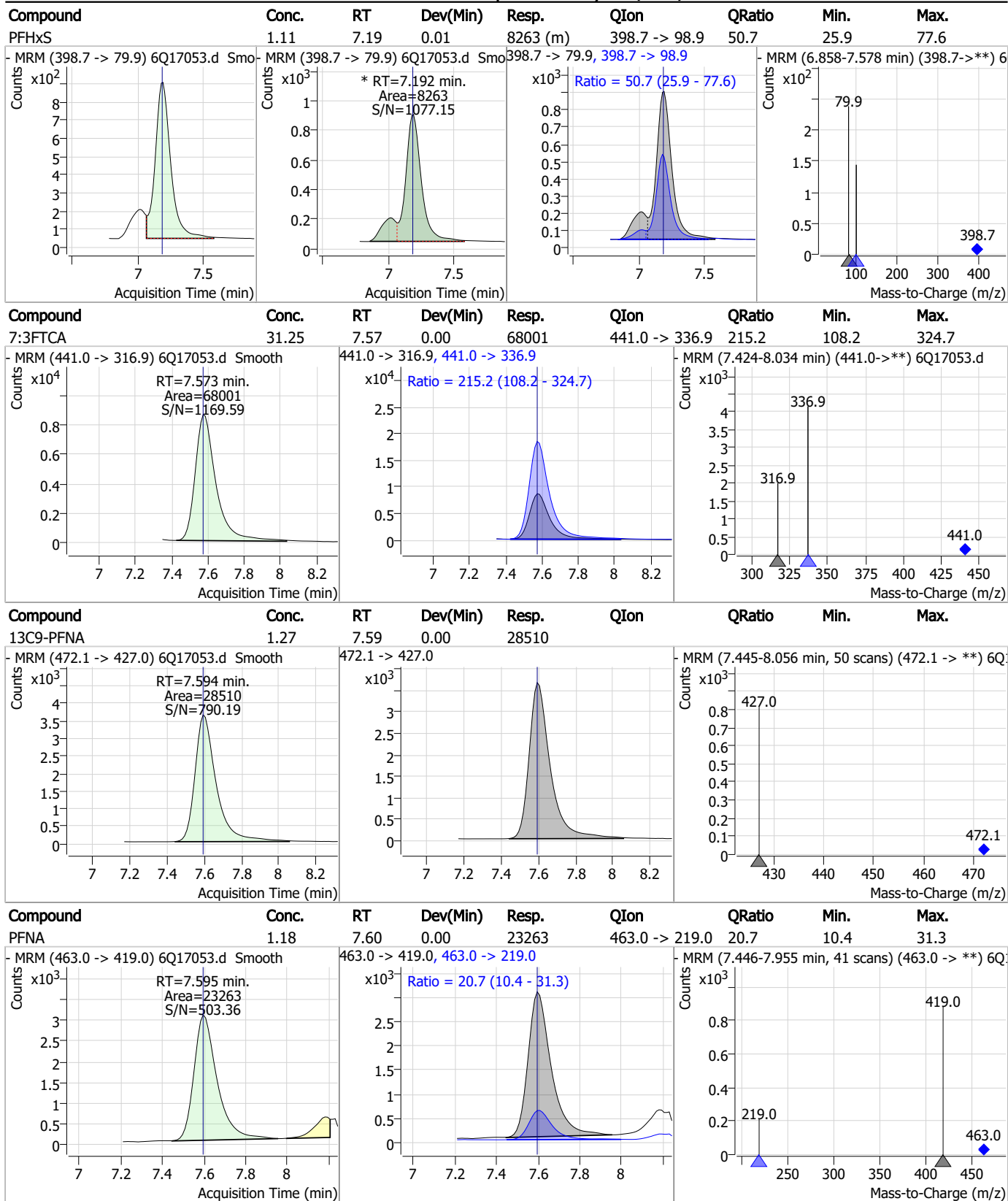
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Perfluorinated Compounds by LC/MS/MS



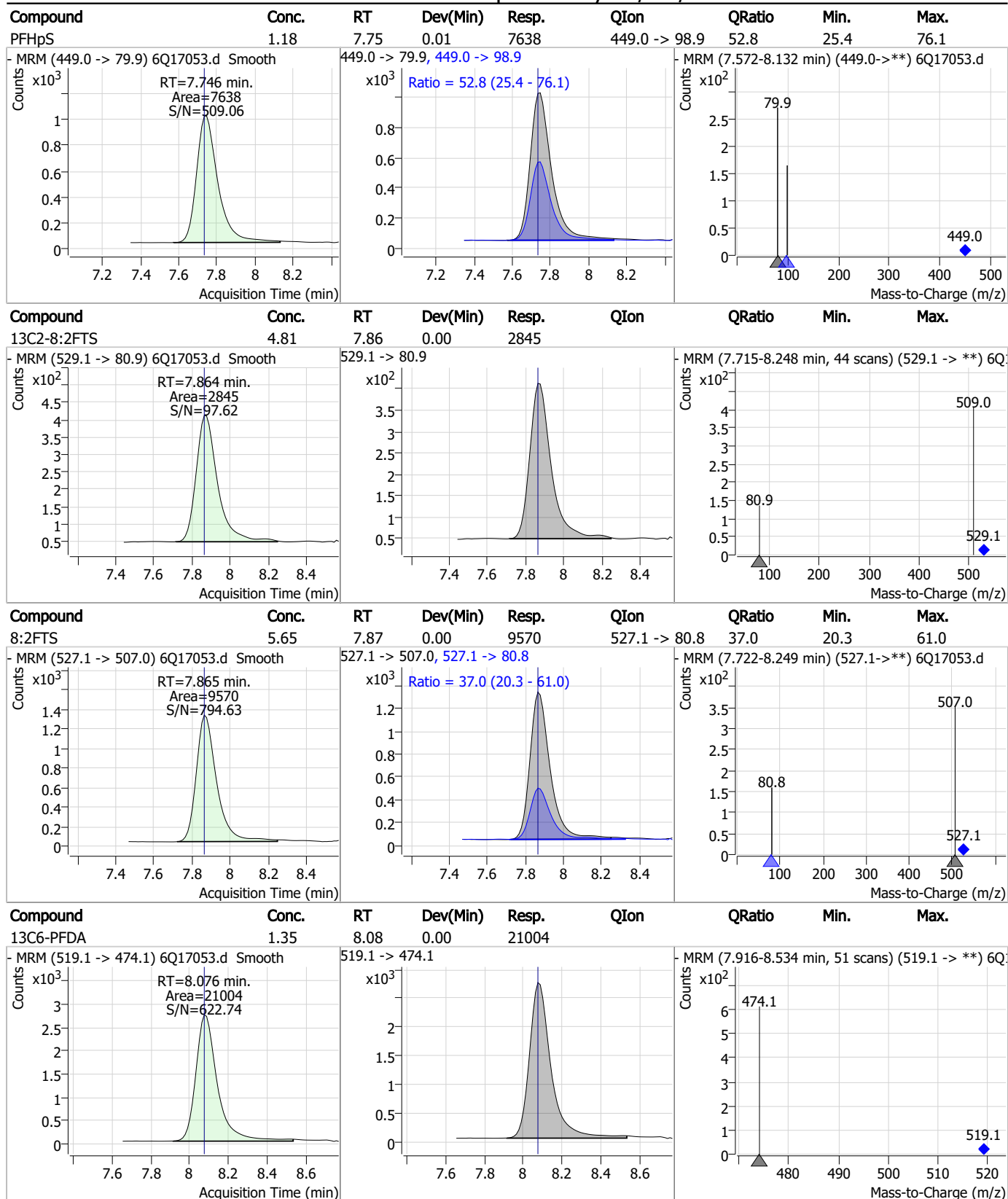
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Perfluorinated Compounds by LC/MS/MS



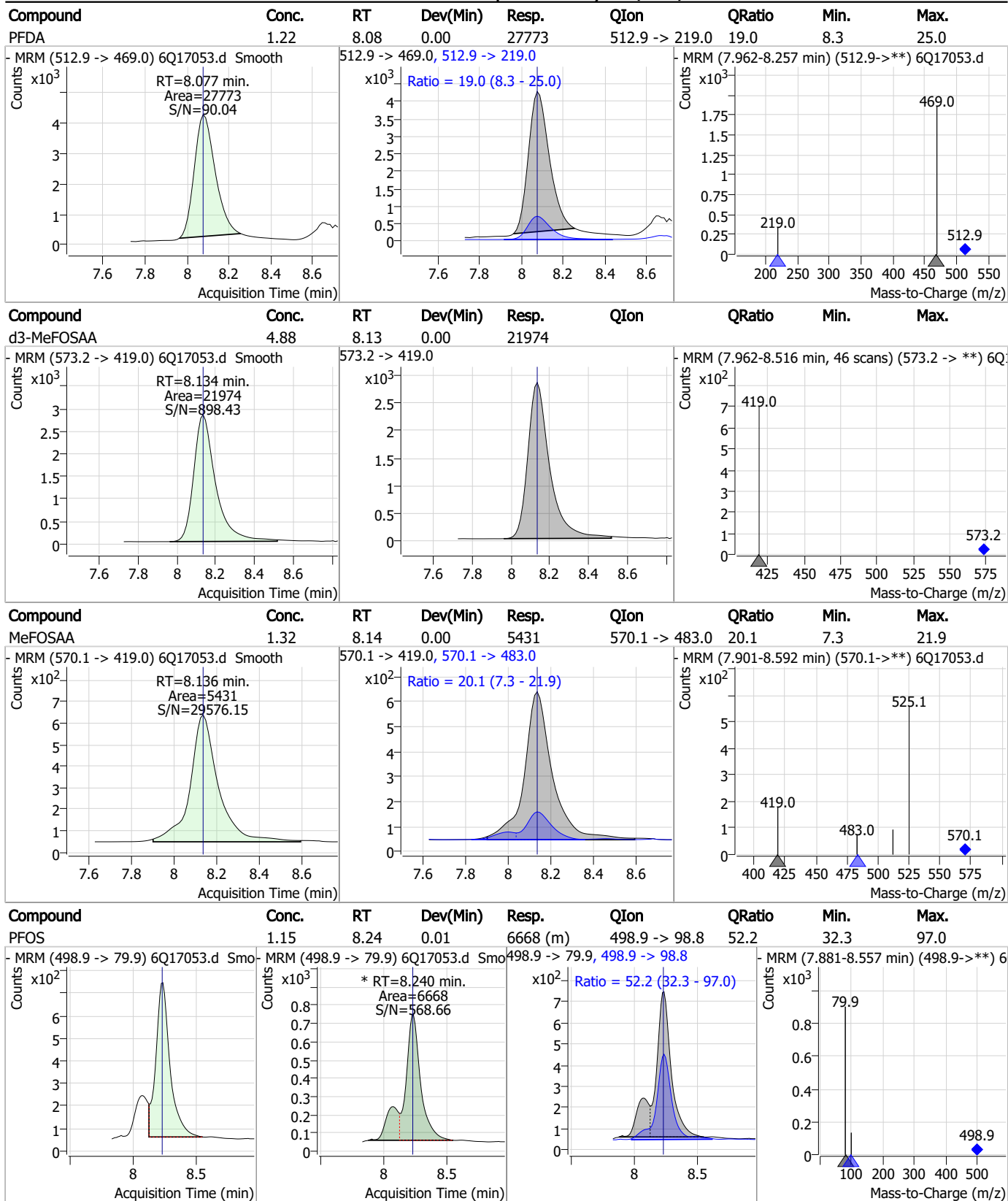
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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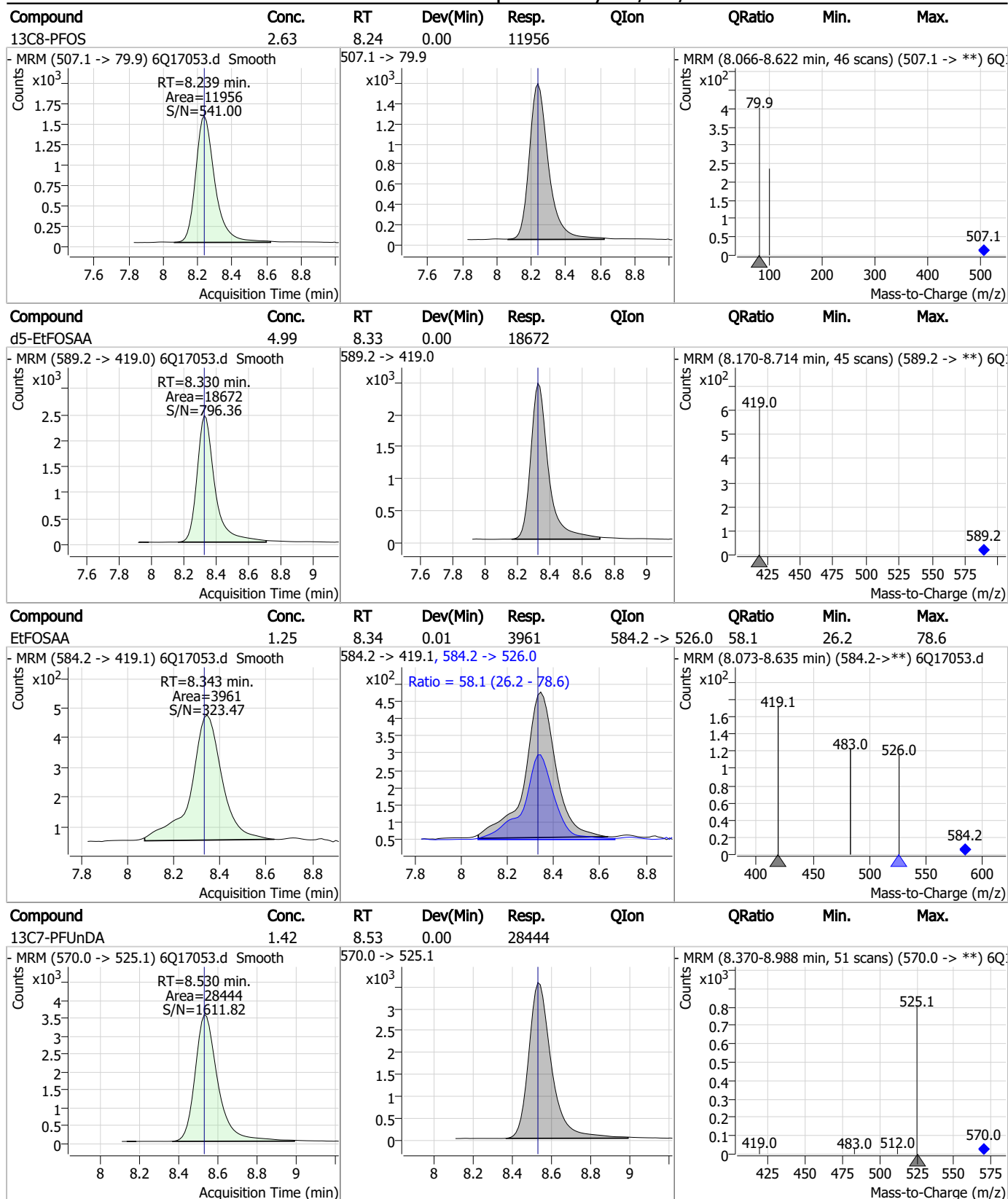
Perfluorinated Compounds by LC/MS/MS



7.7.4

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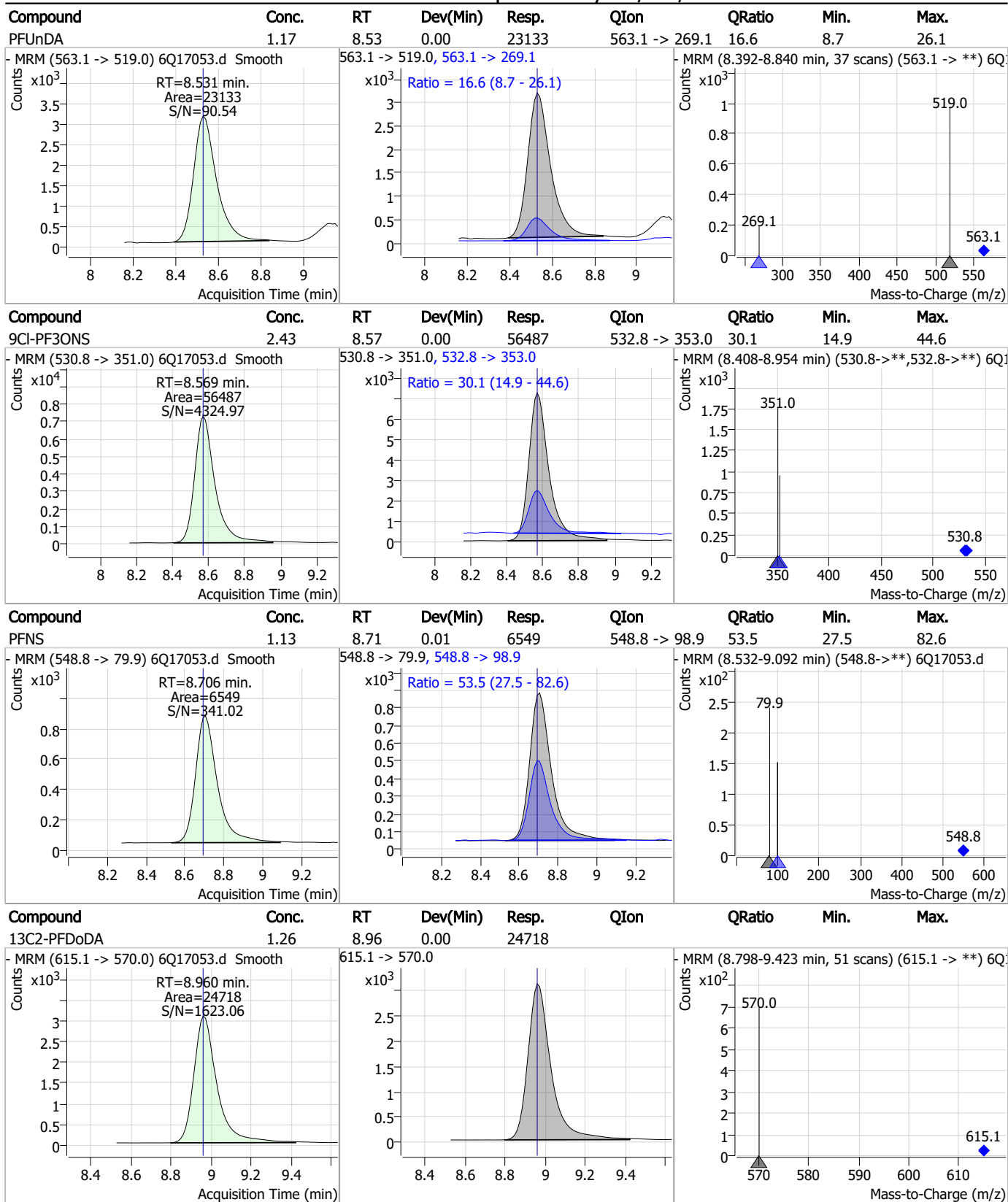
Perfluorinated Compounds by LC/MS/MS



7.7.4

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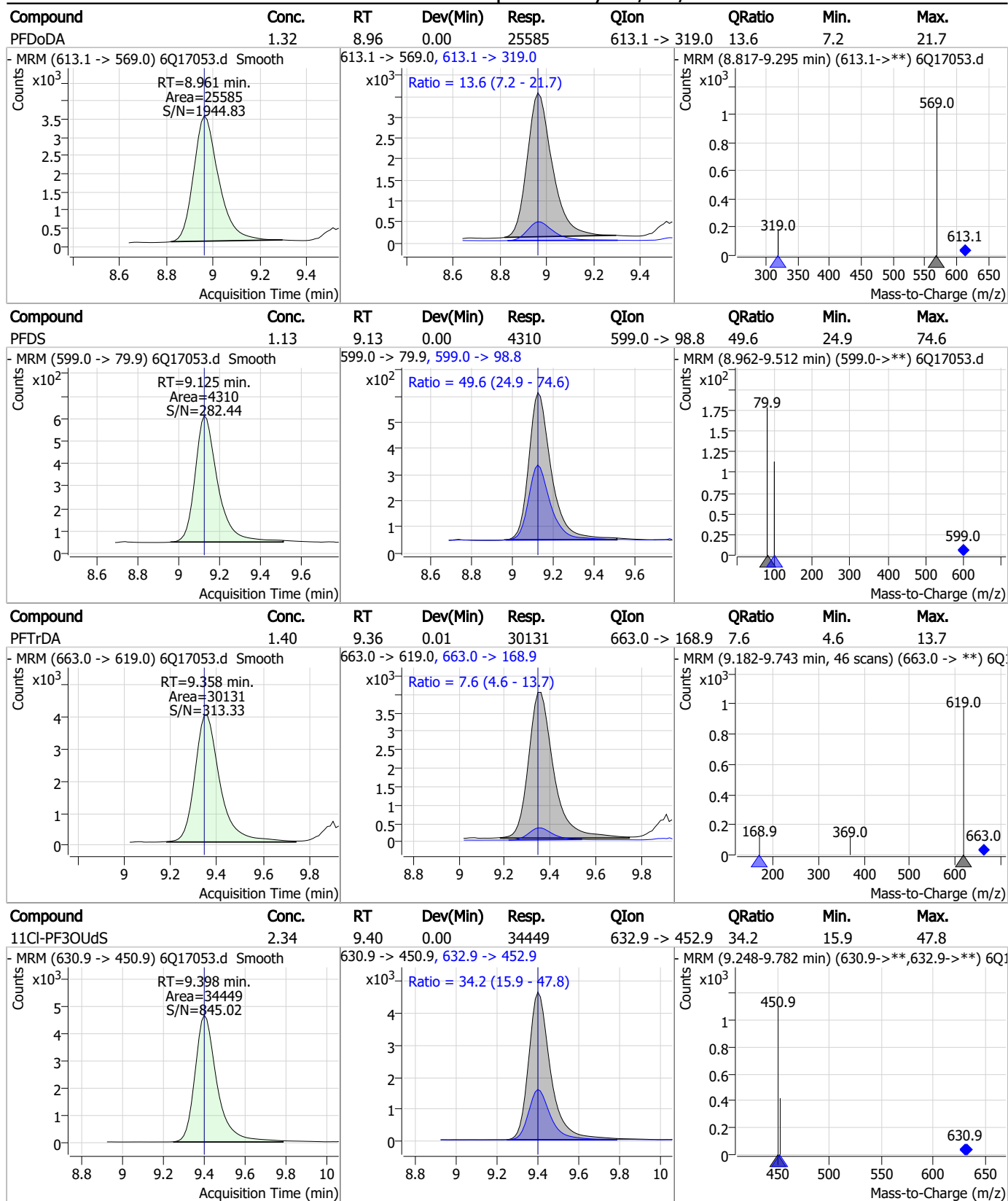
Perfluorinated Compounds by LC/MS/MS



7.7.4

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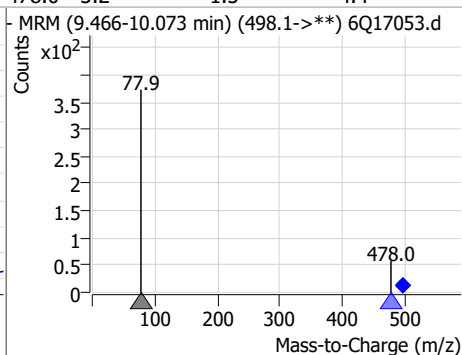
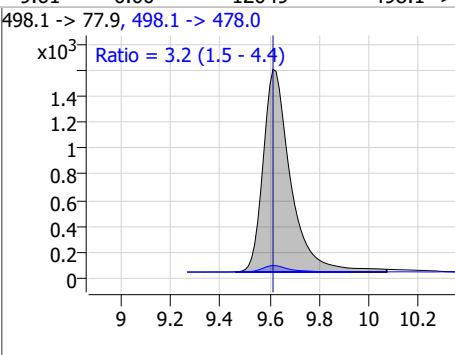
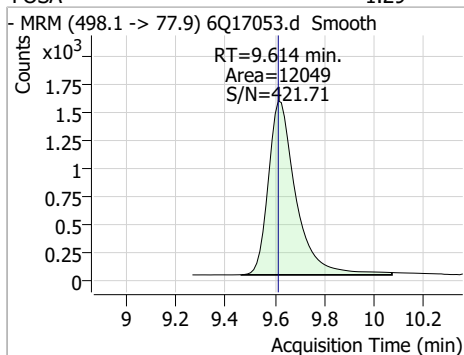
Perfluorinated Compounds by LC/MS/MS



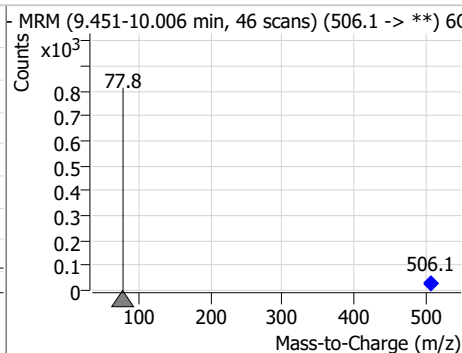
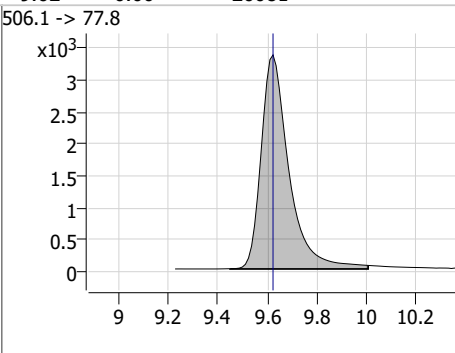
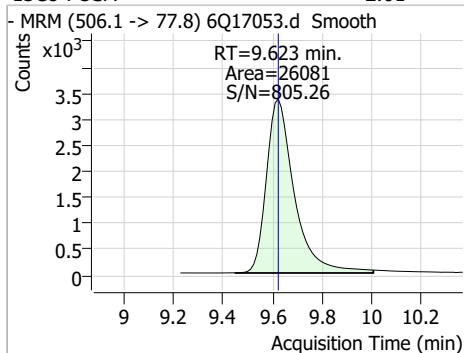
7.7.4
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Perfluorinated Compounds by LC/MS/MS

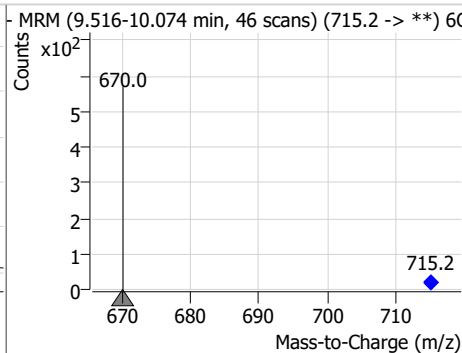
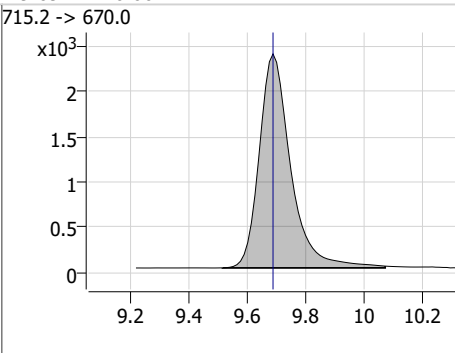
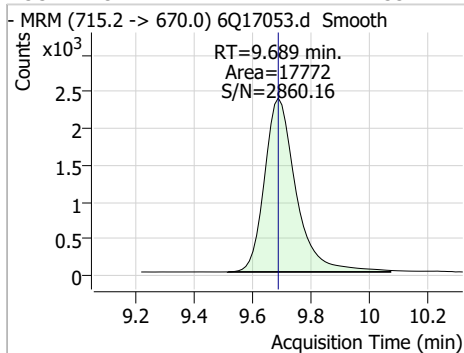
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.29	9.61	0.00	12049	498.1 -> 478.0	3.2	1.5	4.4



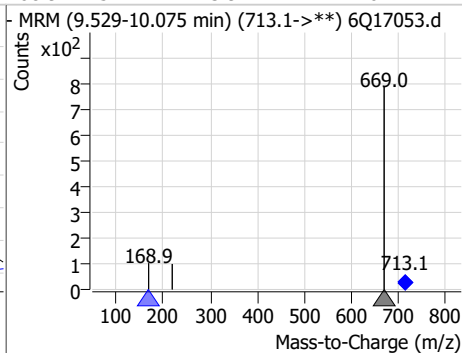
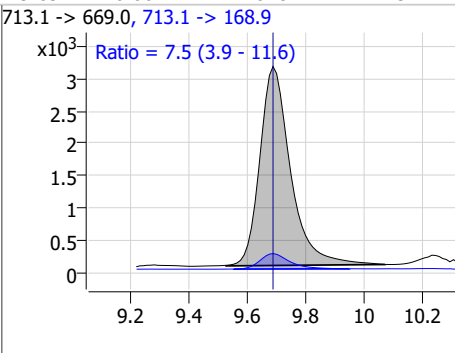
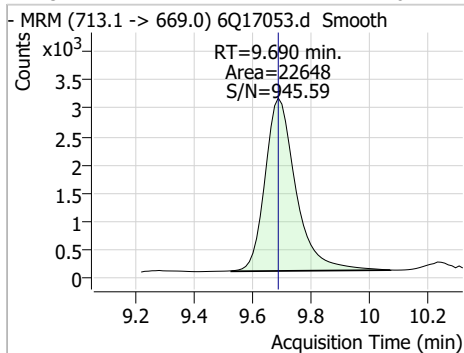
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.61	9.62	0.00	26081				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	9.69	0.00	17772				

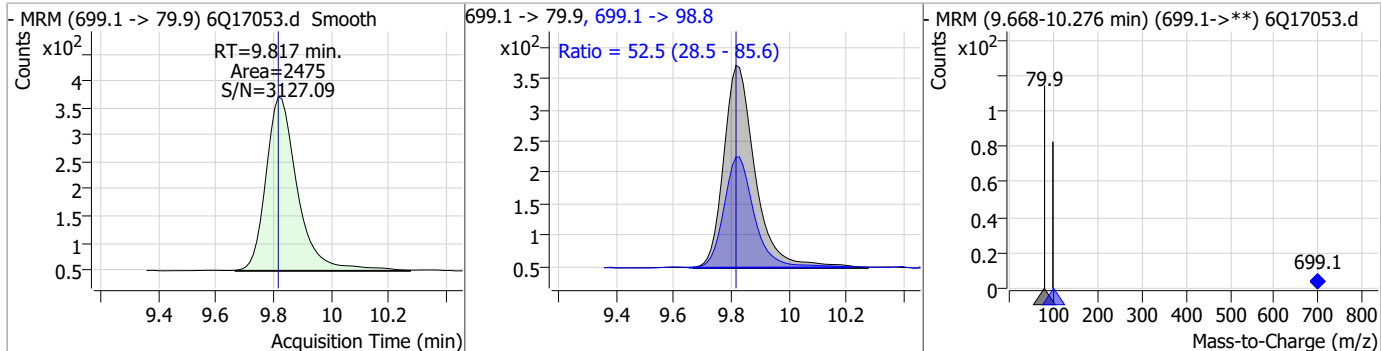


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.26	9.69	0.00	22648	713.1 -> 168.9	7.5	3.9	11.6

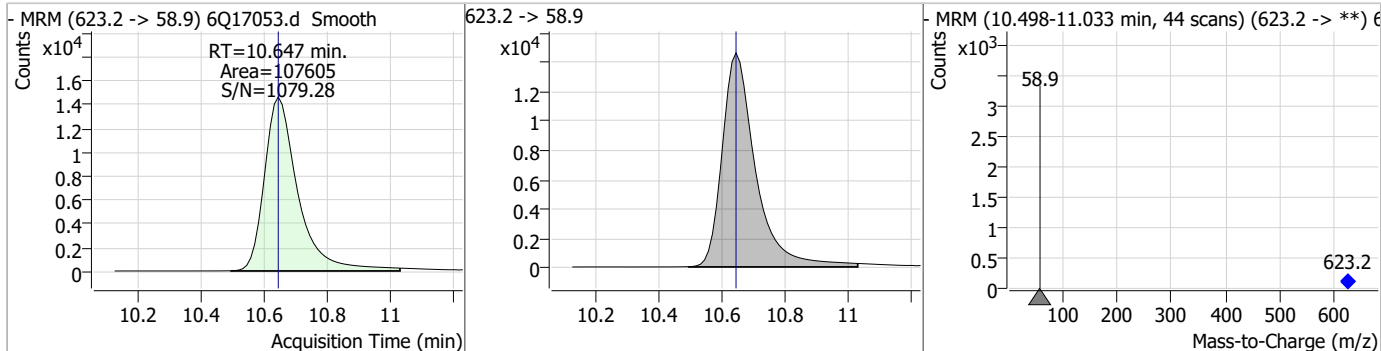


Perfluorinated Compounds by LC/MS/MS

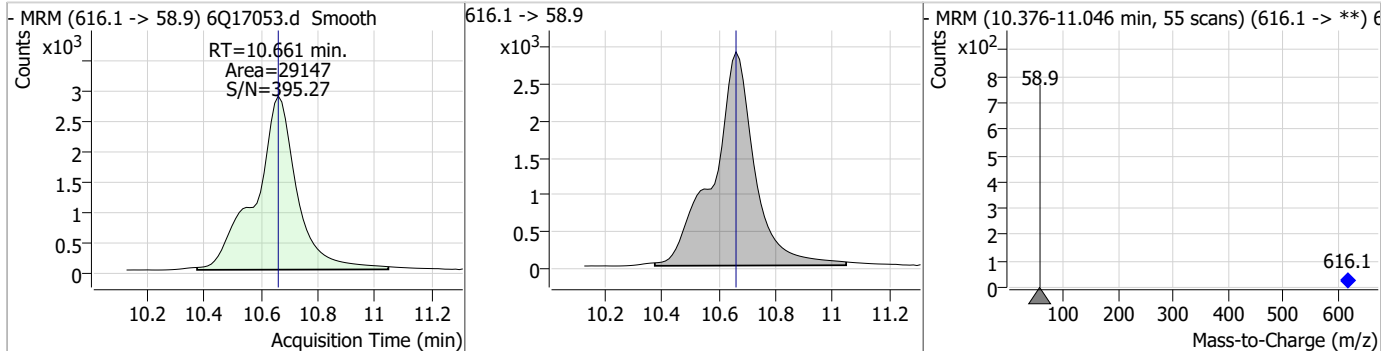
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	1.26	9.82	0.00	2475	699.1 -> 98.8	52.5	28.5	85.6



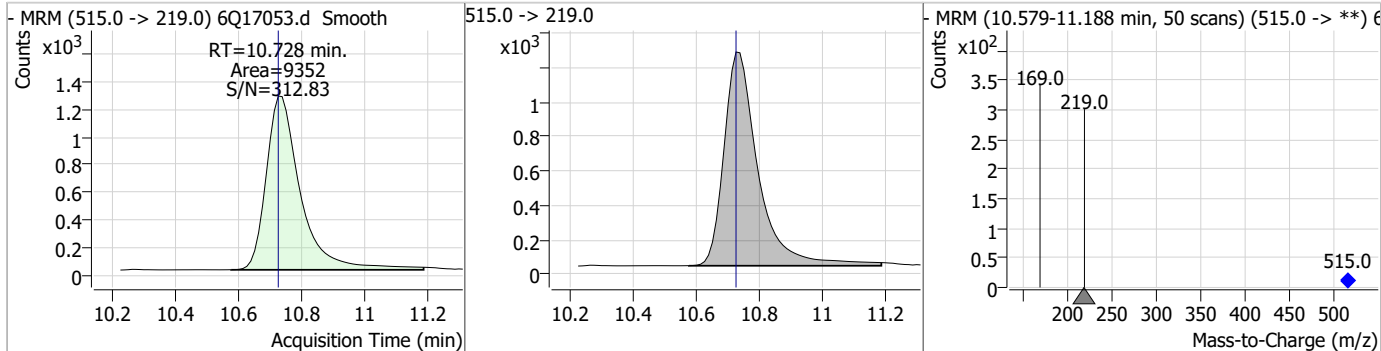
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.13	10.65	0.00	107605				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	6.07	10.66	0.00	29147				

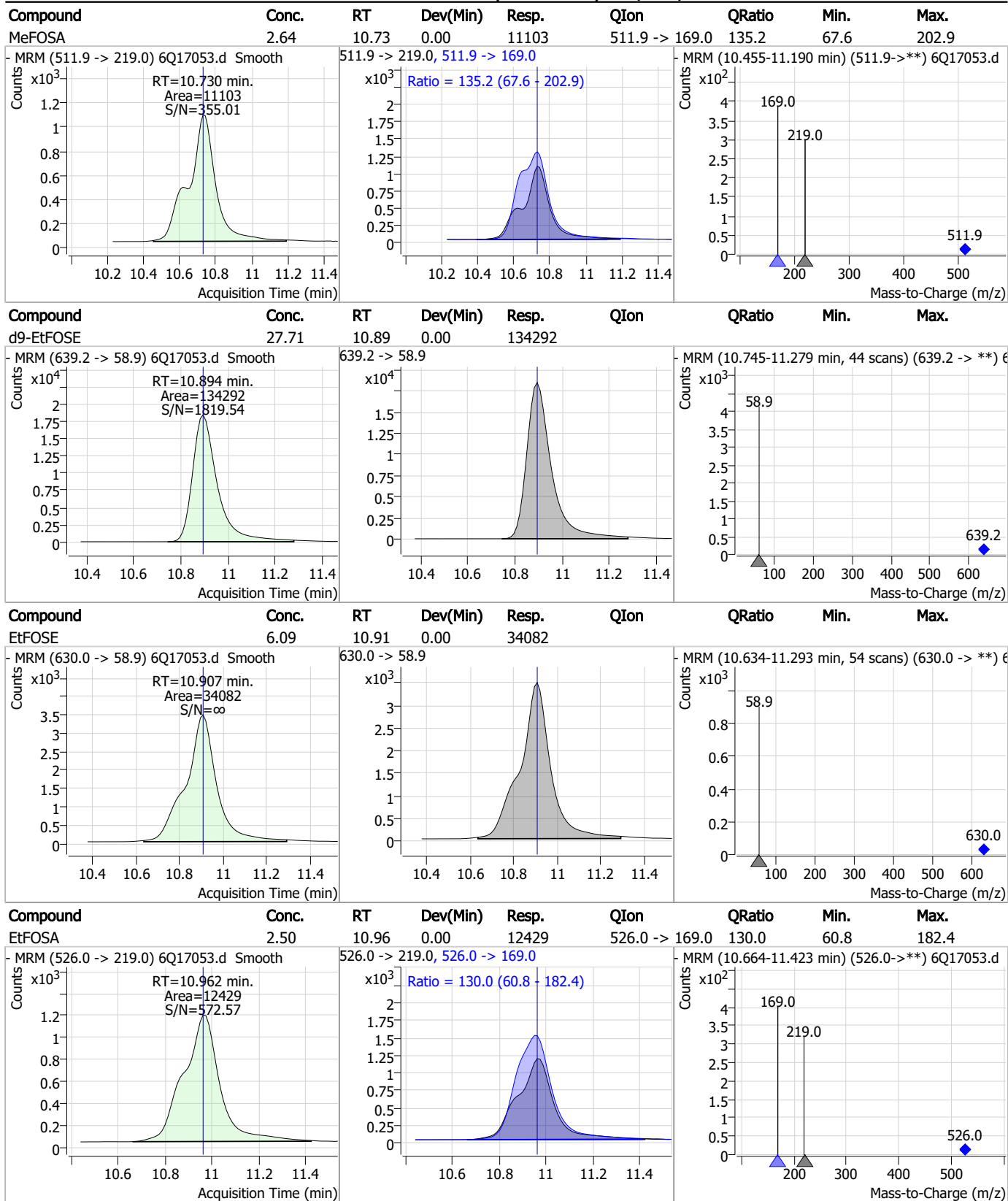


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.48	10.73	0.00	9352				



7.7.4
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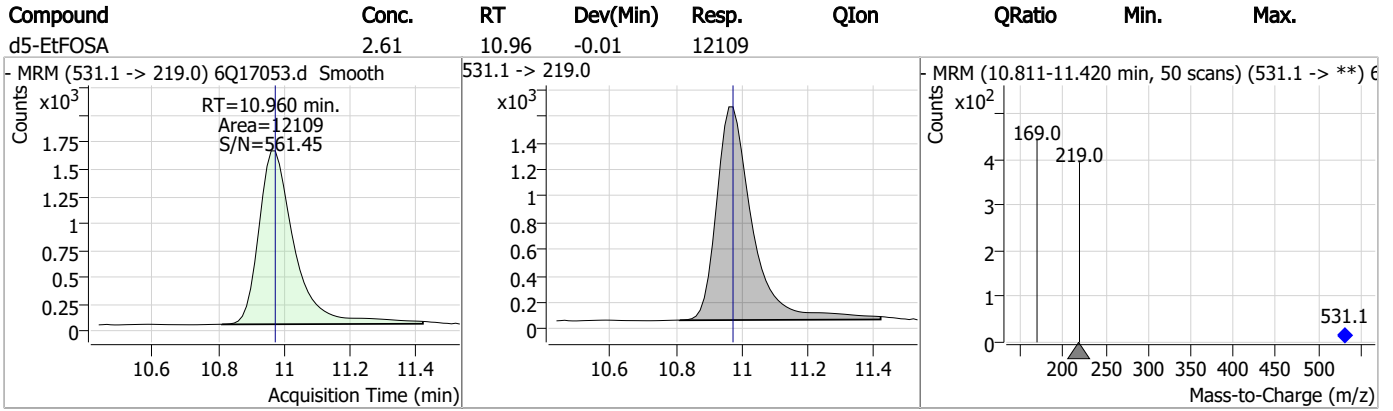
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS



7.7.4

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Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17053.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:19 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17054.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:33:42 PM
 Sample Name : icc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	184703	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	64257	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	68171	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	59630	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	86144	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27345	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20912	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25662	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24665	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16522	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24136	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22860	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12221	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10632	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2112	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2758	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2915	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22010	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42432	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18224	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	96650	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116881	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11419	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	9200	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14764	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	79420	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9502	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85814	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24059	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27794	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56303	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2112	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2758	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2915	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24665	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16522	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22860	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12221	2.42 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C4-PFBA	2.897	216.8 -> 171.9	184703	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	59630	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	68171	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.270	268.3 -> 223.0	64257	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.076	519.1 -> 474.1	20912	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25662	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.623	506.1 -> 77.8	24136	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOA	7.062	421.1 -> 376.0	86144	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-PFOS	8.239	507.1 -> 79.9	10632	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C9-PFNA	7.594	472.1 -> 427.0	27345	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22010	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42432	10.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d3-MeFOSA	10.728	515.0 -> 219.0	9200	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18224	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d7-MeFOSE	10.647	623.2 -> 58.9	96650	24.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d9-EtFOSE	10.894	639.2 -> 58.9	116881	24.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSA	10.973	531.1 -> 219.0	11419	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	31634	9.90 µg/L	99
		327.1 -> 80.9	11565		
6:2FTS	6.839	427.1 -> 407.0	29224	9.63 µg/L	96
		427.1 -> 80.9	9755		
8:2FTS	7.865	527.1 -> 507.0	15642	9.02 µg/L	97
		527.1 -> 80.8	6632		
EtFOSAA	8.331	584.2 -> 419.1	7450	2.41 µg/L	99
		584.2 -> 526.0	3971		
FOSA	9.614	498.1 -> 77.9	22474	2.60 µg/L	100
		498.1 -> 478.0	660		
MeFOSAA	8.136	570.1 -> 419.0	10904	2.64 µg/L	93
		570.1 -> 483.0	1913		
PFBA	2.906	212.8 -> 168.9	61789	9.97 µg/L	100
PFBS	5.400	298.7 -> 79.9	22126	2.16 µg/L	97
		298.7 -> 98.8	8757		
PFDA	8.077	512.9 -> 469.0	56192	2.47 µg/L	99
		512.9 -> 219.0	9652		
PFDODA	8.961	613.1 -> 569.0	48944	2.53 µg/L	98
		613.1 -> 319.0	6726		
PFDS	9.125	599.0 -> 79.9	9122	2.69 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4569			
PFHpA	6.420	363.1 -> 319.0	74210	2.52	µg/L	97
		363.1 -> 169.0	11979			
PFHpS	7.734	449.0 -> 79.9	14210	2.47	µg/L	97
		449.0 -> 98.9	6874			
PFHxA	5.470	313.0 -> 269.0	69863	2.59	µg/L	100
		313.0 -> 118.9	3277			
PFHxS	7.180	398.7 -> 79.9	15681	2.35	µg/L	m 98
		398.7 -> 98.9	7867			
PFNA	7.595	463.0 -> 419.0	48450	2.56	µg/L	98
		463.0 -> 219.0	9629			
PFNS	8.694	548.8 -> 79.9	13122	2.56	µg/L	96
		548.8 -> 98.9	6808			
PFOA	7.063	413.0 -> 369.0	92206	2.28	µg/L	m 99
		413.0 -> 169.0	16505			
PFOS	8.228	498.9 -> 79.9	12592	2.45	µg/L	m 82
		498.9 -> 98.8	6356			
PFPeA	4.273	263.0 -> 219.0	89627	5.12	µg/L	100
PFPeS	6.484	349.1 -> 79.9	17271	2.48	µg/L	95
		349.1 -> 98.9	7790			
PFTeDA	9.690	713.1 -> 669.0	44428	2.66	µg/L	100
		713.1 -> 168.9	3381			
PFTrDA	9.345	663.0 -> 619.0	56915	2.66	µg/L	99
		663.0 -> 168.9	4995			
PFUnDA	8.531	563.1 -> 519.0	45629	2.56	µg/L	98
		563.1 -> 269.1	7616			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	62380	4.28	µg/L	96
		632.9 -> 452.9	21239			
9Cl-PF3ONS	8.569	530.8 -> 351.0	99628	4.33	µg/L	92
		532.8 -> 353.0	34108			
ADONA	6.681	376.9 -> 250.9	300603	4.69	µg/L	98
		376.9 -> 84.8	80229			
HFPO-DA	5.846	284.9 -> 168.9	19987	4.97	µg/L	94
		284.9 -> 184.9	2276			
3:3FTCA	3.784	241.0 -> 177.0	13690	12.51	µg/L	100
		241.0 -> 117.0	1805			
5:3FTCA	6.147	341.0 -> 237.1	275832	63.24	µg/L	90
		341.0 -> 217.0	207449			
7:3FTCA	7.573	441.0 -> 316.9	127781	64.48	µg/L	98
		441.0 -> 336.9	271844			
EtFOSA	10.962	526.0 -> 219.0	23501	5.01	µg/L	96
		526.0 -> 169.0	27543			
EtFOSE	10.907	630.0 -> 58.9	63011	12.95	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	20684	5.00	µg/L	98
		511.9 -> 169.0	27591			
MeFOSE	10.661	616.1 -> 58.9	55974	12.99	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	4426	2.53	µg/L	98
		699.1 -> 98.8	2609			
NFDHA	5.350	295.0 -> 201.0	15515	5.31	µg/L	96
		295.0 -> 84.9	4053			
PFMBA	4.687	279.0 -> 85.1	58229	4.96	µg/L	100
PFMPA	3.438	229.0 -> 84.9	44504	5.08	µg/L	100
PFEESA	5.937	314.8 -> 134.9	154629	4.55	µg/L	99
		314.8 -> 82.9	5261			

= Qualifier out of range, m = manually integrated, + = Area summed

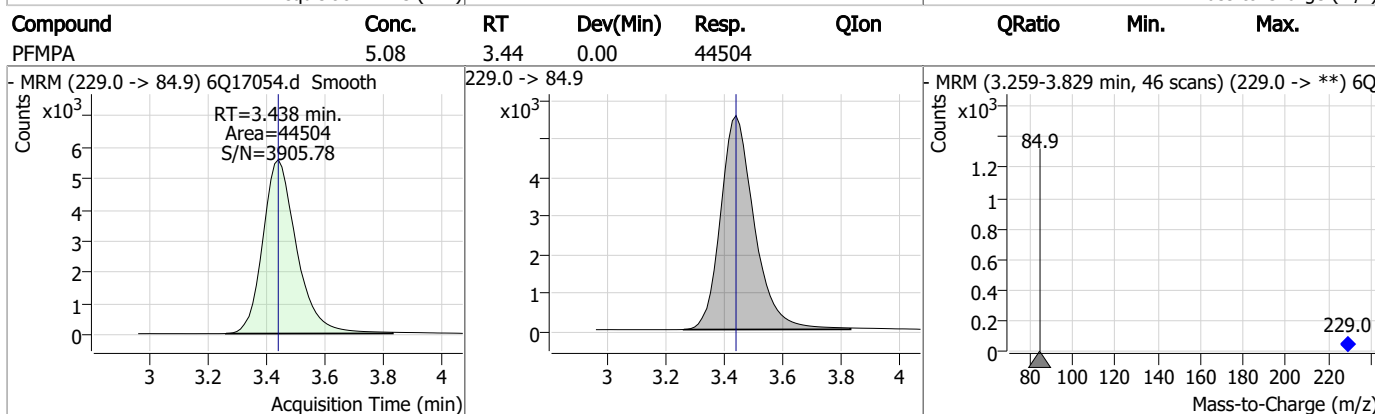
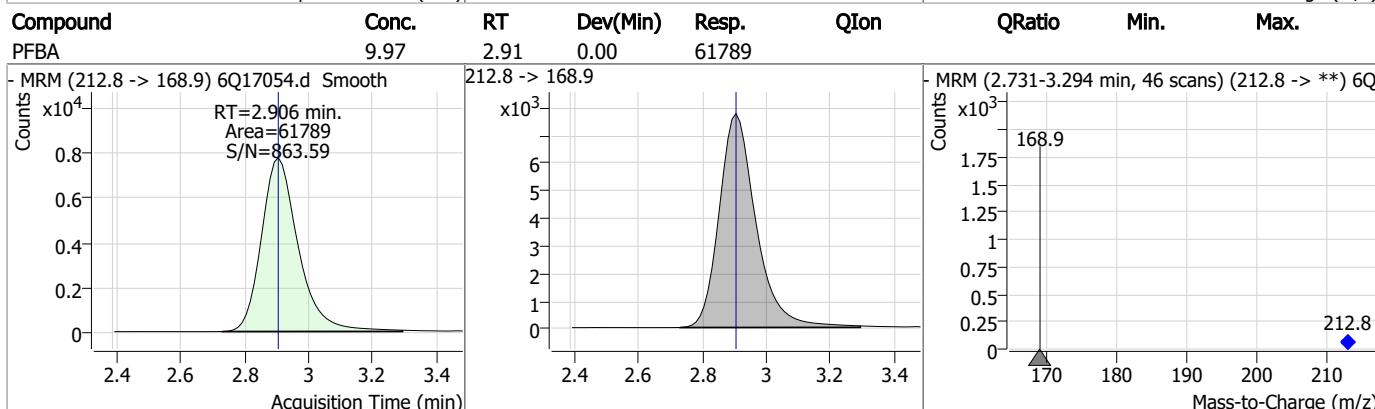
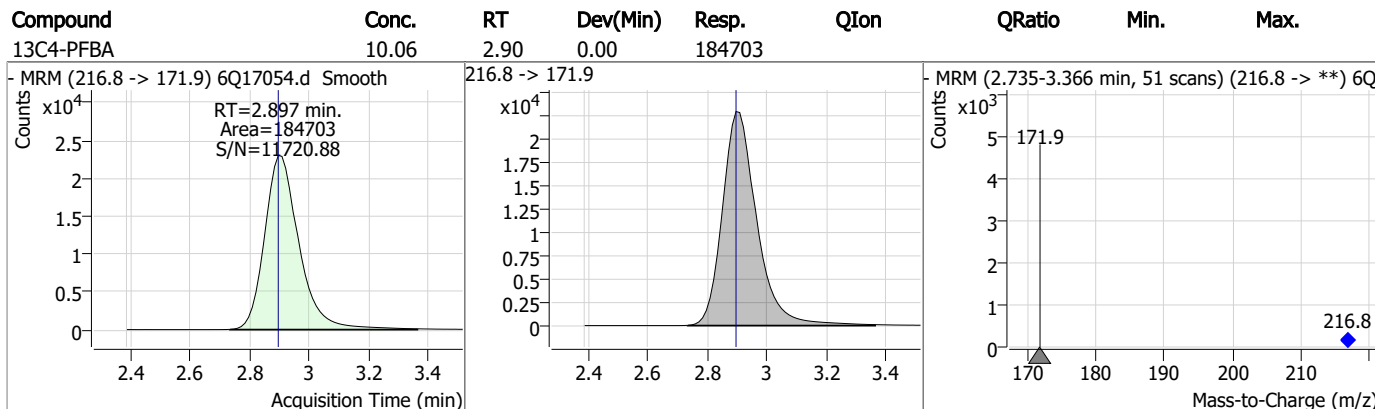
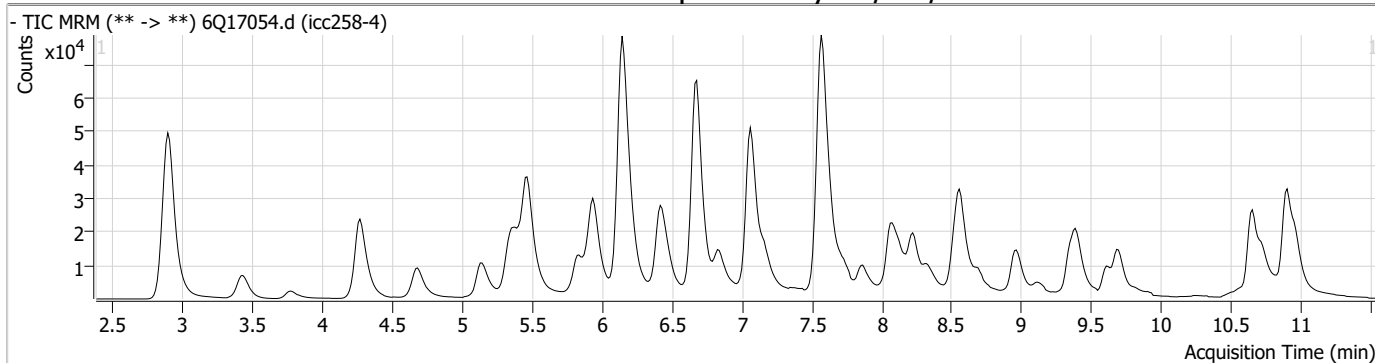
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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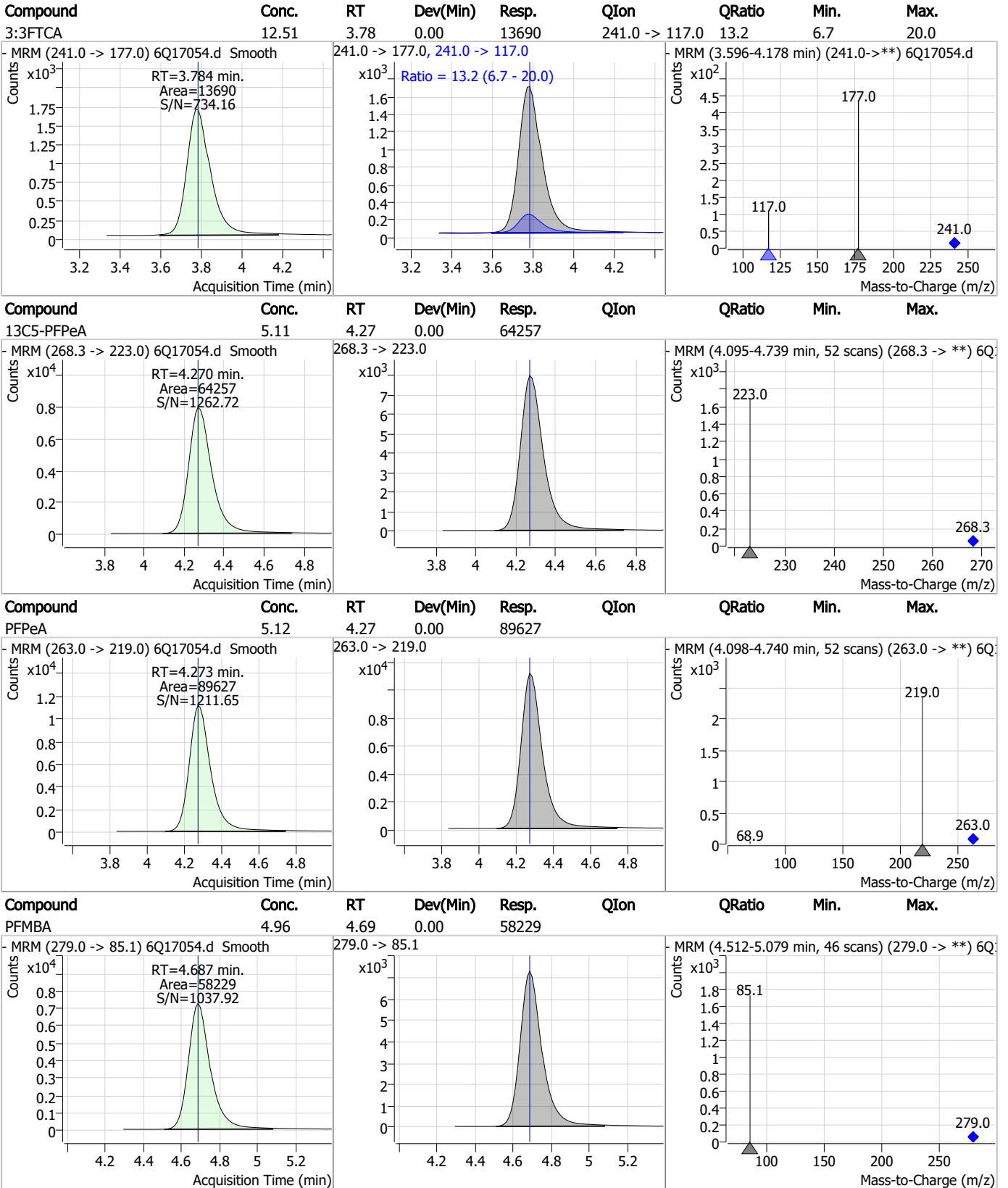
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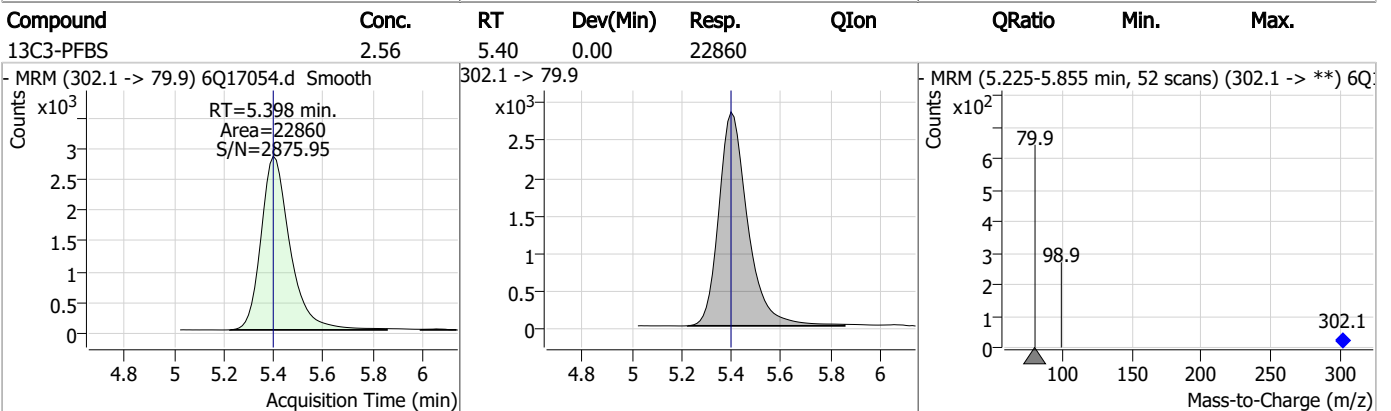
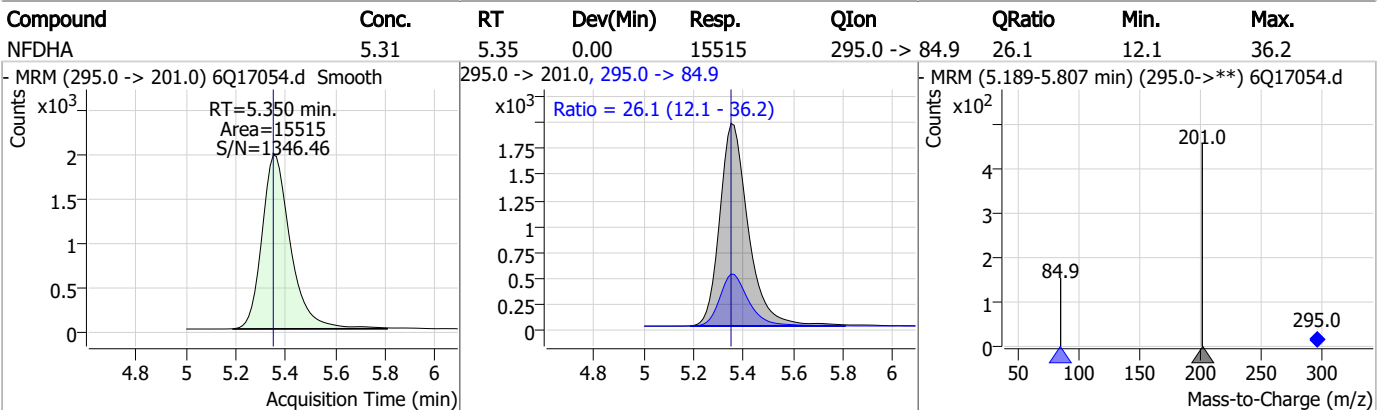
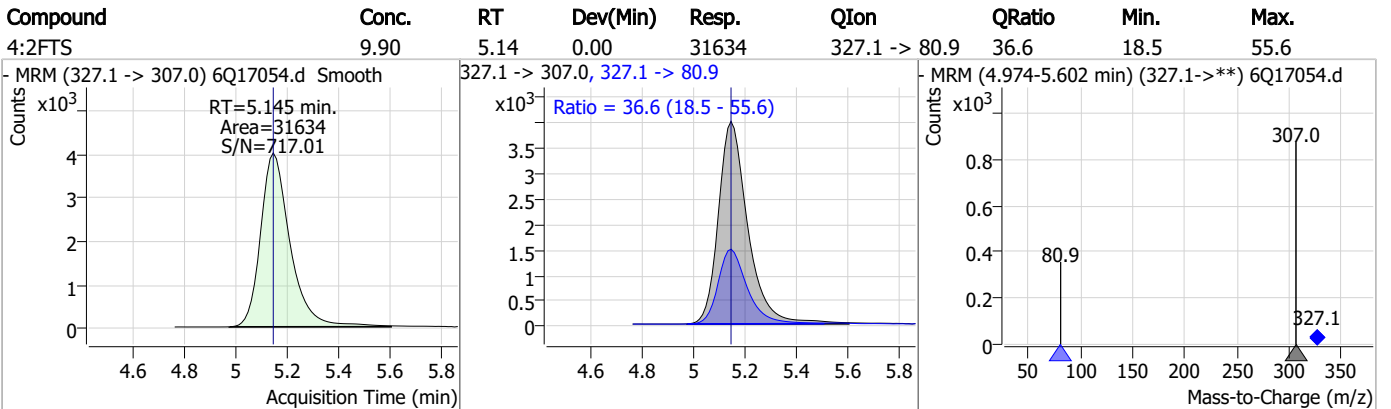
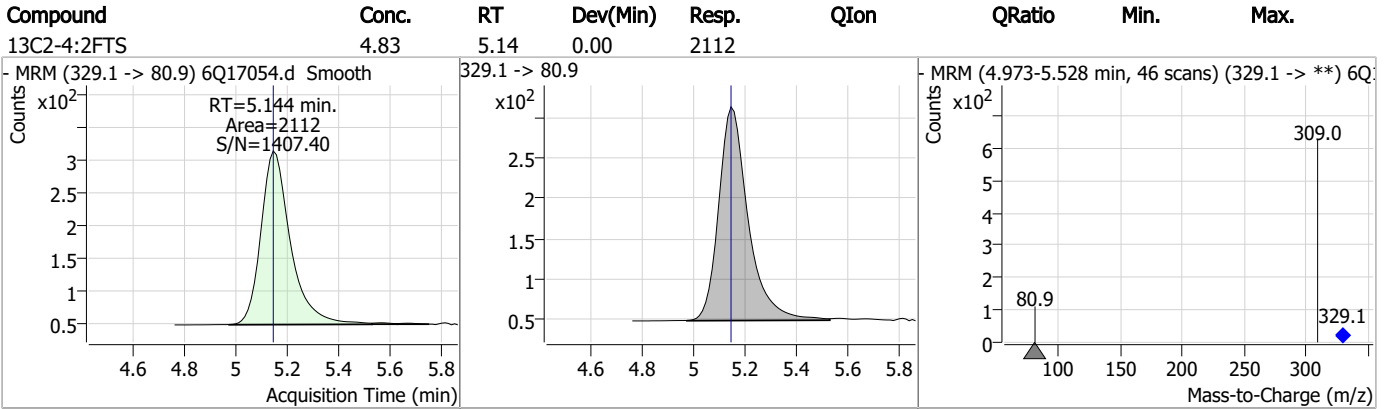
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

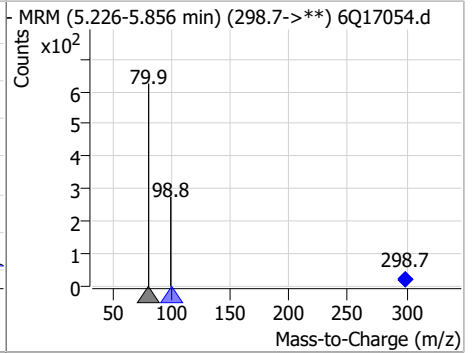
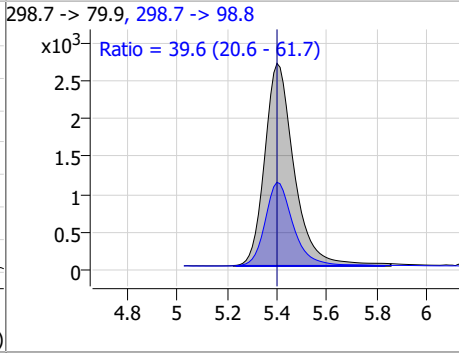
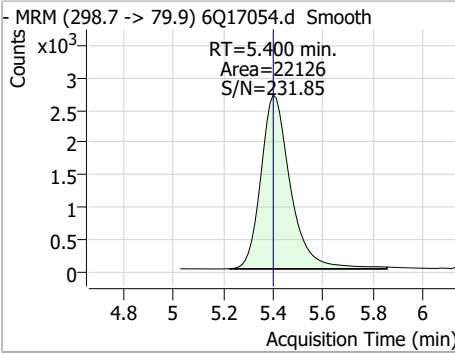


Perfluorinated Compounds by LC/MS/MS

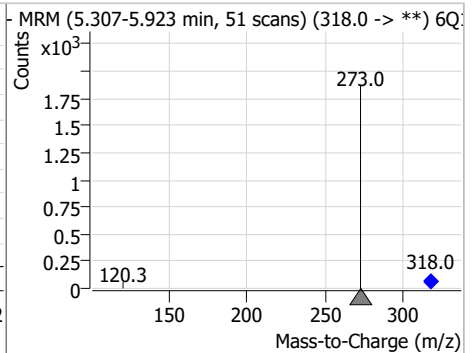
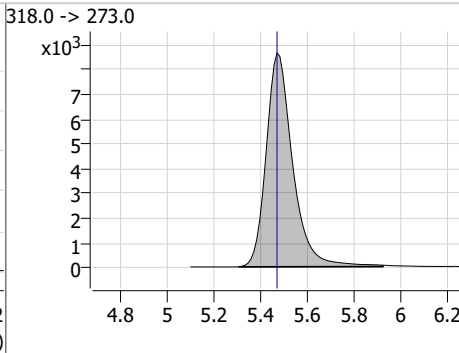
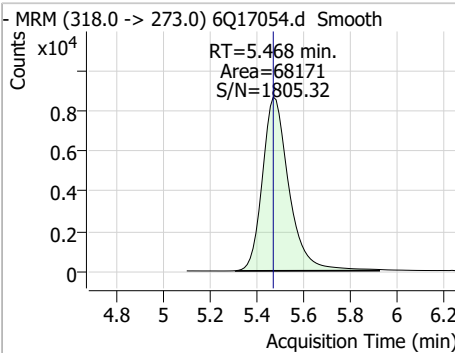


Perfluorinated Compounds by LC/MS/MS

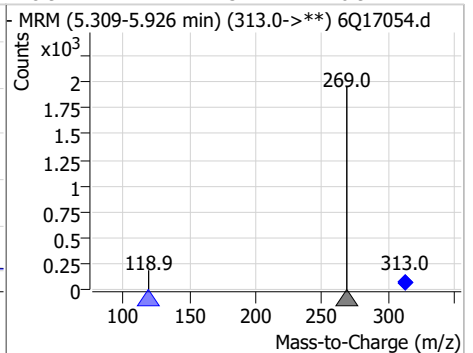
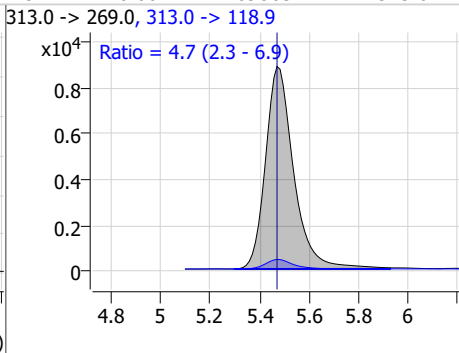
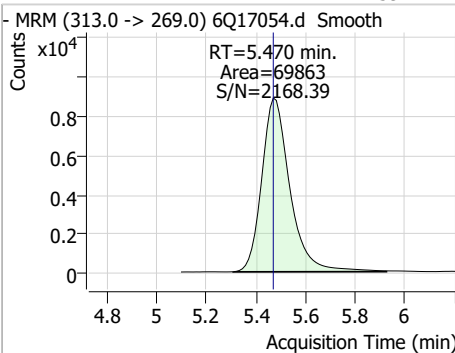
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.40	0.00	22126	298.7 -> 98.8	39.6	20.6	61.7



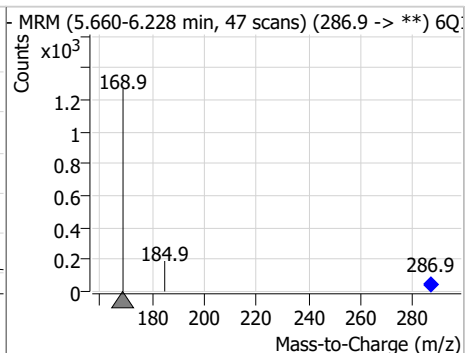
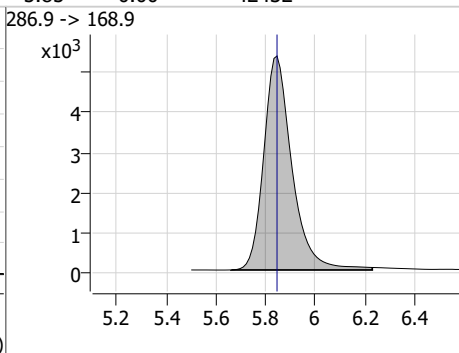
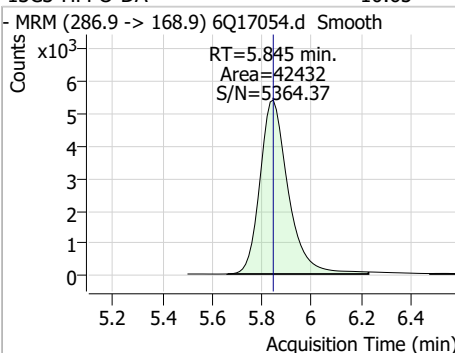
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.47	0.00	68171				



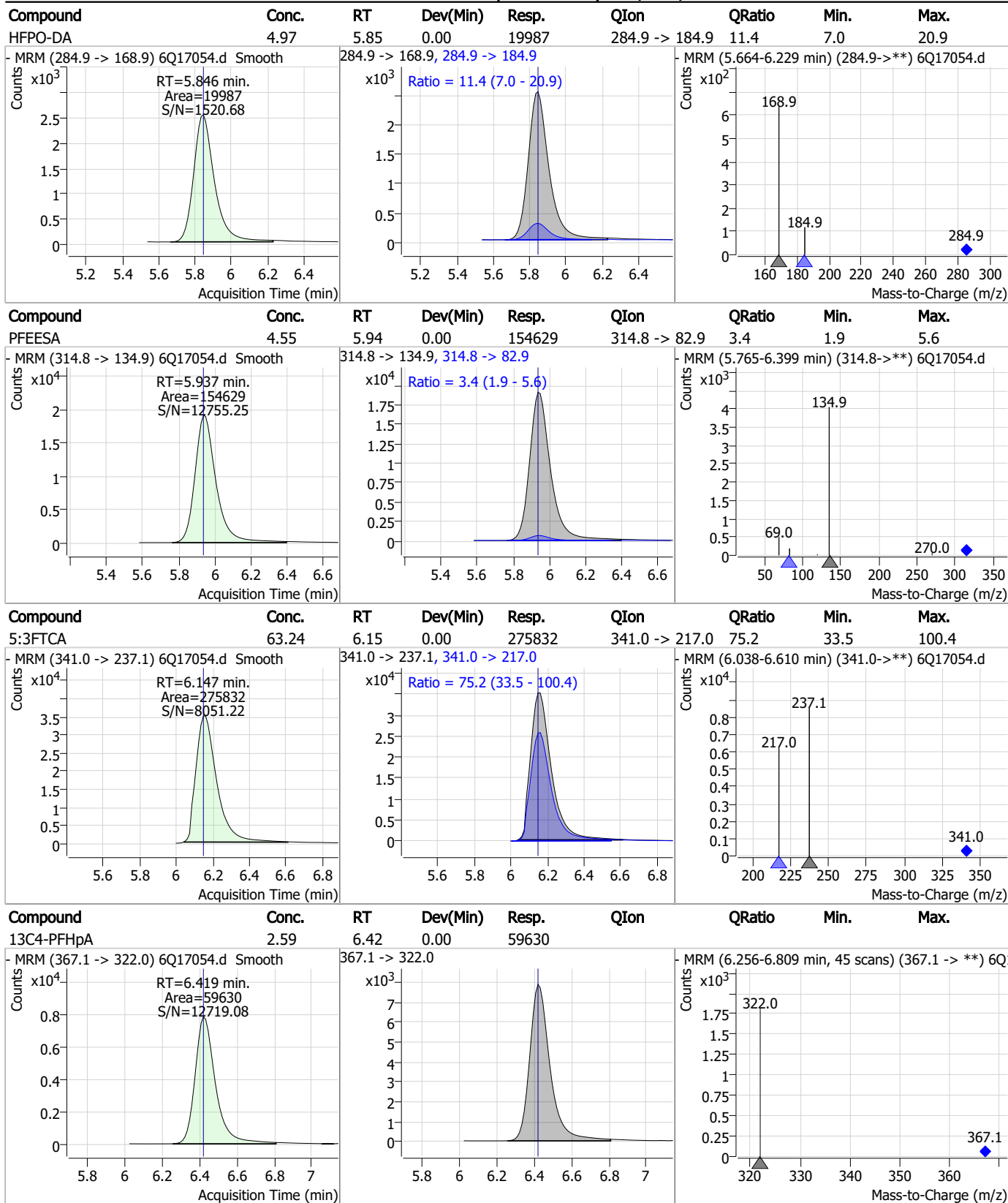
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.59	5.47	0.00	69863	313.0 -> 118.9	4.7	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.65	5.85	0.00	42432				

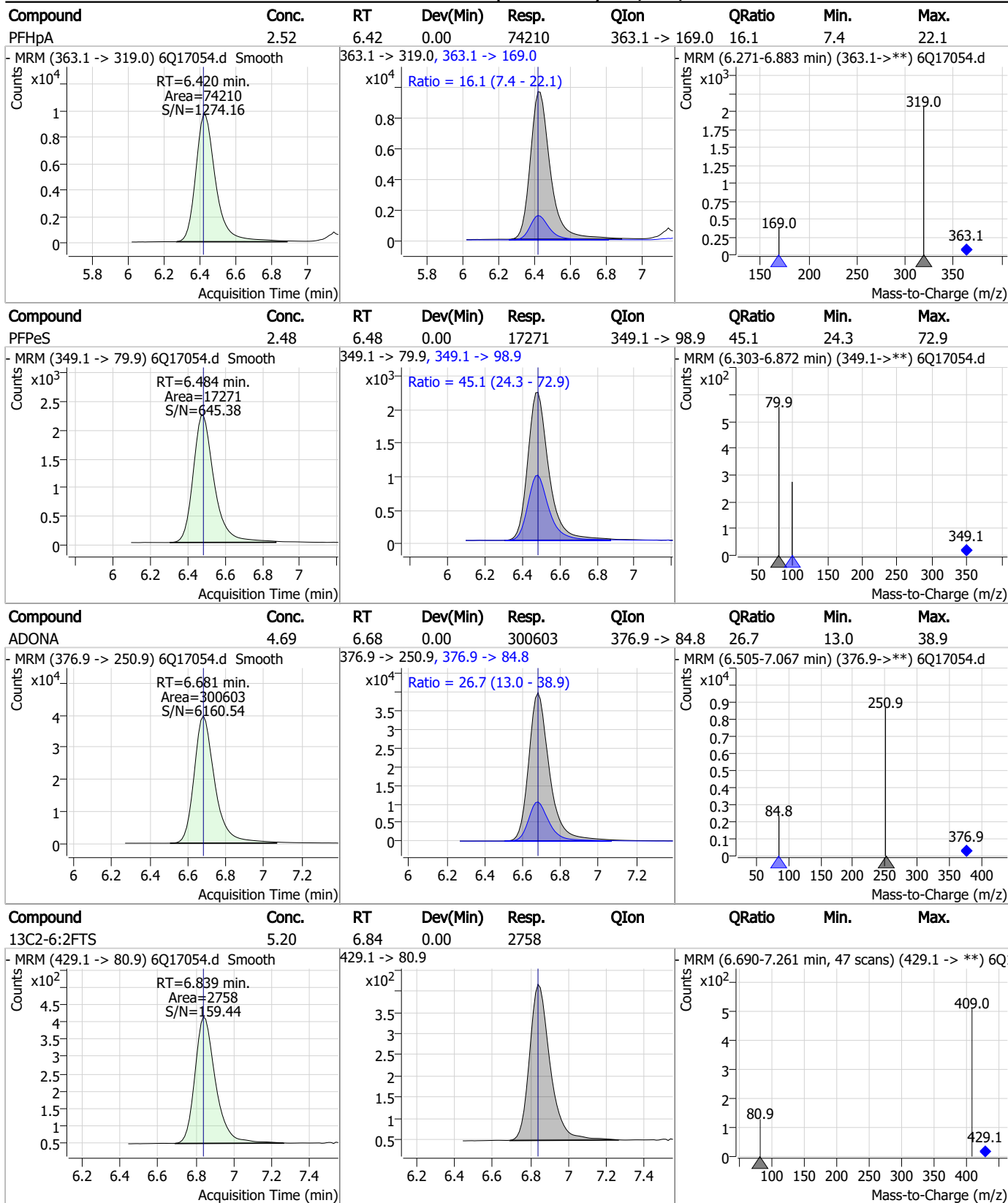


Perfluorinated Compounds by LC/MS/MS



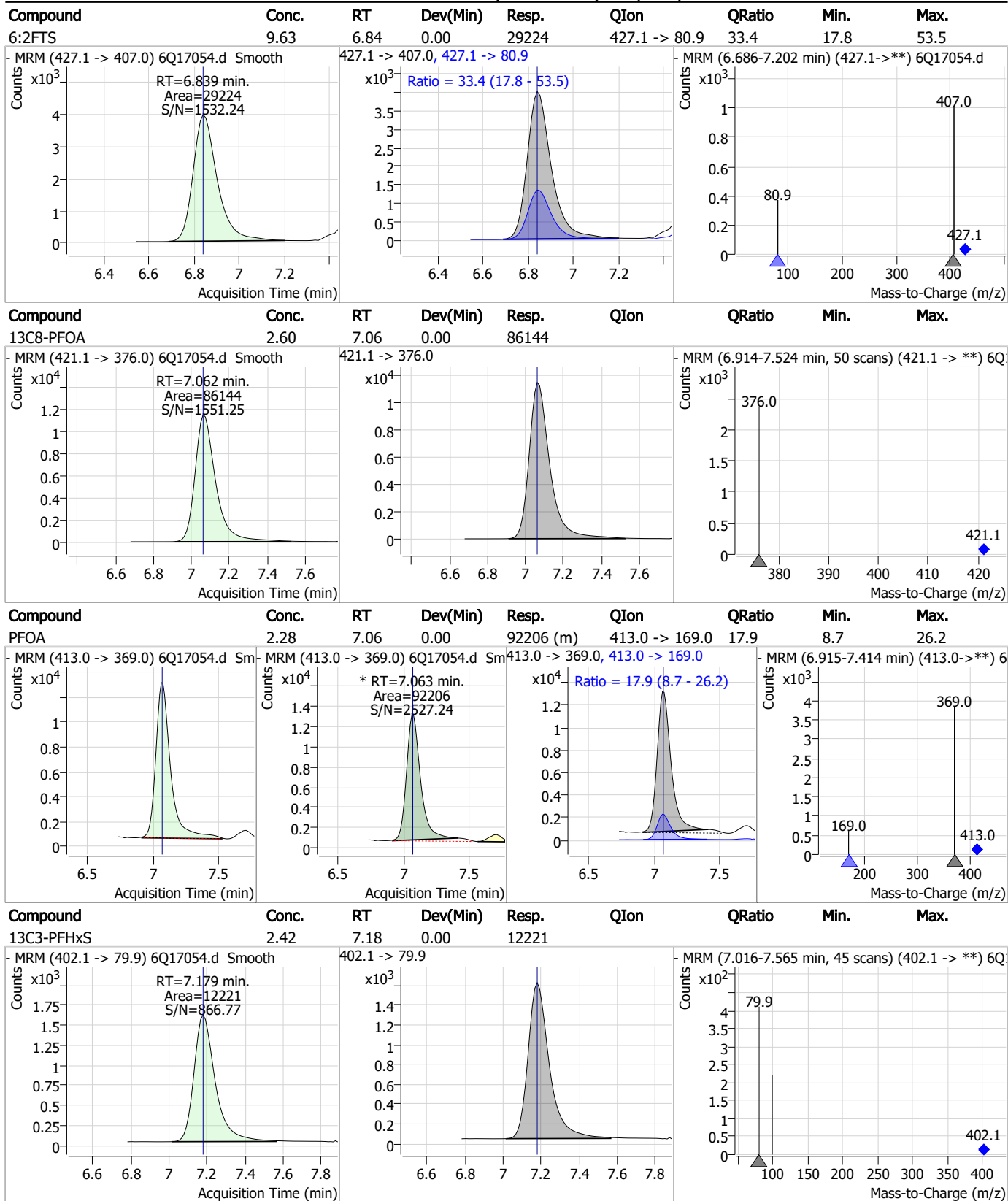
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Perfluorinated Compounds by LC/MS/MS



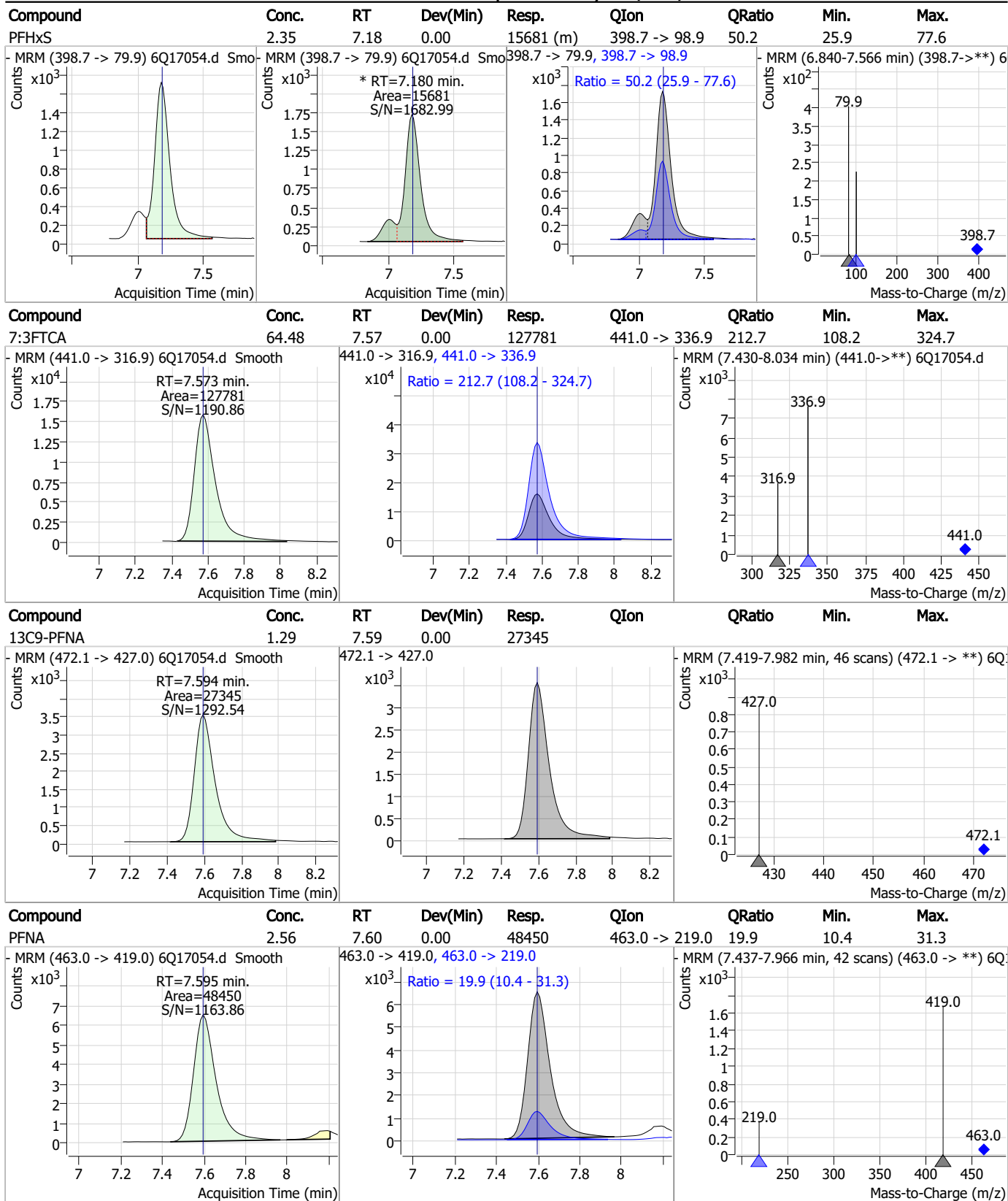
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Perfluorinated Compounds by LC/MS/MS



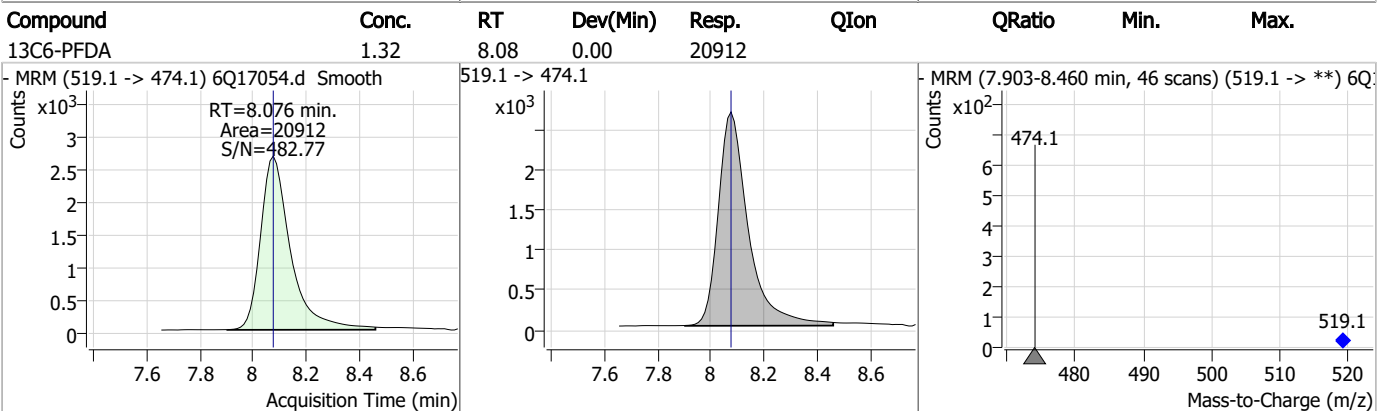
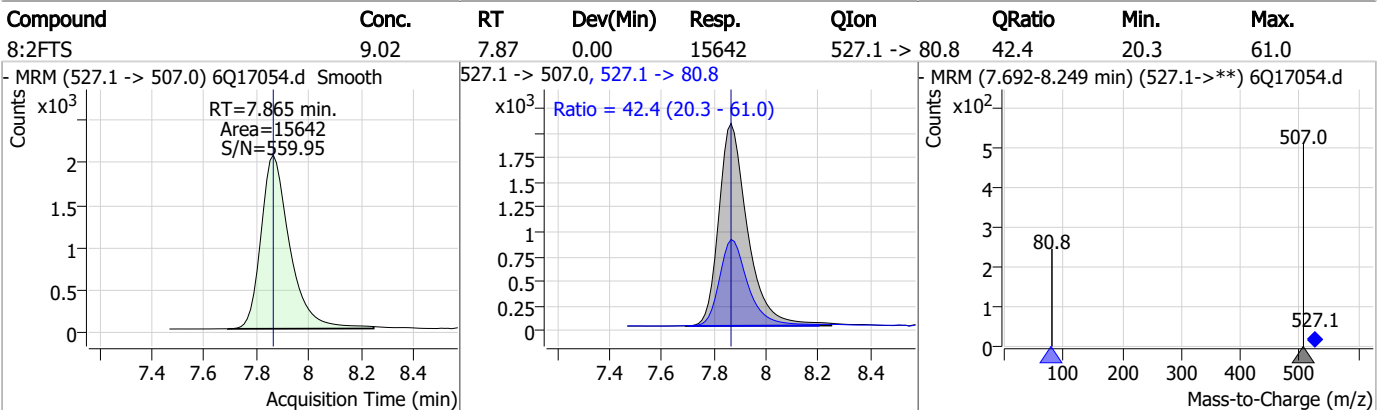
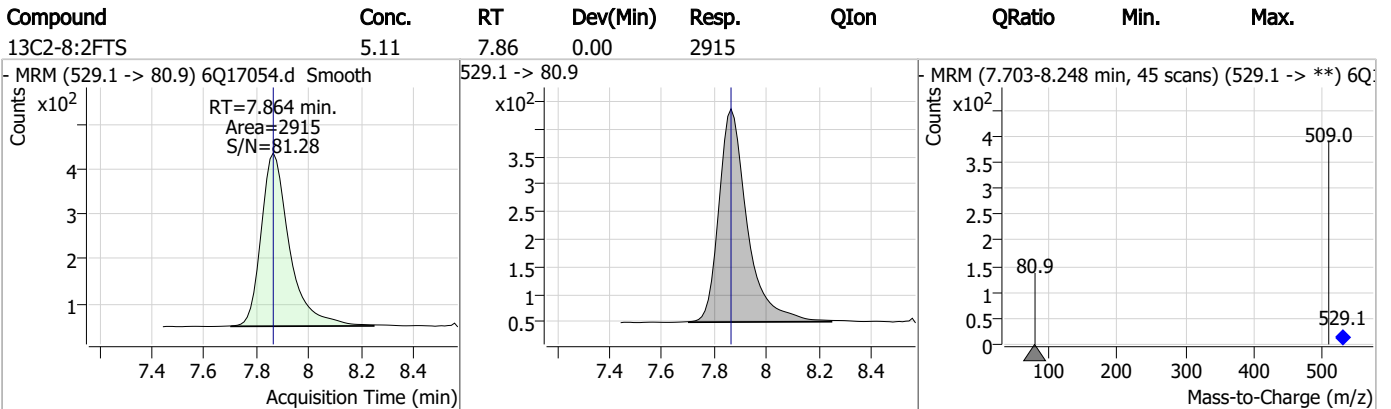
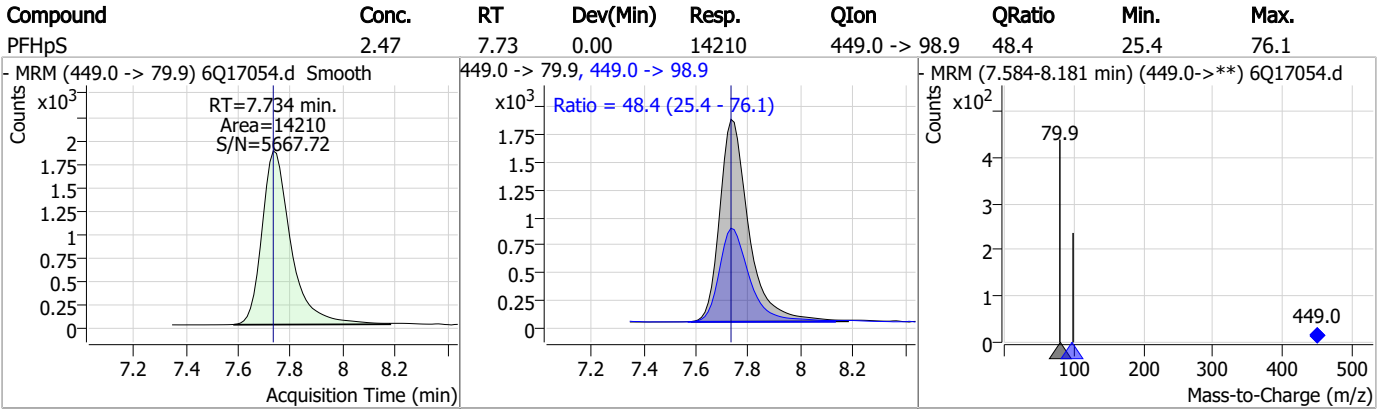
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Perfluorinated Compounds by LC/MS/MS



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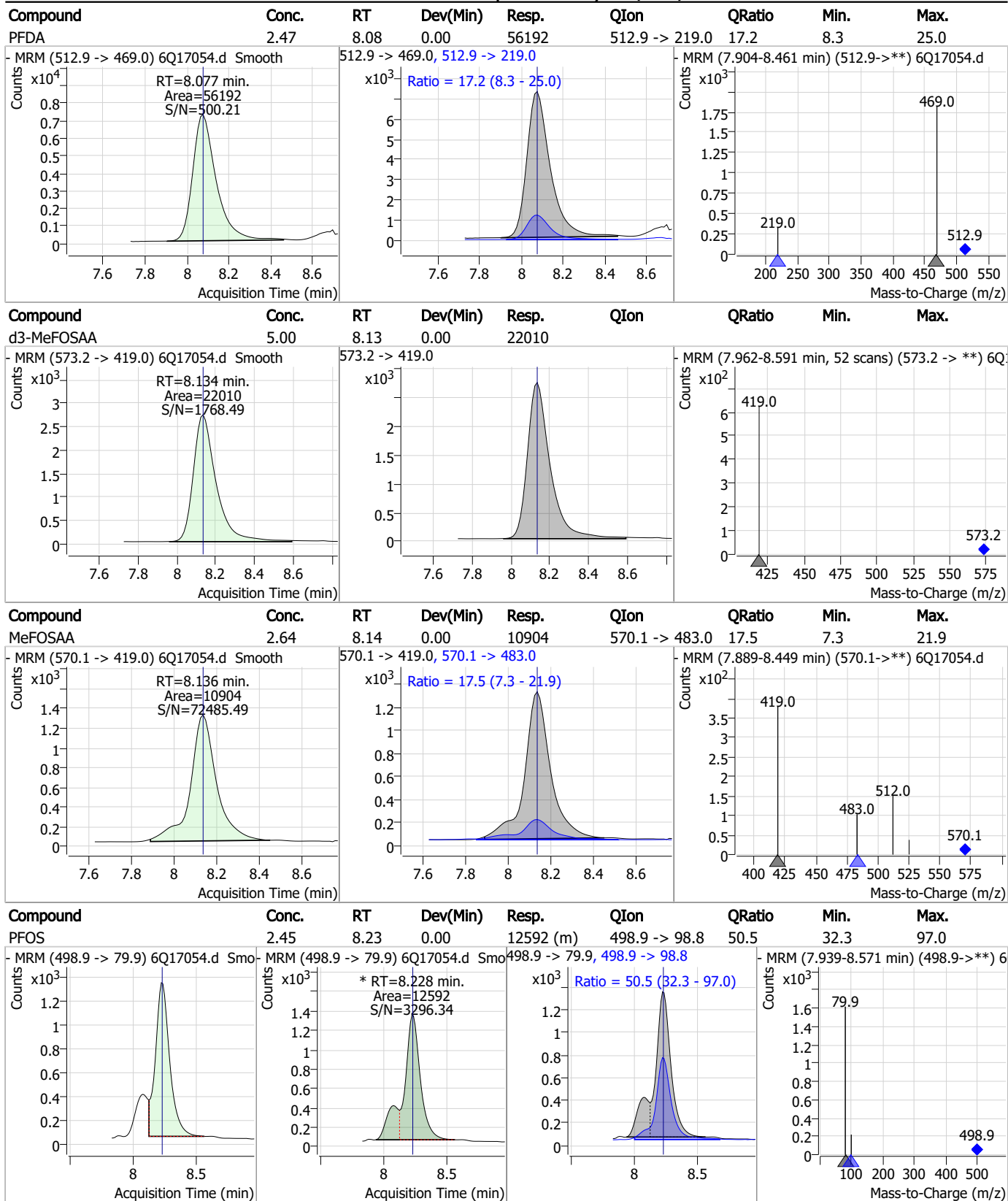
Perfluorinated Compounds by LC/MS/MS



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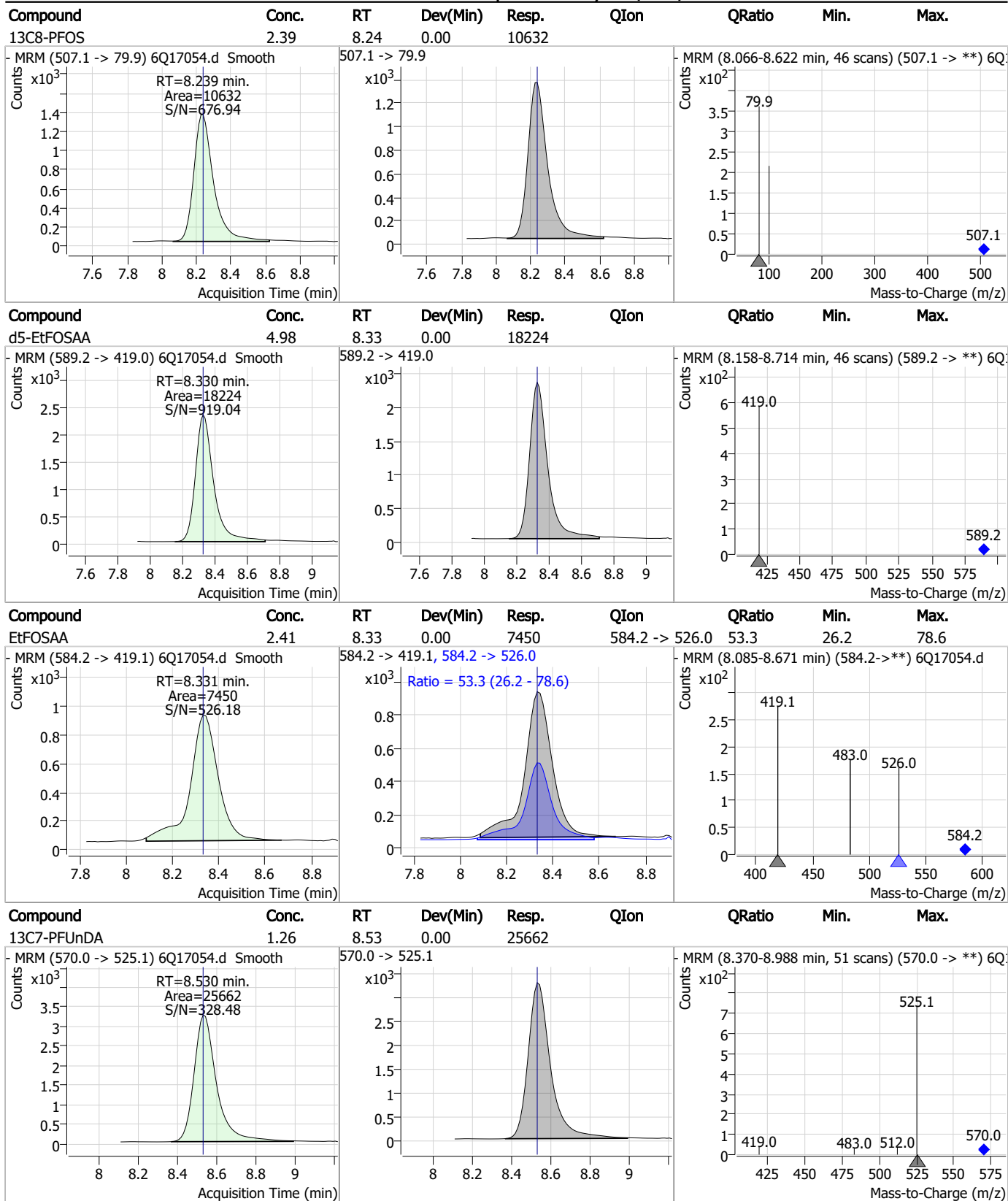
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Perfluorinated Compounds by LC/MS/MS



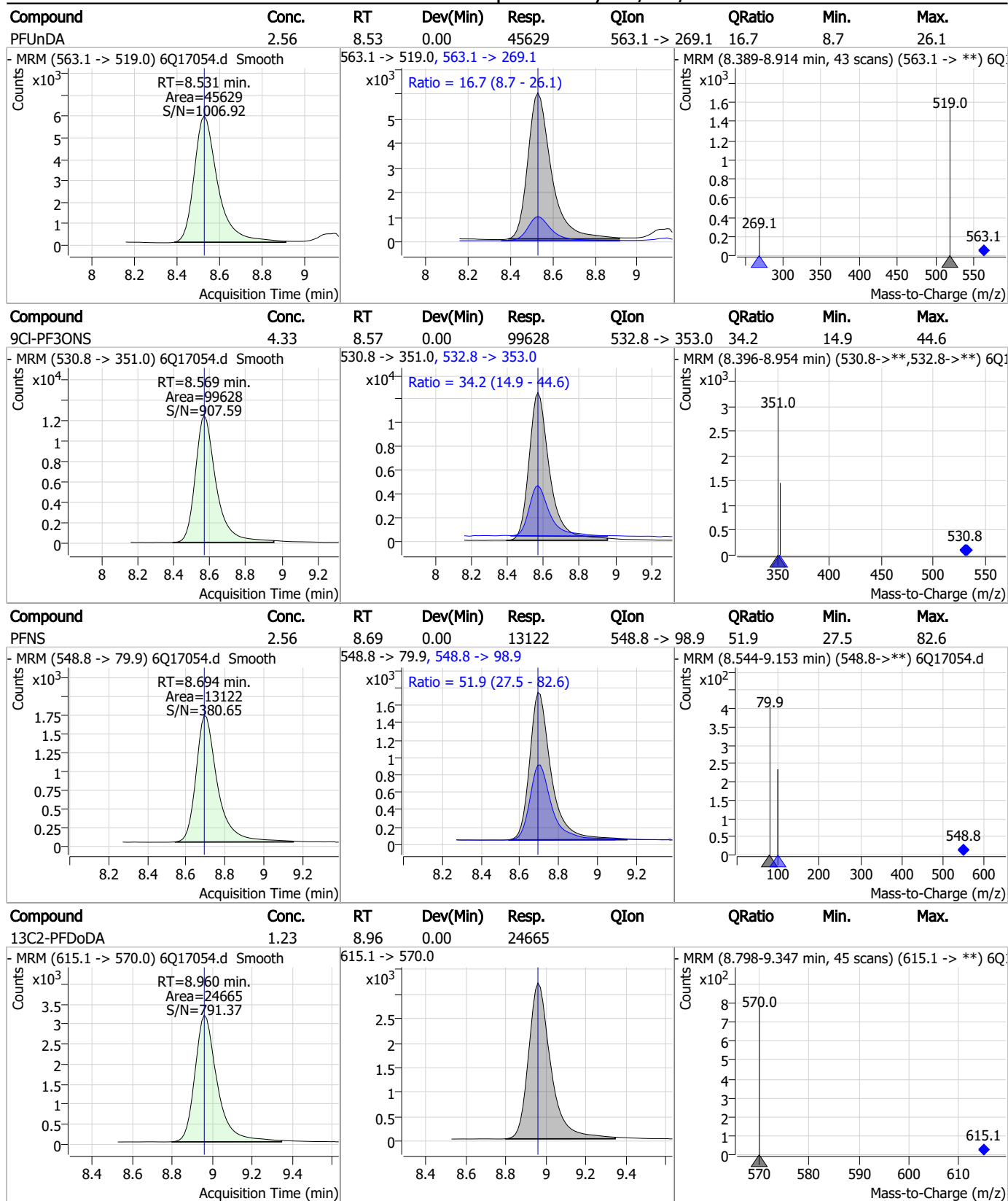
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Perfluorinated Compounds by LC/MS/MS



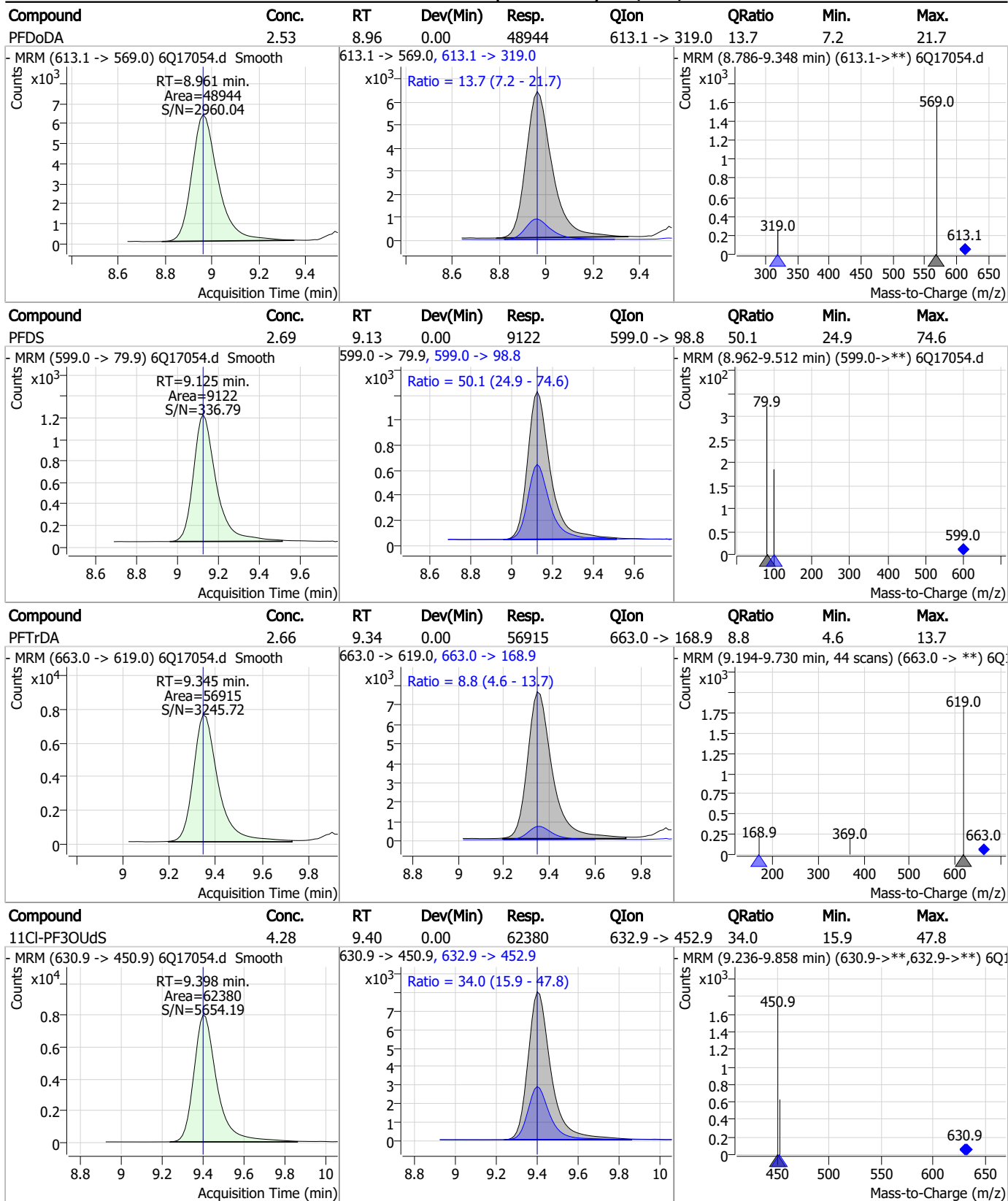
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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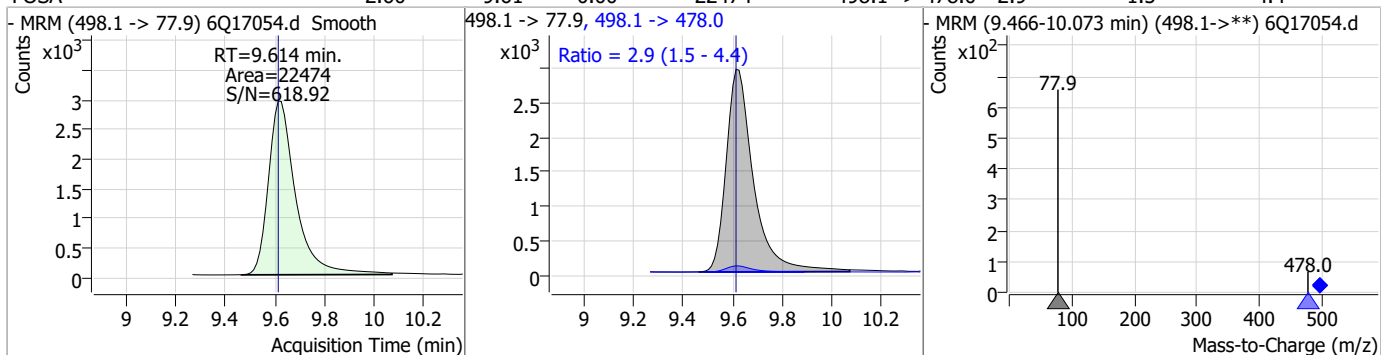
Perfluorinated Compounds by LC/MS/MS



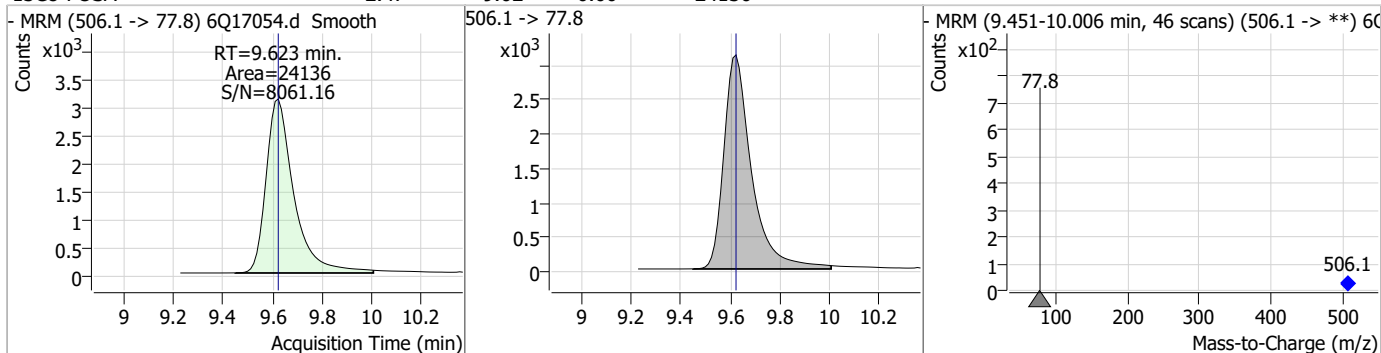
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Perfluorinated Compounds by LC/MS/MS

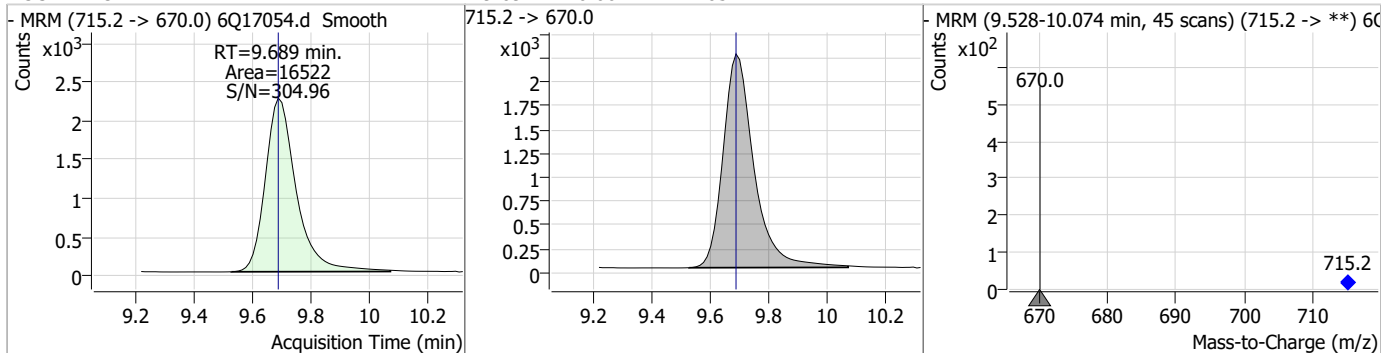
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.60	9.61	0.00	22474	498.1 -> 478.0	2.9	1.5	4.4



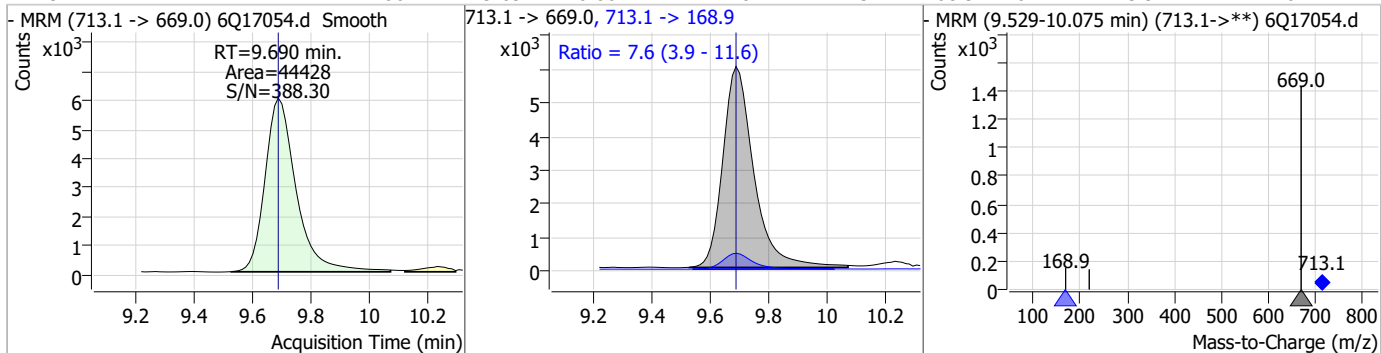
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.62	0.00	24136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.69	0.00	16522				

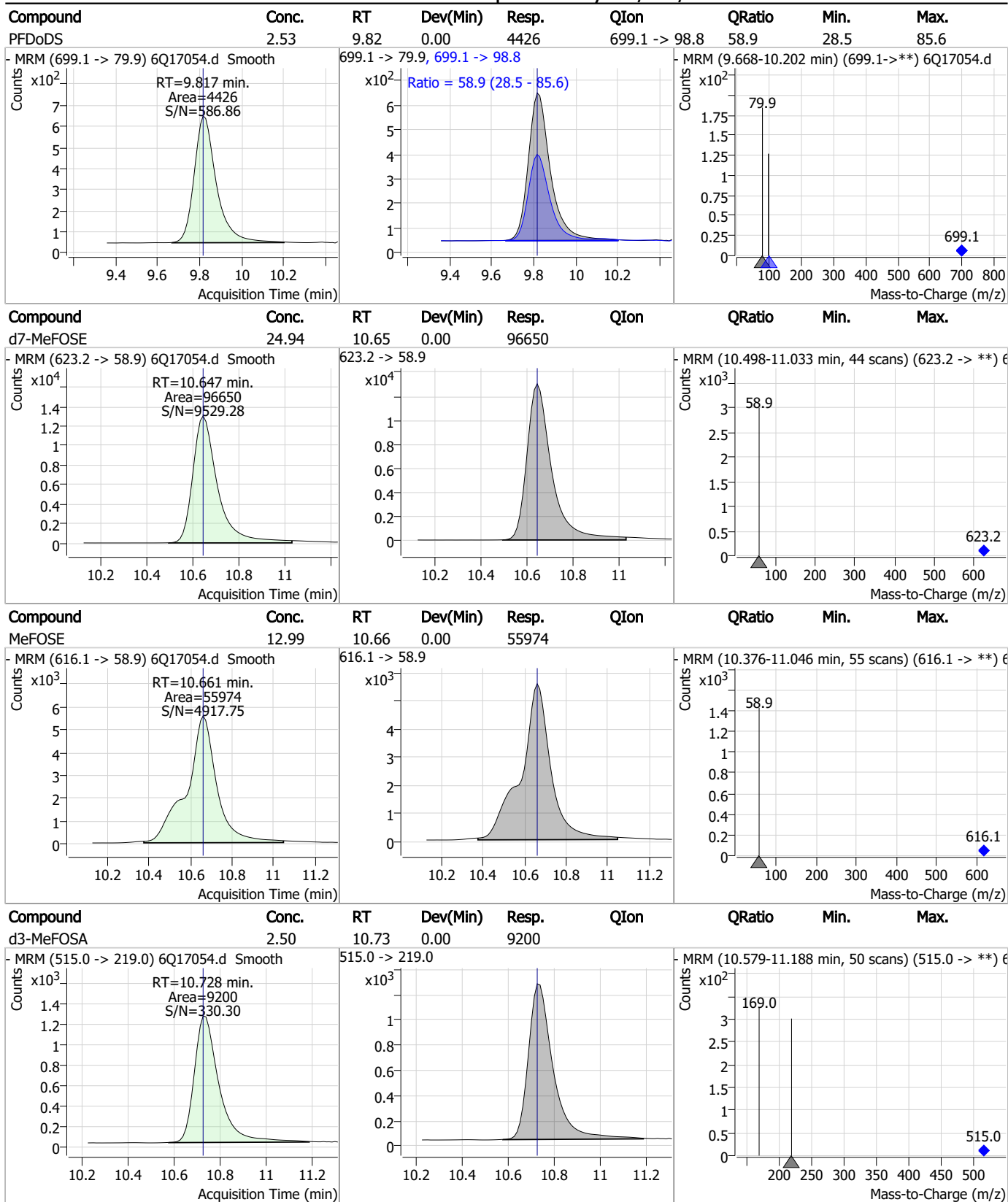


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.66	9.69	0.00	44428	713.1 -> 168.9	7.6	3.9	11.6



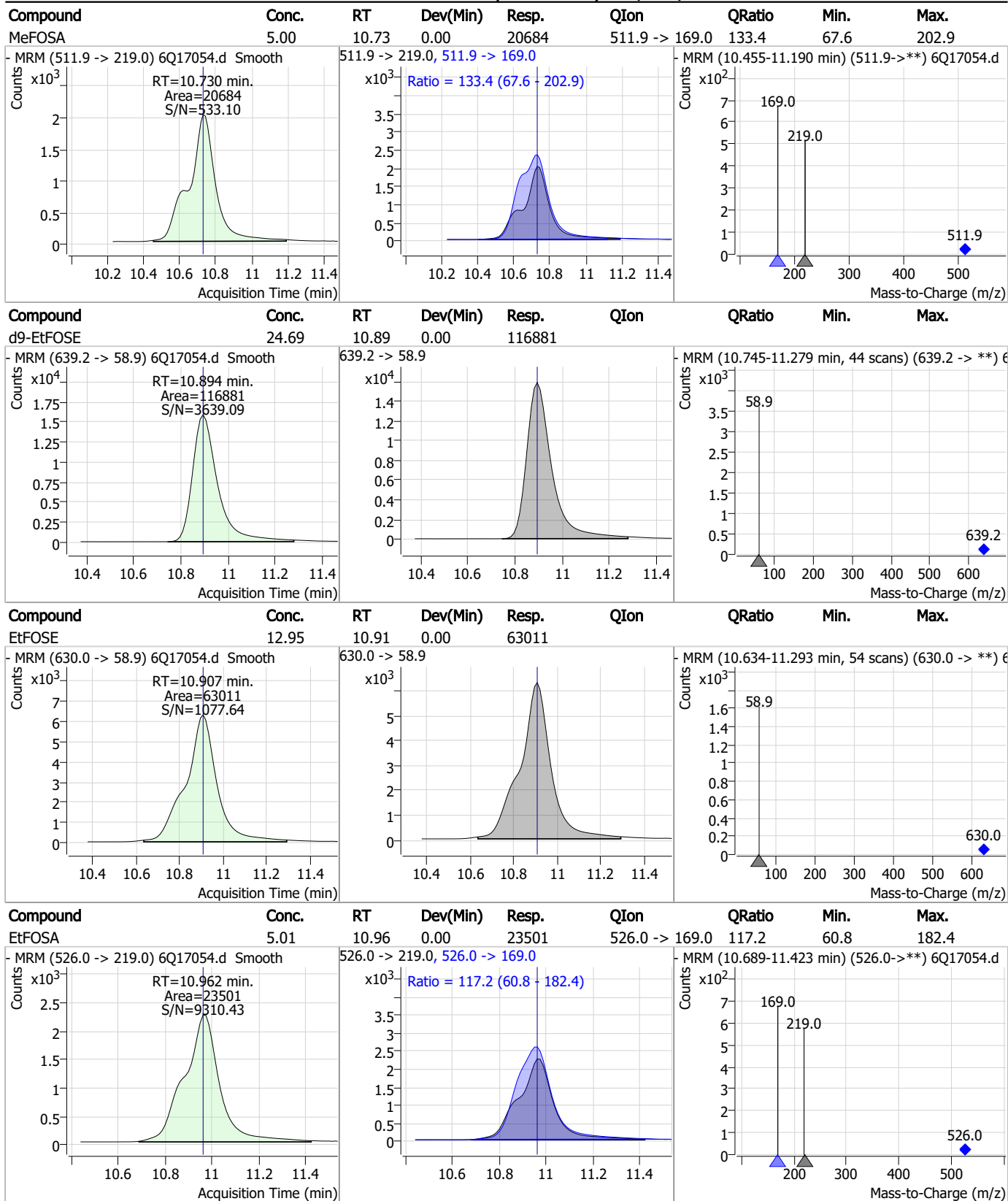
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Perfluorinated Compounds by LC/MS/MS



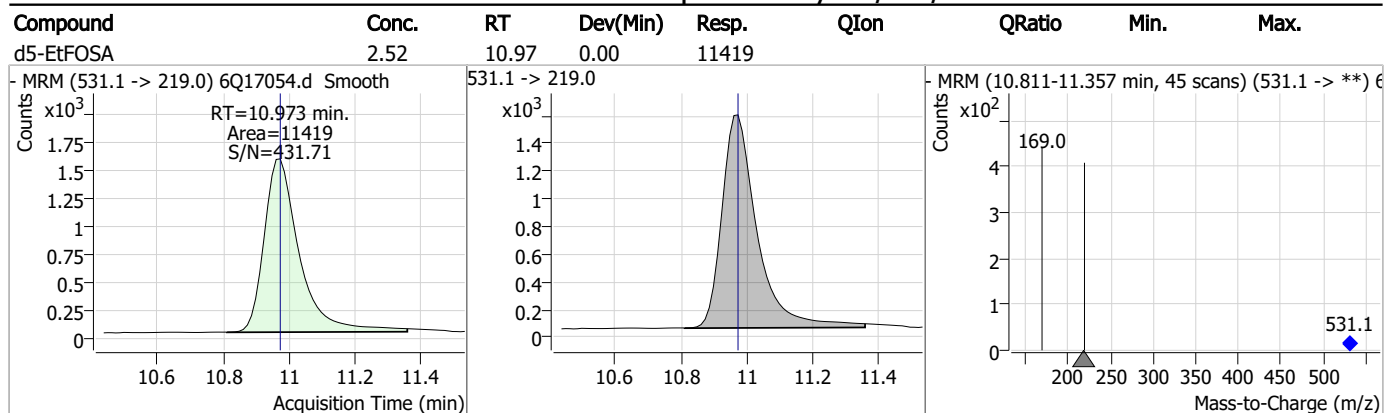
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Manual Integration Approval Summary

Sample Number: S6Q258-ICC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17054.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:33 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17055.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:48:12 PM
 Sample Name : ic258-5
 Vial : P1-A6
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	187834	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67131	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	72319	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	62097	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	87518	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	29148	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20839	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27037	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	27295	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17658	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25318	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23288	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12418	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11986	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2278	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2696	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2934	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22528	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41999	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19246	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	103618	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	124290	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11811	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9531	2.50 µg/L	0.012
13C4-PFOS	8.227	502.8 -> 79.9	15496	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	82123	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9625	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	89654	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	26055	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28436	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59569	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2278	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2696	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2934	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	27295	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17658	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23288	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12418	2.42 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C4-PFBA	2.910	216.8 -> 171.9	187834	9.90 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	62097	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.468	318.0 -> 273.0	72319	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	67131	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.076	519.1 -> 474.1	20839	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27037	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.623	506.1 -> 77.8	25318	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOA	7.062	421.1 -> 376.0	87518	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.226	507.1 -> 79.9	11986	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C9-PFNA	7.594	472.1 -> 427.0	29148	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22528	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	41999	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSA	10.741	515.0 -> 219.0	9531	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19246	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d7-MeFOSE	10.647	623.2 -> 58.9	103618	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	124290	25.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSA	10.973	531.1 -> 219.0	11811	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	62523	18.14 µg/L	98
		327.1 -> 80.9	24036		
6:2FTS	6.839	427.1 -> 407.0	59295	19.99 µg/L	94
		427.1 -> 80.9	19117		
8:2FTS	7.865	527.1 -> 507.0	32560	18.65 µg/L	100
		527.1 -> 80.8	13155		
EtFOSAA	8.331	584.2 -> 419.1	15971	4.88 µg/L	98
		584.2 -> 526.0	8649		
FOSA	9.614	498.1 -> 77.9	44148	4.87 µg/L	99
		498.1 -> 478.0	1356		
MeFOSAA	8.136	570.1 -> 419.0	21727	5.14 µg/L	93
		570.1 -> 483.0	3790		
PFBA	2.906	212.8 -> 168.9	125595	19.94 µg/L	100
PFBS	5.400	298.7 -> 79.9	47488	4.54 µg/L	94
		298.7 -> 98.8	17896		
PFDA	8.077	512.9 -> 469.0	126808	5.60 µg/L	98
		512.9 -> 219.0	20008		
PFDoDA	8.961	613.1 -> 569.0	105006	4.91 µg/L	98
		613.1 -> 319.0	14169		
PFDS	9.125	599.0 -> 79.9	17788	4.66 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	8603			
PFHpA	6.420	363.1 -> 319.0	149038	4.86	µg/L	96
		363.1 -> 169.0	24368			
PFHpS	7.734	449.0 -> 79.9	28974	4.46	µg/L	94
		449.0 -> 98.9	13472			
PFHxA	5.470	313.0 -> 269.0	135832	4.75	µg/L	100
		313.0 -> 118.9	6251			
PFHxS	7.180	398.7 -> 79.9	33010	4.88	µg/L	m 94
		398.7 -> 98.9	15590			
PFNA	7.595	463.0 -> 419.0	98776	4.90	µg/L	95
		463.0 -> 219.0	18524			
PFNS	8.694	548.8 -> 79.9	25522	4.41	µg/L	98
		548.8 -> 98.9	13722			
PFOA	7.063	413.0 -> 369.0	199591	4.79	µg/L	97
		413.0 -> 169.0	32419			
PFOS	8.228	498.9 -> 79.9	23540	4.07	µg/L	m 91
		498.9 -> 98.8	13635			
PFPeA	4.273	263.0 -> 219.0	181387	9.92	µg/L	100
PFPeS	6.472	349.1 -> 79.9	35261	4.99	µg/L	96
		349.1 -> 98.9	16209			
PFTeDA	9.690	713.1 -> 669.0	88197	4.94	µg/L	99
		713.1 -> 168.9	6619			
PFTrDA	9.345	663.0 -> 619.0	112010	4.73	µg/L	99
		663.0 -> 168.9	10737			
PFUnDA	8.531	563.1 -> 519.0	95301	5.08	µg/L	95
		563.1 -> 269.1	14657			
11CI-PF3OUdS	9.398	630.9 -> 450.9	131944	9.15	µg/L	100
		632.9 -> 452.9	41738			
9CI-PF3ONS	8.569	530.8 -> 351.0	205740	9.03	µg/L	94
		532.8 -> 353.0	67919			
ADONA	6.681	376.9 -> 250.9	565822	8.92	µg/L	94
		376.9 -> 84.8	164194			
HFPO-DA	5.846	284.9 -> 168.9	40734	10.24	µg/L	97
		284.9 -> 184.9	5195			
3:3FTCA	3.784	241.0 -> 177.0	27887	24.39	µg/L	98
		241.0 -> 117.0	3443			
5:3FTCA	6.160	341.0 -> 237.1	553365	119.58	µg/L	87
		341.0 -> 217.0	428689			
7:3FTCA	7.573	441.0 -> 316.9	263175	125.19	µg/L	99
		441.0 -> 336.9	564965			
EtFOSA	10.975	526.0 -> 219.0	48759	10.04	µg/L	98
		526.0 -> 169.0	60417			
EtFOSE	10.907	630.0 -> 58.9	126711	24.48	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	41390	9.65	µg/L	96
		511.9 -> 169.0	58201			
MeFOSE	10.661	616.1 -> 58.9	110770	23.97	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	9024	4.57	µg/L	98
		699.1 -> 98.8	5006			
NFDHA	5.350	295.0 -> 201.0	30939	9.98	µg/L	98
		295.0 -> 84.9	7843			
PFMBA	4.687	279.0 -> 85.1	120834	9.85	µg/L	100
PFMPA	3.438	229.0 -> 84.9	90216	9.86	µg/L	100
PFEESA	5.937	314.8 -> 134.9	310054	8.59	µg/L	100
		314.8 -> 82.9	11310			

= Qualifier out of range, m = manually integrated, + = Area summed

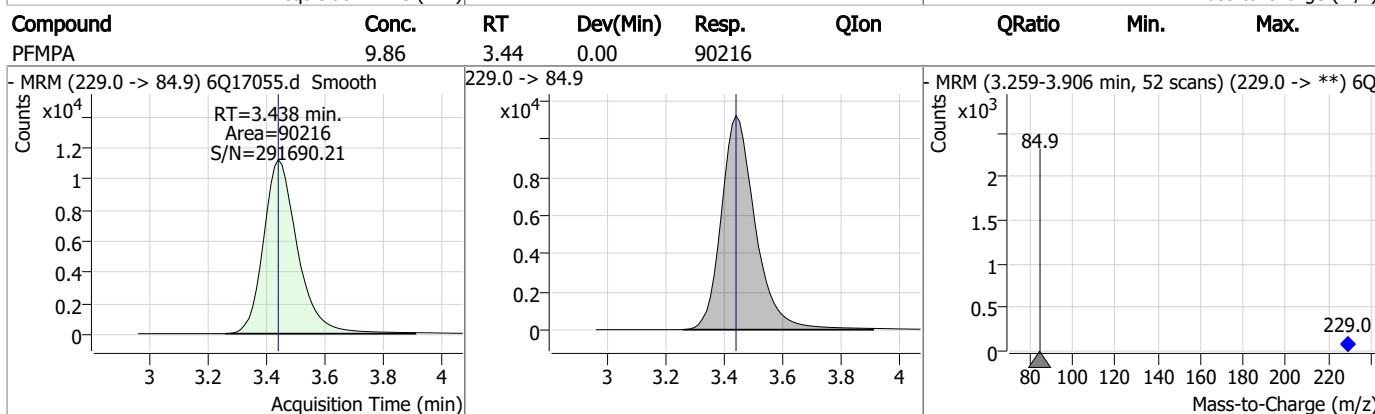
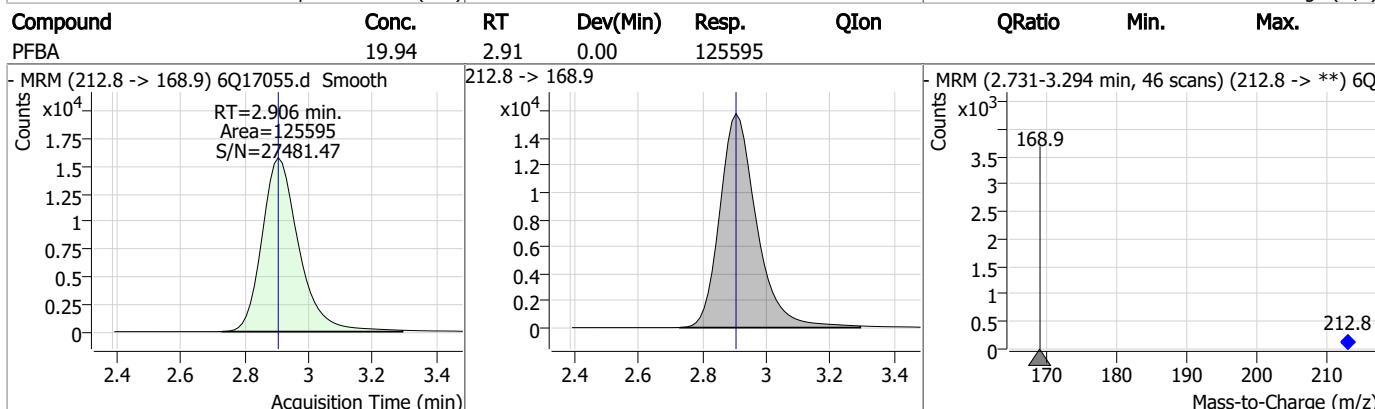
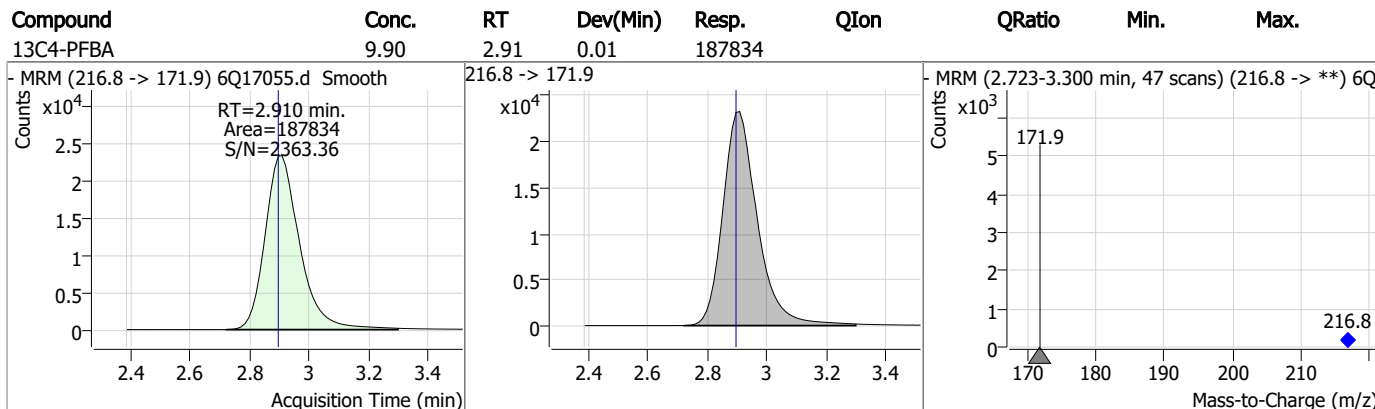
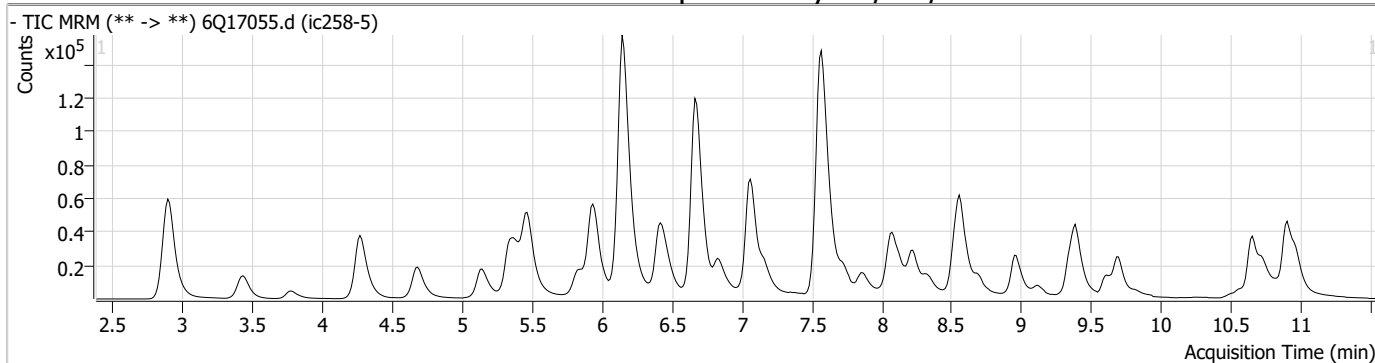
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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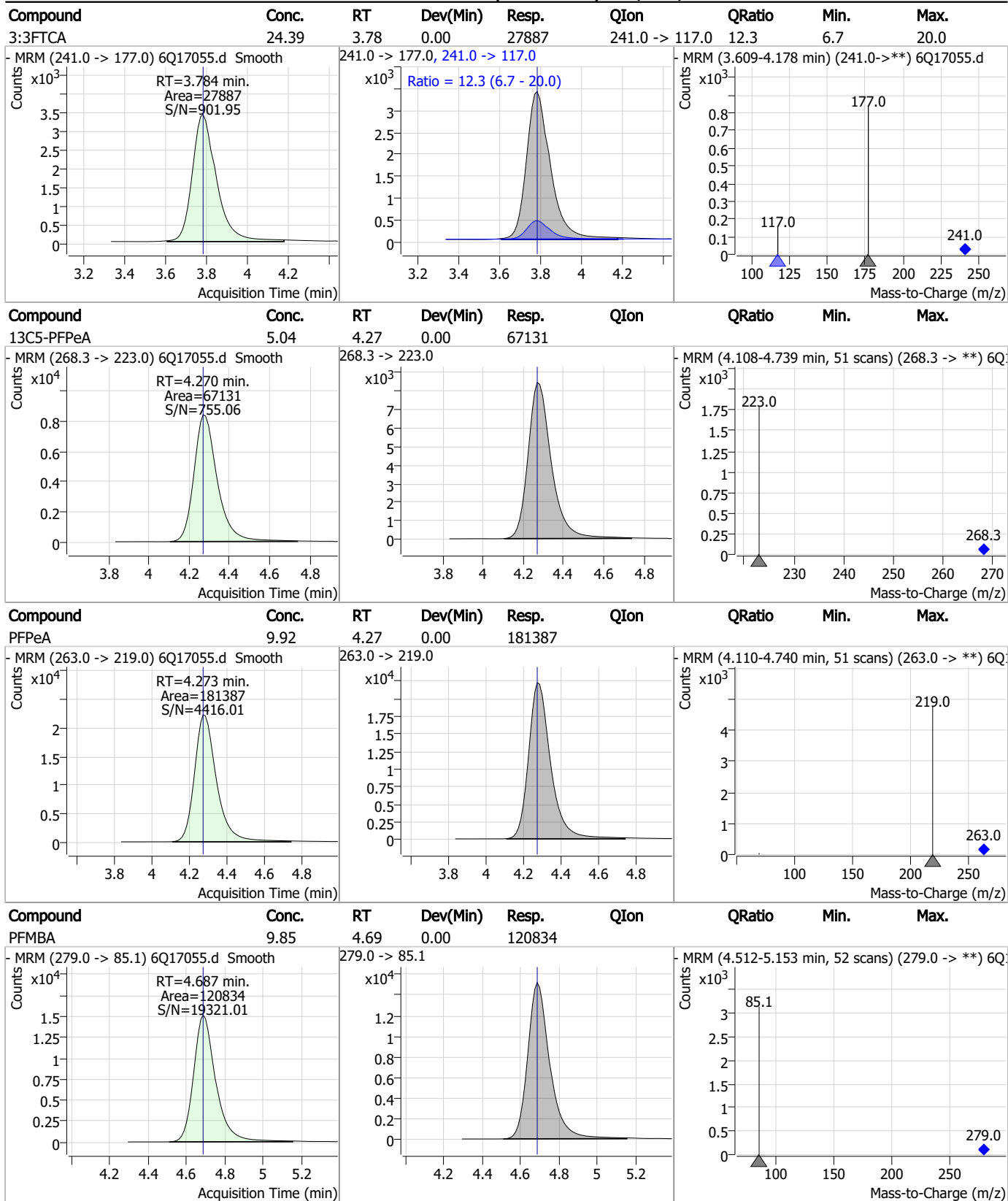
7.7.6
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Perfluorinated Compounds by LC/MS/MS

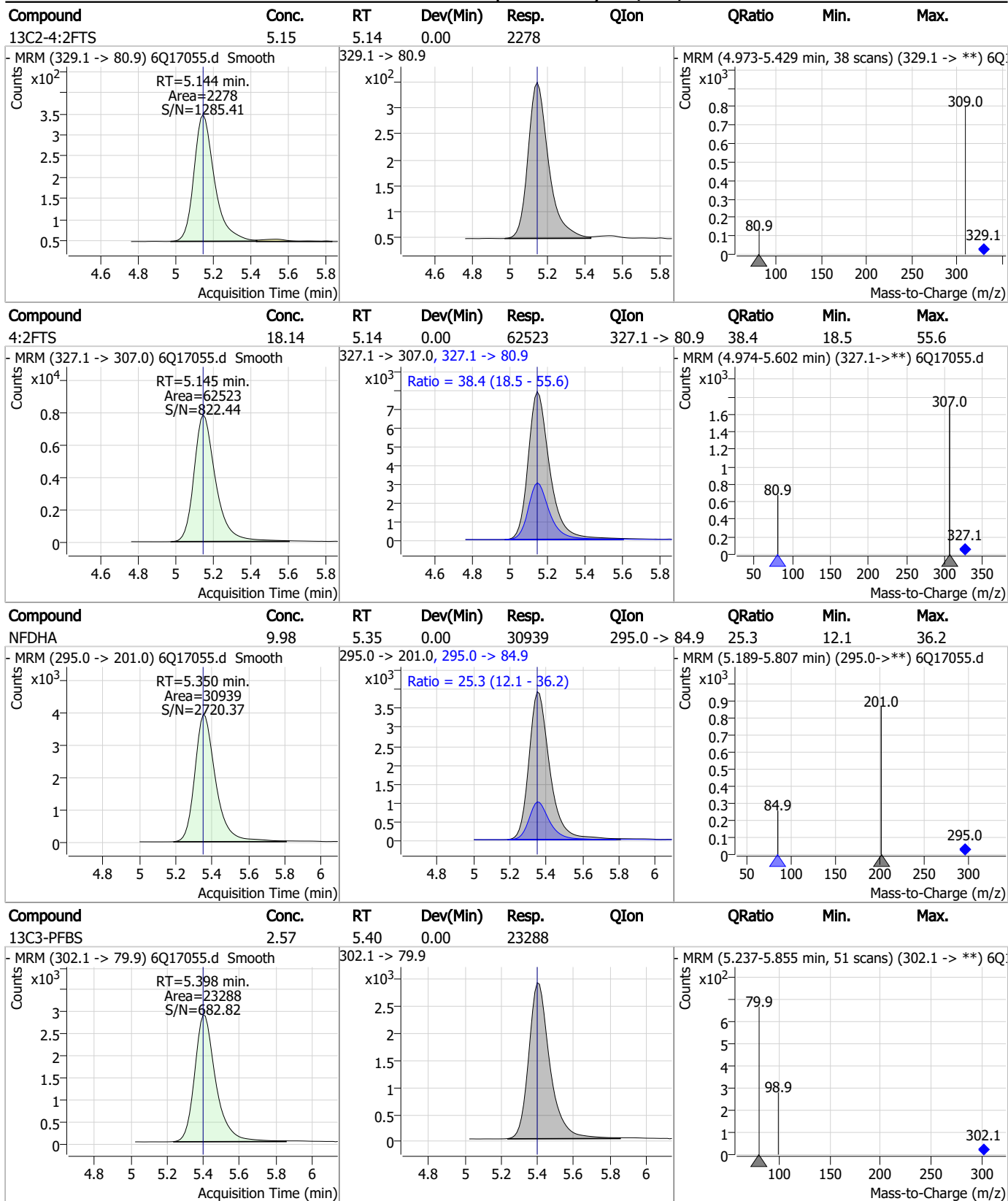


Perfluorinated Compounds by LC/MS/MS



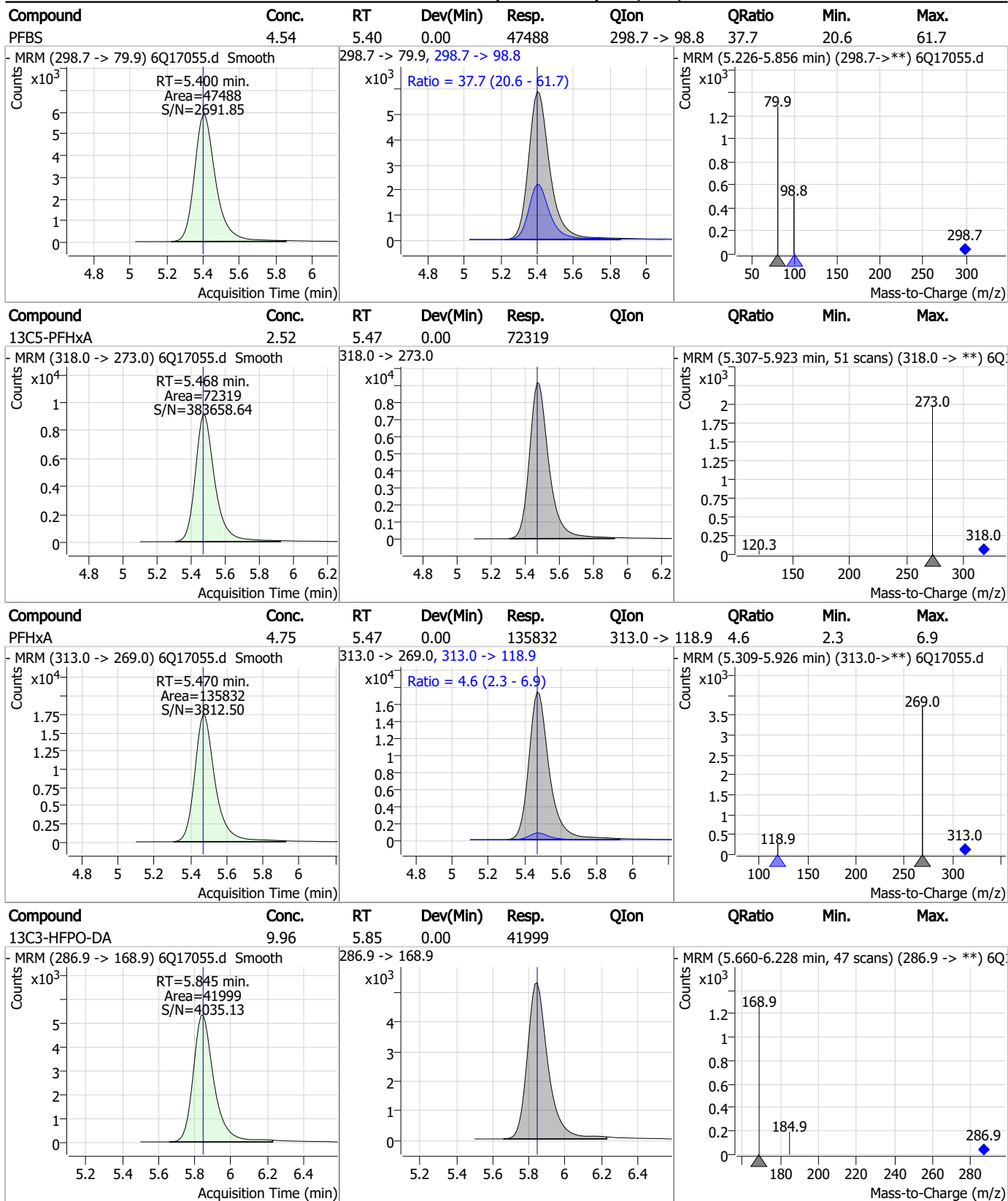
7.7.6
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Perfluorinated Compounds by LC/MS/MS



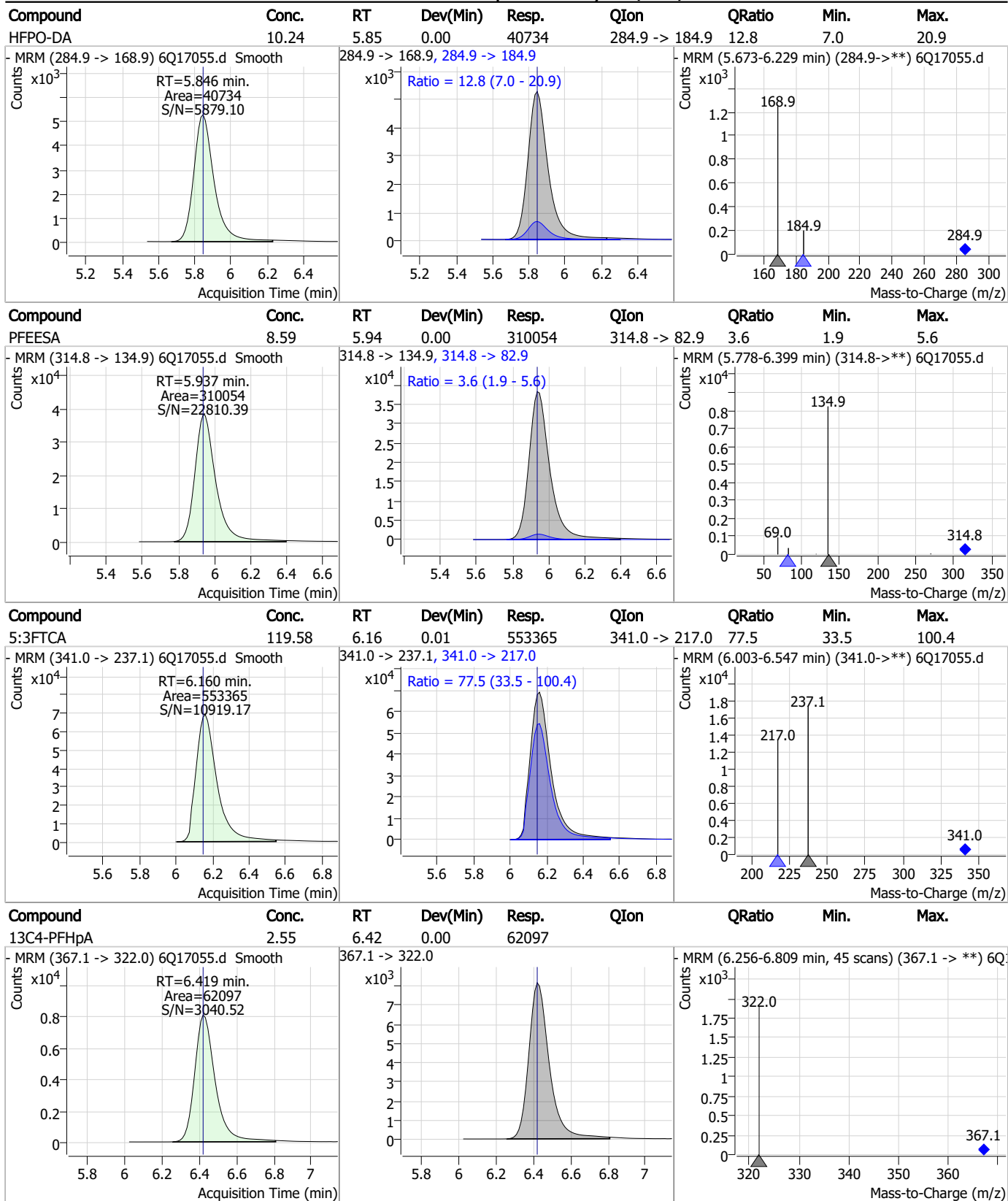
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Perfluorinated Compounds by LC/MS/MS



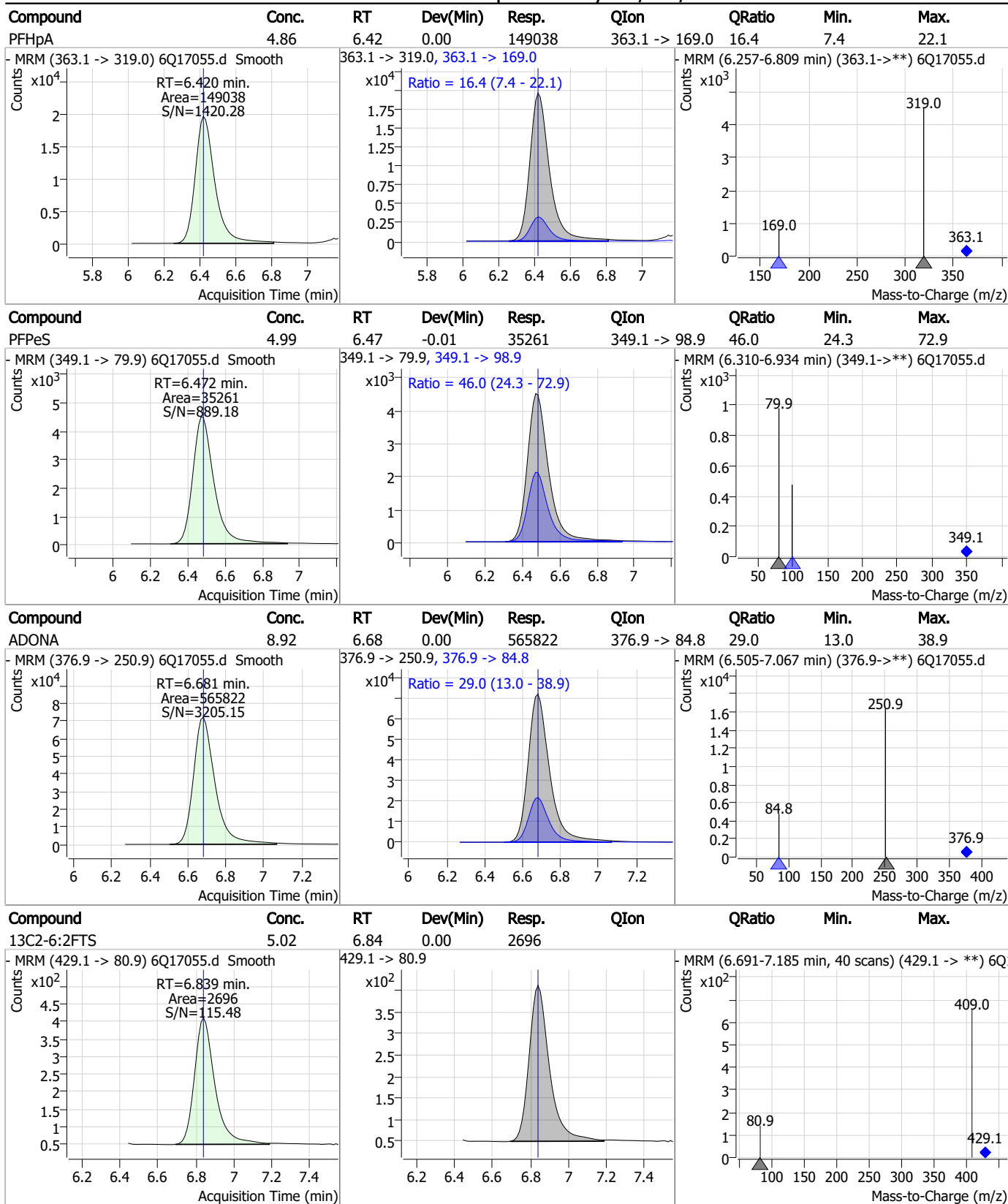
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Perfluorinated Compounds by LC/MS/MS



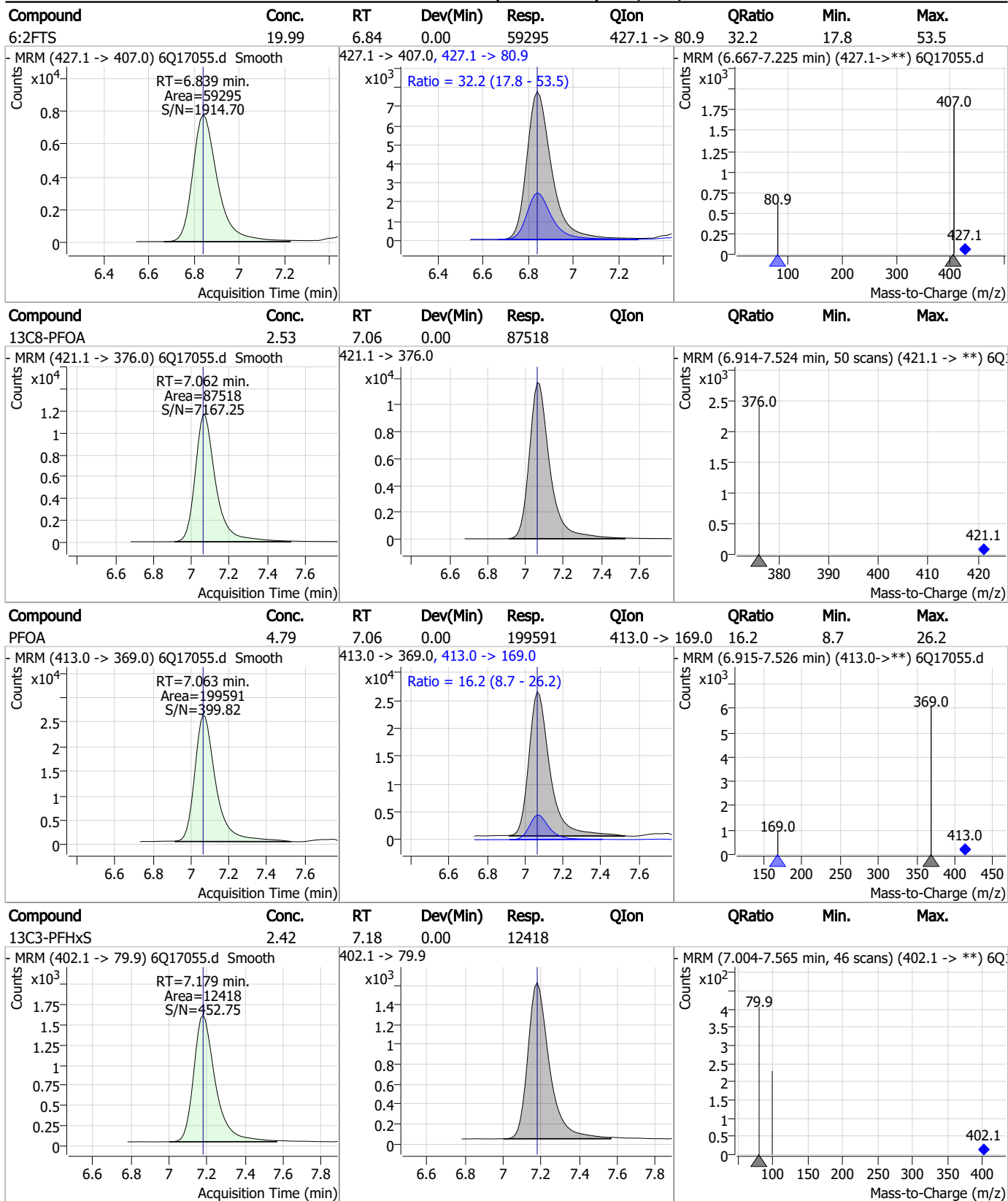
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Perfluorinated Compounds by LC/MS/MS



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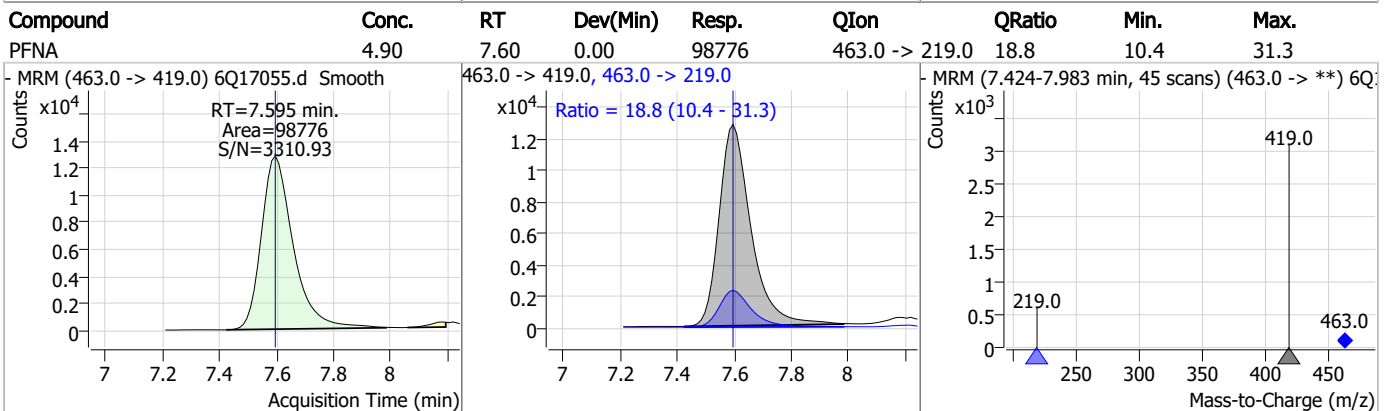
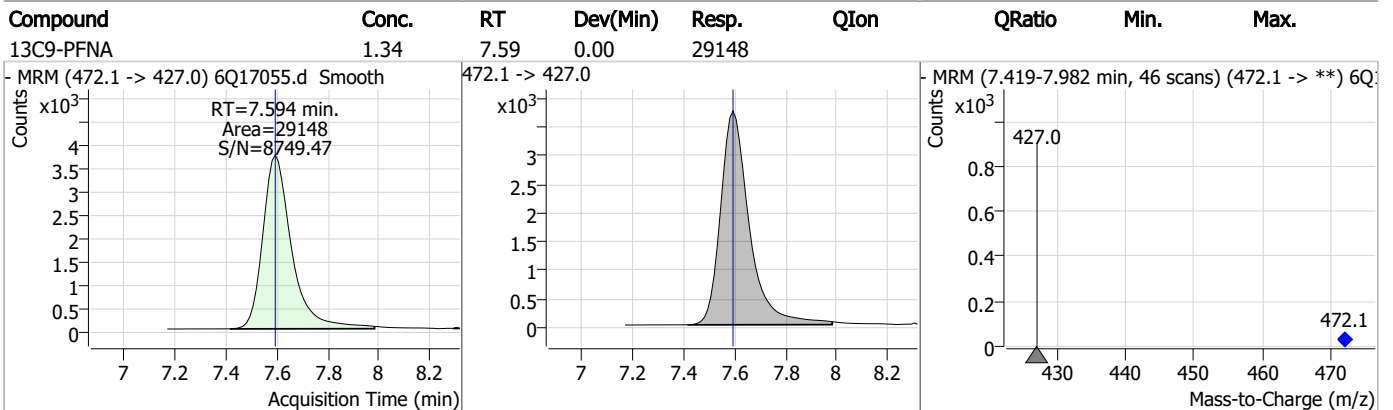
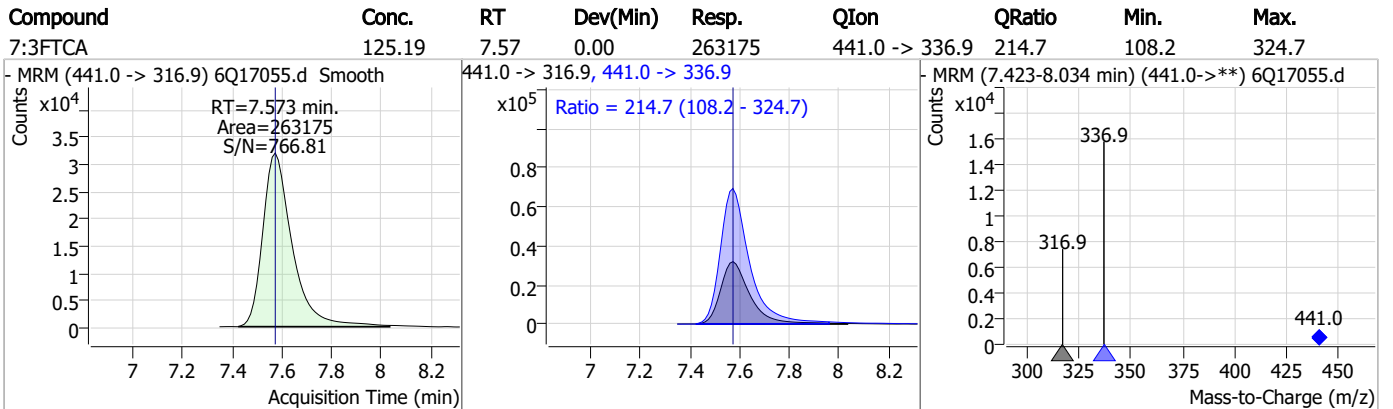
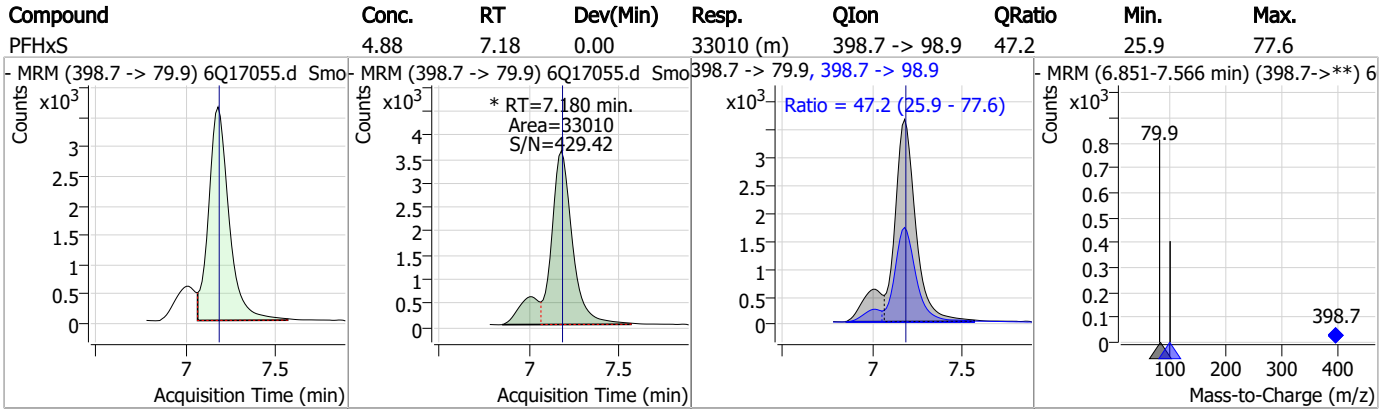
Perfluorinated Compounds by LC/MS/MS



7.7.6

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Perfluorinated Compounds by LC/MS/MS



7.7.6

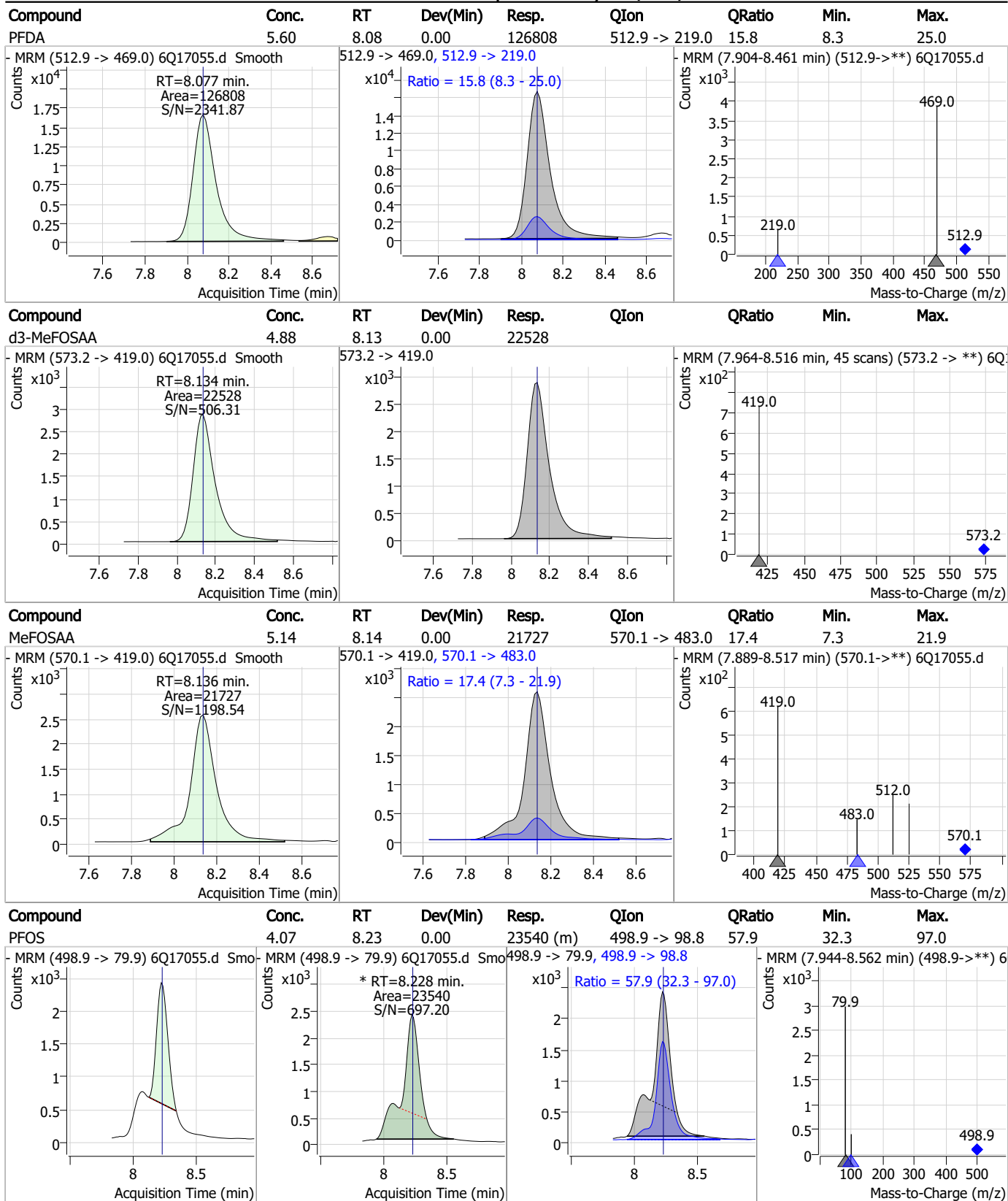
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.46	7.73	0.00	28974	449.0 -> 98.9	46.5	25.4	76.1
13C2-8:2FTS	5.08	7.86	0.00	2934	529.1 -> 80.9			
8:2FTS	18.65	7.87	0.00	32560	527.1 -> 80.8	40.4	20.3	61.0
13C6-PFDA	1.21	8.08	0.00	20839	519.1 -> 474.1			

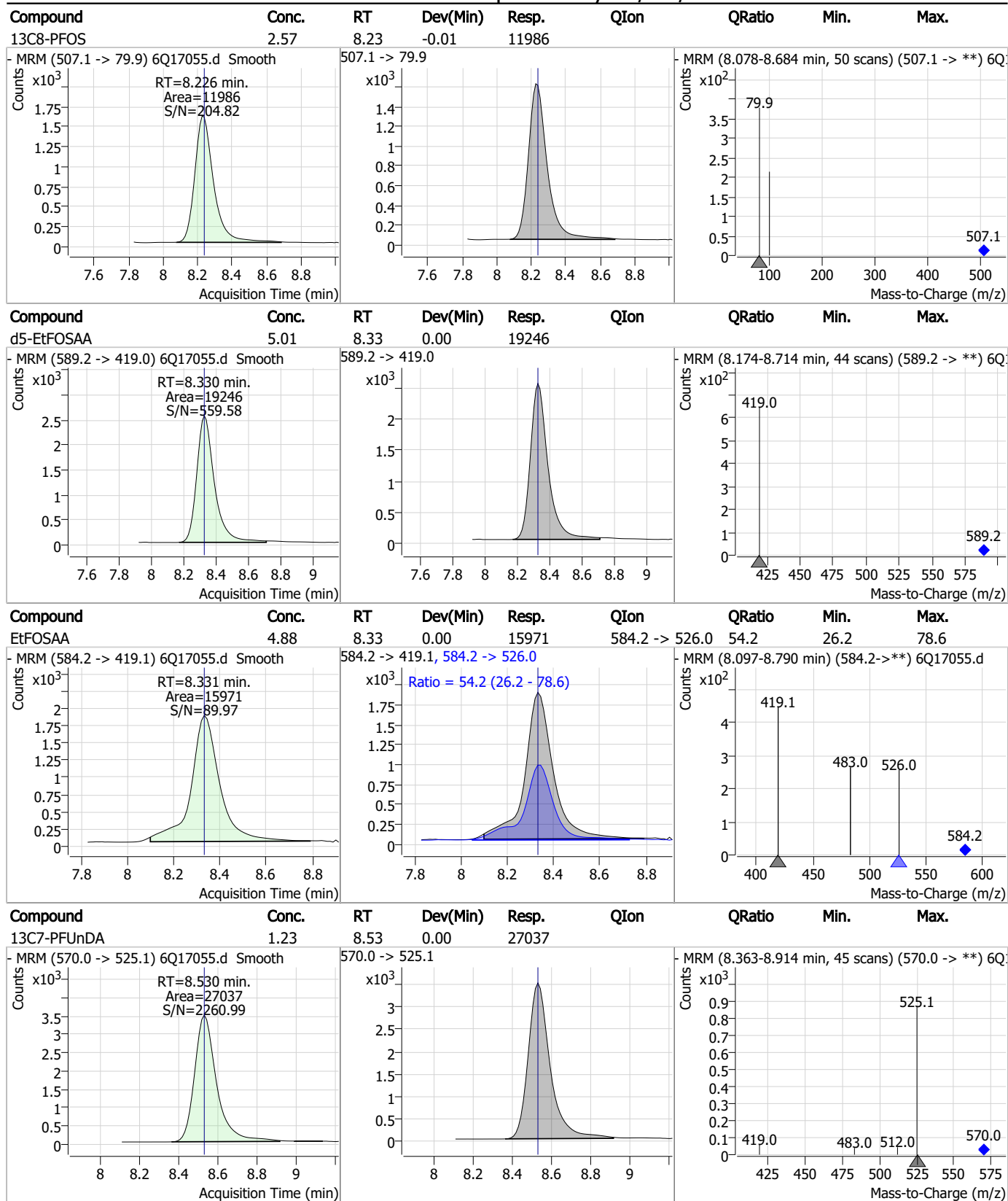
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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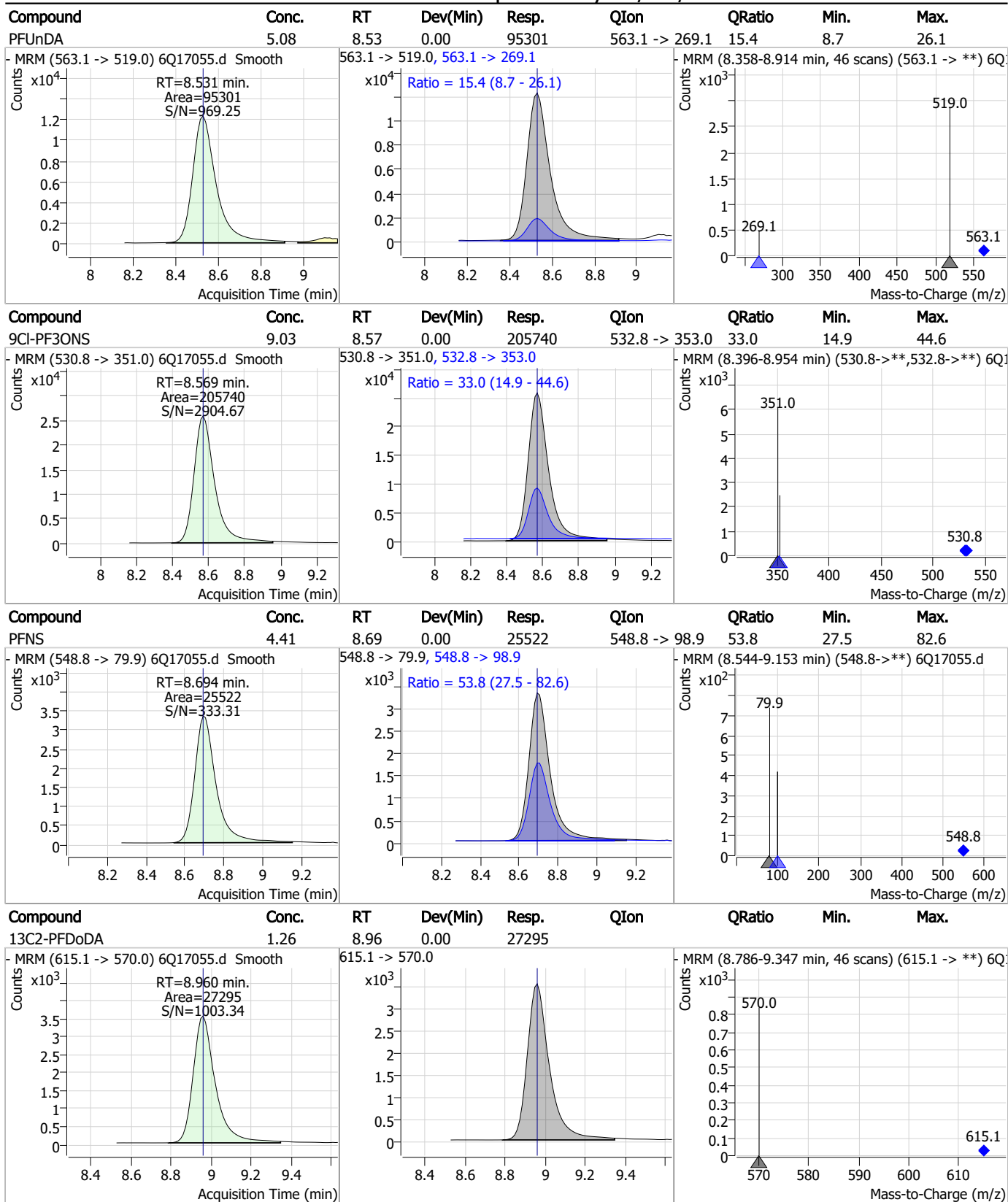
Perfluorinated Compounds by LC/MS/MS



7.7.6

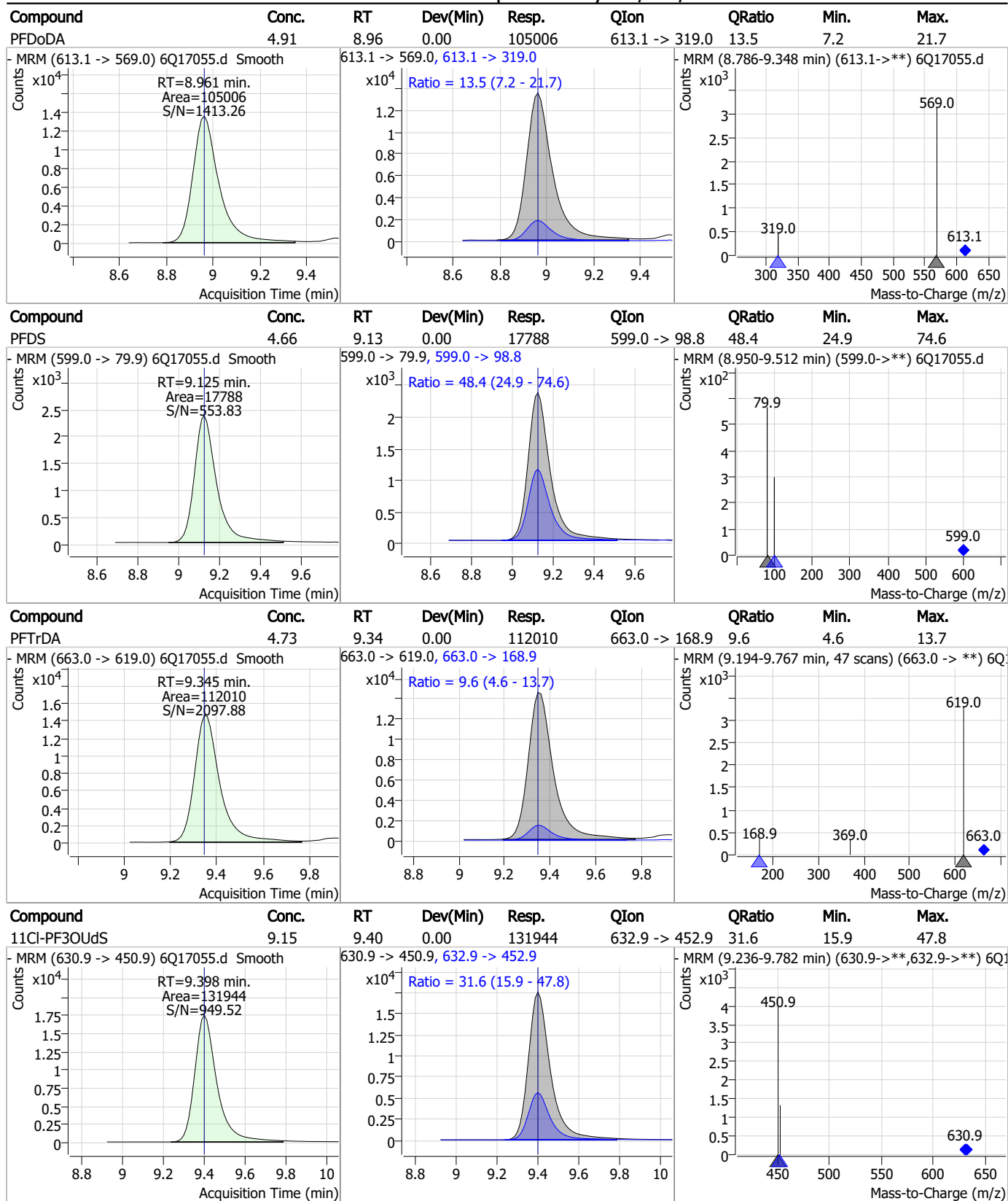
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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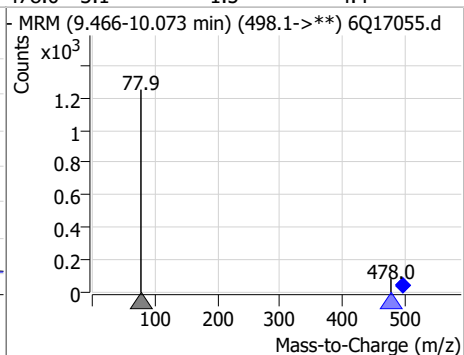
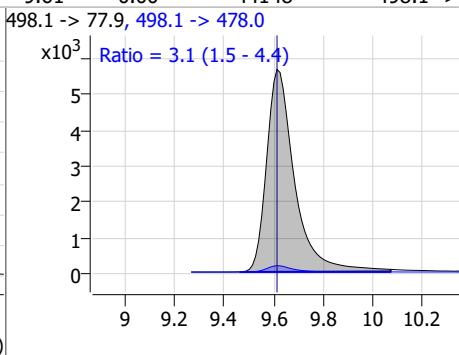
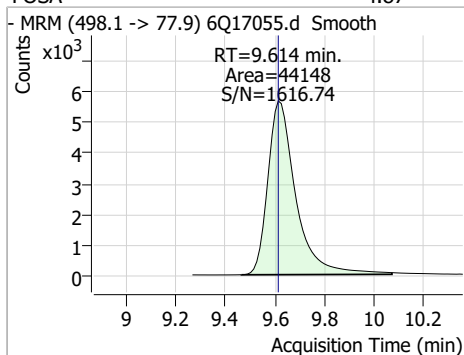
Perfluorinated Compounds by LC/MS/MS



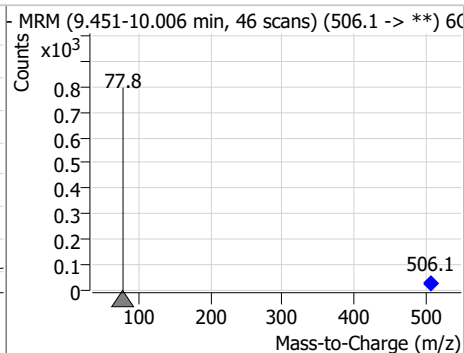
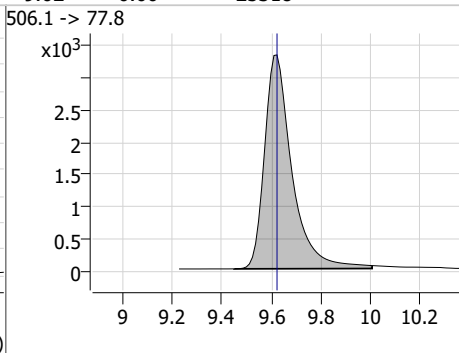
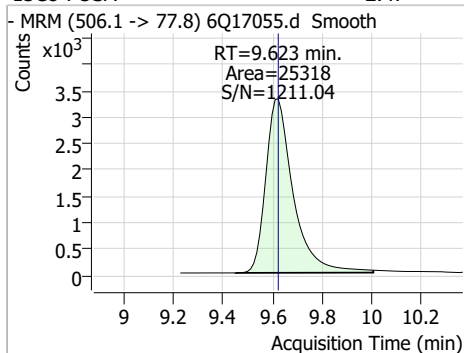
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Perfluorinated Compounds by LC/MS/MS

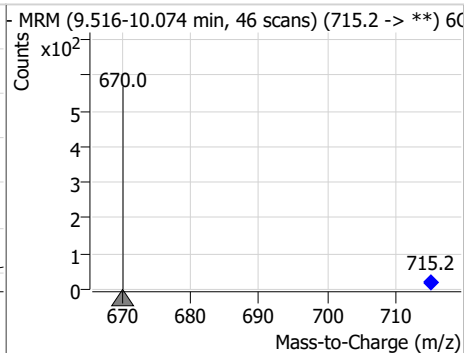
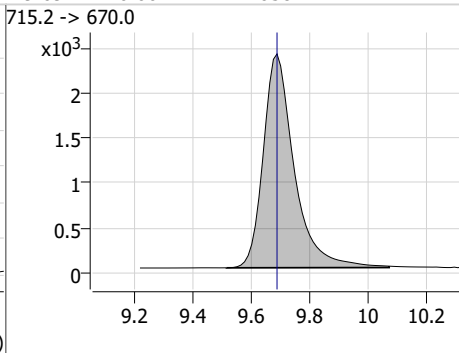
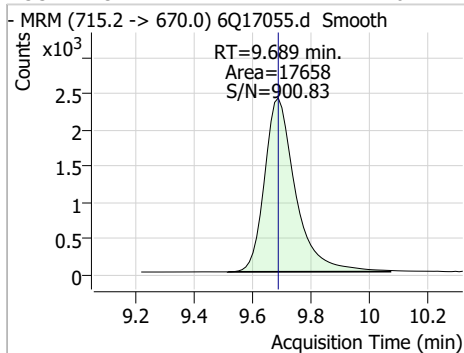
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.87	9.61	0.00	44148	498.1 -> 478.0	3.1	1.5	4.4



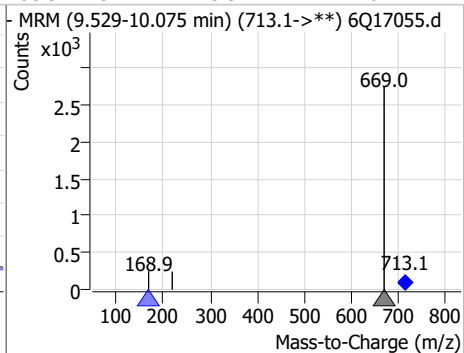
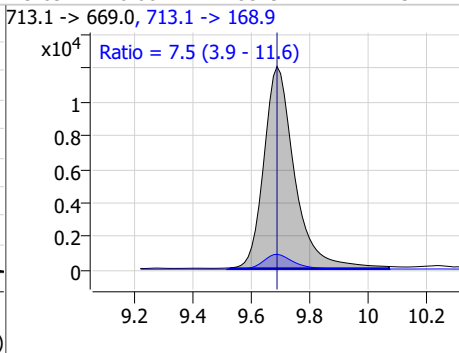
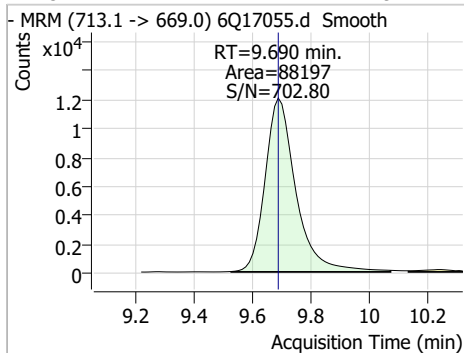
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.62	0.00	25318	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.69	0.00	17658	715.2 -> 670.0			

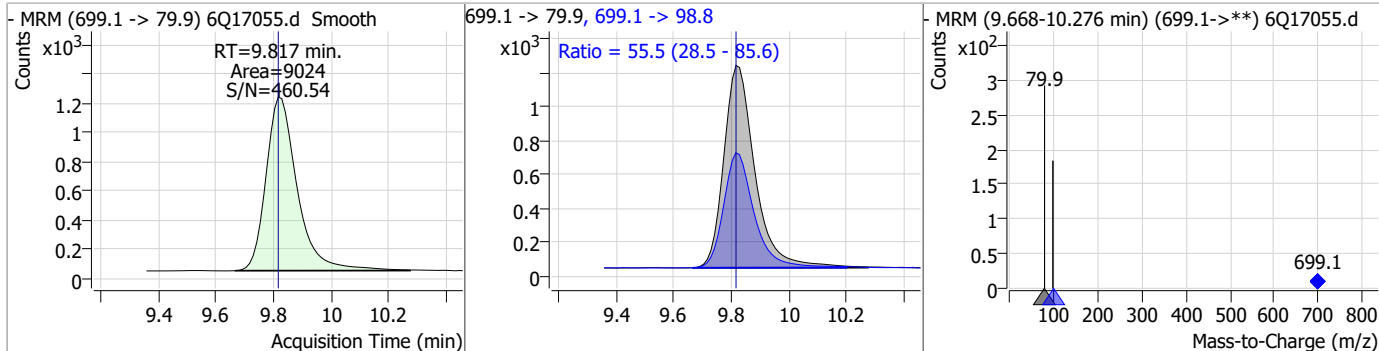


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.94	9.69	0.00	88197	713.1 -> 168.9	7.5	3.9	11.6

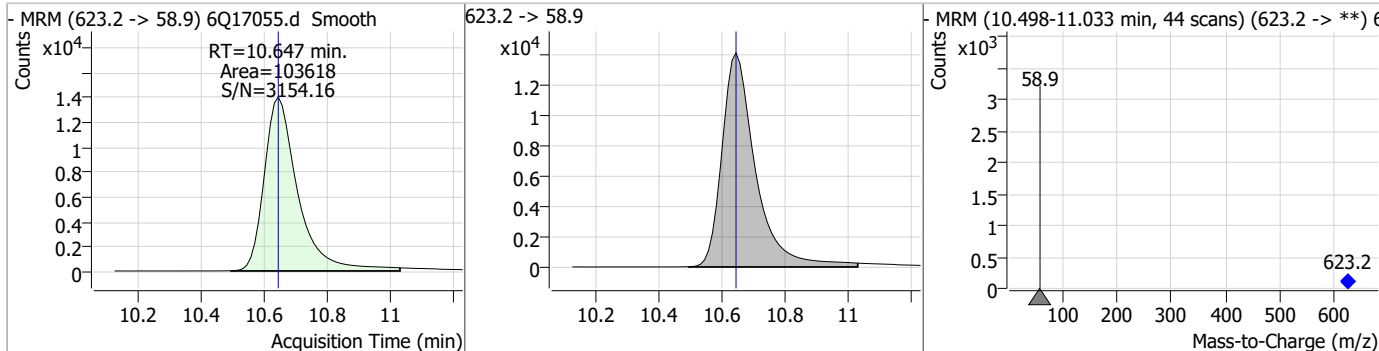


Perfluorinated Compounds by LC/MS/MS

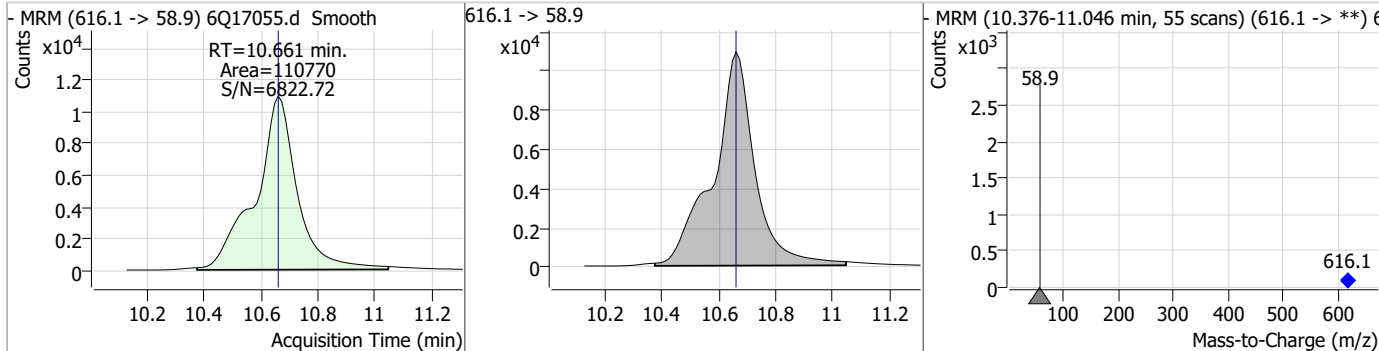
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	4.57	9.82	0.00	9024	699.1 -> 98.8	55.5	28.5	85.6



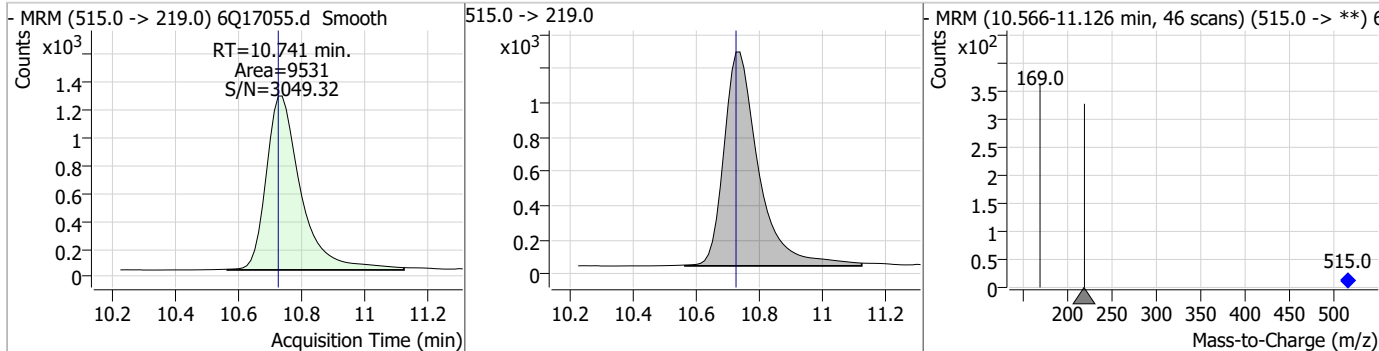
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.48	10.65	0.00	103618				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.97	10.66	0.00	110770				

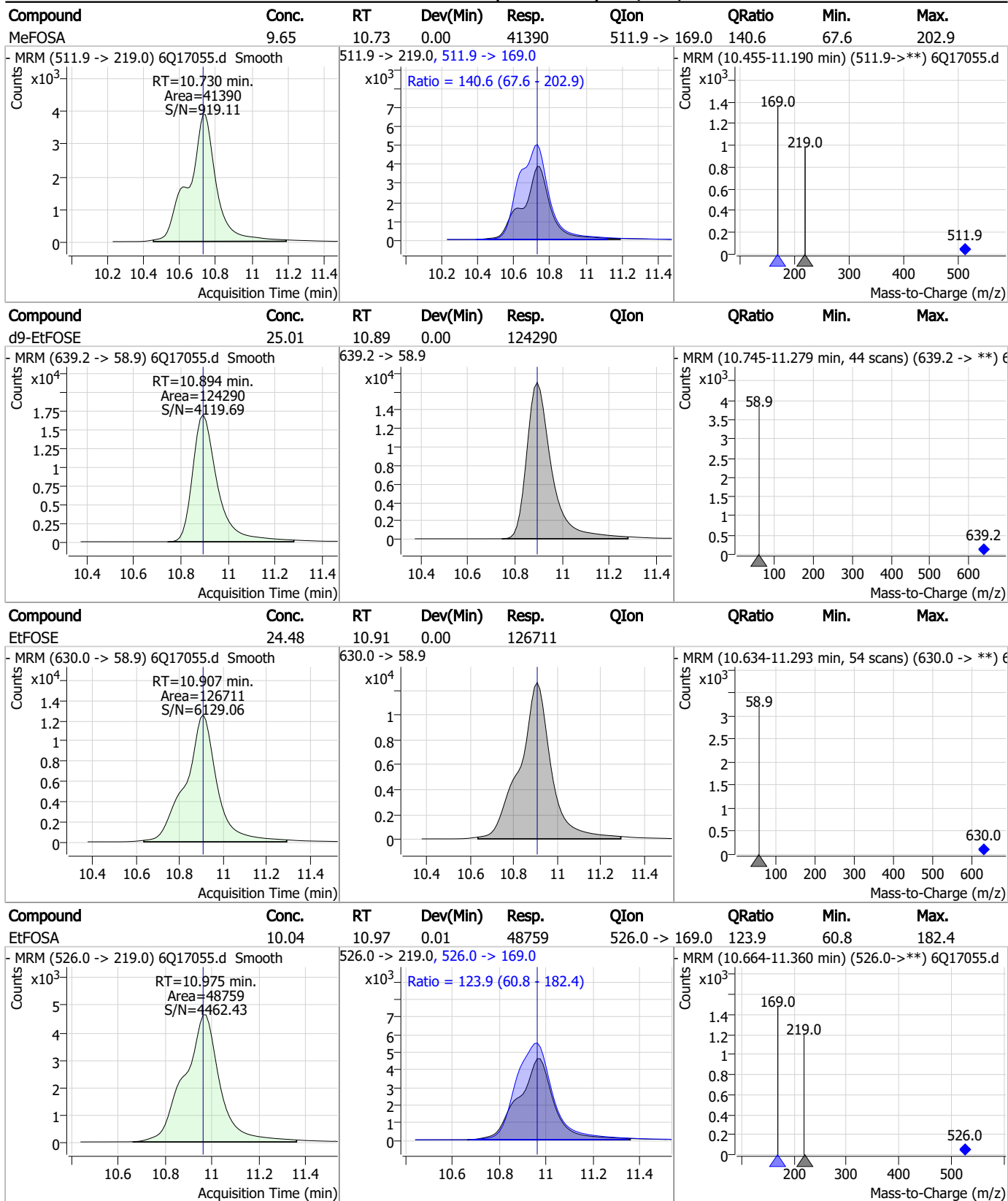


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.74	0.01	9531				



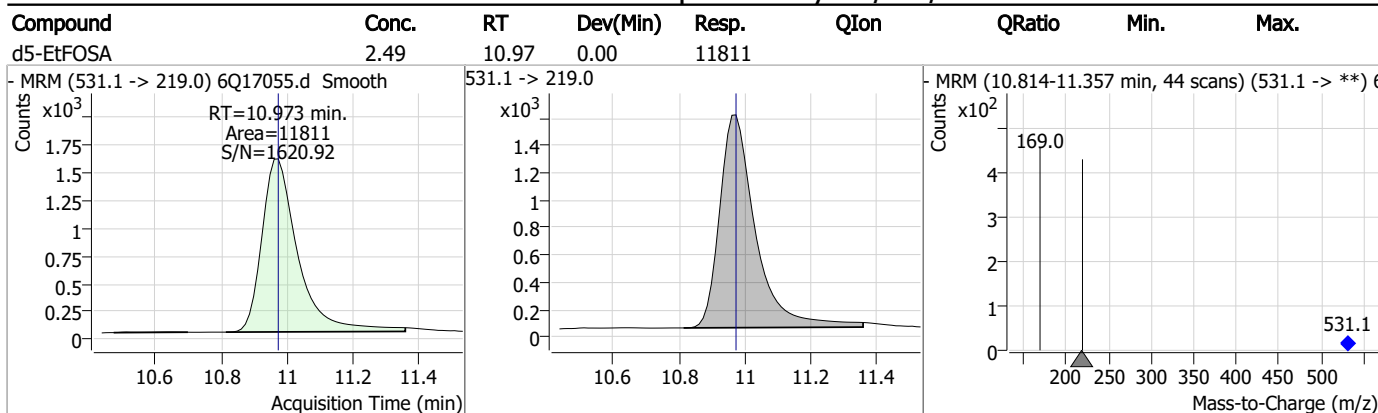
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17055.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:48 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.6.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17056.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:02:44 PM
 Sample Name : ic258-6
 Vial : P1-A7
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	182918	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	65165	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	71261	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	59927	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	81944	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26504	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20674	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26640	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26473	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17149	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24452	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23615	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13137	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11944	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2357	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2735	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	3025	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	21028	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40365	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	19800	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	97809	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116301	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11391	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9081	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14625	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	78714	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9890	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	89757	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25299	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28282	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	59565	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2357	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2735	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.877	529.1 -> 80.9	3025	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26473	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17149	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23615	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	13137	2.50 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFBA	2.910	216.8 -> 171.9	182918	10.06 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	59927	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.480	318.0 -> 273.0	71261	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.283	268.3 -> 223.0	65165	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C6-PFDA	8.076	519.1 -> 474.1	20674	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26640	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-FOSA	9.623	506.1 -> 77.8	24452	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOA	7.074	421.1 -> 376.0	81944	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-PFOS	8.239	507.1 -> 79.9	11944	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C9-PFNA	7.594	472.1 -> 427.0	26504	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21028	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40365	9.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	9081	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSAA	8.342	589.2 -> 419.0	19800	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
d7-MeFOSE	10.647	623.2 -> 58.9	97809	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	116301	24.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSA	10.960	531.1 -> 219.0	11391	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	164201	46.05 µg/L	99
		327.1 -> 80.9	61547		
6:2FTS	6.839	427.1 -> 407.0	150100	49.89 µg/L	95
		427.1 -> 80.9	48901		
8:2FTS	7.865	527.1 -> 507.0	90493	50.28 µg/L	97
		527.1 -> 80.8	35190		
EtFOSAA	8.343	584.2 -> 419.1	41294	12.27 µg/L	96
		584.2 -> 526.0	20564		
FOSA	9.614	498.1 -> 77.9	116518	13.30 µg/L	100
		498.1 -> 478.0	3568		
MeFOSAA	8.136	570.1 -> 419.0	56008	14.18 µg/L	92
		570.1 -> 483.0	10033		
PFBA	2.906	212.8 -> 168.9	325626	53.08 µg/L	100
PFBS	5.412	298.7 -> 79.9	123146	11.62 µg/L	94
		298.7 -> 98.8	45951		
PFDA	8.077	512.9 -> 469.0	310432	13.82 µg/L	99
		512.9 -> 219.0	49983		
PFDoDA	8.961	613.1 -> 569.0	262334	12.64 µg/L	99
		613.1 -> 319.0	36448		
PFDS	9.125	599.0 -> 79.9	47477	12.47 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	23285			
PFHpA	6.432	363.1 -> 319.0	383701	12.97	µg/L	96
		363.1 -> 169.0	63514			
PFHpS	7.734	449.0 -> 79.9	77309	11.94	µg/L	96
		449.0 -> 98.9	37059			
PFHxA	5.483	313.0 -> 269.0	351148	12.46	µg/L	99
		313.0 -> 118.9	16863			
PFHxS	7.180	398.7 -> 79.9	83675	11.69	µg/L	m 93
		398.7 -> 98.9	39063			
PFNA	7.595	463.0 -> 419.0	245308	13.38	µg/L	97
		463.0 -> 219.0	48340			
PFNS	8.694	548.8 -> 79.9	73363	12.73	µg/L	91
		548.8 -> 98.9	35503			
PFOA	7.076	413.0 -> 369.0	521413	13.24	µg/L	99
		413.0 -> 169.0	88911			
PFOS	8.240	498.9 -> 79.9	64796	11.23	µg/L	m 89
		498.9 -> 98.8	36229			
PFPeA	4.273	263.0 -> 219.0	467679	26.35	µg/L	100
PFPeS	6.484	349.1 -> 79.9	93454	12.50	µg/L	92
		349.1 -> 98.9	40304			
PFTeDA	9.690	713.1 -> 669.0	218682	12.62	µg/L	100
		713.1 -> 168.9	16819			
PFTrDA	9.345	663.0 -> 619.0	293383	12.77	µg/L	100
		663.0 -> 168.9	27108			
PFUnDA	8.531	563.1 -> 519.0	227104	12.29	µg/L	98
		563.1 -> 269.1	37957			
11CI-PF3OUdS	9.398	630.9 -> 450.9	362990	26.20	µg/L	97
		632.9 -> 452.9	109902			
9CI-PF3ONS	8.569	530.8 -> 351.0	570836	26.06	µg/L	100
		532.8 -> 353.0	169030			
ADONA	6.681	376.9 -> 250.9	1545088	25.34	µg/L	99
		376.9 -> 84.8	408733			
HFPO-DA	5.846	284.9 -> 168.9	101426	26.53	µg/L	95
		284.9 -> 184.9	12065			
3:3FTCA	3.784	241.0 -> 177.0	72254	65.10	µg/L	97
		241.0 -> 117.0	8741			
5:3FTCA	6.160	341.0 -> 237.1	1457959	319.75	µg/L	93
		341.0 -> 217.0	1062147			
7:3FTCA	7.573	441.0 -> 316.9	627064	302.73	µg/L	91
		441.0 -> 336.9	1451519			
EtFOSA	10.962	526.0 -> 219.0	119231	25.47	µg/L	92
		526.0 -> 169.0	155669			
EtFOSE	10.907	630.0 -> 58.9	329424	68.02	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	111843	27.37	µg/L	m 100
		511.9 -> 169.0	151496			
MeFOSE	10.661	616.1 -> 58.9	285034	65.35	µg/L	100
PFDoS	9.817	699.1 -> 79.9	23827	12.10	µg/L	96
		699.1 -> 98.8	12919			
NFDHA	5.363	295.0 -> 201.0	78262	25.63	µg/L	100
		295.0 -> 84.9	19079			
PFMBA	4.687	279.0 -> 85.1	317585	26.67	µg/L	100
PFMPA	3.438	229.0 -> 84.9	234079	26.35	µg/L	100
PFEESA	5.949	314.8 -> 134.9	821610	23.11	µg/L	99
		314.8 -> 82.9	28517			

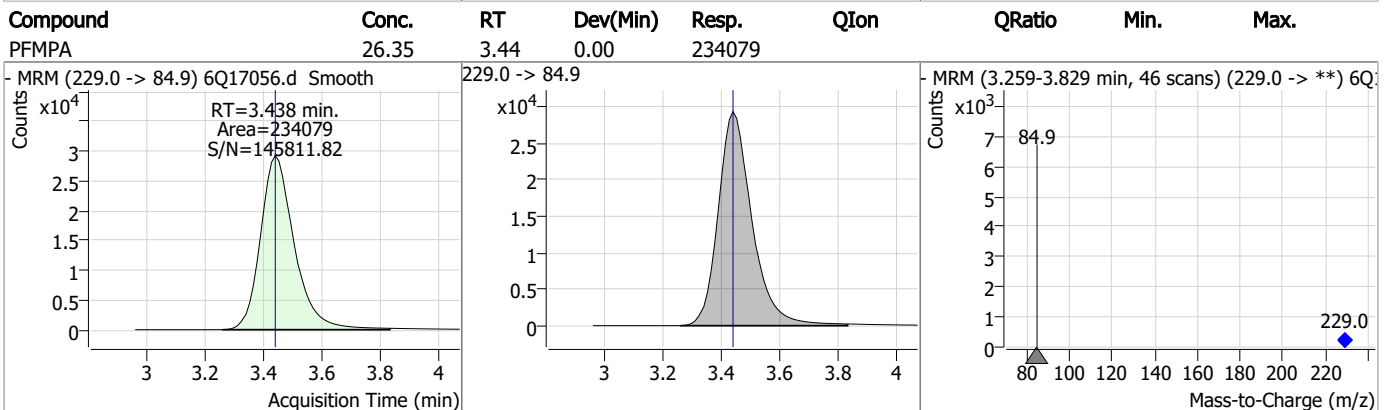
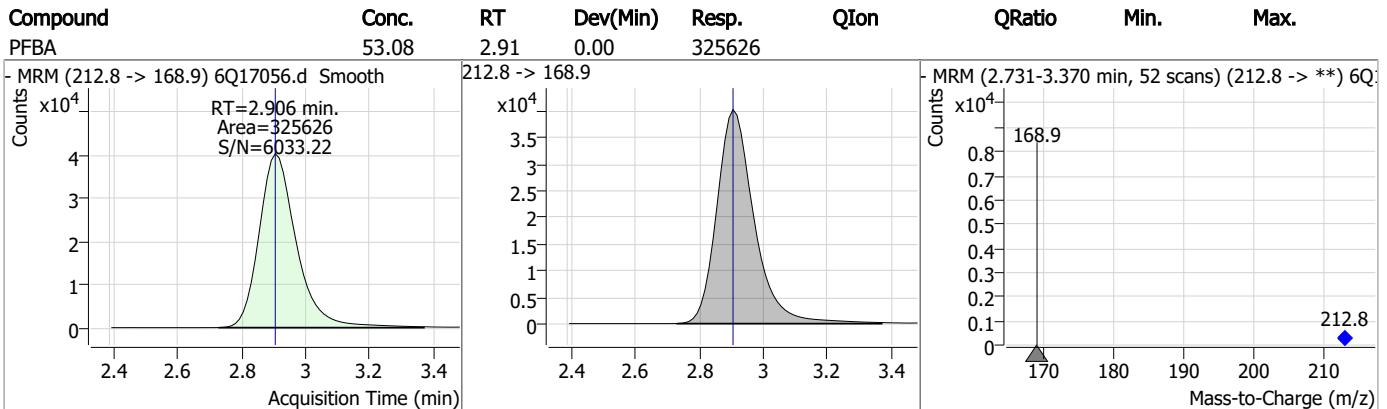
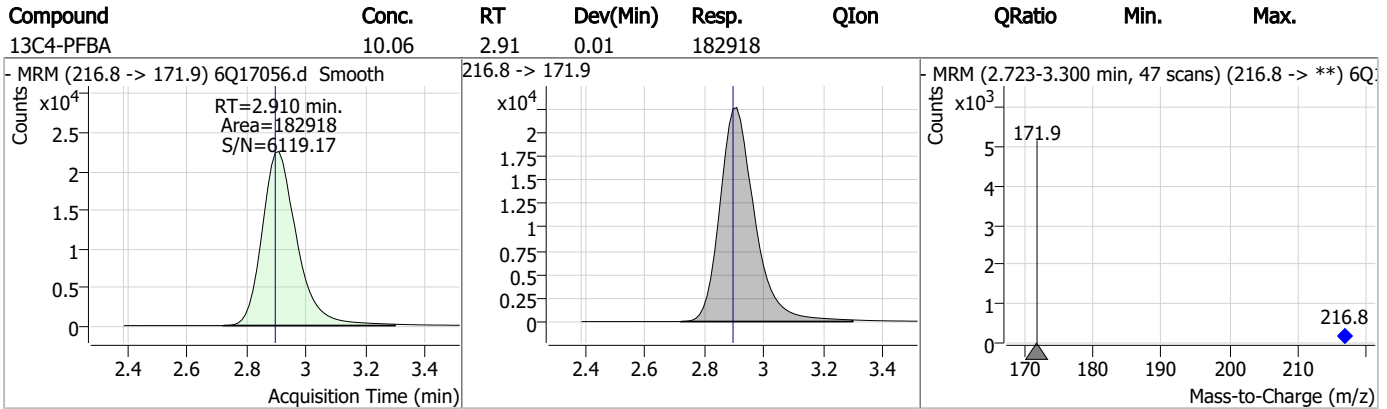
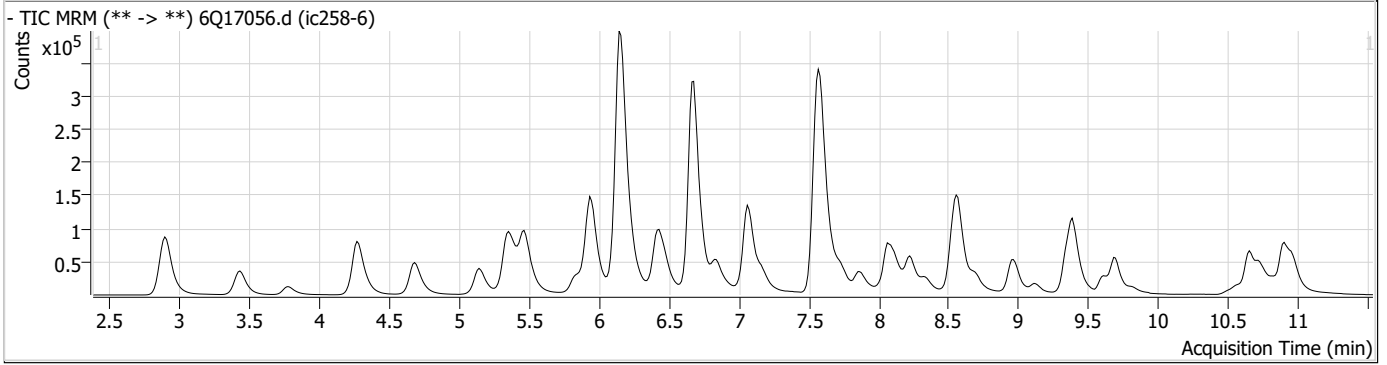
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS



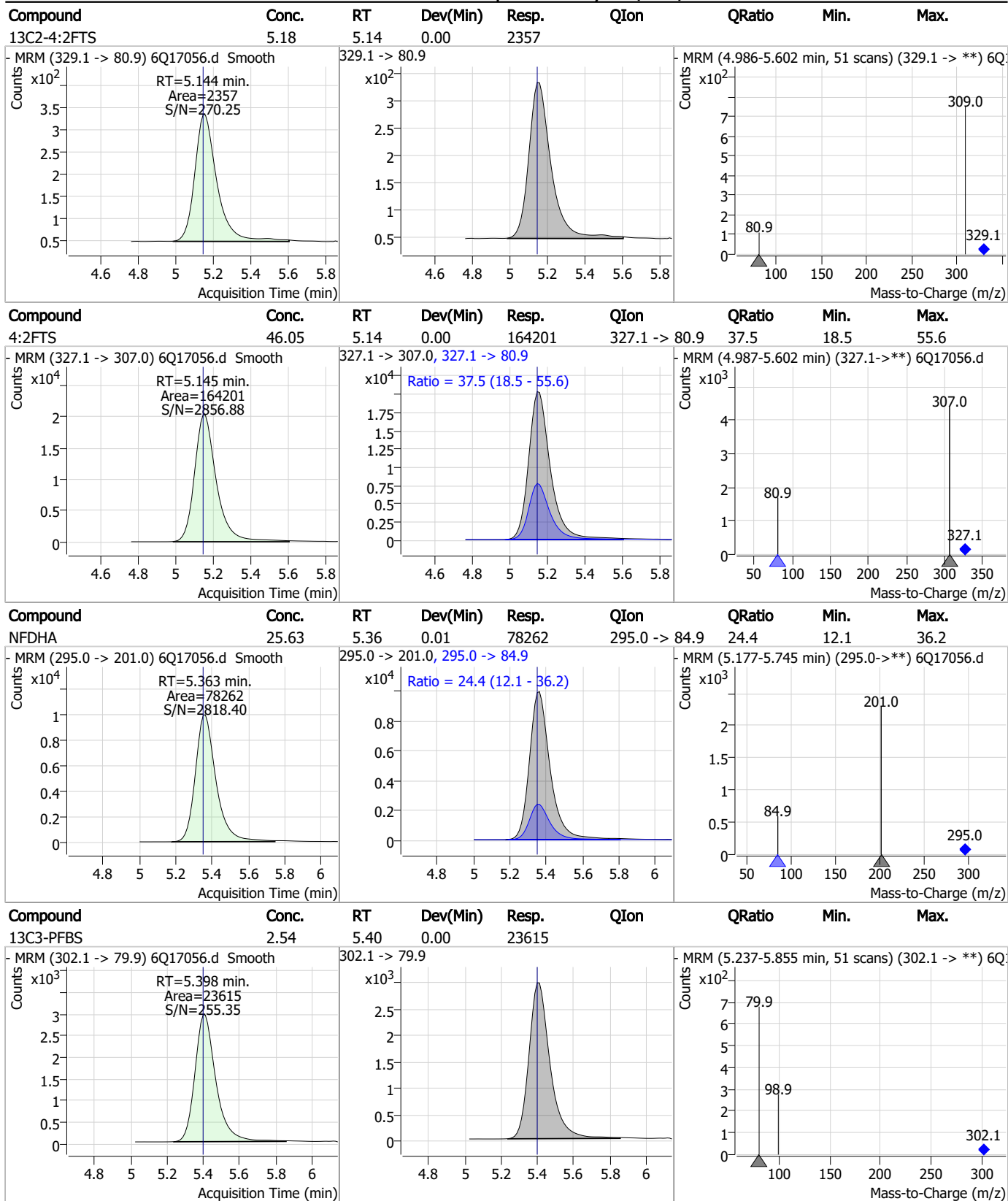
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	65.10	3.78	0.00	72254	241.0 -> 117.0	12.1	6.7	20.0
- MRM (241.0 -> 177.0) 6Q17056.d Smooth			241.0 -> 177.0, 241.0 -> 117.0			- MRM (3.609-4.178 min) (241.0->**) 6Q17056.d		
13C5-PFPeA	4.90	4.28	0.01	65165				
- MRM (268.3 -> 223.0) 6Q17056.d Smooth			268.3 -> 223.0			- MRM (4.095-4.676 min, 47 scans) (268.3 -> **) 6Q17056.d		
PFPeA	26.35	4.27	0.00	467679				
- MRM (263.0 -> 219.0) 6Q17056.d Smooth			263.0 -> 219.0			- MRM (4.110-4.740 min, 51 scans) (263.0 -> **) 6Q17056.d		
PFMBA	26.67	4.69	0.00	317585				
- MRM (279.0 -> 85.1) 6Q17056.d Smooth			279.0 -> 85.1			- MRM (4.512-5.153 min, 52 scans) (279.0 -> **) 6Q17056.d		

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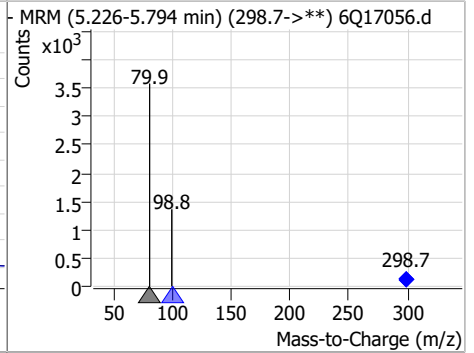
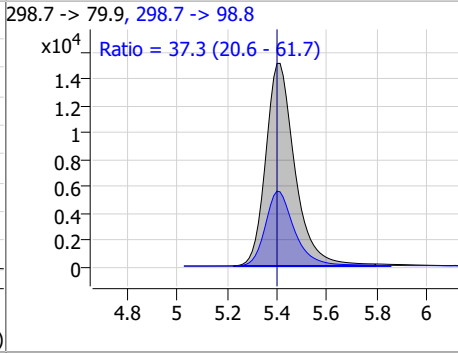
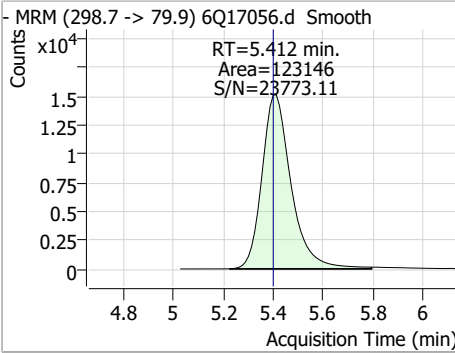
Perfluorinated Compounds by LC/MS/MS



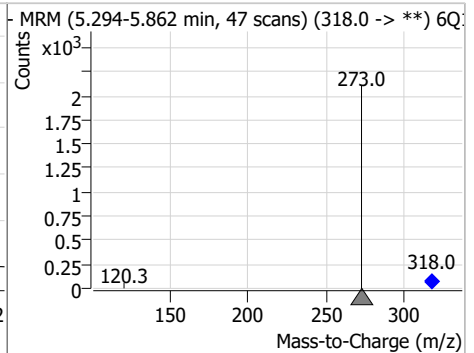
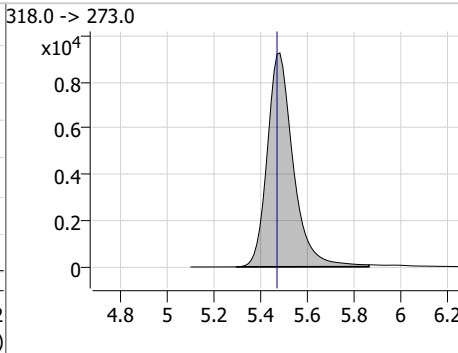
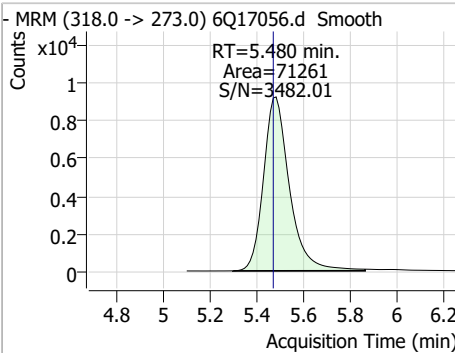
7.7.7
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Perfluorinated Compounds by LC/MS/MS

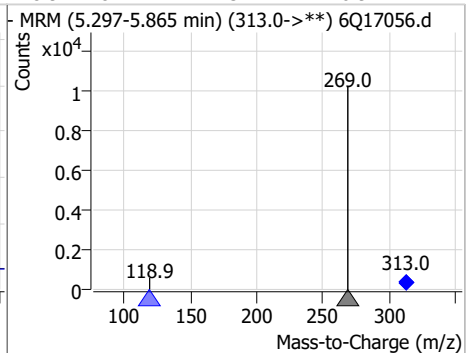
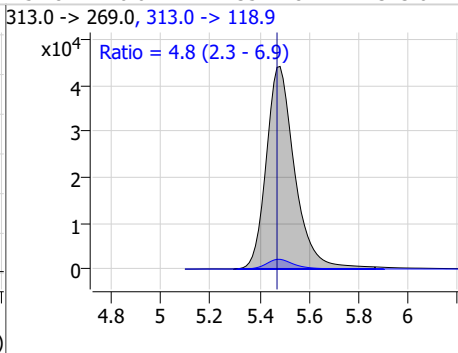
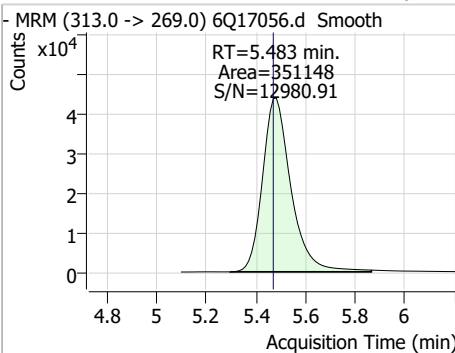
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.62	5.41	0.01	123146	298.7 -> 98.8	37.3	20.6	61.7



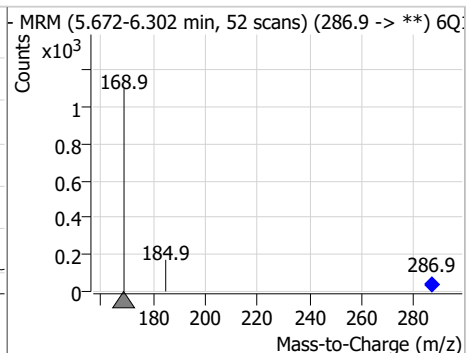
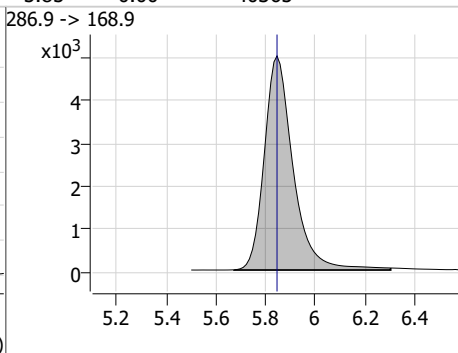
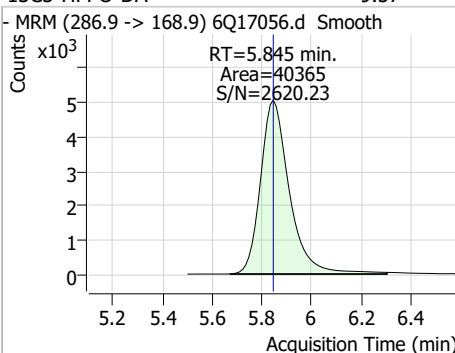
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.48	0.01	71261				



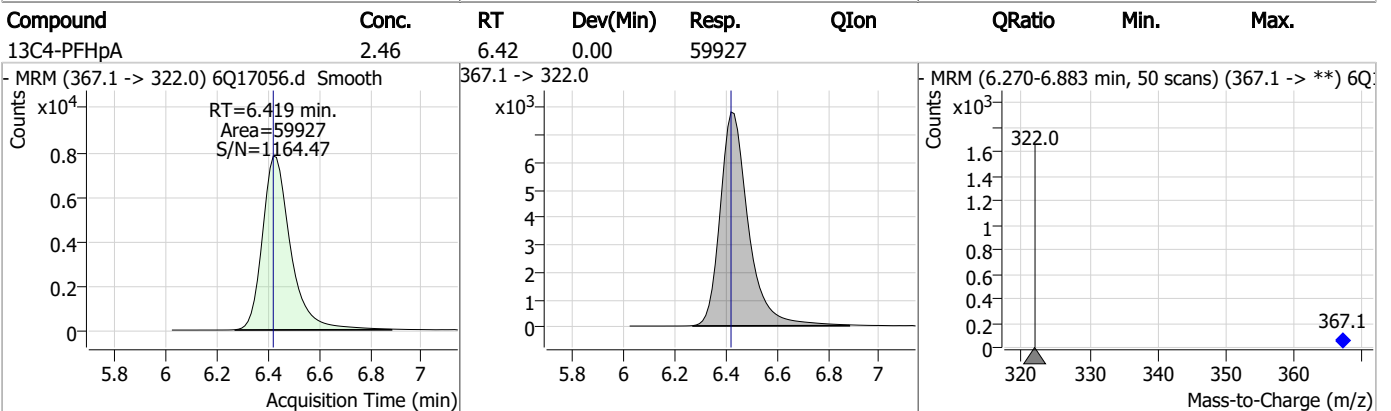
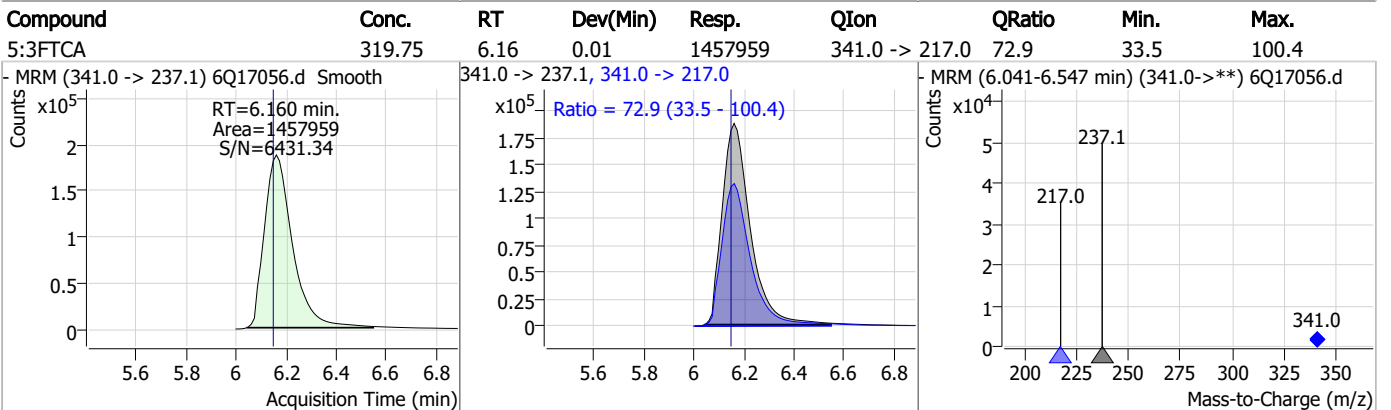
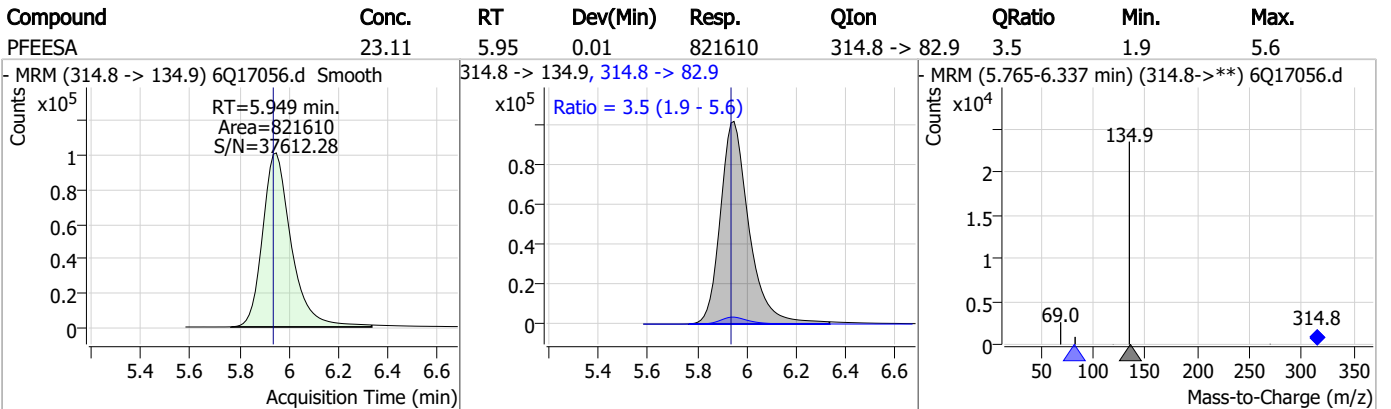
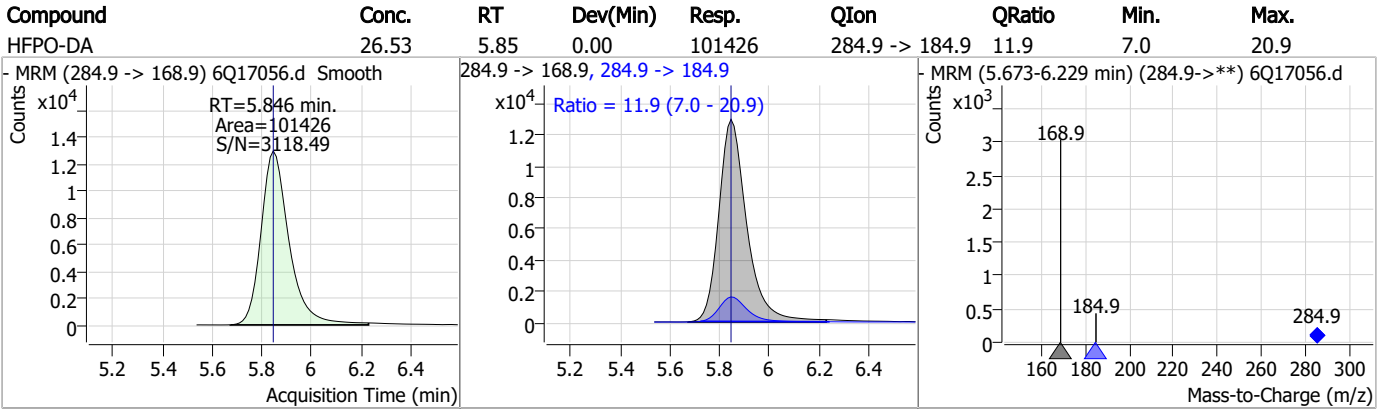
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.46	5.48	0.01	351148	313.0 -> 118.9	4.8	2.3	6.9



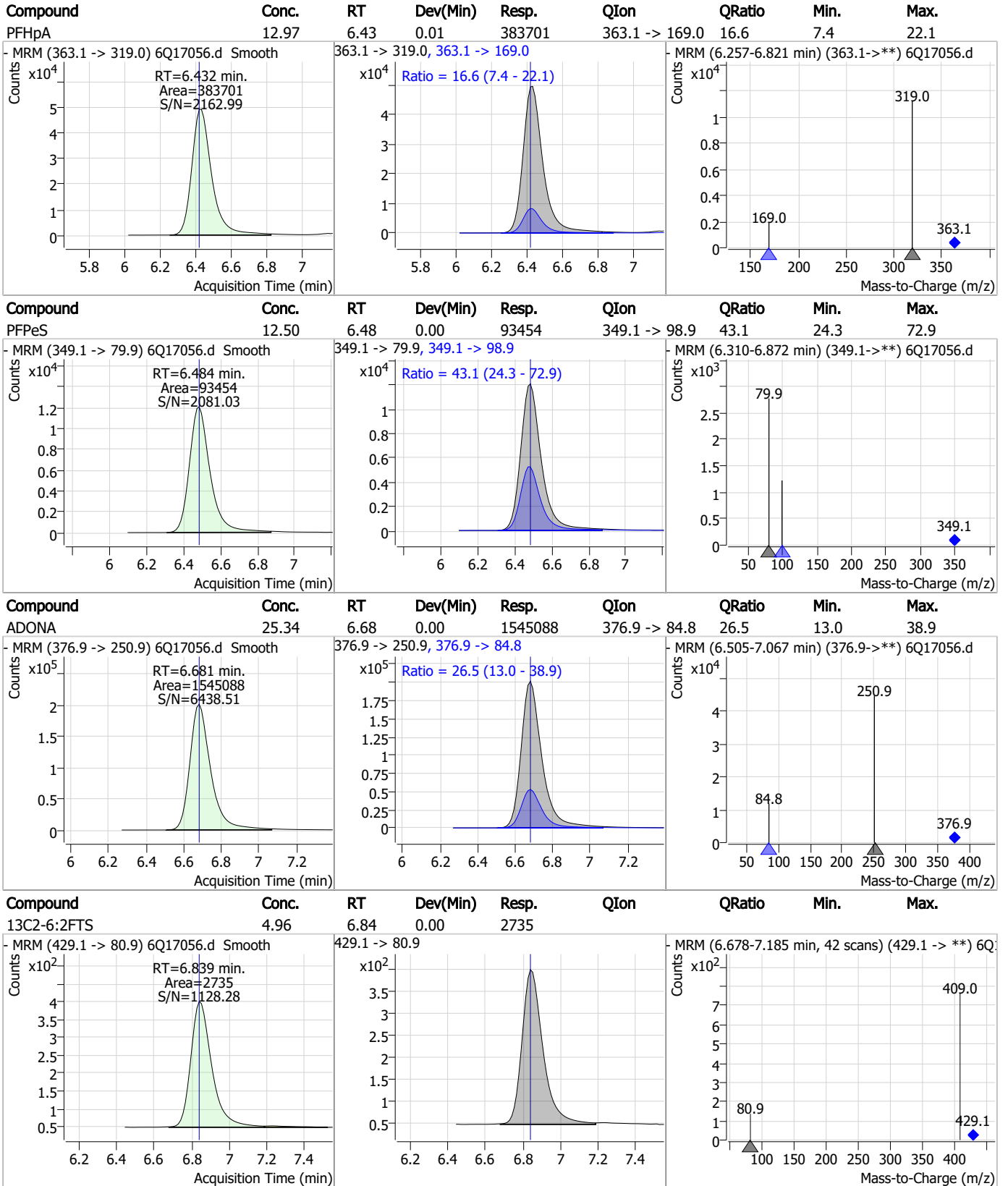
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.57	5.85	0.00	40365				



Perfluorinated Compounds by LC/MS/MS



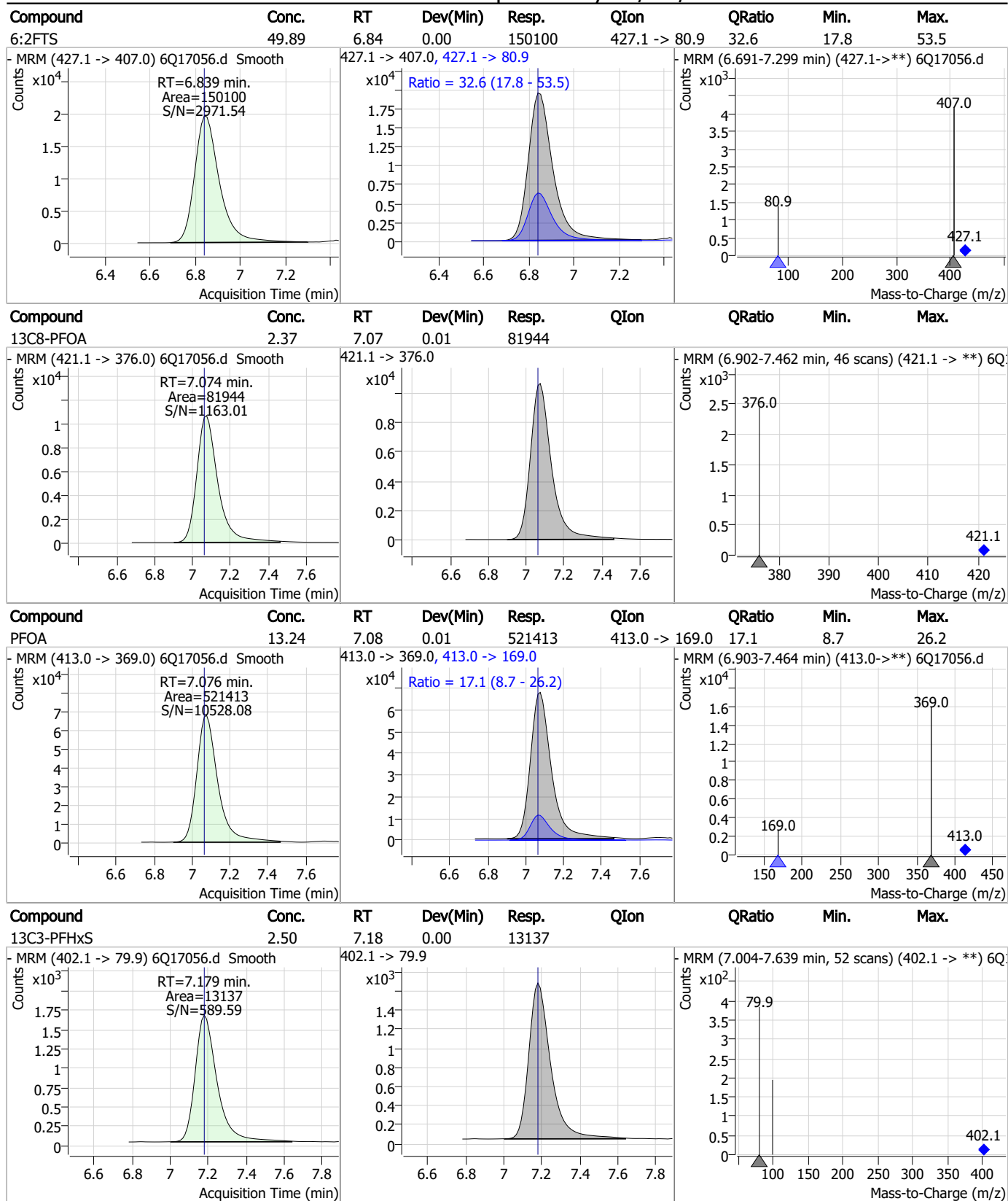
Perfluorinated Compounds by LC/MS/MS



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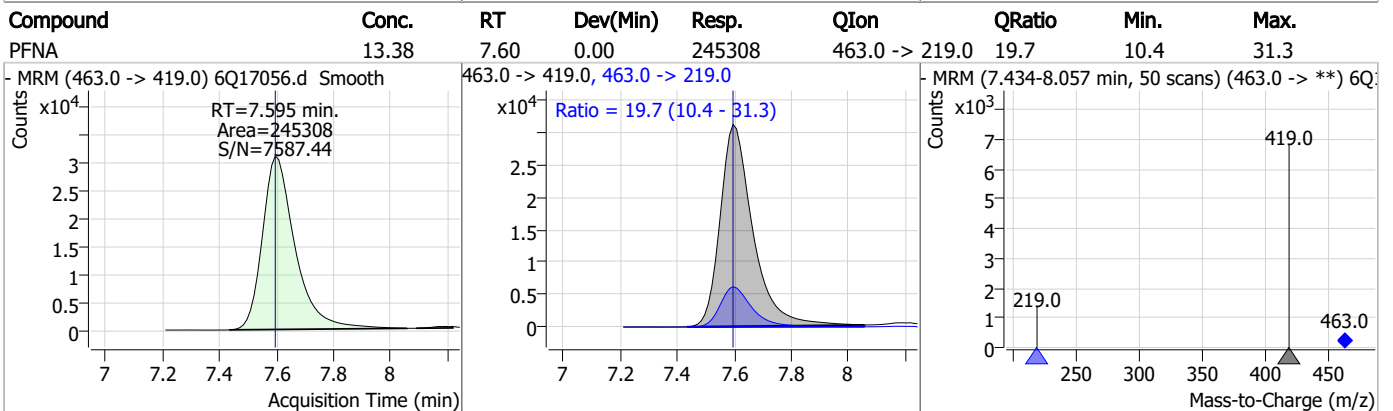
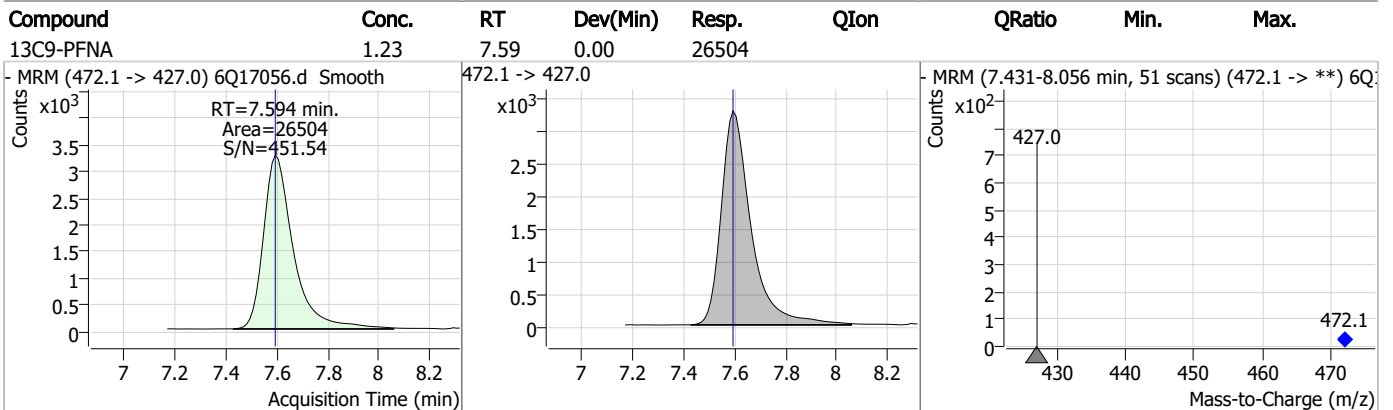
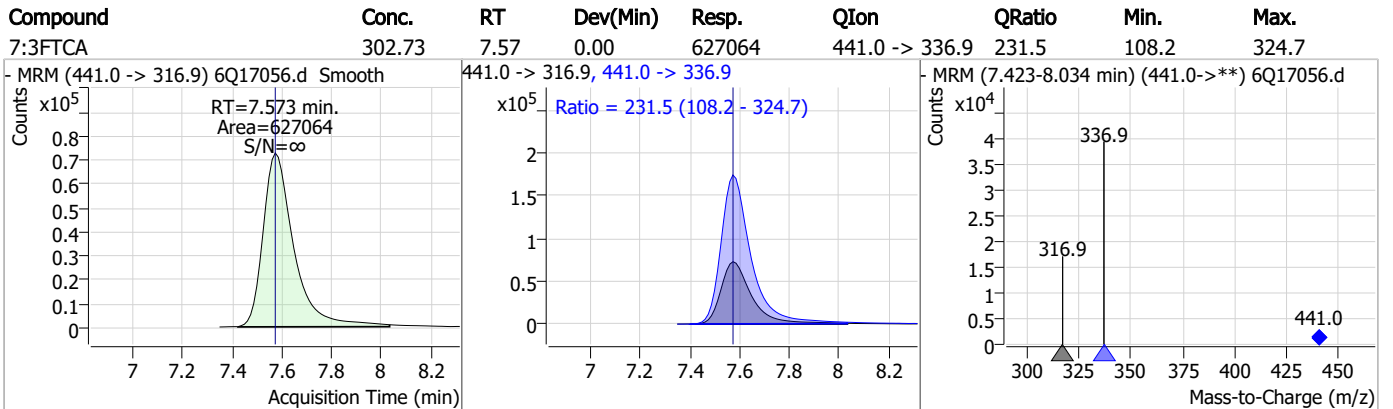
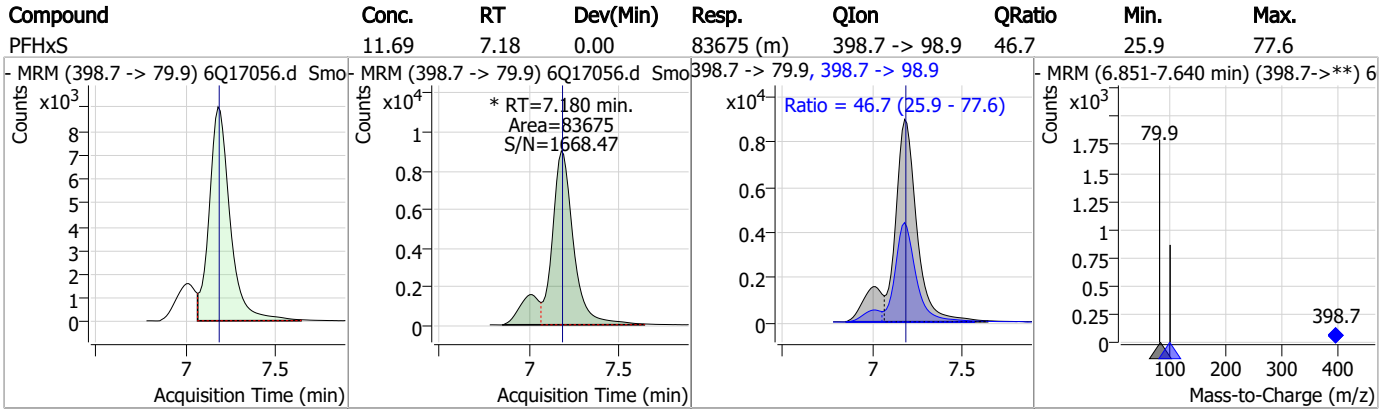
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Perfluorinated Compounds by LC/MS/MS

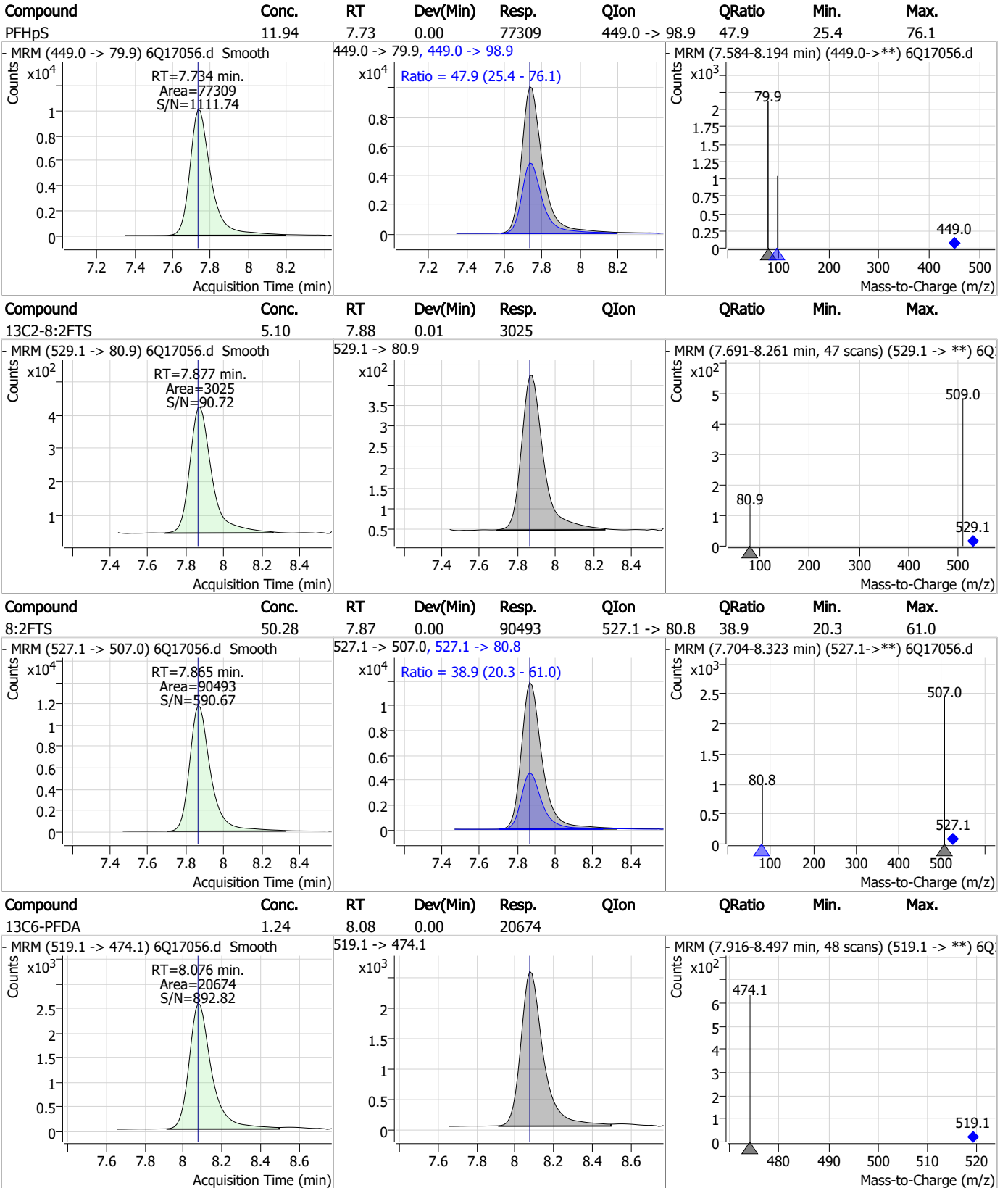


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Perfluorinated Compounds by LC/MS/MS



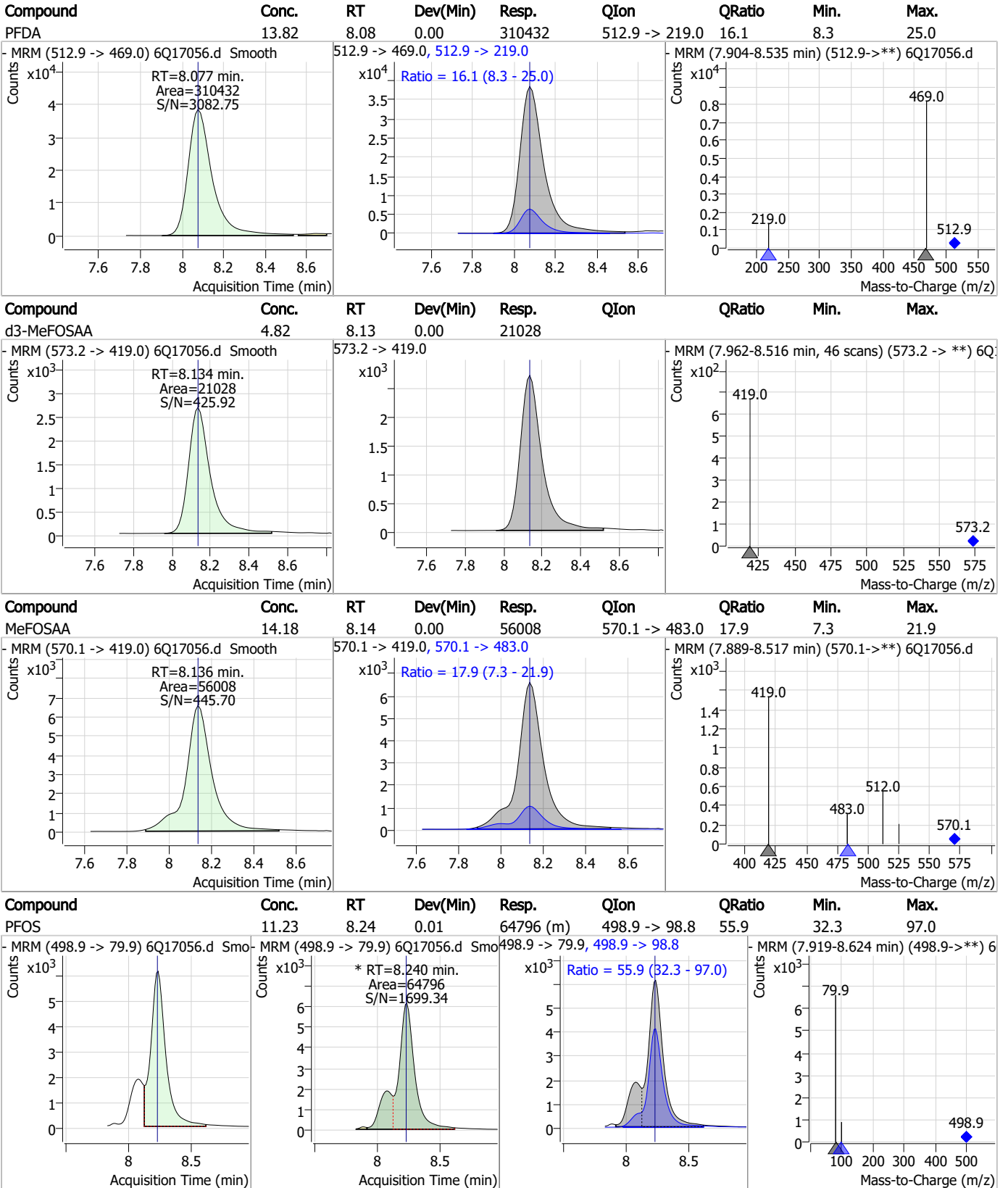
Perfluorinated Compounds by LC/MS/MS



7.7.7

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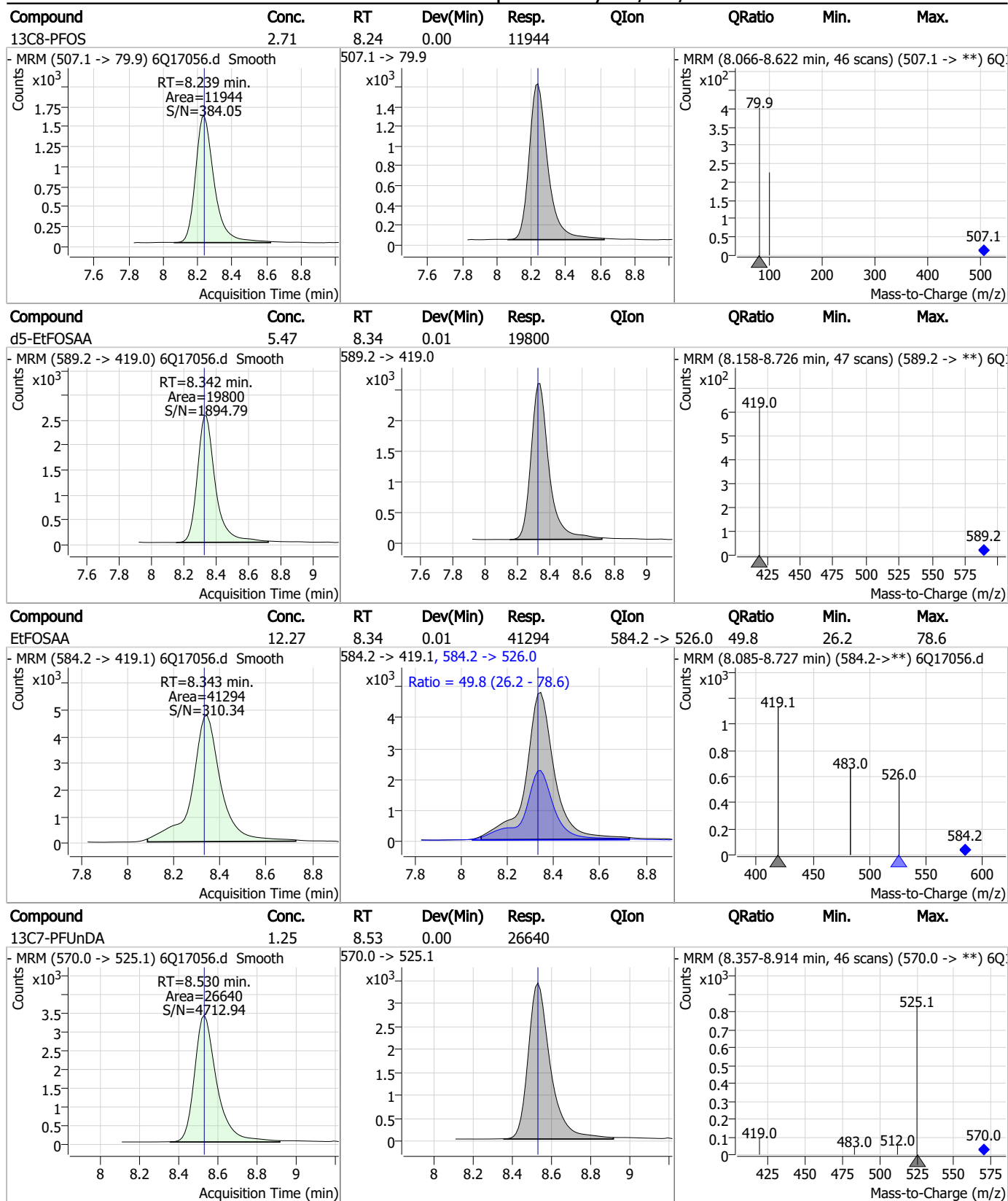
Perfluorinated Compounds by LC/MS/MS



7.7.7

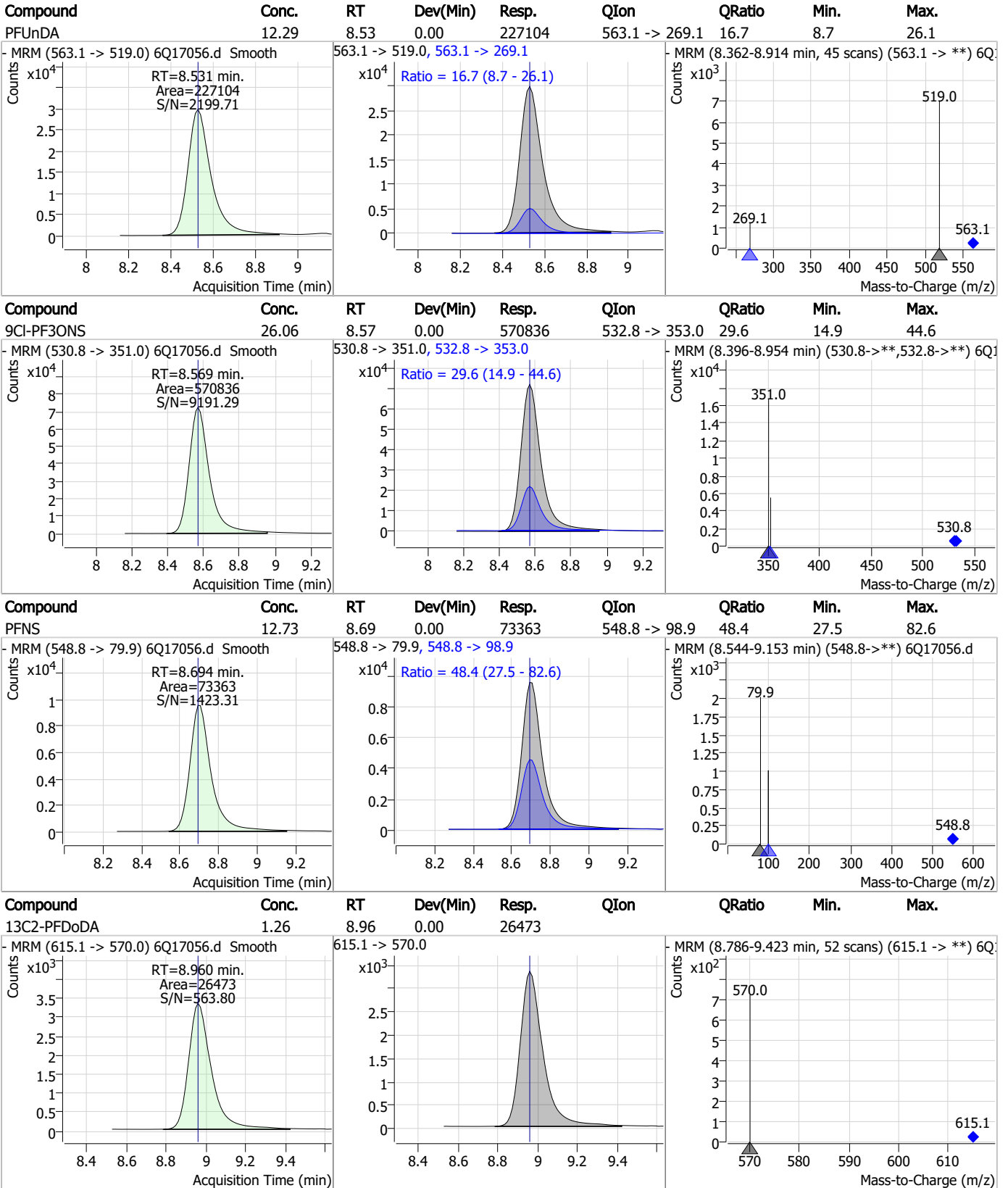
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Perfluorinated Compounds by LC/MS/MS



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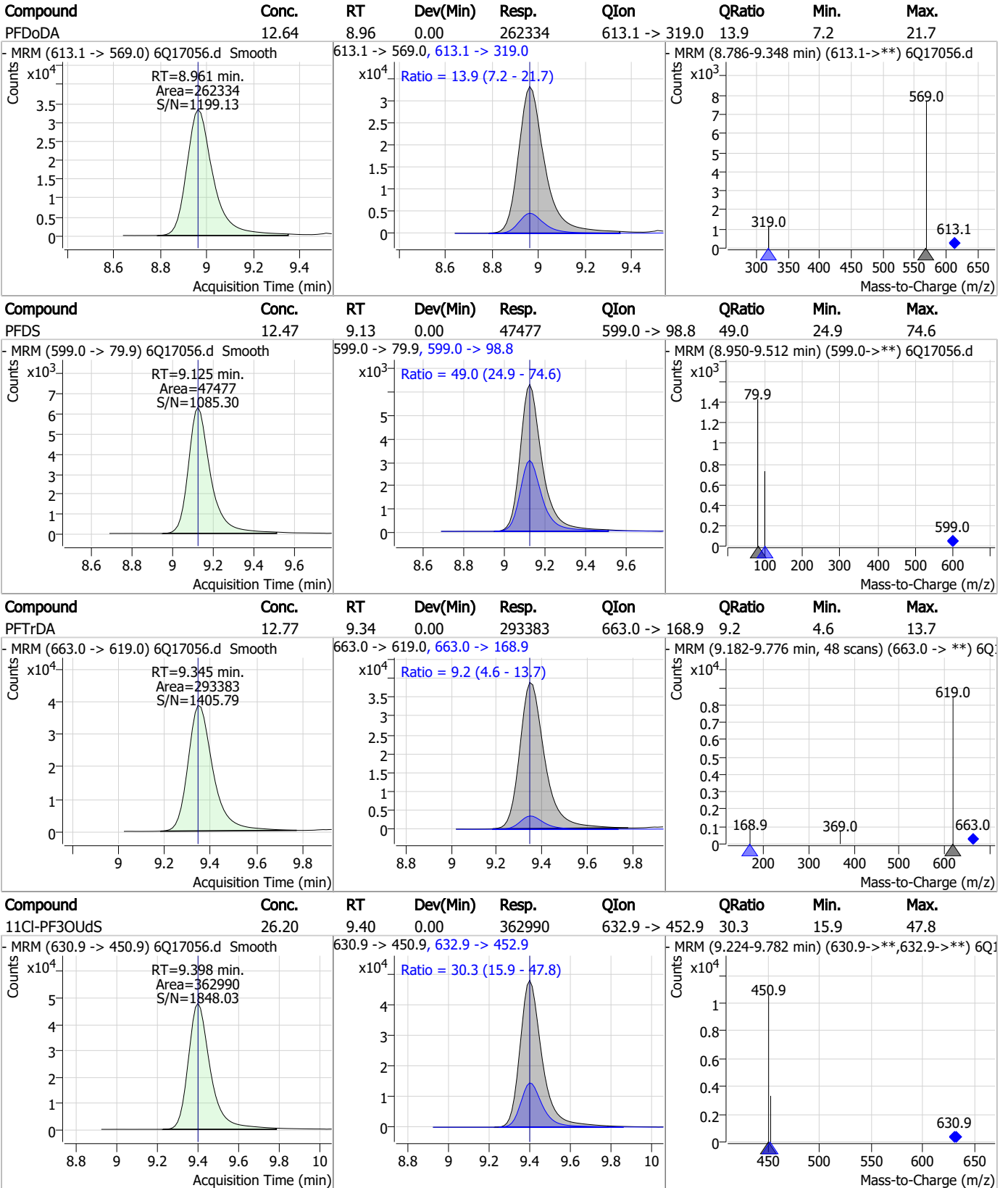
Perfluorinated Compounds by LC/MS/MS



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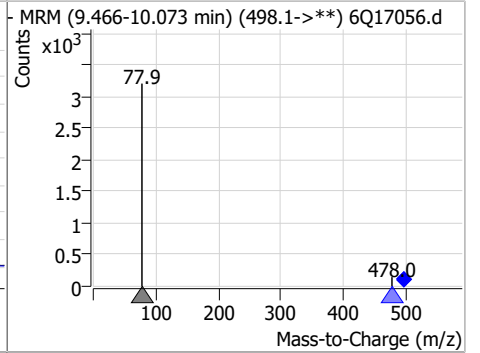
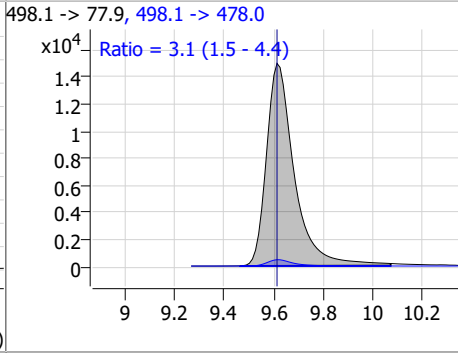
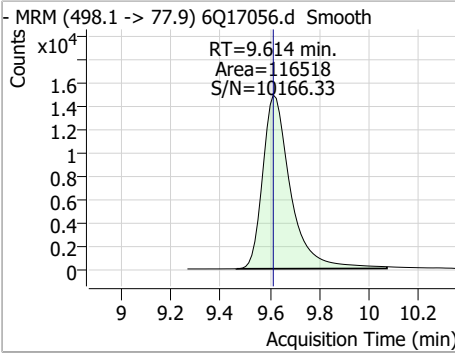
Perfluorinated Compounds by LC/MS/MS



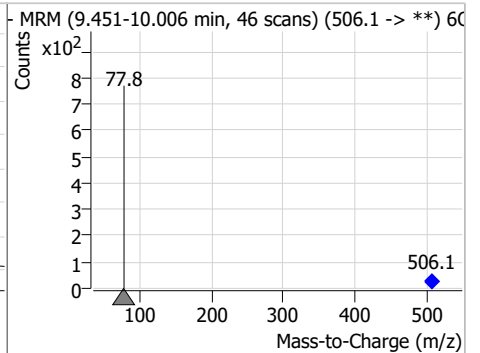
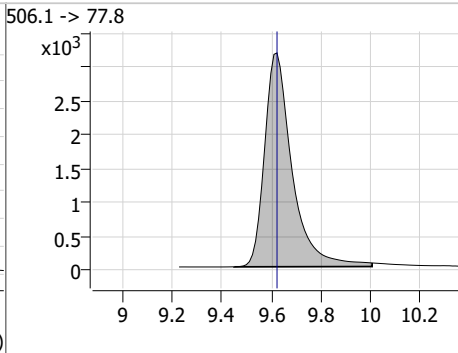
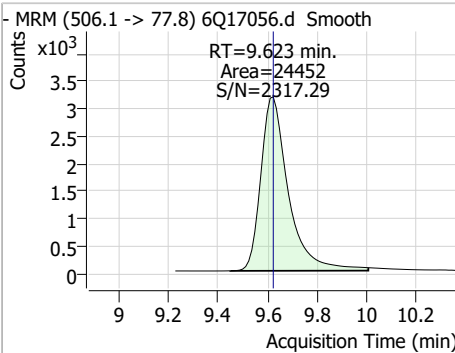
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Perfluorinated Compounds by LC/MS/MS

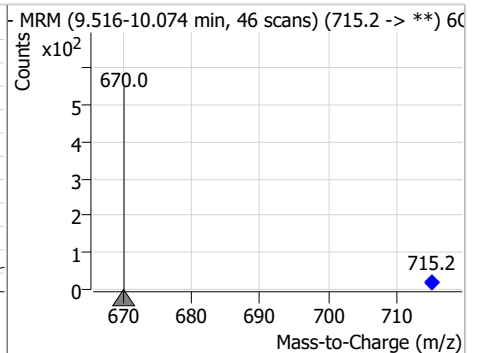
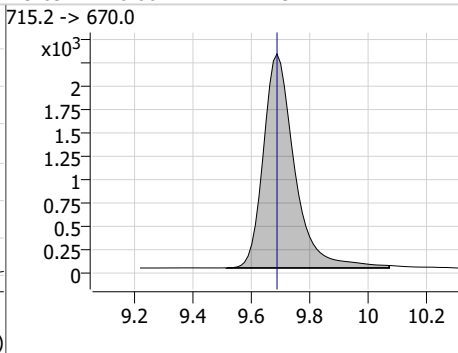
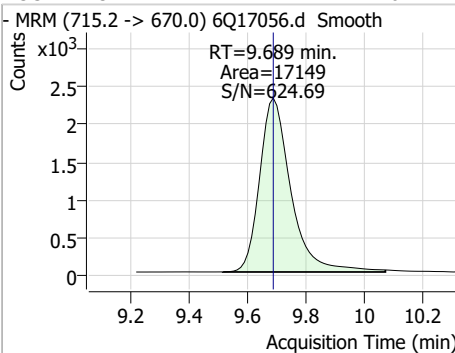
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	13.30	9.61	0.00	116518	498.1 -> 478.0	3.1	1.5	4.4



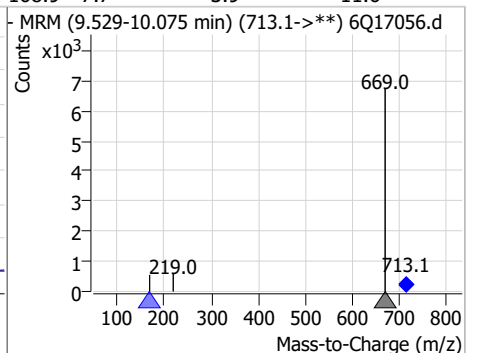
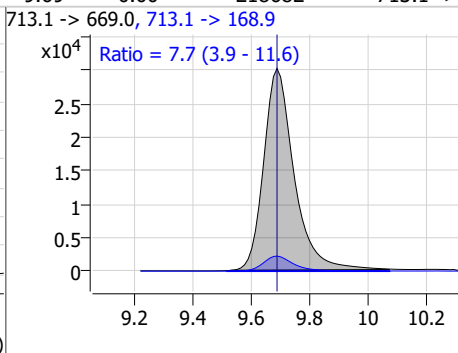
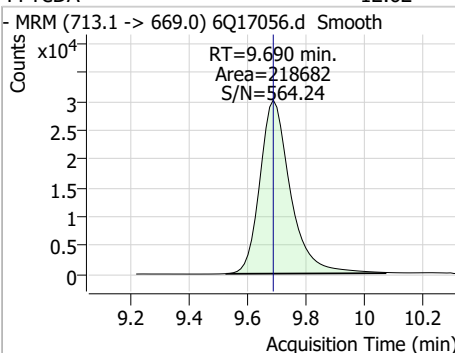
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.62	0.00	24452				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.69	0.00	17149				

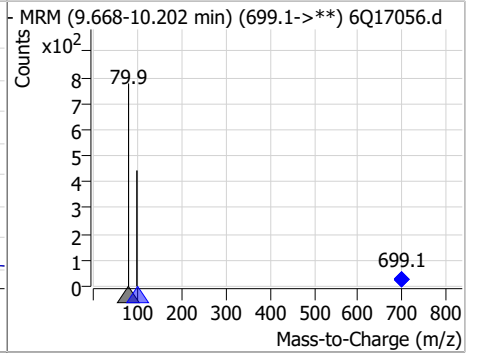
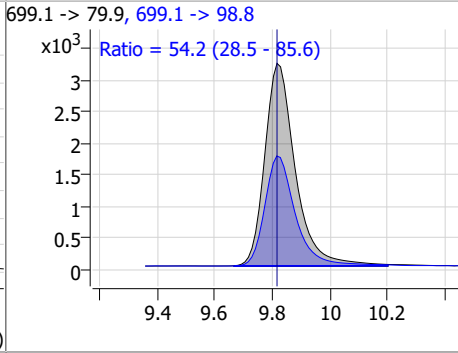
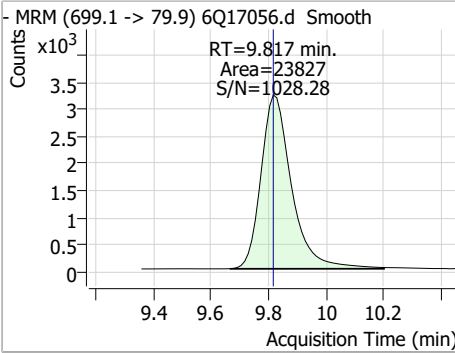


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.62	9.69	0.00	218682	713.1 -> 168.9	7.7	3.9	11.6

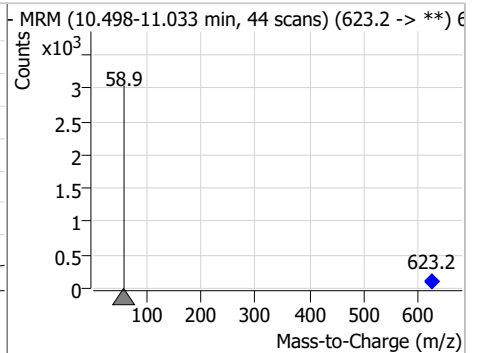
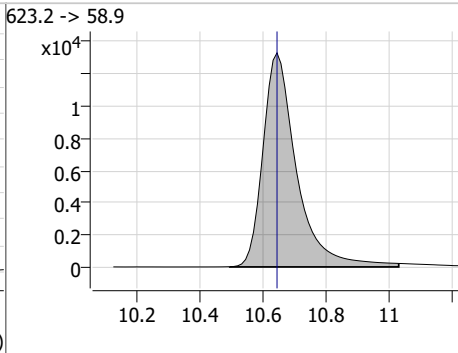
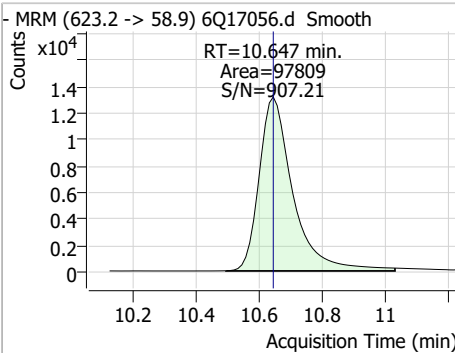


Perfluorinated Compounds by LC/MS/MS

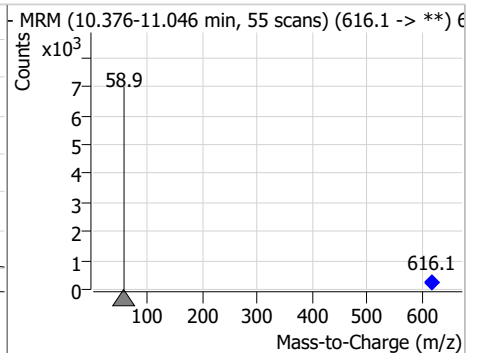
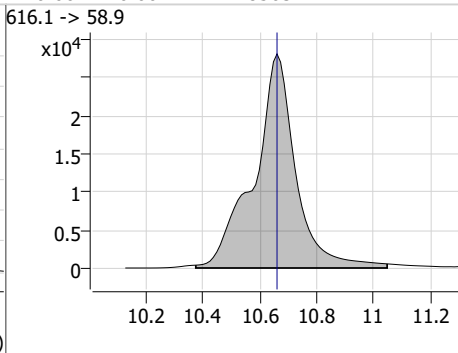
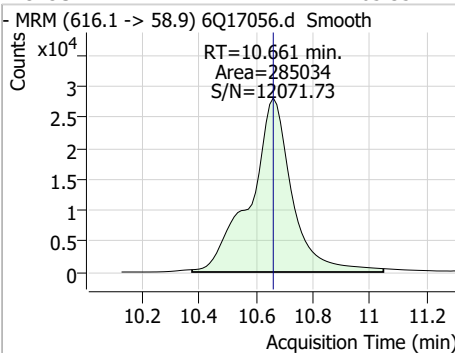
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.10	9.82	0.00	23827	699.1 -> 98.8	54.2	28.5	85.6



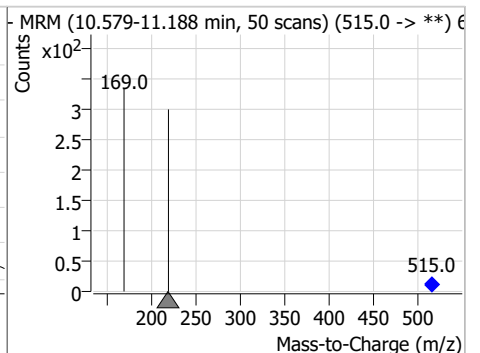
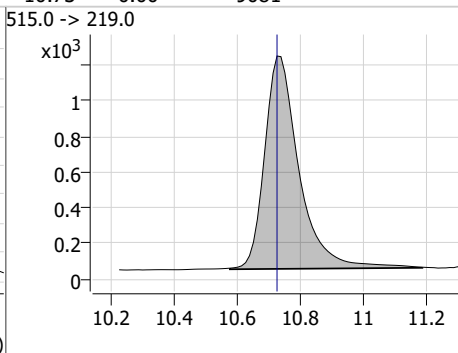
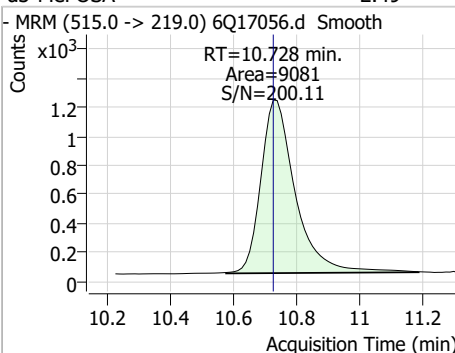
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.48	10.65	0.00	97809				



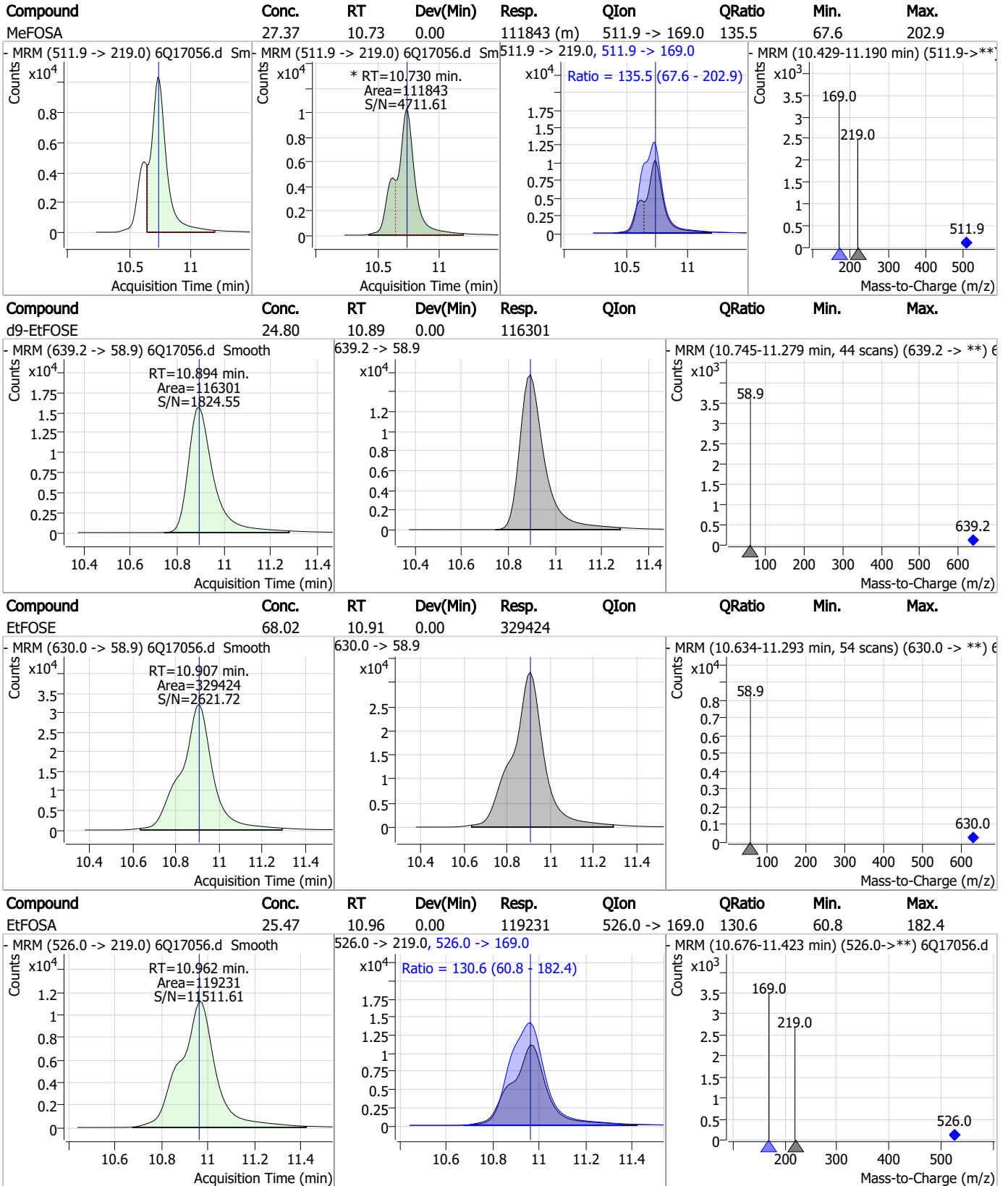
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	65.35	10.66	0.00	285034				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.49	10.73	0.00	9081				



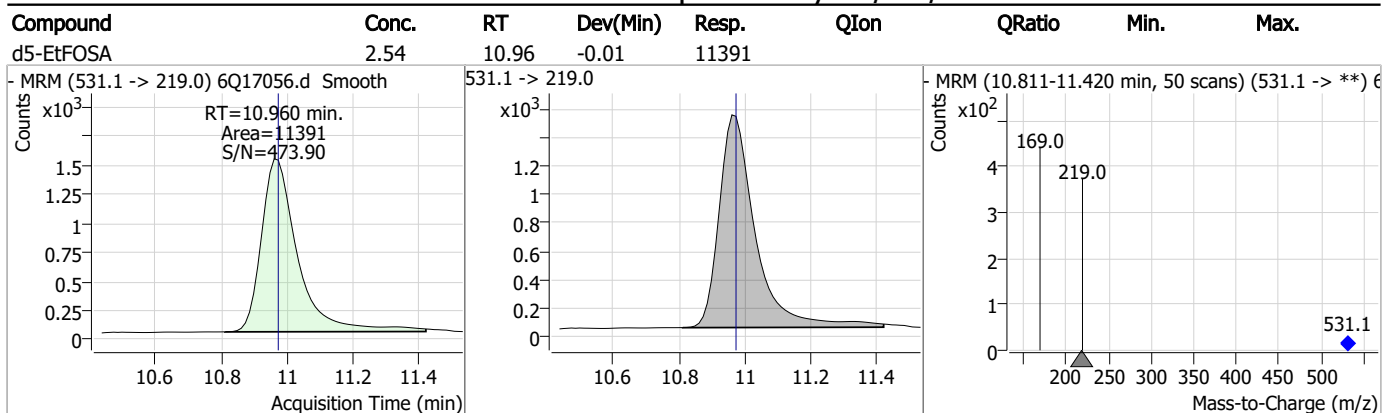
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

Perfluorinated Compounds by LC/MS/MS



7.7.7
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17056.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:02 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.73	Split peak

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7

Manual Integrations
APPROVED
(compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17057.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 4/28/2023 2:17:14 PM
Sample Name : ic258-7
Vial : P1-A8
DA Method File : 1633_042823_S6Q258.quantmethod.xml
Batch Name : s6q258.batch.bin
Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	171617	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	62728	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69796	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	55432	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	81941	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	24894	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19505	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25578	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25469	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17051	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24360	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22160	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13073	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10608	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2115	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2521	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2882	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	23772	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40565	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17664	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	92654	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	108844	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11433	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	9339	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15534	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74277	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9415	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	85076	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24971	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28190	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56669	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2115	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2521	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2882	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25469	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17051	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.398	302.1 -> 79.9	22160	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13073	2.61 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C4-PFBA	2.897	216.8 -> 171.9	171617	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.431	367.1 -> 322.0	55432	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69796	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.270	268.3 -> 223.0	62728	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.076	519.1 -> 474.1	19505	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25578	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.623	506.1 -> 77.8	24360	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C8-PFOA	7.074	421.1 -> 376.0	81941	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10608	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C9-PFNA	7.594	472.1 -> 427.0	24894	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23772	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40565	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	9339	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17664	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	92654	22.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	108844	21.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
d5-EtFOSA	10.973	531.1 -> 219.0	11433	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	342753	107.12 µg/L	96
		327.1 -> 80.9	117970		
6:2FTS	6.839	427.1 -> 407.0	276504	99.72 µg/L	93
		427.1 -> 80.9	88161		
8:2FTS	7.865	527.1 -> 507.0	158285	92.31 µg/L	97
		527.1 -> 80.8	67442		
EtFOSAA	8.331	584.2 -> 419.1	78711	26.22 µg/L	m 97
		584.2 -> 526.0	42695		
FOSA	9.614	498.1 -> 77.9	227449	26.06 µg/L	100
		498.1 -> 478.0	6609		
MeFOSAA	8.136	570.1 -> 419.0	105513	23.64 µg/L	88
		570.1 -> 483.0	20730		
PFBA	2.906	212.8 -> 168.9	610169	106.01 µg/L	100
PFBS	5.400	298.7 -> 79.9	228961	23.03 µg/L	98
		298.7 -> 98.8	91659		
PFDA	8.077	512.9 -> 469.0	595413	28.09 µg/L	100
		512.9 -> 219.0	97927		
PFDoDA	8.961	613.1 -> 569.0	509639	25.52 µg/L	99
		613.1 -> 319.0	72360		
PFDS	9.125	599.0 -> 79.9	90601	26.80 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	43202			
PFHpA	6.420	363.1 -> 319.0	772571	28.24	µg/L	97
		363.1 -> 169.0	123104			
PFHpS	7.746	449.0 -> 79.9	148414	25.82	µg/L	94
		449.0 -> 98.9	69407			
PFHxA	5.470	313.0 -> 269.0	707757	25.65	µg/L	100
		313.0 -> 118.9	31996			
PFHxS	7.180	398.7 -> 79.9	160575	22.54	µg/L	m 92
		398.7 -> 98.9	74028			
PFNA	7.595	463.0 -> 419.0	489652	28.43	µg/L	96
		463.0 -> 219.0	92096			
PFNS	8.706	548.8 -> 79.9	130947	25.58	µg/L	94
		548.8 -> 98.9	66596			
PFOA	7.063	413.0 -> 369.0	974708	24.70	µg/L	100
		413.0 -> 169.0	169979			
PFOS	8.228	498.9 -> 79.9	135647	26.48	µg/L	m 82
		498.9 -> 98.8	68222			
PFPeA	4.273	263.0 -> 219.0	902840	52.84	µg/L	100
PFPeS	6.484	349.1 -> 79.9	179655	24.15	µg/L	93
		349.1 -> 98.9	78892			
PFTeDA	9.690	713.1 -> 669.0	440013	25.53	µg/L	100
		713.1 -> 168.9	33368			
PFTrDA	9.345	663.0 -> 619.0	562349	25.45	µg/L	97
		663.0 -> 168.9	57053			
PFUnDA	8.531	563.1 -> 519.0	484125	27.29	µg/L	96
		563.1 -> 269.1	74884			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	700187	50.30	µg/L	99
		632.9 -> 452.9	217767			
9Cl-PF3ONS	8.569	530.8 -> 351.0	1067589	48.50	µg/L	93
		532.8 -> 353.0	360258			
ADONA	6.681	376.9 -> 250.9	3057274	49.89	µg/L	99
		376.9 -> 84.8	771305			
HFPO-DA	5.834	284.9 -> 168.9	192769	50.17	µg/L	98
		284.9 -> 184.9	25121			
3:3FTCA	3.771	241.0 -> 177.0	143801	134.60	µg/L	97
		241.0 -> 117.0	17541			
5:3FTCA	6.160	341.0 -> 237.1	2859211	640.22	µg/L	94
		341.0 -> 217.0	2041333			
7:3FTCA	7.573	441.0 -> 316.9	1310450	645.92	µg/L	95
		441.0 -> 336.9	2731216			
EtFOSA	10.962	526.0 -> 219.0	245641	52.27	µg/L	99
		526.0 -> 169.0	302019			
EtFOSE	10.907	630.0 -> 58.9	636552	140.43	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	217141	51.66	µg/L	m 98
		511.9 -> 169.0	289808			
MeFOSE	10.661	616.1 -> 58.9	569571	137.84	µg/L	100
PFDoS	9.817	699.1 -> 79.9	47201	27.00	µg/L	94
		699.1 -> 98.8	24753			
NFDHA	5.350	295.0 -> 201.0	151737	50.73	µg/L	99
		295.0 -> 84.9	37223			
PFMBA	4.687	279.0 -> 85.1	609667	53.19	µg/L	100
PFMPA	3.438	229.0 -> 84.9	459603	53.75	µg/L	100
PFEESA	5.937	314.8 -> 134.9	1587215	45.58	µg/L	99
		314.8 -> 82.9	53428			

= Qualifier out of range, m = manually integrated, + = Area summed

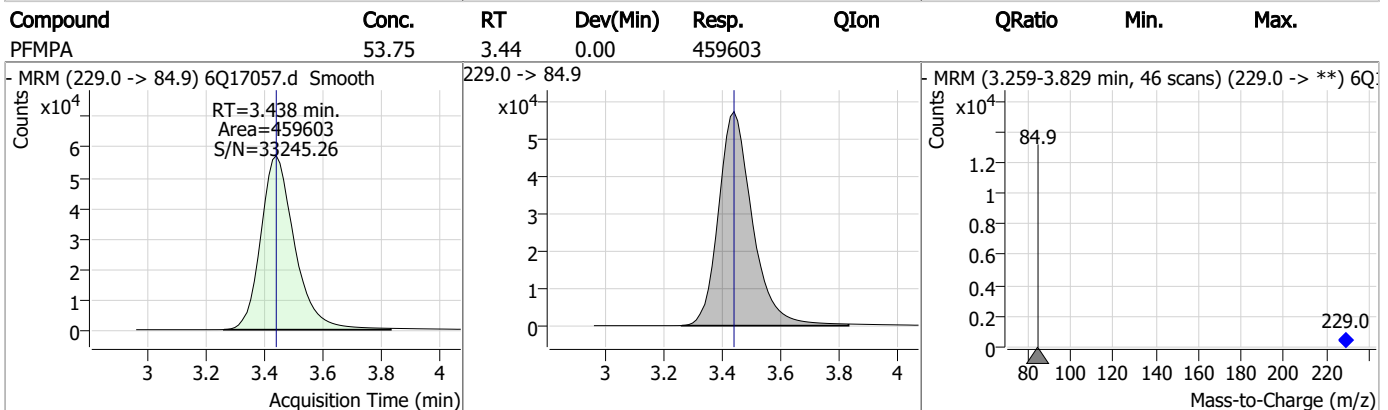
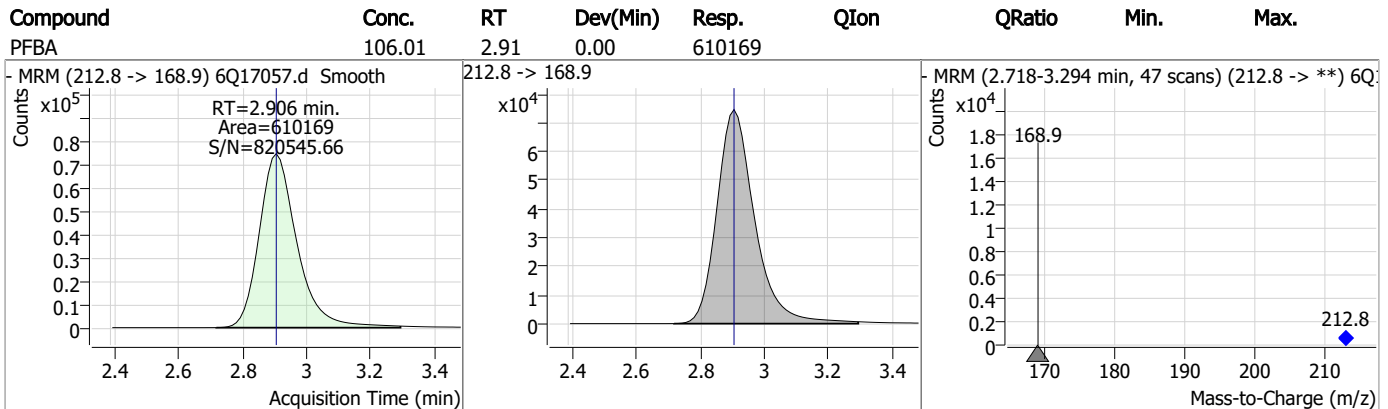
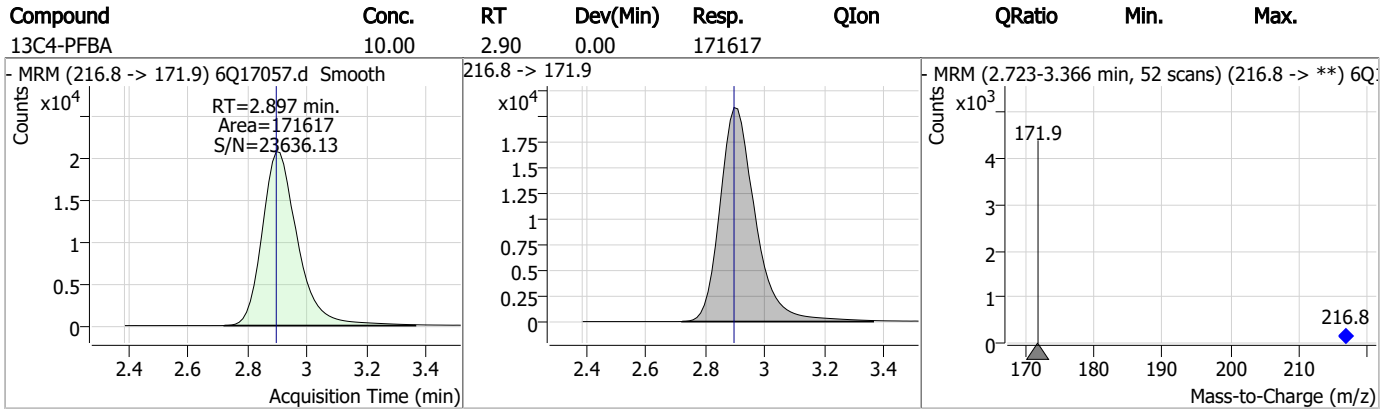
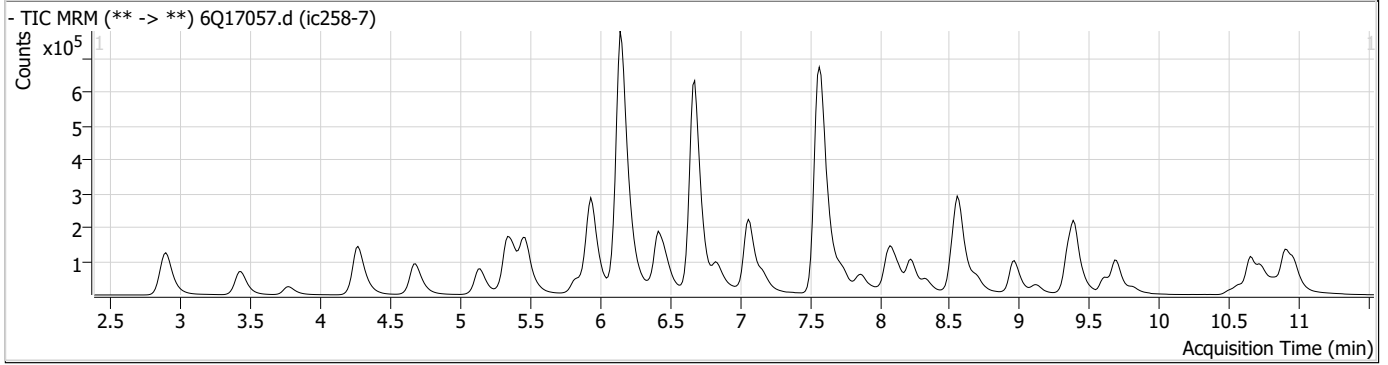
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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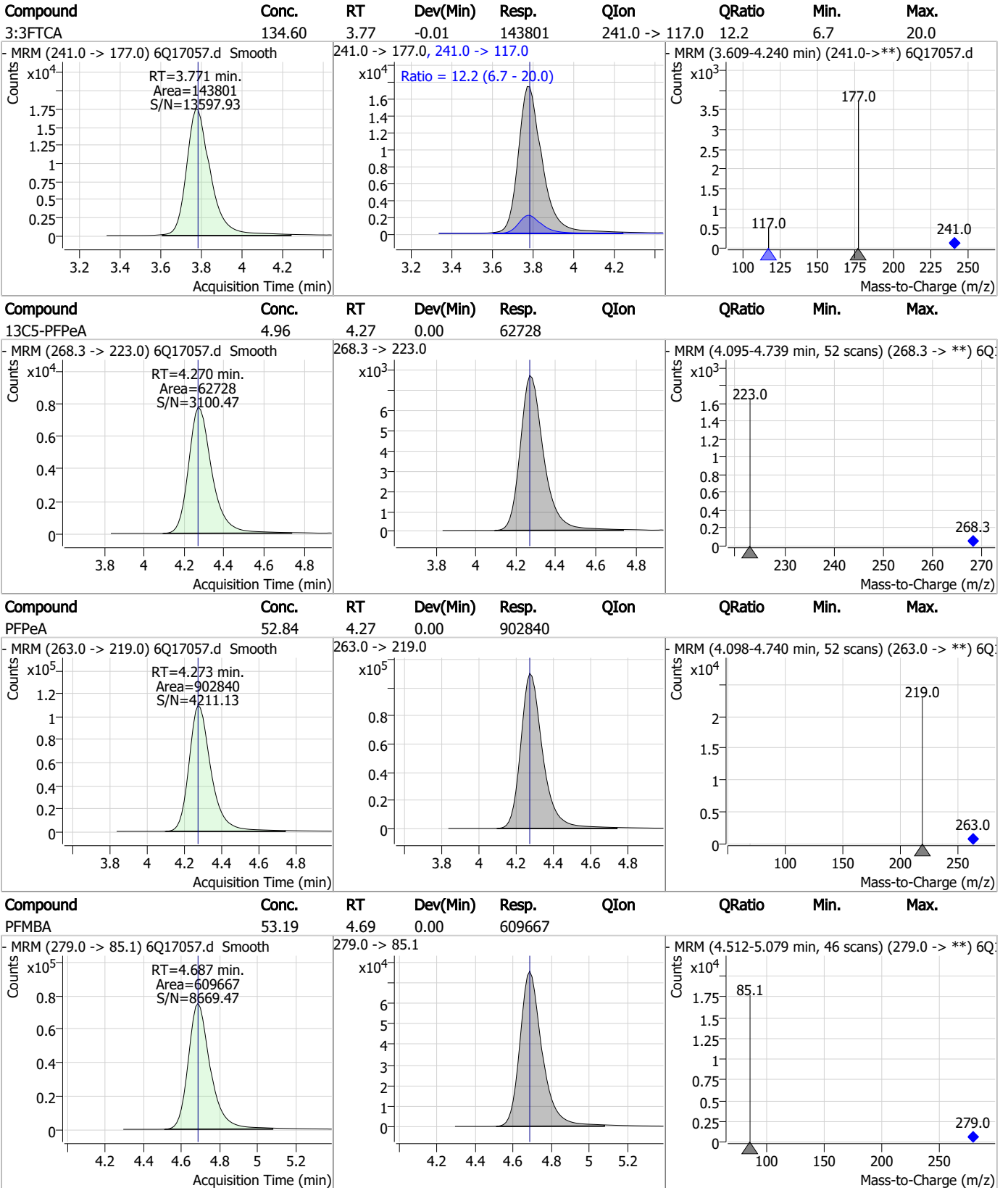
7.7.8
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Perfluorinated Compounds by LC/MS/MS



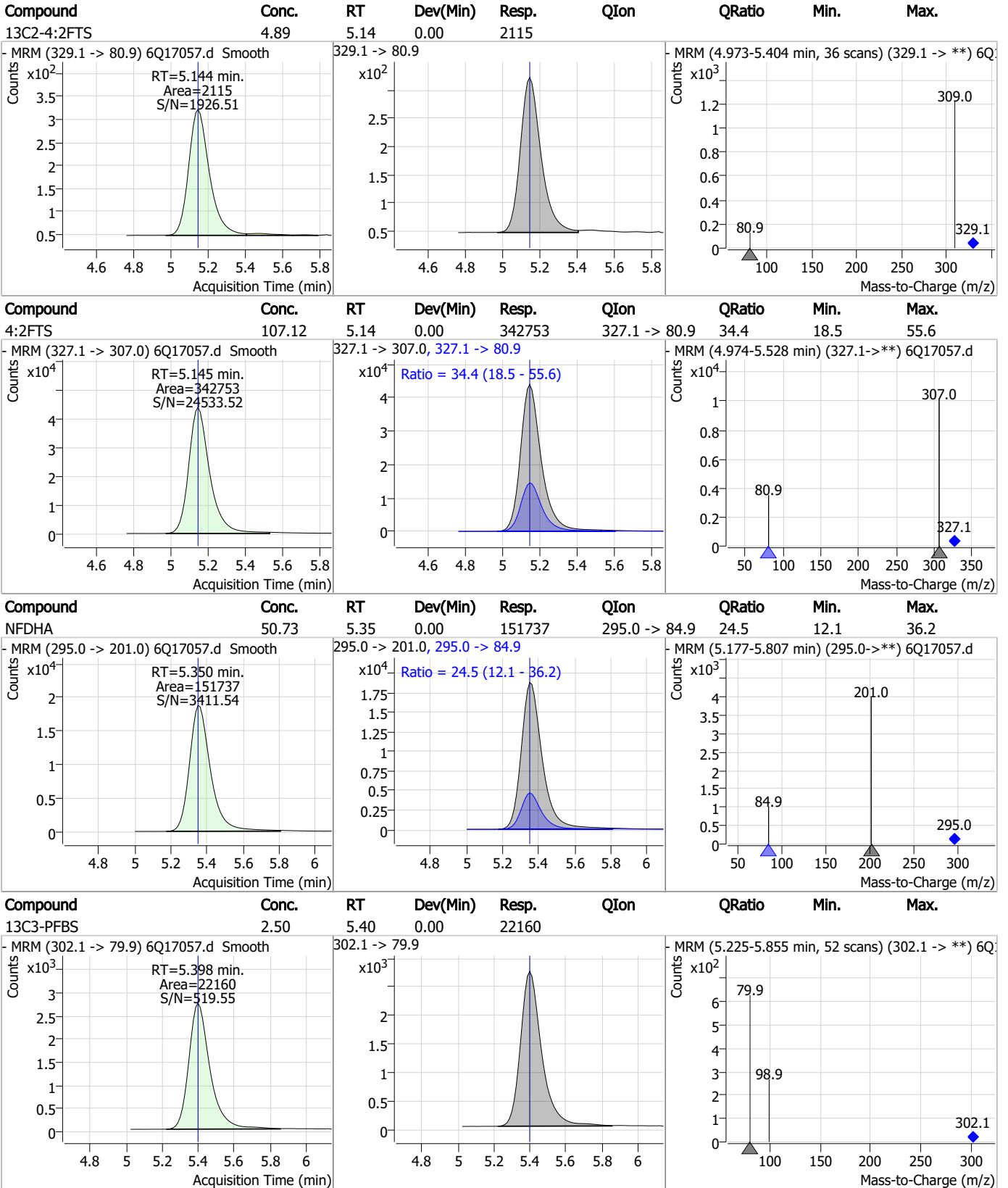
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS



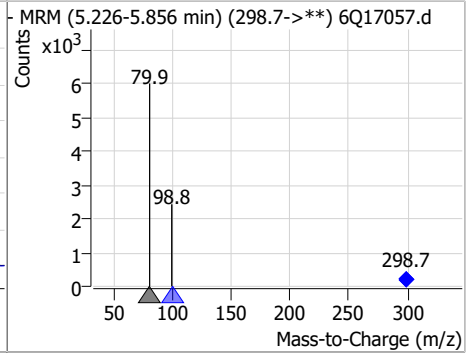
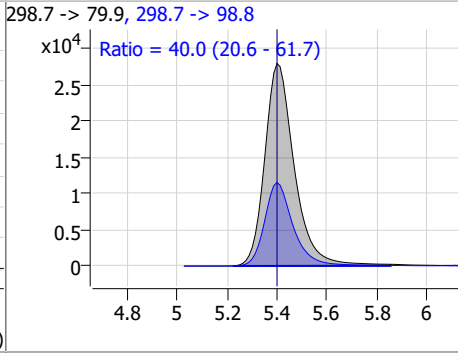
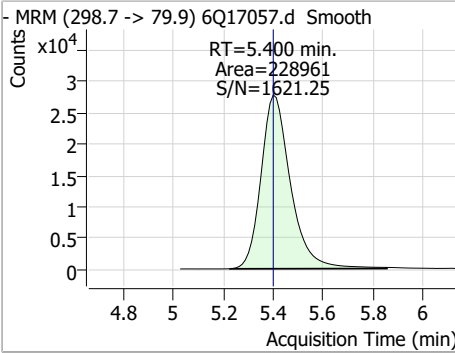
7.7.8

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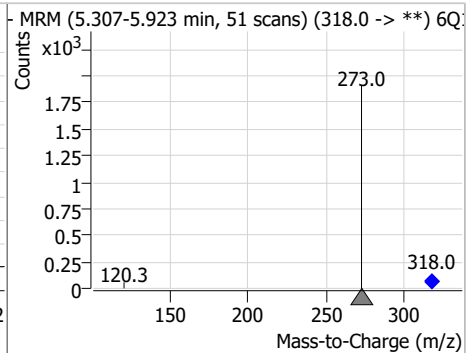
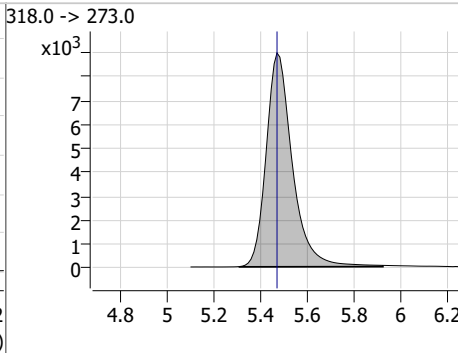
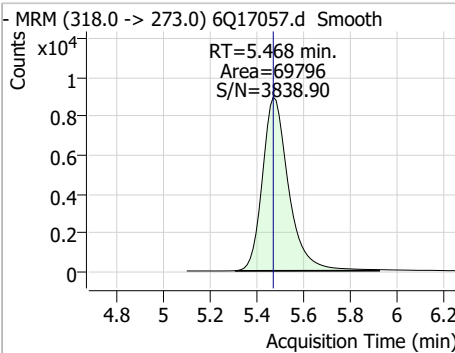


Perfluorinated Compounds by LC/MS/MS

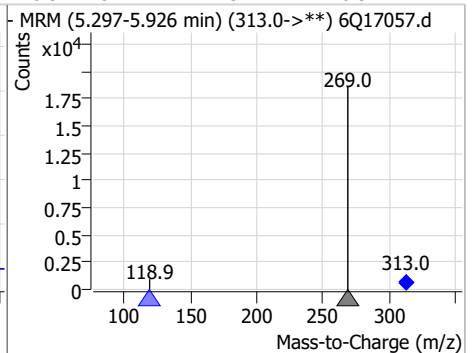
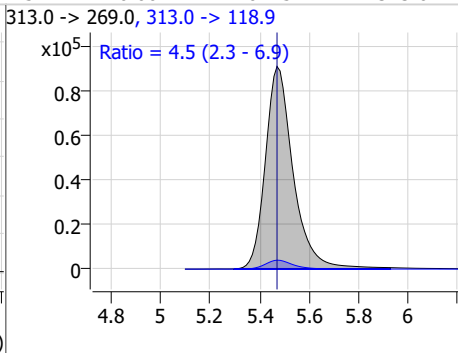
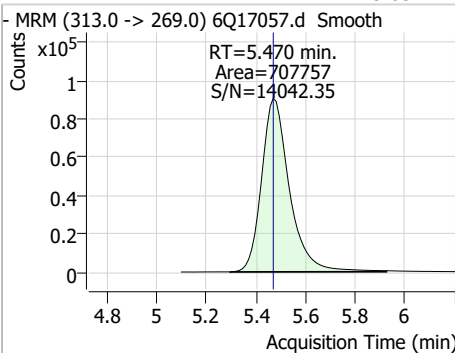
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.03	5.40	0.00	228961	298.7 -> 98.8	40.0	20.6	61.7



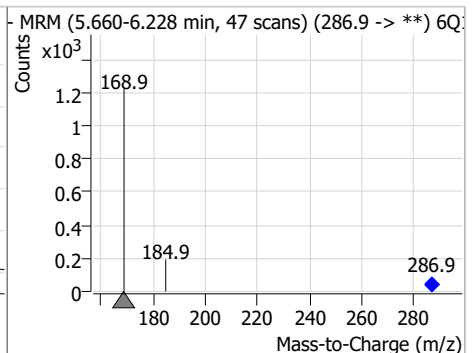
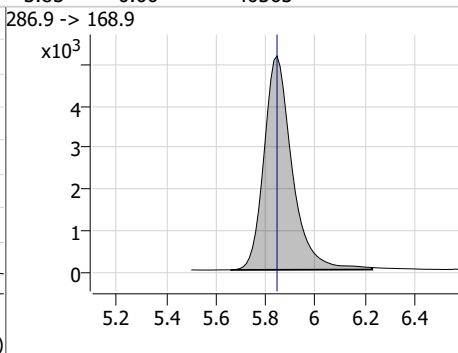
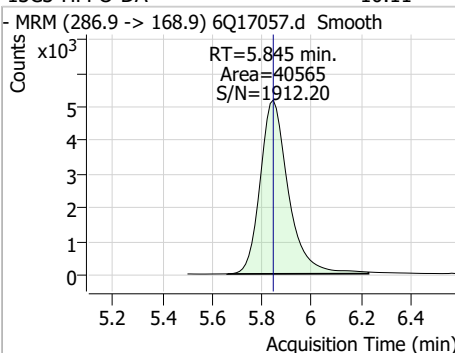
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.47	0.00	69796				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.65	5.47	0.00	707757	313.0 -> 118.9	4.5	2.3	6.9

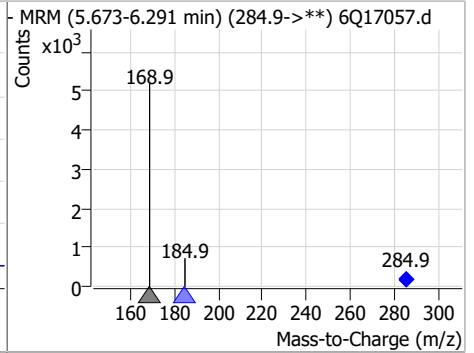
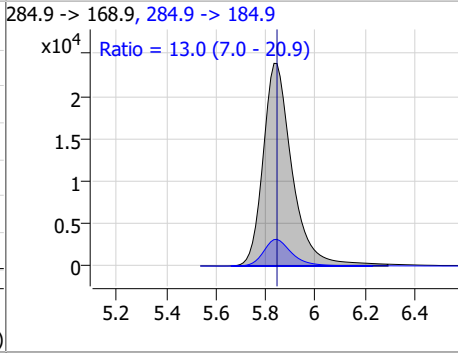
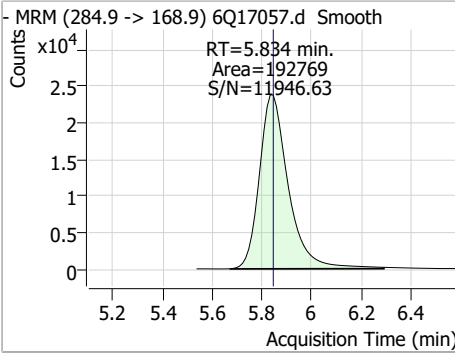


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.11	5.85	0.00	40565				

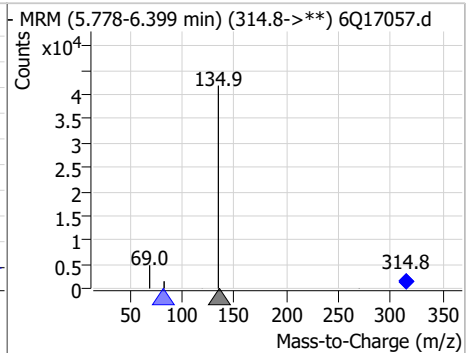
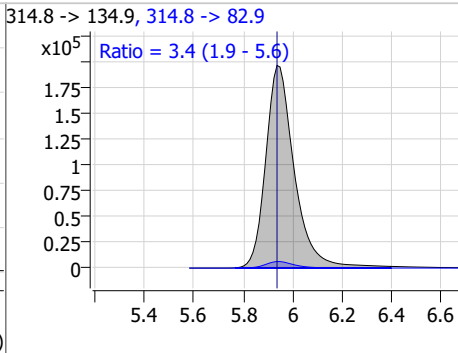
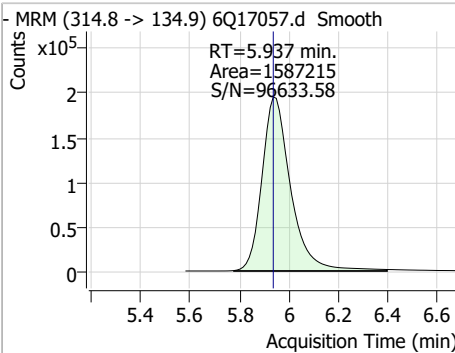


Perfluorinated Compounds by LC/MS/MS

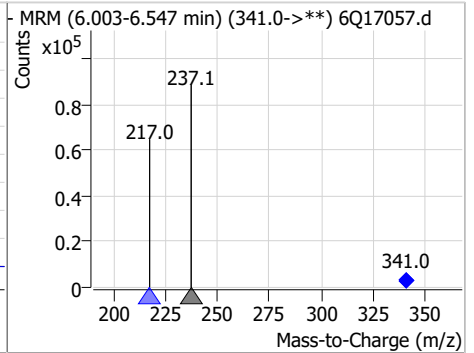
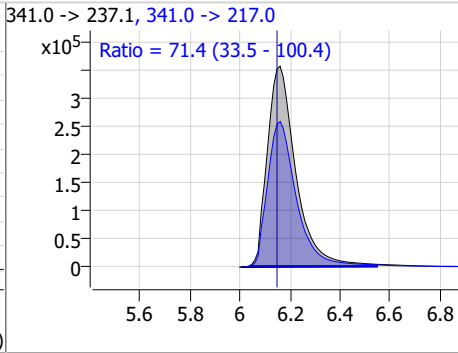
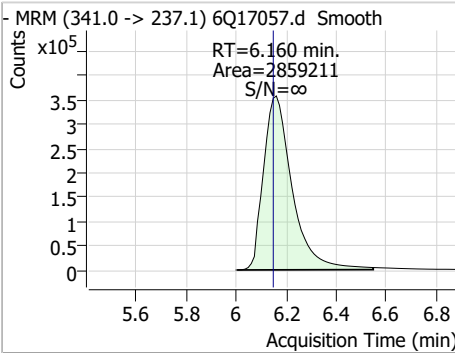
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.17	5.83	-0.01	192769	284.9 -> 184.9	13.0	7.0	20.9



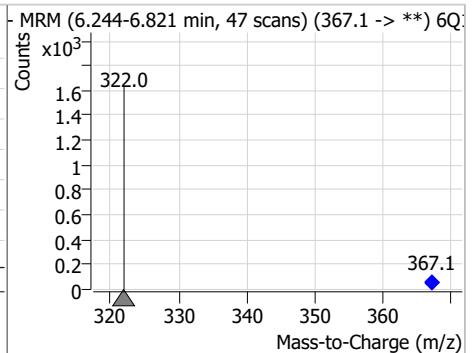
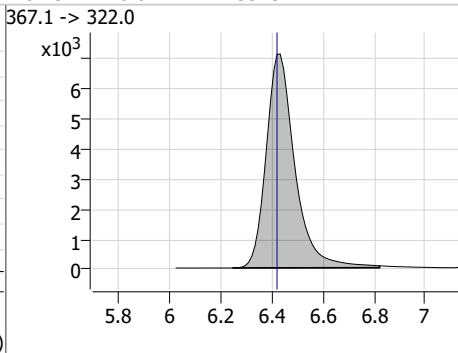
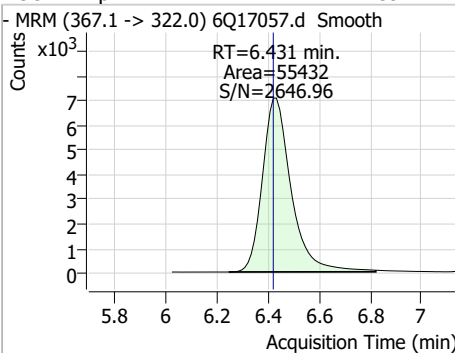
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	45.58	5.94	0.00	1587215	314.8 -> 82.9	3.4	1.9	5.6



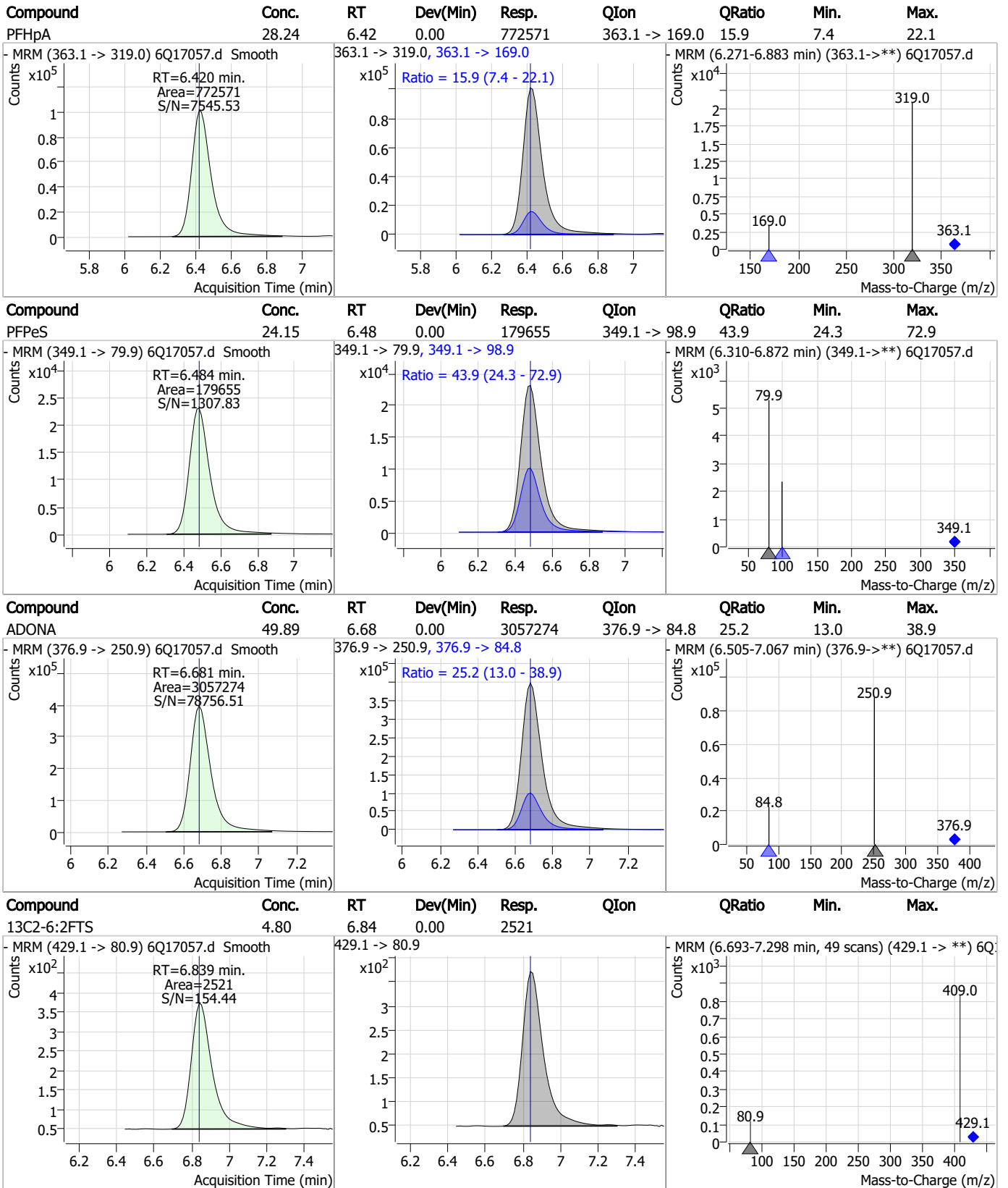
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	640.22	6.16	0.01	2859211	341.0 -> 217.0	71.4	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.39	6.43	0.01	55432	367.1 -> 322.0			



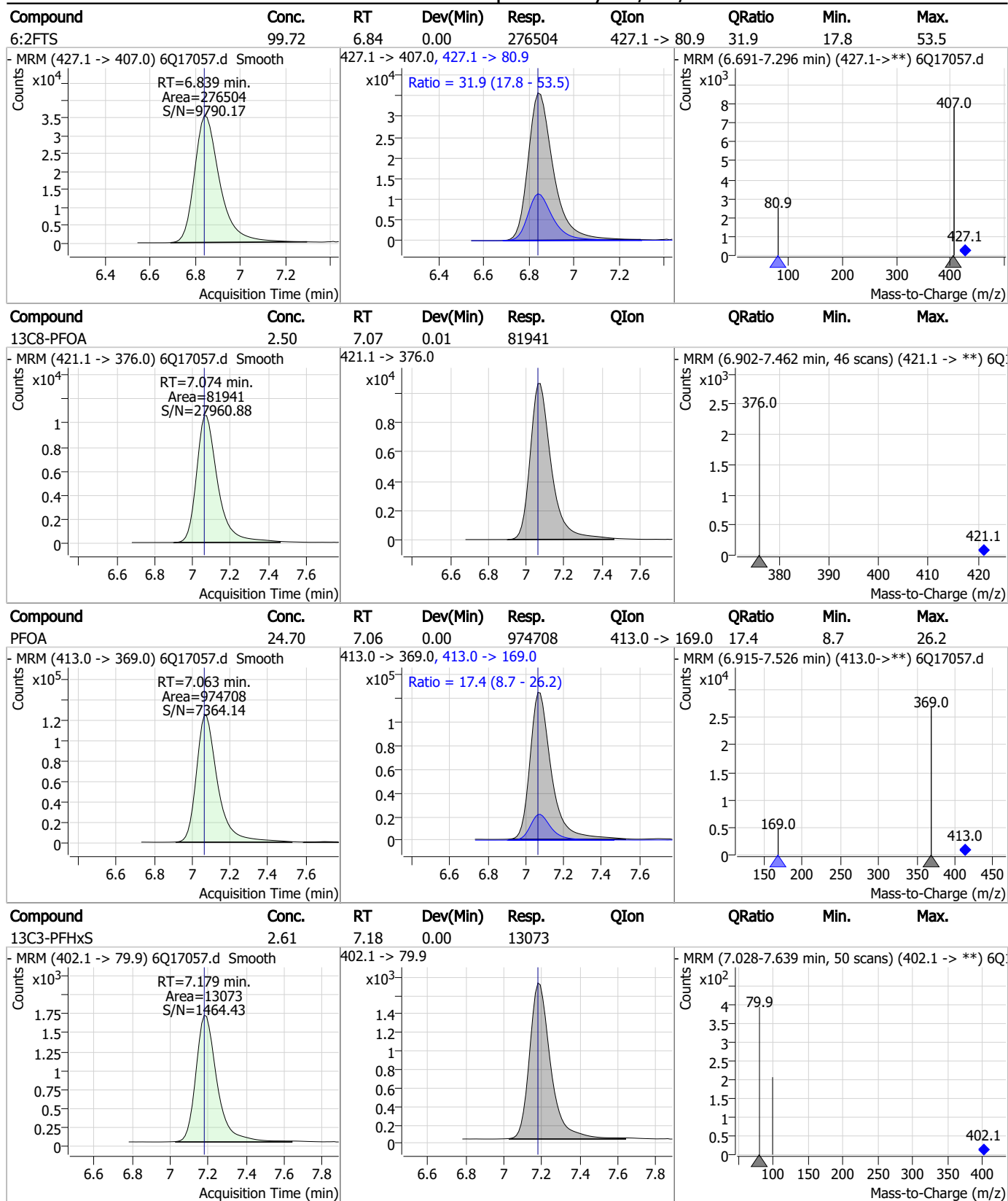
Perfluorinated Compounds by LC/MS/MS



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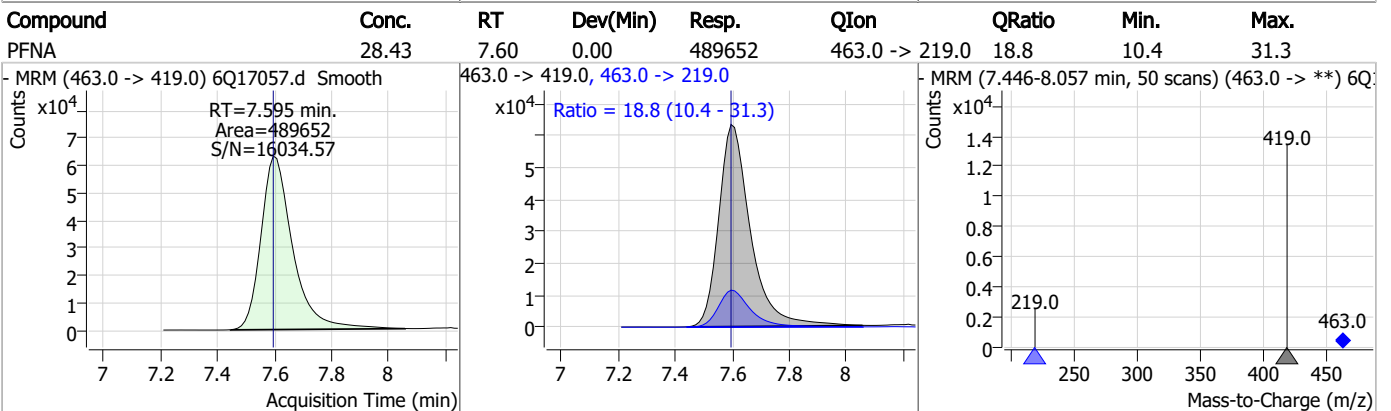
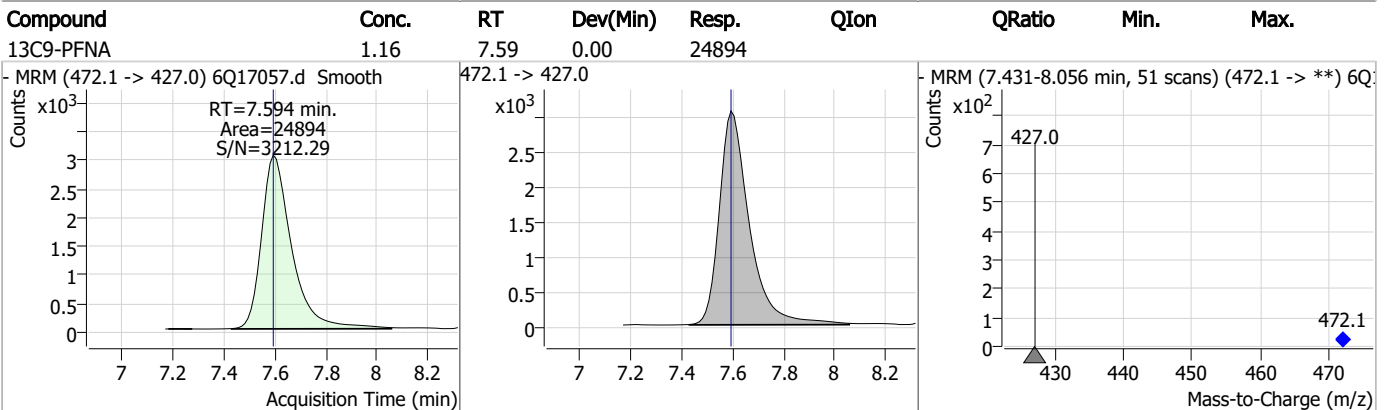
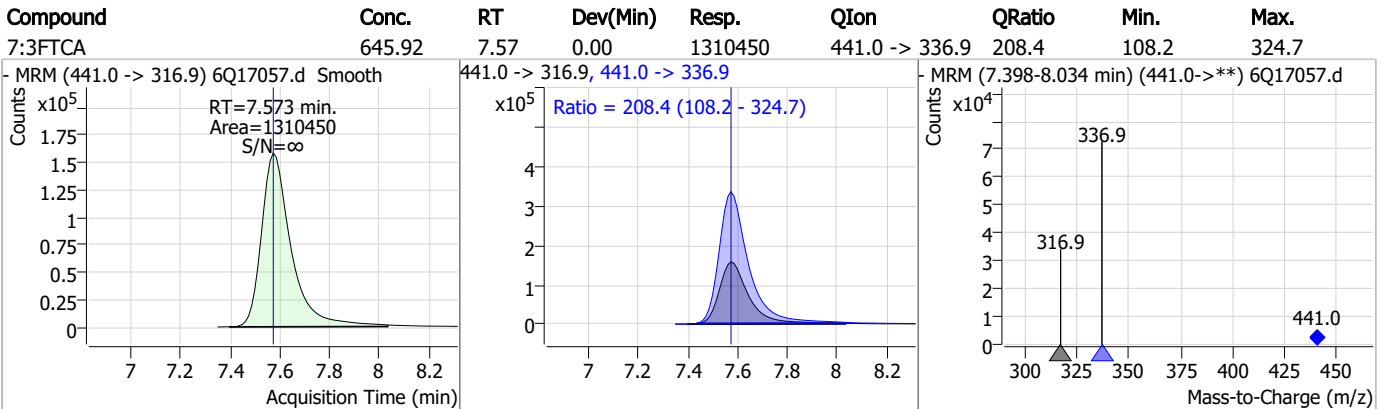
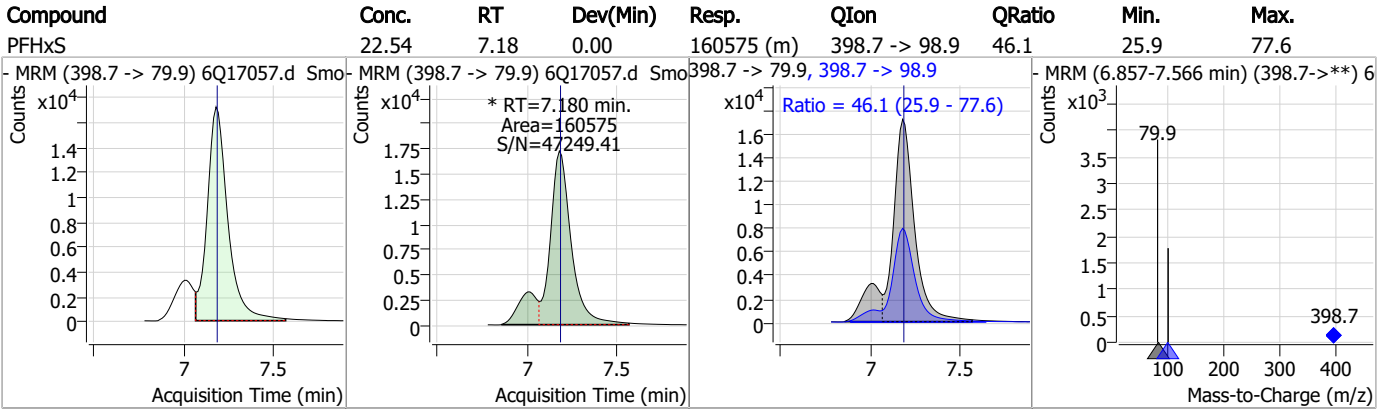
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Perfluorinated Compounds by LC/MS/MS



7.7.8
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Perfluorinated Compounds by LC/MS/MS

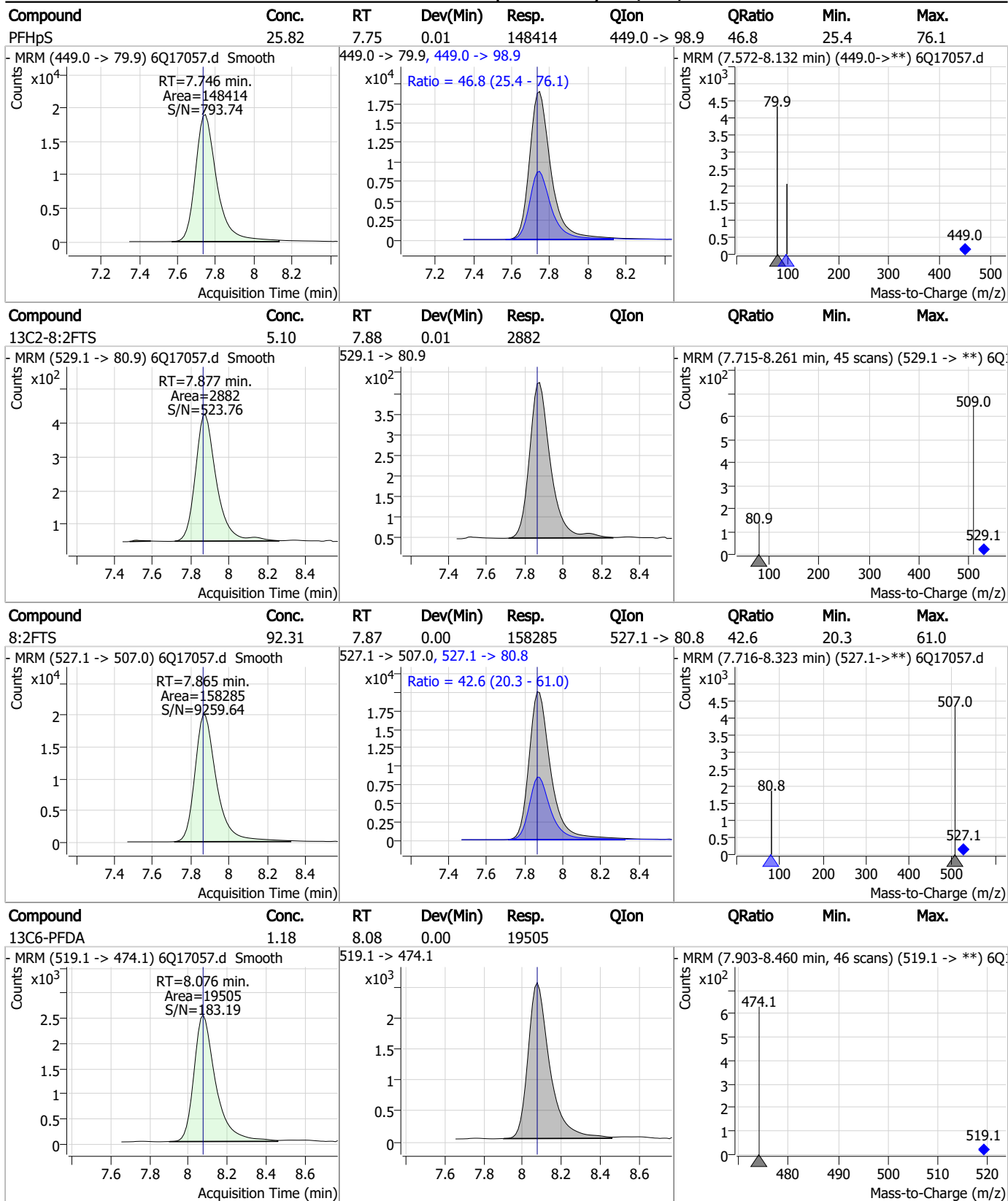


7.7.8

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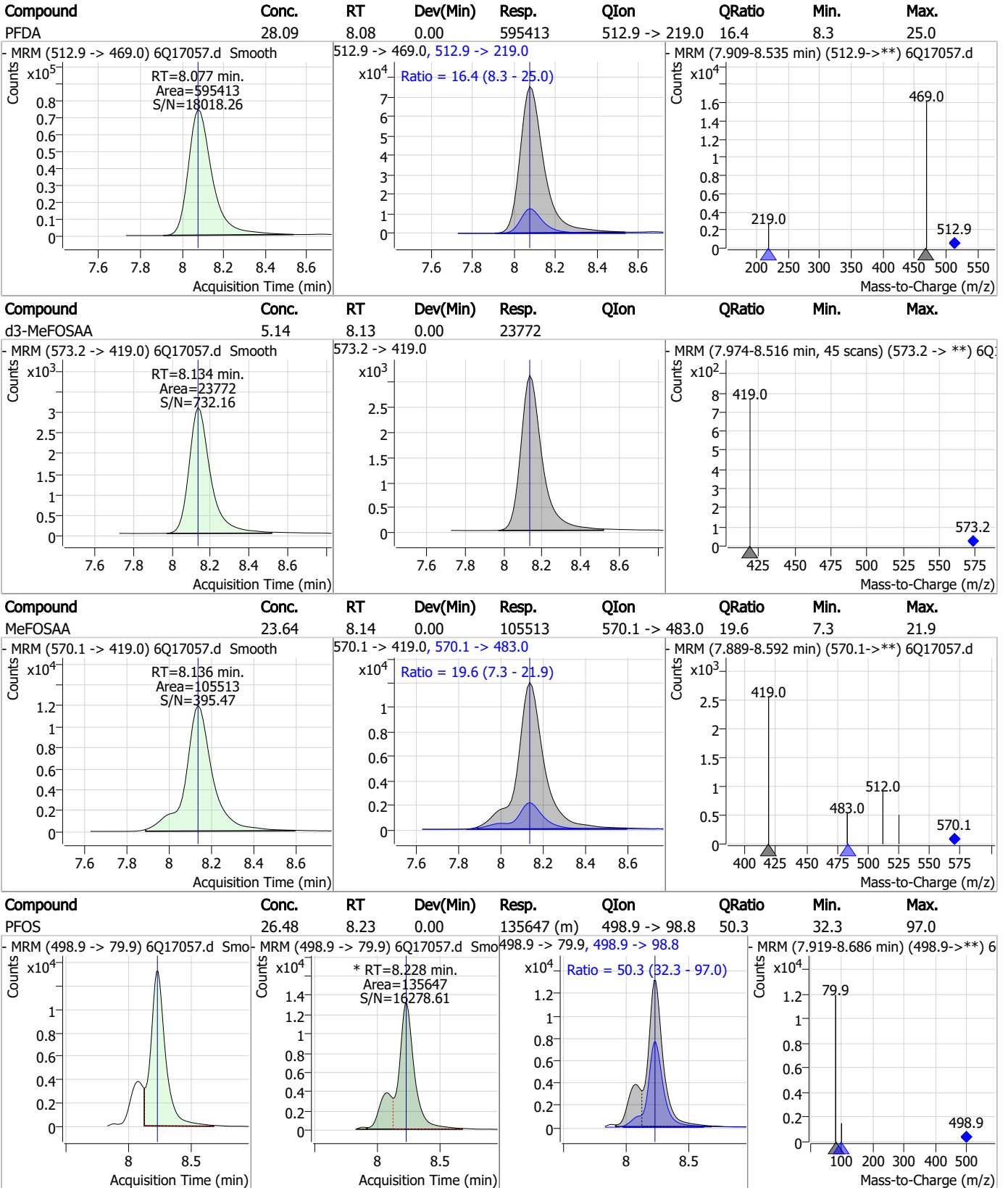


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

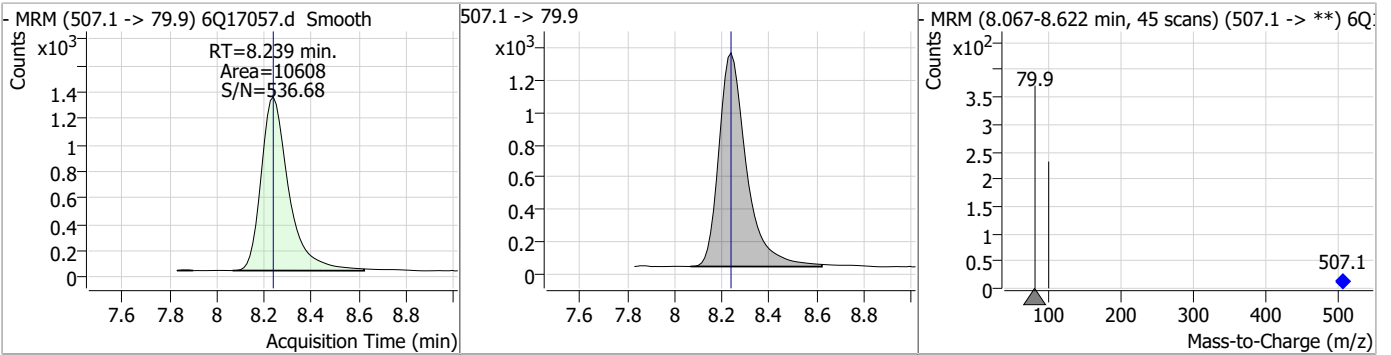


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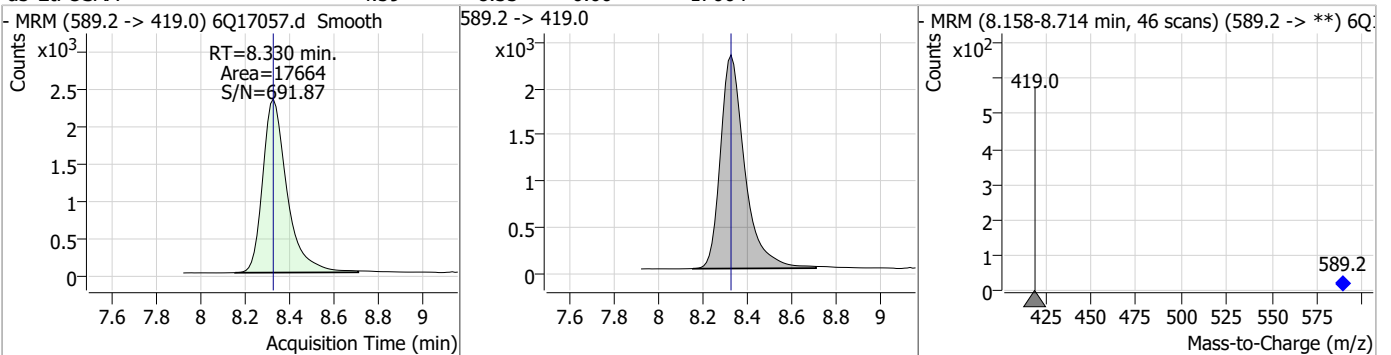
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Perfluorinated Compounds by LC/MS/MS

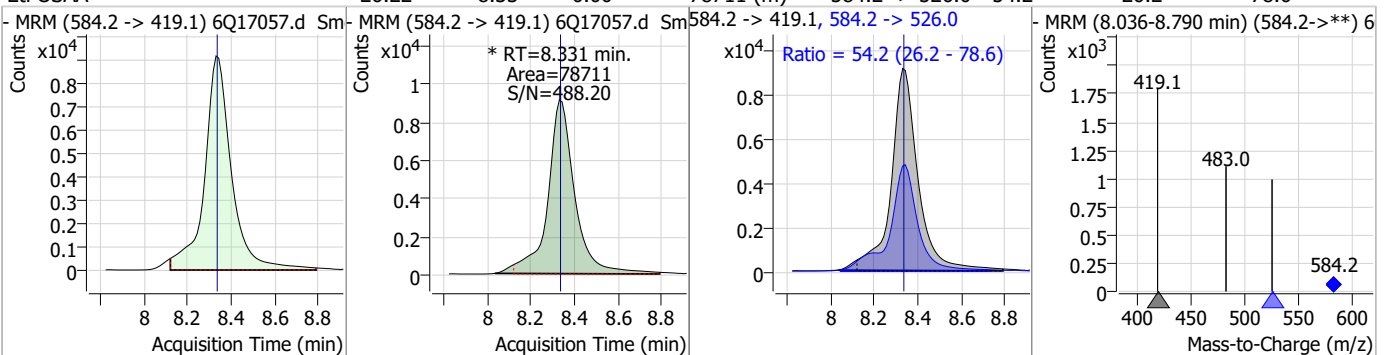
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.27	8.24	0.00	10608				



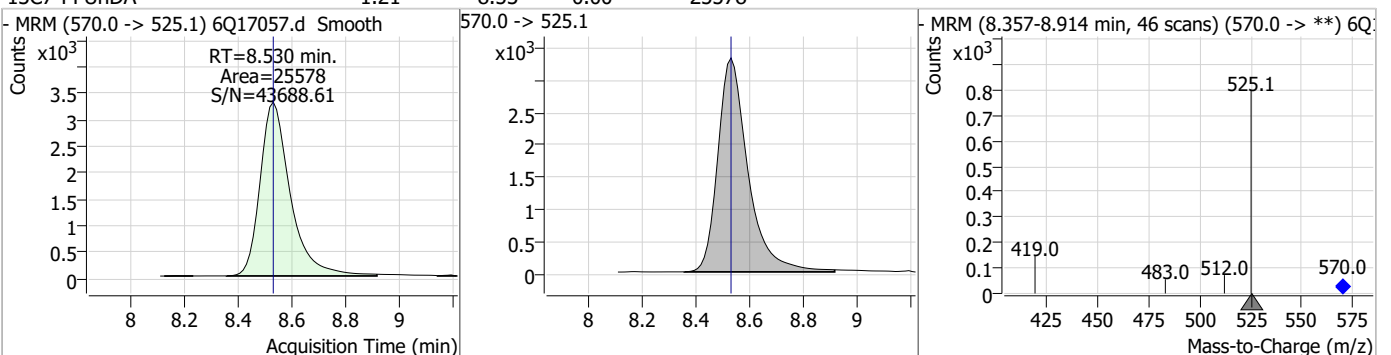
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.59	8.33	0.00	17664				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	26.22	8.33	0.00	78711 (m)	584.2 -> 526.0	54.2	26.2	78.6

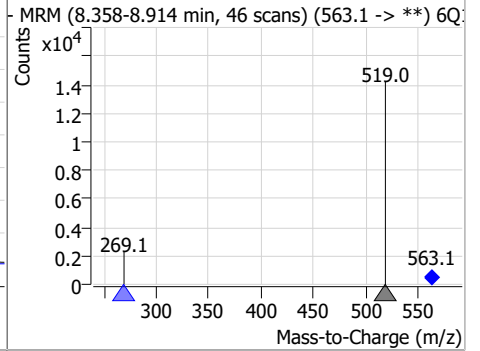
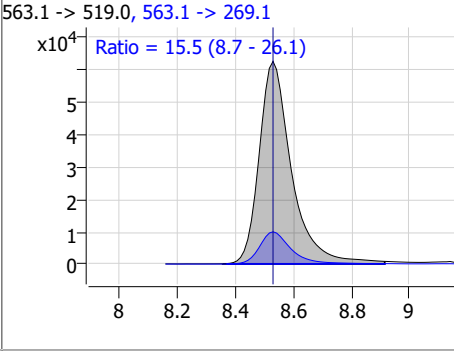
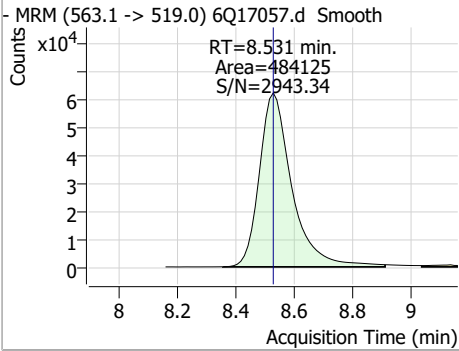


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.21	8.53	0.00	25578				

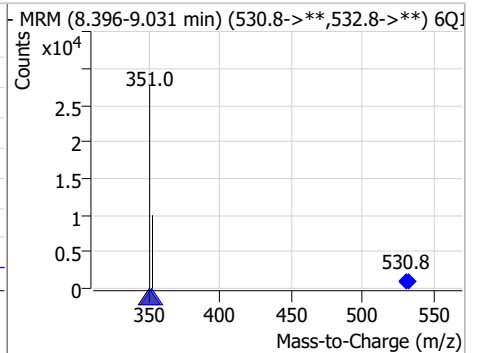
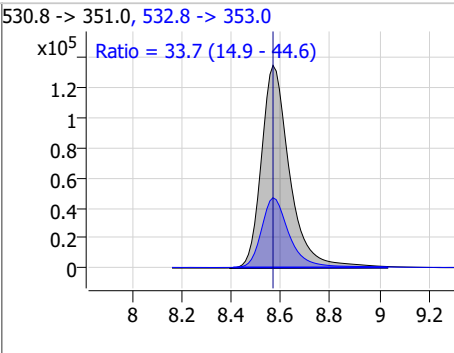
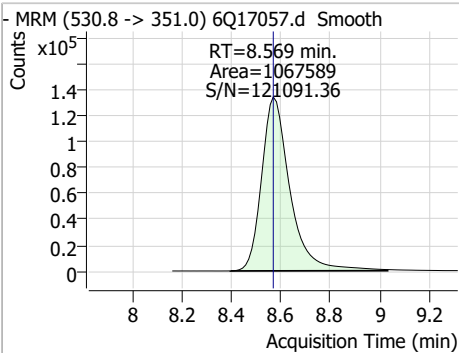


Perfluorinated Compounds by LC/MS/MS

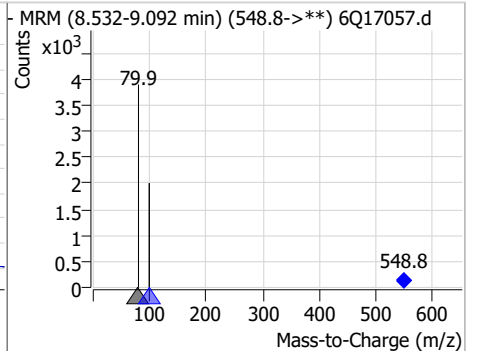
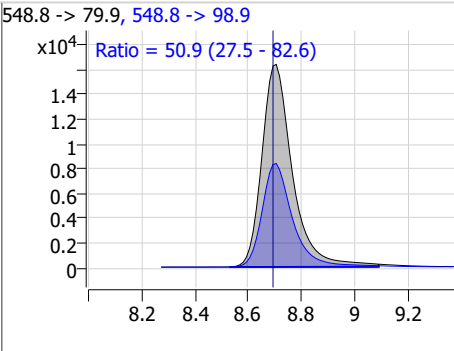
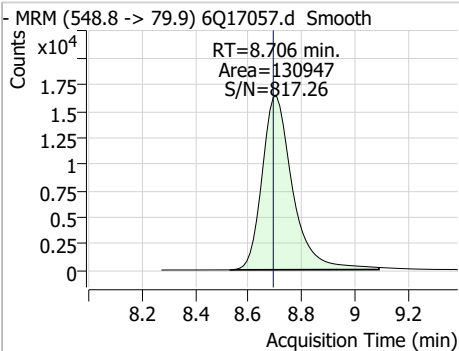
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	27.29	8.53	0.00	484125	563.1 -> 269.1	15.5	8.7	26.1



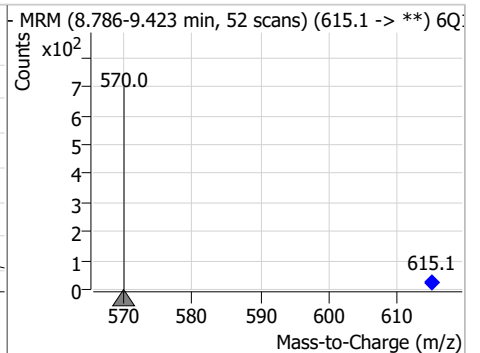
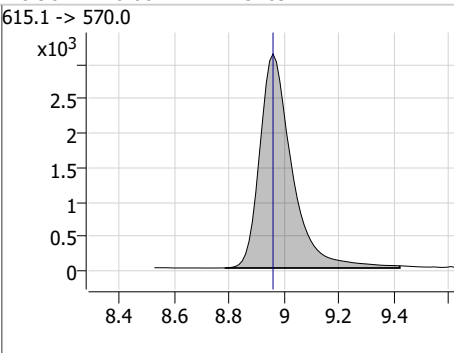
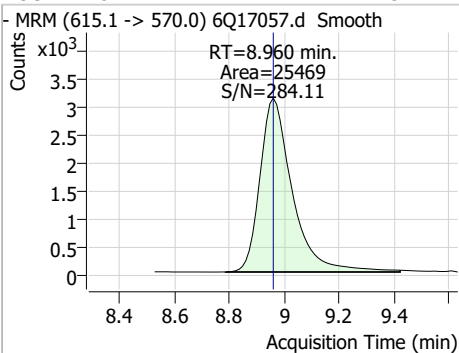
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	48.50	8.57	0.00	1067589	532.8 -> 353.0	33.7	14.9	44.6



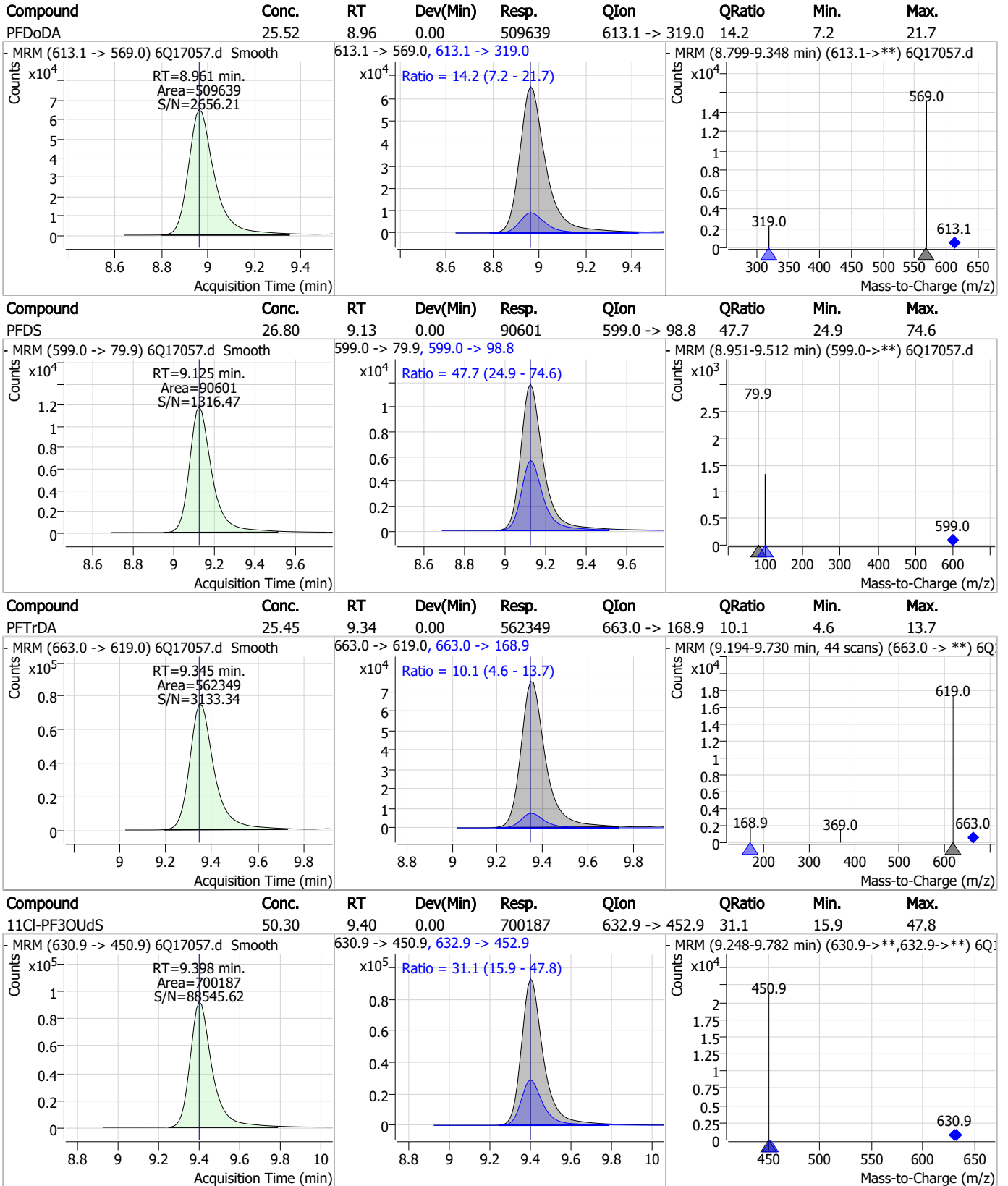
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	25.58	8.71	0.01	130947	548.8 -> 98.9	50.9	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	8.96	0.00	25469	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS



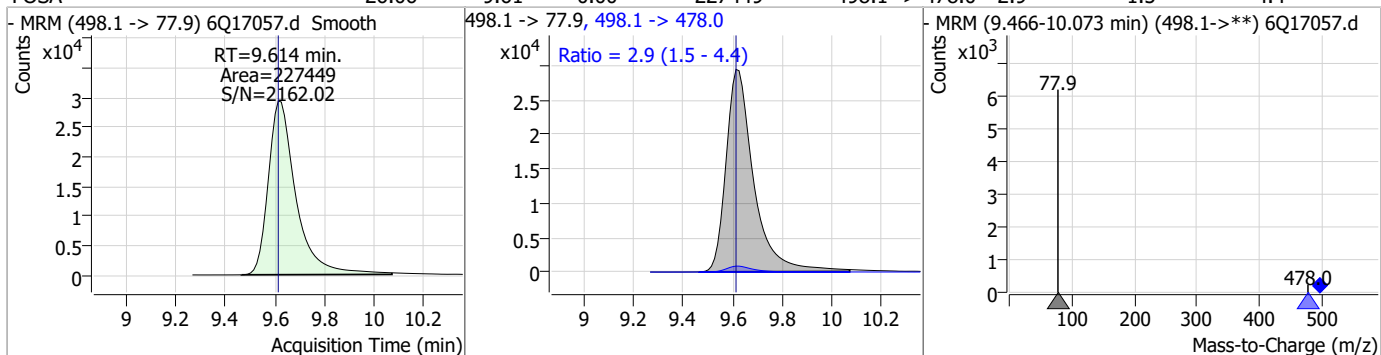
7.7.8

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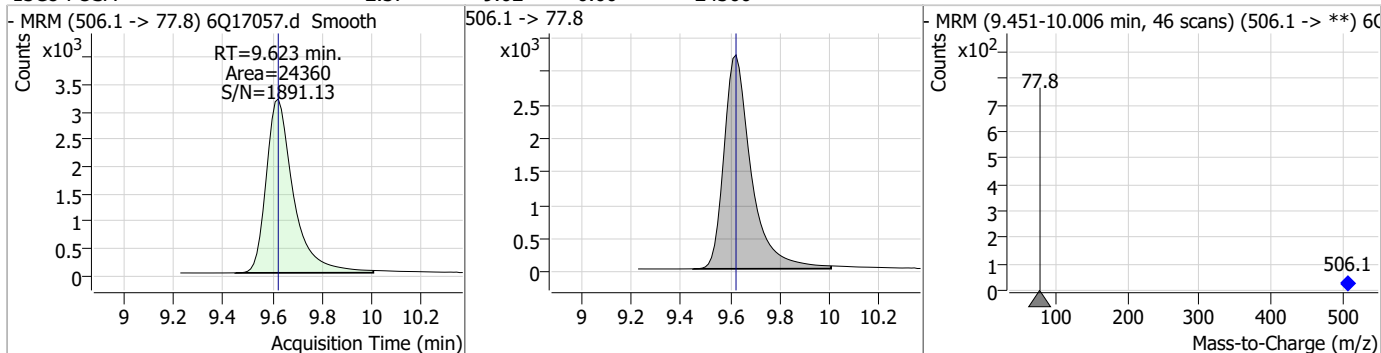


Perfluorinated Compounds by LC/MS/MS

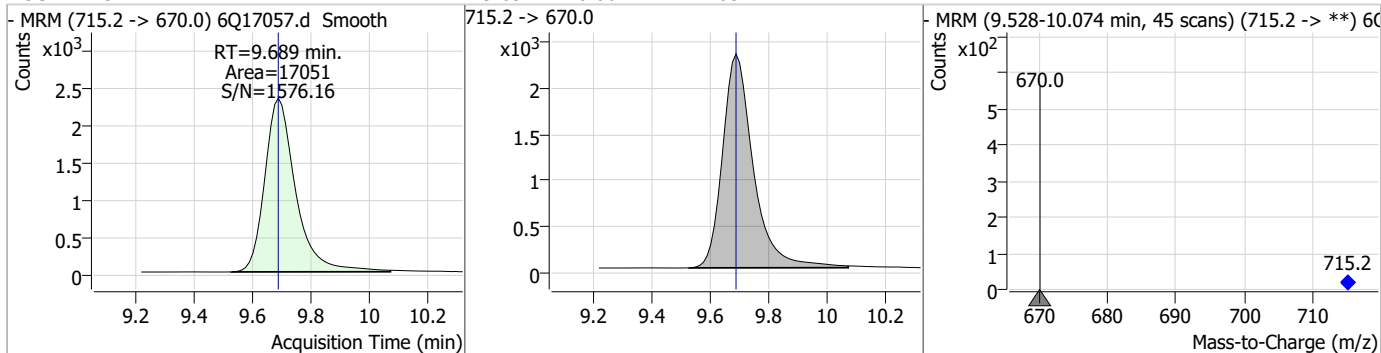
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.06	9.61	0.00	227449	498.1 -> 478.0	2.9	1.5	4.4



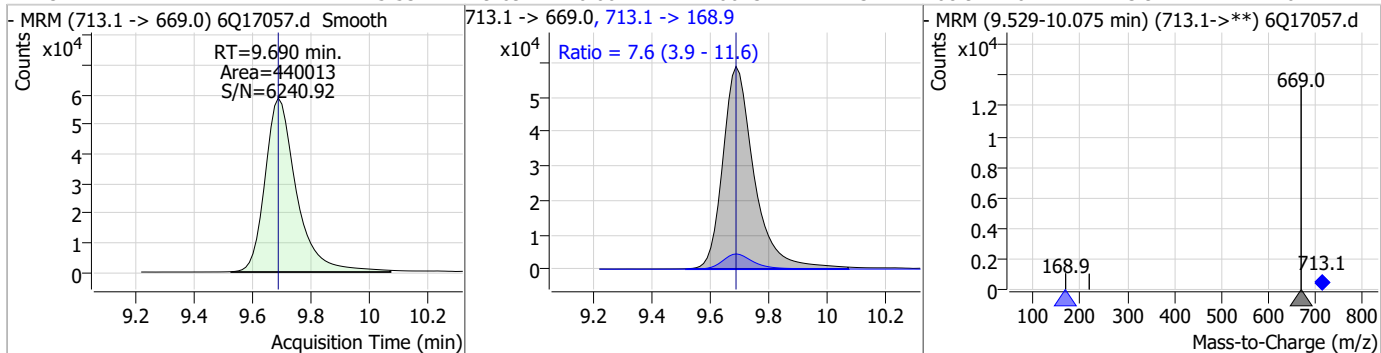
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.37	9.62	0.00	24360				



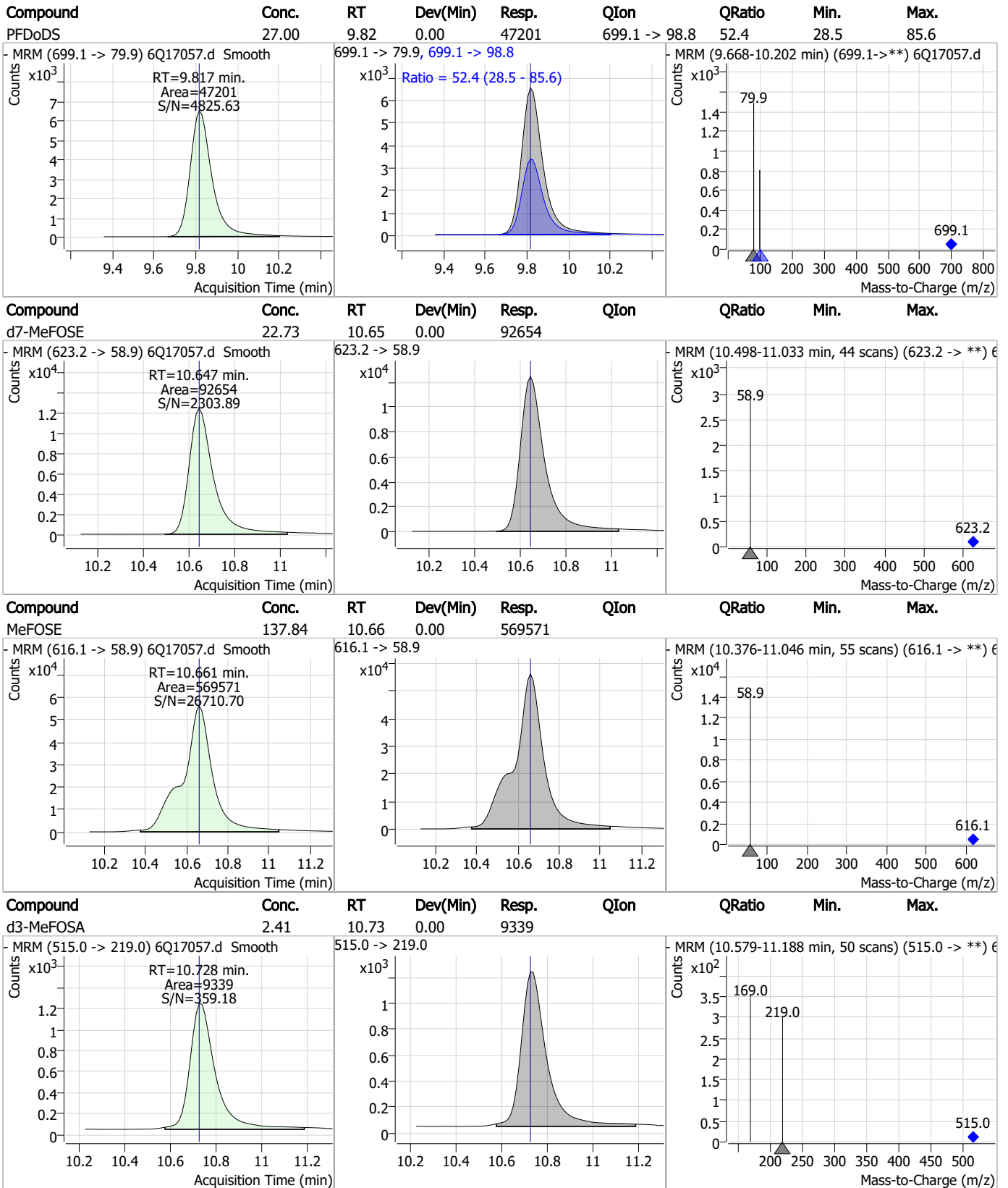
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.69	0.00	17051				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	25.53	9.69	0.00	440013	713.1 -> 168.9	7.6	3.9	11.6



Perfluorinated Compounds by LC/MS/MS

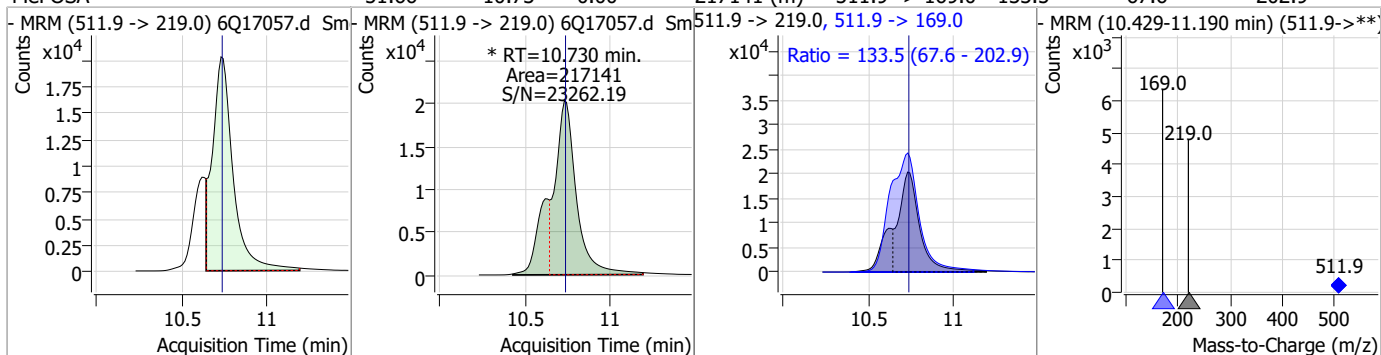


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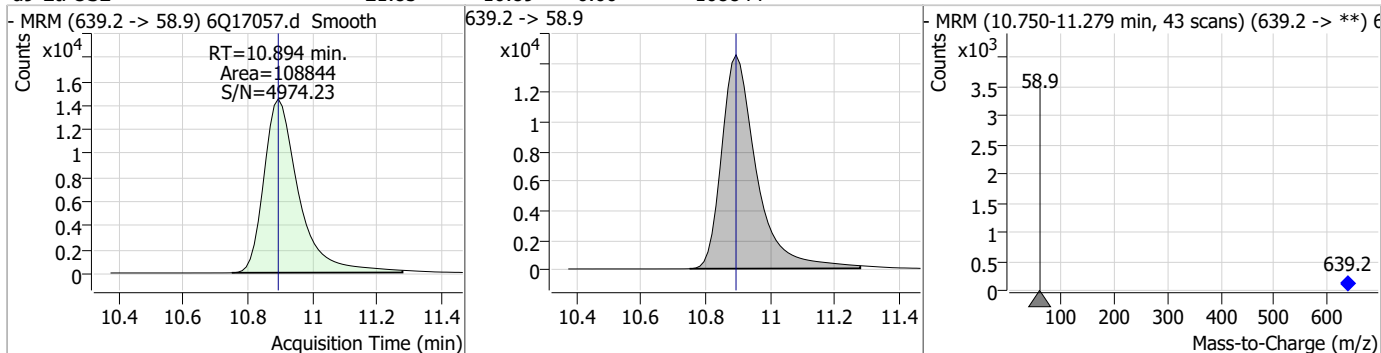
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Perfluorinated Compounds by LC/MS/MS

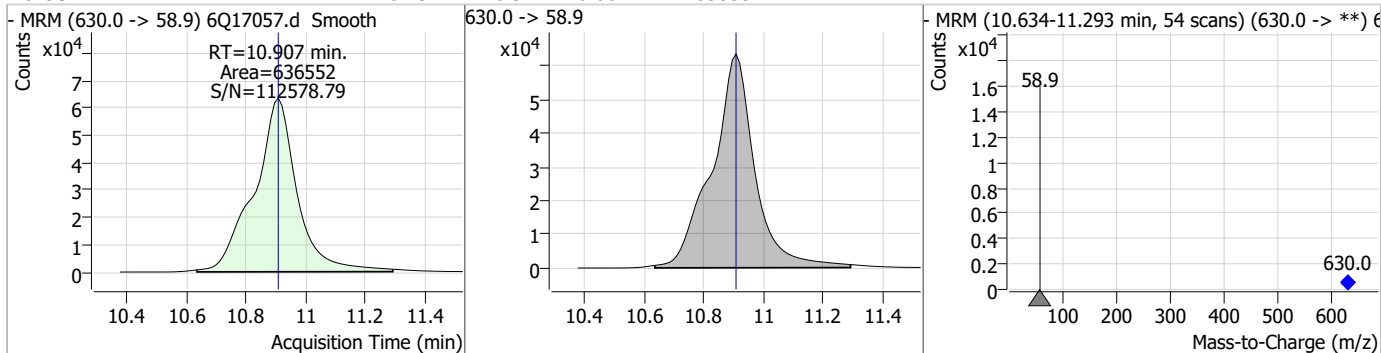
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	51.66	10.73	0.00	217141 (m)	511.9 -> 169.0	133.5	67.6	202.9



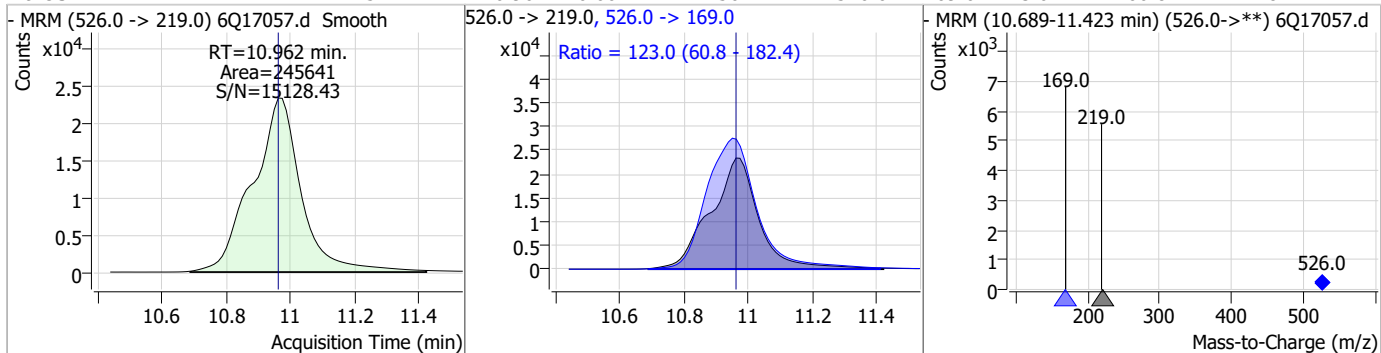
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.85	10.89	0.00	108844				



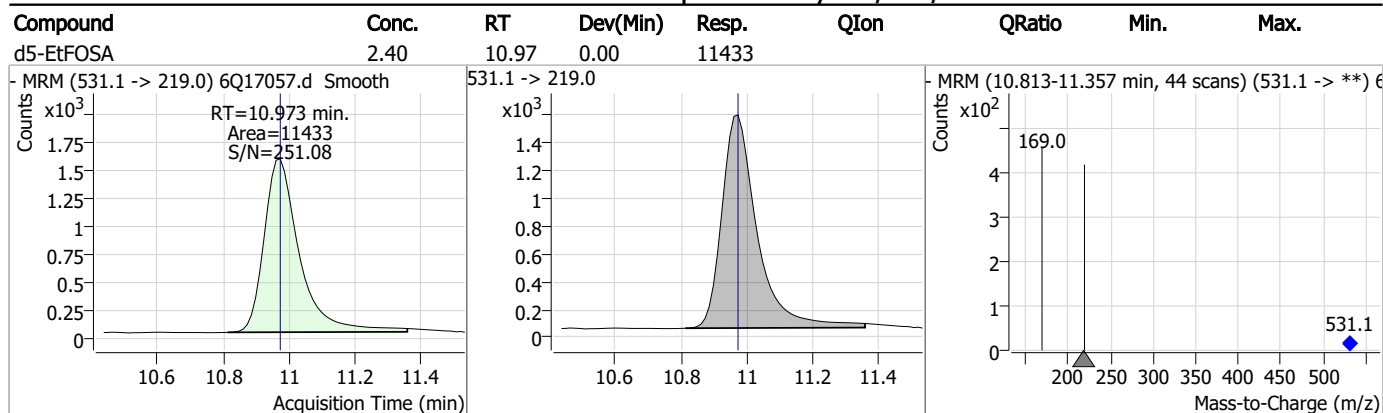
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	140.43	10.91	0.00	636552				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	52.27	10.96	0.00	245641	526.0 -> 169.0	123.0	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17057.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:17 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.73	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17058.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:31:43 PM
 Sample Name : ic258-8
 Vial : P1-A9
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	151130	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	59245	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	64171	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	54383	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	81933	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	24955	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19248	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	23977	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24900	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16568	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23871	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21371	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12072	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11247	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2089	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2596	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2849	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	20331	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38629	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17875	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	89075	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	107649	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	10678	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	10079	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14553	2.50 µg/L	-0.012
13C3-PFBA	2.889	216.0 -> 172.0	65582	5.00 µg/L	-0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9221	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	82388	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24077	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26423	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55057	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2089	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2596	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2849	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24900	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16568	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.398	302.1 -> 79.9	21371	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	12072	2.46 µg/L	0.000

7.7.9
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFBA	2.897	216.8 -> 171.9	151130	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	54383	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	64171	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	59245	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C6-PFDA	8.076	519.1 -> 474.1	19248	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	23977	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.623	506.1 -> 77.8	23871	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.062	421.1 -> 376.0	81933	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-PFOS	8.226	507.1 -> 79.9	11247	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.594	472.1 -> 427.0	24955	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	20331	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38629	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	10079	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17875	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	89075	23.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	107649	23.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d5-EtFOSA	10.973	531.1 -> 219.0	10678	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	697434	220.71 µg/L	99
		327.1 -> 80.9	262914		
6:2FTS	6.839	427.1 -> 407.0	625666	219.13 µg/L	97
		427.1 -> 80.9	214122		
8:2FTS	7.865	527.1 -> 507.0	348850	205.80 µg/L	99
		527.1 -> 80.8	143241		
EtFOSAA	8.331	584.2 -> 419.1	208550	68.65 µg/L	100
		584.2 -> 526.0	109068		
FOSA	9.614	498.1 -> 77.9	564526	66.00 µg/L	100
		498.1 -> 478.0	16955		
MeFOSAA	8.136	570.1 -> 419.0	268599	70.36 µg/L	90
		570.1 -> 483.0	50249		
PFBA	2.893	212.8 -> 168.9	1355052	267.34 µg/L	100
PFBS	5.400	298.7 -> 79.9	539834	56.29 µg/L	99
		298.7 -> 98.8	219827		
PFDA	8.077	512.9 -> 469.0	1462362	69.92 µg/L	98
		512.9 -> 219.0	230825		
PFDoDA	8.961	613.1 -> 569.0	1244394	63.75 µg/L	99
		613.1 -> 319.0	183825		
PFDS	9.125	599.0 -> 79.9	220016	61.38 µg/L	96

7.7.9
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	104007	69.58	µg/L	99
		363.1 -> 319.0	1867275			
PFHpS	7.734	363.1 -> 169.0	282777	60.34	µg/L	100
		449.0 -> 79.9	367816			
PFHxA	5.470	449.0 -> 98.9	185825	67.28	µg/L	99
		313.0 -> 269.0	1707020			
PFHxS	7.180	313.0 -> 118.9	75498	62.51	µg/L	m
		398.7 -> 79.9	411201			
PFNA	7.595	398.7 -> 98.9	186310	67.51	µg/L	96
		463.0 -> 419.0	1165424			
PFNS	8.694	463.0 -> 219.0	221443	58.41	µg/L	99
		548.8 -> 79.9	317111			
PFOA	7.063	548.8 -> 98.9	176024	62.50	µg/L	97
		413.0 -> 369.0	2469950			
PFOS	8.240	413.0 -> 169.0	403014	57.36	µg/L	m
		498.9 -> 79.9	311549			
PFPeA	4.273	498.9 -> 98.8	160890	130.45	µg/L	100
		263.0 -> 219.0	2105084			
PFPeS	6.472	349.1 -> 79.9	437428	63.67	µg/L	93
		349.1 -> 98.9	193273			
PFTeDA	9.690	713.1 -> 669.0	1058689	63.23	µg/L	100
		713.1 -> 168.9	80979			
PFTrDA	9.345	663.0 -> 619.0	1376902	63.73	µg/L	99
		663.0 -> 168.9	124045			
PFUnDA	8.531	563.1 -> 519.0	1133142	68.14	µg/L	95
		563.1 -> 269.1	173575			
11CI-PF3OUdS	9.398	630.9 -> 450.9	1661712	125.35	µg/L	98
		632.9 -> 452.9	509572			
9CI-PF3ONS	8.569	530.8 -> 351.0	2636168	125.77	µg/L	95
		532.8 -> 353.0	857971			
ADONA	6.681	376.9 -> 250.9	7135823	122.28	µg/L	99
		376.9 -> 84.8	1798541			
HFPO-DA	5.834	284.9 -> 168.9	494197	135.07	µg/L	95
		284.9 -> 184.9	59457			
3:3FTCA	3.771	241.0 -> 177.0	341837	338.77	µg/L	97
		241.0 -> 117.0	41885			
5:3FTCA	6.147	341.0 -> 237.1	6507641	1584.88	µg/L	91
		341.0 -> 217.0	4838059			
7:3FTCA	7.573	441.0 -> 316.9	3147148	1687.19	µg/L	93
		441.0 -> 336.9	6469023			
EtFOSA	10.962	526.0 -> 219.0	583690	133.01	µg/L	92
		526.0 -> 169.0	761555			
EtFOSE	10.907	630.0 -> 58.9	1487025	331.70	µg/L	100
		511.9 -> 219.0	528578			
MeFOSA	10.743	511.9 -> 169.0	719548	116.53	µg/L	m
		616.1 -> 58.9	1309183			
MeFOSE	10.661	699.1 -> 79.9	111401	329.56	µg/L	100
		699.1 -> 98.8	65507			
PFDoDS	9.817	295.0 -> 201.0	355695	60.10	µg/L	98
		295.0 -> 84.9	85285			
NFDHA	5.350	279.0 -> 85.1	1422124	129.35	µg/L	100
		229.0 -> 84.9	1058106			
PFMBA	4.687	314.8 -> 134.9	3905822	131.01	µg/L	100
		314.8 -> 82.9	132583			
PFMPA	3.426			121.99	µg/L	99
PFEESA	5.937					

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.9
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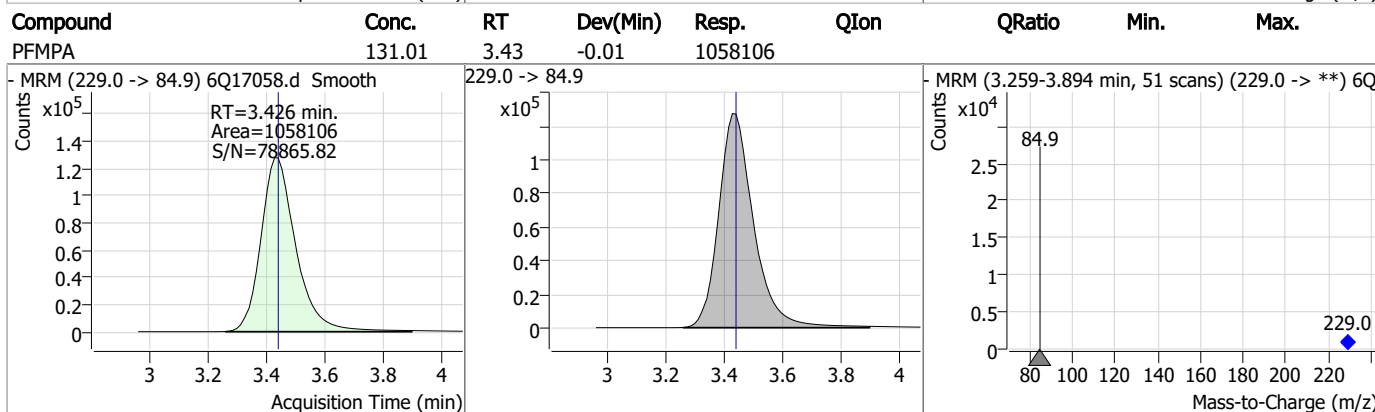
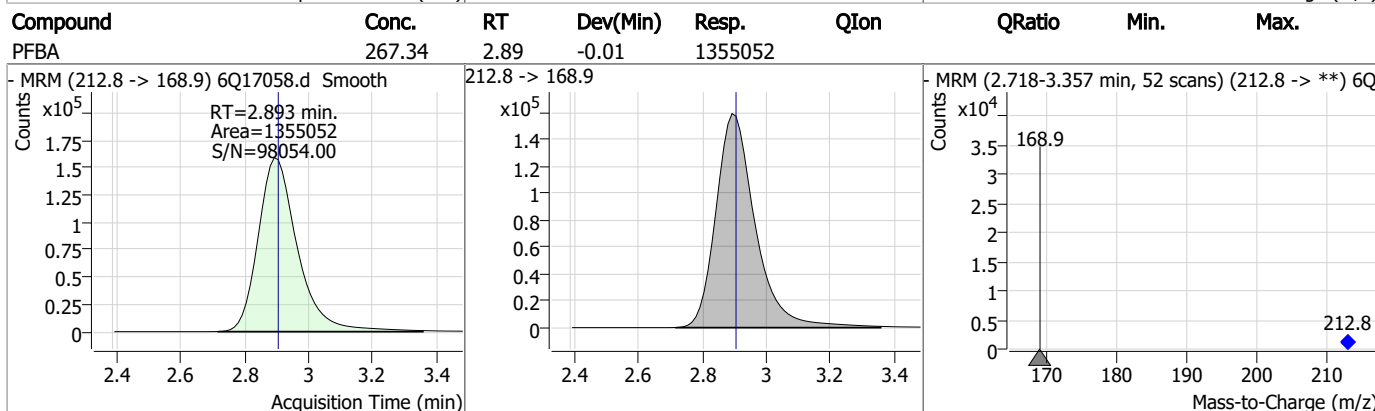
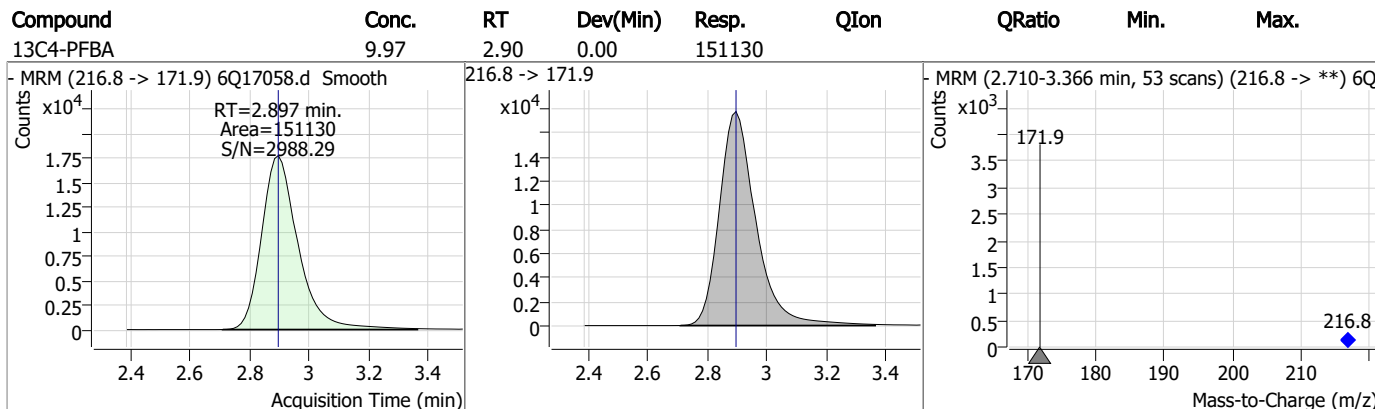
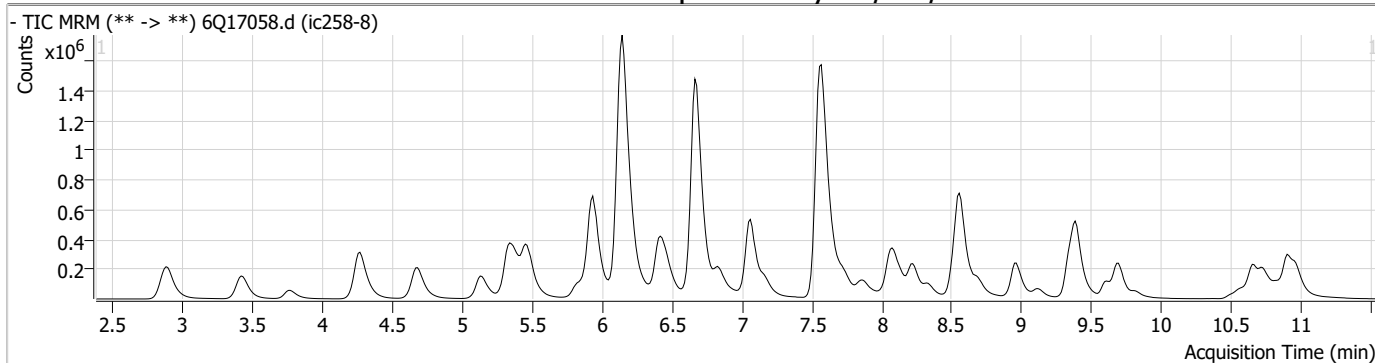
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.9

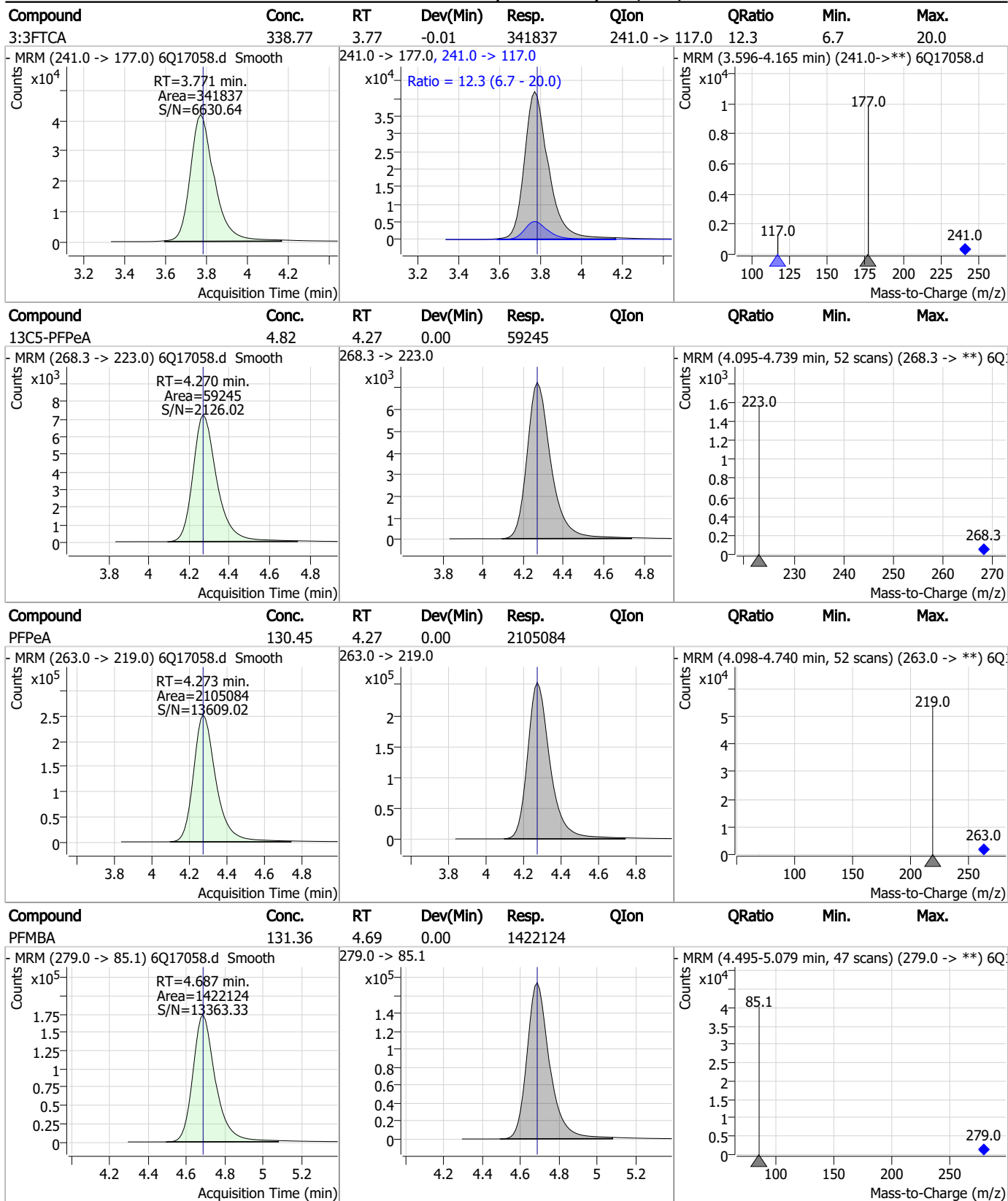
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Perfluorinated Compounds by LC/MS/MS



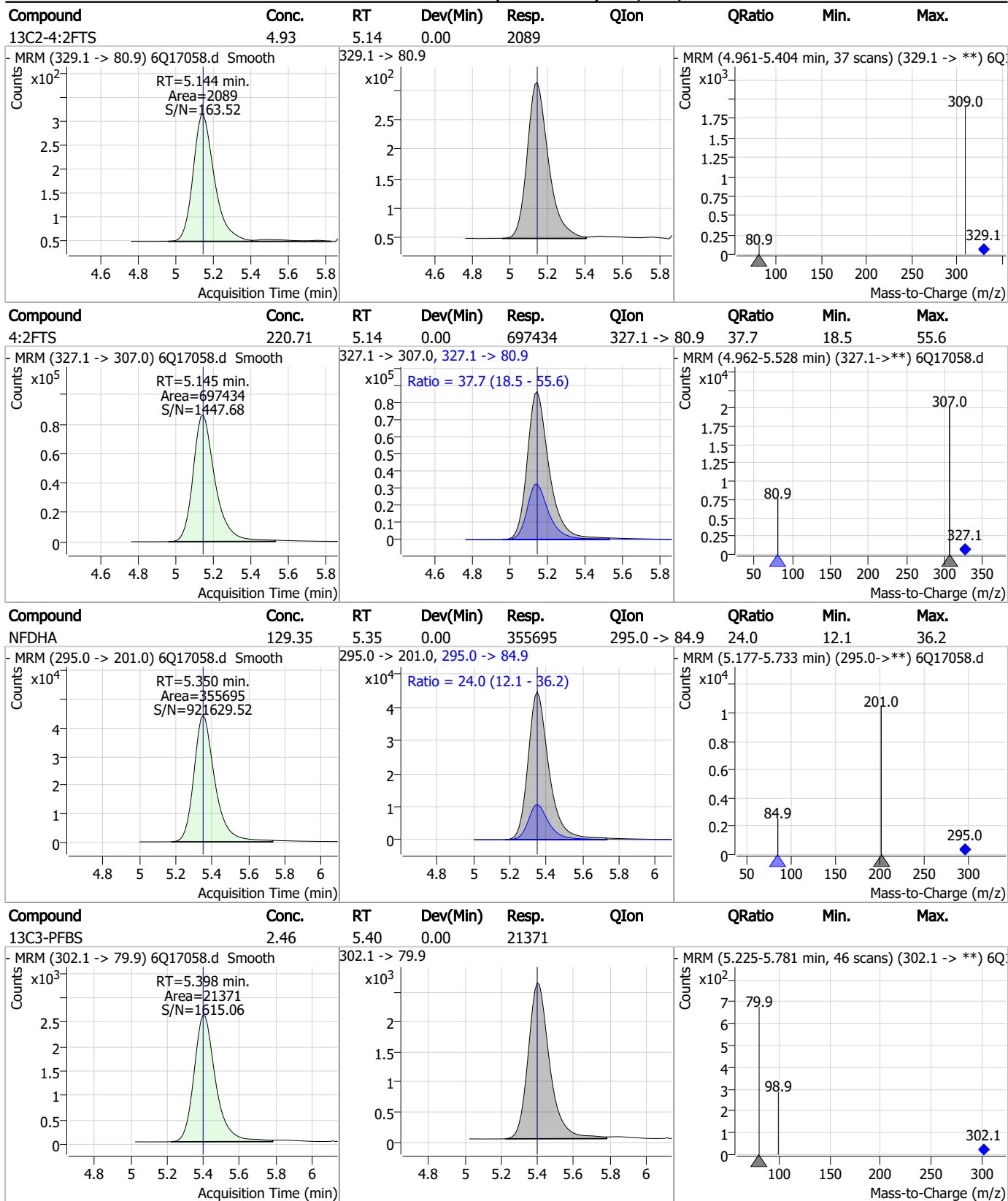
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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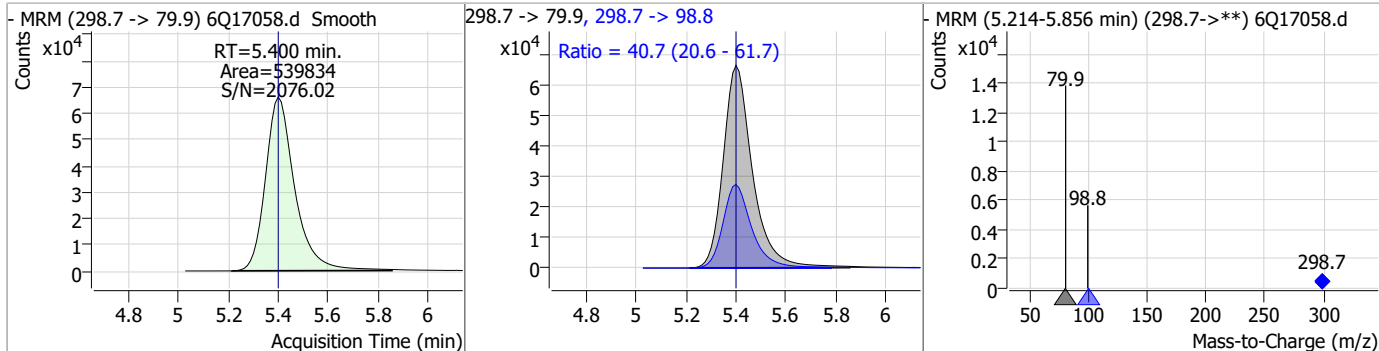
Perfluorinated Compounds by LC/MS/MS



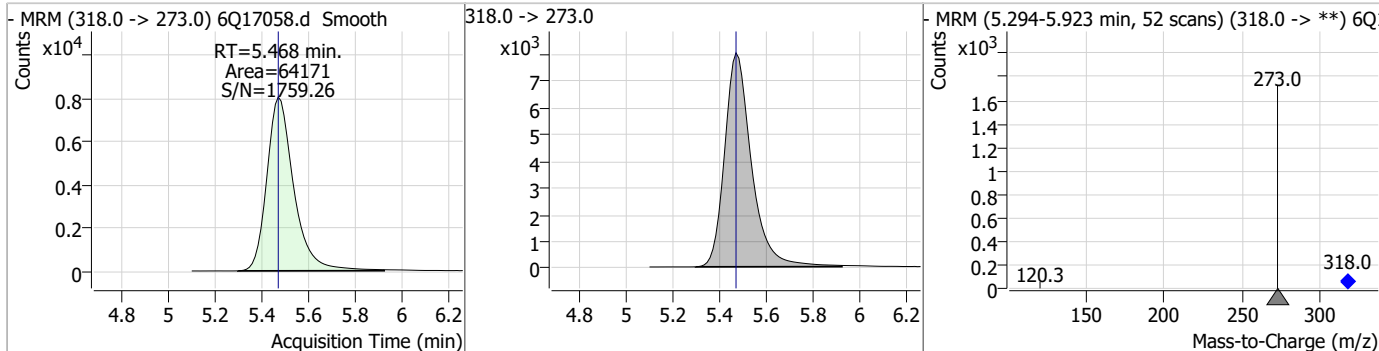
7.7.9
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Perfluorinated Compounds by LC/MS/MS

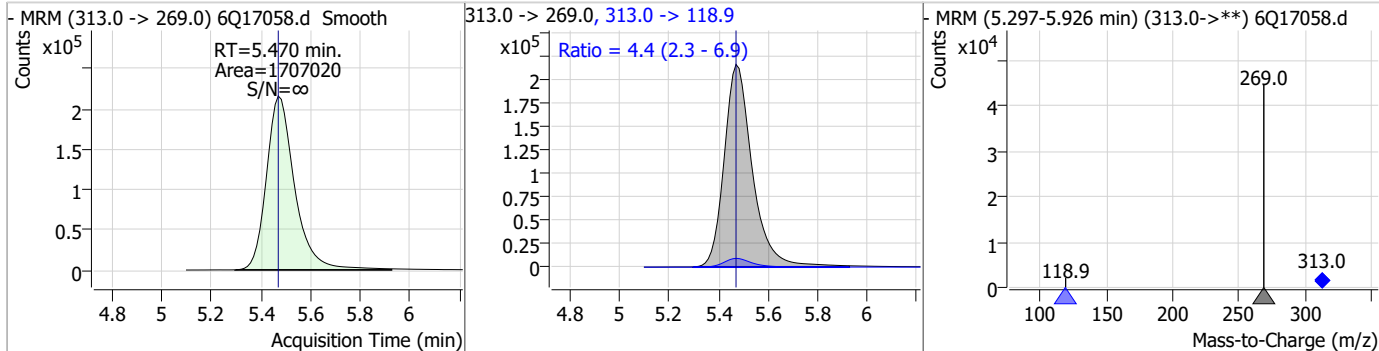
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.29	5.40	0.00	539834	298.7 -> 98.8	40.7	20.6	61.7



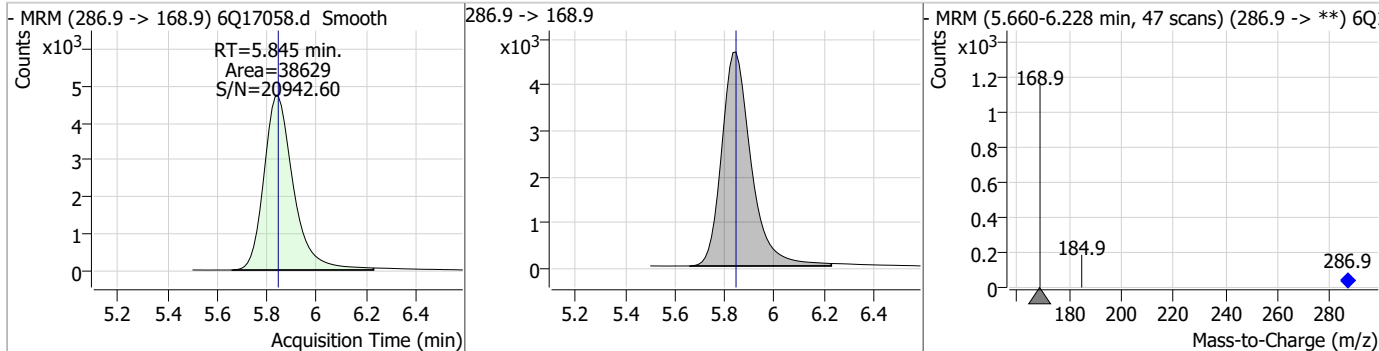
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.47	0.00	64171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	67.28	5.47	0.00	1707020	313.0 -> 118.9	4.4	2.3	6.9

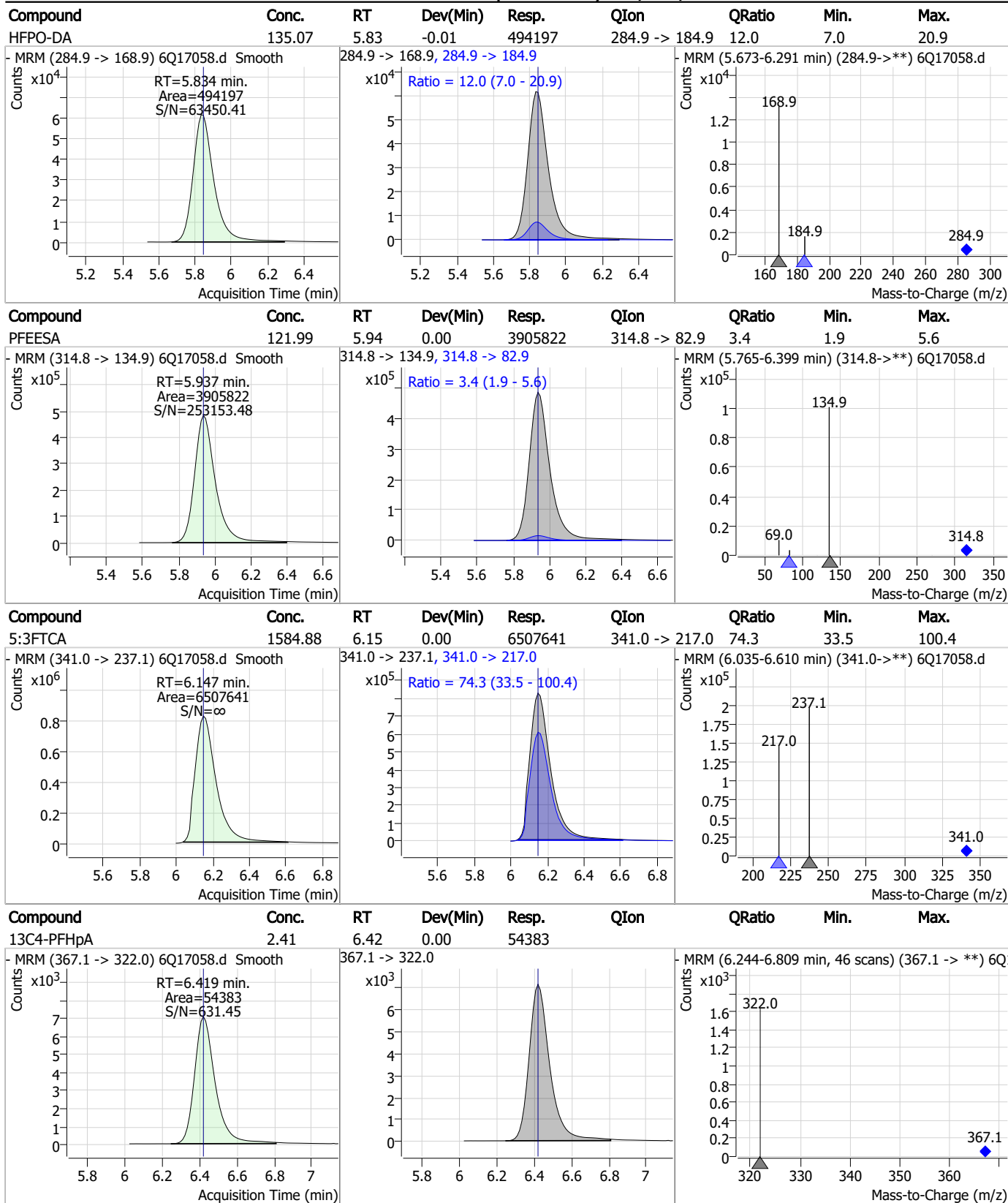


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.91	5.85	0.00	38629				



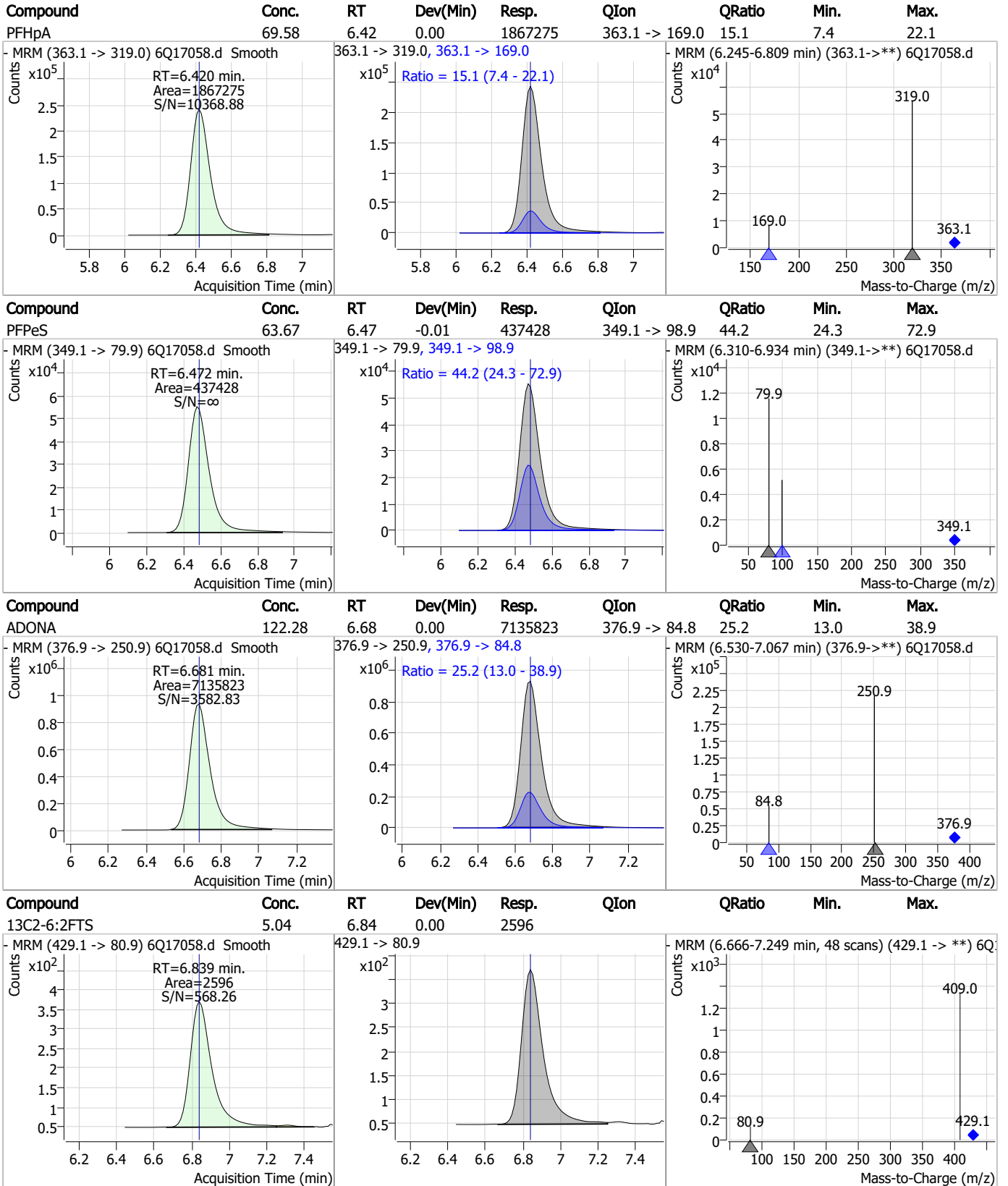
7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

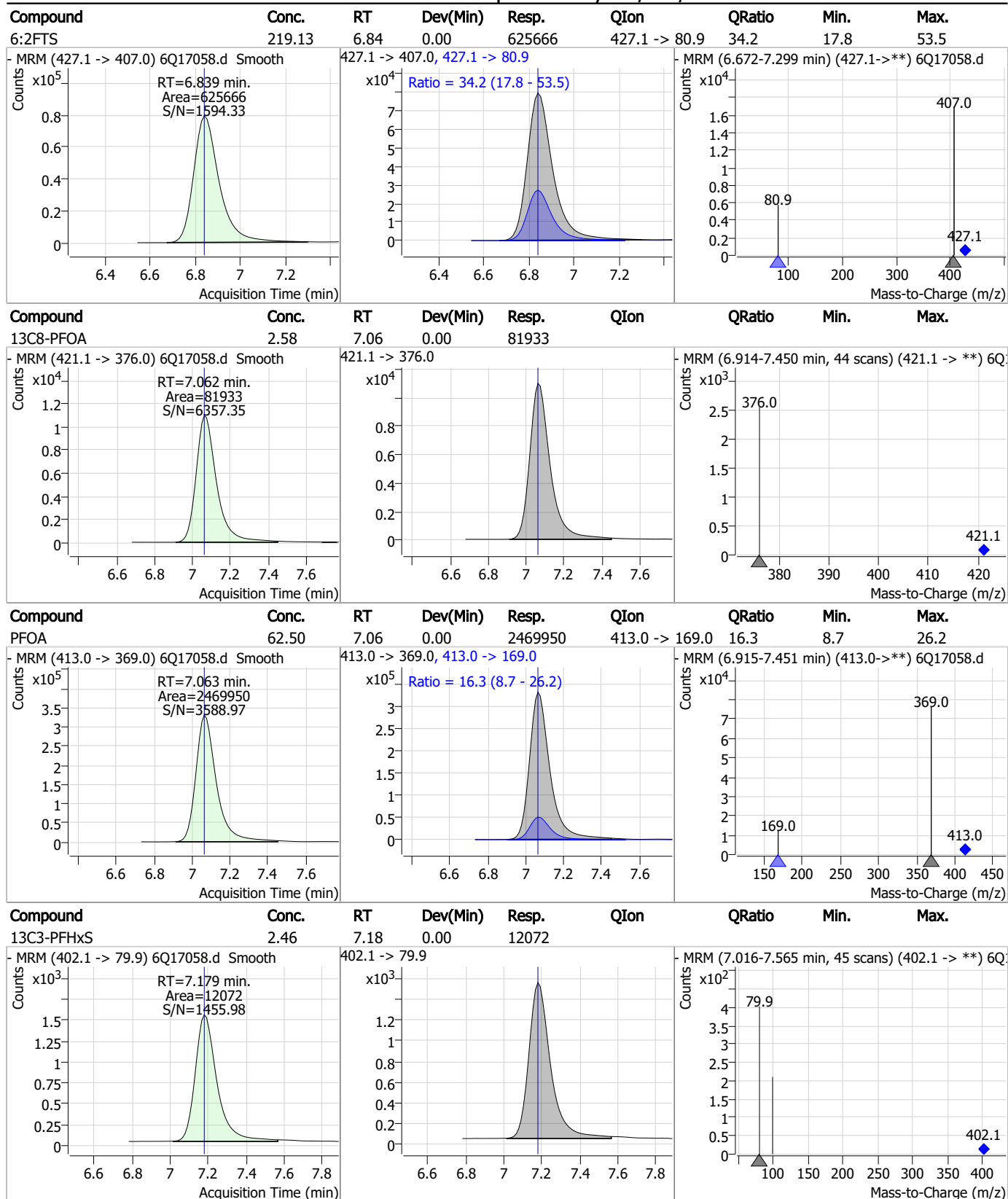


7.7.9

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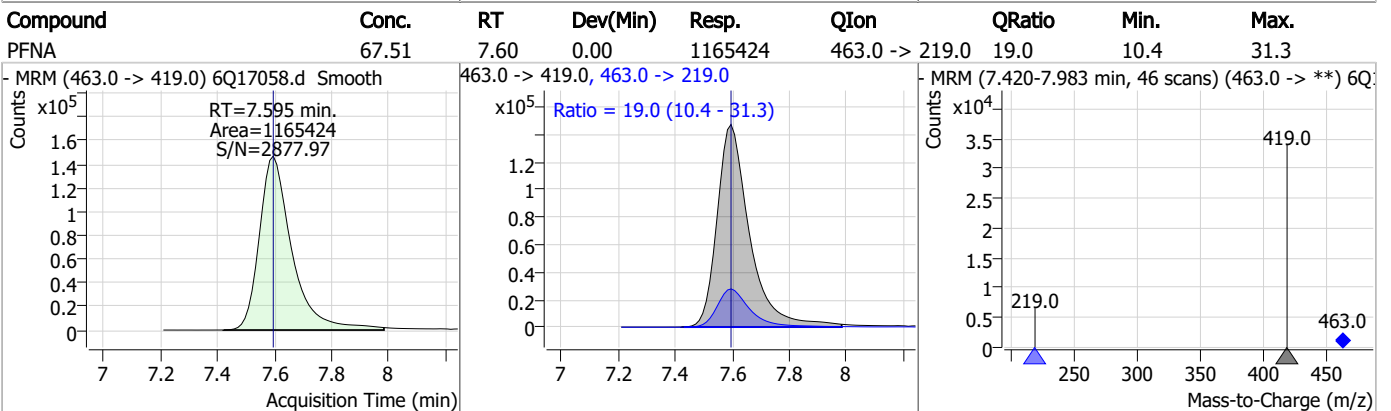
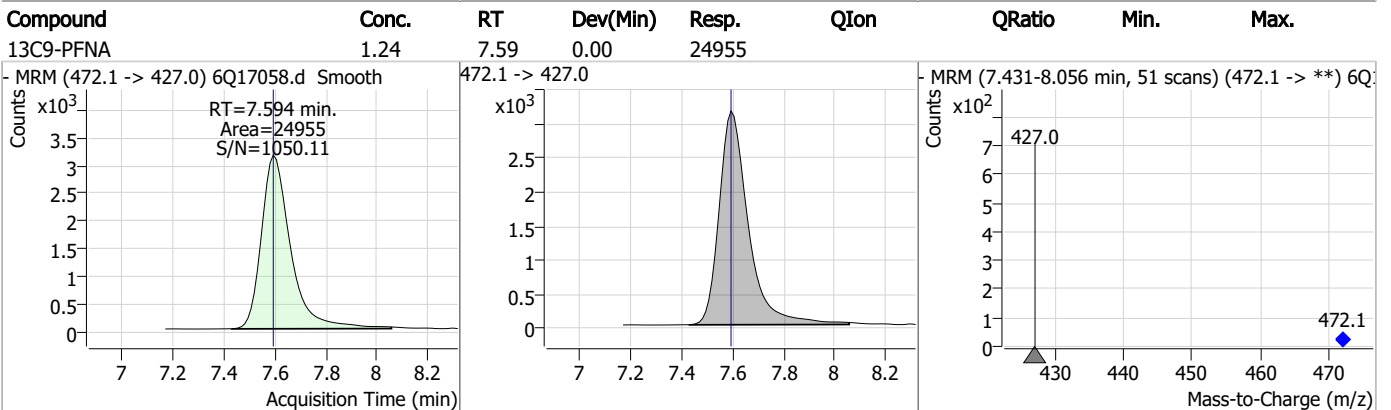
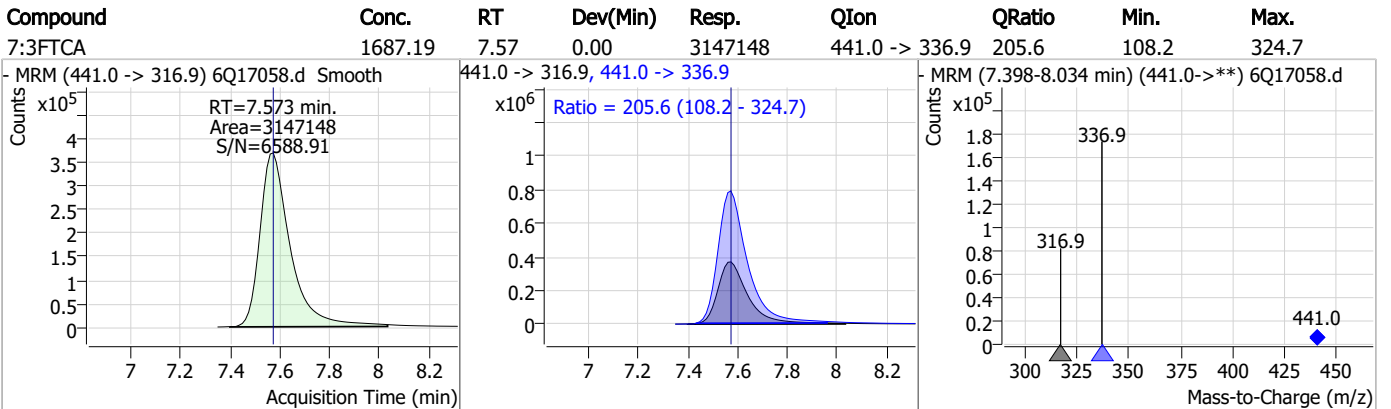
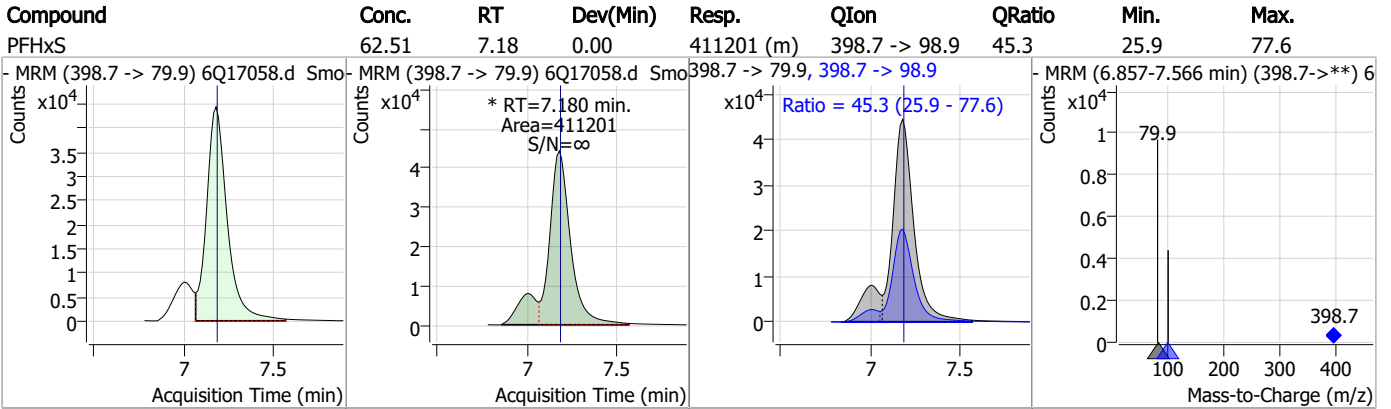


Perfluorinated Compounds by LC/MS/MS

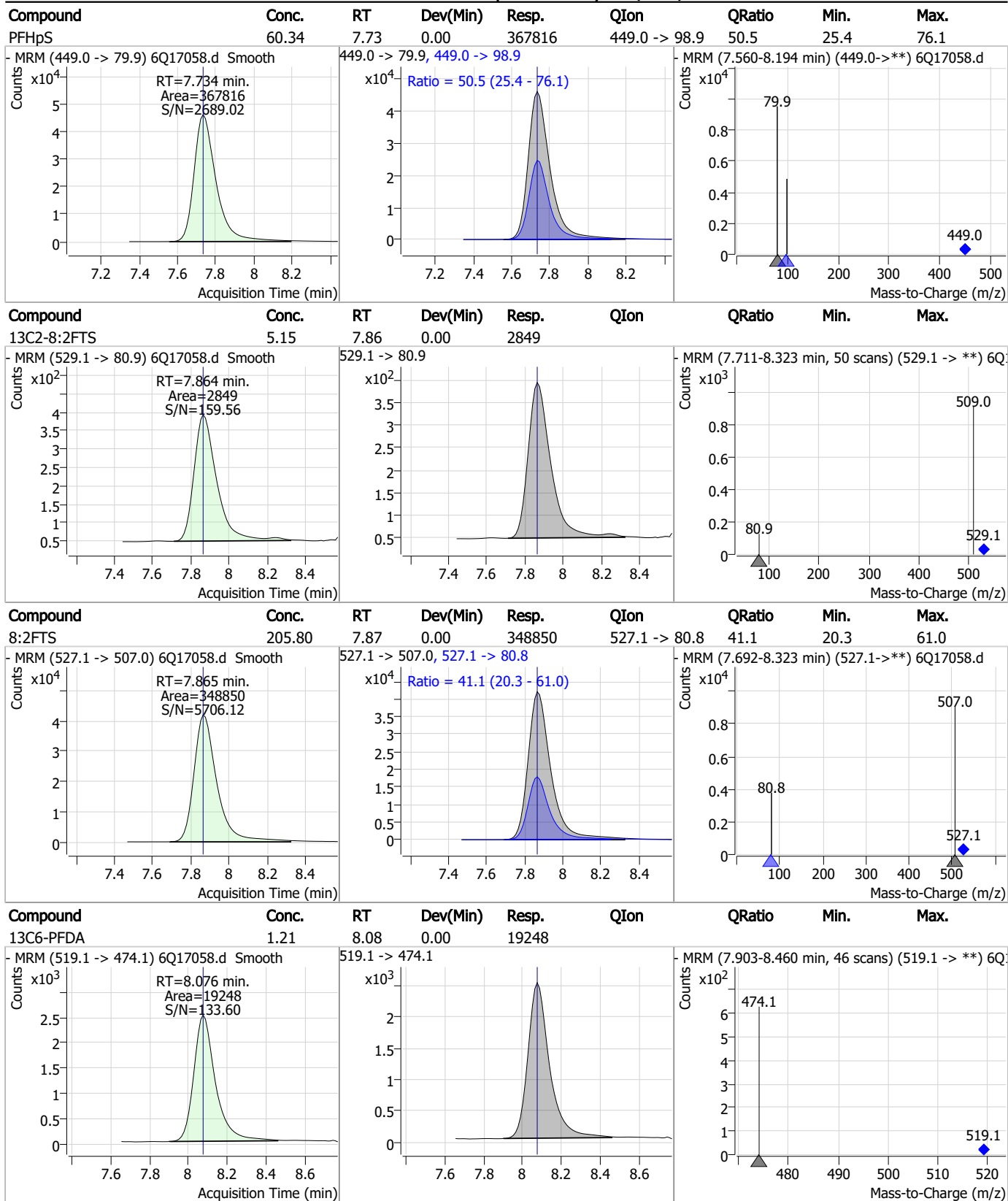


7.7.9
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Perfluorinated Compounds by LC/MS/MS

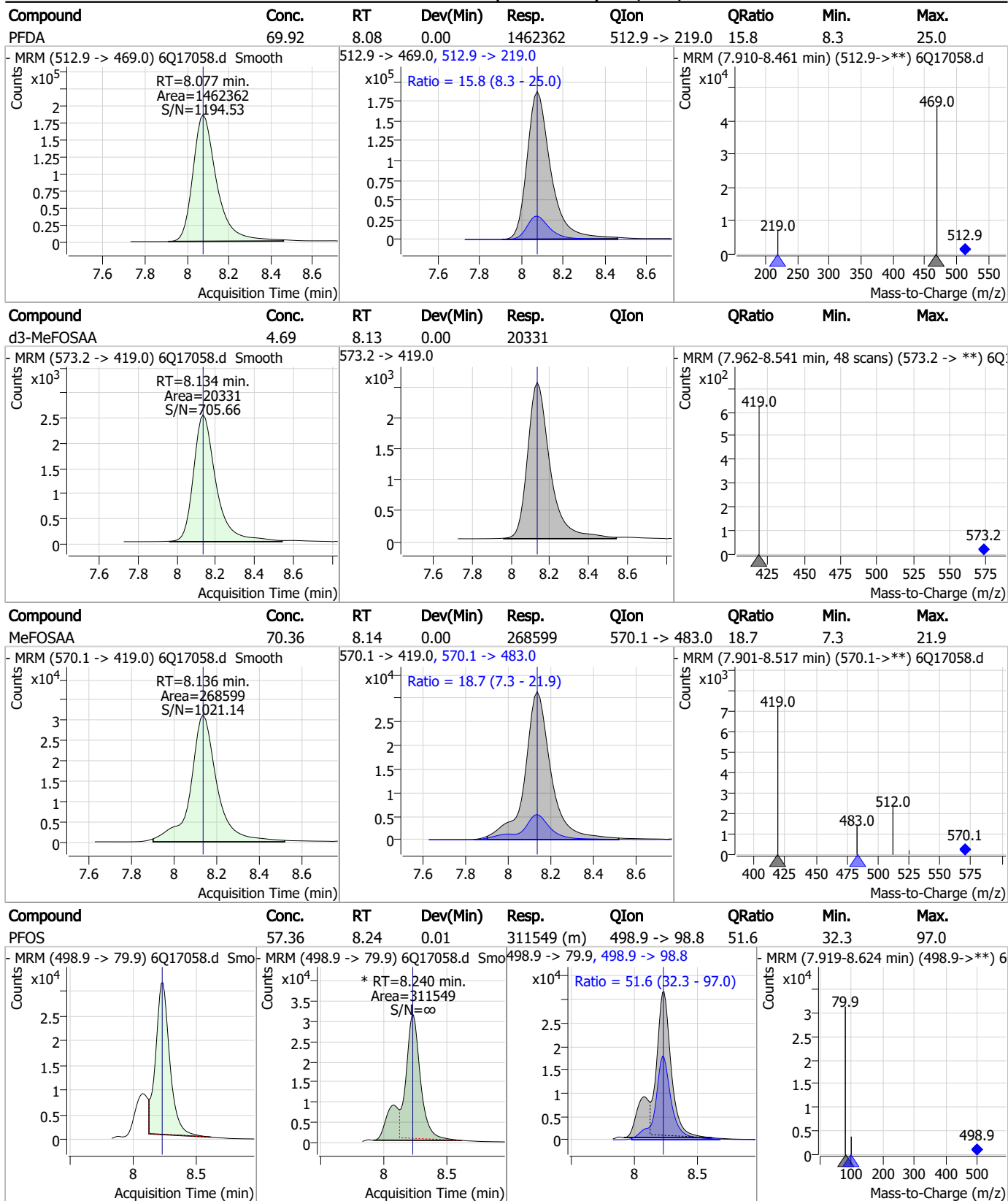


Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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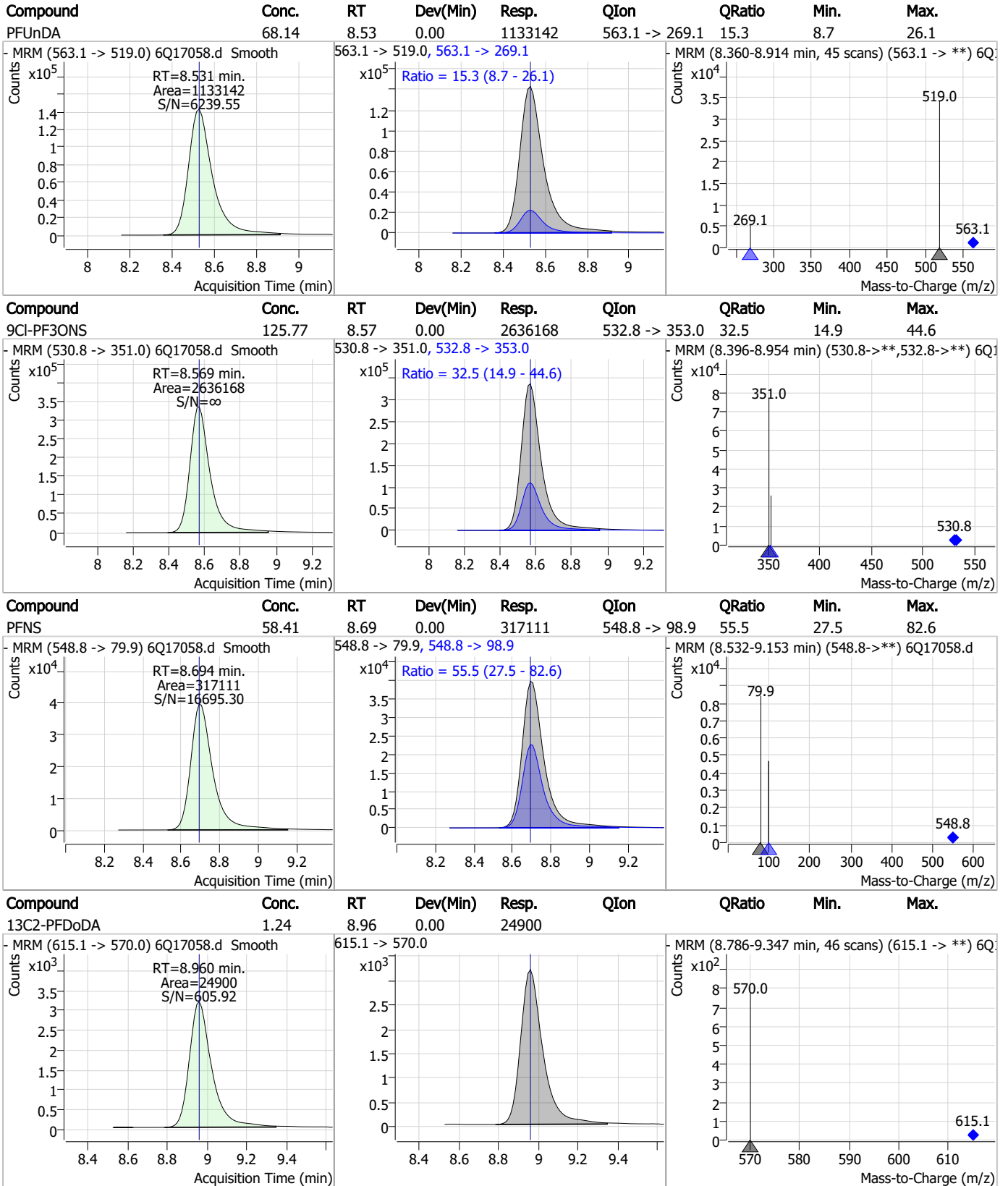


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.23	-0.01	11247				
d5-EtFOSAA	4.96	8.33	0.00	17875				
EtFOSAA	68.65	8.33	0.00	208550	584.2 -> 526.0	52.3	26.2	78.6
13C7-PFUnDA	1.18	8.53	0.00	23977				

7.7.9
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Perfluorinated Compounds by LC/MS/MS

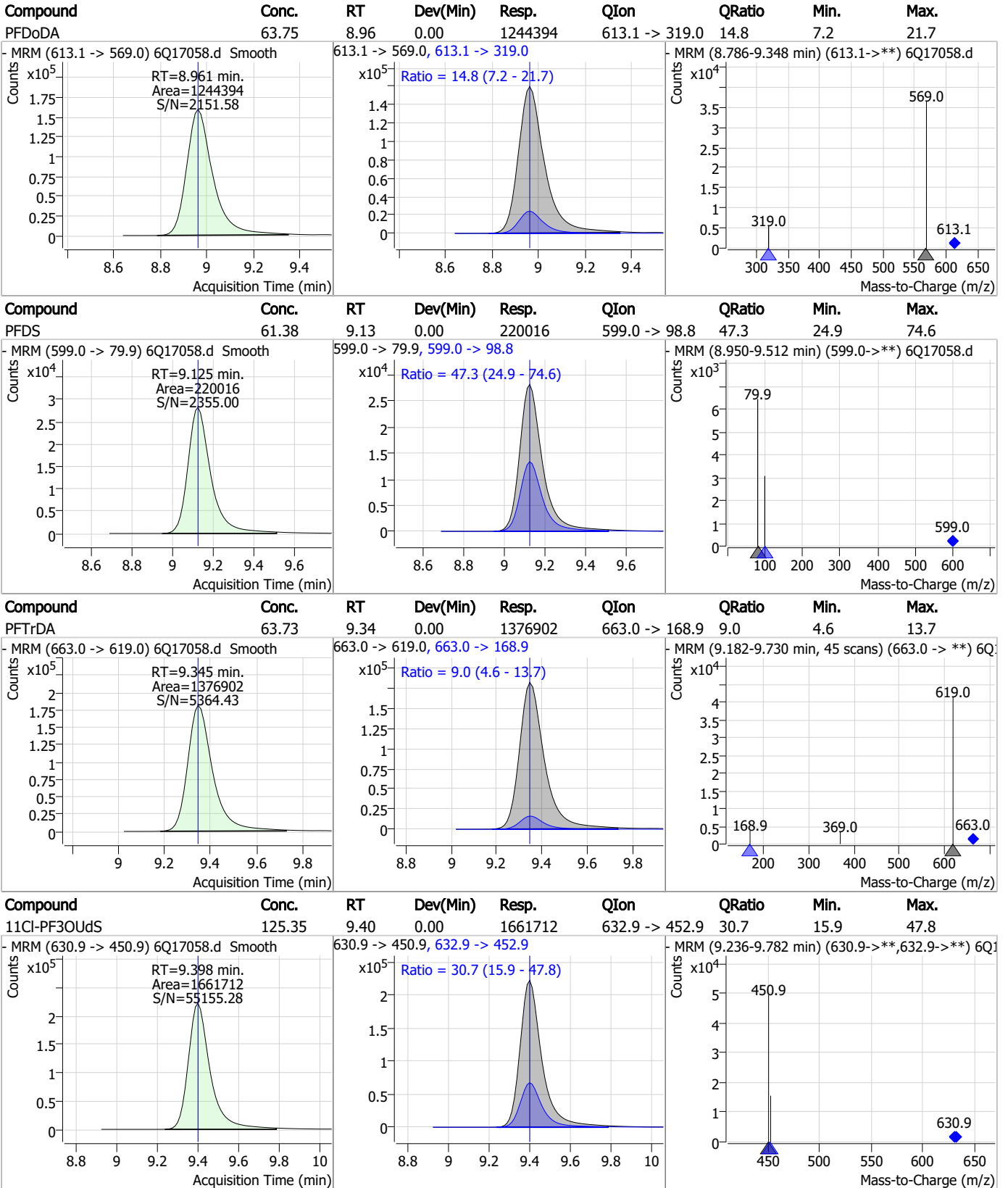


7.7.9

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Perfluorinated Compounds by LC/MS/MS



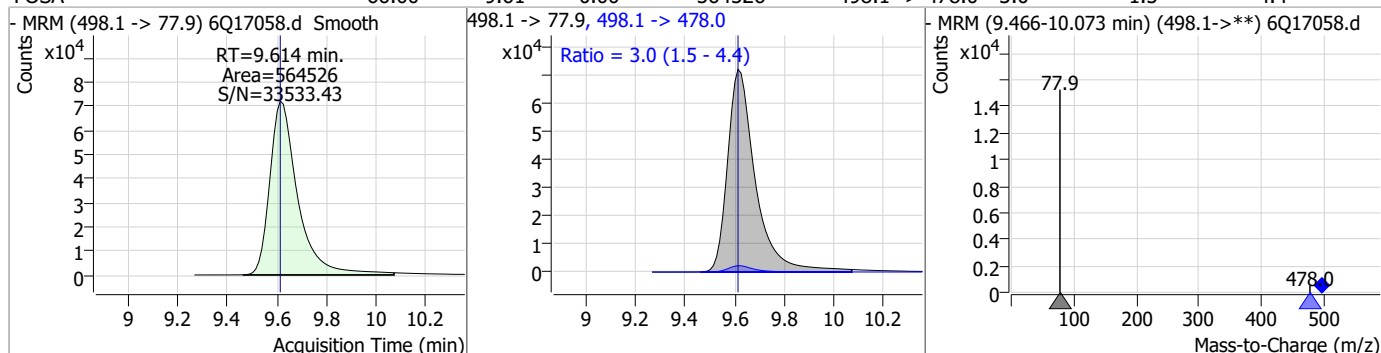
7.7.9

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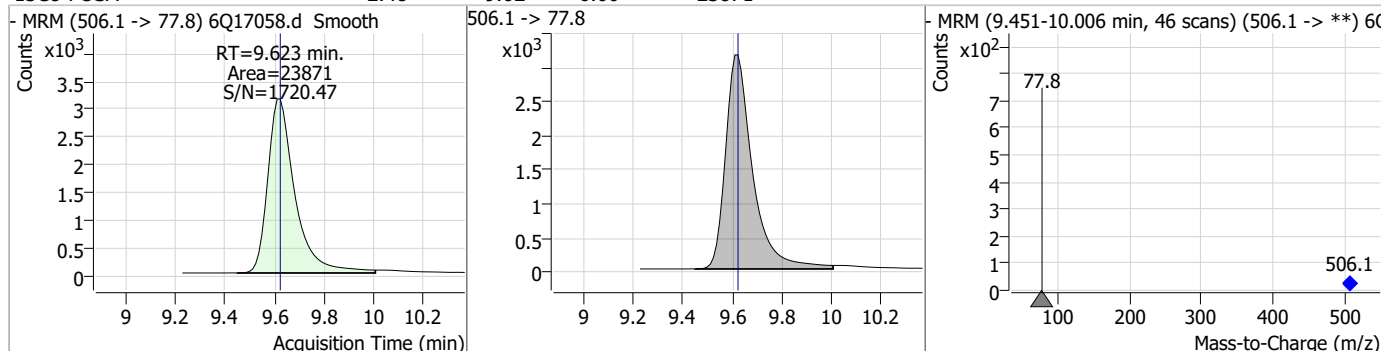


Perfluorinated Compounds by LC/MS/MS

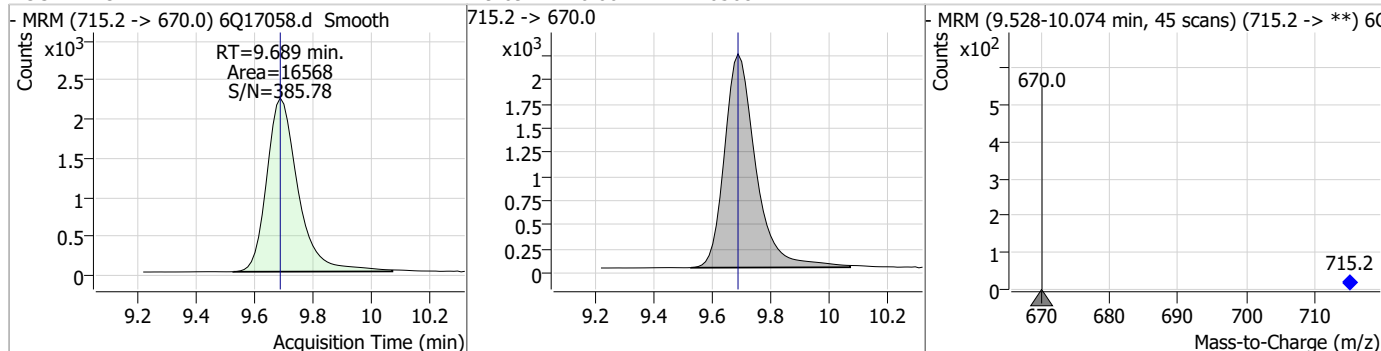
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	66.00	9.61	0.00	564526	498.1 -> 478.0	3.0	1.5	4.4



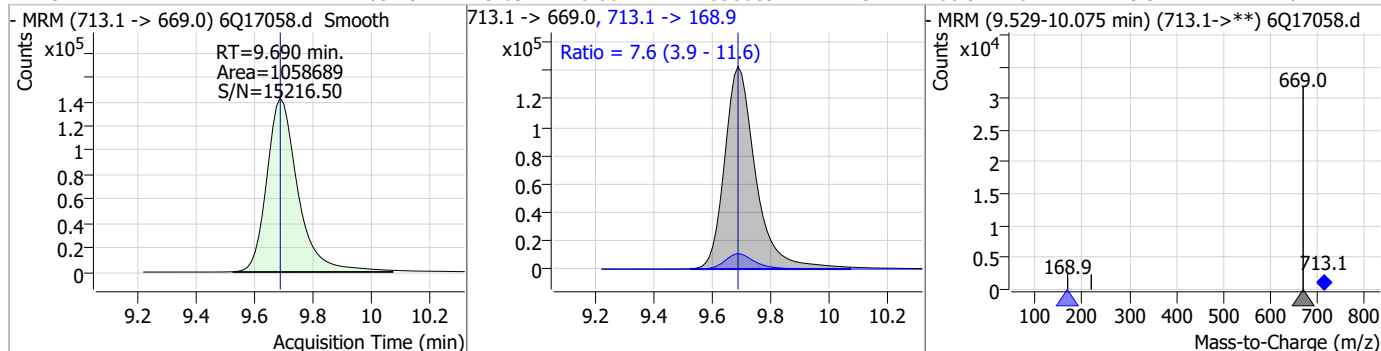
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.62	0.00	23871				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.69	0.00	16568				

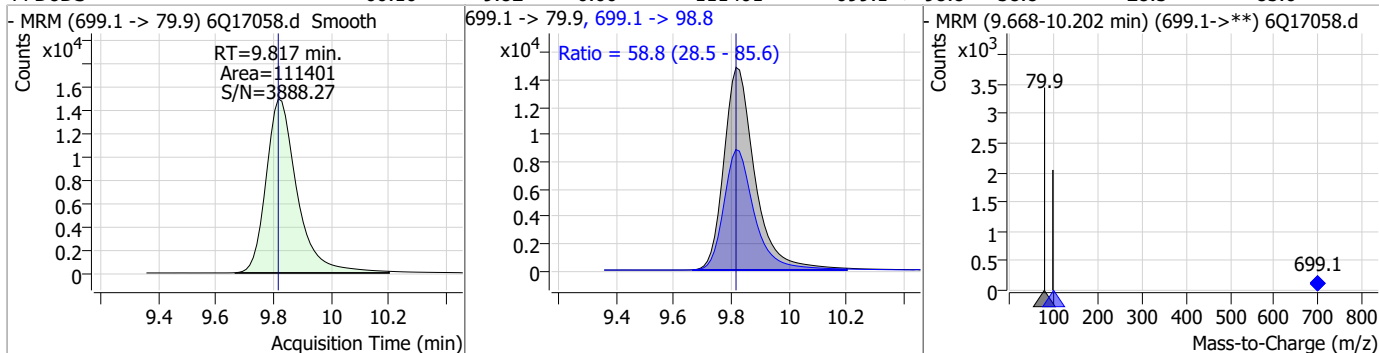


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	63.23	9.69	0.00	1058689	713.1 -> 168.9	7.6	3.9	11.6

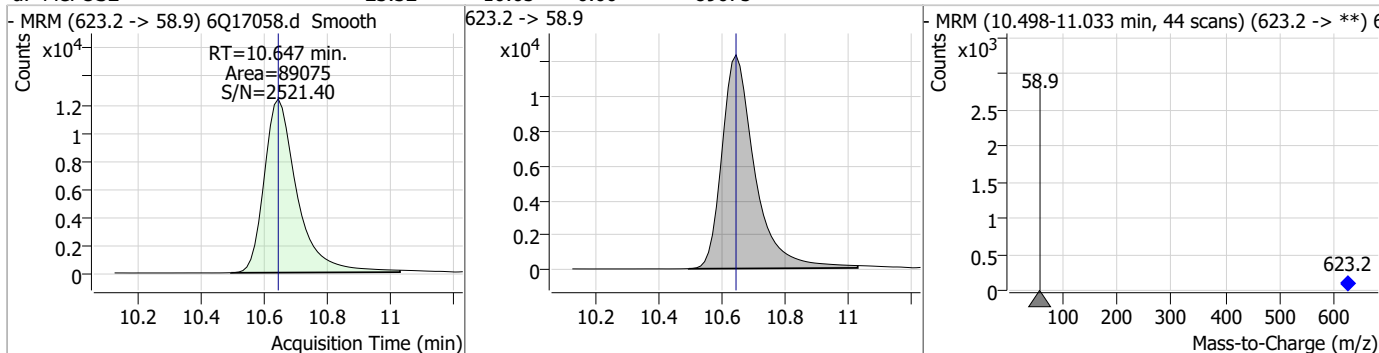


Perfluorinated Compounds by LC/MS/MS

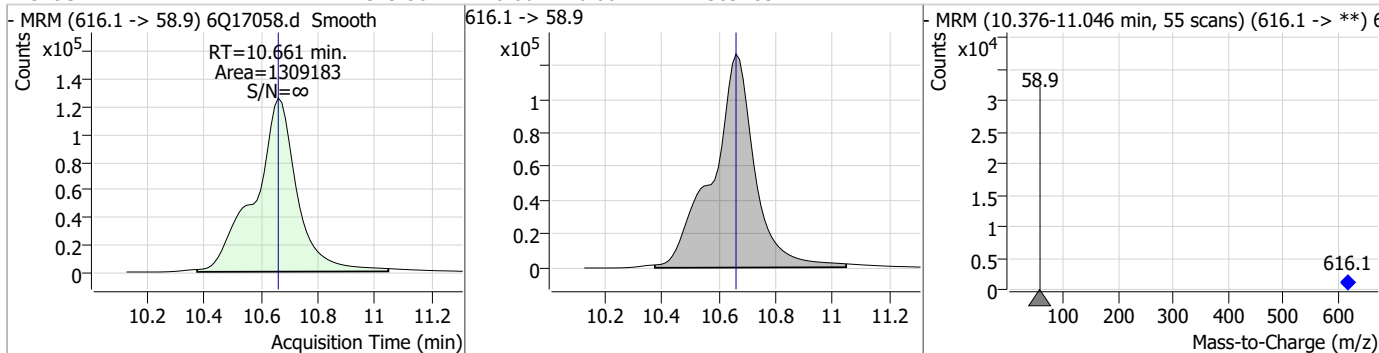
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	60.10	9.82	0.00	111401	699.1 -> 98.8	58.8	28.5	85.6



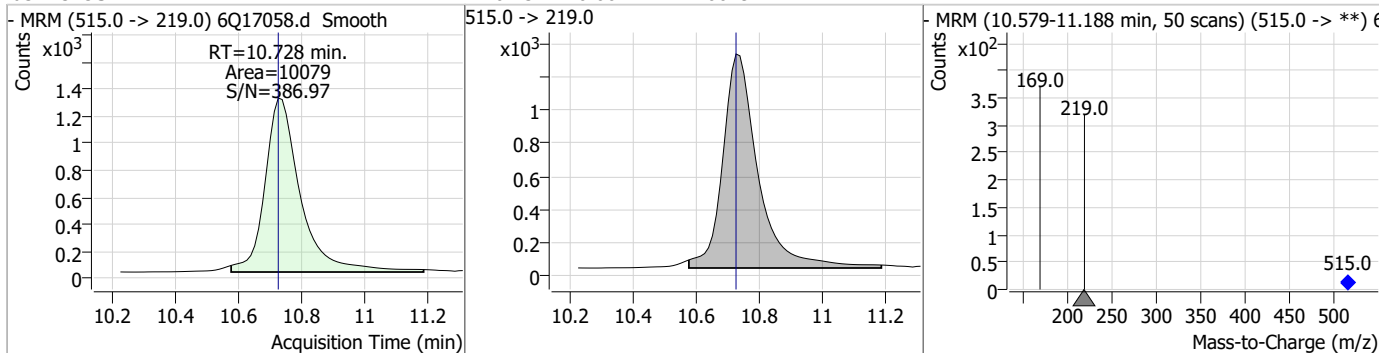
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.32	10.65	0.00	89075				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	329.56	10.66	0.00	1309183				

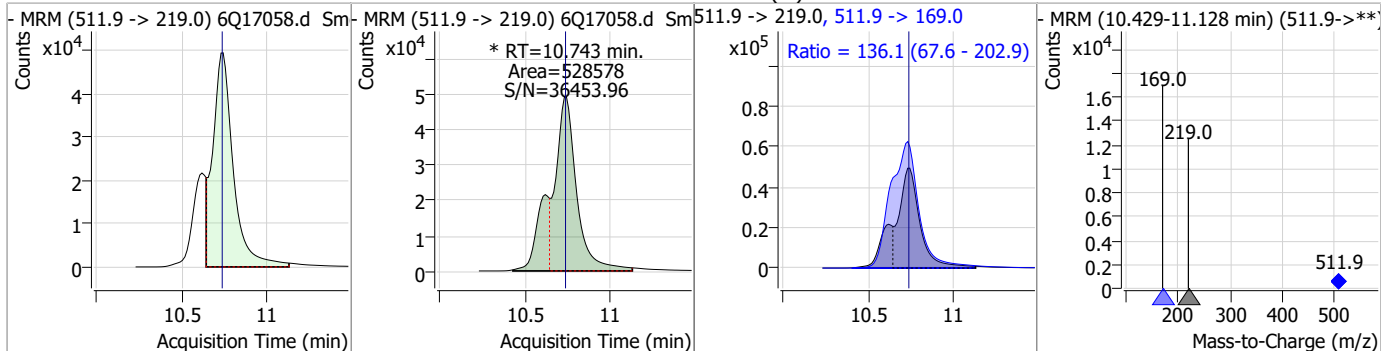


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.77	10.73	0.00	10079				

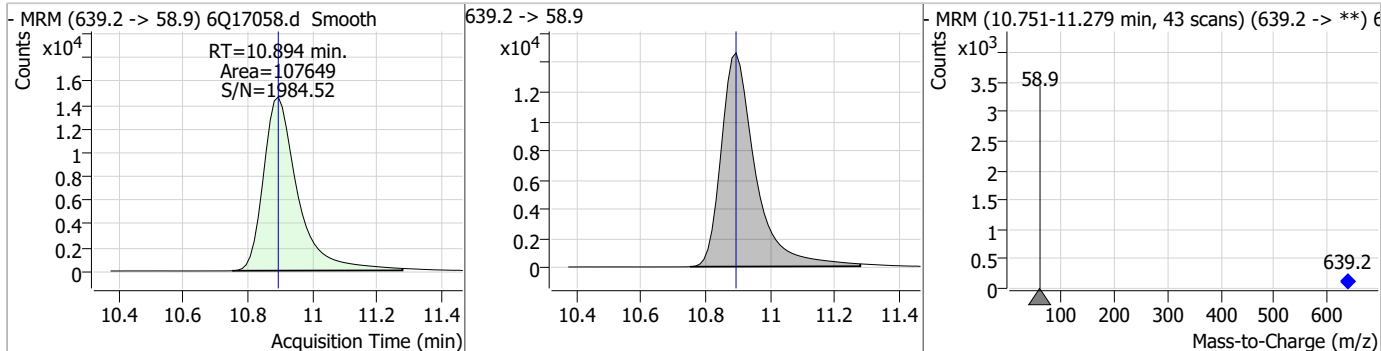


Perfluorinated Compounds by LC/MS/MS

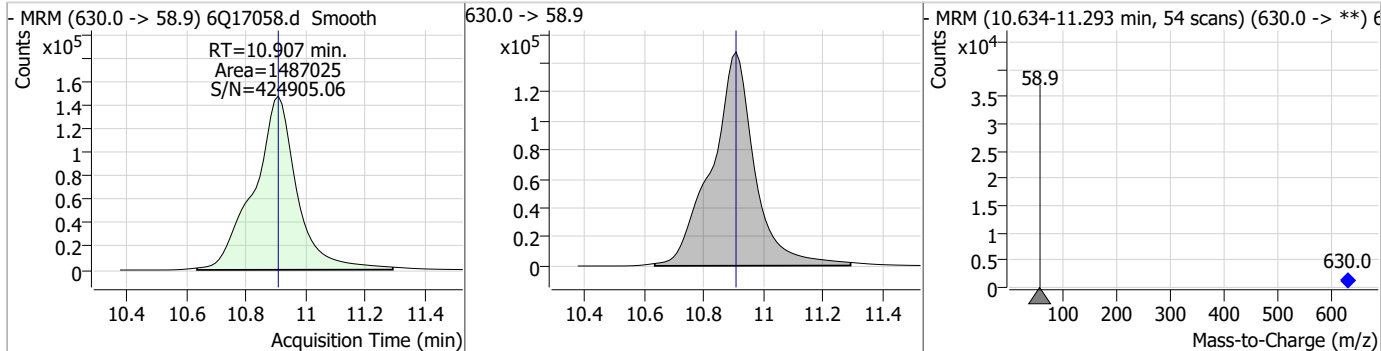
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	116.53	10.74	0.01	528578 (m)	511.9 -> 169.0	136.1	67.6	202.9



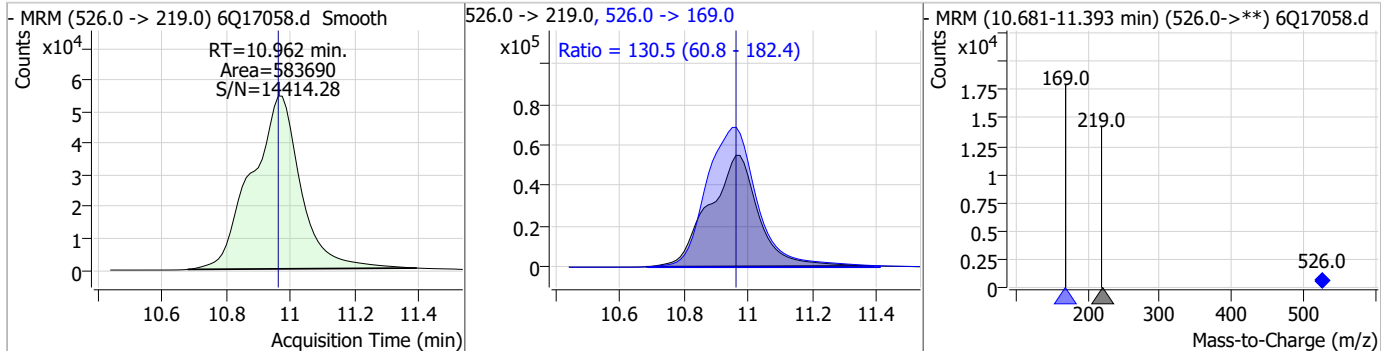
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.07	10.89	0.00	107649				



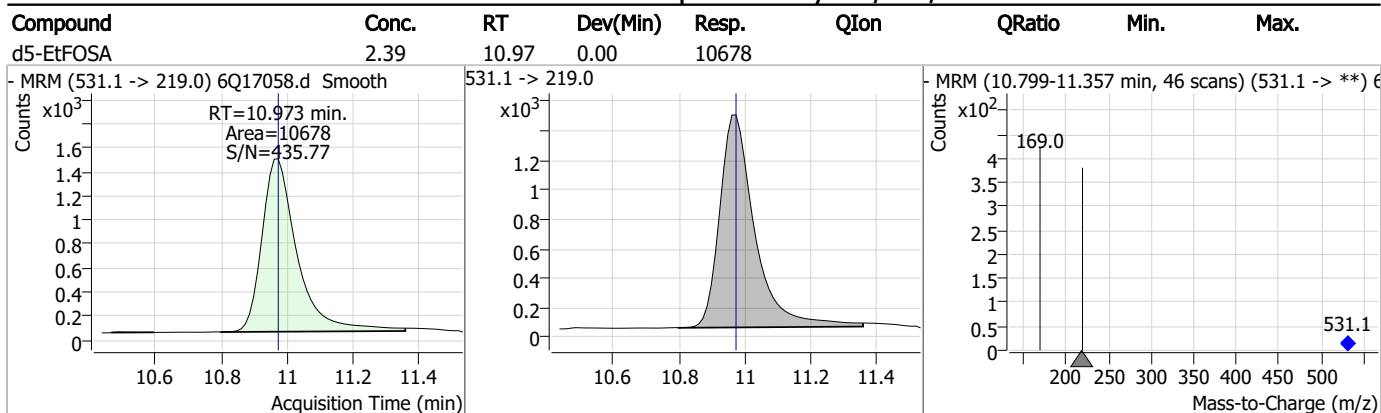
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	331.70	10.91	0.00	1487025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	133.01	10.96	0.00	583690	526.0 -> 169.0	130.5	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17058.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:31 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.74	Split peak

7.7.9.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17060.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:00:42 PM
 Sample Name : icv258-4
 Vial : P1-B1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	185758	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65671	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70680	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	60610	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	87628	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27751	1.25 µg/L	0.000
M6-PFDA	8.088	519.1 -> 474.1	20874	1.25 µg/L	0.012
M7-PFUnDA	8.530	570.0 -> 525.1	25183	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25086	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17852	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25922	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22801	2.50 µg/L	0.000
M3-PFHxS	7.191	402.1 -> 79.9	12509	2.50 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	12071	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2329	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2864	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	2794	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	22545	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40747	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19446	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	103078	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122225	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	12086	2.50 µg/L	-0.012
M3-MeFOSA	10.741	515.0 -> 219.0	9186	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	14678	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80020	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9681	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	92837	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25483	1.25 µg/L	0.000
13C5-PFNA	7.607	468.0 -> 423.0	30806	1.25 µg/L	0.012
13C2-PFHxA	5.469	315.1 -> 270.0	57923	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2329	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2864	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2794	4.81 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25086	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17852	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22801	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.191	402.1 -> 79.9	12509	2.43 µg/L	0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C4-PFBA	2.910	216.8 -> 171.9	185758	10.05 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.431	367.1 -> 322.0	60610	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.468	318.0 -> 273.0	70680	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	65671	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.088	519.1 -> 474.1	20874	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25183	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-FOSA	9.623	506.1 -> 77.8	25922	9.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOA	7.074	421.1 -> 376.0	87628	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.239	507.1 -> 79.9	12071	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C9-PFNA	7.594	472.1 -> 427.0	27751	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22545	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40747	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.741	515.0 -> 219.0	9186	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19446	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d7-MeFOSE	10.647	623.2 -> 58.9	103078	26.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	122225	25.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d5-EtFOSA	10.960	531.1 -> 219.0	12086	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32806	9.31 µg/L	100
		327.1 -> 80.9	12117		
6:2FTS	6.851	427.1 -> 407.0	30428	9.66 µg/L	98
		427.1 -> 80.9	10418		
8:2FTS	7.877	527.1 -> 507.0	17789	10.70 µg/L	99
		527.1 -> 80.8	7105		
EtFOSAA	8.343	584.2 -> 419.1	7978	2.41 µg/L	94
		584.2 -> 526.0	4505		
FOSA	9.614	498.1 -> 77.9	23095	2.49 µg/L	100
		498.1 -> 478.0	650		
MeFOSAA	8.136	570.1 -> 419.0	10811	2.55 µg/L	87
		570.1 -> 483.0	2177		
PFBA	2.906	212.8 -> 168.9	64067	10.28 µg/L	100
PFBS	5.400	298.7 -> 79.9	23660	2.31 µg/L	96
		298.7 -> 98.8	9163		
PFDA	8.077	512.9 -> 469.0	63479	2.80 µg/L	96
		512.9 -> 219.0	9425		
PFDODA	8.961	613.1 -> 569.0	51488	2.62 µg/L	98
		613.1 -> 319.0	6984		
PFDS	9.125	599.0 -> 79.9	8759	2.28 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4379	2.60	µg/L	99
		363.1 -> 319.0	77884			
PFHpS	7.746	363.1 -> 169.0	11811	2.33	µg/L	96
		449.0 -> 79.9	15247			
PFHxA	5.470	449.0 -> 98.9	7345	2.46	µg/L	100
		313.0 -> 269.0	68747			
PFHxS	7.180	313.0 -> 118.9	3148	2.36	µg/L	98
		398.7 -> 79.9	16112			
PFNA	7.595	398.7 -> 98.9	8157	2.37	µg/L	100
		463.0 -> 419.0	45525			
PFNS	8.706	463.0 -> 219.0	9535	2.30	µg/L	97
		548.8 -> 79.9	13429			
PFOA	7.076	548.8 -> 98.9	7078	2.42	µg/L	100
		413.0 -> 369.0	99490			
PFOS	8.228	413.0 -> 169.0	17432	2.10	µg/L	90
		498.9 -> 79.9	12245			
PFPeA	4.273	498.9 -> 98.8	6935	5.05	µg/L	100
		263.0 -> 219.0	90362			
PFPeS	6.484	349.1 -> 79.9	17853	2.51	µg/L	96
		349.1 -> 98.9	8187			
PFTeDA	9.690	713.1 -> 669.0	45331	2.51	µg/L	99
		713.1 -> 168.9	3408			
PFTrDA	9.345	663.0 -> 619.0	58210	2.67	µg/L	98
		663.0 -> 168.9	4950			
PFUnDA	8.531	563.1 -> 519.0	46797	2.68	µg/L	99
		563.1 -> 269.1	8019			
11CI-PF3OUdS	9.398	630.9 -> 450.9	68021	4.86	µg/L	100
		632.9 -> 452.9	21705			
9CI-PF3ONS	8.569	530.8 -> 351.0	101879	4.61	µg/L	91
		532.8 -> 353.0	35127			
ADONA	6.681	376.9 -> 250.9	307875	5.00	µg/L	100
		376.9 -> 84.8	79137			
HFPO-DA	5.846	284.9 -> 168.9	19230	4.98	µg/L	98
		284.9 -> 184.9	2564			
3:3FTCA	3.784	241.0 -> 177.0	13980	12.50	µg/L	96
		241.0 -> 117.0	1660			
5:3FTCA	6.160	341.0 -> 237.1	294632	65.15	µg/L	95
		341.0 -> 217.0	207989			
7:3FTCA	7.585	441.0 -> 316.9	127445	62.03	µg/L	91
		441.0 -> 336.9	294921			
EtFOSA	10.962	526.0 -> 219.0	23650	4.76	µg/L	93
		526.0 -> 169.0	30651			
EtFOSE	10.907	630.0 -> 58.9	63023	12.38	µg/L	100
		511.9 -> 219.0	21336			
MeFOSA	10.730	511.9 -> 169.0	29281	5.16	µg/L	98
		616.1 -> 58.9	56132			
MeFOSE	10.661	699.1 -> 79.9	4617	12.21	µg/L	100
		699.1 -> 98.8	2700			
PFDoDS	9.817	295.0 -> 201.0	15697	2.32	µg/L	98
		295.0 -> 84.9	3899			
NFDHA	5.350	279.0 -> 85.1	60631	5.18	µg/L	99
		229.0 -> 84.9	45433			
PFMBA	4.687	314.8 -> 134.9	159368	5.07	µg/L	100
		314.8 -> 82.9	5535			
PFMPA	3.438			4.52	µg/L	99
PFEESA	5.949					

= Qualifier out of range, m = manually integrated, + = Area summed



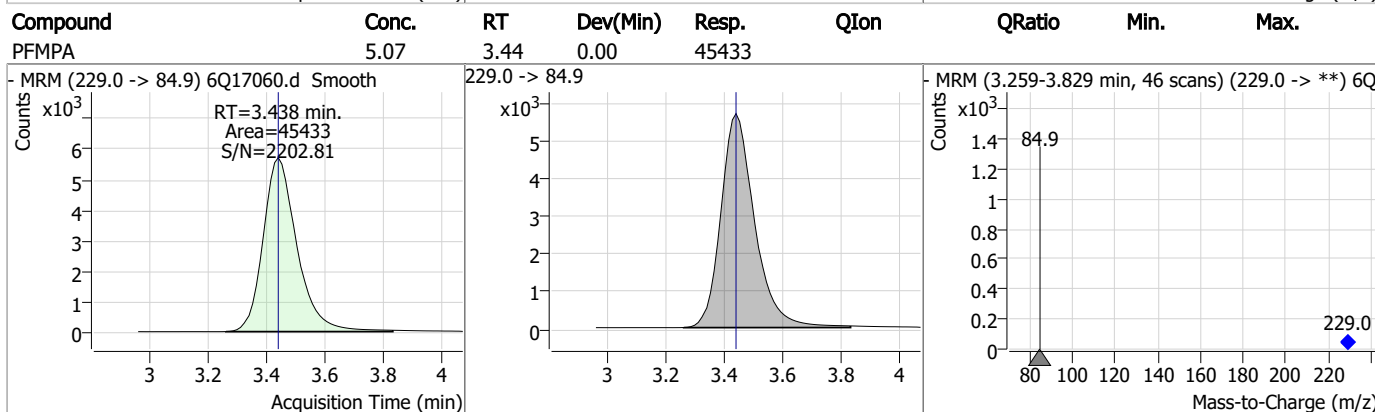
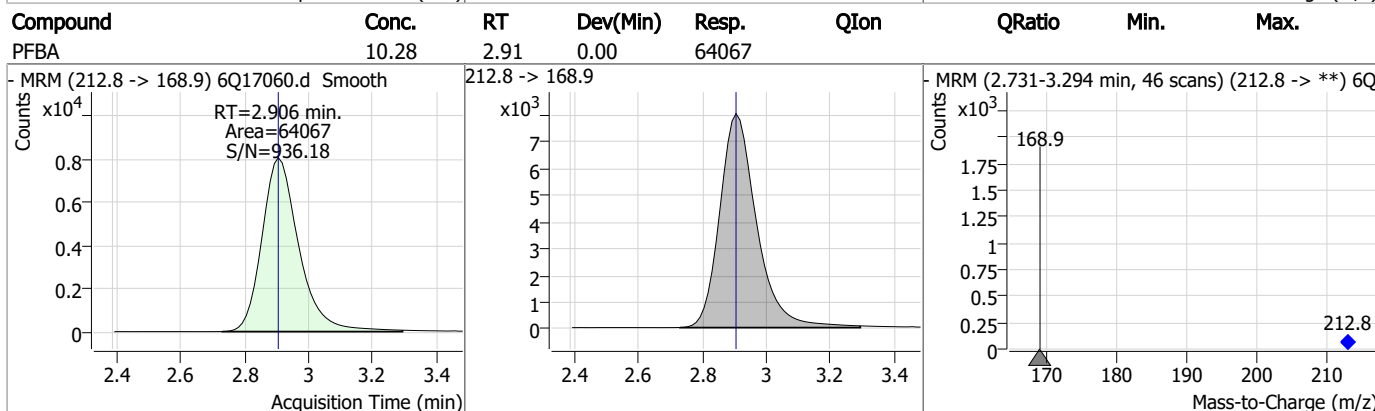
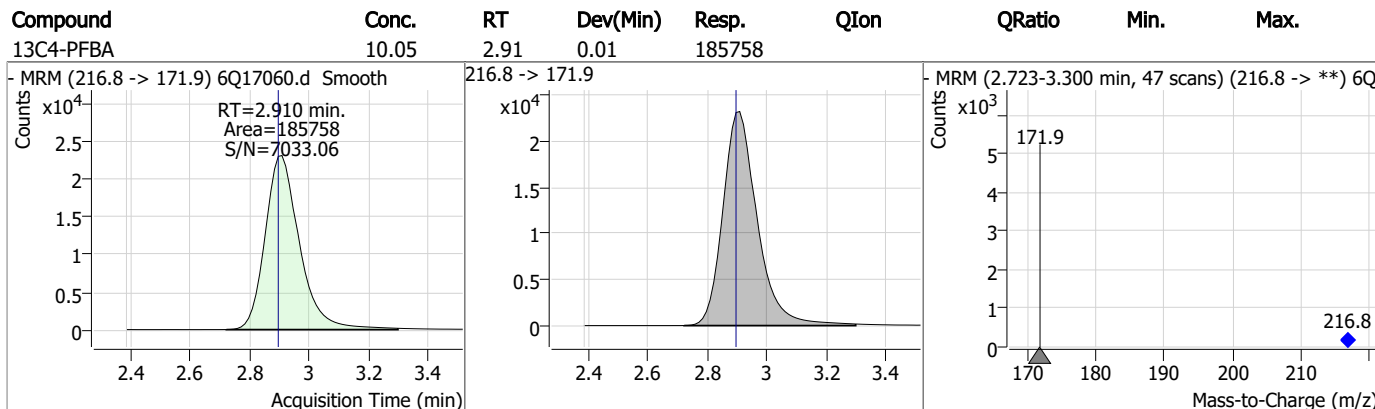
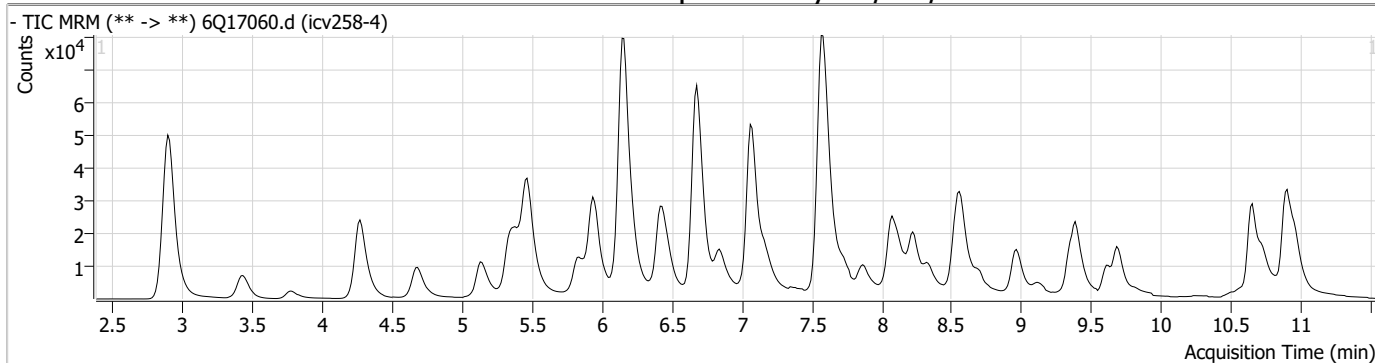
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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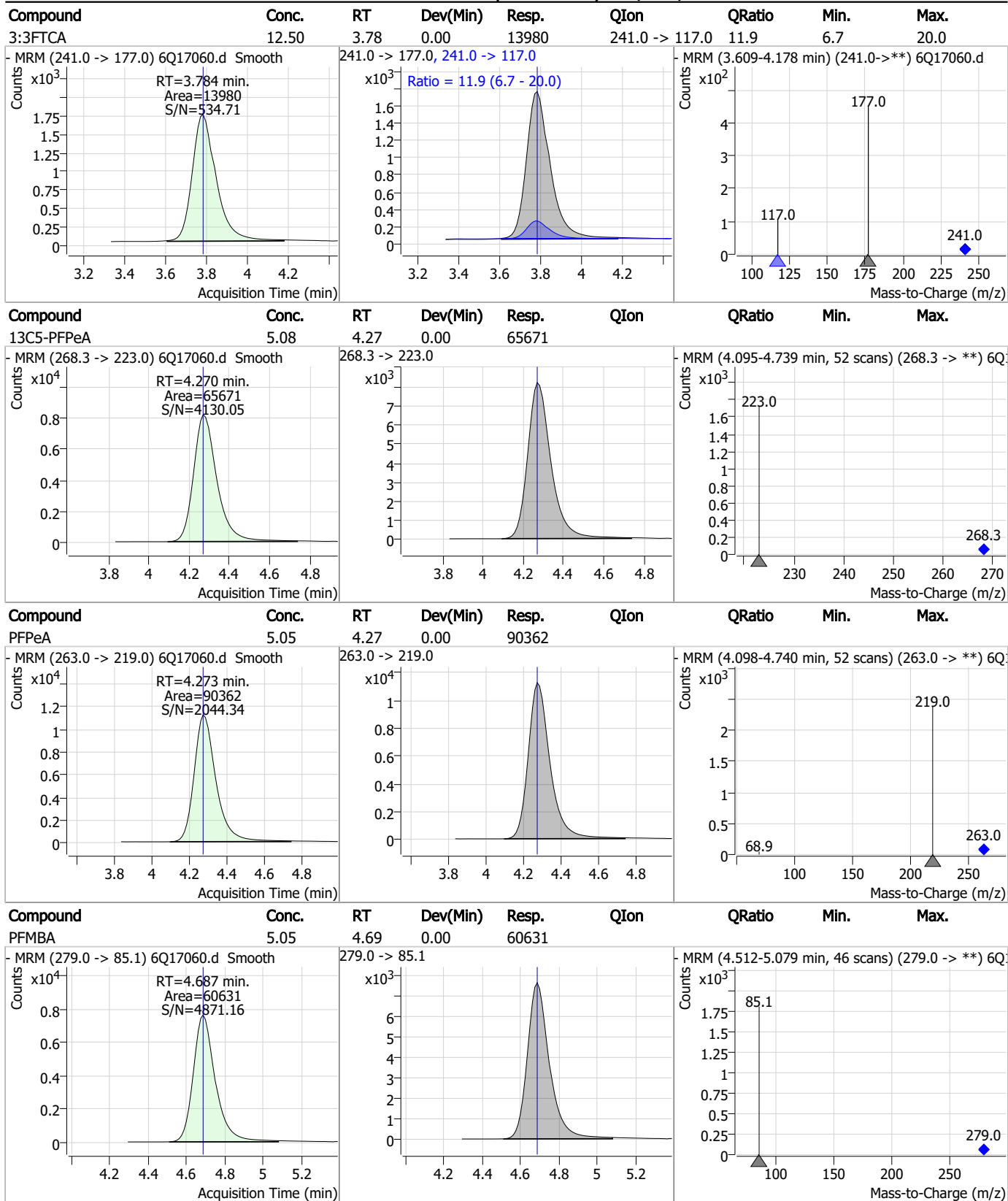
7.7.10

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Perfluorinated Compounds by LC/MS/MS

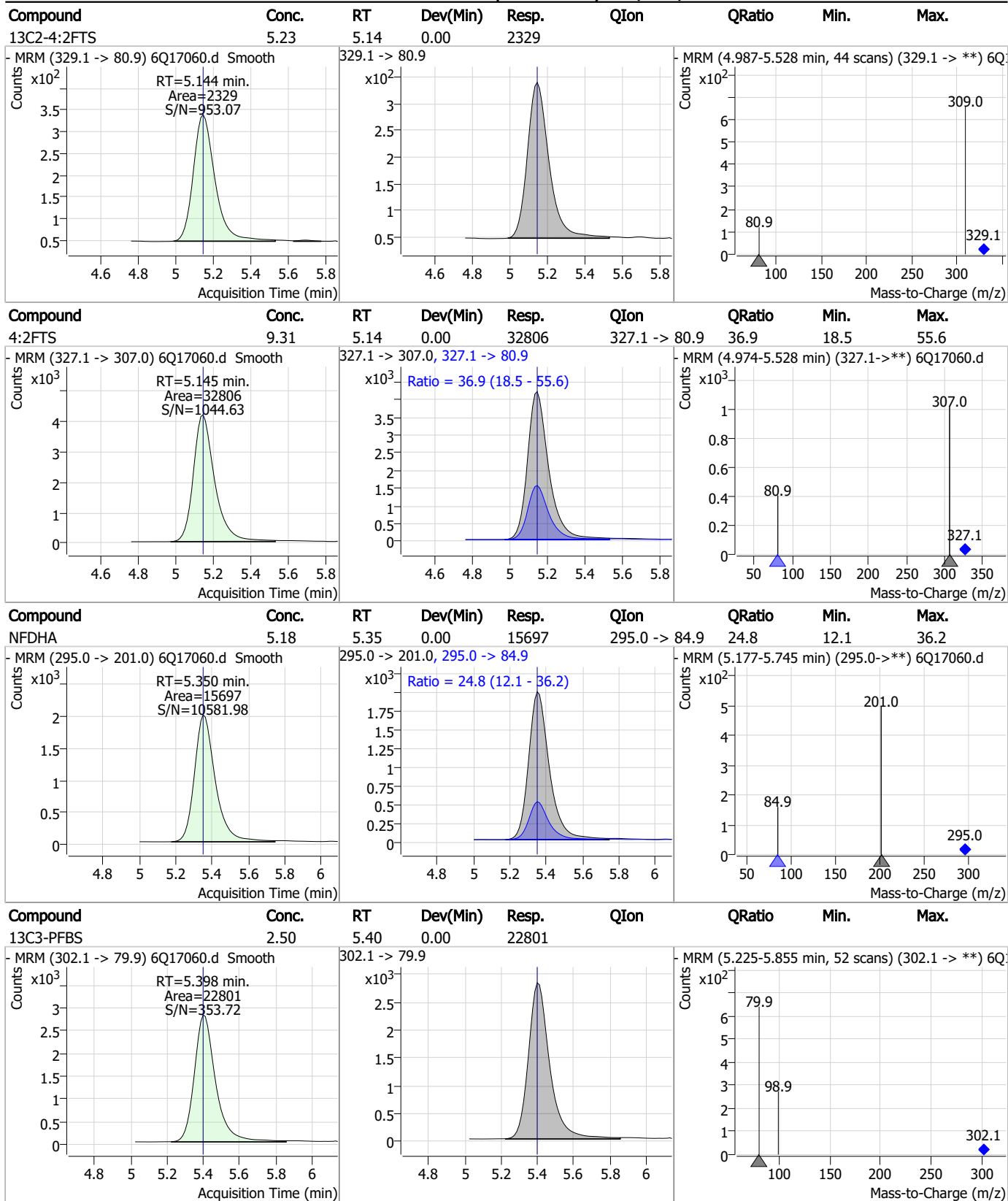


Perfluorinated Compounds by LC/MS/MS



7.7.10
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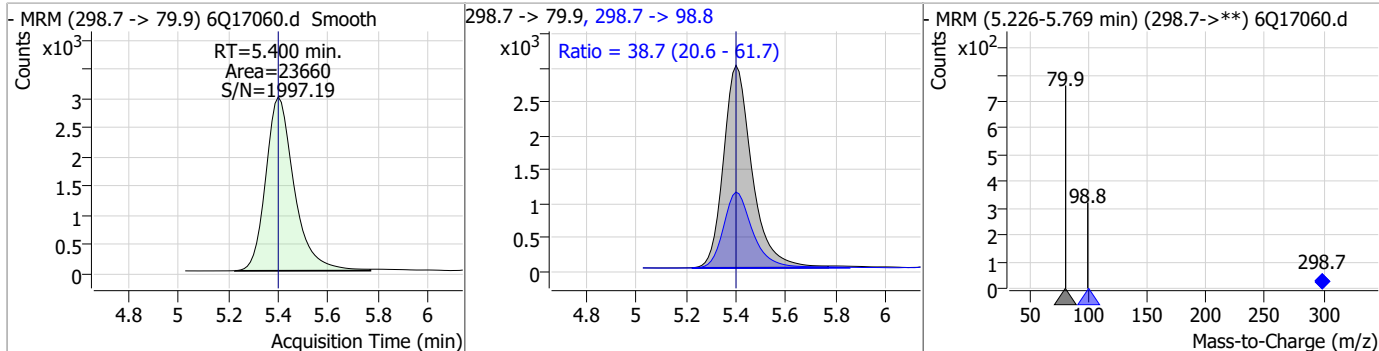
Perfluorinated Compounds by LC/MS/MS



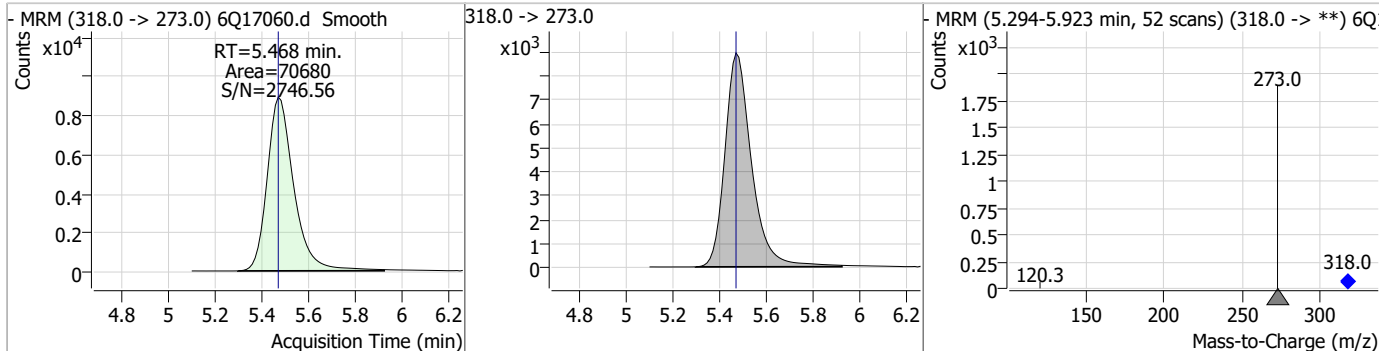
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

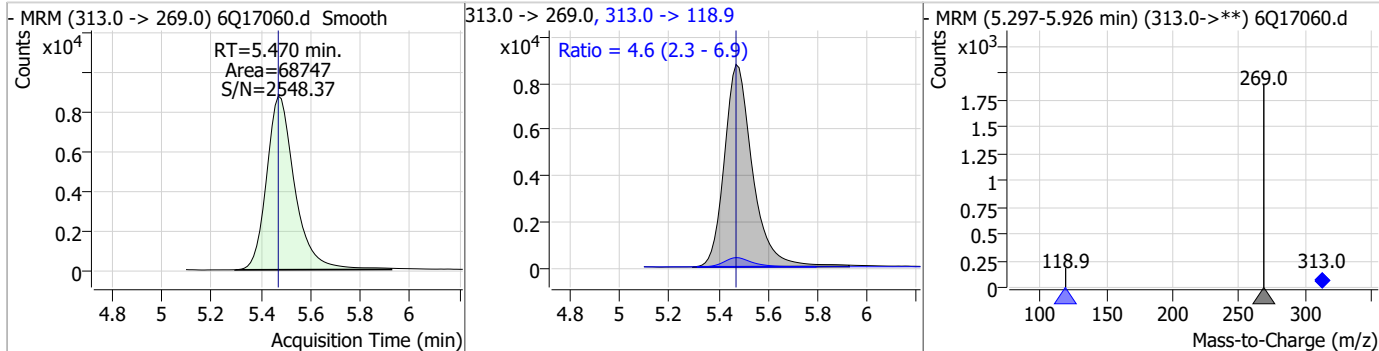
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.31	5.40	0.00	23660	298.7 -> 98.8	38.7	20.6	61.7



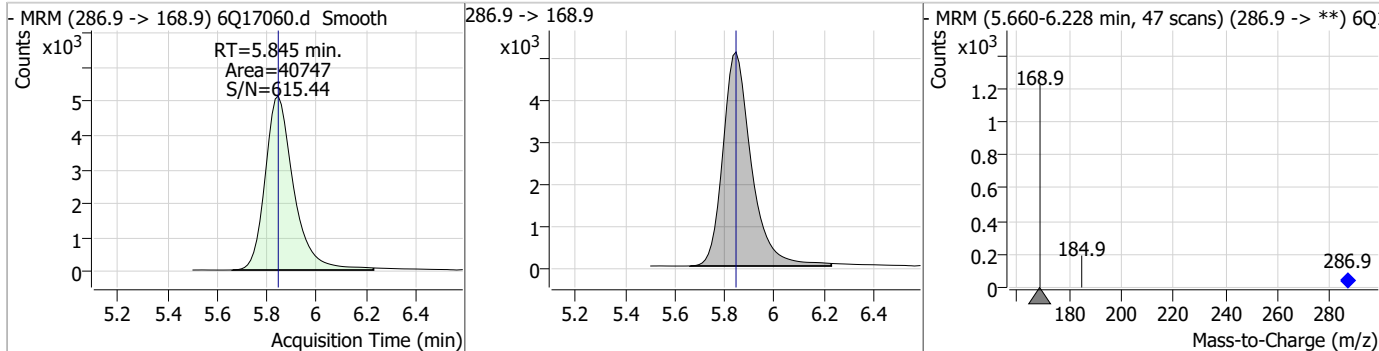
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.47	0.00	70680				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.46	5.47	0.00	68747	313.0 -> 118.9	4.6	2.3	6.9

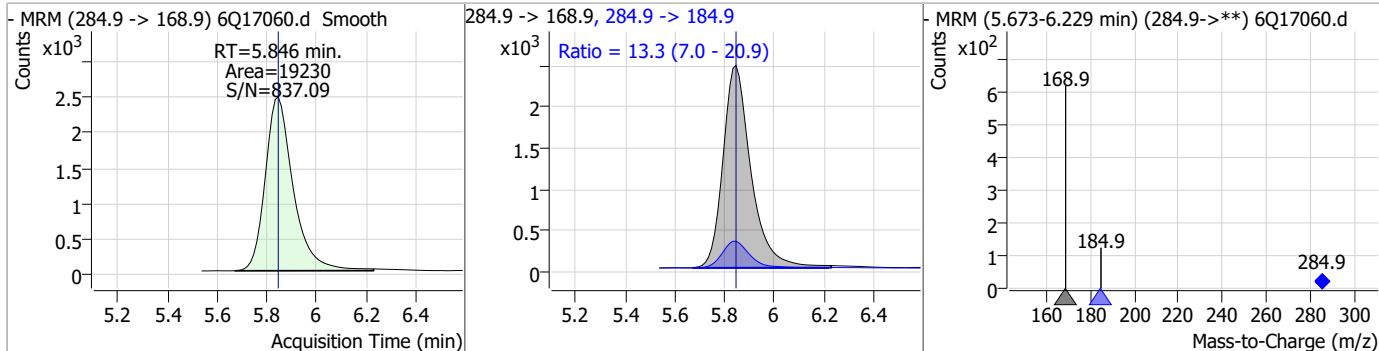


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.94	5.85	0.00	40747				

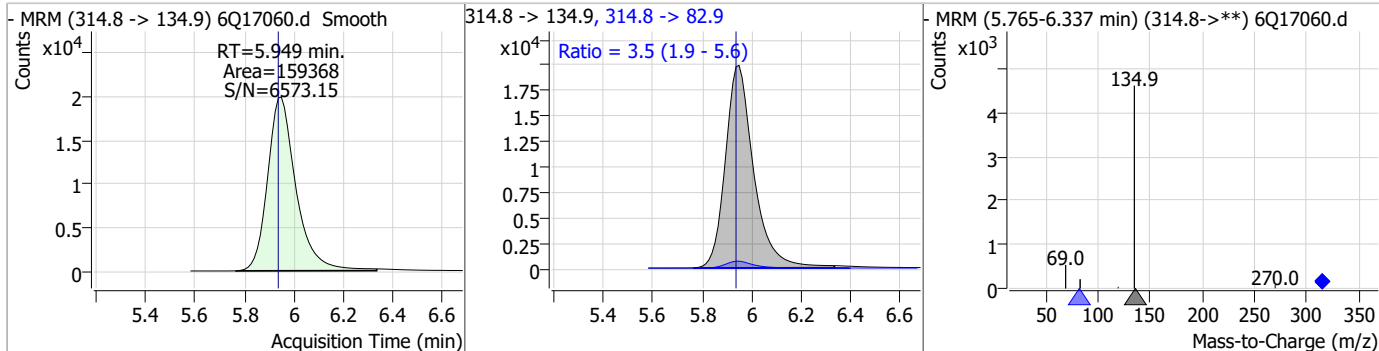


Perfluorinated Compounds by LC/MS/MS

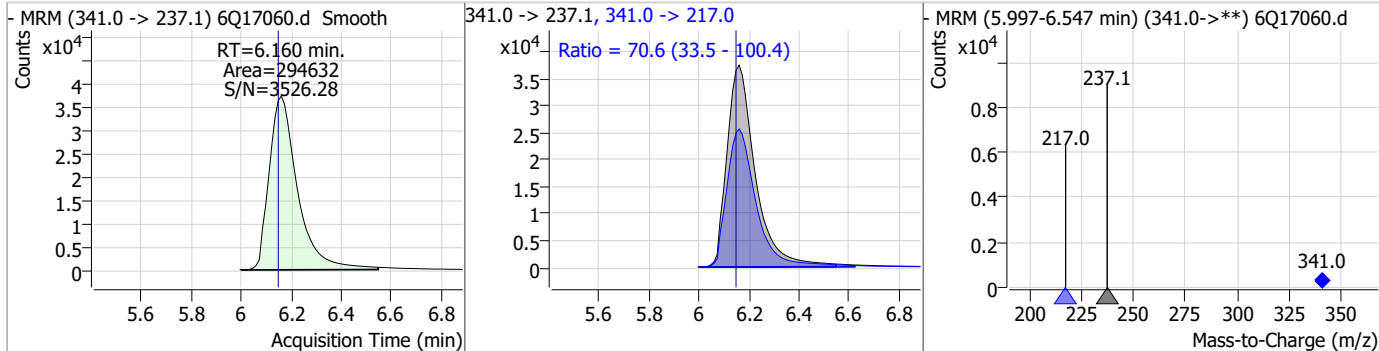
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.98	5.85	0.00	19230	284.9 -> 184.9	13.3	7.0	20.9



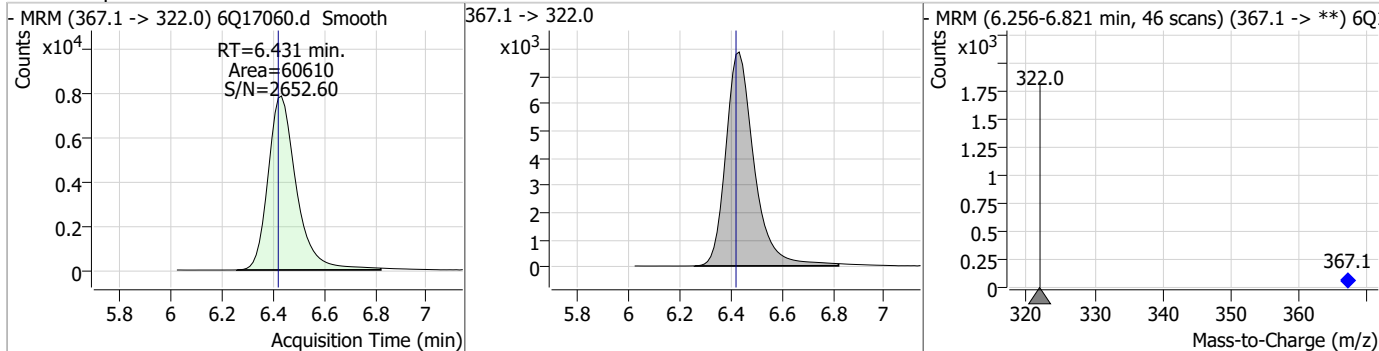
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.52	5.95	0.01	159368	314.8 -> 82.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.15	6.16	0.01	294632	341.0 -> 217.0	70.6	33.5	100.4

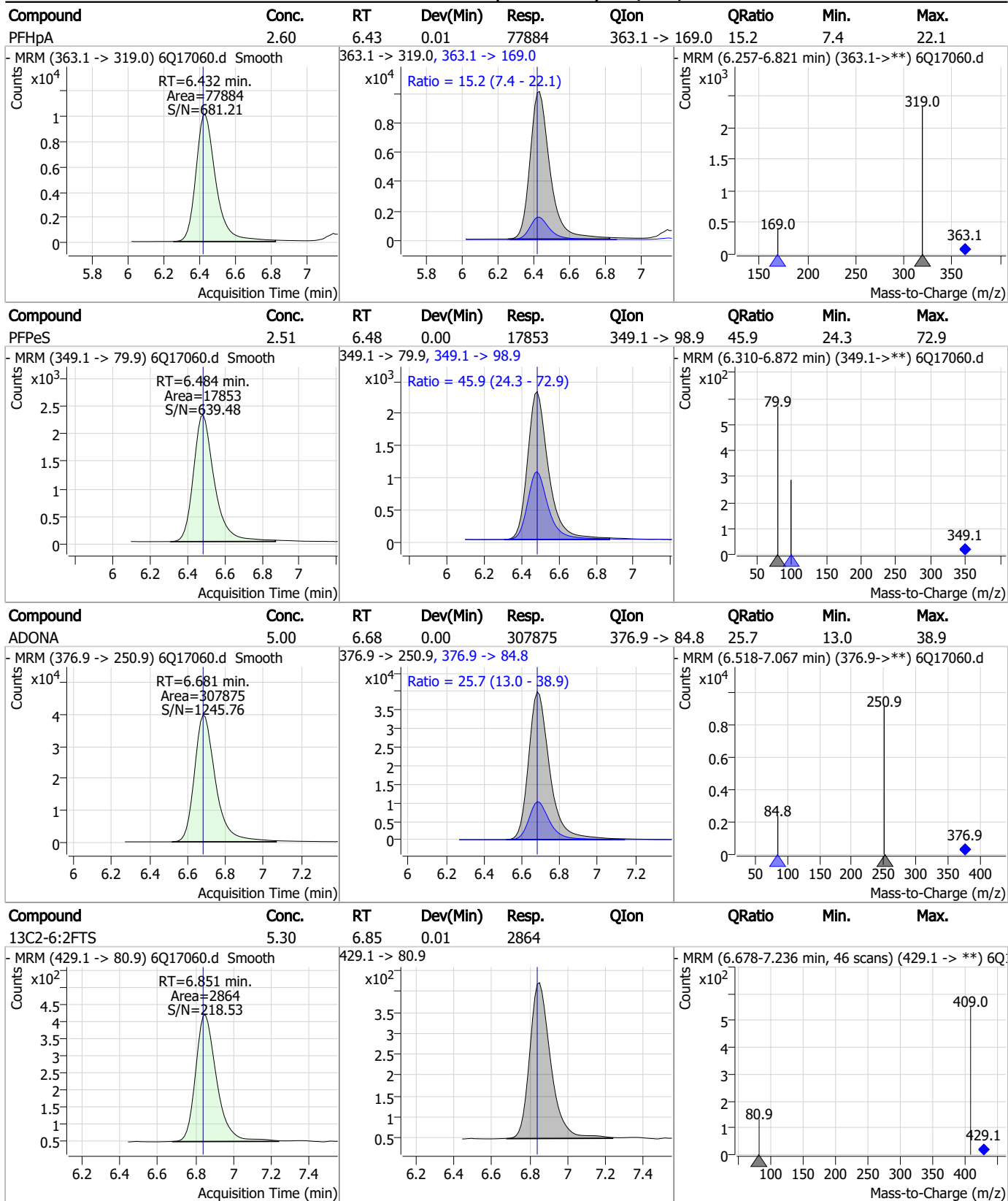


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.56	6.43	0.01	60610	367.1 -> 322.0			



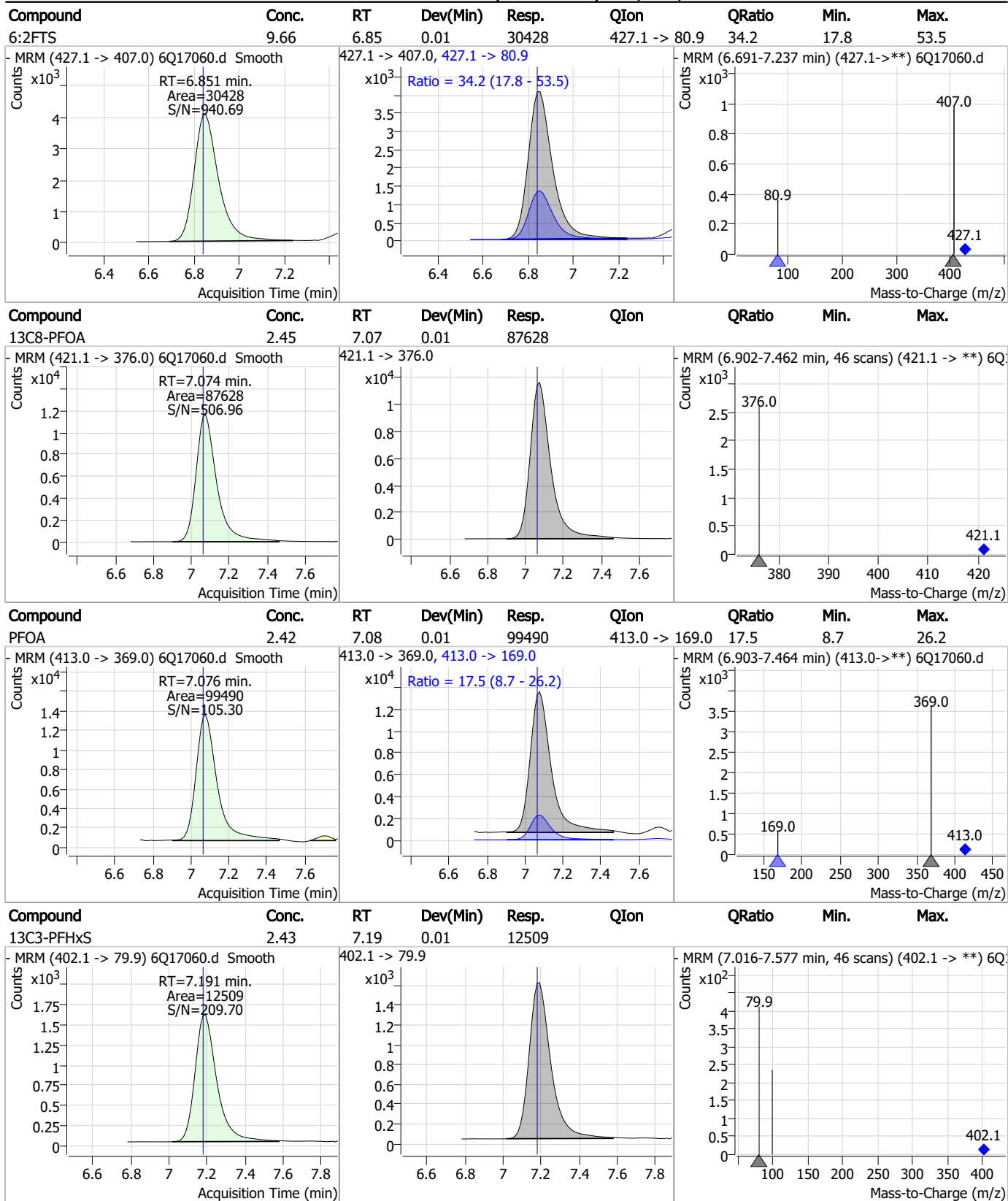
7.7.10
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Perfluorinated Compounds by LC/MS/MS



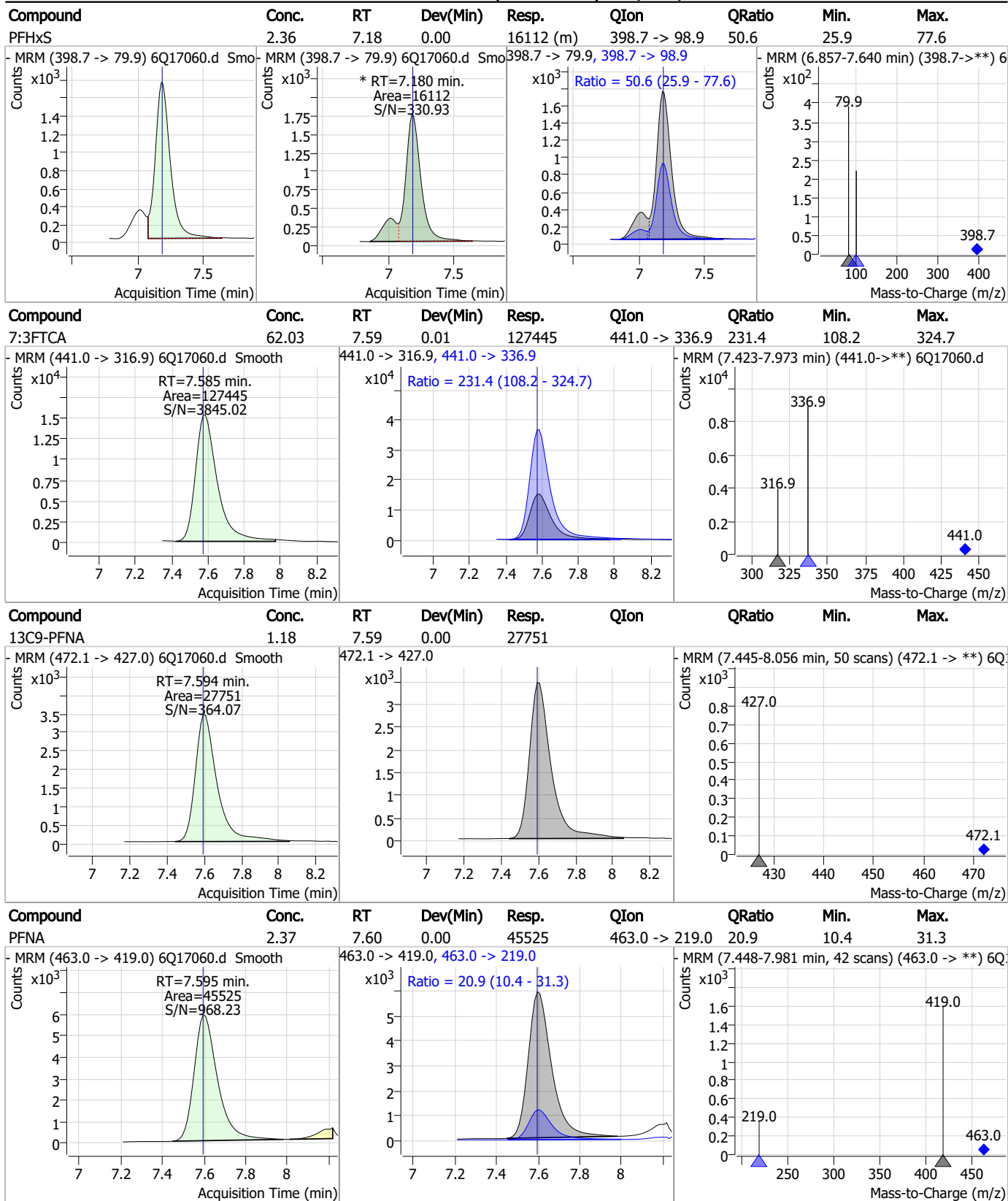
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Perfluorinated Compounds by LC/MS/MS



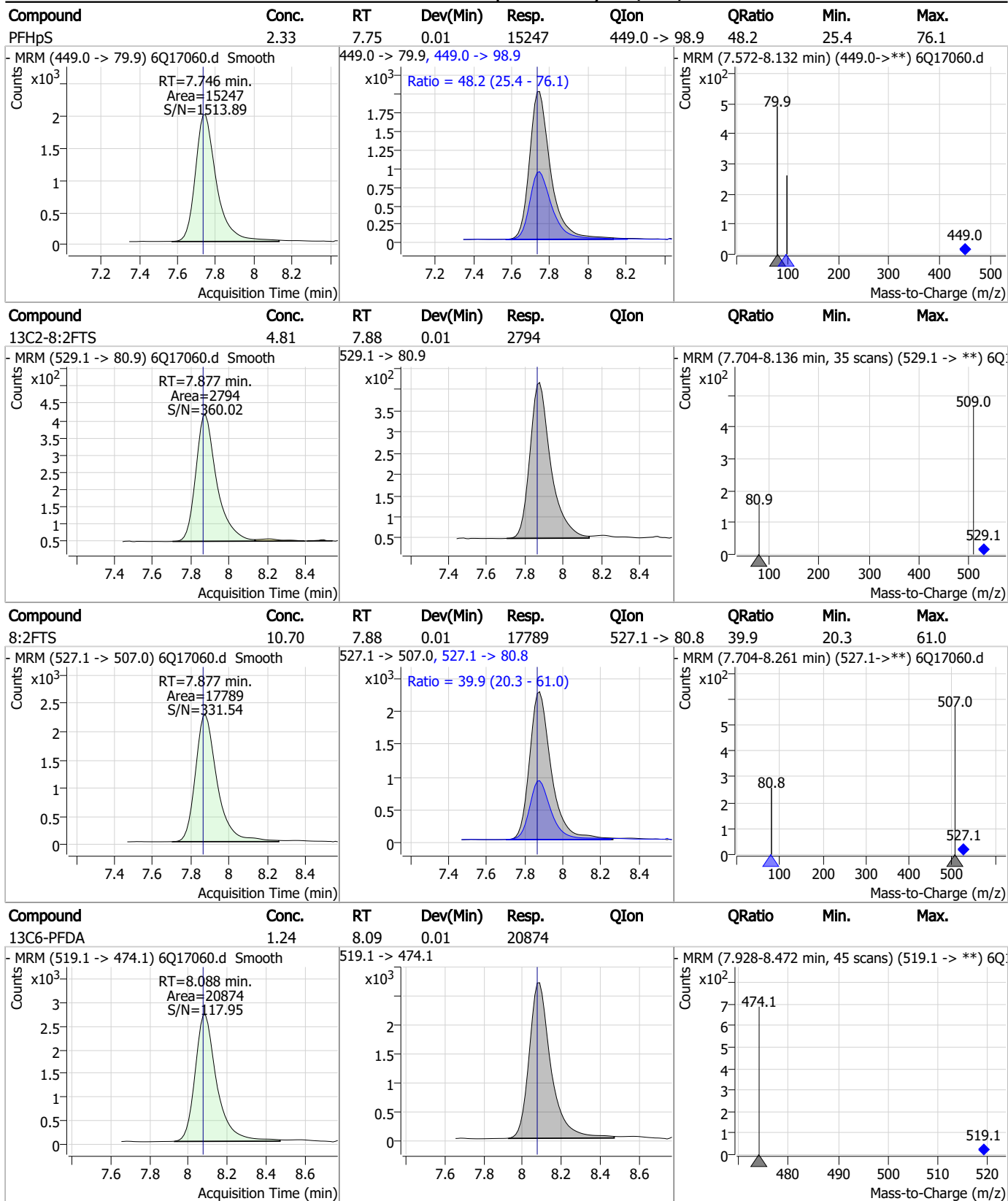
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Perfluorinated Compounds by LC/MS/MS



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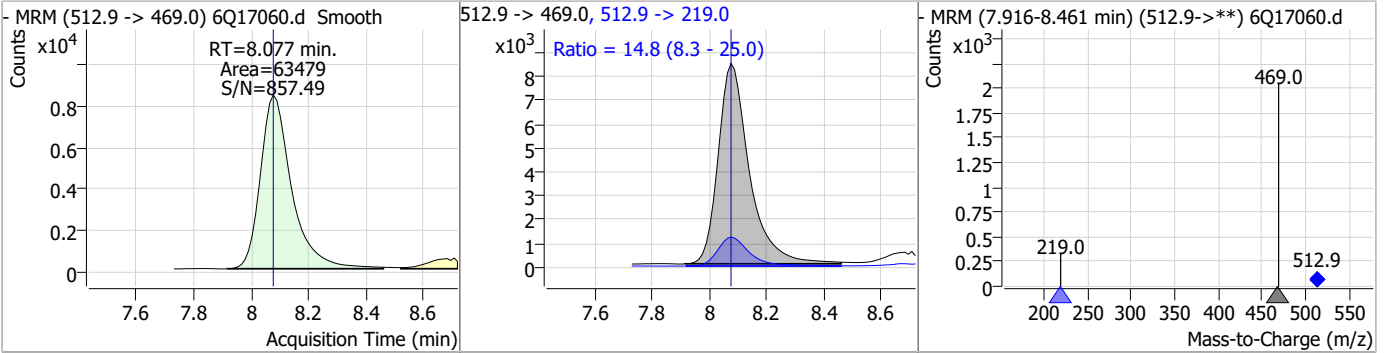
Perfluorinated Compounds by LC/MS/MS



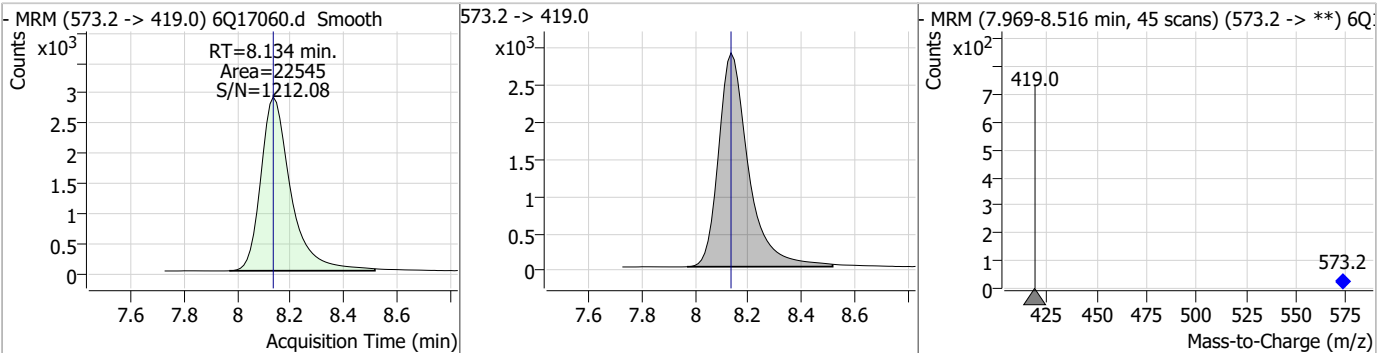
7.7.10
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Perfluorinated Compounds by LC/MS/MS

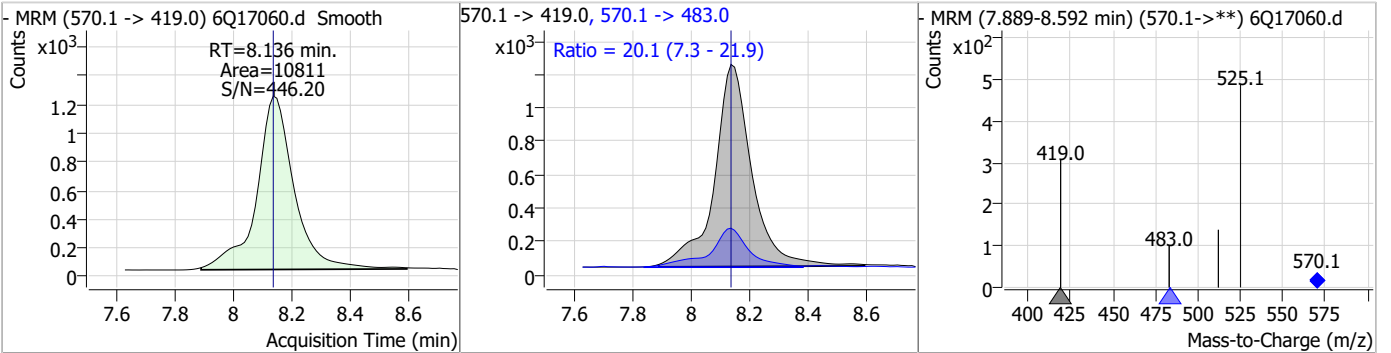
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.80	8.08	0.00	63479	512.9 -> 219.0	14.8	8.3	25.0



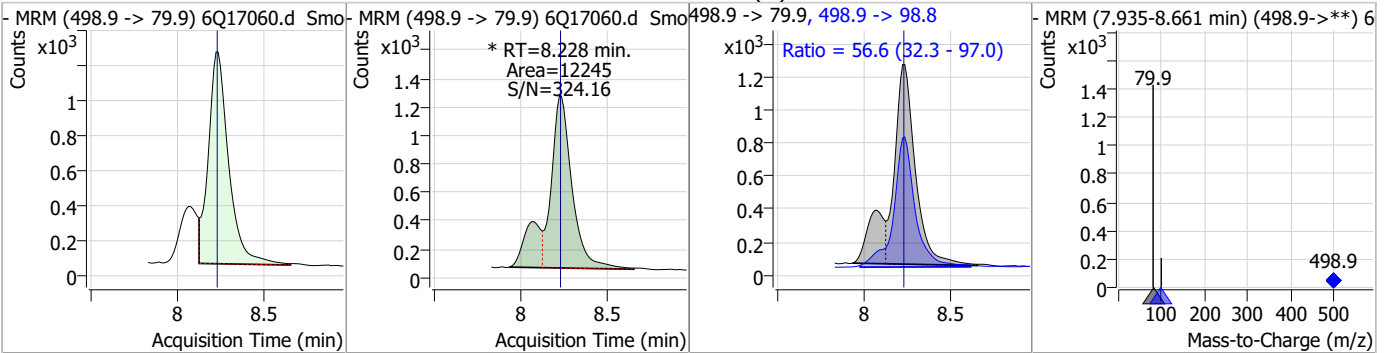
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.15	8.13	0.00	22545				



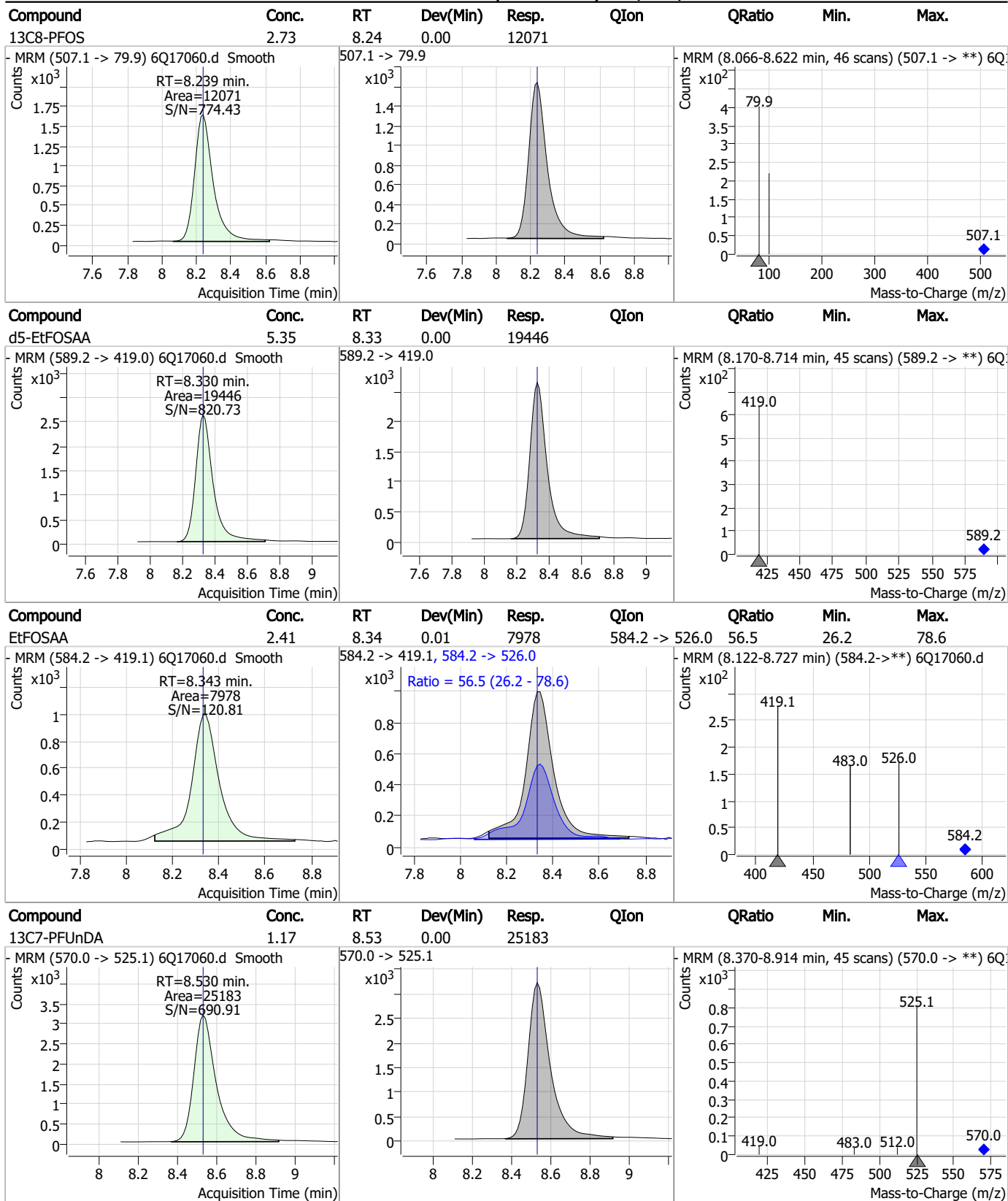
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.55	8.14	0.00	10811	570.1 -> 483.0	20.1	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.10	8.23	0.00	12245 (m)	498.9 -> 98.8	56.6	32.3	97.0

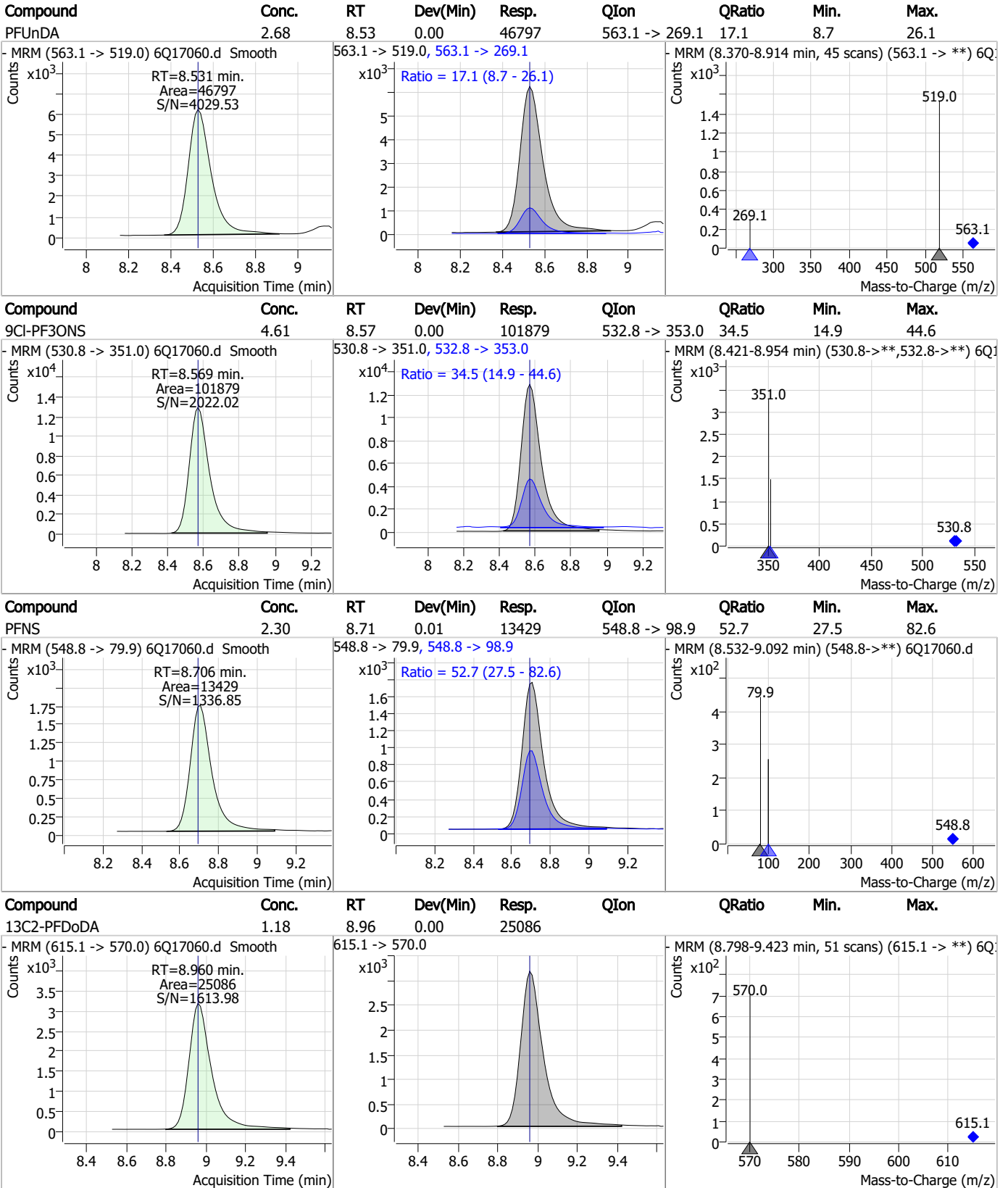


Perfluorinated Compounds by LC/MS/MS



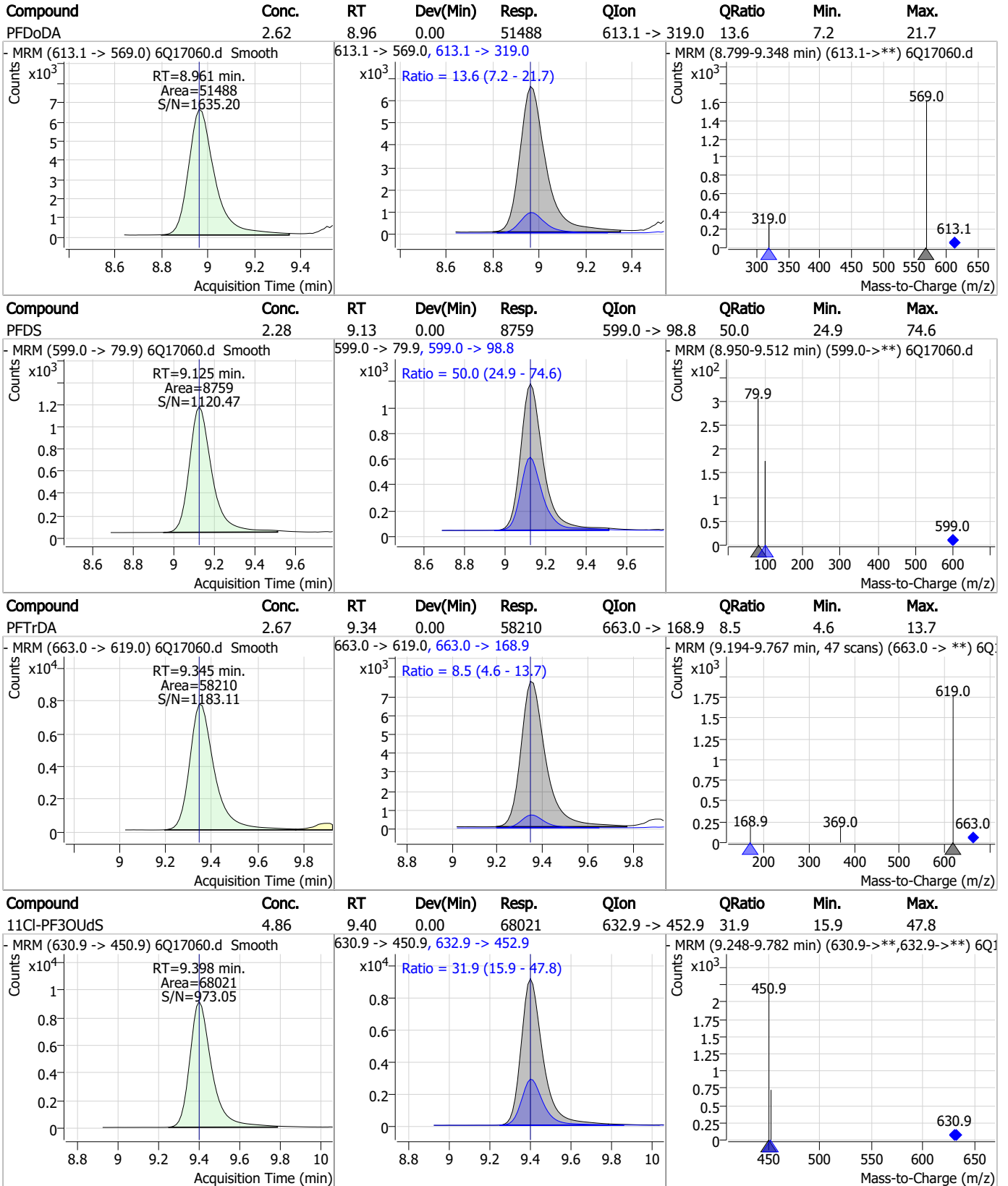
7.7.10
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Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS

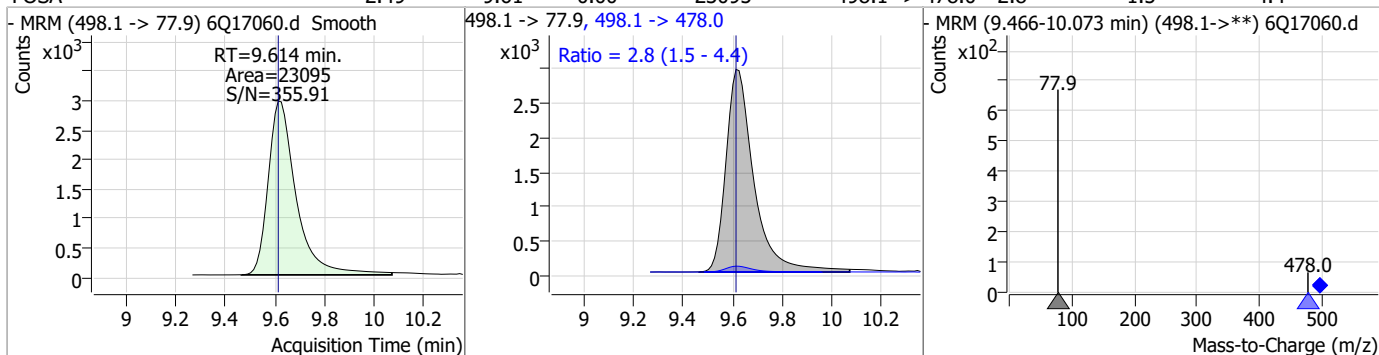


7.7.10 7

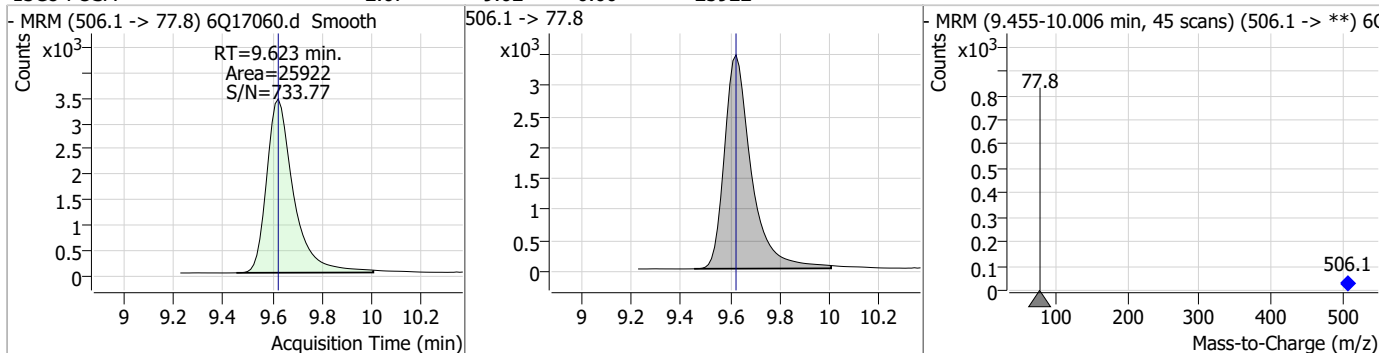


Perfluorinated Compounds by LC/MS/MS

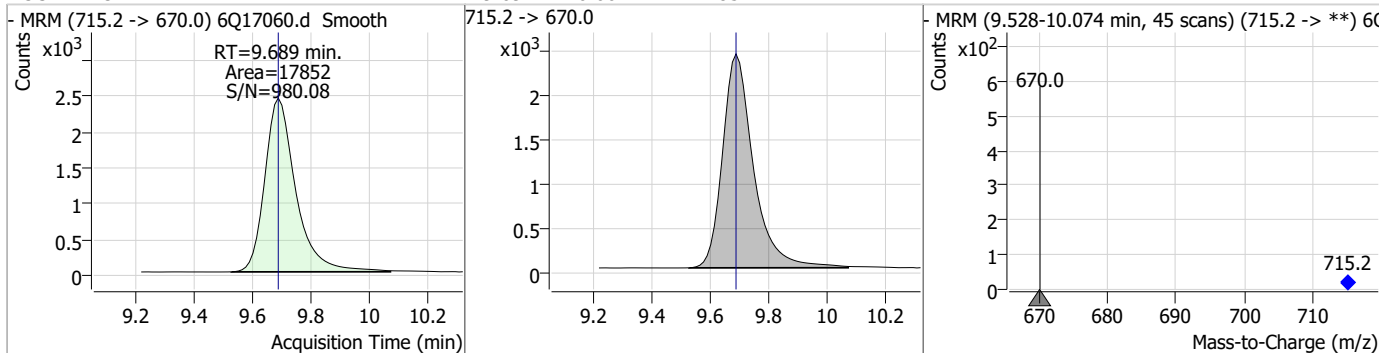
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.49	9.61	0.00	23095	498.1 -> 478.0	2.8	1.5	4.4



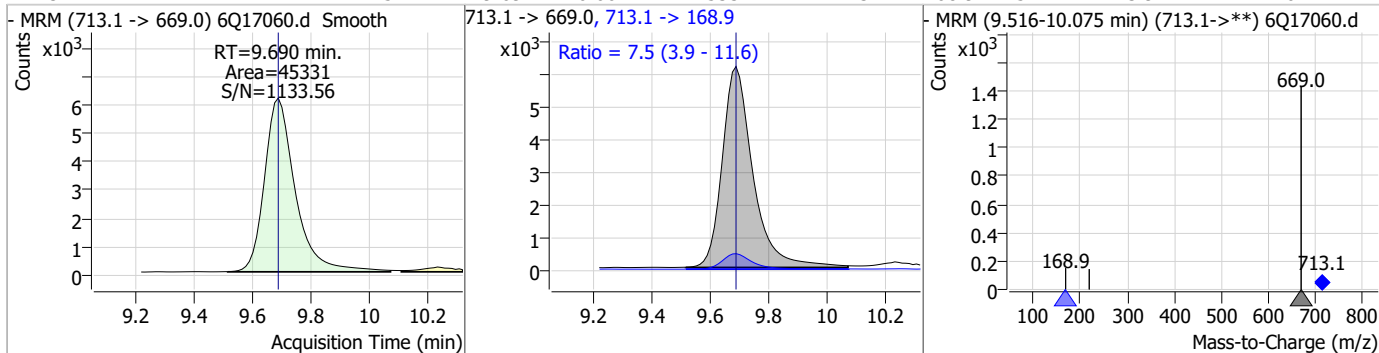
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.67	9.62	0.00	25922	506.1 -> 77.8	7.5	3.9	11.6



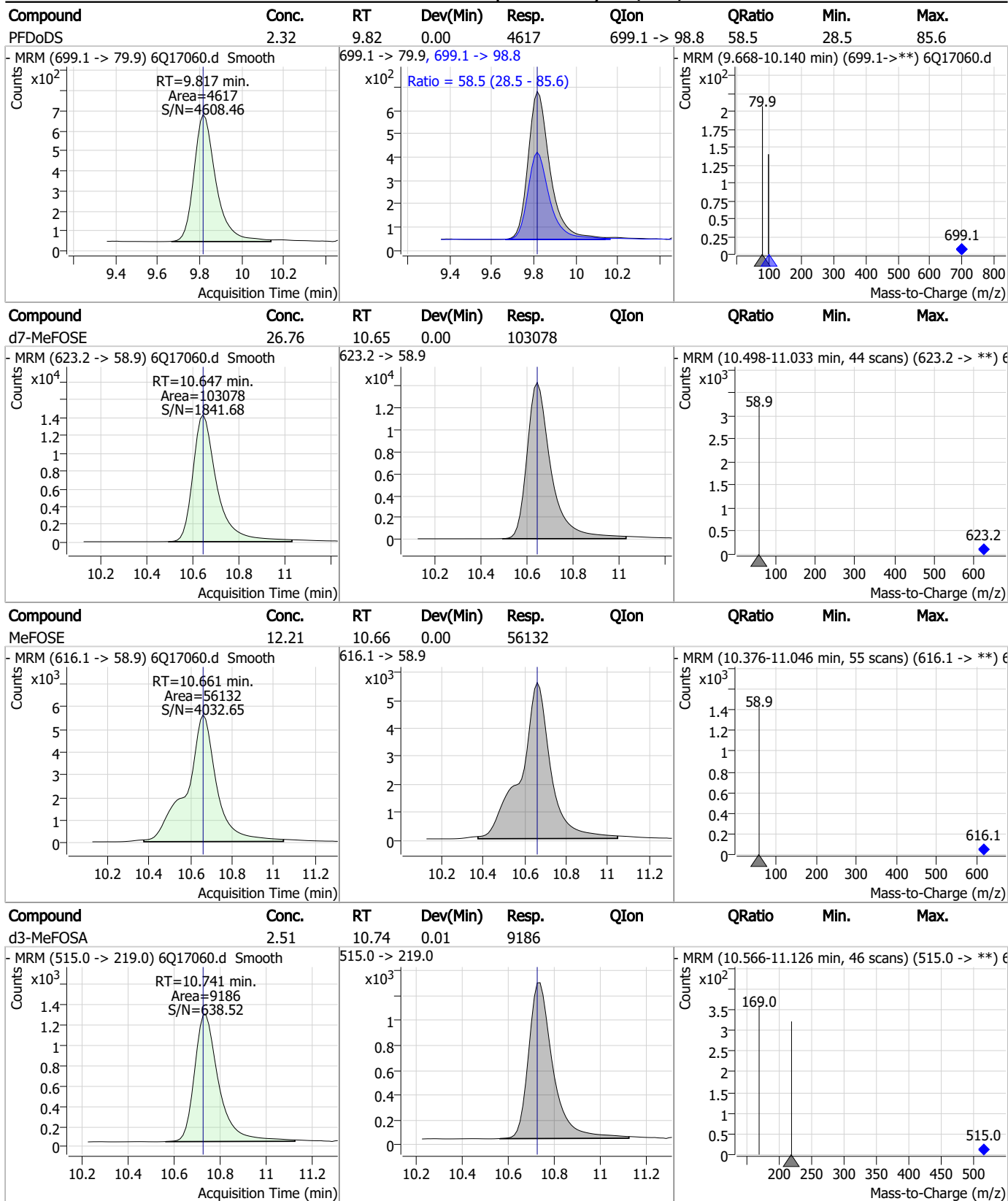
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.69	0.00	17852	715.2 -> 670.0	7.5	3.9	11.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.51	9.69	0.00	45331	713.1 -> 168.9	7.5	3.9	11.6



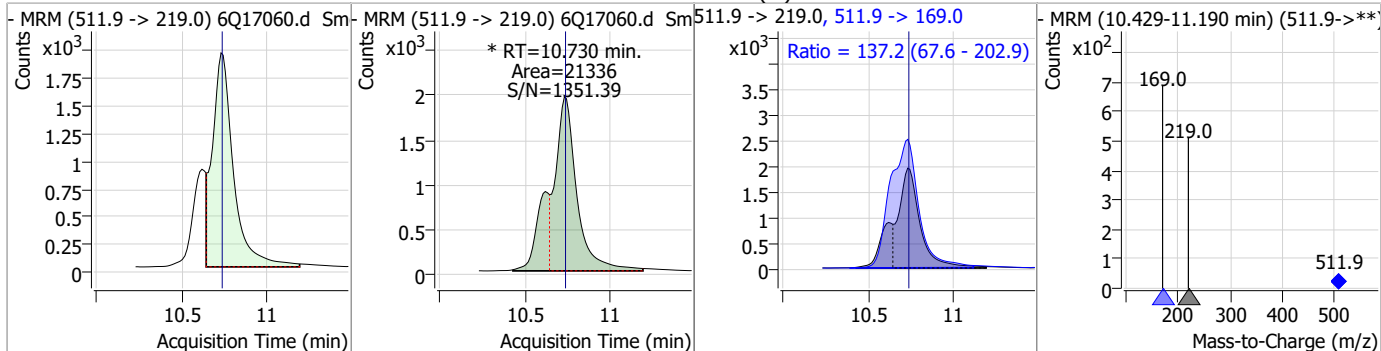
Perfluorinated Compounds by LC/MS/MS



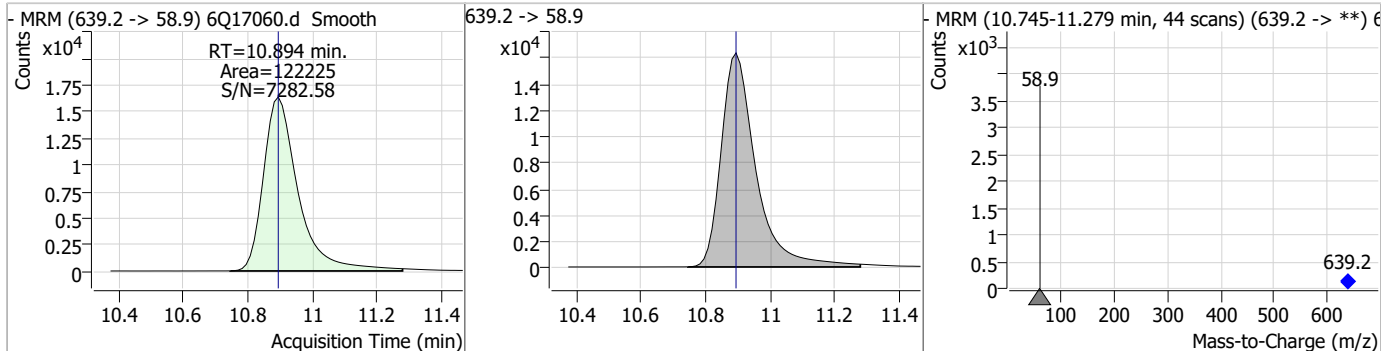
7.7.10
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Perfluorinated Compounds by LC/MS/MS

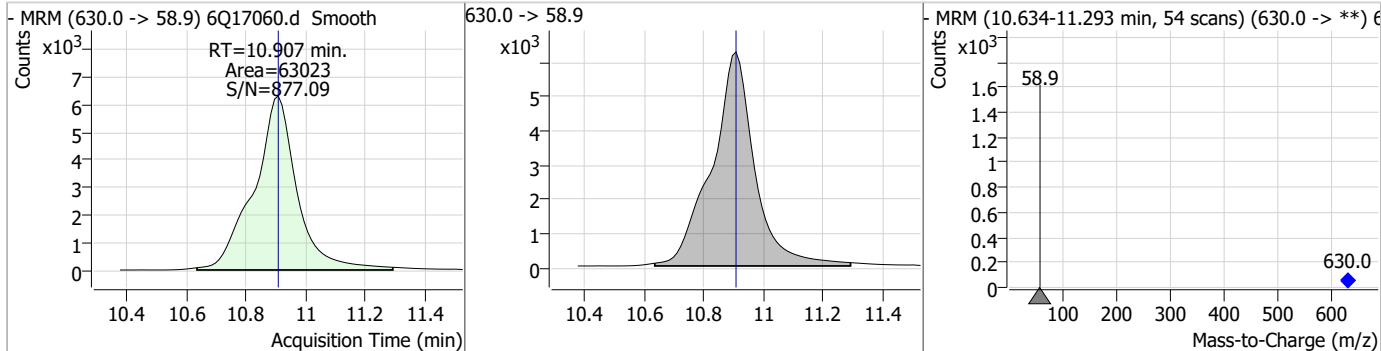
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.16	10.73	0.00	21336 (m)	511.9 -> 169.0	137.2	67.6	202.9



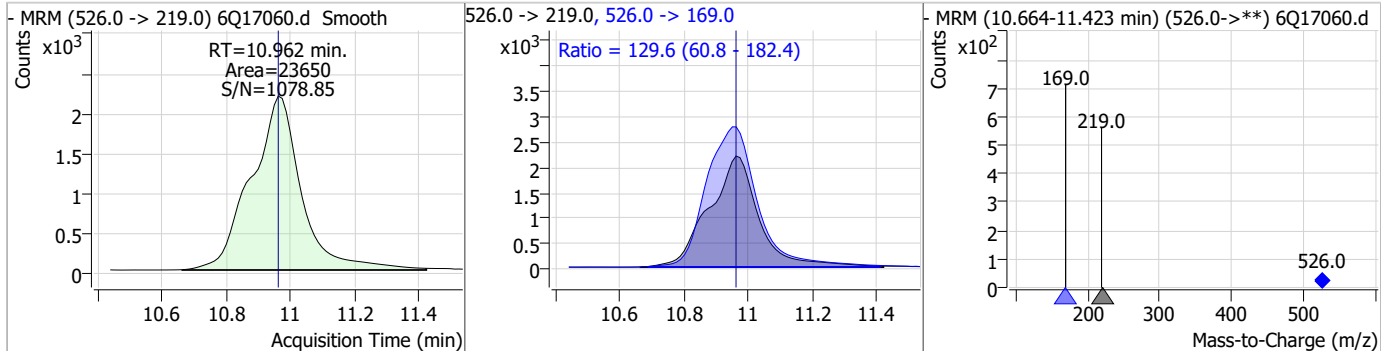
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.97	10.89	0.00	122225				



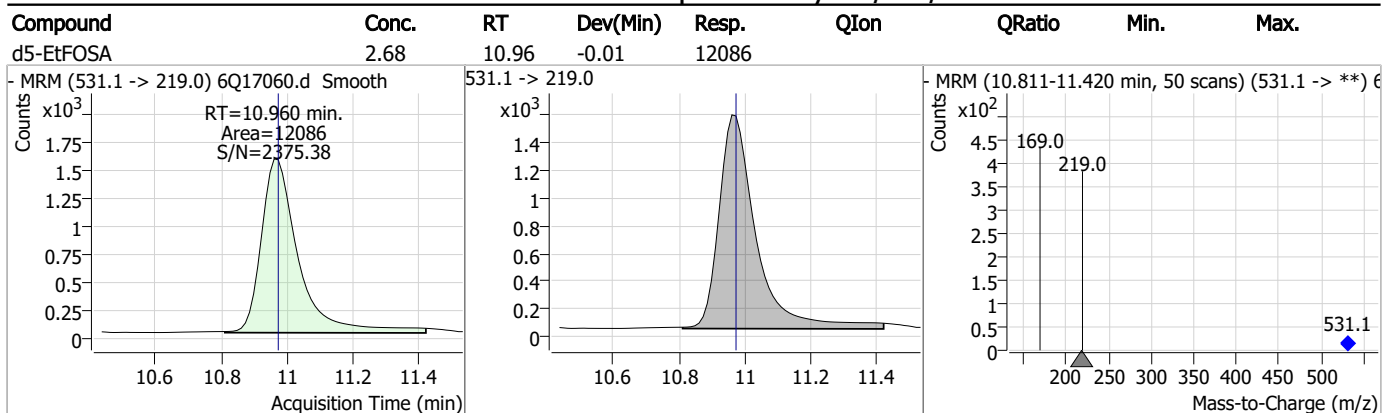
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.38	10.91	0.00	63023				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.76	10.96	0.00	23650	526.0 -> 169.0	129.6	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.10
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Manual Integration Approval Summary

Sample Number: S6Q258-ICV258 Method: EPA DRAFT 1633
Lab FileID: 6Q17060.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:00 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

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7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17061.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:15:11 PM
 Sample Name : icv258-20
 Vial : P1-B2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	181883	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	63114	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	65831	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	55304	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	78747	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26122	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20235	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24976	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26141	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17129	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23209	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21977	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12387	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10720	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2129	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2641	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3070	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21714	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40942	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18992	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	90949	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	110731	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	10862	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8899	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13456	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	78256	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9305	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	84999	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23724	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29731	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56306	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2129	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2641	5.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3070	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26141	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17129	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.398	302.1 -> 79.9	21977	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	12387	2.50 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFBA	2.897	216.8 -> 171.9	181883	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C4-PFHpA	6.419	367.1 -> 322.0	55304	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C5-PFHxA	5.468	318.0 -> 273.0	65831	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C5-PFPeA	4.270	268.3 -> 223.0	63114	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C6-PFDA	8.076	519.1 -> 474.1	20235	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C7-PFUnDA	8.530	570.0 -> 525.1	24976	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-FOSA	9.623	506.1 -> 77.8	23209	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C8-PFOA	7.074	421.1 -> 376.0	78747	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C8-PFOS	8.226	507.1 -> 79.9	10720	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C9-PFNA	7.594	472.1 -> 427.0	26122	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.2%		
d3-MeFOSAA	8.134	573.2 -> 419.0	21714	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	40942	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
d3-MeFOSA	10.728	515.0 -> 219.0	8899	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.9%		
d5-EtFOSAA	8.330	589.2 -> 419.0	18992	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.0%		
d7-MeFOSE	10.647	623.2 -> 58.9	90949	25.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d9-EtFOSE	10.894	639.2 -> 58.9	110731	25.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
d5-EtFOSA	10.960	531.1 -> 219.0	10862	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	72285	22.44 µg/L	98
		327.1 -> 80.9	26001		
6:2FTS	6.839	427.1 -> 407.0	59670	20.54 µg/L	94
		427.1 -> 80.9	19116		
8:2FTS	7.865	527.1 -> 507.0	34354	18.81 µg/L	95
		527.1 -> 80.8	15078		
EtFOSAA	8.331	584.2 -> 419.1	66660	20.65 µg/L	98
		584.2 -> 526.0	36033		
FOSA	9.614	498.1 -> 77.9	185412	22.30 µg/L	100
		498.1 -> 478.0	5114		
MeFOSAA	8.136	570.1 -> 419.0	86089	21.11 µg/L	85
		570.1 -> 483.0	17791		
PFBA	2.906	212.8 -> 168.9	124172	20.36 µg/L	100
PFBS	5.400	298.7 -> 79.9	218020	22.11 µg/L	97
		298.7 -> 98.8	85881		
PFDA	8.077	512.9 -> 469.0	496401	22.58 µg/L	99
		512.9 -> 219.0	81120		
PFDoDA	8.961	613.1 -> 569.0	347308	16.95 µg/L	98
		613.1 -> 319.0	48030		
PFDS	9.125	599.0 -> 79.9	72333	21.17 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	36481			
PFHpA	6.420	363.1 -> 319.0	595758	21.83	µg/L	97
		363.1 -> 169.0	96770			
PFHpS	7.746	449.0 -> 79.9	118260	20.36	µg/L	93
		449.0 -> 98.9	65794			
PFHxA	5.470	313.0 -> 269.0	553947	21.28	µg/L	100
		313.0 -> 118.9	25719			
PFHxS	7.180	398.7 -> 79.9	151988	22.52	µg/L	m 90
		398.7 -> 98.9	68078			
PFNA	7.595	463.0 -> 419.0	374916	20.75	µg/L	95
		463.0 -> 219.0	86517			
PFNS	8.706	548.8 -> 79.9	115696	22.36	µg/L	95
		548.8 -> 98.9	59755			
PFOA	7.063	413.0 -> 369.0	788785	20.81	µg/L	100
		413.0 -> 169.0	136616			
PFOS	8.228	498.9 -> 79.9	99333	19.19	µg/L	m 79
		498.9 -> 98.8	47997			
PFPeA	4.273	263.0 -> 219.0	381974	22.22	µg/L	100
PFPeS	6.472	349.1 -> 79.9	158163	22.44	µg/L	92
		349.1 -> 98.9	68379			
PFTeDA	9.690	713.1 -> 669.0	372337	21.51	µg/L	100
		713.1 -> 168.9	28247			
PFTrDA	9.345	663.0 -> 619.0	417890	18.42	µg/L	98
		663.0 -> 168.9	35597			
PFUnDA	8.531	563.1 -> 519.0	365576	21.10	µg/L	95
		563.1 -> 269.1	55110			
11CI-PF3OUdS	9.398	630.9 -> 450.9	294122	20.93	µg/L	98
		632.9 -> 452.9	90566			
9CI-PF3ONS	8.569	530.8 -> 351.0	471916	21.24	µg/L	99
		532.8 -> 353.0	142935			
ADONA	6.681	376.9 -> 250.9	1282918	20.74	µg/L	97
		376.9 -> 84.8	315913			
HFPO-DA	5.846	284.9 -> 168.9	73104	18.85	µg/L	99
		284.9 -> 184.9	9797			
3:3FTCA	3.784	241.0 -> 177.0	22317	20.76	µg/L	98
		241.0 -> 117.0	2776			
5:3FTCA	6.160	341.0 -> 237.1	103543	24.58	µg/L	99
		341.0 -> 217.0	70006			
7:3FTCA	7.573	441.0 -> 316.9	42656	22.29	µg/L	92
		441.0 -> 336.9	86728			
EtFOSA	10.975	526.0 -> 219.0	92596	20.74	µg/L	86
		526.0 -> 169.0	98148			
EtFOSE	10.907	630.0 -> 58.9	511139	110.84	µg/L	100
MeFOSA	10.743	511.9 -> 219.0	82720	20.66	µg/L	80
		511.9 -> 169.0	91971			
MeFOSE	10.661	616.1 -> 58.9	455307	112.25	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	35872	20.30	µg/L	98
		699.1 -> 98.8	21072			
NFDHA	5.350	295.0 -> 201.0	64405	22.83	µg/L	99
		295.0 -> 84.9	15279			
PFMBA	4.687	279.0 -> 85.1	251755	21.83	µg/L	100
PFMPA	3.438	229.0 -> 84.9	185020	21.50	µg/L	100
PFEESA	5.937	314.8 -> 134.9	652973	19.88	µg/L	99
		314.8 -> 82.9	21677			

= Qualifier out of range, m = manually integrated, + = Area summed



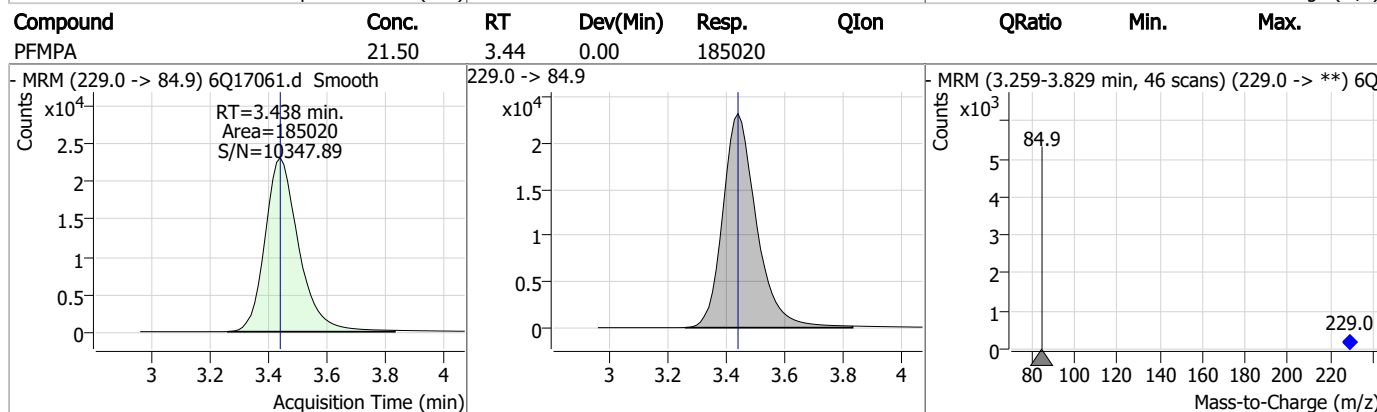
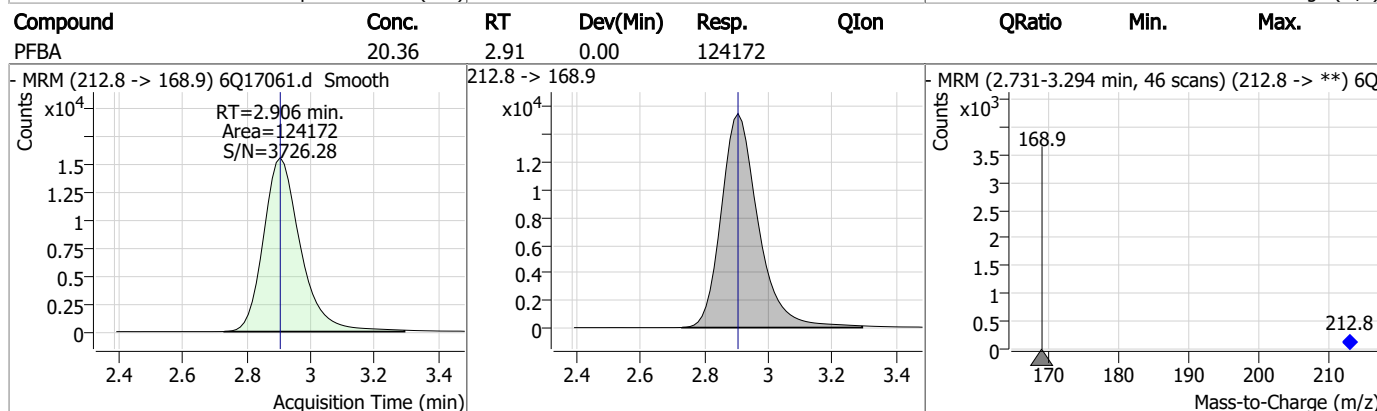
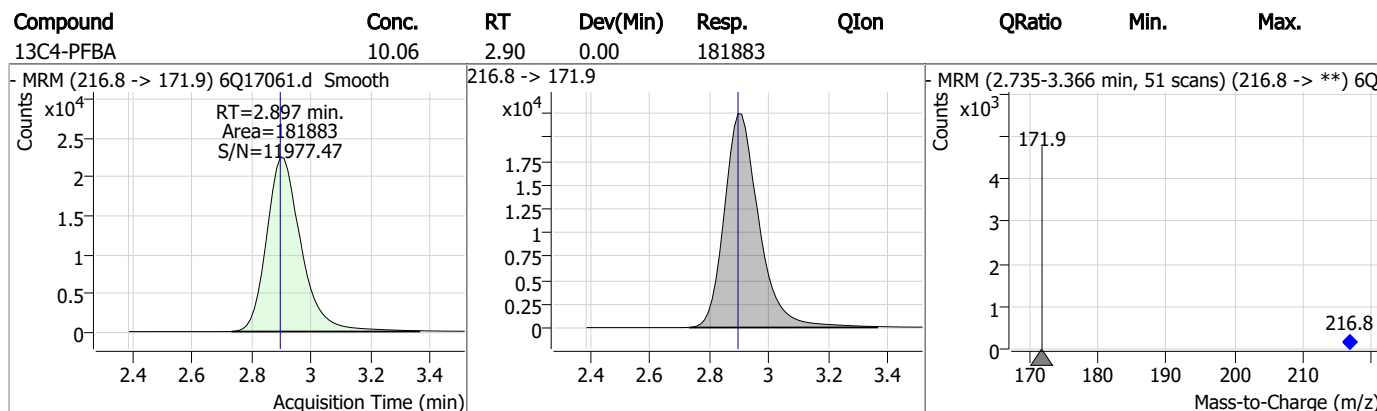
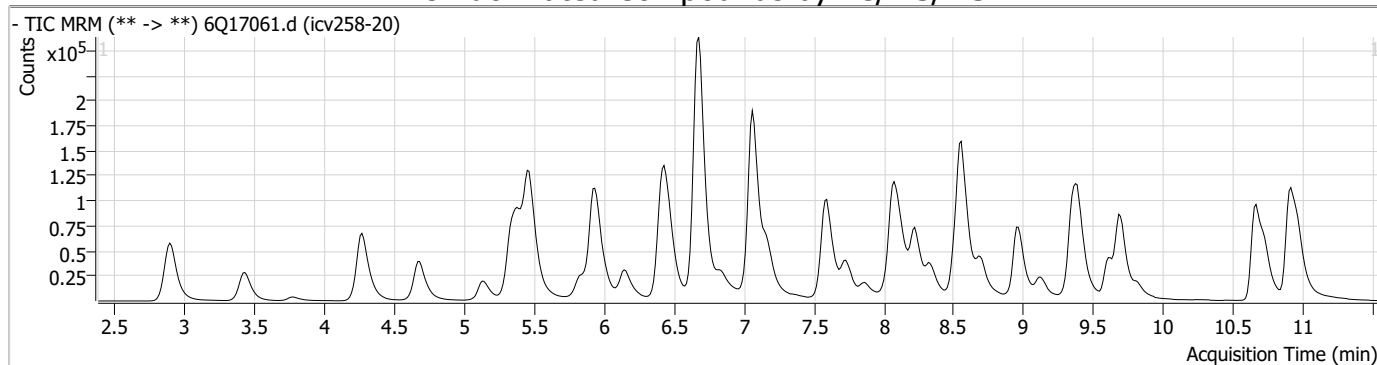
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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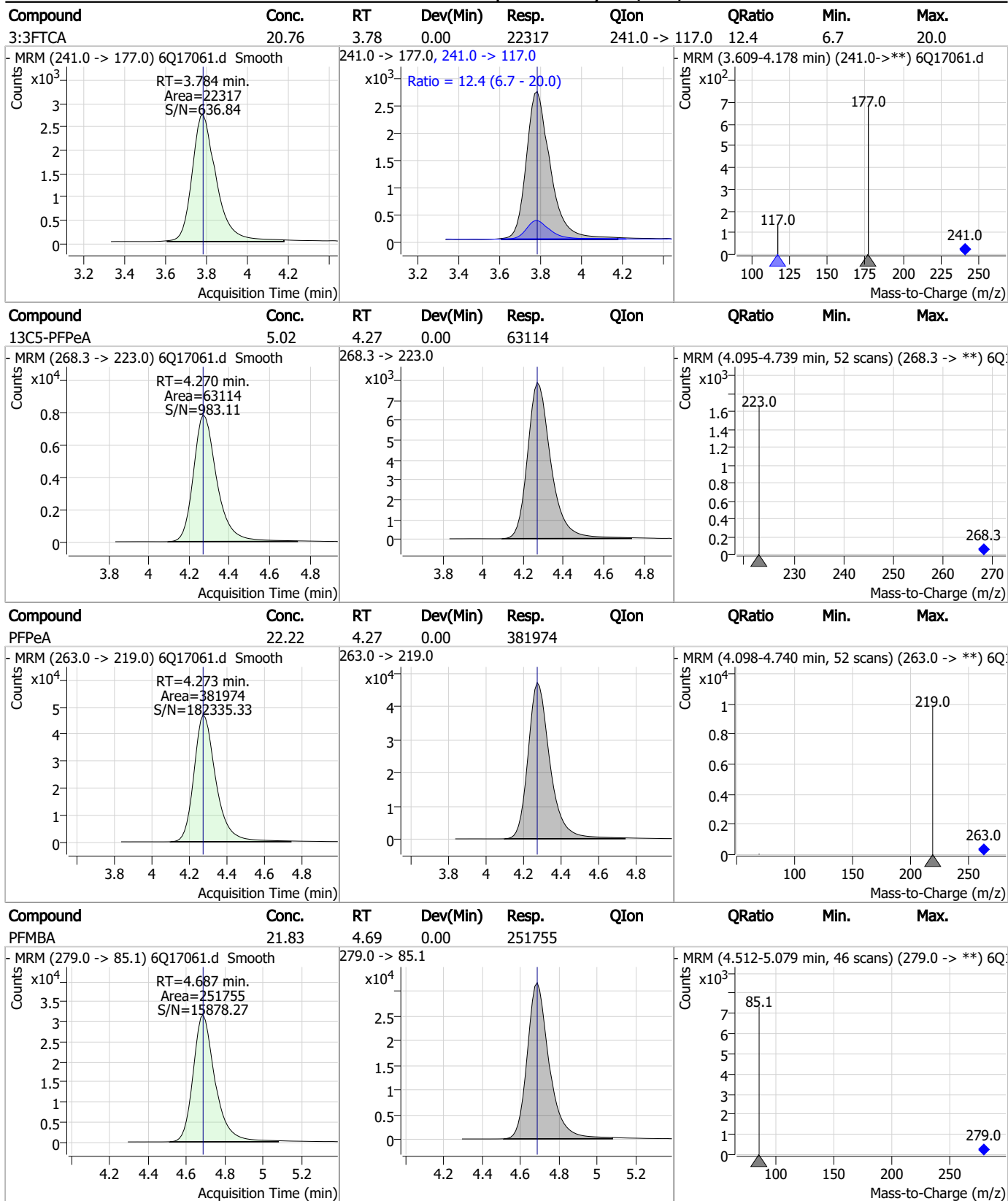
7.7.11

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Perfluorinated Compounds by LC/MS/MS

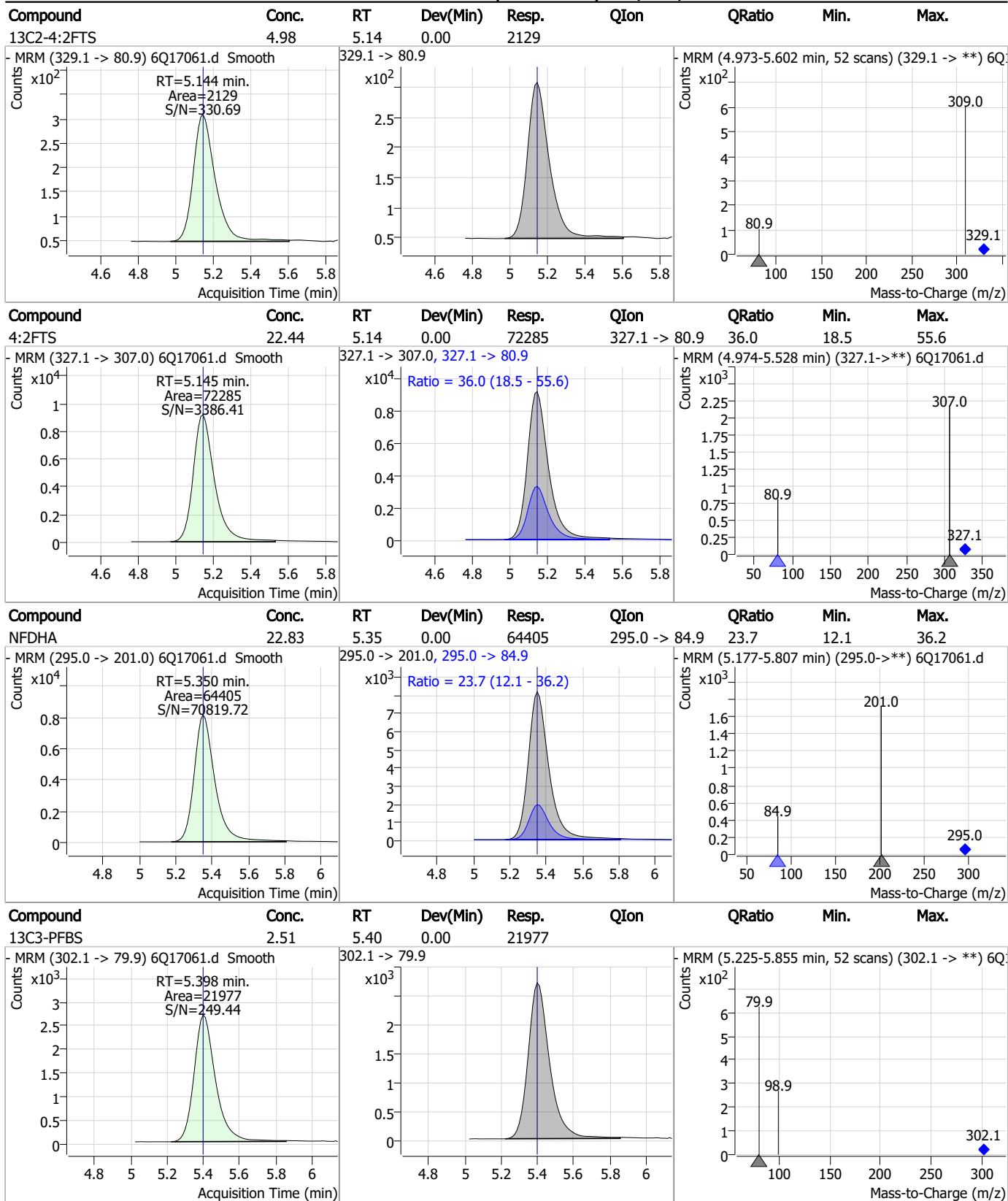


Perfluorinated Compounds by LC/MS/MS



7.7.11
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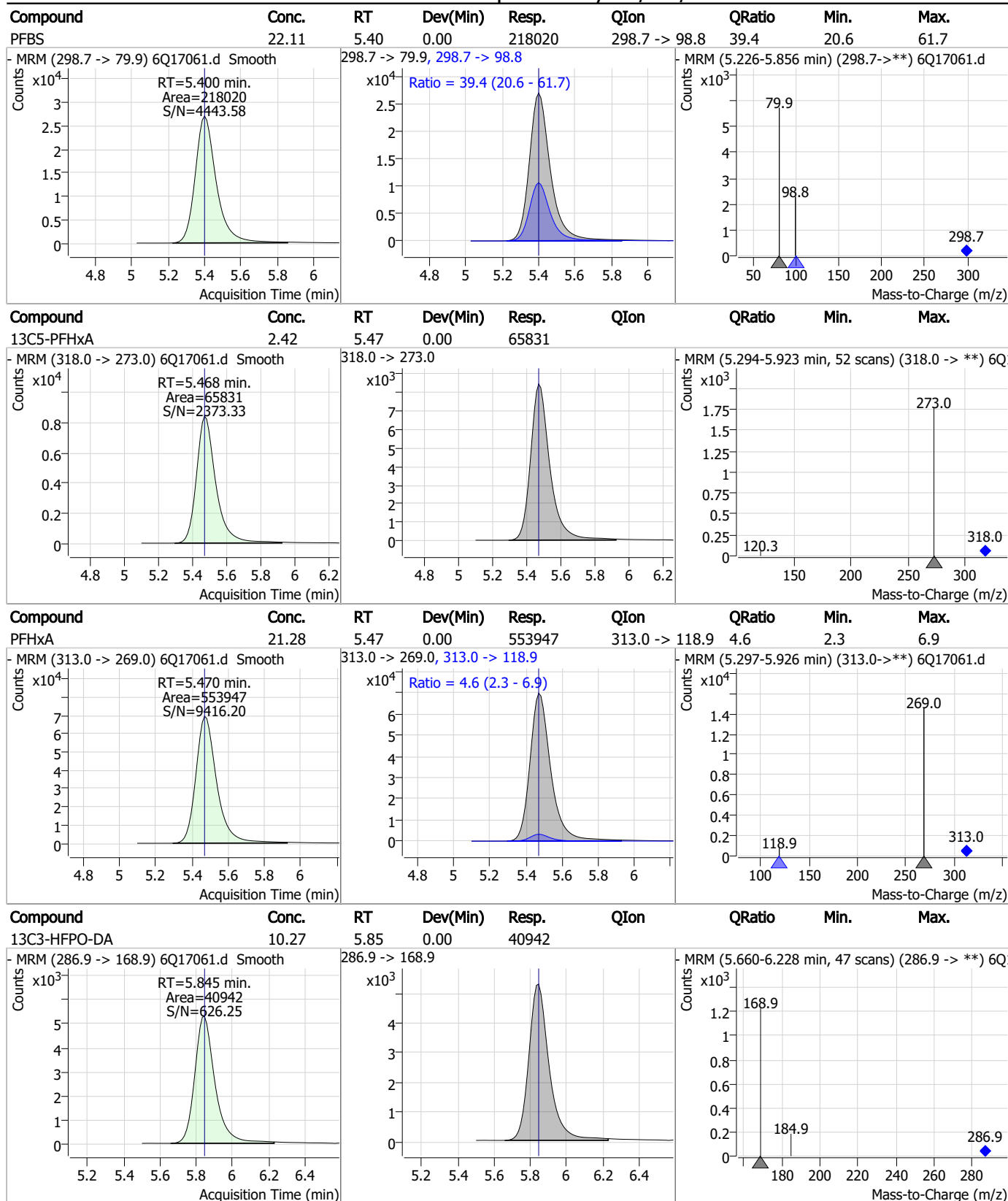
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

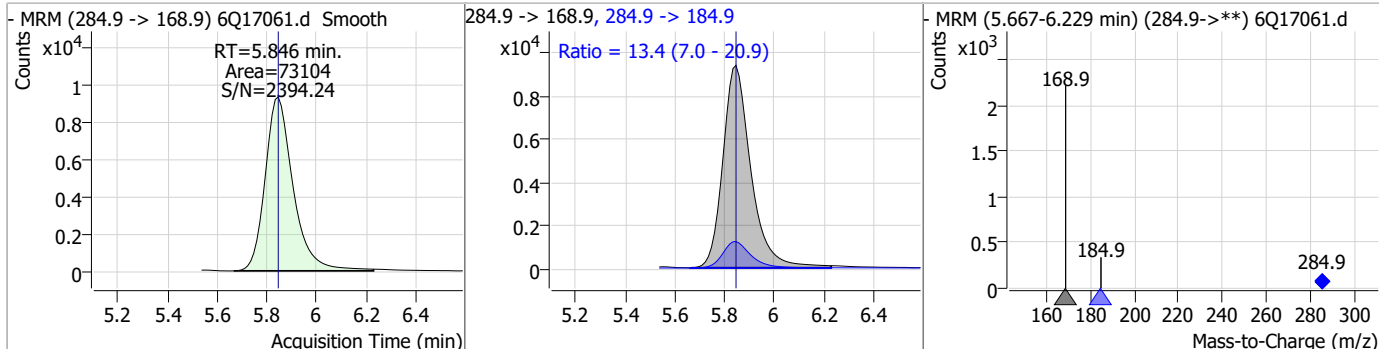


7.7.11

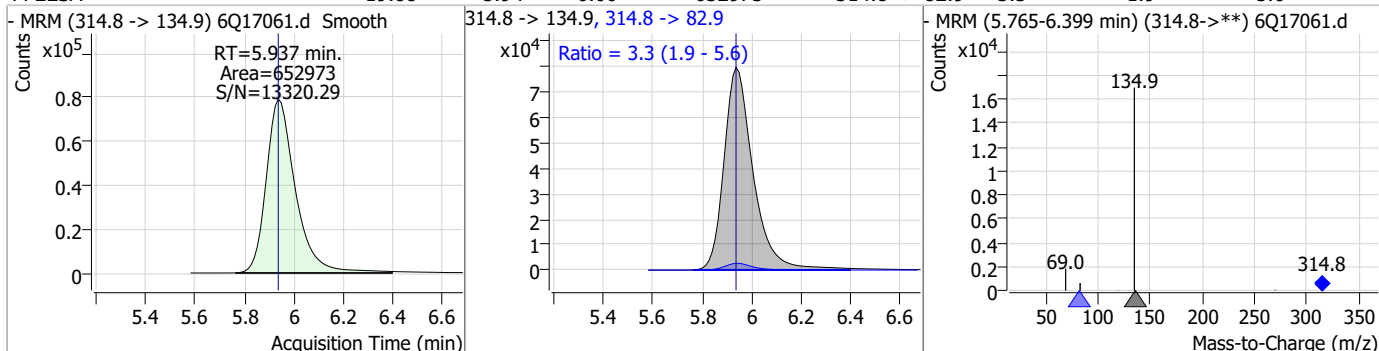
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Perfluorinated Compounds by LC/MS/MS

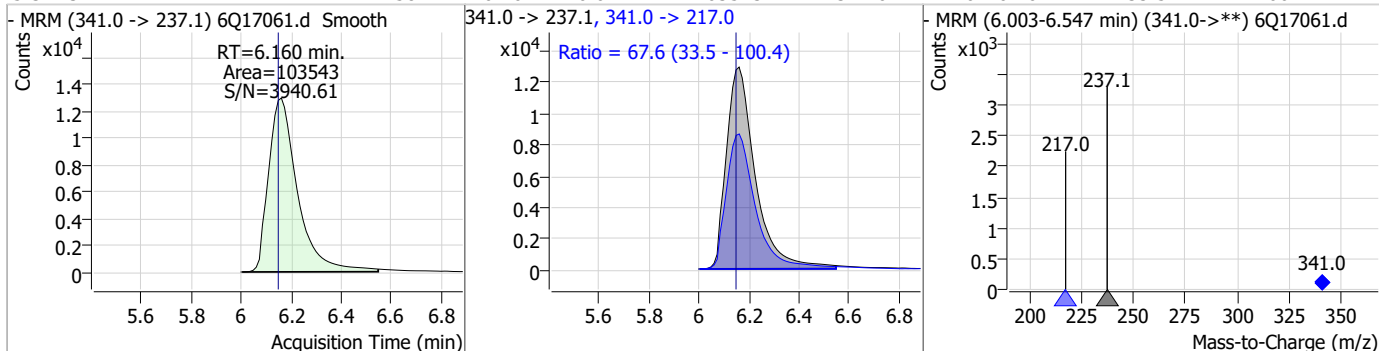
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.85	5.85	0.00	73104	284.9 -> 184.9	13.4	7.0	20.9



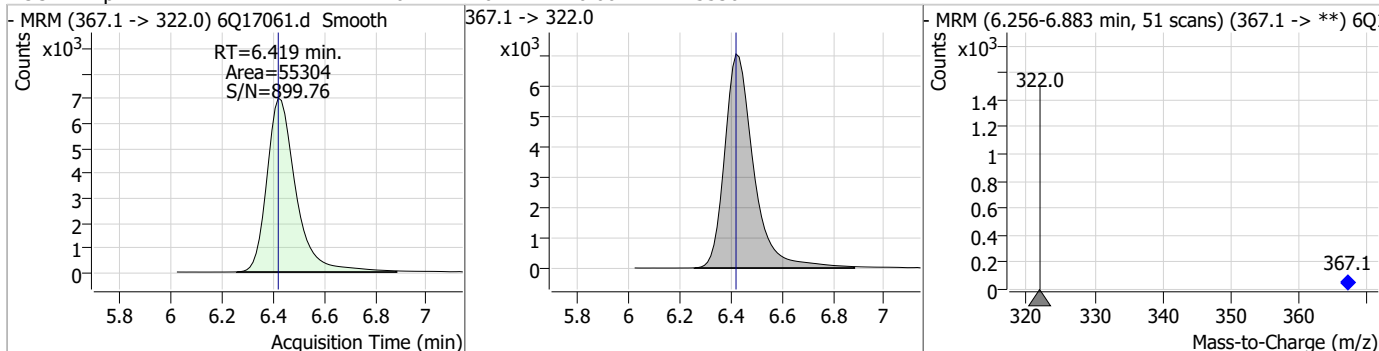
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.88	5.94	0.00	652973	314.8 -> 82.9	3.3	1.9	5.6



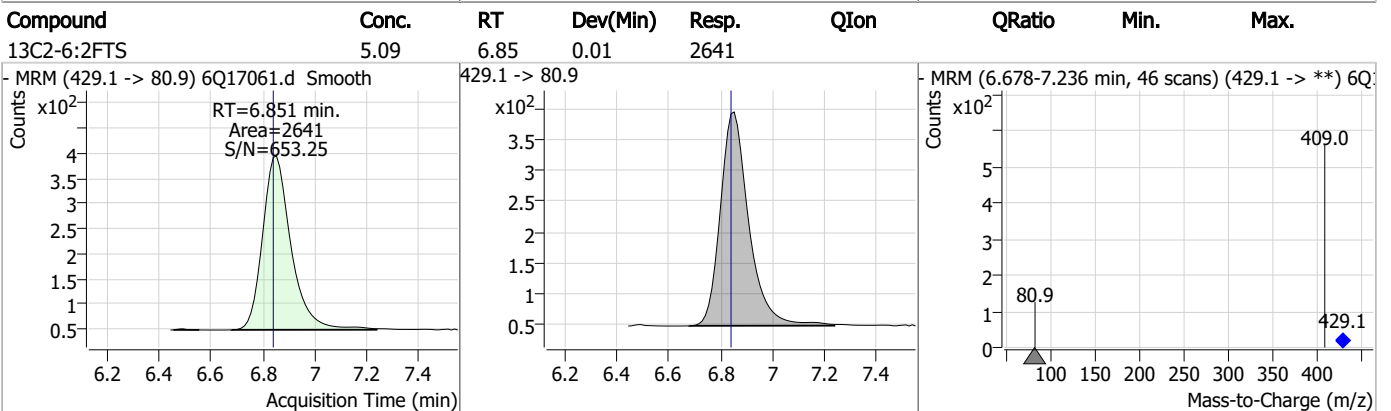
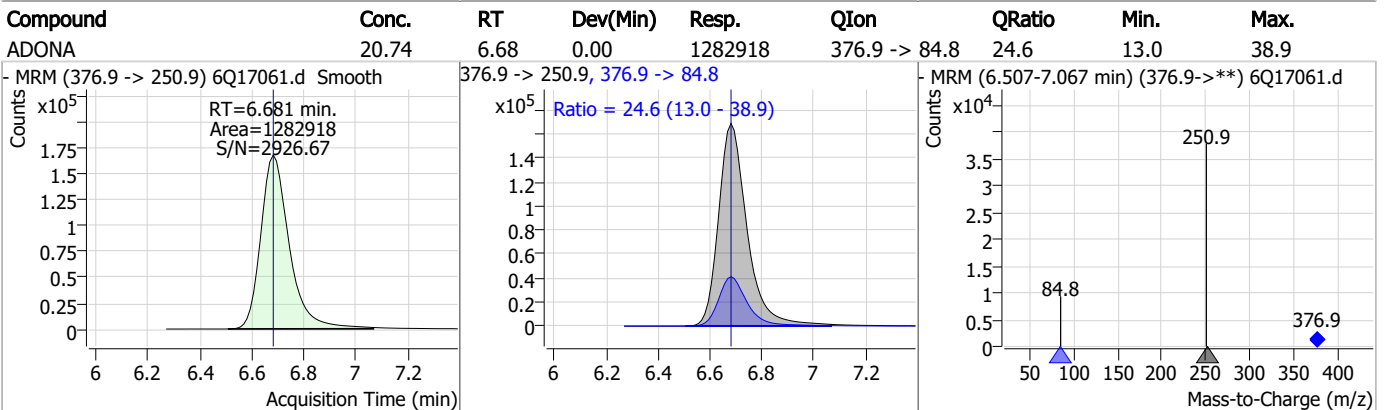
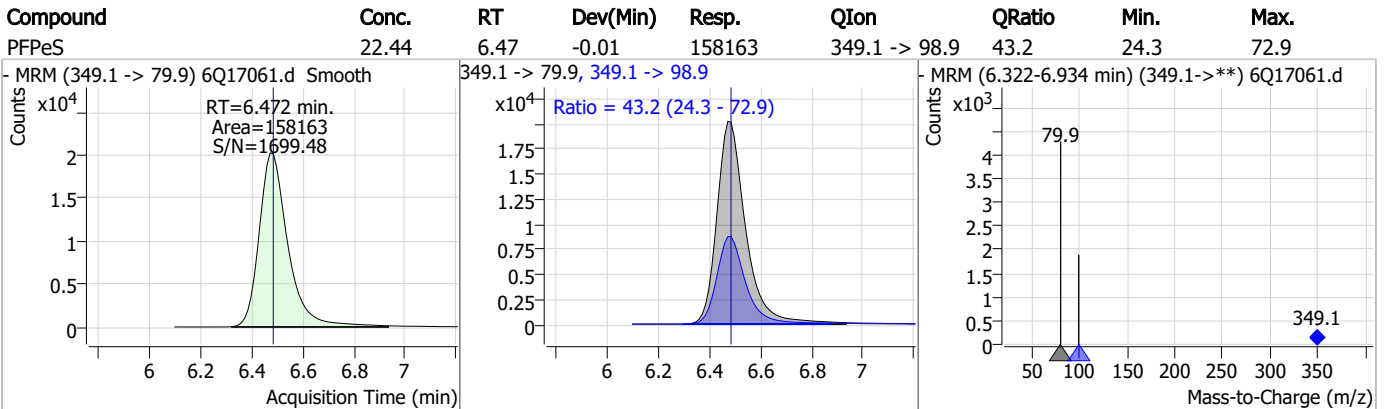
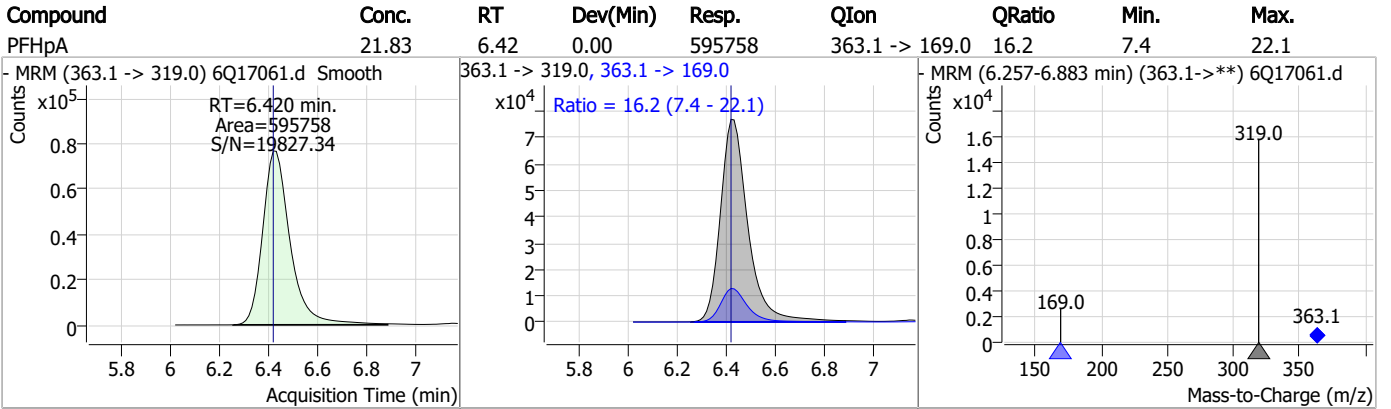
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	24.58	6.16	0.01	103543	341.0 -> 217.0	67.6	33.5	100.4



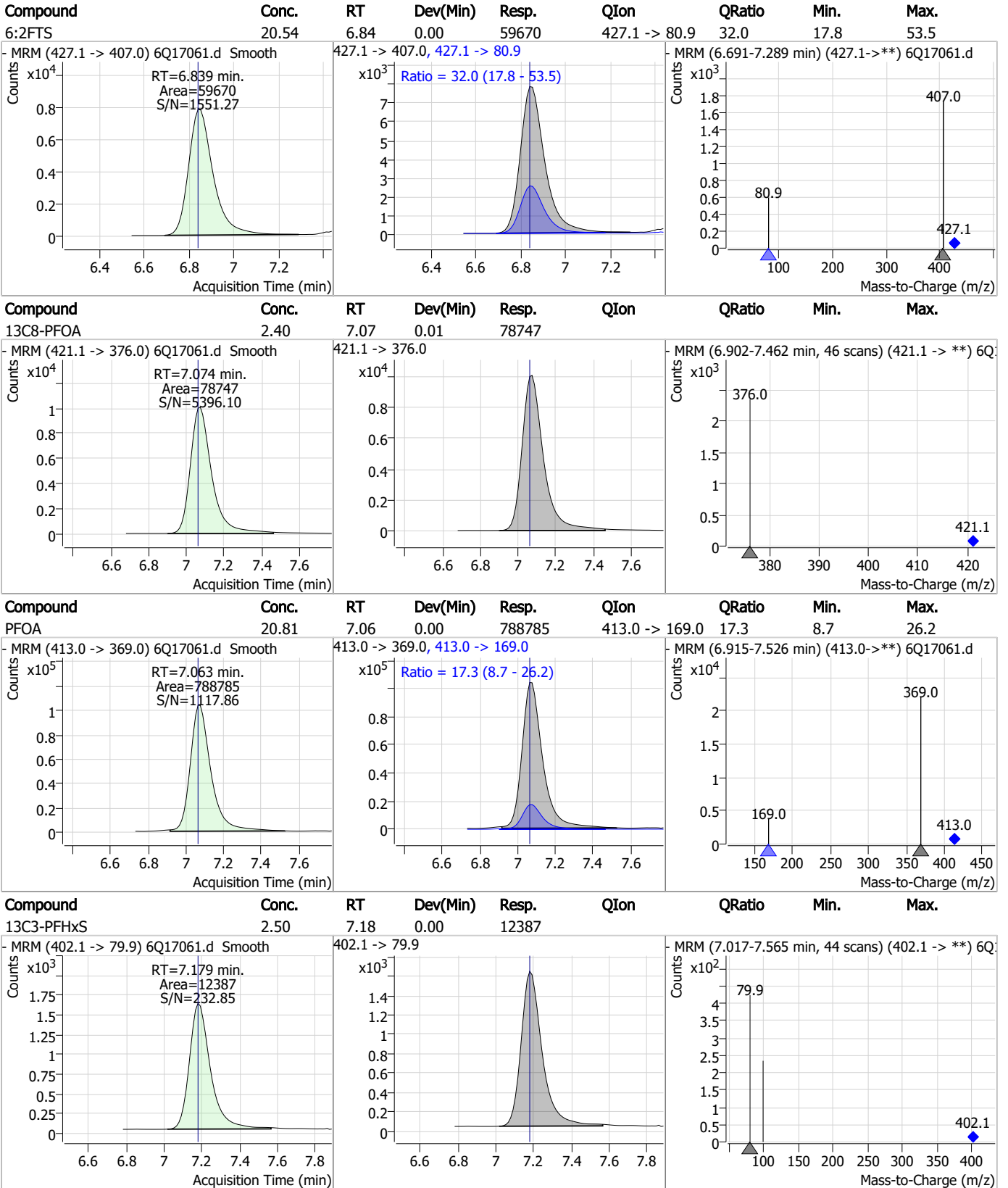
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.40	6.42	0.00	55304	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS



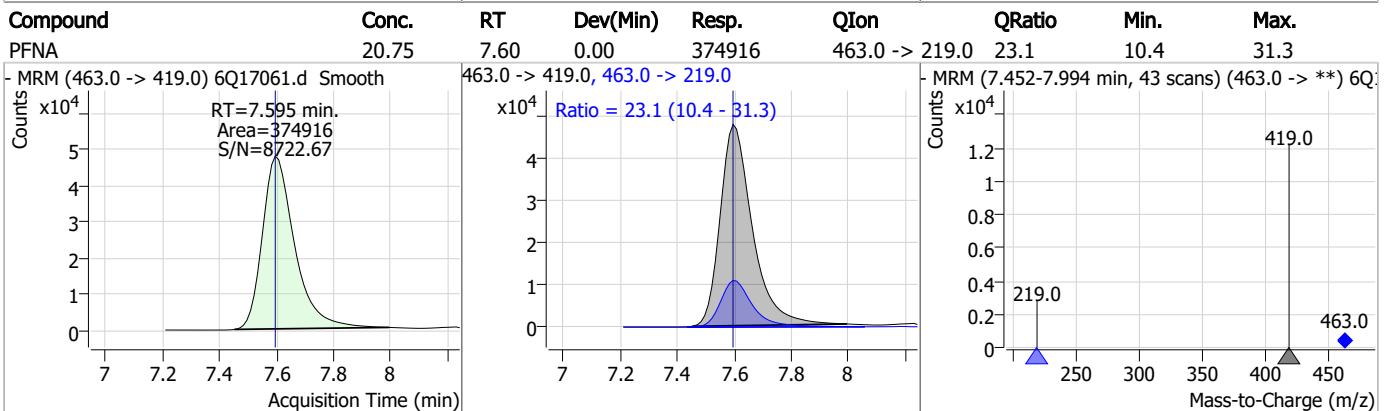
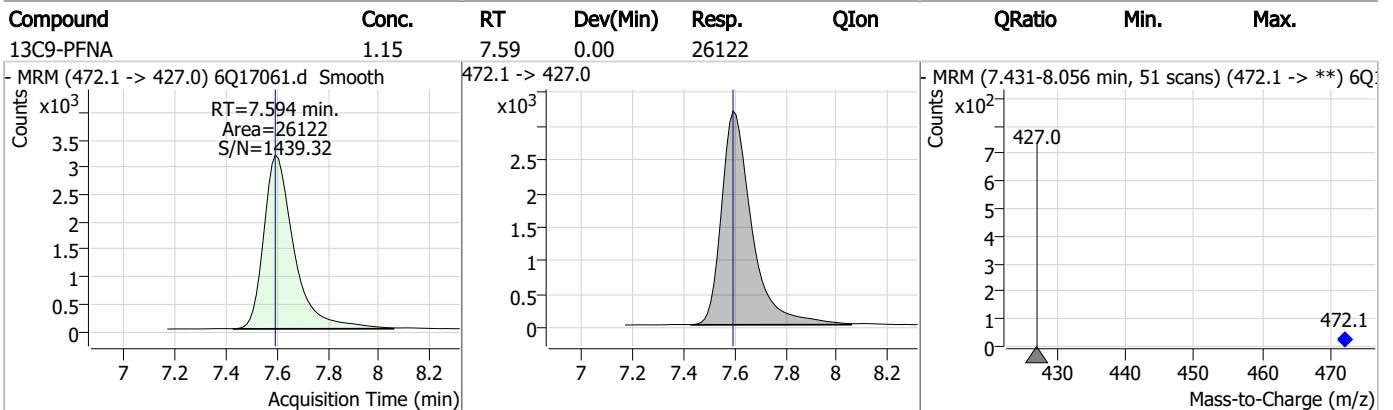
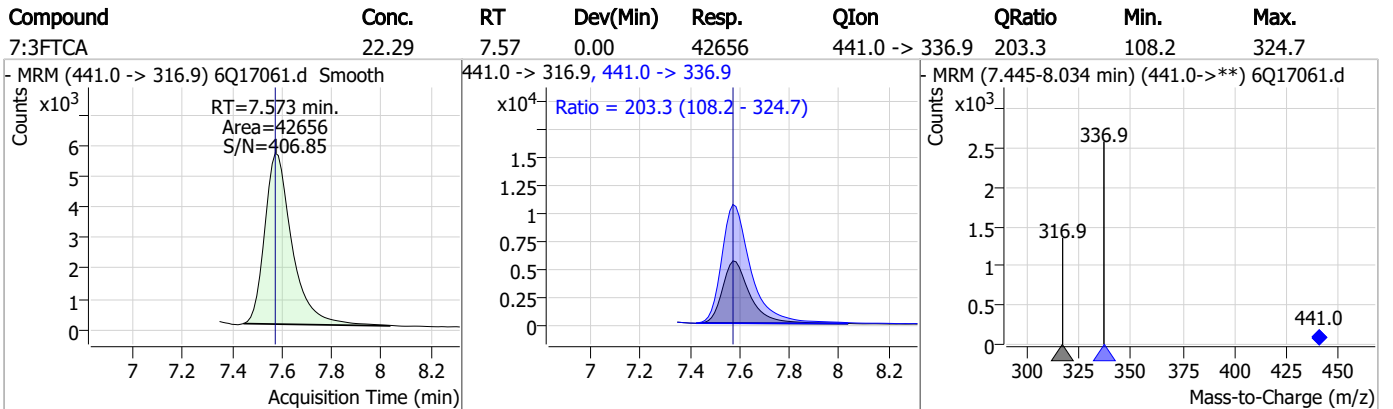
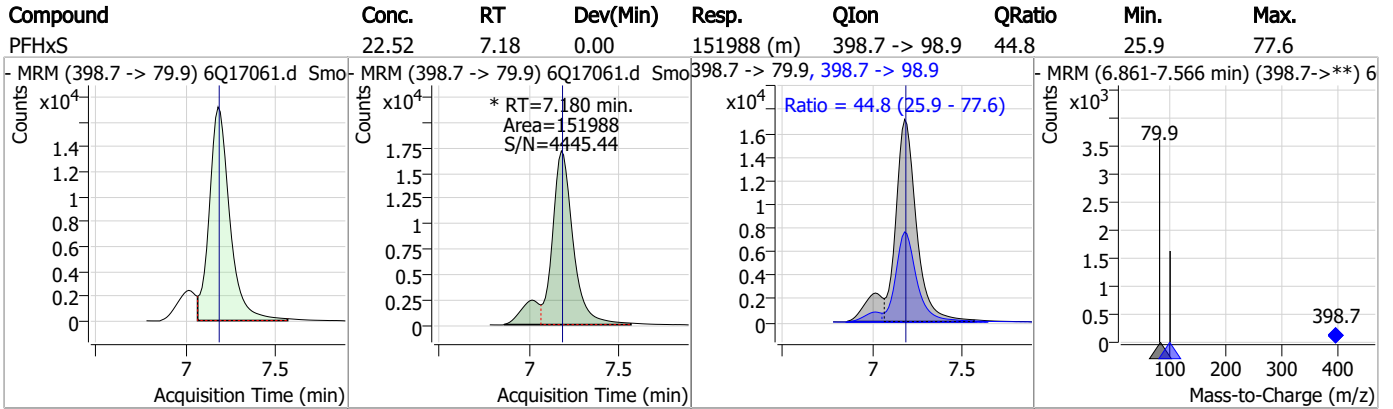
Perfluorinated Compounds by LC/MS/MS



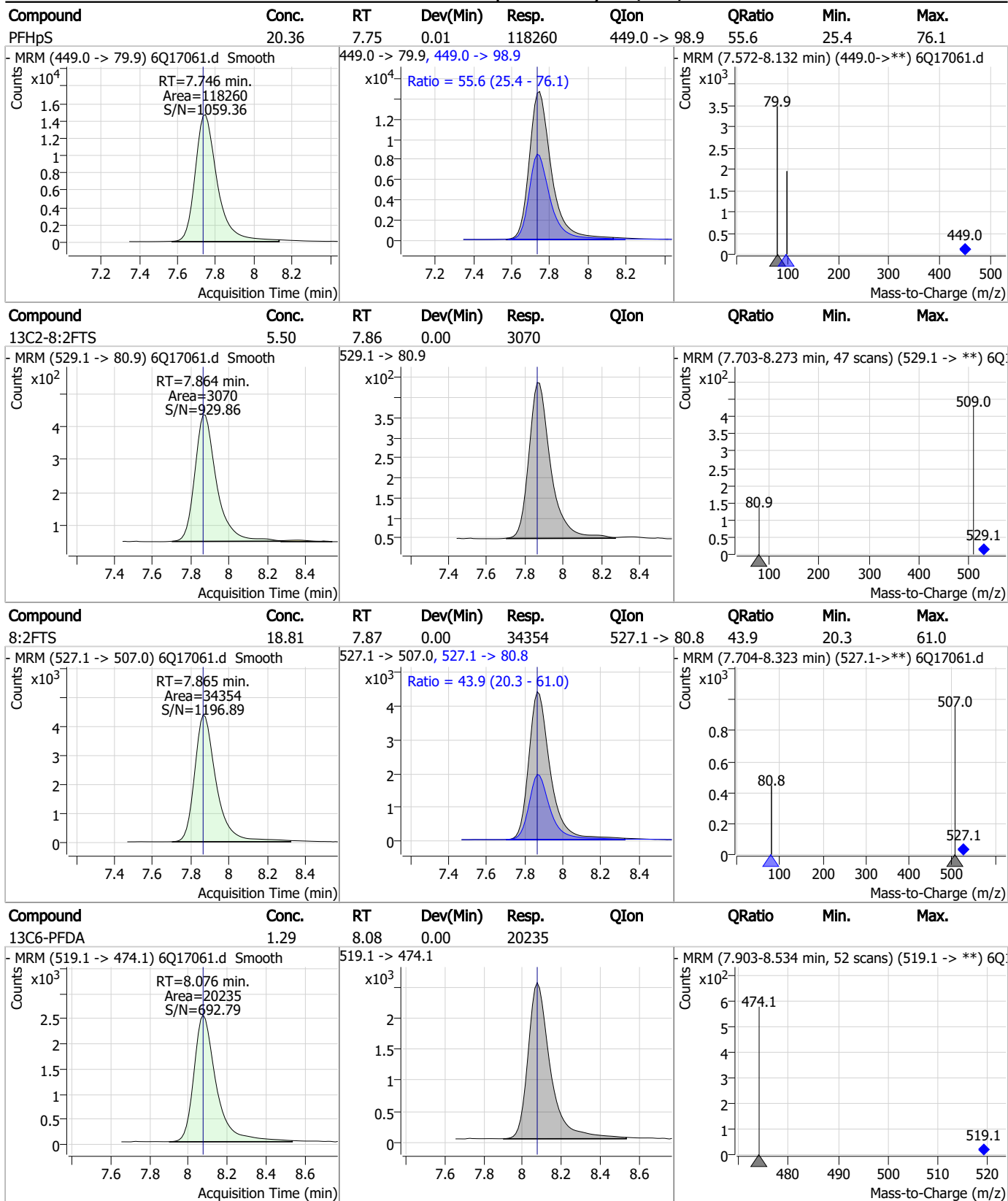
7.7.11

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Perfluorinated Compounds by LC/MS/MS

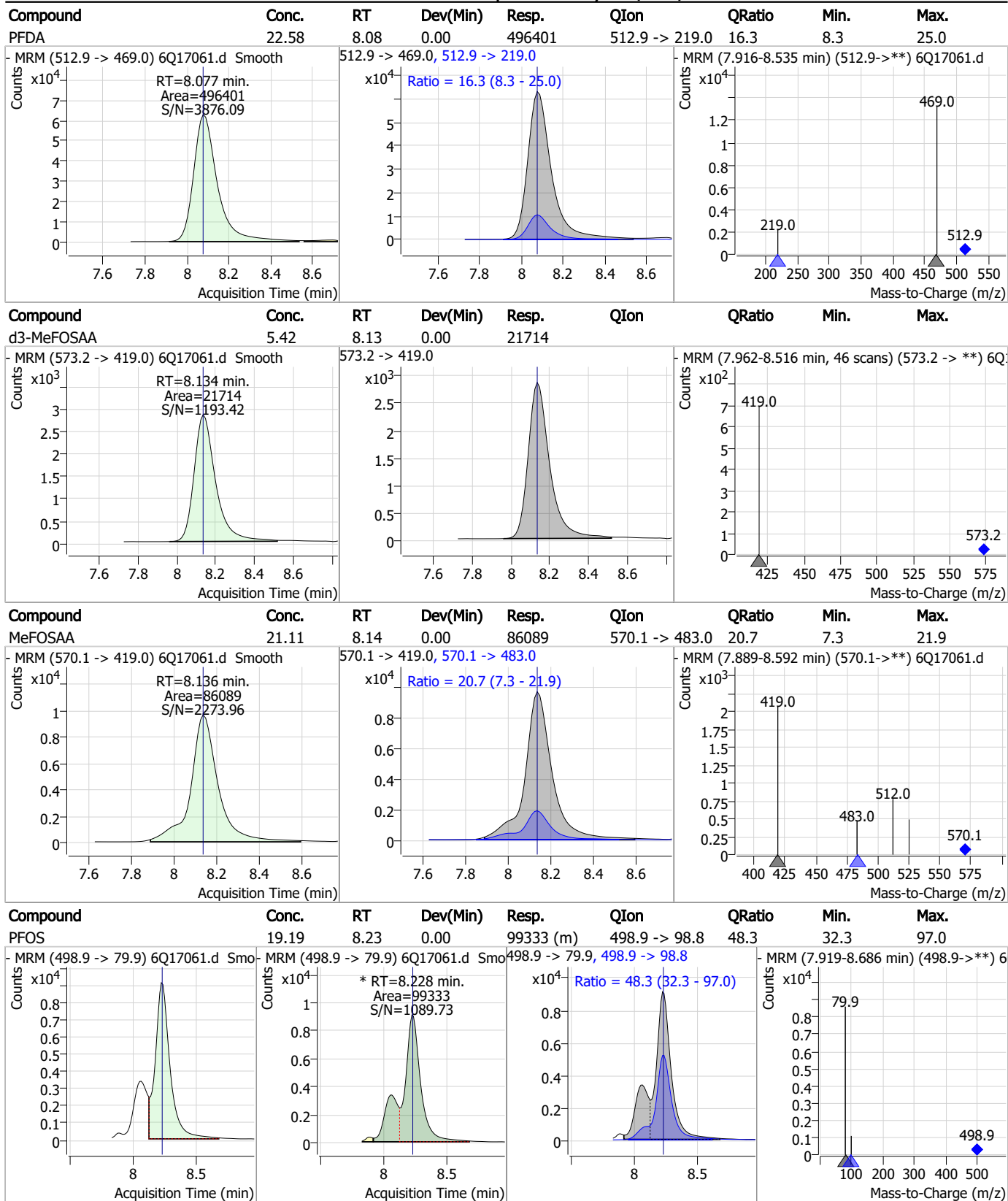


Perfluorinated Compounds by LC/MS/MS



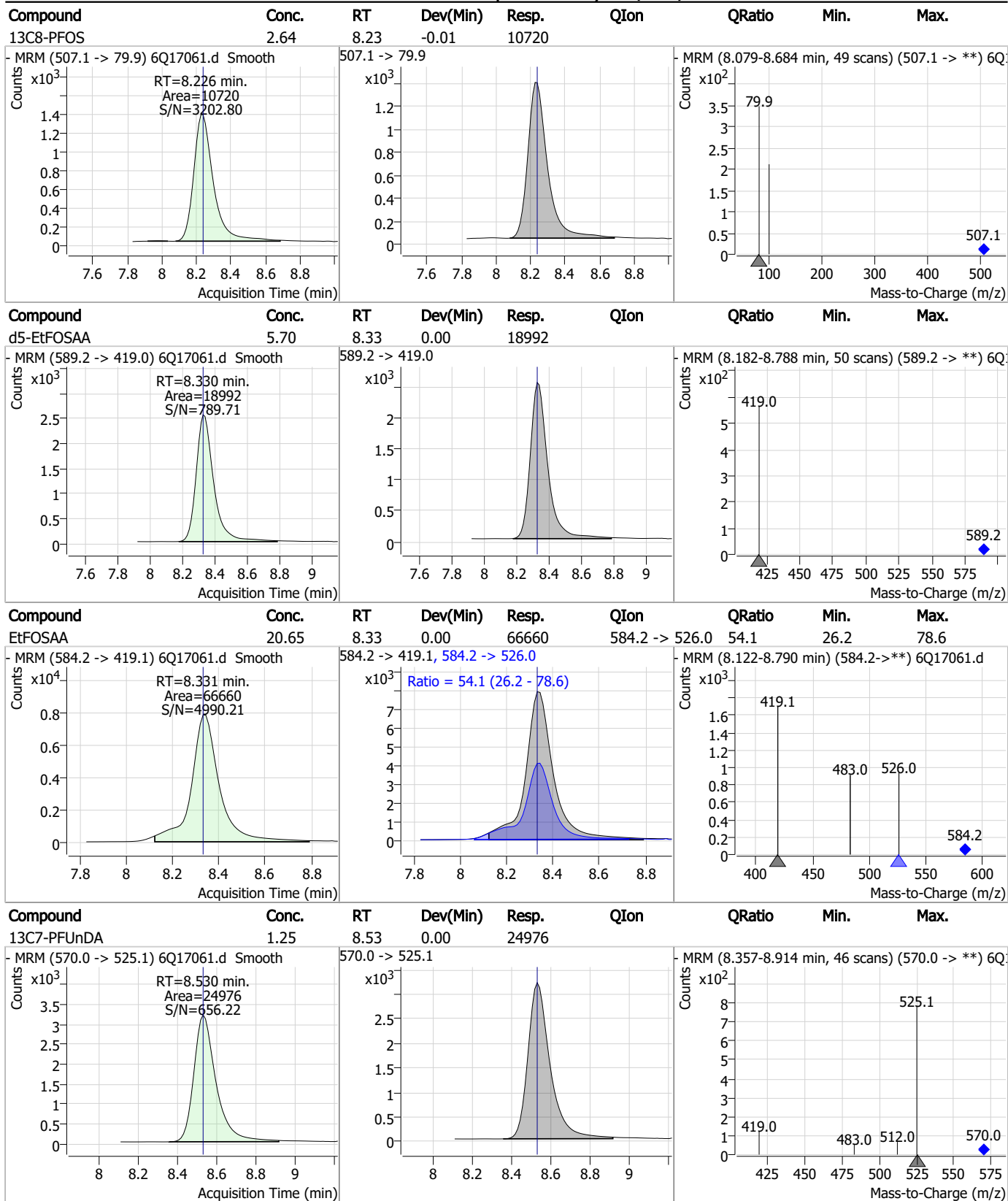
7.7.11

Perfluorinated Compounds by LC/MS/MS



7.7.11
7

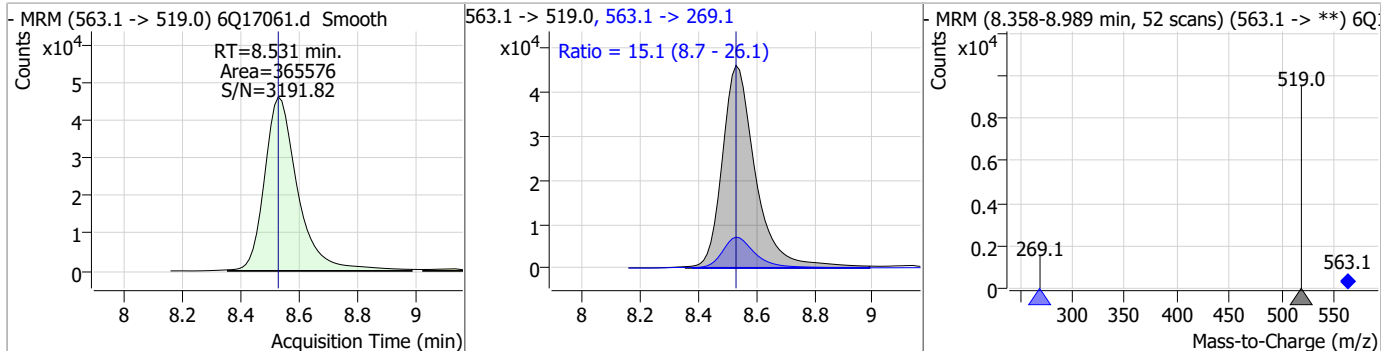
Perfluorinated Compounds by LC/MS/MS



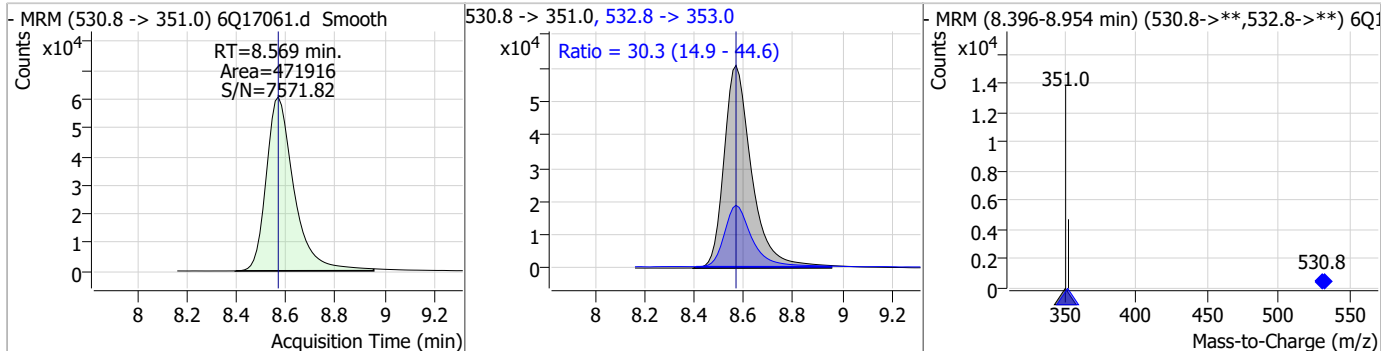
7.7.11
7

Perfluorinated Compounds by LC/MS/MS

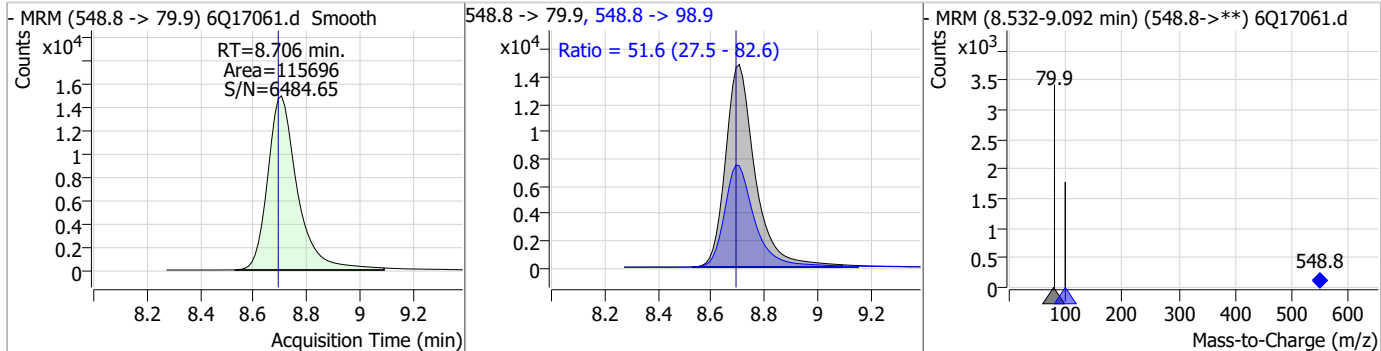
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.10	8.53	0.00	365576	563.1 -> 269.1	15.1	8.7	26.1



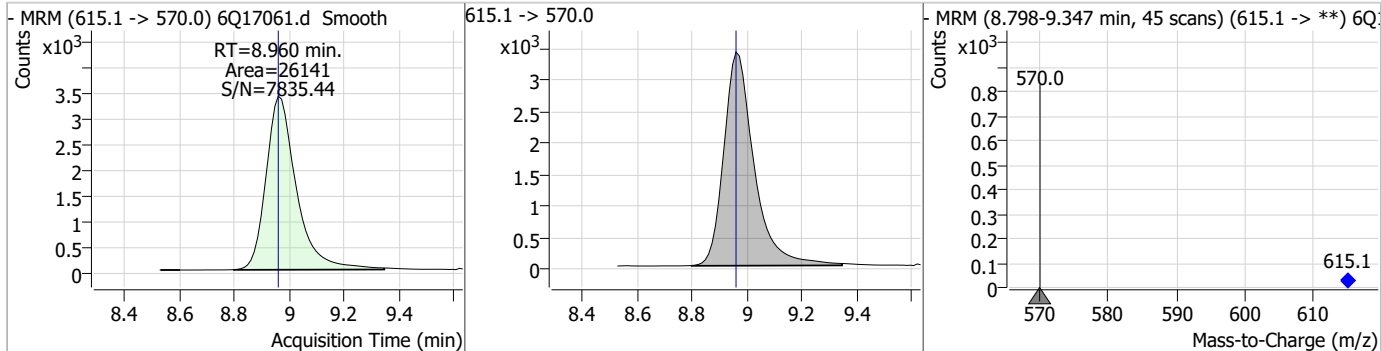
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	21.24	8.57	0.00	471916	532.8 -> 353.0	30.3	14.9	44.6



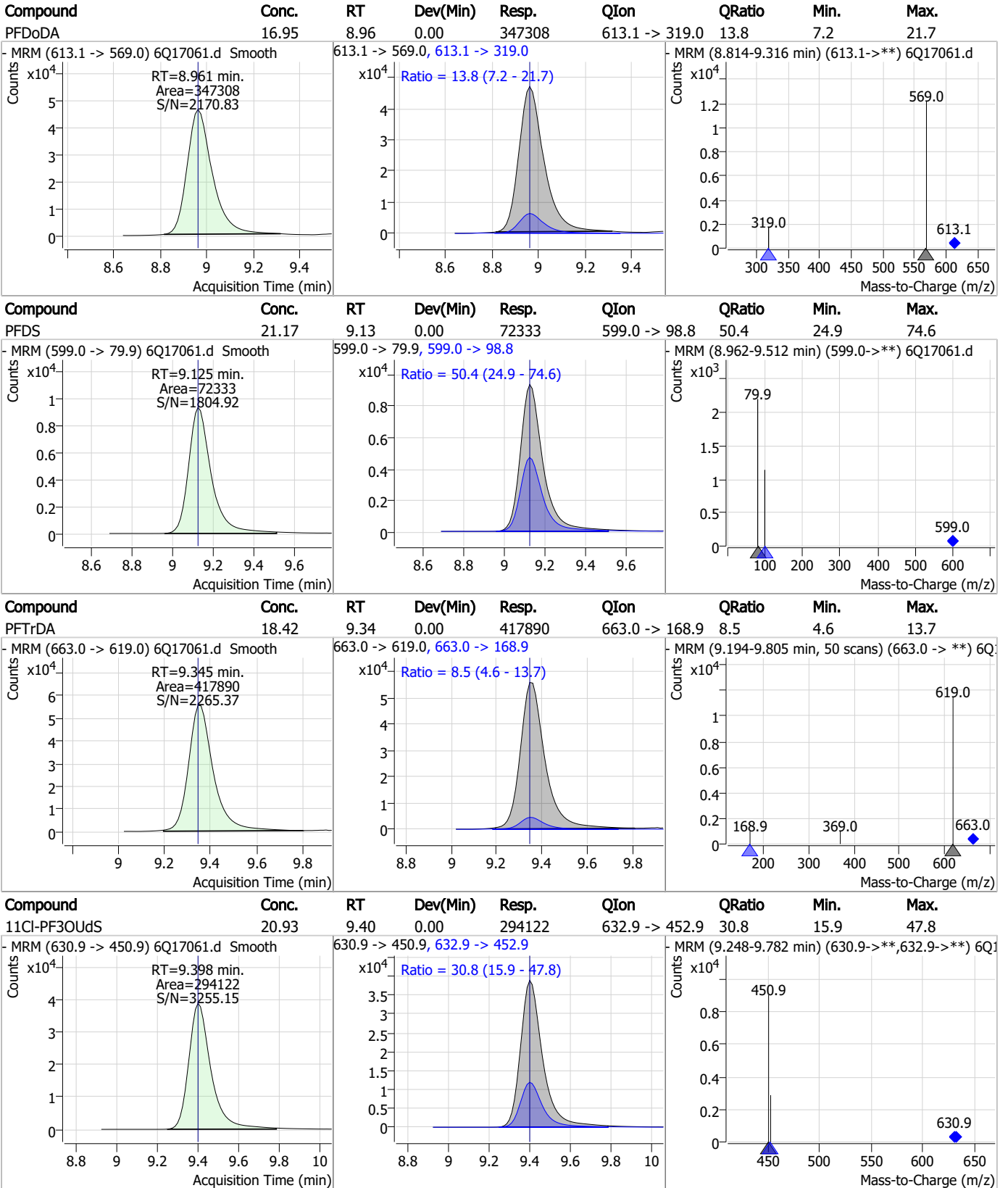
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	22.36	8.71	0.01	115696	548.8 -> 98.9	51.6	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.32	8.96	0.00	26141	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

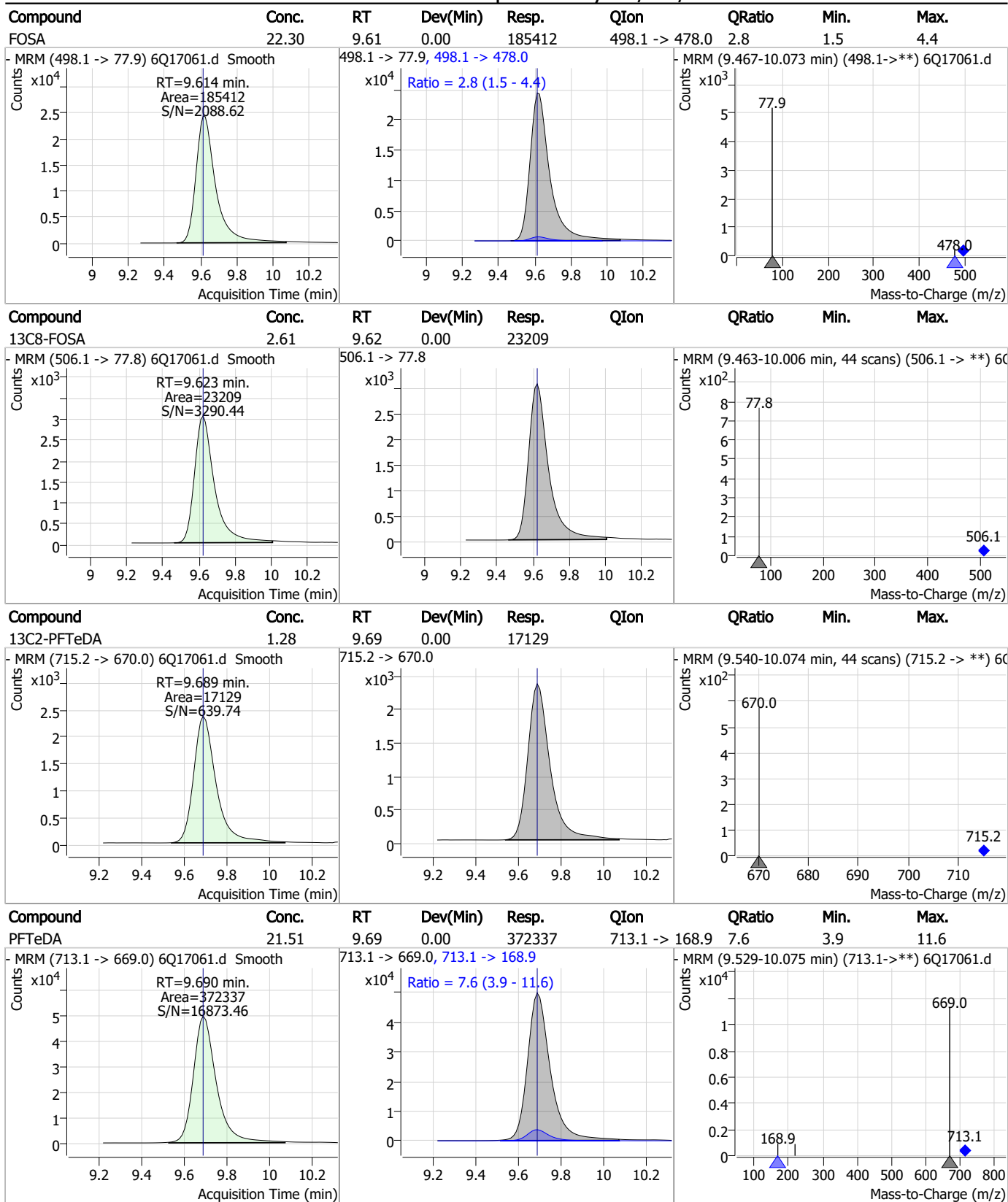


7.7.11

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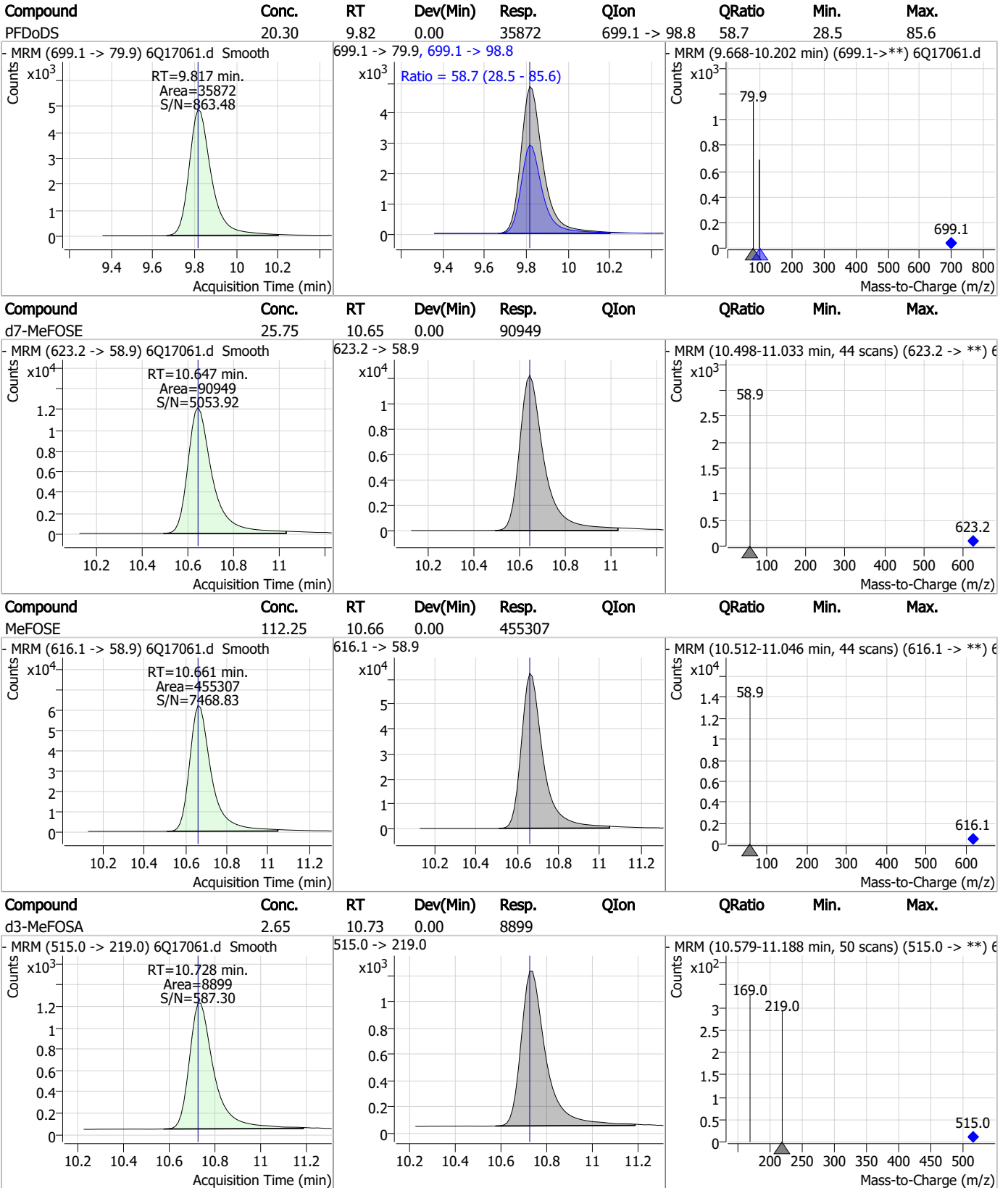
Perfluorinated Compounds by LC/MS/MS



7.7.11



Perfluorinated Compounds by LC/MS/MS

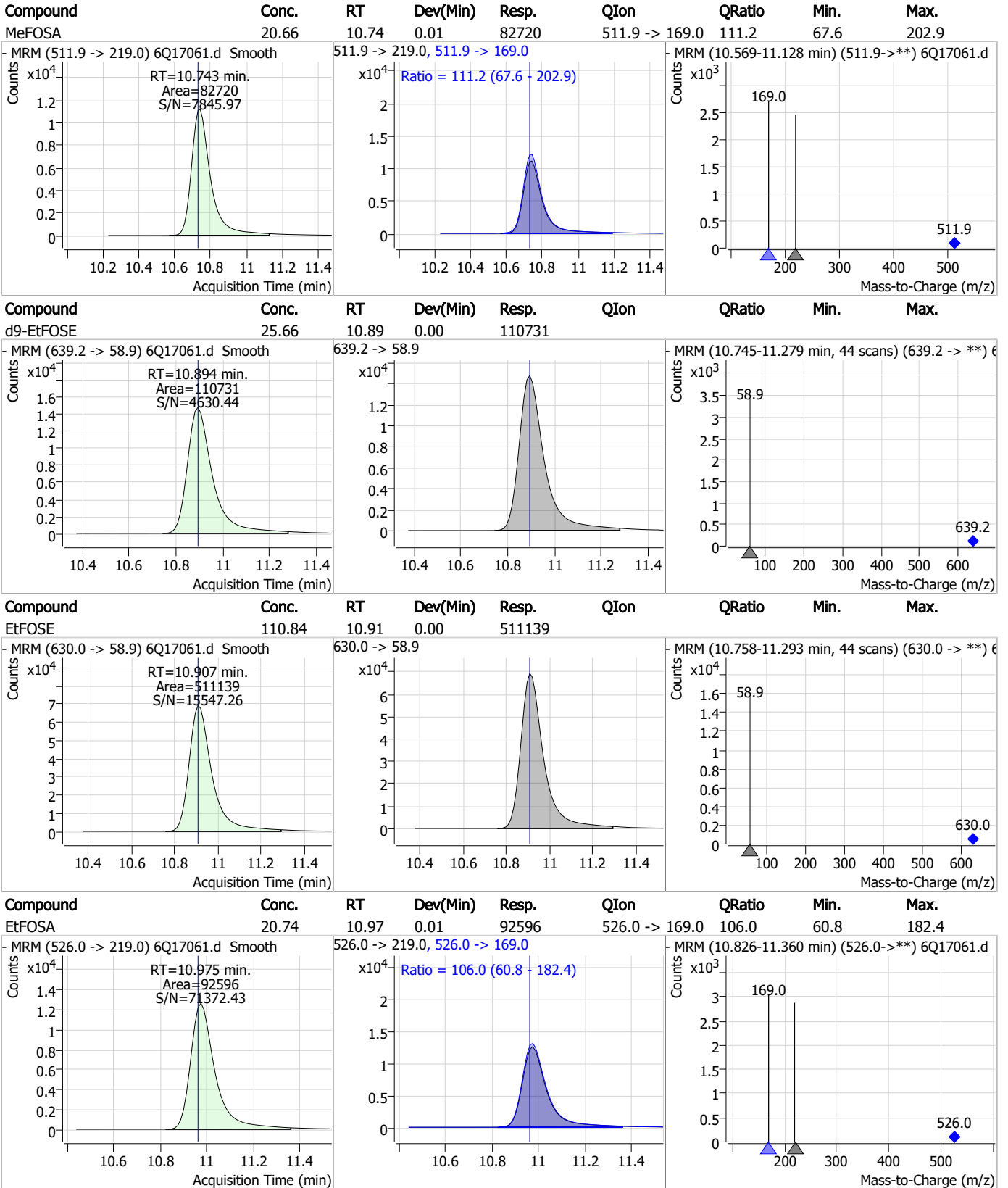


7.7.11

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Perfluorinated Compounds by LC/MS/MS

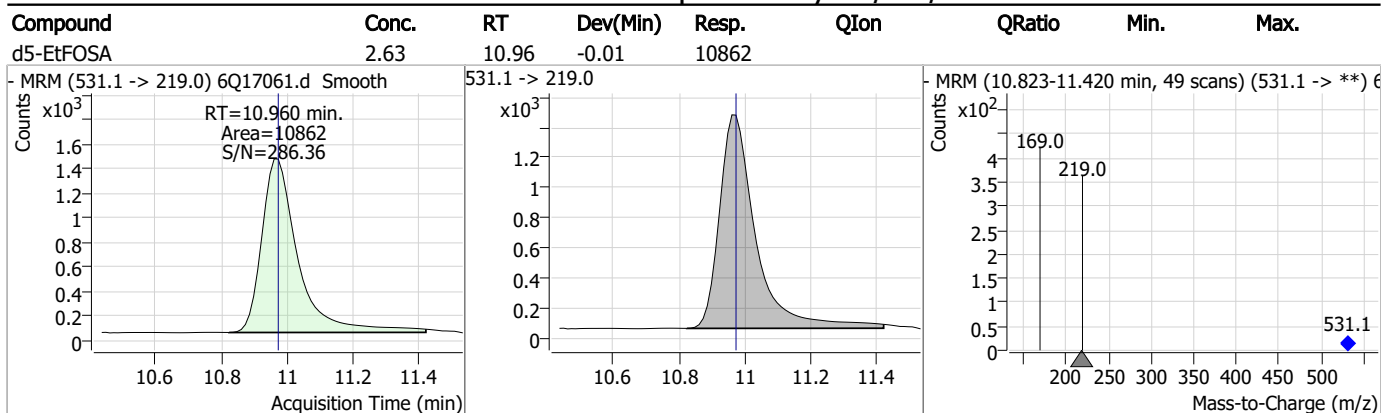


7.7.11

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Perfluorinated Compounds by LC/MS/MS



7.7.11
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Manual Integration Approval Summary

Sample Number: S6Q258-ICV258 Method: EPA DRAFT 1633
Lab FileID: 6Q17061.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:15 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.11.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17062.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:29:40 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	181420	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65106	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69105	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	59484	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84575	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26774	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19499	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25842	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24317	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17014	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24345	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22622	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12907	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10978	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2252	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2906	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2788	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	23297	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40159	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19710	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	95842	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116150	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11352	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8779	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13931	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	77978	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9573	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	84169	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24027	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27824	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58925	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.144	329.1 -> 80.9	2252	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2906	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2788	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24317	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17014	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22622	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12907	2.53 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFBA	2.910	216.8 -> 171.9	181420	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.431	367.1 -> 322.0	59484	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69105	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C5-PFPeA	4.270	268.3 -> 223.0	65106	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.076	519.1 -> 474.1	19499	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25842	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.611	506.1 -> 77.8	24345	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-PFOA	7.074	421.1 -> 376.0	84575	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C8-PFOS	8.239	507.1 -> 79.9	10978	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C9-PFNA	7.594	472.1 -> 427.0	26774	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23297	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40159	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	8779	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19710	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	95842	26.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	116150	26.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	11352	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32458	9.53 µg/L	98
		327.1 -> 80.9	12424		
6:2FTS	6.839	427.1 -> 407.0	28850	9.03 µg/L	97
		427.1 -> 80.9	9807		
8:2FTS	7.865	527.1 -> 507.0	16724	10.08 µg/L	99
		527.1 -> 80.8	6661		
EtFOSAA	8.343	584.2 -> 419.1	7962	2.38 µg/L	98
		584.2 -> 526.0	4308		
FOSA	9.614	498.1 -> 77.9	21556	2.47 µg/L	99
		498.1 -> 478.0	687		
MeFOSAA	8.136	570.1 -> 419.0	10629	2.43 µg/L	88
		570.1 -> 483.0	2095		
PFBA	2.906	212.8 -> 168.9	62139	10.21 µg/L	100
PFBS	5.400	298.7 -> 79.9	22846	2.25 µg/L	96
		298.7 -> 98.8	8811		
PFDA	8.077	512.9 -> 469.0	53642	2.53 µg/L	95
		512.9 -> 219.0	10089		
PFDODA	8.961	613.1 -> 569.0	46832	2.46 µg/L	100
		613.1 -> 319.0	6785		
PFDS	9.125	599.0 -> 79.9	9074	2.59 µg/L	95

7.7.12
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4209	2.50	µg/L	96
		363.1 -> 319.0	73275			
PFHpS	7.734	363.1 -> 169.0	11962	2.40	µg/L	96
		449.0 -> 79.9	14293			
PFHxA	5.470	449.0 -> 98.9	7685	2.48	µg/L	100
		313.0 -> 269.0	67714			
PFHxS	7.180	313.0 -> 118.9	3166	2.24	µg/L	m
		398.7 -> 79.9	15756			
PFNA	7.595	398.7 -> 98.9	7540	2.57	µg/L	97
		463.0 -> 419.0	47606			
PFNS	8.706	463.0 -> 219.0	9281	2.41	µg/L	95
		548.8 -> 79.9	12765			
PFOA	7.076	548.8 -> 98.9	6603	2.42	µg/L	98
		413.0 -> 369.0	96282			
PFOS	8.228	413.0 -> 169.0	17850	2.53	µg/L	m
		498.9 -> 79.9	13425			
PFPeA	4.273	498.9 -> 98.8	6549	5.02	µg/L	100
		263.0 -> 219.0	89027			
PFPeS	6.484	349.1 -> 79.9	16950	2.31	µg/L	95
		349.1 -> 98.9	7655			
PFTeDA	9.690	713.1 -> 669.0	45092	2.62	µg/L	99
		713.1 -> 168.9	3275			
PFTrDA	9.345	663.0 -> 619.0	51482	2.44	µg/L	99
		663.0 -> 168.9	4930			
PFUnDA	8.531	563.1 -> 519.0	46591	2.60	µg/L	99
		563.1 -> 269.1	7949			
11CI-PF3OUdS	9.398	630.9 -> 450.9	65621	4.76	µg/L	99
		632.9 -> 452.9	20651			
9CI-PF3ONS	8.569	530.8 -> 351.0	106444	4.88	µg/L	96
		532.8 -> 353.0	33733			
ADONA	6.681	376.9 -> 250.9	288930	4.76	µg/L	98
		376.9 -> 84.8	77598			
HFPO-DA	5.846	284.9 -> 168.9	19080	5.02	µg/L	97
		284.9 -> 184.9	2448			
3:3FTCA	3.784	241.0 -> 177.0	13350	12.04	µg/L	99
		241.0 -> 117.0	1728			
5:3FTCA	6.160	341.0 -> 237.1	295070	66.73	µg/L	97
		341.0 -> 217.0	203720			
7:3FTCA	7.573	441.0 -> 316.9	125676	62.56	µg/L	94
		441.0 -> 336.9	283882			
EtFOSA	10.962	526.0 -> 219.0	23848	5.11	µg/L	99
		526.0 -> 169.0	29306			
EtFOSE	10.907	630.0 -> 58.9	63742	13.18	µg/L	100
		511.9 -> 219.0	21142			
MeFOSA	10.730	511.9 -> 169.0	28476	5.35	µg/L	m
		616.1 -> 58.9	54831			
MeFOSE	10.661	699.1 -> 79.9	4581	12.83	µg/L	100
		699.1 -> 98.8	2728			
PFDoDS	9.817	295.0 -> 201.0	14684	2.53	µg/L	97
		295.0 -> 84.9	3681			
NFDHA	5.350	279.0 -> 85.1	58866	4.95	µg/L	100
		229.0 -> 84.9	43455			
PFMBA	3.438	314.8 -> 134.9	160806	4.90	µg/L	100
		314.8 -> 82.9	5301			
PFEESA	5.949			4.66	µg/L	99

= Qualifier out of range, m = manually integrated, + = Area summed



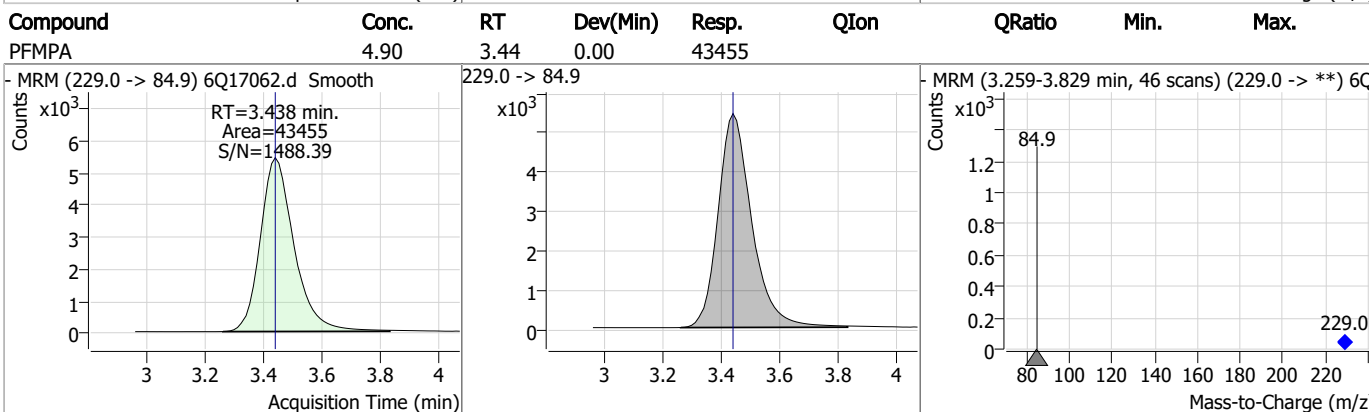
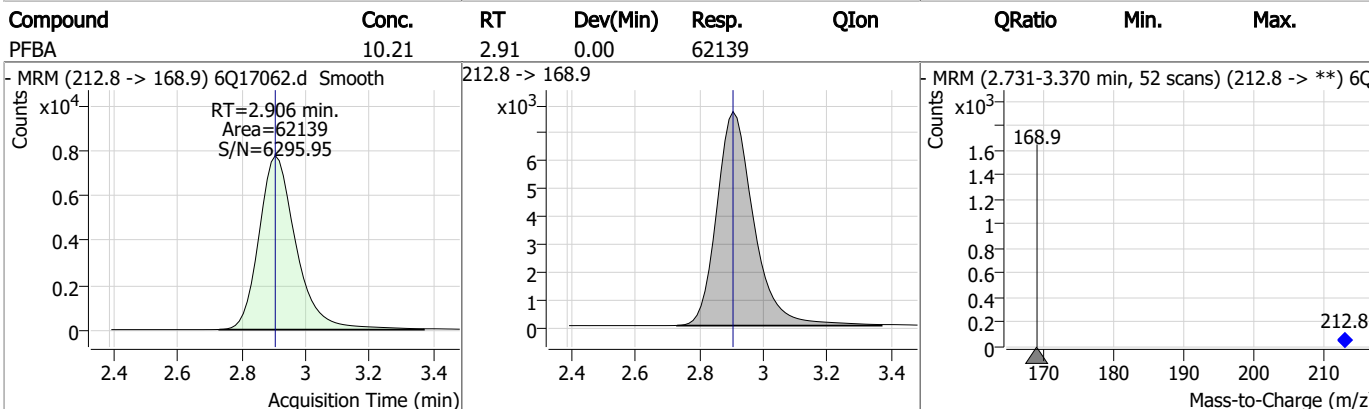
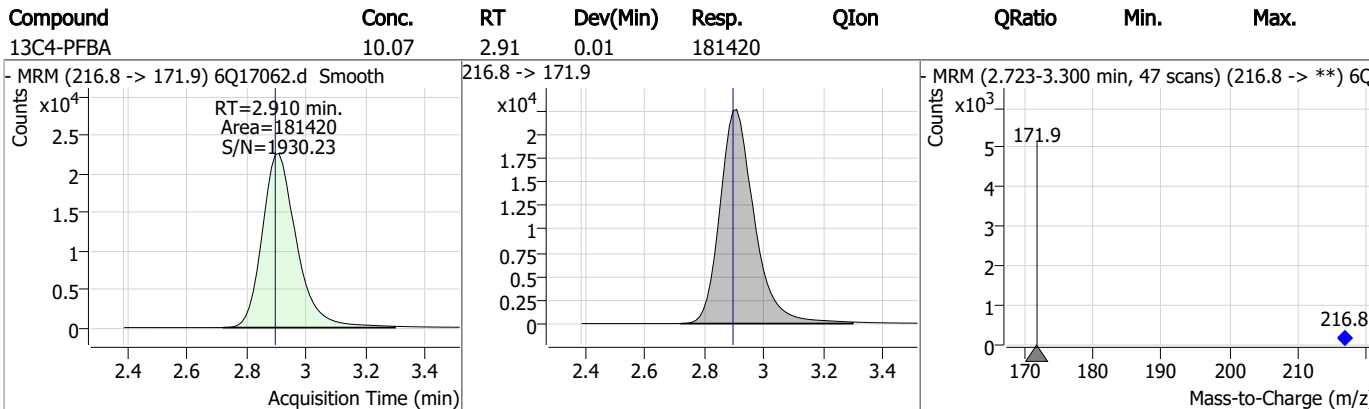
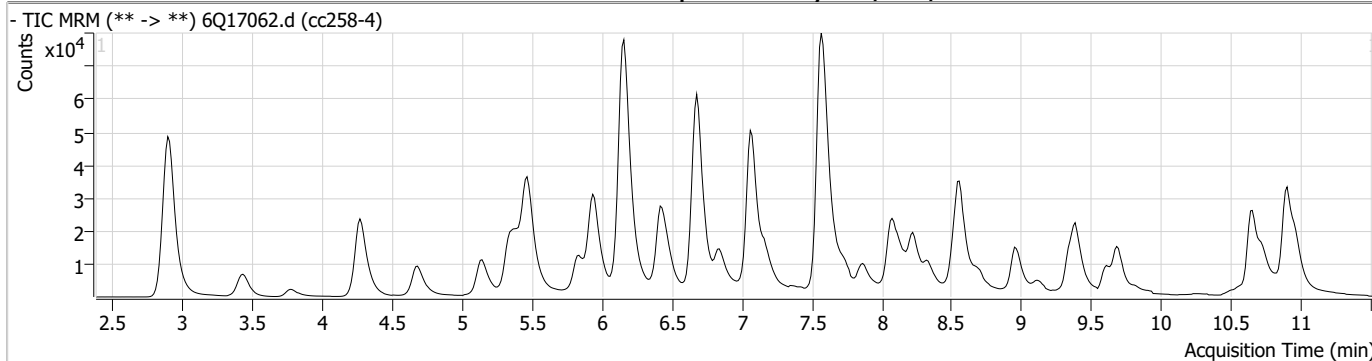
7.7.12
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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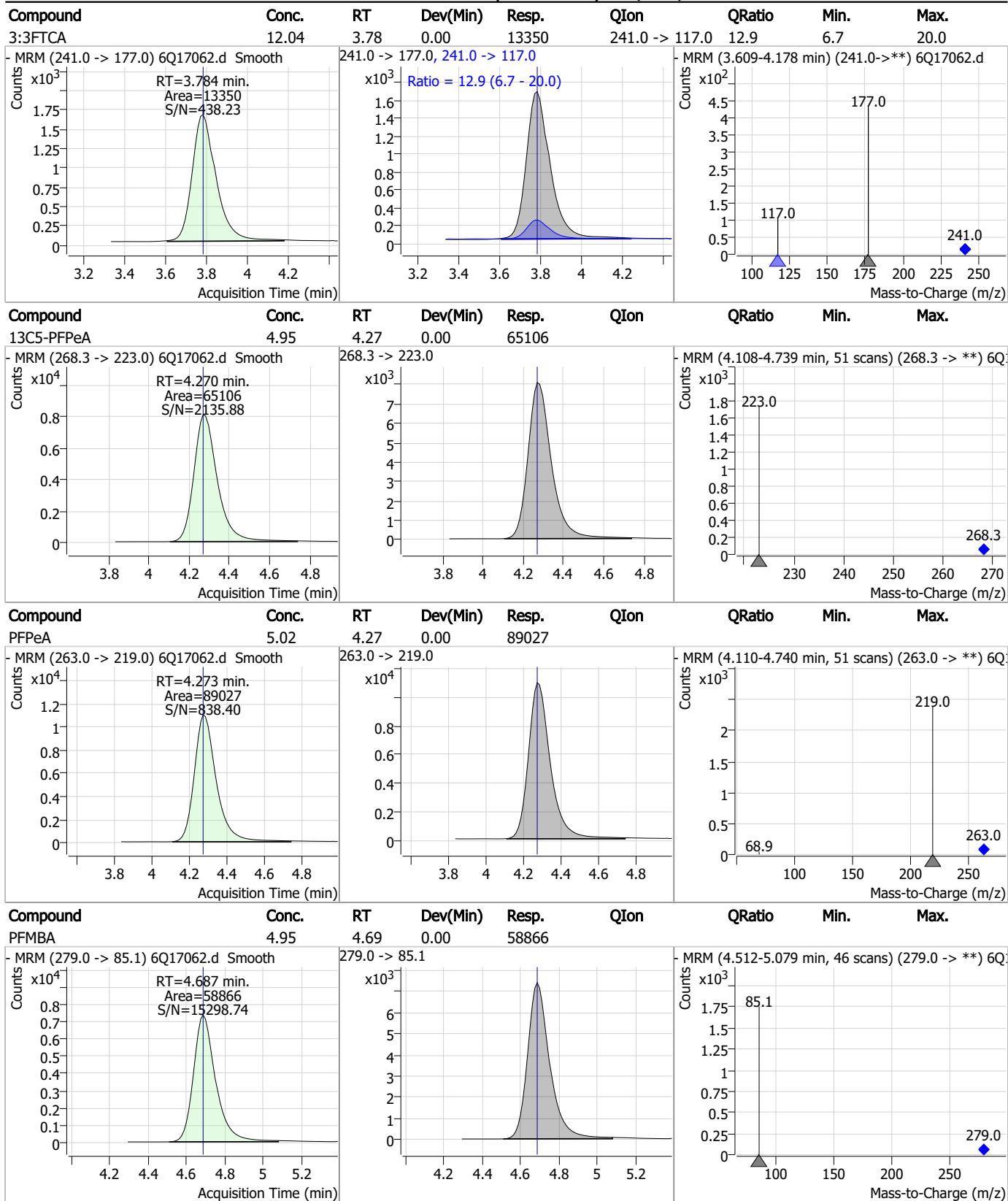
7.7.12
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Perfluorinated Compounds by LC/MS/MS



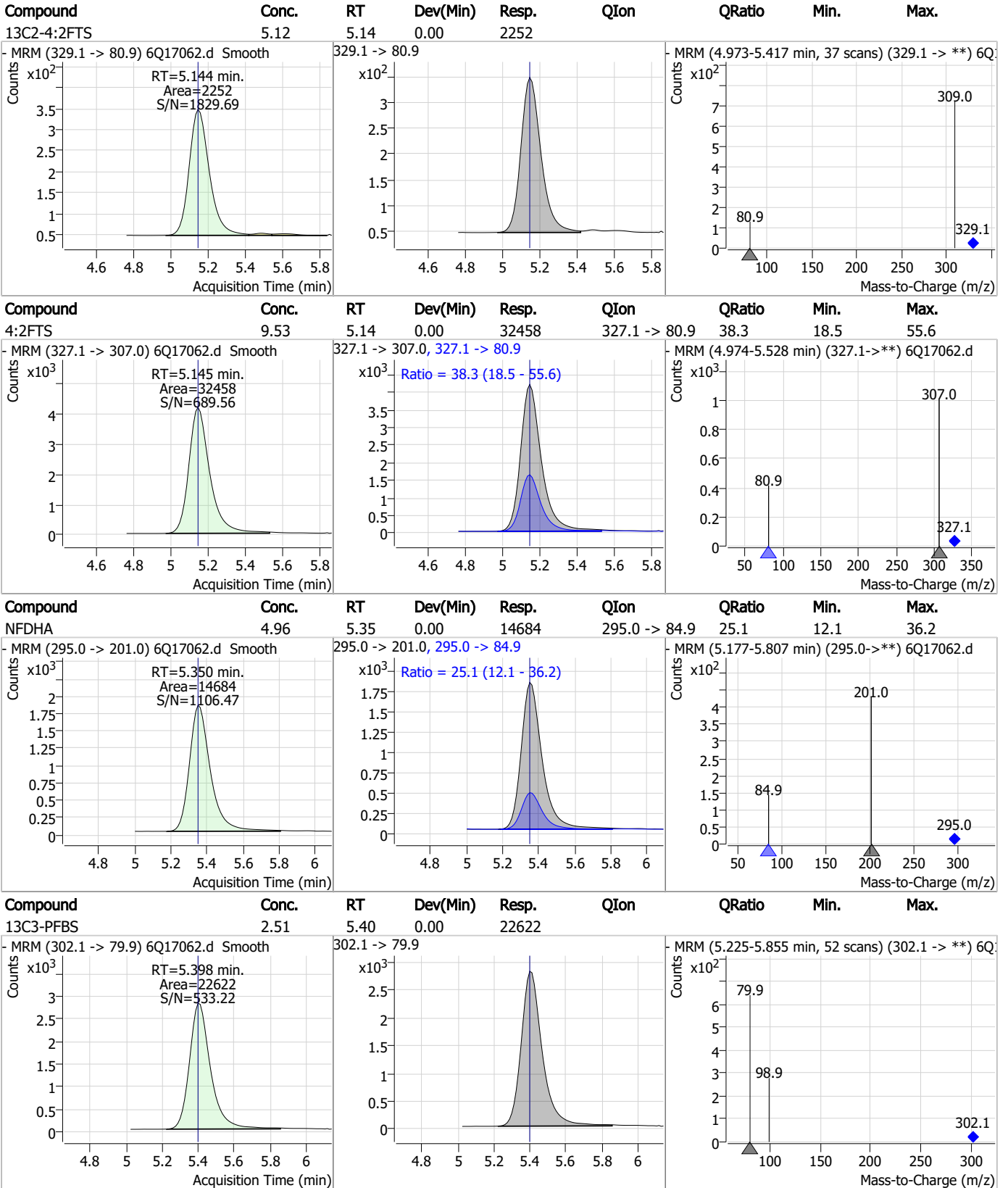
7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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Perfluorinated Compounds by LC/MS/MS

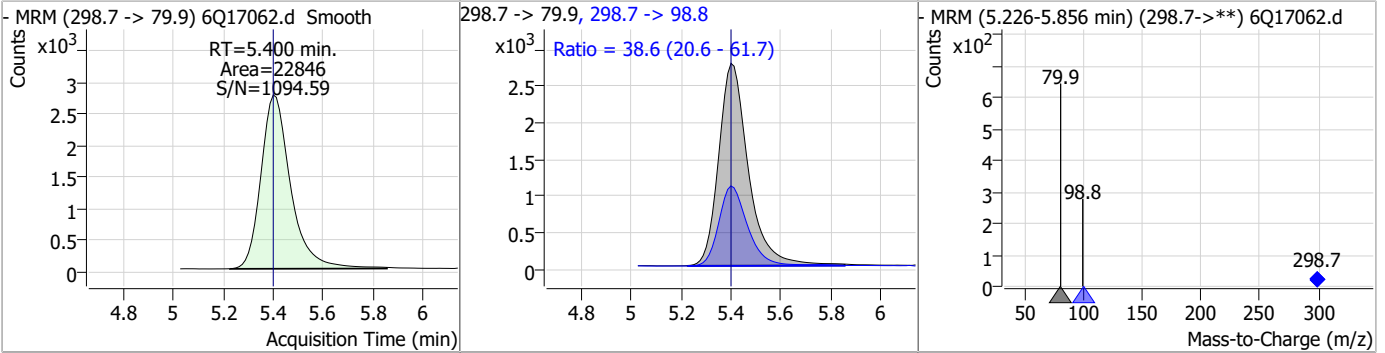


7.7.12 7

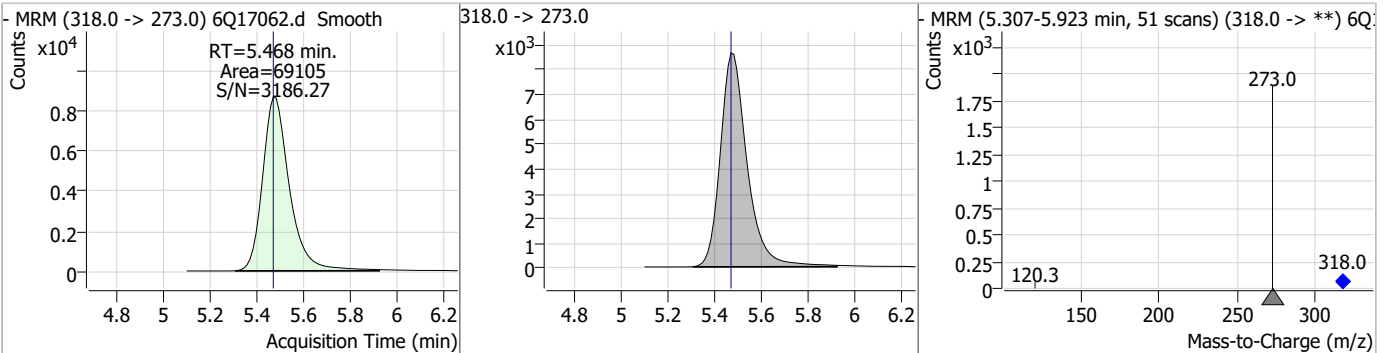


Perfluorinated Compounds by LC/MS/MS

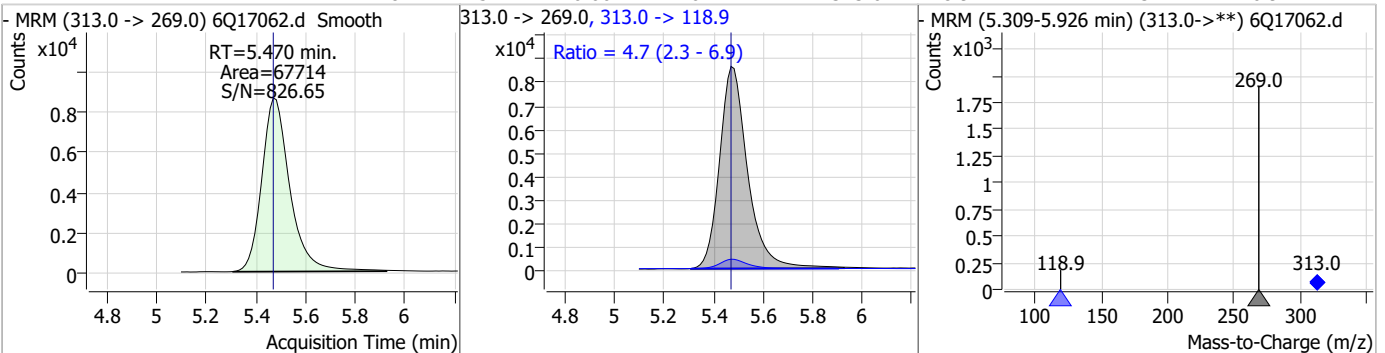
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.40	0.00	22846	298.7 -> 98.8	38.6	20.6	61.7



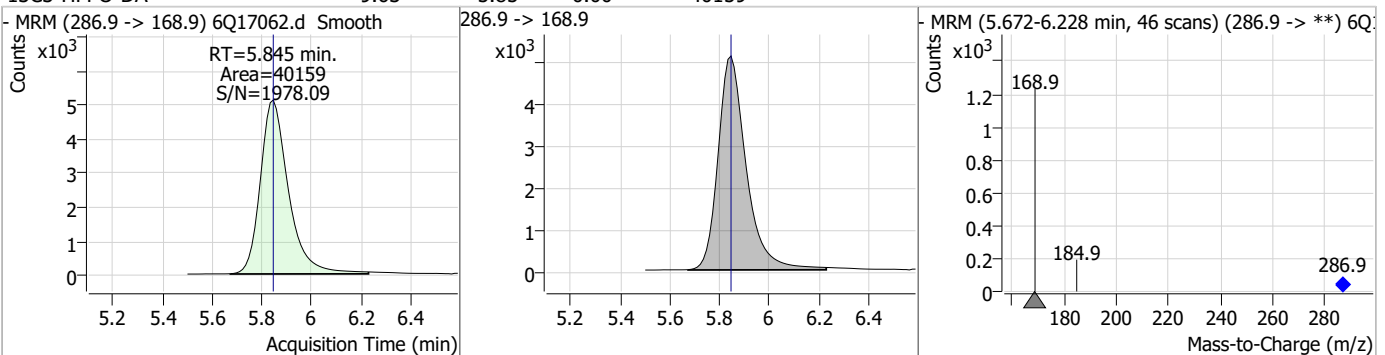
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.43	5.47	0.00	69105				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.48	5.47	0.00	67714	313.0 -> 118.9	4.7	2.3	6.9

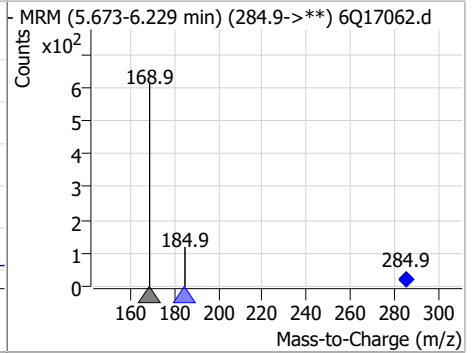
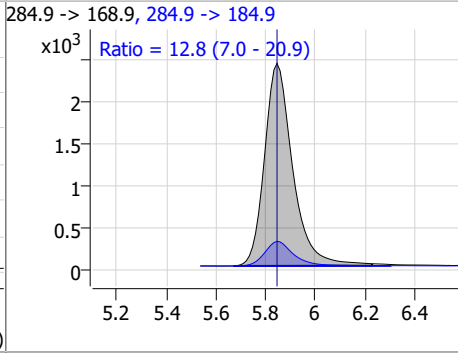
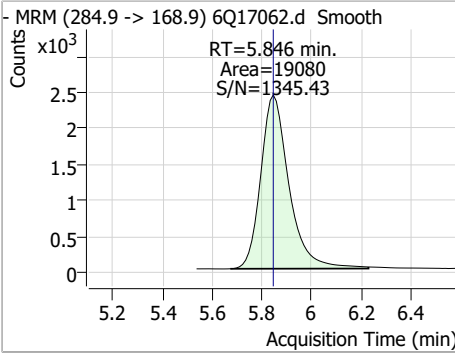


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	40159				

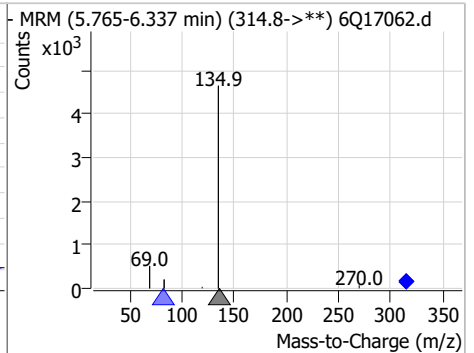
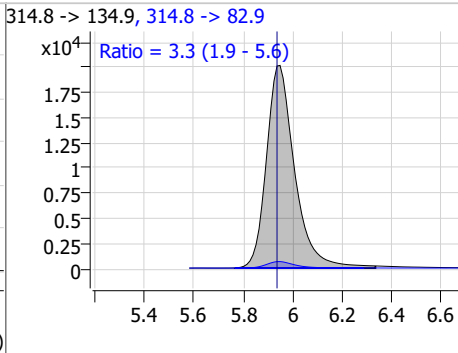
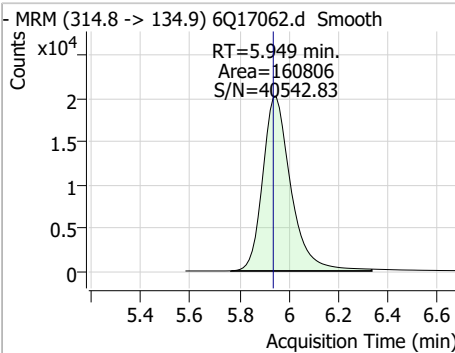


Perfluorinated Compounds by LC/MS/MS

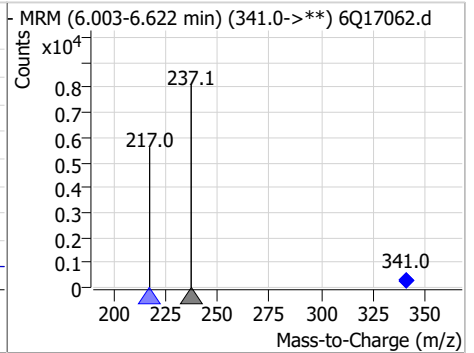
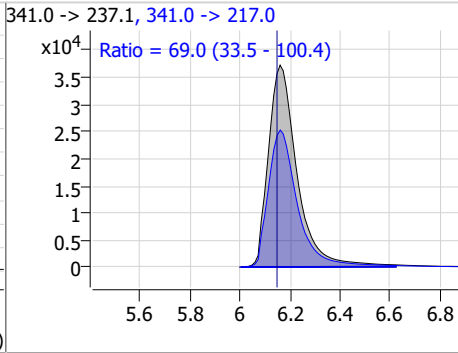
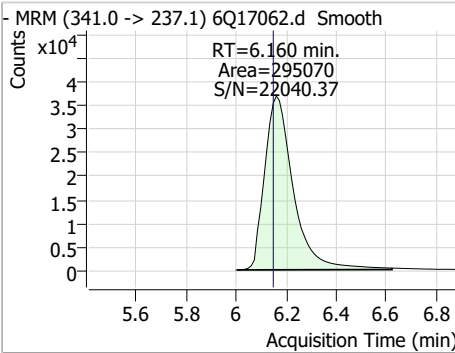
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.02	5.85	0.00	19080	284.9 -> 184.9	12.8	7.0	20.9



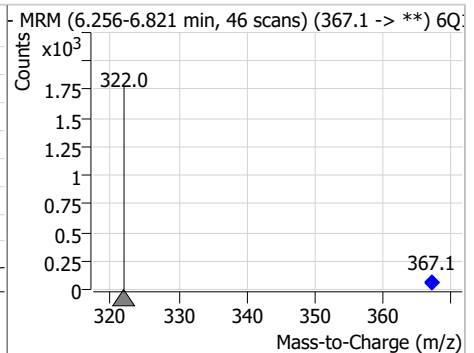
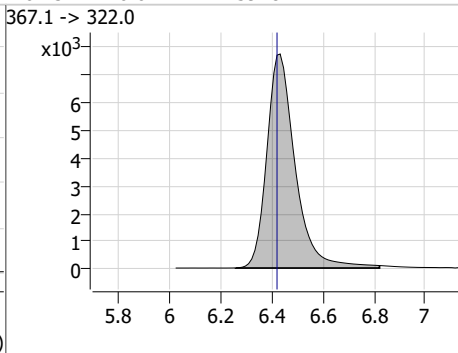
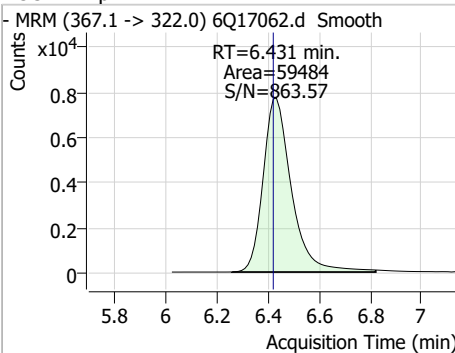
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.66	5.95	0.01	160806	314.8 -> 82.9	3.3	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.73	6.16	0.01	295070	341.0 -> 217.0	69.0	33.5	100.4

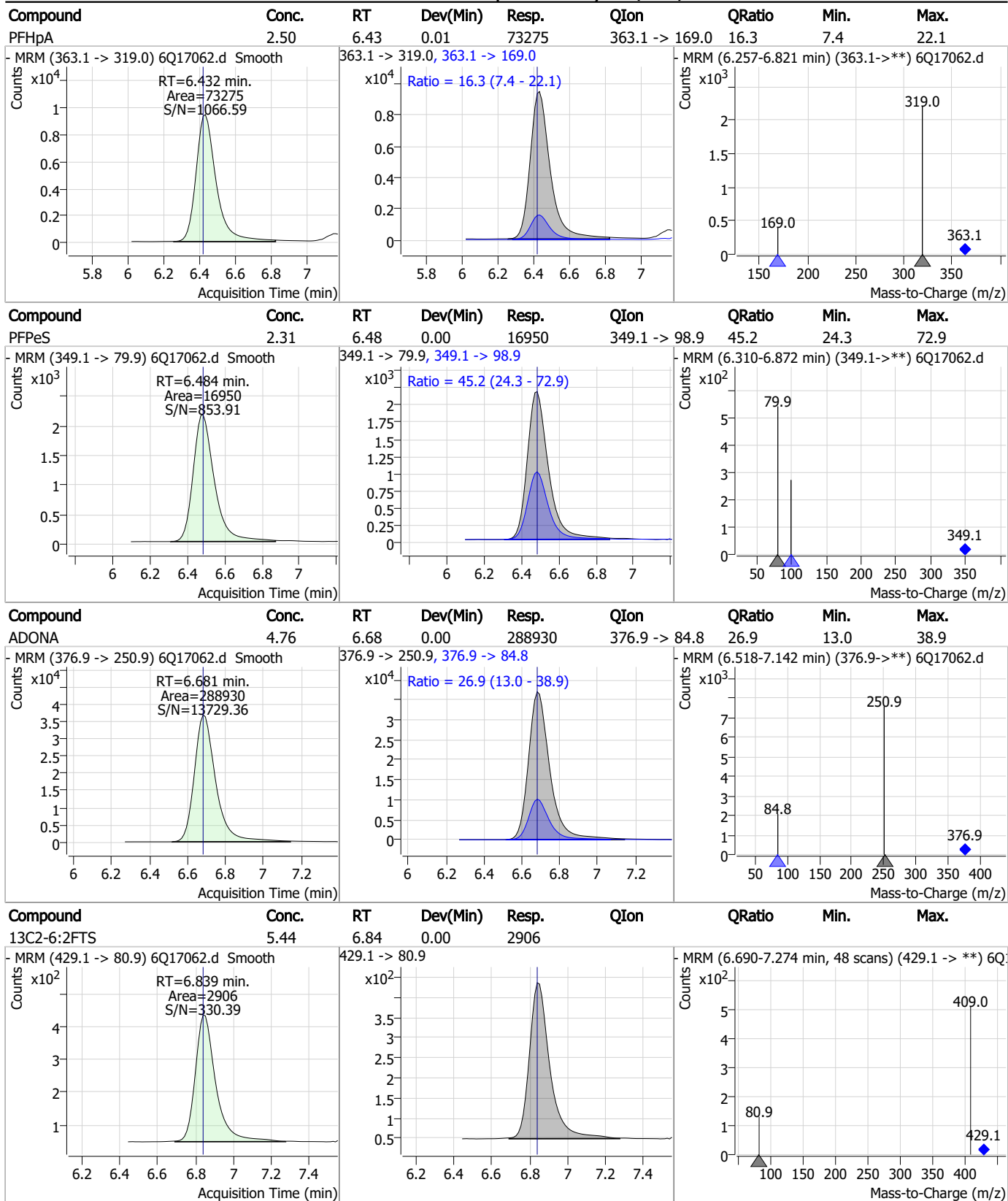


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.43	0.01	59484	367.1 -> 322.0			



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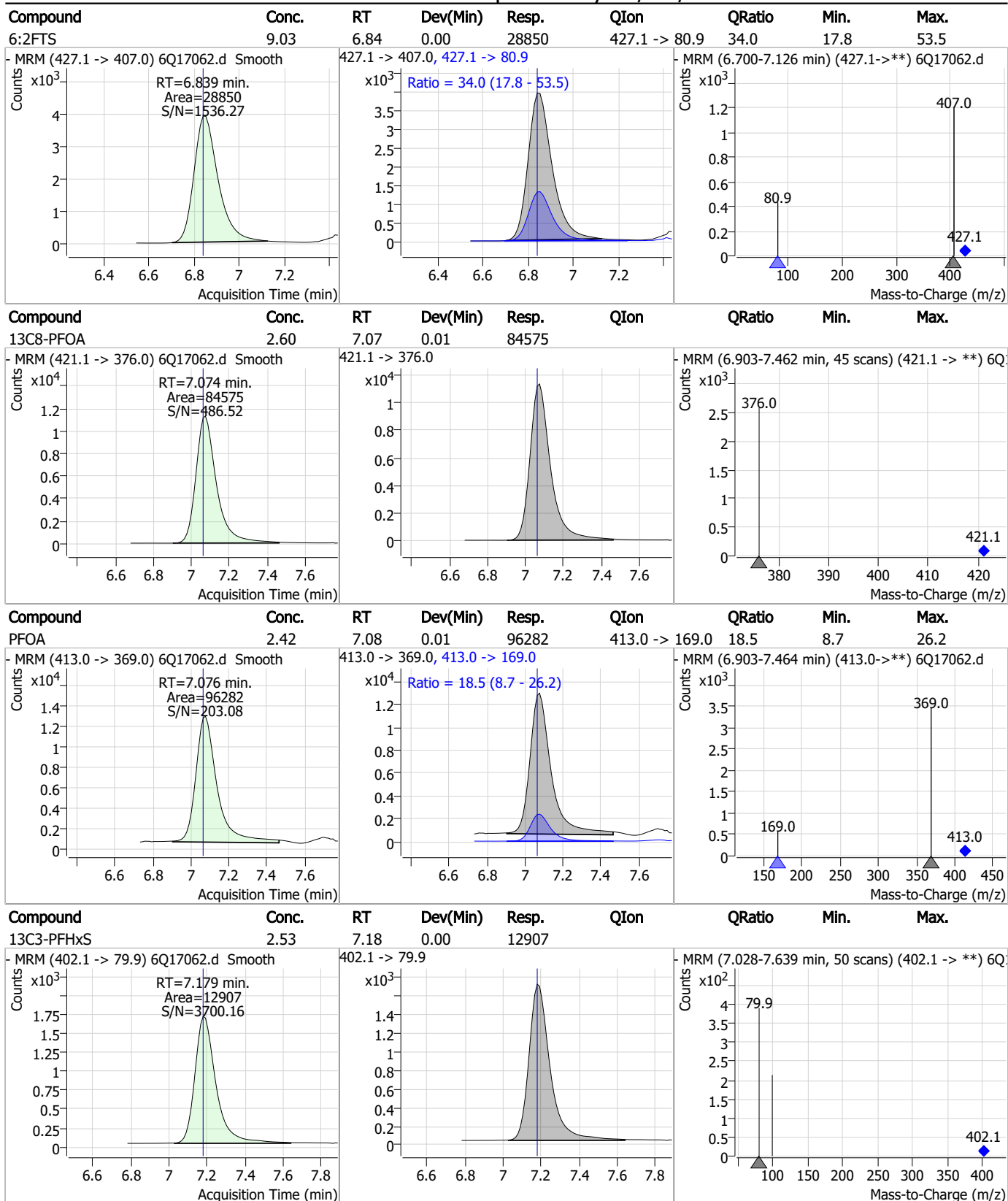
Perfluorinated Compounds by LC/MS/MS



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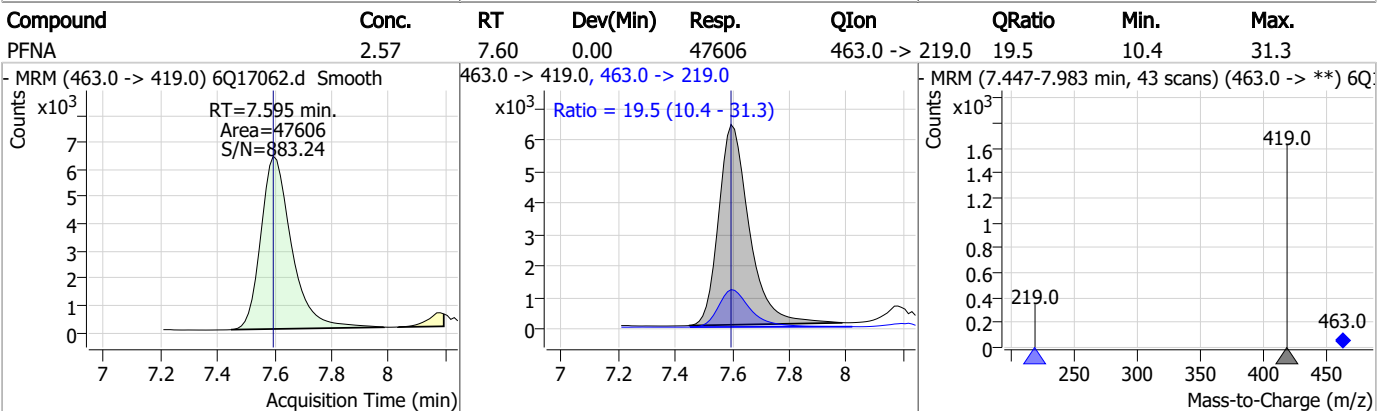
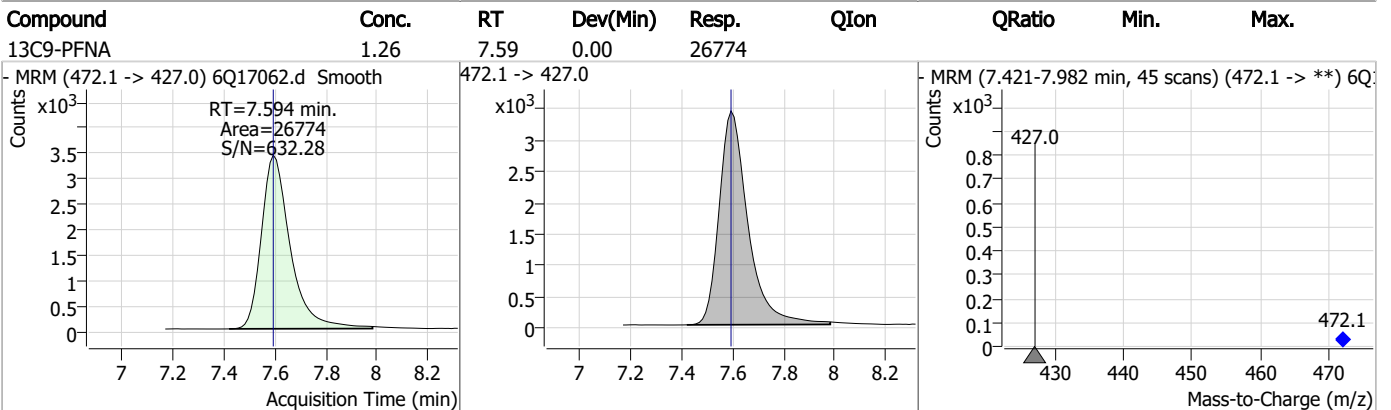
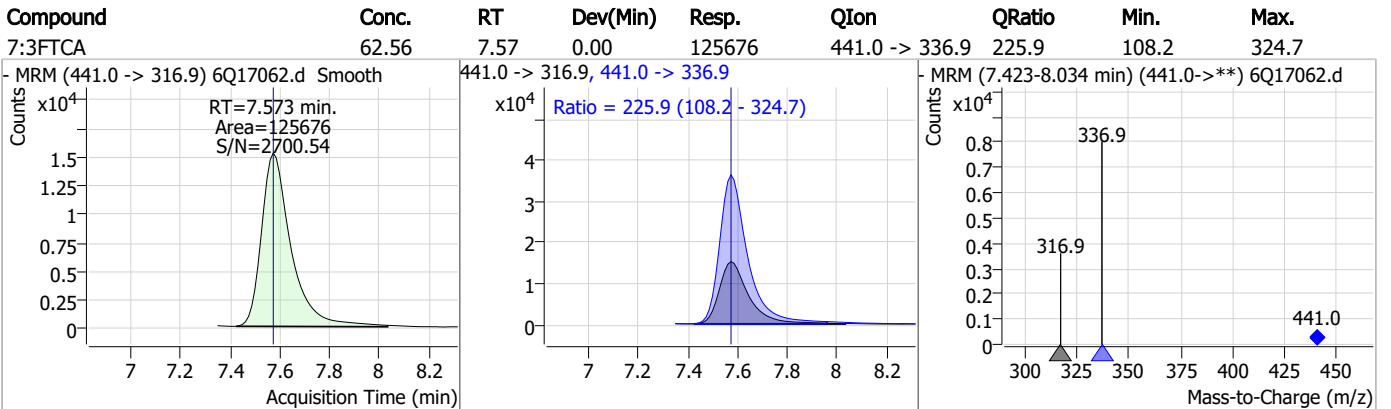
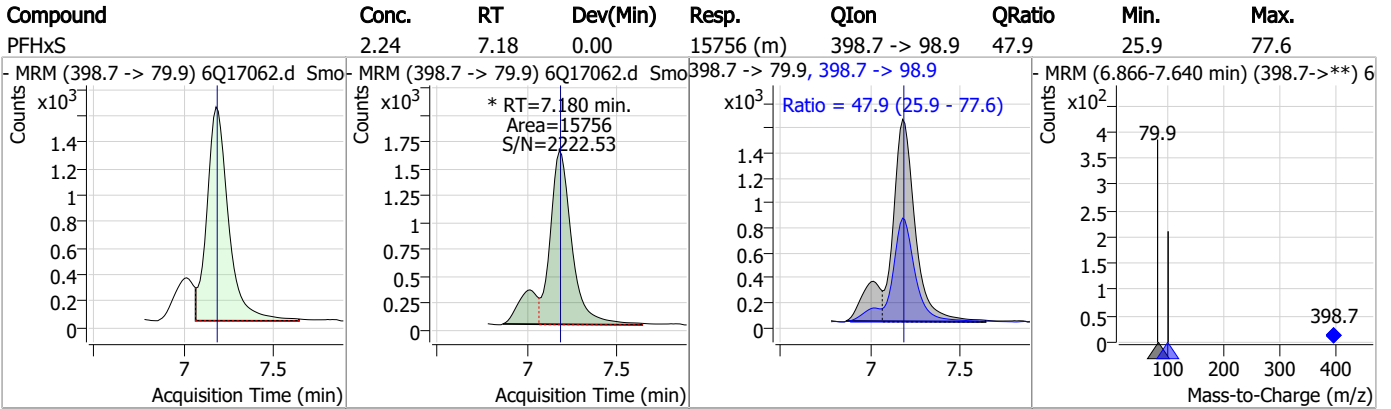
Perfluorinated Compounds by LC/MS/MS



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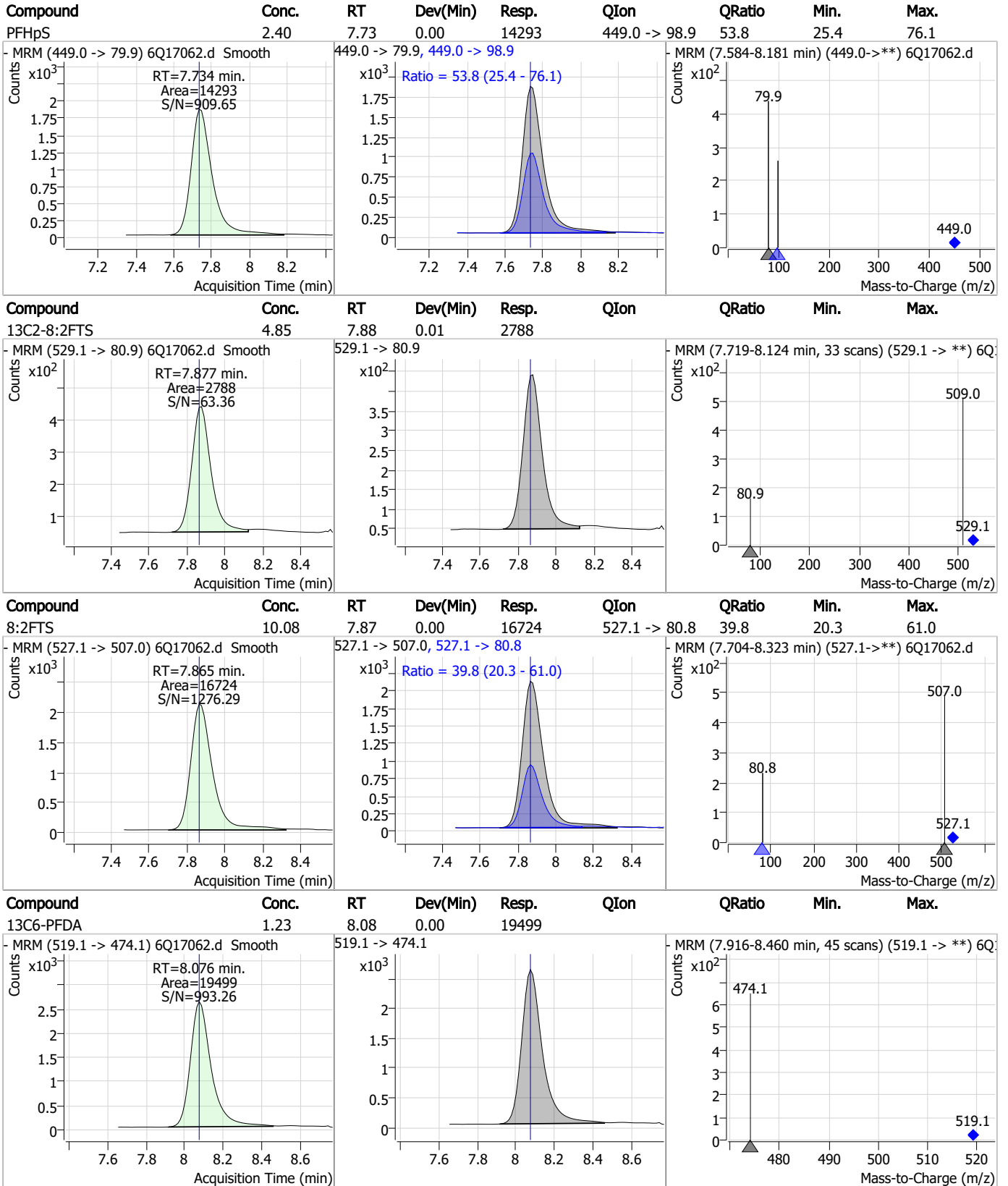
Perfluorinated Compounds by LC/MS/MS



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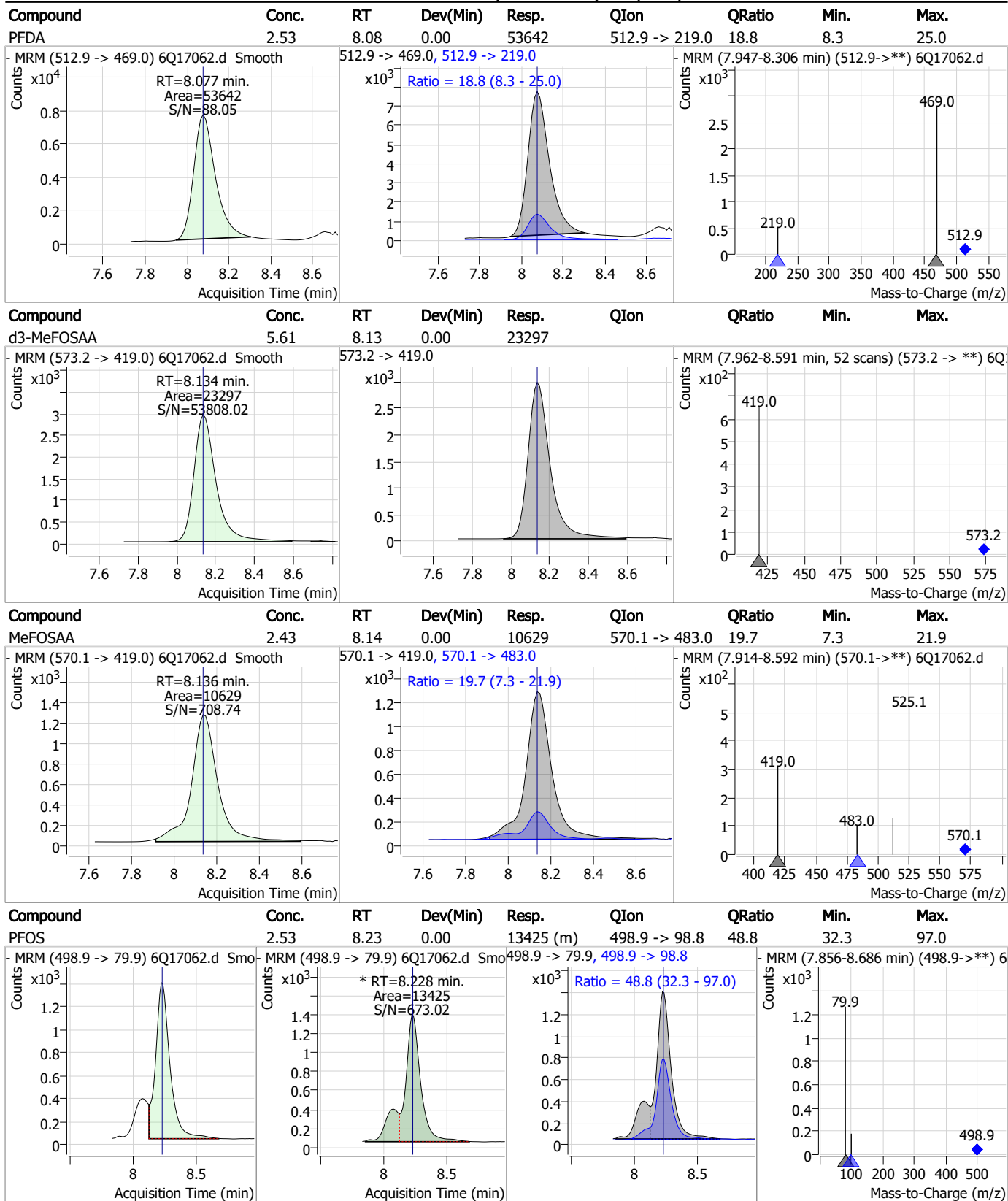
Perfluorinated Compounds by LC/MS/MS



7.7.12

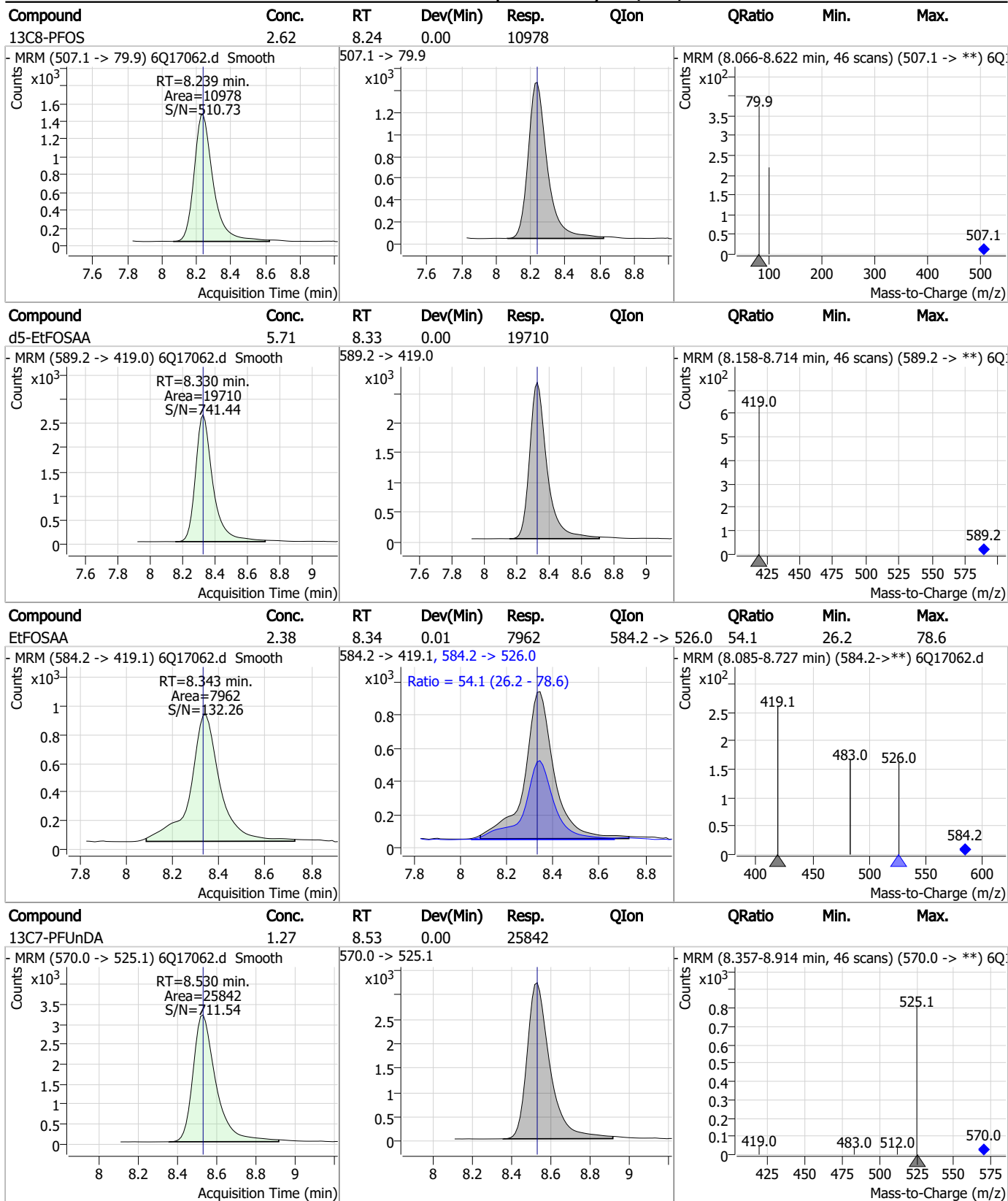


Perfluorinated Compounds by LC/MS/MS



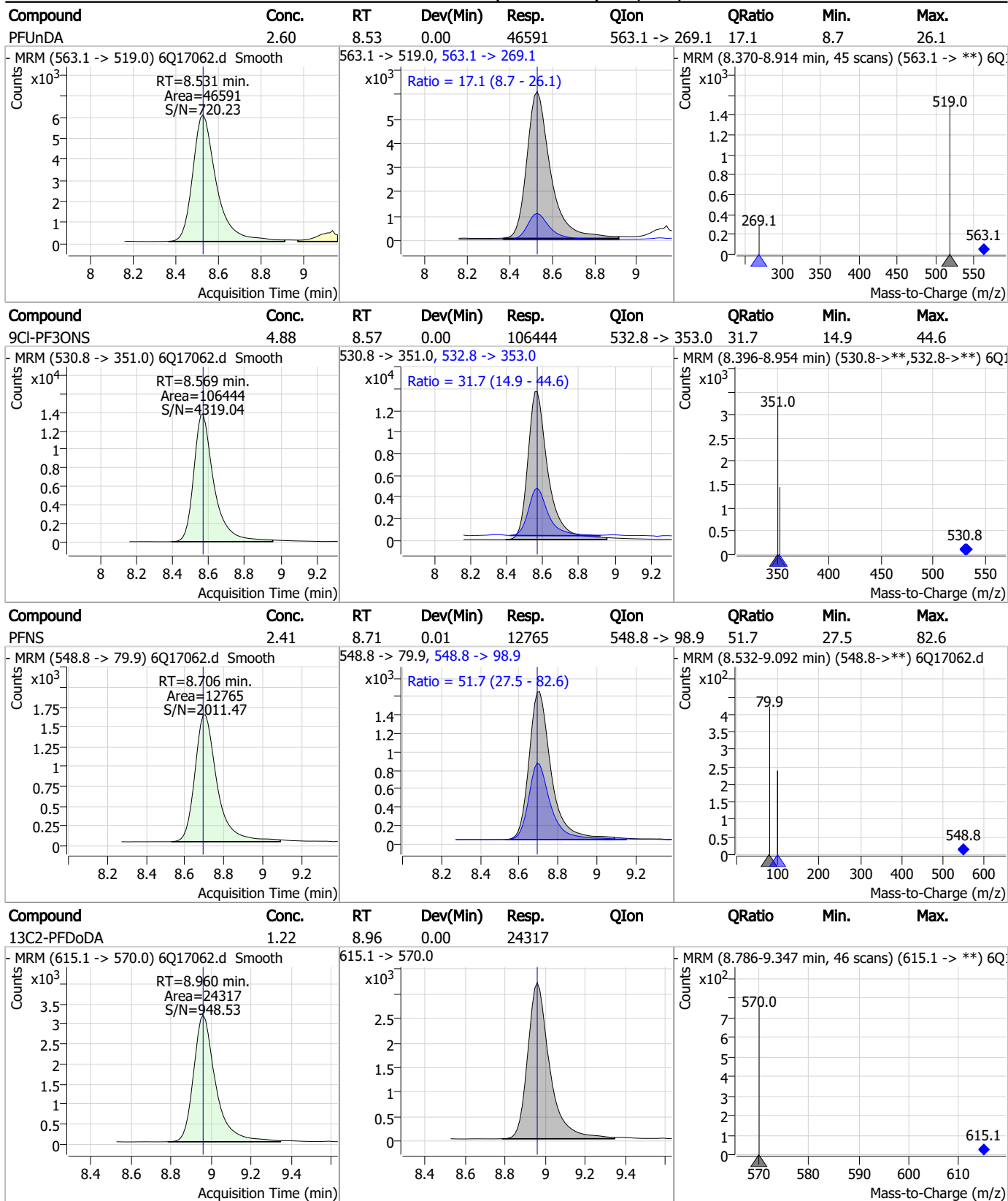
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Perfluorinated Compounds by LC/MS/MS



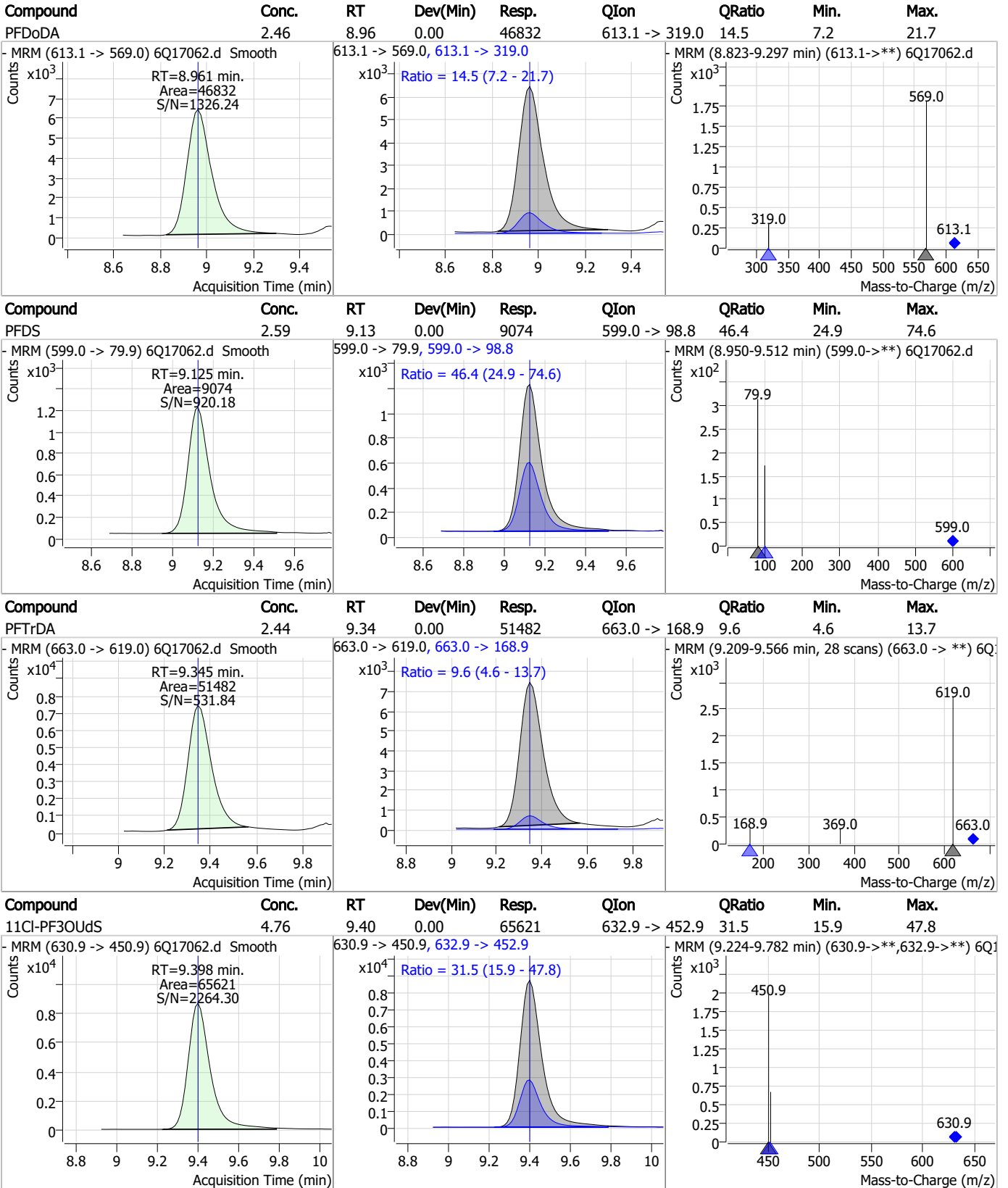
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

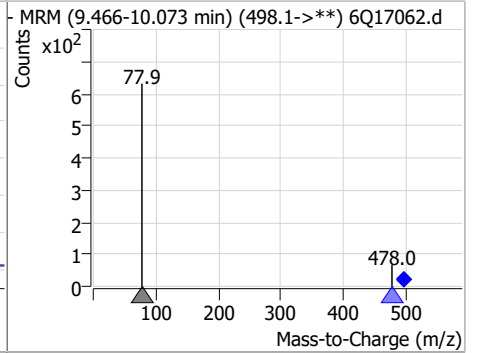
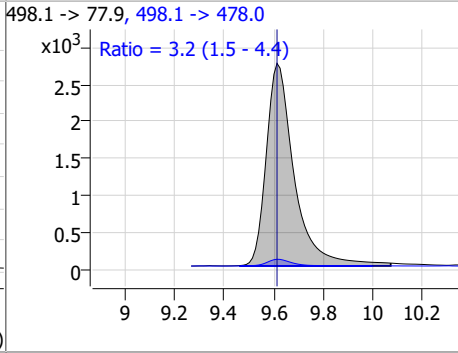
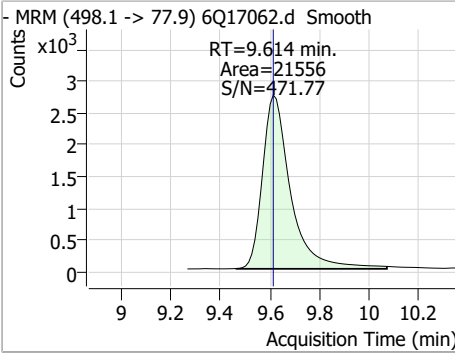


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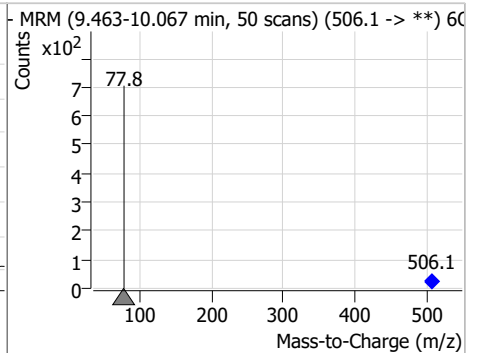
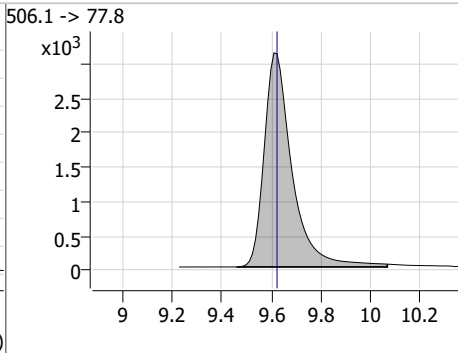
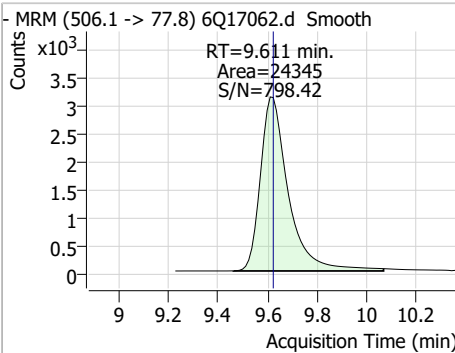


Perfluorinated Compounds by LC/MS/MS

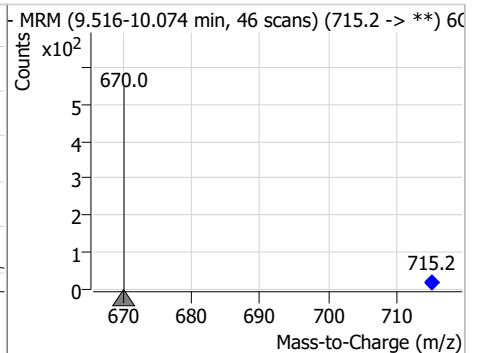
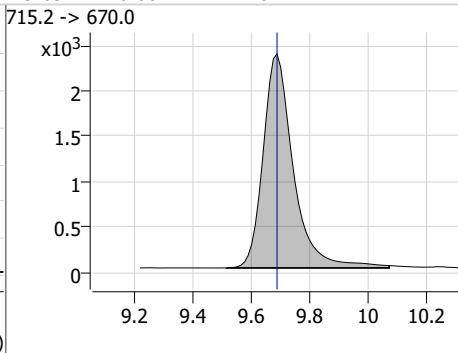
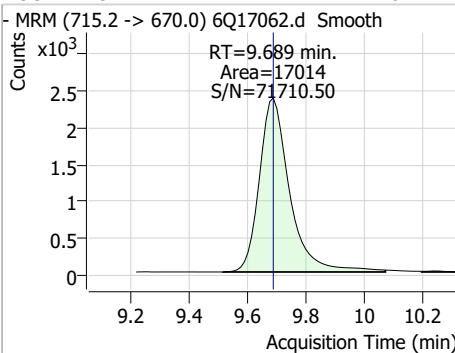
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.47	9.61	0.00	21556	498.1 -> 478.0	3.2	1.5	4.4



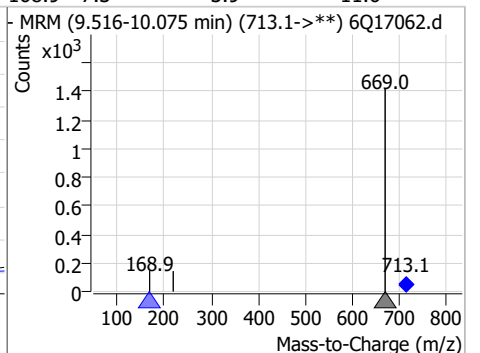
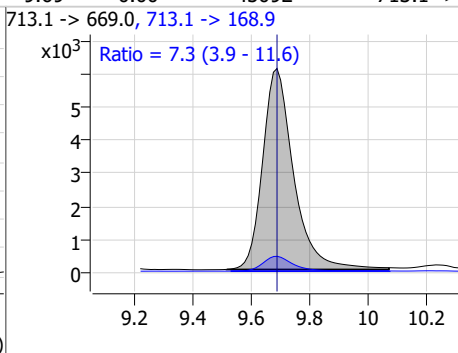
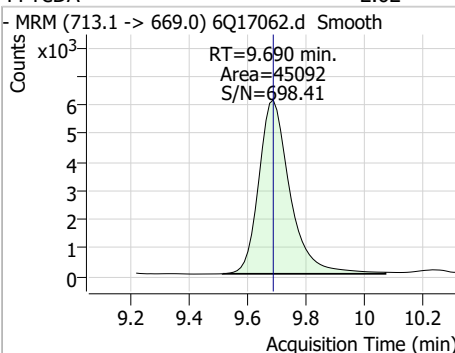
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.64	9.61	-0.01	24345				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.69	0.00	17014				

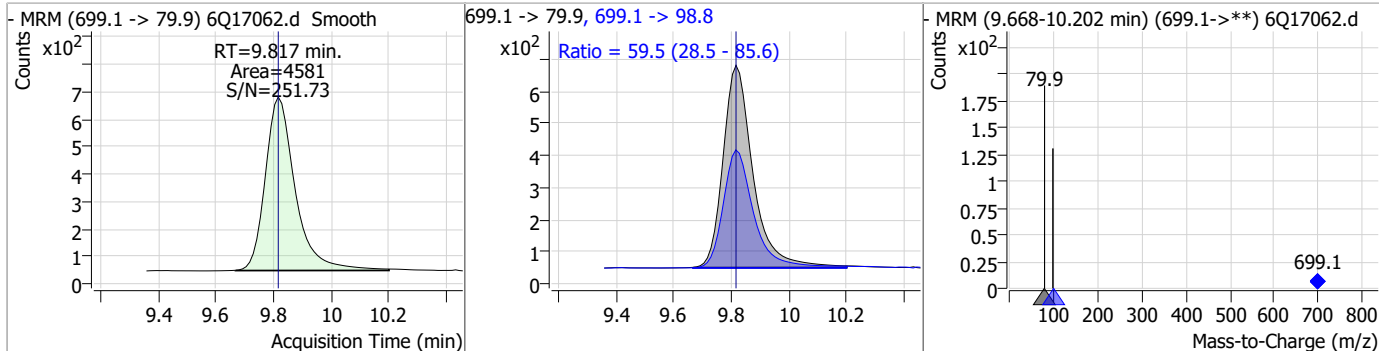


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.62	9.69	0.00	45092	713.1 -> 168.9	7.3	3.9	11.6

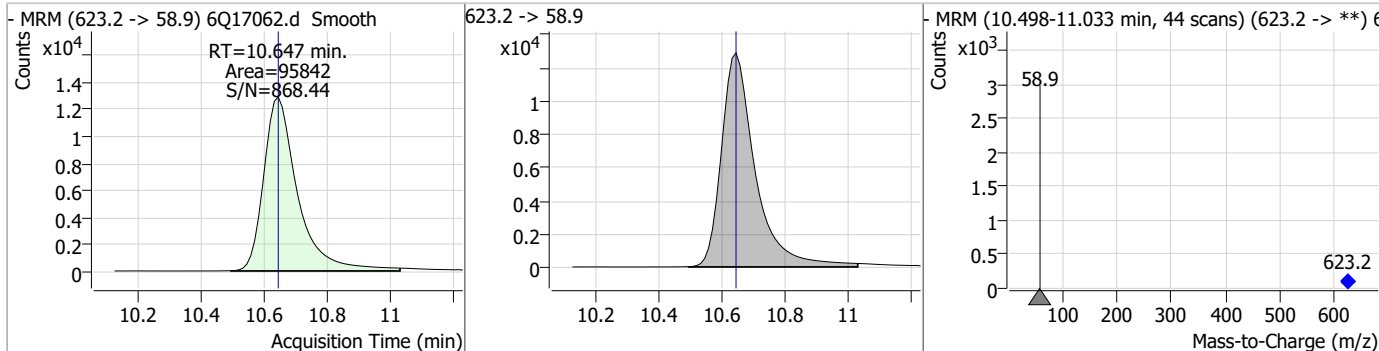


Perfluorinated Compounds by LC/MS/MS

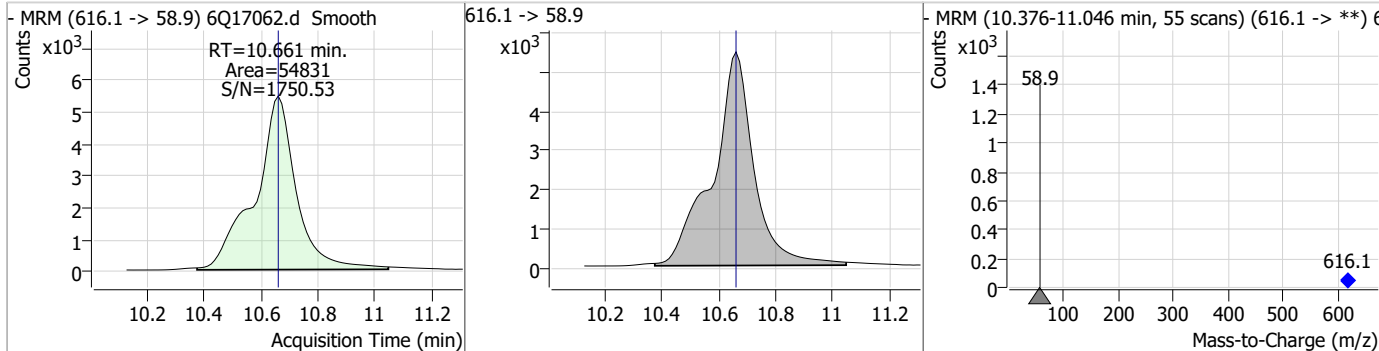
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.53	9.82	0.00	4581	699.1 -> 98.8	59.5	28.5	85.6



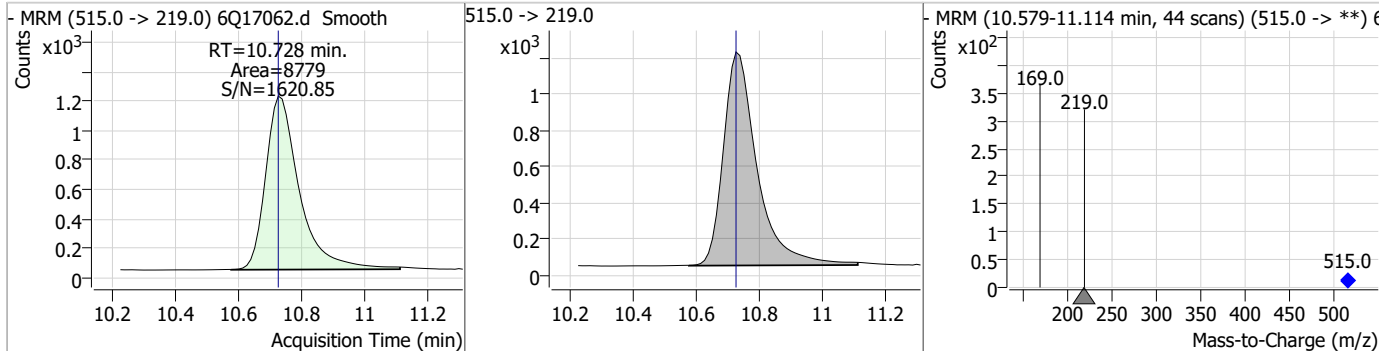
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.21	10.65	0.00	95842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.83	10.66	0.00	54831				



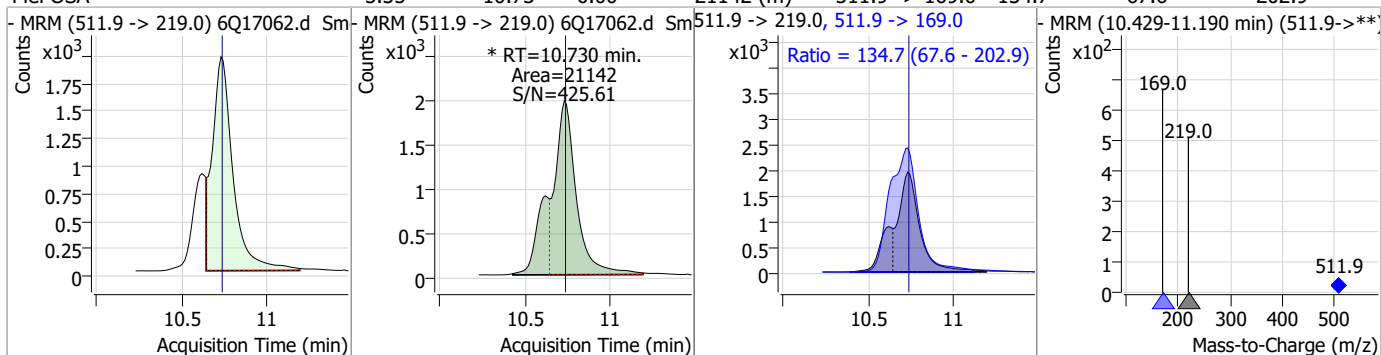
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.73	0.00	8779				



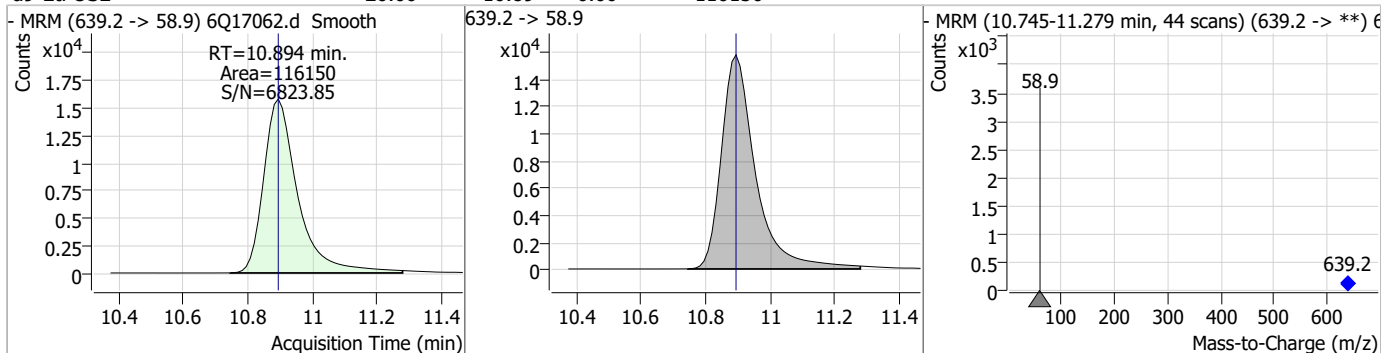
7.7.12
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Perfluorinated Compounds by LC/MS/MS

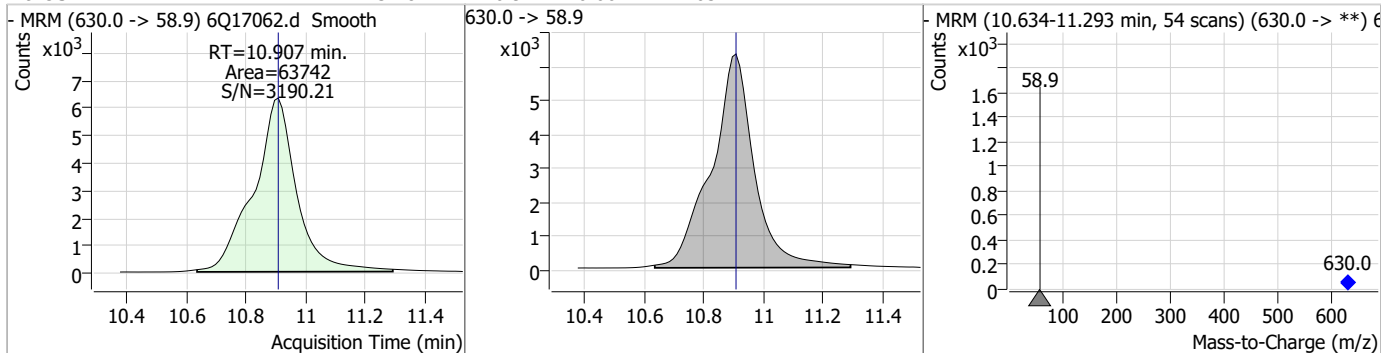
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	5.35	10.73	0.00	21142 (m)	511.9 -> 169.0	134.7	67.6	202.9



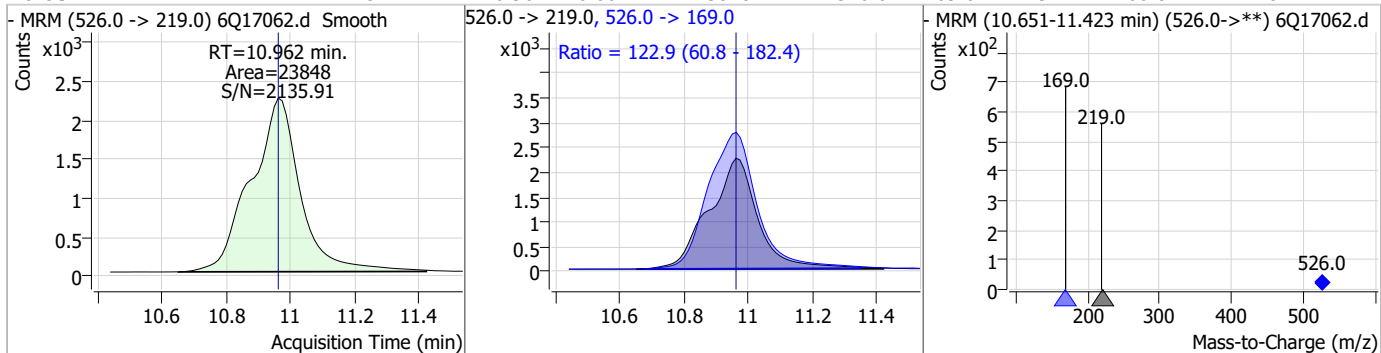
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.00	10.89	0.00	116150				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.18	10.91	0.00	63742				

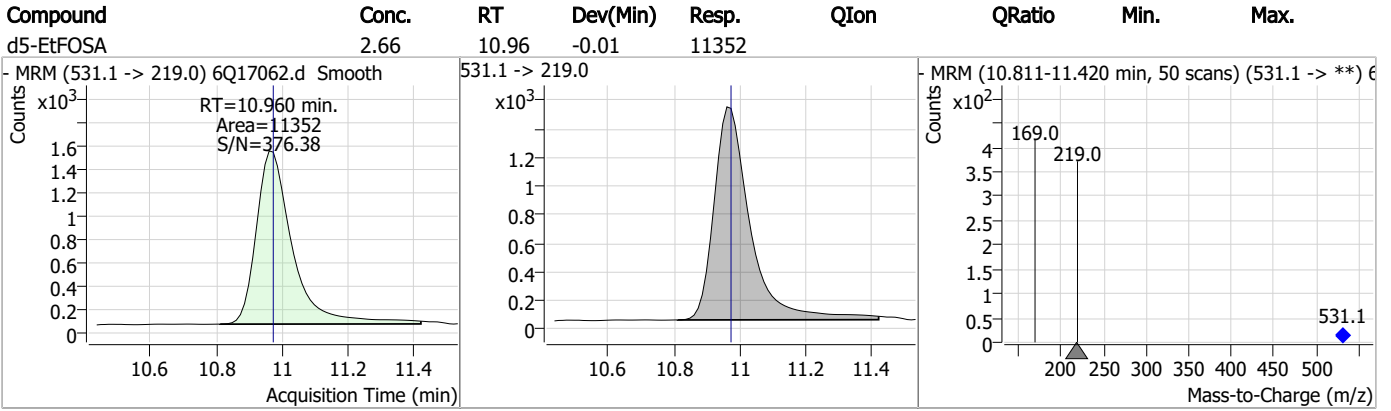


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	5.11	10.96	0.00	23848	526.0 -> 169.0	122.9	60.8	182.4



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17062.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:29 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17063.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:44:09 PM
 Sample Name : cc258-1.0LL
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186729	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66379	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	72736	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	61465	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	86437	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27990	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20983	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	28156	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26626	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16140	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25340	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22540	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13453	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11428	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2343	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2767	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	3428	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	22983	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40255	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18190	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	98093	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122740	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11298	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9322	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	15211	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80689	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9774	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	89738	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24697	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29354	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59118	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2343	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2767	5.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-8:2FTS	7.877	529.1 -> 80.9	3428	5.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26626	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16140	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C3-PFBS	5.398	302.1 -> 79.9	22540	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13453	2.59 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	2.910	216.8 -> 171.9	186729	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.431	367.1 -> 322.0	61465	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.480	318.0 -> 273.0	72736	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.270	268.3 -> 223.0	66379	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.076	519.1 -> 474.1	20983	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	28156	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C8-FOSA	9.623	506.1 -> 77.8	25340	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOA	7.074	421.1 -> 376.0	86437	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.239	507.1 -> 79.9	11428	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.594	472.1 -> 427.0	27990	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22983	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40255	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.741	515.0 -> 219.0	9322	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18190	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d7-MeFOSE	10.647	623.2 -> 58.9	98093	24.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	122740	25.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSA	10.973	531.1 -> 219.0	11298	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2181	0.62 µg/L	94
		327.1 -> 80.9	891		
6:2FTS	6.851	427.1 -> 407.0	1876	0.62 µg/L	92
		427.1 -> 80.9	578		
8:2FTS	7.865	527.1 -> 507.0	1168	0.57 µg/L	m 99
		527.1 -> 80.8	485		
EtFOSAA	8.331	584.2 -> 419.1	552	0.18 µg/L	94
		584.2 -> 526.0	268		
FOSA	9.614	498.1 -> 77.9	1542	0.17 µg/L	97
		498.1 -> 478.0	27		
MeFOSAA	8.136	570.1 -> 419.0	651	0.15 µg/L	m 85
		570.1 -> 483.0	135		
PFBA	2.906	212.8 -> 168.9	4027	0.64 µg/L	100
PFBS	5.412	298.7 -> 79.9	1550	0.15 µg/L	93
		298.7 -> 98.8	571		
PFDA	8.077	512.9 -> 469.0	4467	0.20 µg/L	91
		512.9 -> 219.0	577		
PFDODA	8.961	613.1 -> 569.0	3461	0.17 µg/L	97
		613.1 -> 319.0	464		
PFDS	9.125	599.0 -> 79.9	617	0.17 µg/L	92

7.7.13
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	274			
PFHpA	6.432	363.1 -> 319.0	4501	0.15	µg/L	100
		363.1 -> 169.0	661			
PFHpS	7.746	449.0 -> 79.9	834	0.13	µg/L m	78
		449.0 -> 98.9	548			
PFHxA	5.470	313.0 -> 269.0	4204	0.15	µg/L	96
		313.0 -> 118.9	248			
PFHxS	7.180	398.7 -> 79.9	1118	0.15	µg/L m	96
		398.7 -> 98.9	545			
PFNA	7.607	463.0 -> 419.0	3166	0.16	µg/L	98
		463.0 -> 219.0	632			
PFNS	8.706	548.8 -> 79.9	750	0.14	µg/L	96
		548.8 -> 98.9	434			
PFOA	7.063	413.0 -> 369.0	4478	0.17	µg/L #	77
		413.0 -> 169.0	1239			
PFOS	8.240	498.9 -> 79.9	966	0.18	µg/L m	78
		498.9 -> 98.8	455			
PFPeA	4.273	263.0 -> 219.0	6126	0.34	µg/L	100
PFPeS	6.484	349.1 -> 79.9	1125	0.15	µg/L	98
		349.1 -> 98.9	533			
PFTeDA	9.690	713.1 -> 669.0	3098	0.19	µg/L	97
		713.1 -> 168.9	202			
PFTrDA	9.345	663.0 -> 619.0	3712	0.16	µg/L	99
		663.0 -> 168.9	355			
PFUnDA	8.531	563.1 -> 519.0	3205	0.16	µg/L	90
		563.1 -> 269.1	416			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	4552	0.33	µg/L	98
		632.9 -> 452.9	1400			
9Cl-PF3ONS	8.569	530.8 -> 351.0	8159	0.37	µg/L	77
		532.8 -> 353.0	1420			
ADONA	6.681	376.9 -> 250.9	19356	0.32	µg/L	99
		376.9 -> 84.8	4907			
HFPO-DA	5.846	284.9 -> 168.9	1174	0.31	µg/L	88
		284.9 -> 184.9	106			
3:3FTCA	3.784	241.0 -> 177.0	905	0.80	µg/L	99
		241.0 -> 117.0	115			
5:3FTCA	6.160	341.0 -> 237.1	21016	4.52	µg/L	90
		341.0 -> 217.0	15707			
7:3FTCA	7.573	441.0 -> 316.9	8138	3.85	µg/L	90
		441.0 -> 336.9	18860			
EtFOSA	10.962	526.0 -> 219.0	1607	0.35	µg/L	97
		526.0 -> 169.0	2008			
EtFOSE	10.907	630.0 -> 58.9	4246	0.83	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	1429	0.34	µg/L	100
		511.9 -> 169.0	1930			
MeFOSE	10.661	616.1 -> 58.9	3878	0.89	µg/L	100
PFDoDS	9.829	699.1 -> 79.9	296	0.16	µg/L	87
		699.1 -> 98.8	140			
NFDHA	5.363	295.0 -> 201.0	981	0.31	µg/L	95
		295.0 -> 84.9	215			
PFMBA	4.687	279.0 -> 85.1	3792	0.31	µg/L	100
PFMPA	3.438	229.0 -> 84.9	2923	0.32	µg/L	100
PFEESA	5.949	314.8 -> 134.9	9668	0.27	µg/L	100
		314.8 -> 82.9	343			

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.13
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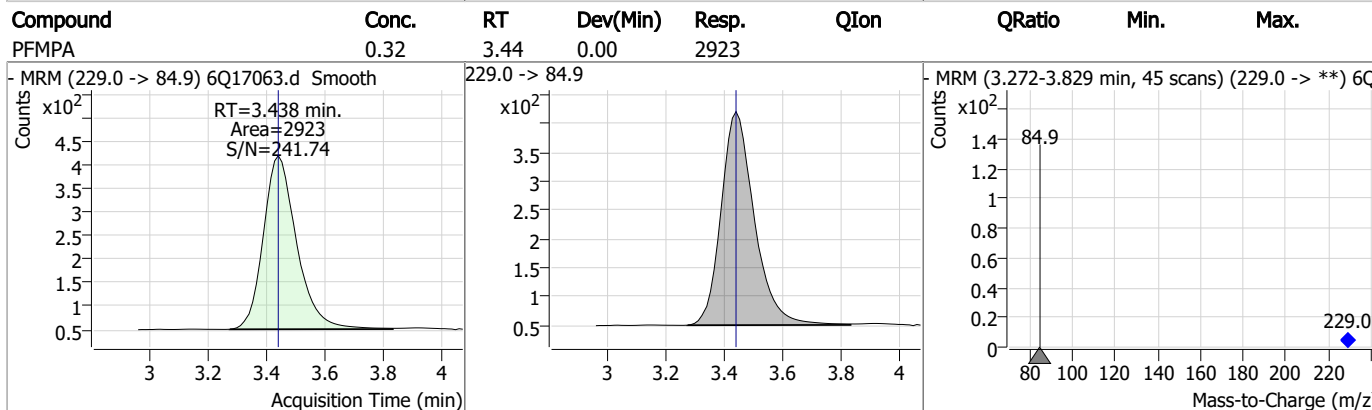
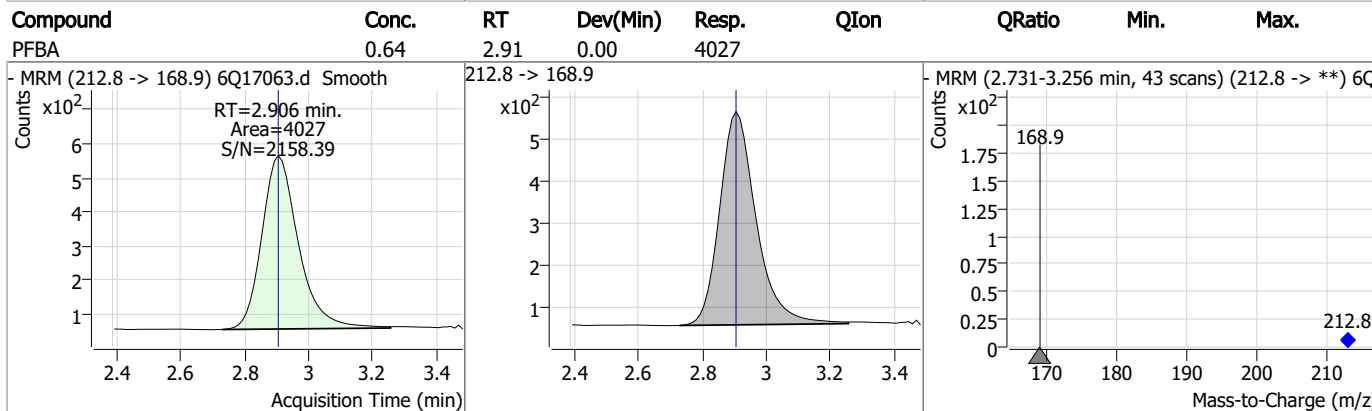
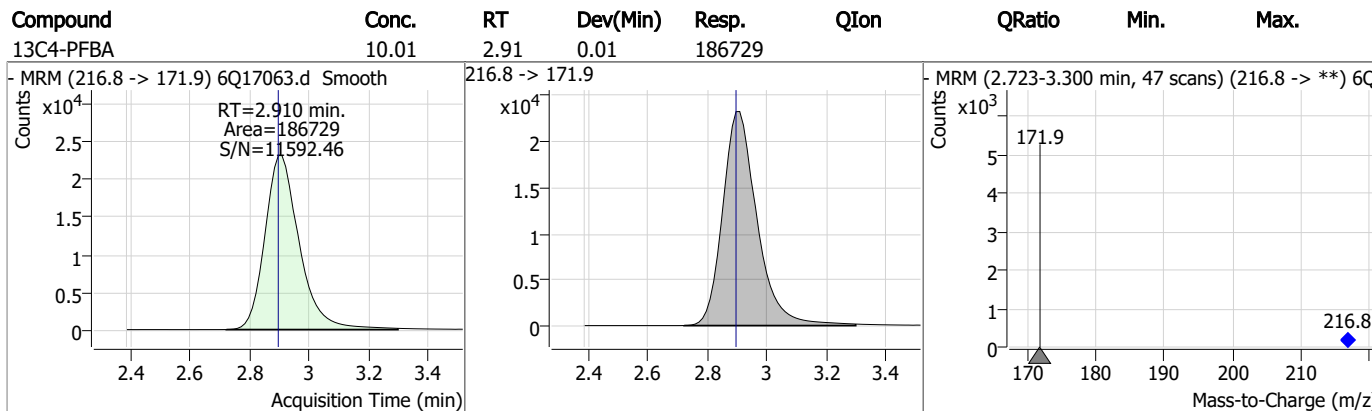
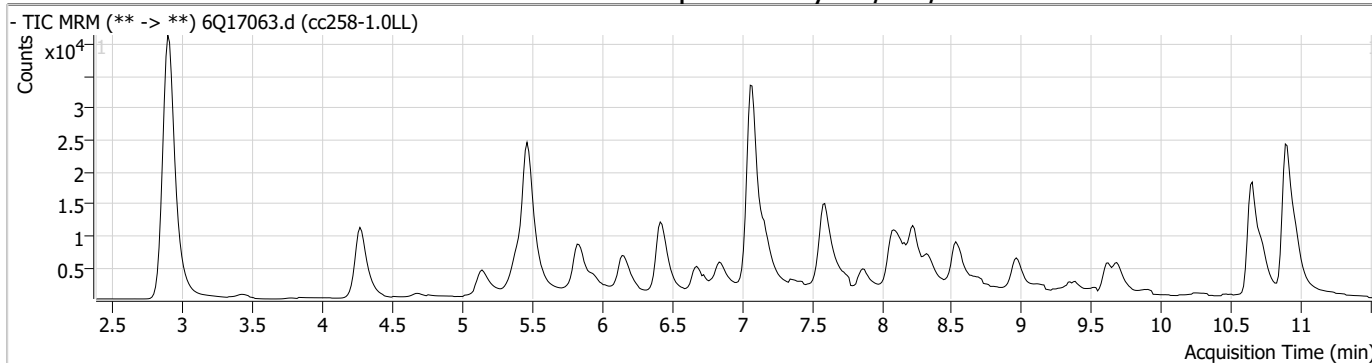
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.13

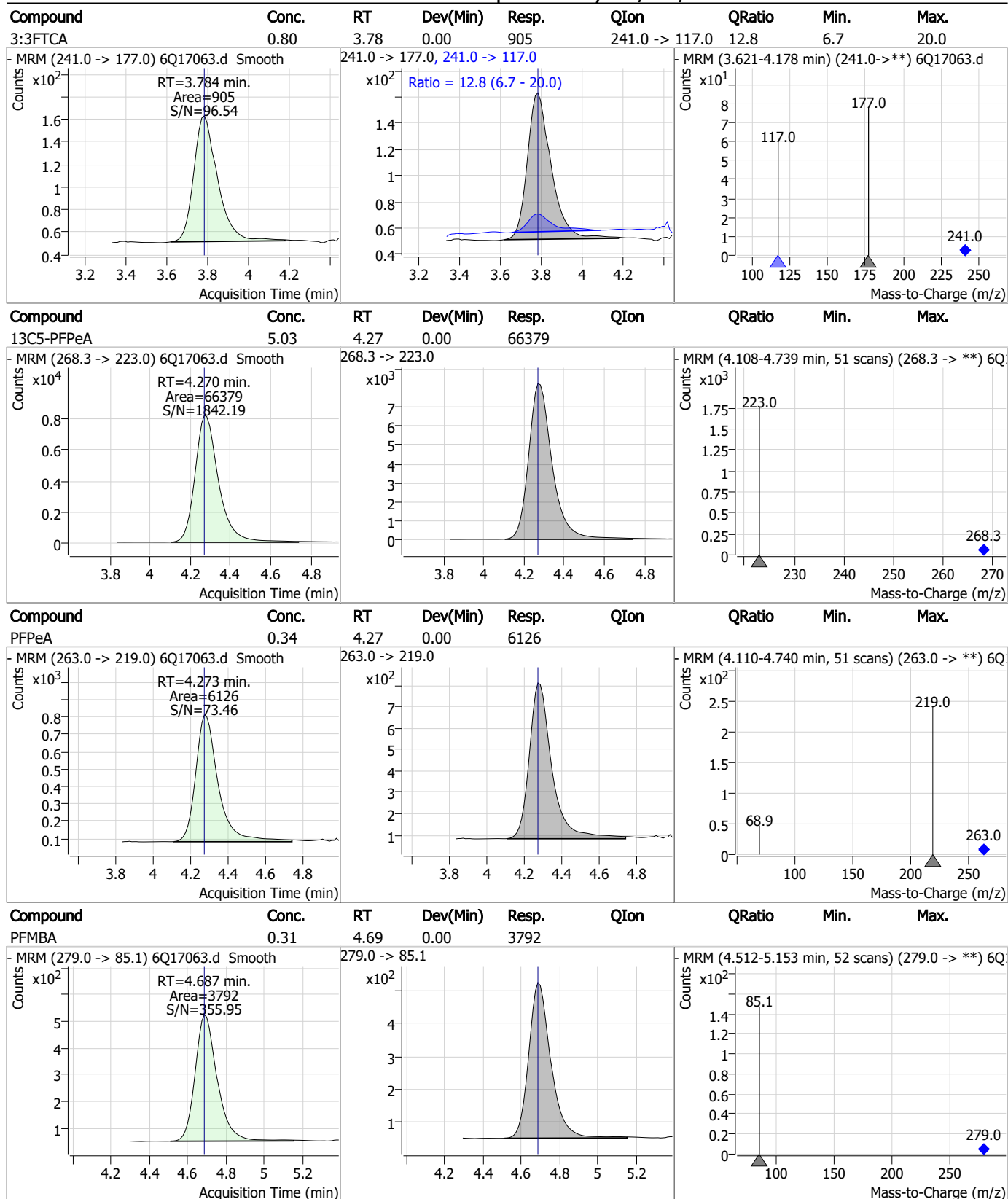
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Perfluorinated Compounds by LC/MS/MS



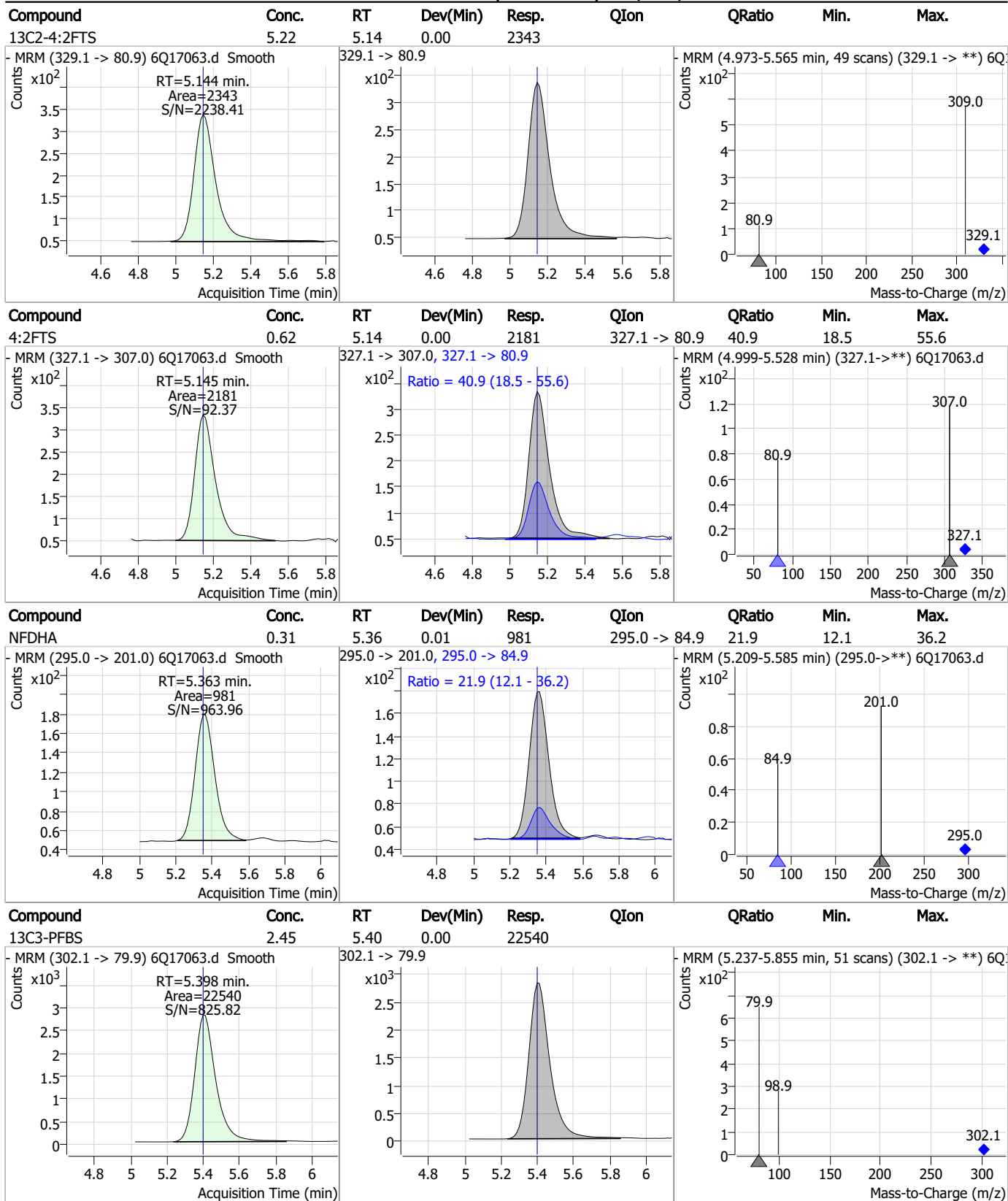
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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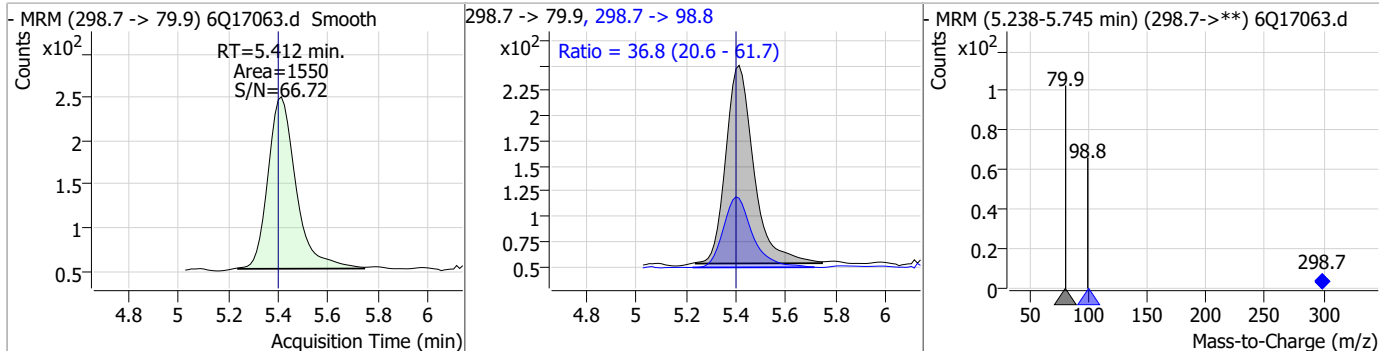
Perfluorinated Compounds by LC/MS/MS



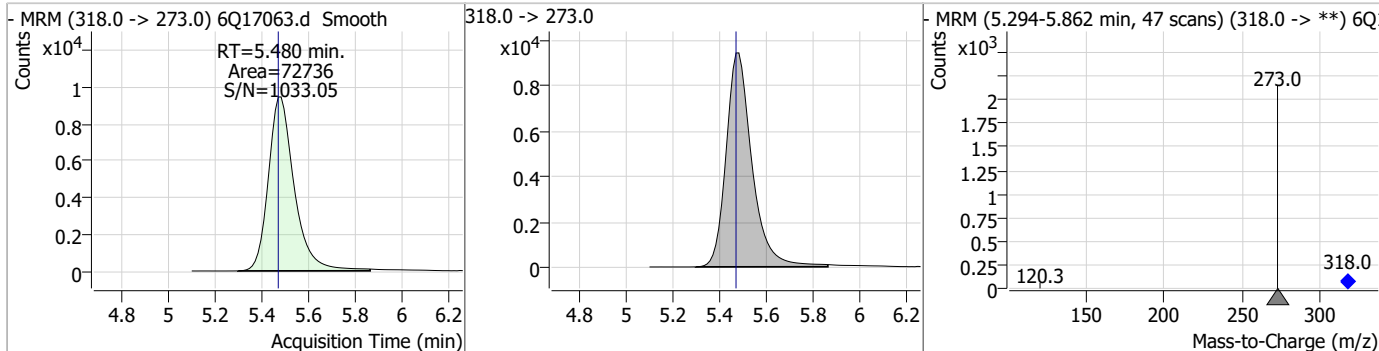
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Perfluorinated Compounds by LC/MS/MS

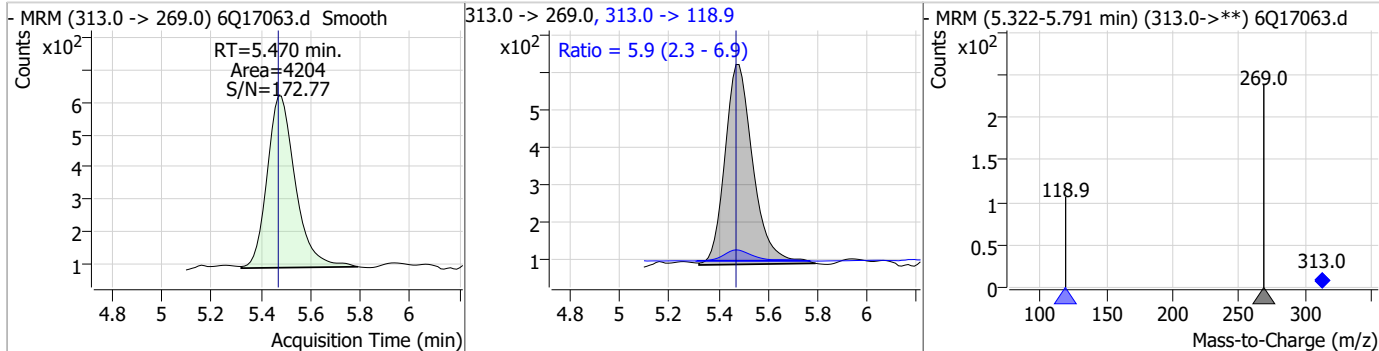
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.15	5.41	0.01	1550	298.7 -> 98.8	36.8	20.6	61.7



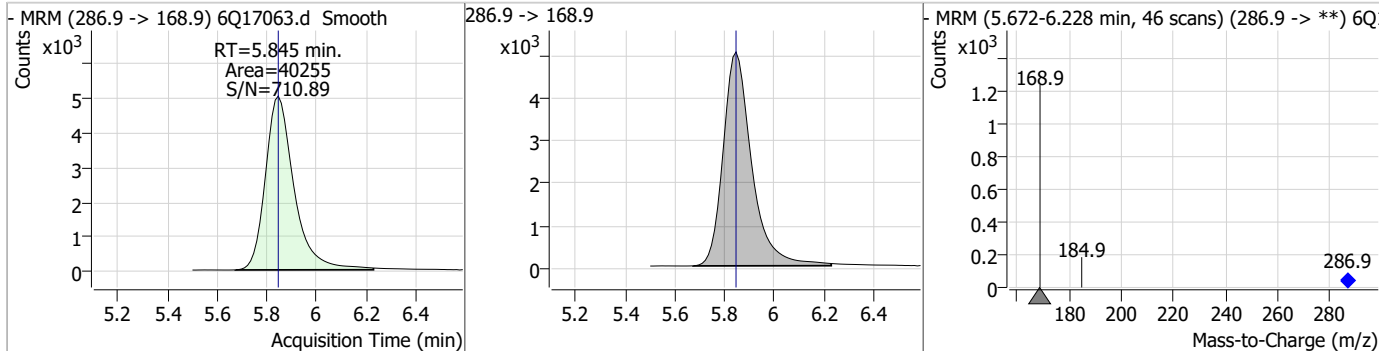
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.48	0.01	72736				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.15	5.47	0.00	4204	313.0 -> 118.9	5.9	2.3	6.9



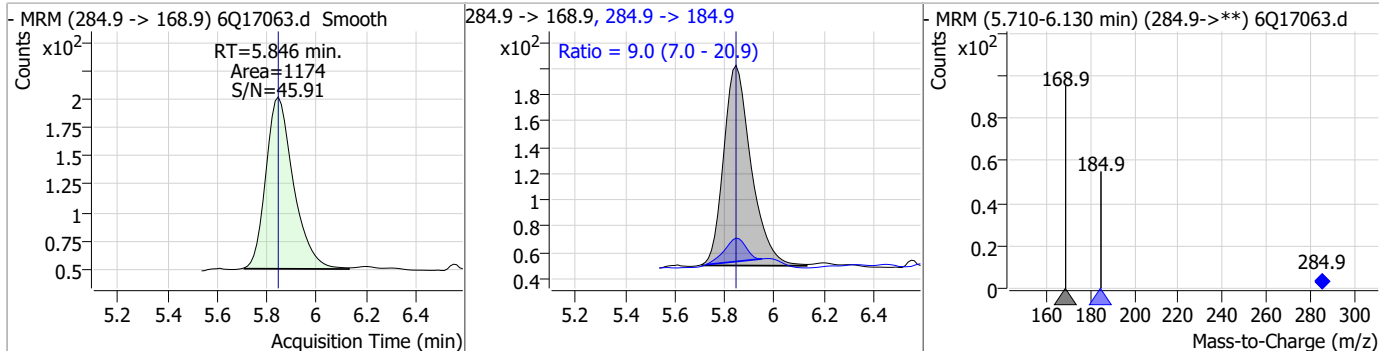
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.62	5.85	0.00	40255				



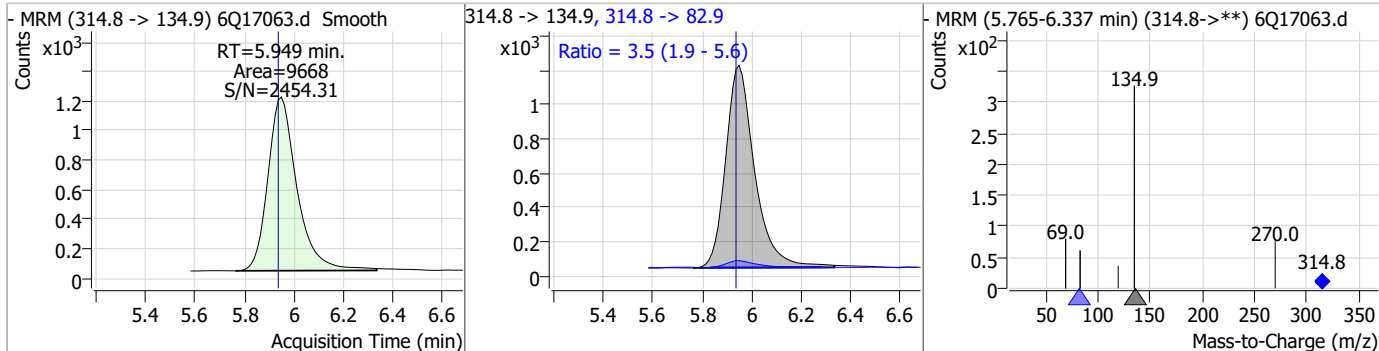
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Perfluorinated Compounds by LC/MS/MS

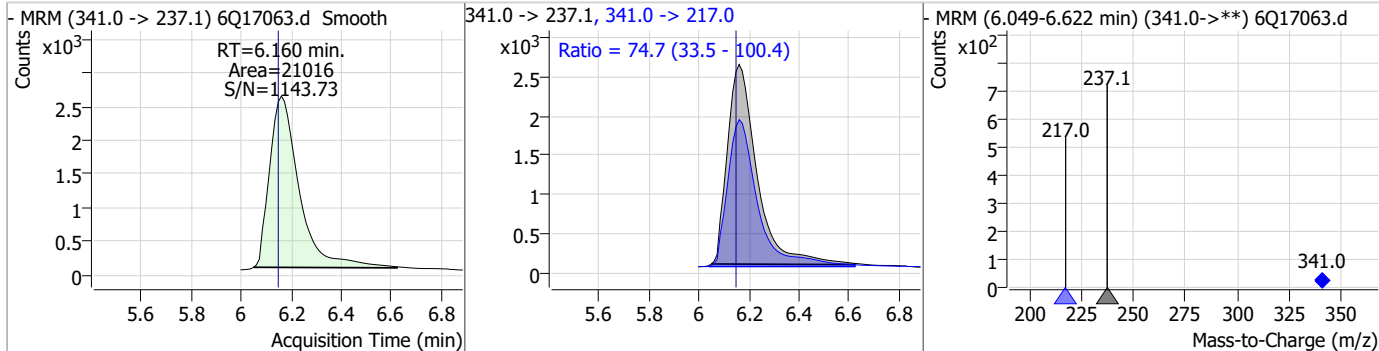
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.31	5.85	0.00	1174	284.9 -> 184.9	9.0	7.0	20.9



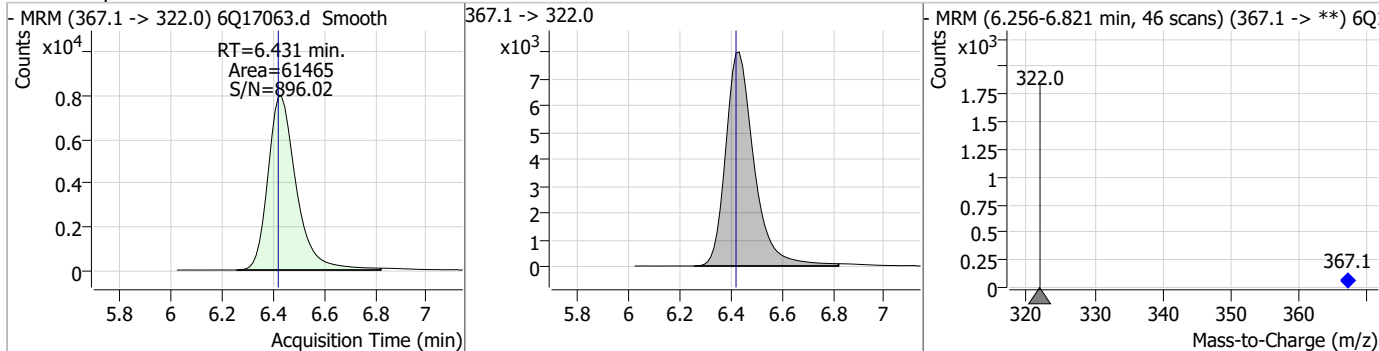
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.27	5.95	0.01	9668	314.8 -> 82.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.52	6.16	0.01	21016	341.0 -> 217.0	74.7	33.5	100.4

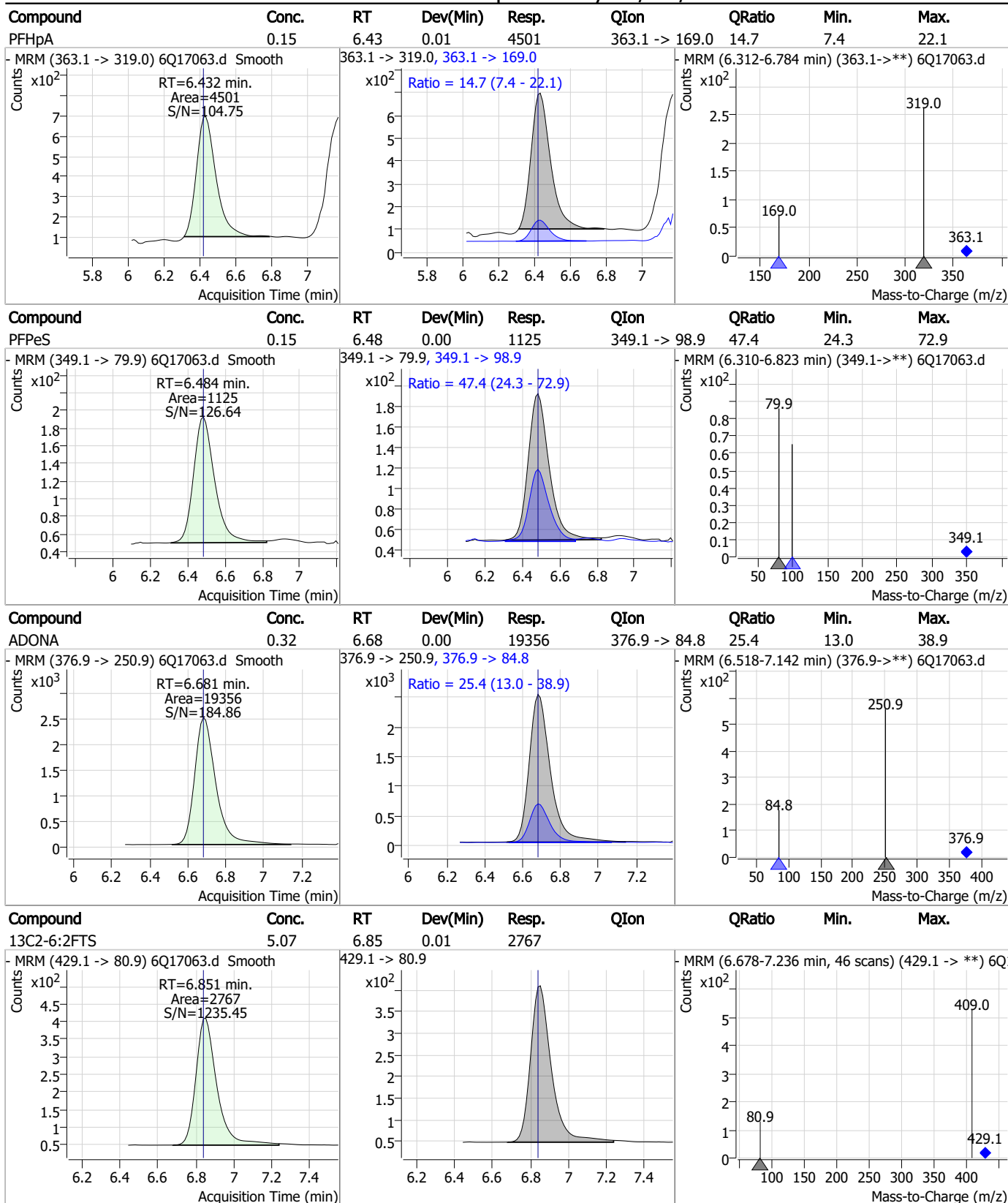


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.54	6.43	0.01	61465				



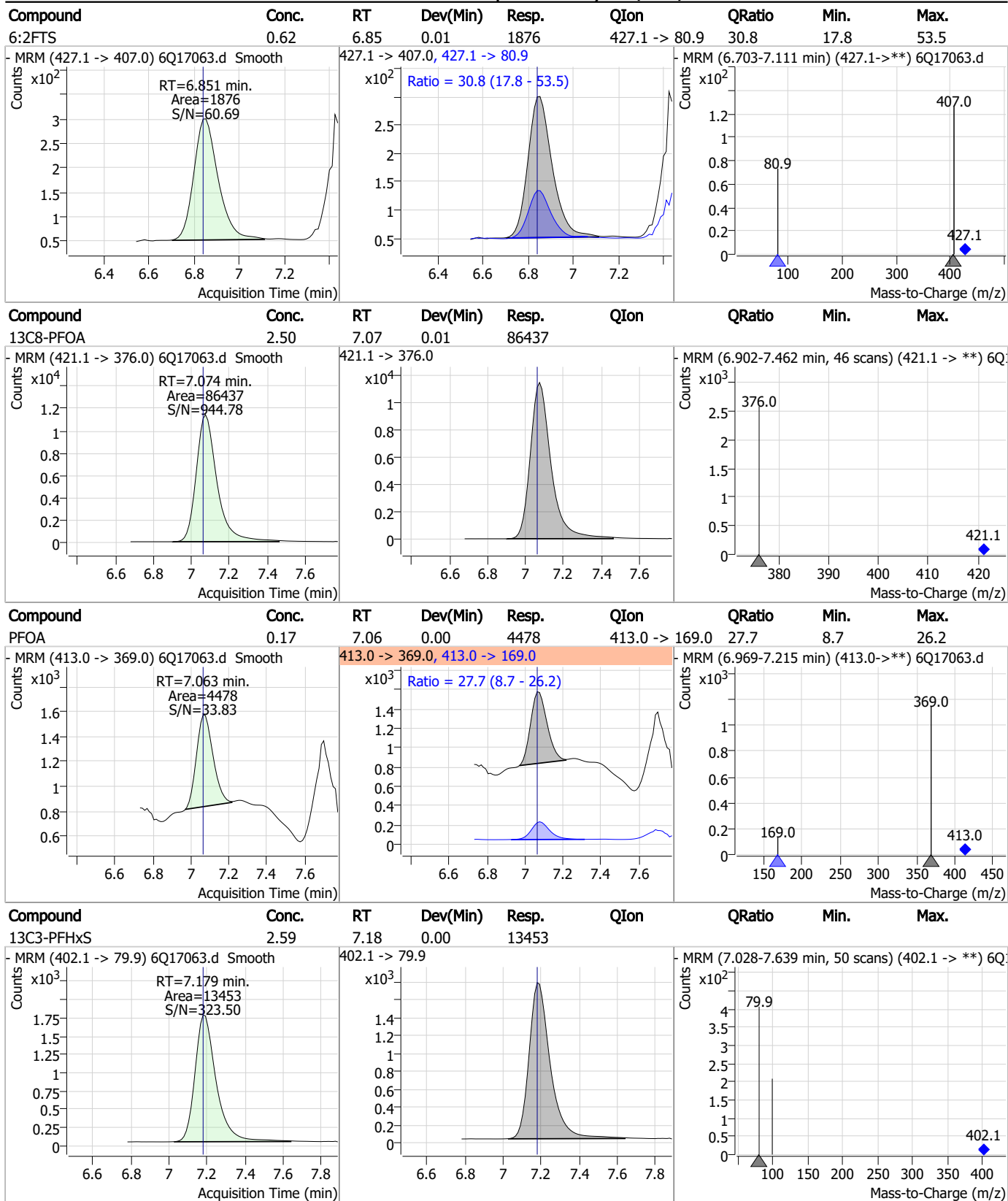
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Perfluorinated Compounds by LC/MS/MS



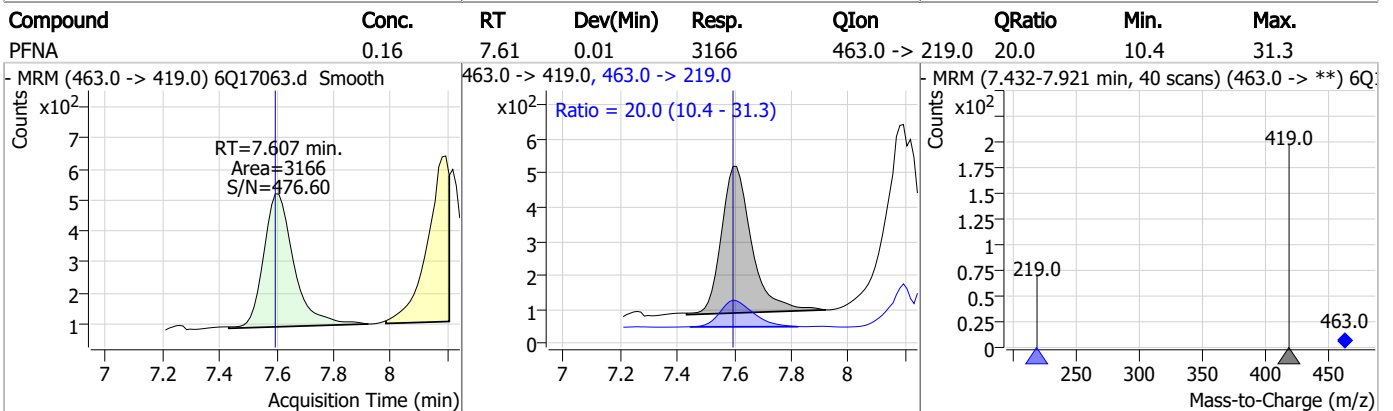
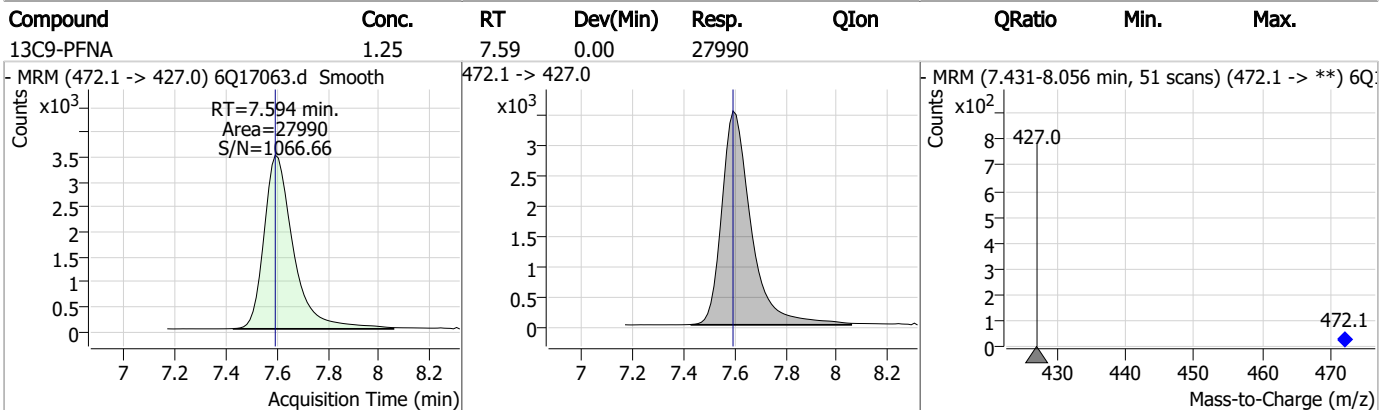
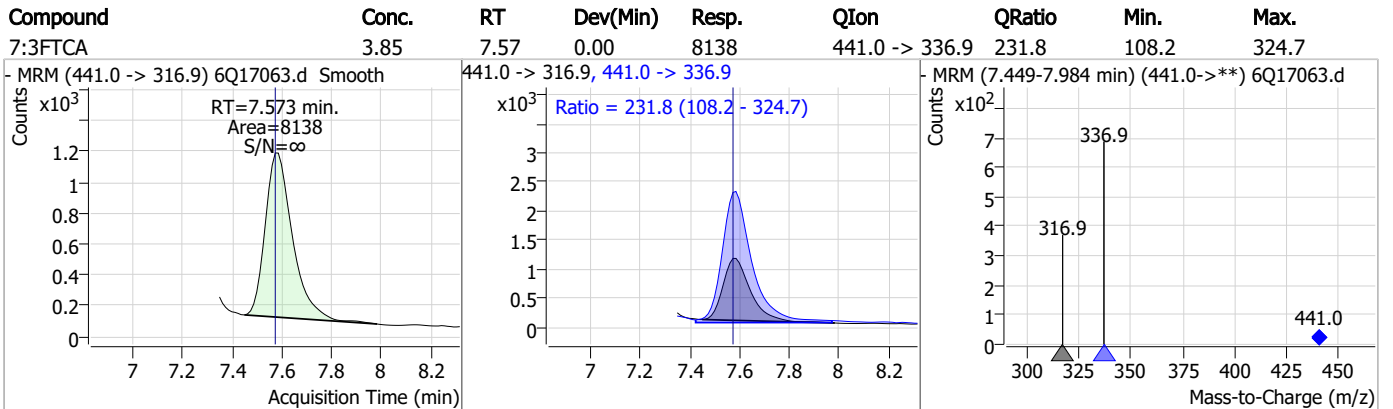
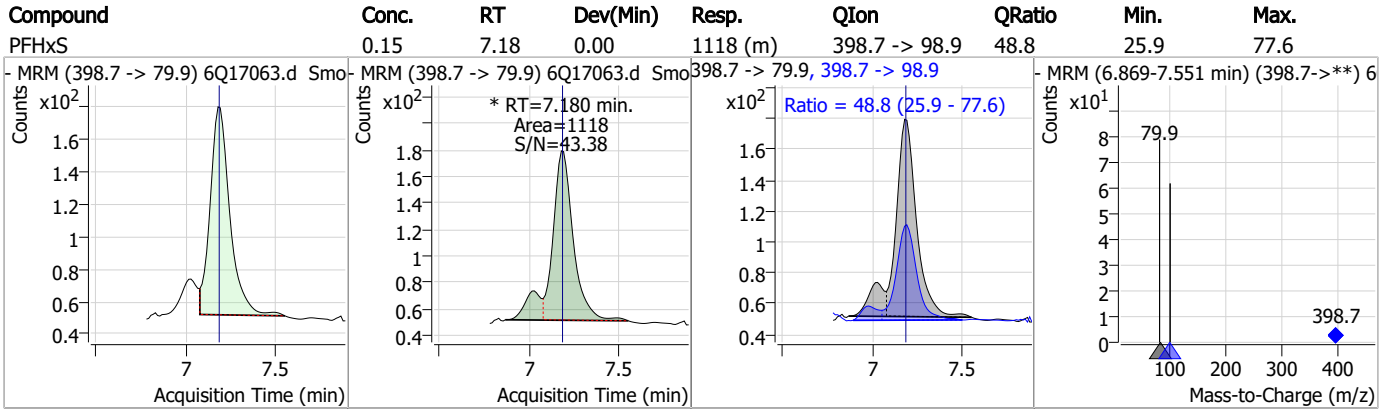
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Perfluorinated Compounds by LC/MS/MS



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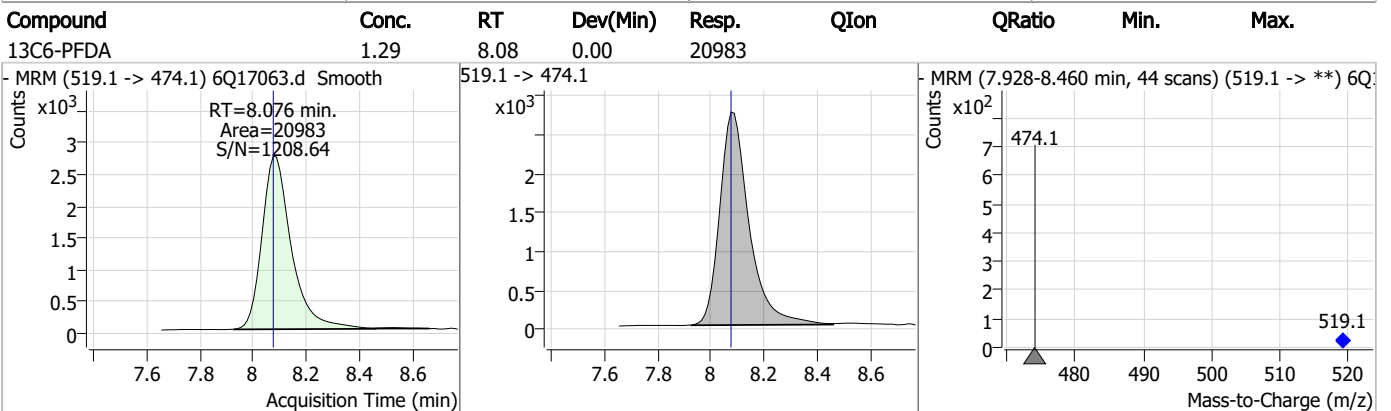
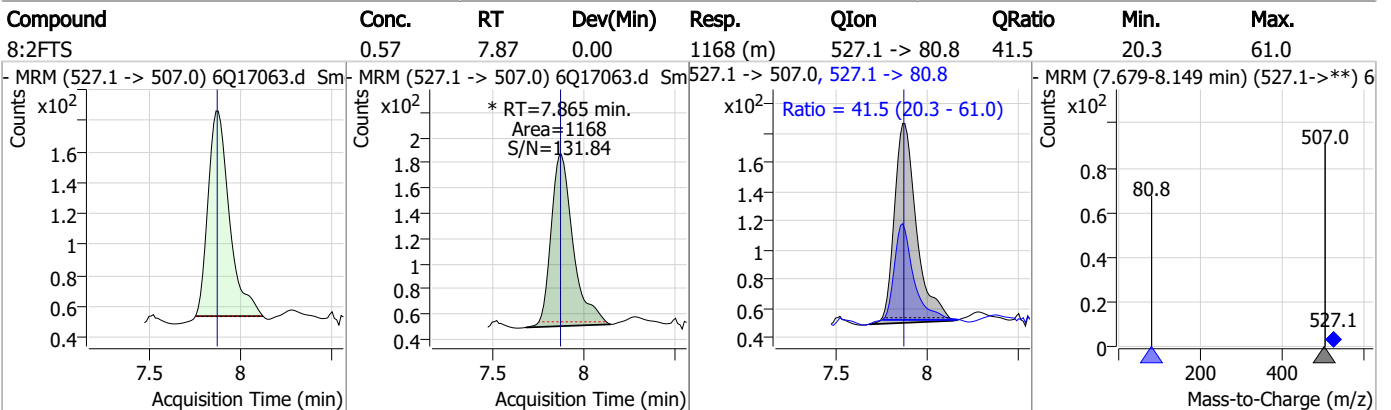
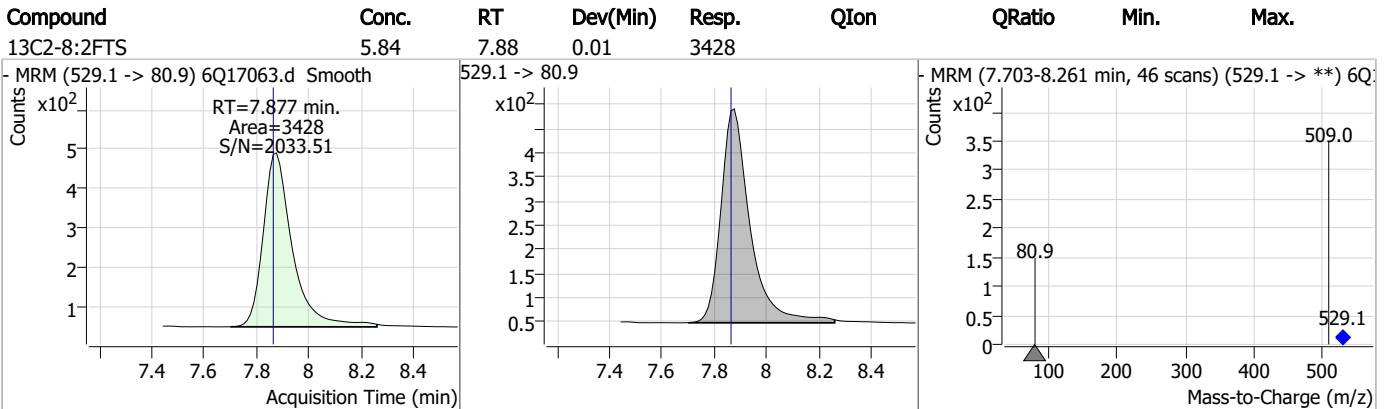
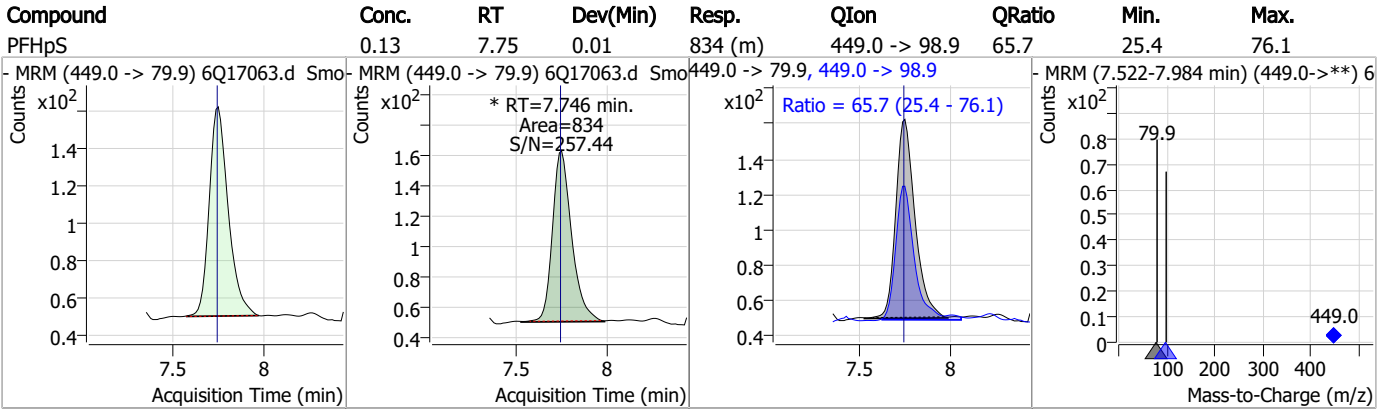
Perfluorinated Compounds by LC/MS/MS



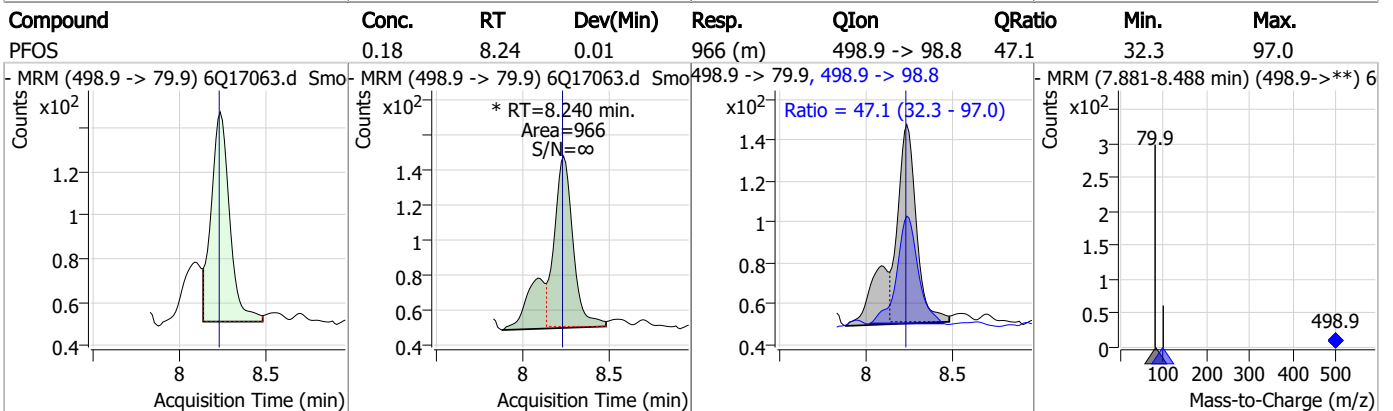
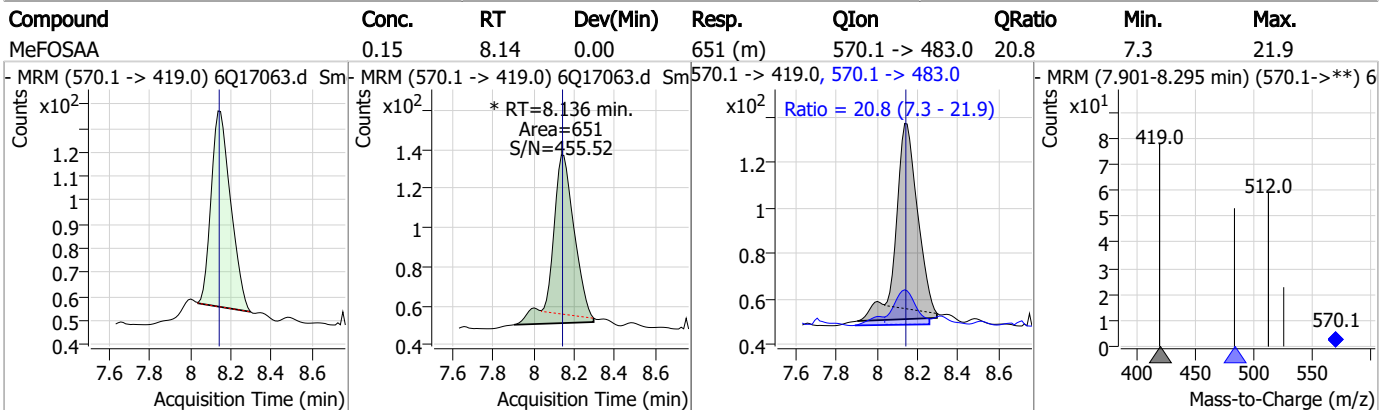
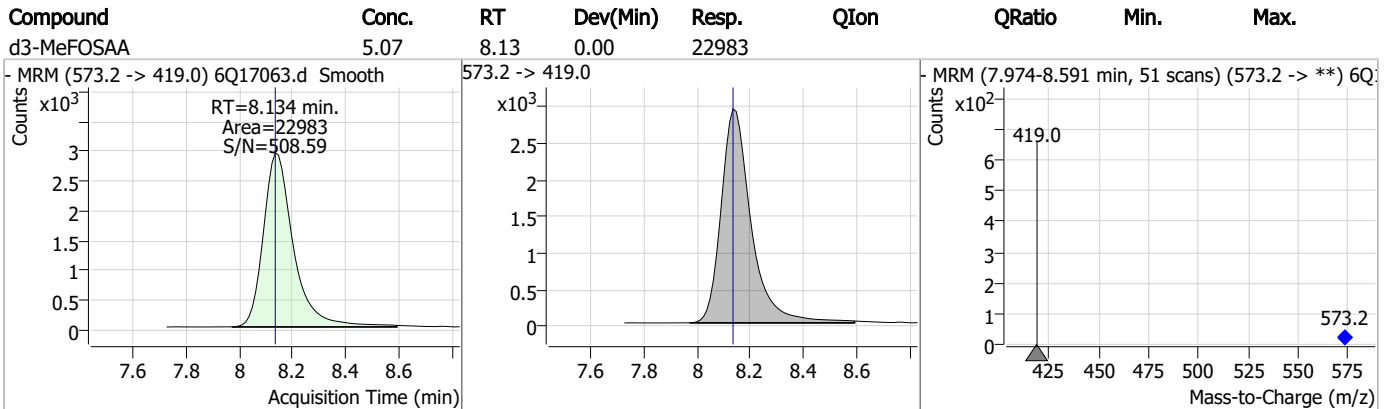
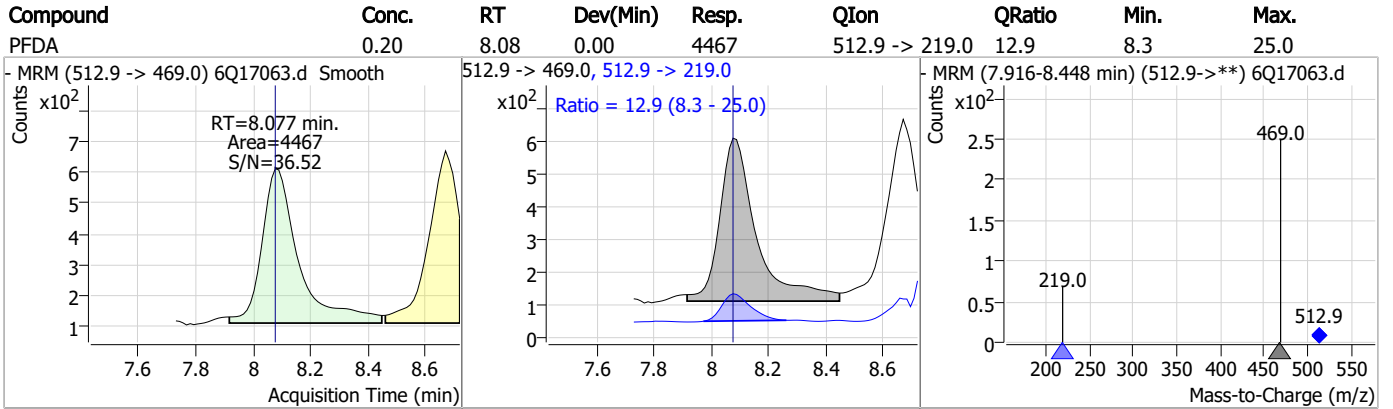
7.7.13 7



Perfluorinated Compounds by LC/MS/MS

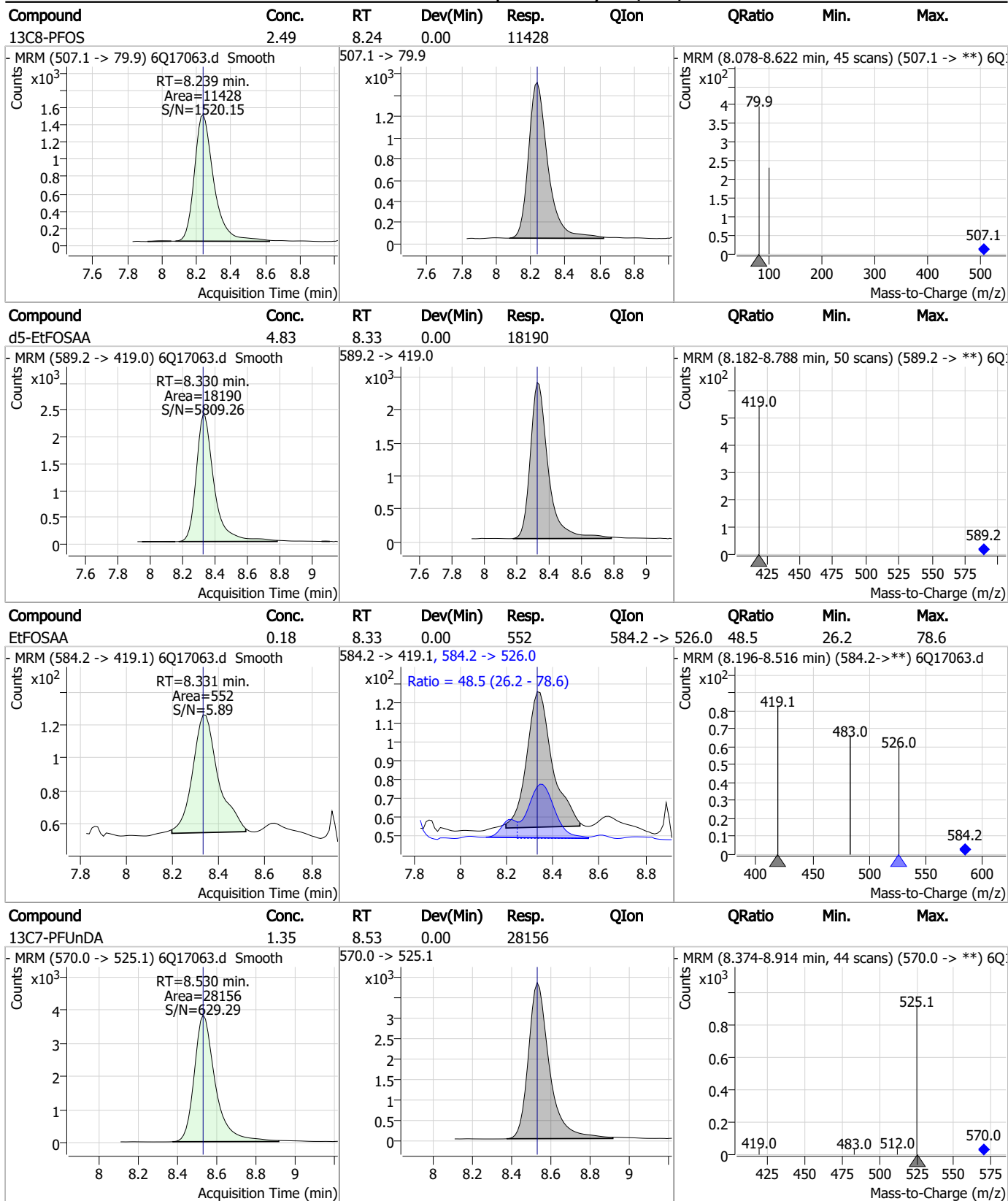


Perfluorinated Compounds by LC/MS/MS



7.7.13
7

Perfluorinated Compounds by LC/MS/MS

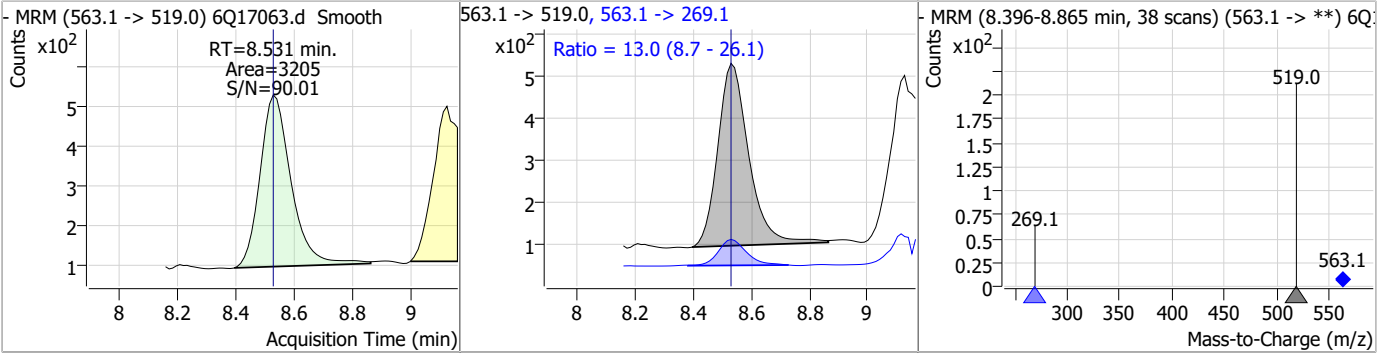


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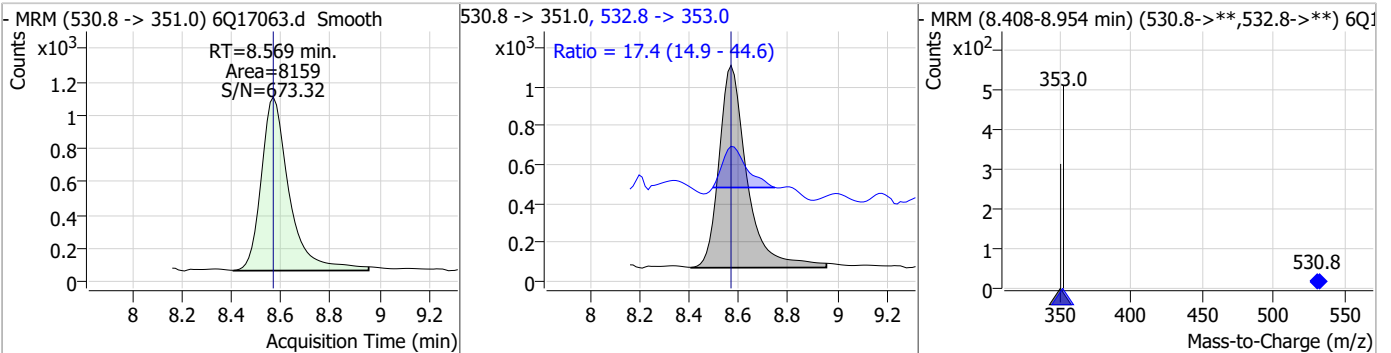
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Perfluorinated Compounds by LC/MS/MS

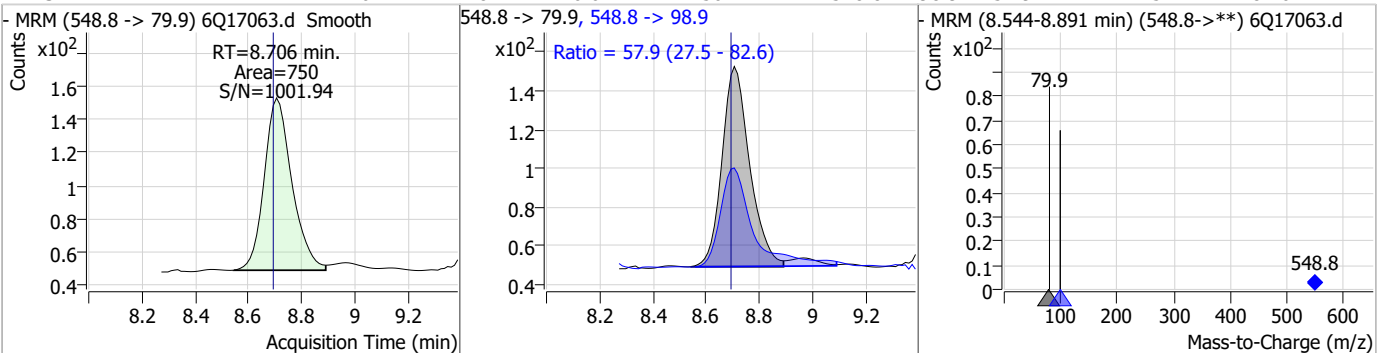
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.16	8.53	0.00	3205	563.1 -> 269.1	13.0	8.7	26.1



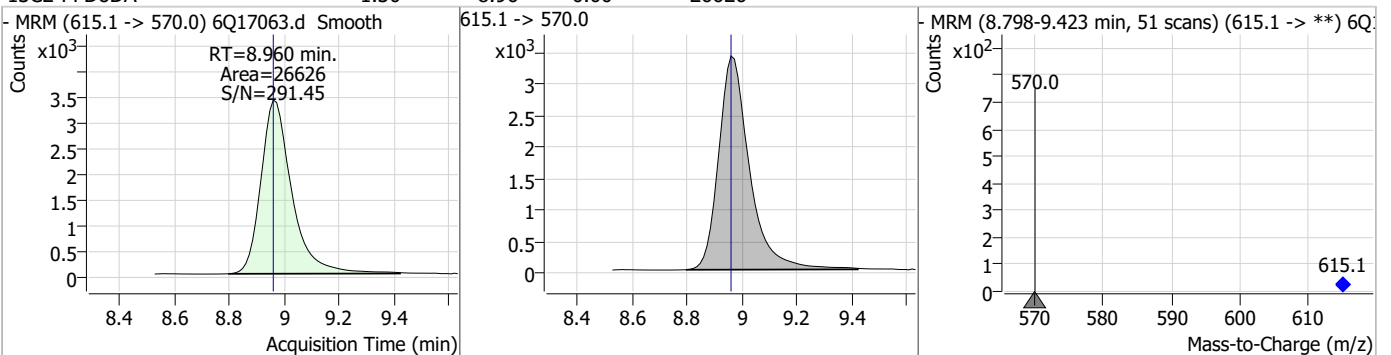
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.37	8.57	0.00	8159	532.8 -> 353.0	17.4	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.14	8.71	0.01	750	548.8 -> 98.9	57.9	27.5	82.6

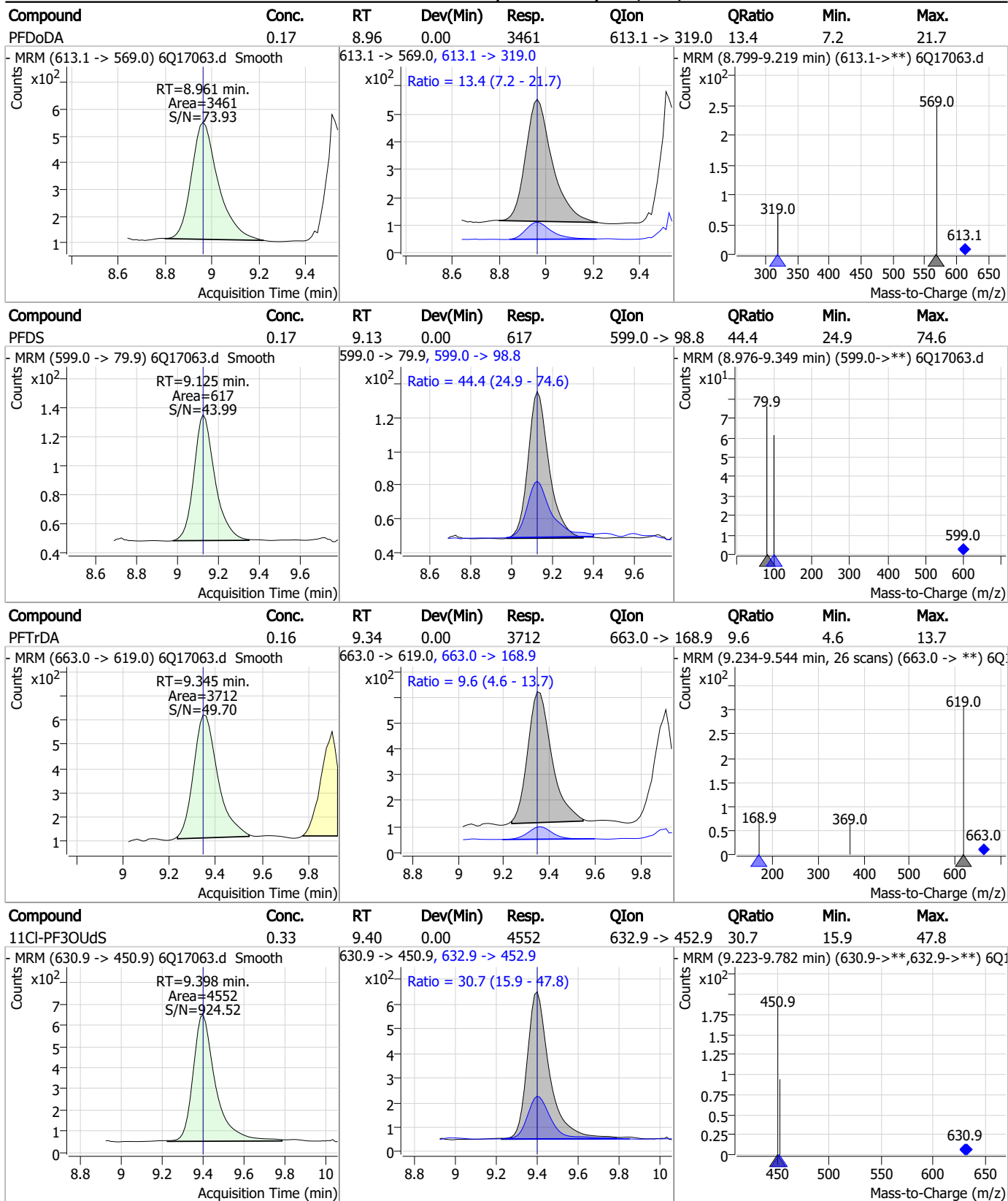


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.30	8.96	0.00	26626	615.1 -> 570.0	-	-	-



7.7.13
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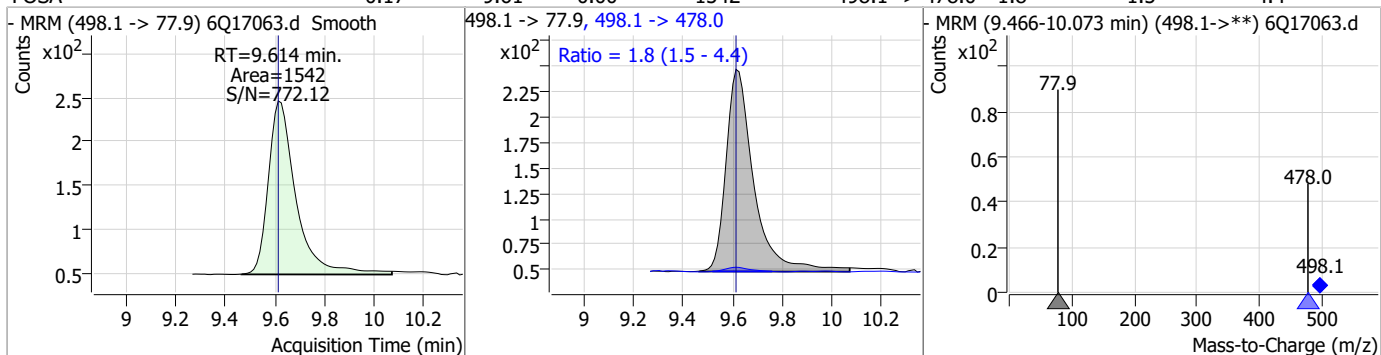
Perfluorinated Compounds by LC/MS/MS



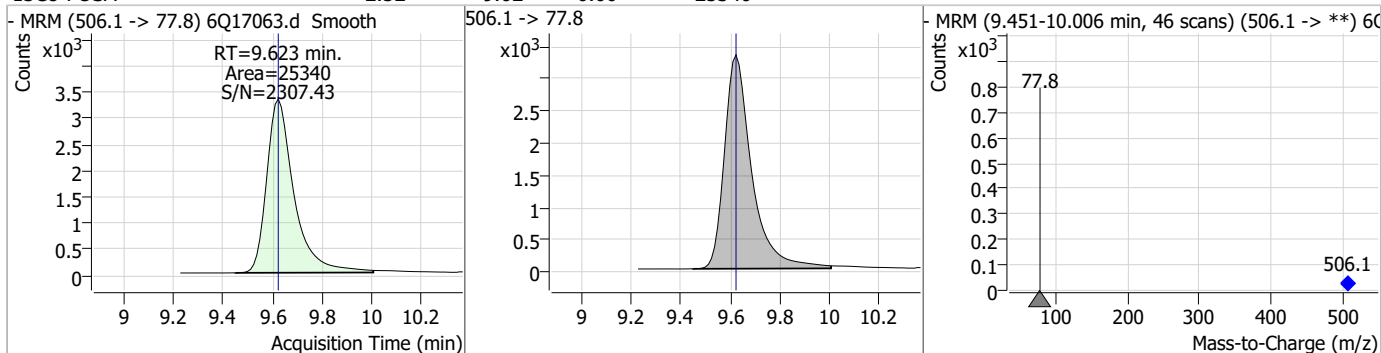
7.7.13
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Perfluorinated Compounds by LC/MS/MS

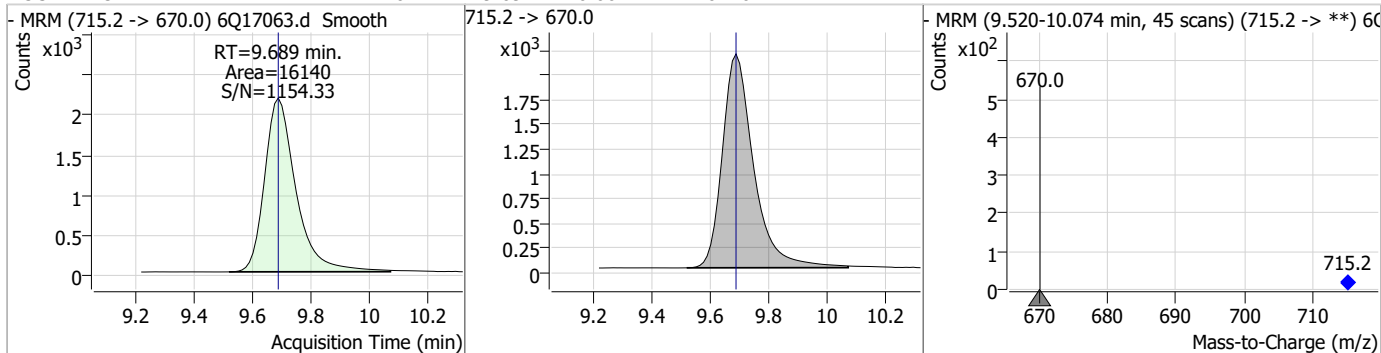
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.17	9.61	0.00	1542	498.1 -> 478.0	1.8	1.5	4.4



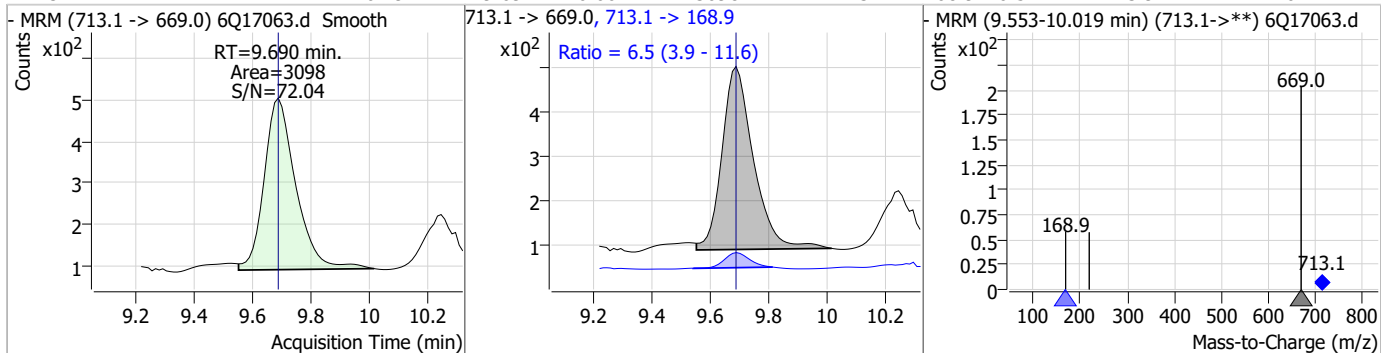
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.62	0.00	25340				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.16	9.69	0.00	16140				

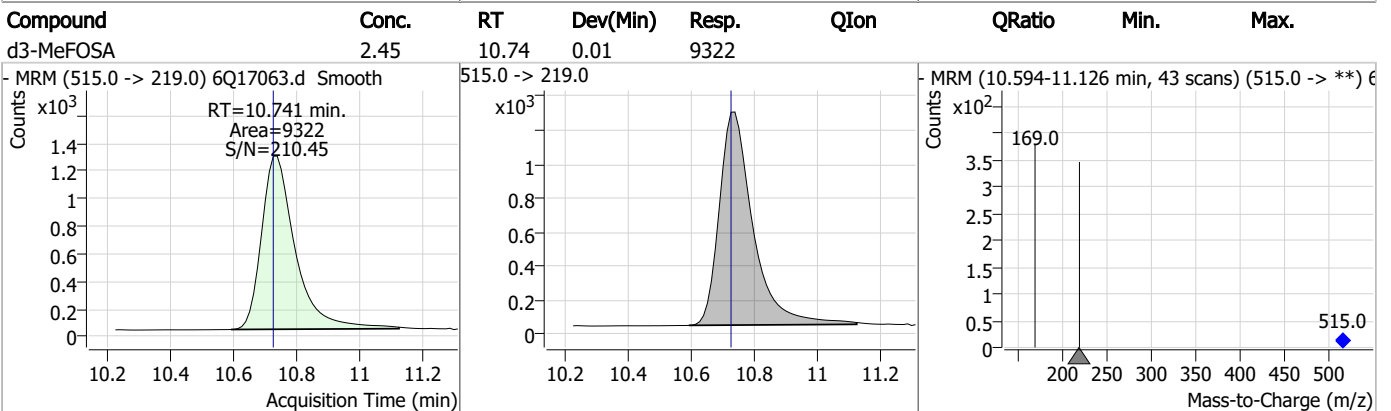
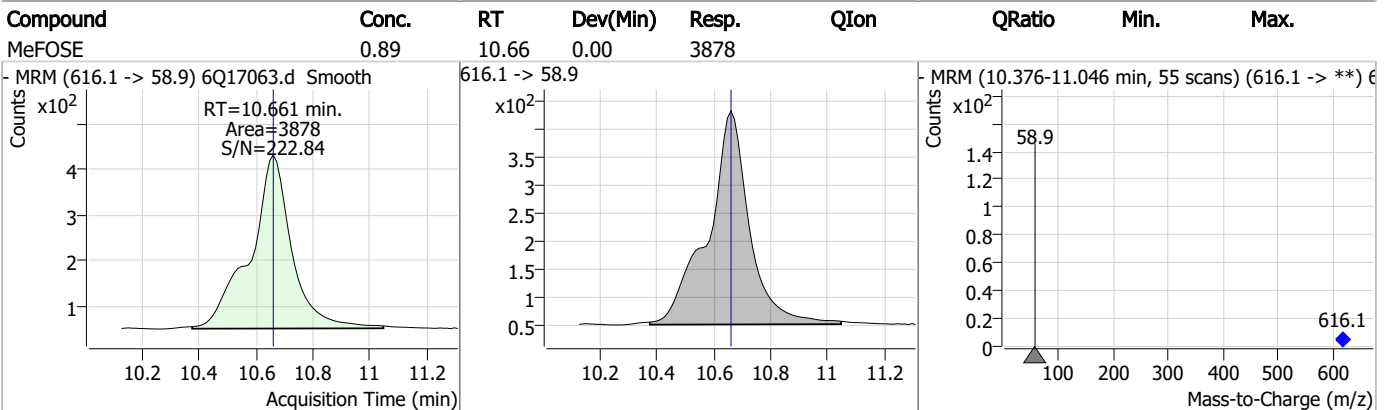
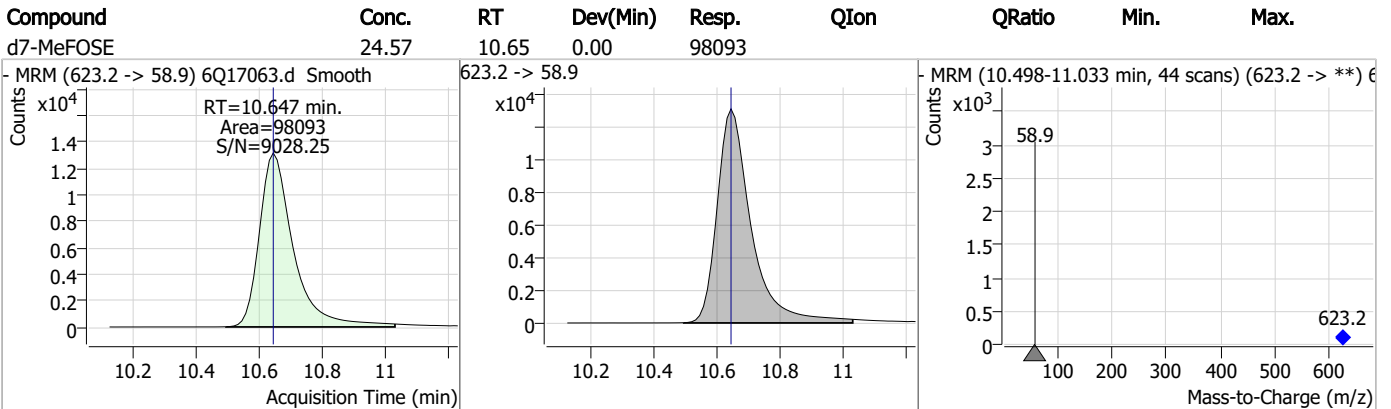
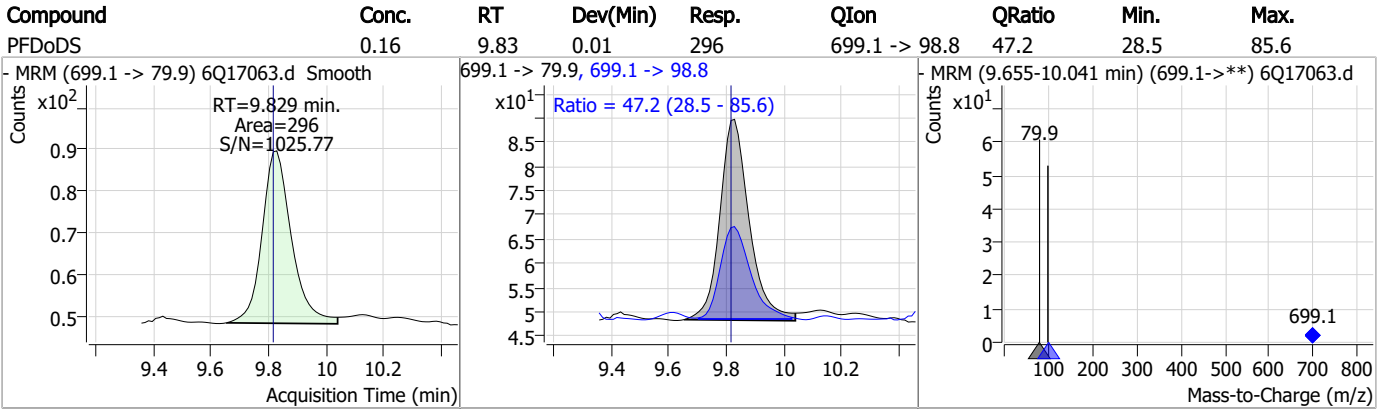


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.69	0.00	3098	713.1 -> 168.9	6.5	3.9	11.6



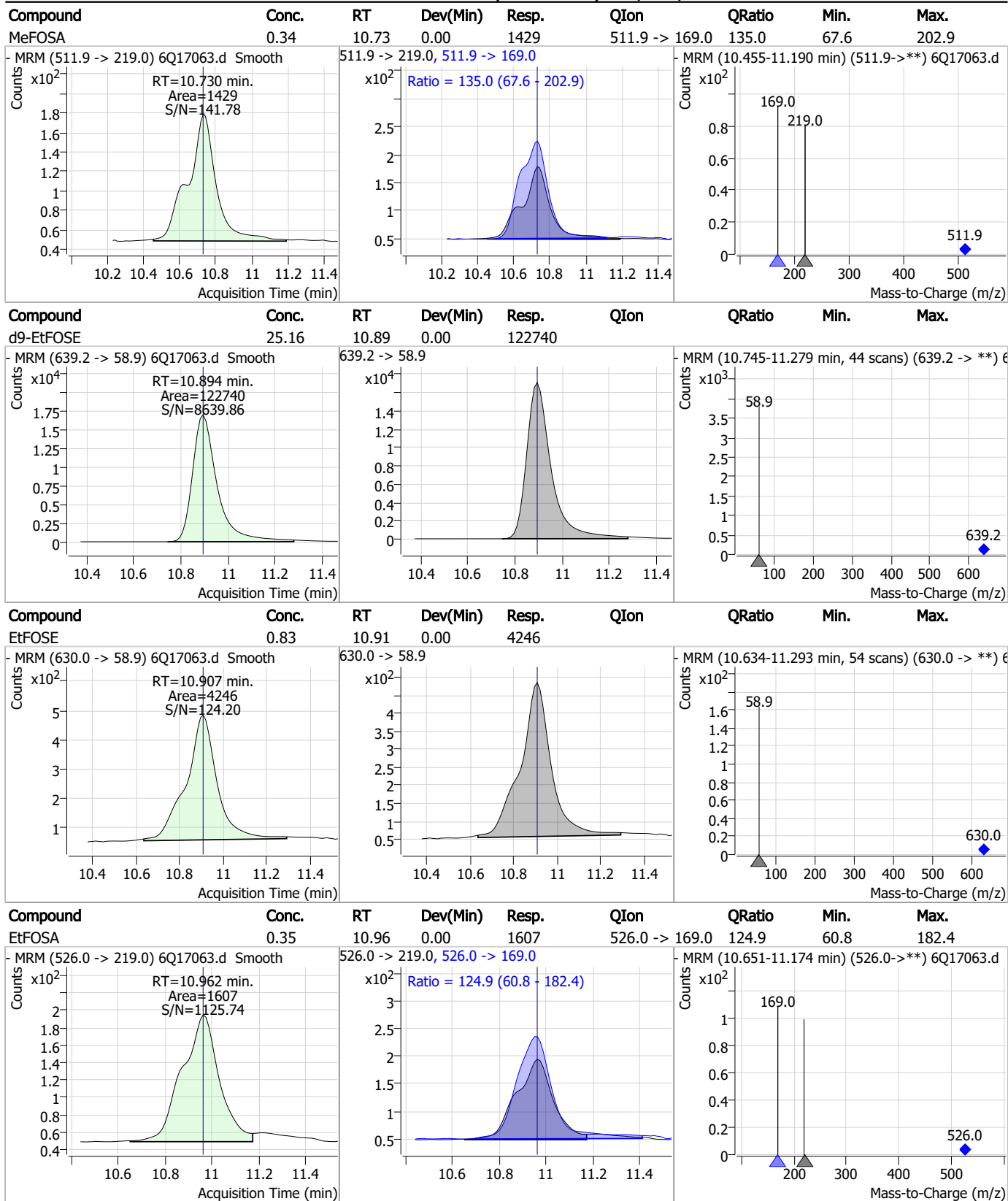
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13 7

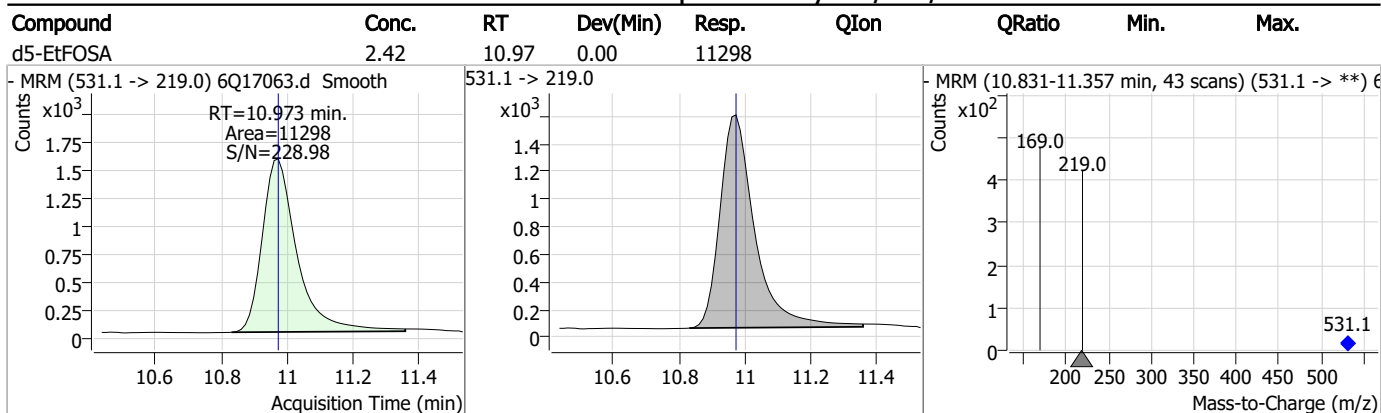
Perfluorinated Compounds by LC/MS/MS



7.7.13

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Perfluorinated Compounds by LC/MS/MS



7.7.13

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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17063.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:44 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluoroheptanesulfonic acid	375-92-8		7.75	Split peak
8:2 Fluorotelomer sulfonate	39108-34-4		7.87	Split peak
MeFOSAA	2355-31-9		8.14	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

7.7.13.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17070.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 5:25:33 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	183594	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	64502	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	67327	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	56790	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84161	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27889	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19826	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27631	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25085	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17587	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24900	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22532	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12430	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	12009	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2292	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2794	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2883	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21433	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40864	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18583	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	97247	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122658	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11311	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8938	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15280	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80508	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9596	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	82517	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23971	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28386	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	58127	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2292	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2794	5.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2883	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25085	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17587	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFBS	5.398	302.1 -> 79.9	22532	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12430	2.43 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C4-PFBA	2.910	216.8 -> 171.9	183594	9.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C4-PFHpA	6.431	367.1 -> 322.0	56790	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C5-PFHxA	5.480	318.0 -> 273.0	67327	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C5-PFPeA	4.283	268.3 -> 223.0	64502	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.076	519.1 -> 474.1	19826	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27631	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-FOSA	9.611	506.1 -> 77.8	24900	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOA	7.074	421.1 -> 376.0	84161	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-PFOS	8.239	507.1 -> 79.9	12009	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C9-PFNA	7.594	472.1 -> 427.0	27889	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21433	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40864	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	8938	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18583	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	97247	24.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	122658	25.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d5-EtFOSA	10.960	531.1 -> 219.0	11311	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32074	9.25 µg/L	98
		327.1 -> 80.9	12296		
6:2FTS	6.839	427.1 -> 407.0	29477	9.59 µg/L	95
		427.1 -> 80.9	9625		
8:2FTS	7.865	527.1 -> 507.0	16172	9.43 µg/L	99
		527.1 -> 80.8	6733		
EtFOSAA	8.331	584.2 -> 419.1	7944	2.52 µg/L	97
		584.2 -> 526.0	3983		
FOSA	9.614	498.1 -> 77.9	21747	2.44 µg/L	99
		498.1 -> 478.0	675		
MeFOSAA	8.136	570.1 -> 419.0	10663	2.65 µg/L	91
		570.1 -> 483.0	1963		
PFBA	2.906	212.8 -> 168.9	62697	10.18 µg/L	100
PFBS	5.412	298.7 -> 79.9	22804	2.26 µg/L	97
		298.7 -> 98.8	8918		
PFDA	8.077	512.9 -> 469.0	60032	2.79 µg/L	97
		512.9 -> 219.0	9263		
PFDODA	8.961	613.1 -> 569.0	48625	2.47 µg/L	100
		613.1 -> 319.0	7127		
PFDS	9.125	599.0 -> 79.9	9034	2.36 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4194	2.66	µg/L	99
		363.1 -> 319.0	74528			
PFHpS	7.734	363.1 -> 169.0	11293	2.14	µg/L	99
		449.0 -> 79.9	13915			
PFHxA	5.470	449.0 -> 98.9	7164	2.57	µg/L	100
		313.0 -> 269.0	68290			
PFHxS	7.180	313.0 -> 118.9	3113	2.33	µg/L	98
		398.7 -> 79.9	15767			
PFNA	7.595	398.7 -> 98.9	7931	2.30	µg/L	98
		463.0 -> 419.0	44326			
PFNS	8.694	463.0 -> 219.0	9713	2.33	µg/L	96
		548.8 -> 79.9	13493			
PFOA	7.076	548.8 -> 98.9	7014	2.52	µg/L	100
		413.0 -> 369.0	99765			
PFOS	8.228	413.0 -> 169.0	17407	2.09	µg/L	92
		498.9 -> 79.9	12140			
PFPeA	4.285	498.9 -> 98.8	7074	5.13	µg/L	100
		263.0 -> 219.0	90062			
PFPeS	6.484	349.1 -> 79.9	17820	2.52	µg/L	92
		349.1 -> 98.9	7650			
PFTeDA	9.690	713.1 -> 669.0	43102	2.43	µg/L	100
		713.1 -> 168.9	3263			
PFTrDA	9.345	663.0 -> 619.0	58819	2.70	µg/L	99
		663.0 -> 168.9	5241			
PFUnDA	8.531	563.1 -> 519.0	44081	2.30	µg/L	100
		563.1 -> 269.1	7659			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	64413	4.59	µg/L	95
		632.9 -> 452.9	22389			
9Cl-PF3ONS	8.569	530.8 -> 351.0	105572	4.76	µg/L	91
		532.8 -> 353.0	36411			
ADONA	6.681	376.9 -> 250.9	290971	4.71	µg/L	98
		376.9 -> 84.8	78593			
HFPO-DA	5.846	284.9 -> 168.9	18212	4.71	µg/L	98
		284.9 -> 184.9	2431			
3:3FTCA	3.784	241.0 -> 177.0	13638	12.41	µg/L	97
		241.0 -> 117.0	1659			
5:3FTCA	6.160	341.0 -> 237.1	285653	66.31	µg/L	93
		341.0 -> 217.0	206283			
7:3FTCA	7.573	441.0 -> 316.9	131051	66.96	µg/L	100
		441.0 -> 336.9	283213			
EtFOSA	10.962	526.0 -> 219.0	23222	5.00	µg/L	96
		526.0 -> 169.0	29241			
EtFOSE	10.907	630.0 -> 58.9	63532	12.44	µg/L	100
		511.9 -> 219.0	20560			
MeFOSA	10.730	511.9 -> 169.0	28429	5.11	µg/L	98
		616.1 -> 58.9	55365			
MeFOSE	10.661	699.1 -> 79.9	4644	12.77	µg/L	100
		699.1 -> 98.8	2527			
PFDoDS	9.817	295.0 -> 201.0	15299	2.35	µg/L	96
		295.0 -> 84.9	3723			
NFDHA	5.350	279.0 -> 85.1	59905	5.30	µg/L	100
		229.0 -> 84.9	44849			
PFMBA	4.687	314.8 -> 134.9	160751	5.08	µg/L	100
		314.8 -> 82.9	5462			
PFMPA	3.438			5.10	µg/L	100
PFEESA	5.937			4.79	µg/L	99

= Qualifier out of range, m = manually integrated, + = Area summed



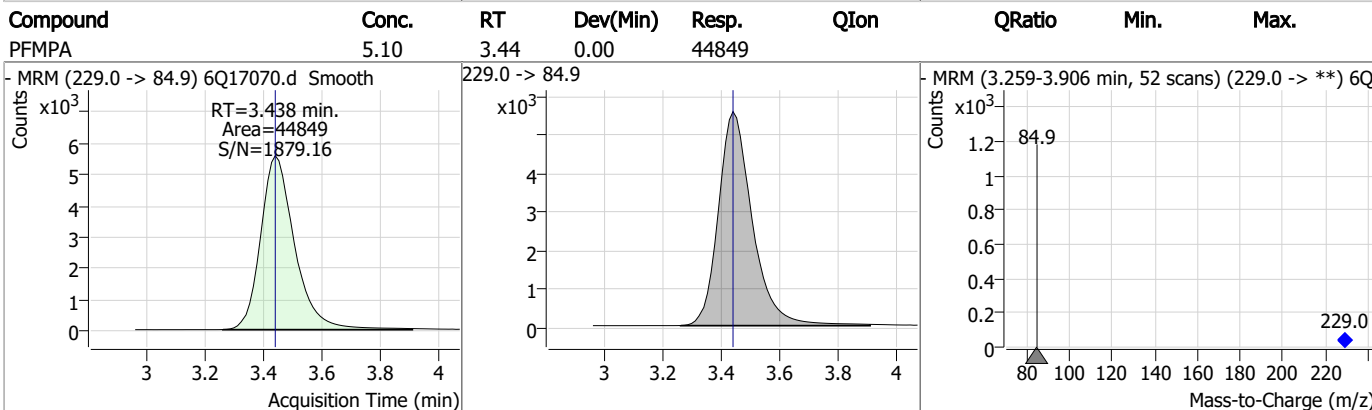
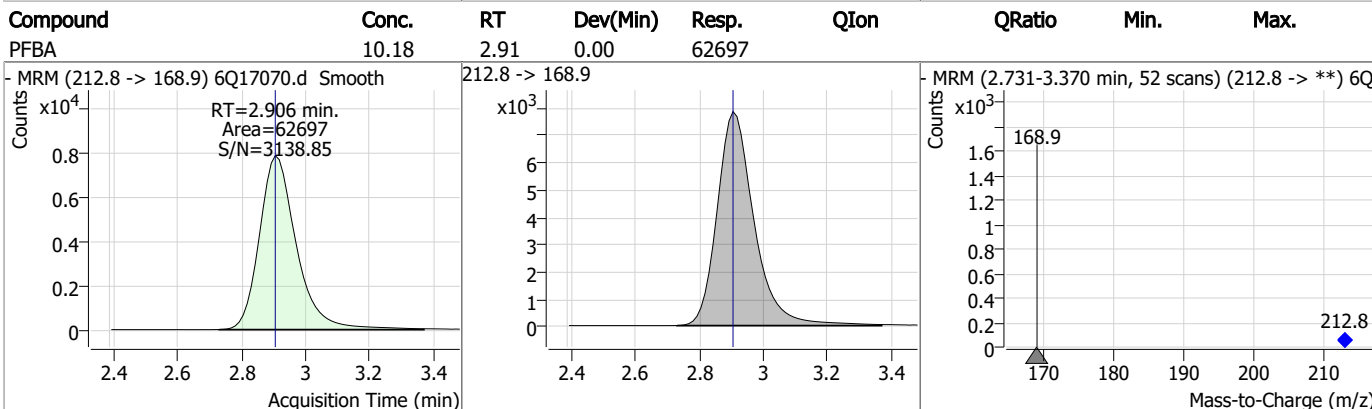
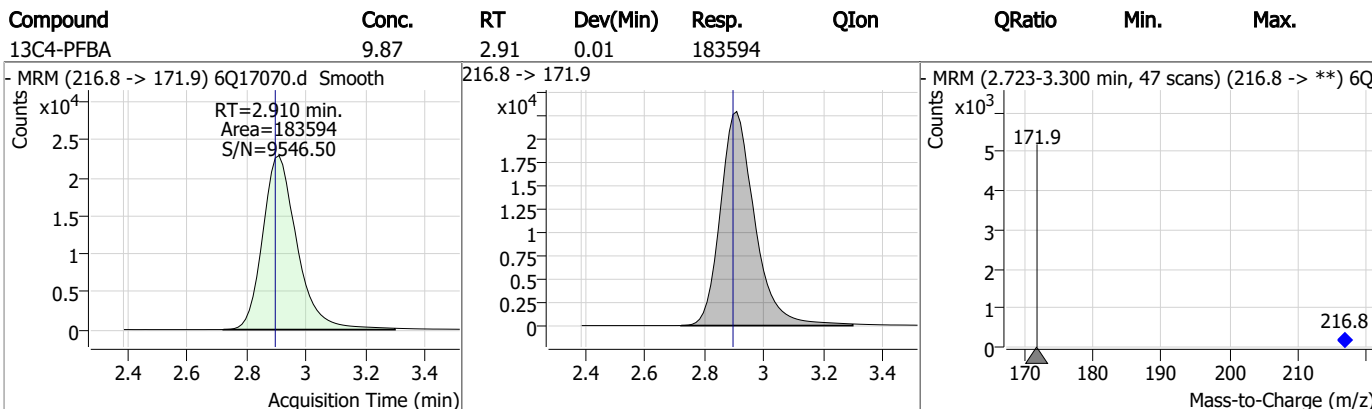
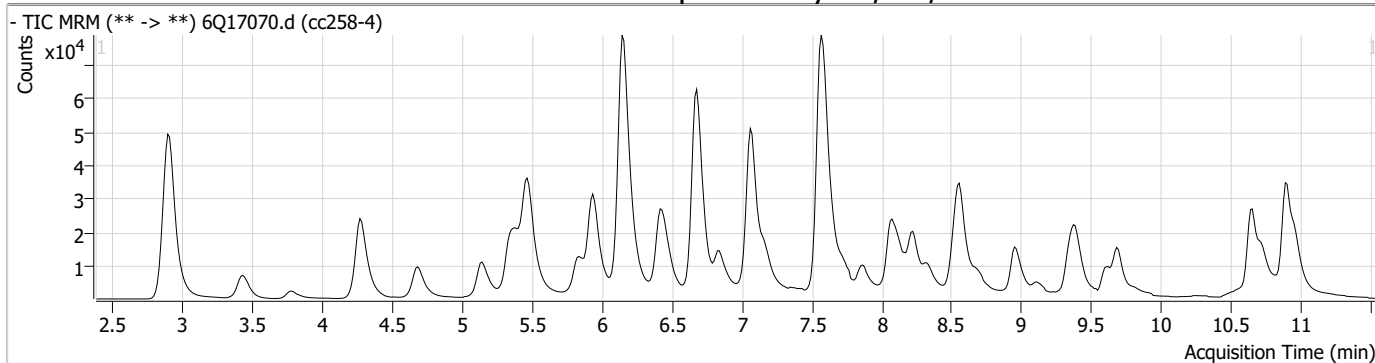
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS

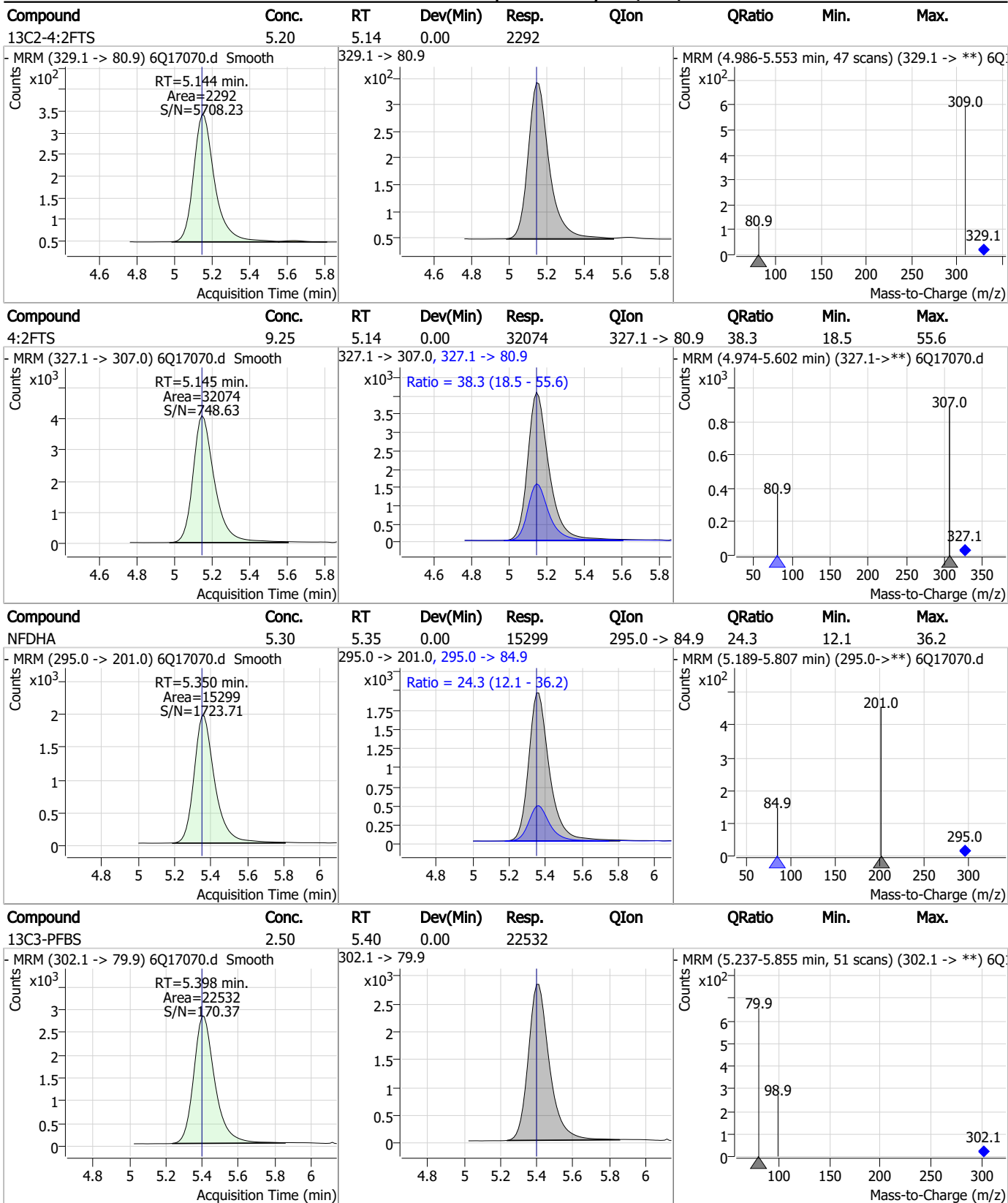


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.41	3.78	0.00	13638	241.0 -> 117.0	12.2	6.7	20.0
13C5-PFPeA	4.97	4.28	0.01	64502				
PFPeA	5.13	4.29	0.01	90062				
PFMBA	5.08	4.69	0.00	59905				

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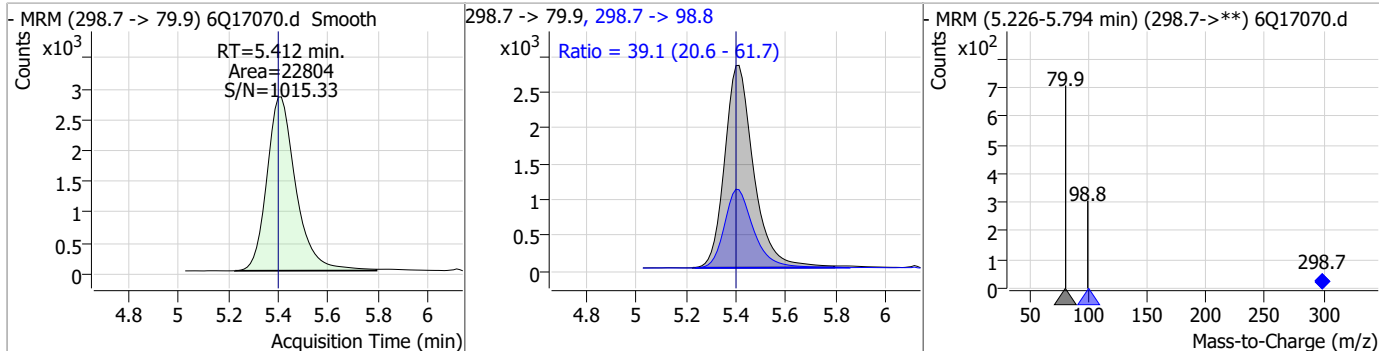
Perfluorinated Compounds by LC/MS/MS



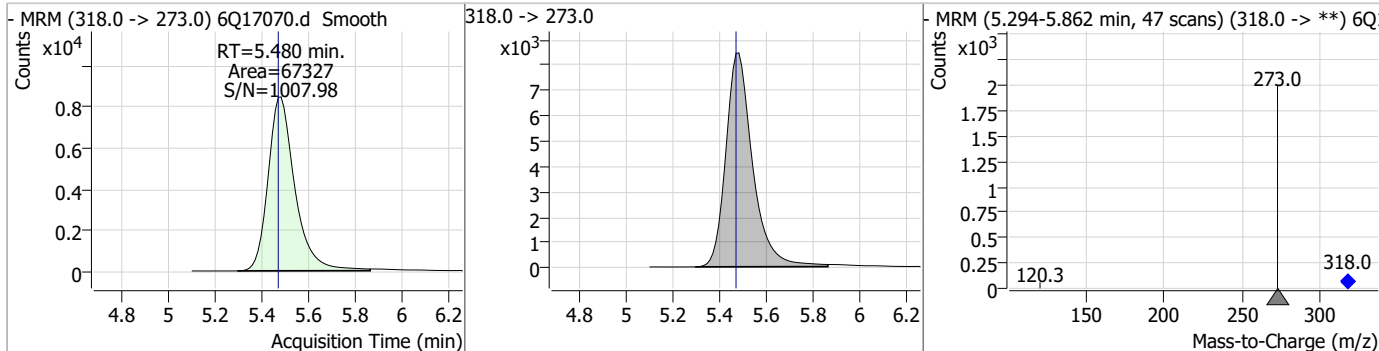
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Perfluorinated Compounds by LC/MS/MS

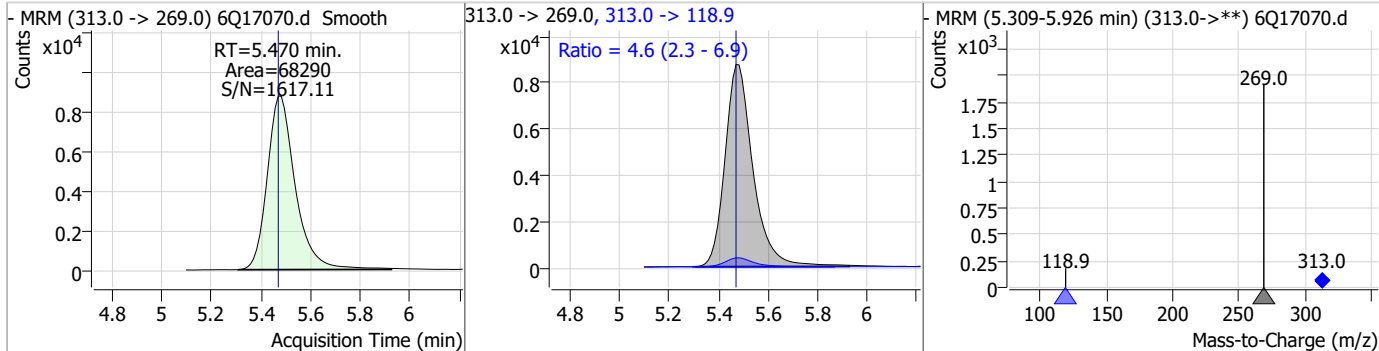
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.26	5.41	0.01	22804	298.7 -> 98.8	39.1	20.6	61.7



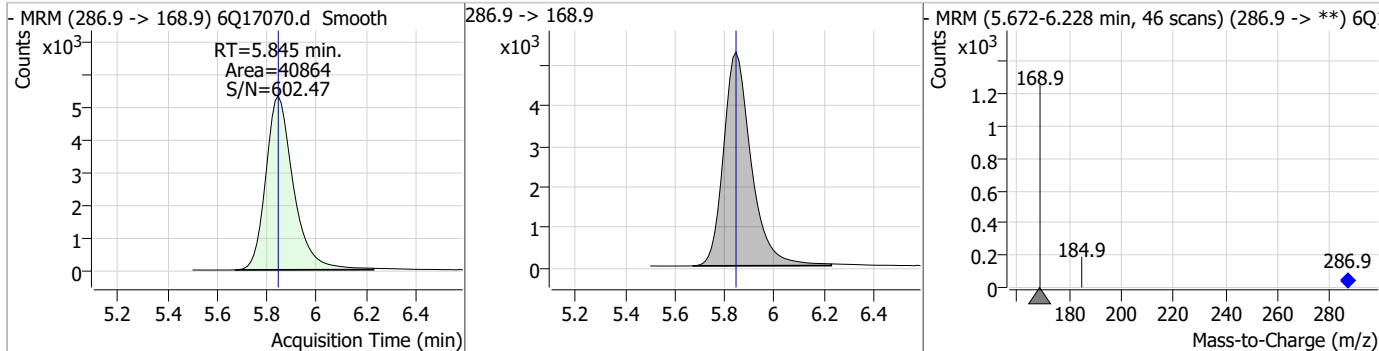
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.48	0.01	67327				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.57	5.47	0.00	68290	313.0 -> 118.9	4.6	2.3	6.9

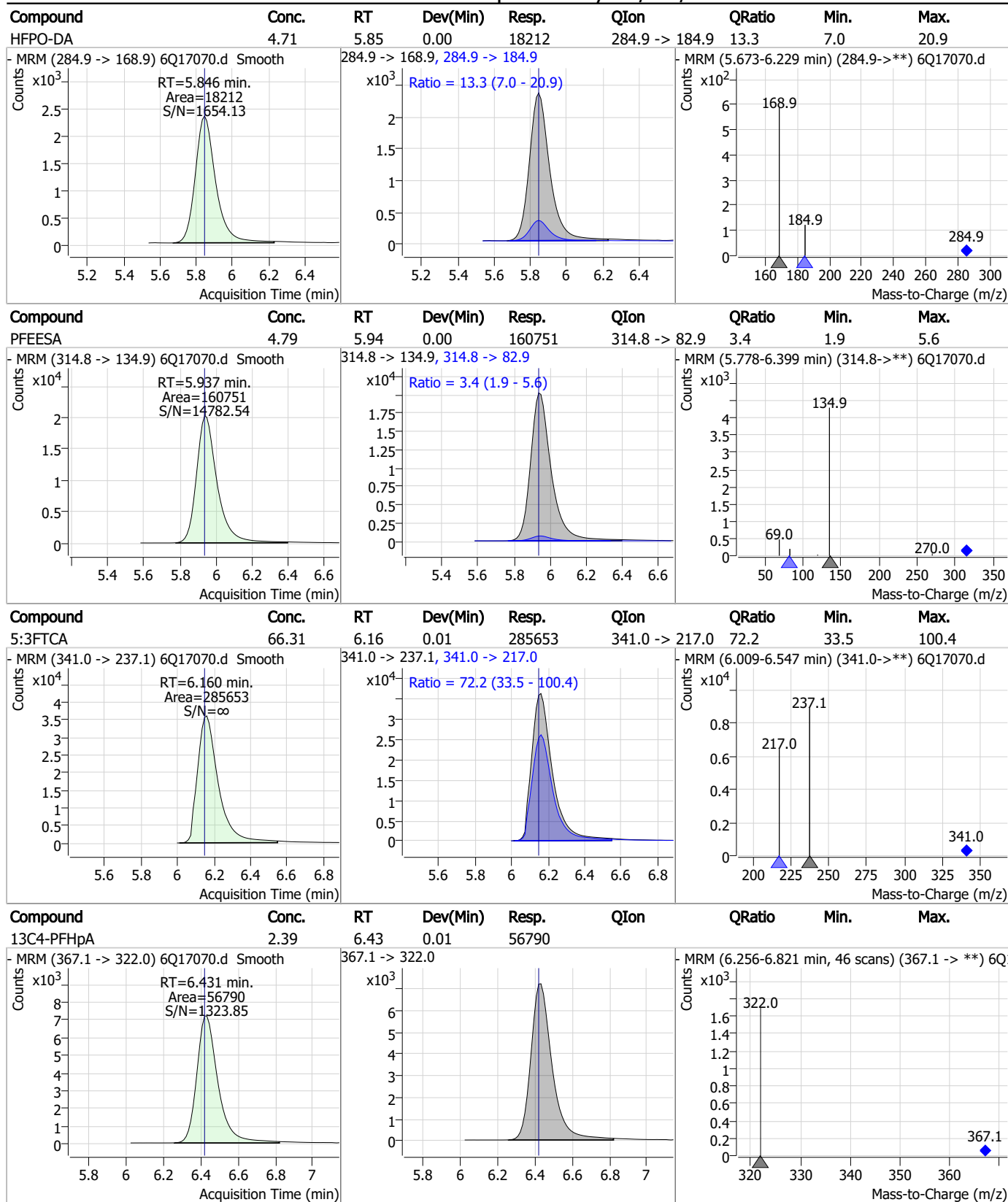


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.93	5.85	0.00	40864				



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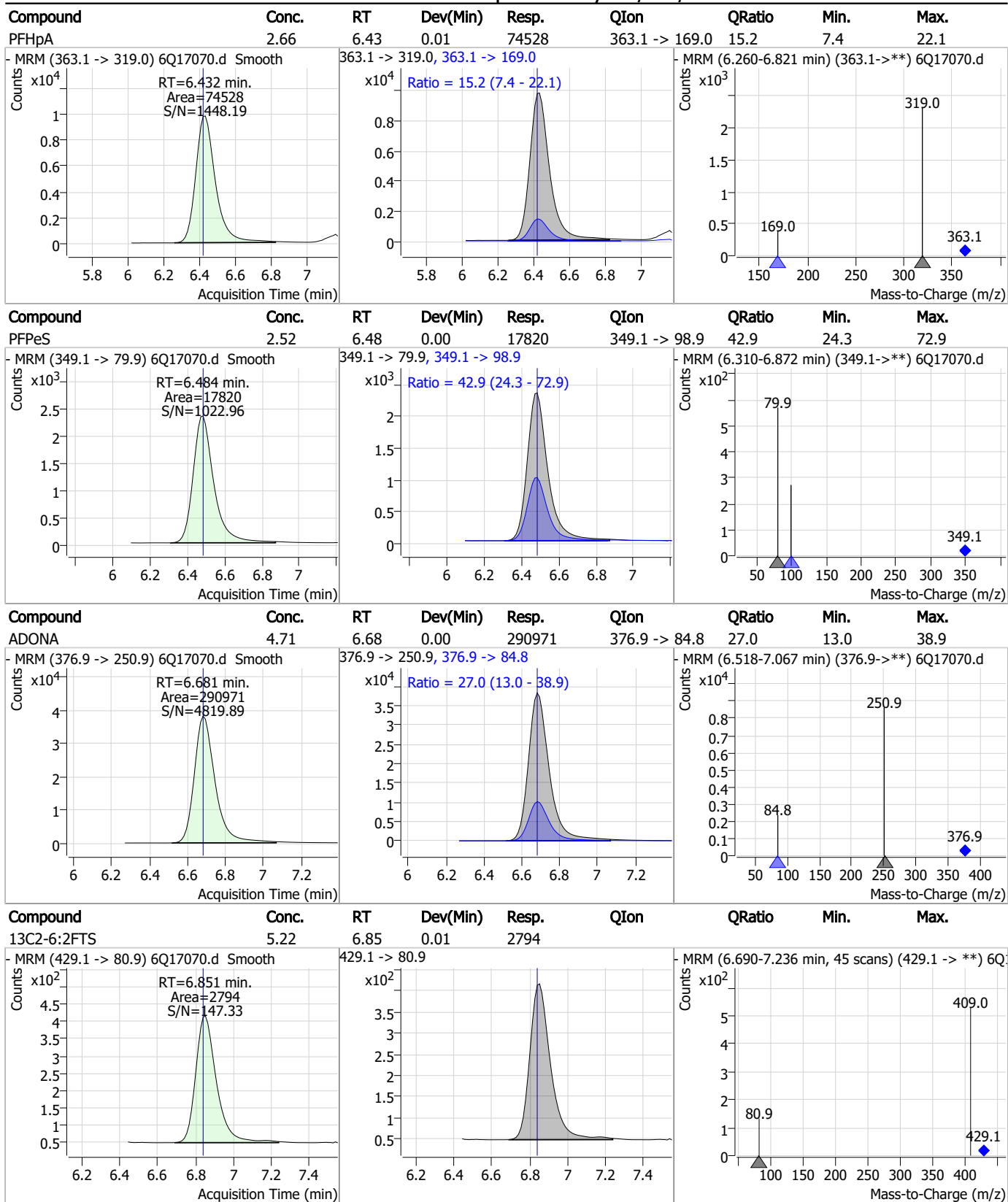
Perfluorinated Compounds by LC/MS/MS



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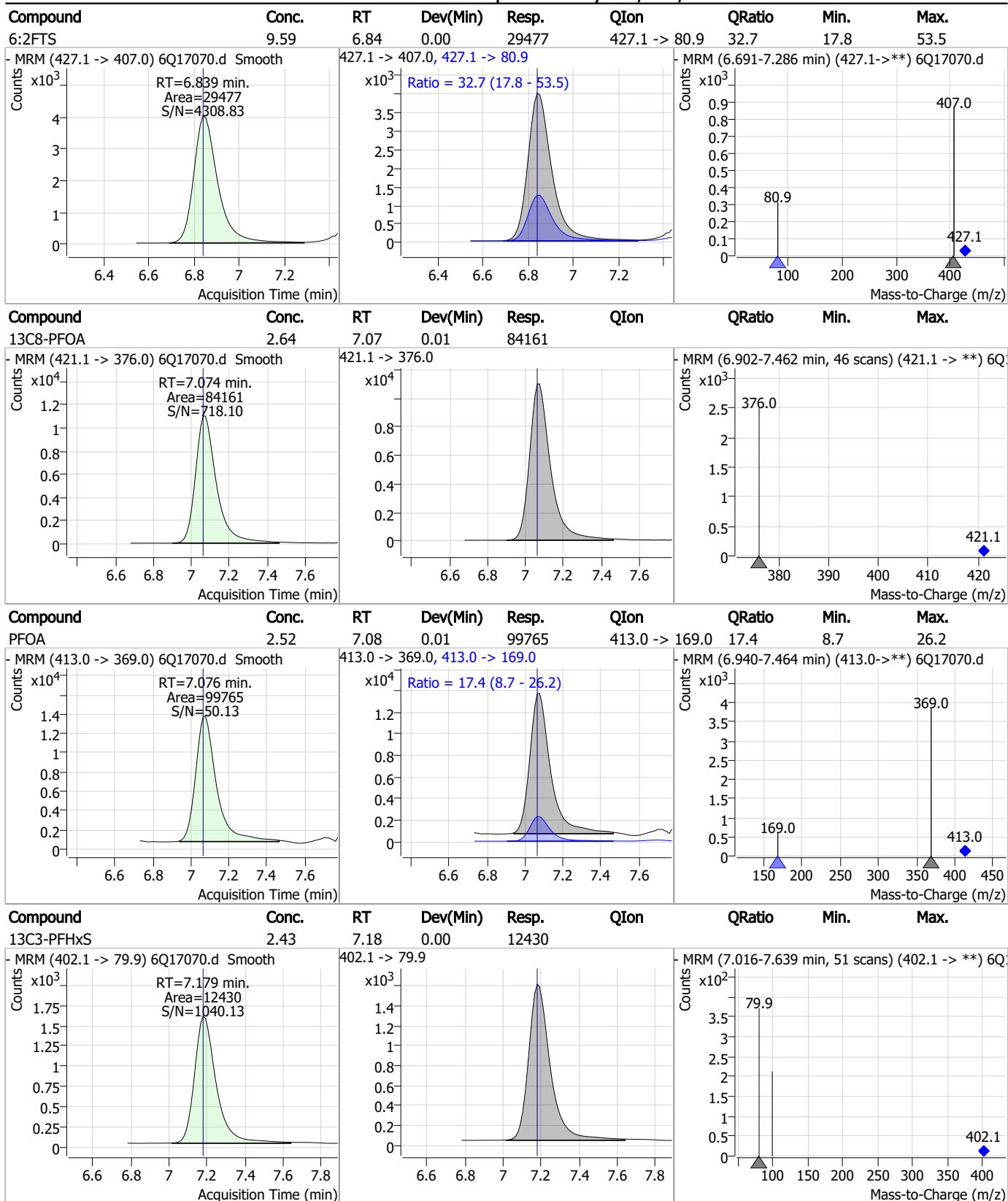


Perfluorinated Compounds by LC/MS/MS



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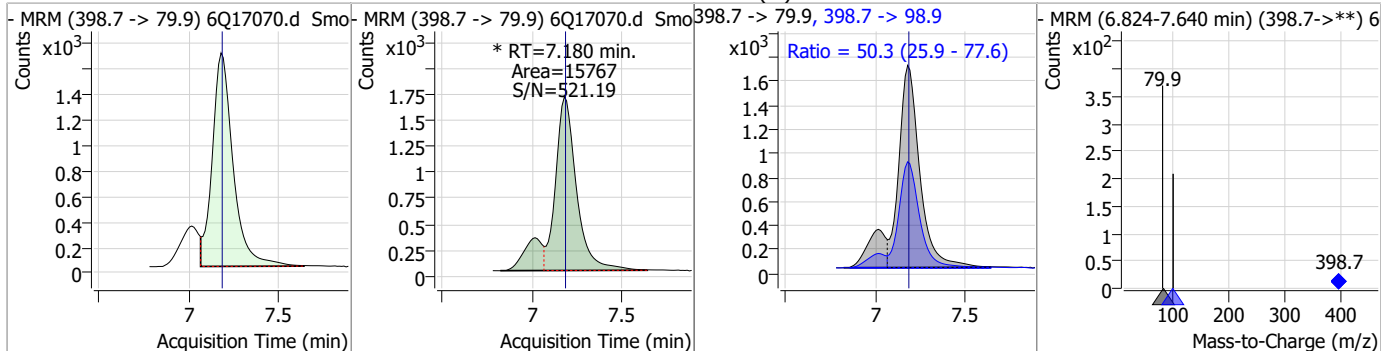
Perfluorinated Compounds by LC/MS/MS



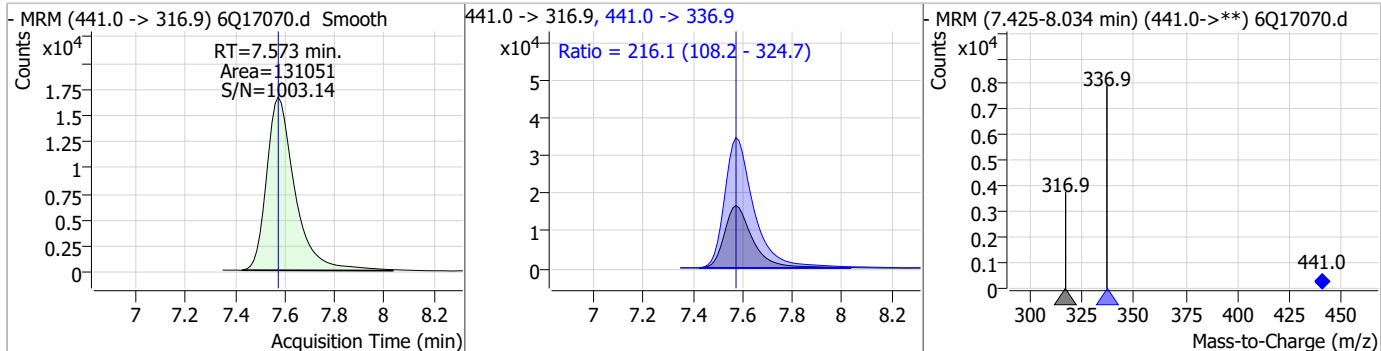
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Perfluorinated Compounds by LC/MS/MS

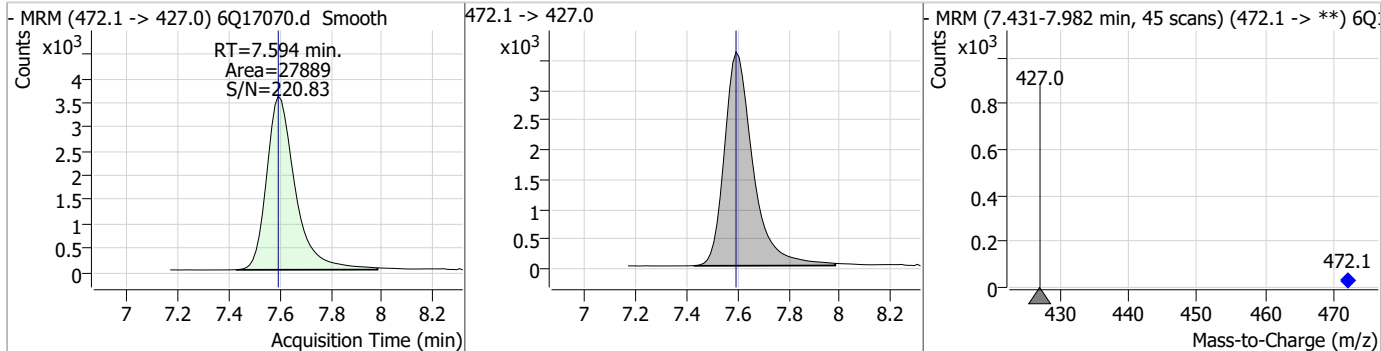
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.33	7.18	0.00	15767 (m)	398.7 -> 98.9	50.3	25.9	77.6



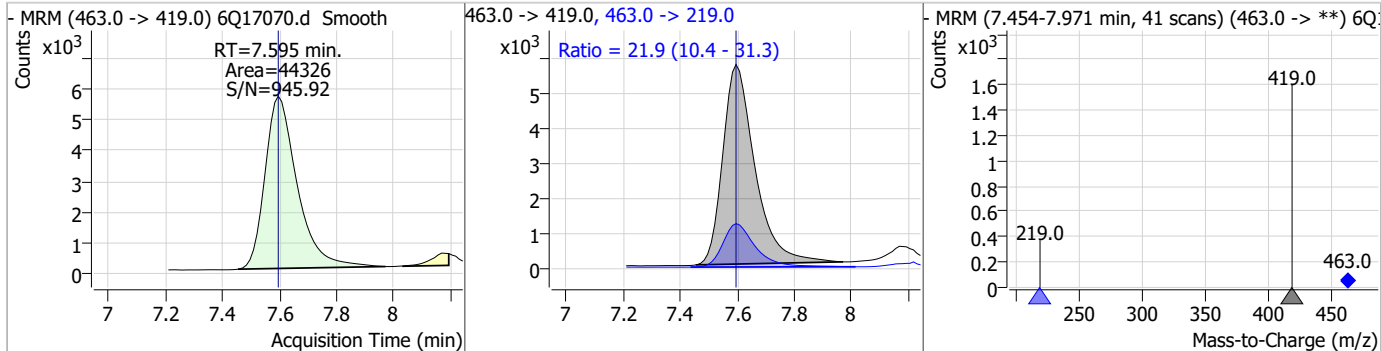
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	66.96	7.57	0.00	131051	441.0 -> 336.9	216.1	108.2	324.7



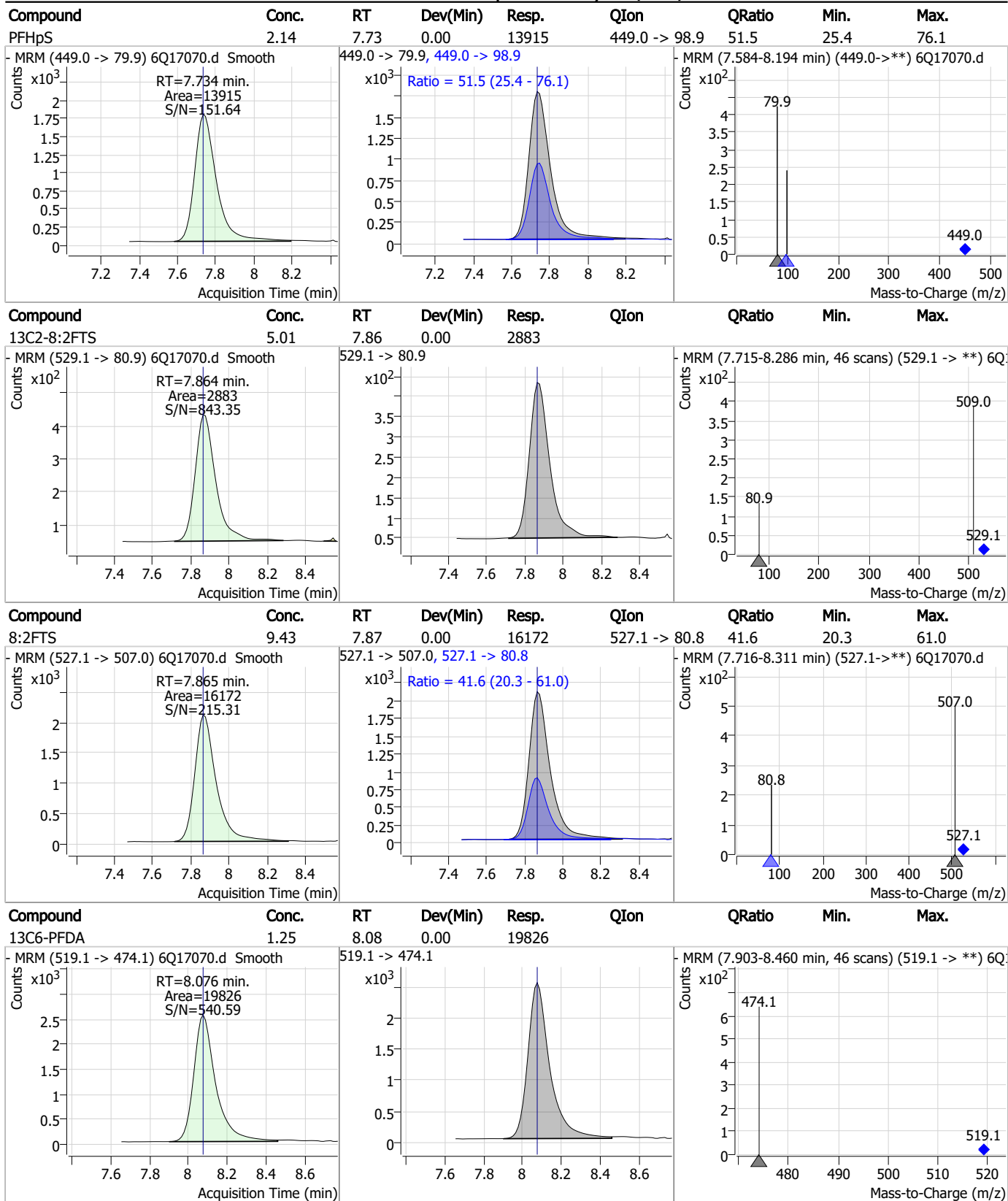
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.29	7.59	0.00	27889	472.1 -> 427.0	45	472.1	427.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.30	7.60	0.00	44326	463.0 -> 219.0	219.0	10.4	31.3

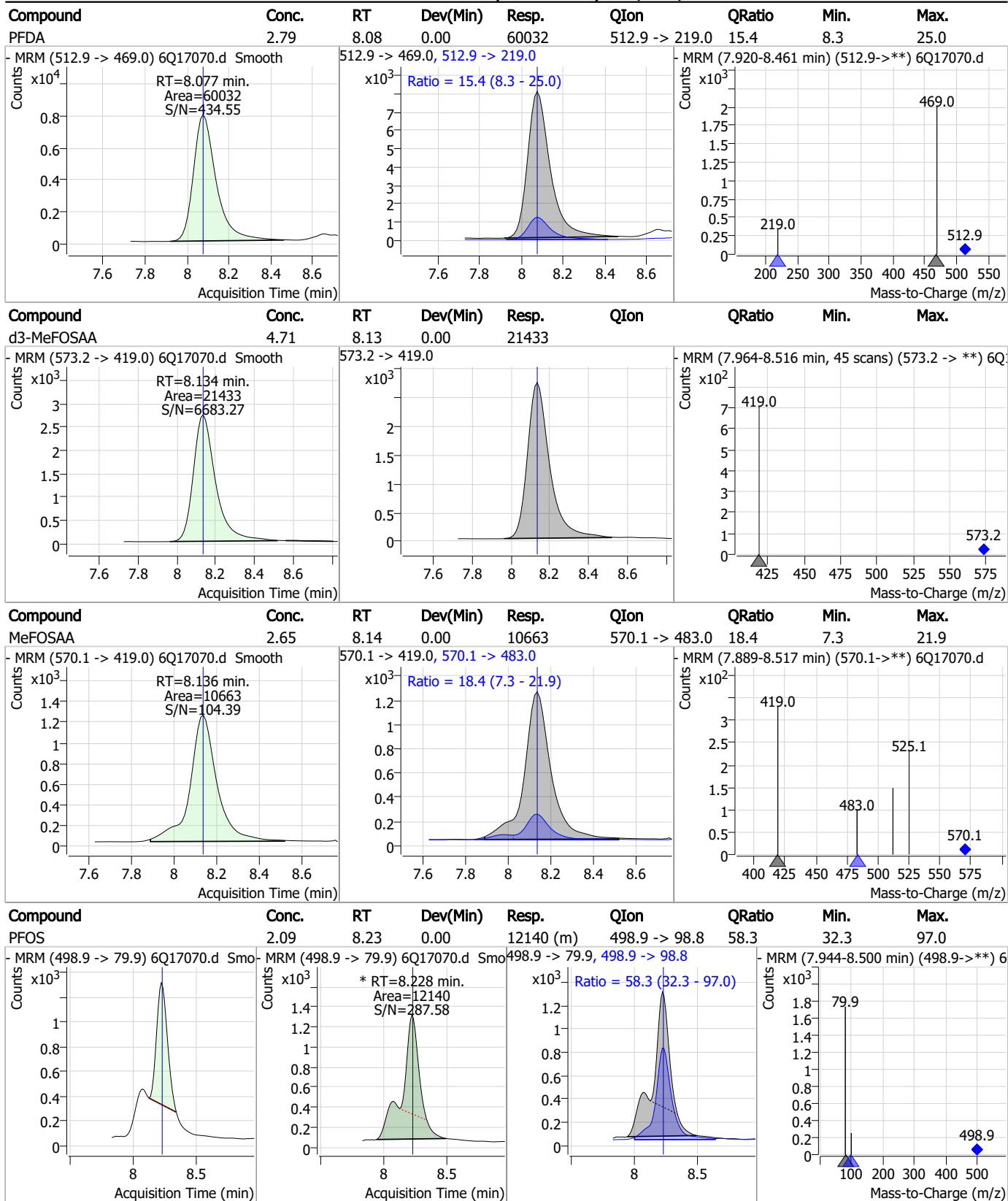


Perfluorinated Compounds by LC/MS/MS



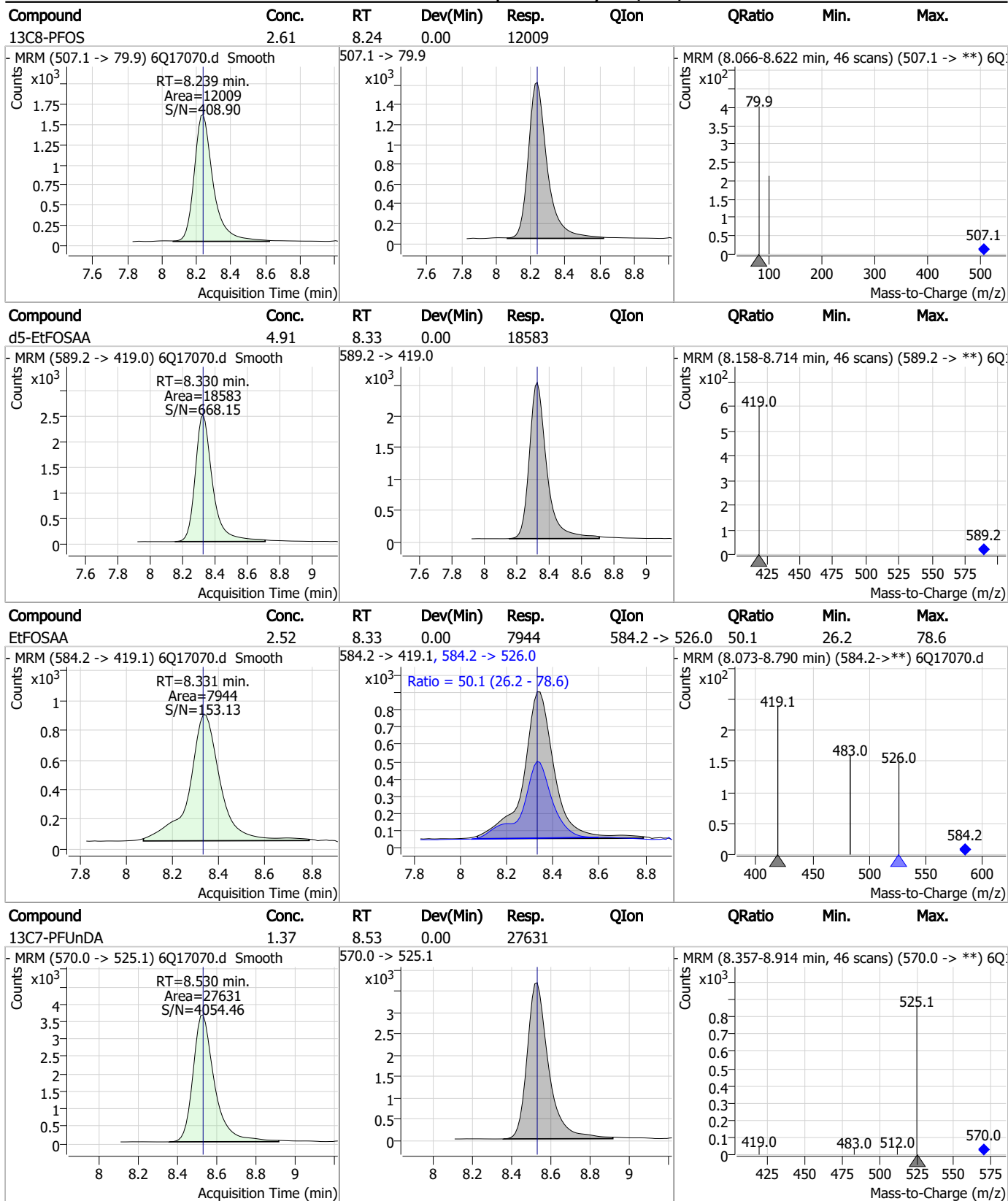
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Perfluorinated Compounds by LC/MS/MS



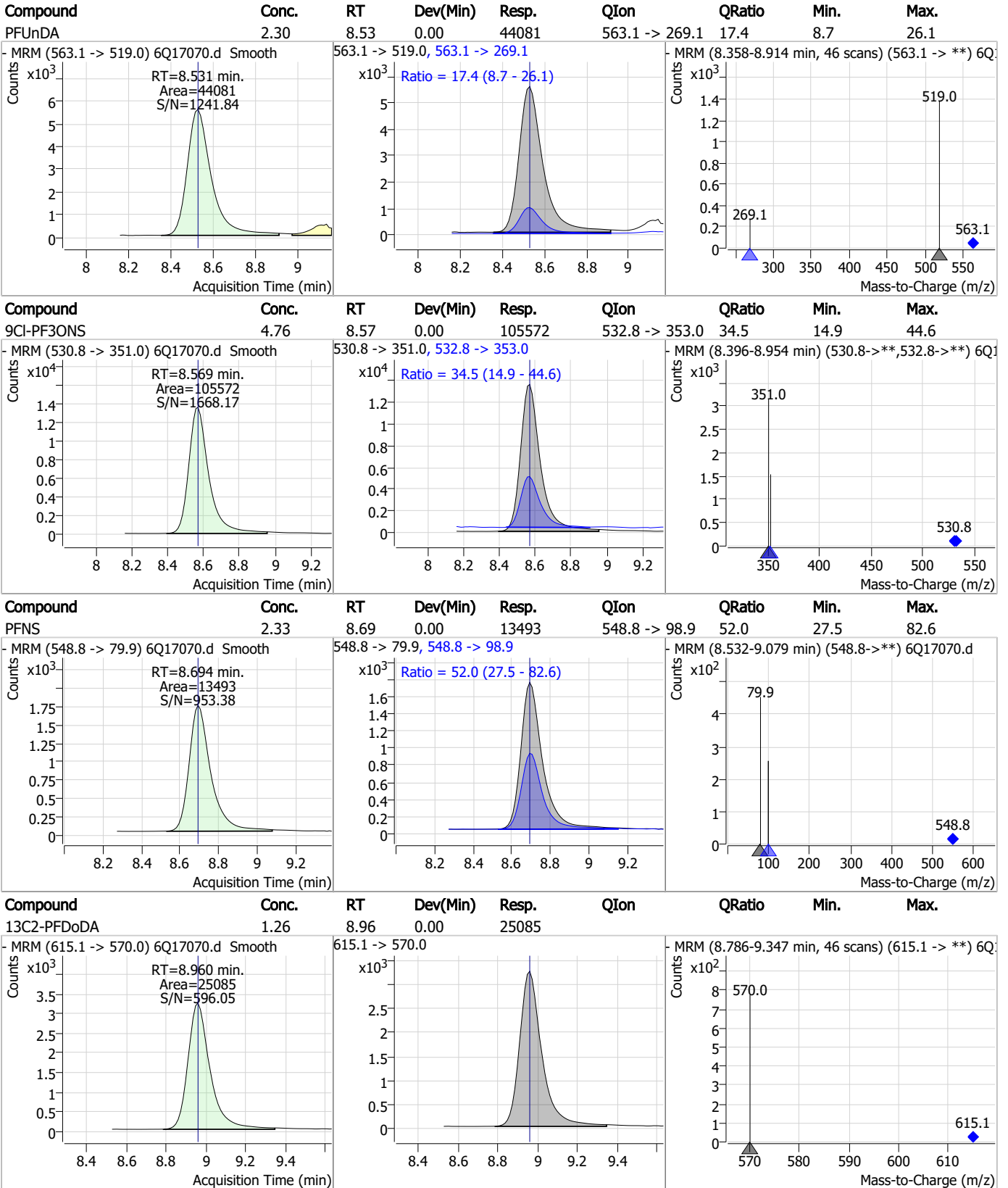
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

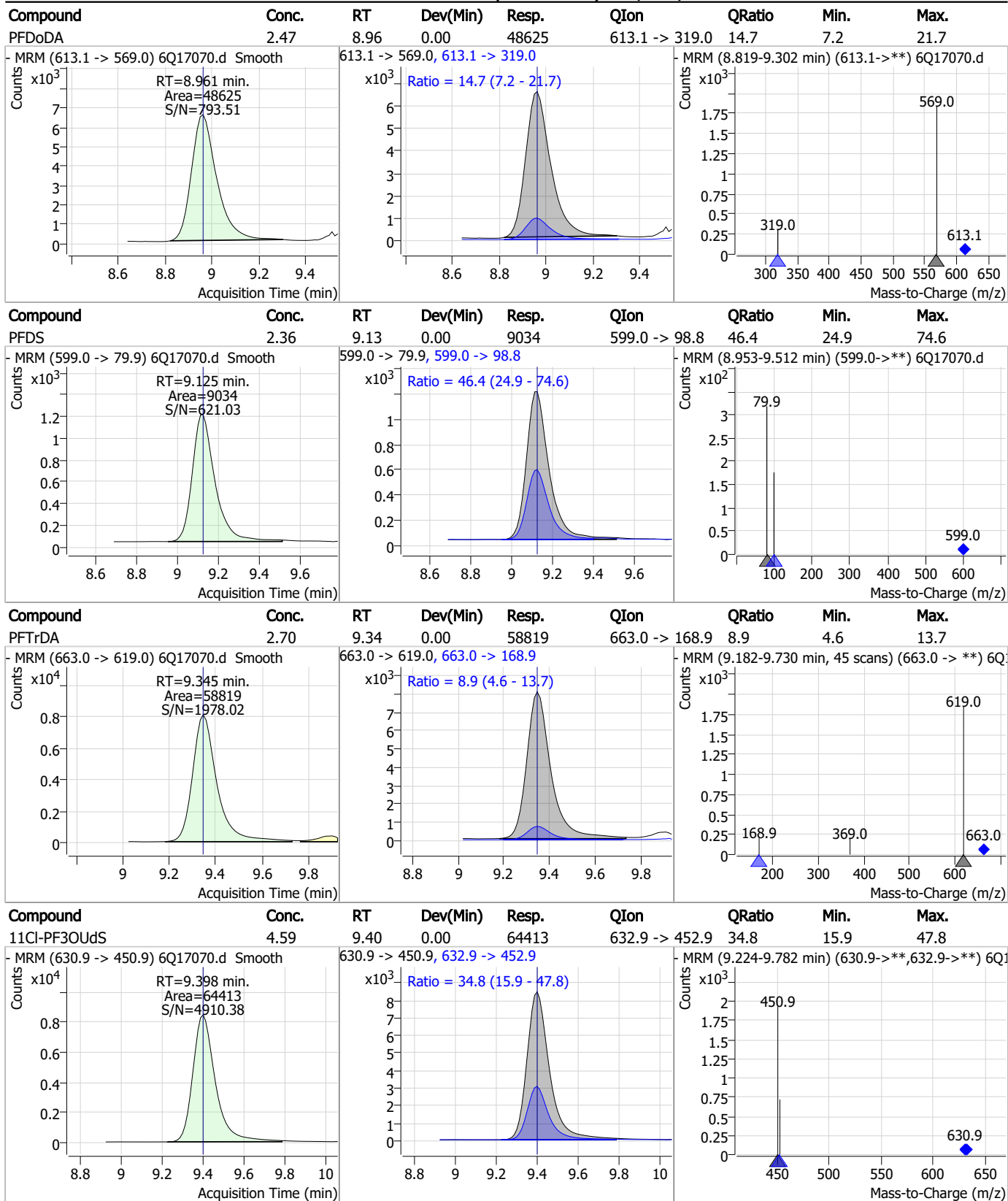


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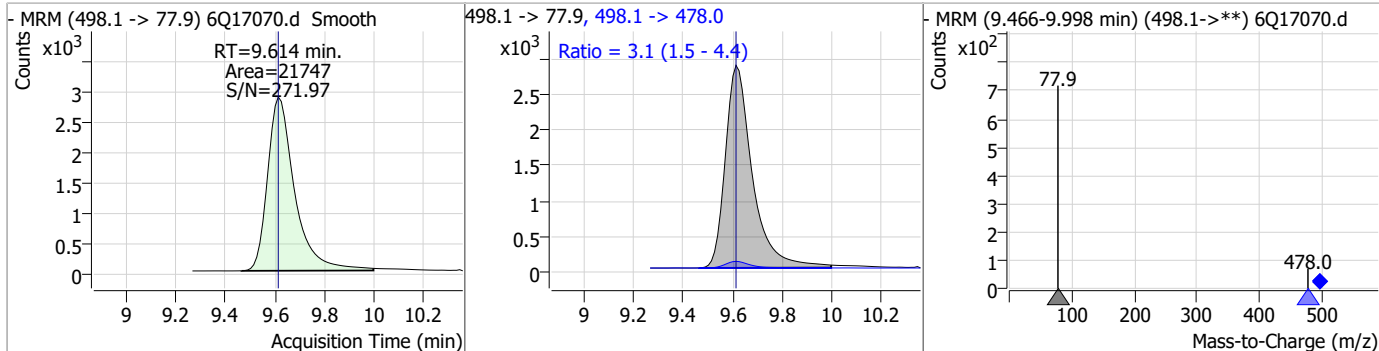
Perfluorinated Compounds by LC/MS/MS



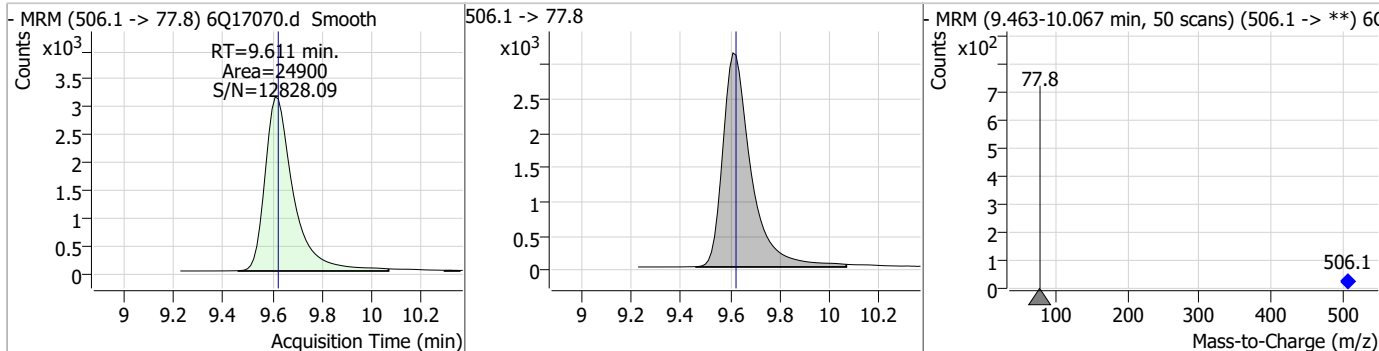
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Perfluorinated Compounds by LC/MS/MS

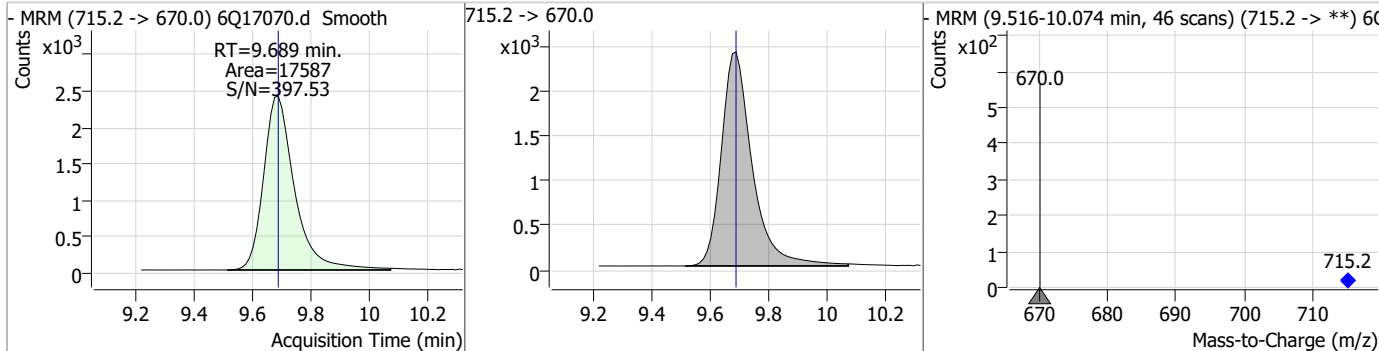
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.44	9.61	0.00	21747	498.1 -> 478.0	3.1	1.5	4.4



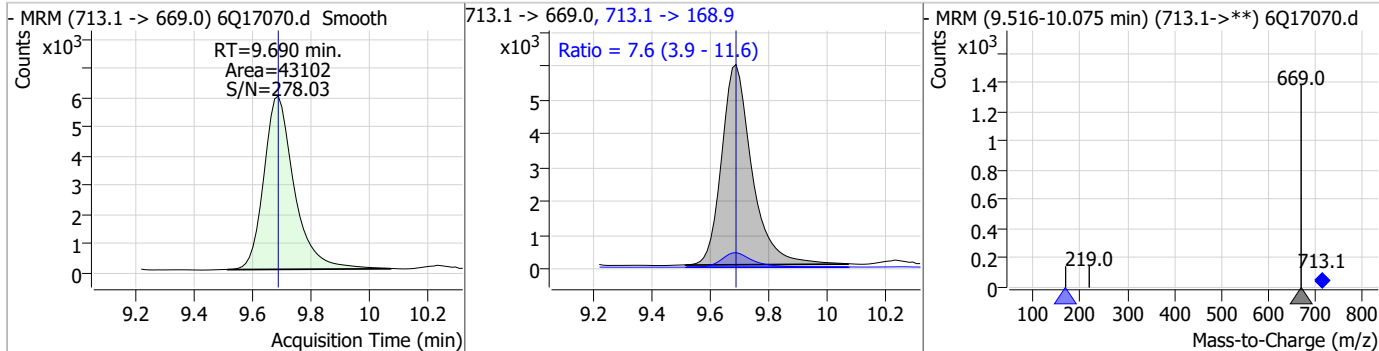
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.46	9.61	-0.01	24900				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.69	0.00	17587				

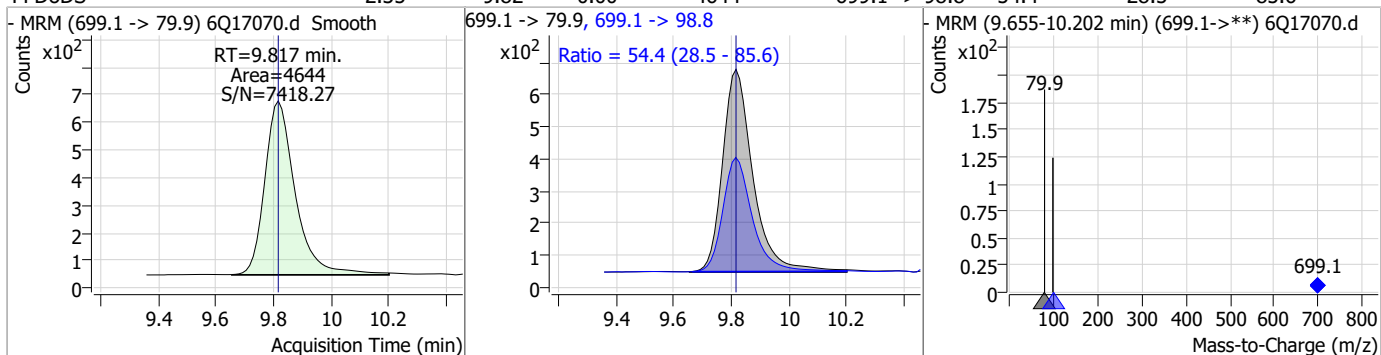


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.43	9.69	0.00	43102	713.1 -> 168.9	7.6	3.9	11.6

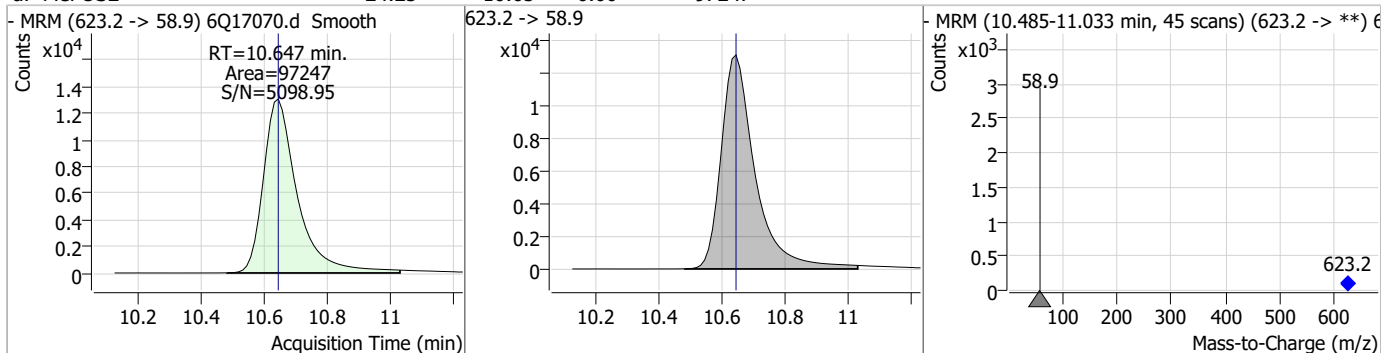


Perfluorinated Compounds by LC/MS/MS

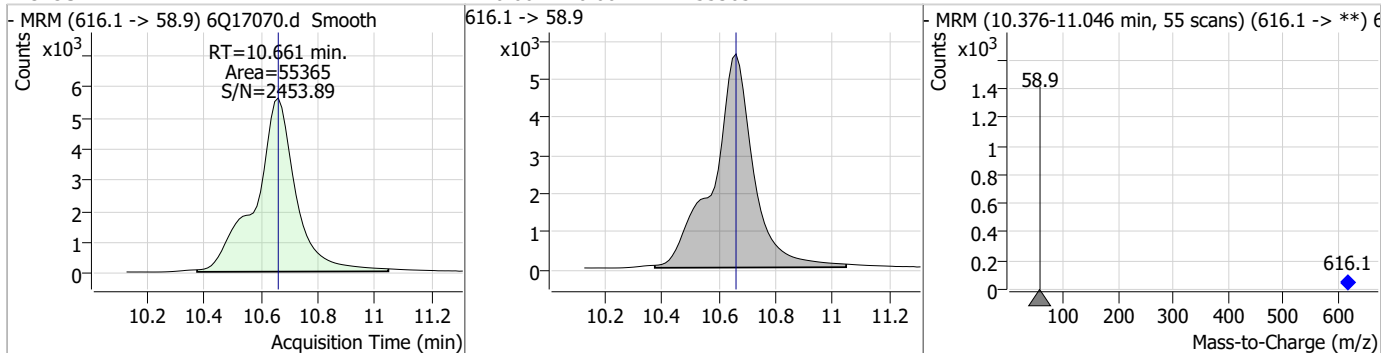
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.35	9.82	0.00	4644	699.1 -> 98.8	54.4	28.5	85.6



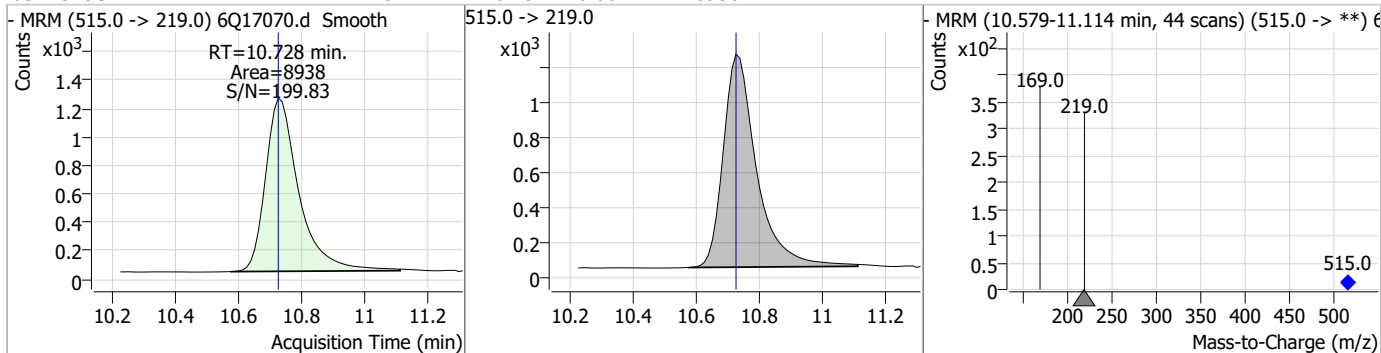
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.25	10.65	0.00	97247				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.77	10.66	0.00	55365				

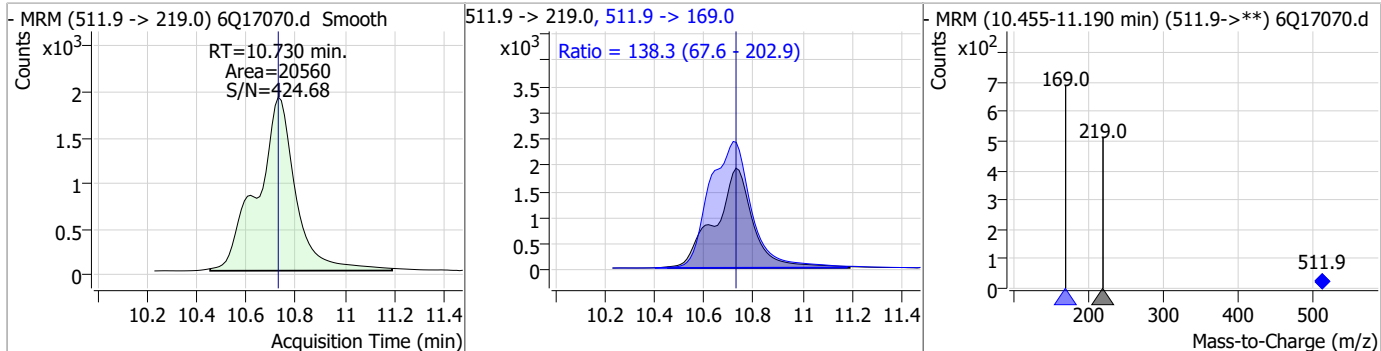


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.34	10.73	0.00	8938				

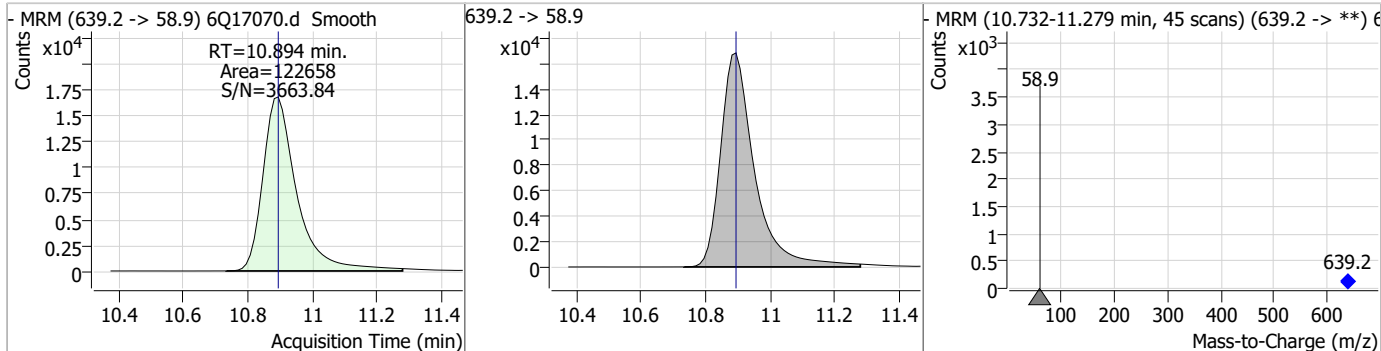


Perfluorinated Compounds by LC/MS/MS

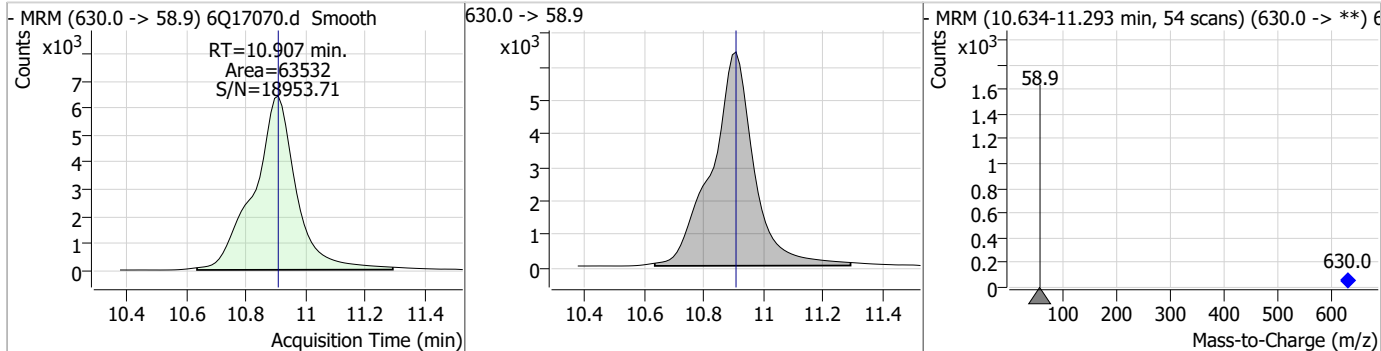
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	5.11	10.73	0.00	20560	511.9 -> 169.0	138.3	67.6	202.9



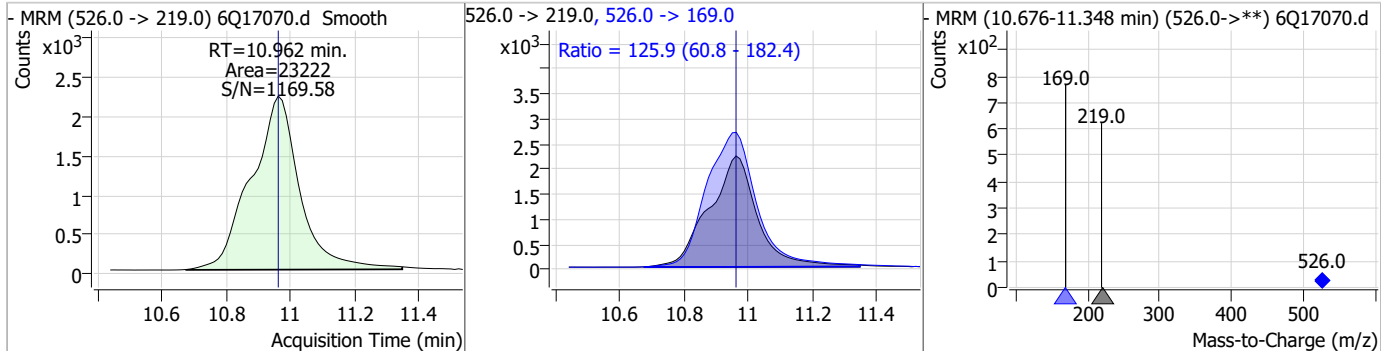
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.03	10.89	0.00	122658				



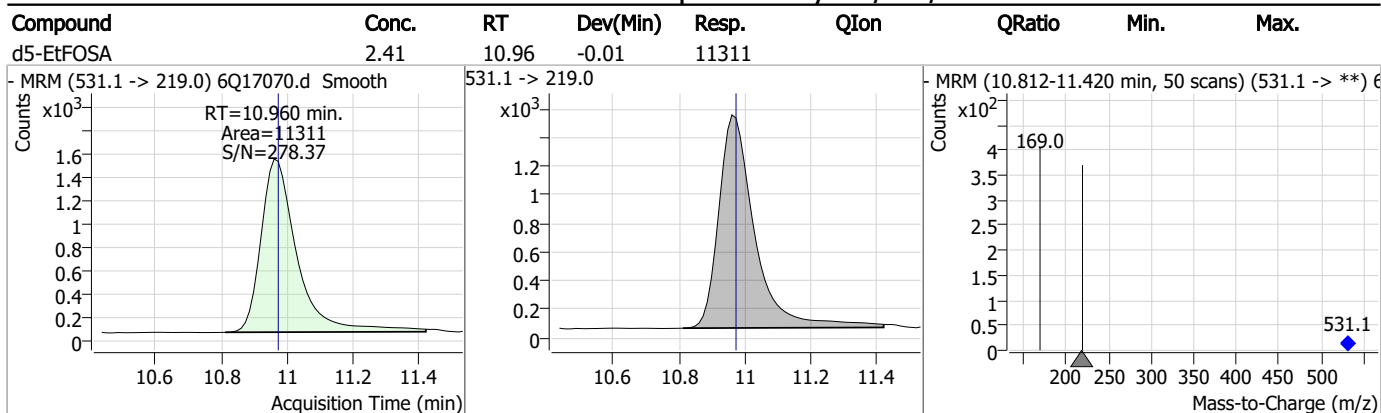
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.44	10.91	0.00	63532				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	5.00	10.96	0.00	23222	526.0 -> 169.0	125.9	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.14

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Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17070.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 17:25 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.14.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17082.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 8:19:22 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	183575	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65270	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69880	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	57624	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84445	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27205	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19964	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24140	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25730	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	17189	1.25 µg/L	-0.012
M8-FOSA	9.611	506.1 -> 77.8	25081	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22476	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12660	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10600	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2320	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2683	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3031	5.00 µg/L	0.000
M3-MeFOSAA	8.122	573.2 -> 419.0	24066	5.00 µg/L	-0.012
M3-HFPO-DA	5.845	286.9 -> 168.9	38516	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17984	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	98584	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	118196	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11127	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9544	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13645	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	79871	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9340	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85885	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	24997	1.25 µg/L	-0.012
13C5-PFNA	7.595	468.0 -> 423.0	29079	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56521	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2320	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2683	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3031	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25730	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	17189	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.398	302.1 -> 79.9	22476	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12660	2.55 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C4-PFBA	2.910	216.8 -> 171.9	183575	9.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.419	367.1 -> 322.0	57624	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69880	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	65270	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C6-PFDA	8.076	519.1 -> 474.1	19964	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24140	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C8-FOSA	9.611	506.1 -> 77.8	25081	2.78 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-PFOA	7.062	421.1 -> 376.0	84445	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOS	8.226	507.1 -> 79.9	10600	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C9-PFNA	7.594	472.1 -> 427.0	27205	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSAA	8.122	573.2 -> 419.0	24066	5.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38516	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	9544	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17984	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
d7-MeFOSE	10.647	623.2 -> 58.9	98584	27.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
d9-EtFOSE	10.894	639.2 -> 58.9	118196	27.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	11127	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32041	9.13 µg/L	100
		327.1 -> 80.9	11768		
6:2FTS	6.839	427.1 -> 407.0	26817	9.09 µg/L	100
		427.1 -> 80.9	9530		
8:2FTS	7.865	527.1 -> 507.0	16795	9.31 µg/L	100
		527.1 -> 80.8	6859		
EtFOSAA	8.331	584.2 -> 419.1	8012	2.62 µg/L	98
		584.2 -> 526.0	4305		
FOSA	9.614	498.1 -> 77.9	21842	2.43 µg/L	99
		498.1 -> 478.0	678		
MeFOSAA	8.136	570.1 -> 419.0	10447	2.31 µg/L	87
		570.1 -> 483.0	2065		
PFBA	2.906	212.8 -> 168.9	62969	10.23 µg/L	100
PFBS	5.400	298.7 -> 79.9	23713	2.35 µg/L	96
		298.7 -> 98.8	9121		
PFDA	8.077	512.9 -> 469.0	59243	2.73 µg/L	98
		512.9 -> 219.0	9264		
PFDODA	8.961	613.1 -> 569.0	46935	2.33 µg/L	99
		613.1 -> 319.0	6546		
PFDS	9.125	599.0 -> 79.9	8709	2.58 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4210	2.55	µg/L	96
		363.1 -> 319.0	72525			
PFHpS	7.734	363.1 -> 169.0	11898	2.45	µg/L	99
		449.0 -> 79.9	14070			
PFHxA	5.470	449.0 -> 98.9	7236	2.40	µg/L	100
		313.0 -> 269.0	66279			
PFHxS	7.180	313.0 -> 118.9	3068	2.31	µg/L	96
		398.7 -> 79.9	15933			
PFNA	7.595	398.7 -> 98.9	7771	2.40	µg/L	99
		463.0 -> 419.0	45204			
PFNS	8.694	463.0 -> 219.0	9631	2.56	µg/L	96
		548.8 -> 79.9	13118			
PFOA	7.063	548.8 -> 98.9	6825	2.39	µg/L	99
		413.0 -> 369.0	94757			
PFOS	8.228	413.0 -> 169.0	17176	2.45	µg/L	86
		498.9 -> 79.9	12532			
PFPeA	4.273	498.9 -> 98.8	6777	5.02	µg/L	100
		263.0 -> 219.0	89283			
PFPeS	6.472	349.1 -> 79.9	17830	2.47	µg/L	90
		349.1 -> 98.9	7441			
PFTeDA	9.690	713.1 -> 669.0	43854	2.52	µg/L	100
		713.1 -> 168.9	3388			
PFTrDA	9.345	663.0 -> 619.0	56230	2.52	µg/L	99
		663.0 -> 168.9	5292			
PFUnDA	8.531	563.1 -> 519.0	49506	2.96	µg/L	93
		563.1 -> 269.1	7113			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	66350	5.02	µg/L	100
		632.9 -> 452.9	21035			
9Cl-PF3ONS	8.557	530.8 -> 351.0	110182	5.27	µg/L	96
		532.8 -> 353.0	35082			
ADONA	6.681	376.9 -> 250.9	300355	5.16	µg/L	99
		376.9 -> 84.8	76910			
HFPO-DA	5.846	284.9 -> 168.9	18202	4.99	µg/L	99
		284.9 -> 184.9	2593			
3:3FTCA	3.784	241.0 -> 177.0	13408	12.06	µg/L	98
		241.0 -> 117.0	1700			
5:3FTCA	6.160	341.0 -> 237.1	286006	63.96	µg/L	92
		341.0 -> 217.0	209688			
7:3FTCA	7.573	441.0 -> 316.9	129625	63.82	µg/L	95
		441.0 -> 336.9	291382			
EtFOSA	10.962	526.0 -> 219.0	23112	5.05	µg/L	97
		526.0 -> 169.0	28927			
EtFOSE	10.907	630.0 -> 58.9	62482	12.69	µg/L	100
		511.9 -> 219.0	20273			
MeFOSA	10.730	511.9 -> 169.0	28171	4.72	µg/L	97
		616.1 -> 58.9	53682			
MeFOSE	10.661	699.1 -> 79.9	4894	12.21	µg/L	100
		699.1 -> 98.8	2408			
PFDoDS	9.817	295.0 -> 201.0	14993	2.80	µg/L	89
		295.0 -> 84.9	3908			
NFDHA	5.350	279.0 -> 85.1	59575	5.01	µg/L	96
		229.0 -> 84.9	43954			
PFMBA	4.687	314.8 -> 134.9	153739	4.94	µg/L	100
		314.8 -> 82.9	5416			
PFMPA	3.438			4.41	µg/L	99
PFEESA	5.937					

= Qualifier out of range, m = manually integrated, + = Area summed



7.7.15
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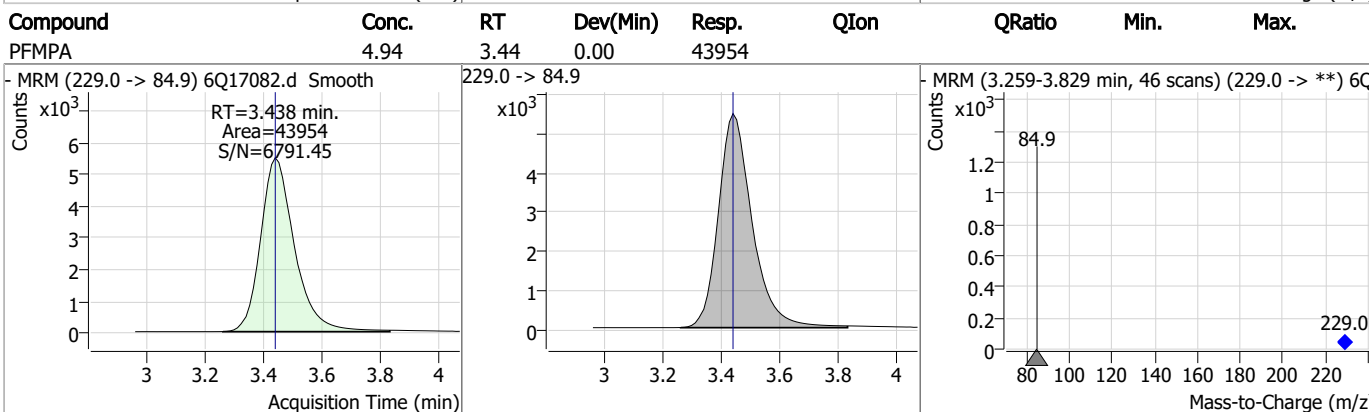
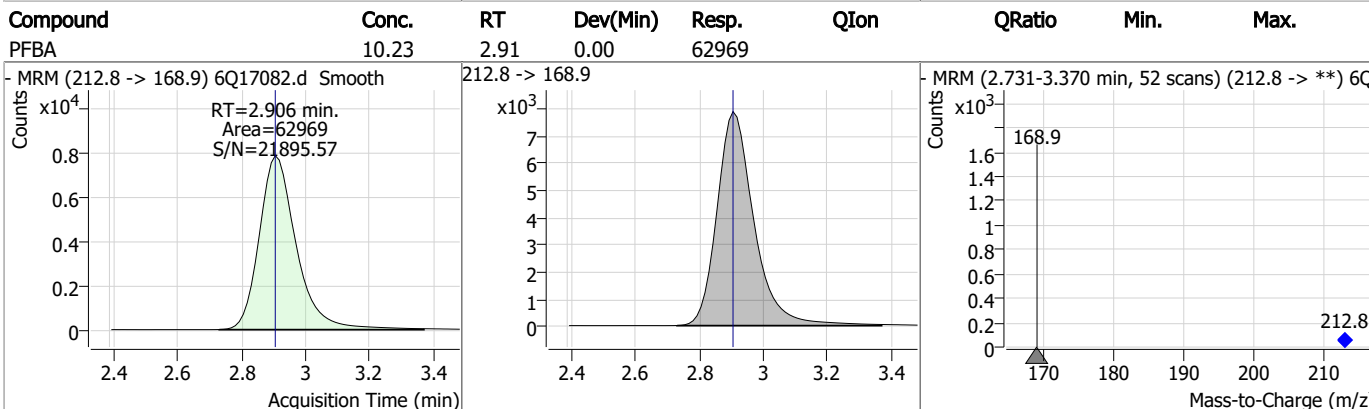
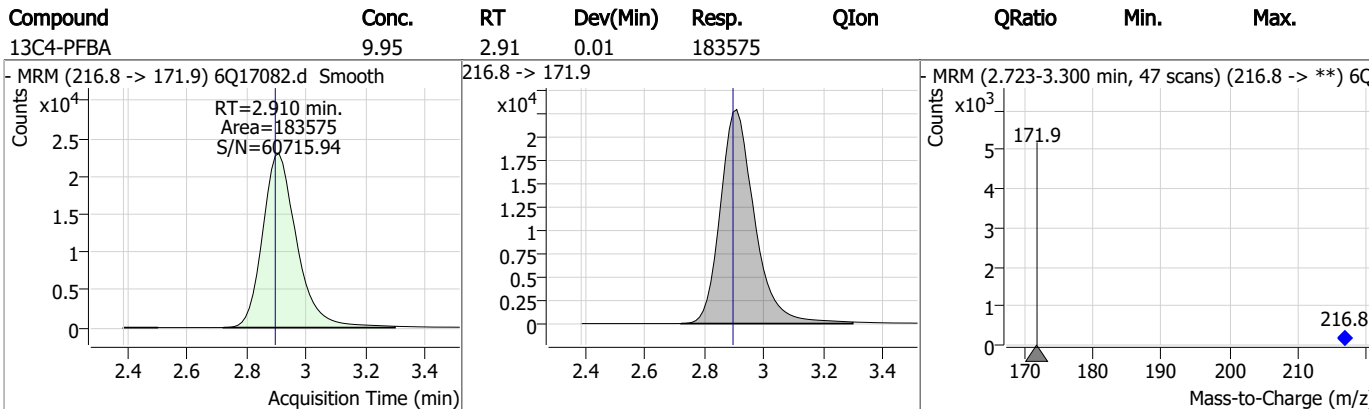
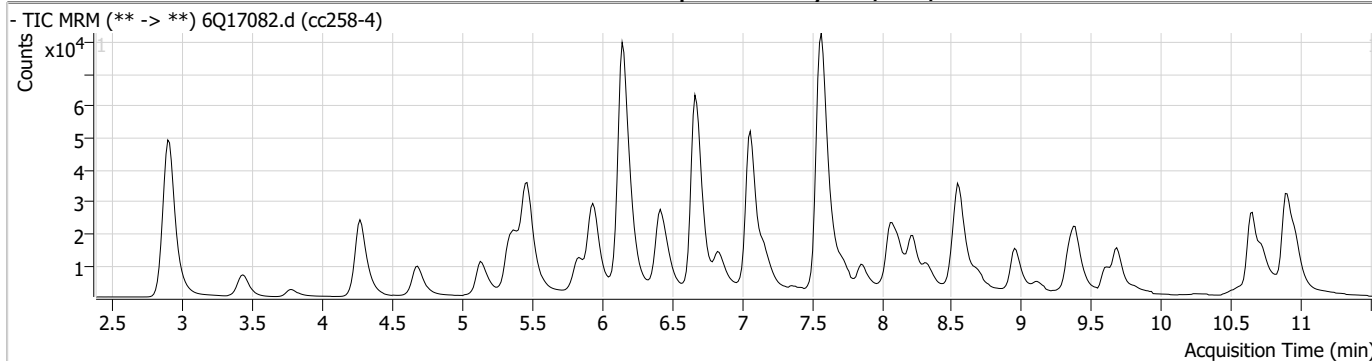
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.15

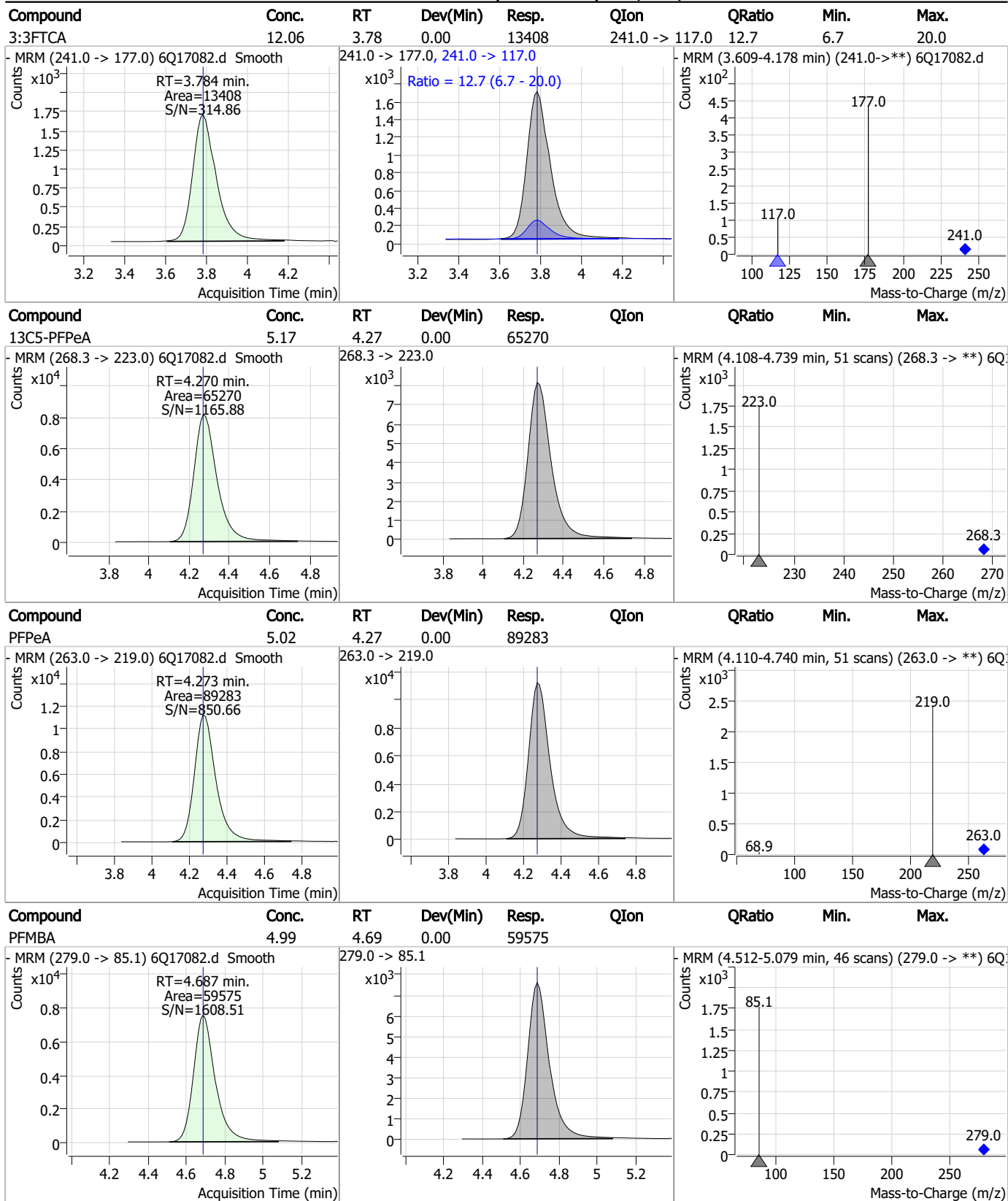
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Perfluorinated Compounds by LC/MS/MS



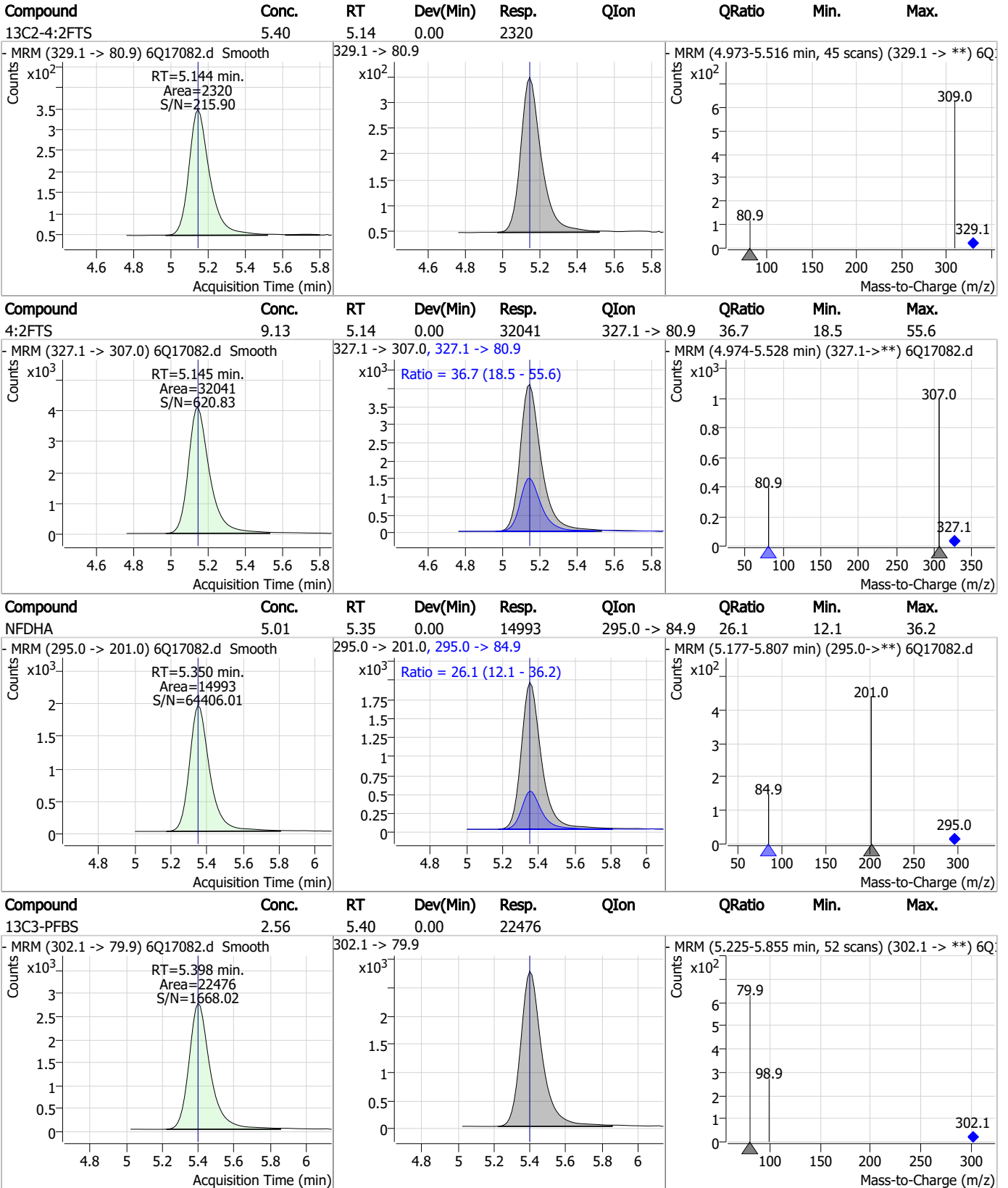
7.7.15
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Perfluorinated Compounds by LC/MS/MS



7.7.15
7

Perfluorinated Compounds by LC/MS/MS

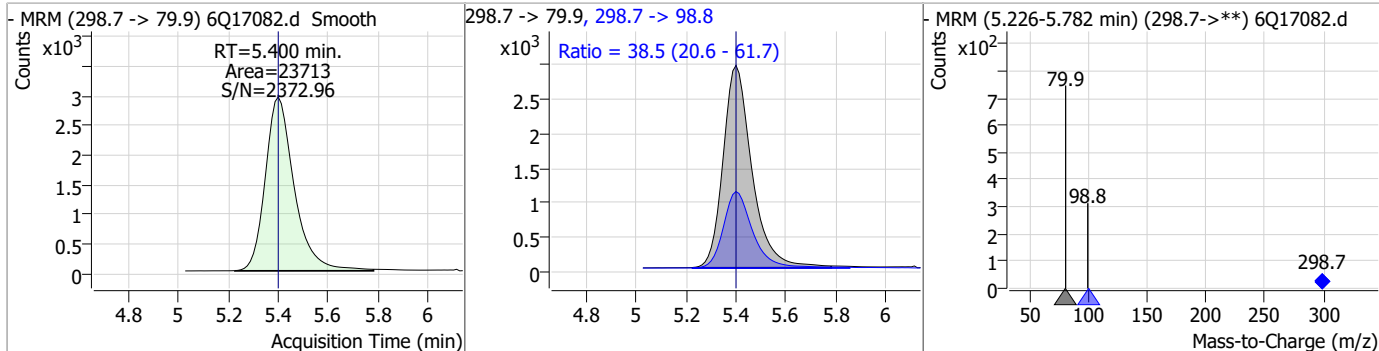


7.7.15 7

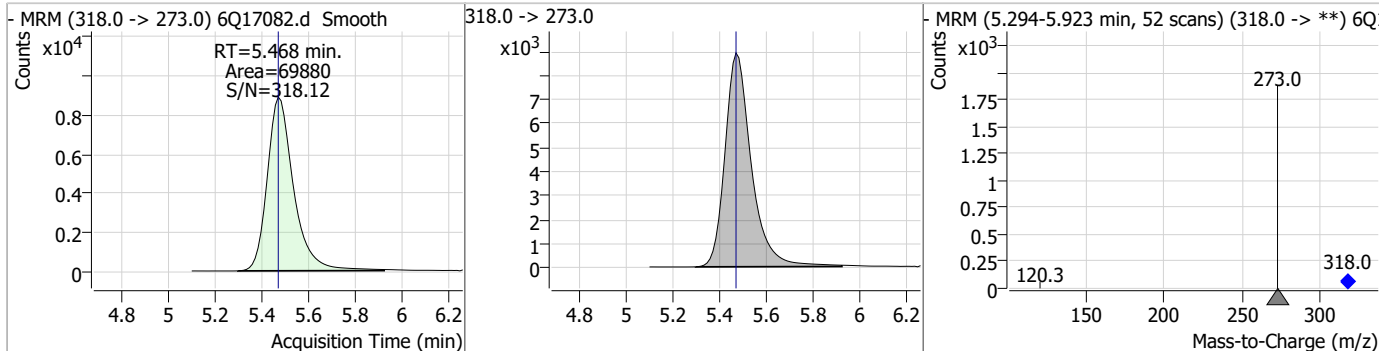


Perfluorinated Compounds by LC/MS/MS

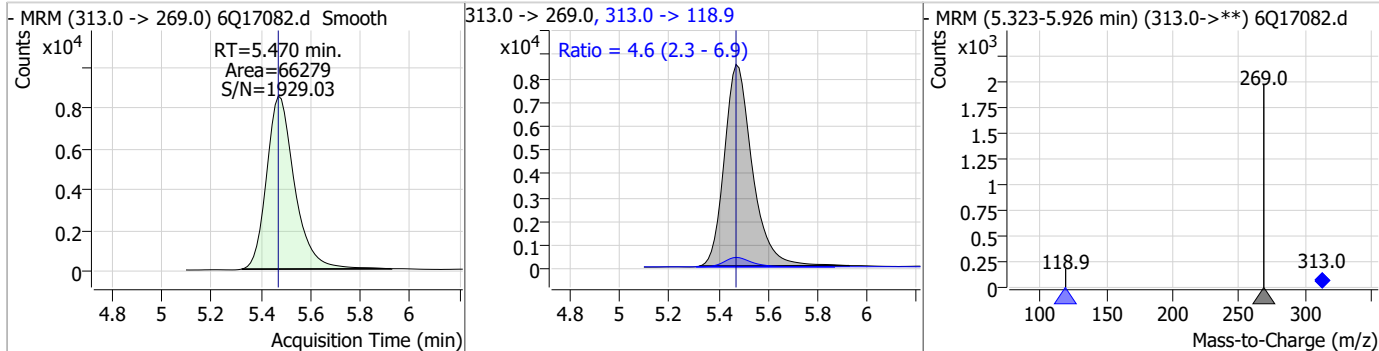
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.35	5.40	0.00	23713	298.7 -> 98.8	38.5	20.6	61.7



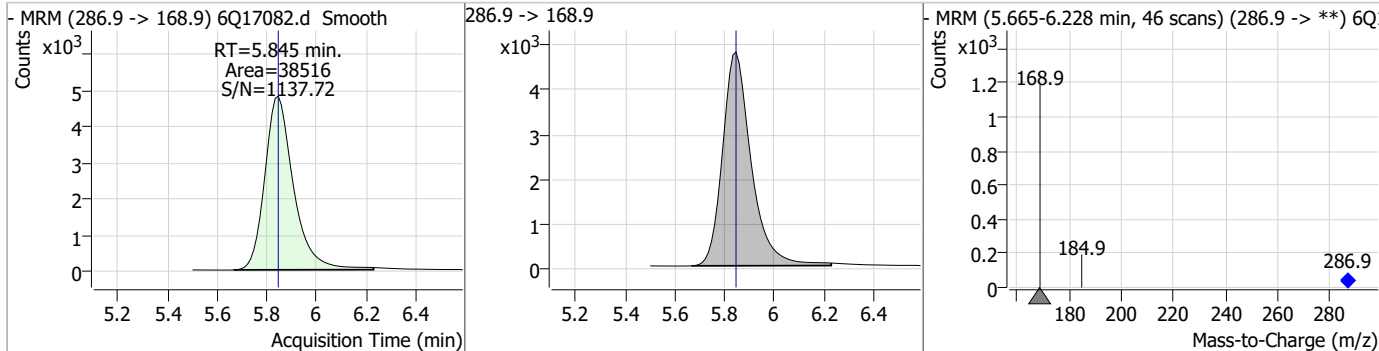
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.47	0.00	69880				



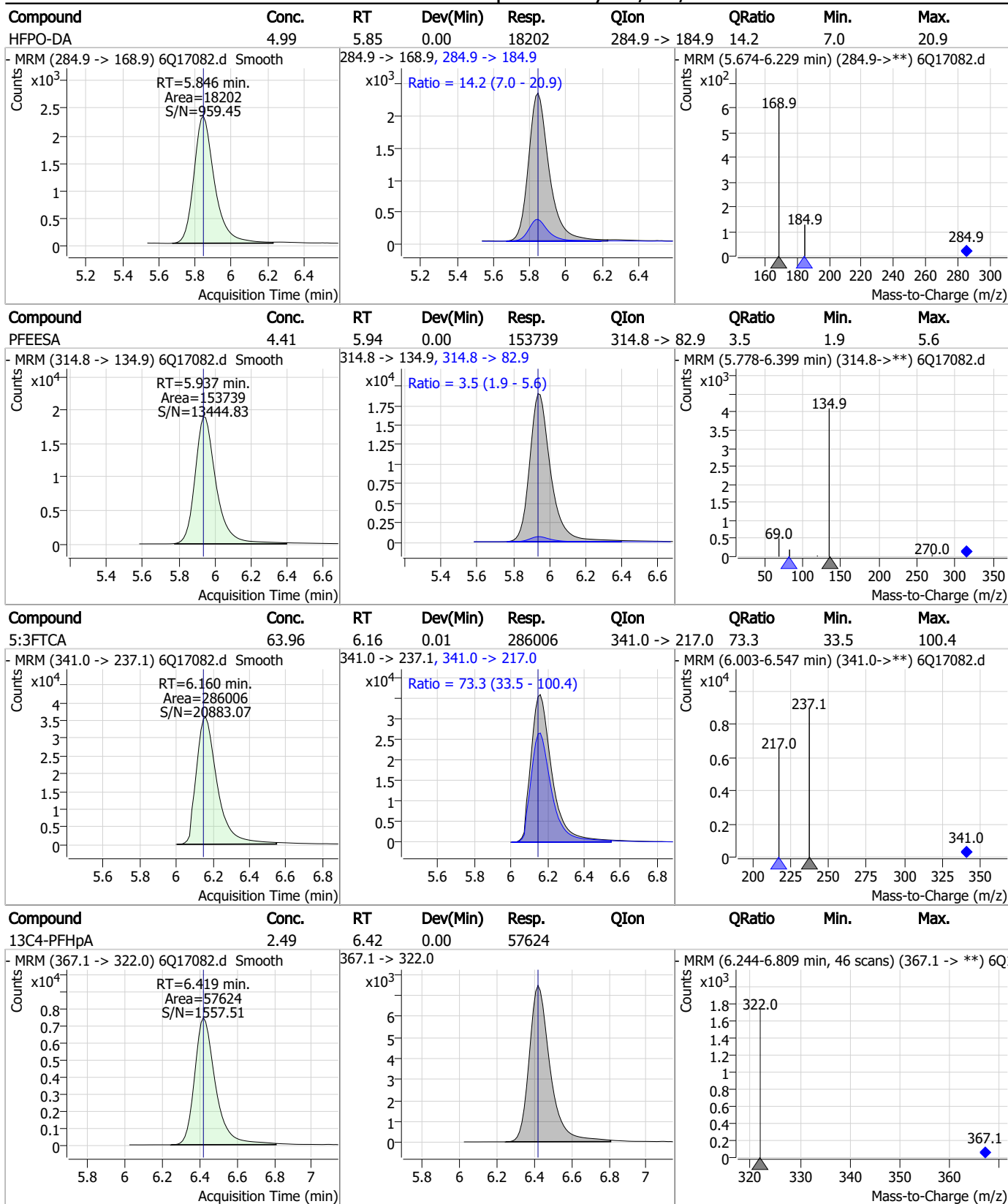
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.40	5.47	0.00	66279	313.0 -> 118.9	4.6	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	38516				



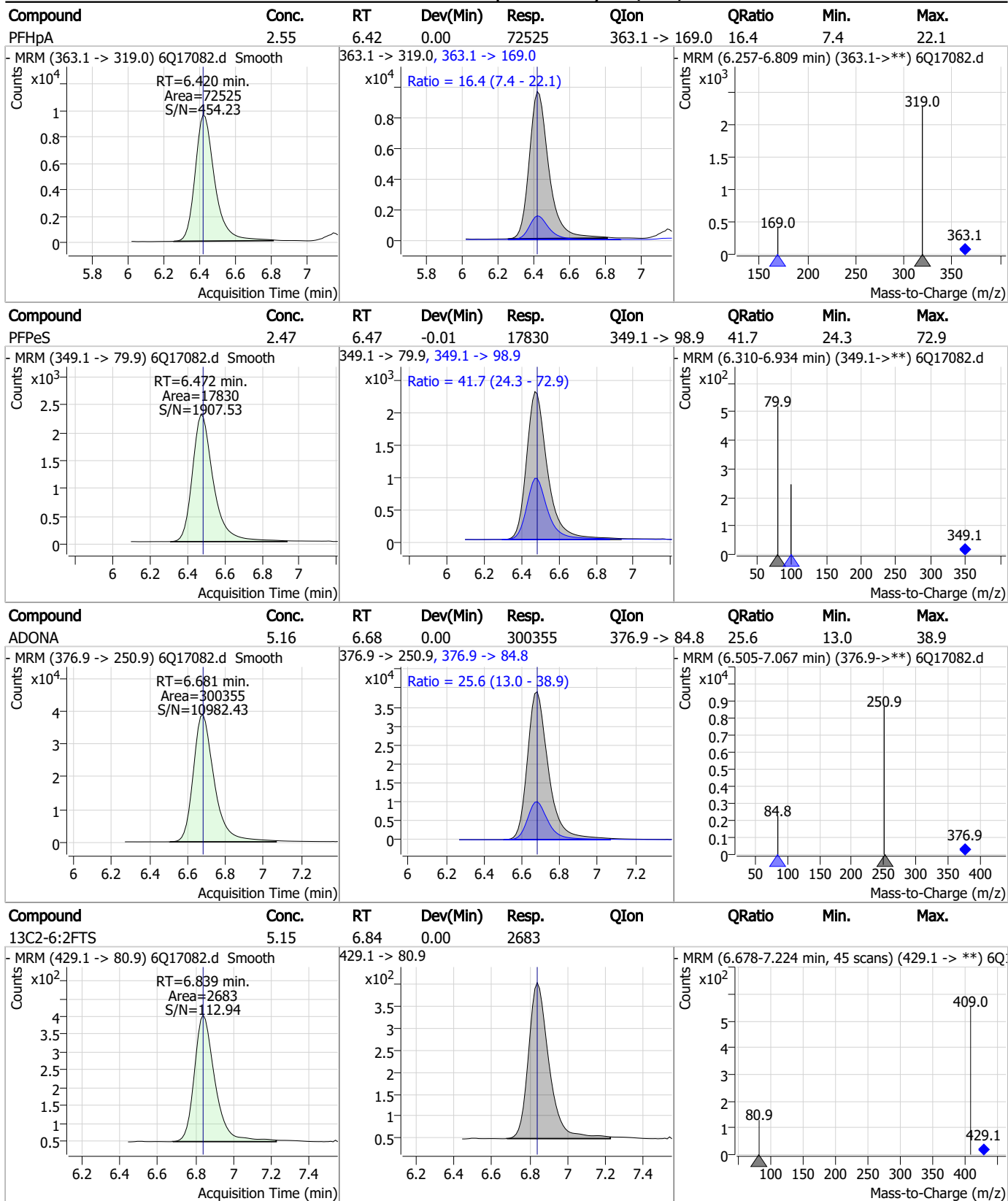
Perfluorinated Compounds by LC/MS/MS



7.7.15
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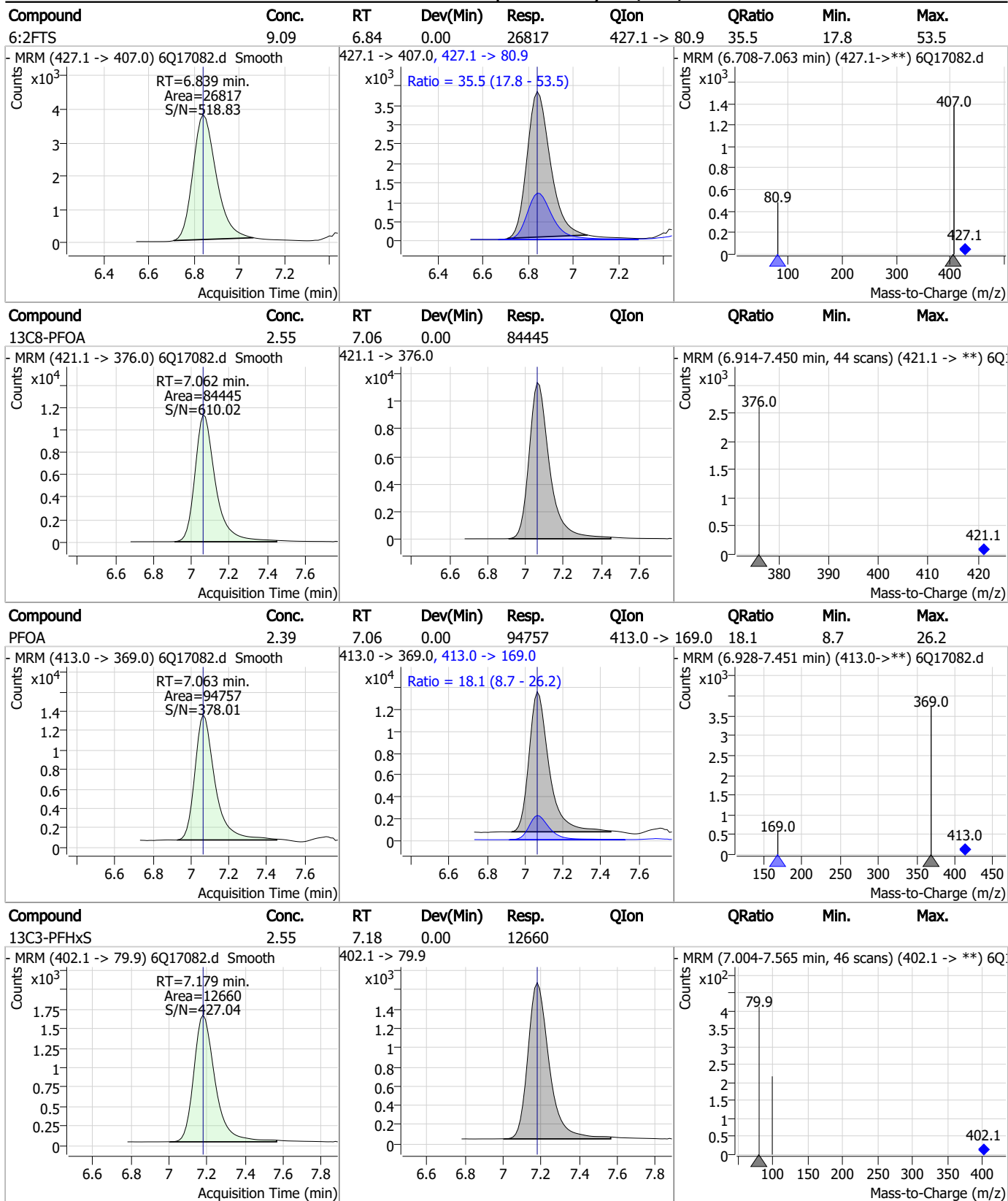


Perfluorinated Compounds by LC/MS/MS



7.7.15
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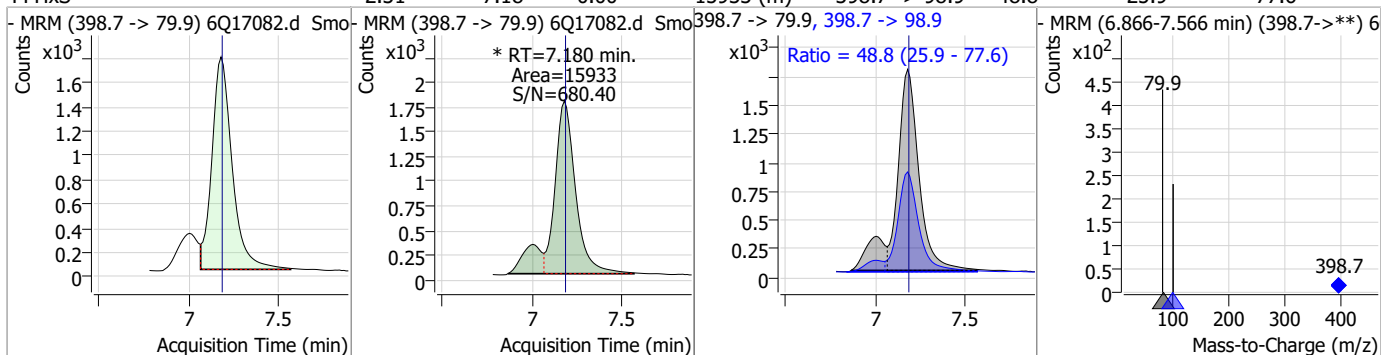
Perfluorinated Compounds by LC/MS/MS



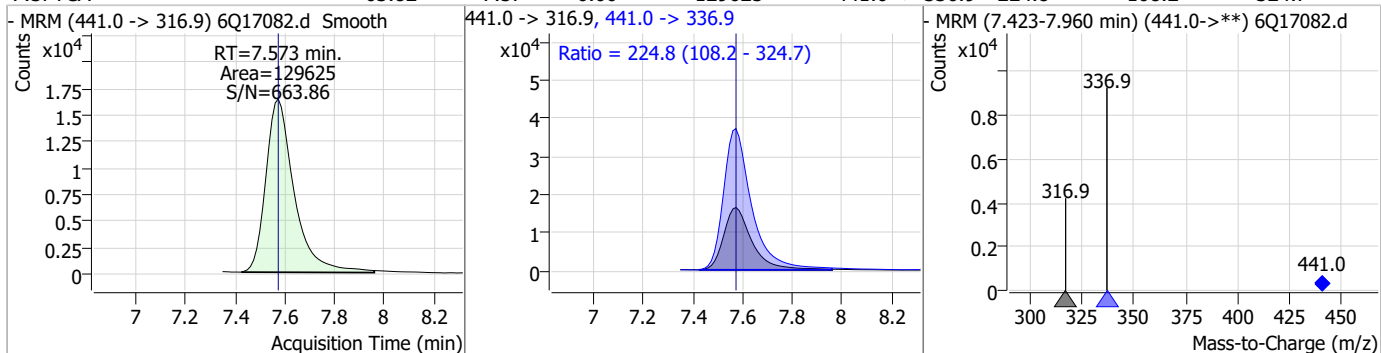
7.7.15

Perfluorinated Compounds by LC/MS/MS

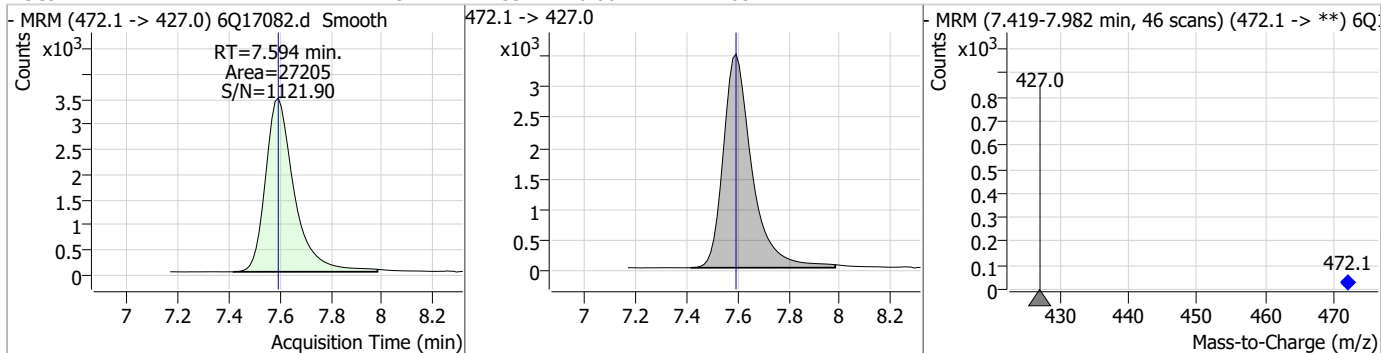
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.31	7.18	0.00	15933 (m)	398.7 -> 98.9	48.8	25.9	77.6



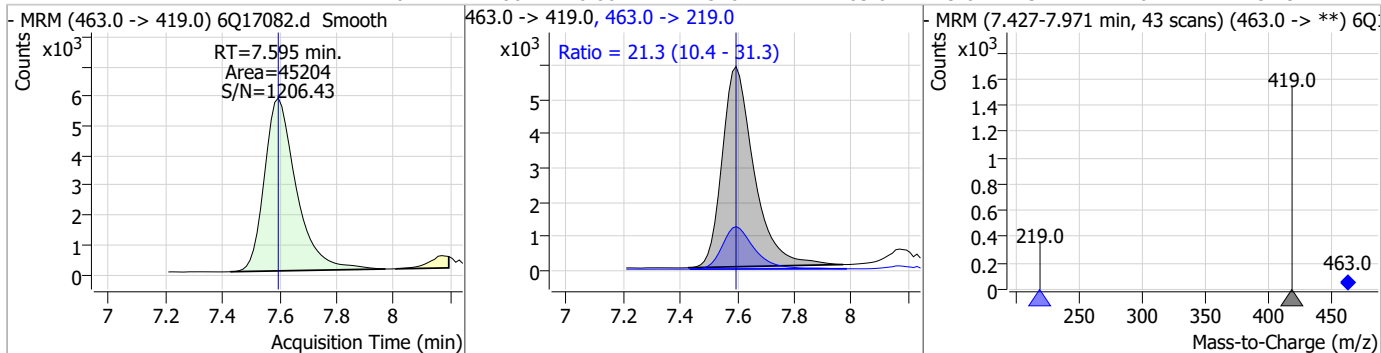
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	63.82	7.57	0.00	129625	441.0 -> 336.9	224.8	108.2	324.7



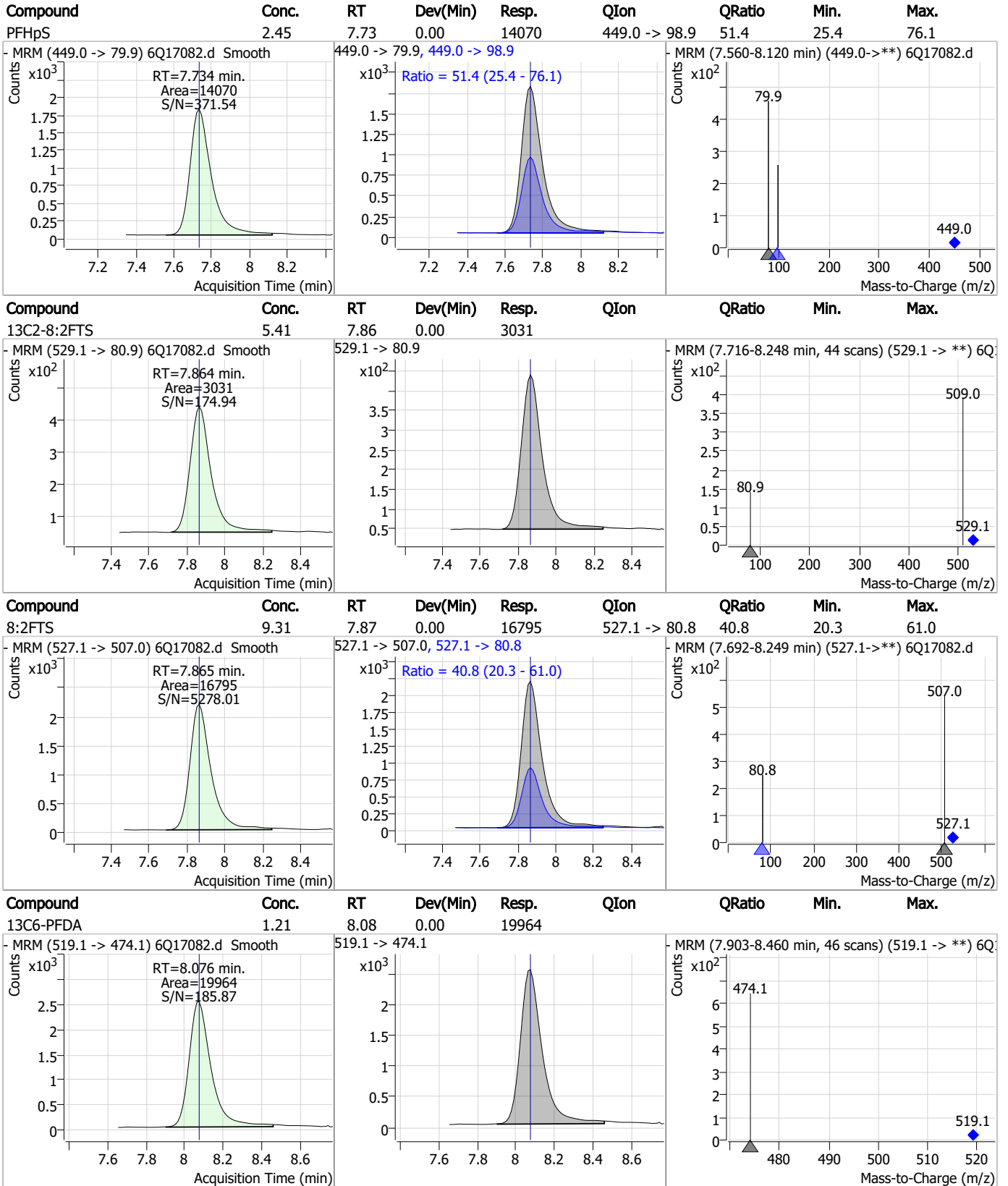
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.23	7.59	0.00	27205	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.40	7.60	0.00	45204	463.0 -> 219.0	21.3	10.4	31.3



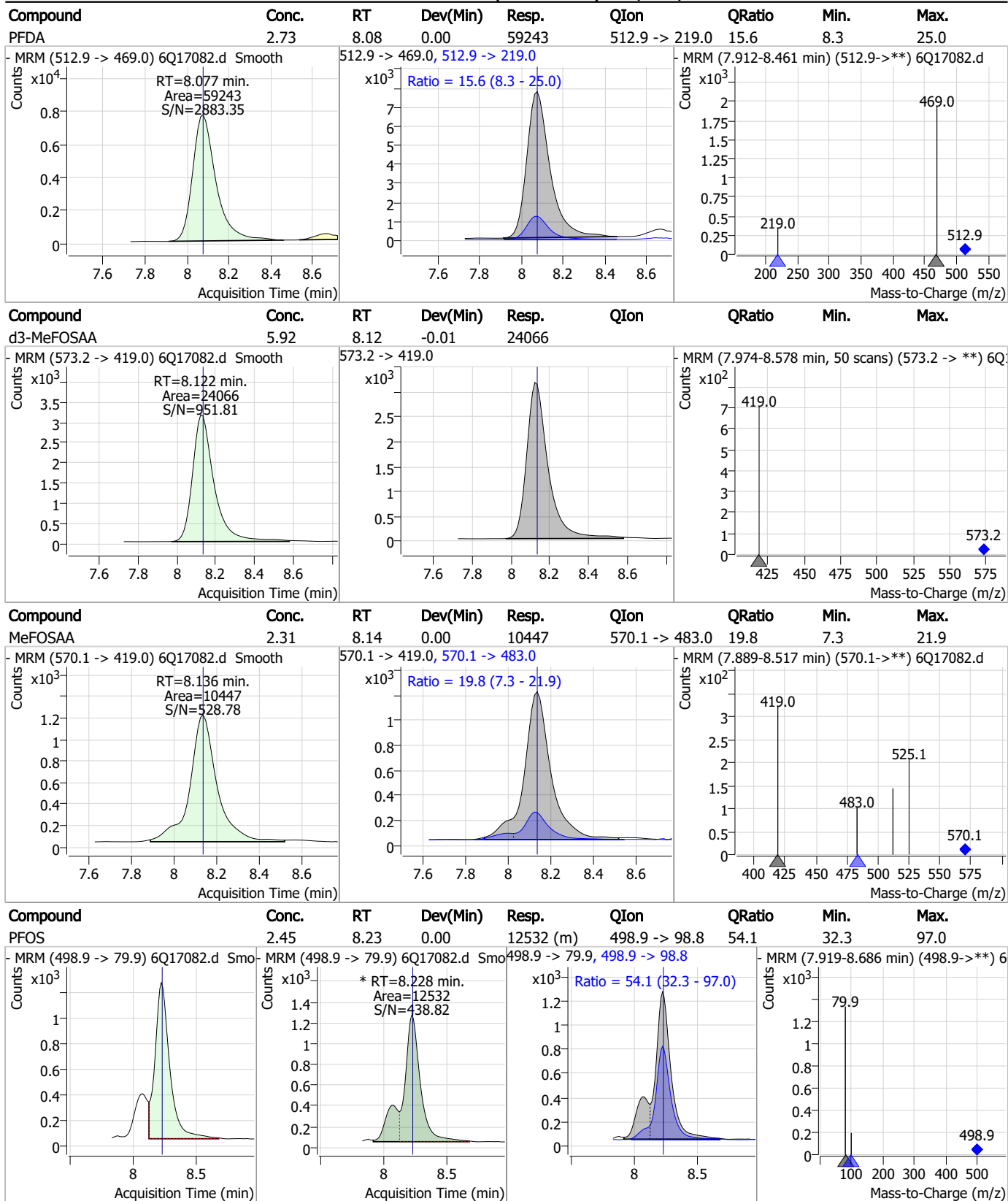
Perfluorinated Compounds by LC/MS/MS



7.7.15 7

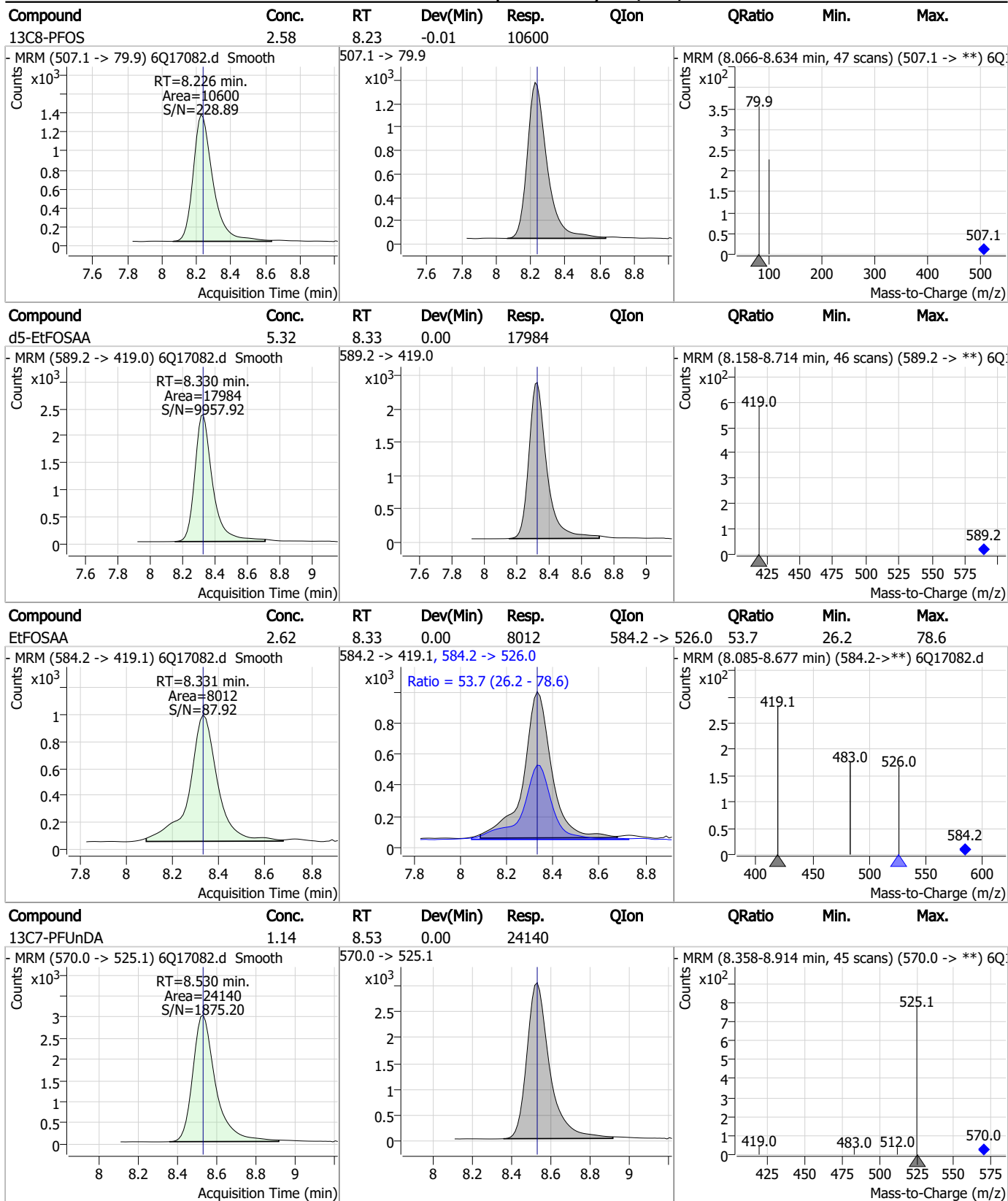


Perfluorinated Compounds by LC/MS/MS



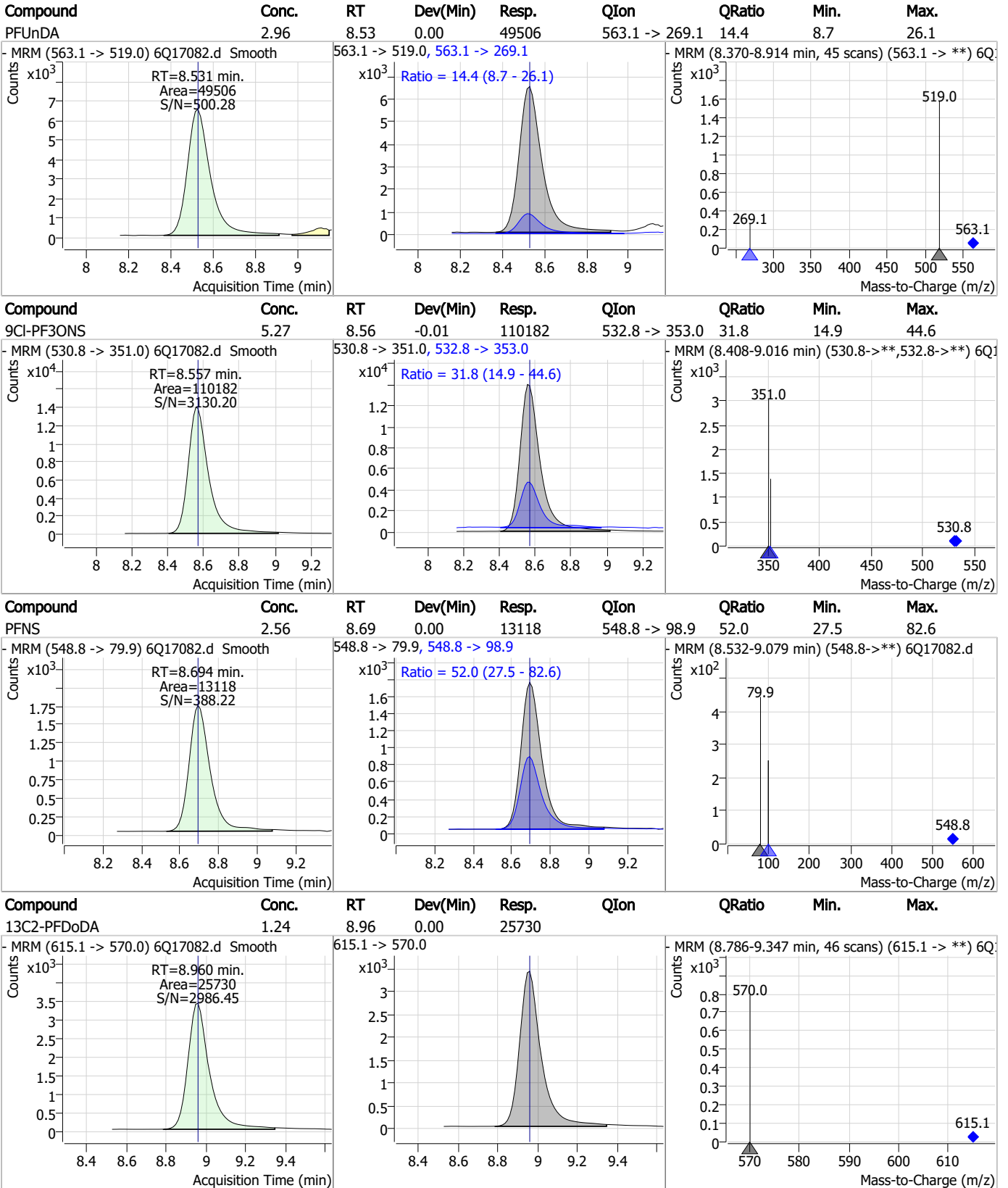
7.7.15
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Perfluorinated Compounds by LC/MS/MS



7.7.15
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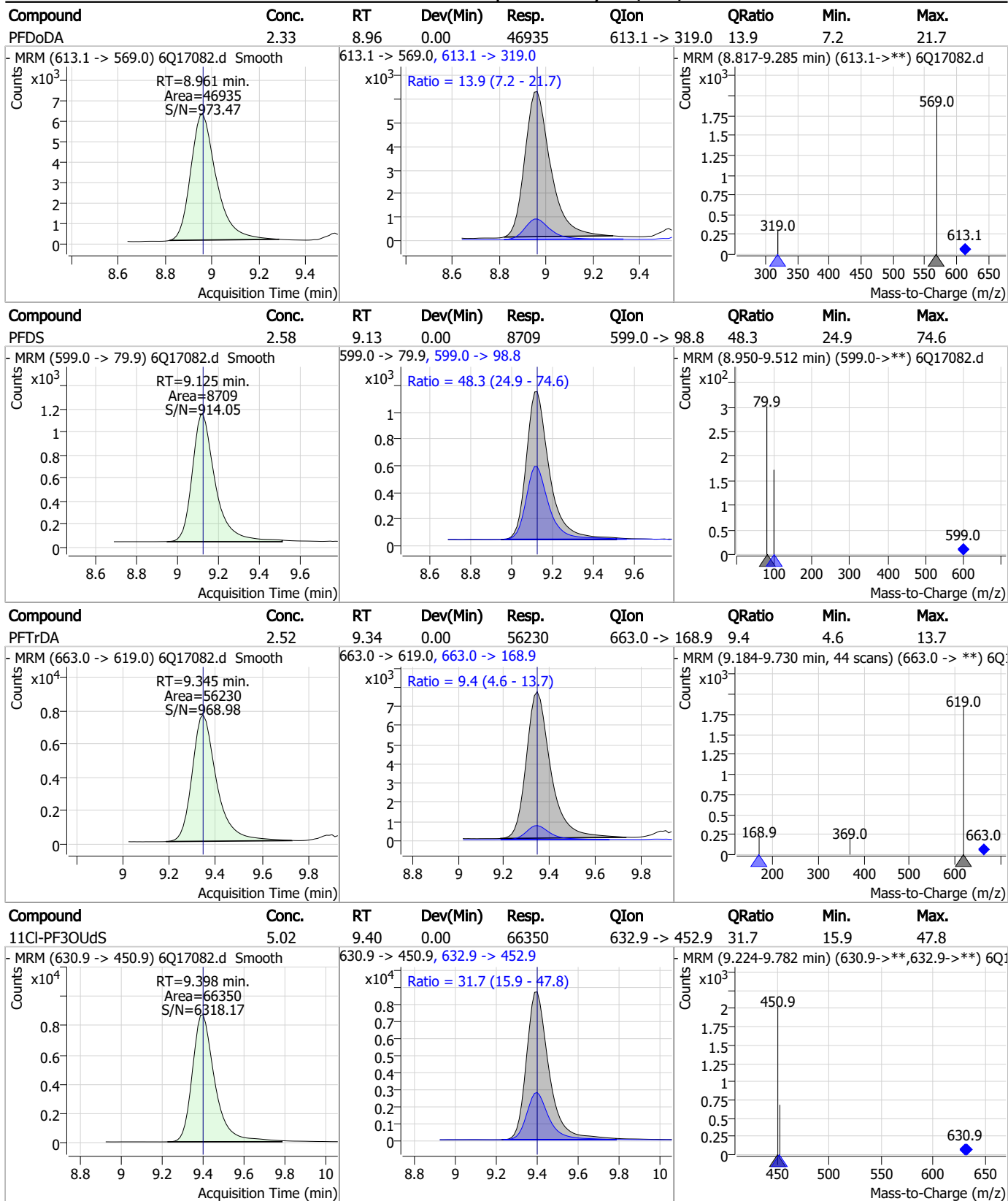
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



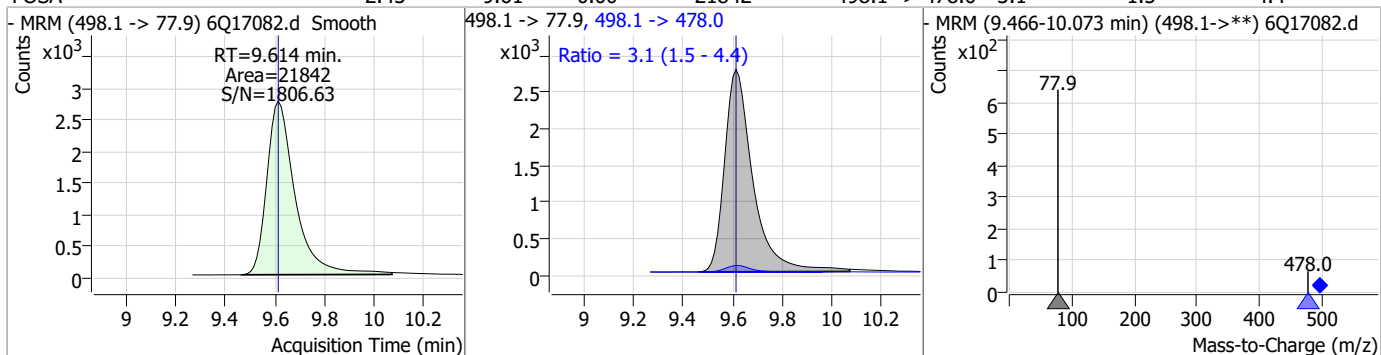
Perfluorinated Compounds by LC/MS/MS



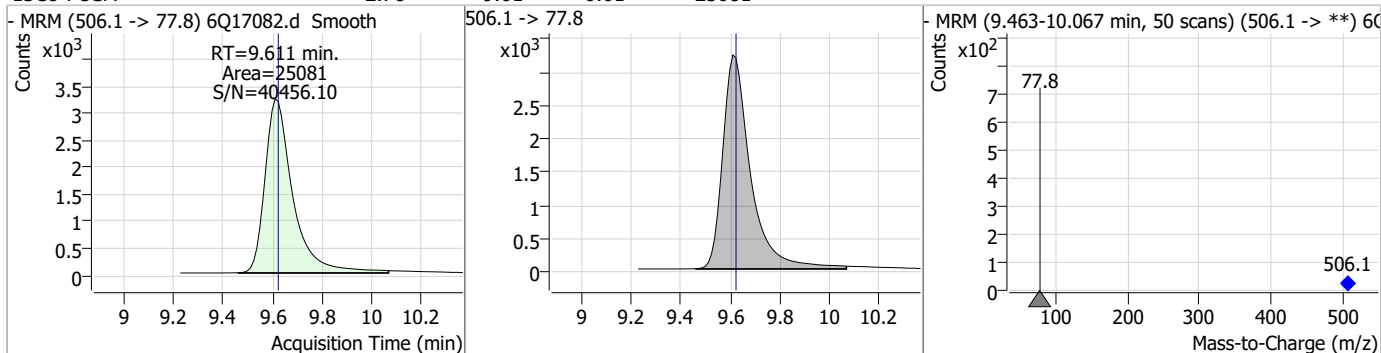
7.7.15
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Perfluorinated Compounds by LC/MS/MS

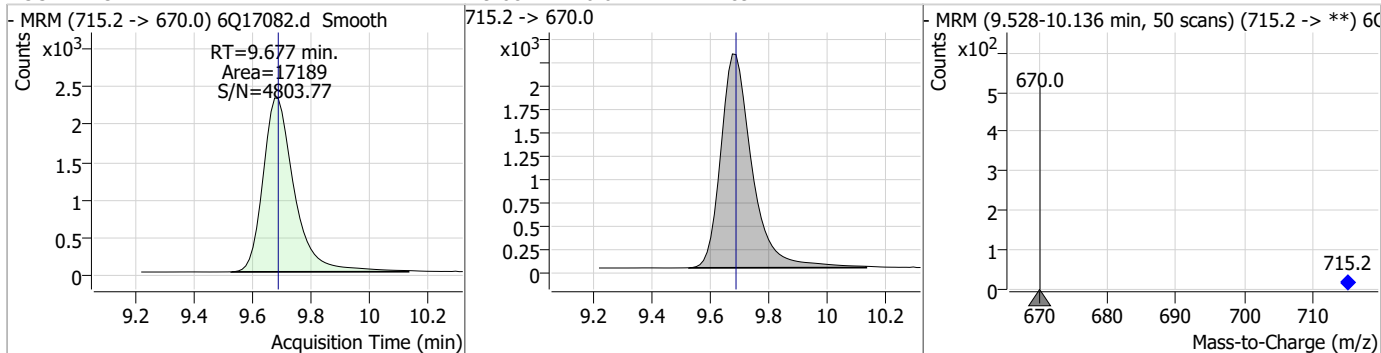
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.43	9.61	0.00	21842	498.1 -> 478.0	3.1	1.5	4.4



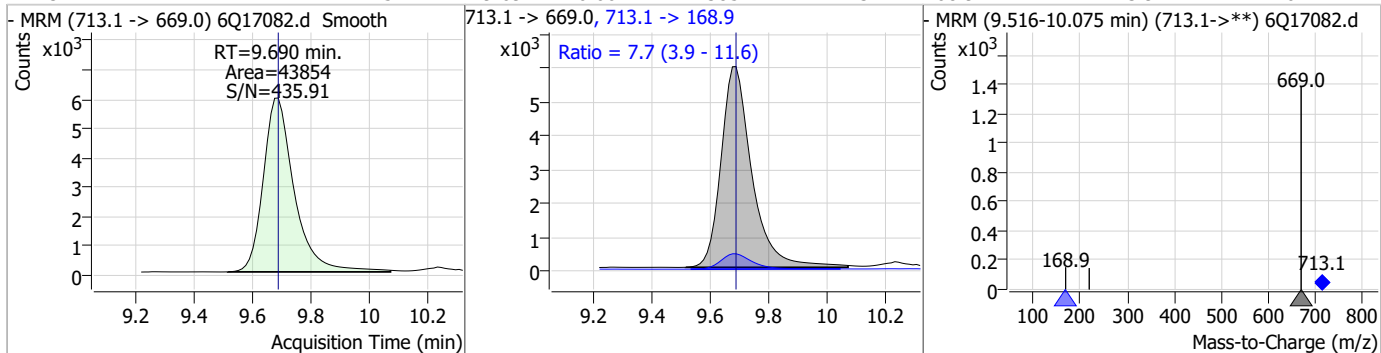
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.78	9.61	-0.01	25081				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.68	-0.01	17189				

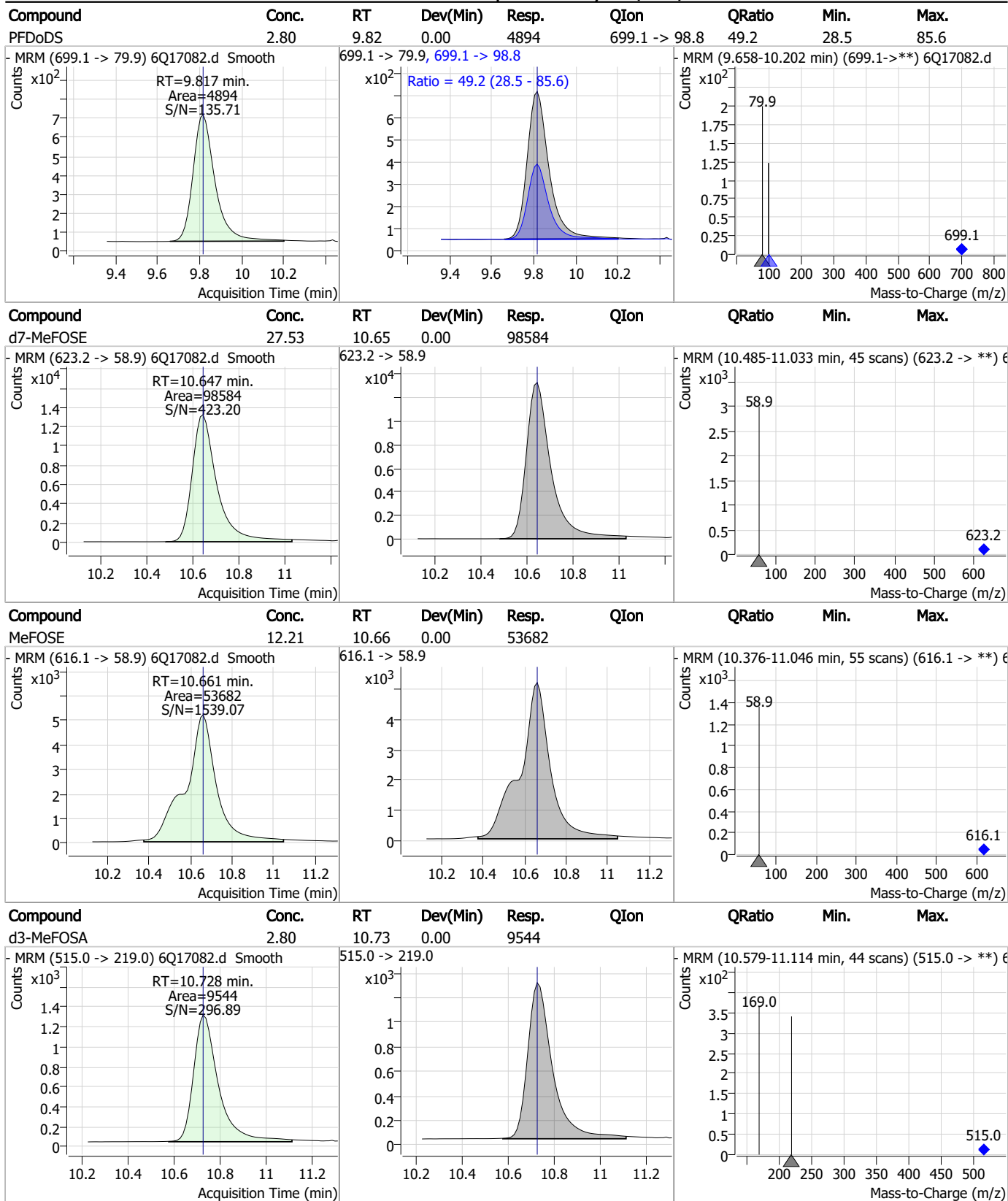


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.52	9.69	0.00	43854	713.1 -> 168.9	7.7	3.9	11.6



7.7.15
7

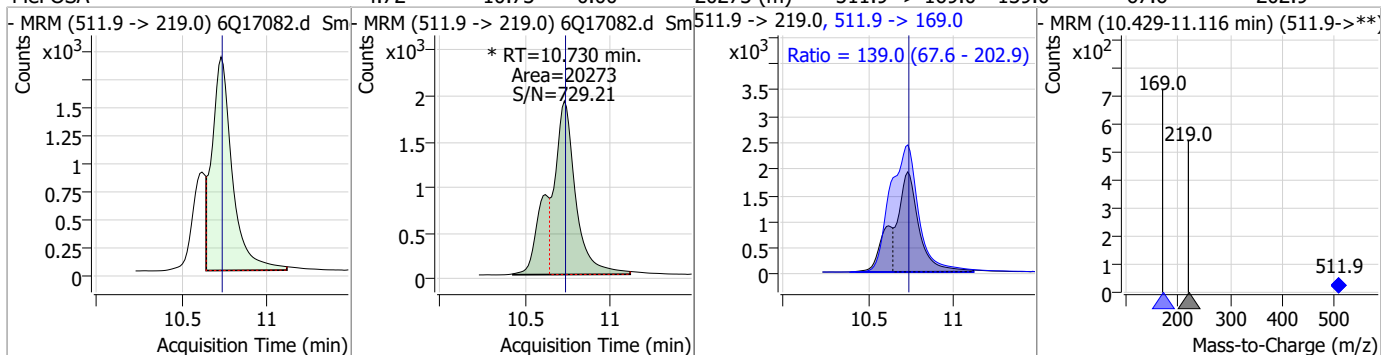
Perfluorinated Compounds by LC/MS/MS



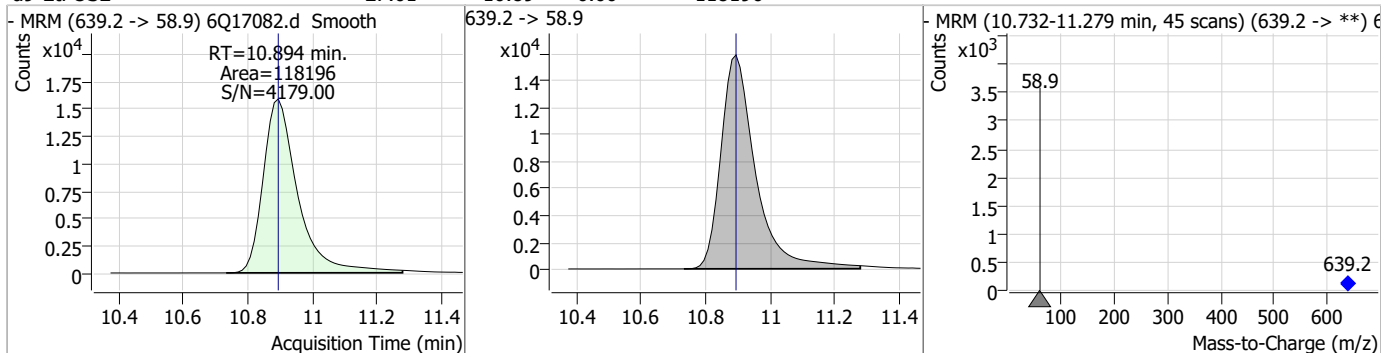
7.7.15
7

Perfluorinated Compounds by LC/MS/MS

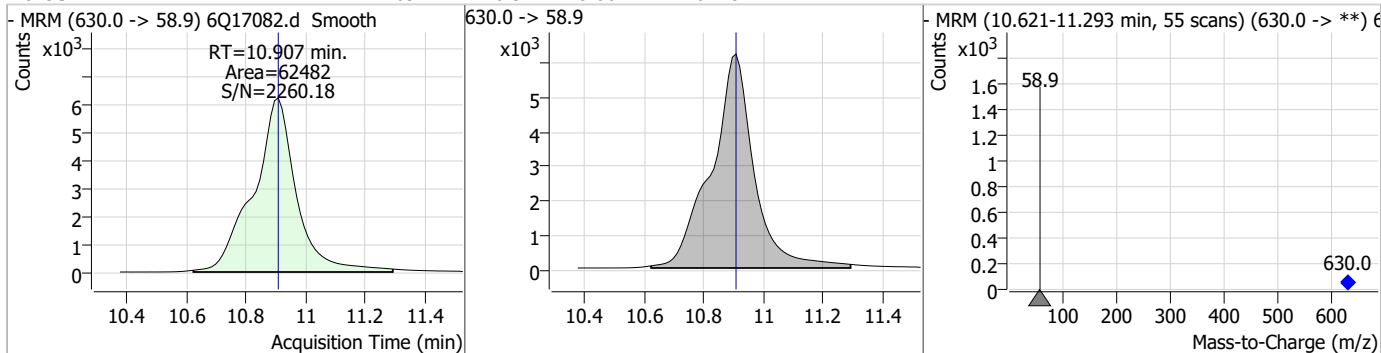
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.72	10.73	0.00	20273 (m)	511.9 -> 169.0	139.0	67.6	202.9



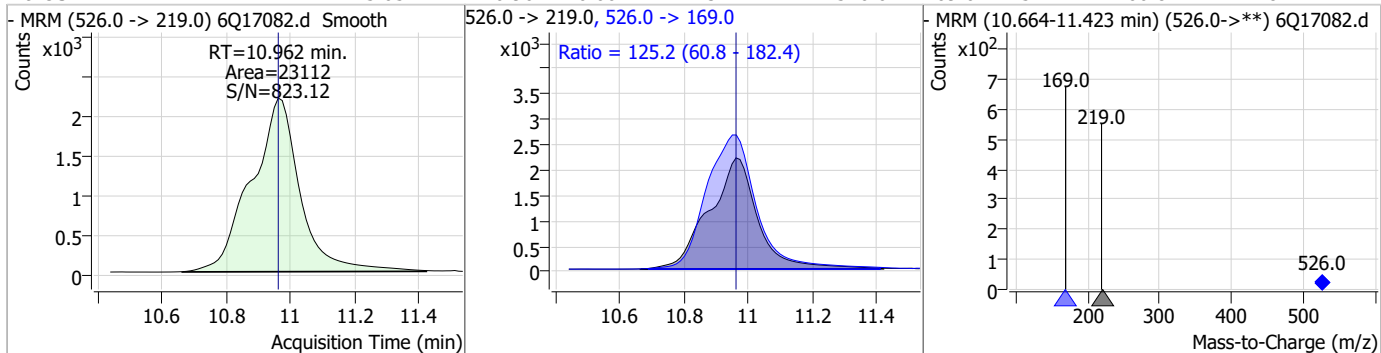
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.01	10.89	0.00	118196				



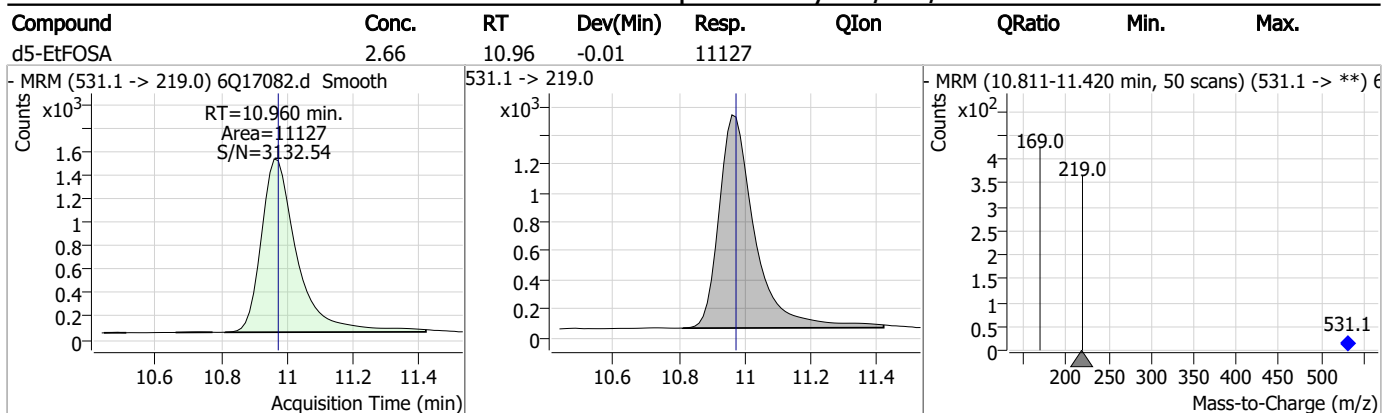
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.69	10.91	0.00	62482				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.05	10.96	0.00	23112	526.0 -> 169.0	125.2	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.15
7

Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17082.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 20:19 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.7.15.1

7

SGS ORLANDO

DATE:	04/28/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_042823_S6Q258
CAL DATE:	04/28/23
ANALYST:	M. Valls
RUN BATCH:	S6Q258

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% ACN 220225 2mlM AMAC: 11387
IC/CC STD LOT #:	LCMS 2107C
ICV STD LOT #:	LCMS 2107C/2100B
ISTD/D STD LOT #:	11765/11764

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17046.d	P1-A1	CCB	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
2	6Q17047.d	P1-A1	CCB	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
3	6Q17048.d	P1-B3	RT TDCA	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
4	6Q17049.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
5	6Q17050.d	P1-A1	ic258-0	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
6	6Q17051.d	P1-A2	ic258-1	1633full.m	Calibration	1.6/500	OP96301,S6Q258,500,,,5.0,1,water	✓
7	6Q17052.d	P1-A3	ic258-2	1633full.m	Calibration	3.2/500	OP96301,S6Q258,500,,,5.0,1,water	✓
8	6Q17053.d	P1-A4	ic258-3	1633full.m	Calibration	10/500	OP96301,S6Q258,500,,,5.0,1,water	✓
9	6Q17054.d	P1-A5	icc258-4	1633full.m	Calibration	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
10	6Q17055.d	P1-A6	ic258-5	1633full.m	Calibration	40/500	OP96301,S6Q258,500,,,5.0,1,water	✓
11	6Q17056.d	P1-A7	ic258-6	1633full.m	Calibration	100/500	OP96301,S6Q258,500,,,5.0,1,water	✓
12	6Q17057.d	P1-A8	ic258-7	1633full.m	Calibration	200/500	OP96301,S6Q258,500,,,5.0,1,water	✓
13	6Q17058.d	P1-A9	ic258-8	1633full.m	Calibration	1x	OP96301,S6Q258,500,,,5.0,1,water	✓
14	6Q17059.d	P1-A1	iblk	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
15	6Q17060.d	P1-B1	icv258-4	1633full.m	Sample	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
16	6Q17061.d	P1-B2	icv258-20	1633full.m	Sample	100/500	OP96301,S6Q258,500,,,5.0,1,water	✓
17	6Q17062.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
18	6Q17063.d	P1-A2	cc258-1,0LL	1633full.m	QC	1.6/500	OP96301,S6Q258,500,,,5.0,1,water	✓
19	6Q17064.d	P4-F1	op96604-bs	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,water	✓
20	6Q17065.d	P4-F2	op96604-llbs:3	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,water	✓
21	6Q17066.d	P4-F3	op96604-mb	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,water	✓
22	6Q17067.d	P4-F4	FC5144-9	1633full.m	Sample		OP96604,S6Q258,560,,,5.0,1,water	✓
23	6Q17068.d	P4-F5	FC5144-10	1633full.m	Sample		OP96604,S6Q258,570,,,5.0,1,water	✓
24	6Q17069.d	P4-F6	FC5144-11	1633full.m	Sample		OP96604,S6Q258,560,,,5.0,1,water	✓
25	6Q17070.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q258,500,,,5.0,1,water	✓
26	6Q17071.d	P1-A1	iccb	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,water	✓
27	6Q17072.d	P3-A1	op96603-bs	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,water	✓
28	6Q17073.d	P3-A2	op96603-llbs:3	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,water	✓
29	6Q17074.d	P3-A3	op96603-mb	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,water	✓
30	6Q17075.d	P3-A4	FC5514-1	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,water	✓
31	6Q17076.d	P3-A5	FC5514-2	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,water	✓
32	6Q17077.d	P3-A6	FC5514-3	1633full.m	Sample		OP96603,S6Q258,560,,,5.0,1,water	✓
33	6Q17078.d	P3-A7	op96603-ms	1633full.m	Sample		OP96603,S6Q258,540,,,5.0,1,water	✓
34	6Q17079.d	P3-A8	FC5514-4	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,water	✓
35	6Q17080.d	P3-A9	op96603-dup	1633full.m	Sample		OP96603,S6Q258,530,,,5.0,1,water	✓



LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

36	6Q17081.d	P3-B1	FC5514-5	1633full.m	Sample	OP96603,S6Q258,520,,,5.0,1,water	✓
37	6Q17082.d	P1-A5	cc258-4	1633full.m	QC	OP96301,S6Q258,500,,,5.0,1,water	✓
38	6Q17083.d	P1-A1	iccb	1633full.m	Sample	OP96301,S6Q258,500,,,5.0,1,water	✓
39	6Q17084.d	P3-B2	FC5522-1	1633full.m	Sample	OP96603,S6Q258,540,,,5.0,1,water	✓
40	6Q17085.d	P3-B3	FC5522-2	1633full.m	Sample	OP96603,S6Q258,570,,,5.0,1,water	✓
41	6Q17086.d	P3-B4	FC5522-3	1633full.m	Sample	OP96603,S6Q258,570,,,5.0,1,water	✓
42	6Q17087.d	P3-B5	FC5522-4	1633full.m	Sample	OP96603,S6Q258,540,,,5.0,1,water	✓
43	6Q17088.d	P3-B6	FC5522-5	1633full.m	Sample	OP96603,S6Q258,560,,,5.0,1,water	✓
44	6Q17089.d	P3-B7	FC5578-1	1633full.m	Sample	OP96603,S6Q258,540,,,5.0,1,water	mefose low. Rf5x
45	6Q17090.d	P3-B8	FC5578-2	1633full.m	Sample	OP96603,S6Q258,570,,,5.0,1,water	✓
46	6Q17091.d	P1-A5	cc258-4	1633full.m	QC	OP96301,S6Q258,500,,,5.0,1,water	✓
47	6Q17092.d	P1-A1	iccb	1633full.m	Sample	OP96301,S6Q258,500,,,5.0,1,water	✓
48	6Q17093.d	P4-A1	op96579-bs	1633full.m	Sample	OP96579,S6Q258,500,,,5.0,1,water	✓
49	6Q17094.d	P4-A2	op96579-llbs:3	1633full.m	Sample	OP96579,S6Q258,500,,,5.0,1,water	✓
50	6Q17095.d	P4-A3	op96579-mb	1633full.m	Sample	OP96579,S6Q258,500,,,5.0,1,water	✓
51	6Q17096.d	P4-A4	FC5240-1	1633full.m	Sample	OP96579,S6Q258,540,,,5.0,1,water	✓
52	6Q17097.d	P4-A5	FC5240-2	1633full.m	Sample	OP96579,S6Q258,550,,,5.0,1,water	rr2x
53	6Q17098.d	P4-A6	FC5240-3	1633full.m	Sample	OP96579,S6Q258,540,,,5.0,1,water	rr1x co
54	6Q17099.d	P4-A7	FC5240-4	1633full.m	Sample	OP96579,S6Q258,560,,,5.0,1,water	✓
55	6Q17100.d	P4-A8	FC5240-5	1633full.m	Sample	OP96579,S6Q258,560,,,5.0,1,water	rr10x + redo lower volume
56	6Q17101.d	P4-A9	op96579-ms	1633full.m	Sample	OP96579,S6Q258,570,,,5.0,1,water	rr10x
57	6Q17102.d	P4-B1	op96579-msd	1633full.m	Sample	OP96579,S6Q258,530,,,5.0,1,water	rr10x
58	6Q17103.d	P1-A5	cc258-4	1633full.m	QC	OP96301,S6Q258,500,,,5.0,1,water	✓
59	6Q17104.d	P1-A1	iccb	1633full.m	Sample	OP96301,S6Q258,500,,,5.0,1,water	✓
60	6Q17105.d	P4-B2	FC5240-6	1633full.m	Sample	OP96579,S6Q258,560,,,5.0,1,water	rr10x + redo lower volume
61	6Q17106.d	P4-B3	FC5395-1	1633full.m	Sample	OP96579,S6Q258,560,,,5.0,1,water	rr1x co
62	6Q17107.d	P4-B4	FC5395-2	1633full.m	Sample	OP96579,S6Q258,570,,,5.0,1,water	✓
63	6Q17108.d	P4-B5	FC5395-3	1633full.m	Sample	OP96579,S6Q258,570,,,5.0,1,water	✓
64	6Q17109.d	P4-B6	FC5395-4	1633full.m	Sample	OP96579,S6Q258,560,,,5.0,1,water	✓
65	6Q17110.d	P4-B7	FC5395-5	1633full.m	Sample	OP96579,S6Q258,560,,,5.0,1,water	✓
66	6Q17111.d	P4-B8	FC5395-6	1633full.m	Sample	OP96579,S6Q258,520,,,5.0,1,water	✓
67	6Q17112.d	P4-B9	FC5395-7	1633full.m	Sample	OP96579,S6Q258,570,,,5.0,1,water	✓
68	6Q17113.d	P4-C1	FC5396-10	1633full.m	Sample	OP96579,S6Q258,540,,,5.0,1,water	✓
69	6Q17114.d	P4-C2	FC5487-1	1633full.m	Sample	OP96579,S6Q258,540,,,5.0,1,water	✓
70	6Q17115.d	P1-A5	cc258-4	1633full.m	QC	OP96301,S6Q258,500,,,5.0,1,water	✓
71	6Q17116.d	P1-A2	cc258-1,0LL	1633full.m	QC	OP96301,S6Q258,500,,,5.0,1,water	✓
72	6Q17117.d	P1-A1	iccb	1633full.m	Sample	OP96301,S6Q258,500,,,5.0,1,water	✓
73	6Q17118.d	P4-C3	FC5092-9	1633full.m	Sample	OP96491,S6Q258,550,,,5.0,2,water	✓
74	6Q17119.d	P4-C4	op96566-bs	1633full.m	Sample	OP96566,S6Q258,500,,,5.0,1,water	✓
75	6Q17120.d	P4-C5	op96566-llbs:3	1633full.m	Sample	OP96566,S6Q258,500,,,5.0,1,water	✓
76	6Q17121.d	P4-C6	op96566-mb	1633full.m	Sample	OP96566,S6Q258,500,,,5.0,1,water	✓
77	6Q17122.d	P4-C7	FC5200-1	1633full.m	Sample	OP96566,S6Q258,570,,,5.0,1,water	✓
78	6Q17123.d	P4-C8	FC5200-2	1633full.m	Sample	OP96566,S6Q258,550,,,5.0,1,water	✓



LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

79	6Q17124.d	P4-C9	op96566-ms	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
80	6Q17125.d	P4-D1	op96566-msd	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
81	6Q17126.d	P4-D2	FC5200-3	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
82	6Q17127.d	P4-D3	FC5200-4	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
83	6Q17128.d	P1-A5	cc258-4	1633full.m	QC	20/500	✓
84	6Q17129.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
85	6Q17130.d	P4-D4	FC5200-5	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
86	6Q17131.d	P4-D5	FC5200-6	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
87	6Q17132.d	P4-D6	FC5200-7	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
88	6Q17133.d	P4-D7	FC5200-8	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
89	6Q17134.d	P4-D8	FC5200-9	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
90	6Q17135.d	P4-D9	FC5200-10	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
91	6Q17136.d	P4-E1	FC5200-11	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
92	6Q17137.d	P4-E2	FC5200-12	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
93	6Q17138.d	P4-E3	FC5200-13	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
94	6Q17139.d	P4-E4	FC5200-14	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
95	6Q17140.d	P1-A5	cc258-4	1633full.m	QC	20/500	✓
96	6Q17141.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
97	6Q17142.d	P4-E5	FC5200-15	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
98	6Q17143.d	P4-E6	FC5200-16	1633full.m	Sample	OP96566.S6Q258.520,,,5.0,1,water	✓
99	6Q17144.d	P4-E7	FC5200-17	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
100	6Q17145.d	P4-E8	FC5200-18	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
101	6Q17146.d	P1-A5	ecc258-4	1633full.m	QC	20/500	✓
102	6Q17147.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2106A-B	PFC SPIKE	11653	PF0A-100 (28 comps)	Absolute Wellington Labs	11/01/27	10/11/24	1.0ppm	2mL	5mL	400ppb	MS/MNH 5/14/20	01/16/23	10/16/23	NG
		11432	N-He-FOSAM	Wellington Labs	02/18/27	03/13/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/16/24								NG
		11514	FHSX-A-1		12/19/26	04/16/24								NG
		11332	PFERHS		03/18/27	10/11/24								NG
LCMS 2107A-C	1633-OPiKE Cal Std.	11734	PFAC MXH	Wellington	8/8/27	4/14/24	1-4 ppb	250uL	4mL	62.5 125 250ppb	1633 MIX	4/19/23	10/14/23	MV
		11736	PFAC MXF	Wellington	11/11/25	4/14/24	2ppm	250uL		125ppb	2688mL			
		11737	PFAC MXG		12/11/27	4/11/24	2ppm	250uL		125ppb				
		11676	PFAC MXJ		9/11/26	4/19/24	2ppm	250uL		125ppb				
		11689	MPFAC-A-5		11/18/28	4/19/24	4-20 ppm	312uL		312/1100 ppb				
LCMS 2108A-O	PFC ID SURT	11763	MPFAC-A4-ES	Wellington Labs	01/18/28	04/16/24	1.0ppm	2.4mL	50mL	0.5ppm	MS/MNH 5/14/20	04/24/23	10/14/23	NG
		11635A	M3HFO-DA		11/10/28	04/16/24	50ppm	48uL						NG
		11431	d-N-MAROSAM		05/06/27	03/13/24	50ppm	48uL						NG
LCMS-2109	537.1 DW STD.	11653	PF0A-D0D (28 comps)	Absolute	11/09/27	04/18/24	1.0ug/mL	4mL	100ppb	90% MeOH 4/24/23 4% H2O		09/10/23	09/10/23	JR
		2080	DW SURT.		07/06/23		1.0/2.0 PPM	400uL	100/200 ppb					JR

* based on date opened as specified in each SGS - Orlando SOP.



* tested & passed

* tested & passed on glass

* tested & passed on glass

7 19:1

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 20915A-E	(10ppb) PFC ID SURR	A-5 11669	PFAC-2YES	Wilmington Labs	01/16/18	03/18/24	10ppm	2.4mL	~50mL	0.5ppm	151mech 51420	03/18/23	09/18/23	NS
↓	↓	11585	PFAC-DA	↓	11/08/15	01/16/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	PFAC-D-N	↓	05/10/07	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20916A-B	1033 spike Cal wtd.	11672	PFAC-MxH	Wilmington	8/8/17	3/23/24	1-4 ppm	250uL	4mL	0.25 125 250ppb	1033 MIX	3/30/23	9/18/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	1-10 ppm	250uL	↓	0.25 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxJ	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxK	↓	12/1/27	3/16/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11660	PFAC-MxL	↓	9/11/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxM	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/16/23	10/28/23	MU
LCMS 2097A-B	BR-LN metel for 1033	11497	br-N metosa	Wilmington	08/23/17	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/17	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/28/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/7/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/16/25								

* tested 3/22 10/27

* based on date opened as specified in each SGS - Orlando SOP.



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 250ppb	1033 mix	4/6/23	10/6/23	MW
		LCMS 2097	Br-1n Et-Me	SGS Labo	NA	10/28/23	3ppm 5ppm	250uL		125ppb 312.5ppb				
		11674B	PFAC Mx F	Wellington	1/11/25	3/30/24	2ppm	250uL 500uL		350ppb 125ppb				
		11675	PFAC Mx G		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11672B	PFAC Mx J		9/14/26	3/23/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2099	537.1 Du std. (Fumeral)	11670	M3P-PEA	Wellington Labs	07/08/25	04/06/24	50ppm	80uL	4mL	1.0ppm	0.10 MESH 41. H2O	04/06/23	05/15/23	NG
		10436A	Mx 2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10522B	d3-N-NEOSAA		10/22/25	05/15/23		160uL		20ppm				NG
		10498A	M1FOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M2RFA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (40)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4 mL	100ppb	95% MeOH 5% H2O	4/11/23	7/24/23	MW
2101	List 40 spike (50)	LCMS 2067	40 List ADD #1	SGS Add.		8/23/23	1.0ppm	400uL			(2,40021)			
		LCMS 2070	40 List ADD #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	FOSSE Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me fose		5/13/27	9/19/23	50ppm	200uL						

* based on date opened as specified in each SGS - Orlando SOP. (1,000)

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* LCMS 2100 91B
retest & assess on 10/23/23
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* LCMS 2100 91B
retest & assess on 10/23/23

* LCMS 2100 91B
retest & assess on 10/23/23



Organic Standards Preparation Log

SGS - Orlando Std. #	Parent Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List std. ADD-ON #1	10720A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth 5% H2O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- E-FOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOA		5/7/26	10/18/23								
		11116B	3:3FTCA PFRPA		2/3/27	2/8/24								
		10685A	5:3FTCA PF2PA		11/1/25	8/23/23								
		11116A	7:3FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMPA PF40eA		3/31/25	2/8/24								
		10765B	NFHDA 3.6-OPHdA		3/31/25	10/18/23								
					NG 02/10/23									

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819



Organic Standards Preparation Log

SGS - Orlando Sid. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2074 A-B	PFC SPIKE	11613	PROA-DOD CASCOMP	Absolute	11/09/27	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		10829	N-Me-Wellington	Wellington Labs	08/23/26	08/23/23	50ppm	40uL						NG
		11250	PBSA-1		11/10/26	11/08/23								NG
		11249	PHASA-1		12/29/26	11/03/23								NG
		11322	PFECHS		02/28/27	10/18/23								NG
LCMS 2075A-F	(10 PPB) PFC ID SURF	11629	MPPAC-24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		11585	N2HFO-DA	Wellington Labs	11/08/25	01/26/24	50ppm	48uL						NG
		11385	DA-N-NECSA-M	Wellington Labs	05/10/27	01/01/24	50ppm	48uL						NG
LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/27/23	5/2/26	MW
		11249	FHSA-1		2/29/26	11/3/23	50ppm	80uL						
		11140	L-PFRG		7/12/26	5/26/23	50ppm	80uL						
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Sigmoid Acetate drich			1/25/24	99.9%	0.62g	4L	2mM	95% MeOH 5% H2O	2/28/23	4/28/23	MW
		224870	HPLC water	Fisher		2/28/23		3,800ml		95%				
		220225	Acetoni trile			2/20/24		200mL		5%				
						aka new 2/28/23								
						Continue next page #1								

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Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	221044 Lot:	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
		219481 Lot:	NH4OH		—	9/19/23	100%	3.3 mL		1%				
		224863 Lot:	H2O		—	1/17/24	100%	1.7 mL		4%				
		224297 Lot:	Acetic Acid		—	6/24	99.7%	0.625 mL		.625%				
LCMS 2053	(spike) Full list std	11568	PFOA DOP 28 Calc	SGS Standards	11/9/27	11/10/24	1.0 ppm	400 nL	4.0 mL	100 ppb	95% MeOH + 5% H2O	12/4/23	3/21/23	MV
		1987	LCMS 40 list Addon #1		—	3/21/23	1.0 ppm	400 nL						
		1986	LCMS 40 list Add on #2		—	4/18/23	1.0 ppm	400 nL						
		2054	LCMS Fose std.		—	7/7/23	5.0 ppm	400 nL		500 ppb				
LCMS 2054	Fose std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 nL	2.0 mL	5 ppm	95% MeOH + 5% H2O	12/4/23	7/24/23	MV
		11338	N-Me FOSE		5/13/27	9/19/23	50 ppm	200 nL						
LCMS 2055	1633 Cal std.	10855 J	PFAC MXH	Wellington	9/14/26	1/17/24	1-4 ppm	2.50 nL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
		10853 J	PFAC MXI		9/14/26	1/11/24	1-10 ppm	2.50 nL		62.5 125 250 ppb				
		11549 B	PFAC MX F		1/11/25	1/11/24	2 ppm	500 nL		250 ppb				
		10854 J	PFAC MX G		3/4/25	1/24/24	2 ppm	250 nL		125 ppb				
		11492	PFAC MX J		9/14/26	1/11/24	4-20 ppm	312 nL		312/100 ppb				
		11603				1/24/24								

* based on date opened as specified in each SGS - Orlando SOP.

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 3: LC/MS Data (SIR)
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNMeFOSE0922 (1 of 7)
rev1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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brNEtFOSE1022 (1 of 7)
rev1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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brNMeFOSA0822 (1 of 6)
rev1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNEtFOSA0922 (1 of 6)
rev1

7.9.1
7

11676
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXJ0921 (1 of 5)
rev1

7.9.1

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Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
B.G. Chittim, General Manager

Date: 10/02/2021
(mm/dd/yyyy)

11688
rec'd 103/03/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

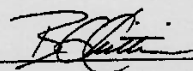
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

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11689
rec'd: 03/03/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

**Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

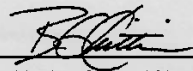
PFACMXJ0921 (1 of 5)
rev1

7.9.1
7

Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:



B.G. Chittim, General Manager

Date: 10/02/2021

(mm/dd/yyyy)

11734
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0822
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/05/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/08/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/08/2027
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

PFACMXH3822 11 of 11
rev0

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7

Table A: PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFuDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNs	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecane sulfonate	8:2FTS	4000	3840	16

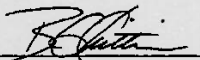
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 08/09/2022
(mm/dd/yyyy)

11736
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXF
<u>LOT NUMBER:</u>	PFACMXF0122
<u>SOLVENT(S):</u>	Methanol / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	01/10/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/11/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/11/2025
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Form# 13, Issued 2004-11-10
Revision# 3, Revised 2020-12-23

PFACMXF0122 (1 of 5)
rev0

7.9.1
7

Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11737
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

**Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
 Figure 1: LC/MS Data (SIR)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Revision# 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

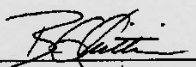
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; \pm 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

10726 A

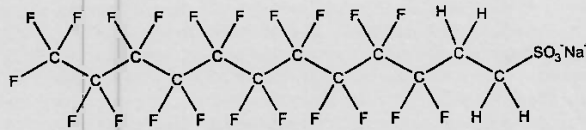


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
48.3 ± 2.4 µg/mL (10:2FTS acid)
48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/03/2021
EXPIRY DATE: (mm/dd/yyyy) 03/03/2026
RECOMMENDED STORAGE: Refrigerate ampoule

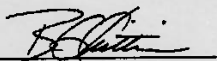
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

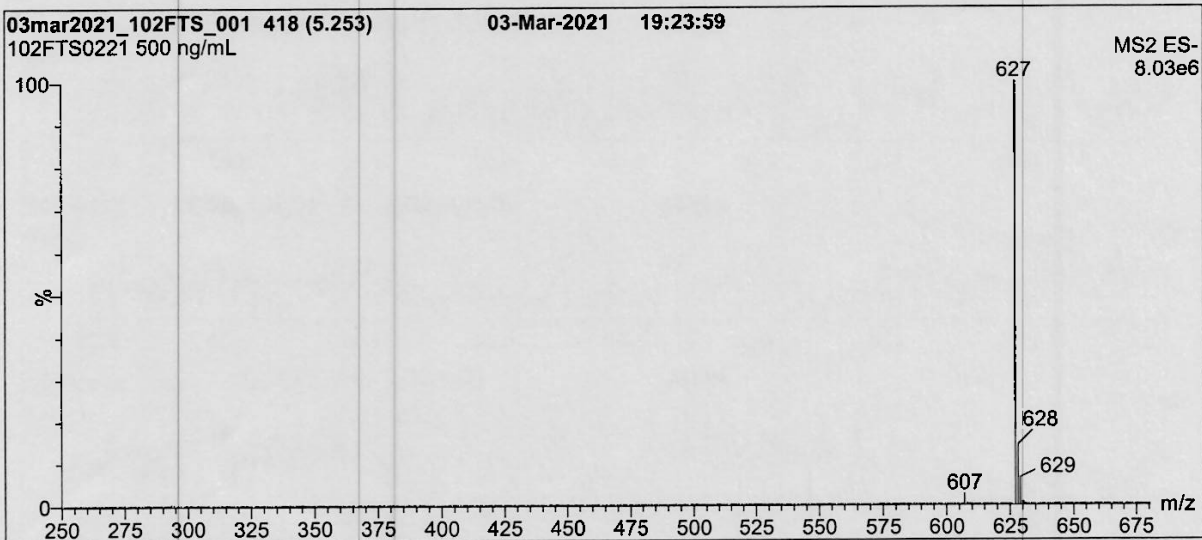
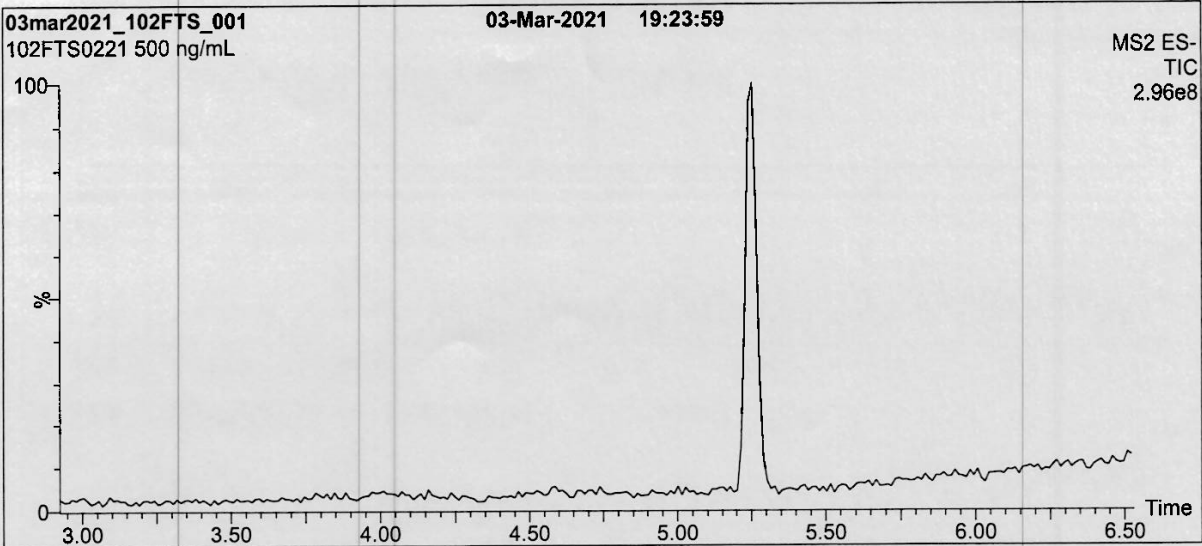
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

7.9.1

7

Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H₂O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 3 min
before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

10762 A-B



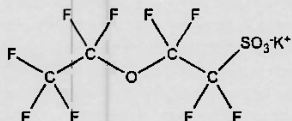
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd
8/20/21
WPH* **LOT NUMBER:** PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt)
44.6 ± 2.2 µg/ml (PFEESA acid)
44.5 ± 2.2 µg/ml (PFEESA anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 354.19

SOLVENT(S): Methanol

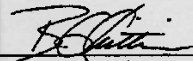
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

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Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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Form#:27, Issued 2004-11-10
Revision#:7, Revised 2020-01-09

PFEESA0520 (1 of 4)
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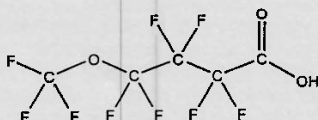
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

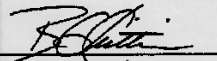
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

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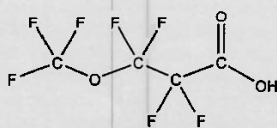
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

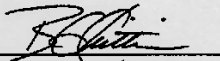
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)
rev1

7.9.1

7

10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

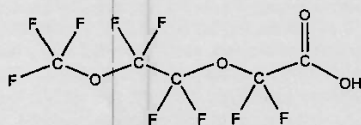
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₈O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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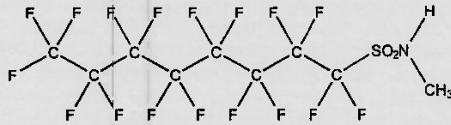
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: C₉H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/03/2021
EXPIRY DATE: (mm/dd/yyyy) 08/03/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

7.9.1

7



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

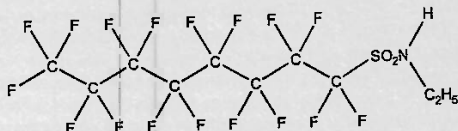
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/16/2021
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA

10



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CERTIFICATE OF ANALYSIS DOCUMENTATION

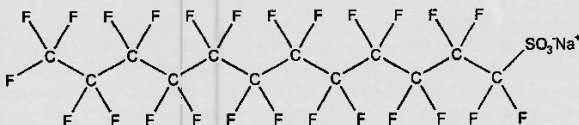
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

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Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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Revision#: 9, Revised 2020-12-23

LPFDoS0721 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NS 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

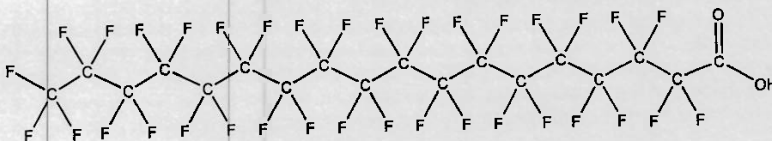
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

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Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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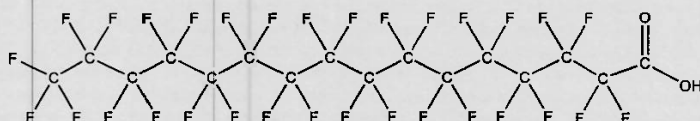
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

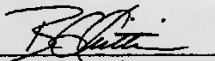
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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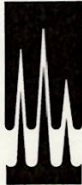
Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
 rev0

7.9.1
7

1116 A/B NW

1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

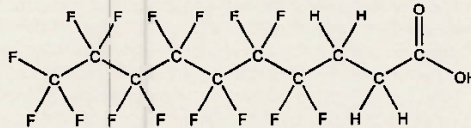
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

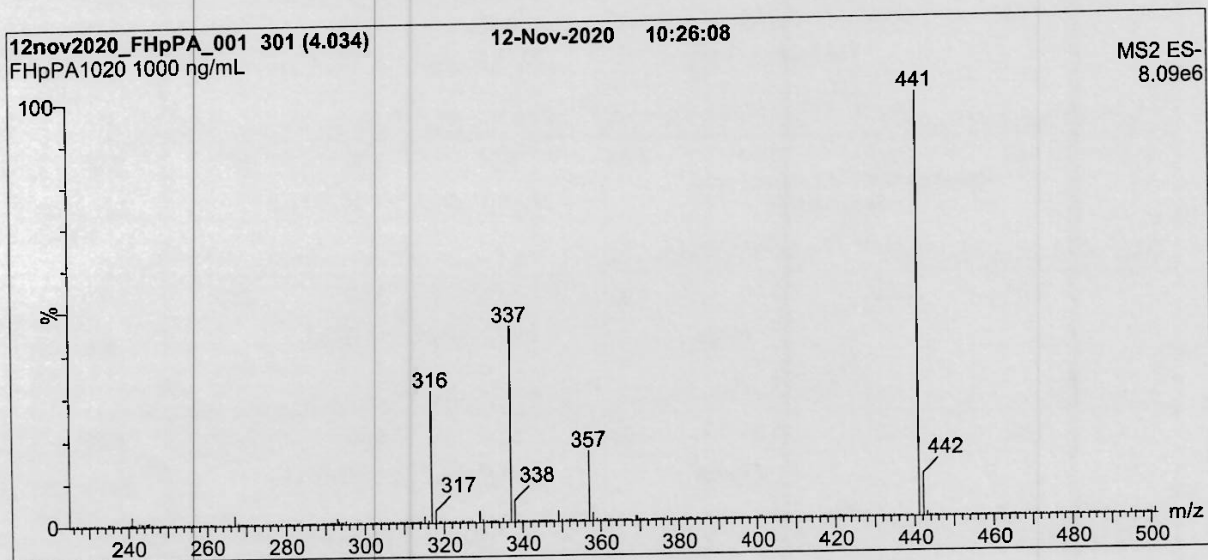
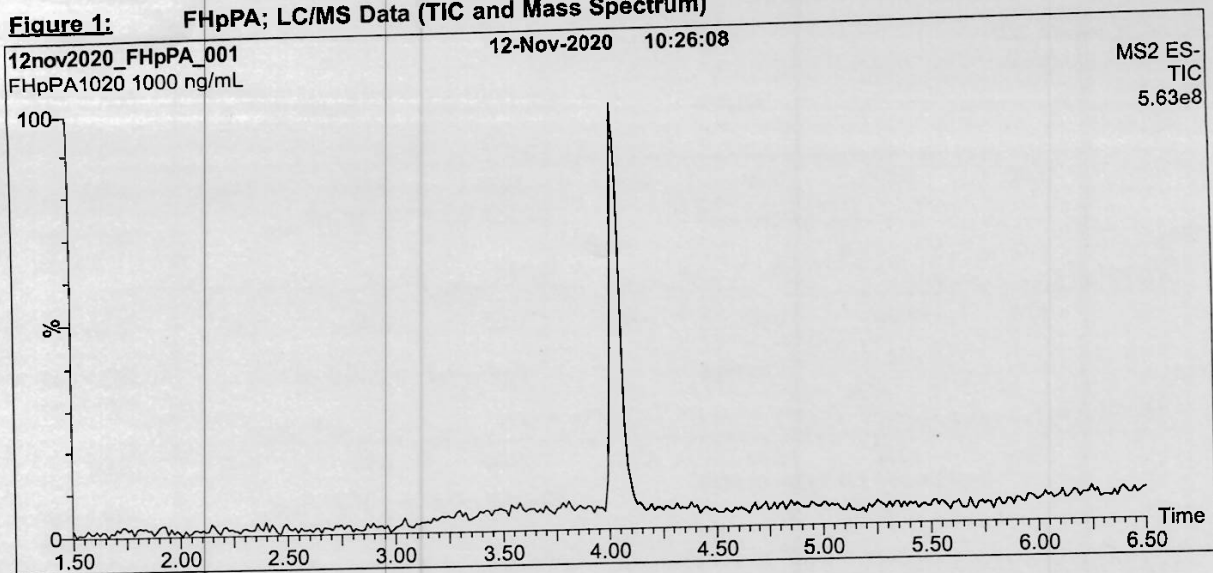
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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

FP_rPA(3:3FTCA) 1116 B



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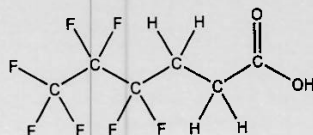
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

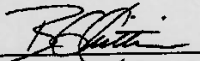
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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11332



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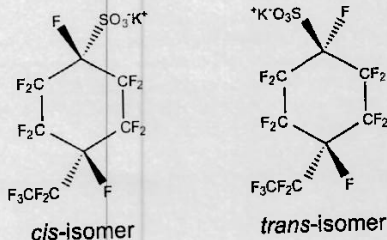
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

$C_8F_{15}SO_3K$
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

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Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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11626
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110827**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **6UTB**

Solvent(s): **Methanol (1 mM KOH)**
2-Propanol
Lot# **102722 (98%)**
32500 (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	DATE

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PTTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluorooctanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHpS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29108-34-4	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	3763-23-1 (L)	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.8	1.00	0.05	756426-56-1	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	6.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
Uncertainty Reference: Taylor, B.N. and Kaye, C.E. "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

7.9.1
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11140



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

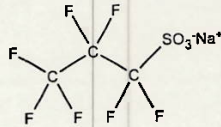
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)

SOLVENT(S):

Methanol

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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11252 11249
7/1/22 KA



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

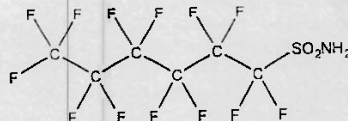
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT:

399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

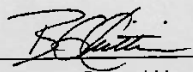
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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11250 Lx 7/1122



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FBSA-I

LOT NUMBER:

FBSA11211

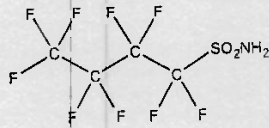
COMPOUND:

Perfluoro-1-butananesulfonamide

STRUCTURE:

CAS #:

30334-69-1



MOLECULAR FORMULA:

C₄H₂F₁₀NO₂S

MOLECULAR WEIGHT:

299.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/10/2021

EXPIRY DATE: (mm/dd/yyyy)

11/10/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

FBSA11211 (1 of 4)
rev0

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

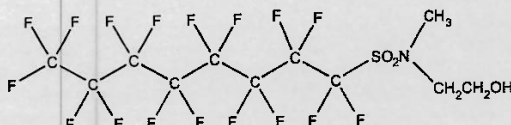
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 06/14/2022

(mm/dd/yyyy)

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11764 A-5
rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LQT NUMBER: MPFACHIFIS1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/28/2022
LAST TESTED: (mm/dd/yyyy) 11/29/2022
EXPIRY DATE: (mm/dd/yyyy) 11/29/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFIS1122 (1 of 5)
rev0

7.9.1
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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, \pm 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 

R.G. Chittim, General Manager

Date: 12/05/2022
(mm/dd/yyyy)

11765 A-J
Rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 - C_{12} , C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4 , C_6 , and C_8), three mass-labelled (one ^{13}C and two ^2H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^2H) perfluorooctanesulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C -labelled components all have chemical purities >98% and isotopic purities of $\geq 99\%$. The individual ^2H -labelled components all have chemical purities >98% and isotopic purities of $\geq 98\%$.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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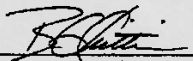
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)
rev0

Table A: MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₂)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₃)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₅)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₆)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₇)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₇)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₈)undecanoic acid	M7PFUDA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 11/24/2022
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started 04/27/23 10:00
(mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM) List 40

Date/Time Finished 4/28/23 11:10
(mm/dd/yy 24:00)

Balance ID: _____

Batch# OP96603 Ext. By: GH

Conc. By: _____ Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96603 MB	/	520	7	N/A	25		5	E	
OP 96603 BS	/	600	7			200			
OP 96603 LLBS	/	600	7			60			
FC 5514-1	2	570	6						
	2	570							
	3	570							
	4	570							
	5	520							
FC 5522-1	2	540							
	2	570							V
	3	570							E
	4	570							F
	5	560							
FC 5578 -1	2	540			25		5		
	2	570	6	N/A	25		5		
	2	570			25		5		F
OP FC 5514-3 MIS	3	540	6	N/A	25	200	5	E	
OP MSD									
OP FC 5522-4 DUP	3	530	6	N/A	25		5	E	

Comments:

EIS (SURR) ID: 11765G-I Conc: 250-5000 ng/ml Exp. Date: 04/24/24 Inj. By: GH Ver. By: CM
 SPIKE 1 ID: LCMS 2104C Conc: VARIED Exp. Date: 10/14/23 Inj. By: GH Ver. By: CM
 SPIKE 2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11776A-C Conc: 250-1000 ng/ml Exp. Date: 4/28/24 Inj. By: MV Ver. By: UV

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot# 224231 1% NH4OH MeOH PF374 SPE Lot# 614-0-05
 Water Lot# OP96255 0.3M Formic Acid PF368 Syringe filter Lot# _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF372 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: [Signature]
Accepted By: [Signature]

Date: 04/27/23
Date: 4/28/23

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