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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC2715

Sampling Date: 02/14/23



Report to:

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Total number of pages in report: 570



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: FC2715

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC2715-1	02/14/23	09:45 NH	02/15/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2302W2
FC2715-2	02/14/23	09:45 NH	02/15/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2302W2
FC2715-3	02/14/23	10:30 NTAY	02/15/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2302W2
FC2715-4	02/14/23	11:55 NH	02/15/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2302W2
FC2715-5	02/14/23	12:40 NTAY	02/15/23	AQ	Ground Water	AF-RHMW10-WGN01LF-2302W2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC2715

Site: N6274223F0104 RH Fire Suppression System

Report Date: 2/23/2023 5:35:22 PM

On 02/15/2023, 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 1.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC2715 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: OP95501

Sample(s) FC2715-1MS, FC2715-4DUP were used as the QC samples indicated.

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: FC2715
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 02/14/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC2715-1 **AF-RHMW12A-WGN01LF-2302W2**

Perfluoropentanoic acid	5.3 J	9.3	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.4 J	4.6	0.93	ng/l	EPA DRAFT 1633

FC2715-2 **AF-RHMW12A-WGFD01LF-2302W2**

Perfluoropentanoic acid	5.3 J	9.6	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.6 J	4.8	0.96	ng/l	EPA DRAFT 1633

FC2715-3 **AF-HDMW225303-WGN01LF-2302W2**

No hits reported in this sample.

FC2715-4 **AF-RHMW16-WGN01LF-2302W2**

No hits reported in this sample.

FC2715-5 **AF-RHMW10-WGN01LF-2302W2**

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-2302W2		
Lab Sample ID:	FC2715-1	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	6Q14138.D	1	02/22/23 21:21	MV	02/16/23 09:00	OP95501	S6Q216
Run #2							

Run #	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.7 U	19	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	5.3	9.3	1.9	0.87	ng/l	J
307-24-4	Perfluorohexanoic acid	1.4	4.6	0.93	0.46	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
335-67-1	Perfluorooctanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.6	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.6	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.6	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.6	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.6	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	4.6	1.9	0.62	ng/l	
31506-32-8	MeFOSA	1.9 U	4.6	1.9	0.93	ng/l	
4151-50-2	EtFOSA	1.9 U	4.6	1.9	0.93	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-2302W2		
Lab Sample ID:	FC2715-1	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.3 U	46	9.3	4.1	ng/l	
1691-99-2	EtFOSE	19 U	46	19	6.9	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.7 U	19	3.7	0.93	ng/l	
919005-14-4	ADONA	3.7 U	19	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	9.3	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	9.3	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	9.3	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	19	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	19	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	9.3	1.9	0.72	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	23	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	116%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	112%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	112%		20-150%
	13C9-PFNA	112%		20-150%
	13C6-PFDA	107%		20-150%
	13C7-PFUnDA	95%		20-150%
	13C2-PFDoDA	87%		20-150%
	13C2-PFTeDA	79%		20-150%
	13C3-PFBS	113%		20-150%
	13C3-PFHxS	117%		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-2302W2		Date Sampled: 02/14/23
Lab Sample ID: FC2715-1		Date Received: 02/15/23
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	101%		20-150%
	13C8-FOSA	109%		20-150%
	d3-MeFOSA	106%		20-150%
	d5-EtFOSA	95%		20-150%
	d3-MeFOSAA	95%		20-150%
	d5-EtFOSAA	96%		20-150%
	d7-MeFOSE	98%		20-150%
	d9-EtFOSE	100%		20-150%
	13C2-4:2FTS	146%		20-150%
	13C2-6:2FTS	125%		20-150%
	13C2-8:2FTS	118%		20-150%
	13C3-HFPO-DA	116%		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

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Client Sample ID:	AF-RHMW12A-WGFD01LF-2302W2		
Lab Sample ID:	FC2715-2	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	6Q14140.D	1	02/22/23 21:49	MV	02/16/23 09:00	OP95501	S6Q216
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	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	5.3	9.6	1.9	0.90	ng/l	J
307-24-4	Perfluorohexanoic acid	1.6	4.8	0.96	0.48	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.96 U	4.8	0.96	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	4.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.96 U	4.8	0.96	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.8	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	4.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	1.9 U	4.8	1.9	0.96	ng/l	
4151-50-2	EtFOSA	1.9 U	4.8	1.9	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-RHMW12A-WGFD01LF-2302W2		
Lab Sample ID:	FC2715-2	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	3.8 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	9.6 U	48	9.6	4.2	ng/l	
1691-99-2	EtFOSE	19 U	48	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.96	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.6	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	9.6	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.6	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.6	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	24	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	105%		20-150%
	13C5-PFPeA	106%		20-150%
	13C5-PFHxA	111%		20-150%
	13C4-PFHpA	109%		20-150%
	13C8-PFOA	96%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	98%		20-150%
	13C7-PFUnDA	87%		20-150%
	13C2-PFDoDA	80%		20-150%
	13C2-PFTeDA	75%		20-150%
	13C3-PFBS	108%		20-150%
	13C3-PFHxS	108%		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-RHMW12A-WGFD01LF-2302W2	
Lab Sample ID:	FC2715-2	Date Sampled: 02/14/23
Matrix:	AQ - Ground Water	Date Received: 02/15/23
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	105%		20-150%
	d3-MeFOSA	99%		20-150%
	d5-EtFOSA	94%		20-150%
	d3-MeFOSAA	99%		20-150%
	d5-EtFOSAA	97%		20-150%
	d7-MeFOSE	88%		20-150%
	d9-EtFOSE	90%		20-150%
	13C2-4:2FTS	121%		20-150%
	13C2-6:2FTS	110%		20-150%
	13C2-8:2FTS	112%		20-150%
	13C3-HFPO-DA	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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	AF-HDMW225303-WGN01LF-2302W2		
Lab Sample ID:	FC2715-3	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	6Q14141.D	1	02/22/23 22:03	MV	02/16/23 09:00	OP95501	S6Q216
Run #2							

Run #	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.7 U	19	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.3	1.9	0.87	ng/l	
307-24-4	Perfluorohexanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
375-85-9	Perfluoroheptanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
335-67-1	Perfluorooctanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.6	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.6	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.6	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.6	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.6	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.6	1.9	0.62	ng/l	
31506-32-8	MeFOSA	1.9 U	4.6	1.9	0.93	ng/l	
4151-50-2	EtFOSA	1.9 U	4.6	1.9	0.93	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-HDMW225303-WGN01LF-2302W2		
Lab Sample ID:	FC2715-3	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.3 U	46	9.3	4.1	ng/l	
1691-99-2	EtFOSE	19 U	46	19	6.9	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.7 U	19	3.7	0.93	ng/l	
919005-14-4	ADONA	3.7 U	19	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	9.3	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	9.3	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	9.3	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	19	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	19	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	9.3	1.9	0.72	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	23	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	113%		20-150%
	13C5-PFPeA	111%		20-150%
	13C5-PFHxA	114%		20-150%
	13C4-PFHpA	111%		20-150%
	13C8-PFOA	107%		20-150%
	13C9-PFNA	107%		20-150%
	13C6-PFDA	104%		20-150%
	13C7-PFUnDA	100%		20-150%
	13C2-PFDoDA	96%		20-150%
	13C2-PFTeDA	91%		20-150%
	13C3-PFBS	113%		20-150%
	13C3-PFHxS	119%		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-HDMW225303-WGN01LF-2302W2	
Lab Sample ID:	FC2715-3	Date Sampled: 02/14/23
Matrix:	AQ - Ground Water	Date Received: 02/15/23
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	100%		20-150%
	13C8-FOSA	106%		20-150%
	d3-MeFOSA	102%		20-150%
	d5-EtFOSA	104%		20-150%
	d3-MeFOSAA	113%		20-150%
	d5-EtFOSAA	111%		20-150%
	d7-MeFOSE	101%		20-150%
	d9-EtFOSE	101%		20-150%
	13C2-4:2FTS	120%		20-150%
	13C2-6:2FTS	120%		20-150%
	13C2-8:2FTS	119%		20-150%
	13C3-HFPO-DA	108%		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

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Client Sample ID:	AF-RHMW16-WGN01LF-2302W2		
Lab Sample ID:	FC2715-4	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	6Q14142.D	1	02/22/23 22:17	MV	02/16/23 09:00	OP95501	S6Q216
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	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-2302W2		
Lab Sample ID:	FC2715-4	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	119%		20-150%
	13C5-PFPeA	108%		20-150%
	13C5-PFHxA	107%		20-150%
	13C4-PFHpA	107%		20-150%
	13C8-PFOA	112%		20-150%
	13C9-PFNA	113%		20-150%
	13C6-PFDA	118%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	97%		20-150%
	13C2-PFTeDA	86%		20-150%
	13C3-PFBS	113%		20-150%
	13C3-PFHxS	116%		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

4.4
4

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2302W2	
Lab Sample ID:	FC2715-4	Date Sampled: 02/14/23
Matrix:	AQ - Ground Water	Date Received: 02/15/23
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	102%		20-150%
	13C8-FOSA	112%		20-150%
	d3-MeFOSA	95%		20-150%
	d5-EtFOSA	93%		20-150%
	d3-MeFOSAA	110%		20-150%
	d5-EtFOSAA	105%		20-150%
	d7-MeFOSE	90%		20-150%
	d9-EtFOSE	93%		20-150%
	13C2-4:2FTS	130%		20-150%
	13C2-6:2FTS	124%		20-150%
	13C2-8:2FTS	122%		20-150%
	13C3-HFPO-DA	113%		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

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Client Sample ID:	AF-RHMW10-WGN01LF-2302W2		
Lab Sample ID:	FC2715-5	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	6Q14144.D	1	02/22/23 22:45	MV	02/16/23 09:00	OP95501	S6Q216
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	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-RHMW10-WGN01LF-2302W2		
Lab Sample ID:	FC2715-5	Date Sampled:	02/14/23
Matrix:	AQ - Ground Water	Date Received:	02/15/23
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	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	112%		20-150%
	13C5-PFPeA	108%		20-150%
	13C5-PFHxA	110%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	107%		20-150%
	13C9-PFNA	110%		20-150%
	13C6-PFDA	109%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	95%		20-150%
	13C2-PFTeDA	87%		20-150%
	13C3-PFBS	108%		20-150%
	13C3-PFHxS	113%		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

4.5
4

Report of Analysis

Client Sample ID:	AF-RHMW10-WGN01LF-2302W2		Date Sampled:	02/14/23
Lab Sample ID:	FC2715-5		Date Received:	02/15/23
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	105%		20-150%
	13C8-FOSA	107%		20-150%
	d3-MeFOSA	94%		20-150%
	d5-EtFOSA	96%		20-150%
	d3-MeFOSAA	106%		20-150%
	d5-EtFOSAA	97%		20-150%
	d7-MeFOSE	97%		20-150%
	d9-EtFOSE	94%		20-150%
	13C2-4:2FTS	120%		20-150%
	13C2-6:2FTS	123%		20-150%
	13C2-8:2FTS	113%		20-150%
	13C3-HFPO-DA	115%		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



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Chain of Custody

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FC2715
SGS - ORLANDO JOB #:

COC #: 2302W2AFSG05
PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #		SKIFF #											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System															
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 Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #															
Sampler(s) Name(s) (Printed) Sampler 1: CH21S W3WACK Sampler 2: NATE HOGSTFAJ																	
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										PFAS EPA Draft 1633	LAB USE ONLY	
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NH3	HNO3	H2SO4	NH4OH-ZnAc	DI WATER			MEDIA
1	AF-RHMMW12A-WGN01LF-2302W2	2/14/23	0945	NH	GW	3		X									X
2	AF-RHMMW12A-WGFD01LF-2302W2	2/14/23	0945	NH	GW	3		X									X
INITIAL ASSESSMENT																	
LABEL VERIFICATION																	
A/N 2/14/23																	
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks									
10 Day (Business)		Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 616-82736382									
7 Day																	
5 Day																	
3 Day RUSH																	
2 Day RUSH																	
1 Day RUSH																	
Other																	
Rush T/A Data Available VIA Email or Lablink																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
1		2/14/23 130		2		2/14/23		3		2/14/23		8					
Relinquished by/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
5		2/15/23		6		2/15/23		7		2/15/23		8					
Lab Use Only : Cooler Temperature (s) Celsius (corrected): 1.2 °C 3RI																	
http://www.sgs.com/en/terms-and-conditions																	

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FC2715: Chain of Custody

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FC2715
SGS - ORLANDO JOB #:

COC #: 2302W2AFSG04

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="text-align: right; font-size: 2em; font-weight: bold;"> 2114133 </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
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 Tanji Email: watson.tanji@aecom.com		Fax #															
Sampler(s) Name(s) (Printed) Sampler 1: Noah Turner Sampler 2: Andrew Young		Client Purchase Order #		PFAS EPA Draft 1633 X										LAB USE ONLY			
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY		
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH-ZnAc	DI WATER		MEDIA	
3	AF-HDMW225303-WGN01LF-2302W2	2/14/23	1030	NT, AY	GW	3		X									
Turnaround Time (Business days)		Data Deliverable Information			Comments / Remarks												
10 Day (Business) Approved By: / Date: 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S			EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW Unified AWC 016-82732382												
Rush T/A Data Available VIA Email or Lablink													Sample Custody must be documented below each time samples change possession, including courier delivery.				
Relinquished by Sampler/Affiliation Oliva Shirey		Date Time: 1:50 2/14/23		Received By/Affiliation AECOM		Relinquished By/Affiliation AECOM		Date Time: 4:48 2/14/23		Received By/Affiliation AECOM		Relinquished By/Affiliation		Date Time: 8 2/15/23		Received By/Affiliation	
Lab Use Only: Cooler Temperature (s) Celsius (corrected):		http://www.sgs.com/en/terms-and-conditions															

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FC2715: Chain of Custody

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FC2715
SGS - ORLANDO JOB # :

COC #: 2302W2AFSG06

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; width: 80%; height: 100%; position: relative;"> </div> </div>												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe	
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 Taniil Email: watson.taniil@aecom.com	Fax #																
Sampler(s) Name(s) (Printed)		Client Purchase Order #															
Sampler 1:		Sampler 2:															
SGS Orlando Sample #	COLLECTION		CONTAINER INFORMATION												LAB USE ONLY		
	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NDNE	HCl	NDNH	HNDS	HSSO4	NONH-ZNAC	DI WATER		MEDIH	
4	AF-RHMW16-WGN01LF-2302W2	2/14/23	11:55	NH	GW	3		X									
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks									
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 3 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-82736382									
Rush T/A Data Available VIA Email or Lablink																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation	
1 WA NG		2/14/23 13:10		2 [Signature] AECOM		3 [Signature] AECOM		2/14/23 14:30		4 [Signature]		5 [Signature]		2/14/23		6 [Signature]	
Relinquished by/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation	
5		2/14/23		6		7		8		8		8		8		8	
Lab Use Only : Cooler Temperature (s) Celsius (corrected):																	
http://www.sgs.com/en/terms-and-conditions																	

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FC2715: Chain of Custody

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FC2715
SGS - ORLANDO JOB # :

COC # 2302W2AFSG03
PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #		SKIFF #											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System															
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 Tani Email: watson.tani@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #															
Sampler(s) Name(s) (Printed) Sampler 1: <i>Michelle Turner</i> Sampler 2: <i>Andrew Young</i>																	
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION							PFAS EPA Draft 1633	LAB USE ONLY				
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	MONO	HCl	NO3	NO2			NO3+NO2	DI WATER	MEOH	
5	AF-RHMW10-WGN01LF-2302W2	2/14/23	1240	NT, AY	GW	3	X										
Turnaround Time (Business days)		Data Deliverable Information				Comments / Remarks											
10 Day (Business) Approved By: / Date: 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB 016-82736382											
Rush T/A Data Available VIA Email or Lablink								Sample Custody must be documented below each time samples change possession, including courier delivery.									
Relinquished by Sampler/Affiliation <i>Olivia Shirley / Aecom</i>		Date Time: <i>2/14/23</i>		Received By/Affiliation <i>Michelle Turner Aecom</i>		Date Time: <i>2/14/23</i>		Relinquished By/Affiliation <i>Michelle Turner Aecom</i>		Date Time: <i>2/14/23</i>		Received By/Affiliation <i>Andrew Young</i>					
Relinquished by/Affiliation		Date Time: <i>2/15/23</i>		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
5		6		7		8											
Lab Use Only: Cooler Temperature (s) Celsius (corrected):										http://www.sgs.com/en/terms-and-conditions							

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FC2715: Chain of Custody

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5.1
5

SGS Sample Receipt Summary

Job Number: FC2715

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 2/15/2023 2:30:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-82736382

Therm ID: IR 1;

Therm CF: 0.2;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.2);

Cooler Temps (Corrected) °C: Cooler 1: (1.4);

Cooler Information

Y or N

- | | | |
|-----------------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Temp criteria achieved | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Cooler temp verification | IR Gun | |
| 5. Cooler media | Ice (Bag) | |

Sample Information

Y or N N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Sample labels present on bottles | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Samples preserved properly | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3. Sufficient volume/containers recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Condition of sample | Intact | | |
| 5. Sample recvd within HT | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6. Dates/Times/IDs on COC match Sample Label | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7. VOCs have headspace | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 9. Compositing instructions clear | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Voa Soil Kits/Jars received past 48hrs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. % Solids Jar received? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Residual Chlorine Present? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Trip Blank Information

Y or N N/A

- | | | | |
|--------------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

W or S N/A

- | | | | |
|------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Type Of TB Received | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|------------------------|--------------------------|--------------------------|-------------------------------------|

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____
 Test Strip Lot #: pH 0-3 _____ 230315 _____ pH 10-12 _____ 219813A _____ Other: (Specify) _____
 Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: CARLOSD

Date: 2/15/2023 2:30:00 PM

Reviewer: CD

Date: 2/17/2023

FC2715: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Job Number: FC2715
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 02/14/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
--------------	------	---------	--------------------	-------------	-------	--------

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC2715

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: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q216-IBLK	6Q14130.D	1	02/22/23	MV	n/a	n/a	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	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	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	0.0028	0.0050	0.0010	ug/l	J
4151-50-2	EtFOSA	0.0037	0.0050	0.0010	ug/l	J
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	0.0289	0.050	0.0044	ug/l	J
1691-99-2	EtFOSE	0.0316	0.050	0.0074	ug/l	J
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q216-IBLK	6Q14130.D	1	02/22/23	MV	n/a	n/a	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	102% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	102% 20-150%
	13C6-PFDA	97% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	92% 20-150%
	13C2-PFTeDA	100% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	97% 20-150%
	13C8-PFOS	108% 20-150%
	13C8-FOSA	103% 20-150%
	d3-MeFOSA	99% 20-150%
	d5-EtFOSA	104% 20-150%
	d3-MeFOSAA	109% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	103% 20-150%
	d9-EtFOSE	99% 20-150%
	13C2-4:2FTS	108% 20-150%
	13C2-6:2FTS	112% 20-150%
	13C2-8:2FTS	99% 20-150%
	13C3-HFPO-DA	100% 20-150%

6.1.1
6

Method Blank Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-MB	6Q14137.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	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	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	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	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Method Blank Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-MB	6Q14137.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	115% 20-150%
	13C5-PFPeA	112% 20-150%
	13C5-PFHxA	115% 20-150%
	13C4-PFHpA	109% 20-150%
	13C8-PFOA	113% 20-150%
	13C9-PFNA	107% 20-150%
	13C6-PFDA	111% 20-150%
	13C7-PFUnDA	110% 20-150%
	13C2-PFDoDA	100% 20-150%
	13C2-PFTeDA	84% 20-150%
	13C3-PFBS	118% 20-150%
	13C3-PFHxS	122% 20-150%
	13C8-PFOS	105% 20-150%
	13C8-FOSA	101% 20-150%
	d3-MeFOSA	87% 20-150%
	d5-EtFOSA	94% 20-150%
	d3-MeFOSAA	109% 20-150%
	d5-EtFOSAA	104% 20-150%
	d7-MeFOSE	88% 20-150%
	d9-EtFOSE	88% 20-150%
	13C2-4:2FTS	138% 20-150%
	13C2-6:2FTS	141% 20-150%
	13C2-8:2FTS	132% 20-150%
	13C3-HFPO-DA	113% 20-150%

Blank Spike Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-LLBS	6Q14136.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0450	113	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0237	119	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0109	109	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0113	113	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0111	111	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0123	123	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0107	107	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0110	110	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0103	103	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0107	107	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0122	122	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0107	121	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.010	106	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0097	106	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0104	109	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0113	122	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0112	116	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0106	110	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0103	106	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0418	111	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0410	108	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0430	112	40-150
754-91-6	PFOSA	0.01	0.0117	117	40-150
31506-32-8	MeFOSA	0.01	0.0100	100	40-150
4151-50-2	EtFOSA	0.01	0.0097	97	40-150
2355-31-9	MeFOSAA	0.01	0.0108	108	40-150
2991-50-6	EtFOSAA	0.01	0.0106	106	40-150
24448-09-7	MeFOSE	0.1	0.113	113	40-150
1691-99-2	EtFOSE	0.1	0.110	110	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0476	119	40-150
919005-14-4	ADONA	0.0378	0.0446	118	40-150
377-73-1	PFMPA	0.02	0.0228	114	40-150
863090-89-5	PFMBA	0.02	0.0227	114	40-150
151772-58-6	NFDHA	0.02	0.0249	125	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0420	112	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0413	109	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-LLBS	6Q14136.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0211	119	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0513	103	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.284	114	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.286	114	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	118%	20-150%
	13C5-PFPeA	116%	20-150%
	13C5-PFHxA	120%	20-150%
	13C4-PFHpA	121%	20-150%
	13C8-PFOA	116%	20-150%
	13C9-PFNA	123%	20-150%
	13C6-PFDA	126%	20-150%
	13C7-PFUnDA	113%	20-150%
	13C2-PFDoDA	116%	20-150%
	13C2-PFTeDA	105%	20-150%
	13C3-PFBS	105%	20-150%
	13C3-PFHxS	112%	20-150%
	13C8-PFOS	107%	20-150%
	13C8-FOSA	110%	20-150%
	d3-MeFOSA	104%	20-150%
	d5-EtFOSA	105%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	112%	20-150%
	d7-MeFOSE	99%	20-150%
	d9-EtFOSE	102%	20-150%
	13C2-4:2FTS	125%	20-150%
	13C2-6:2FTS	128%	20-150%
	13C2-8:2FTS	118%	20-150%
	13C3-HFPO-DA	117%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-BS	6Q14135.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.120	120	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0609	122	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0308	123	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0284	114	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0302	121	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0293	117	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0298	119	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0292	117	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0264	106	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0290	116	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0316	126	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0285	129	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0293	125	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0293	128	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0284	119	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0270	116	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0286	119	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0300	124	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0283	117	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.105	112	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.117	123	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.126	131	40-150
754-91-6	PFOSA	0.025	0.0290	116	40-150
31506-32-8	MeFOSA	0.025	0.0262	105	40-150
4151-50-2	EtFOSA	0.025	0.0286	114	40-150
2355-31-9	MeFOSAA	0.025	0.0289	116	40-150
2991-50-6	EtFOSAA	0.025	0.0303	121	40-150
24448-09-7	MeFOSE	0.25	0.290	116	40-150
1691-99-2	EtFOSE	0.25	0.262	105	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.114	114	40-150
919005-14-4	ADONA	0.0945	0.110	116	40-150
377-73-1	PFMPA	0.05	0.0586	117	40-150
863090-89-5	PFMBA	0.05	0.0605	121	40-150
151772-58-6	NFDHA	0.05	0.0680	136	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.105	112	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.112	119	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-BS	6Q14135.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0546	123	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.139	111	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.750	120	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.786	126	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	109%	20-150%
	13C5-PFPeA	110%	20-150%
	13C5-PFHxA	107%	20-150%
	13C4-PFHpA	113%	20-150%
	13C8-PFOA	106%	20-150%
	13C9-PFNA	114%	20-150%
	13C6-PFDA	111%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	109%	20-150%
	13C2-PFTeDA	97%	20-150%
	13C3-PFBS	104%	20-150%
	13C3-PFHxS	104%	20-150%
	13C8-PFOS	103%	20-150%
	13C8-FOSA	108%	20-150%
	d3-MeFOSA	107%	20-150%
	d5-EtFOSA	100%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	108%	20-150%
	d7-MeFOSE	99%	20-150%
	d9-EtFOSE	107%	20-150%
	13C2-4:2FTS	120%	20-150%
	13C2-6:2FTS	111%	20-150%
	13C2-8:2FTS	109%	20-150%
	13C3-HFPO-DA	114%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-MS	6Q14139.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216
FC2715-1	6Q14138.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	FC2715-1 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.019 U		0.0943	0.114	121	40-150
2706-90-3	Perfluoropentanoic acid	0.0053 J		0.0472	0.0620	120	40-150
307-24-4	Perfluorohexanoic acid	0.0014 J		0.0236	0.0279	112	40-150
375-85-9	Perfluoroheptanoic acid	0.0046 U		0.0236	0.0321	136	40-150
335-67-1	Perfluorooctanoic acid	0.0046 U		0.0236	0.0289	123	40-150
375-95-1	Perfluorononanoic acid	0.0046 U		0.0236	0.0286	121	40-150
335-76-2	Perfluorodecanoic acid	0.0046 U		0.0236	0.0280	119	40-150
2058-94-8	Perfluoroundecanoic acid	0.0046 U		0.0236	0.0275	117	40-150
307-55-1	Perfluorododecanoic acid	0.0046 U		0.0236	0.0260	110	40-150
72629-94-8	Perfluorotridecanoic acid	0.0046 U		0.0236	0.0272	115	40-150
376-06-7	Perfluorotetradecanoic acid	0.0046 U		0.0236	0.0289	123	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0046 U		0.0209	0.0256	122	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0046 U		0.0222	0.0249	112	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0046 U		0.0216	0.0257	119	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0046 U		0.0225	0.0296	132	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0046 U		0.0219	0.0283	129	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0046 U		0.0227	0.0262	115	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0046 U		0.0228	0.0227	100	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0046 U		0.0229	0.0237	104	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U		0.0884	0.105	119	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U		0.0896	0.106	118	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		0.0906	0.116	128	40-150
754-91-6	PFOSA	0.0046 U		0.0236	0.0295	125	40-150
31506-32-8	MeFOSA	0.0046 U		0.0236	0.0258	109	40-150
4151-50-2	EtFOSA	0.0046 U		0.0236	0.0269	114	40-150
2355-31-9	MeFOSAA	0.0046 U		0.0236	0.0276	117	40-150
2991-50-6	EtFOSAA	0.0046 U		0.0236	0.0286	121	40-150
24448-09-7	MeFOSE	0.046 U		0.236	0.272	115	40-150
1691-99-2	EtFOSE	0.046 U		0.236	0.268	114	40-150
13252-13-6	HFPO-DA (GenX)	0.019 U		0.0943	0.110	117	40-150
919005-14-4	ADONA	0.019 U		0.0892	0.108	121	40-150
377-73-1	PFMPA	0.0093 U		0.0472	0.0566	120	40-150
863090-89-5	PFMBA	0.0093 U		0.0472	0.0565	120	40-150
151772-58-6	NFDHA	0.0093 U		0.0472	0.0605	128	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019 U		0.0882	0.102	116	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019 U		0.0892	0.0838	94	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-MS	6Q14139.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216
FC2715-1	6Q14138.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	FC2715-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0093 U	0.042	0.0528	126	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.023 U	0.118	0.131	111	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	0.59	0.746	127	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	0.59	0.669	113	40-150

CAS No.	ID Standard Recoveries	MS	FC2715-1	Limits
	13C4-PFBA	109%	116%	20-150%
	13C5-PFPeA	110%	110%	20-150%
	13C5-PFHxA	108%	112%	20-150%
	13C4-PFHpA	101%	110%	20-150%
	13C8-PFOA	97%	112%	20-150%
	13C9-PFNA	110%	112%	20-150%
	13C6-PFDA	104%	107%	20-150%
	13C7-PFUnDA	91%	95%	20-150%
	13C2-PFDoDA	79%	87%	20-150%
	13C2-PFTeDA	71%	79%	20-150%
	13C3-PFBS	112%	113%	20-150%
	13C3-PFHxS	117%	117%	20-150%
	13C8-PFOS	95%	101%	20-150%
	13C8-FOSA	109%	109%	20-150%
	d3-MeFOSA	99%	106%	20-150%
	d5-EtFOSA	90%	95%	20-150%
	d3-MeFOSAA	103%	95%	20-150%
	d5-EtFOSAA	95%	96%	20-150%
	d7-MeFOSE	87%	98%	20-150%
	d9-EtFOSE	88%	100%	20-150%
	13C2-4:2FTS	121%	146%	20-150%
	13C2-6:2FTS	123%	125%	20-150%
	13C2-8:2FTS	108%	118%	20-150%
	13C3-HFPO-DA	111%	116%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-DUP	6Q14143.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216
FC2715-4	6Q14142.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	FC2715-4 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.019 U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0094 U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0047 U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0047 U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0047 U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0047 U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0047 U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0047 U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0047 U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0047 U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0047 U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0047 U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0047 U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0047 U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0047 U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0047 U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0047 U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0047 U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0047 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	0.0047 U	ND		nc	30
31506-32-8	MeFOSA	0.0047 U	ND		nc	30
4151-50-2	EtFOSA	0.0047 U	ND		nc	30
2355-31-9	MeFOSAA	0.0047 U	ND		nc	30
2991-50-6	EtFOSAA	0.0047 U	ND		nc	30
24448-09-7	MeFOSE	0.047 U	ND		nc	30
1691-99-2	EtFOSE	0.047 U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.019 U	ND		nc	30
919005-14-4	ADONA	0.019 U	ND		nc	30
377-73-1	PFMPA	0.0094 U	ND		nc	30
863090-89-5	PFMBA	0.0094 U	ND		nc	30
151772-58-6	NFDHA	0.0094 U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019 U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019 U	ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95501-DUP	6Q14143.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216
FC2715-4	6Q14142.D	1	02/22/23	MV	02/16/23	OP95501	S6Q216

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC2715-1, FC2715-2, FC2715-3, FC2715-4, FC2715-5

CAS No.	Compound	FC2715-4 ug/l	DUP Q ug/l	Q RPD	Limits
113507-82-7	PFEESA	0.0094 U	ND	nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.024 U	ND	nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	ND	nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	ND	nc	30

CAS No.	ID Standard Recoveries	DUP	FC2715-4	Limits
	13C4-PFBA	114%	119%	20-150%
	13C5-PFPeA	118%	108%	20-150%
	13C5-PFHxA	121%	107%	20-150%
	13C4-PFHpA	120%	107%	20-150%
	13C8-PFOA	108%	112%	20-150%
	13C9-PFNA	111%	113%	20-150%
	13C6-PFDA	116%	118%	20-150%
	13C7-PFUnDA	110%	101%	20-150%
	13C2-PFDoDA	98%	97%	20-150%
	13C2-PFTeDA	98%	86%	20-150%
	13C3-PFBS	112%	113%	20-150%
	13C3-PFHxS	111%	116%	20-150%
	13C8-PFOS	104%	102%	20-150%
	13C8-FOSA	116%	112%	20-150%
	d3-MeFOSA	103%	95%	20-150%
	d5-EtFOSA	104%	93%	20-150%
	d3-MeFOSAA	119%	110%	20-150%
	d5-EtFOSAA	107%	105%	20-150%
	d7-MeFOSE	106%	90%	20-150%
	d9-EtFOSE	109%	93%	20-150%
	13C2-4:2FTS	120%	130%	20-150%
	13C2-6:2FTS	117%	124%	20-150%
	13C2-8:2FTS	120%	122%	20-150%
	13C3-HFPO-DA	120%	113%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q216-CC216	Injection Date:	02/22/23
Lab File ID:	6Q14133.D	Injection Time:	20:11
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	39841	2.94	40953	5.51	85183	7.10	25406	7.63	26055	8.11
Check Std ^c	39056	2.94	39306	5.51	85806	7.10	23459	7.63	24934	8.11
Upper Limit ^d	79682	3.34	81906	5.91	170366	7.50	50812	8.03	52110	8.51
Lower Limit ^e	11952	2.54	12286	5.11	25555	6.70	7622	7.23	7817	7.71

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
OP95501-BS	30647	2.95	30298	5.51	63504	7.10	18933	7.63	19341	8.11	1
OP95501-LLBS	30600	2.98	30514	5.51	64489	7.10	18569	7.63	19419	8.11	1
OP95501-MB	30997	2.98	32106	5.51	65388	7.10	20005	7.63	20052	8.11	1
FC2715-1	30242	2.98	30460	5.51	64513	7.10	18105	7.63	19734	8.11	1
OP95501-MS	30881	2.98	30178	5.51	67188	7.10	18803	7.63	20007	8.11	1
FC2715-2	32874	2.98	31882	5.51	70113	7.10	20185	7.63	21966	8.11	1
FC2715-3	32398	2.98	32049	5.51	69663	7.10	20634	7.63	21525	8.11	1
FC2715-4	30157	2.98	32375	5.51	64515	7.10	19457	7.63	19037	8.11	1
OP95501-DUP	31762	2.98	30291	5.51	69321	7.10	20569	7.63	20125	8.11	1
FC2715-5	31330	2.98	31907	5.51	65402	7.10	19737	7.63	19353	8.11	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: S6Q216-ICC216 6Q14125.D 02/22/23 18:19. 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.

Injection Standard Area Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q216-CC216	Injection Date:	02/22/23
Lab File ID:	6Q14133.D	Injection Time:	20:11
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	7301	7.21	10928	8.27
Check Std ^c	7071	7.21	10013	8.27
Upper Limit ^d	14602	7.61	21856	8.67
Lower Limit ^e	2190	6.81	3278	7.87

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP95501-BS	5592	7.22	8314	8.27	1
OP95501-LLBS	5800	7.22	8977	8.28	1
OP95501-MB	5407	7.22	8961	8.27	1
FC2715-1	5369	7.21	8685	8.27	1
OP95501-MS	5259	7.22	8286	8.27	1
FC2715-2	5668	7.21	8893	8.28	1
FC2715-3	5682	7.22	9006	8.27	1
FC2715-4	5513	7.22	8666	8.27	1
OP95501-DUP	5884	7.21	8428	8.27	1
FC2715-5	5512	7.21	8569	8.27	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q216-ICC216 6Q14125.D 02/22/23 18:19. 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: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q216-RT	Injection Date:	02/22/23
Lab File ID:	6Q14119.D	Injection Time:	16:55
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.271	--	--
TDCA	6.795	1.476	1.000
TCDCA	6.634	1.637	1.000
TUDCA	5.782	2.489	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
S6Q216-IC216	6Q14121.D	02/22/23	17:23	00:28	Mass Calibration Verification
S6Q216-IC216	6Q14122.D	02/22/23	17:37	00:42	Initial cal 1
S6Q216-IC216	6Q14123.D	02/22/23	17:51	00:56	Initial cal 2
S6Q216-IC216	6Q14124.D	02/22/23	18:05	01:10	Initial cal 3
S6Q216-ICC216	6Q14125.D	02/22/23	18:19	01:24	Initial cal 4
S6Q216-IC216	6Q14126.D	02/22/23	18:33	01:38	Initial cal 5
S6Q216-IC216	6Q14127.D	02/22/23	18:47	01:52	Initial cal 6
S6Q216-IC216	6Q14128.D	02/22/23	19:01	02:06	Initial cal 7
S6Q216-IC216	6Q14129.D	02/22/23	19:15	02:20	Initial cal 8
S6Q216-IBLK	6Q14130.D	02/22/23	19:29	02:34	Instrument Blank
S6Q216-ICV216	6Q14132.D	02/22/23	19:57	03:02	Initial cal verification 20
S6Q216-CC216	6Q14133.D	02/22/23	20:11	03:16	Continuing cal 4
S6Q216-CC216	6Q14134.D	02/22/23	20:25	03:30	Continuing cal 1.0LL
OP95501-BS	6Q14135.D	02/22/23	20:39	03:44	Blank Spike
OP95501-LLBS	6Q14136.D	02/22/23	20:53	03:58	Blank Spike
OP95501-MB	6Q14137.D	02/22/23	21:07	04:12	Method Blank
FC2715-1	6Q14138.D	02/22/23	21:21	04:26	AF-RHMW12A-WGN01LF-2302W2
OP95501-MS	6Q14139.D	02/22/23	21:35	04:40	Matrix Spike
FC2715-2	6Q14140.D	02/22/23	21:49	04:54	AF-RHMW12A-WGFD01LF-2302W2
FC2715-3	6Q14141.D	02/22/23	22:03	05:08	AF-HDMW225303-WGN01LF-2302W2
FC2715-4	6Q14142.D	02/22/23	22:17	05:22	AF-RHMW16-WGN01LF-2302W2
OP95501-DUP	6Q14143.D	02/22/23	22:31	05:36	Duplicate
FC2715-5	6Q14144.D	02/22/23	22:45	05:50	AF-RHMW10-WGN01LF-2302W2
S6Q216-CC216	6Q14145.D	02/22/23	22:59	06:04	Continuing cal 4
S6Q216-ICCB	6Q14146.D	02/22/23	23:13	06:18	Continuing Calibration Blank
OP95476-BS	6Q14147.D	02/22/23	23:27	06:32	Blank Spike
OP95476-LLBS	6Q14148.D	02/22/23	23:41	06:46	Blank Spike
OP95476-MB	6Q14149.D	02/22/23	23:55	07:00	Method Blank
ZZZZZZ	6Q14150.D	02/23/23	00:09	07:14	(unrelated sample)
ZZZZZZ	6Q14151.D	02/23/23	00:23	07:28	(unrelated sample)
ZZZZZZ	6Q14152.D	02/23/23	00:37	07:42	(unrelated sample)
ZZZZZZ	6Q14153.D	02/23/23	00:51	07:56	(unrelated sample)
ZZZZZZ	6Q14154.D	02/23/23	01:05	08:10	(unrelated sample)
ZZZZZZ	6Q14155.D	02/23/23	01:19	08:24	(unrelated sample)

TDCA Retention Time Check

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q216-RT	Injection Date:	02/22/23
Lab File ID:	6Q14119.D	Injection Time:	16:55
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q14156.D	02/23/23	01:33	08:38	(unrelated sample)
S6Q216-CC216	6Q14157.D	02/23/23	01:47	08:52	Continuing cal 4
S6Q216-CC216	6Q14158.D	02/23/23	02:01	09:06	Continuing cal 1.0LL
S6Q216-ICCB	6Q14159.D	02/23/23	02:15	09:20	Continuing Calibration Blank
ZZZZZZ	6Q14160.D	02/23/23	02:29	09:34	(unrelated sample)
JD60049-4A	6Q14161.D	02/23/23	02:43	09:48	(used for QC only; not part of job FC2715)
OP95476-MS	6Q14162.D	02/23/23	02:57	10:02	Matrix Spike
OP95476-MSD	6Q14163.D	02/23/23	03:11	10:16	Matrix Spike Duplicate
ZZZZZZ	6Q14164.D	02/23/23	03:25	10:30	(unrelated sample)
ZZZZZZ	6Q14165.D	02/23/23	03:39	10:44	(unrelated sample)
ZZZZZZ	6Q14166.D	02/23/23	03:53	10:58	(unrelated sample)
ZZZZZZ	6Q14167.D	02/23/23	04:07	11:12	(unrelated sample)
ZZZZZZ	6Q14168.D	02/23/23	04:21	11:26	(unrelated sample)
ZZZZZZ	6Q14169.D	02/23/23	04:34	11:39	(unrelated sample)
S6Q216-CC216	6Q14170.D	02/23/23	04:48	11:53	Continuing cal 4
S6Q216-ICCB	6Q14171.D	02/23/23	05:02	12:07	Continuing Calibration Blank
OP95521-BS	6Q14172.D	02/23/23	05:16	12:21	Blank Spike
OP95521-LLBS	6Q14173.D	02/23/23	05:30	12:35	Blank Spike
OP95521-MB	6Q14174.D	02/23/23	05:44	12:49	Method Blank
ZZZZZZ	6Q14175.D	02/23/23	05:58	13:03	(unrelated sample)
FC2521-2	6Q14176.D	02/23/23	06:12	13:17	(used for QC only; not part of job FC2715)
OP95521-MS	6Q14177.D	02/23/23	06:26	13:31	Matrix Spike
OP95521-MSD	6Q14178.D	02/23/23	06:40	13:45	Matrix Spike Duplicate
ZZZZZZ	6Q14179.D	02/23/23	06:54	13:59	(unrelated sample)
ZZZZZZ	6Q14180.D	02/23/23	07:08	14:13	(unrelated sample)
ZZZZZZ	6Q14181.D	02/23/23	07:22	14:27	(unrelated sample)
S6Q216-CC216	6Q14182.D	02/23/23	07:36	14:41	Continuing cal 4
S6Q216-ICCB	6Q14183.D	02/23/23	07:50	14:55	Continuing Calibration Blank
ZZZZZZ	6Q14184.D	02/23/23	08:04	15:09	(unrelated sample)
ZZZZZZ	6Q14185.D	02/23/23	08:18	15:23	(unrelated sample)
ZZZZZZ	6Q14186.D	02/23/23	08:32	15:37	(unrelated sample)
ZZZZZZ	6Q14187.D	02/23/23	08:46	15:51	(unrelated sample)
ZZZZZZ	6Q14188.D	02/23/23	09:00	16:05	(unrelated sample)
ZZZZZZ	6Q14189.D	02/23/23	09:14	16:19	(unrelated sample)
ZZZZZZ	6Q14190.D	02/23/23	09:28	16:33	(unrelated sample)
ZZZZZZ	6Q14191.D	02/23/23	09:42	16:47	(unrelated sample)
ZZZZZZ	6Q14192.D	02/23/23	09:56	17:01	(unrelated sample)
ZZZZZZ	6Q14193.D	02/23/23	10:10	17:15	(unrelated sample)
S6Q216-CC216	6Q14194.D	02/23/23	10:24	17:29	Continuing cal 4
S6Q216-ICCB	6Q14195.D	02/23/23	10:38	17:43	Continuing Calibration Blank
ZZZZZZ	6Q14196.D	02/23/23	10:52	17:57	(unrelated sample)
ZZZZZZ	6Q14197.D	02/23/23	11:06	18:11	(unrelated sample)
S6Q216-ECC216	6Q14198.D	02/23/23	11:20	18:25	Ending cal 4
S6Q216-ICCB	6Q14199.D	02/23/23	11:34	18:39	Continuing Calibration Blank

6.6.1

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Ion Ratio Summary

Job Number: FC2715
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q216	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios	
		PFPeA	PFHxA
S6Q216-ICC216	6Q14125.D	0	4
FC2715-1	6Q14138.D	0	3.9
FC2715-2	6Q14140.D	0	2.8
FC2715-3	6Q14141.D		
FC2715-4	6Q14142.D		
FC2715-5	6Q14144.D		

Isotope Dilution Standard Recovery Summary

Job Number: FC2715
 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
FC2715-1	6Q14138.D	116	110	112	110	112	112	107	95
FC2715-2	6Q14140.D	105	106	111	109	96	103	98	87
FC2715-3	6Q14141.D	113	111	114	111	107	107	104	100
FC2715-4	6Q14142.D	119	108	107	107	112	113	118	101
FC2715-5	6Q14144.D	112	108	110	110	107	110	109	101
OP95501-BS	6Q14135.D	109	110	107	113	106	114	111	107
OP95501-DUP	6Q14143.D	114	118	121	120	108	111	116	110
OP95501-LLBS	6Q14136.D	118	116	120	121	116	123	126	113
OP95501-MB	6Q14137.D	115	112	115	109	113	107	111	110
OP95501-MS	6Q14139.D	109	110	108	101	97	110	104	91
S6Q216-IBLK	6Q14130.D	100	102	103	103	97	102	97	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: FC2715
 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
FC2715-1	6Q14138.D	87	79	113	117	101	109	106	95
FC2715-2	6Q14140.D	80	75	108	108	98	105	99	94
FC2715-3	6Q14141.D	96	91	113	119	100	106	102	104
FC2715-4	6Q14142.D	97	86	113	116	102	112	95	93
FC2715-5	6Q14144.D	95	87	108	113	105	107	94	96
OP95501-BS	6Q14135.D	109	97	104	104	103	108	107	100
OP95501-DUP	6Q14143.D	98	98	112	111	104	116	103	104
OP95501-LLBS	6Q14136.D	116	105	105	112	107	110	104	105
OP95501-MB	6Q14137.D	100	84	118	122	105	101	87	94
OP95501-MS	6Q14139.D	79	71	112	117	95	109	99	90
S6Q216-IBLK	6Q14130.D	92	100	103	97	108	103	99	104

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

6

Isotope Dilution Standard Recovery Summary

Job Number: FC2715
 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
FC2715-1	6Q14138.D	95	96	98	100	146	125	118	116
FC2715-2	6Q14140.D	99	97	88	90	121	110	112	105
FC2715-3	6Q14141.D	113	111	101	101	120	120	119	108
FC2715-4	6Q14142.D	110	105	90	93	130	124	122	113
FC2715-5	6Q14144.D	106	97	97	94	120	123	113	115
OP95501-BS	6Q14135.D	114	108	99	107	120	111	109	114
OP95501-DUP	6Q14143.D	119	107	106	109	120	117	120	120
OP95501-LLBS	6Q14136.D	114	112	99	102	125	128	118	117
OP95501-MB	6Q14137.D	109	104	88	88	138	141	132	113
OP95501-MS	6Q14139.D	103	95	87	88	121	123	108	111
S6Q216-IBLK	6Q14130.D	109	108	103	99	108	112	99	100

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	20-150%
S22 = 13C2-6:2FTS	20-150%
S23 = 13C2-8:2FTS	20-150%
S24 = 13C3-HFPO-DA	20-150%

6.8.1

6

Initial Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-ICC216
 Lab FileID: 6Q14125.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods	Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time						
Method File	D:\MassHunter\Data\022223_1633_S6Q216.quantmethod.xml	1	D:\MassHunter\Data\022223_1633_S6Q216\6Q14122.d	2/22/2023 5:37:31 PM	2/23/2023 12:09:03 PM						
Batch Name	D:\MassHunter\Data\022223_1633_S6Q216\6Q14123.d	2	D:\MassHunter\Data\022223_1633_S6Q216\6Q14123.d	2/22/2023 5:51:31 PM	2/23/2023 12:09:03 PM						
Last Calib Update	D:\MassHunter\Data\022223_1633_S6Q216\6Q14124.d	3	D:\MassHunter\Data\022223_1633_S6Q216\6Q14124.d	2/22/2023 6:05:30 PM	2/23/2023 12:09:03 PM						
	D:\MassHunter\Data\022223_1633_S6Q216\6Q14125.d	4	D:\MassHunter\Data\022223_1633_S6Q216\6Q14125.d	2/22/2023 6:19:29 PM	2/23/2023 12:09:03 PM						
	D:\MassHunter\Data\022223_1633_S6Q216\6Q14126.d	5	D:\MassHunter\Data\022223_1633_S6Q216\6Q14126.d	2/22/2023 6:33:28 PM	2/23/2023 12:09:03 PM						
	D:\MassHunter\Data\022223_1633_S6Q216\6Q14127.d	6	D:\MassHunter\Data\022223_1633_S6Q216\6Q14127.d	2/22/2023 6:47:28 PM	2/23/2023 12:09:03 PM						
	D:\MassHunter\Data\022223_1633_S6Q216\6Q14128.d	7	D:\MassHunter\Data\022223_1633_S6Q216\6Q14128.d	2/22/2023 7:01:28 PM	2/23/2023 12:09:03 PM						
	D:\MassHunter\Data\022223_1633_S6Q216\6Q14129.d	8	D:\MassHunter\Data\022223_1633_S6Q216\6Q14129.d	2/22/2023 7:15:27 PM	2/23/2023 12:09:03 PM						
Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M4-PFBA	Avg RF	0.1806	0.1938	0.1920	0.1989	0.1995	0.2187	0.2118	0.2104	0.2007	6.173
T PFBA						ISTD					
I M5-PFPeA	Avg RF	0.2090	0.2227	0.2246	0.2391	0.2300	0.2491	0.2432	0.2446	0.2328	5.848
T PFMPA	Avg RF	0.0416	0.0428	0.0384	0.0467	0.0447	0.0491	0.0460	0.0482	0.0447	8.023
T 3:3FTCA	Avg RF	0.7683	0.8296	0.8536	0.8864	0.8723	0.9355	0.9097	0.8868	0.8678	5.946
T PFPeA	Avg RF	0.2267	0.2339	0.2442	0.2581	0.2523	0.2775	0.2680	0.2674	0.2535	6.988
T PFMBa											
I M5-PFHxA	Avg RF	0.0300	0.0423	0.0462	0.0465	0.0458	0.0520	0.0494	0.0469	0.0449	14.769
T NFDHA	Avg RF	0.8430	0.8125	0.7768	0.7929	0.8154	0.8439	0.8440	0.8165	0.8181	3.043
T PFHxA	Avg RF	1.0128	1.0763	1.0790	1.1307	1.1315	1.2426	1.2210	1.1607	1.1318	6.771
T PFEEsA	Avg RF	0.1604	0.1717	0.1815	0.1776	0.1829	0.1881	0.1911	0.1856	0.1799	5.506
T 5:3FTCA	Avg RF	0.0839	0.0912	0.0990	0.0946	0.0970	0.1040	0.1013	0.1008	0.0965	6.713
T 7:3FTCA											
I M4-PFHpA	Avg RF	1.0361	1.1602	1.2180	1.2056	1.2266	1.3916	1.2999	1.2111	1.2186	8.410
T PFHpA						ISTD					
I M8-PFOA	Avg RF	0.8191	0.9585	0.9676	0.9540	0.9345	0.9643	0.9501	0.9868	0.9419	5.501
T PFOA						ISTD					
I M9-PFNA	Avg RF	0.5623	0.5535	0.6305	0.6594	0.6373	0.7260	0.6956	0.7538	0.6523	11.027
T PFNA						ISTD					
I M6-PFDA	Avg RF	0.9587	1.3074	1.2388	1.3445	1.2219	1.3110	1.3355	1.2949	1.2516	10.062
T PFDA						ISTD					
I M7-PFUnDA	Avg RF	0.7664	0.8569	0.8239	0.8216	0.8955	0.9223	0.9234	0.9221	0.8665	6.791
T PFUnDA						ISTD					
I M2-PFDODA						ISTD					

Initial Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-ICC216
 Lab FileID: 6Q14125.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0579	0.8678	0.8702	0.8366	0.8192	0.8813	0.8528	0.7869	0.8716	9.335
T PFTIDA	Avg RF	0.7376	0.7340	0.7602	0.7324	0.7631	0.7866	0.7803	0.7059	0.7500	3.633
I M2-PFTeDA	Avg RF	1.2372	1.1600	1.0872	1.1463	1.1159	1.2569	1.1852	1.0960	1.1606	5.402
T PFTeDA	Avg RF										
I M8-FOSA	Avg RF	0.7921	0.8214	0.8545	0.8846	0.8129	0.8974	0.8827	0.9006	0.8558	4.912
T FOSA	Avg RF										
I M3-PFBS	Avg RF	0.7381	0.7618	0.7729	0.8371	0.7942	0.8701	0.8314	0.8477	0.8067	5.789
T PFBS	Avg RF										
I M3-PFHxS	Avg RF	1.0764	1.1985	1.2073	1.1373	1.1465	1.2171	1.2153	1.1428	1.1677	4.290
T PFPeS	Avg RF	0.9259	0.9600	0.9506	0.9176	0.9699	0.9871	0.9437	0.9565	0.9514	2.375
T PFHxS	Avg RF										
I M8-PFOS	Avg RF	0.7217	0.8533	0.7740	0.9347	0.9344	0.9732	0.9651	0.8646	0.8776	10.467
T PFHpS	Avg RF	1.1199	0.9774	0.8436	0.9294	1.0221	0.9637	1.0529	0.8727	0.9727	9.454
T PFOs	Avg RF	0.7151	0.8400	0.8521	0.9349	0.9744	0.9876	0.9893	0.8983	0.8990	10.511
T PFNS	Avg RF	0.6296	0.6256	0.5868	0.7164	0.6996	0.7040	0.7028	0.6711	0.6670	7.106
T PFDS	Avg RF	0.3170	0.3806	0.3404	0.4139	0.3837	0.4106	0.4271	0.3910	0.3830	9.814
T PFDoDS	Avg RF										
I M2-4:2FTS	Avg RF	9.0536	9.3714	10.35	9.5010	9.2050	10.76	9.7267	8.6697	9.5801	7.177
T 4:2FTS	Avg RF										
I M2-6:2FTS	Avg RF	5.9465	6.2120	6.1376	6.1159	6.5426	6.8330	5.9591	5.8865	6.2041	5.275
T 6:2FTS	Avg RF										
I M2-8:2FTS	Avg RF	2.8742	3.2959	3.1704	3.6523	3.3173	3.9611	3.5509	2.7116	3.3167	12.308
T 8:2FTS	Avg RF										
I M3-MeFOSAA	Avg RF	0.7689	0.7256	0.7791	0.8831	0.8047	0.9209	0.8830	0.8213	0.8233	8.145
T MeFOSAA	Avg RF										
I M3-HFO-DA	Avg RF	0.7222	0.7989	0.8190	0.7121	0.8072	0.8995	0.8889	0.7975	0.8056	8.359
T HFO-DA	Avg RF	17.03	19.26	20.61	19.68	20.44	21.52	20.01	18.00	19.57	7.436
T ADONA	Avg RF	8.6606	9.6666	10.13	10.31	9.8275	10.88	10.34	9.4403	9.9072	6.813
T 9Cl-PF3ONS	Avg RF	4.9658	4.9929	5.4938	5.5372	5.4449	5.8923	5.5286	4.9887	5.3555	6.297
T 11Cl-PF3OUds	Avg RF										
I M5-EFOSAA	Avg RF	0.5499	0.5915	0.6492	0.7104	0.6625	0.7061	0.6957	0.7070	0.6590	9.081
T EFOSAA	Avg RF										
I M7-MeFOSE	Avg RF	0.7140	0.8440	0.8198	0.8255	0.8280	0.9918	0.9109	0.8839	0.8522	9.455
T MeFOSE	Avg RF										
I M9-EFOSE	Avg RF	0.8105	0.8494	0.8219	0.8199	0.8863	1.0226	0.9780	1.0069	0.8994	9.926
T EFOSE	Avg RF										

Generated at 12:11 PM on 2/23/2023

Page 2 of 4

Initial Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-ICC216
 Lab FileID: 6Q14125.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.1272	0.9640	1.0139	1.0446	1.0774	1.1017	1.2222	1.0991	1.0813	7.194
T EFOSA	Avg RF					ISTD					
I M3-MeFOSA		0.8492	1.1146	1.0674	1.0360	1.0124	1.2089	1.0857	1.0002	1.0468	9.908
T MeFOSA	Avg RF					ISTD					
I 13C4-PFOS		1.3707	1.3642	1.3957	1.3374	1.3516	1.3152	1.2447	1.3232	1.3378	3.428
S d3-MeFOSAA	Linear					ISTD					
S 13C8-PFOS	Linear	0.8117	0.8653	0.8393	0.8034	0.7674	0.8156	0.7591	0.8462	0.8135	4.556
S d5-EFOSAA	Linear	1.1930	1.3067	1.1844	1.1705	1.1619	1.2236	1.1451	1.1316	1.1896	4.646
S 13C8-FOSA	Linear	1.5066	1.7226	1.5794	1.5935	1.5926	1.6801	1.5423	1.6337	1.6064	4.392
S d7-MeFOSE	Linear	0.2307	0.2510	0.2421	0.2439	0.2443	0.2299	0.2260	0.2256	0.2367	4.115
S d3-MeFOSE	Linear	0.5480	0.5638	0.5691	0.5891	0.5831	0.5692	0.5585	0.6228	0.5750	4.053
S d9-EFOSE	Linear	0.1487	0.1647	0.1565	0.1598	0.1522	0.1494	0.1410	0.1455	0.1522	5.115
S d5-EFOSA	Linear	0.5784	0.6771	0.6355	0.6292	0.6263	0.6614	0.5665	0.6310	0.6257	5.981
I 13C3-PFBA		1.1380	1.1206	1.1253	1.1232	1.1332	1.1292	1.1264	1.1167	1.1266	0.607
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHKS		0.1831	0.1935	0.1756	0.1934	0.2046	0.1641	0.1605	0.1508	0.1782	10.516
S 13C2-4:2FTS	Linear	2.0861	2.1139	2.1864	2.1398	2.3147	2.1038	2.1318	2.0299	2.1383	3.942
S 13C3-PFBS	Linear	0.2314	0.2367	0.2311	0.2518	0.2387	0.2135	0.2104	0.1852	0.2248	9.284
S 13C2-6:2FTS	Linear	1.3750	1.3281	1.3246	1.4349	1.3801	1.3335	1.3120	1.3329	1.3526	3.037
S 13C3-PFHKS	Linear	0.2180	0.2257	0.2262	0.2275	0.2284	0.1862	0.1824	0.2037	0.2123	8.976
S 13C2-8:2FTS	Linear					ISTD					
I 13C4-PFOA		0.9212	0.8698	0.8472	0.8534	0.8025	0.8447	0.8254	0.7907	0.8444	4.826
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.7604	0.7016	0.6607	0.6946	0.6889	0.7706	0.7022	0.6757	0.7068	5.493
S 13C6-PFDA	Linear	0.9042	0.8589	0.8047	0.8919	0.8028	0.8935	0.8329	0.7569	0.8432	6.263
S 13C7-PFUDA	Linear	0.9834	0.9681	0.8971	0.9821	0.9347	1.0640	0.9511	0.9535	0.9667	4.987
S 13C2-PFDODA	Linear	0.5732	0.5724	0.5532	0.5466	0.5348	0.6063	0.5674	0.5887	0.5678	4.061
S 13C2-PFEDA	Linear					ISTD					
I 13C5-PFNA		0.8932	0.9705	0.8890	0.8836	0.9244	0.9368	0.8809	0.8294	0.9010	4.727
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHXA		0.5732	0.5590	0.5428	0.5763	0.5640	0.5747	0.5614	0.5597	0.5639	1.955
S 13C5-PPFA	Linear	0.9884	0.9550	0.9438	1.0266	0.9772	1.0244	0.9603	0.9693	0.9806	3.144
S 13C5-PFHXA	Linear	0.0971	0.0924	0.0892	0.0966	0.0958	0.0968	0.0934	0.1012	0.0953	3.784
S 13C3-HPOD-A	Linear	1.0266	1.0195	1.0148	1.0781	1.0129	1.0282	1.0102	1.0348	1.0281	2.129
S 13C4-PFHXA	Linear					ISTD					

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

Initial Calibration Summary

Job Number: FC2715
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-ICC216
Lab FileID: 6Q14125.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 1.126575 * x$	
S 13C5-PFPeA	Linear	$y = 0.563891 * x$	
S 13C2-4:2FTS	Linear	$y = 0.178195 * x$	
S 13C3-PFBS	Linear	$y = 2.138302 * x$	
S 13C5-PFHxA	Linear	$y = 0.980627 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.095323 * x$	
S 13C4-PFHpA	Linear	$y = 1.028129 * x$	
S 13C2-6:2FTS	Linear	$y = 0.224847 * x$	
S 13C8-PFOA	Linear	$y = 0.844377 * x$	
S 13C3-PFHxS	Linear	$y = 1.352627 * x$	
S 13C9-PFNA	Linear	$y = 0.900984 * x$	
S 13C2-8:2FTS	Linear	$y = 0.212252 * x$	
S 13C6-PEDA	Linear	$y = 0.706840 * x$	
S d3-MeFOSAA	Linear	$y = 1.337838 * x$	
S 13C8-PFOS	Linear	$y = 0.813512 * x$	
S d5-EFOSAA	Linear	$y = 1.189615 * x$	
S 13C7-PFUridA	Linear	$y = 0.843232 * x$	
S 13C2-PFDODA	Linear	$y = 0.966745 * x$	
S 13C8-FOSA	Linear	$y = 1.606363 * x$	
S 13C2-PFTeDA	Linear	$y = 0.567827 * x$	
S d7-MeFOSE	Linear	$y = 0.236691 * x$	
S d3-MeFOSA	Linear	$y = 0.574977 * x$	
S d9-EFOSE	Linear	$y = 0.152227 * x$	
S d5-EFOSA	Linear	$y = 0.625654 * x$	

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

Initial Calibration Verification

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-ICV216
 Lab FileID: 6Q14132.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\022223_1633_S6Q216\s6q216.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\022223_1633_S6Q216\6Q14122.d
 2:D:\MassHunter\Data\022223_1633_S6Q216\6Q14123.d
 3:D:\MassHunter\Data\022223_1633_S6Q216\6Q14124.d
 4:D:\MassHunter\Data\022223_1633_S6Q216\6Q14125.d
 5:D:\MassHunter\Data\022223_1633_S6Q216\6Q14126.d
 6:D:\MassHunter\Data\022223_1633_S6Q216\6Q14127.d
 7:D:\MassHunter\Data\022223_1633_S6Q216\6Q14128.d
 8:D:\MassHunter\Data\022223_1633_S6Q216\6Q14129.d

Data File: 6Q14132
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.104	2.1	102.1
13C2-6:2FTS	5.000	4.905	-1.9	98.1
13C2-8:2FTS	5.000	4.904	-1.9	98.1
13C2-PFDoDA	1.250	1.228	-1.7	98.3
13C2-PFTeDA	1.250	1.207	-3.4	96.6
13C3-PFBS	2.500	2.415	-3.4	96.6
13C3-PFHxS	2.500	2.447	-2.1	97.9
13C4-PFBA	10.000	10.159	1.6	101.6
13C4-PFHpA	2.500	2.400	-4.0	96.0
13C5-PFHxA	2.500	2.496	-0.2	99.8
13C5-PFPeA	5.000	4.872	-2.6	97.4
13C6-PFDA	1.250	1.289	3.1	103.1
13C7-PFUnDA	1.250	1.250	0.0	100.0
13C8-FOSA	2.500	2.440	-2.4	97.6
13C8-PFOA	2.500	2.532	1.3	101.3
13C8-PFOS	2.500	2.572	2.9	102.9
13C9-PFNA	1.250	1.202	-3.8	96.2
4:2FTS	20.000	20.465	2.3	102.3
6:2FTS	20.000	22.068	10.3	110.3
8:2FTS	20.000	21.348	6.7	106.7
d3-MeFOSAA	5.000	4.911	-1.8	98.2
EtFOSAA	20.000	21.807	9.0	109.0
FOSA	20.000	21.922	9.6	109.6
MeFOSAA	20.000	21.723	8.6	108.6
PFBA	20.000	20.152	0.8	100.8
PFBS	20.000	22.018	10.1	110.1
PFDA	20.000	20.208	1.0	101.0
PFDoDA	20.000	17.238	-13.8	86.2
PFDS	20.000	19.951	-0.2	99.8
PFHpA	20.000	21.244	6.2	106.2
PFHpS	20.000	21.421	7.1	107.1
PFHxA	20.000	21.096	5.5	105.5
PFHxS	20.000	22.218	11.1	111.1
PFNA	20.000	24.724	23.6	123.6
PFNS	20.000	20.904	4.5	104.5
PFOA	20.000	18.731	-6.3	93.7
PFOS	20.000	17.132	-14.3	85.7

Initial Calibration Verification

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-ICV216
 Lab FileID: 6Q14132.D

PFPeA	20.000	22.125	10.6	110.6
PFPeS	20.000	21.753	8.8	108.8
PFTeDA	20.000	21.491	7.5	107.5
PFTTrDA	20.000	20.098	0.5	100.5
PFUnDA	20.000	19.887	-0.6	99.4
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	21.757	8.8	108.8
13C3-HFPO-DA	10.000	10.143	1.4	101.4
9C1-PF3ONS	20.000	19.895	-0.5	99.5
ADONA	20.000	21.391	7.0	107.0
HFPO-DA	20.000	19.959	-0.2	99.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.381	1.9	101.9
5:3FTCA	20.000	21.106	5.5	105.5
7:3FTCA	20.000	20.095	0.5	100.5
d3-MeFOSA	2.500	2.397	-4.1	95.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	18.323	-8.4	91.6
EtFOSE	100.000	90.317	-9.7	90.3
MeFOSA	20.000	19.824	-0.9	99.1
MeFOSE	100.000	86.472	-13.5	86.5
PFDoDS	20.000	17.588	-12.1	87.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.058	1.2	101.2
d7-MeFOSE	25.000	24.548	-1.8	98.2
d9-EtFOSE	25.000	24.694	-1.2	98.8
d5-EtFOSA	2.500	2.559	2.3	102.3
NFDHA	20.000	20.717	3.6	103.6
PFMBA	20.000	19.996	0.0	100.0
PFMPA	20.000	20.149	0.7	100.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	17.499	-12.5	87.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-CC216
 Lab FileID: 6Q14133.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\022223_1633_S6Q216\s6q216.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\022223_1633_S6Q216\6Q14122.d
 2:D:\MassHunter\Data\022223_1633_S6Q216\6Q14123.d
 3:D:\MassHunter\Data\022223_1633_S6Q216\6Q14124.d
 4:D:\MassHunter\Data\022223_1633_S6Q216\6Q14125.d
 5:D:\MassHunter\Data\022223_1633_S6Q216\6Q14126.d
 6:D:\MassHunter\Data\022223_1633_S6Q216\6Q14127.d
 7:D:\MassHunter\Data\022223_1633_S6Q216\6Q14128.d
 8:D:\MassHunter\Data\022223_1633_S6Q216\6Q14129.d

Data File: 6Q14133
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.105	2.1	102.1
13C2-6:2FTS	5.000	4.780	-4.4	95.6
13C2-8:2FTS	5.000	5.695	13.9	113.9
13C2-PFDoDA	1.250	1.236	-1.1	98.9
13C2-PFTeDA	1.250	1.300	4.0	104.0
13C3-PFBS	2.500	2.564	2.6	102.6
13C3-PFHxS	2.500	2.626	5.0	105.0
13C4-PFBA	10.000	9.968	-0.3	99.7
13C4-PFHpA	2.500	2.452	-1.9	98.1
13C5-PFHxA	2.500	2.590	3.6	103.6
13C5-PFPeA	5.000	5.036	0.7	100.7
13C6-PFDA	1.250	1.300	4.0	104.0
13C7-PFUnDA	1.250	1.169	-6.5	93.5
13C8-FOSA	2.500	2.716	8.7	108.7
13C8-PFOA	2.500	2.379	-4.8	95.2
13C8-PFOS	2.500	2.722	8.9	108.9
13C9-PFNA	1.250	1.321	5.7	105.7
4:2FTS	9.375	9.977	6.4	106.4
6:2FTS	9.500	10.679	12.4	112.4
8:2FTS	9.600	8.947	-6.8	93.2
d3-MeFOSAA	5.000	5.433	8.7	108.7
EtFOSAA	2.500	2.415	-3.4	96.6
FOSA	2.500	2.502	0.1	100.1
MeFOSAA	2.500	2.455	-1.8	98.2
PFBA	10.000	9.986	-0.1	99.9
PFBS	2.218	2.187	-1.4	98.6
PFDA	2.500	2.513	0.5	100.5
PFDoDA	2.500	2.388	-4.5	95.5
PFDS	2.413	2.447	1.4	101.4
PFHpA	2.500	2.612	4.5	104.5
PFHpS	2.383	2.363	-0.8	99.2
PFHxA	2.500	2.578	3.1	103.1
PFHxS	2.285	2.283	-0.1	99.9
PFNA	2.500	2.579	3.1	103.1
PFNS	2.405	2.434	1.2	101.2
PFOA	2.500	2.448	-2.1	97.9
PFOS	2.320	2.413	4.0	104.0

Continuing Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-CC216
 Lab FileID: 6Q14133.D

PFPeA	5.000	5.054	1.1	101.1
PFPeS	2.353	2.185	-7.1	92.9
PFTeDA	2.500	2.396	-4.2	95.8
PFTTrDA	2.500	2.582	3.3	103.3
PFUnDA	2.500	2.828	13.1	113.1
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	9.450	9.798	3.7	103.7
13C3-HFPO-DA	10.000	10.095	0.9	100.9
9C1-PF3ONS	9.350	9.676	3.5	103.5
ADONA	9.450	9.590	1.5	101.5
HFPO-DA	10.000	10.037	0.4	100.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.903	3.4	103.4
5:3FTCA	62.400	62.786	0.6	100.6
7:3FTCA	62.400	58.957	-5.5	94.5
d3-MeFOSA	2.500	2.526	1.0	101.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.684	7.4	107.4
EtFOSE	25.000	25.377	1.5	101.5
MeFOSA	2.500	2.691	7.7	107.7
MeFOSE	25.000	25.157	0.6	100.6
PFDoDS	2.425	2.408	-0.7	99.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.443	8.9	108.9
d7-MeFOSE	25.000	26.293	5.2	105.2
d9-EtFOSE	25.000	27.474	9.9	109.9
d5-EtFOSA	2.500	2.595	3.8	103.8
NFDHA	5.000	4.888	-2.2	97.8
PFMBA	5.000	5.074	1.5	101.5
PFMPA	5.000	4.982	-0.4	99.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.527	1.7	101.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-CC216
 Lab FileID: 6Q14134.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\022223_1633_S6Q216\s6q216.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\022223_1633_S6Q216\6Q14122.d
 2:D:\MassHunter\Data\022223_1633_S6Q216\6Q14123.d
 3:D:\MassHunter\Data\022223_1633_S6Q216\6Q14124.d
 4:D:\MassHunter\Data\022223_1633_S6Q216\6Q14125.d
 5:D:\MassHunter\Data\022223_1633_S6Q216\6Q14126.d
 6:D:\MassHunter\Data\022223_1633_S6Q216\6Q14127.d
 7:D:\MassHunter\Data\022223_1633_S6Q216\6Q14128.d
 8:D:\MassHunter\Data\022223_1633_S6Q216\6Q14129.d

Data File: 6Q14134
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.431	8.6	108.6
13C2-6:2FTS	5.000	5.432	8.6	108.6
13C2-8:2FTS	5.000	5.107	2.1	102.1
13C2-PFDoDA	1.250	1.268	1.5	101.5
13C2-PFTeDA	1.250	1.212	-3.0	97.0
13C3-PFBS	2.500	2.563	2.5	102.5
13C3-PFHxS	2.500	2.515	0.6	100.6
13C4-PFBA	10.000	10.072	0.7	100.7
13C4-PFHpA	2.500	2.428	-2.9	97.1
13C5-PFHxA	2.500	2.435	-2.6	97.4
13C5-PFPeA	5.000	4.823	-3.5	96.5
13C6-PFDA	1.250	1.232	-1.5	98.5
13C7-PFUnDA	1.250	1.159	-7.3	92.7
13C8-FOSA	2.500	2.731	9.2	109.2
13C8-PFOA	2.500	2.366	-5.4	94.6
13C8-PFOS	2.500	2.595	3.8	103.8
13C9-PFNA	1.250	1.391	11.3	111.3
4:2FTS	0.750	0.665	-11.3	88.7
6:2FTS	0.760	0.736	-3.1	96.9
8:2FTS	0.768	0.717	-6.7	93.3
d3-MeFOSAA	5.000	5.137	2.7	102.7
EtFOSAA	0.200	0.182	-8.8	91.2
FOSA	0.200	0.178	-11.1	88.9
MeFOSAA	0.200	0.189	-5.7	94.3
PFBA	0.800	0.715	-10.7	89.3
PFBS	0.177	0.147	-16.9	83.1
PFDA	0.200	0.170	-15.2	84.8
PFDoDA	0.200	0.208	3.8	103.8
PFDS	0.193	0.171	-11.5	88.5
PFHpA	0.200	0.181	-9.6	90.4
PFHpS	0.191	0.199	4.1	104.1
PFHxA	0.200	0.190	-4.9	95.1
PFHxS	0.183	0.189	3.1	103.1
PFNA	0.200	0.162	-19.0	81.0
PFNS	0.192	0.200	4.0	104.0
PFOA	0.200	0.190	-5.2	94.8
PFOS	0.186	0.160	-14.2	85.8

Continuing Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-CC216
 Lab FileID: 6Q14134.D

PFPeA	0.400	0.365	-8.7	91.3
PFPeS	0.188	0.178	-5.3	94.7
PFTeDA	0.200	0.194	-3.0	97.0
PFTTrDA	0.200	0.190	-4.9	95.1
PFUnDA	0.200	0.198	-1.1	98.9
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	0.756	0.706	-6.6	93.4
13C3-HFPO-DA	10.000	9.345	-6.6	93.4
9C1-PF3ONS	0.748	0.703	-6.0	94.0
ADONA	0.756	0.697	-7.9	92.1
HFPO-DA	0.800	0.722	-9.8	90.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.933	-6.5	93.5
5:3FTCA	4.992	4.500	-9.8	90.2
7:3FTCA	4.992	4.545	-8.9	91.1
d3-MeFOSA	2.500	2.539	1.6	101.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.202	0.8	100.8
EtFOSE	2.000	1.966	-1.7	98.3
MeFOSA	0.200	0.169	-15.5	84.5
MeFOSE	2.000	1.787	-10.6	89.4
PFDoDS	0.194	0.166	-14.3	85.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.198	4.0	104.0
d7-MeFOSE	25.000	26.798	7.2	107.2
d9-EtFOSE	25.000	26.762	7.0	107.0
d5-EtFOSA	2.500	2.616	4.7	104.7
NFDHA	0.400	0.410	2.6	102.6
PFMBA	0.400	0.353	-11.8	88.2
PFMPA	0.400	0.344	-14.0	86.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.310	-12.9	87.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-CC216
 Lab FileID: 6Q14145.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\022223_1633_S6Q216\s6q216.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\022223_1633_S6Q216\6Q14122.d
 2:D:\MassHunter\Data\022223_1633_S6Q216\6Q14123.d
 3:D:\MassHunter\Data\022223_1633_S6Q216\6Q14124.d
 4:D:\MassHunter\Data\022223_1633_S6Q216\6Q14125.d
 5:D:\MassHunter\Data\022223_1633_S6Q216\6Q14126.d
 6:D:\MassHunter\Data\022223_1633_S6Q216\6Q14127.d
 7:D:\MassHunter\Data\022223_1633_S6Q216\6Q14128.d
 8:D:\MassHunter\Data\022223_1633_S6Q216\6Q14129.d

Data File: 6Q14145
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.190	3.8	103.8
13C2-6:2FTS	5.000	5.106	2.1	102.1
13C2-8:2FTS	5.000	5.034	0.7	100.7
13C2-PFDoDA	1.250	1.282	2.6	102.6
13C2-PFTeDA	1.250	1.367	9.4	109.4
13C3-PFBS	2.500	2.391	-4.4	95.6
13C3-PFHxS	2.500	2.465	-1.4	98.6
13C4-PFBA	10.000	10.205	2.0	102.0
13C4-PFHpA	2.500	2.439	-2.4	97.6
13C5-PFHxA	2.500	2.498	-0.1	99.9
13C5-PFPeA	5.000	4.755	-4.9	95.1
13C6-PFDA	1.250	1.273	1.9	101.9
13C7-PFUnDA	1.250	1.295	3.6	103.6
13C8-FOSA	2.500	2.721	8.8	108.8
13C8-PFOA	2.500	2.425	-3.0	97.0
13C8-PFOS	2.500	2.848	13.9	113.9
13C9-PFNA	1.250	1.251	0.1	100.1
4:2FTS	9.375	9.496	1.3	101.3
6:2FTS	9.500	9.455	-0.5	99.5
8:2FTS	9.600	10.196	6.2	106.2
d3-MeFOSAA	5.000	5.564	11.3	111.3
EtFOSAA	2.500	2.524	1.0	101.0
FOSA	2.500	2.526	1.0	101.0
MeFOSAA	2.500	2.812	12.5	112.5
PFBA	10.000	9.855	-1.4	98.6
PFBS	2.218	2.304	3.9	103.9
PFDA	2.500	2.579	3.2	103.2
PFDoDA	2.500	2.426	-3.0	97.0
PFDS	2.413	2.355	-2.4	97.6
PFHpA	2.500	2.618	4.7	104.7
PFHpS	2.383	2.306	-3.2	96.8
PFHxA	2.500	2.415	-3.4	96.6
PFHxS	2.285	2.141	-6.3	93.7
PFNA	2.500	2.603	4.1	104.1
PFNS	2.405	2.427	0.9	100.9
PFOA	2.500	2.396	-4.2	95.8
PFOS	2.320	2.097	-9.6	90.4

Continuing Calibration Summary

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q216-CC216
 Lab FileID: 6Q14145.D

PFPeA	5.000	5.127	2.5	102.5
PFPeS	2.353	2.321	-1.4	98.6
PFTeDA	2.500	2.402	-3.9	96.1
PFTTrDA	2.500	2.520	0.8	100.8
PFUnDA	2.500	2.502	0.1	100.1
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	9.450	9.445	-0.1	99.9
13C3-HFPO-DA	10.000	10.125	1.3	101.3
9C1-PF3ONS	9.350	9.247	-1.1	98.9
ADONA	9.450	9.431	-0.2	99.8
HFPO-DA	10.000	9.901	-1.0	99.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.841	2.9	102.9
5:3FTCA	62.400	61.757	-1.0	99.0
7:3FTCA	62.400	63.643	2.0	102.0
d3-MeFOSA	2.500	2.617	4.7	104.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.574	3.0	103.0
EtFOSE	25.000	26.423	5.7	105.7
MeFOSA	2.500	2.648	5.9	105.9
MeFOSE	25.000	26.326	5.3	105.3
PFDoDS	2.425	2.497	3.0	103.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.834	16.7	116.7
d7-MeFOSE	25.000	26.978	7.9	107.9
d9-EtFOSE	25.000	26.843	7.4	107.4
d5-EtFOSA	2.500	2.681	7.2	107.2
NFDHA	5.000	4.994	-0.1	99.9
PFMBA	5.000	5.224	4.5	104.5
PFMPA	5.000	5.008	0.2	100.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.478	0.6	100.6

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q216	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q216-RT	6Q14119.D	02/22/23 16:55	n/a	Retention Time Marker
S6Q216-RT	6Q14120.D	02/22/23 17:09	n/a	Retention Time Marker
S6Q216-IC216	6Q14121.D	02/22/23 17:23	n/a	Mass Calibration Verification
S6Q216-IC216	6Q14122.D	02/22/23 17:37	n/a	Initial cal 1
S6Q216-IC216	6Q14123.D	02/22/23 17:51	n/a	Initial cal 2
S6Q216-IC216	6Q14124.D	02/22/23 18:05	n/a	Initial cal 3
S6Q216-ICC216	6Q14125.D	02/22/23 18:19	n/a	Initial cal 4
S6Q216-IC216	6Q14126.D	02/22/23 18:33	n/a	Initial cal 5
S6Q216-IC216	6Q14127.D	02/22/23 18:47	n/a	Initial cal 6
S6Q216-IC216	6Q14128.D	02/22/23 19:01	n/a	Initial cal 7
S6Q216-IC216	6Q14129.D	02/22/23 19:15	n/a	Initial cal 8
S6Q216-IBLK	6Q14130.D	02/22/23 19:29	n/a	Instrument Blank
S6Q216-ICV216	6Q14132.D	02/22/23 19:57	n/a	Initial cal verification 20
S6Q216-CC216	6Q14133.D	02/22/23 20:11	n/a	Continuing cal 4
S6Q216-CC216	6Q14134.D	02/22/23 20:25	n/a	Continuing cal 1.0LL
OP95501-BS	6Q14135.D	02/22/23 20:39	OP95501	Blank Spike
OP95501-LLBS	6Q14136.D	02/22/23 20:53	OP95501	Blank Spike
OP95501-MB	6Q14137.D	02/22/23 21:07	OP95501	Method Blank
FC2715-1	6Q14138.D	02/22/23 21:21	OP95501	AF-RHMW12A-WGN01LF-2302W2
OP95501-MS	6Q14139.D	02/22/23 21:35	OP95501	Matrix Spike
FC2715-2	6Q14140.D	02/22/23 21:49	OP95501	AF-RHMW12A-WGFD01LF-2302W2
FC2715-3	6Q14141.D	02/22/23 22:03	OP95501	AF-HDMW225303-WGN01LF-2302W2
FC2715-4	6Q14142.D	02/22/23 22:17	OP95501	AF-RHMW16-WGN01LF-2302W2
OP95501-DUP	6Q14143.D	02/22/23 22:31	OP95501	Duplicate
FC2715-5	6Q14144.D	02/22/23 22:45	OP95501	AF-RHMW10-WGN01LF-2302W2
S6Q216-CC216	6Q14145.D	02/22/23 22:59	n/a	Continuing cal 4
S6Q216-ICCB	6Q14146.D	02/22/23 23:13	n/a	Continuing Calibration Blank
OP95476-BS	6Q14147.D	02/22/23 23:27	OP95476	Blank Spike
OP95476-LLBS	6Q14148.D	02/22/23 23:41	OP95476	Blank Spike
OP95476-MB	6Q14149.D	02/22/23 23:55	OP95476	Method Blank
ZZZZZZ	6Q14150.D	02/23/23 00:09	OP95476	(unrelated sample)
ZZZZZZ	6Q14151.D	02/23/23 00:23	OP95476	(unrelated sample)
ZZZZZZ	6Q14152.D	02/23/23 00:37	OP95476	(unrelated sample)
ZZZZZZ	6Q14153.D	02/23/23 00:51	OP95476	(unrelated sample)
ZZZZZZ	6Q14154.D	02/23/23 01:05	OP95476	(unrelated sample)
ZZZZZZ	6Q14155.D	02/23/23 01:19	OP95476	(unrelated sample)
ZZZZZZ	6Q14156.D	02/23/23 01:33	OP95476	(unrelated sample)
S6Q216-CC216	6Q14157.D	02/23/23 01:47	n/a	Continuing cal 4
S6Q216-CC216	6Q14158.D	02/23/23 02:01	n/a	Continuing cal 1.0LL
S6Q216-ICCB	6Q14159.D	02/23/23 02:15	n/a	Continuing Calibration Blank
ZZZZZZ	6Q14160.D	02/23/23 02:29	OP95476	(unrelated sample)
JD60049-4A	6Q14161.D	02/23/23 02:43	OP95476	(used for QC only; not part of job FC2715)
OP95476-MS	6Q14162.D	02/23/23 02:57	OP95476	Matrix Spike
OP95476-MSD	6Q14163.D	02/23/23 03:11	OP95476	Matrix Spike Duplicate
ZZZZZZ	6Q14164.D	02/23/23 03:25	OP95476	(unrelated sample)
ZZZZZZ	6Q14165.D	02/23/23 03:39	OP95476	(unrelated sample)

Run Sequence Report

Job Number: FC2715
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q216	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
ZZZZZZ	6Q14166.D	02/23/23 03:53	OP95476	(unrelated sample)
ZZZZZZ	6Q14167.D	02/23/23 04:07	OP95476	(unrelated sample)
ZZZZZZ	6Q14168.D	02/23/23 04:21	OP95476	(unrelated sample)
ZZZZZZ	6Q14169.D	02/23/23 04:34	OP95476	(unrelated sample)
S6Q216-CC216	6Q14170.D	02/23/23 04:48	n/a	Continuing cal 4
S6Q216-ICCB	6Q14171.D	02/23/23 05:02	n/a	Continuing Calibration Blank
OP95521-BS	6Q14172.D	02/23/23 05:16	OP95521	Blank Spike
OP95521-LLBS	6Q14173.D	02/23/23 05:30	OP95521	Blank Spike
OP95521-MB	6Q14174.D	02/23/23 05:44	OP95521	Method Blank
ZZZZZZ	6Q14175.D	02/23/23 05:58	OP95521	(unrelated sample)
FC2521-2	6Q14176.D	02/23/23 06:12	OP95521	(used for QC only; not part of job FC2715)
OP95521-MS	6Q14177.D	02/23/23 06:26	OP95521	Matrix Spike
OP95521-MSD	6Q14178.D	02/23/23 06:40	OP95521	Matrix Spike Duplicate
ZZZZZZ	6Q14179.D	02/23/23 06:54	OP95521	(unrelated sample)
ZZZZZZ	6Q14180.D	02/23/23 07:08	OP95521	(unrelated sample)
ZZZZZZ	6Q14181.D	02/23/23 07:22	OP95521	(unrelated sample)
S6Q216-CC216	6Q14182.D	02/23/23 07:36	n/a	Continuing cal 4
S6Q216-ICCB	6Q14183.D	02/23/23 07:50	n/a	Continuing Calibration Blank
ZZZZZZ	6Q14184.D	02/23/23 08:04	OP95521	(unrelated sample)
ZZZZZZ	6Q14185.D	02/23/23 08:18	OP95521	(unrelated sample)
ZZZZZZ	6Q14186.D	02/23/23 08:32	OP95521	(unrelated sample)
ZZZZZZ	6Q14187.D	02/23/23 08:46	OP95521	(unrelated sample)
ZZZZZZ	6Q14188.D	02/23/23 09:00	OP95521	(unrelated sample)
ZZZZZZ	6Q14189.D	02/23/23 09:14	OP95521	(unrelated sample)
ZZZZZZ	6Q14190.D	02/23/23 09:28	OP95521	(unrelated sample)
ZZZZZZ	6Q14191.D	02/23/23 09:42	OP95521	(unrelated sample)
ZZZZZZ	6Q14192.D	02/23/23 09:56	OP95521	(unrelated sample)
ZZZZZZ	6Q14193.D	02/23/23 10:10	OP95521	(unrelated sample)
S6Q216-CC216	6Q14194.D	02/23/23 10:24	n/a	Continuing cal 4
S6Q216-ICCB	6Q14195.D	02/23/23 10:38	n/a	Continuing Calibration Blank
ZZZZZZ	6Q14196.D	02/23/23 10:52	OP95521	(unrelated sample)
ZZZZZZ	6Q14197.D	02/23/23 11:06	OP95521	(unrelated sample)
S6Q216-ECC216	6Q14198.D	02/23/23 11:20	n/a	Ending cal 4
S6Q216-ICCB	6Q14199.D	02/23/23 11:34	n/a	Continuing Calibration Blank

6.10.1
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MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14138.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 9:21:19 PM
 Sample Name : FC2715-1
 Vial : P6-A4
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	78776	10.00 µg/L	0.025
M5-PFPeA	4.349	268.3 -> 223.0	37912	5.00 µg/L	0.012
M5-PFHxA	5.513	318.0 -> 273.0	33439	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	34531	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	61131	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	18328	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	14922	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	15863	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	16648	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	8848	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	15167	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	13004	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	8500	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	7122	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2787	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3023	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2687	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	22044	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	13515	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	19911	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	20214	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	13226	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5184	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5293	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	8685	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	30242	5.00 µg/L	0.037
18O2-PFHxS	7.211	403.0 -> 83.9	5369	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	64513	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	19734	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	18105	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	30460	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2787	7.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 145.6%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3023	6.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.2%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2687	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.9%		
13C2-PFDoDA	8.991	615.1 -> 570.0	16648	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.3%		
13C2-PFTeDA	9.731	715.2 -> 670.0	8848	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.0%		
13C3-PFBS	5.456	302.1 -> 79.9	13004	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C3-PFHxS	7.212	402.1 -> 79.9	8500	2.93 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 = 117.0%	
13C4-PFBA	2.975	216.8 -> 171.9	78776	11.56 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.6%	
13C4-PFHpA	6.452	367.1 -> 322.0	34531	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C5-PFHxA	5.513	318.0 -> 273.0	33439	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.9%	
13C5-PFPeA	4.349	268.3 -> 223.0	37912	5.52 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C6-PFDA	8.108	519.1 -> 474.1	14922	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C7-PFUnDA	8.562	570.0 -> 525.1	15863	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C8-FOSA	9.555	506.1 -> 77.8	15167	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-PFOA	7.097	421.1 -> 376.0	61131	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C8-PFOS	8.270	507.1 -> 79.9	7122	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C9-PFNA	7.626	472.1 -> 427.0	18328	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.4%	
d3-MeFOSAA	8.153	573.2 -> 419.0	22044	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	13515	11.64 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	5293	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
d5-EtFOSAA	8.361	589.2 -> 419.0	19911	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	20214	24.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	13226	25.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	5184	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	

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	-	512.9 -> 469.0	-	N.D.	
		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	5.516	449.0 -> 98.9	1596	0.15 µg/L	99
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	62	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		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	4.350	498.9 -> 98.8	3733	0.57 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	-	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

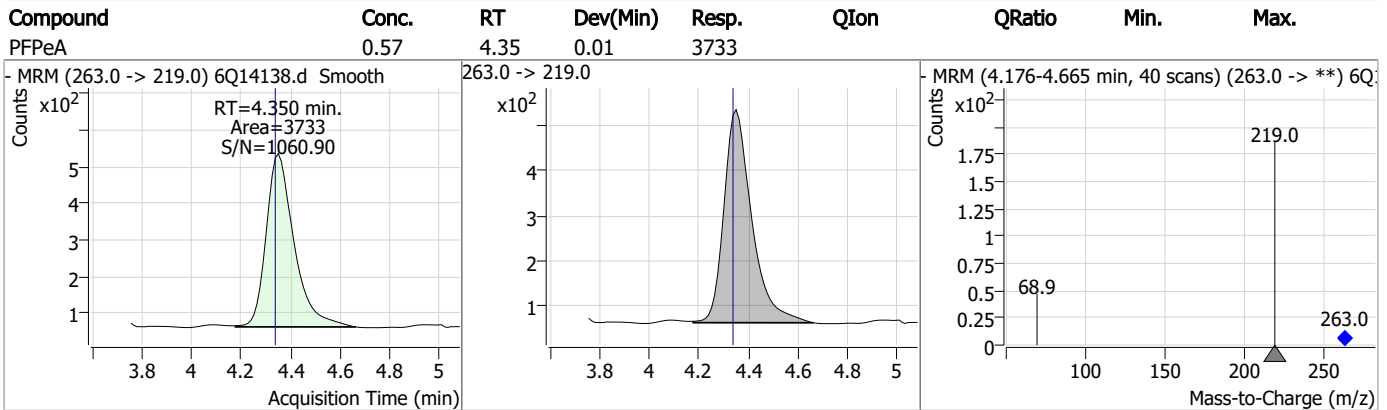
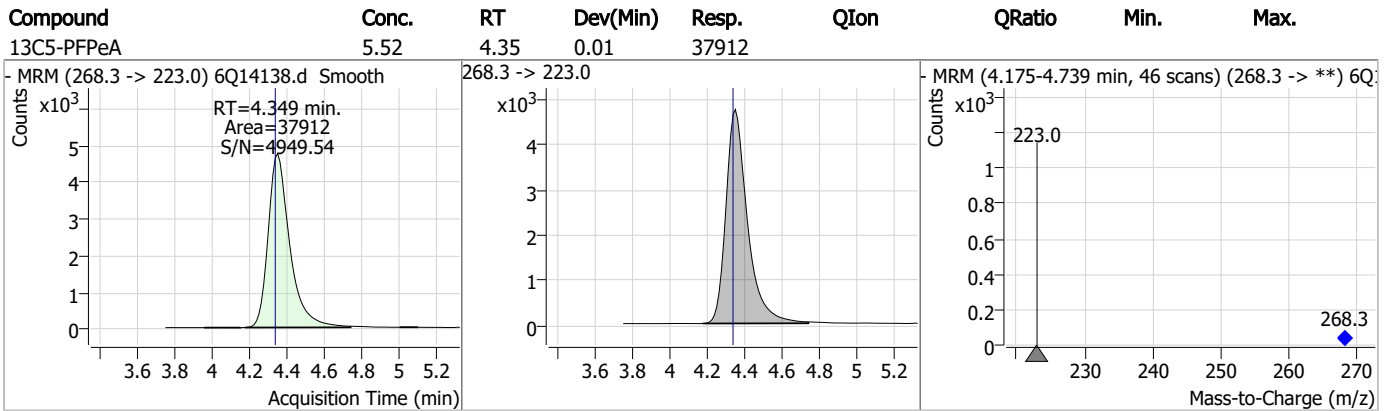
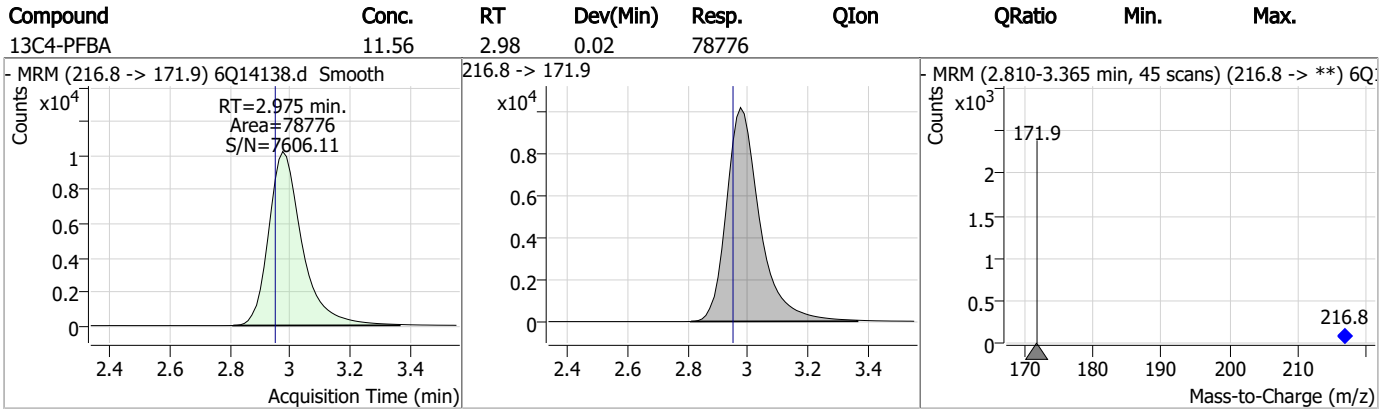
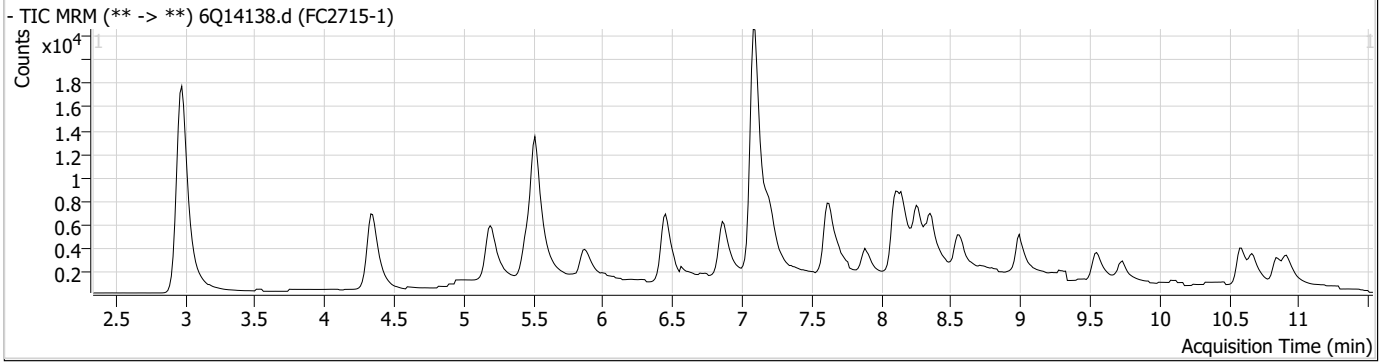
7.1.1
7

Perfluorinated Compounds by LC/MS/MS

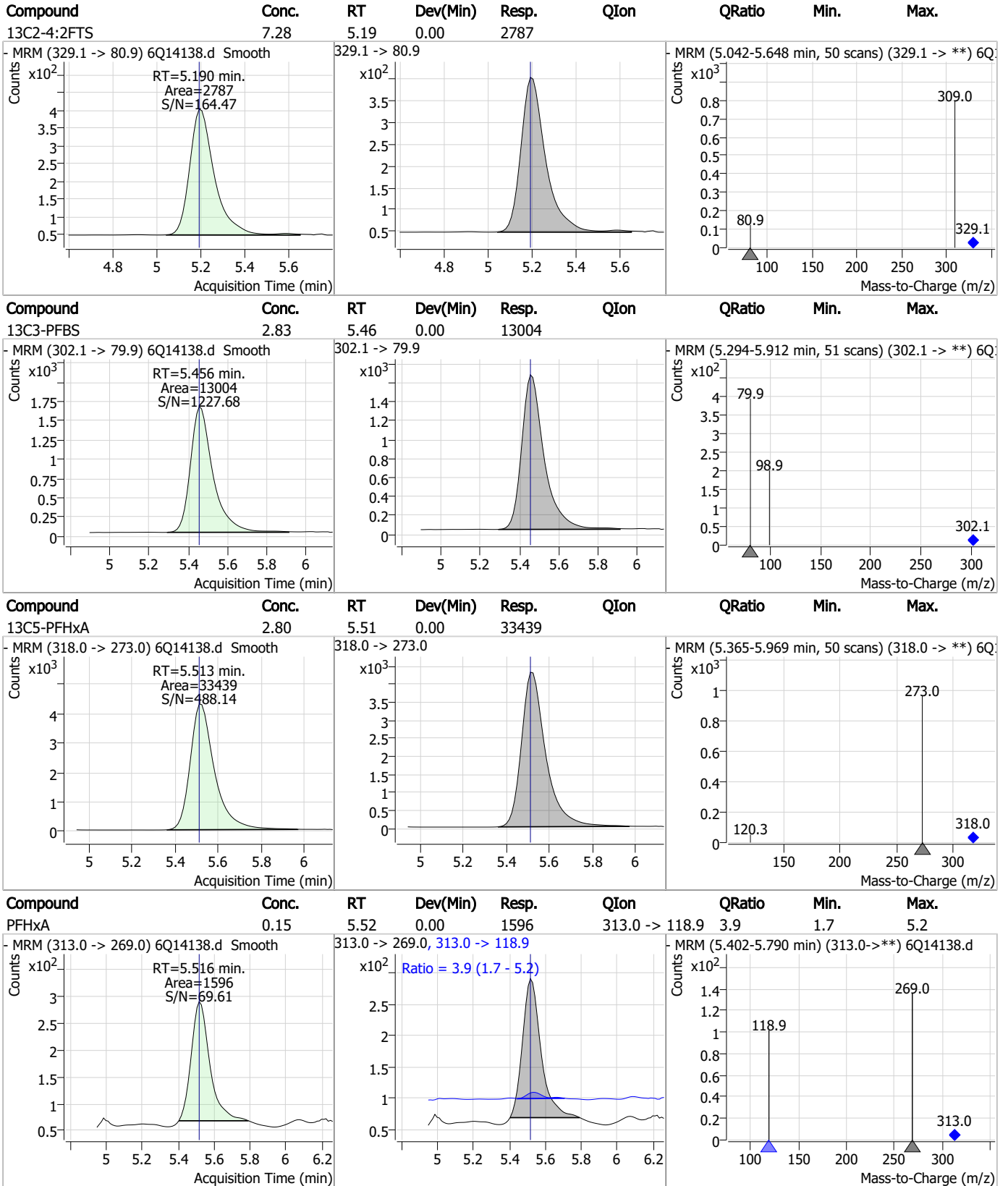
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.1
7

Perfluorinated Compounds by LC/MS/MS

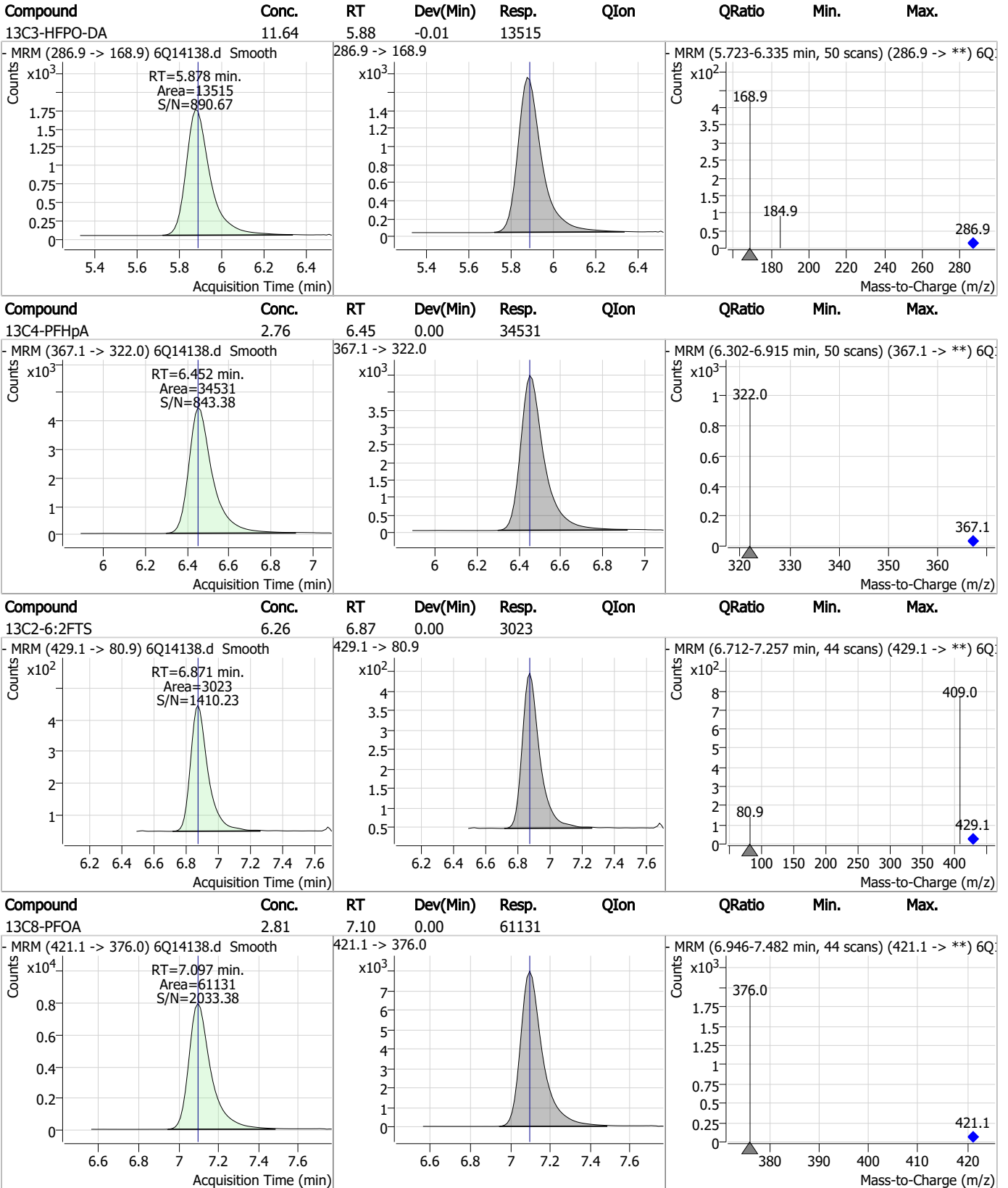


Perfluorinated Compounds by LC/MS/MS



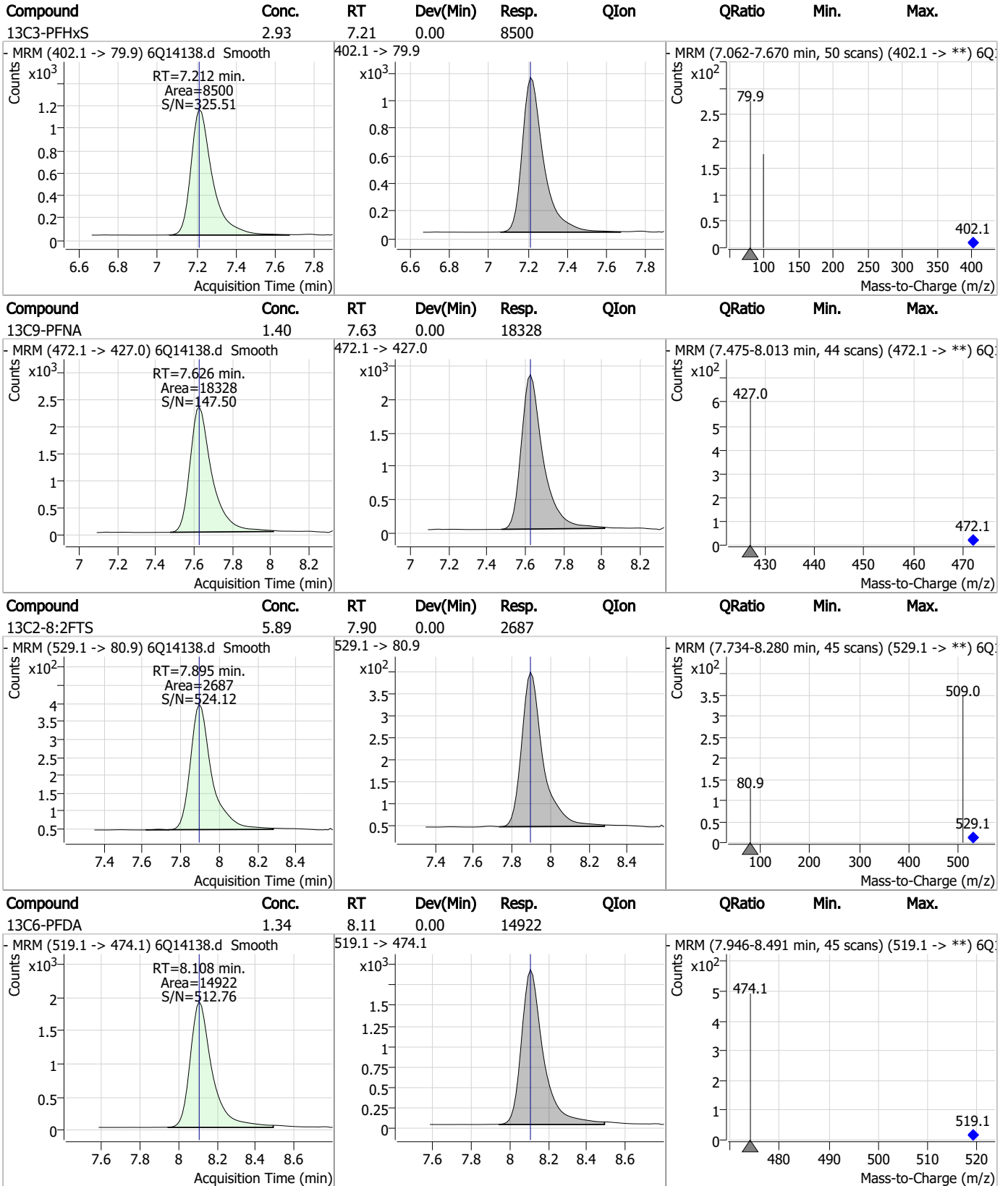
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Perfluorinated Compounds by LC/MS/MS



7.1.1
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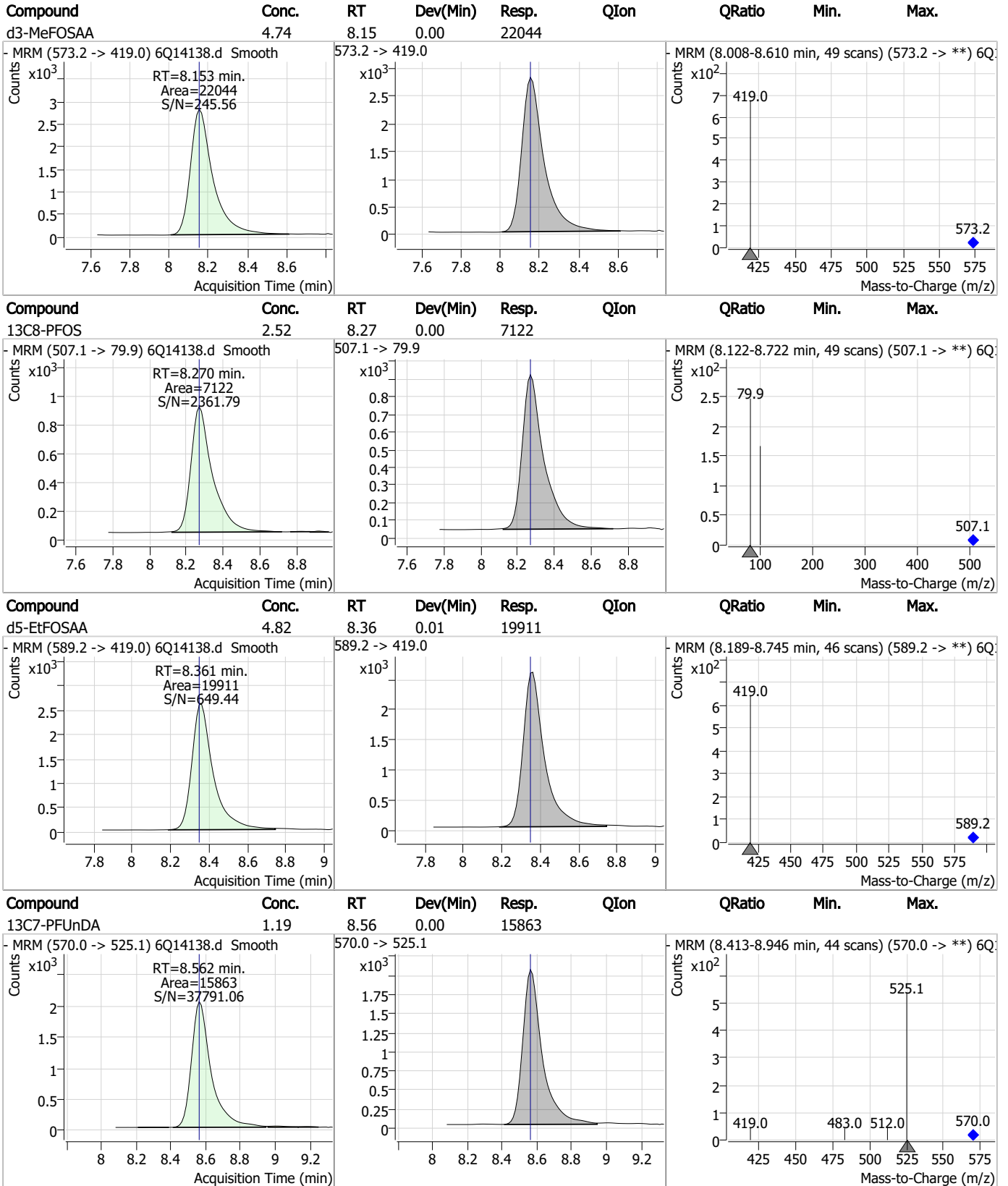
Perfluorinated Compounds by LC/MS/MS



7.1.1

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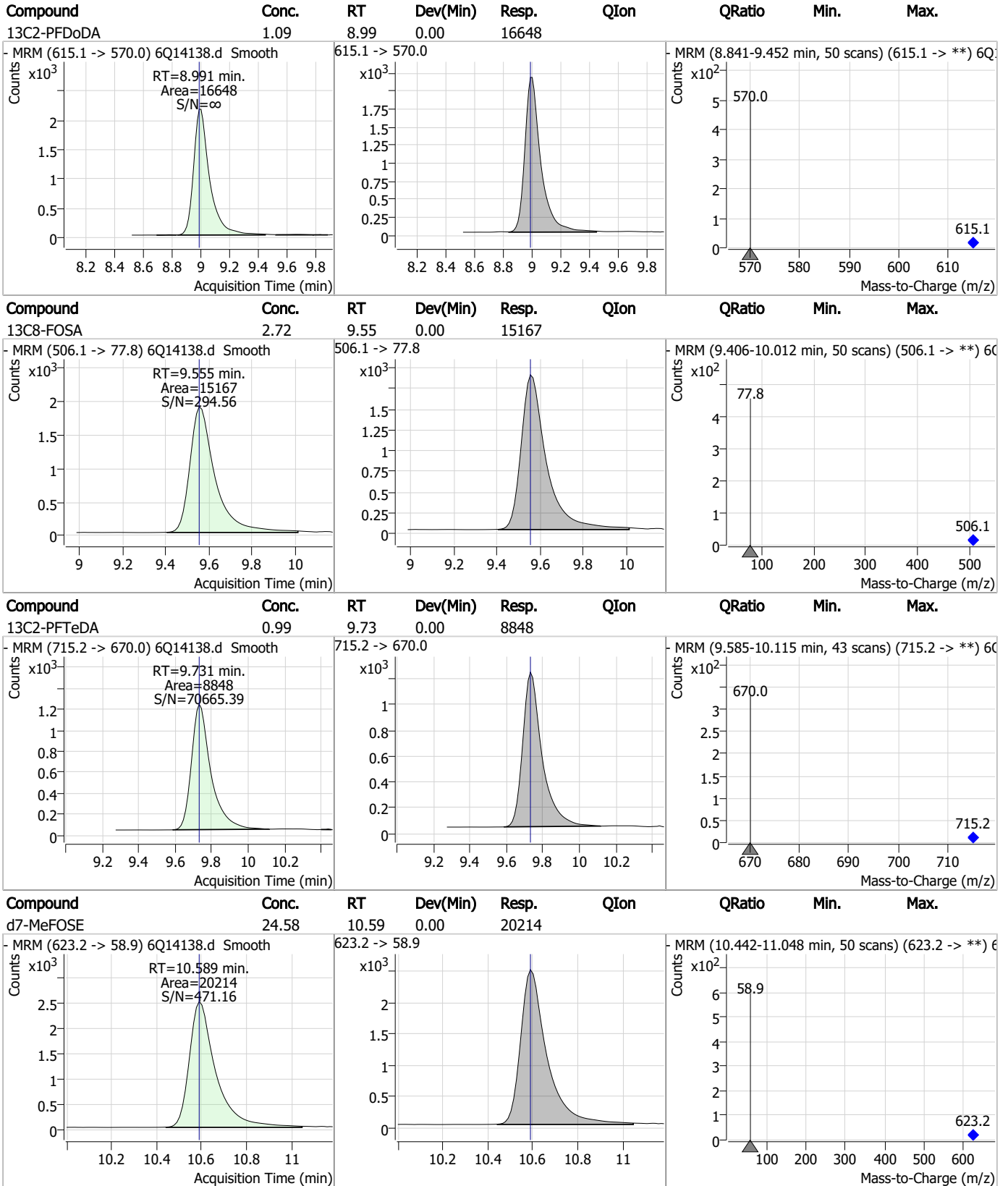
Perfluorinated Compounds by LC/MS/MS



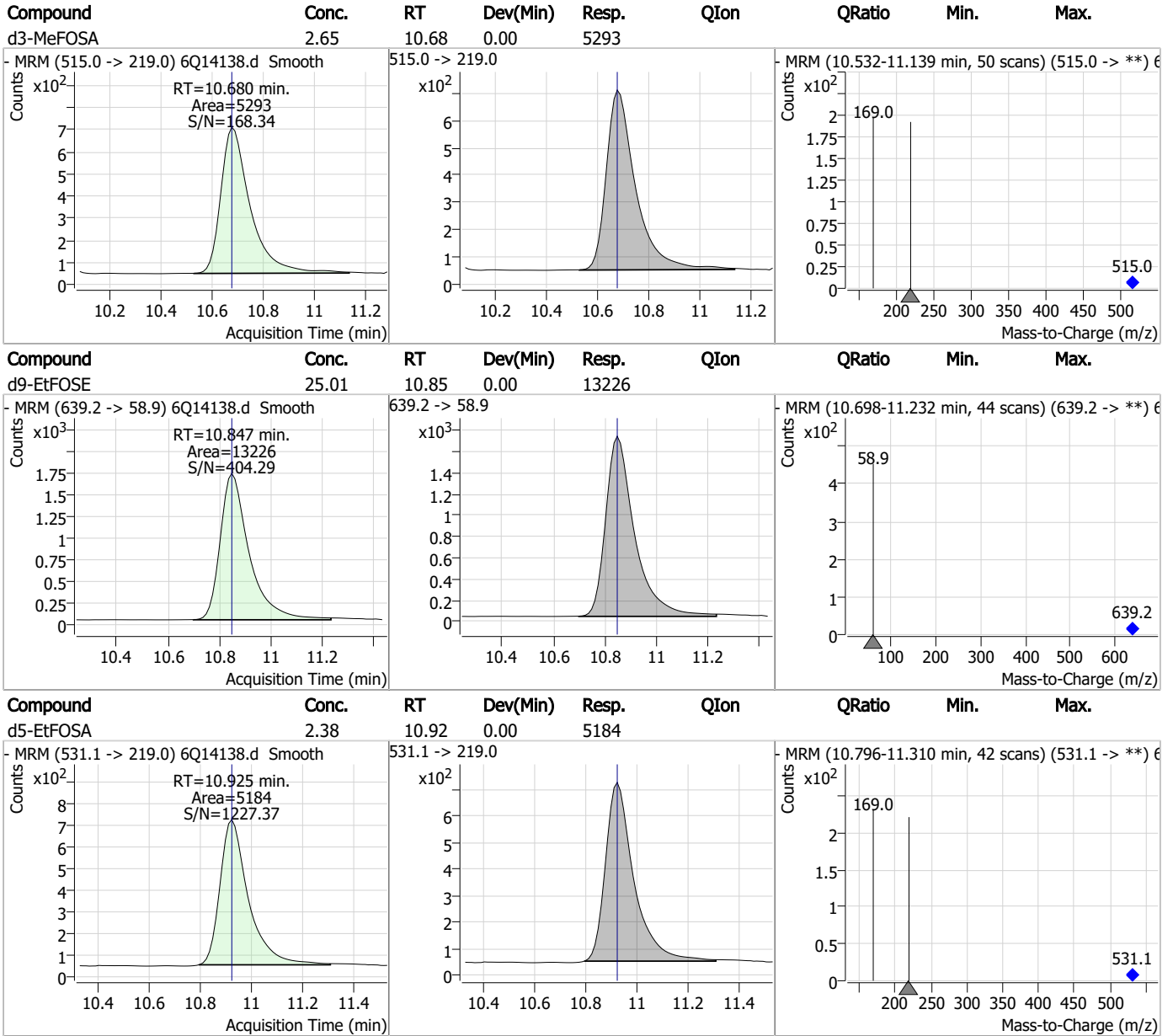
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14140.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 9:49:17 PM
 Sample Name : FC2715-2
 Vial : P6-A6
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	77615	10.00 µg/L	0.025
M5-PFPeA	4.349	268.3 -> 223.0	38120	5.00 µg/L	0.012
M5-PFHxA	5.513	318.0 -> 273.0	34632	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	35573	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	56691	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	18655	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	15175	1.25 µg/L	0.000
M7-PFUnDA	8.574	570.0 -> 525.1	16156	1.25 µg/L	0.012
M2-PFDoDA	9.004	615.1 -> 570.0	16976	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	9323	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15065	2.50 µg/L	0.012
M3-PFBS	5.456	302.1 -> 79.9	13119	2.50 µg/L	0.000
M3-PFHxS	7.224	402.1 -> 79.9	8247	2.50 µg/L	0.012
M8-PFOS	8.270	507.1 -> 79.9	7105	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2438	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	2807	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2692	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	23666	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	12706	10.00 µg/L	0.000
M5-EtFOSAA	8.361	589.2 -> 419.0	20561	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	18597	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	12176	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5211	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5045	2.50 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	8893	2.50 µg/L	0.013
13C3-PFBA	2.979	216.0 -> 172.0	32874	5.00 µg/L	0.037
18O2-PFHxS	7.211	403.0 -> 83.9	5668	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	70113	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	21966	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	20185	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	31882	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2438	6.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C2-6:2FTS	6.871	429.1 -> 80.9	2807	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2692	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-PFDoDA	9.004	615.1 -> 570.0	16976	1.00 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.9%		
13C2-PFTeDA	9.731	715.2 -> 670.0	9323	0.93 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.7%		
13C3-PFBS	5.456	302.1 -> 79.9	13119	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C3-PFHxS	7.224	402.1 -> 79.9	8247	2.69 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 = 107.6%	
13C4-PFBA	2.975	216.8 -> 171.9	77615	10.48 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFHpA	6.452	367.1 -> 322.0	35573	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C5-PFHxA	5.513	318.0 -> 273.0	34632	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C5-PFPeA	4.349	268.3 -> 223.0	38120	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C6-PFDA	8.108	519.1 -> 474.1	15175	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C7-PFUnDA	8.574	570.0 -> 525.1	16156	1.09 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.2%	
13C8-FOSA	9.567	506.1 -> 77.8	15065	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-PFOA	7.097	421.1 -> 376.0	56691	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOS	8.270	507.1 -> 79.9	7105	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C9-PFNA	7.626	472.1 -> 427.0	18655	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	8.153	573.2 -> 419.0	23666	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	12706	10.45 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	5045	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSAA	8.361	589.2 -> 419.0	20561	4.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	18597	22.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	12176	22.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSA	10.925	531.1 -> 219.0	5211	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	

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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	-	512.9 -> 469.0	-	N.D.	
		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	5.516	449.0 -> 98.9	1909	0.17 µg/L	98
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	53	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		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	4.350	498.9 -> 98.8	3632	0.55 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	-	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

7.1.2
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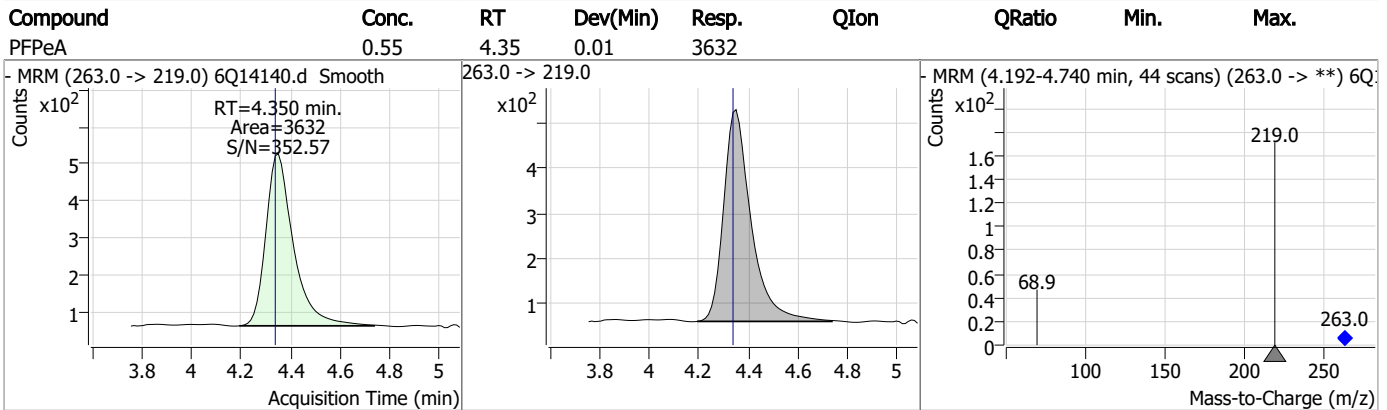
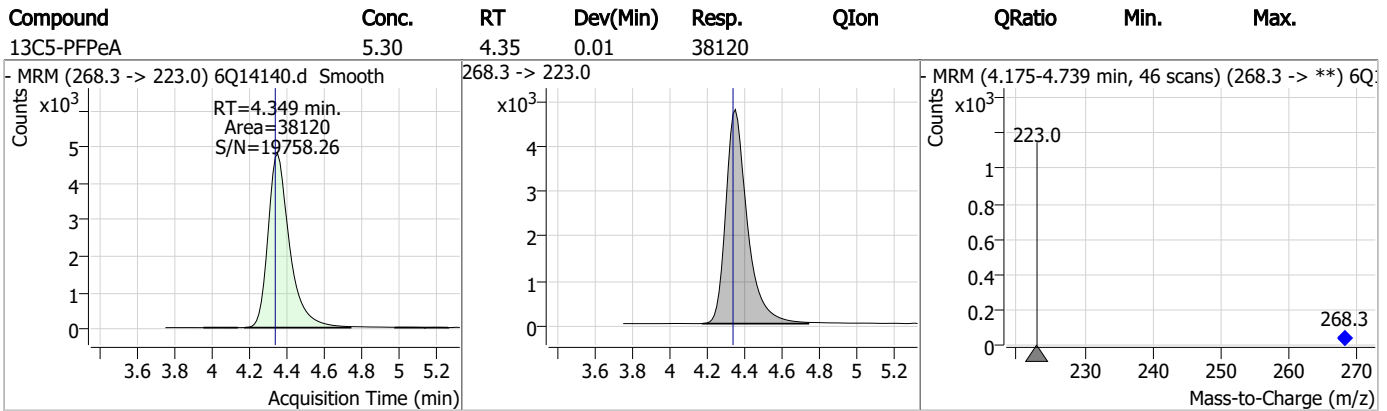
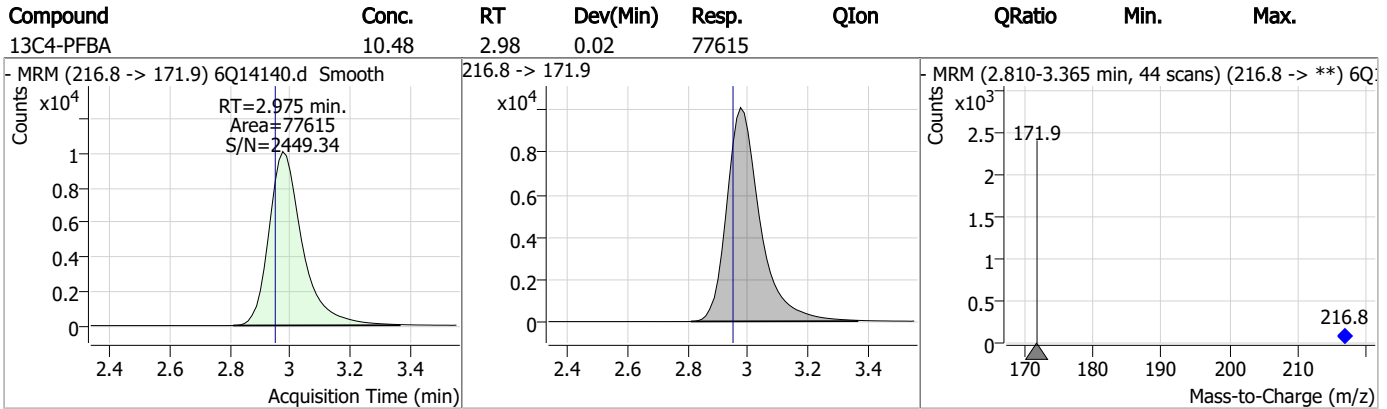
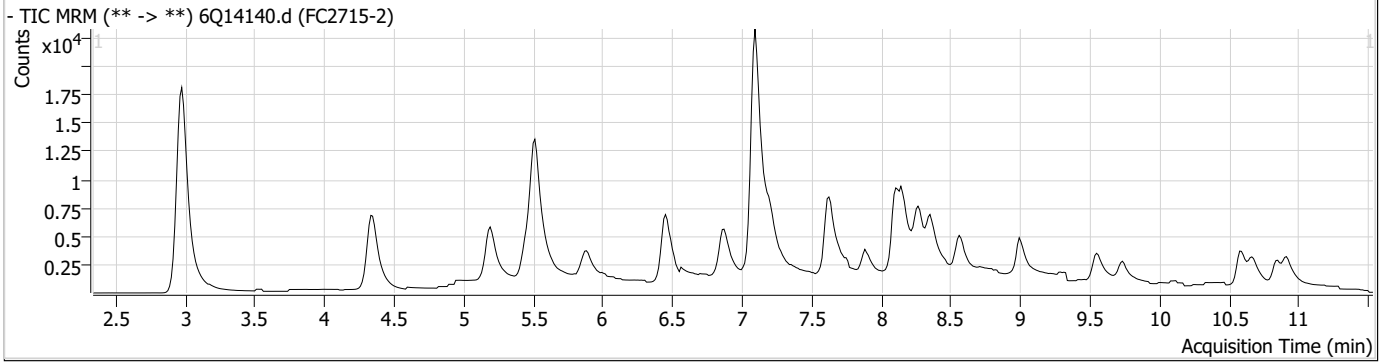
Perfluorinated Compounds by LC/MS/MS

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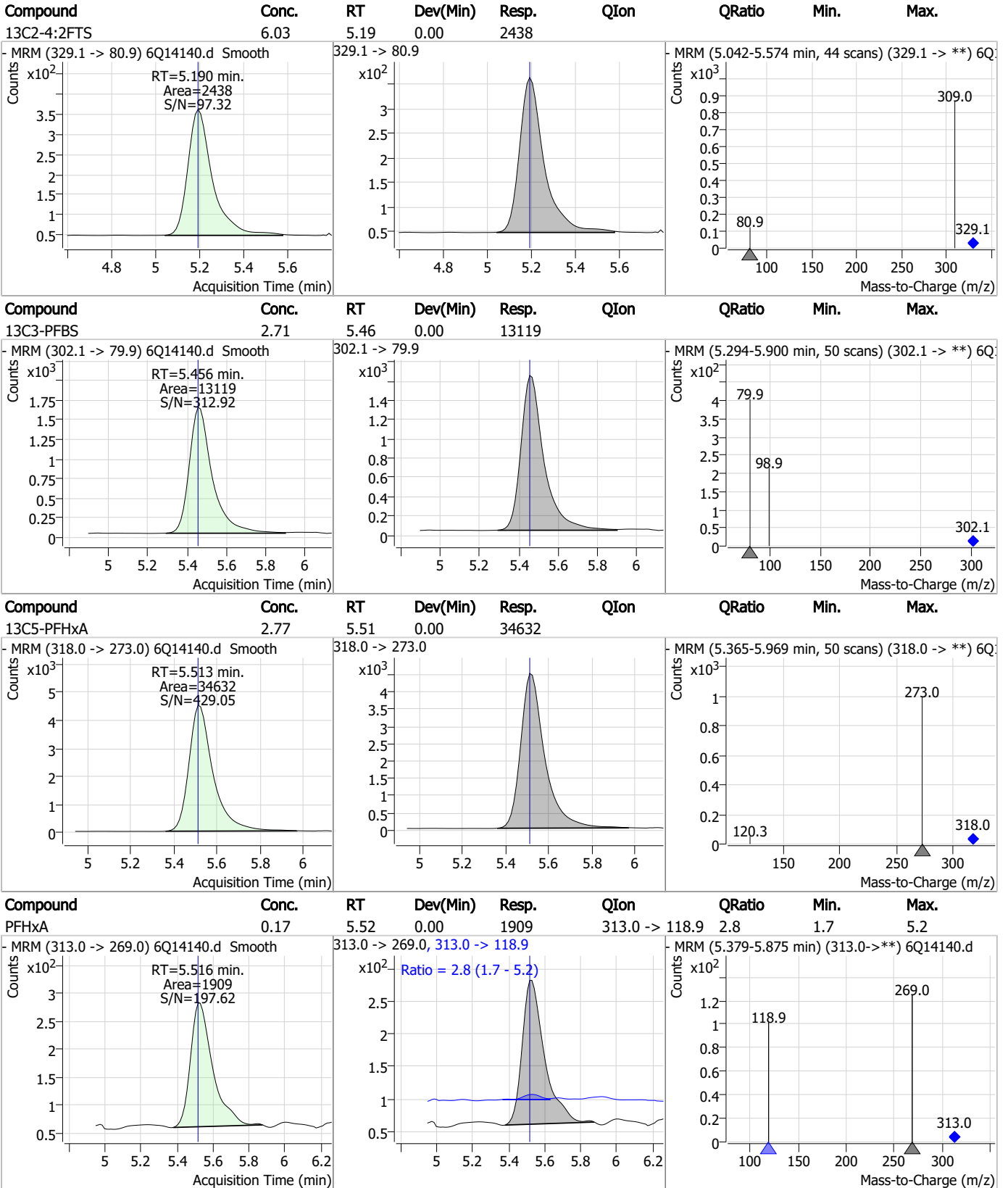
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Perfluorinated Compounds by LC/MS/MS



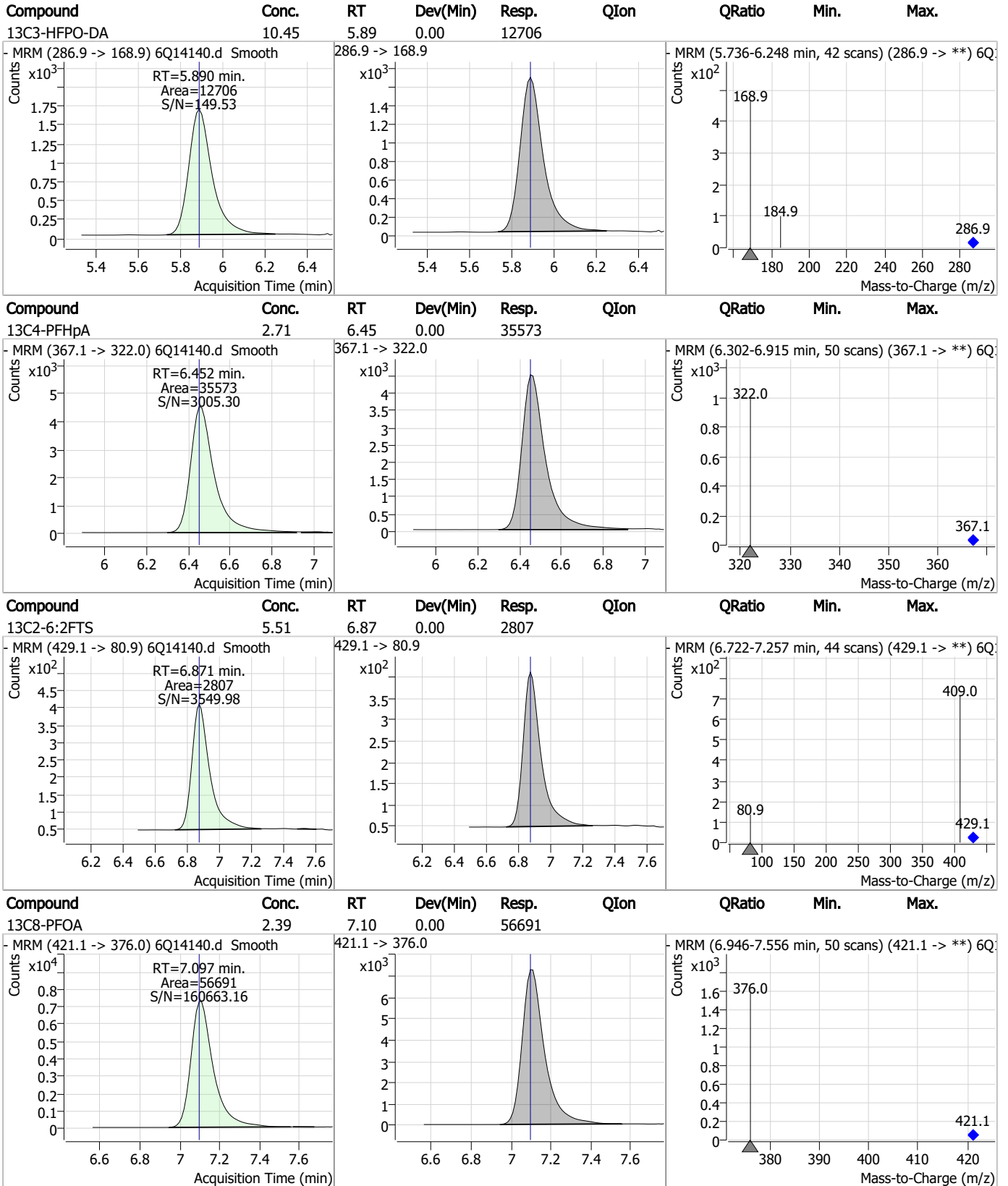
Perfluorinated Compounds by LC/MS/MS



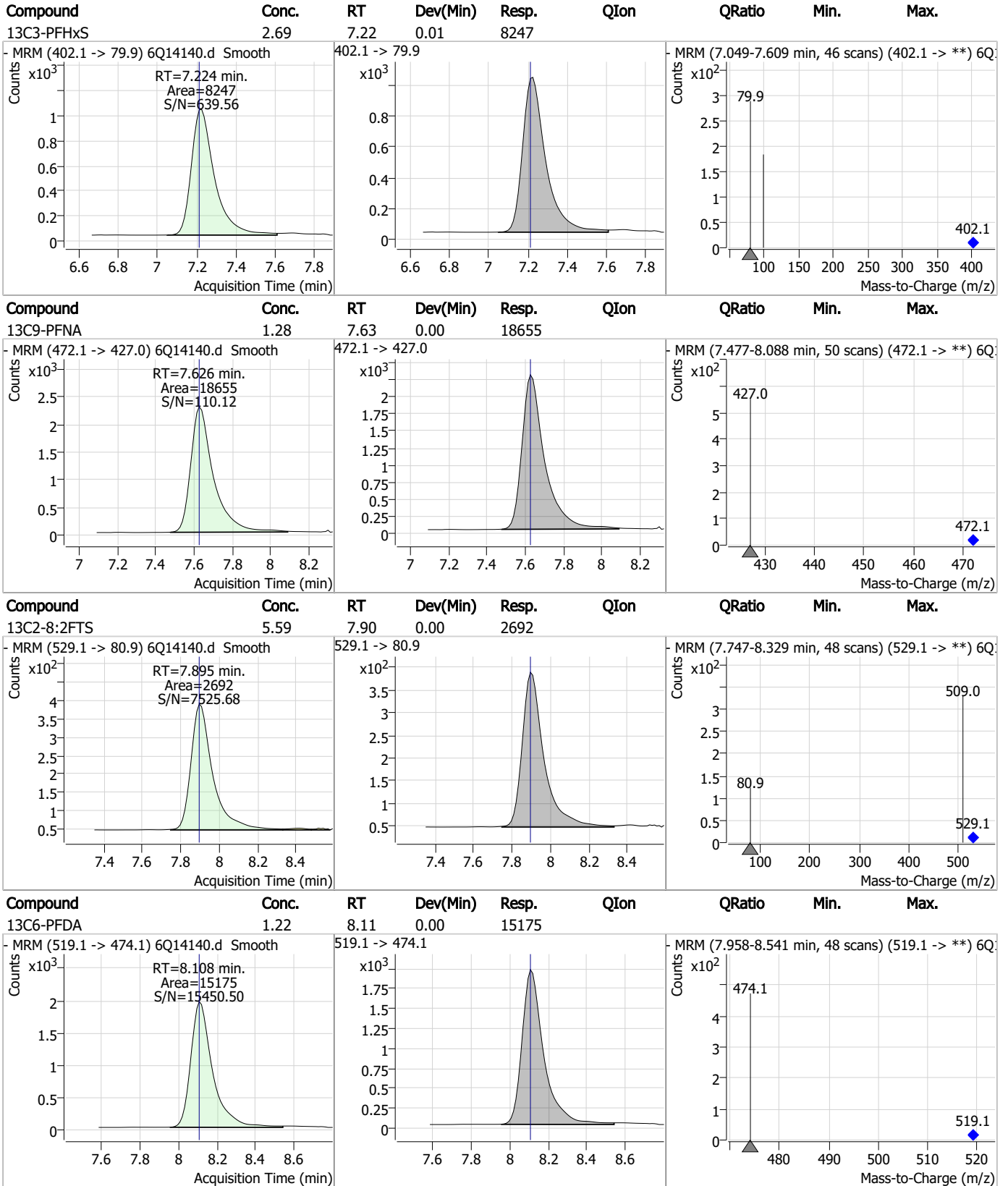
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Perfluorinated Compounds by LC/MS/MS



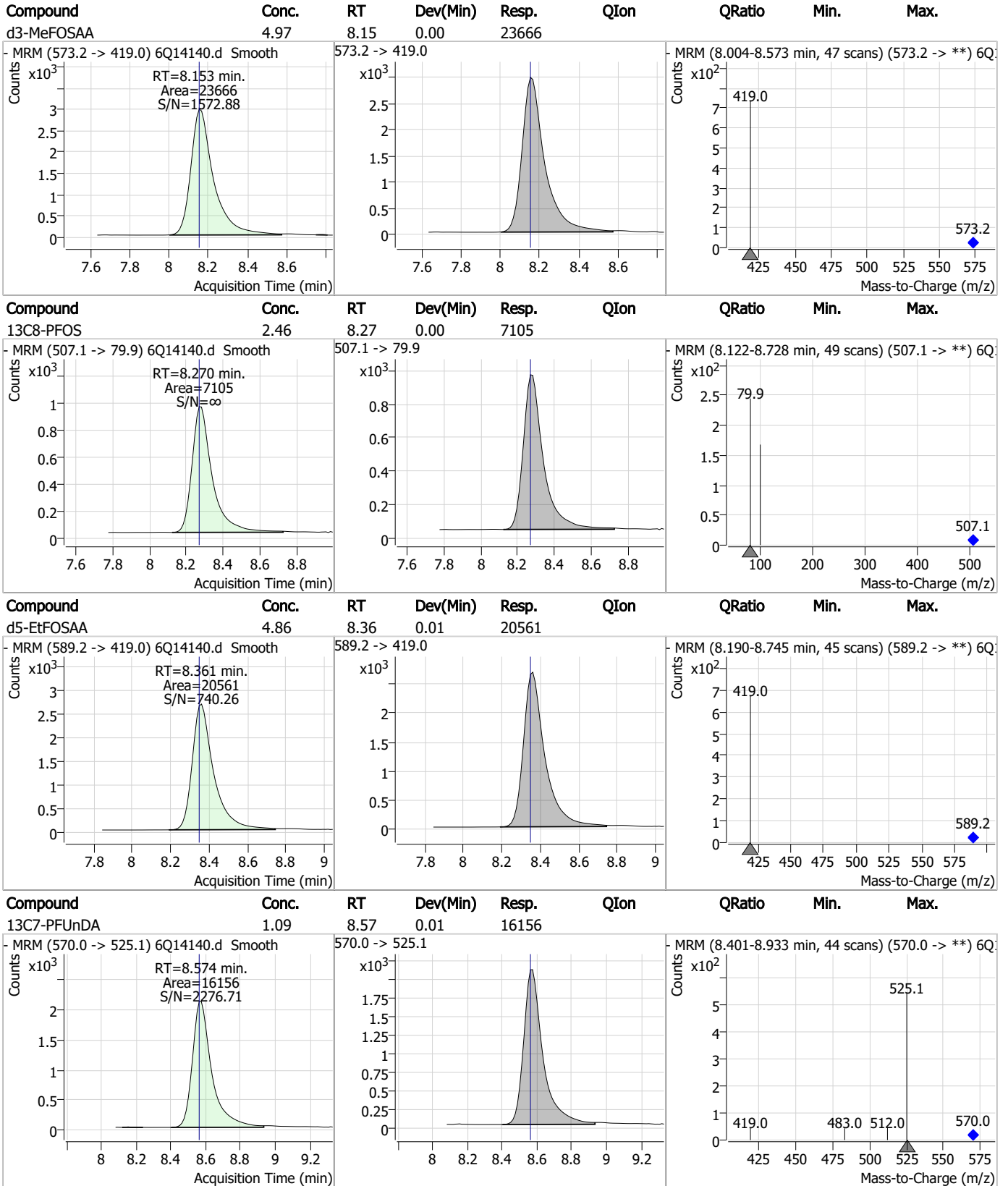
Perfluorinated Compounds by LC/MS/MS



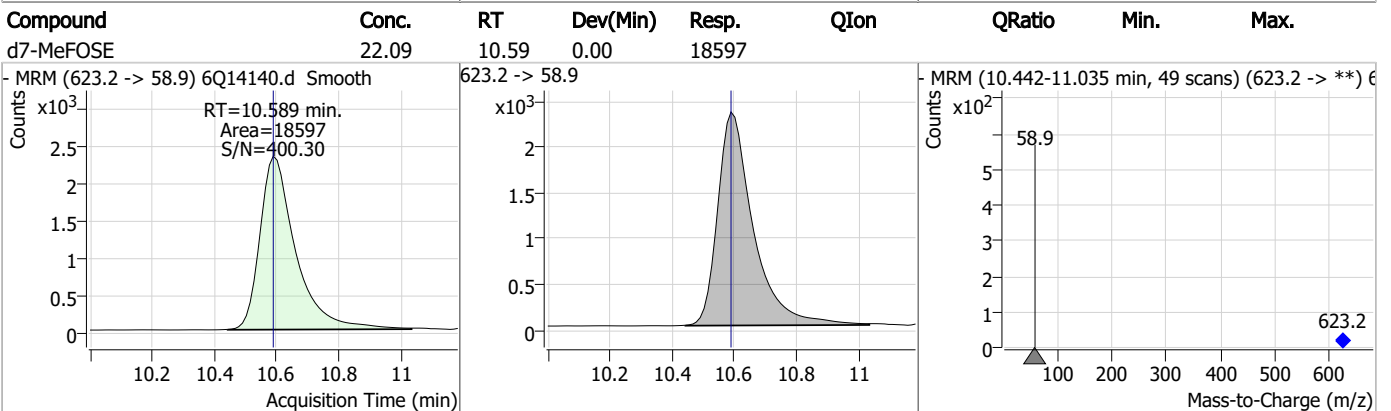
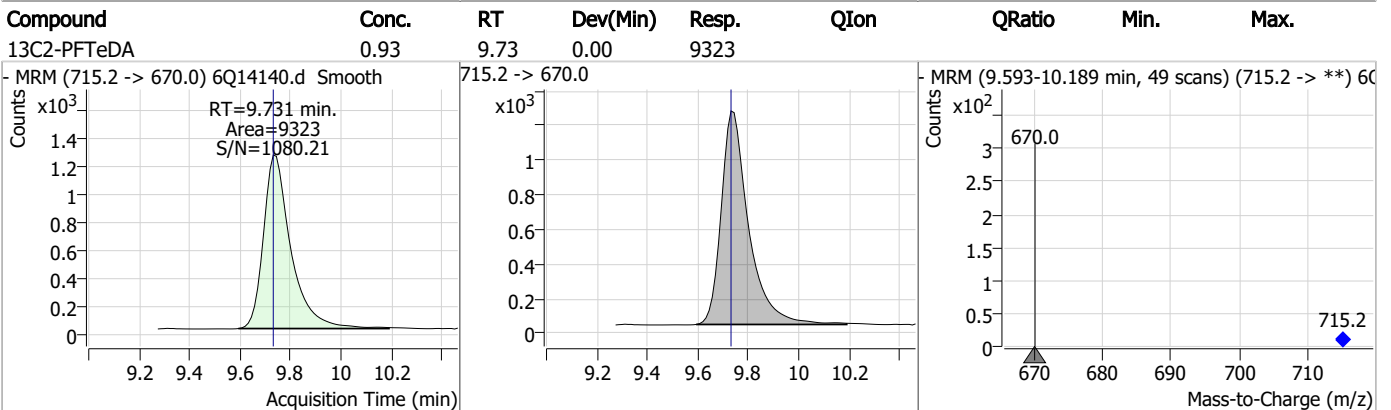
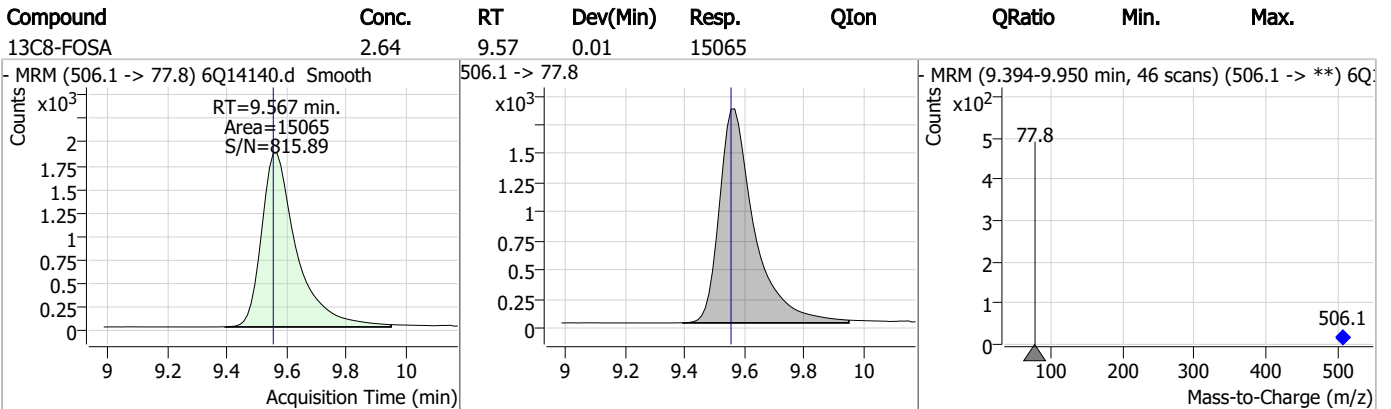
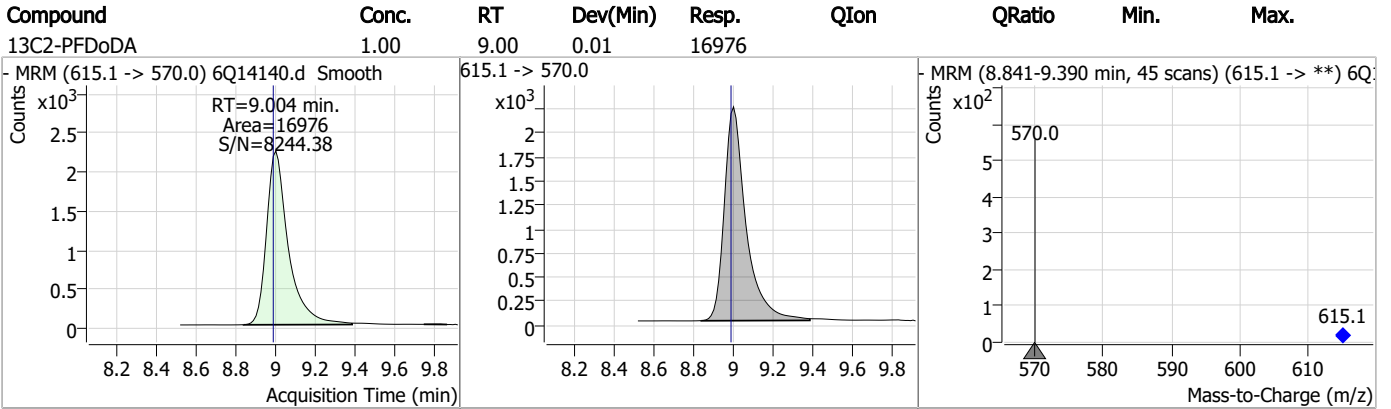
7.1.2

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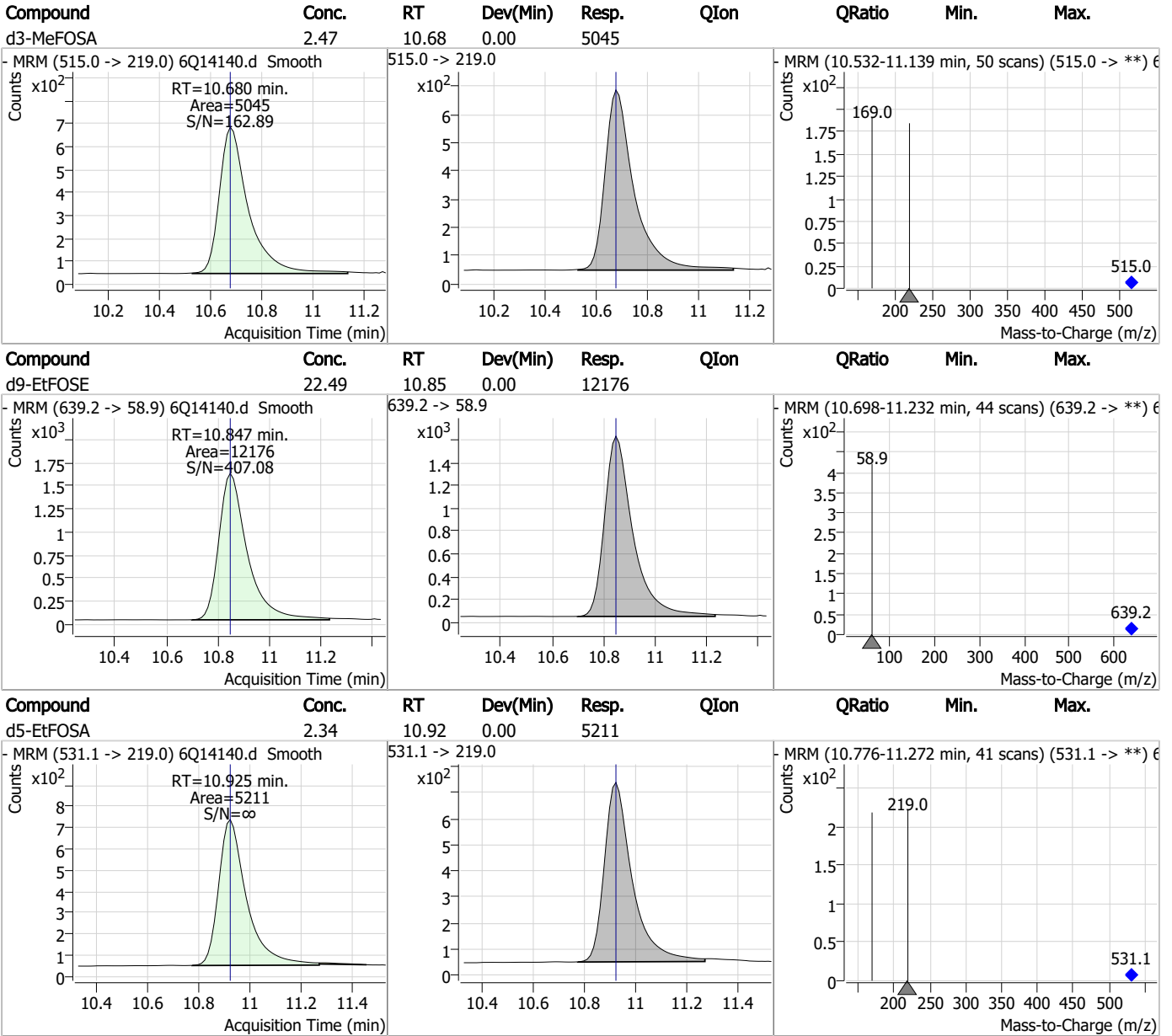
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14141.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 10:03:17 PM
 Sample Name : FC2715-3
 Vial : P6-A7
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	82182	10.00 µg/L	0.025
M5-PFPeA	4.349	268.3 -> 223.0	40269	5.00 µg/L	0.012
M5-PFHxA	5.513	318.0 -> 273.0	35941	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	36517	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	62982	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	19850	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	15815	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	18236	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	19938	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	11080	1.25 µg/L	0.000
M8-FOSA	9.567	506.1 -> 77.8	15317	2.50 µg/L	0.012
M3-PFBS	5.456	302.1 -> 79.9	13756	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9125	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	7359	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2436	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3069	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2880	5.00 µg/L	0.000
M3-MeFOSAA	8.165	573.2 -> 419.0	27121	5.00 µg/L	0.012
M3-HFPO-DA	5.890	286.9 -> 168.9	13178	10.00 µg/L	0.000
M5-EtFOSAA	8.361	589.2 -> 419.0	23874	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	21455	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	13859	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5864	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5273	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	9006	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	32398	5.00 µg/L	0.037
18O2-PFHxS	7.223	403.0 -> 83.9	5682	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	69663	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	21525	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	20634	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	32049	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2436	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.3%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3069	6.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.1%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2880	5.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-PFDoDA	9.004	615.1 -> 570.0	19938	1.20 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C2-PFTeDA	9.731	715.2 -> 670.0	11080	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C3-PFBS	5.456	302.1 -> 79.9	13756	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.2%		
13C3-PFHxS	7.212	402.1 -> 79.9	9125	2.97 µg/L	0.000



7.1.3
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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 = 118.7%	
13C4-PFBA	2.975	216.8 -> 171.9	82182	11.26 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C4-PFHpA	6.452	367.1 -> 322.0	36517	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C5-PFHxA	5.513	318.0 -> 273.0	35941	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C5-PFPeA	4.349	268.3 -> 223.0	40269	5.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C6-PFDA	8.108	519.1 -> 474.1	15815	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C7-PFUnDA	8.562	570.0 -> 525.1	18236	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-FOSA	9.567	506.1 -> 77.8	15317	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-PFOA	7.097	421.1 -> 376.0	62982	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C8-PFOS	8.270	507.1 -> 79.9	7359	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C9-PFNA	7.626	472.1 -> 427.0	19850	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSAA	8.165	573.2 -> 419.0	27121	5.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	13178	10.78 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
d3-MeFOSA	10.680	515.0 -> 219.0	5273	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSAA	8.361	589.2 -> 419.0	23874	5.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	21455	25.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d9-EtFOSE	10.847	639.2 -> 58.9	13859	25.27 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d5-EtFOSA	10.925	531.1 -> 219.0	5864	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	

7.13
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	-	512.9 -> 469.0	-	N.D.	
		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	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		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	-	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

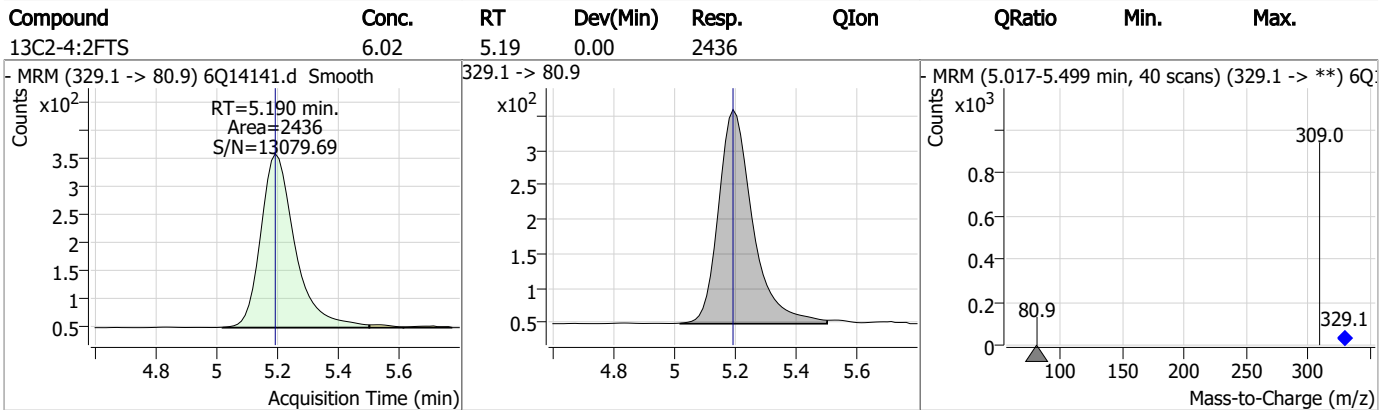
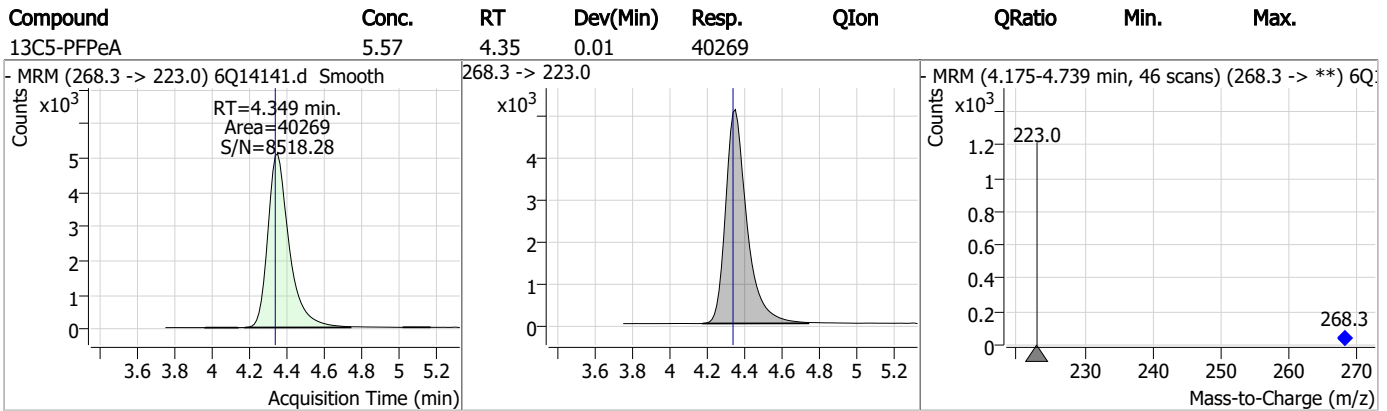
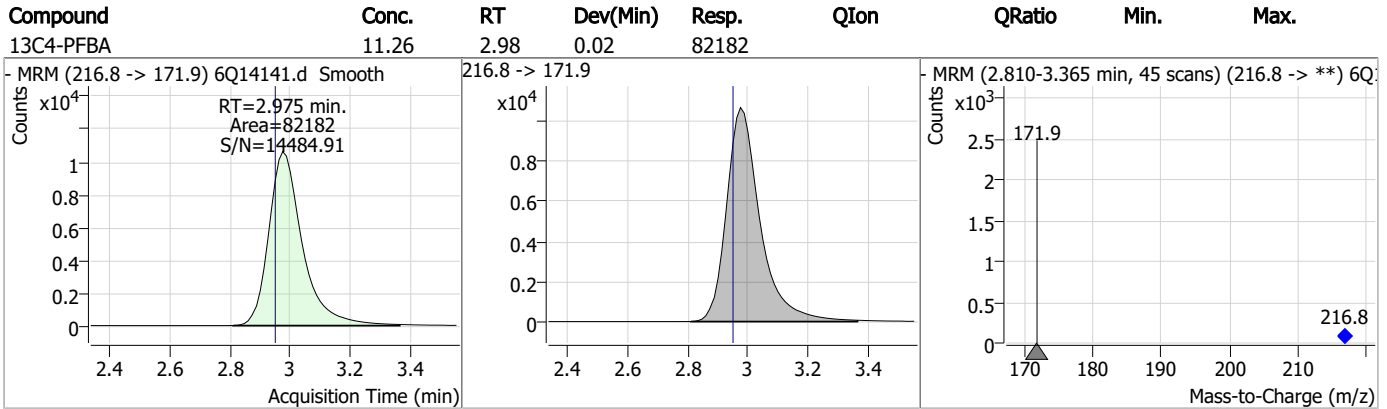
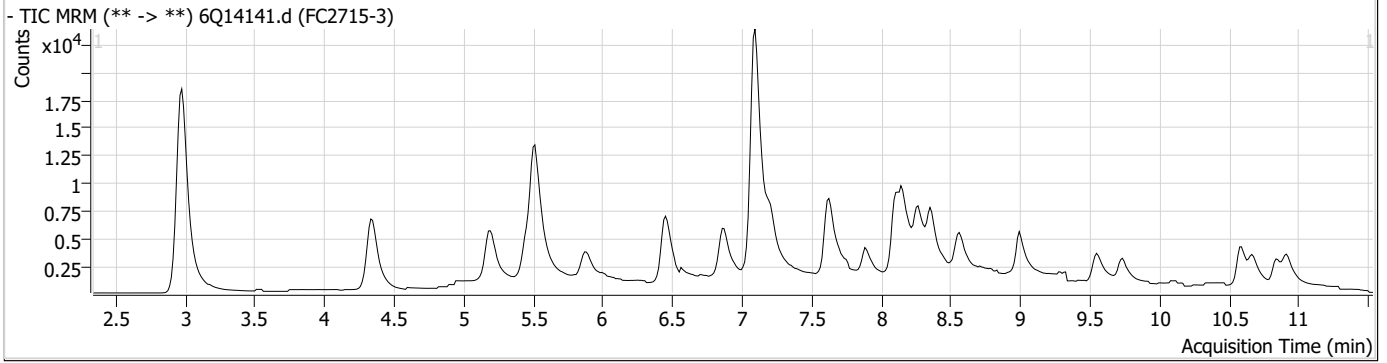
Perfluorinated Compounds by LC/MS/MS

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

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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.
13C3-PFBS	2.83	5.46	0.00	13756				
13C5-PFHxA	2.86	5.51	0.00	35941				
13C3-HFPO-DA	10.78	5.89	0.00	13178				
13C4-PFHpA	2.77	6.45	0.00	36517				

7.1.3

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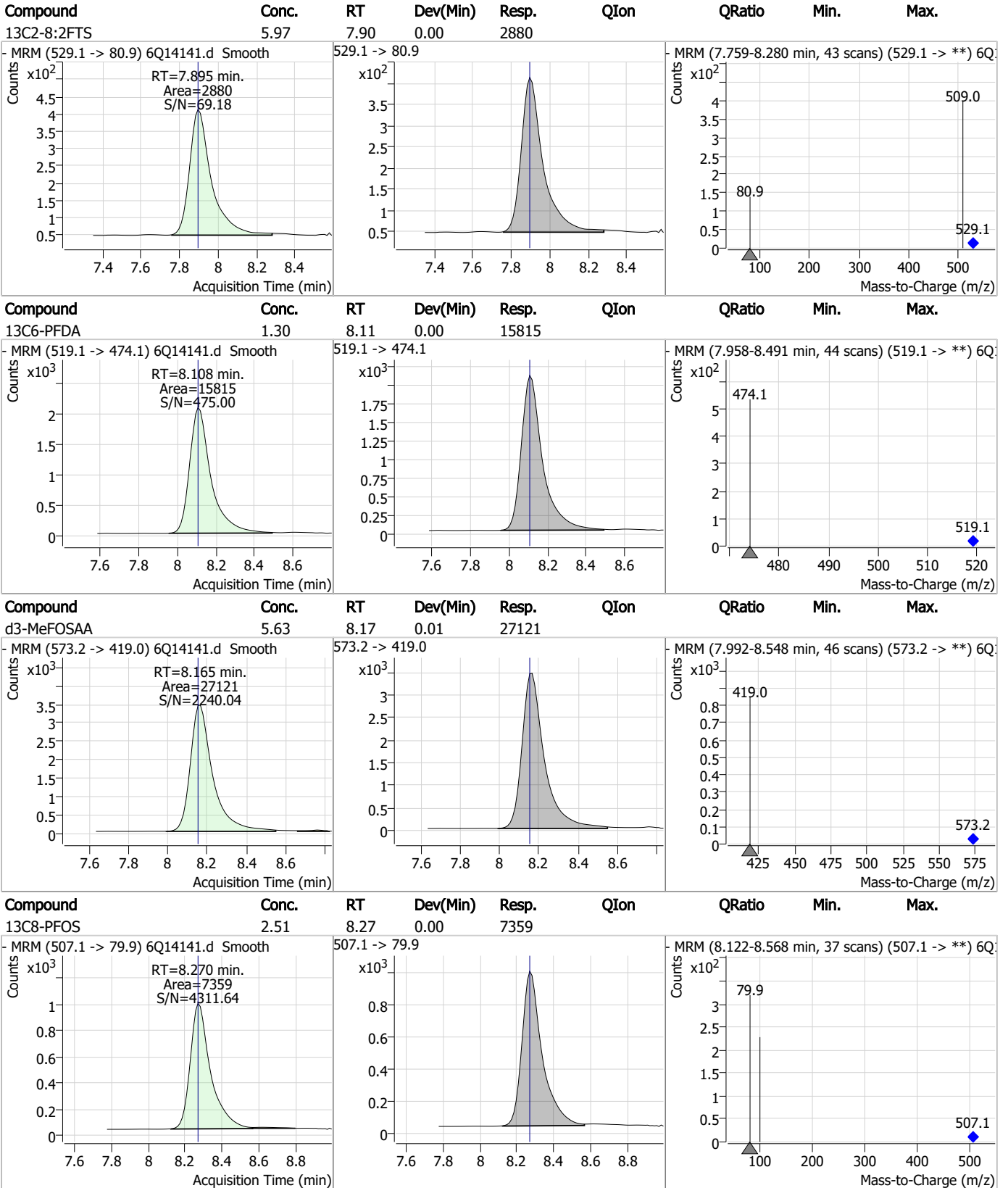
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.01	6.87	0.00	3069				
13C8-PFOA	2.68	7.10	0.00	62982				
13C3-PFHxS	2.97	7.21	0.00	9125				
13C9-PFNA	1.33	7.63	0.00	19850				

7.1.3

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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-EtFOSAA	5.57	8.36	0.01	23874				
13C7-PFUnDA	1.26	8.56	0.00	18236				
13C2-PFDoDA	1.20	9.00	0.01	19938				
13C8-FOSA	2.65	9.57	0.01	15317				

7.1.3

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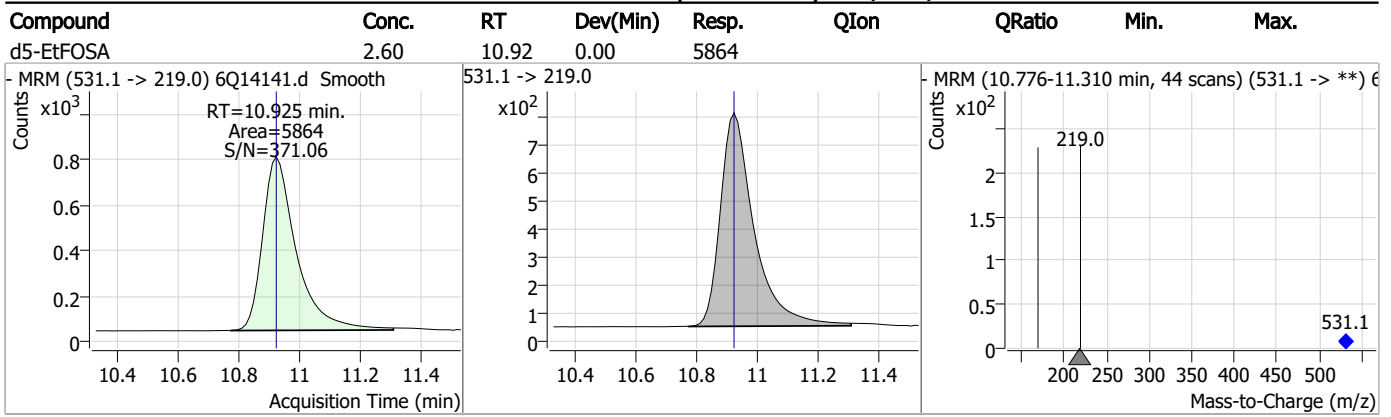
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.13	9.73	0.00	11080				
d7-MeFOSE	25.16	10.59	0.00	21455				
d3-MeFOSA	2.55	10.68	0.00	5273				
d9-EtFOSE	25.27	10.85	0.00	13859				

7.1.3

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Perfluorinated Compounds by LC/MS/MS



7.1.3
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14142.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 10:17:18 PM
 Sample Name : FC2715-4
 Vial : P6-A8
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	81161	10.00 µg/L	0.025
M5-PFPeA	4.337	268.3 -> 223.0	39430	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	34109	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	35750	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	61187	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	19767	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	15835	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	16215	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	17872	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	9281	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	15601	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	13294	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	8673	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	7189	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2550	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3080	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2859	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	25569	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	13932	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	21648	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	18531	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	12275	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5048	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	4739	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	8666	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	30157	5.00 µg/L	0.037
18O2-PFHxS	7.223	403.0 -> 83.9	5513	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	64515	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	19037	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	19457	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	32375	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2550	6.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.8%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3080	6.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.2%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2859	6.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.2%		
13C2-PFDoDA	9.004	615.1 -> 570.0	17872	1.21 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.731	715.2 -> 670.0	9281	1.07 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.9%		
13C3-PFBS	5.456	302.1 -> 79.9	13294	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C3-PFHxS	7.212	402.1 -> 79.9	8673	2.91 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 = 116.3%	
13C4-PFBA	2.975	216.8 -> 171.9	81161	11.94 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.4%	
13C4-PFHpA	6.452	367.1 -> 322.0	35750	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFHxA	5.513	318.0 -> 273.0	34109	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFPeA	4.337	268.3 -> 223.0	39430	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C6-PFDA	8.108	519.1 -> 474.1	15835	1.47 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.7%	
13C7-PFUnDA	8.562	570.0 -> 525.1	16215	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.555	506.1 -> 77.8	15601	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-PFOA	7.097	421.1 -> 376.0	61187	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C8-PFOS	8.270	507.1 -> 79.9	7189	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C9-PFNA	7.626	472.1 -> 427.0	19767	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.8%	
d3-MeFOSAA	8.153	573.2 -> 419.0	25569	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	13932	11.29 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
d3-MeFOSA	10.680	515.0 -> 219.0	4739	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
d5-EtFOSAA	8.361	589.2 -> 419.0	21648	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d7-MeFOSE	10.589	623.2 -> 58.9	18531	22.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	12275	23.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	5048	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	

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	-	512.9 -> 469.0	-	N.D.	
		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	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		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	-	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

7.1.4
7

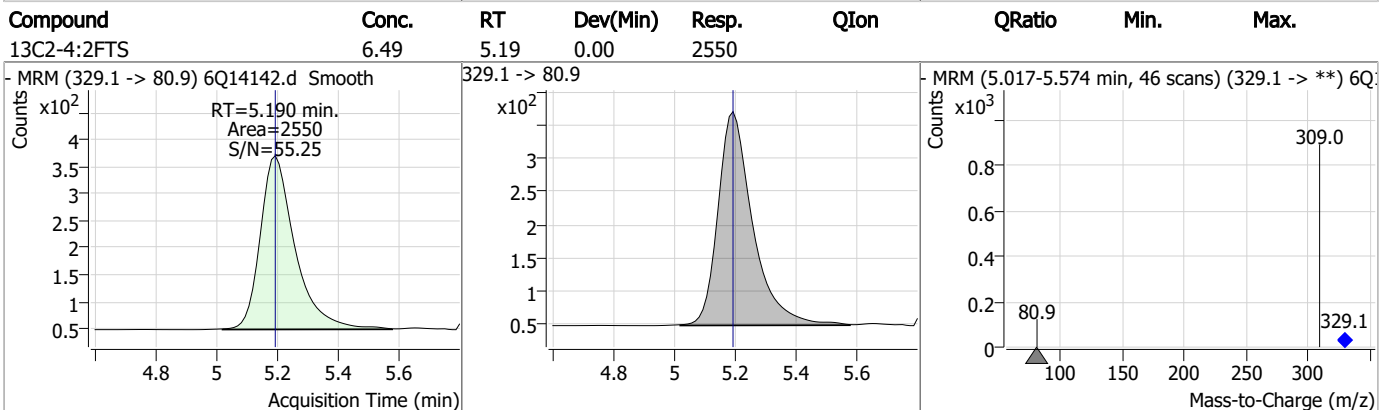
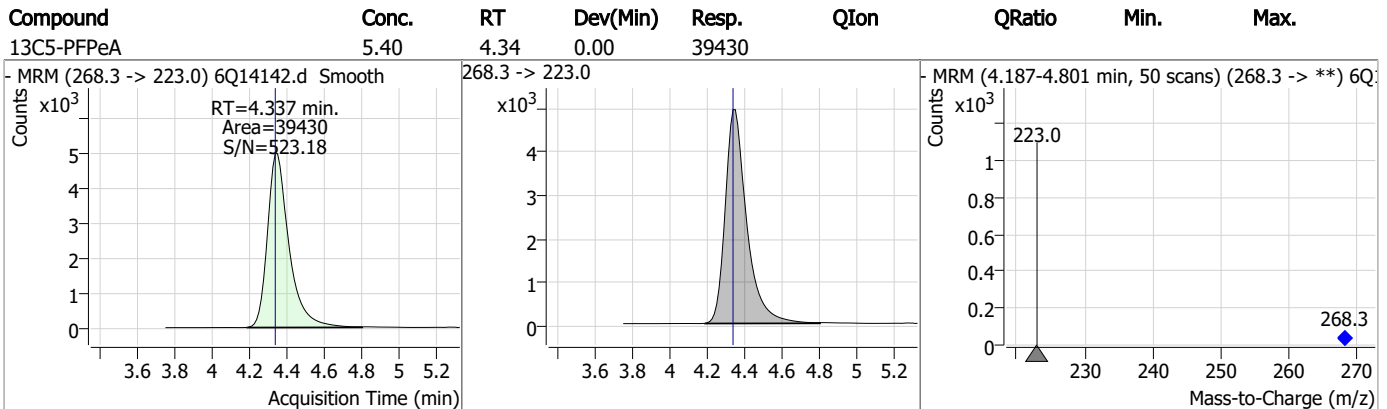
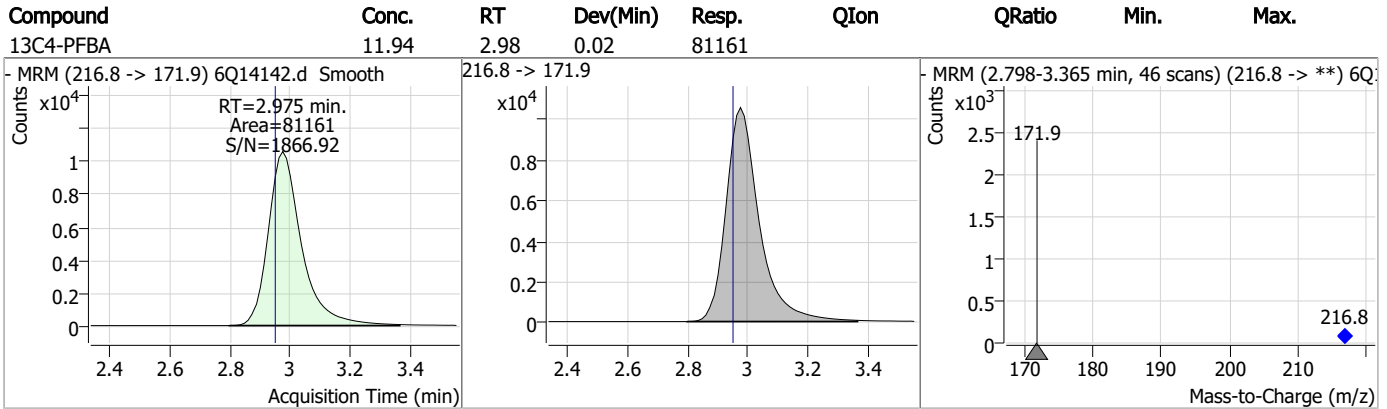
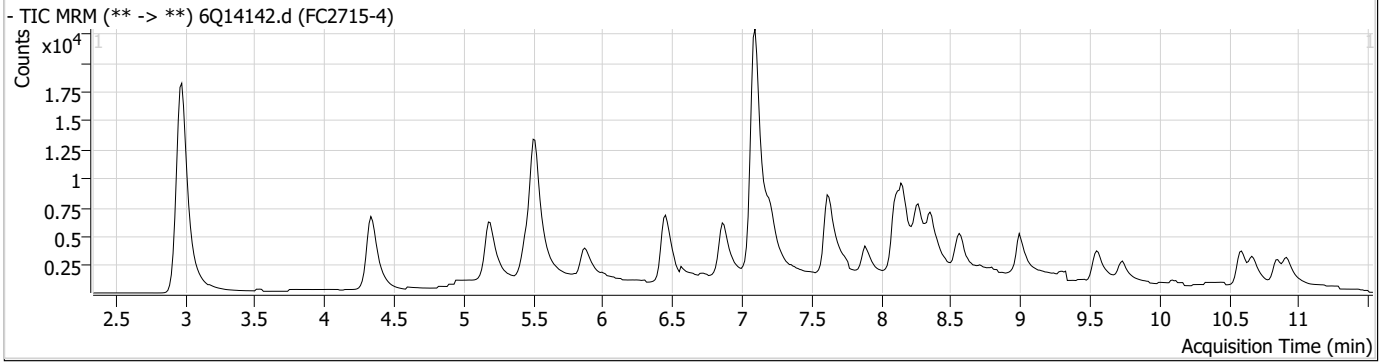
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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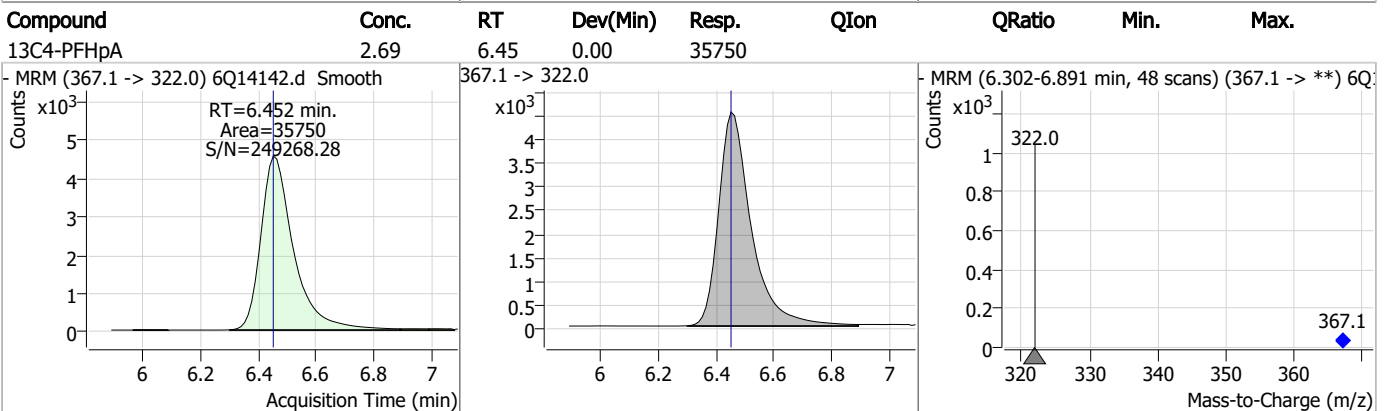
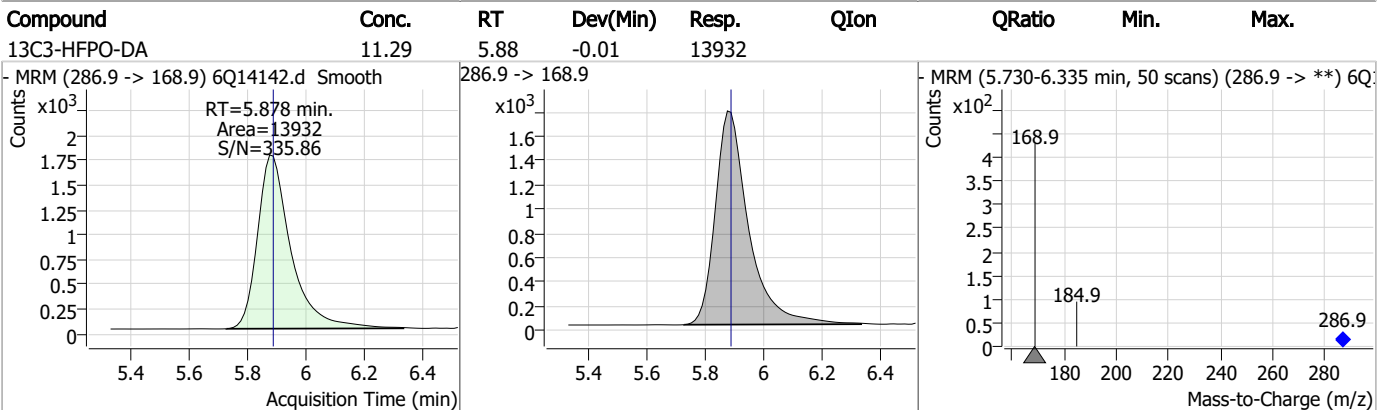
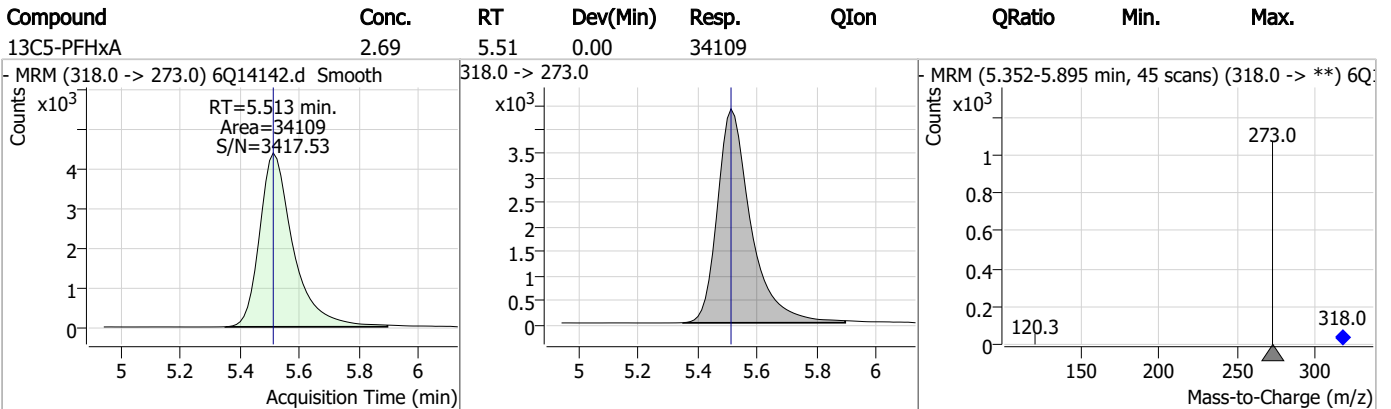
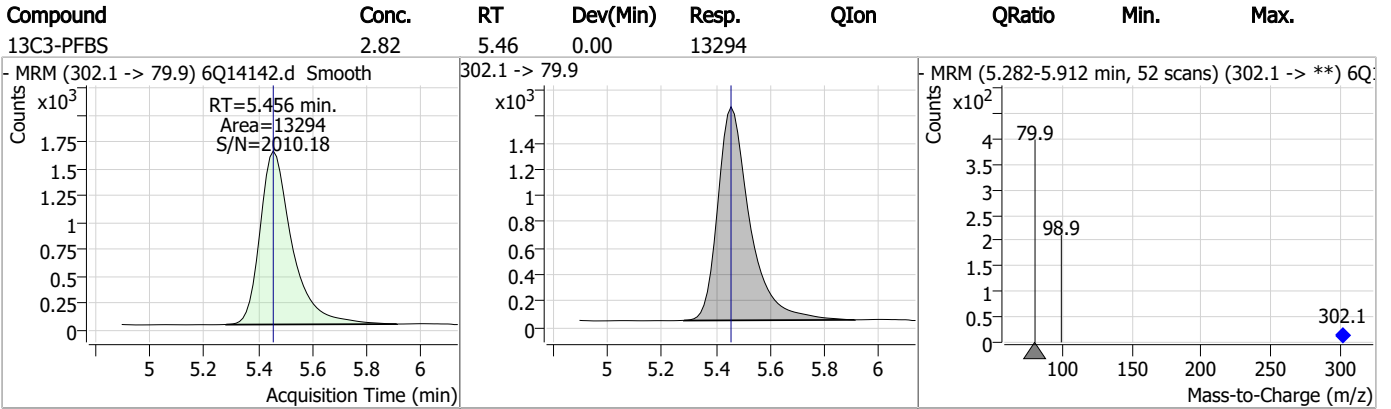
7.1.4
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

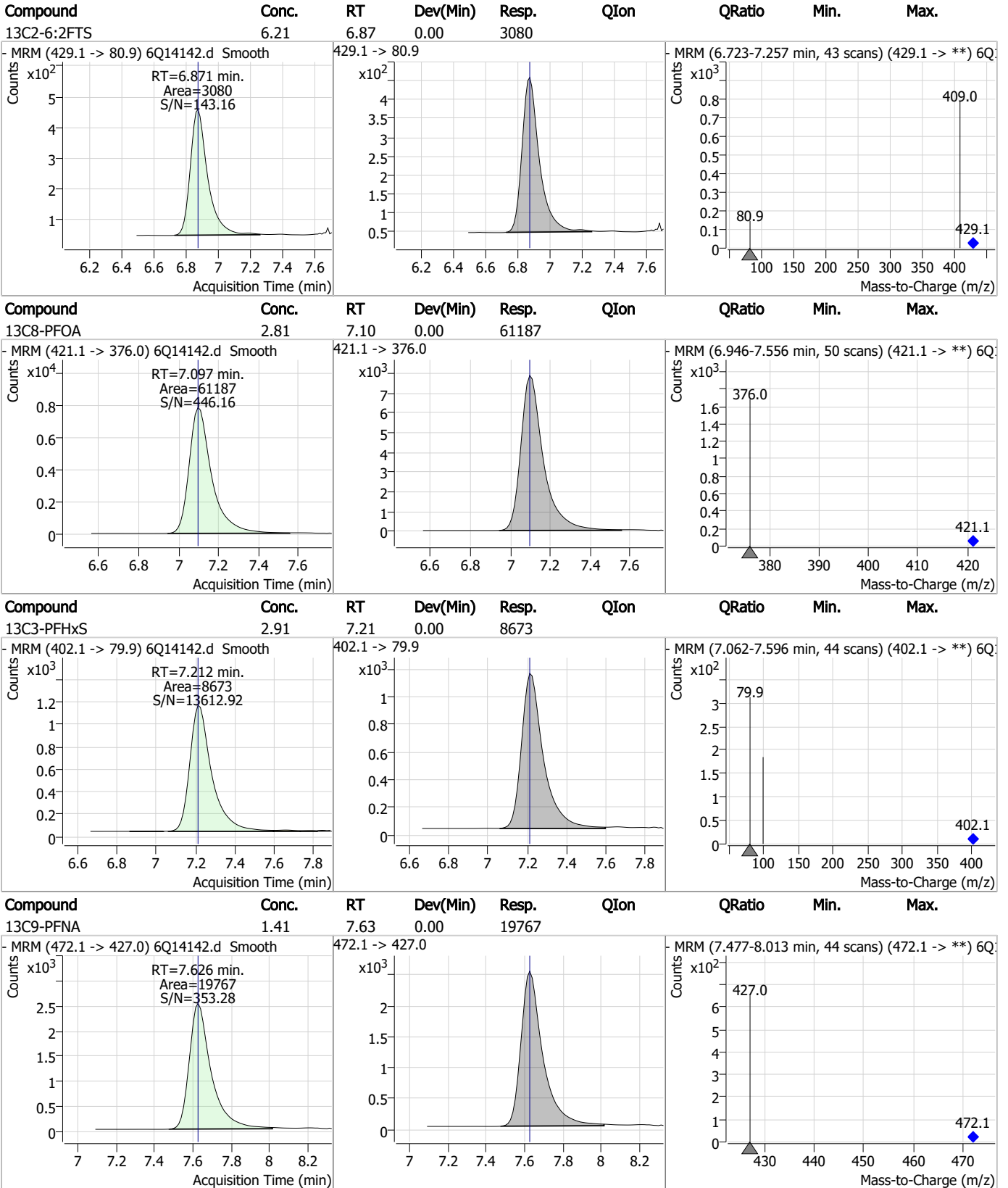


7.1.4

7



Perfluorinated Compounds by LC/MS/MS

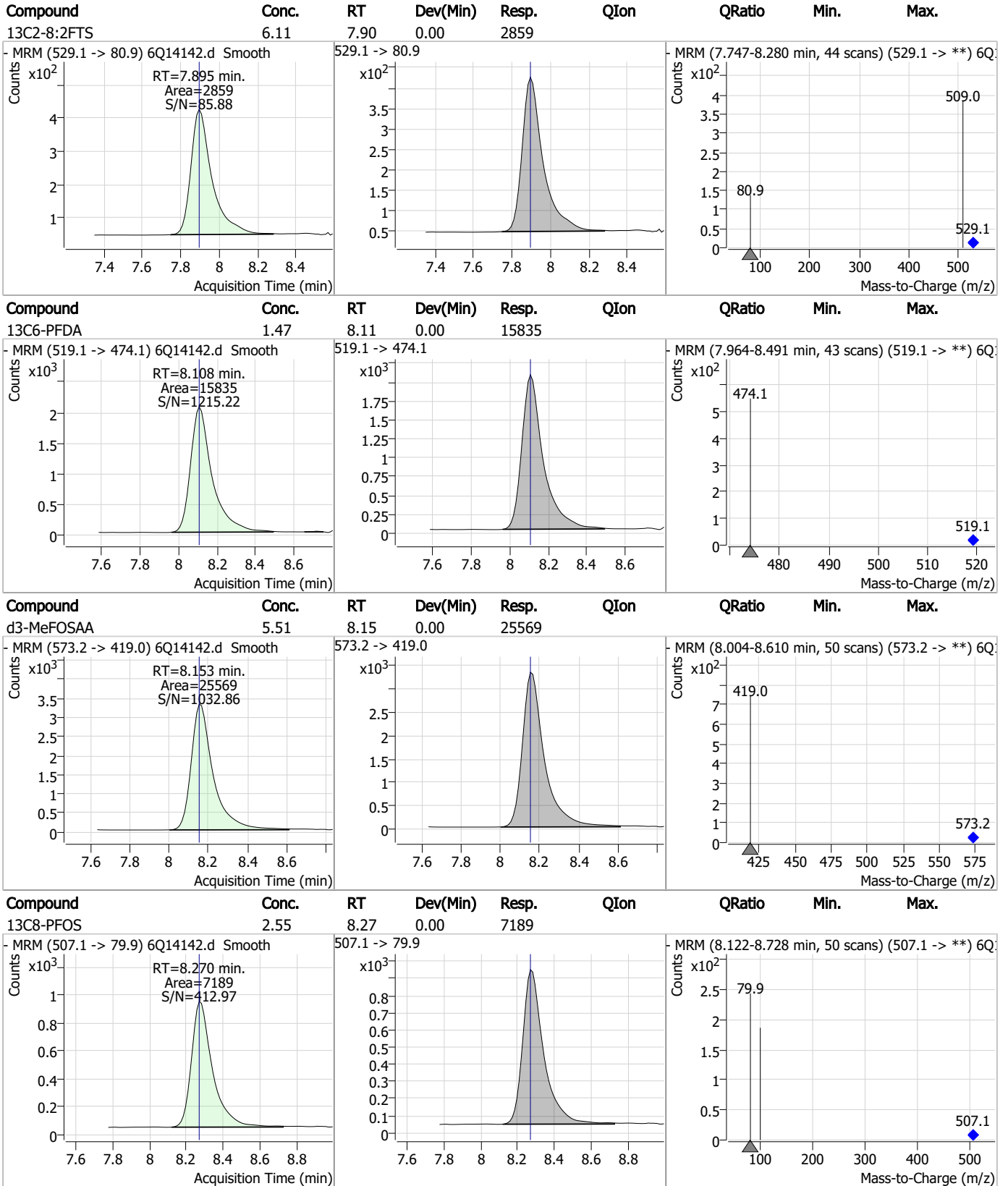


7.1.4

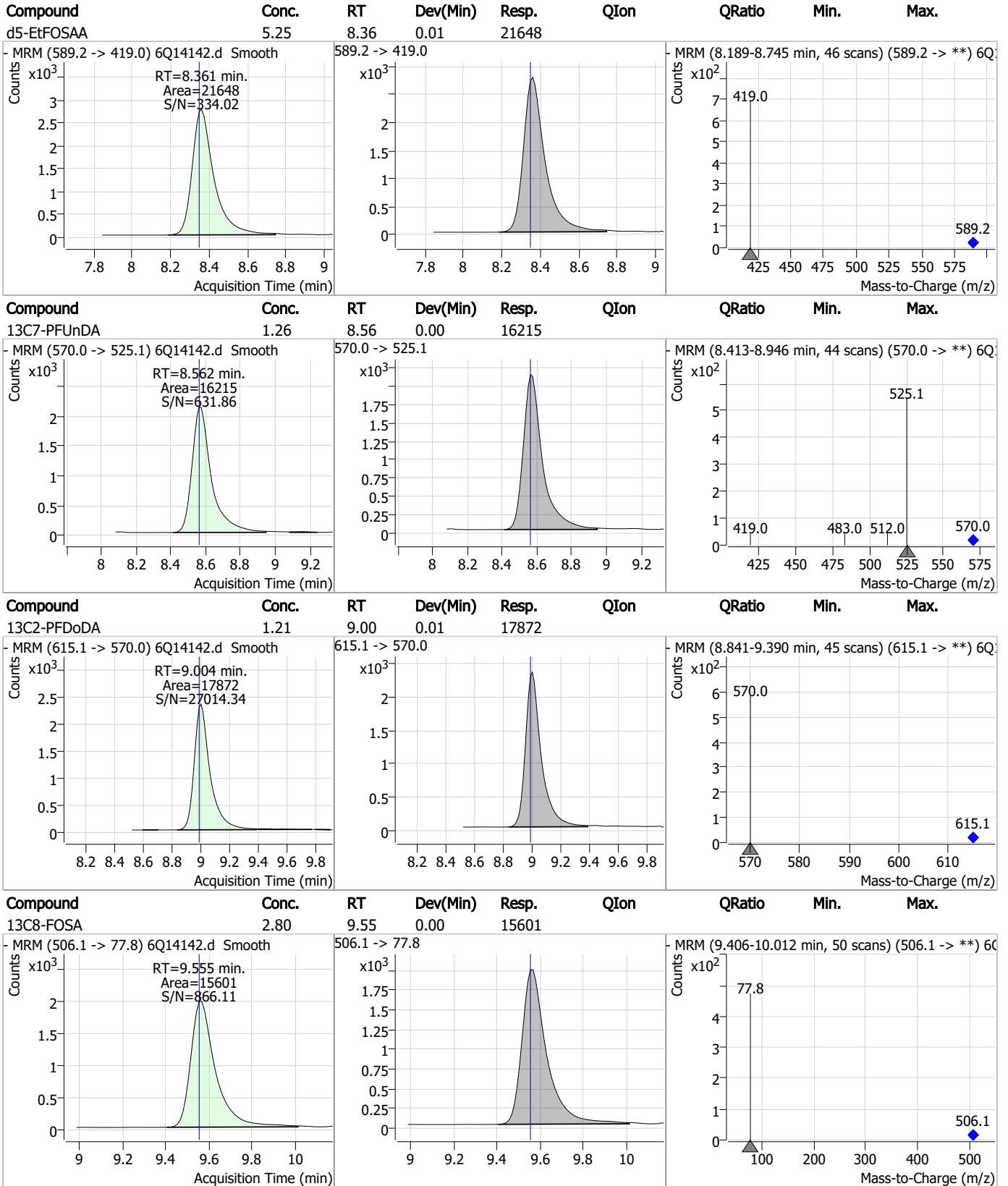
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.4

7

Perfluorinated Compounds by LC/MS/MS

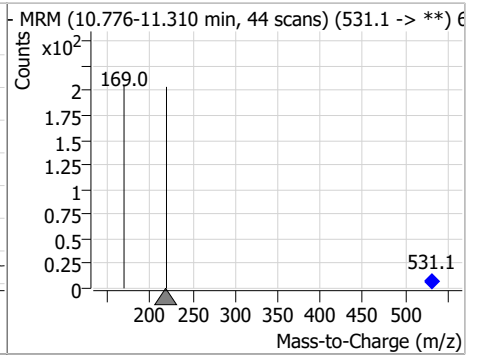
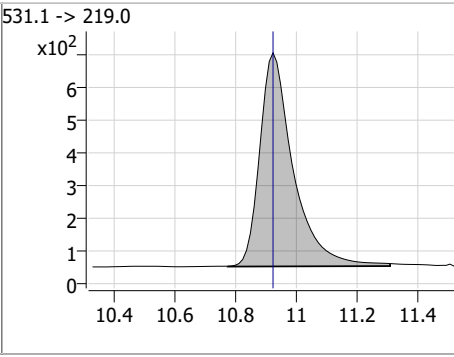
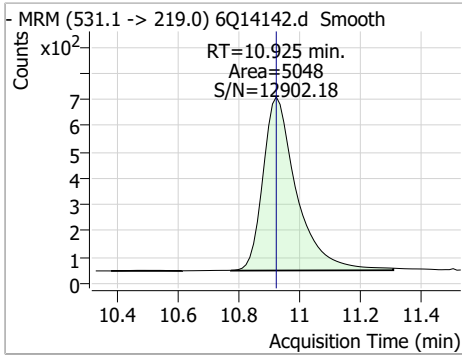
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.07	9.73	0.00	9281				
d7-MeFOSE	22.58	10.59	0.00	18531				
d3-MeFOSA	2.38	10.68	0.00	4739				
d9-EtFOSE	23.26	10.85	0.00	12275				

7.1.4

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.33	10.92	0.00	5048				



7.1.4
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14144.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 10:45:18 PM
 Sample Name : FC2715-5
 Vial : P6-B1
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	78900	10.00 µg/L	0.025
M5-PFPeA	4.349	268.3 -> 223.0	38968	5.00 µg/L	0.012
M5-PFHxA	5.513	318.0 -> 273.0	34532	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	36195	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	59154	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	19645	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	14916	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	16525	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	17867	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	9597	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	14773	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	12777	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	8436	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	7292	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2357	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3040	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2656	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	24299	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	13949	10.00 µg/L	0.000
M5-EtFOSAA	8.361	589.2 -> 419.0	19828	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	19582	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	12293	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5122	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	4620	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	8569	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	31330	5.00 µg/L	0.037
18O2-PFHxS	7.211	403.0 -> 83.9	5512	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	65402	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	19353	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	19737	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	31907	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2357	6.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.0%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3040	6.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.6%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2656	5.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C2-PFDoDA	8.991	615.1 -> 570.0	17867	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C2-PFTeDA	9.731	715.2 -> 670.0	9597	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.3%		
13C3-PFBS	5.456	302.1 -> 79.9	12777	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C3-PFHxS	7.212	402.1 -> 79.9	8436	2.83 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 = 113.2%	
13C4-PFBA	2.975	216.8 -> 171.9	78900	11.18 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.8%	
13C4-PFHpA	6.452	367.1 -> 322.0	36195	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C5-PFHxA	5.513	318.0 -> 273.0	34532	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C5-PFPeA	4.349	268.3 -> 223.0	38968	5.41 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C6-PFDA	8.108	519.1 -> 474.1	14916	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C7-PFUnDA	8.562	570.0 -> 525.1	16525	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-FOSA	9.555	506.1 -> 77.8	14773	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C8-PFOA	7.097	421.1 -> 376.0	59154	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C8-PFOS	8.270	507.1 -> 79.9	7292	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C9-PFNA	7.626	472.1 -> 427.0	19645	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.5%	
d3-MeFOSAA	8.153	573.2 -> 419.0	24299	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	13949	11.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	4620	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.8%	
d5-EtFOSAA	8.361	589.2 -> 419.0	19828	4.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	19582	24.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	12293	23.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	5122	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	

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	-	512.9 -> 469.0	-	N.D.	
		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	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		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	-	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

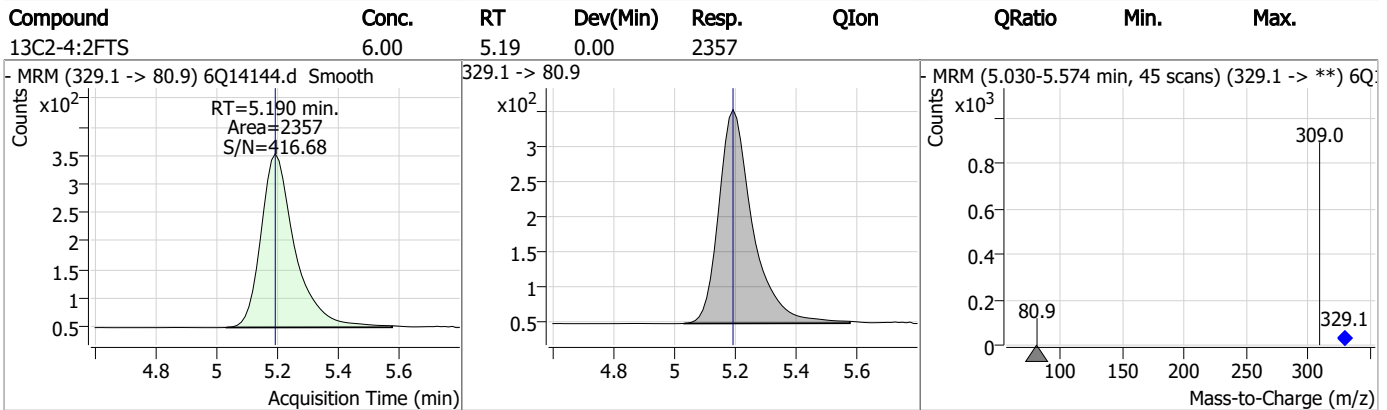
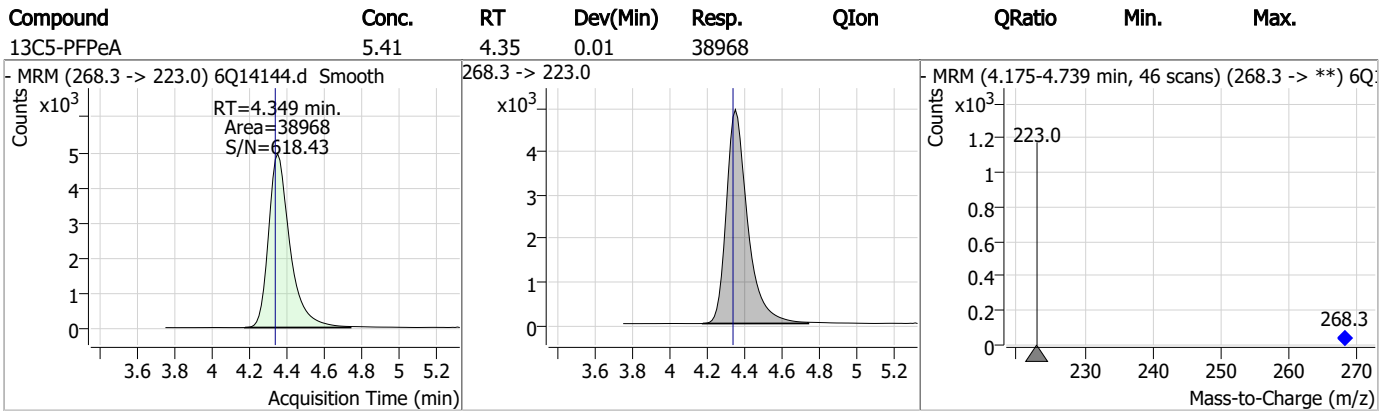
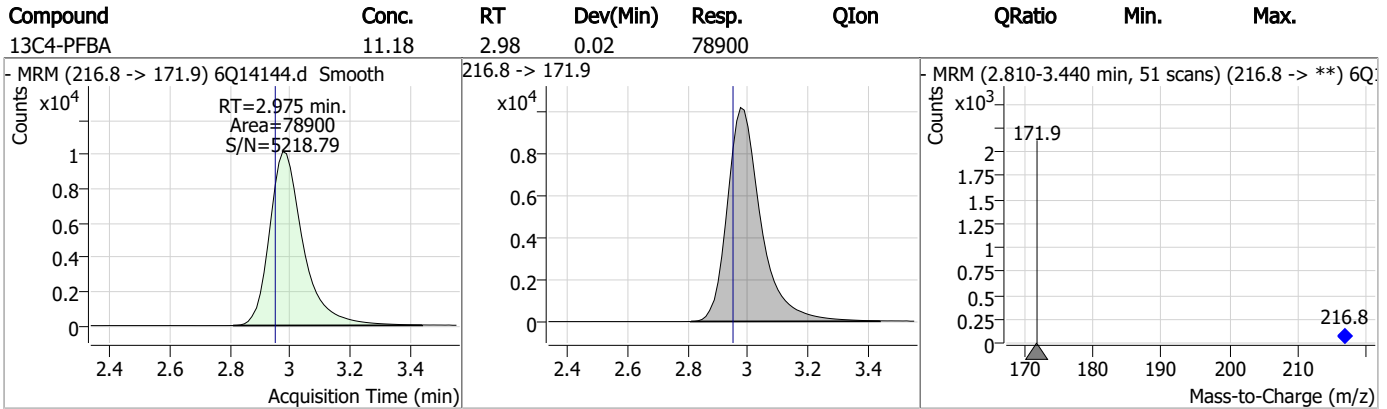
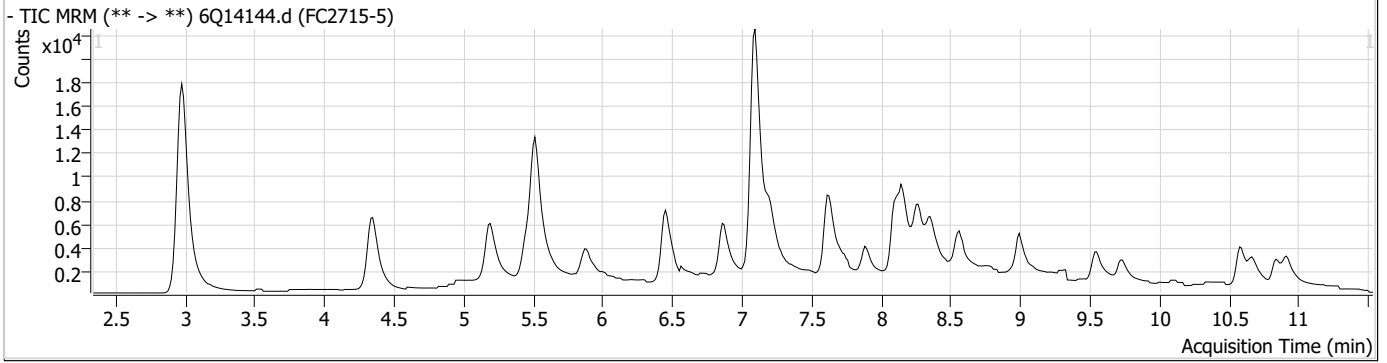
Perfluorinated Compounds by LC/MS/MS

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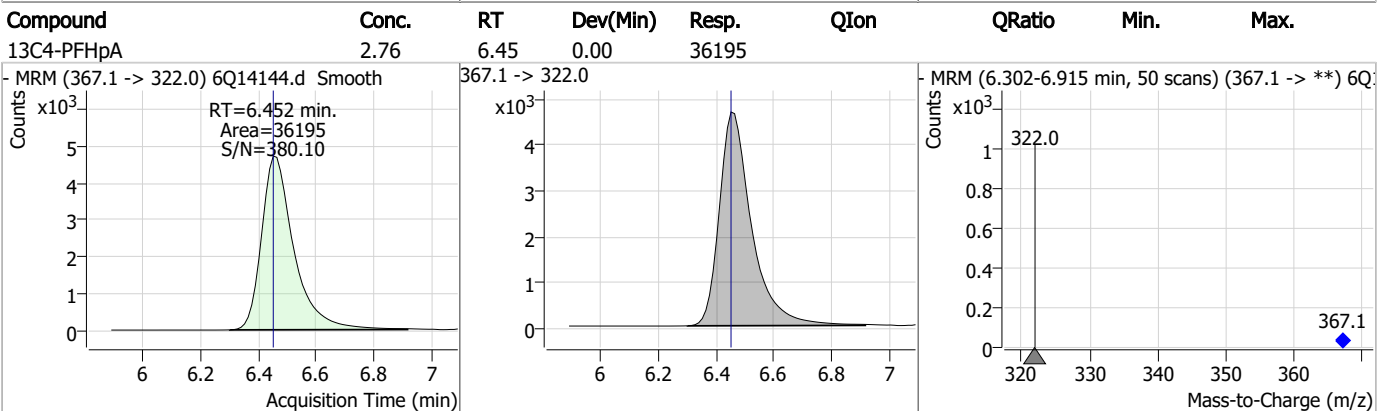
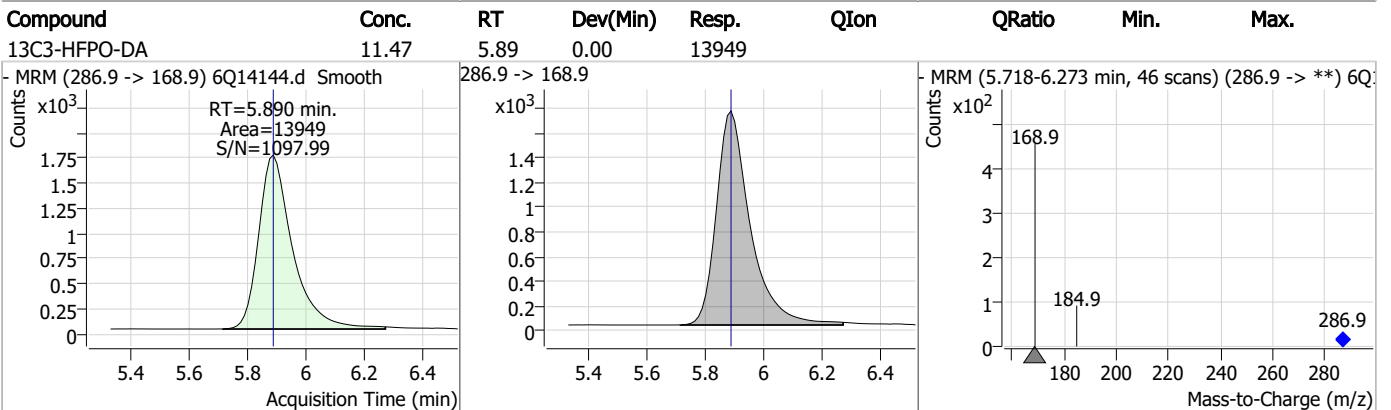
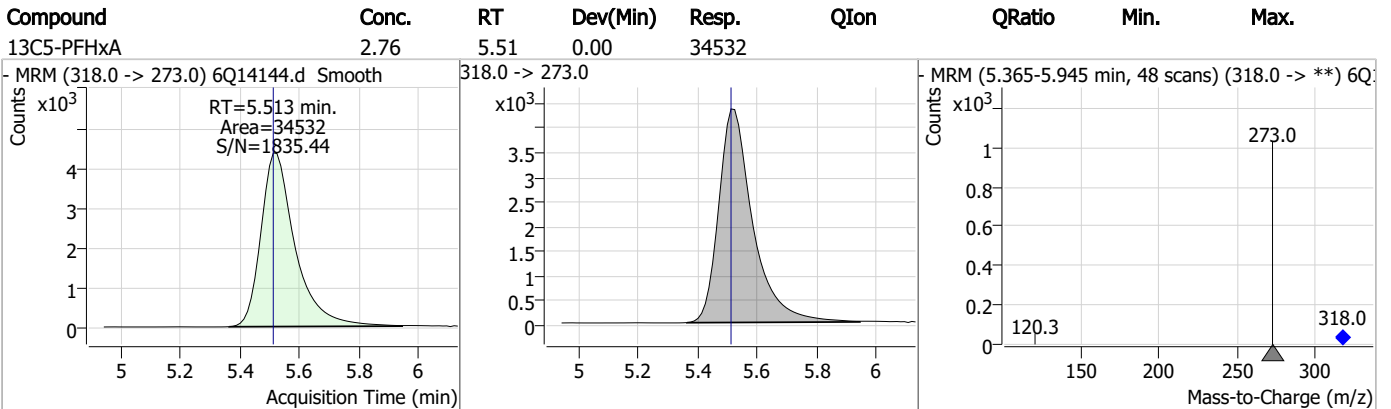
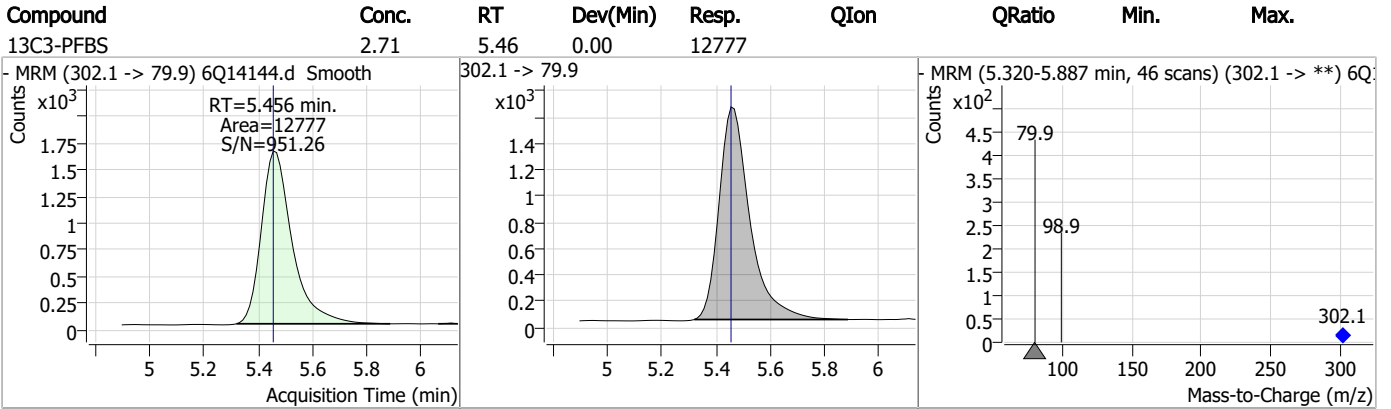
7.1.5

7

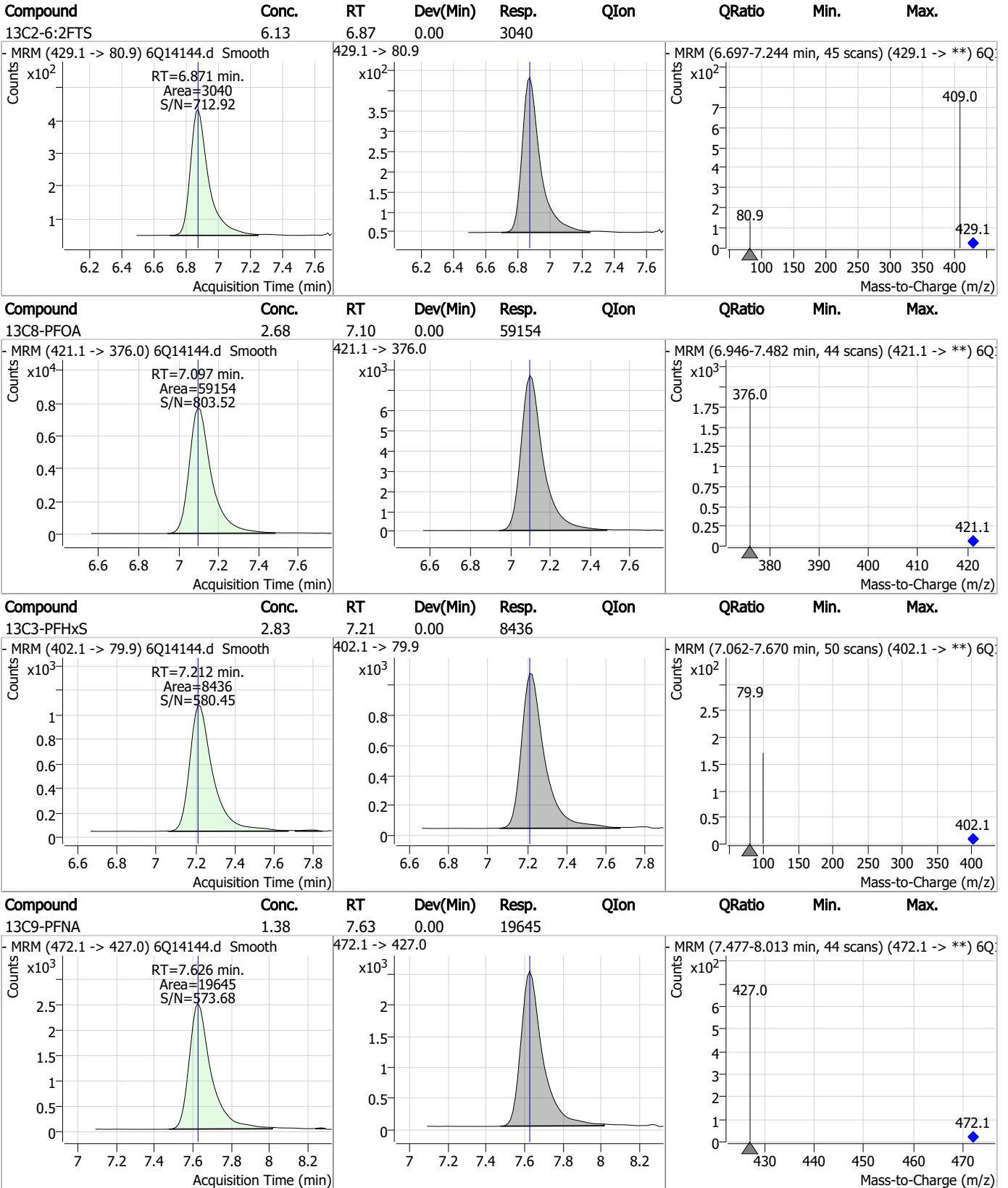
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



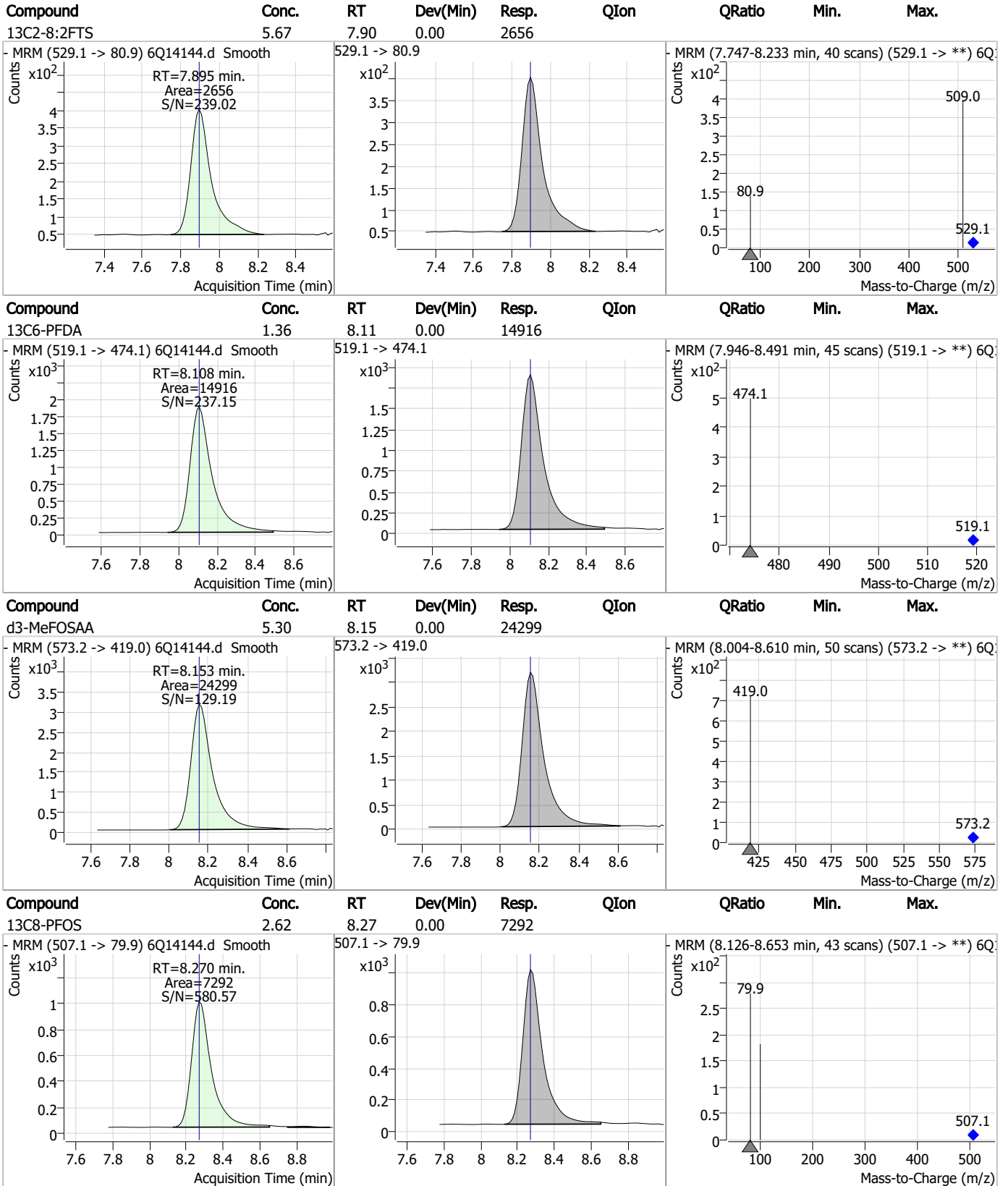
Perfluorinated Compounds by LC/MS/MS



7.15

7

Perfluorinated Compounds by LC/MS/MS



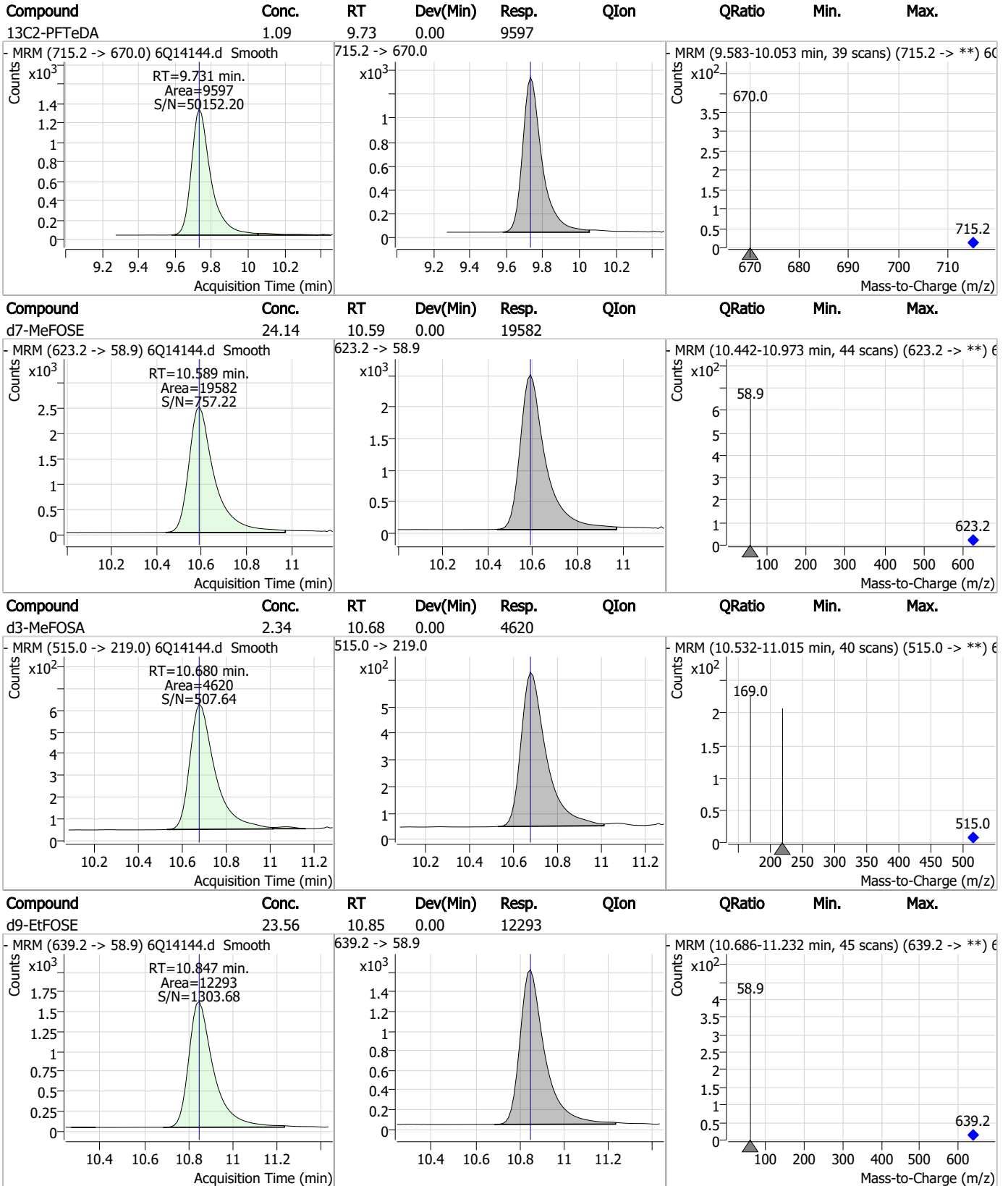
7.15

7

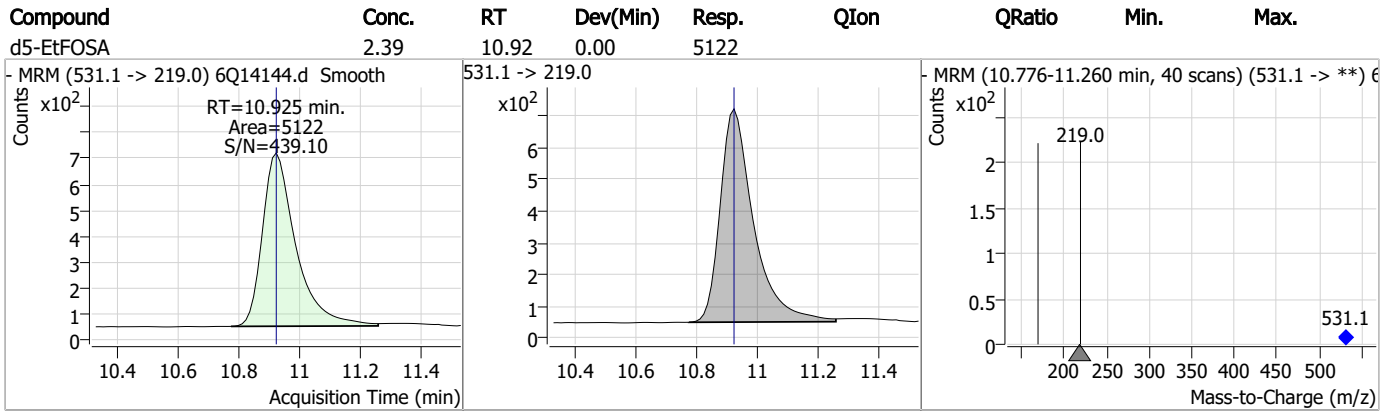
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.86	8.36	0.01	19828				
13C7-PFUnDA	1.27	8.56	0.00	16525				
13C2-PFDoDA	1.19	8.99	0.00	17867				
13C8-FOSA	2.68	9.55	0.00	14773				

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14137.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 9:07:20 PM
 Sample Name : op95501-mb
 Vial : P6-A3
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	80503	10.00 µg/L	0.025
M5-PFPeA	4.349	268.3 -> 223.0	40670	5.00 µg/L	0.012
M5-PFHxA	5.513	318.0 -> 273.0	36205	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	35916	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	62525	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	19313	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	15747	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	18545	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	19297	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	9526	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	14488	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	13676	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	8944	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	7636	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2658	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3427	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	3033	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	26186	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	13813	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	22109	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	18748	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	12031	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5294	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	4462	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	8961	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	30997	5.00 µg/L	0.037
18O2-PFHxS	7.223	403.0 -> 83.9	5407	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	65388	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	20052	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	20005	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	32106	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2658	6.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 137.9%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3427	7.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 140.9%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3033	6.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.1%		
13C2-PFDoDA	9.004	615.1 -> 570.0	19297	1.24 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-PFTeDA	9.731	715.2 -> 670.0	9526	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.7%		
13C3-PFBS	5.456	302.1 -> 79.9	13676	2.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.3%		
13C3-PFHxS	7.212	402.1 -> 79.9	8944	3.06 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 = 122.3%	
13C4-PFBA	2.975	216.8 -> 171.9	80503	11.53 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.3%	
13C4-PFHpA	6.452	367.1 -> 322.0	35916	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C5-PFHxA	5.513	318.0 -> 273.0	36205	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C5-PFPeA	4.349	268.3 -> 223.0	40670	5.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C6-PFDA	8.108	519.1 -> 474.1	15747	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C7-PFUnDA	8.562	570.0 -> 525.1	18545	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C8-FOSA	9.555	506.1 -> 77.8	14488	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-PFOA	7.097	421.1 -> 376.0	62525	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C8-PFOS	8.270	507.1 -> 79.9	7636	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C9-PFNA	7.626	472.1 -> 427.0	19313	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
d3-MeFOSAA	8.153	573.2 -> 419.0	26186	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	13813	11.28 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.8%	
d3-MeFOSA	10.680	515.0 -> 219.0	4462	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.6%	
d5-EtFOSAA	8.361	589.2 -> 419.0	22109	5.19 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	18748	22.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
d9-EtFOSE	10.847	639.2 -> 58.9	12031	22.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	5294	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	

Target Compounds

QValue

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



7.2.1
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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	-	398.7 -> 98.9	-	N.D.	
		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	-	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

7.2.1
7

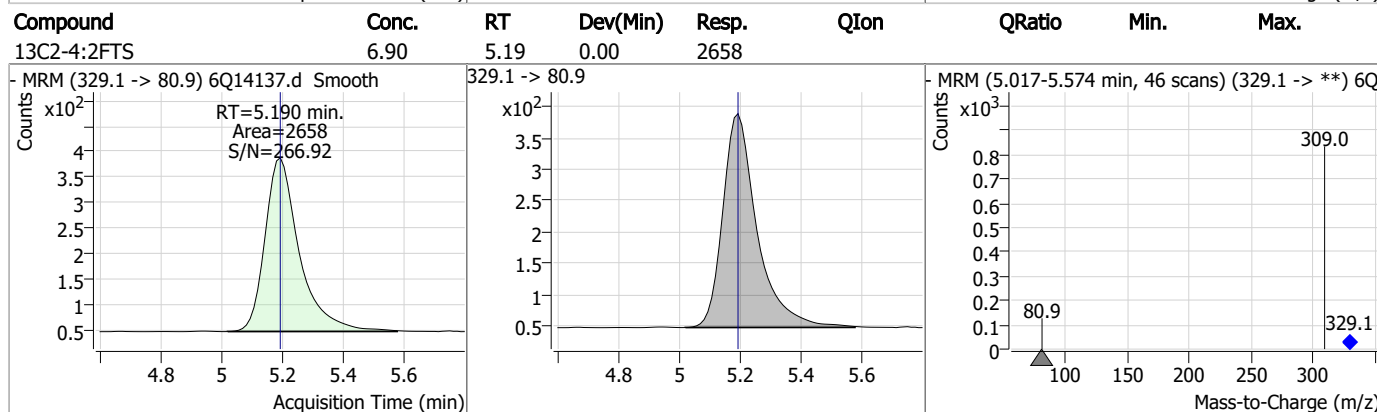
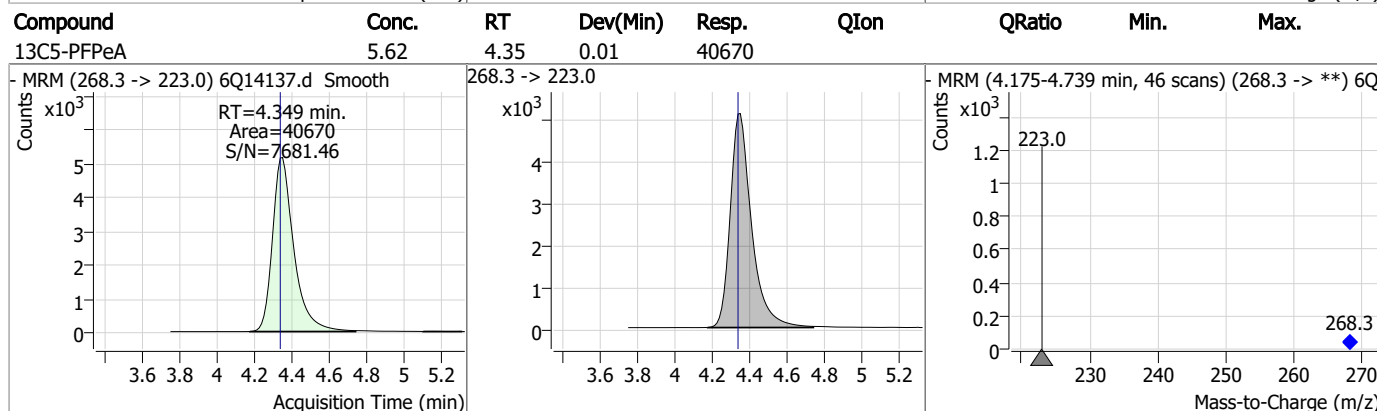
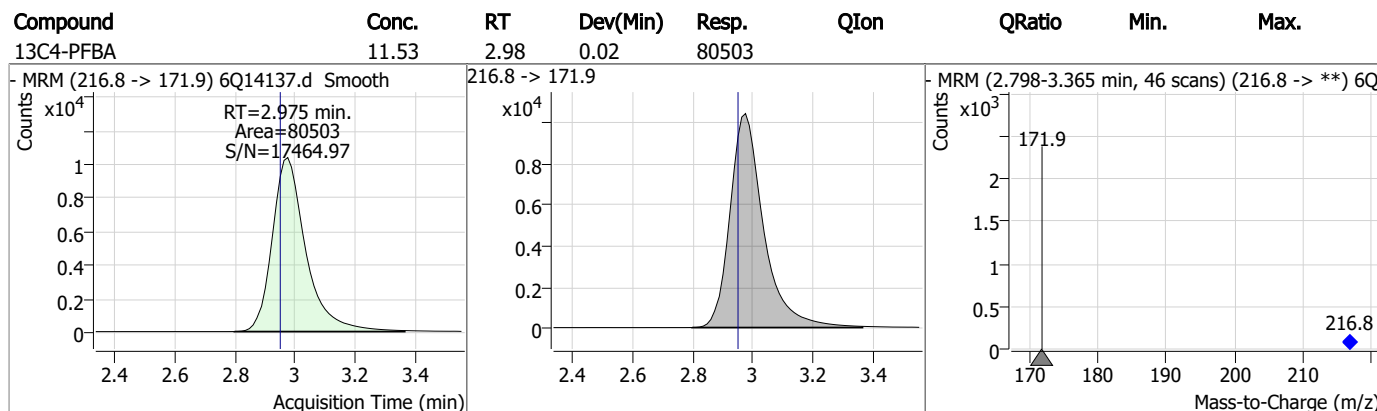
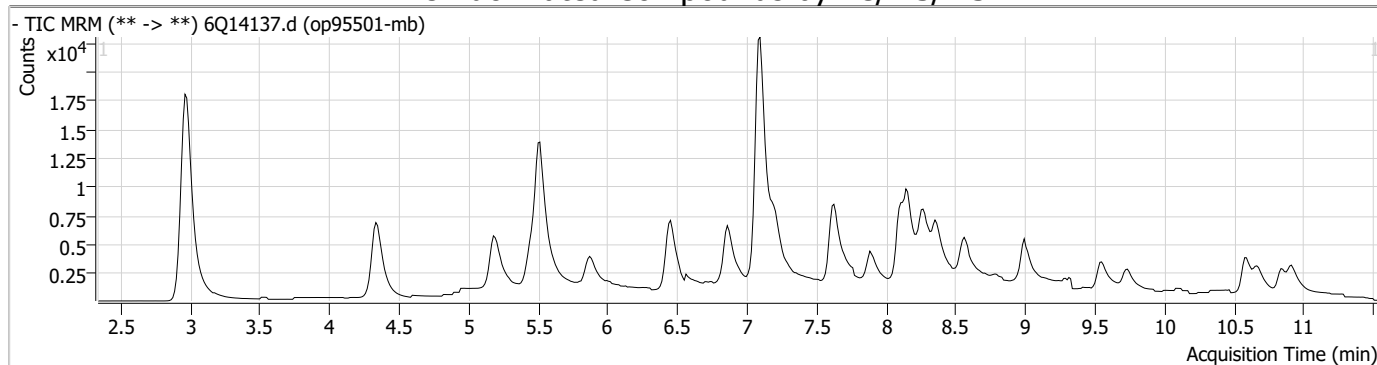
Perfluorinated Compounds by LC/MS/MS

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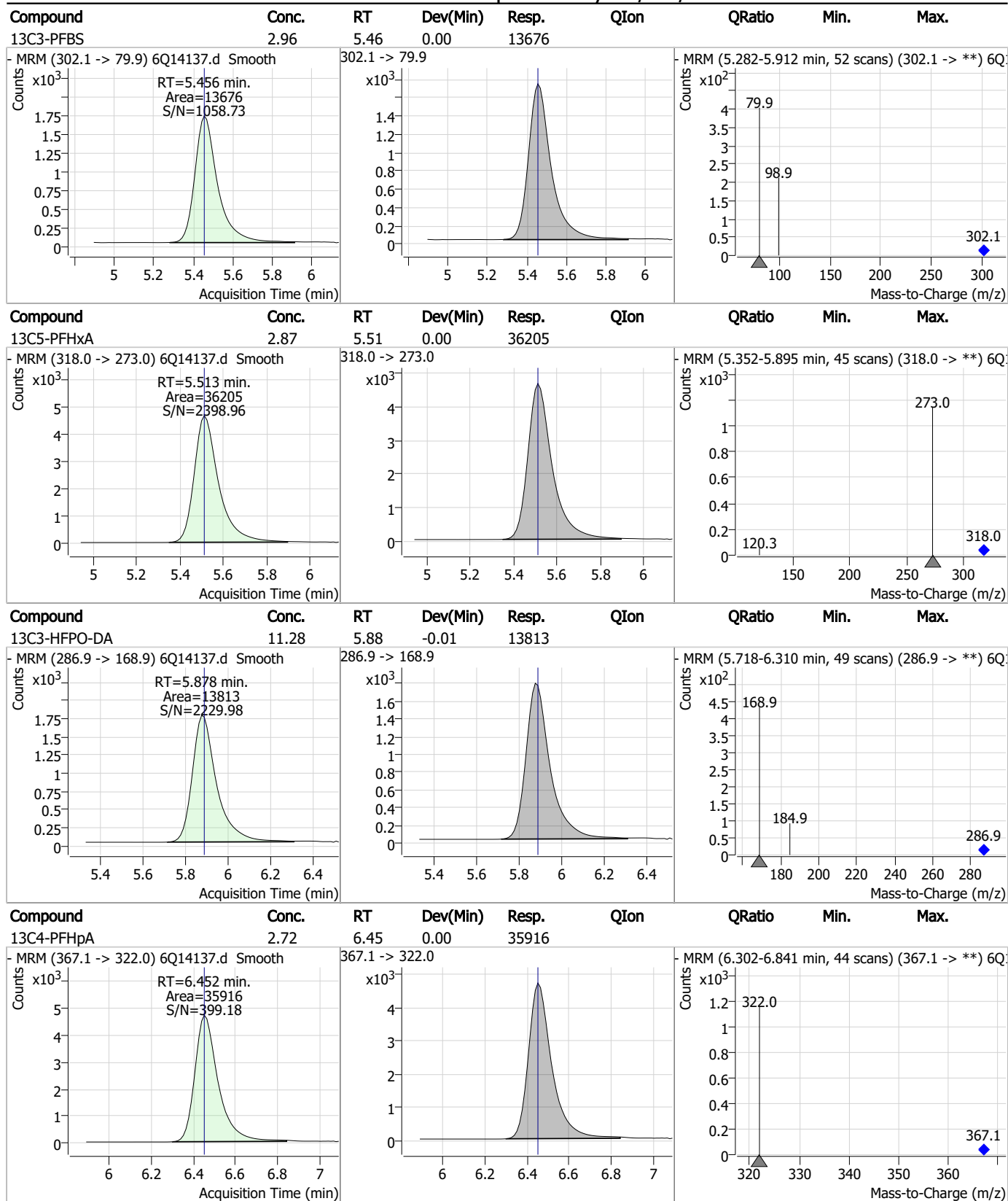
7.2.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



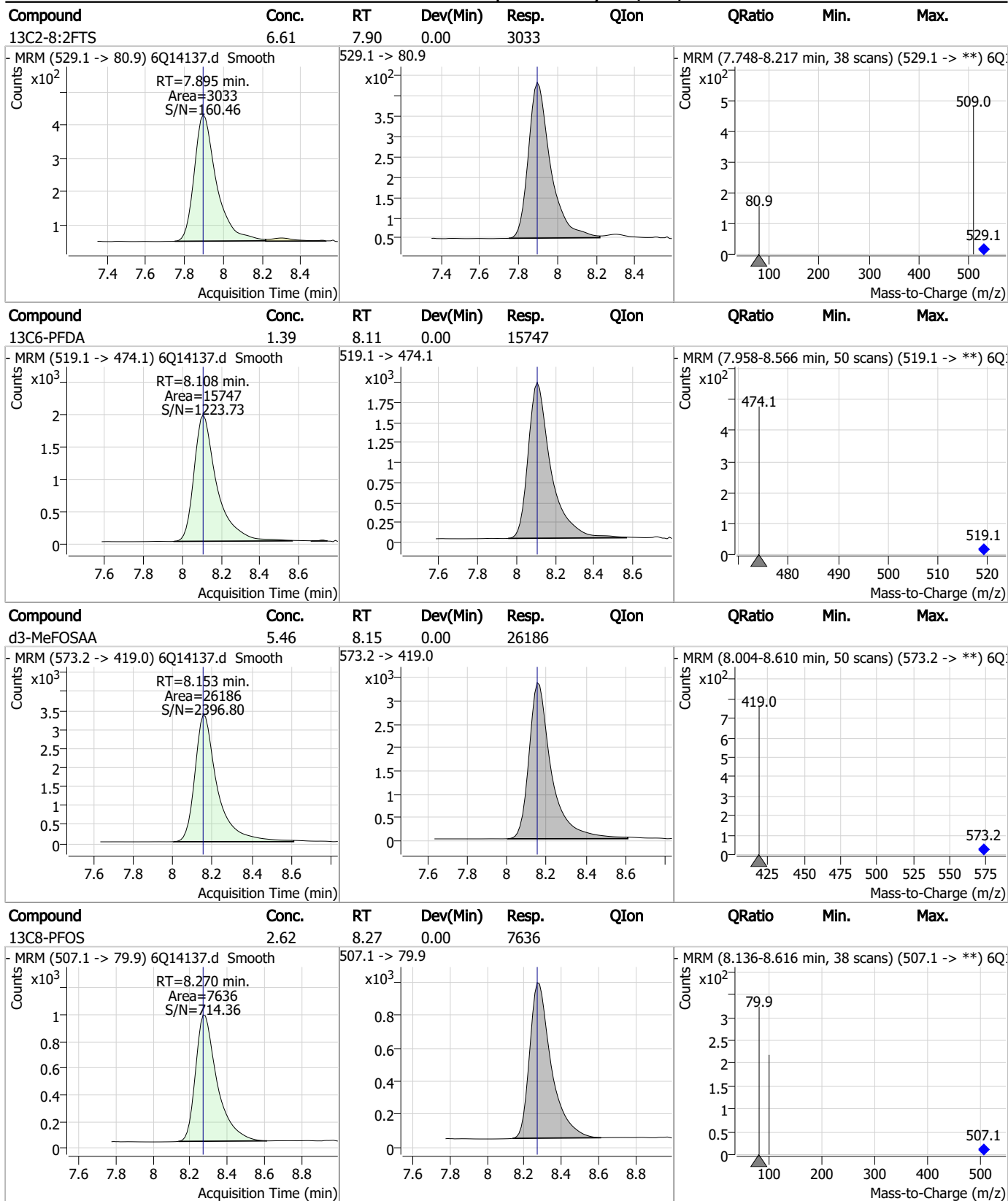
7.2.1
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.05	6.87	0.00	3427				
13C8-PFOA	2.83	7.10	0.00	62525				
13C3-PFHxS	3.06	7.21	0.00	8944				
13C9-PFNA	1.34	7.63	0.00	19313				

7.2.1
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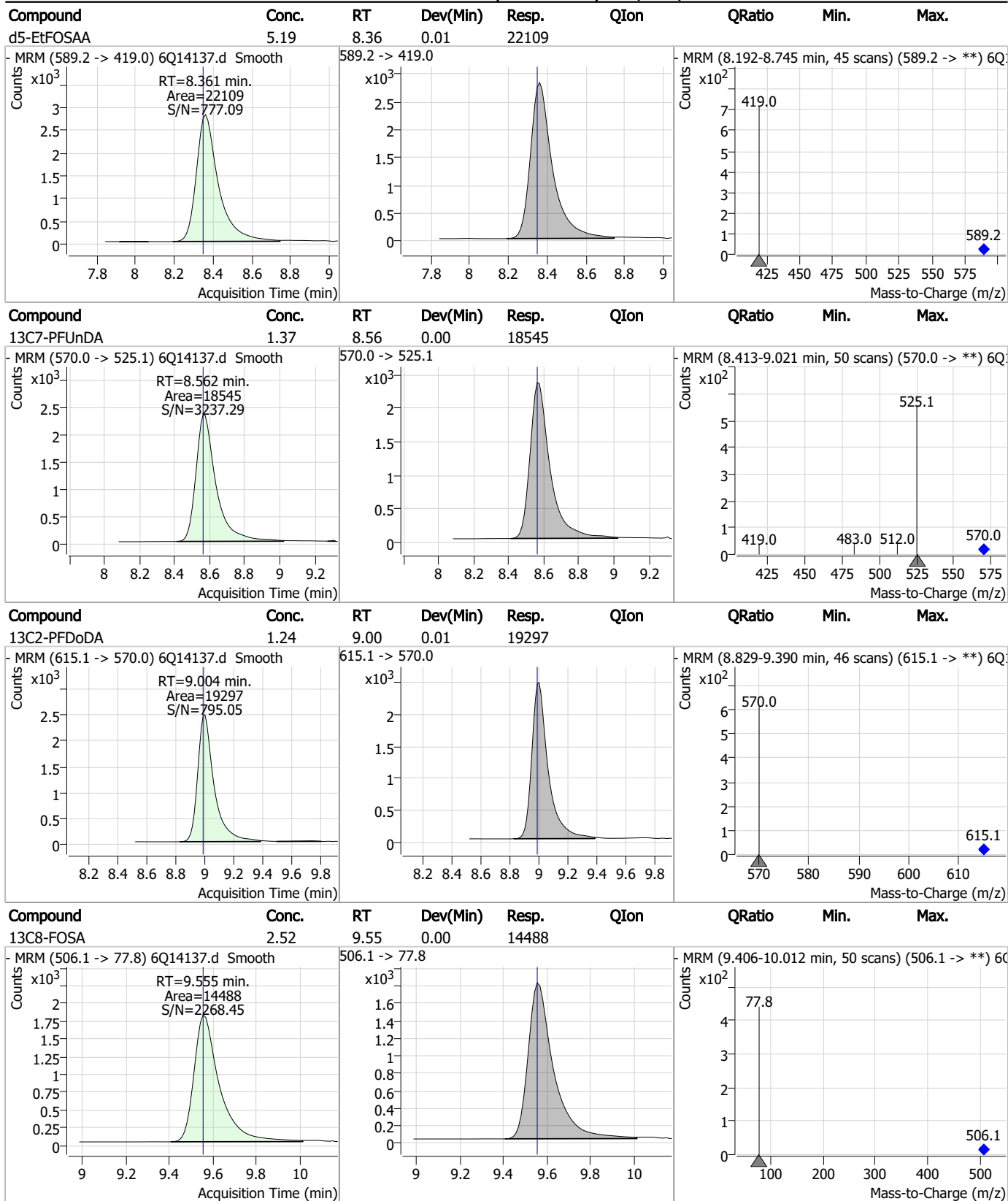
Perfluorinated Compounds by LC/MS/MS



7.2.1

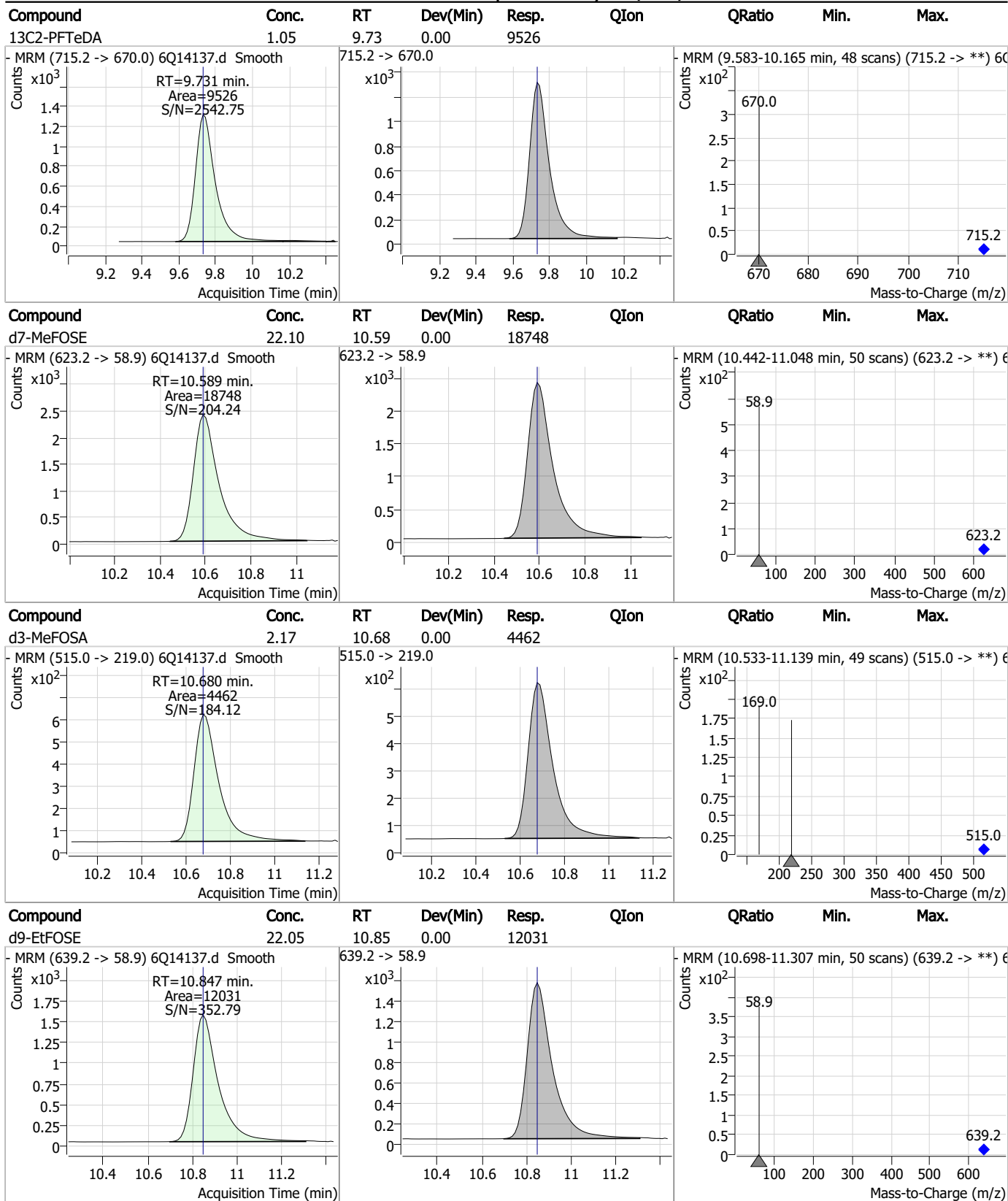
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Perfluorinated Compounds by LC/MS/MS



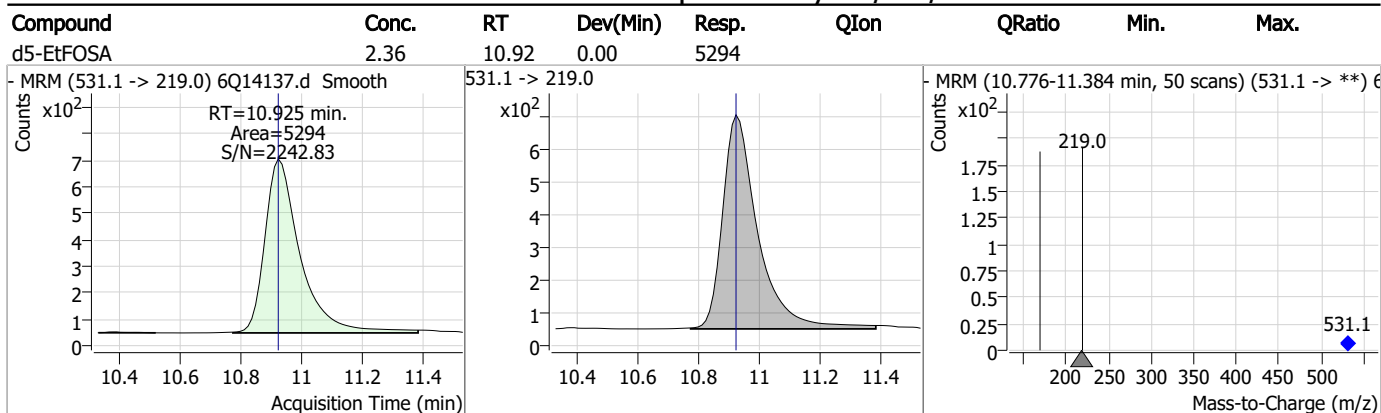
7.2.1
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Perfluorinated Compounds by LC/MS/MS



7.2.1
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Perfluorinated Compounds by LC/MS/MS



7.2.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14130.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 7:29:26 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	90127	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	45336	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	39521	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	41342	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	70558	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22156	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	17731	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	21320	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	23027	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	14759	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17450	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15853	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9436	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	9253	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2794	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3650	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	3026	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	30654	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	15007	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	26892	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	25610	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	15892	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6818	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5975	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10507	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	40107	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7224	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	86095	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	25923	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	24029	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	39220	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.190	329.1 -> 80.9	2794	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3650	5.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.3%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3026	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFDoDA	9.004	615.1 -> 570.0	23027	1.15 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14759	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-PFBS	5.456	302.1 -> 79.9	15853	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFHxS	7.212	402.1 -> 79.9	9436	2.41 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 = 96.6%	
13C4-PFBA	2.938	216.8 -> 171.9	90127	9.97 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.452	367.1 -> 322.0	41342	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFHxA	5.513	318.0 -> 273.0	39521	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFPeA	4.337	268.3 -> 223.0	45336	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.108	519.1 -> 474.1	17731	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C7-PFUnDA	8.562	570.0 -> 525.1	21320	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-FOSA	9.555	506.1 -> 77.8	17450	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-PFOA	7.097	421.1 -> 376.0	70558	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C8-PFOS	8.270	507.1 -> 79.9	9253	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C9-PFNA	7.626	472.1 -> 427.0	22156	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.3%	
d3-MeFOSAA	8.153	573.2 -> 419.0	30654	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	15007	10.04 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	5975	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSAA	8.361	589.2 -> 419.0	26892	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	25610	25.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	15892	24.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSA	10.925	531.1 -> 219.0	6818	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	

7.2.2
7

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
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	8.199	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	-	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	10.927	526.0 -> 219.0	1105	0.37 µg/L		80
		526.0 -> 169.0	941			
EtFOSE	10.860	630.0 -> 58.9	1807	3.16 µg/L	m	100
		511.9 -> 219.0	691			
MeFOSA	10.681	511.9 -> 169.0	690	0.28 µg/L	#m	20
		616.1 -> 58.9	2522			
MeFOSE	10.602	616.1 -> 58.9	2522	2.89 µg/L		100
		699.1 -> 79.9	-			
PFDoDS	-	699.1 -> 98.8	-	N.D.		
		295.0 -> 201.0				
NFDHA	-	295.0 -> 84.9	-	N.D.		
		279.0 -> 85.1				
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

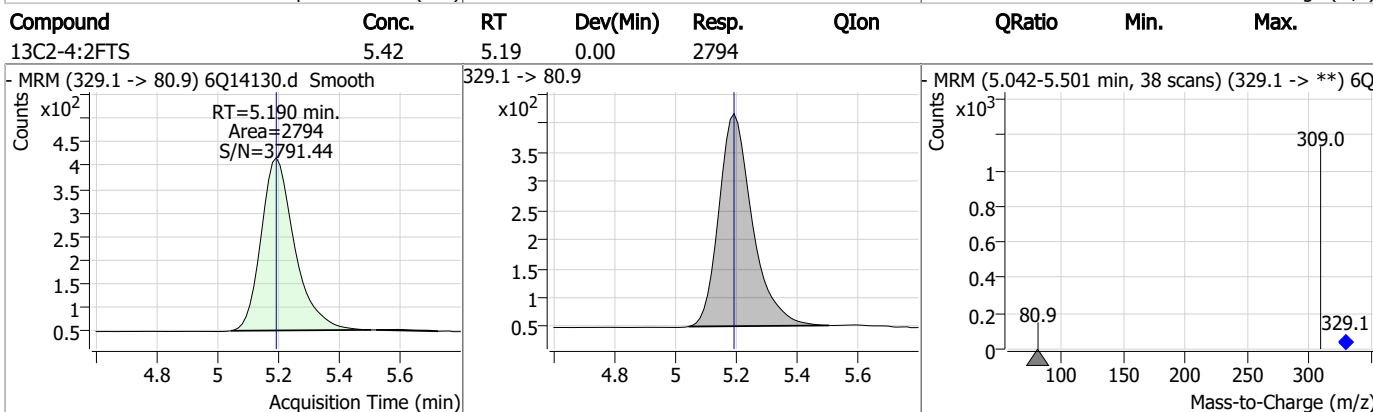
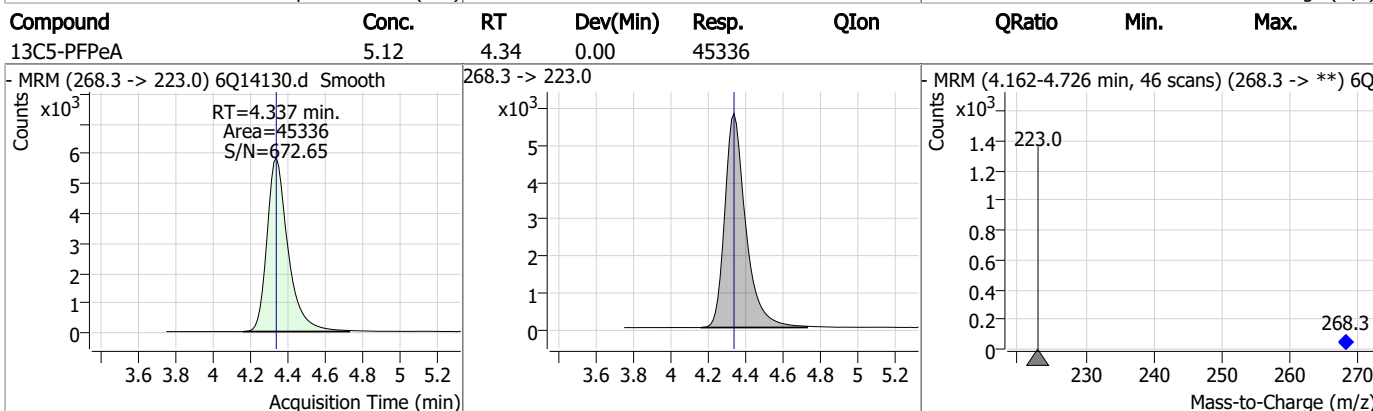
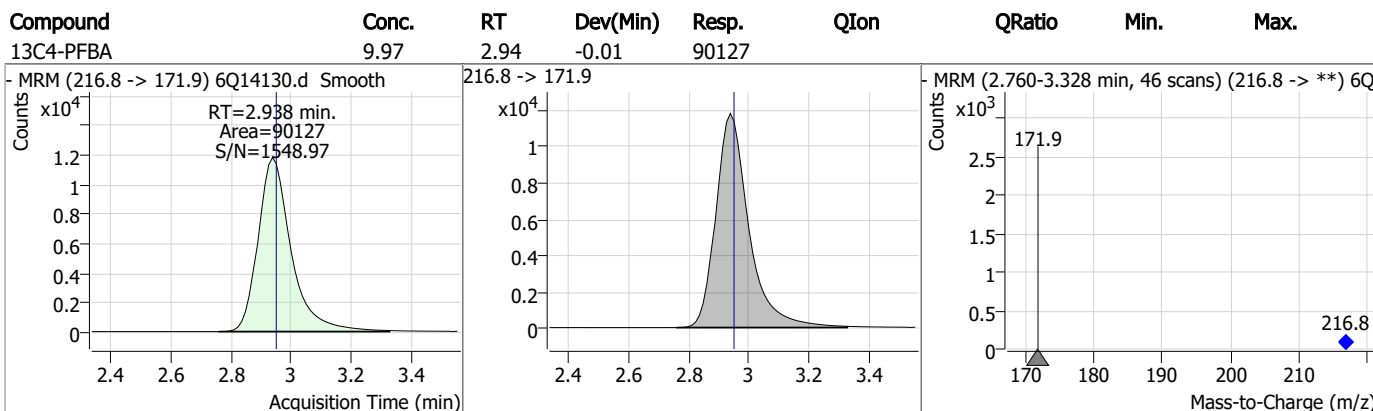
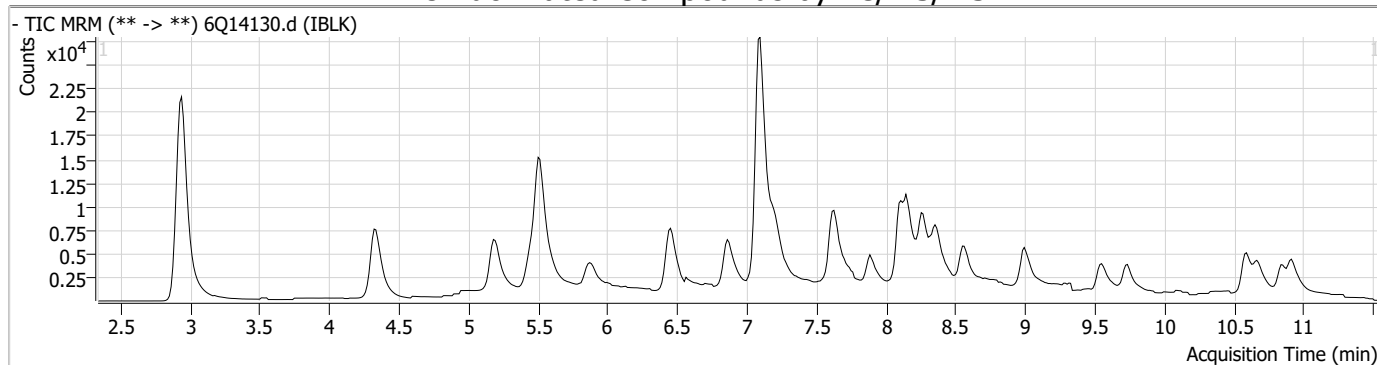
Perfluorinated Compounds by LC/MS/MS

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

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.
13C3-PFBS	2.57	5.46	0.00	15853				
13C5-PFHxA	2.57	5.51	0.00	39521				
13C3-HFPO-DA	10.04	5.88	-0.01	15007				
13C4-PFHpA	2.56	6.45	0.00	41342				

7.2.2

7

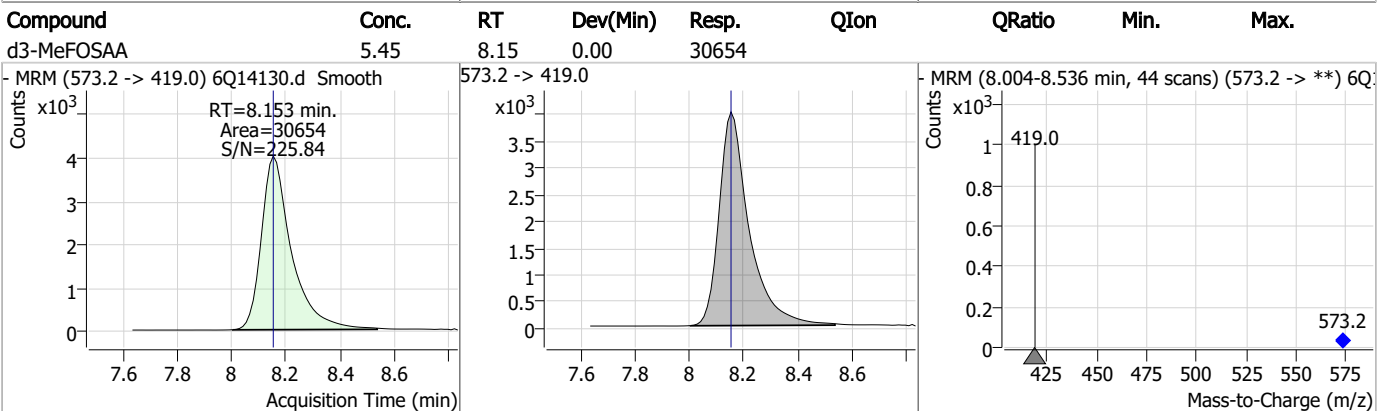
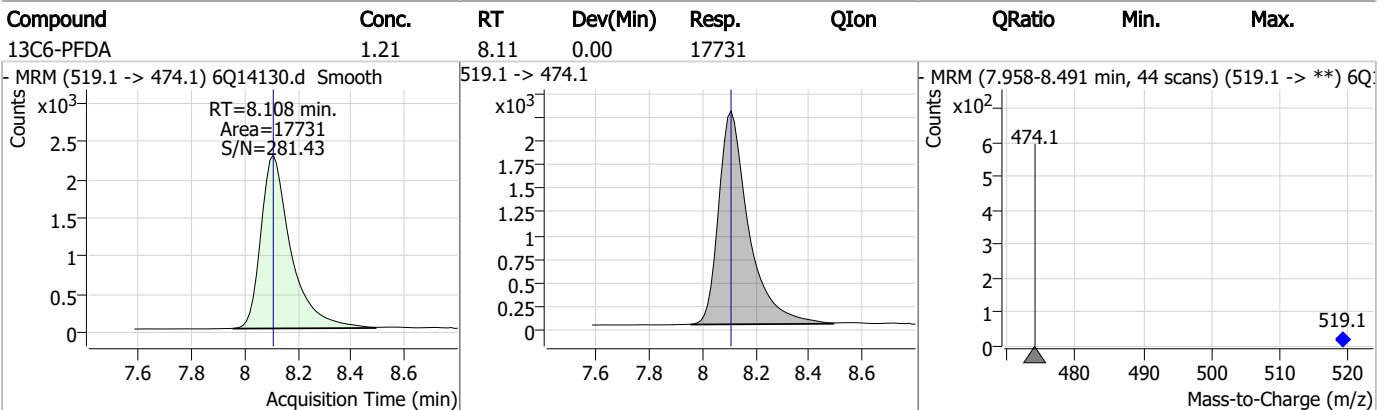
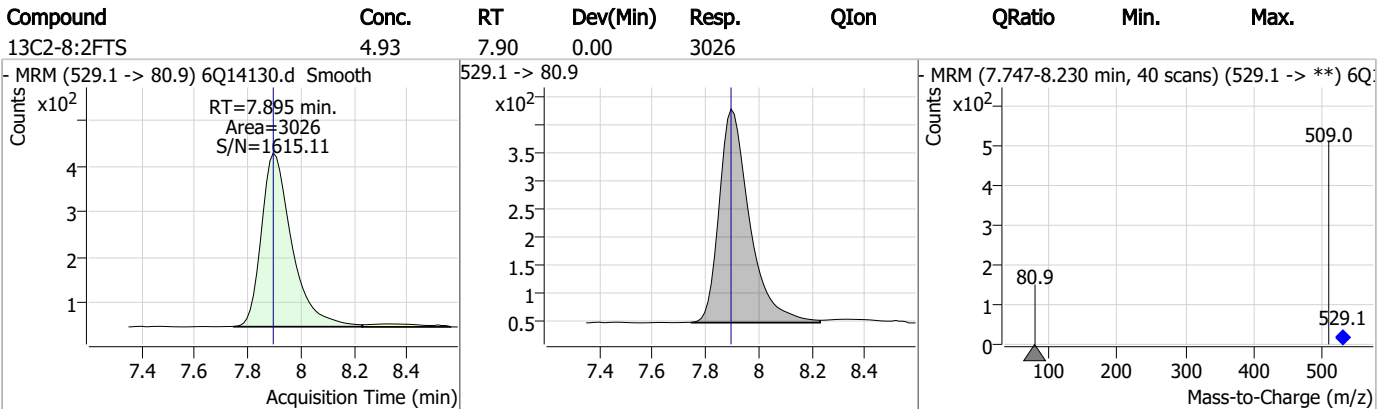
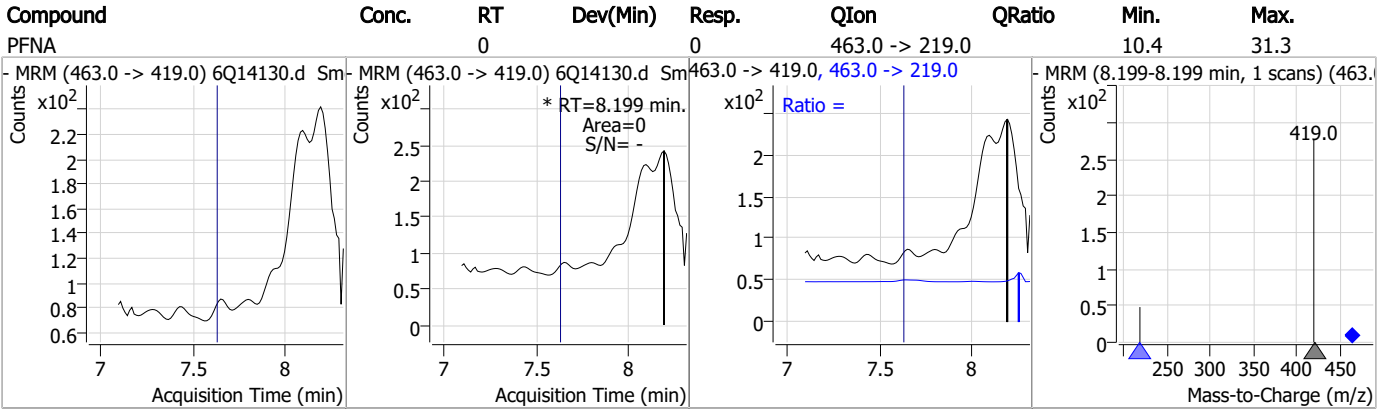
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.62	6.87	0.00	3650				
13C8-PFOA	2.43	7.10	0.00	70558				
13C3-PFHxS	2.41	7.21	0.00	9436				
13C9-PFNA	1.28	7.63	0.00	22156				

7.2.2

7

Perfluorinated Compounds by LC/MS/MS

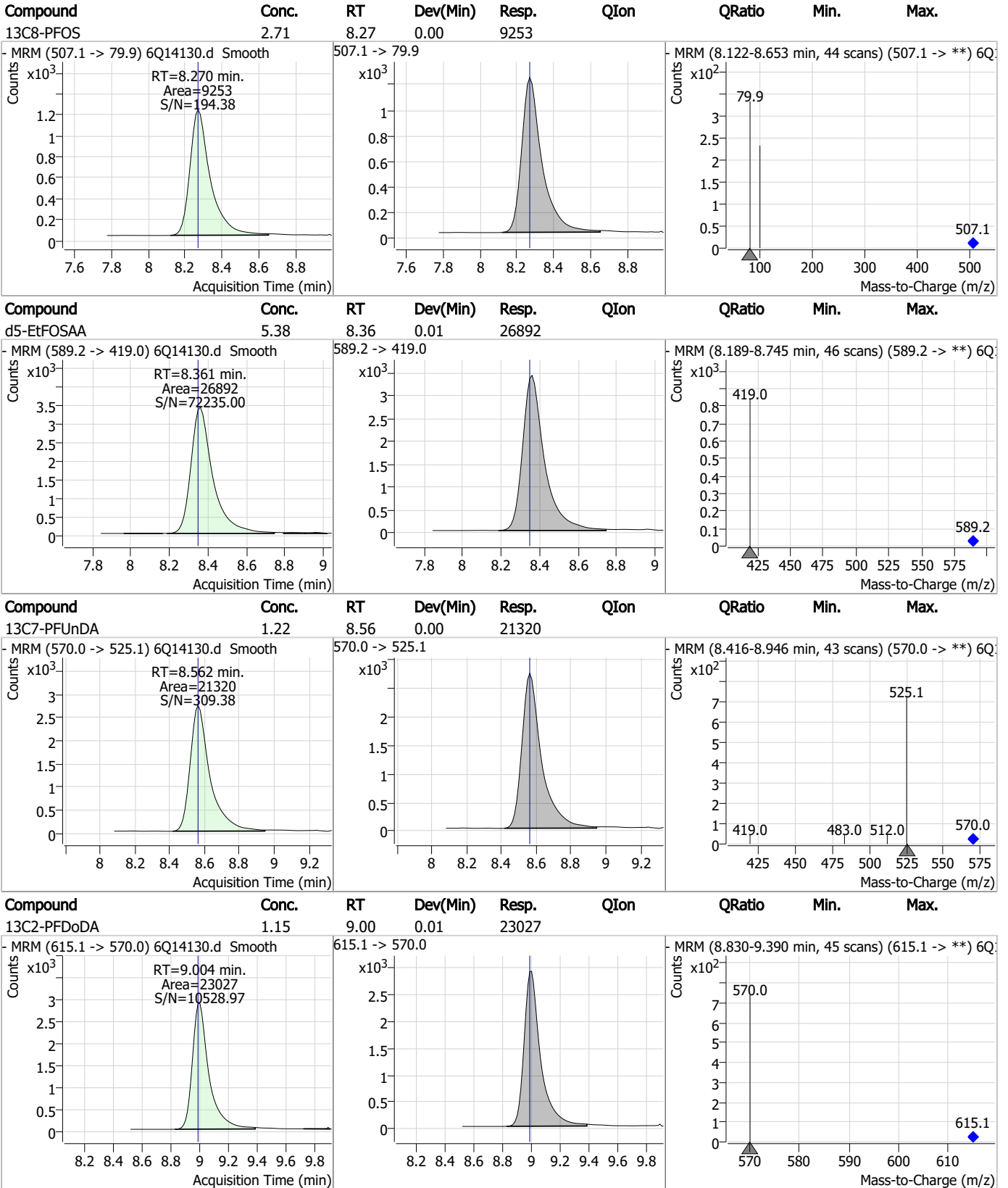


7.22

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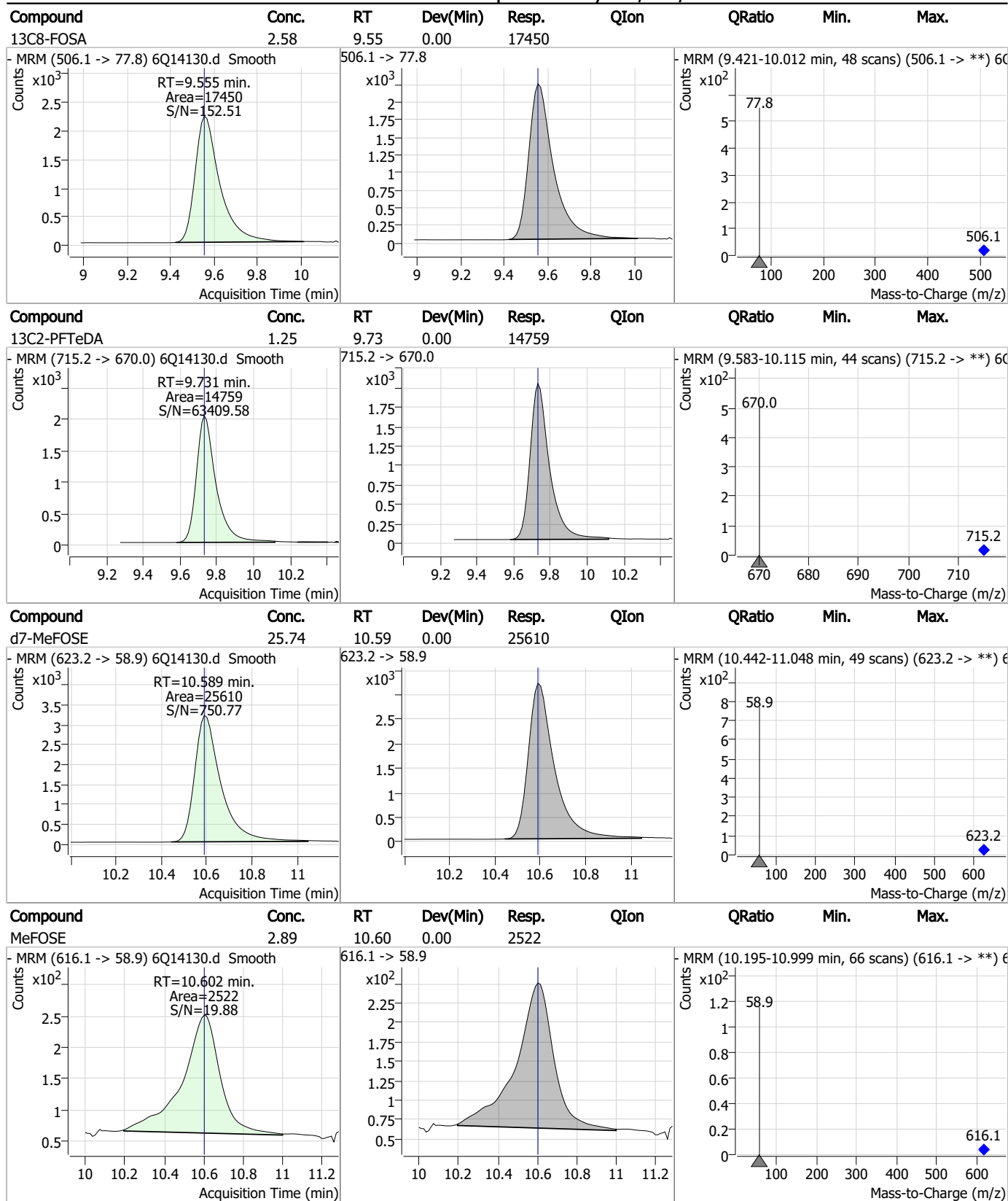
Perfluorinated Compounds by LC/MS/MS



7.2.2

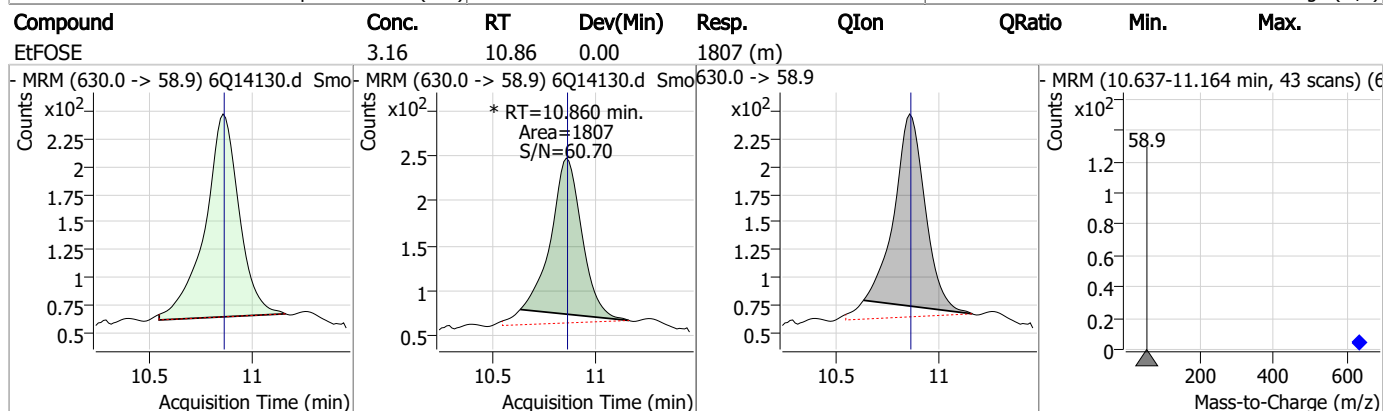
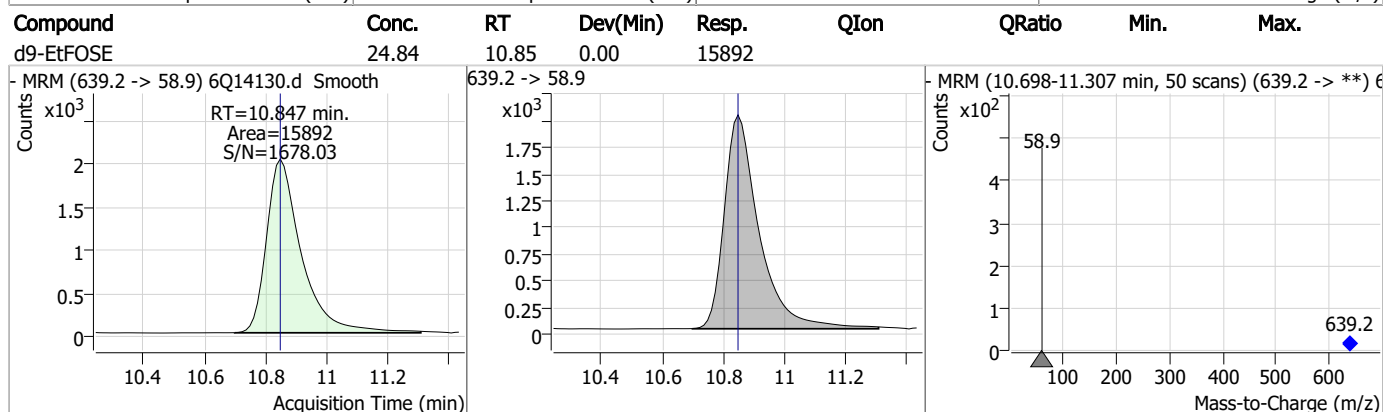
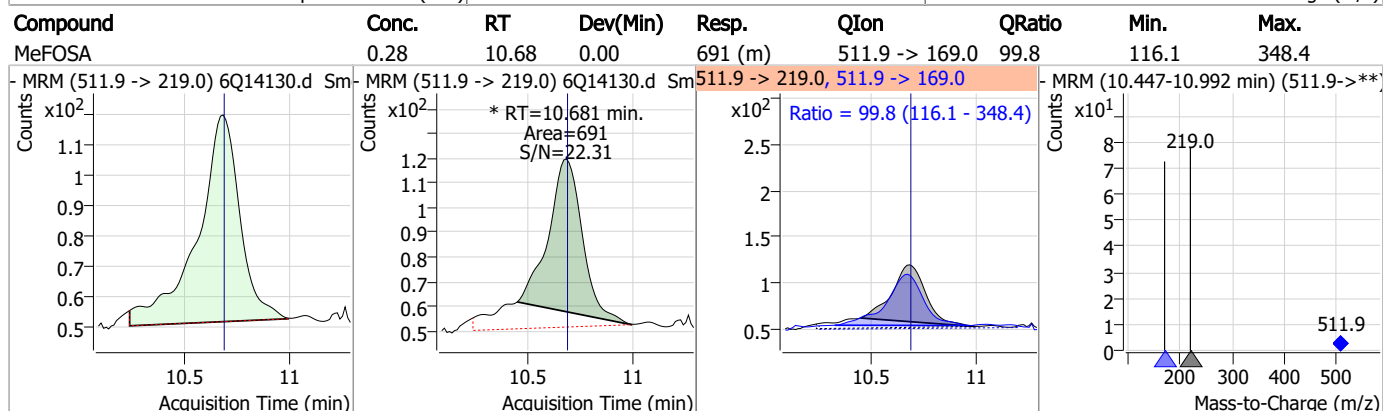
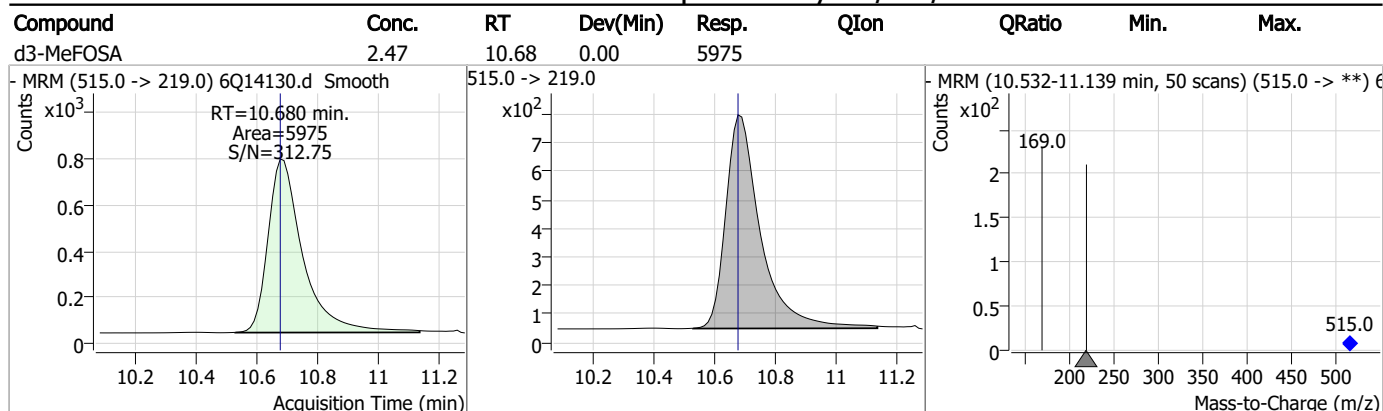
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Perfluorinated Compounds by LC/MS/MS



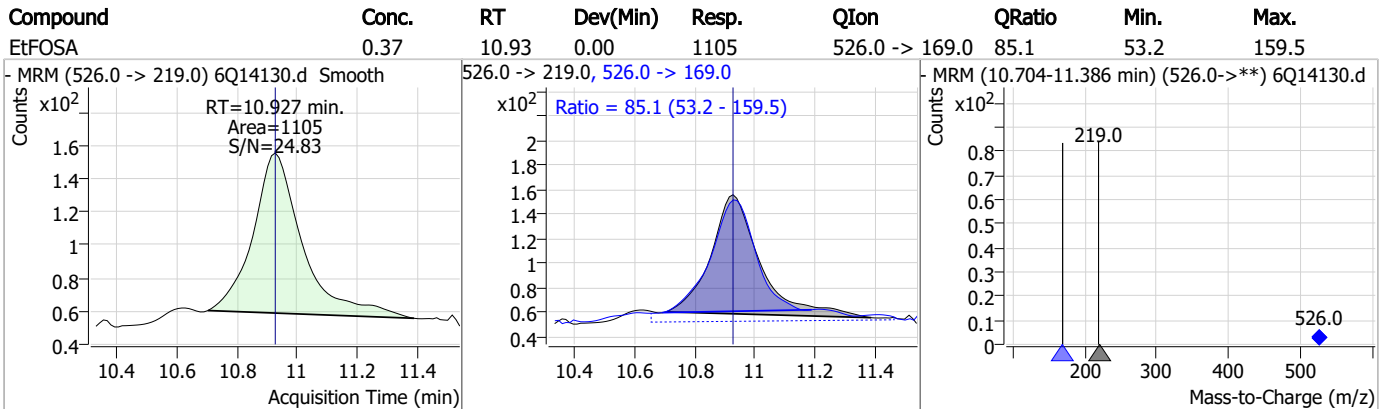
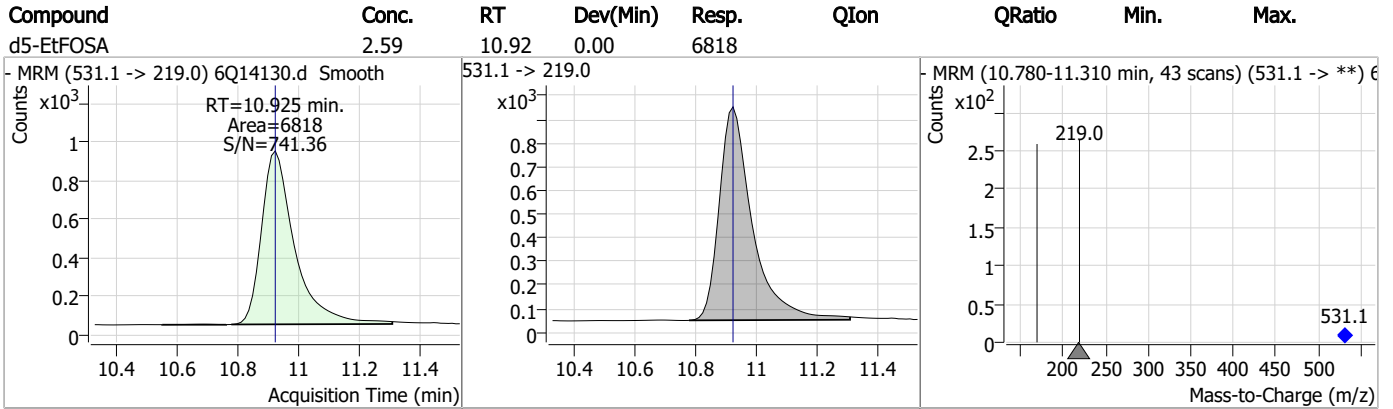
7.2.2
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Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.22

7

Manual Integration Approval Summary

Sample Number: S6Q216-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q14130.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 19:29 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
MeFOSA	31506-32-8		10.68	Split peak
EiFOSE	1691-99-2		10.86	Split peak

7.2.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14135.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 8:39:23 PM
 Sample Name : op95501-bs
 Vial : P6-A1
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.963	216.8 -> 171.9	75245	10.00 µg/L	0.012
M5-PFPeA	4.337	268.3 -> 223.0	37449	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	31879	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	35312	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	56711	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	19454	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	15211	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	17451	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	20316	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	10695	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	14434	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	12426	2.50 µg/L	0.000
M3-PFHxS	7.224	402.1 -> 79.9	7844	2.50 µg/L	0.012
M8-PFOS	8.270	507.1 -> 79.9	6991	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2401	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	2787	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2576	5.00 µg/L	0.000
M3-MeFOSAA	8.165	573.2 -> 419.0	25335	5.00 µg/L	0.012
M3-HFPO-DA	5.878	286.9 -> 168.9	13212	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	21307	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	19540	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	13499	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5176	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5127	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	8314	2.50 µg/L	0.000
13C3-PFBA	2.954	216.0 -> 172.0	30647	5.00 µg/L	0.012
18O2-PFHxS	7.223	403.0 -> 83.9	5592	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	63504	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	19341	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	18933	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	30298	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2401	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.5%		
13C2-6:2FTS	6.871	429.1 -> 80.9	2787	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2576	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-PFDoDA	9.004	615.1 -> 570.0	20316	1.36 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.7%		
13C2-PFTeDA	9.731	715.2 -> 670.0	10695	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.456	302.1 -> 79.9	12426	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C3-PFHxS	7.224	402.1 -> 79.9	7844	2.59 µg/L	0.012

7.31
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 = 103.7%		
13C4-PFBA	2.963	216.8 -> 171.9	75245	10.90 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C4-PFHpA	6.452	367.1 -> 322.0	35312	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.4%		
13C5-PFHxA	5.513	318.0 -> 273.0	31879	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C5-PFPeA	4.337	268.3 -> 223.0	37449	5.48 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C6-PFDA	8.108	519.1 -> 474.1	15211	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C7-PFUnDA	8.562	570.0 -> 525.1	17451	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C8-FOSA	9.555	506.1 -> 77.8	14434	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C8-PFOA	7.097	421.1 -> 376.0	56711	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C8-PFOS	8.270	507.1 -> 79.9	6991	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C9-PFNA	7.626	472.1 -> 427.0	19454	1.43 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.0%		
d3-MeFOSAA	8.165	573.2 -> 419.0	25335	5.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C3-HFPO-DA	5.878	286.9 -> 168.9	13212	11.44 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 114.4%		
d3-MeFOSA	10.680	515.0 -> 219.0	5127	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
d5-EtFOSAA	8.361	589.2 -> 419.0	21307	5.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	19540	24.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d9-EtFOSE	10.847	639.2 -> 58.9	13499	26.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	5176	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	48270	10.49 µg/L	100
		327.1 -> 80.9	10611		
6:2FTS	6.871	427.1 -> 407.0	40366	11.67 µg/L	96
		427.1 -> 80.9	7897		
8:2FTS	7.896	527.1 -> 507.0	21571	12.63 µg/L	100
		527.1 -> 80.8	5218		
EtFOSAA	8.362	584.2 -> 419.1	8515	3.03 µg/L	m 99
		584.2 -> 526.0	4414		
FOSA	9.557	498.1 -> 77.9	14313	2.90 µg/L	100
		498.1 -> 478.0	564		
MeFOSAA	8.154	570.1 -> 419.0	12050	2.89 µg/L	96
		570.1 -> 483.0	2067		
PFBA	2.957	212.8 -> 168.9	18070	11.96 µg/L	100
PFBS	5.457	298.7 -> 79.9	11414	2.85 µg/L	94
		298.7 -> 98.8	5011		
PFDA	8.108	512.9 -> 469.0	45399	2.98 µg/L	97
		512.9 -> 219.0	6613		
PFDoDA	9.005	613.1 -> 569.0	37365	2.64 µg/L	97
		613.1 -> 319.0	4945		
PFDS	9.167	599.0 -> 79.9	5586	3.00 µg/L	100

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2826			
PFHpA	6.453	363.1 -> 319.0	48959	2.84	µg/L	98
		363.1 -> 169.0	6551			
PFHpS	7.779	449.0 -> 79.9	6959	2.84	µg/L	96
		449.0 -> 98.9	4199			
PFHxA	5.516	313.0 -> 269.0	32106	3.08	µg/L	99
		313.0 -> 118.9	1226			
PFHxS	7.213	398.7 -> 79.9	8760	2.93	µg/L	m 94
		398.7 -> 98.9	4931			
PFNA	7.627	463.0 -> 419.0	29706	2.93	µg/L	98
		463.0 -> 219.0	6552			
PFNS	8.737	548.8 -> 79.9	7183	2.86	µg/L	97
		548.8 -> 98.9	4150			
PFOA	7.098	413.0 -> 369.0	64418	3.02	µg/L	92
		413.0 -> 169.0	8281			
PFOS	8.271	498.9 -> 79.9	7351	2.70	µg/L	m 81
		498.9 -> 98.8	5056			
PFPeA	4.338	263.0 -> 219.0	39574	6.09	µg/L	100
PFPeS	6.517	349.1 -> 79.9	10723	2.93	µg/L	99
		349.1 -> 98.9	5663			
PFTeDA	9.732	713.1 -> 669.0	31399	3.16	µg/L	99
		713.1 -> 168.9	2088			
PFTrDA	9.387	663.0 -> 619.0	35381	2.90	µg/L	100
		663.0 -> 168.9	2569			
PFUnDA	8.562	563.1 -> 519.0	35323	2.92	µg/L	97
		563.1 -> 269.1	5496			
11CI-PF3OUdS	9.439	630.9 -> 450.9	79038	11.17	µg/L	99
		632.9 -> 452.9	23891			
9CI-PF3ONS	8.614	530.8 -> 351.0	136904	10.46	µg/L	95
		532.8 -> 353.0	44448			
ADONA	6.716	376.9 -> 250.9	284936	11.02	µg/L	98
		376.9 -> 84.8	59866			
HFPO-DA	5.879	284.9 -> 168.9	12169	11.43	µg/L	98
		284.9 -> 184.9	1535			
3:3FTCA	3.816	241.0 -> 177.0	4664	13.94	µg/L	98
		241.0 -> 117.0	646			
5:3FTCA	6.169	341.0 -> 237.1	172012	75.00	µg/L	93
		341.0 -> 217.0	160079			
7:3FTCA	7.579	441.0 -> 316.9	96725	78.62	µg/L	97
		441.0 -> 336.9	178018			
EtFOSA	10.927	526.0 -> 219.0	6393	2.86	µg/L	82
		526.0 -> 169.0	5578			
EtFOSE	10.860	630.0 -> 58.9	12723	26.20	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	5626	2.62	µg/L	# 18
		511.9 -> 169.0	5415			
MeFOSE	10.615	616.1 -> 58.9	19293	28.96	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	3032	2.83	µg/L	94
		699.1 -> 98.8	1926			
NFDHA	5.407	295.0 -> 201.0	3891	6.80	µg/L	91
		295.0 -> 84.9	1799			
PFMBA	4.738	279.0 -> 85.1	11481	6.05	µg/L	100
PFMPA	3.500	229.0 -> 84.9	10218	5.86	µg/L	100
PFEESA	5.996	314.8 -> 134.9	78850	5.46	µg/L	99
		314.8 -> 82.9	2107			

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

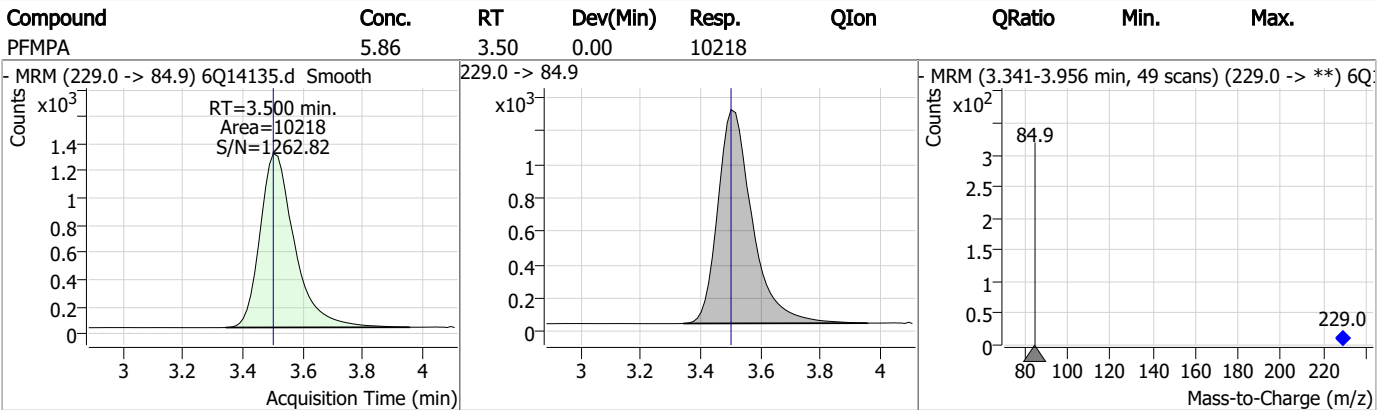
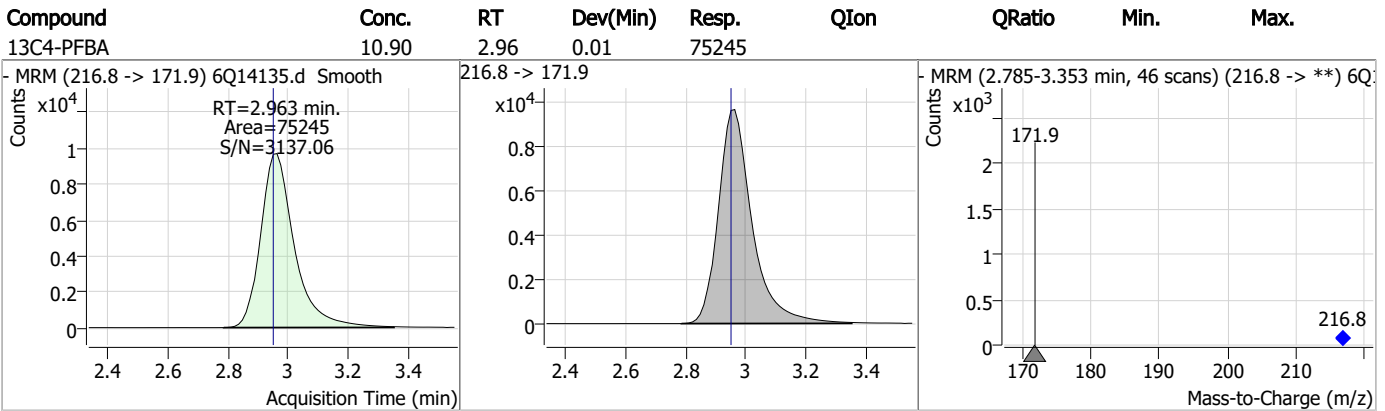
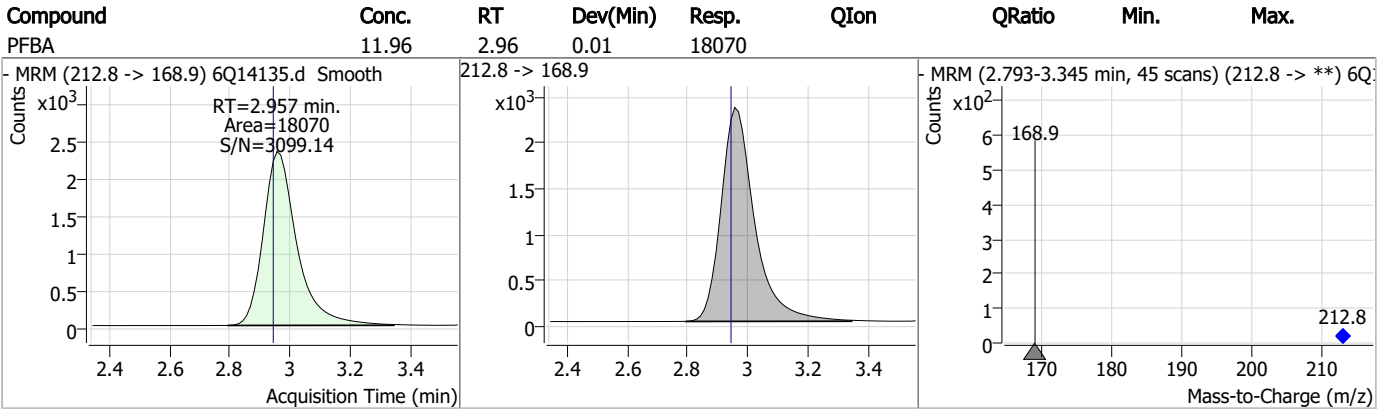
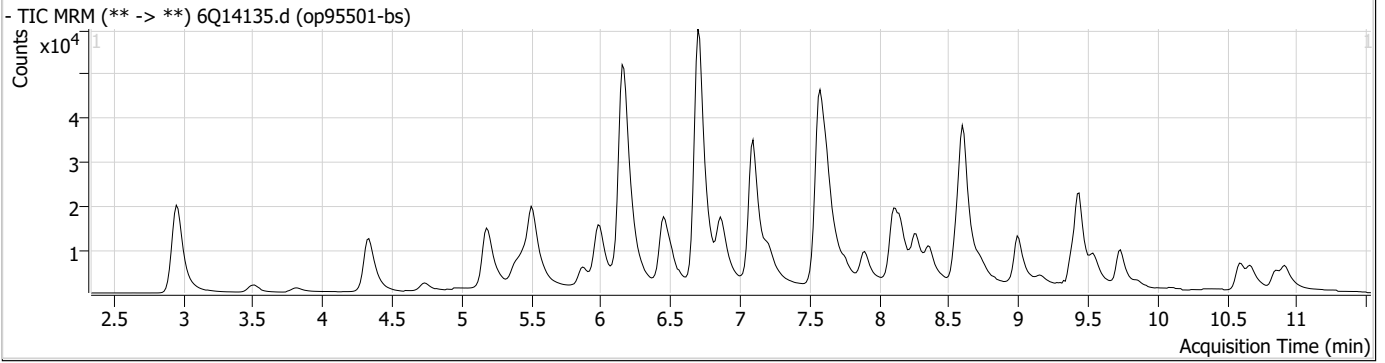
Perfluorinated Compounds by LC/MS/MS

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

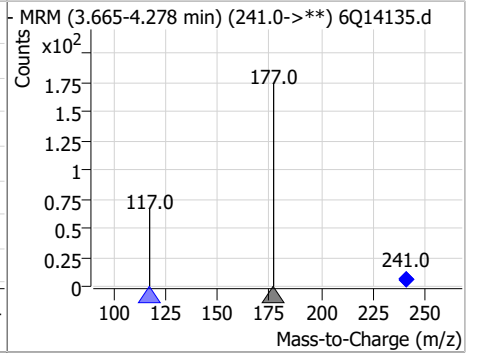
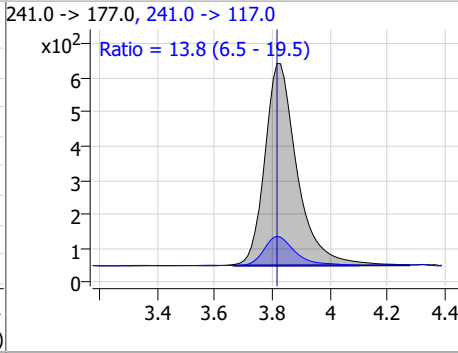
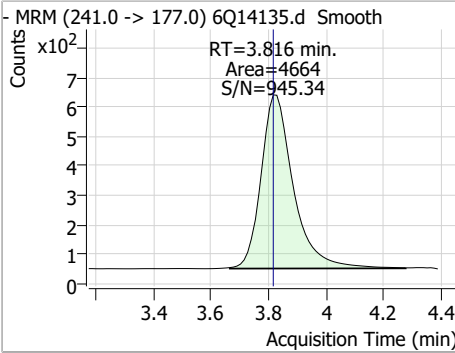
7

Perfluorinated Compounds by LC/MS/MS

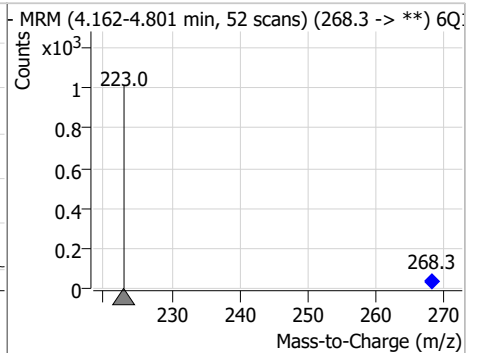
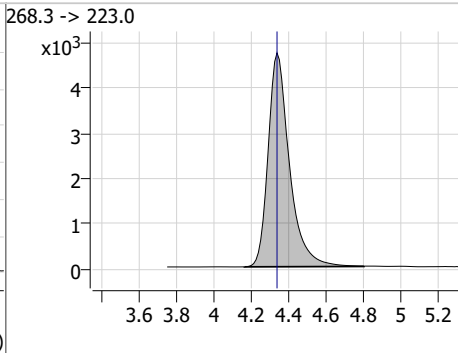
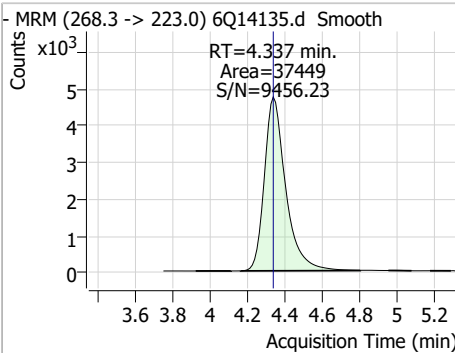


Perfluorinated Compounds by LC/MS/MS

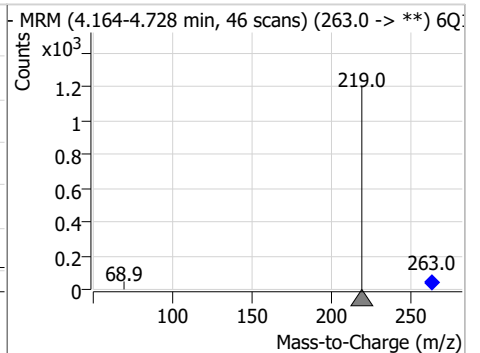
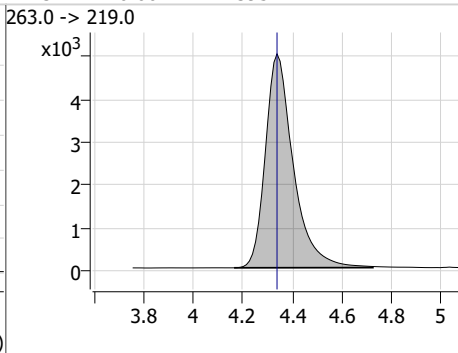
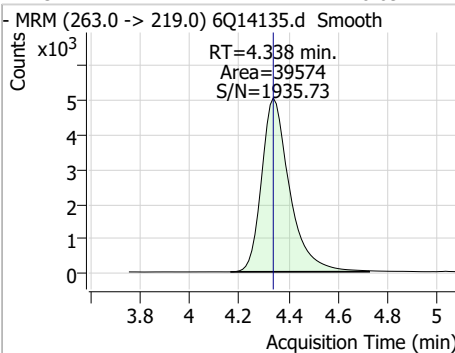
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	13.94	3.82	0.00	4664	241.0 -> 117.0	13.8	6.5	19.5



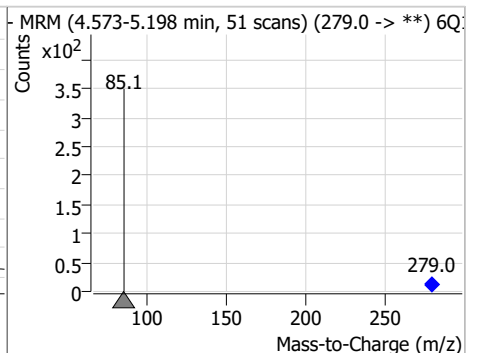
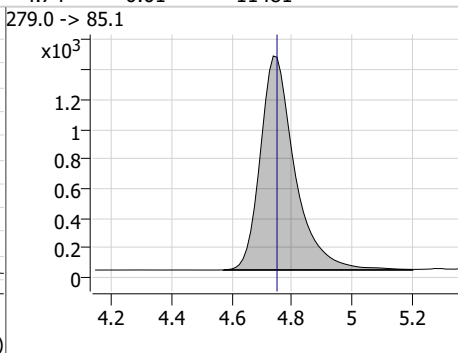
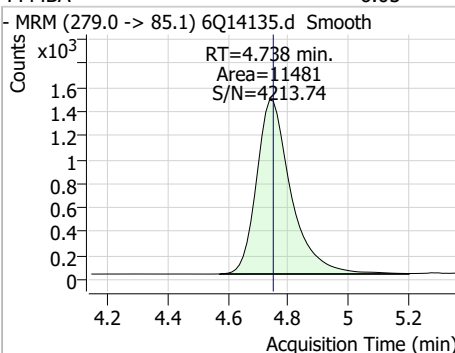
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.48	4.34	0.00	37449				



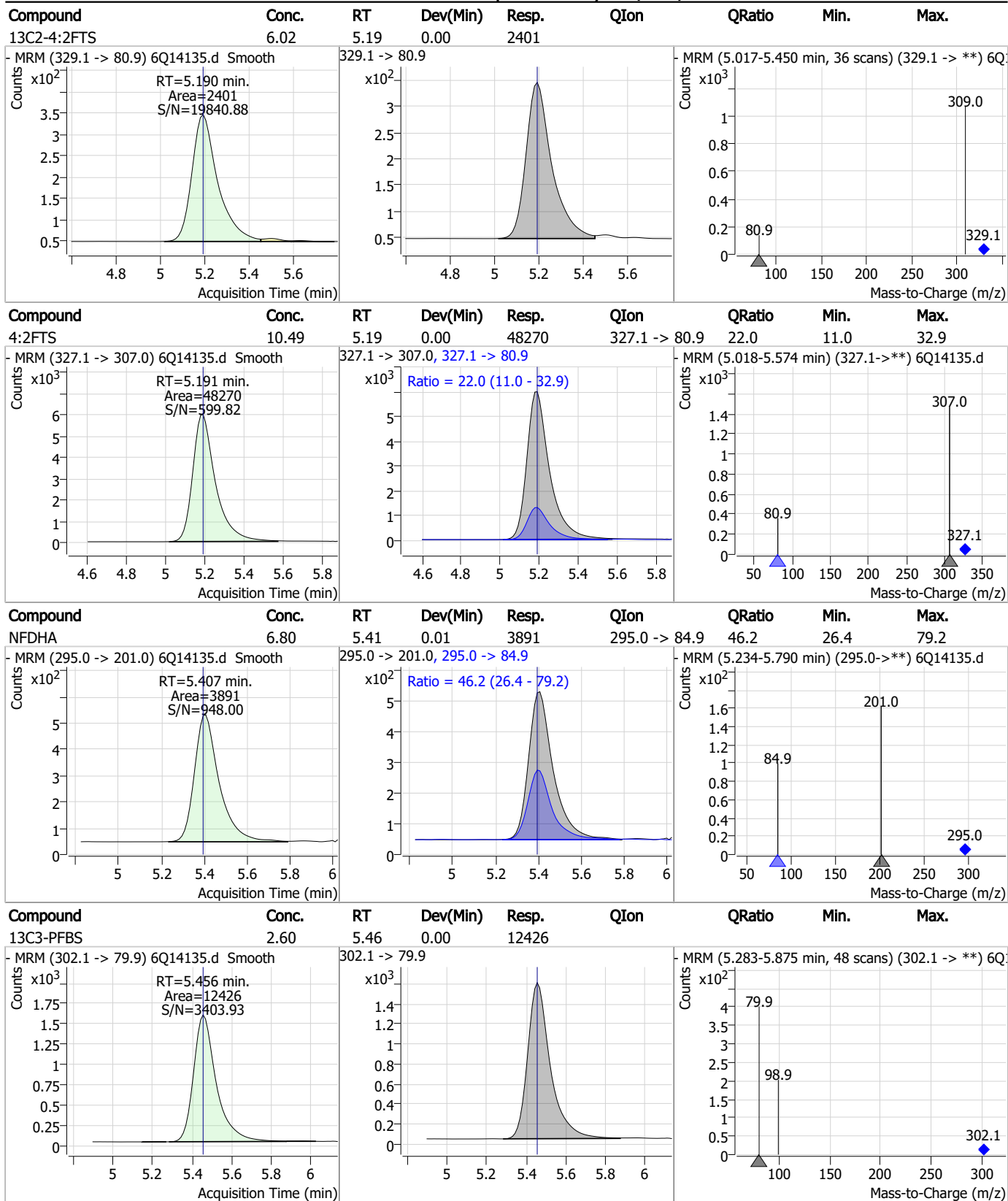
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	6.09	4.34	0.00	39574				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	6.05	4.74	-0.01	11481				

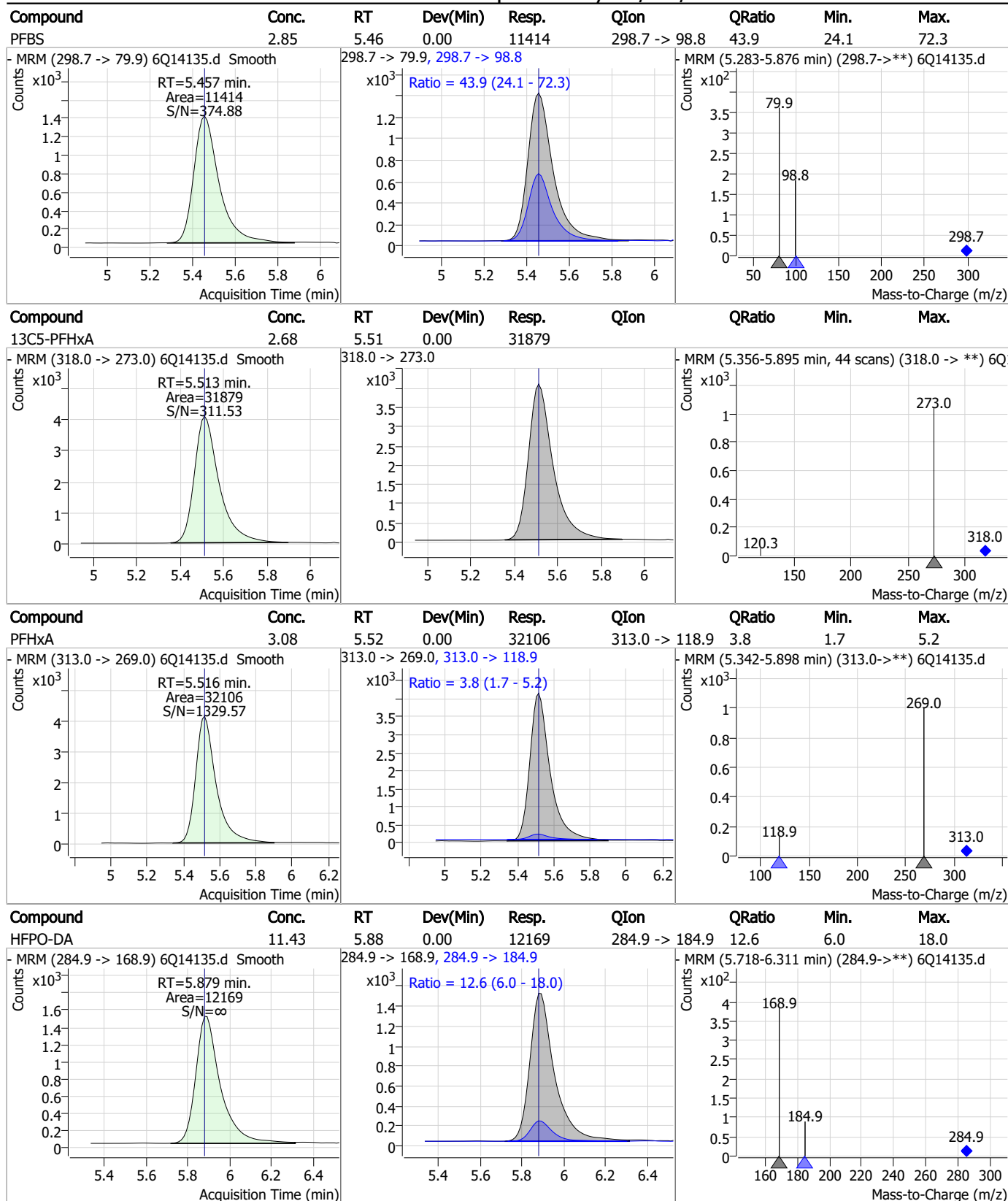


Perfluorinated Compounds by LC/MS/MS



7.3.1
7

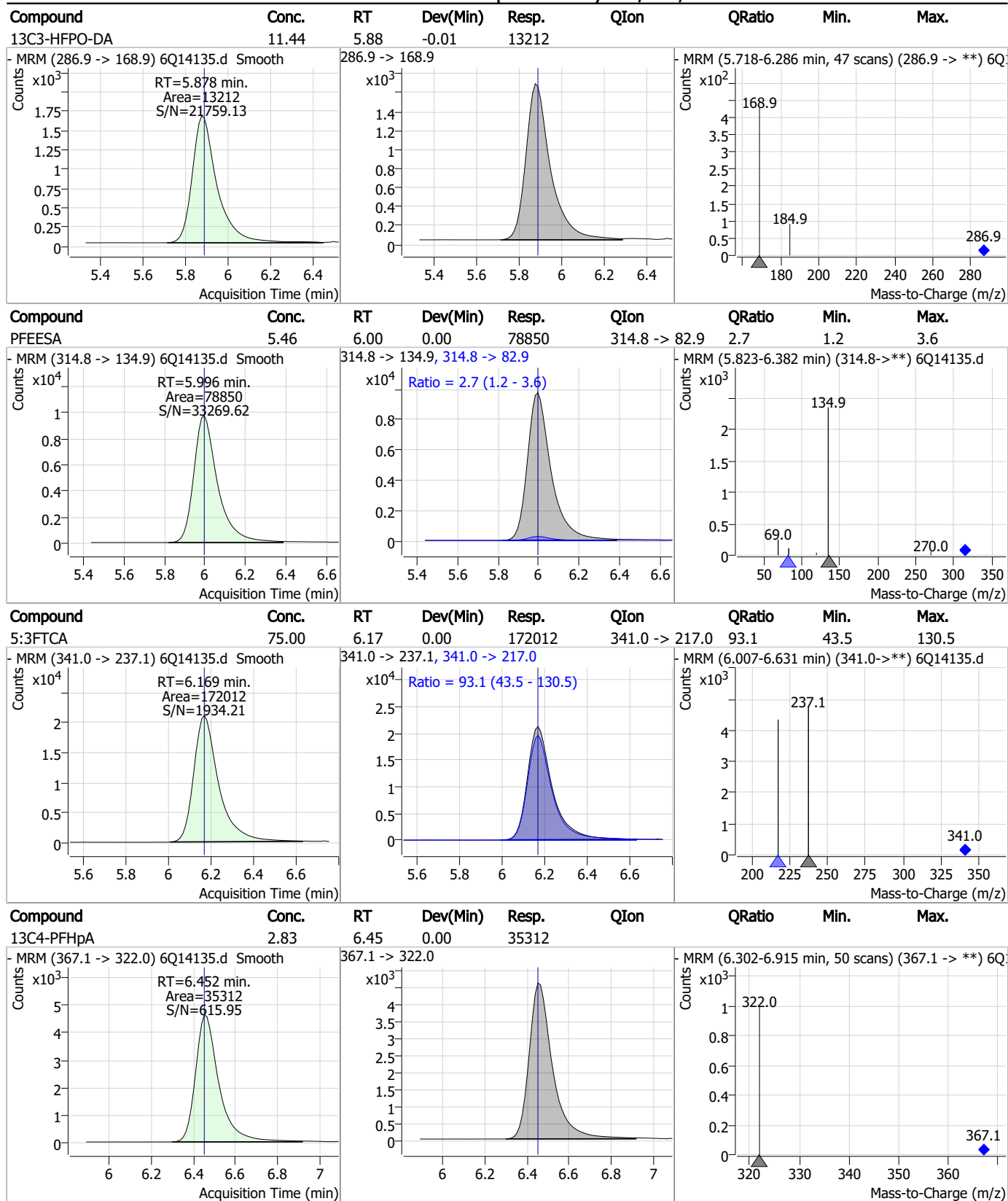
Perfluorinated Compounds by LC/MS/MS



7.3.1
7

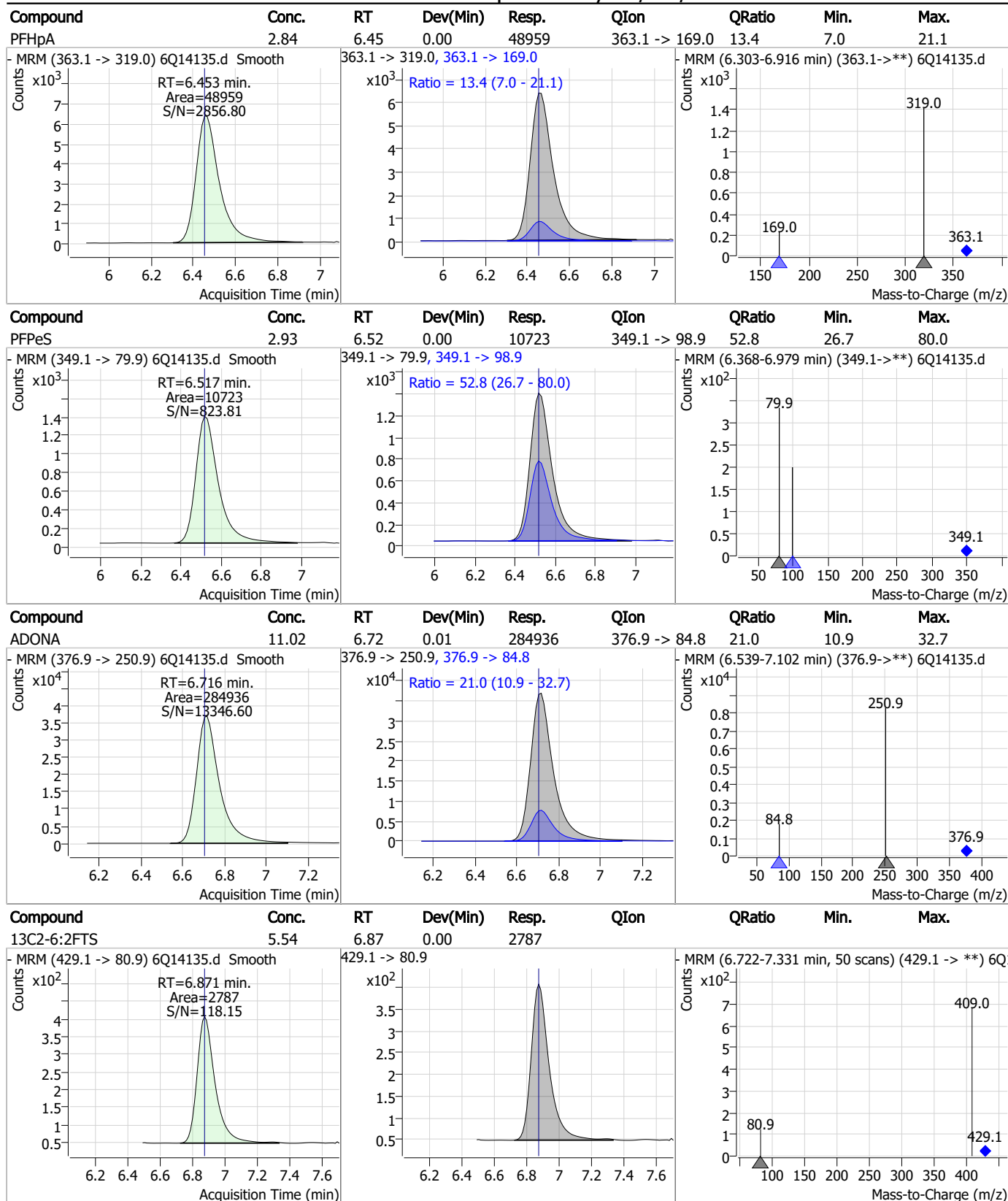


Perfluorinated Compounds by LC/MS/MS



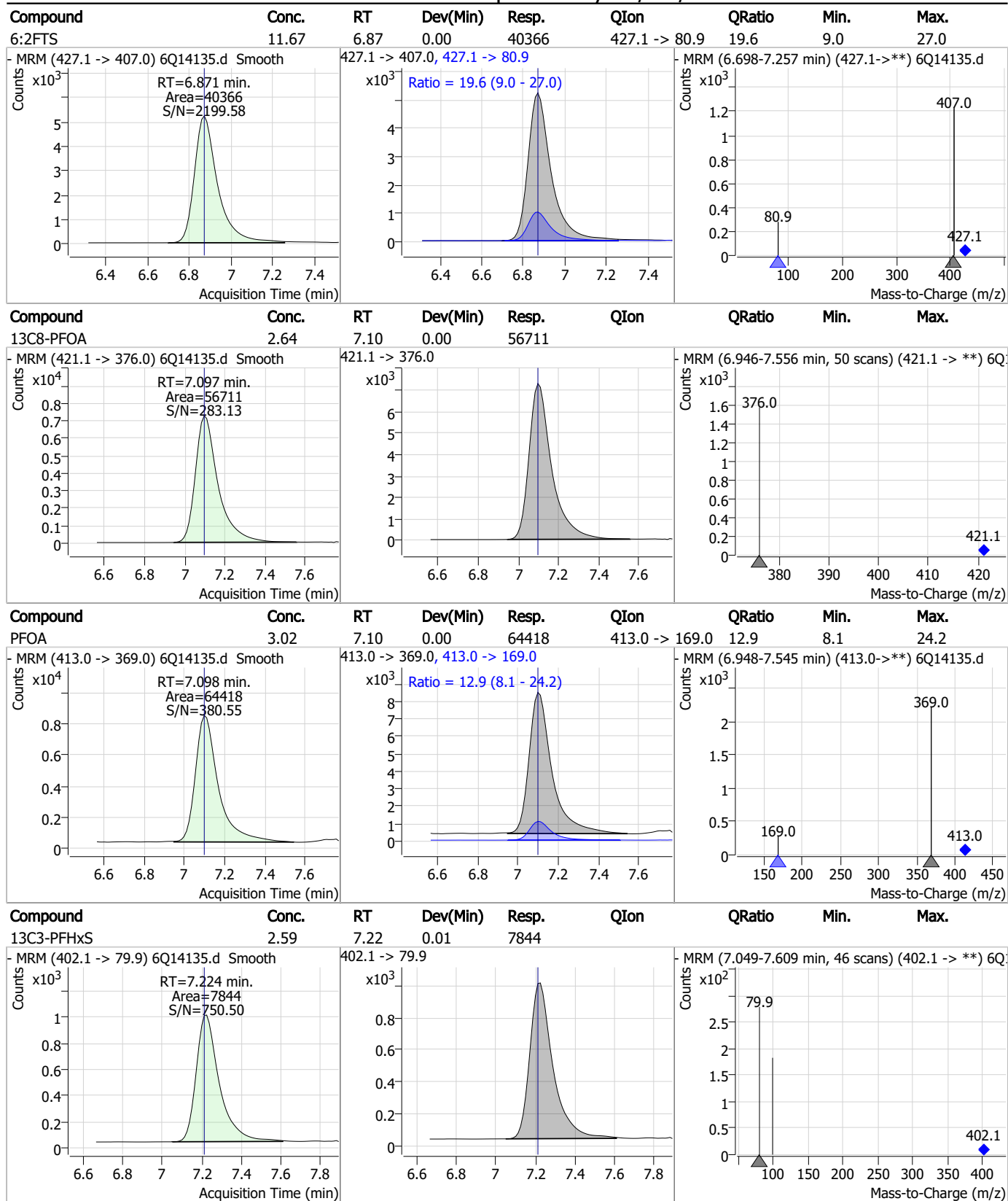
7.3.1
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Perfluorinated Compounds by LC/MS/MS



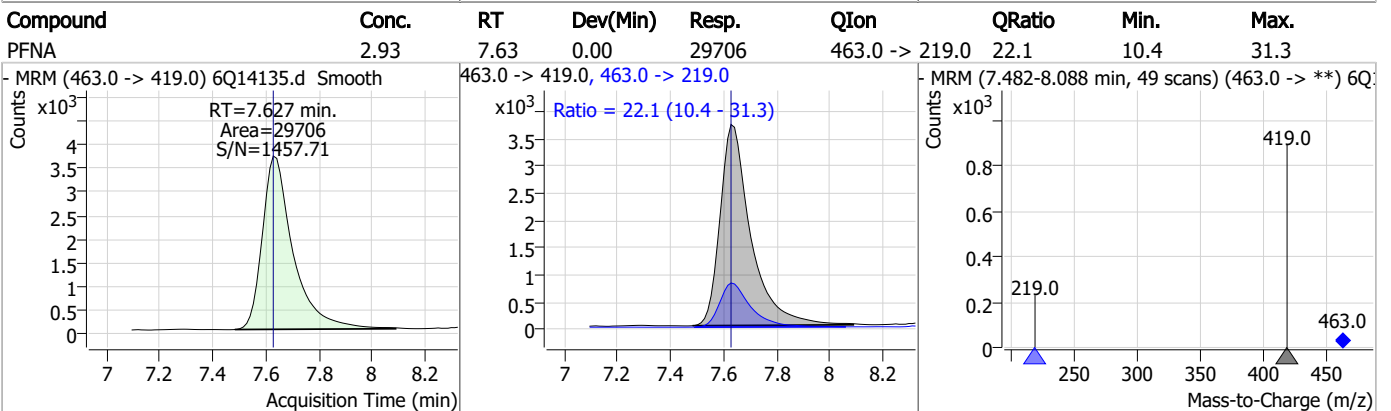
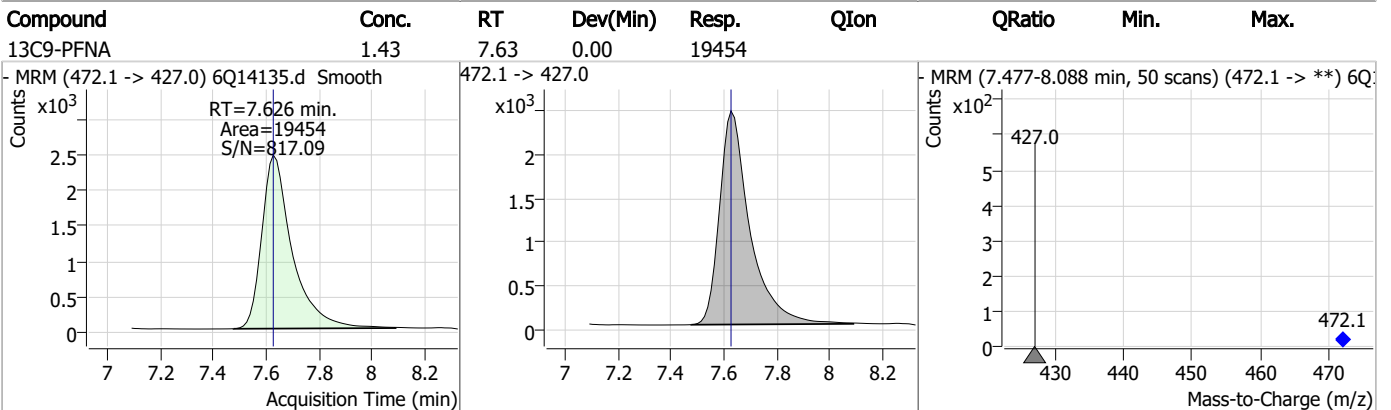
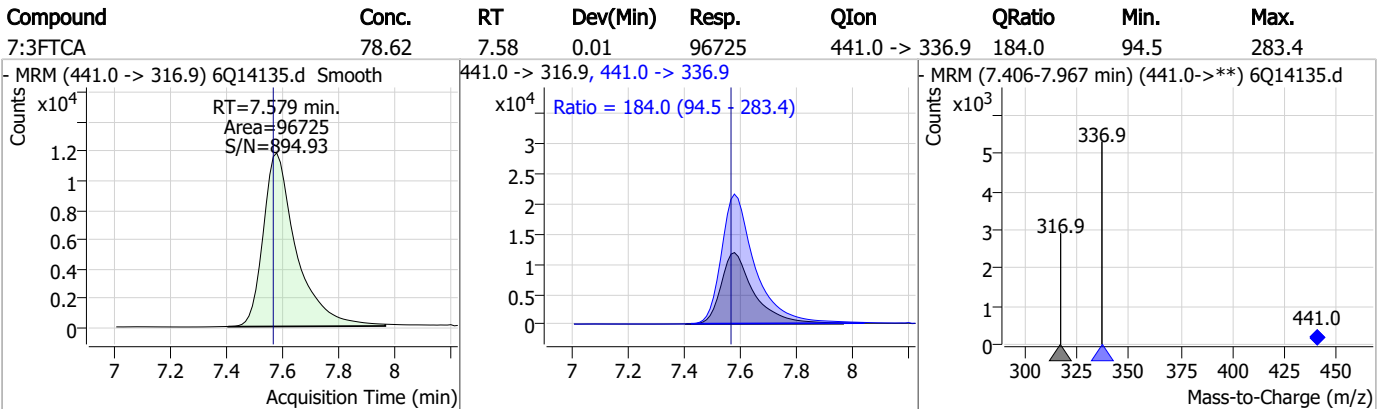
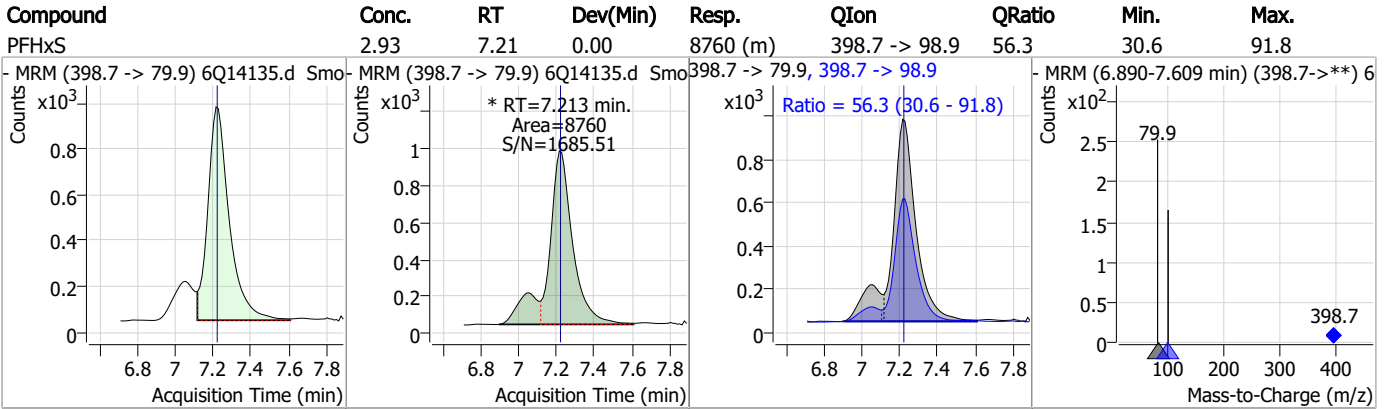
7.3.1
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Perfluorinated Compounds by LC/MS/MS

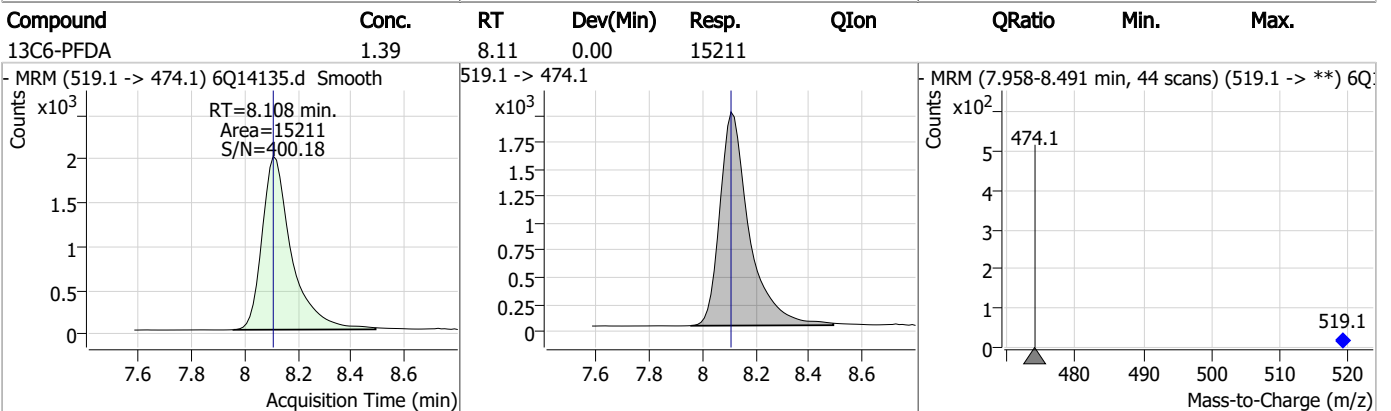
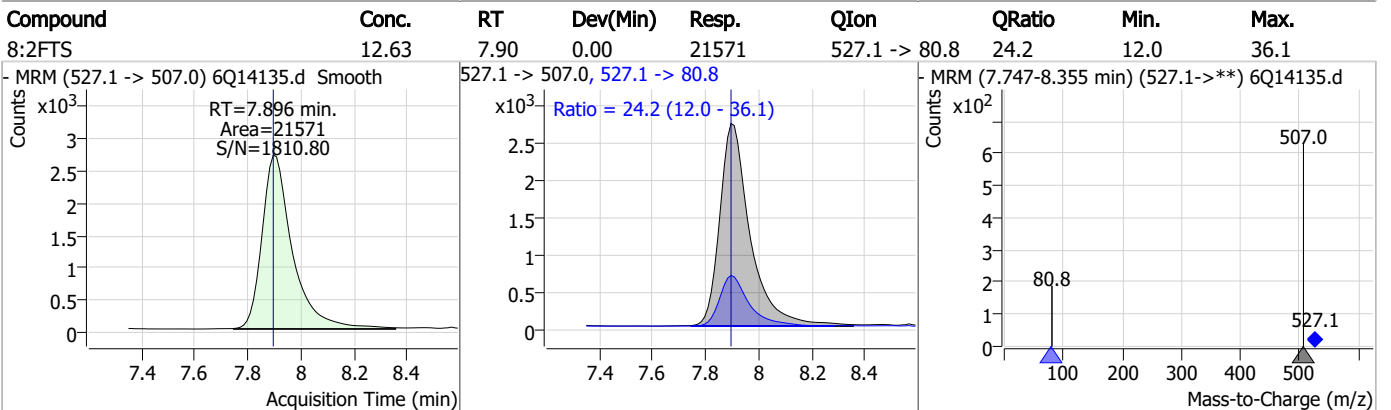
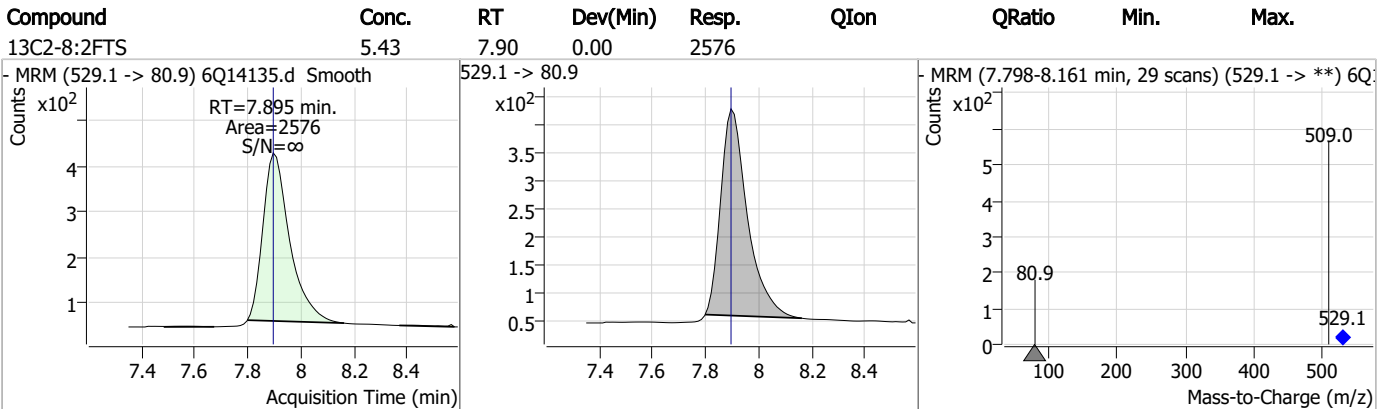
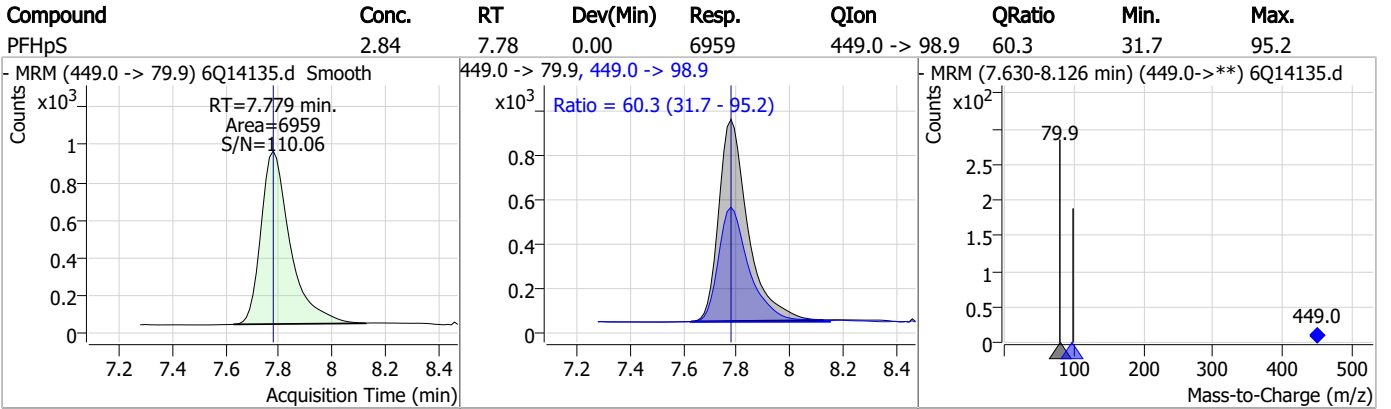


7.3.1
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Perfluorinated Compounds by LC/MS/MS



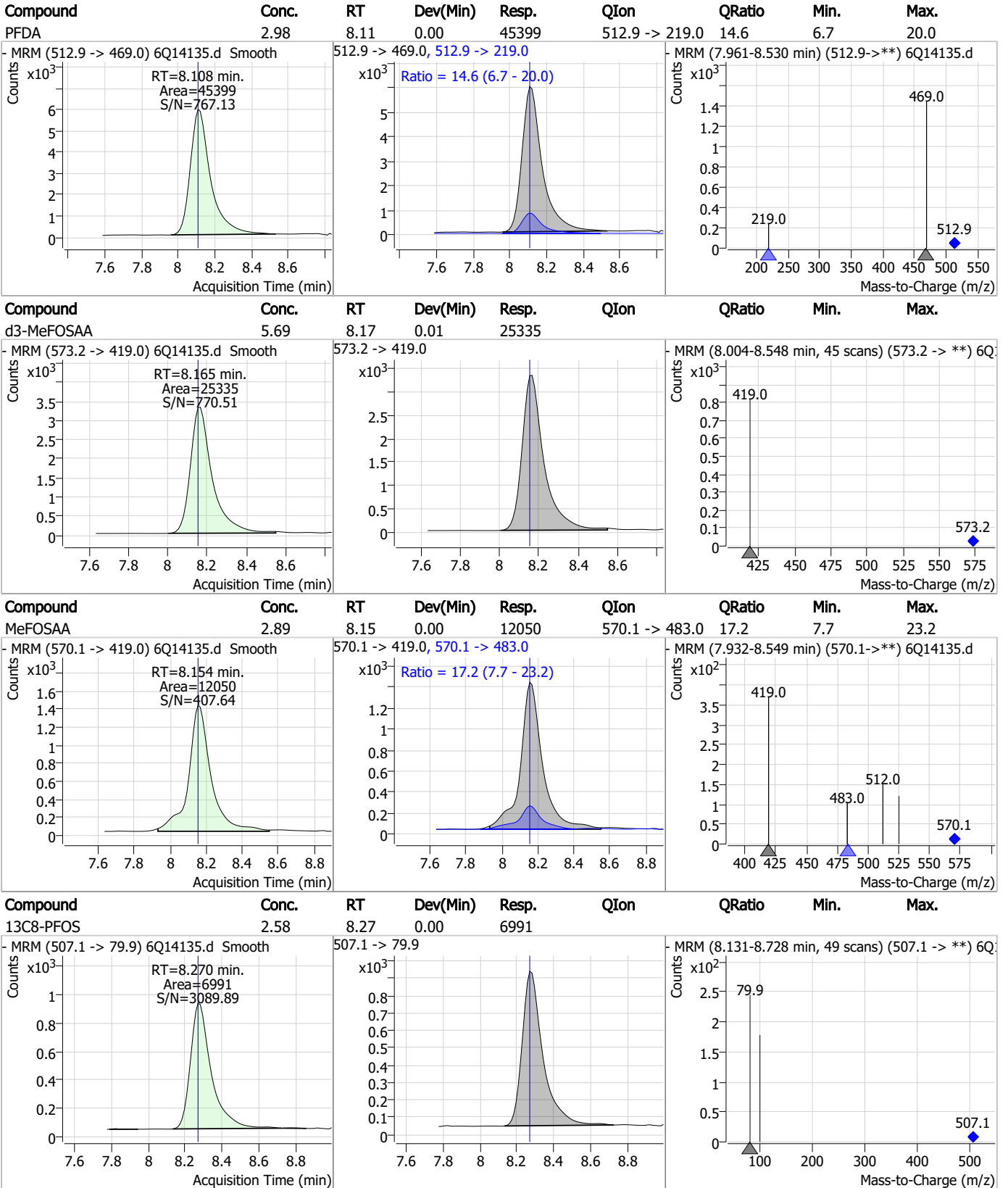
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

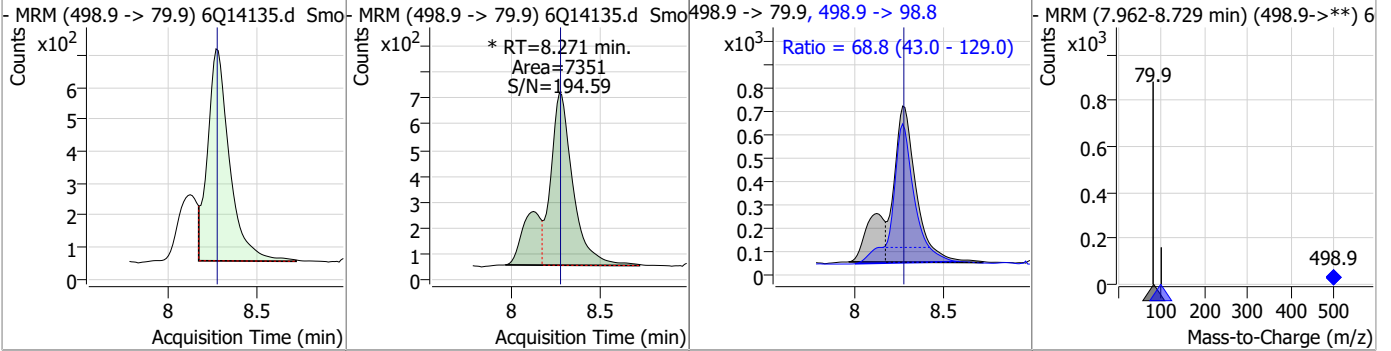


7.3.1

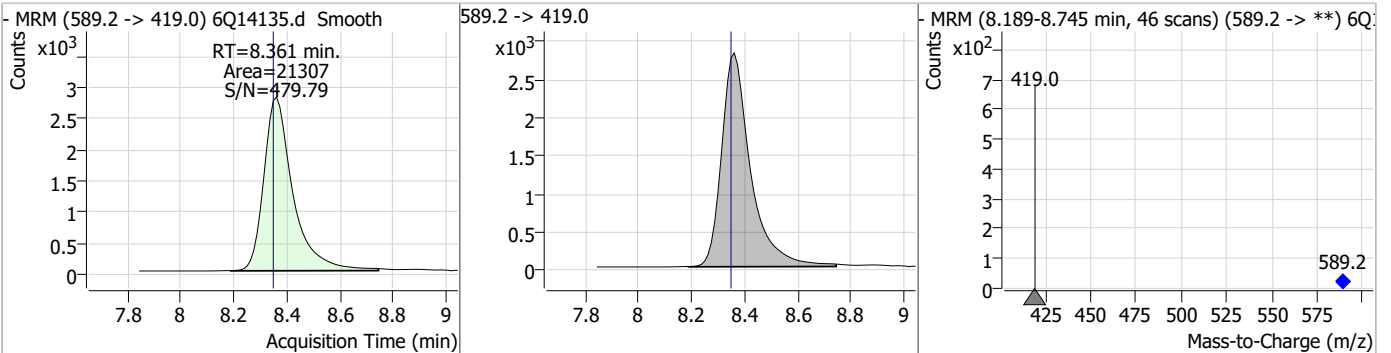
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Perfluorinated Compounds by LC/MS/MS

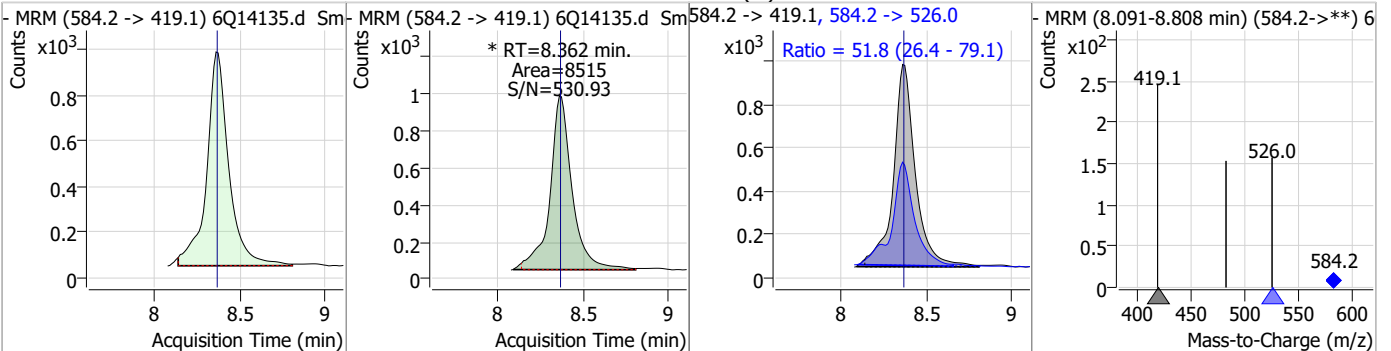
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.70	8.27	0.00	7351 (m)	498.9 -> 98.8	68.8	43.0	129.0



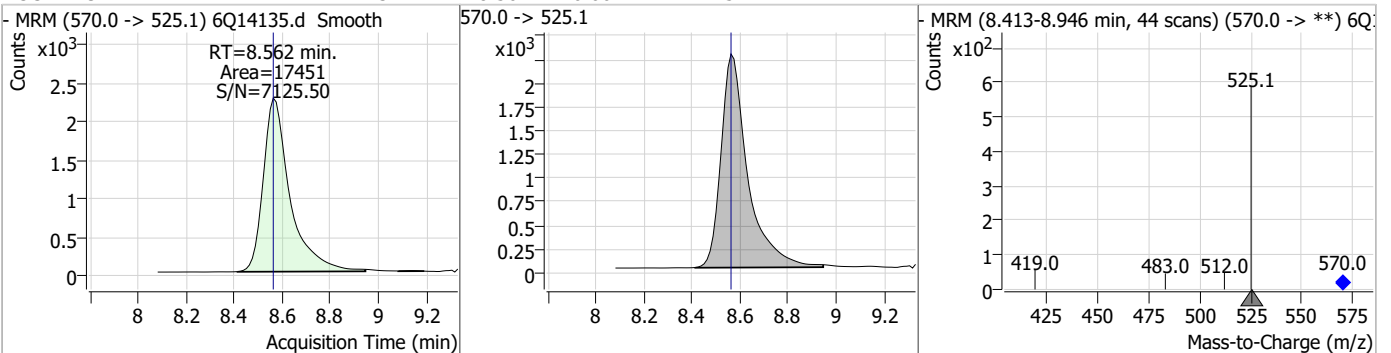
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.39	8.36	0.01	21307				



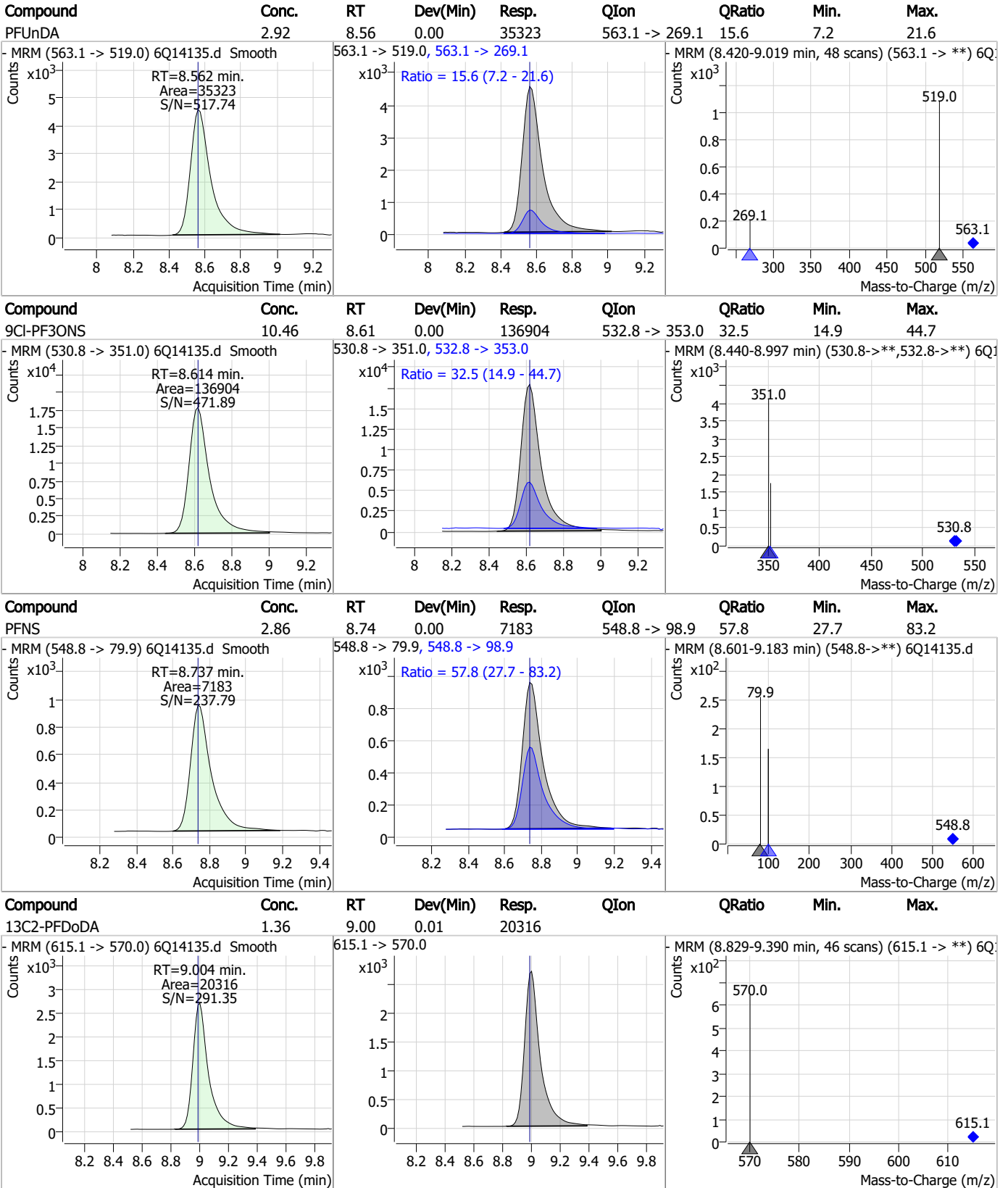
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	3.03	8.36	0.00	8515 (m)	584.2 -> 526.0	51.8	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.34	8.56	0.00	17451				



Perfluorinated Compounds by LC/MS/MS

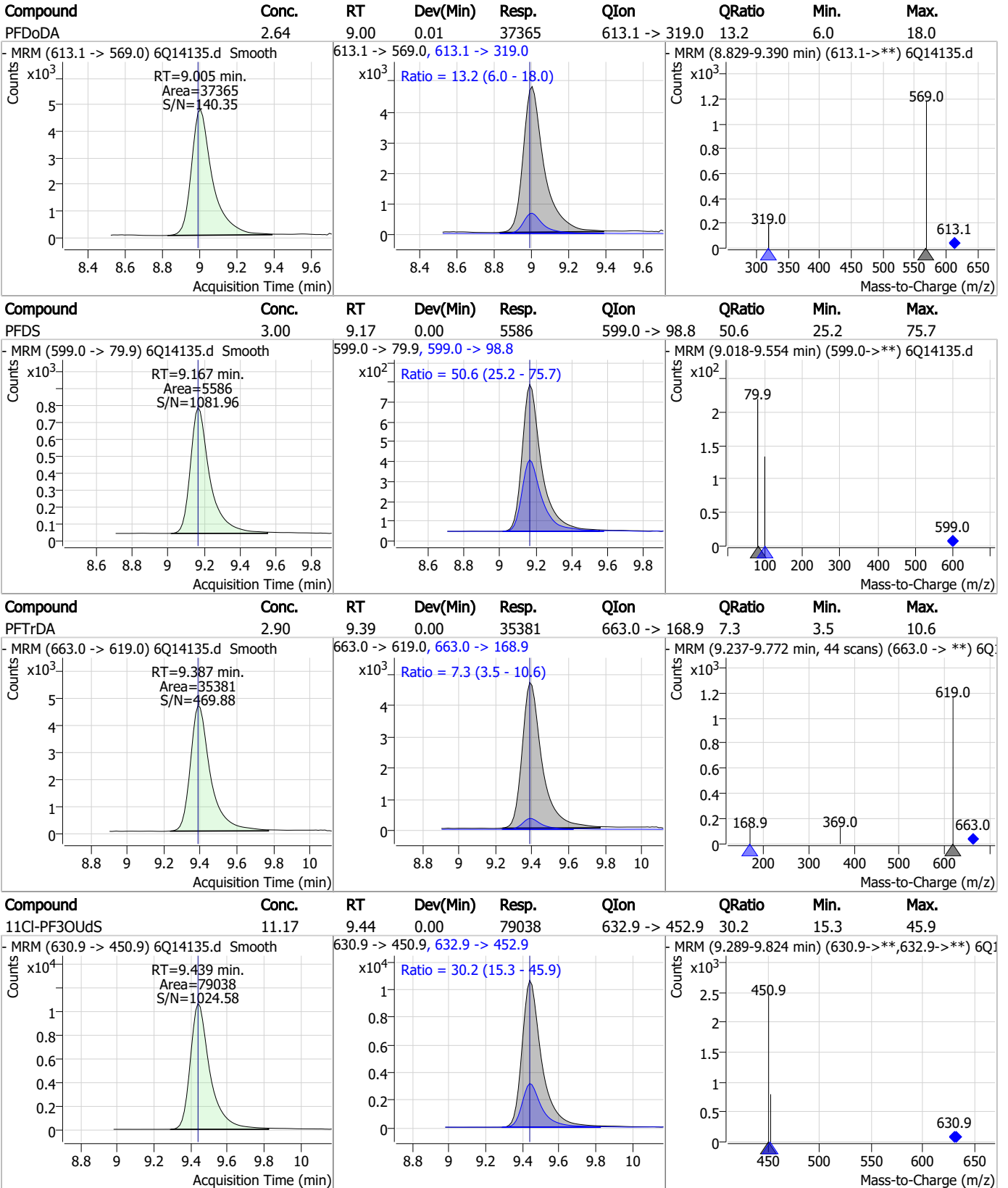


7.3.1

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Perfluorinated Compounds by LC/MS/MS



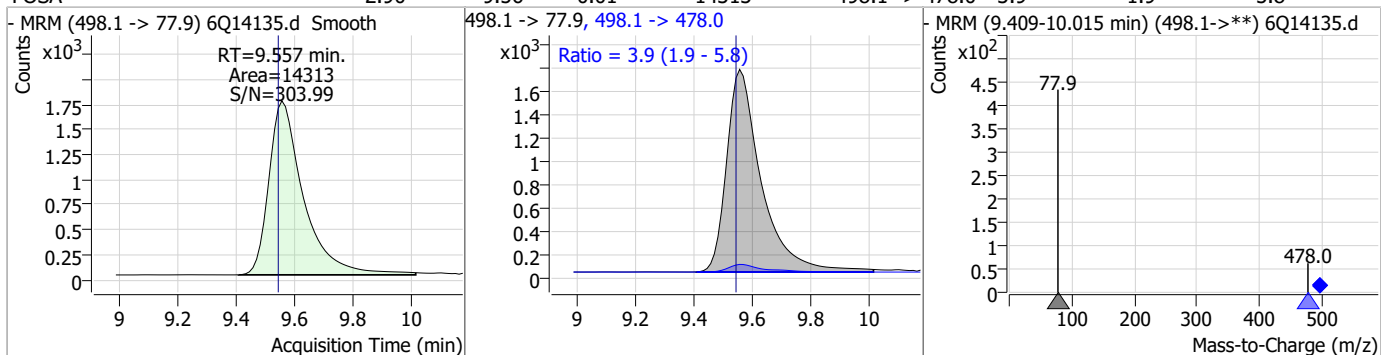
7.3.1

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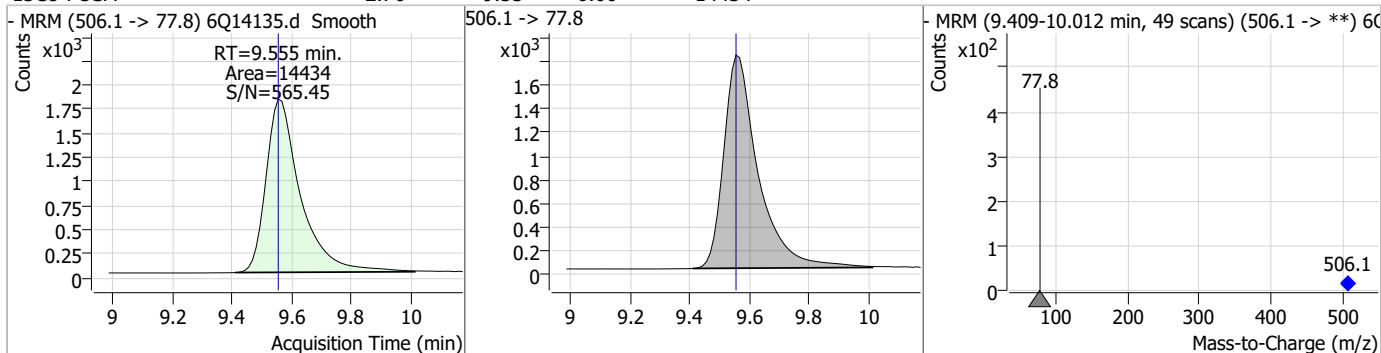


Perfluorinated Compounds by LC/MS/MS

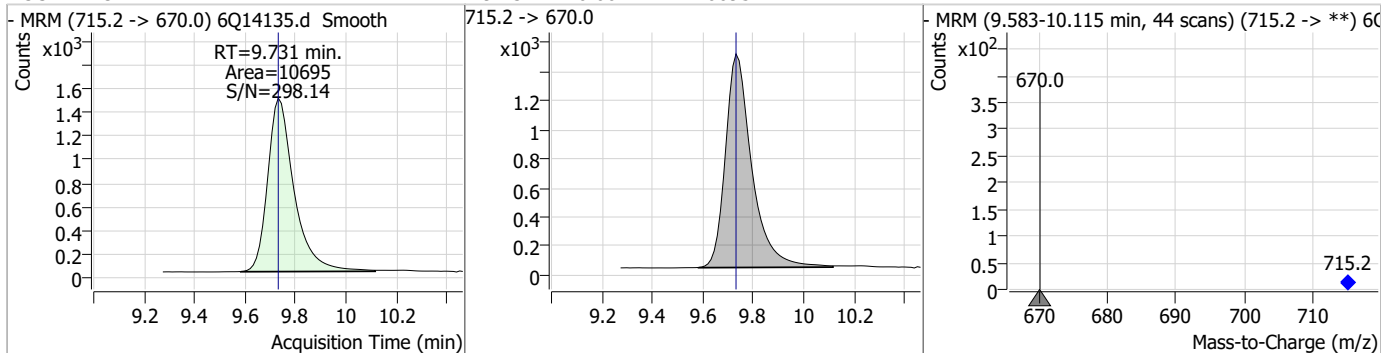
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.90	9.56	0.01	14313	498.1 -> 478.0	3.9	1.9	5.8



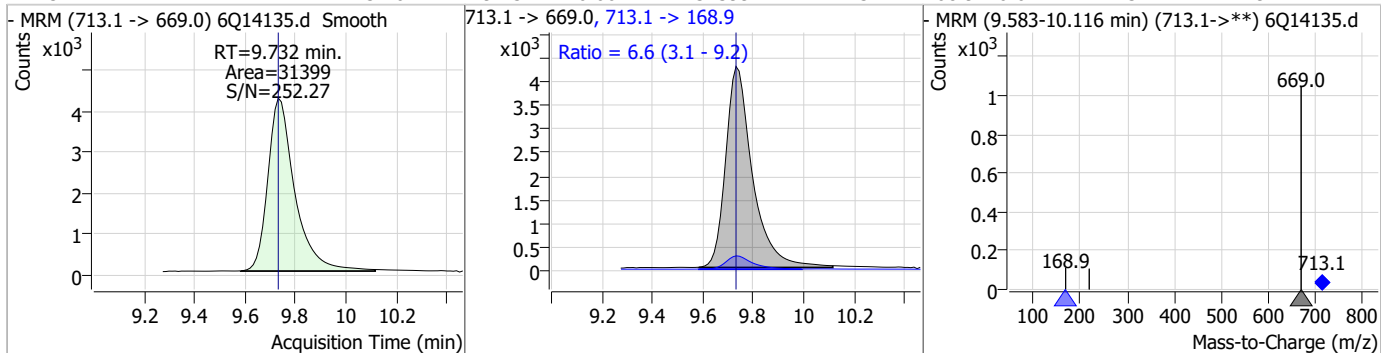
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.70	9.55	0.00	14434				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.73	0.00	10695				

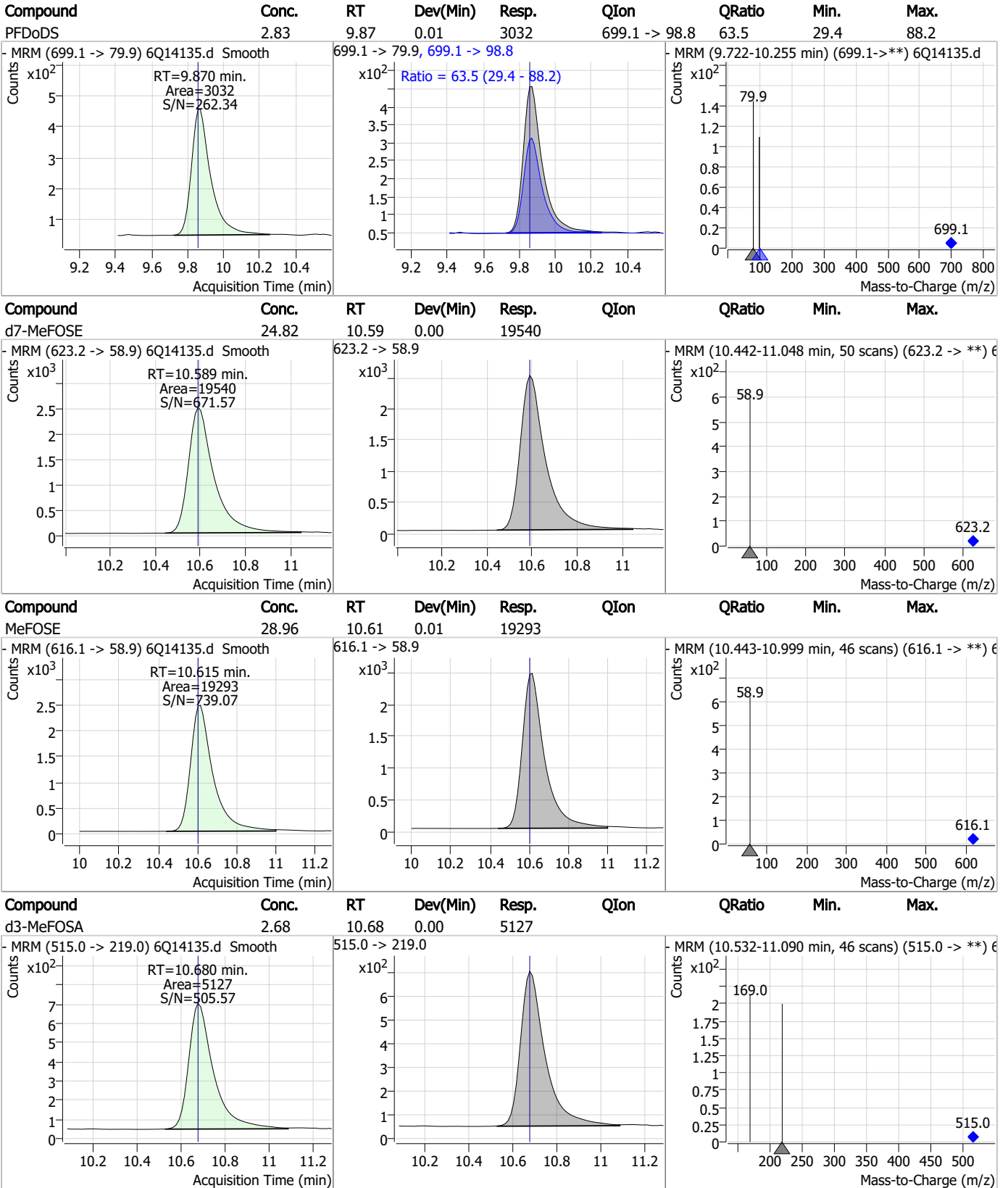


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	3.16	9.73	0.00	31399	713.1 -> 168.9	6.6	3.1	9.2



7.3.1
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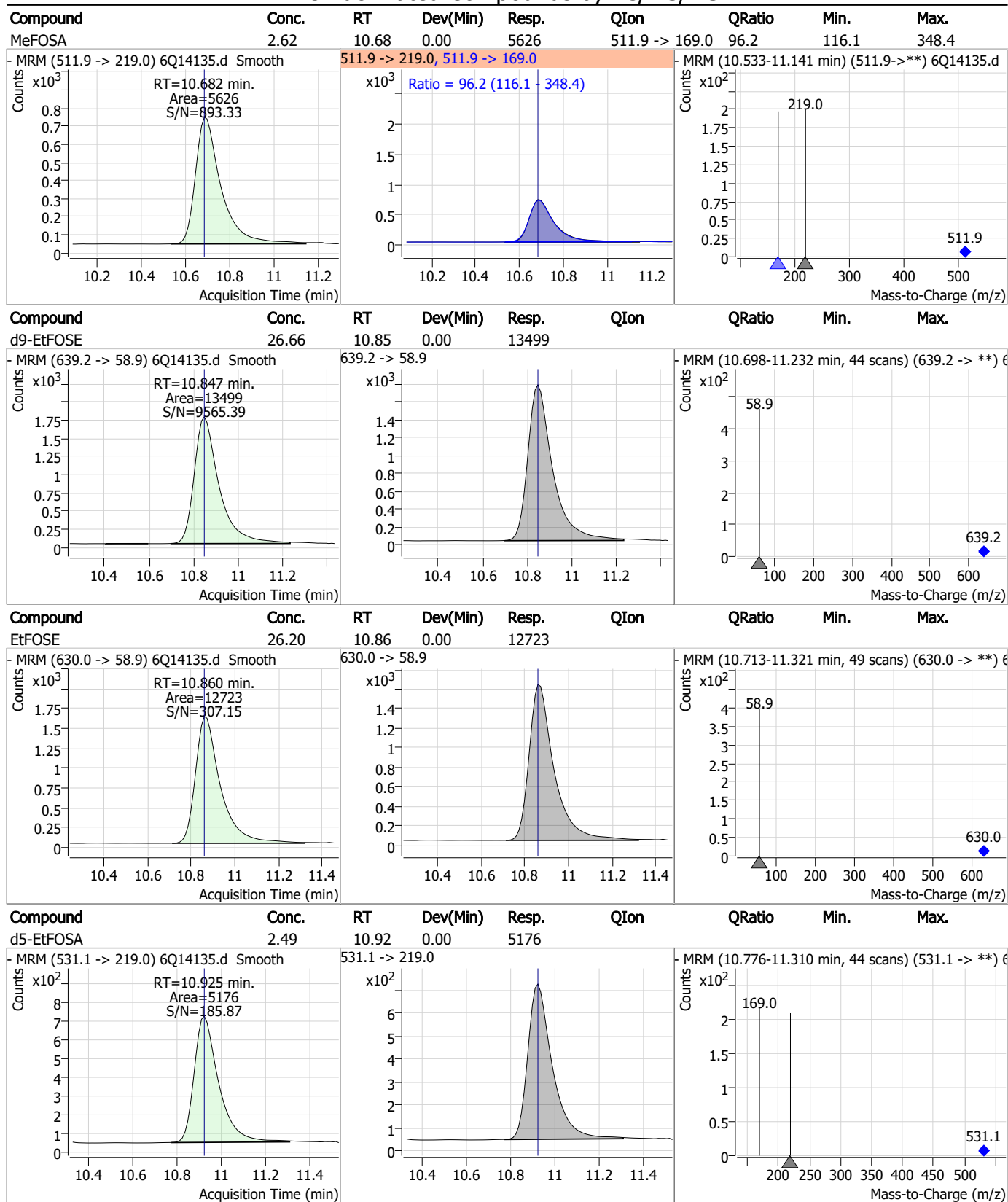
Perfluorinated Compounds by LC/MS/MS



7.3.1

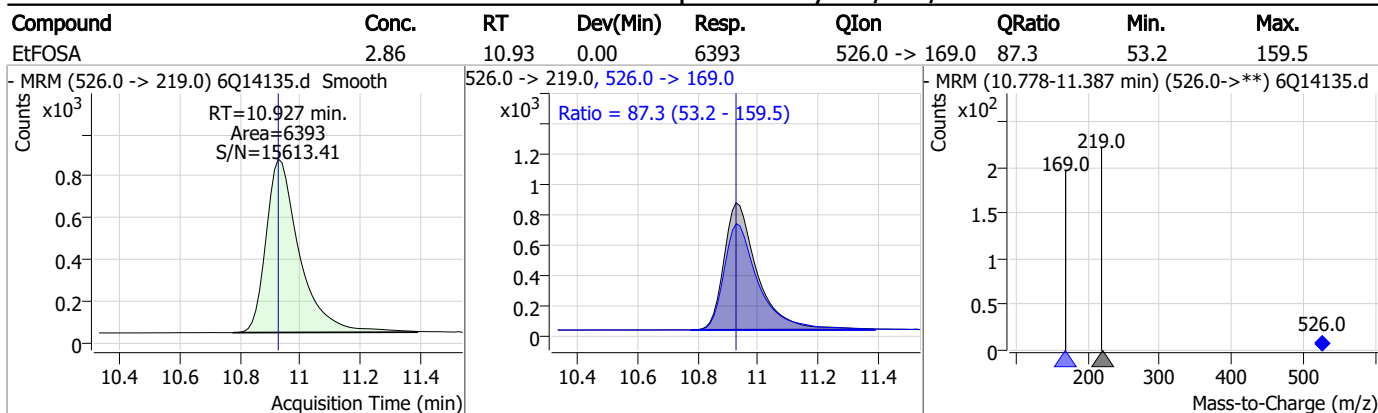
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.3.1
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Manual Integration Approval Summary

Sample Number: OP95501-BS Method: EPA DRAFT 1633
Lab FileID: 6Q14135.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 20:39 Supervisor approved: 02/23/23 16:45 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.3.1.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14136.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 8:53:22 PM
 Sample Name : op95501-llbs:3
 Vial : P6-A2
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	81581	10.00 µg/L	0.025
M5-PFPeA	4.337	268.3 -> 223.0	39848	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	35856	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	37830	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	62925	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	20659	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	17229	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	18469	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	21736	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	11531	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	15916	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	12981	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	8816	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	7843	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2577	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3334	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2901	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	27495	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	13606	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	23964	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	21080	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	13968	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5919	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5389	2.50 µg/L	0.000
13C4-PFOS	8.283	502.8 -> 79.9	8977	2.50 µg/L	0.013
13C3-PFBA	2.979	216.0 -> 172.0	30600	5.00 µg/L	0.037
18O2-PFHxS	7.223	403.0 -> 83.9	5800	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	64489	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	19419	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	18569	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	30514	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2577	6.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.7%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3334	6.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.9%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2901	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.004	615.1 -> 570.0	21736	1.45 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C2-PFTeDA	9.731	715.2 -> 670.0	11531	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C3-PFBS	5.456	302.1 -> 79.9	12981	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C3-PFHxS	7.212	402.1 -> 79.9	8816	2.81 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 = 112.4%	
13C4-PFBA	2.975	216.8 -> 171.9	81581	11.83 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 118.3%	
13C4-PFHpA	6.452	367.1 -> 322.0	37830	3.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.6%	
13C5-PFHxA	5.513	318.0 -> 273.0	35856	3.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.8%	
13C5-PFPeA	4.337	268.3 -> 223.0	39848	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.8%	
13C6-PFDA	8.108	519.1 -> 474.1	17229	1.57 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 125.5%	
13C7-PFUnDA	8.562	570.0 -> 525.1	18469	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.8%	
13C8-FOSA	9.555	506.1 -> 77.8	15916	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.4%	
13C8-PFOA	7.097	421.1 -> 376.0	62925	2.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.6%	
13C8-PFOS	8.270	507.1 -> 79.9	7843	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C9-PFNA	7.626	472.1 -> 427.0	20659	1.54 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 123.5%	
d3-MeFOSAA	8.153	573.2 -> 419.0	27495	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	13606	11.69 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.9%	
d3-MeFOSA	10.680	515.0 -> 219.0	5389	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
d5-EtFOSAA	8.361	589.2 -> 419.0	23964	5.61 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	21080	24.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	13968	25.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	5919	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	20636	4.18 µg/L	99
		327.1 -> 80.9	4631		
6:2FTS	6.871	427.1 -> 407.0	16957	4.10 µg/L	95
		427.1 -> 80.9	3430		
8:2FTS	7.896	527.1 -> 507.0	8271	4.30 µg/L	95
		527.1 -> 80.8	2187		
EtFOSAA	8.362	584.2 -> 419.1	3339	1.06 µg/L	98
		584.2 -> 526.0	1810		
FOSA	9.557	498.1 -> 77.9	6363	1.17 µg/L	98
		498.1 -> 478.0	291		
MeFOSAA	8.166	570.1 -> 419.0	4883	1.08 µg/L	99
		570.1 -> 483.0	734		
PFBA	2.982	212.8 -> 168.9	7370	4.50 µg/L	100
PFBS	5.457	298.7 -> 79.9	4494	1.07 µg/L	98
		298.7 -> 98.8	2235		
PFDA	8.108	512.9 -> 469.0	18402	1.07 µg/L	98
		512.9 -> 219.0	2294		
PFDODA	9.005	613.1 -> 569.0	15593	1.03 µg/L	98
		613.1 -> 319.0	1757		
PFDS	9.167	599.0 -> 79.9	2218	1.06 µg/L	100

7.3.2
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.453	599.0 -> 98.8	1125	1.13	µg/L	98
		363.1 -> 319.0	20761			
PFHpS	7.779	363.1 -> 169.0	3069	1.04	µg/L	98
		449.0 -> 79.9	2872			
PFHxA	5.516	449.0 -> 98.9	1875	1.09	µg/L	100
		313.0 -> 269.0	12827			
PFHxS	7.213	313.0 -> 118.9	446	0.97	µg/L	m
		398.7 -> 79.9	3252			
PFNA	7.627	398.7 -> 98.9	1974	1.23	µg/L	98
		463.0 -> 419.0	13287			
PFNS	8.749	463.0 -> 219.0	2678	1.12	µg/L	95
		548.8 -> 79.9	3158			
PFOA	7.098	548.8 -> 98.9	1649	1.11	µg/L	94
		413.0 -> 369.0	26389			
PFOS	8.271	413.0 -> 169.0	3539	1.13	µg/L	m
		498.9 -> 79.9	3457			
PFPeA	4.338	498.9 -> 98.8	2178	2.37	µg/L	100
		263.0 -> 219.0	16401			
PFPeS	6.517	349.1 -> 79.9	4108	1.00	µg/L	96
		349.1 -> 98.9	2305			
PFTeDA	9.732	713.1 -> 669.0	13074	1.22	µg/L	100
		713.1 -> 168.9	804			
PFTrDA	9.387	663.0 -> 619.0	14001	1.07	µg/L	96
		663.0 -> 168.9	1195			
PFUnDA	8.575	563.1 -> 519.0	14128	1.10	µg/L	99
		563.1 -> 269.1	2109			
11CI-PF3OUdS	9.439	630.9 -> 450.9	30123	4.13	µg/L	99
		632.9 -> 452.9	9457			
9CI-PF3ONS	8.614	530.8 -> 351.0	56555	4.20	µg/L	98
		532.8 -> 353.0	17322			
ADONA	6.716	376.9 -> 250.9	118744	4.46	µg/L	100
		376.9 -> 84.8	25620			
HFPO-DA	5.879	284.9 -> 168.9	5217	4.76	µg/L	97
		284.9 -> 184.9	687			
3:3FTCA	3.841	241.0 -> 177.0	1828	5.13	µg/L	96
		241.0 -> 117.0	266			
5:3FTCA	6.169	341.0 -> 237.1	73179	28.37	µg/L	98
		341.0 -> 217.0	64728			
7:3FTCA	7.579	441.0 -> 316.9	39633	28.64	µg/L	96
		441.0 -> 336.9	77261			
EtFOSA	10.939	526.0 -> 219.0	2471	0.97	µg/L	94
		526.0 -> 169.0	2463			
EtFOSE	10.860	630.0 -> 58.9	5514	10.97	µg/L	100
		511.9 -> 219.0	2267			
MeFOSA	10.682	511.9 -> 169.0	2239	1.00	µg/L	#
		616.1 -> 58.9	8094			
MeFOSE	10.615	699.1 -> 79.9	1234	11.26	µg/L	100
		699.1 -> 98.8	763			
PFDoDS	9.870	295.0 -> 201.0	1600	1.03	µg/L	96
		295.0 -> 84.9	775			
NFDHA	5.395	279.0 -> 85.1	4590	2.49	µg/L	94
		229.0 -> 84.9	4237			
PFMBA	4.750	314.8 -> 134.9	34229	2.27	µg/L	100
PFMPA	3.516	314.8 -> 82.9	914	2.28	µg/L	100
PFEESA	5.996			2.11	µg/L	99

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

7.3.2
7

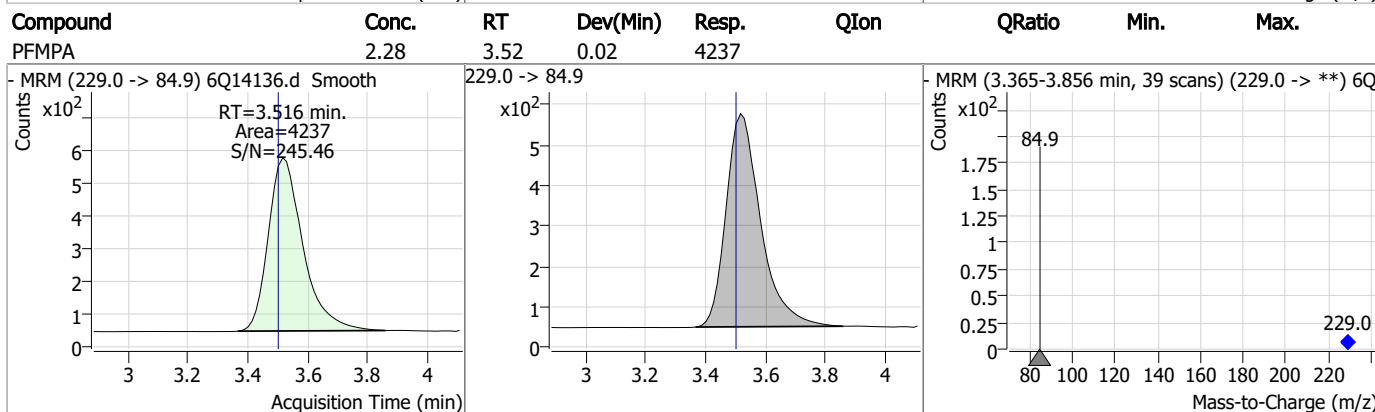
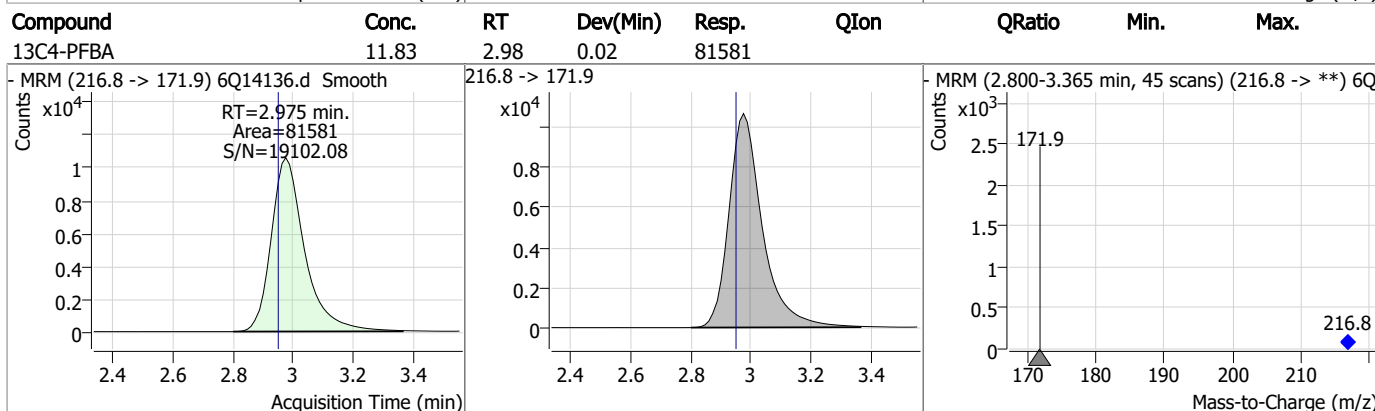
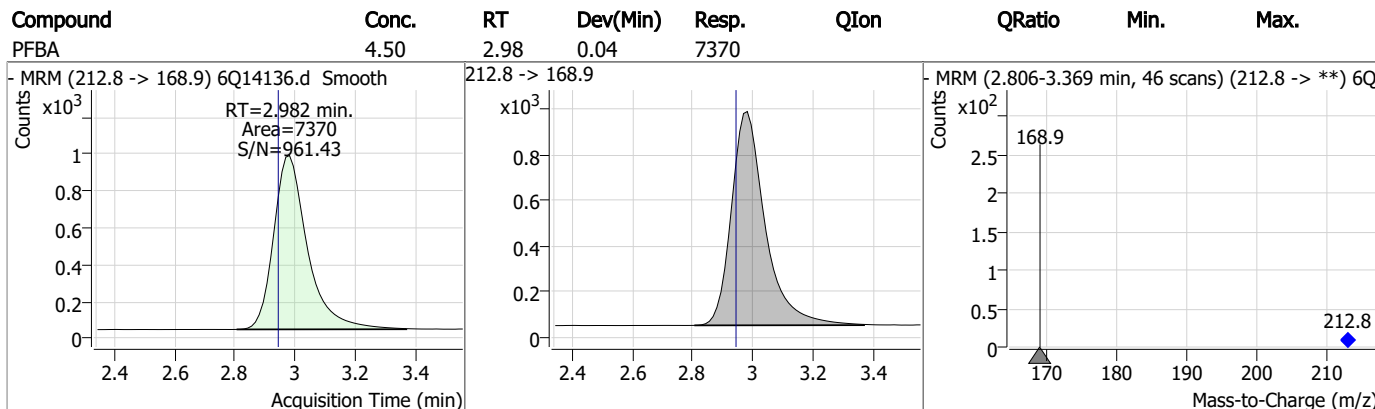
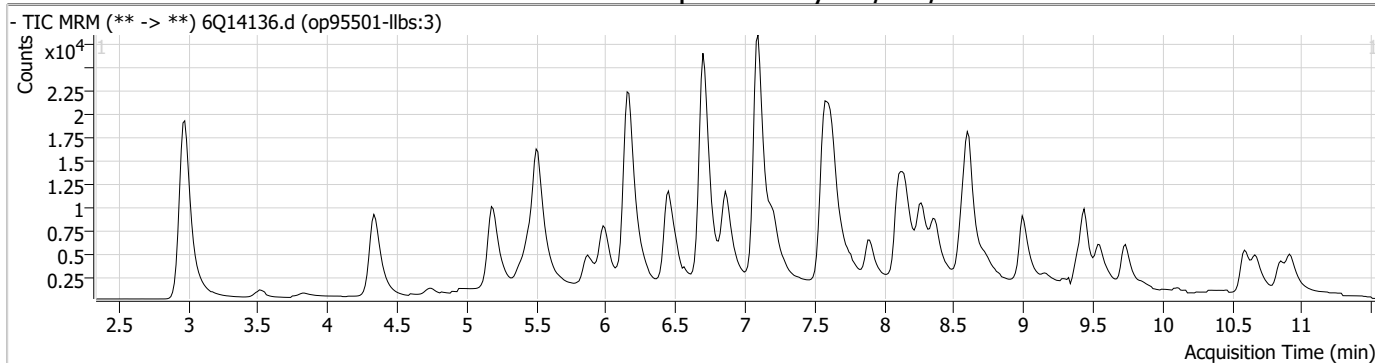
Perfluorinated Compounds by LC/MS/MS

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

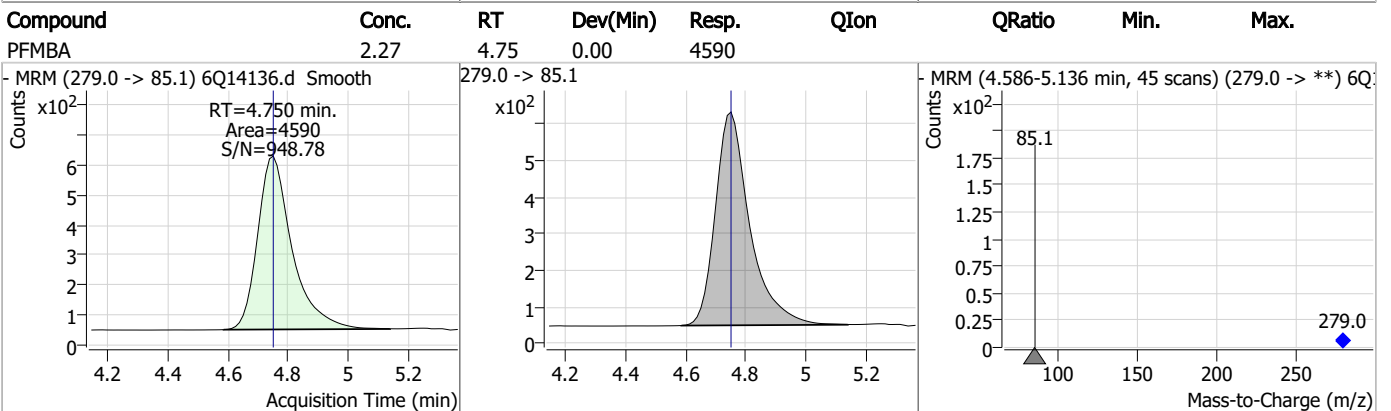
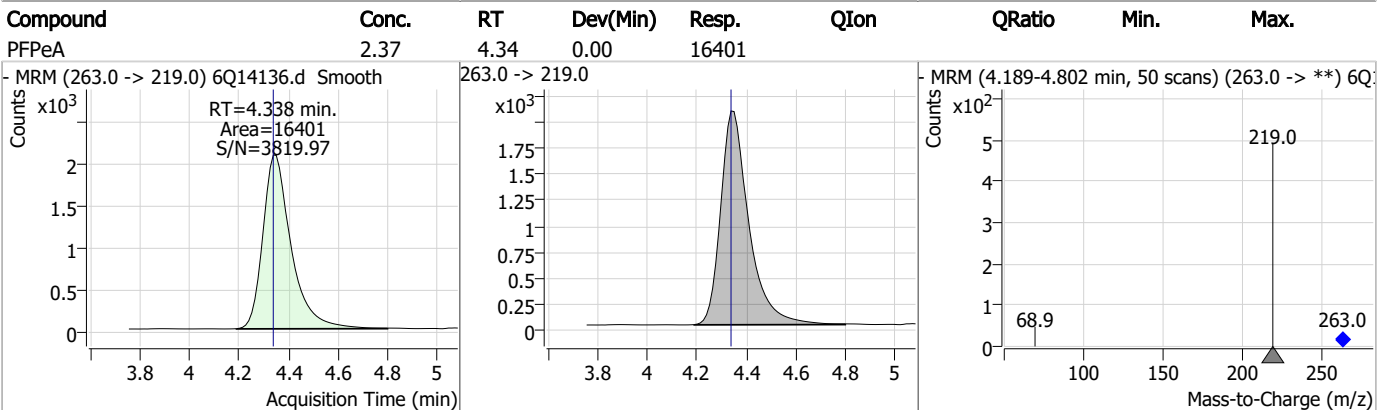
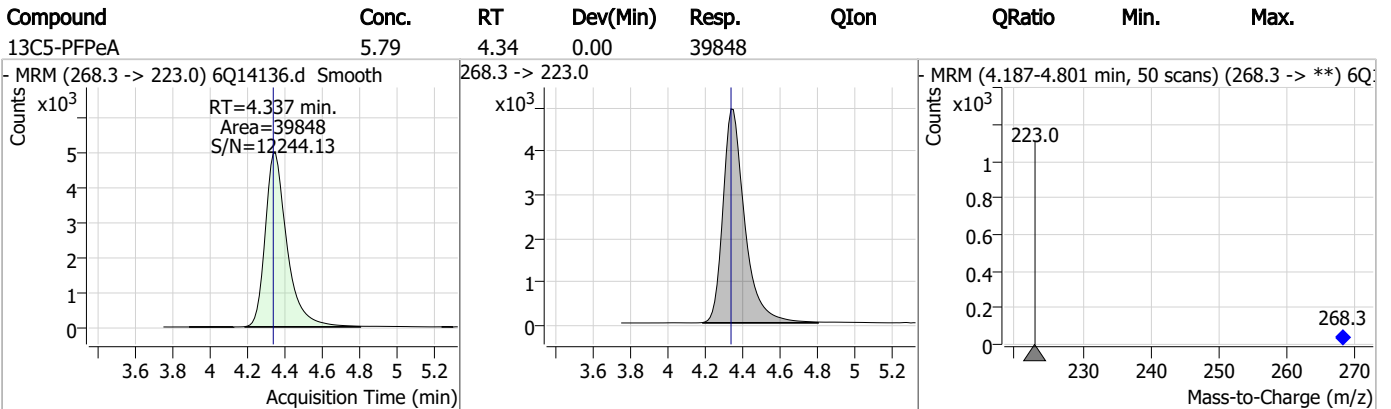
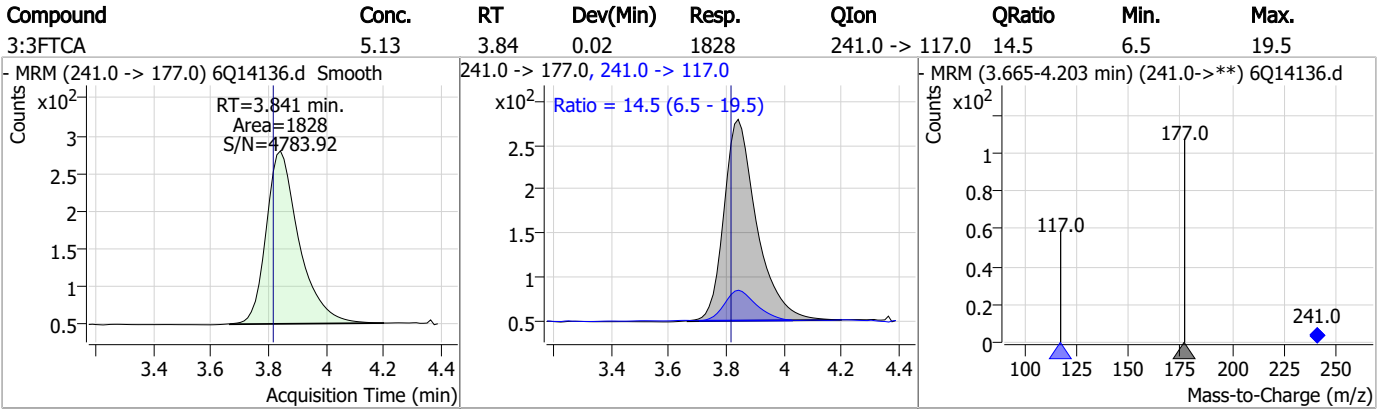
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

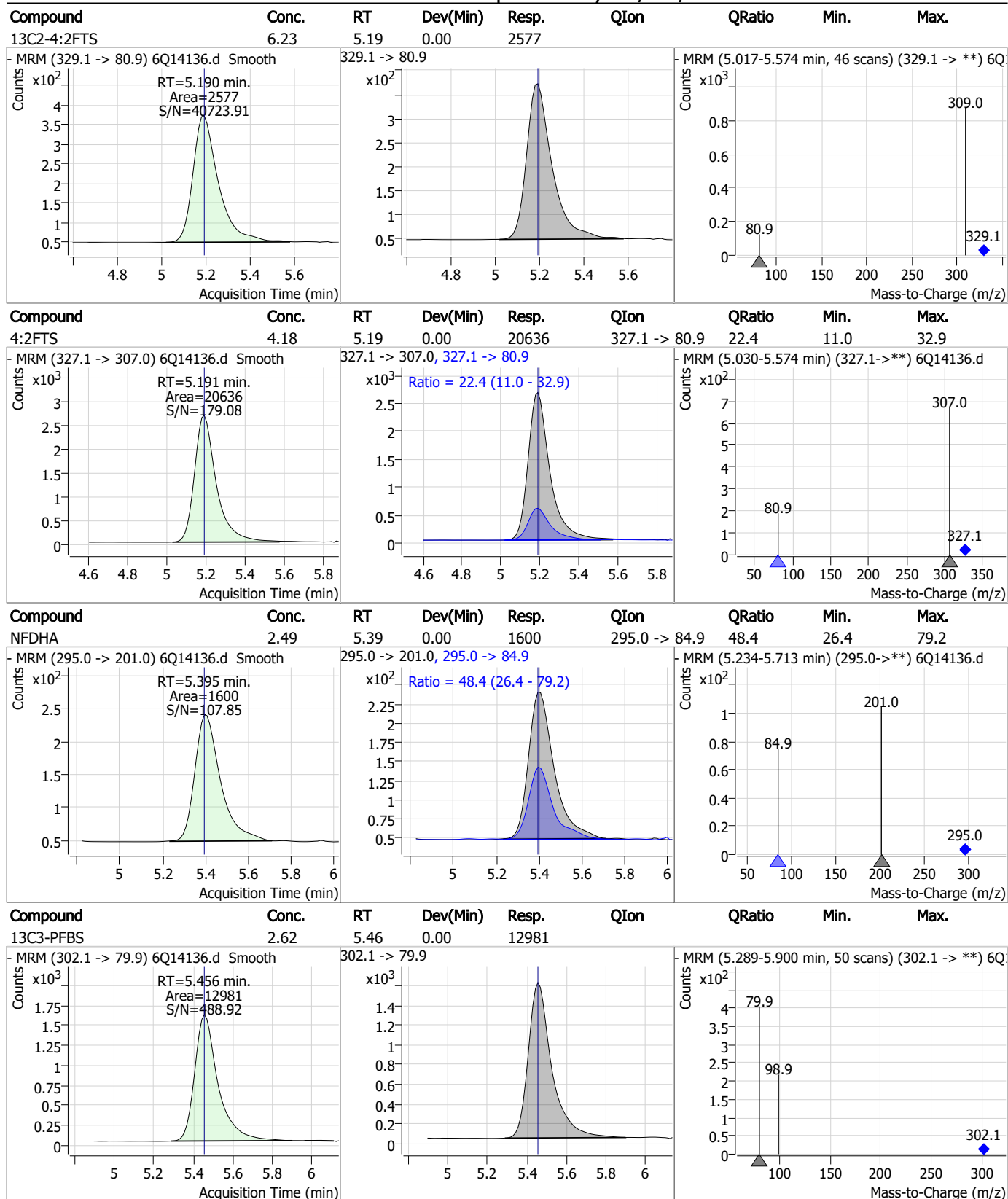
Perfluorinated Compounds by LC/MS/MS



7.3.2

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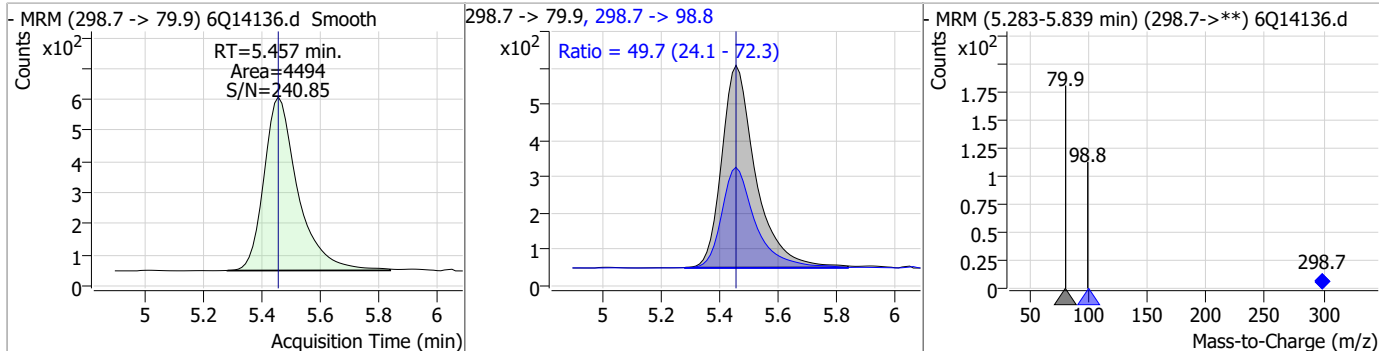
Perfluorinated Compounds by LC/MS/MS



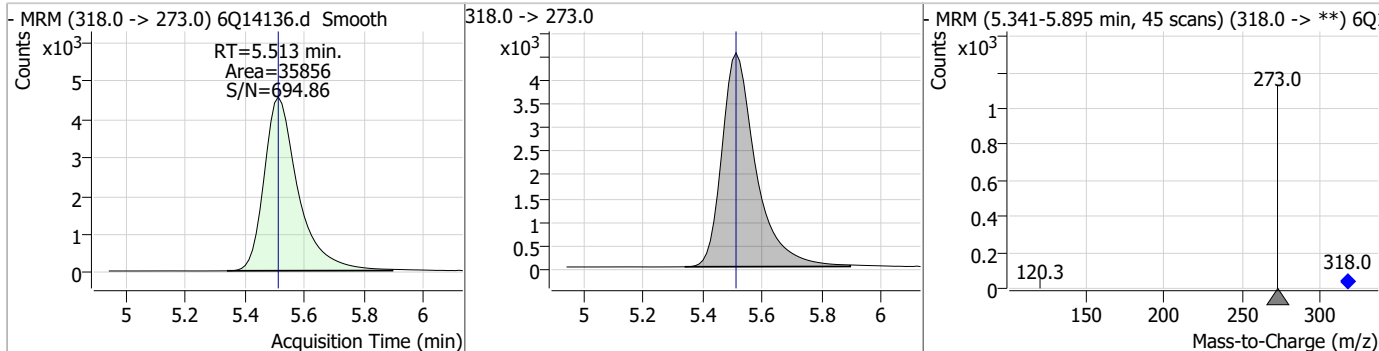
7.3.2
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Perfluorinated Compounds by LC/MS/MS

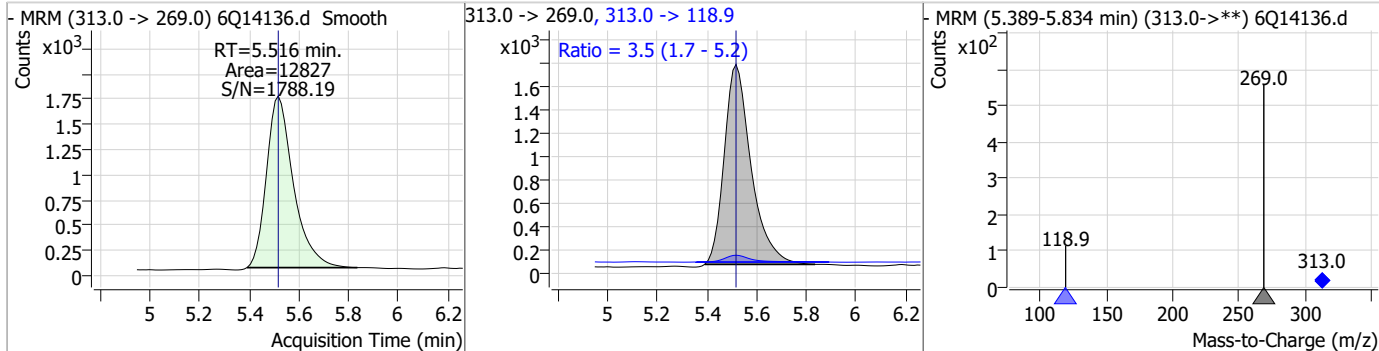
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.07	5.46	0.00	4494	298.7 -> 98.8	49.7	24.1	72.3



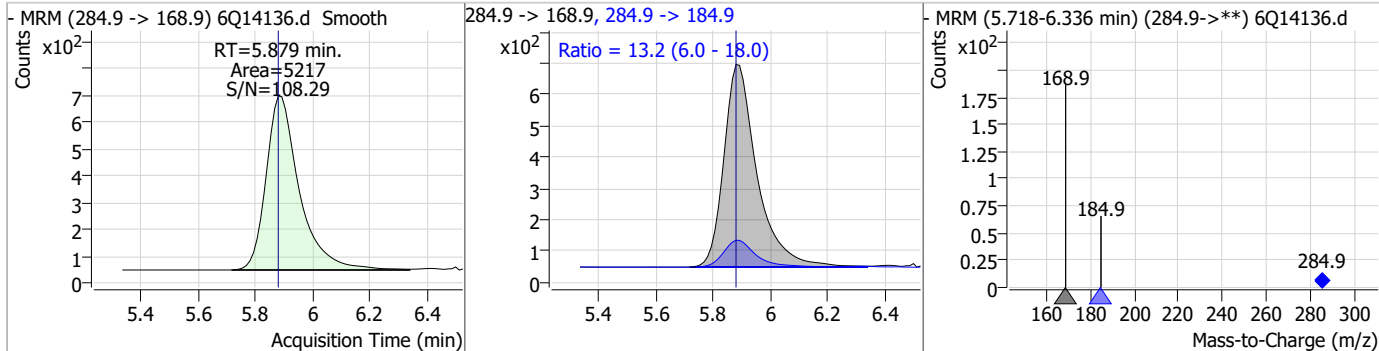
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.00	5.51	0.00	35856				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.09	5.52	0.00	12827	313.0 -> 118.9	3.5	1.7	5.2

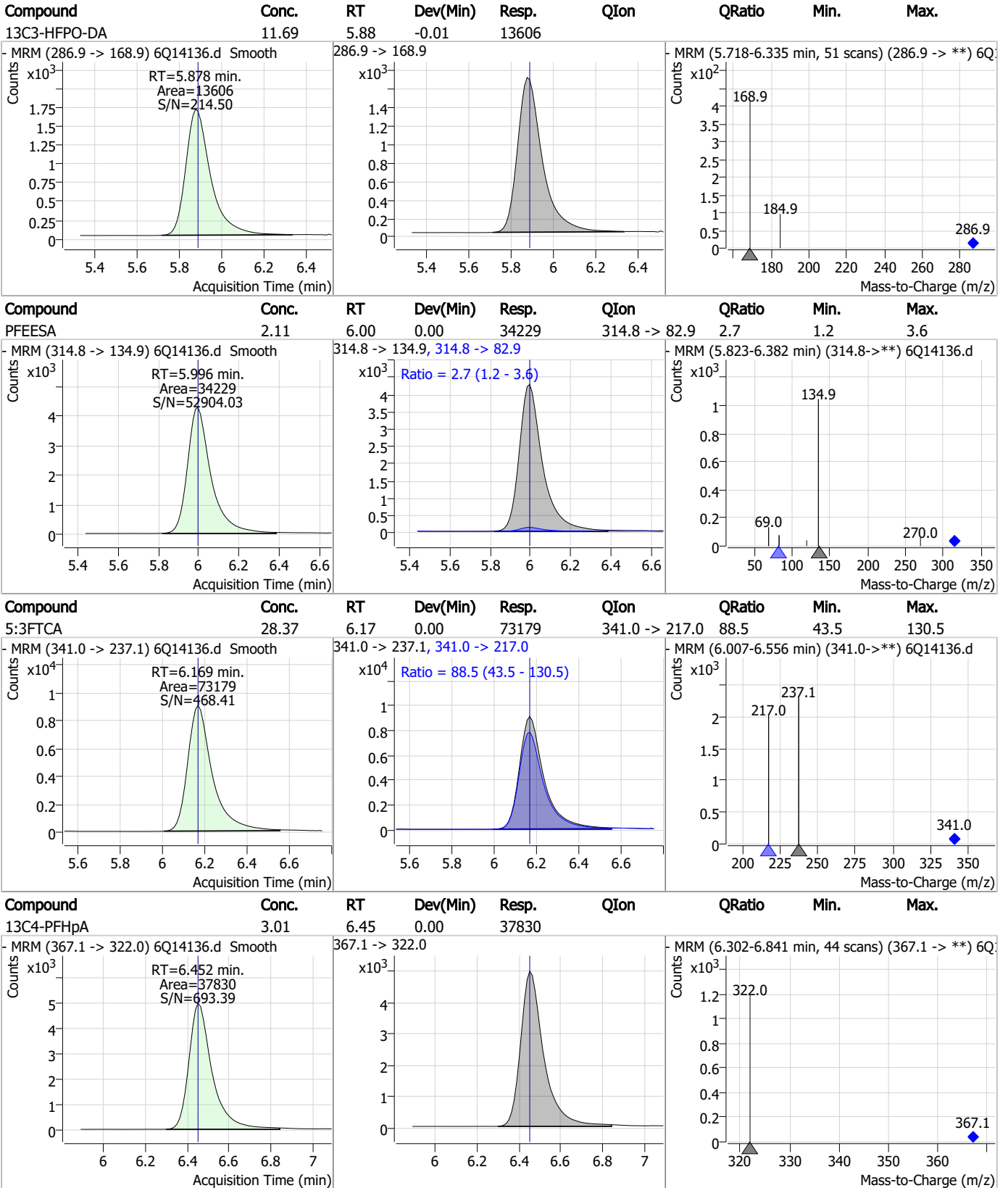


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.76	5.88	0.00	5217	284.9 -> 184.9	13.2	6.0	18.0



7.3.2
7

Perfluorinated Compounds by LC/MS/MS

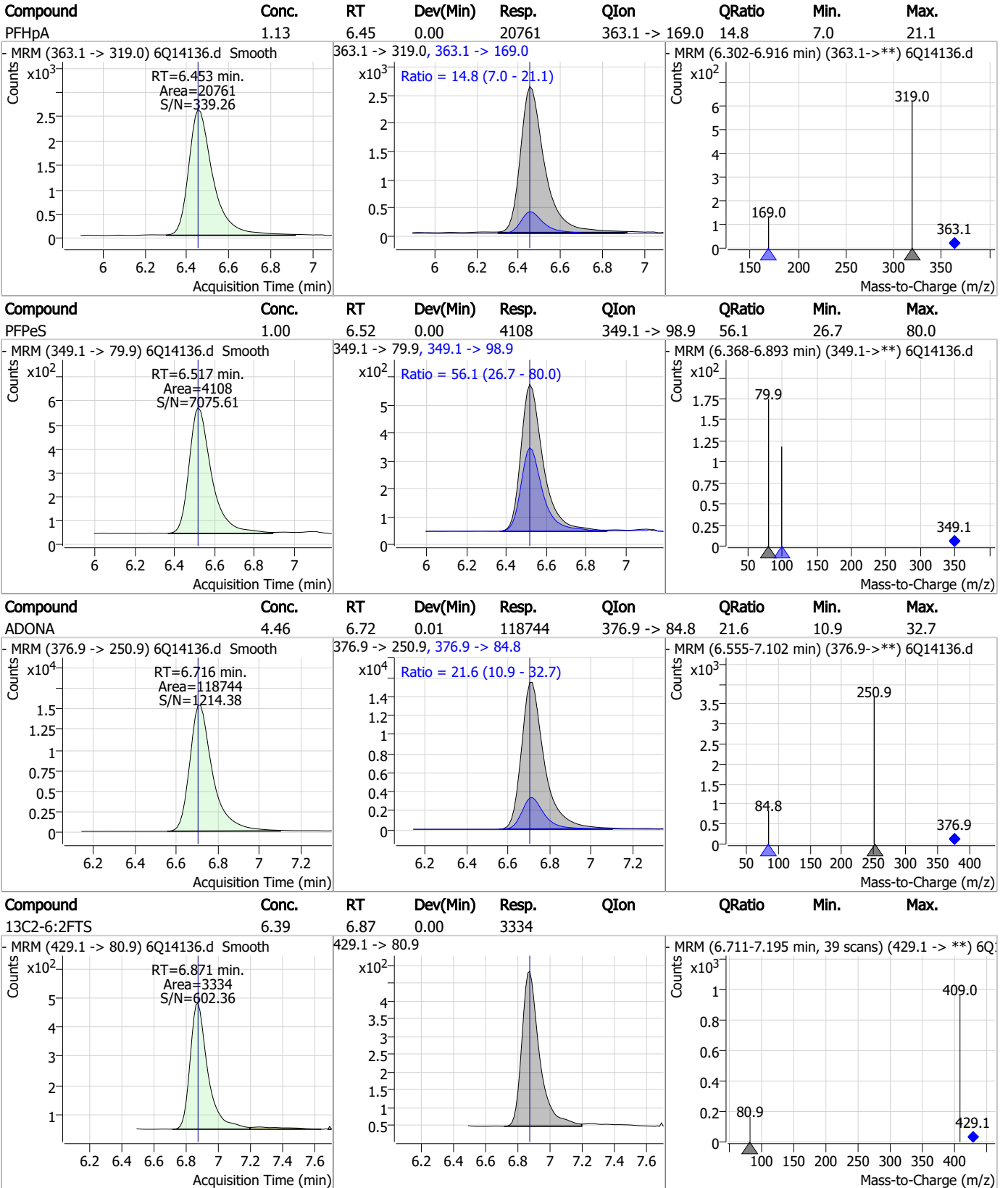


7.3.2

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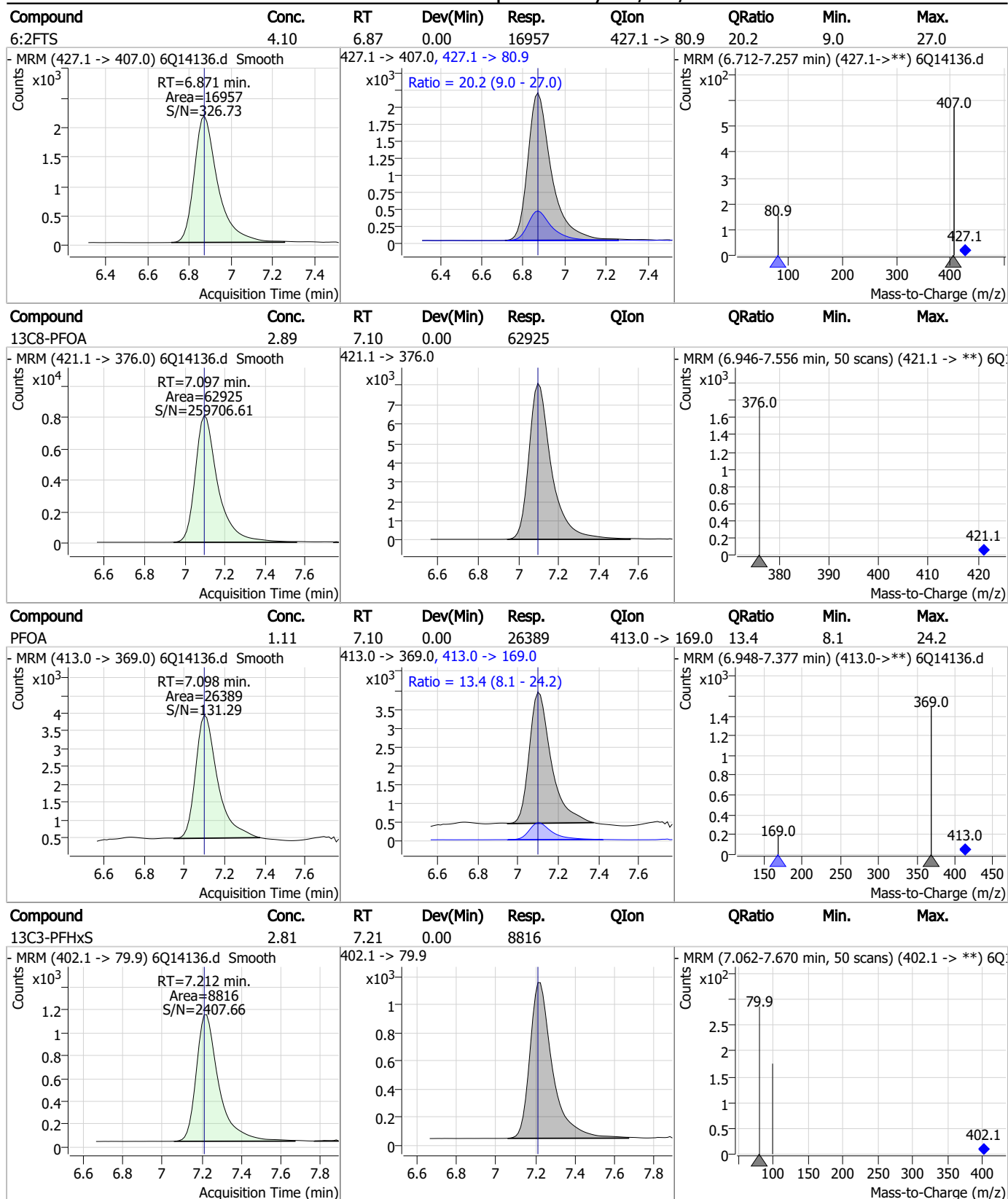
Perfluorinated Compounds by LC/MS/MS



7.3.2
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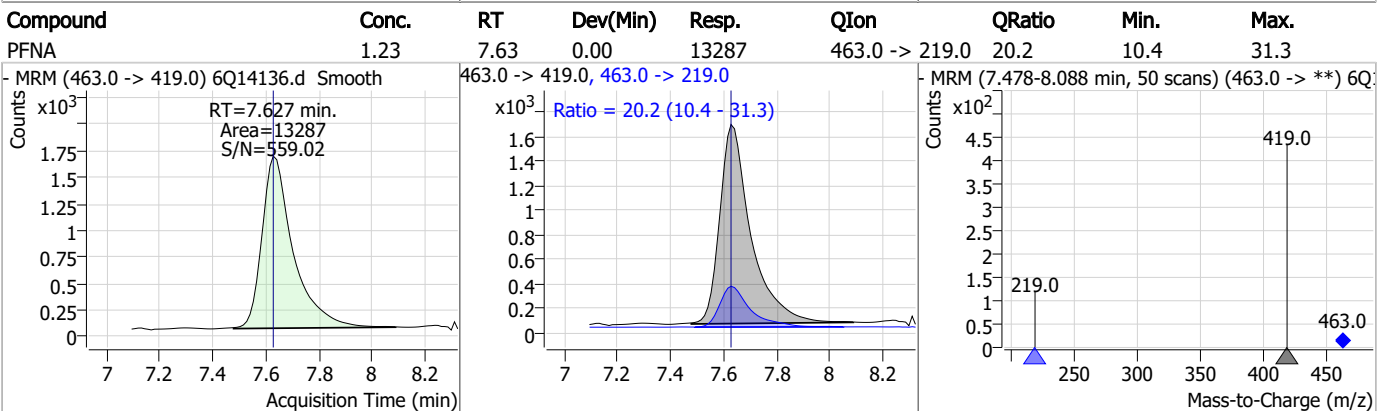
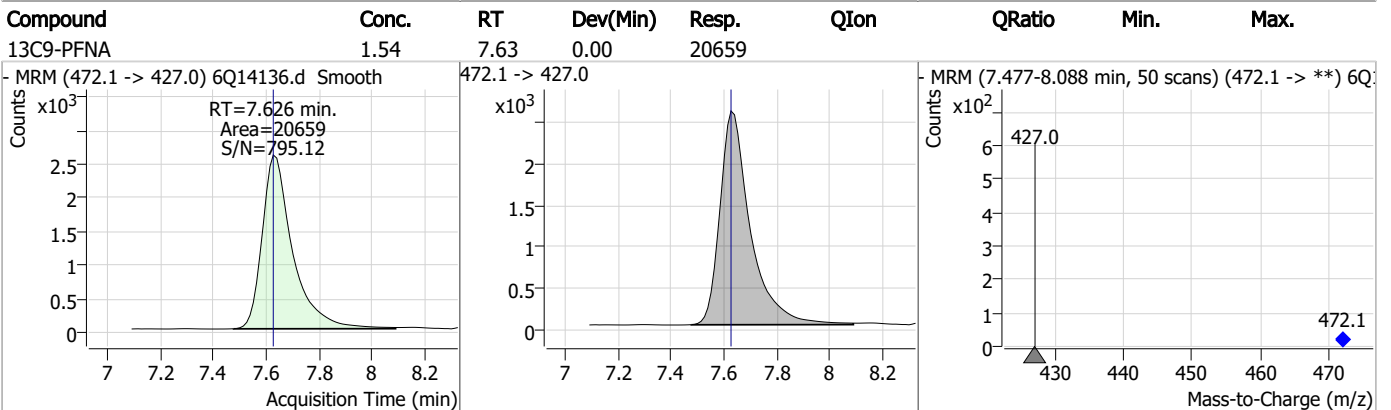
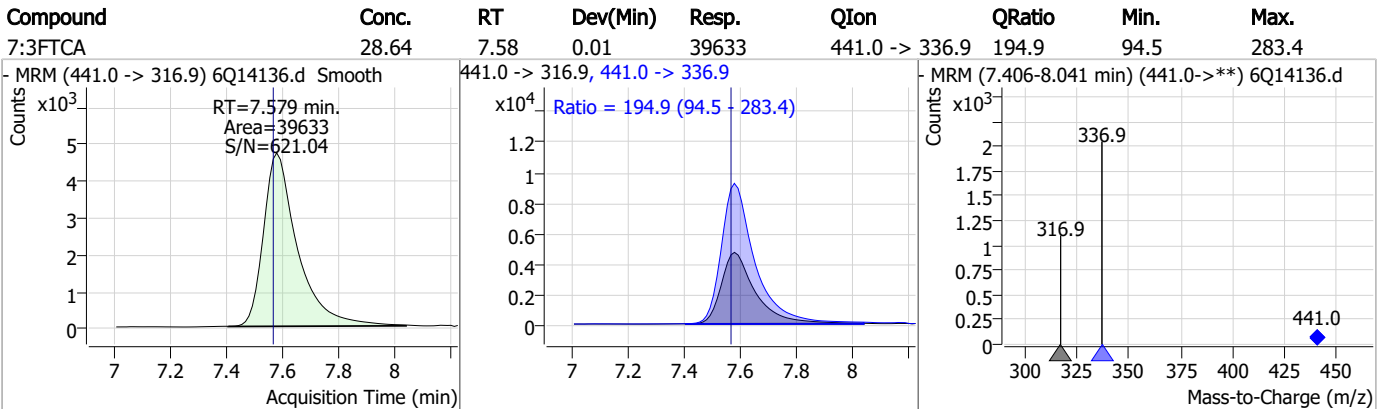
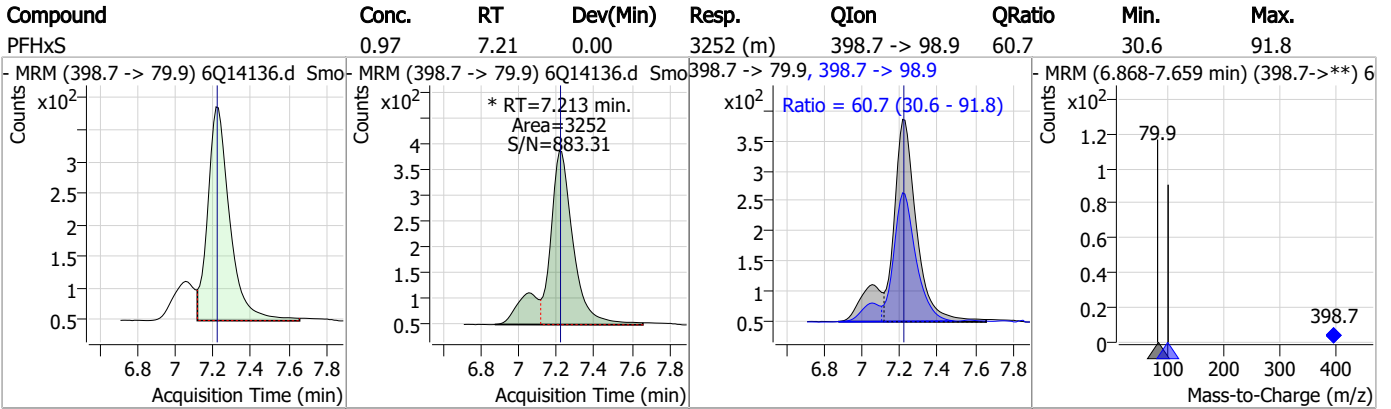


Perfluorinated Compounds by LC/MS/MS



7.3.2
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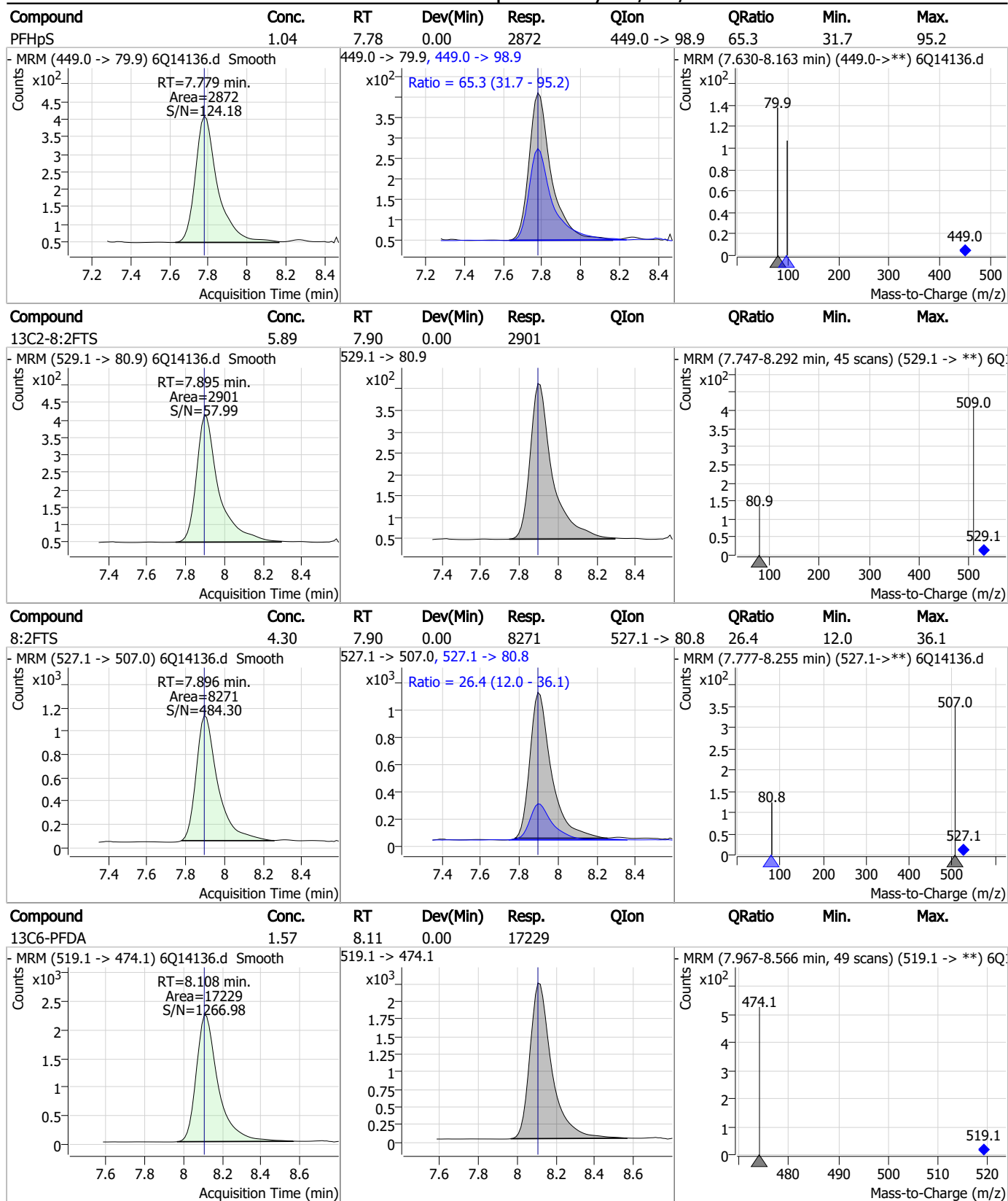
Perfluorinated Compounds by LC/MS/MS



7.3.2

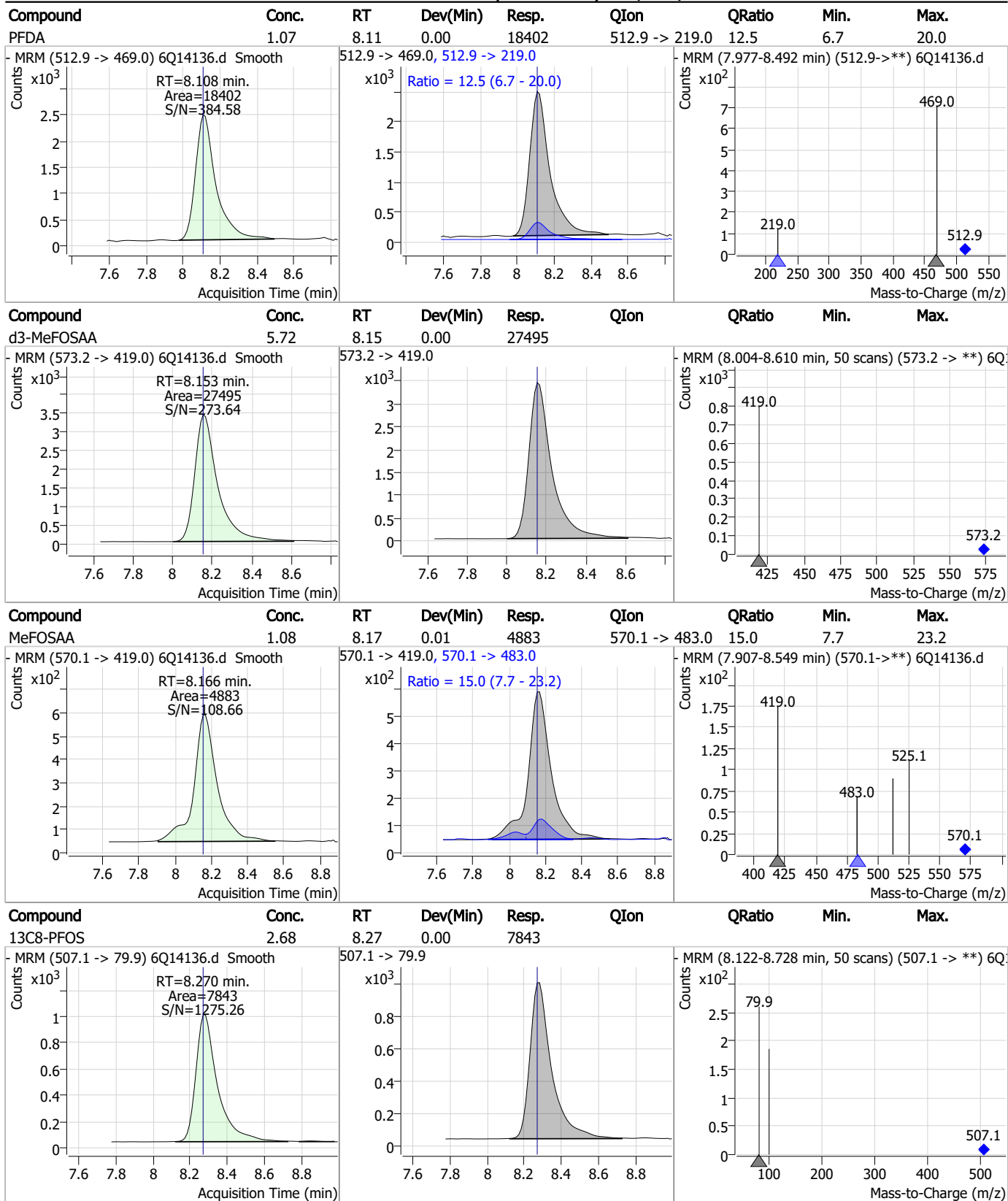
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Perfluorinated Compounds by LC/MS/MS



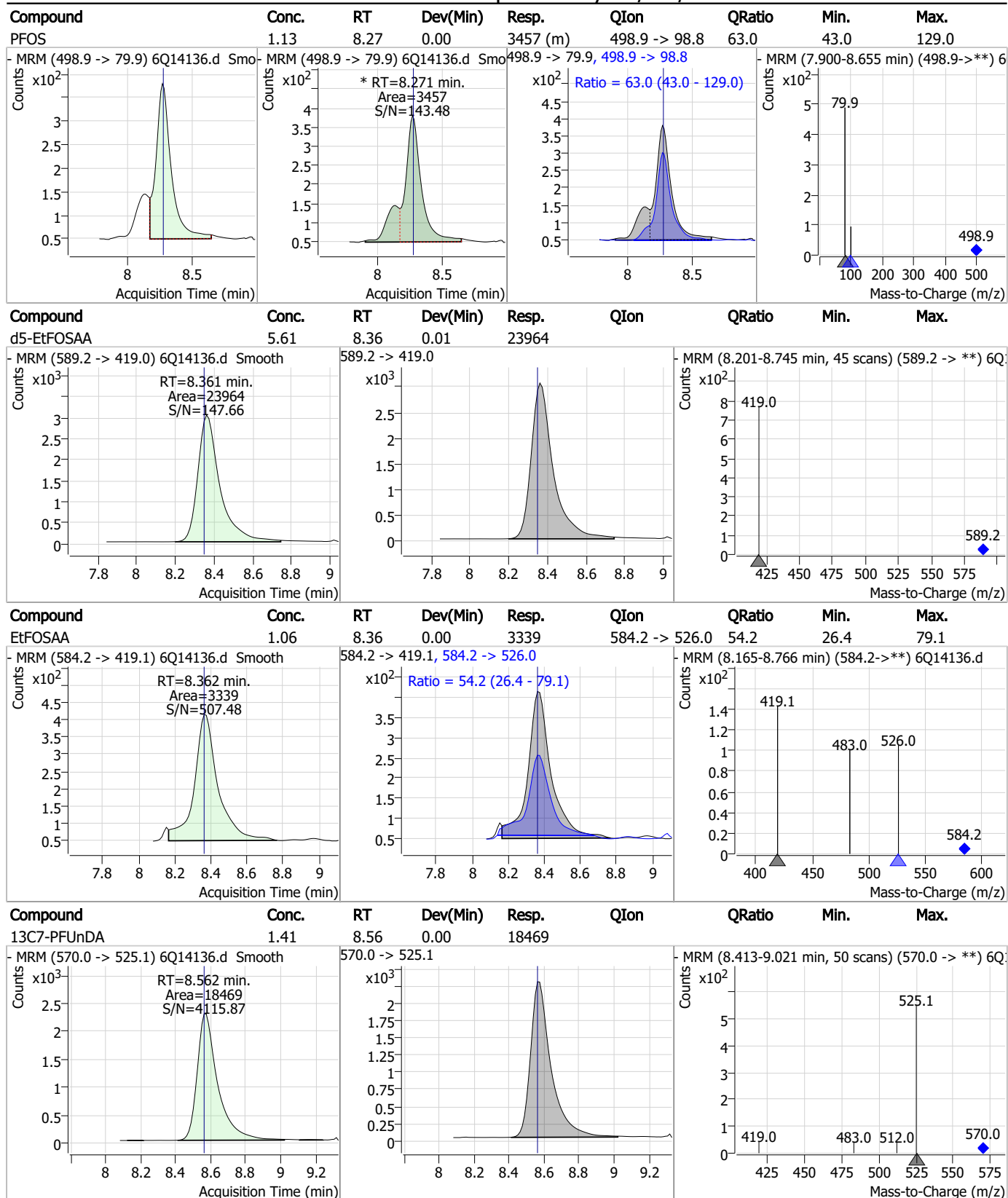
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

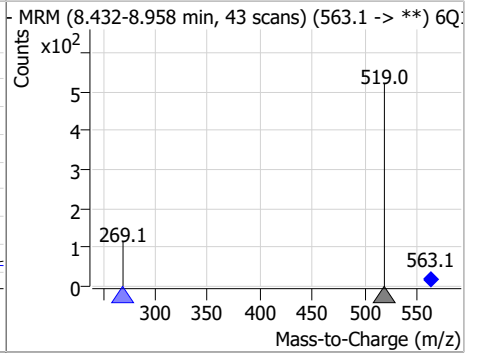
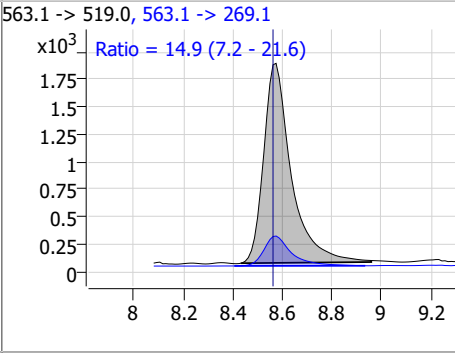
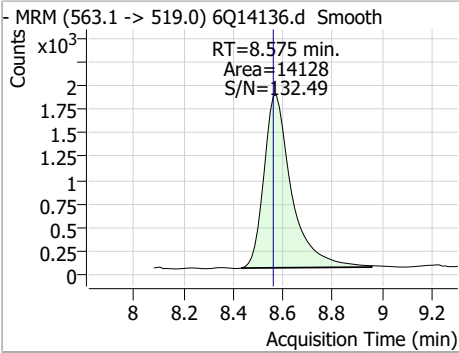
Perfluorinated Compounds by LC/MS/MS



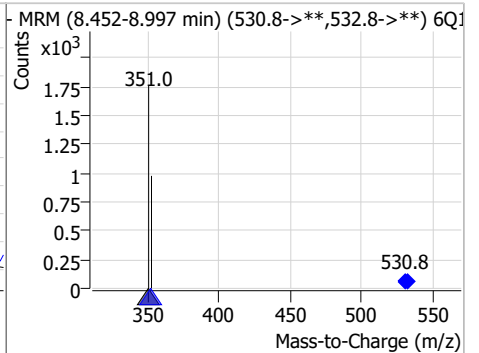
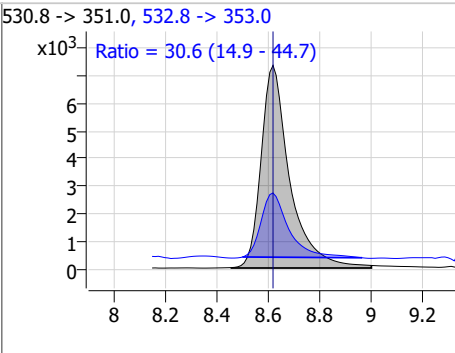
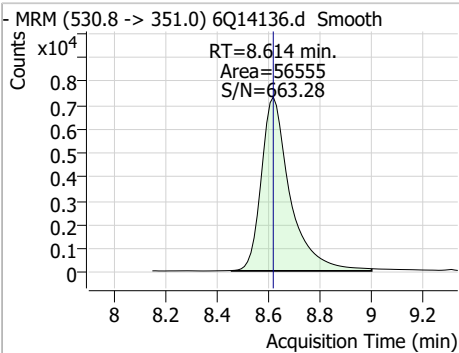
7.3.2
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Perfluorinated Compounds by LC/MS/MS

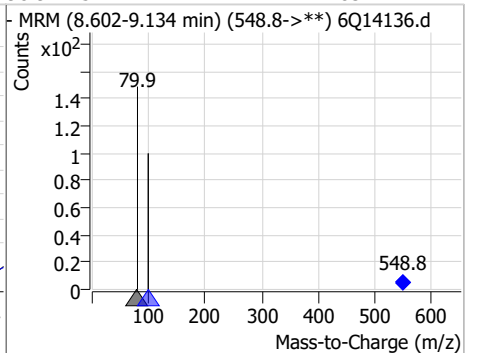
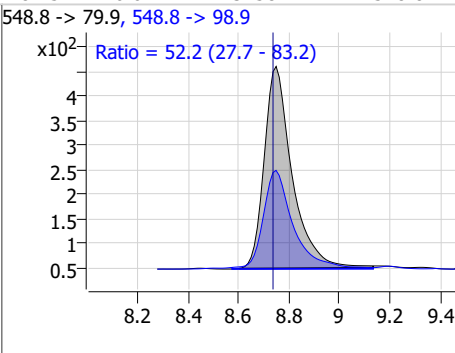
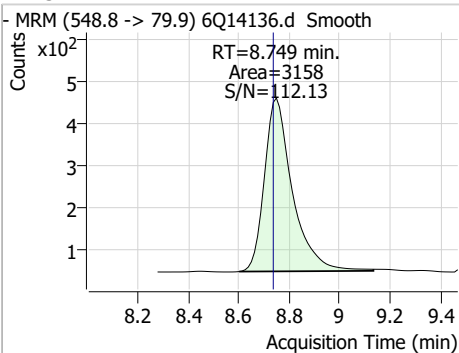
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.10	8.57	0.01	14128	563.1 -> 269.1	14.9	7.2	21.6



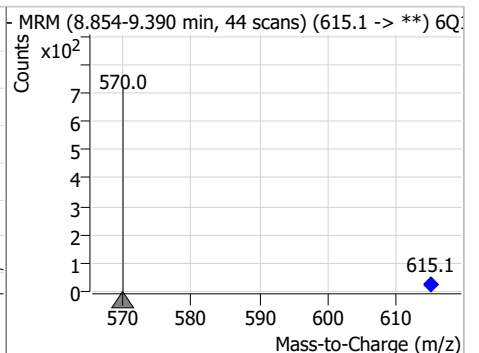
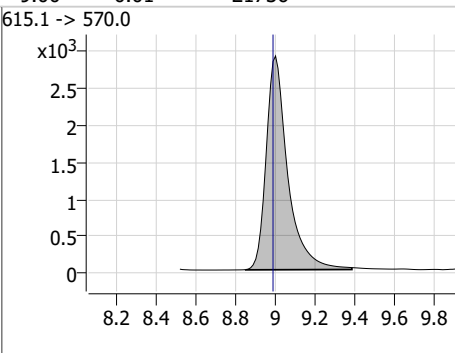
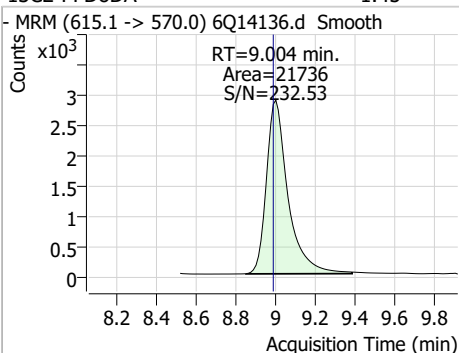
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.20	8.61	0.00	56555	532.8 -> 353.0	30.6	14.9	44.7



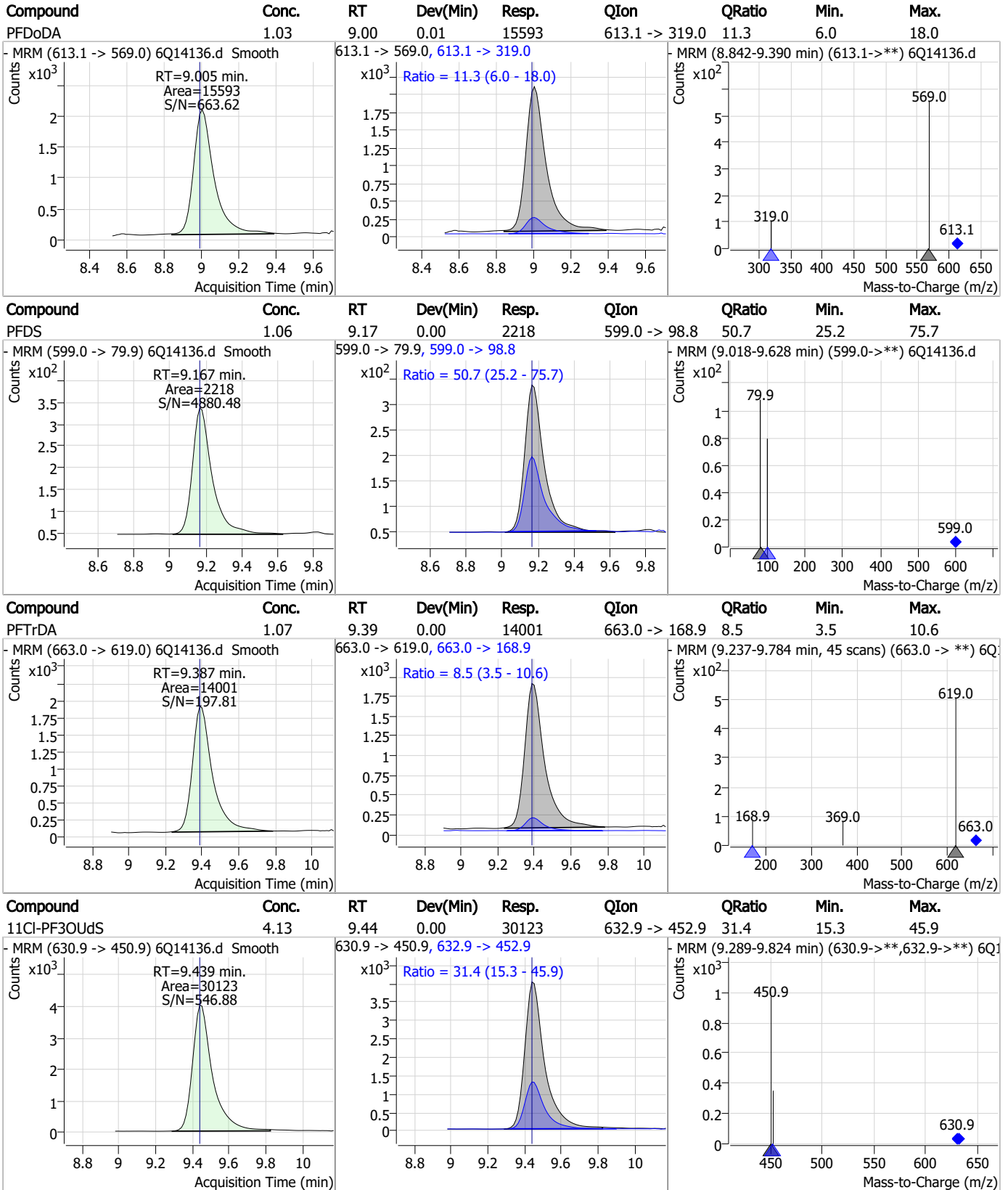
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.12	8.75	0.01	3158	548.8 -> 98.9	52.2	27.7	83.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.45	9.00	0.01	21736	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

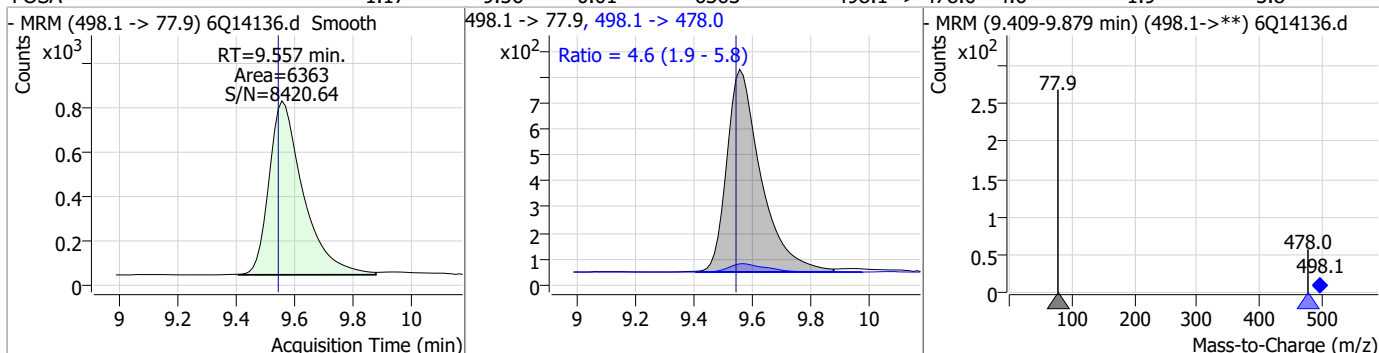


7.3.2

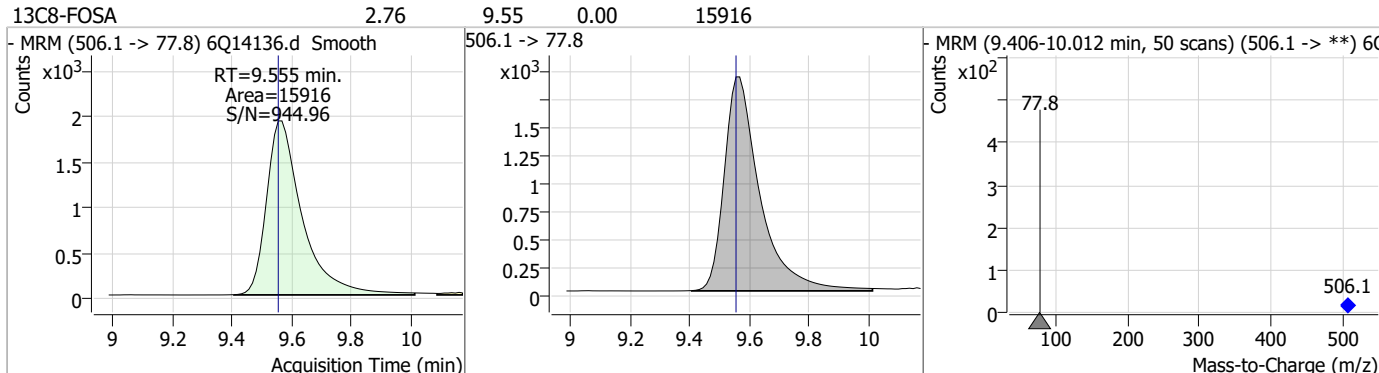
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Perfluorinated Compounds by LC/MS/MS

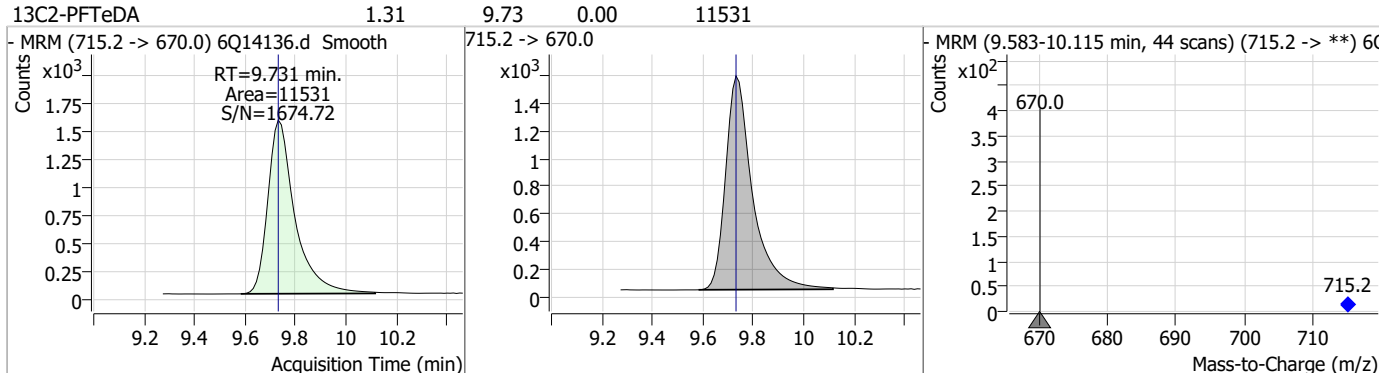
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.17	9.56	0.01	6363	498.1 -> 478.0	4.6	1.9	5.8



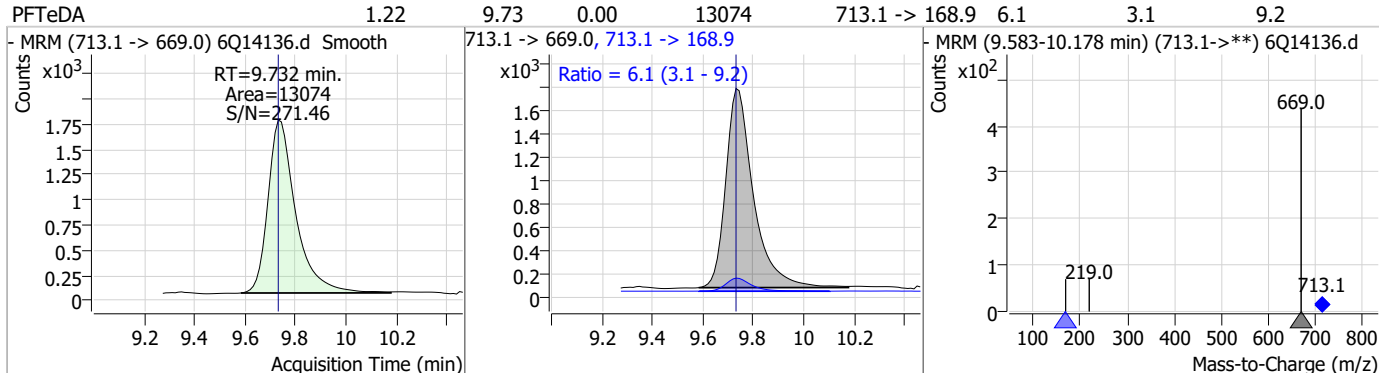
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.76	9.55	0.00	15916				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.31	9.73	0.00	11531				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.22	9.73	0.00	13074	713.1 -> 168.9	6.1	3.1	9.2

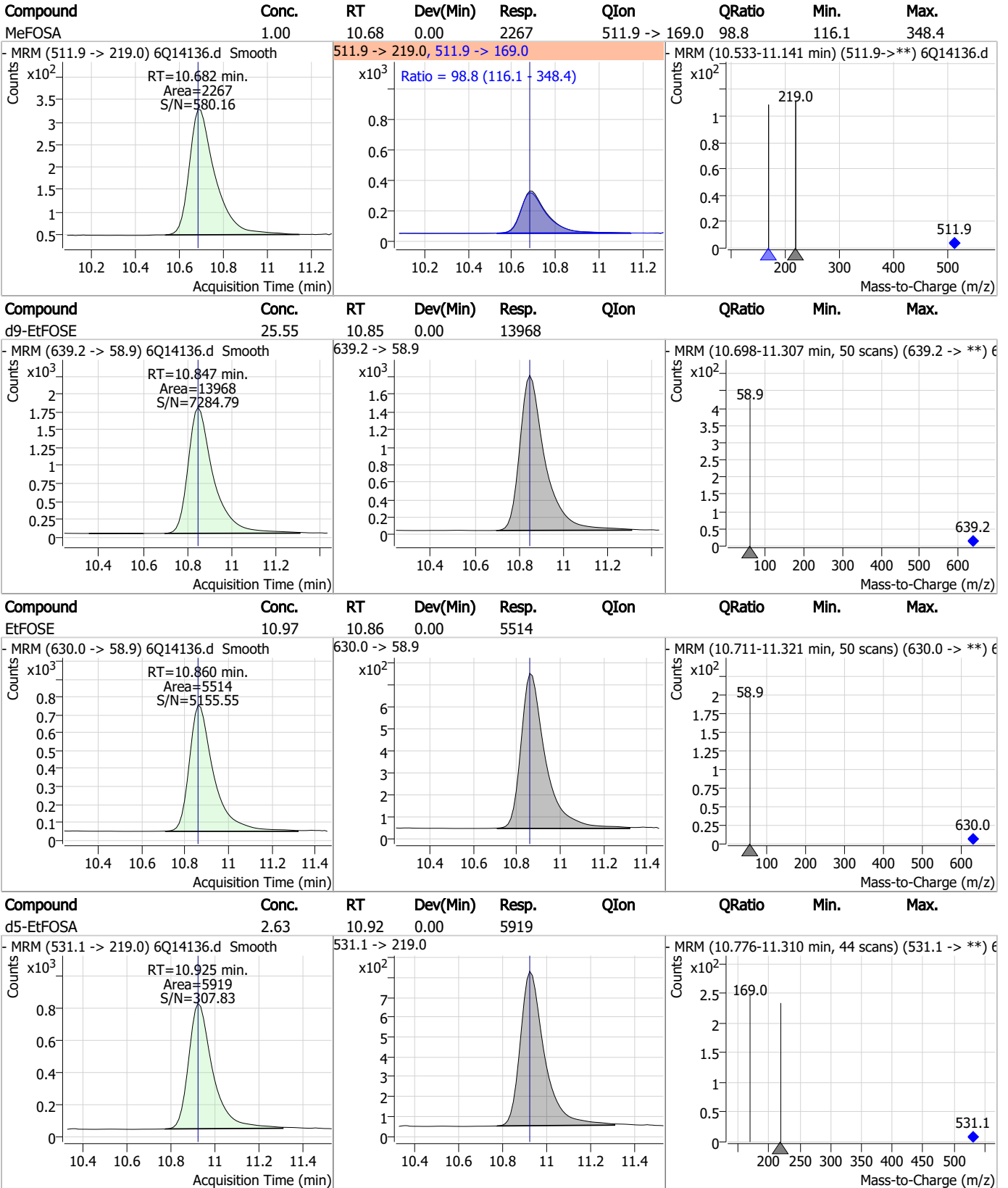


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.03	9.87	0.01	1234	699.1 -> 98.8	61.8	29.4	88.2
d7-MeFOSE	24.80	10.59	0.00	21080				
MeFOSE	11.26	10.61	0.01	8094				
d3-MeFOSA	2.61	10.68	0.00	5389				

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

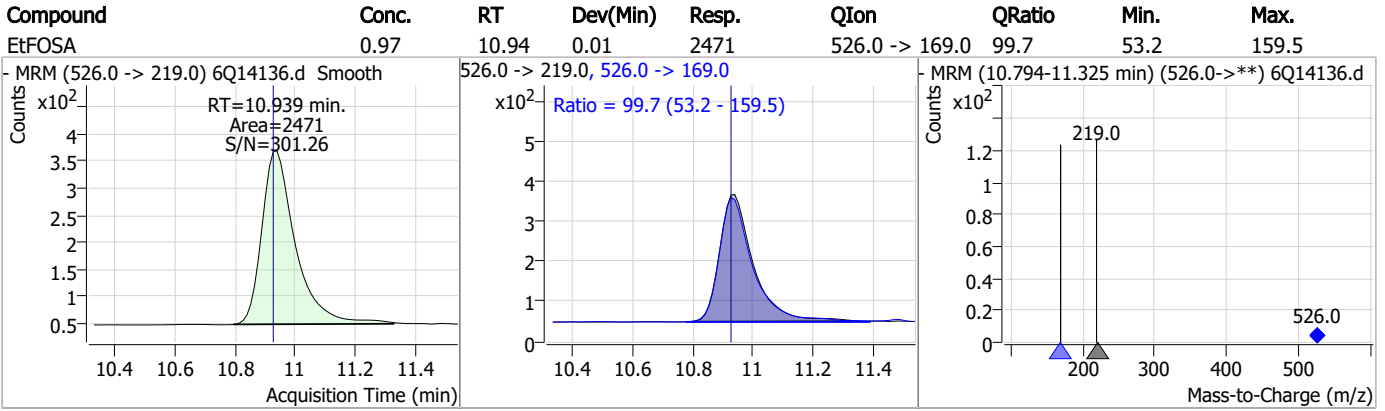


7.3.2

7



Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Manual Integration Approval Summary

Sample Number: OP95501-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q14136.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 20:53 Supervisor approved: 02/23/23 16:45 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14139.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 9:35:18 PM
 Sample Name : op95501-ms
 Vial : P6-A5
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	76050	10.00 µg/L	0.025
M5-PFPeA	4.349	268.3 -> 223.0	37570	5.00 µg/L	0.012
M5-PFHxA	5.525	318.0 -> 273.0	32047	2.50 µg/L	0.012
M4-PFHpA	6.452	367.1 -> 322.0	31443	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	54932	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	18681	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	14713	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	15271	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	15194	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	8032	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	14533	2.50 µg/L	0.000
M3-PFBS	5.468	302.1 -> 79.9	12567	2.50 µg/L	0.012
M3-PFHxS	7.212	402.1 -> 79.9	8302	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	6432	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2268	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	2906	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2415	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	22878	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	12829	10.00 µg/L	0.000
M5-EtFOSAA	8.361	589.2 -> 419.0	18670	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	17022	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	11116	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	4666	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	4697	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	8286	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	30881	5.00 µg/L	0.037
18O2-PFHxS	7.223	403.0 -> 83.9	5259	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	67188	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	20007	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	18803	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	30178	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2268	6.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.0%		
13C2-6:2FTS	6.871	429.1 -> 80.9	2906	6.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.9%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2415	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFDoDA	9.004	615.1 -> 570.0	15194	0.98 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.6%		
13C2-PFTeDA	9.731	715.2 -> 670.0	8032	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.7%		
13C3-PFBS	5.468	302.1 -> 79.9	12567	2.79 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C3-PFHxS	7.212	402.1 -> 79.9	8302	2.92 µg/L	0.000

7.4.1
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 = 116.7%		
13C4-PFBA	2.975	216.8 -> 171.9	76050	10.93 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C4-PFHpA	6.452	367.1 -> 322.0	31443	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C5-PFHxA	5.525	318.0 -> 273.0	32047	2.71 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C5-PFPeA	4.349	268.3 -> 223.0	37570	5.52 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C6-PFDA	8.108	519.1 -> 474.1	14713	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C7-PFUnDA	8.562	570.0 -> 525.1	15271	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C8-FOSA	9.555	506.1 -> 77.8	14533	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C8-PFOA	7.097	421.1 -> 376.0	54932	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C8-PFOS	8.270	507.1 -> 79.9	6432	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C9-PFNA	7.626	472.1 -> 427.0	18681	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.3%		
d3-MeFOSAA	8.153	573.2 -> 419.0	22878	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-HFPO-DA	5.890	286.9 -> 168.9	12829	11.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 111.5%		
d3-MeFOSA	10.680	515.0 -> 219.0	4697	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
d5-EtFOSAA	8.361	589.2 -> 419.0	18670	4.74 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	17022	21.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 86.8%		
d9-EtFOSE	10.847	639.2 -> 58.9	11116	22.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.1%		
d5-EtFOSA	10.925	531.1 -> 219.0	4666	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.0%		
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	48210	11.10 µg/L	99
		327.1 -> 80.9	10345		
6:2FTS	6.871	427.1 -> 407.0	40577	11.25 µg/L	95
		427.1 -> 80.9	8211		
8:2FTS	7.896	527.1 -> 507.0	19724	12.31 µg/L	100
		527.1 -> 80.8	4697		
EtFOSAA	8.362	584.2 -> 419.1	7450	3.03 µg/L	85
		584.2 -> 526.0	4698		
FOSA	9.557	498.1 -> 77.9	15533	3.12 µg/L	99
		498.1 -> 478.0	556		
MeFOSAA	8.154	570.1 -> 419.0	11006	2.92 µg/L	99
		570.1 -> 483.0	1739		
PFBA	2.982	212.8 -> 168.9	18381	12.04 µg/L	100
PFBS	5.457	298.7 -> 79.9	11002	2.71 µg/L	99
		298.7 -> 98.8	5343		
PFDA	8.108	512.9 -> 469.0	43725	2.97 µg/L	100
		512.9 -> 219.0	5818		
PFDODA	9.005	613.1 -> 569.0	29186	2.75 µg/L	99
		613.1 -> 319.0	3591		
PFDS	9.167	599.0 -> 79.9	4122	2.40 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2253			
PFHpA	6.453	363.1 -> 319.0	52218	3.41	µg/L	98
		363.1 -> 169.0	6835			
PFHpS	7.779	449.0 -> 79.9	7083	3.14	µg/L	94
		449.0 -> 98.9	4164			
PFHxA	5.516	313.0 -> 269.0	31063	2.96	µg/L	96
		313.0 -> 118.9	1461			
PFHxS	7.225	398.7 -> 79.9	8617	2.73	µg/L	m 92
		398.7 -> 98.9	4758			
PFNA	7.627	463.0 -> 419.0	29576	3.03	µg/L	99
		463.0 -> 219.0	6283			
PFNS	8.737	548.8 -> 79.9	6413	2.77	µg/L	91
		548.8 -> 98.9	3987			
PFOA	7.098	413.0 -> 369.0	63494	3.07	µg/L	92
		413.0 -> 169.0	8091			
PFOS	8.271	498.9 -> 79.9	7518	3.00	µg/L	m 79
		498.9 -> 98.8	5000			
PFPeA	4.350	263.0 -> 219.0	42836	6.57	µg/L	100
PFPeS	6.517	349.1 -> 79.9	10240	2.64	µg/L	99
		349.1 -> 98.9	5534			
PFTeDA	9.732	713.1 -> 669.0	22879	3.07	µg/L	98
		713.1 -> 168.9	1601			
PFTrDA	9.387	663.0 -> 619.0	26306	2.89	µg/L	99
		663.0 -> 168.9	1799			
PFUnDA	8.562	563.1 -> 519.0	30874	2.92	µg/L	97
		563.1 -> 269.1	4825			
11CI-PF3OUdS	9.439	630.9 -> 450.9	61026	8.88	µg/L	98
		632.9 -> 452.9	18039			
9CI-PF3ONS	8.602	530.8 -> 351.0	137267	10.80	µg/L	99
		532.8 -> 353.0	41620			
ADONA	6.716	376.9 -> 250.9	288399	11.49	µg/L	98
		376.9 -> 84.8	59918			
HFPO-DA	5.891	284.9 -> 168.9	12017	11.63	µg/L	99
		284.9 -> 184.9	1380			
3:3FTCA	3.841	241.0 -> 177.0	4665	13.89	µg/L	94
		241.0 -> 117.0	710			
5:3FTCA	6.169	341.0 -> 237.1	182278	79.06	µg/L	100
		341.0 -> 217.0	158364			
7:3FTCA	7.579	441.0 -> 316.9	87674	70.89	µg/L	90
		441.0 -> 336.9	179020			
EtFOSA	10.927	526.0 -> 219.0	5746	2.85	µg/L	89
		526.0 -> 169.0	5437			
EtFOSE	10.860	630.0 -> 58.9	11367	28.42	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	5373	2.73	µg/L	# 23
		511.9 -> 169.0	5606			
MeFOSE	10.602	616.1 -> 58.9	16704	28.79	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	2481	2.52	µg/L	97
		699.1 -> 98.8	1406			
NFDHA	5.407	295.0 -> 201.0	3687	6.41	µg/L	98
		295.0 -> 84.9	2006			
PFMBA	4.750	279.0 -> 85.1	11412	5.99	µg/L	100
PFMPA	3.516	229.0 -> 84.9	10495	6.00	µg/L	100
PFEESA	5.996	314.8 -> 134.9	81140	5.59	µg/L	100
		314.8 -> 82.9	1834			

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

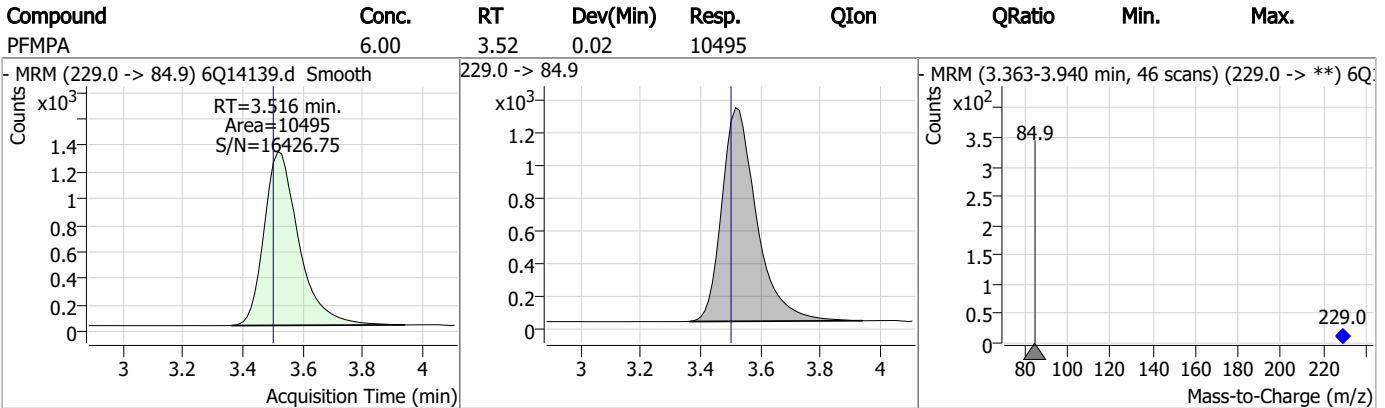
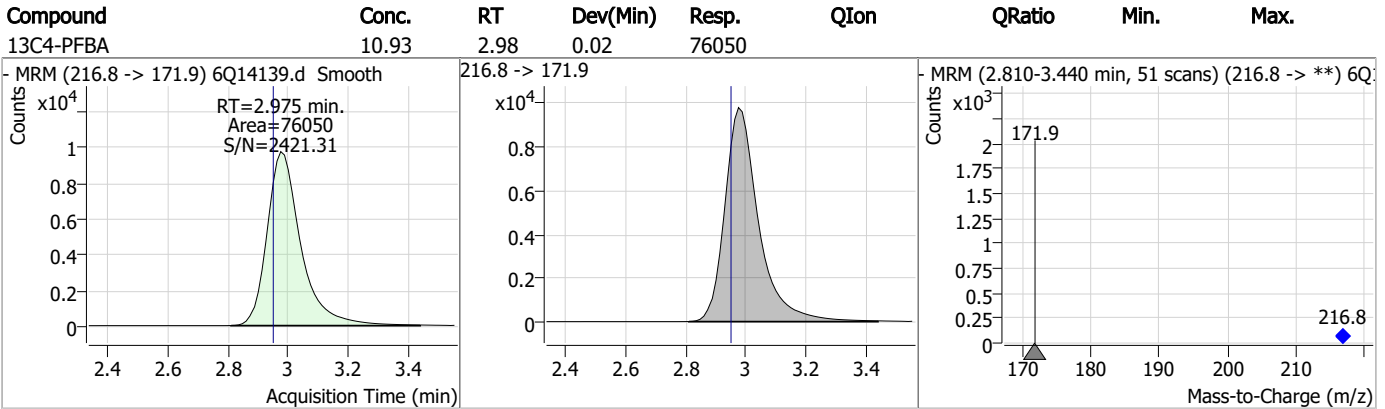
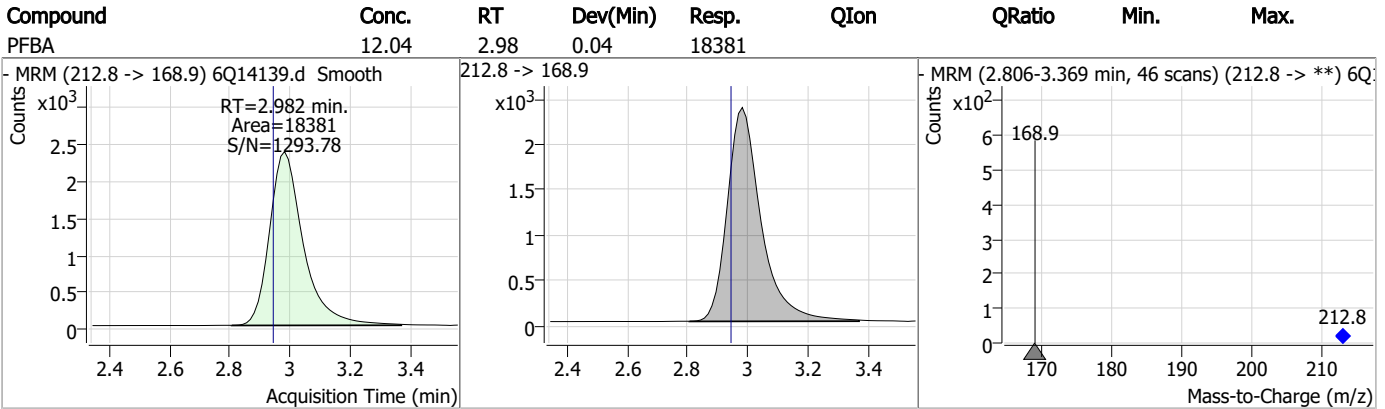
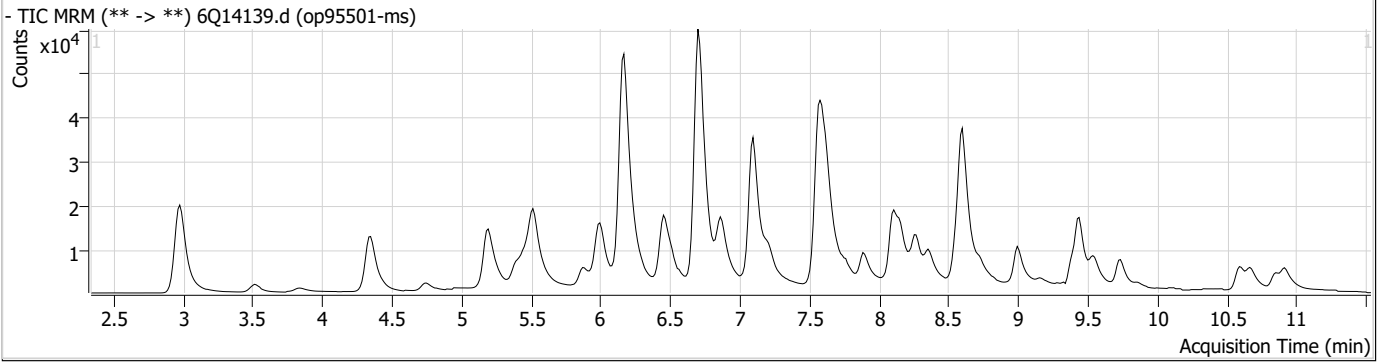
Perfluorinated Compounds by LC/MS/MS

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

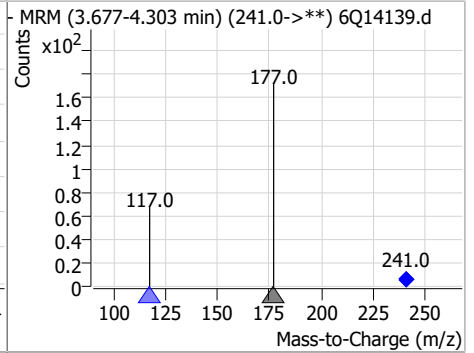
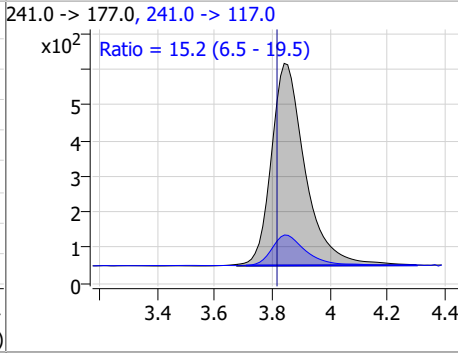
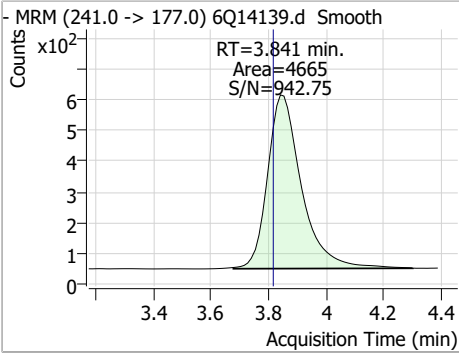
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Perfluorinated Compounds by LC/MS/MS

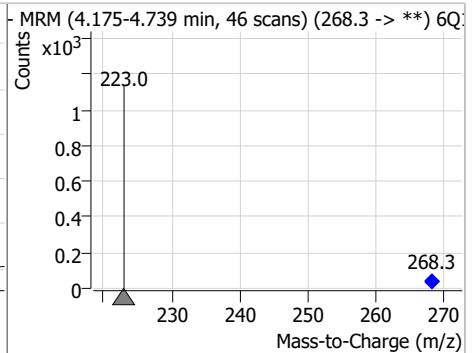
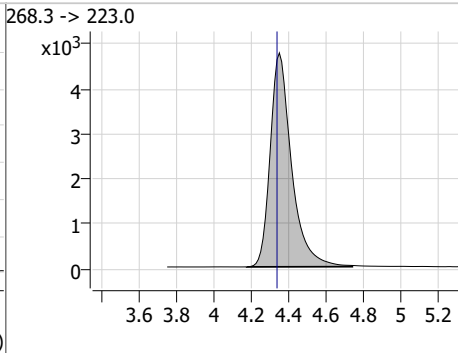
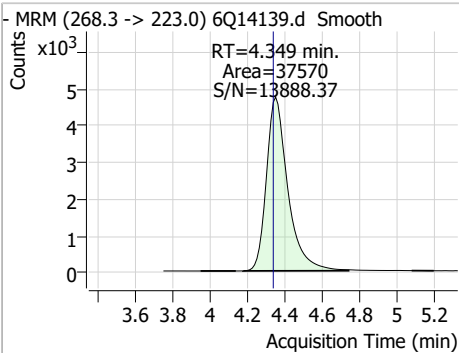


Perfluorinated Compounds by LC/MS/MS

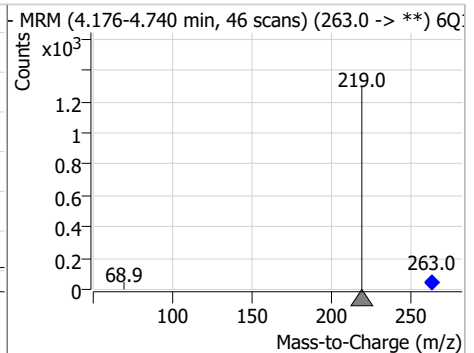
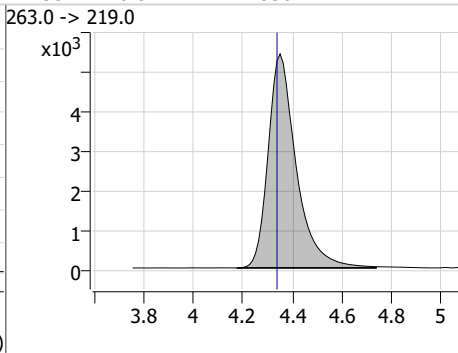
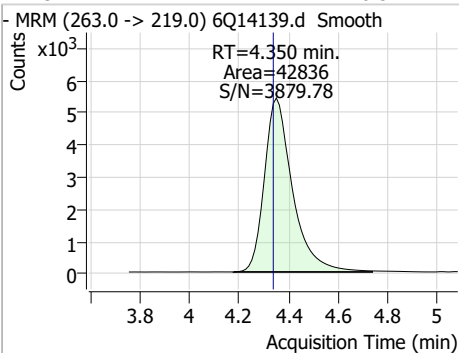
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	13.89	3.84	0.02	4665	241.0 -> 117.0	15.2	6.5	19.5



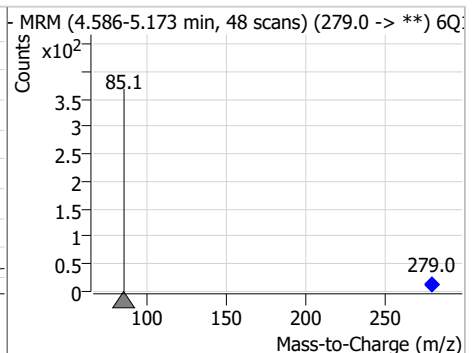
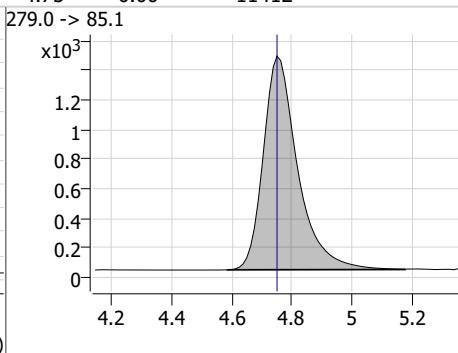
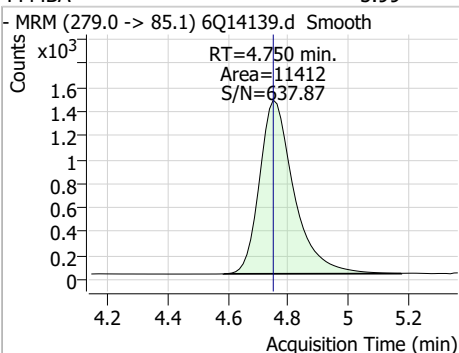
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.52	4.35	0.01	37570				



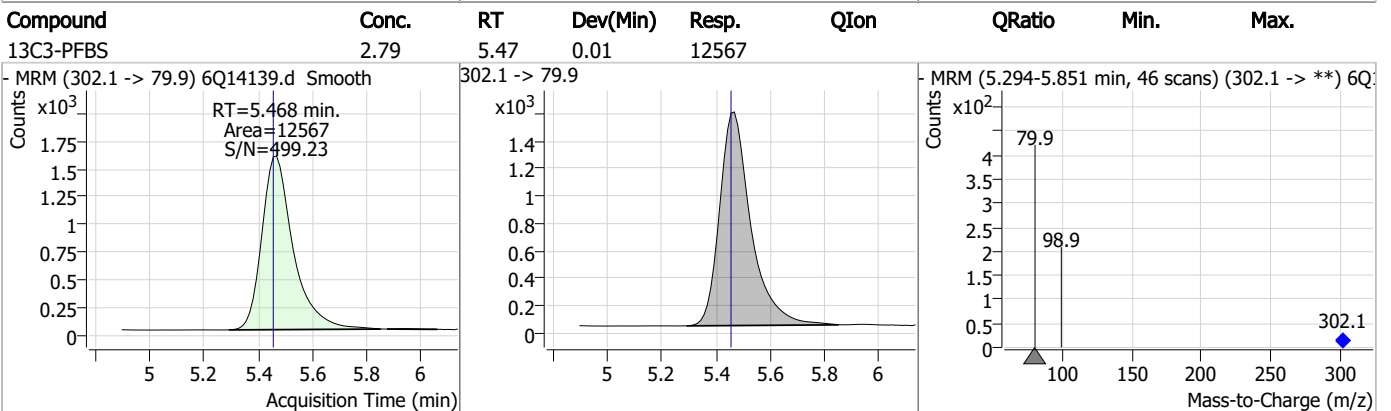
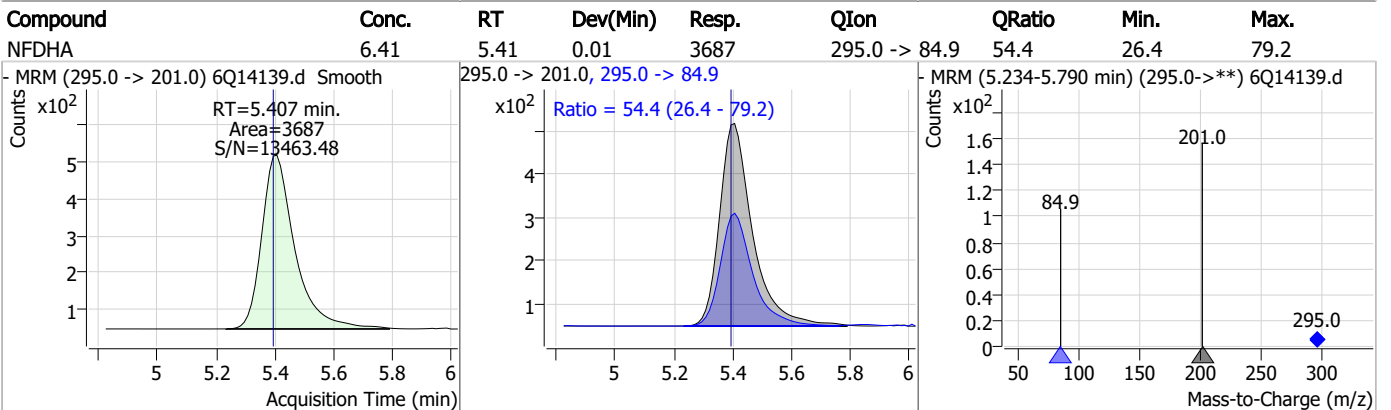
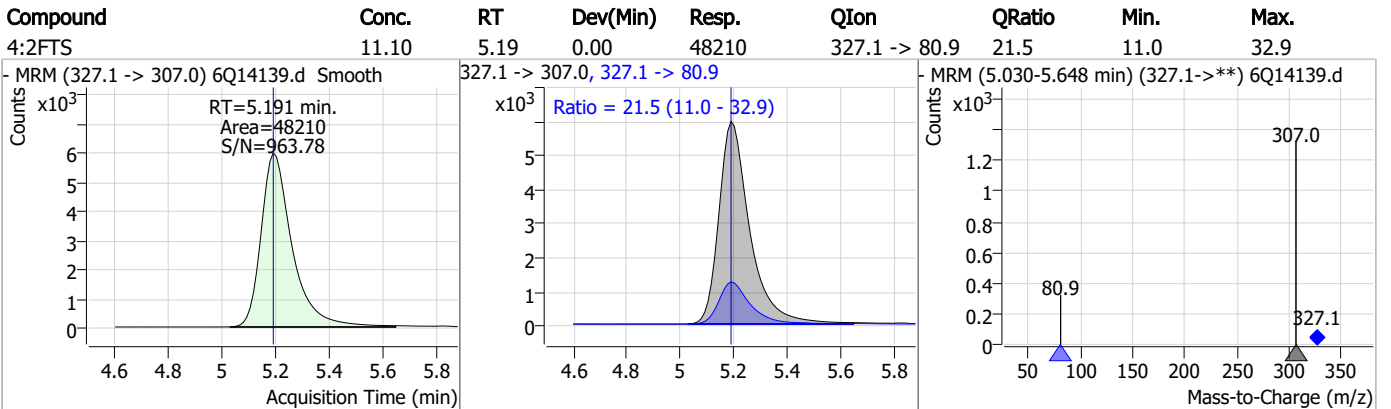
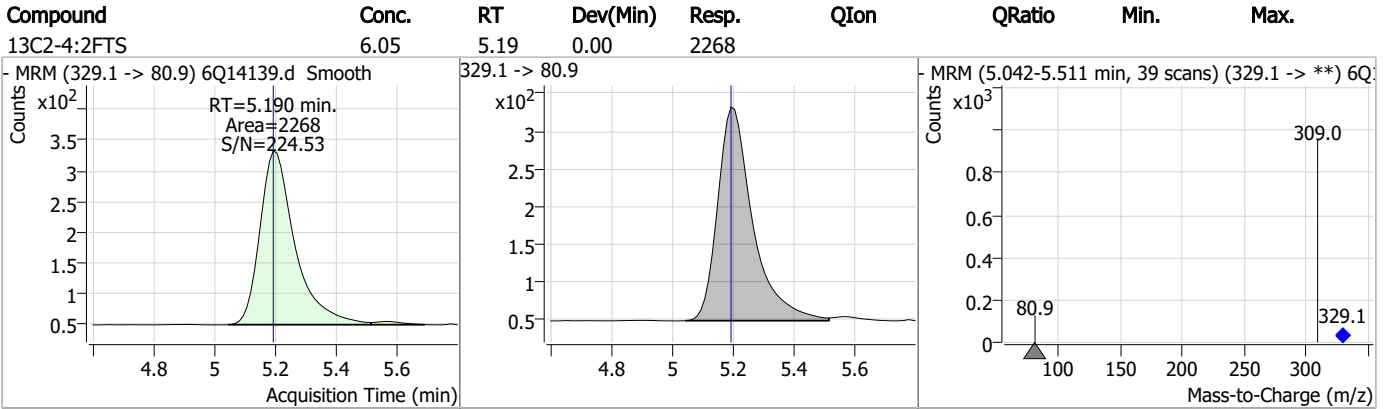
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	6.57	4.35	0.01	42836				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.99	4.75	0.00	11412				

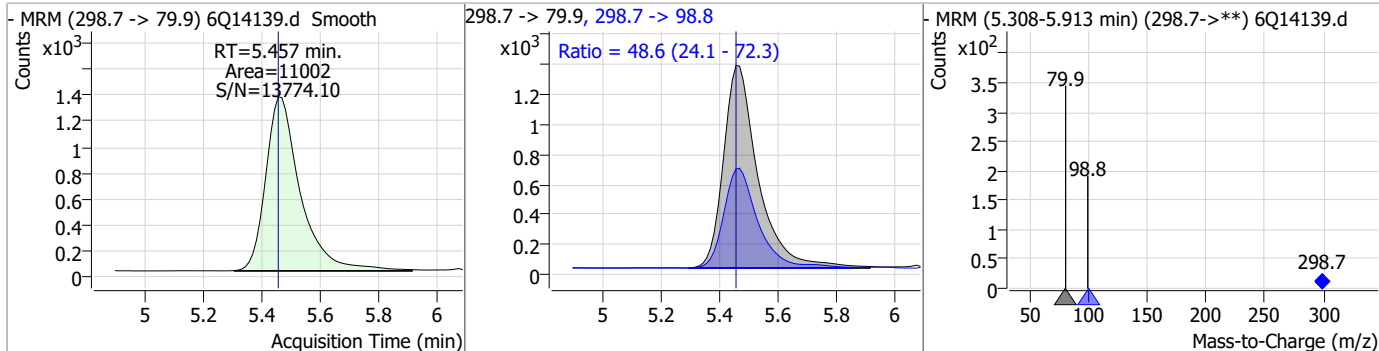


Perfluorinated Compounds by LC/MS/MS

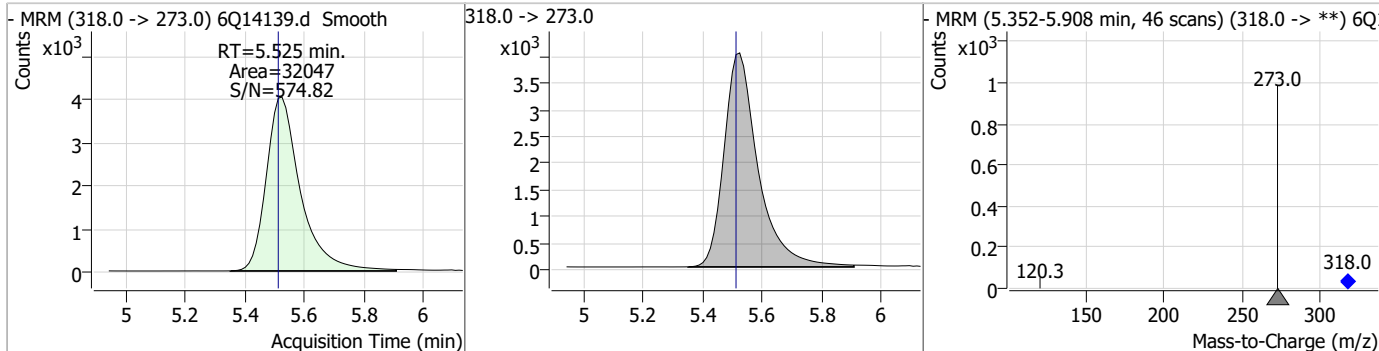


Perfluorinated Compounds by LC/MS/MS

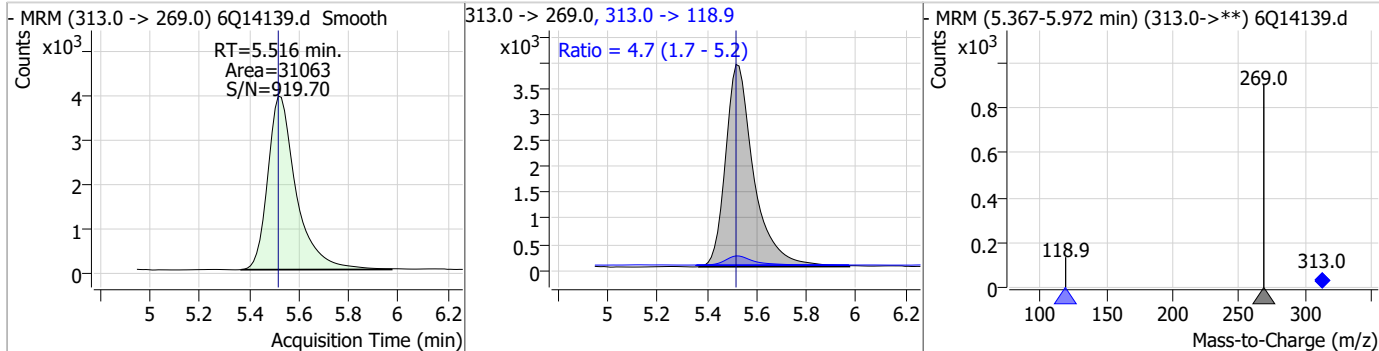
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.71	5.46	0.00	11002	298.7 -> 98.8	48.6	24.1	72.3



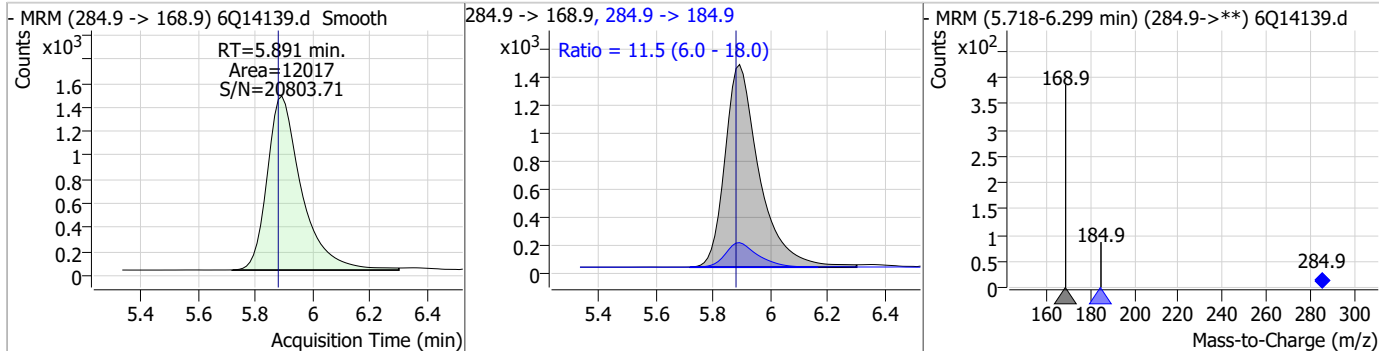
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.71	5.52	0.01	32047				



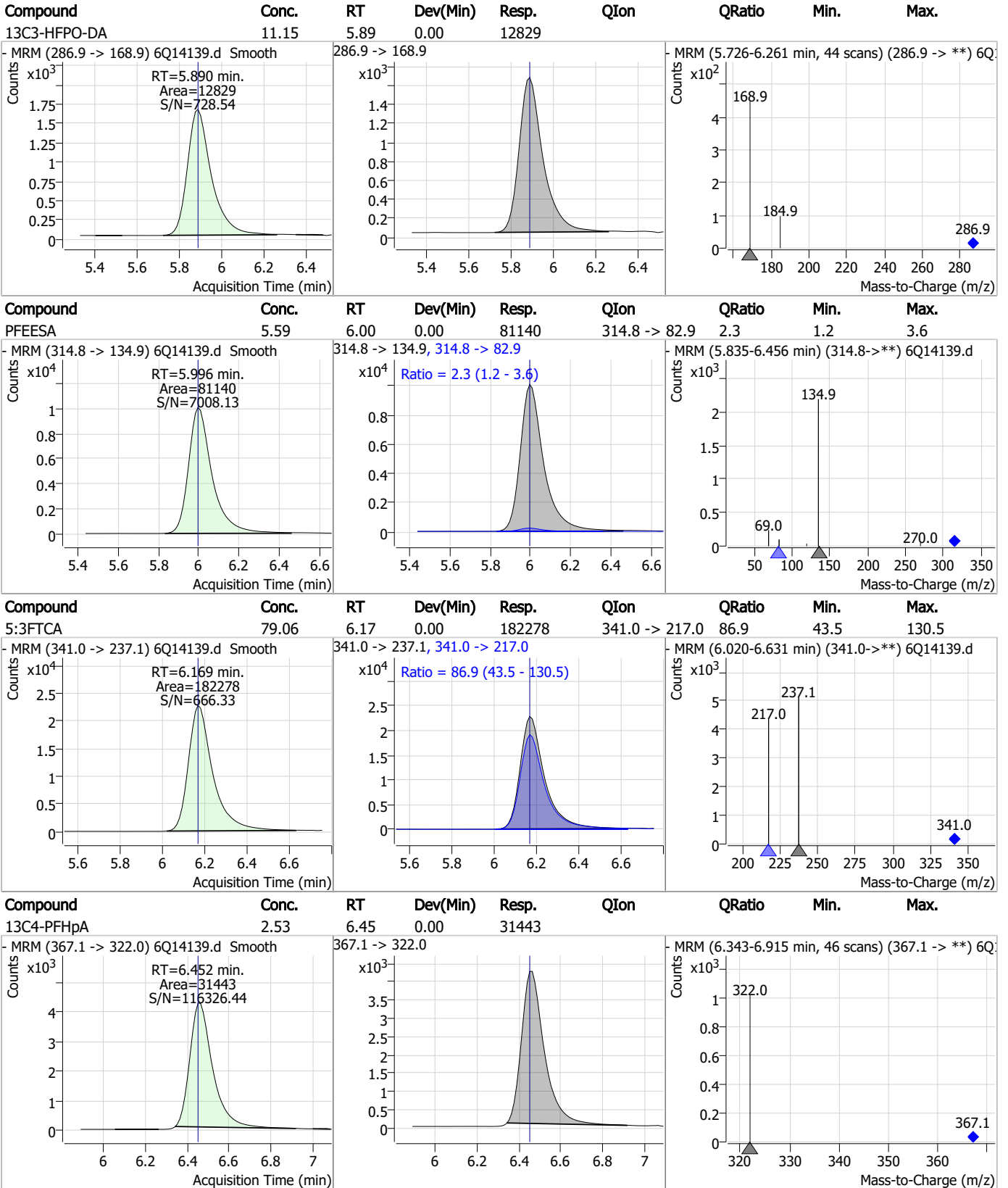
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.96	5.52	0.00	31063	313.0 -> 118.9	4.7	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	11.63	5.89	0.01	12017	284.9 -> 184.9	11.5	6.0	18.0



Perfluorinated Compounds by LC/MS/MS

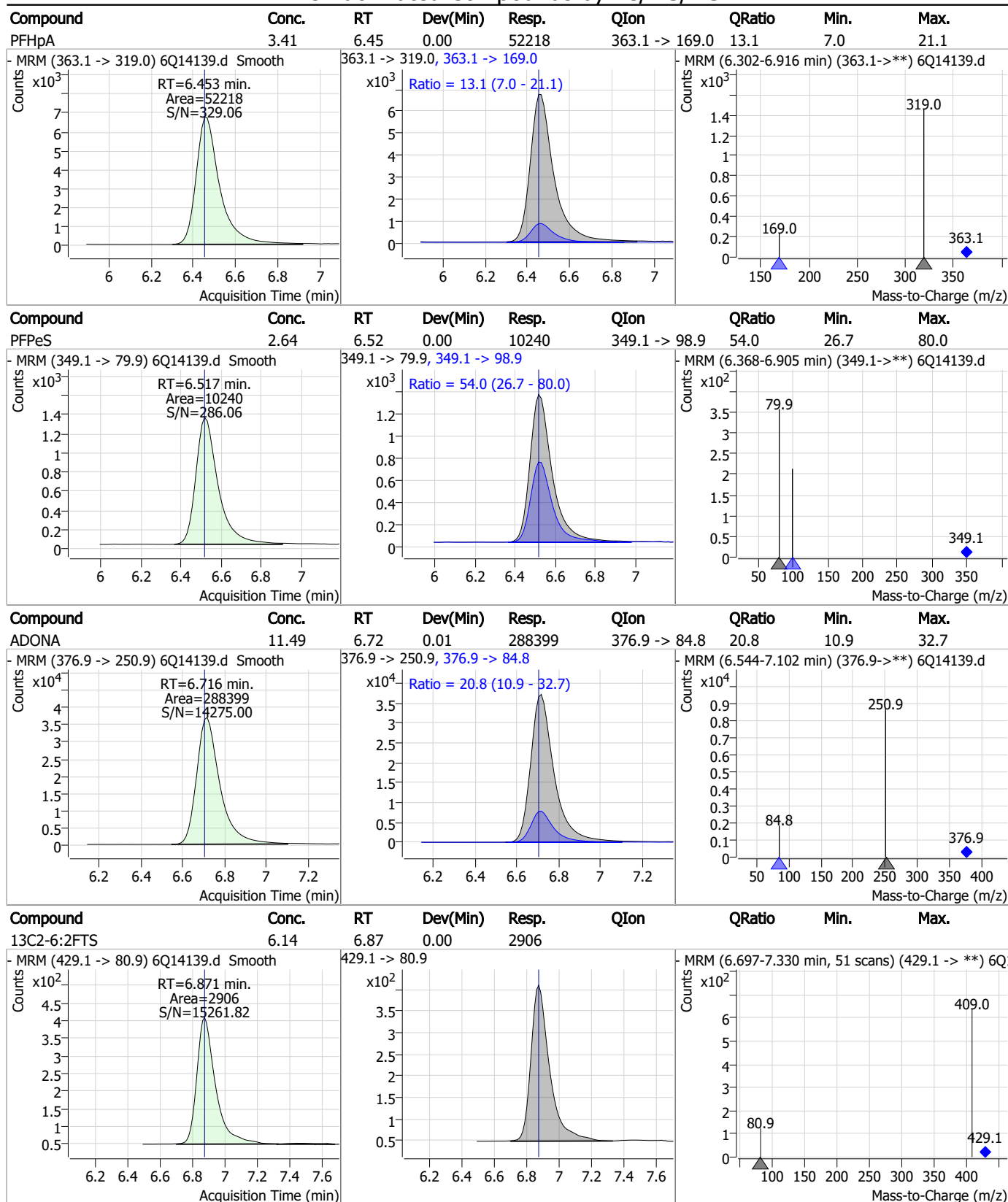


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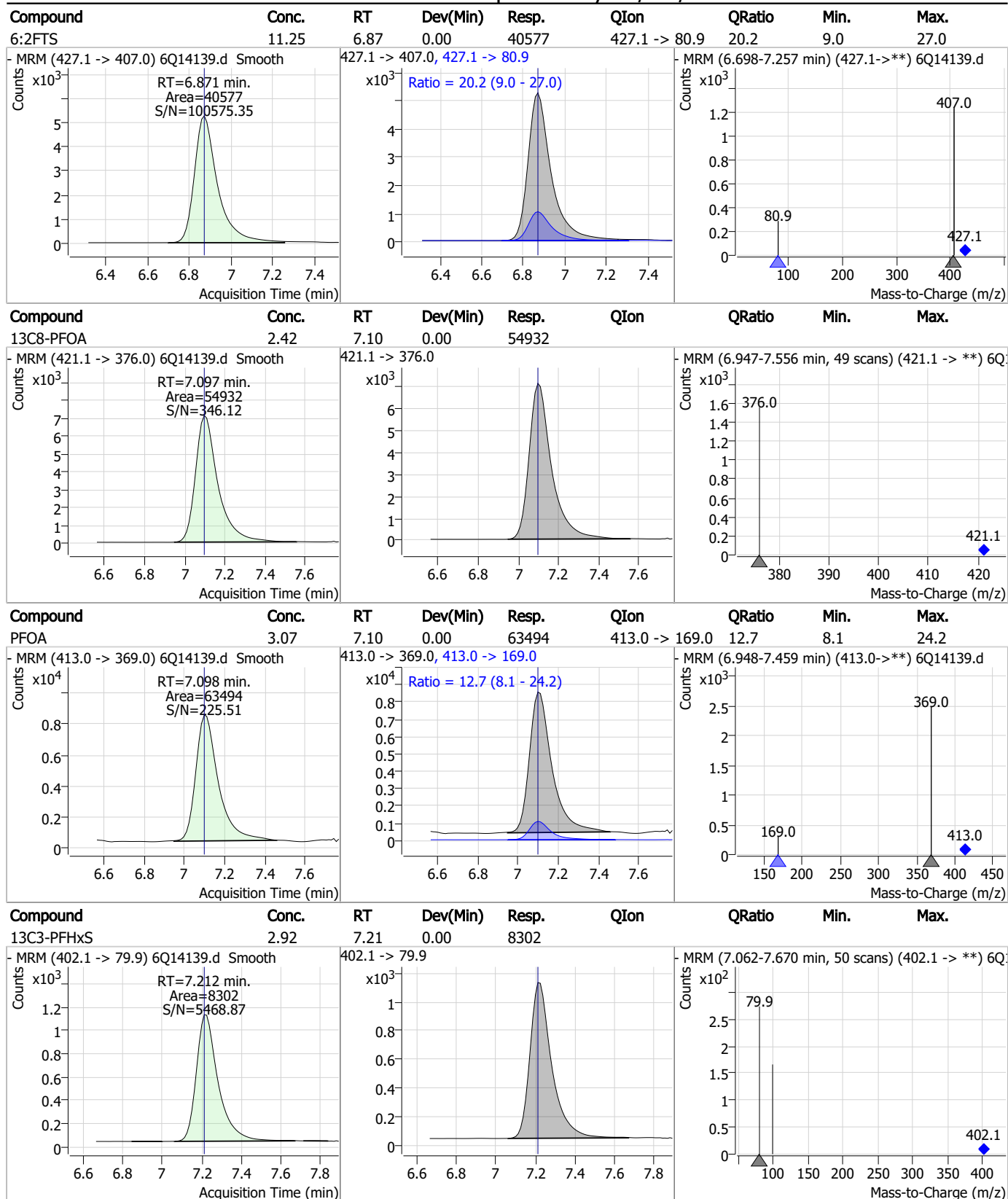


Perfluorinated Compounds by LC/MS/MS



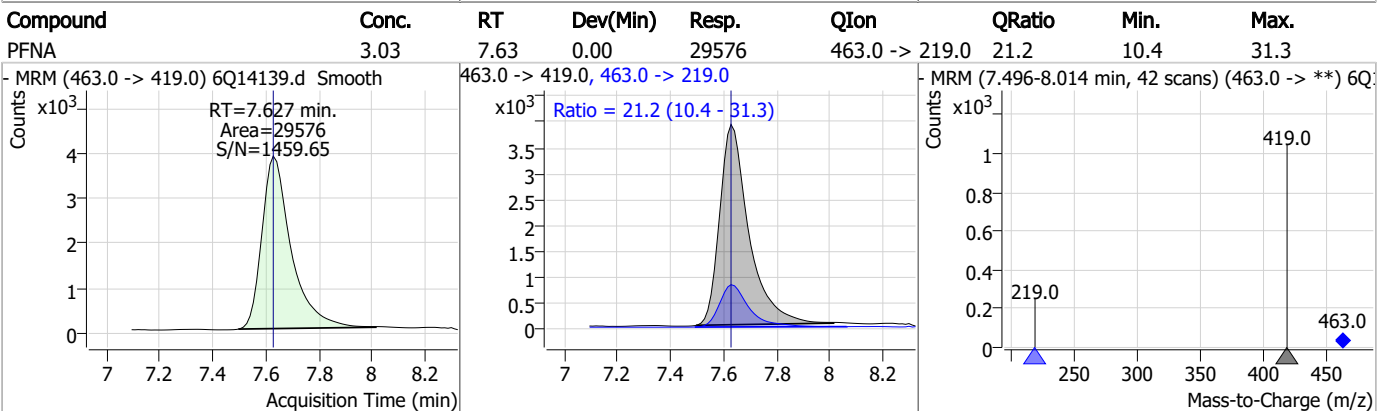
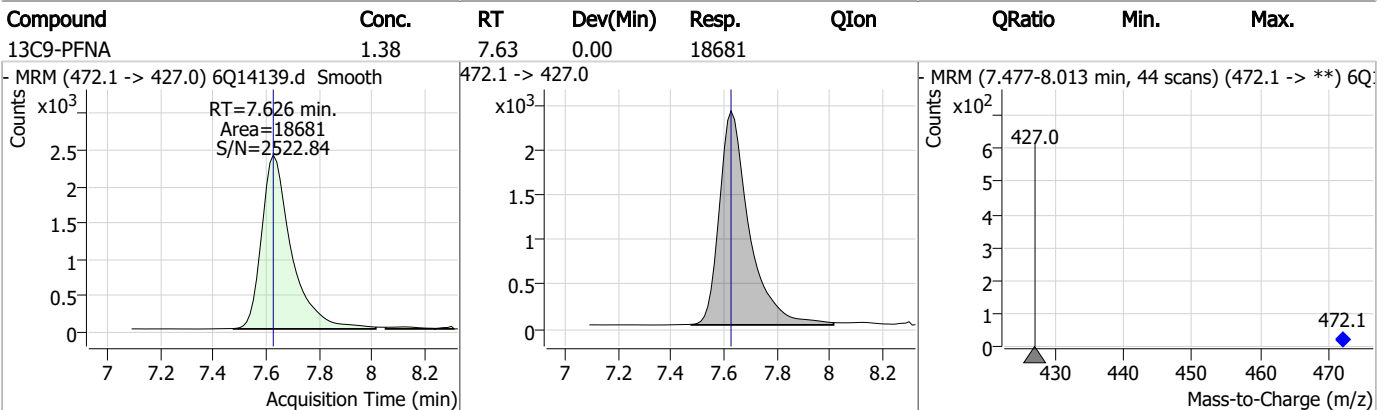
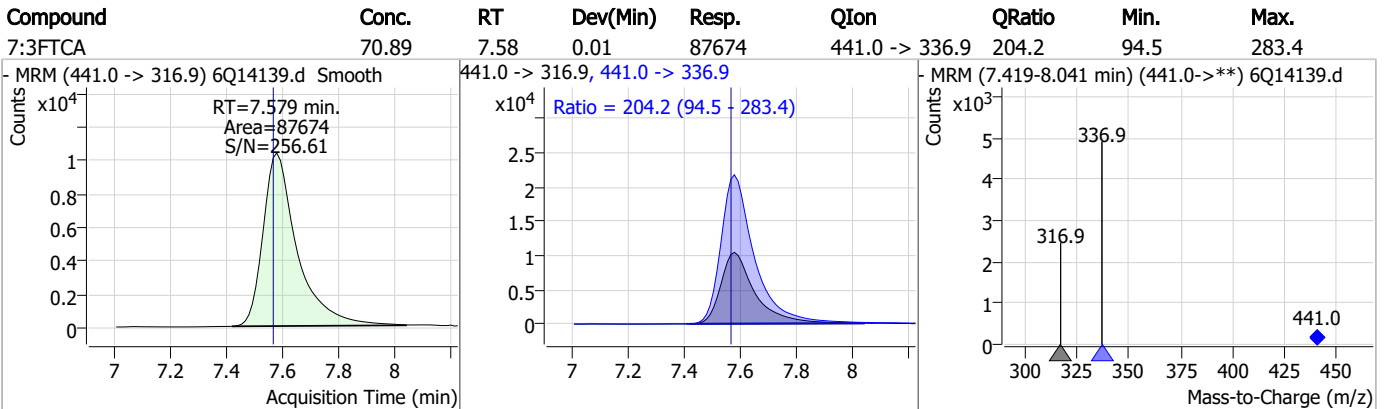
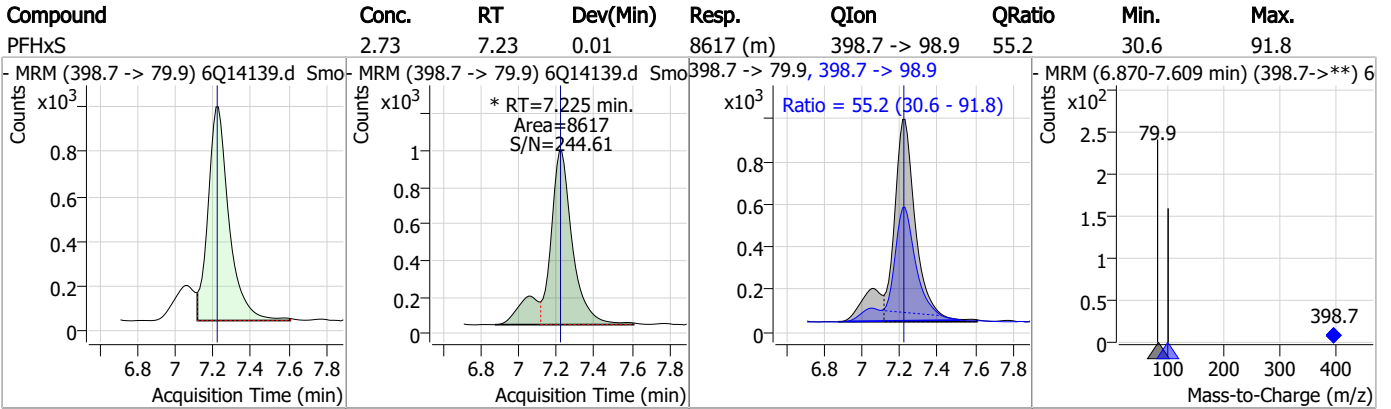
7.4.1
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Perfluorinated Compounds by LC/MS/MS



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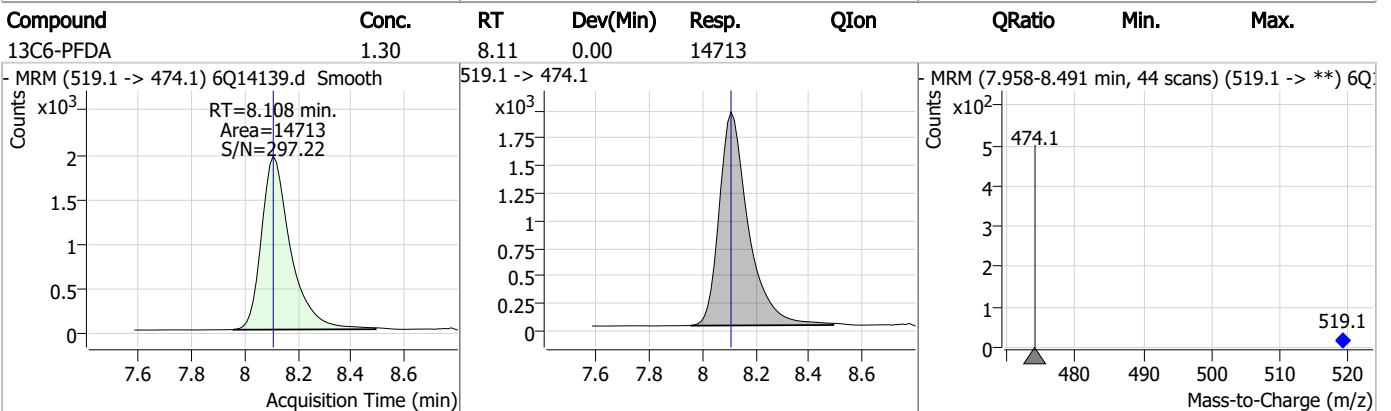
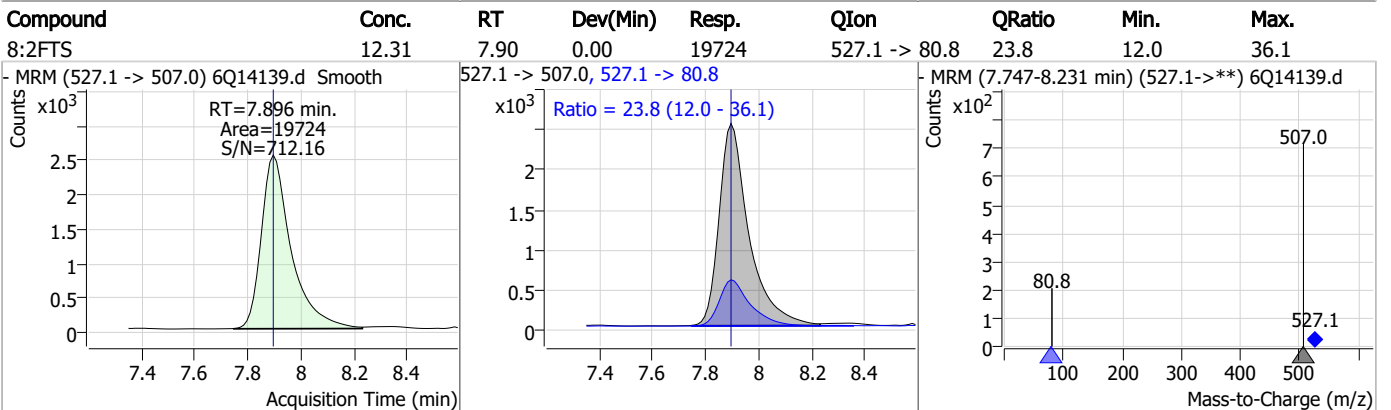
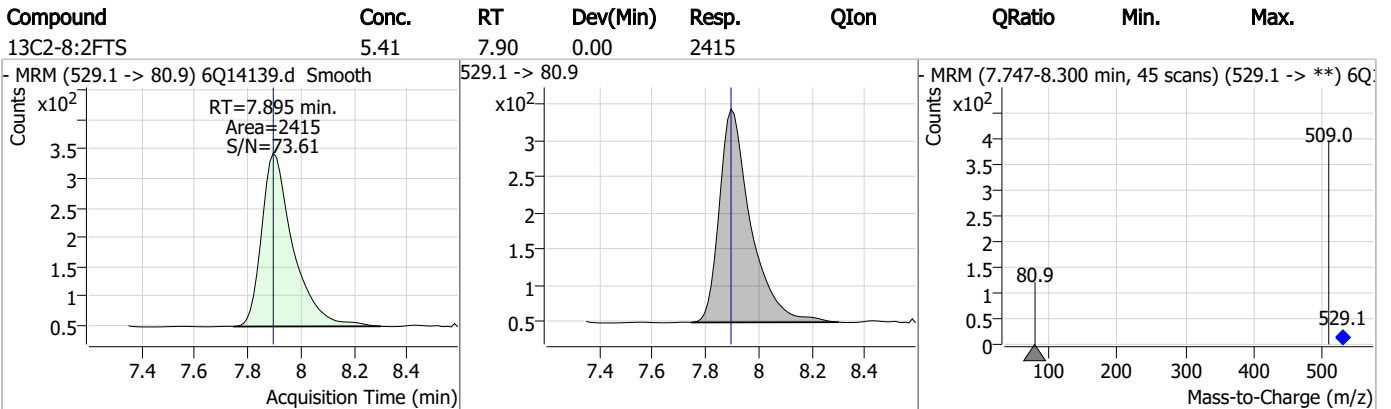
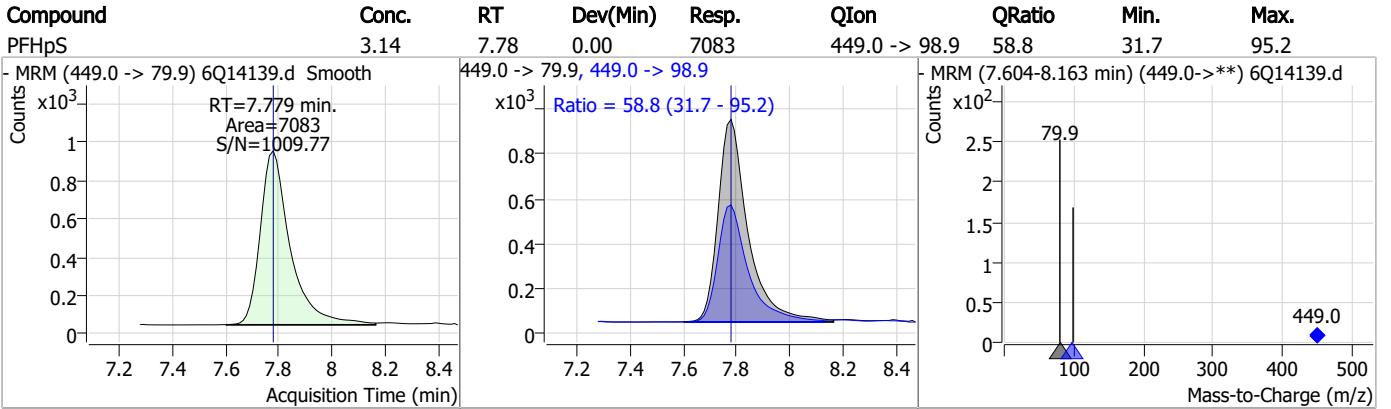
Perfluorinated Compounds by LC/MS/MS



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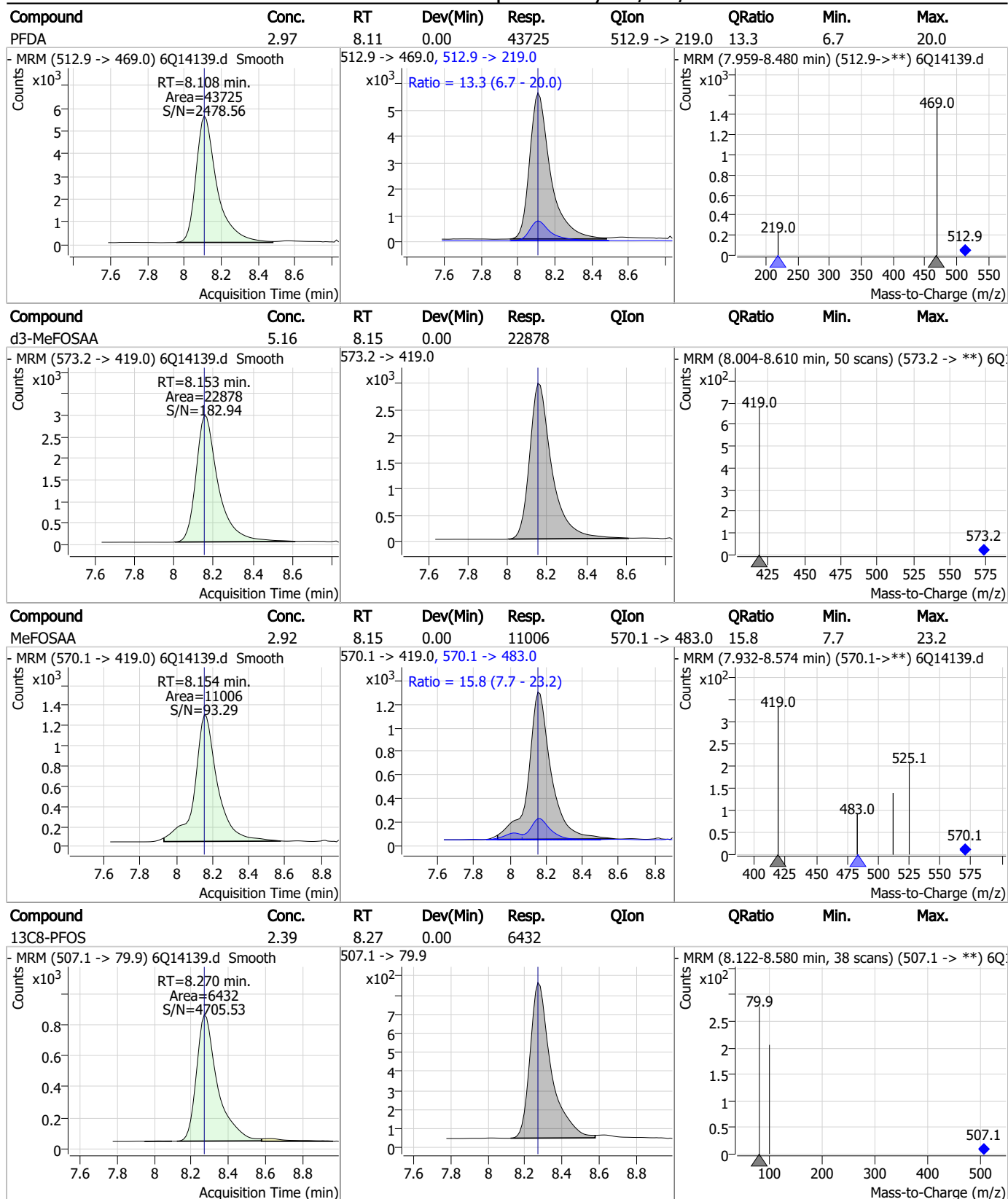
Perfluorinated Compounds by LC/MS/MS



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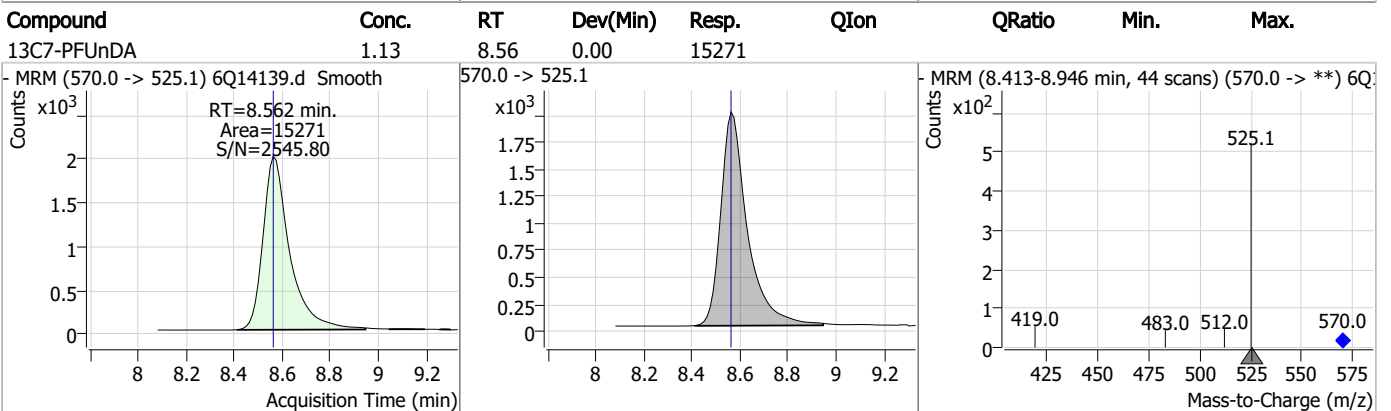
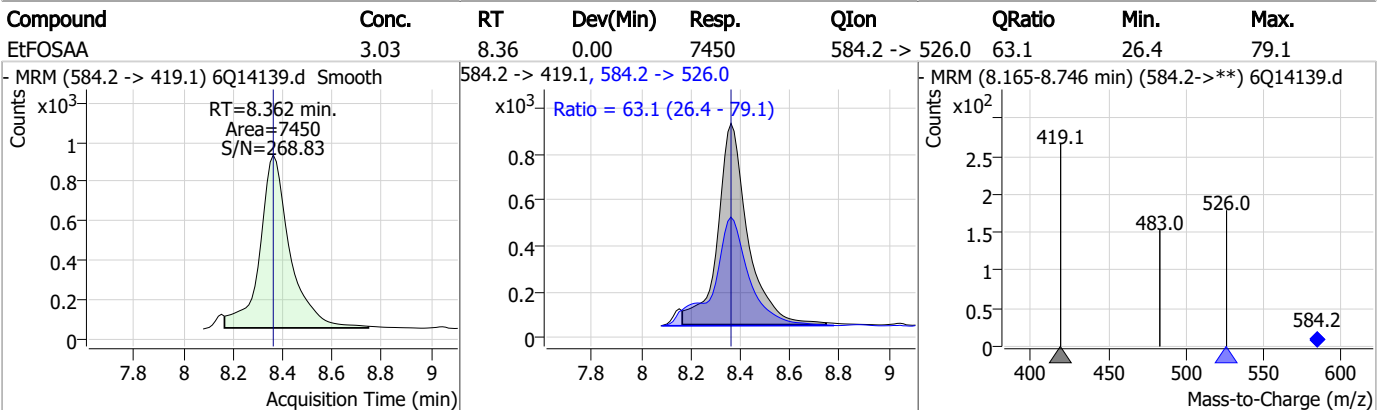
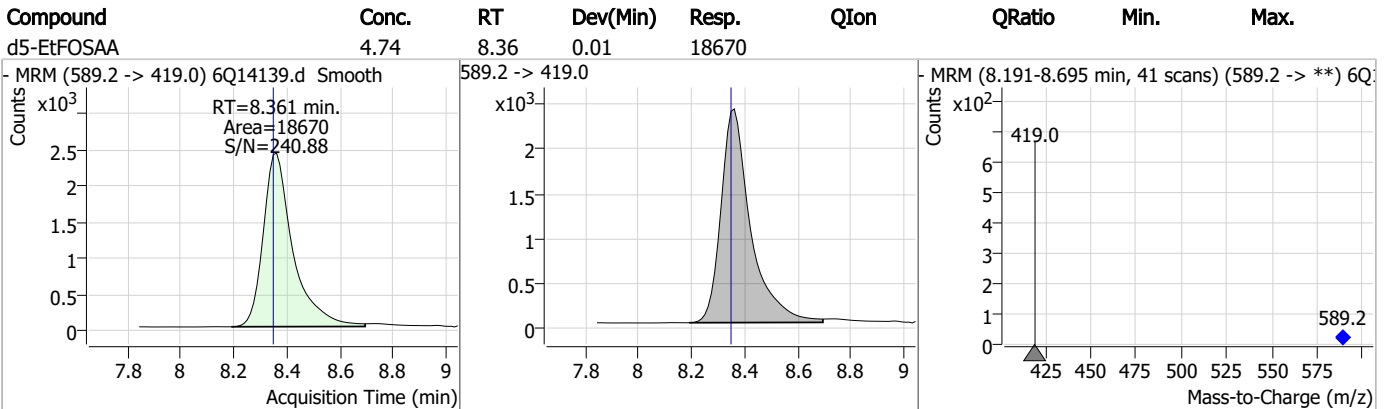
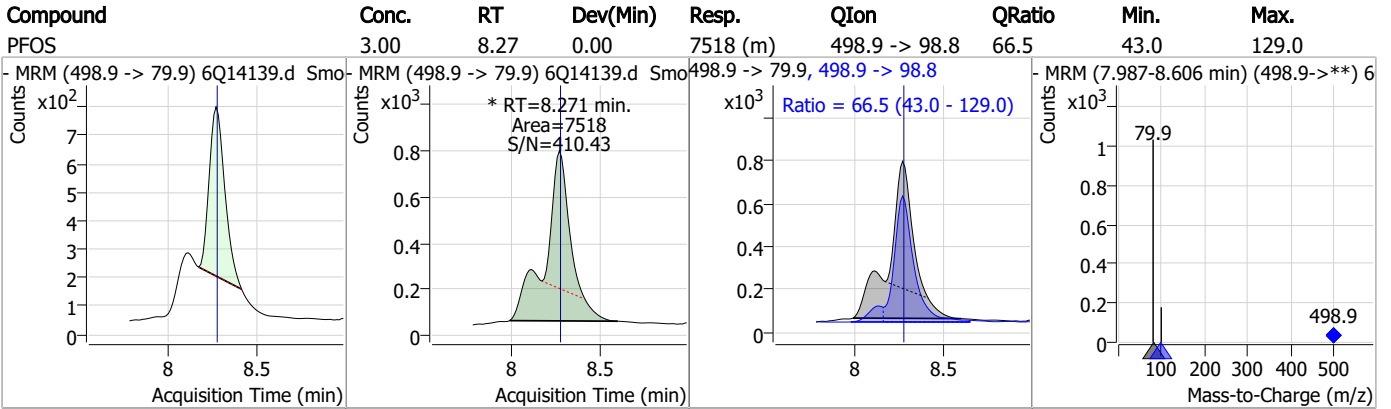
Perfluorinated Compounds by LC/MS/MS



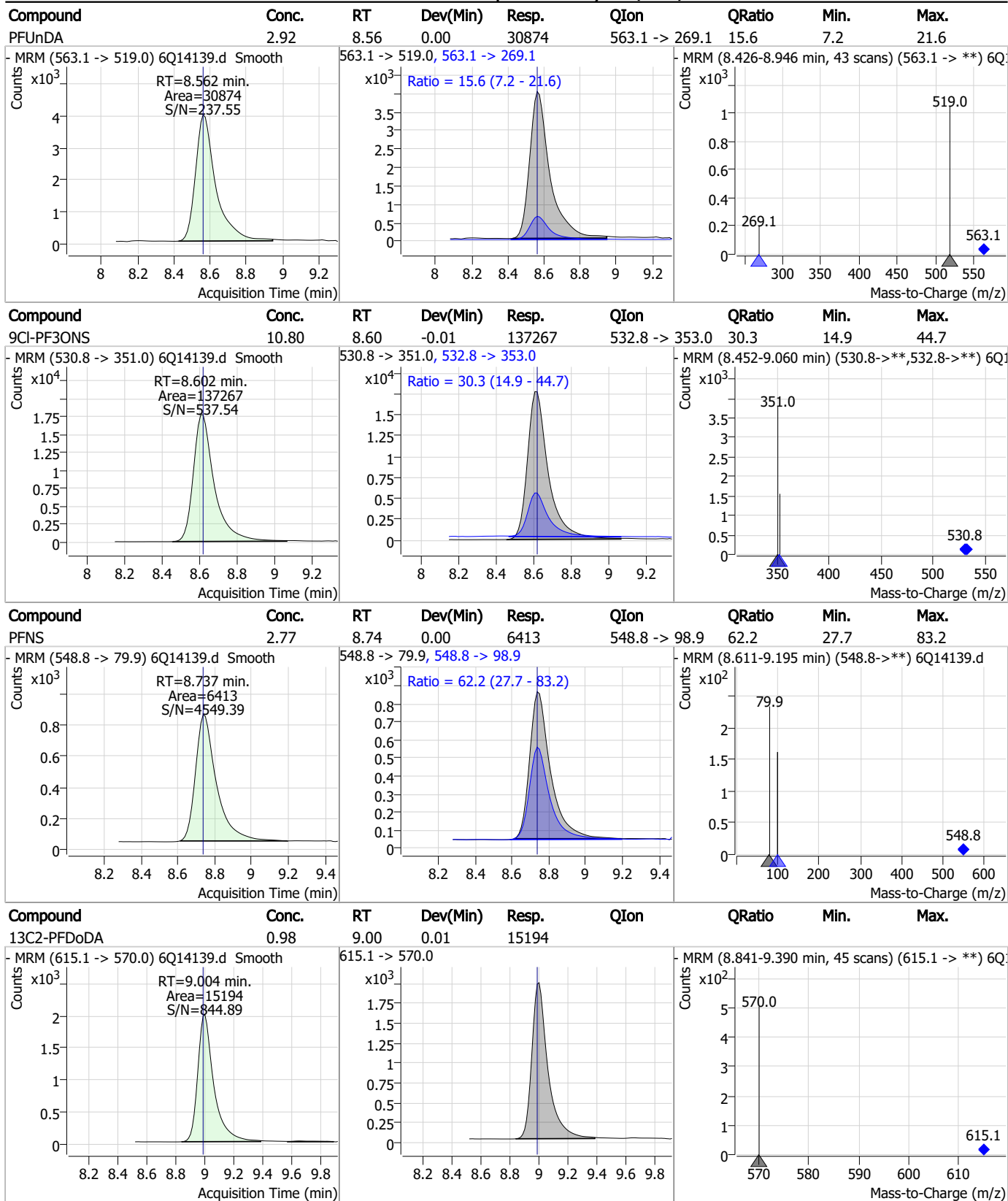
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Perfluorinated Compounds by LC/MS/MS

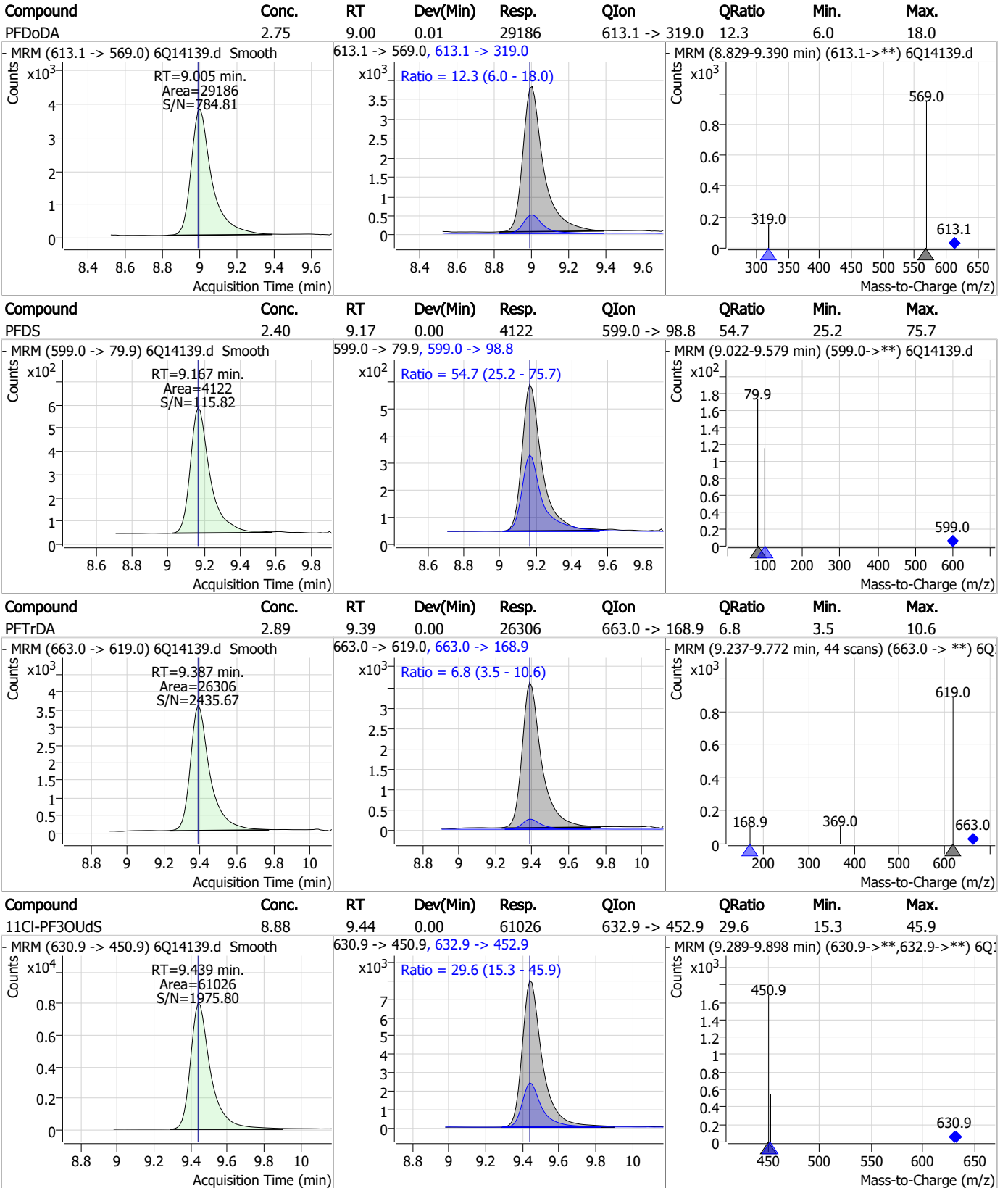


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



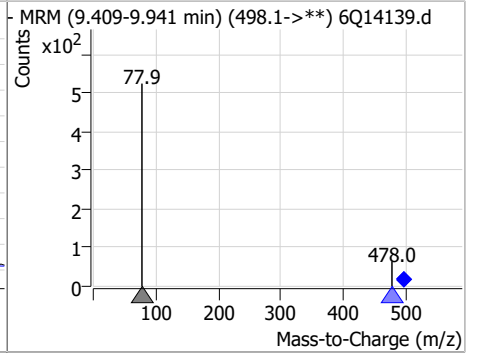
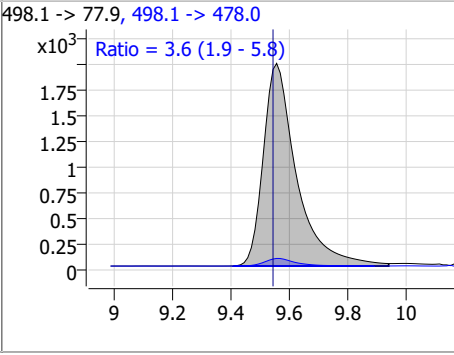
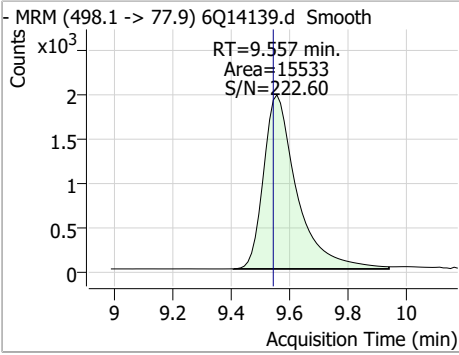
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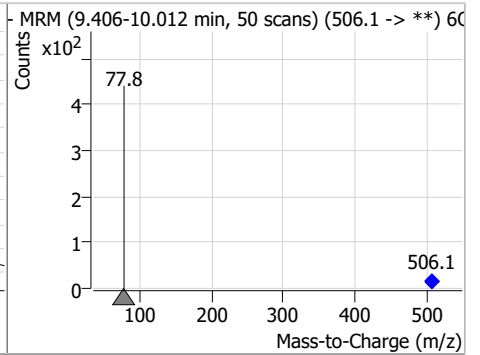
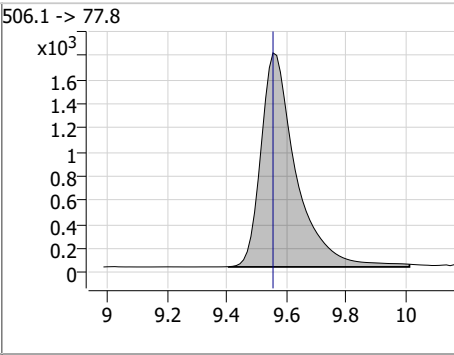
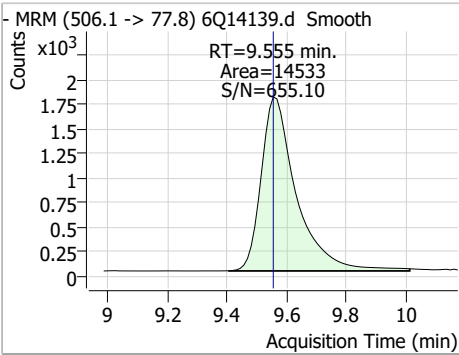


Perfluorinated Compounds by LC/MS/MS

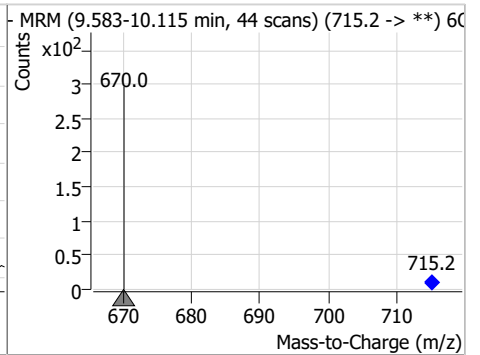
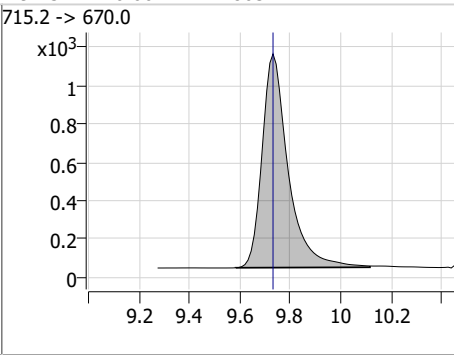
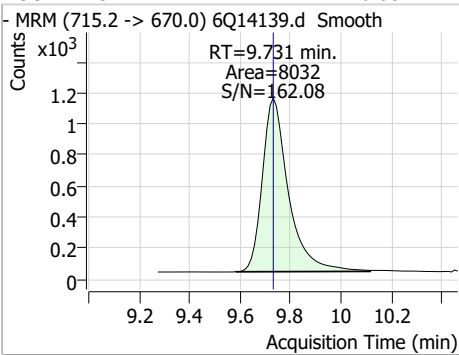
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	3.12	9.56	0.01	15533	498.1 -> 478.0	3.6	1.9	5.8



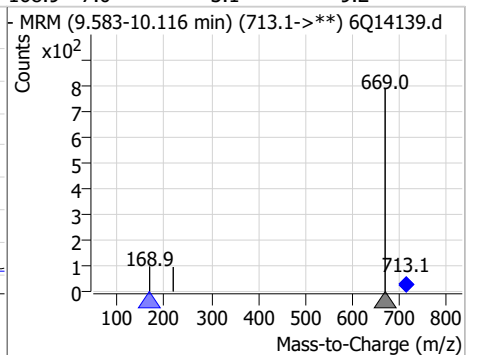
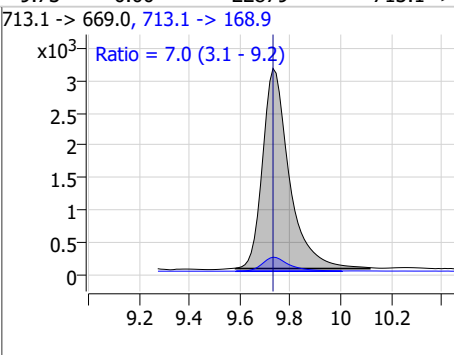
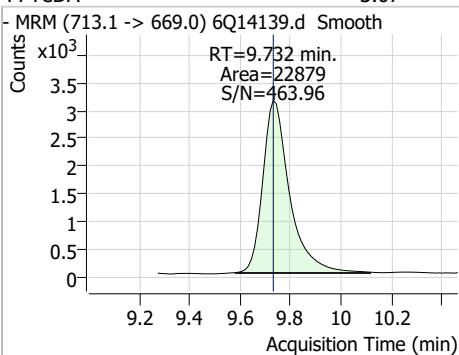
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.73	9.55	0.00	14533				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.88	9.73	0.00	8032				

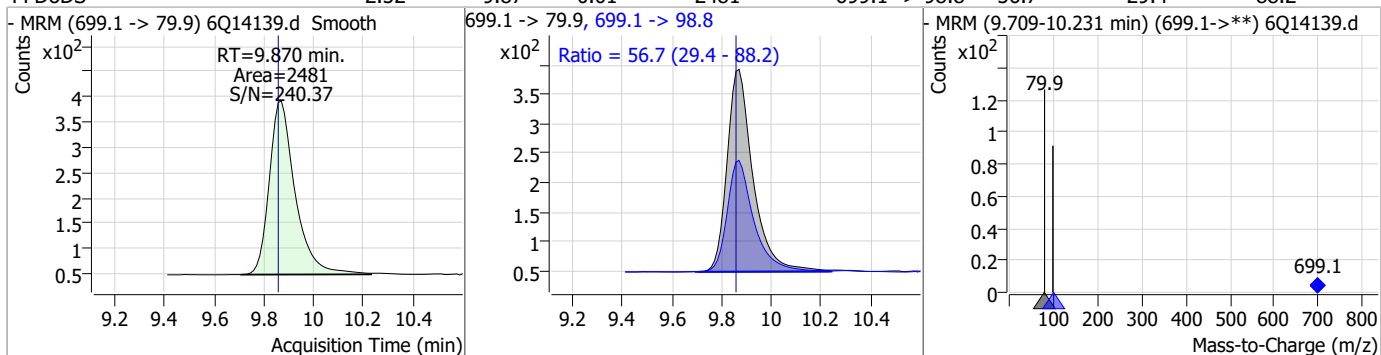


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	3.07	9.73	0.00	22879	713.1 -> 168.9	7.0	3.1	9.2

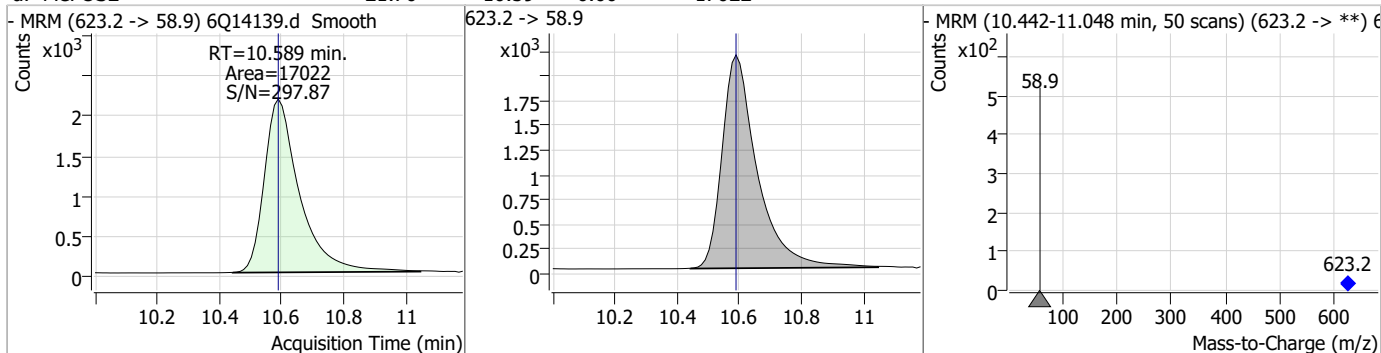


Perfluorinated Compounds by LC/MS/MS

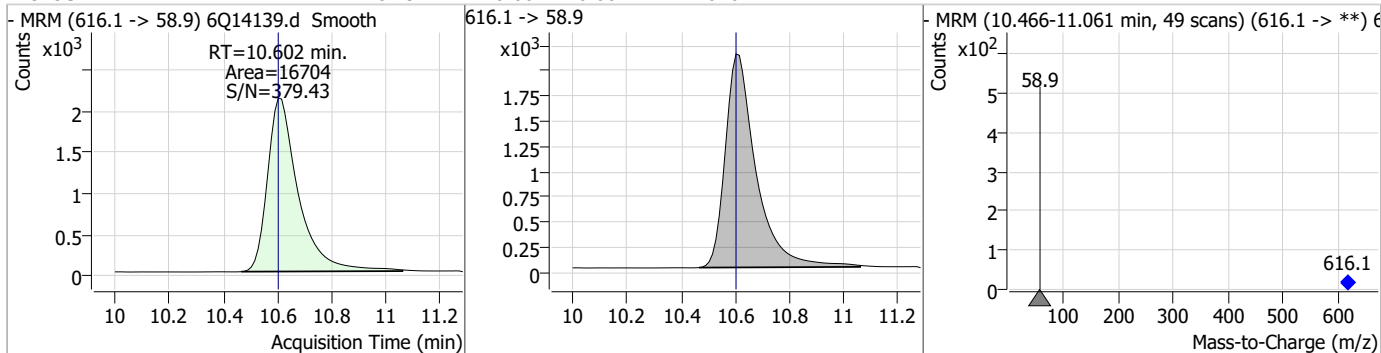
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.52	9.87	0.01	2481	699.1 -> 98.8	56.7	29.4	88.2



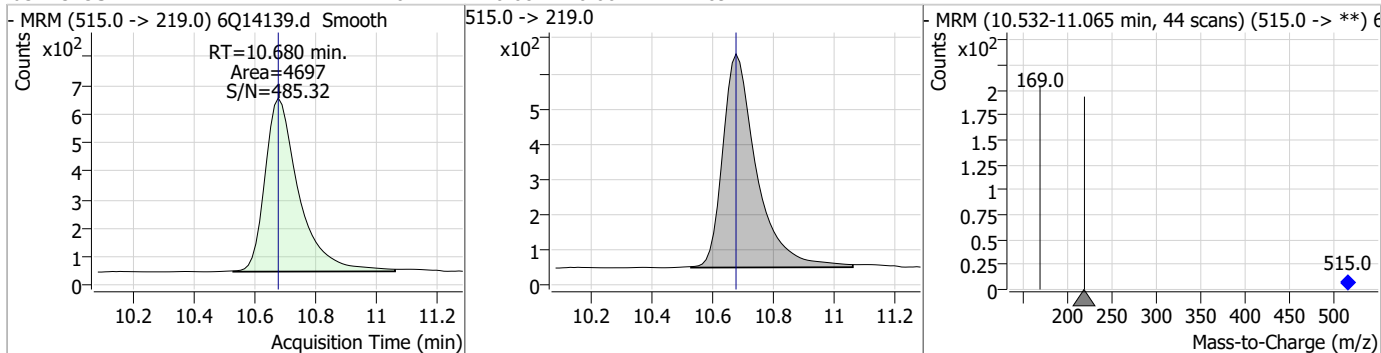
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.70	10.59	0.00	17022				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	28.79	10.60	0.00	16704				

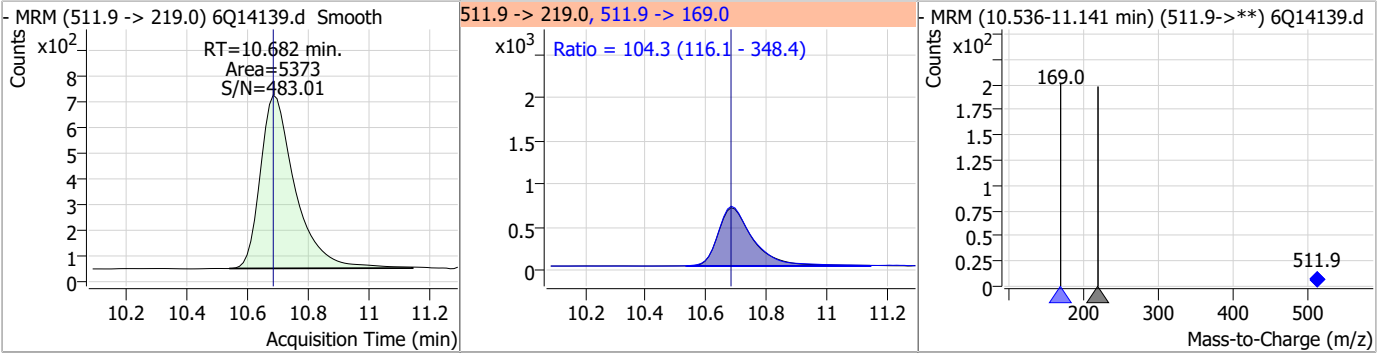


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.68	0.00	4697				

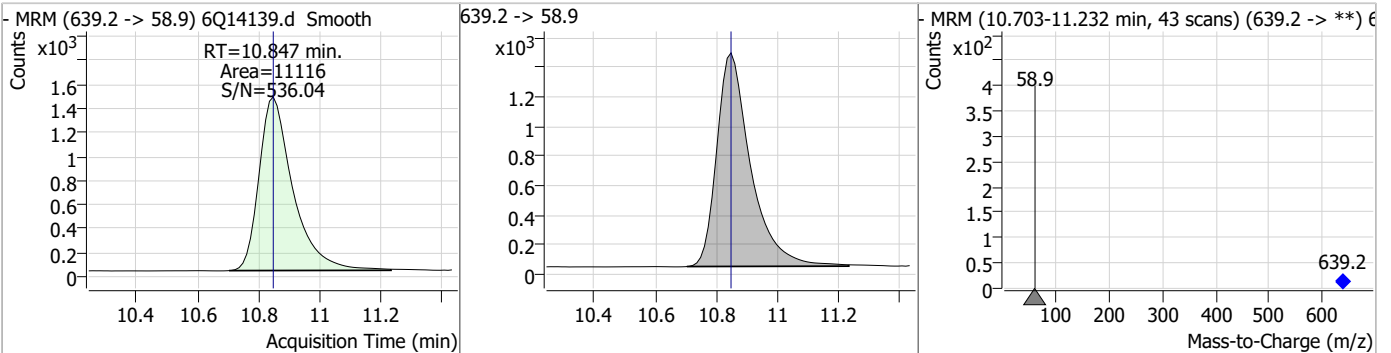


Perfluorinated Compounds by LC/MS/MS

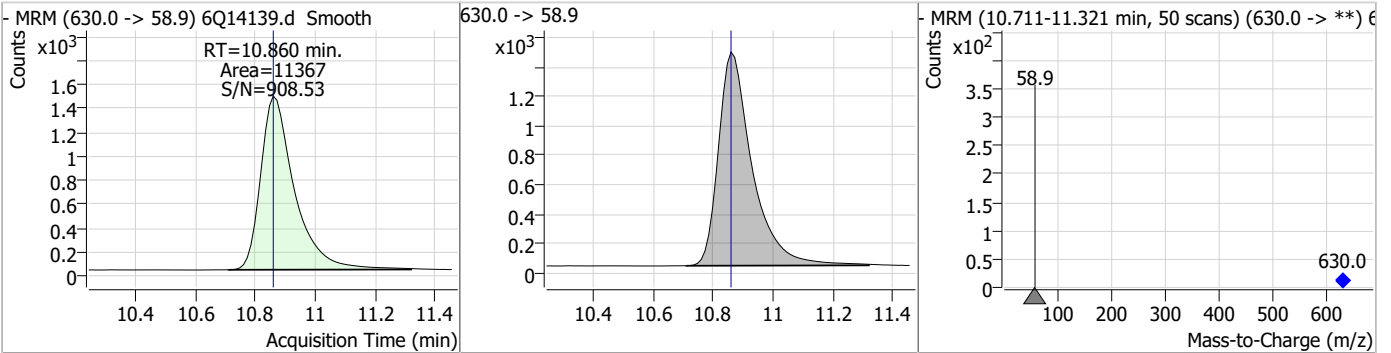
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.73	10.68	0.00	5373	511.9 -> 169.0	104.3	116.1	348.4



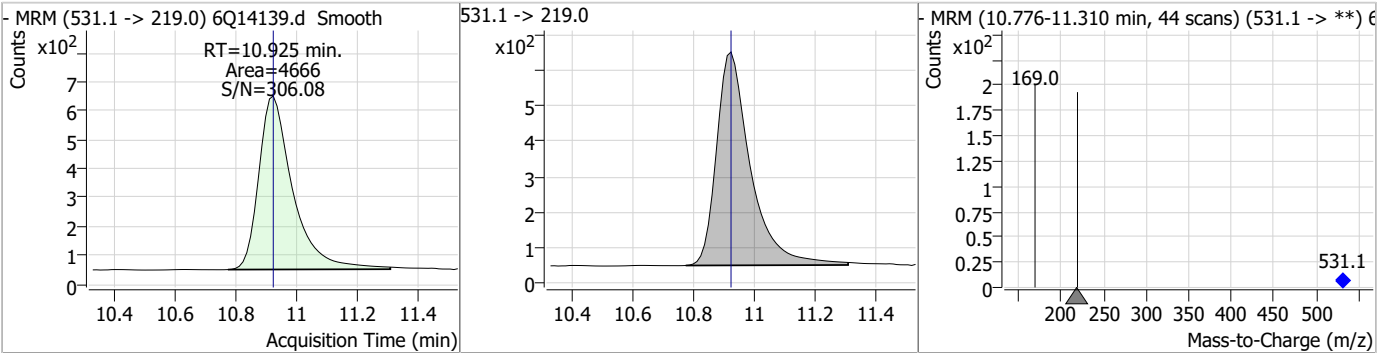
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.03	10.85	0.00	11116				



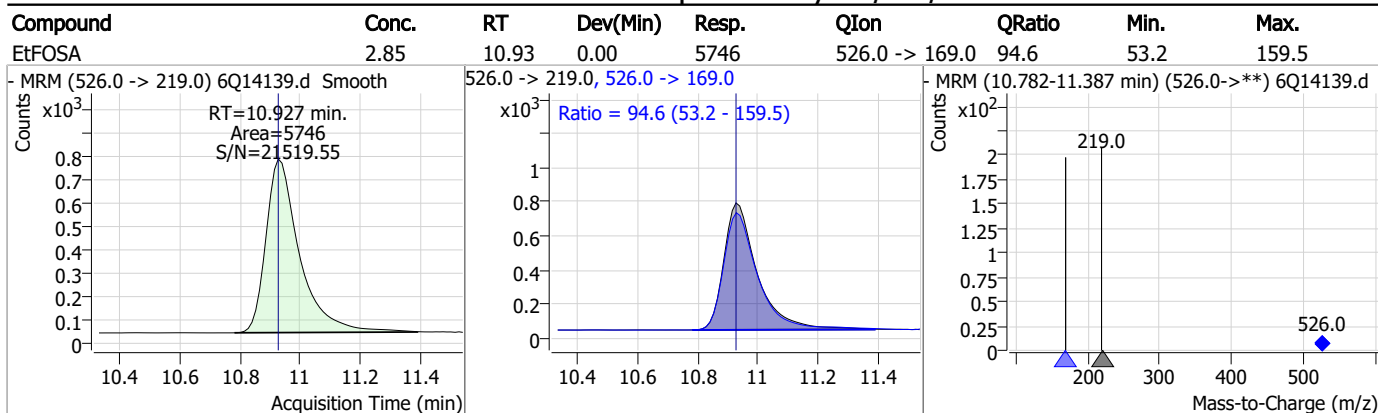
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	28.42	10.86	0.00	11367				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.25	10.92	0.00	4666				



Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Manual Integration Approval Summary

Sample Number: OP95501-MS Method: EPA DRAFT 1633
Lab FileID: 6Q14139.D Analyst approved: 02/23/23 14:29 Natasha Gumtie
Injection Time: 02/22/23 21:35 Supervisor approved: 02/23/23 16:45 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14143.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 10:31:17 PM
 Sample Name : op95501-dup
 Vial : P6-A9
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95501,S6Q216,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.975	216.8 -> 171.9	81656	10.00 µg/L	0.025
M5-PFPeA	4.349	268.3 -> 223.0	40165	5.00 µg/L	0.012
M5-PFHxA	5.513	318.0 -> 273.0	36041	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	37267	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	62938	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	20594	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	16503	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	18664	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	19093	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	11156	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	15761	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	14046	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	8857	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	7106	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2522	5.00 µg/L	0.000
M2-6:2FTS	6.858	429.1 -> 80.9	3096	5.00 µg/L	-0.012
M2-8:2FTS	7.895	529.1 -> 80.9	3008	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	26755	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	13909	10.00 µg/L	-0.012
M5-EtFOSAA	8.349	589.2 -> 419.0	21555	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	21208	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	14042	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	5459	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	4988	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	8428	2.50 µg/L	0.000
13C3-PFBA	2.979	216.0 -> 172.0	31762	5.00 µg/L	0.037
18O2-PFHxS	7.211	403.0 -> 83.9	5884	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	69321	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	20125	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	20569	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	30291	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2522	6.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.2%		
13C2-6:2FTS	6.858	429.1 -> 80.9	3096	5.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.0%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3008	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C2-PFDoDA	9.004	615.1 -> 570.0	19093	1.23 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.731	715.2 -> 670.0	11156	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C3-PFBS	5.456	302.1 -> 79.9	14046	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C3-PFHxS	7.212	402.1 -> 79.9	8857	2.78 µg/L	0.000

7.5.1
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 = 111.3%	
13C4-PFBA	2.975	216.8 -> 171.9	81656	11.41 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C4-PFHpA	6.452	367.1 -> 322.0	37267	2.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.7%	
13C5-PFHxA	5.513	318.0 -> 273.0	36041	3.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.3%	
13C5-PFPeA	4.349	268.3 -> 223.0	40165	5.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.6%	
13C6-PFDA	8.108	519.1 -> 474.1	16503	1.45 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.0%	
13C7-PFUnDA	8.562	570.0 -> 525.1	18664	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C8-FOSA	9.555	506.1 -> 77.8	15761	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.4%	
13C8-PFOA	7.097	421.1 -> 376.0	62938	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C8-PFOS	8.270	507.1 -> 79.9	7106	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.626	472.1 -> 427.0	20594	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.1%	
d3-MeFOSAA	8.153	573.2 -> 419.0	26755	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.6%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	13909	12.04 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 120.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	4988	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
d5-EtFOSAA	8.349	589.2 -> 419.0	21555	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
d7-MeFOSE	10.589	623.2 -> 58.9	21208	26.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	14042	27.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
d5-EtFOSA	10.925	531.1 -> 219.0	5459	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	

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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
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	-	398.7 -> 98.9	-	N.D.	
		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	-	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

7.5.1
7

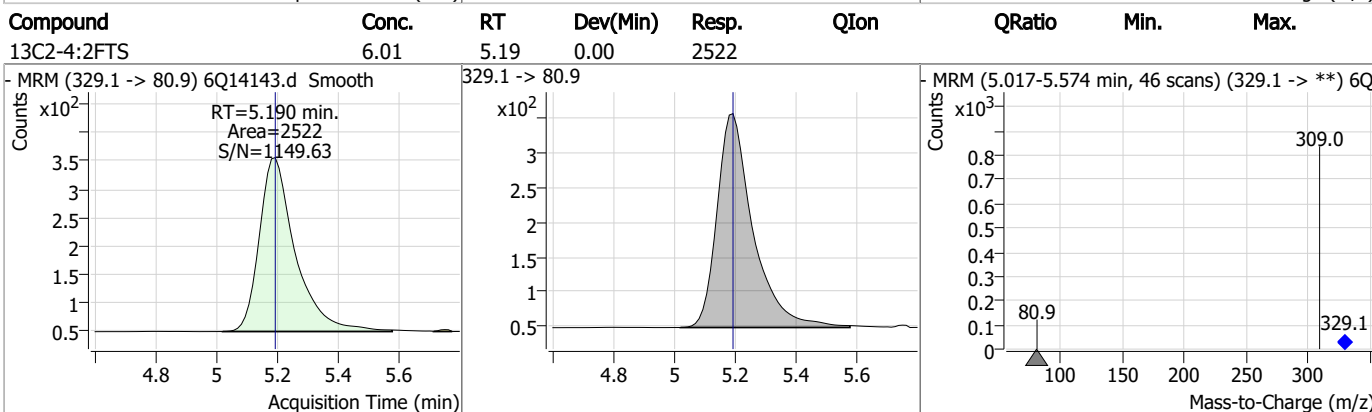
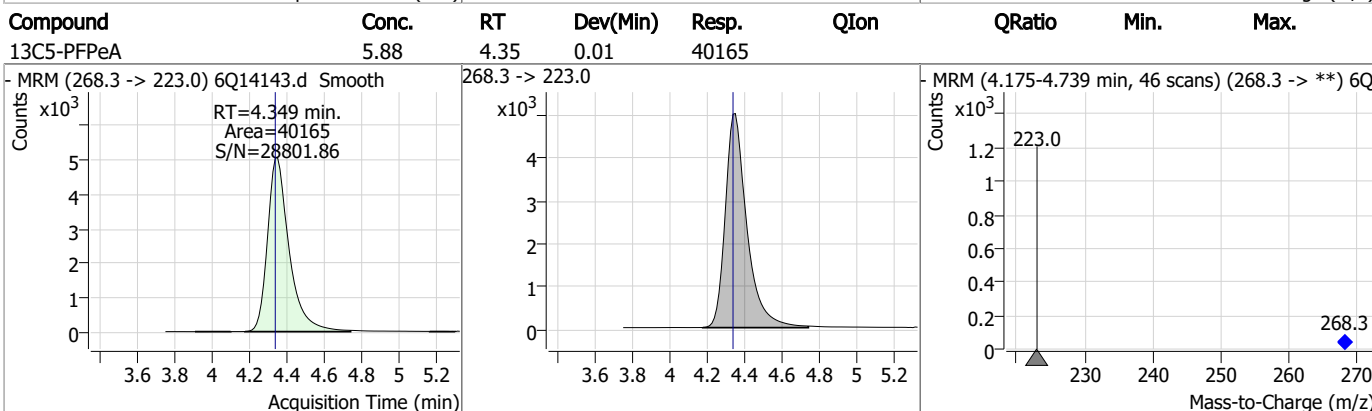
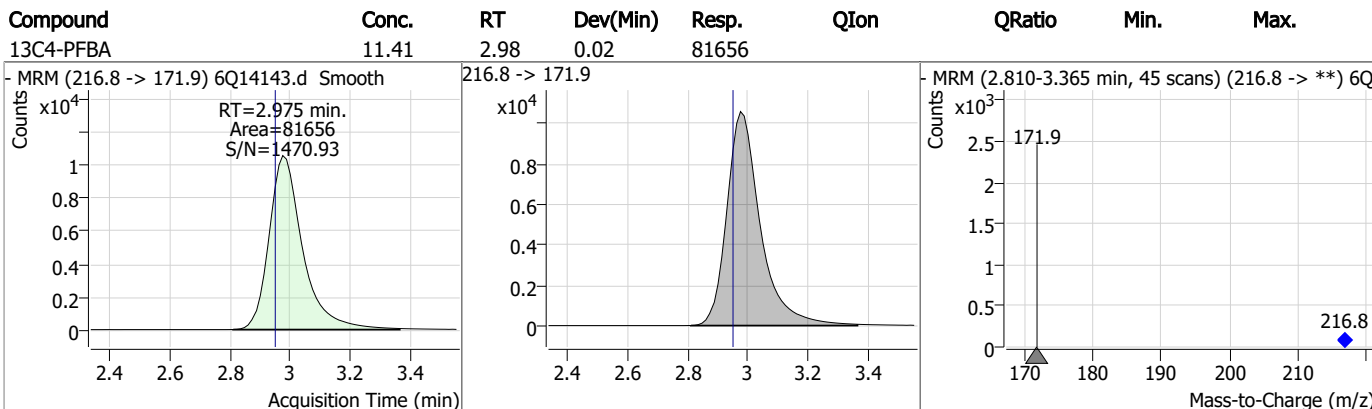
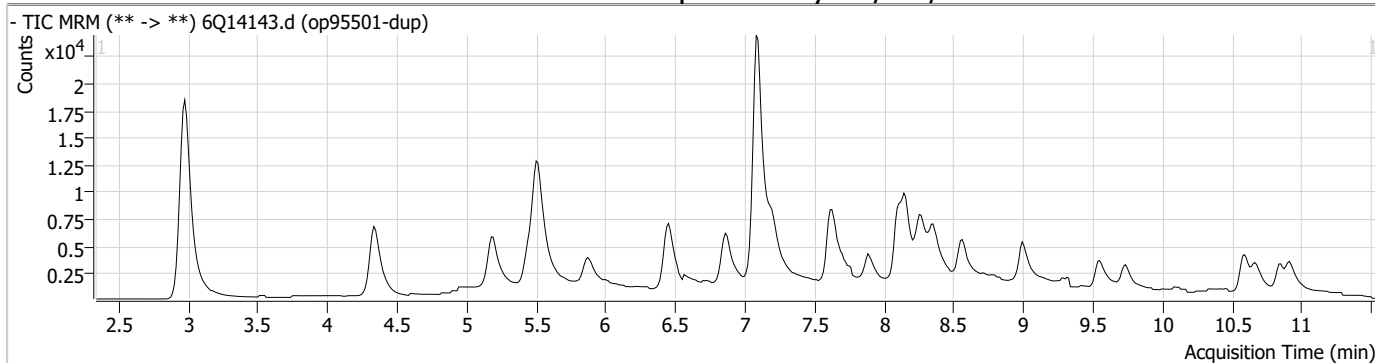
Perfluorinated Compounds by LC/MS/MS

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

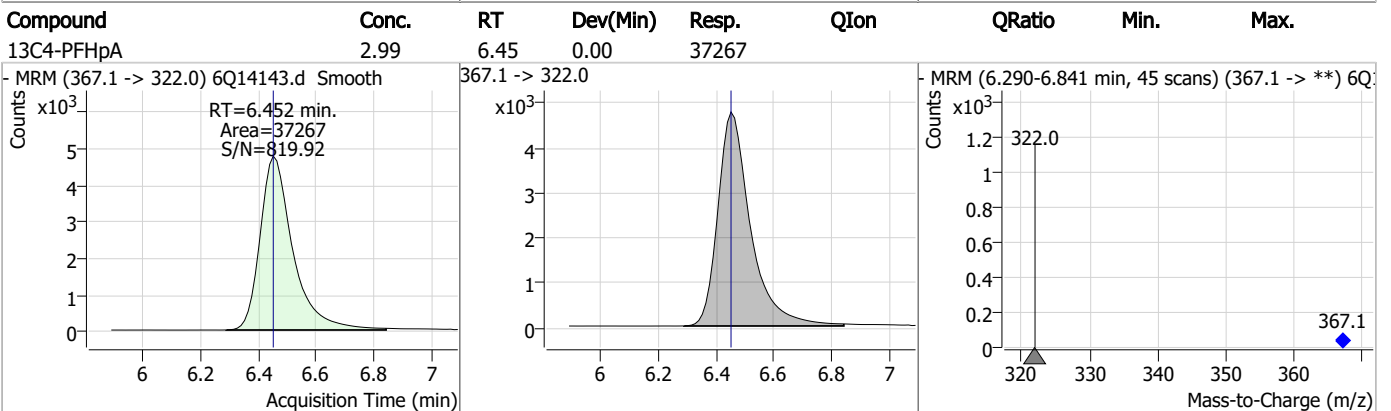
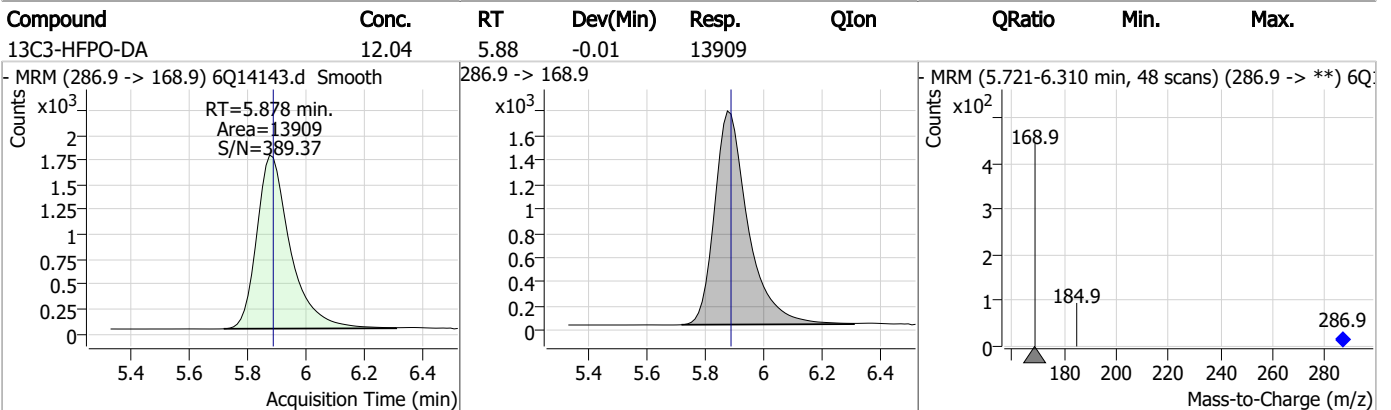
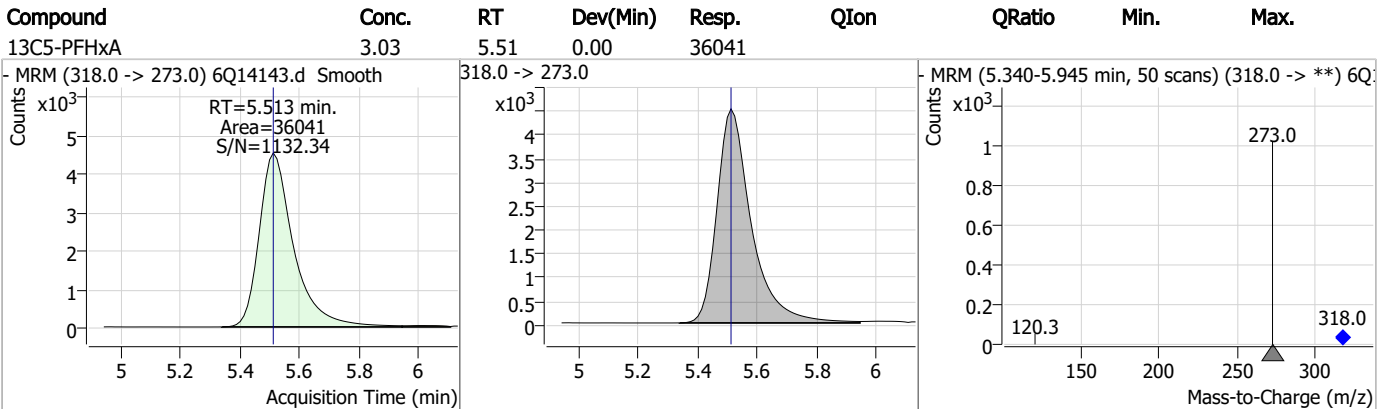
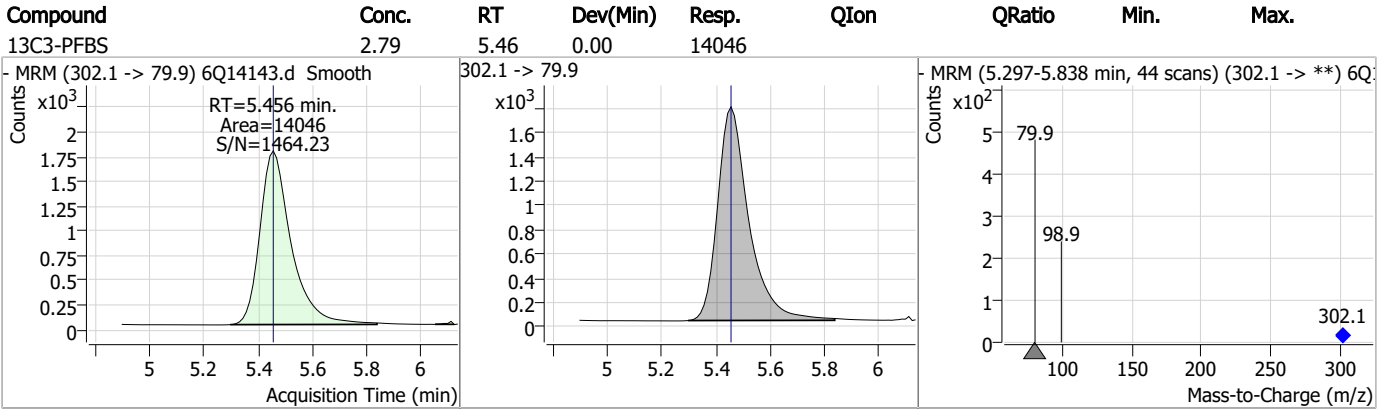
7

Perfluorinated Compounds by LC/MS/MS

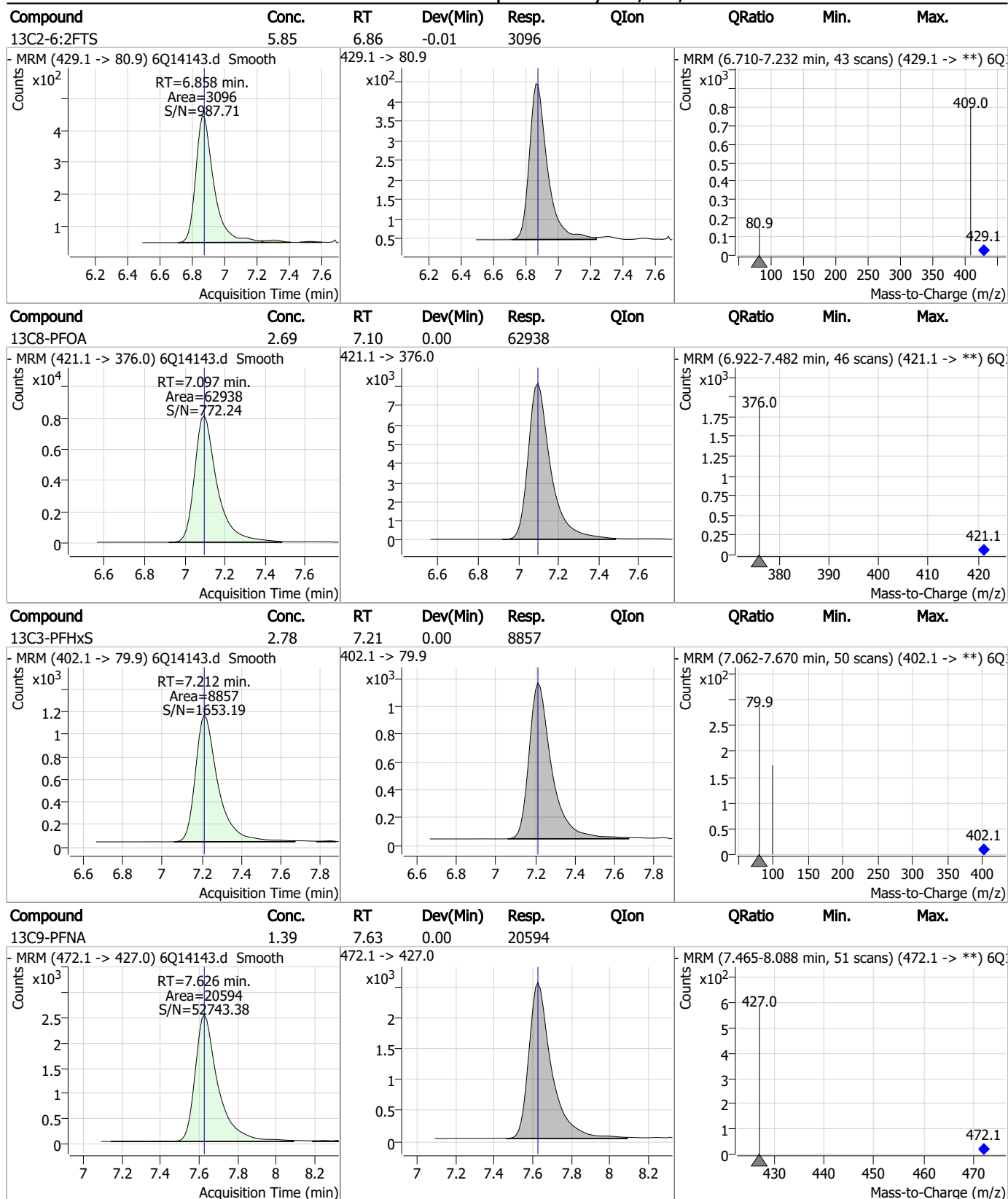


7.5.1
7

Perfluorinated Compounds by LC/MS/MS

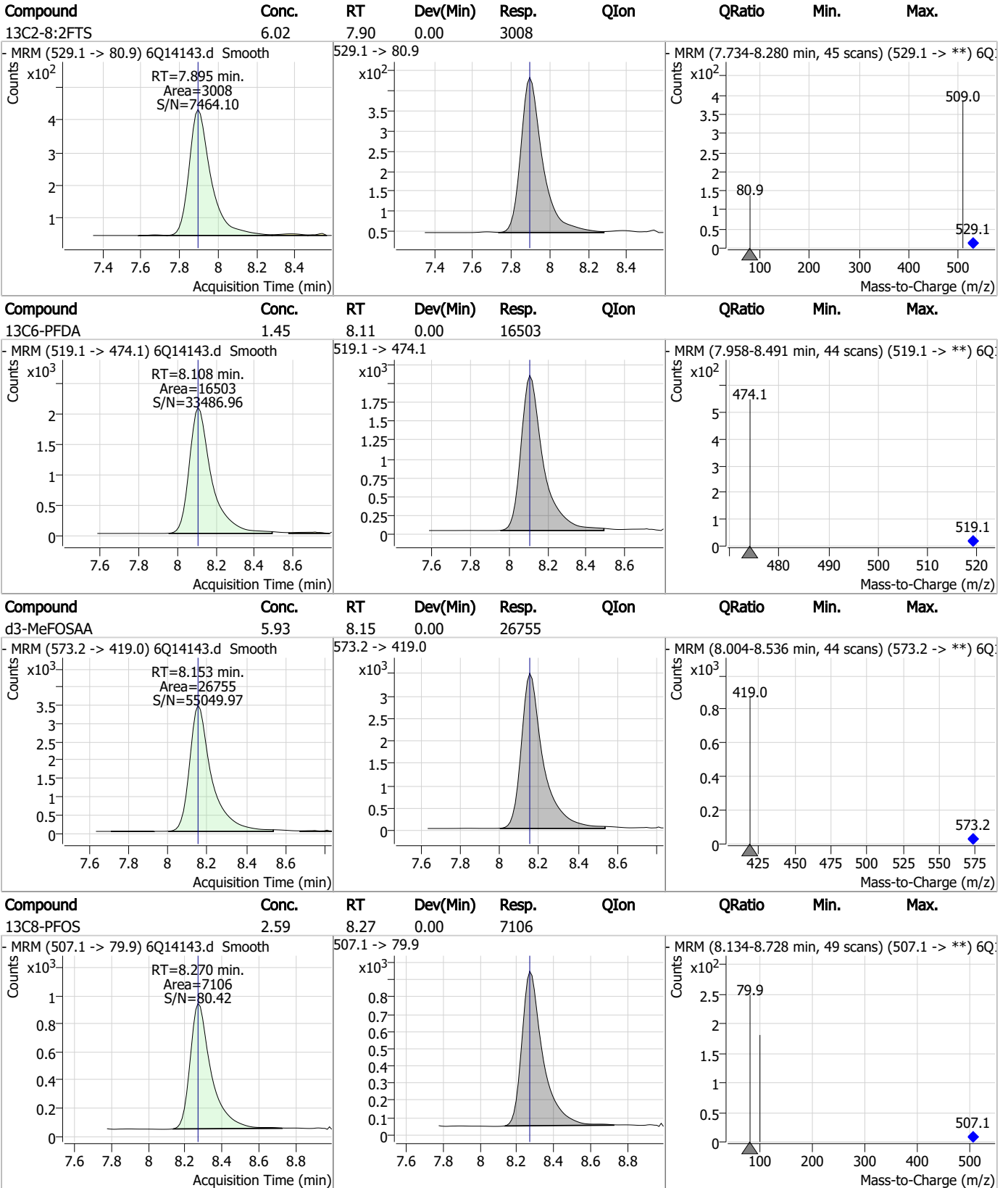


Perfluorinated Compounds by LC/MS/MS



7.5.1
7

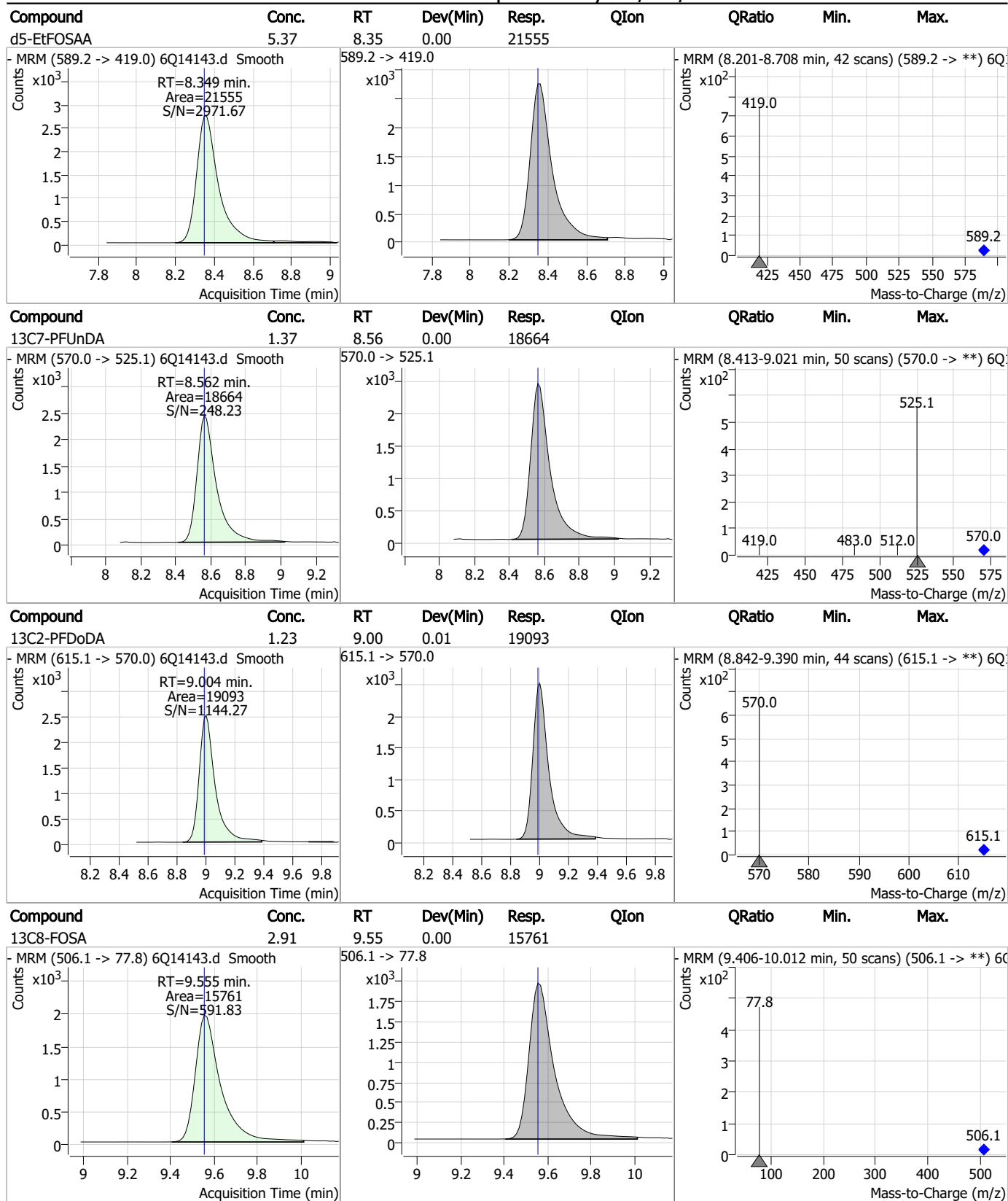
Perfluorinated Compounds by LC/MS/MS



7.5.1

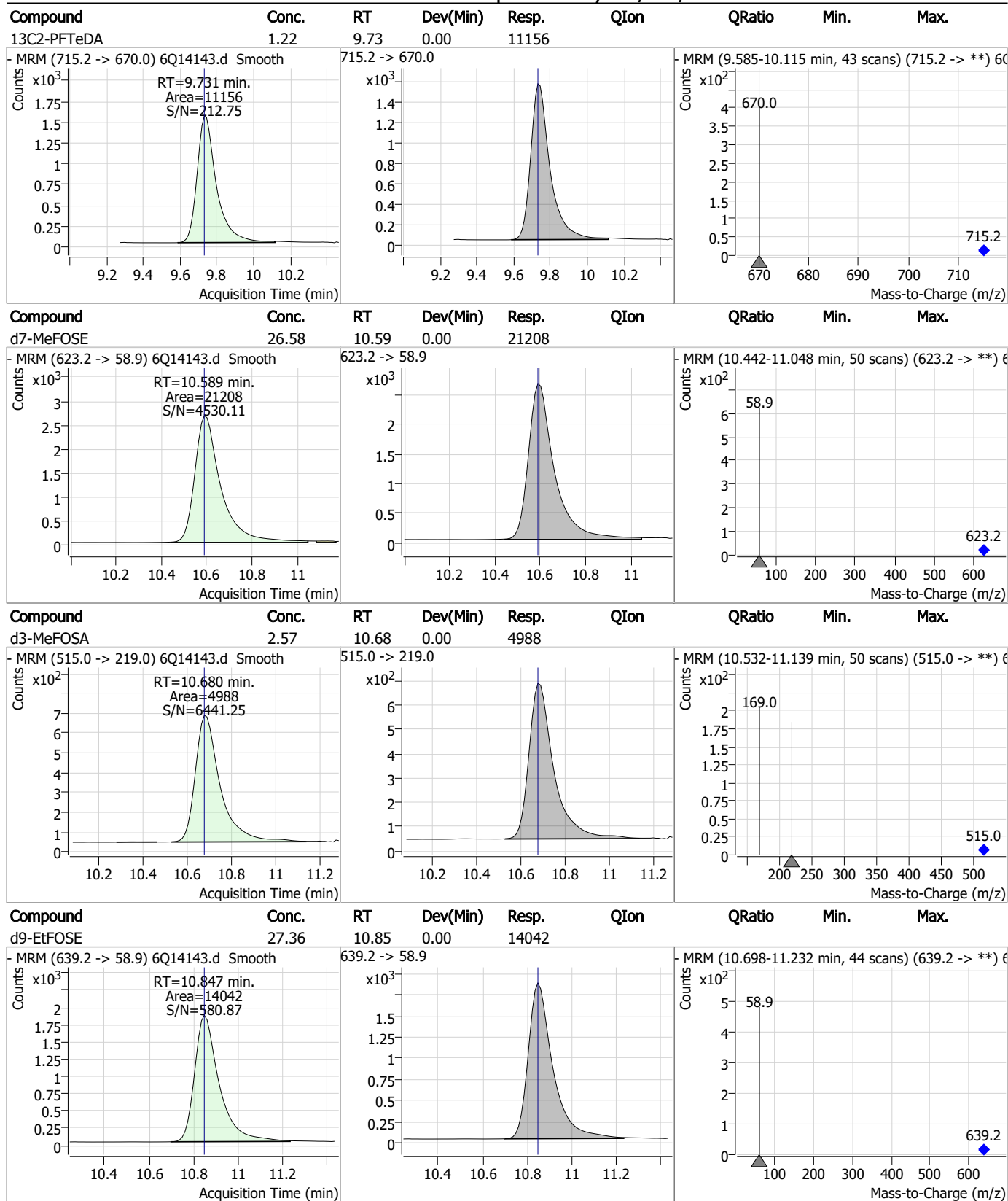
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Perfluorinated Compounds by LC/MS/MS



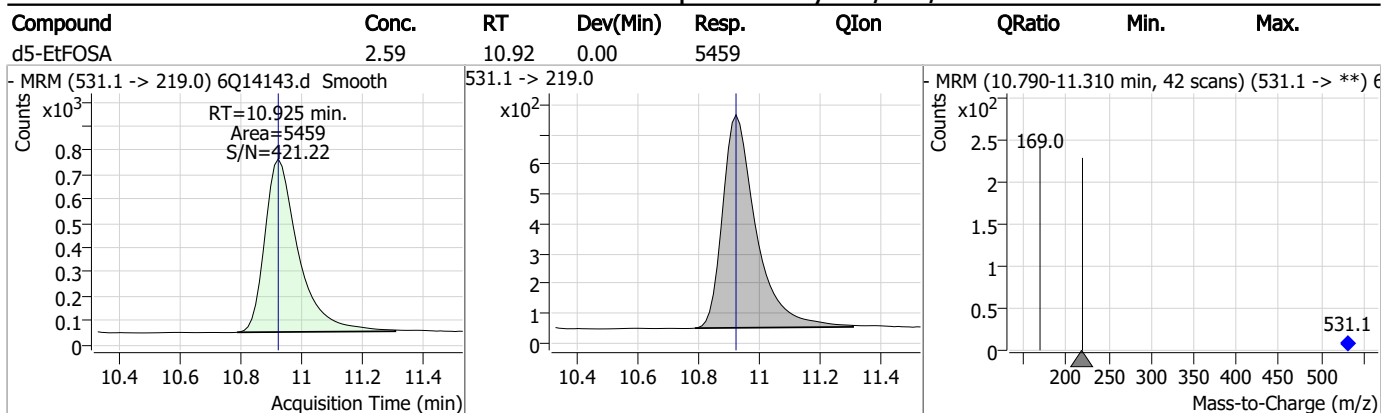
7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
Norman Farmer
 02/23/23 16:19

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14119.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 4:55:30 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q216_TDCA.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)	
Internal Standards						
M8-PFOS	8.270	507.1 -> 79.9	10258	2.50 µg/L	-0.013	
13C4-PFOS	8.271	502.8 -> 79.9	12994	2.50 µg/L	0.000	
System Monitoring Compounds						
13C8-PFOS	8.270	507.1 -> 79.9	10258	2.00 µg/L	-0.013	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.1%			
Target Compounds						
PFOS	8.271	498.9 -> 79.9	8944	2.55 µg/L #m	70	QValue
		498.9 -> 98.8	6267			
TCDCa	6.634	498.9 -> 79.9	2425	5.12 ng/ml	100	
TDCA	6.795	498.9 -> 79.9	3604	8.41 ng/ml	100	
TUDCA	5.782	498.9 -> 79.9	4717	5.19 ng/ml	100	

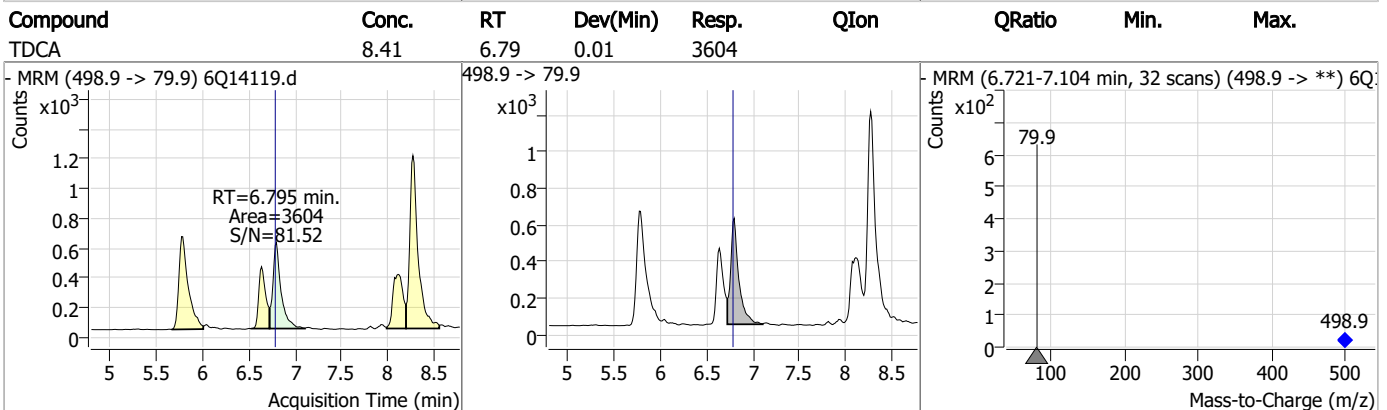
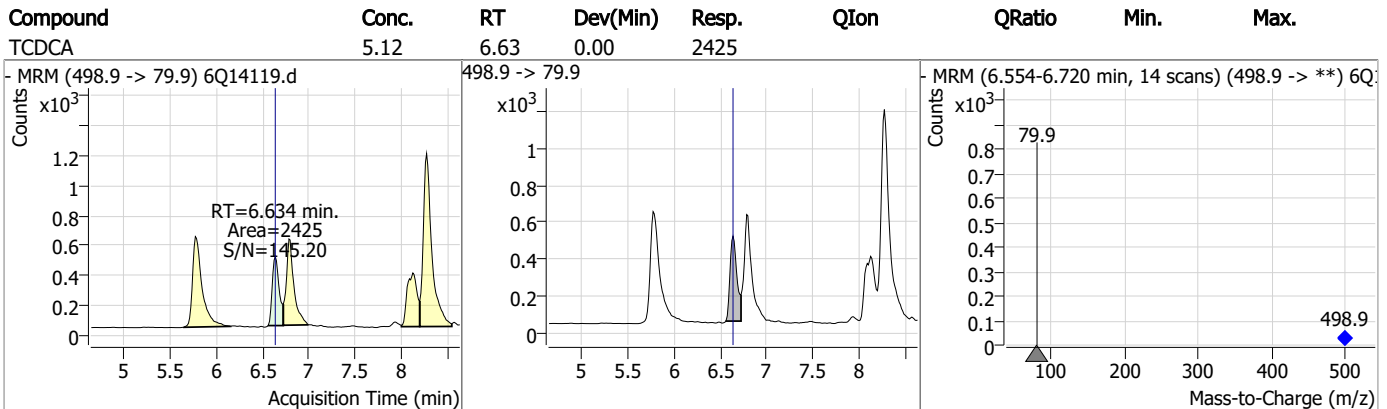
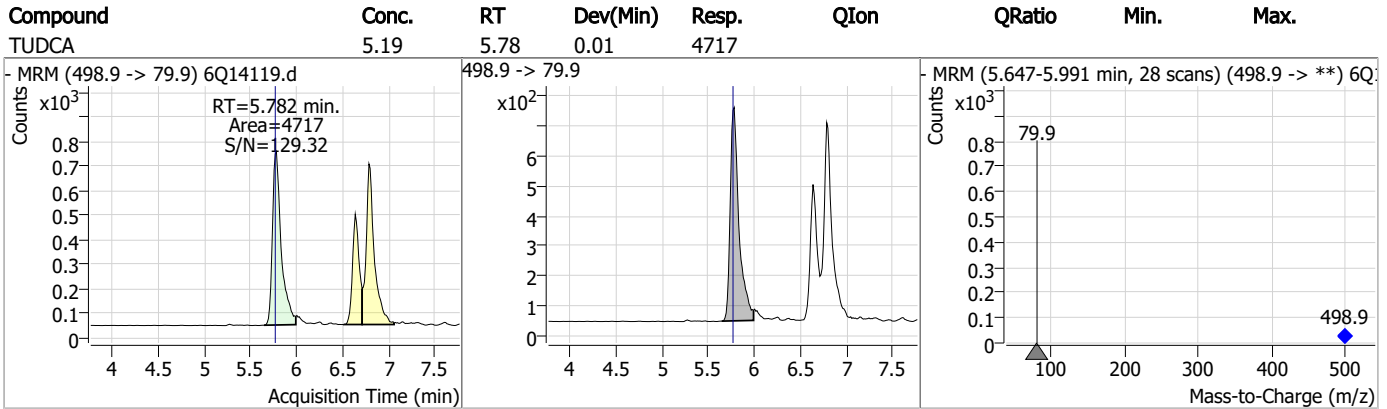
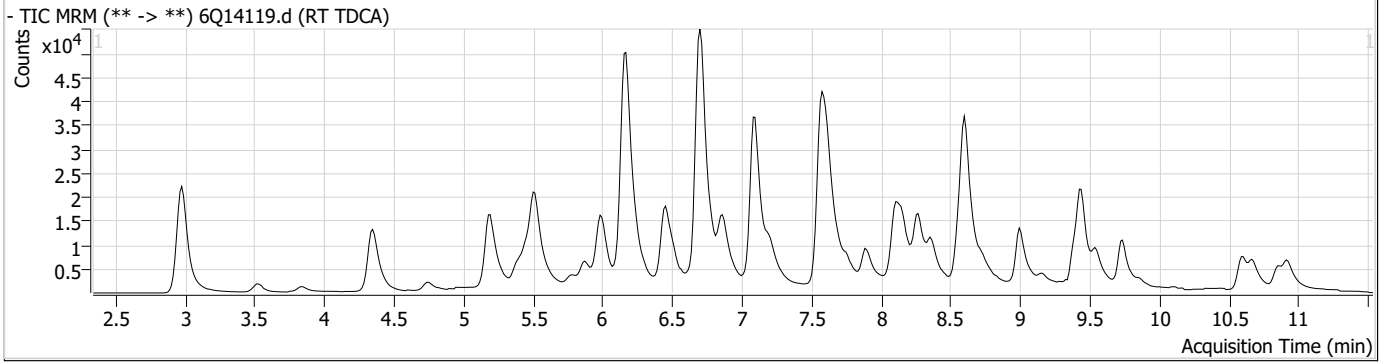
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.1

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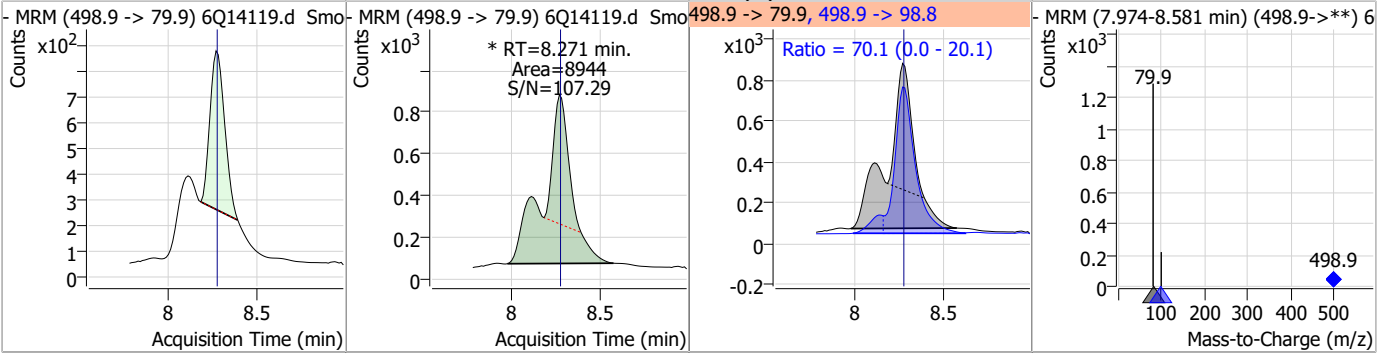


Perfluorinated Compounds by LC/MS/MS

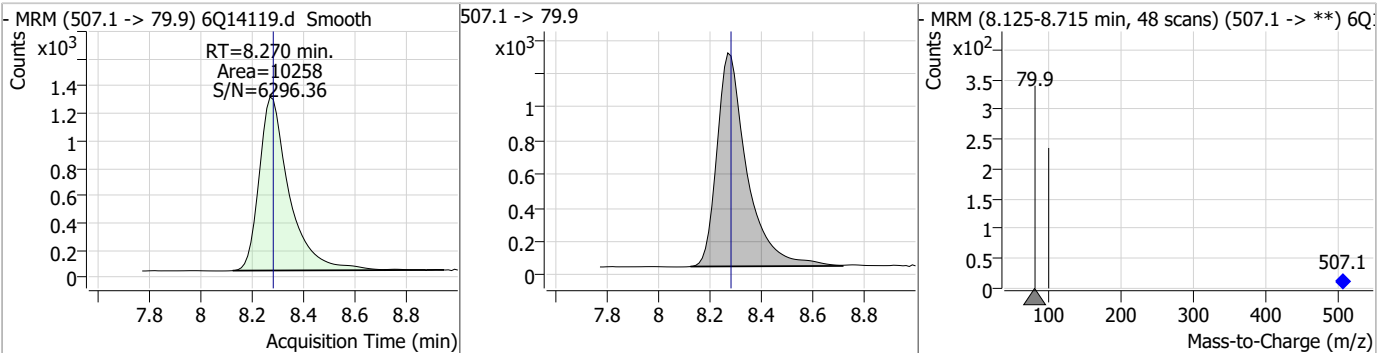


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.55	8.27	0.00	8944 (m)	498.9 -> 98.8	70.1	0.0	20.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.00	8.27	-0.01	10258				



7.6.1

7

Manual Integration Approval Summary

Sample Number: S6Q216-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14119.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 16:55 Supervisor approved: 02/23/23 16:19 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14120.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 5:09:30 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.950	216.8 -> 171.9	86245	10.00 µg/L	0.000
M5-PFPeA	4.337	268.3 -> 223.0	44682	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	37433	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	39976	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	70005	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22173	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	18651	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	20864	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	23841	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	14216	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	16719	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	14618	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9507	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8292	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2534	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3037	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2794	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	28158	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	14645	10.00 µg/L	0.000
M5-EtFOSAA	8.349	589.2 -> 419.0	24593	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	25060	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16061	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6469	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5772	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10277	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	38513	5.00 µg/L	0.000
18O2-PFHxS	7.223	403.0 -> 83.9	6970	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	78243	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	24501	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	23935	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	37053	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2534	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3037	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2794	4.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C2-PFDoDA	8.991	615.1 -> 570.0	23841	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14216	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFBS	5.456	302.1 -> 79.9	14618	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.212	402.1 -> 79.9	9507	2.52 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 = 100.8%	
13C4-PFBA	2.950	216.8 -> 171.9	86245	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.452	367.1 -> 322.0	39976	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C5-PFHxA	5.513	318.0 -> 273.0	37433	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFPeA	4.337	268.3 -> 223.0	44682	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C6-PFDA	8.108	519.1 -> 474.1	18651	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C7-PFUnDA	8.562	570.0 -> 525.1	20864	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.555	506.1 -> 77.8	16719	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOA	7.097	421.1 -> 376.0	70005	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C8-PFOS	8.270	507.1 -> 79.9	8292	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C9-PFNA	7.626	472.1 -> 427.0	22173	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSAA	8.153	573.2 -> 419.0	28158	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	14645	10.37 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d3-MeFOSA	10.680	515.0 -> 219.0	5772	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
d5-EtFOSAA	8.349	589.2 -> 419.0	24593	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d7-MeFOSE	10.589	623.2 -> 58.9	25060	25.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	16061	25.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d5-EtFOSA	10.925	531.1 -> 219.0	6469	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	226485	46.65 µg/L	100
		327.1 -> 80.9	49421		
6:2FTS	6.871	427.1 -> 407.0	186897	49.60 µg/L	96
		427.1 -> 80.9	36795		
8:2FTS	7.896	527.1 -> 507.0	95951	51.78 µg/L	99
		527.1 -> 80.8	23320		
EtFOSAA	8.362	584.2 -> 419.1	42789	13.20 µg/L	94
		584.2 -> 526.0	24290		
FOSA	9.545	498.1 -> 77.9	167354	29.24 µg/L	100
		498.1 -> 478.0	6733		
MeFOSAA	8.154	570.1 -> 419.0	58852	12.69 µg/L	96
		570.1 -> 483.0	10046		
PFBA	2.944	212.8 -> 168.9	91209	52.69 µg/L	100
PFBS	5.457	298.7 -> 79.9	57801	12.25 µg/L	94
		298.7 -> 98.8	25657		
PFDA	8.108	512.9 -> 469.0	247928	13.28 µg/L	98
		512.9 -> 219.0	30537		
PFDoDA	8.992	613.1 -> 569.0	216022	12.99 µg/L	98
		613.1 -> 319.0	24551		
PFDS	9.167	599.0 -> 79.9	28723	12.98 µg/L	100

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.453	599.0 -> 98.8	14469	13.24	µg/L	100
		363.1 -> 319.0	257906			
PFHpS	7.779	363.1 -> 169.0	36081	13.03	µg/L	93
		449.0 -> 79.9	37938			
PFHxA	5.516	449.0 -> 98.9	21946	13.49	µg/L	99
		313.0 -> 269.0	165276			
PFHxS	7.213	313.0 -> 118.9	6260	11.76	µg/L	m
		398.7 -> 79.9	42557			
PFNA	7.627	398.7 -> 98.9	23614	26.37	µg/L	m
		463.0 -> 419.0	305141			
PFNS	8.737	463.0 -> 219.0	60600	13.40	µg/L	100
		548.8 -> 79.9	39954			
PFOA	7.098	548.8 -> 98.9	22132	27.45	µg/L	m
		413.0 -> 369.0	723956			
PFOS	8.271	413.0 -> 169.0	97319	11.71	µg/L	m
		498.9 -> 79.9	37762			
PFPeA	4.338	498.9 -> 98.8	25190	26.29	µg/L	100
		263.0 -> 219.0	203910			
PFPeS	6.517	349.1 -> 79.9	53981	12.16	µg/L	97
		349.1 -> 98.9	27724			
PFTeDA	9.732	713.1 -> 669.0	175394	13.29	µg/L	100
		713.1 -> 168.9	10646			
PFTrDA	9.387	663.0 -> 619.0	185949	13.00	µg/L	98
		663.0 -> 168.9	14503			
PFUnDA	8.562	563.1 -> 519.0	194302	13.43	µg/L	100
		563.1 -> 269.1	27603			
11Cl-PF3OUdS	9.439	630.9 -> 450.9	420894	53.66	µg/L	100
		632.9 -> 452.9	127929			
9Cl-PF3ONS	8.614	530.8 -> 351.0	732951	50.52	µg/L	99
		532.8 -> 353.0	221927			
ADONA	6.704	376.9 -> 250.9	1448484	50.54	µg/L	99
		376.9 -> 84.8	309008			
HFPO-DA	5.879	284.9 -> 168.9	64668	54.81	µg/L	100
		284.9 -> 184.9	7799			
3:3FTCA	3.816	241.0 -> 177.0	26857	67.26	µg/L	98
		241.0 -> 117.0	3754			
5:3FTCA	6.169	341.0 -> 237.1	916874	340.46	µg/L	98
		341.0 -> 217.0	810471			
7:3FTCA	7.567	441.0 -> 316.9	508915	352.30	µg/L	91
		441.0 -> 336.9	895746			
EtFOSA	10.927	526.0 -> 219.0	92969	33.23	µg/L	97
		526.0 -> 169.0	101975			
EtFOSE	10.860	630.0 -> 58.9	88347	152.89	µg/L	100
		511.9 -> 219.0	80895			
MeFOSA	10.682	511.9 -> 169.0	92564	33.47	µg/L	#
		616.1 -> 58.9	132190			
MeFOSE	10.602	699.1 -> 79.9	17384	154.74	µg/L	100
		699.1 -> 98.8	10013			
PFDoDS	9.858	295.0 -> 201.0	18493	13.68	µg/L	98
		295.0 -> 84.9	9463			
NFDHA	5.395	279.0 -> 85.1	59738	27.52	µg/L	98
		229.0 -> 84.9	53593			
PFMBA	4.750	314.8 -> 134.9	400673	26.37	µg/L	100
		314.8 -> 82.9	10466			
PFMPA	3.500			25.76	µg/L	100
PFEESA	5.996			23.64	µg/L	99

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

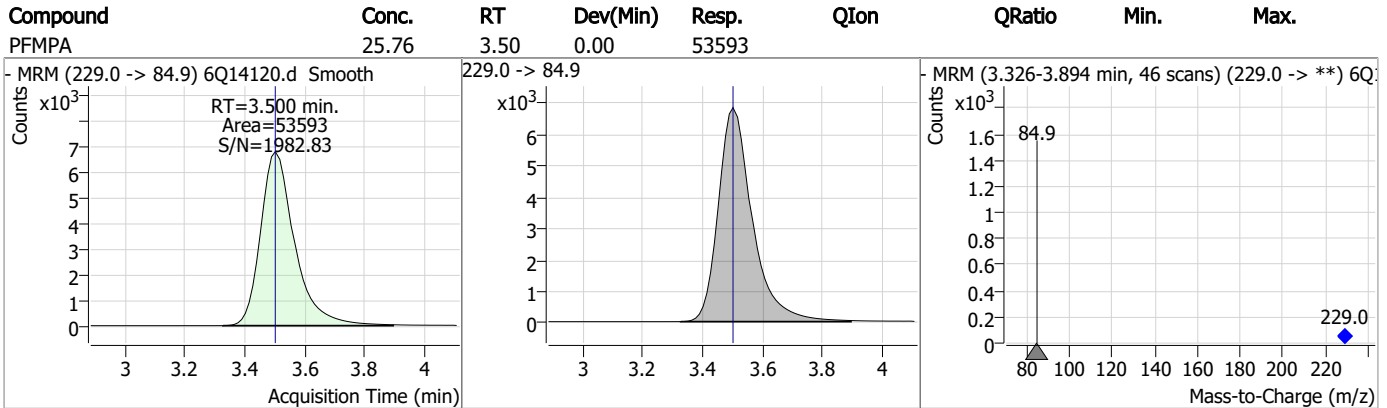
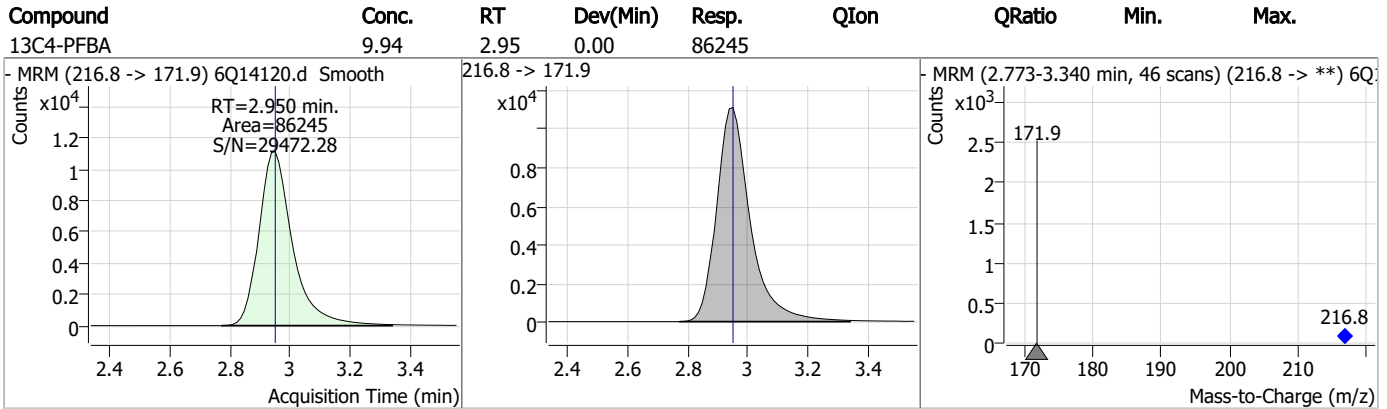
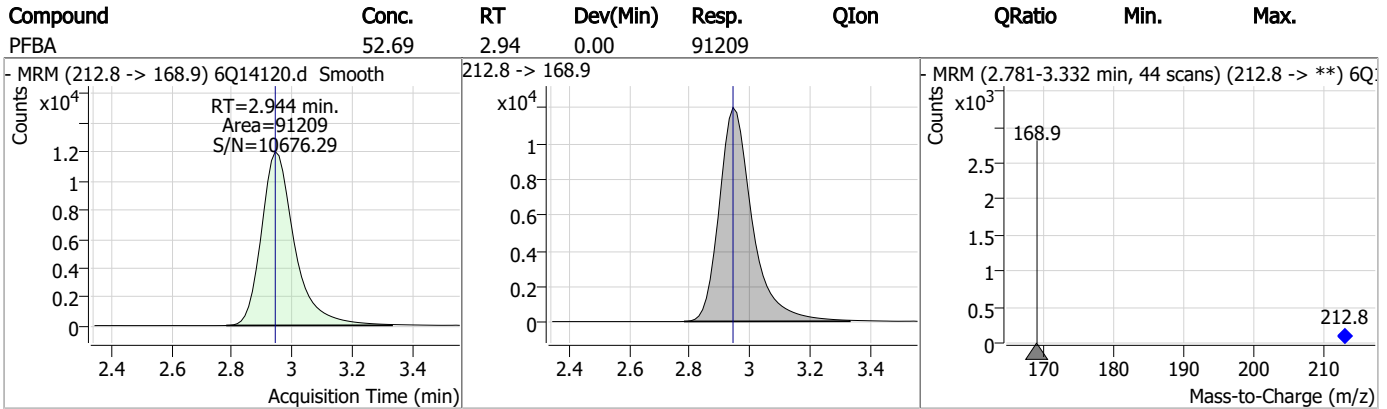
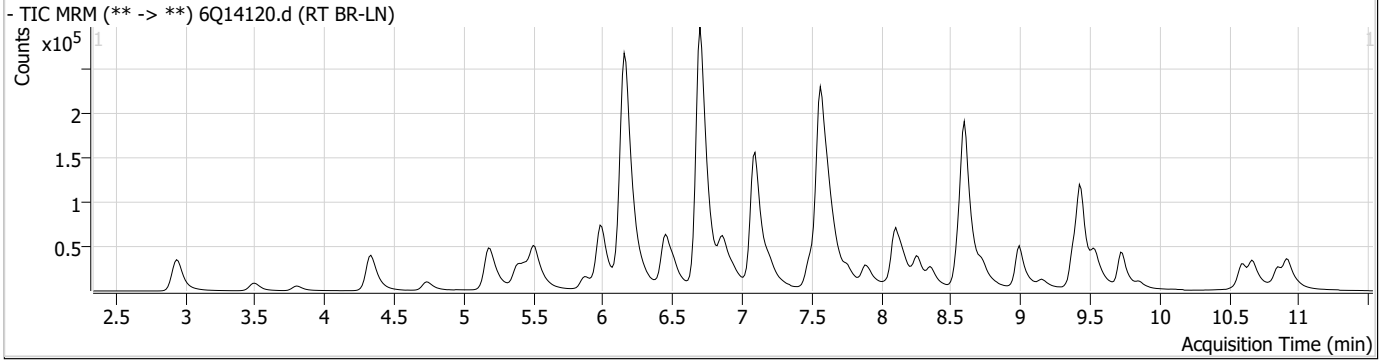
Perfluorinated Compounds by LC/MS/MS

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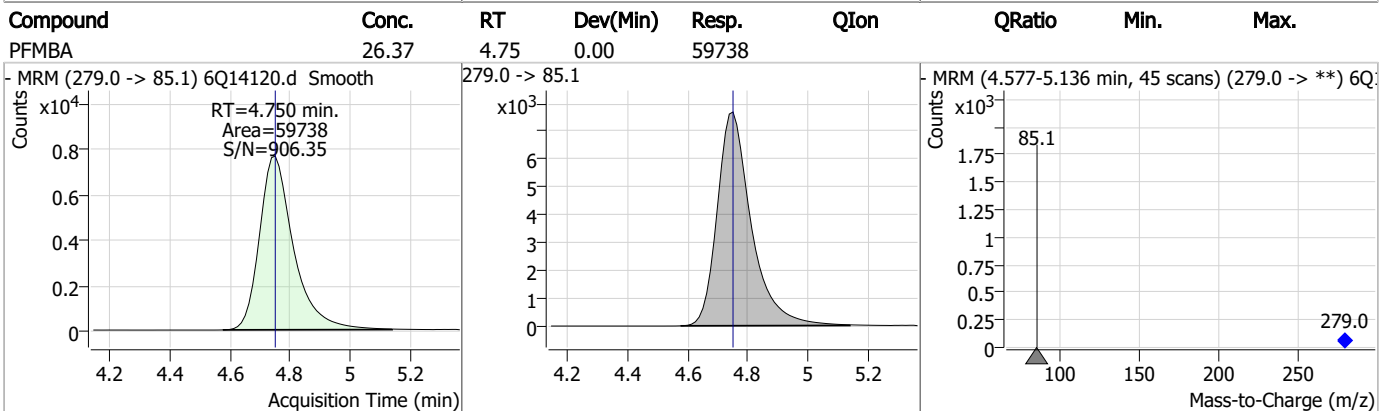
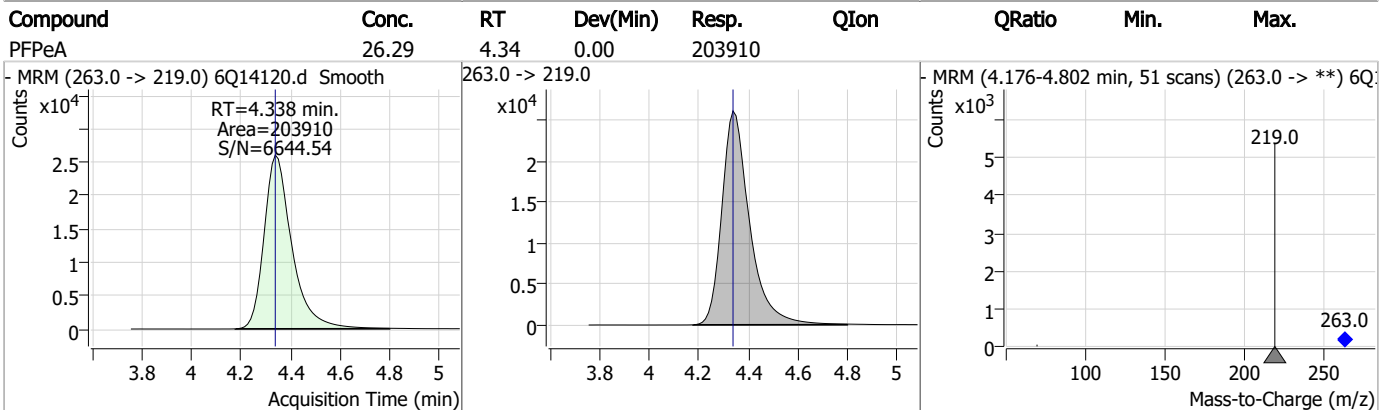
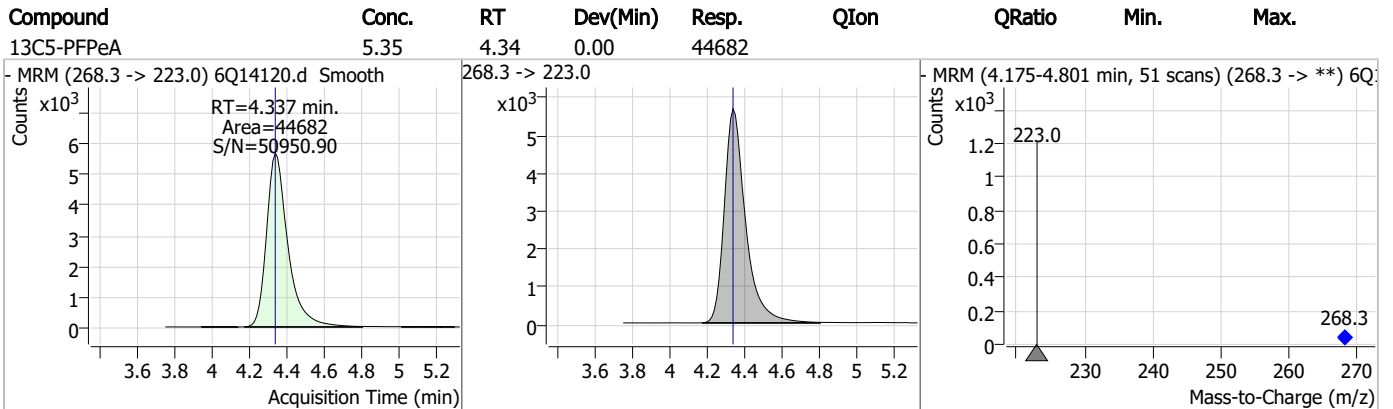
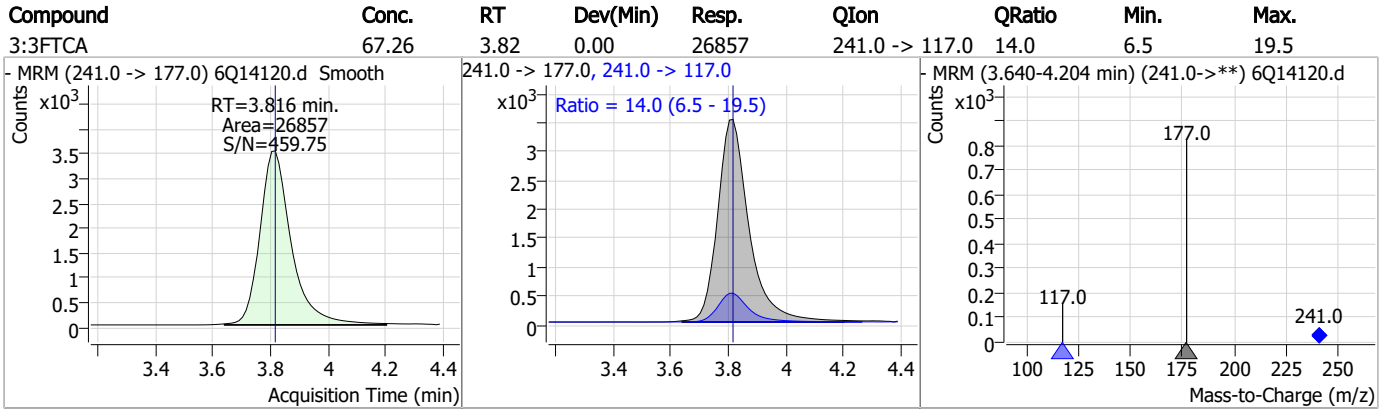
7.6.2

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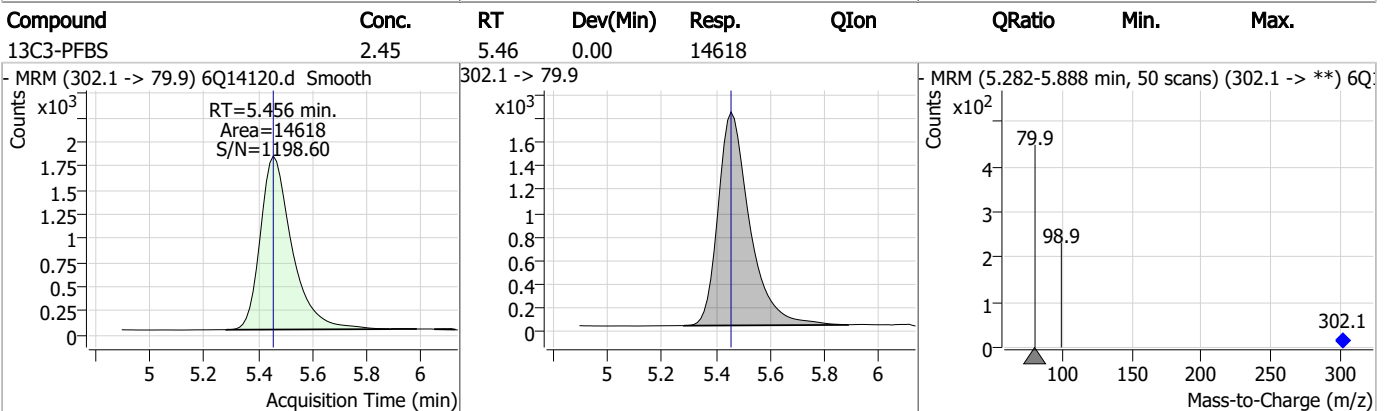
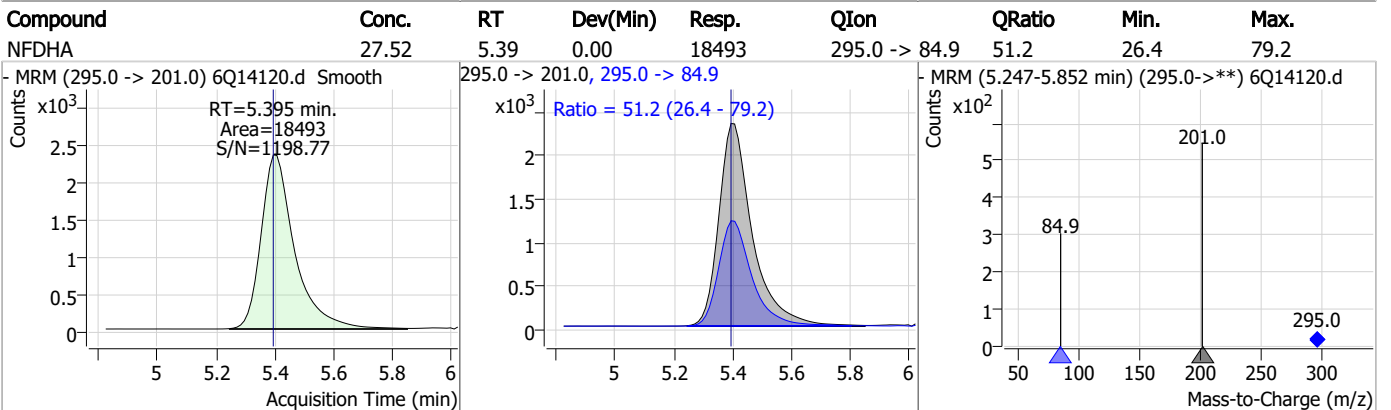
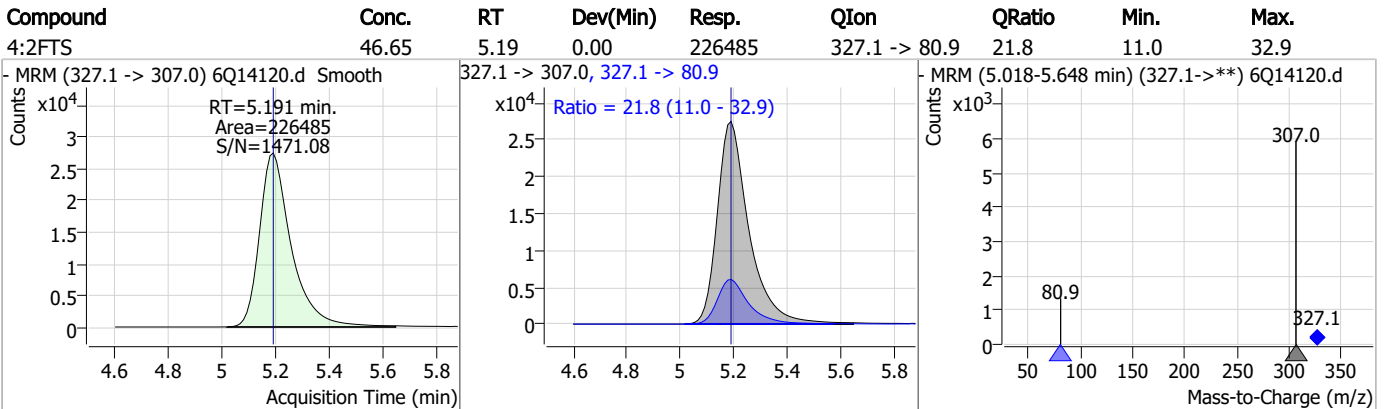
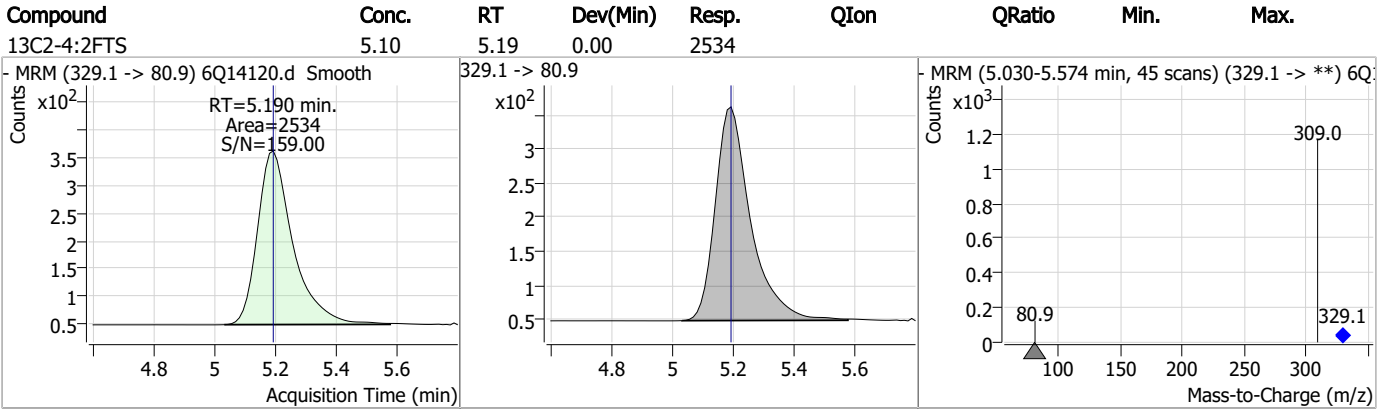
Perfluorinated Compounds by LC/MS/MS



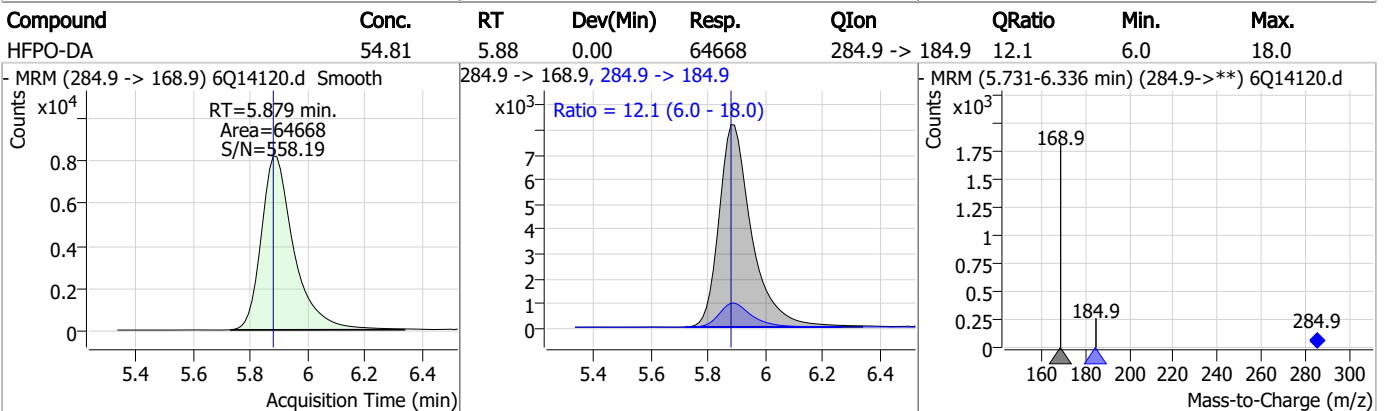
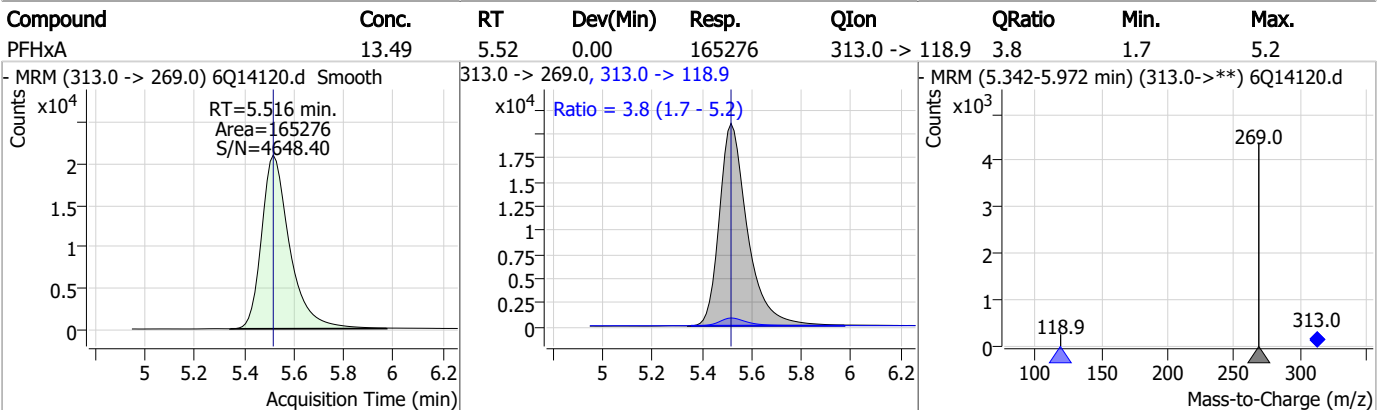
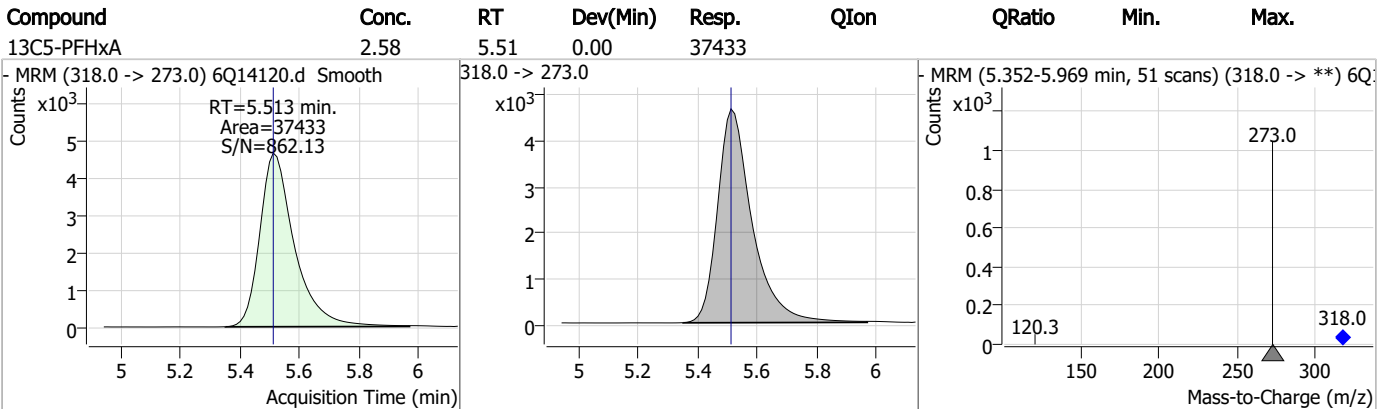
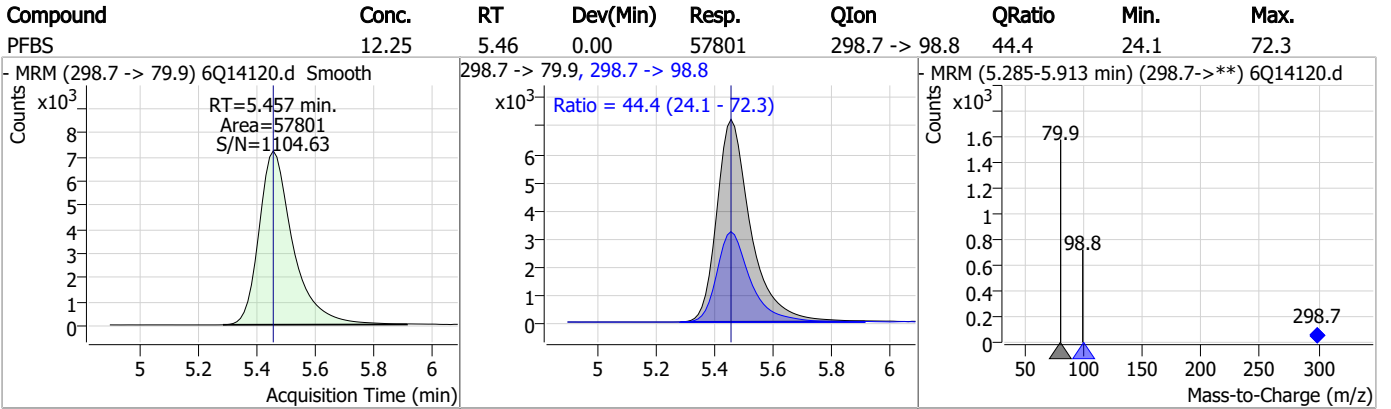
Perfluorinated Compounds by LC/MS/MS



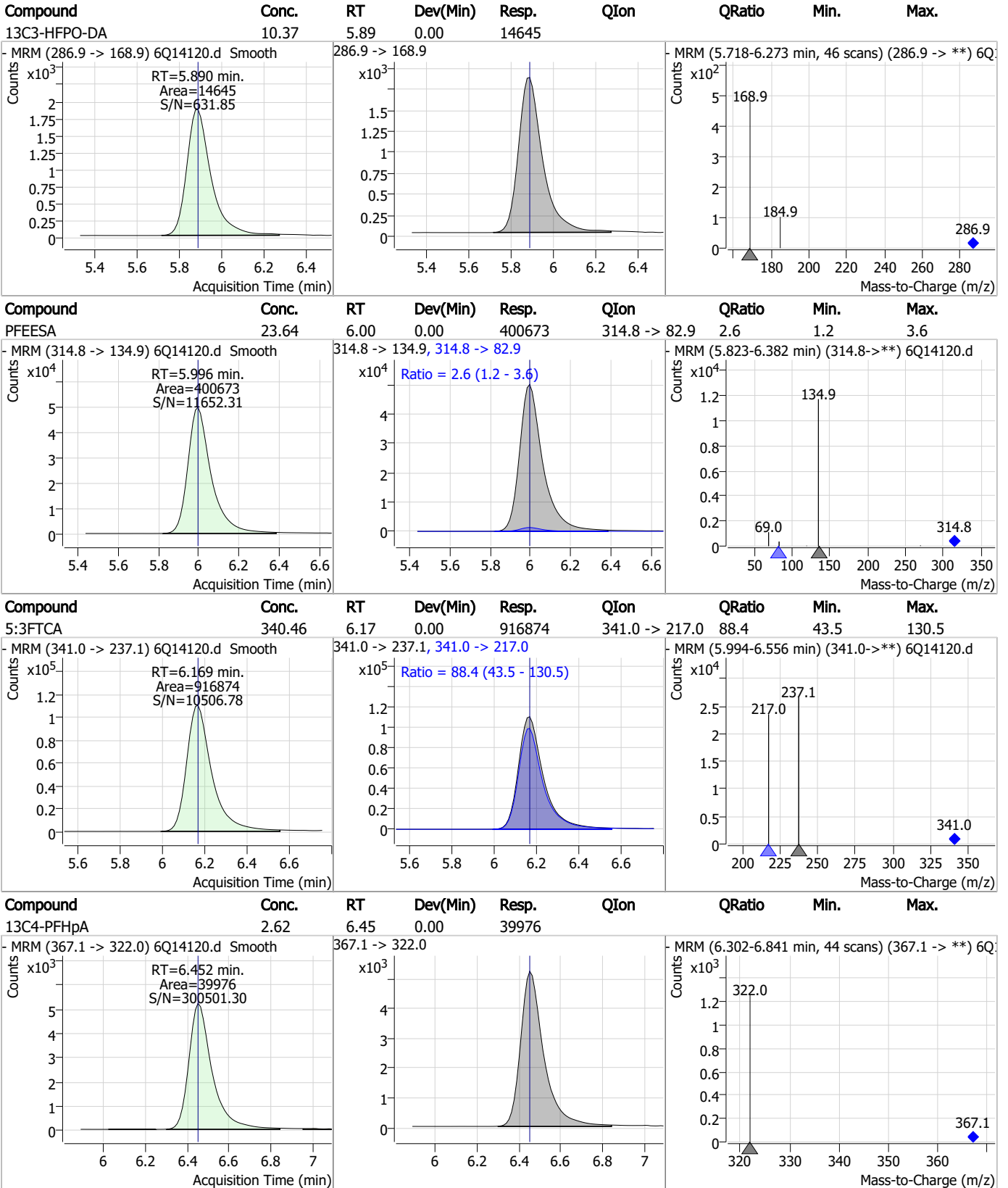
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



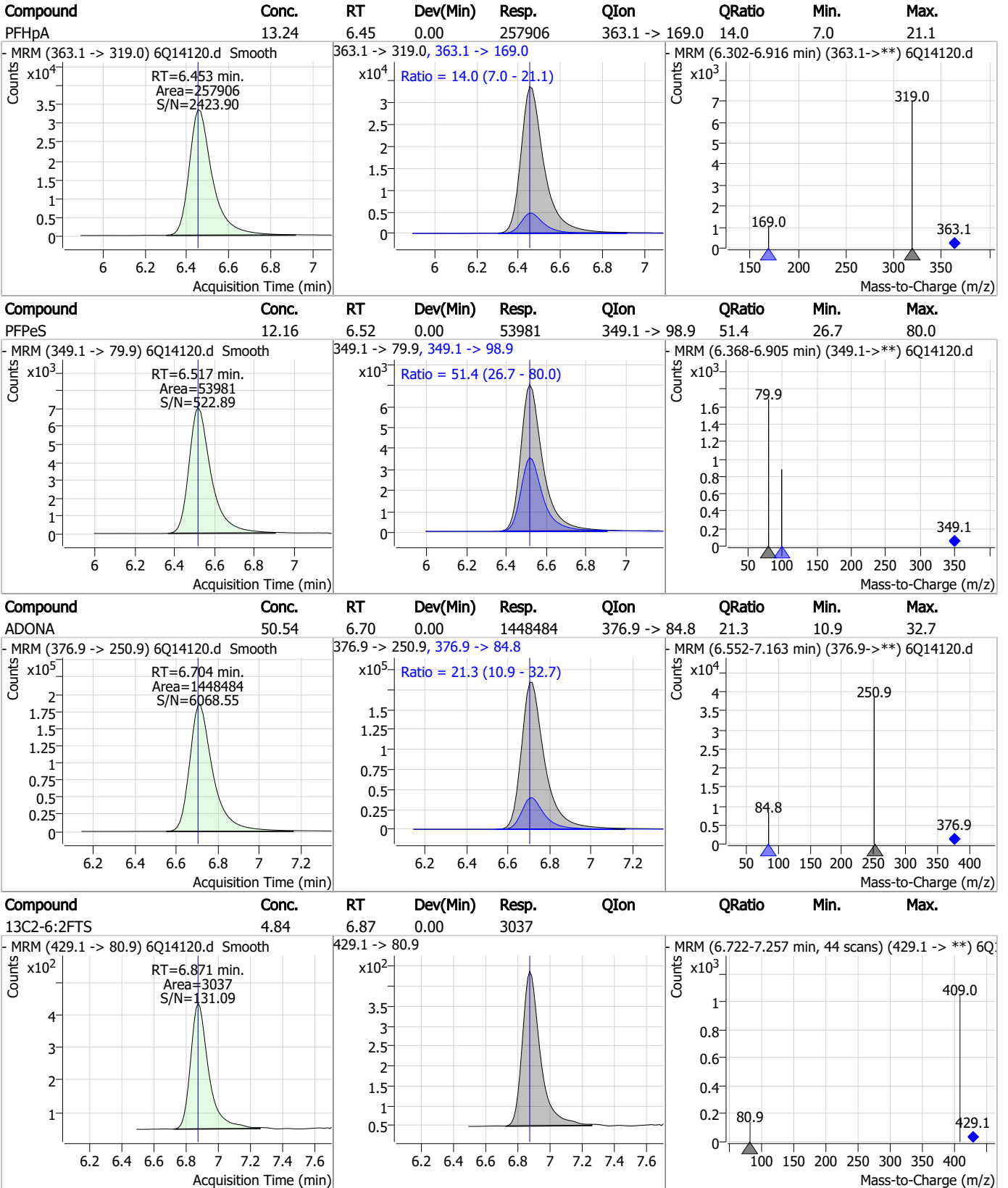
Perfluorinated Compounds by LC/MS/MS



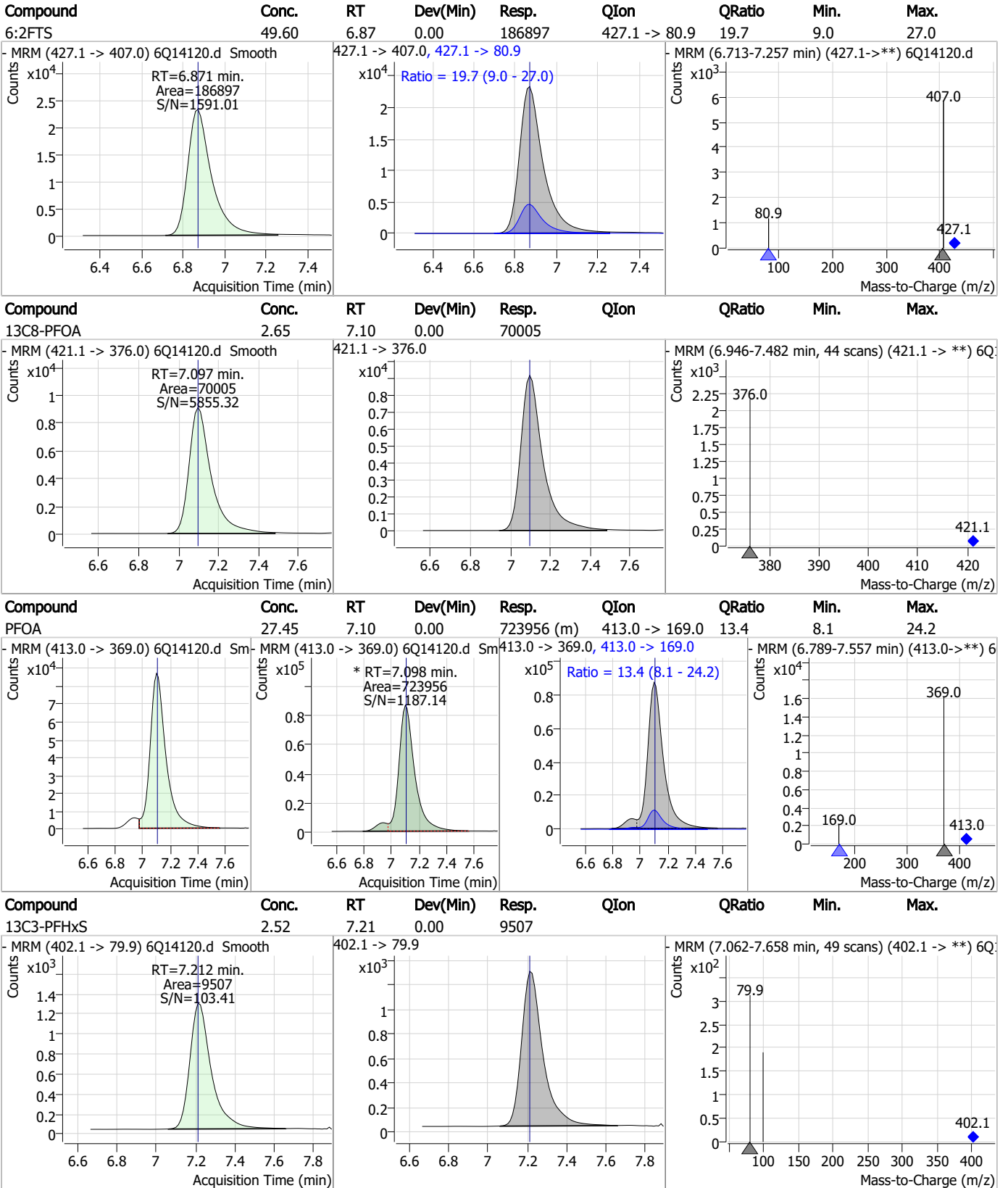
7.6.2

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Perfluorinated Compounds by LC/MS/MS



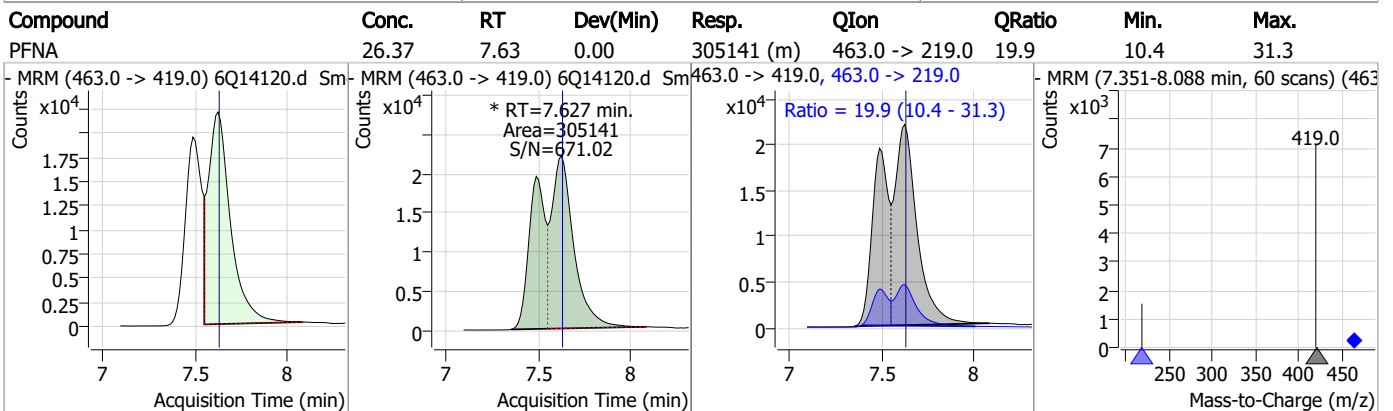
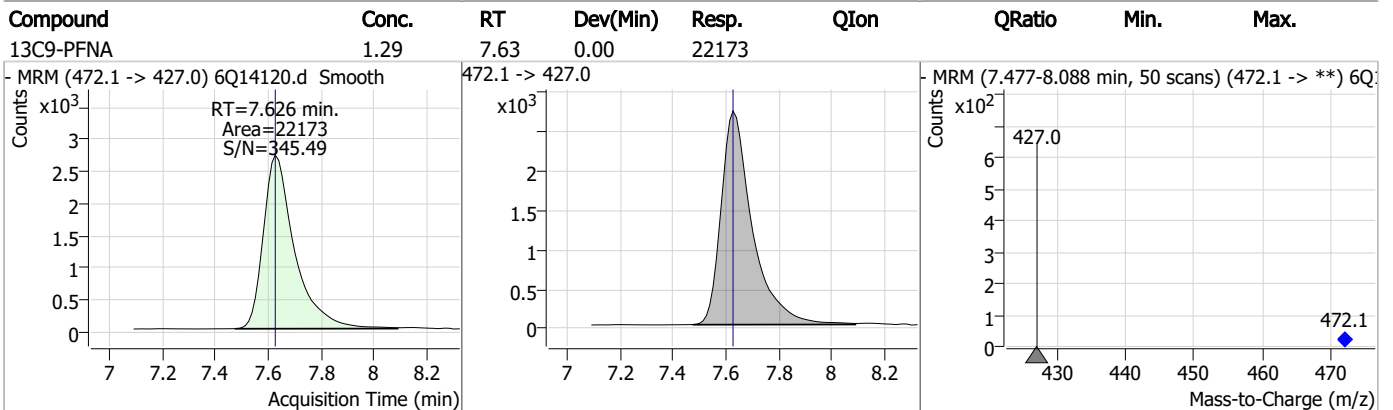
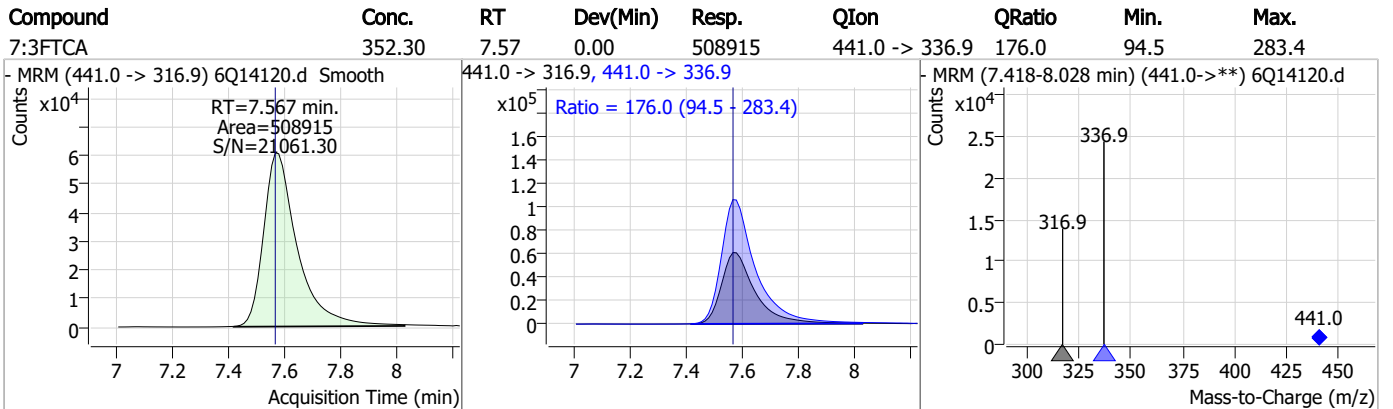
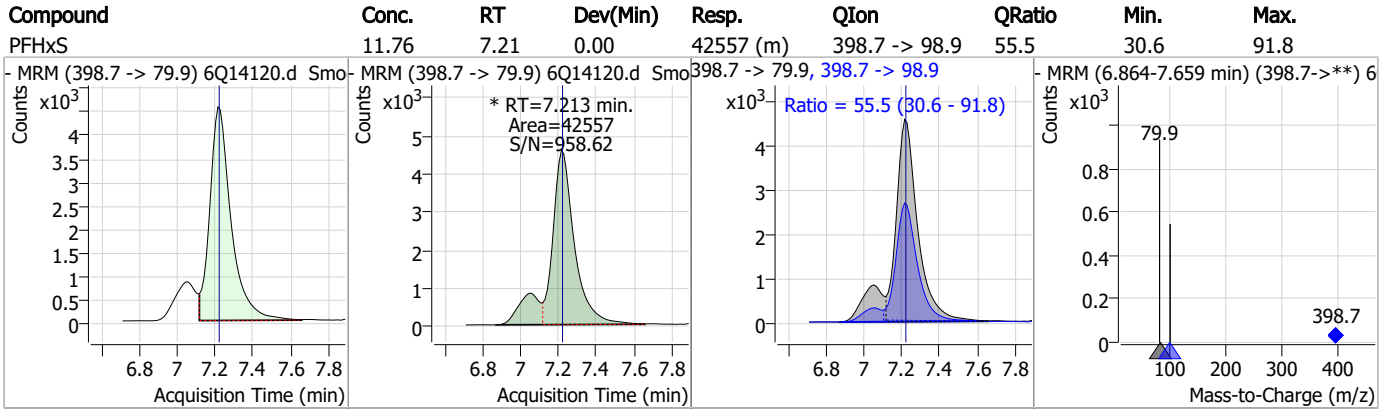
Perfluorinated Compounds by LC/MS/MS



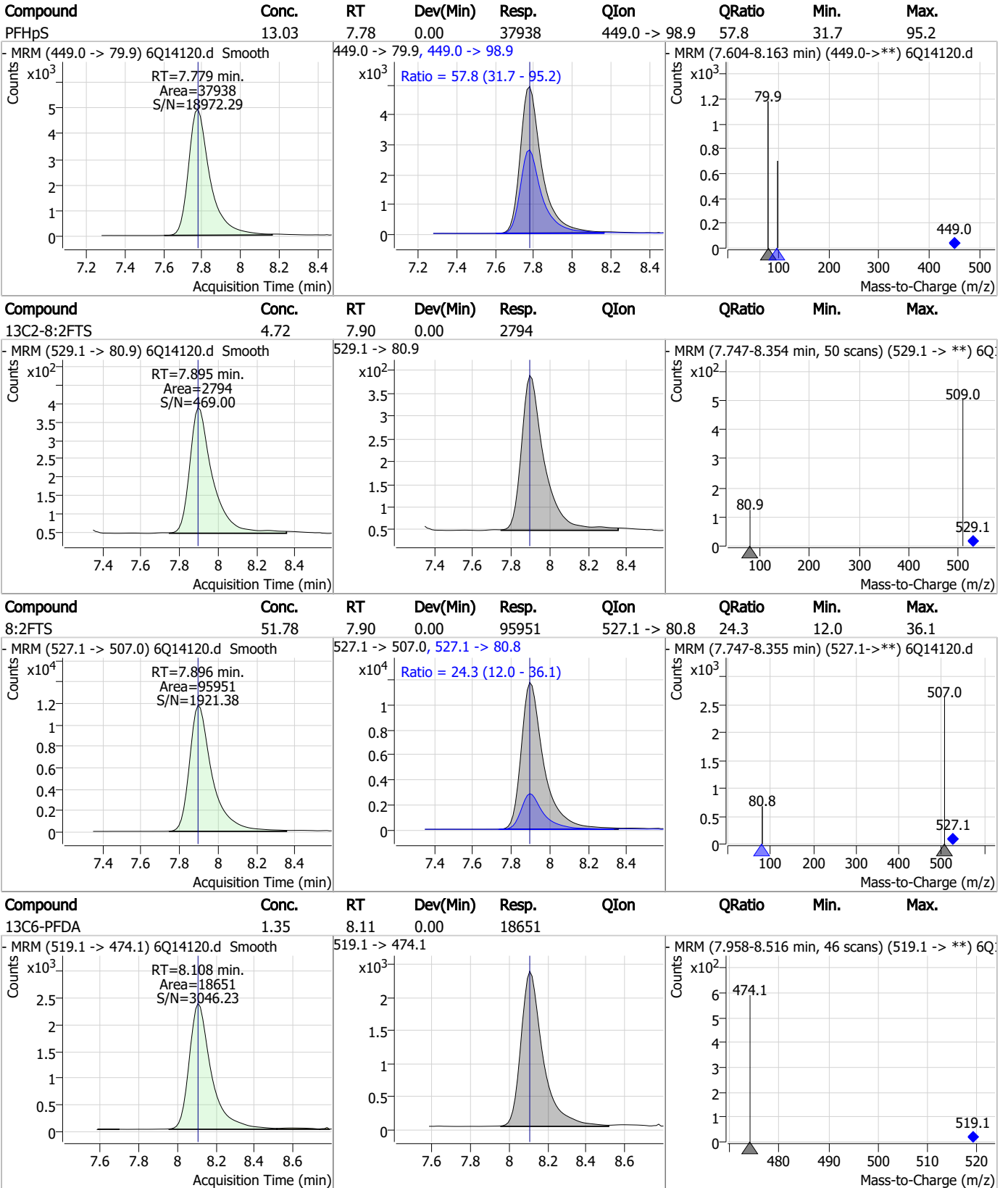
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Perfluorinated Compounds by LC/MS/MS



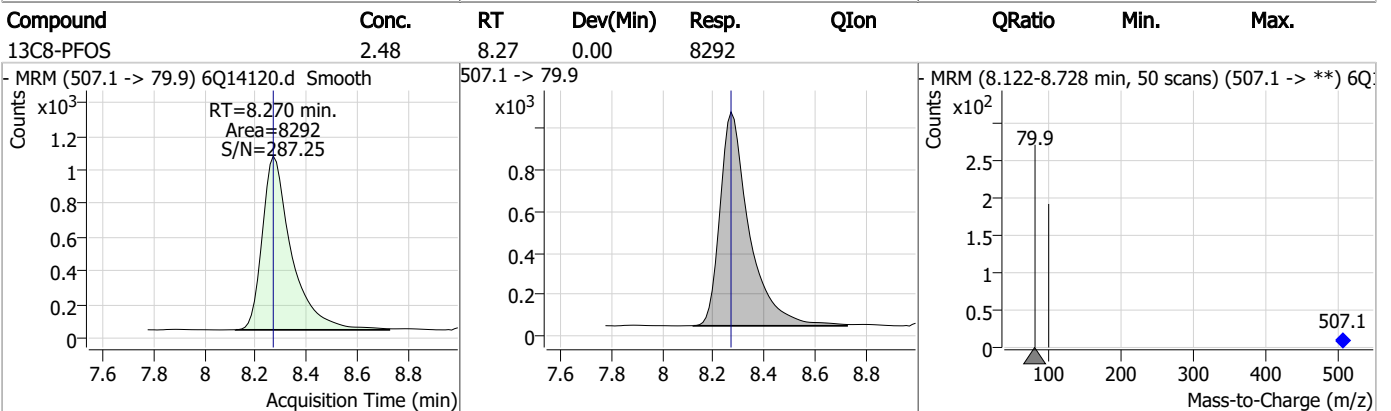
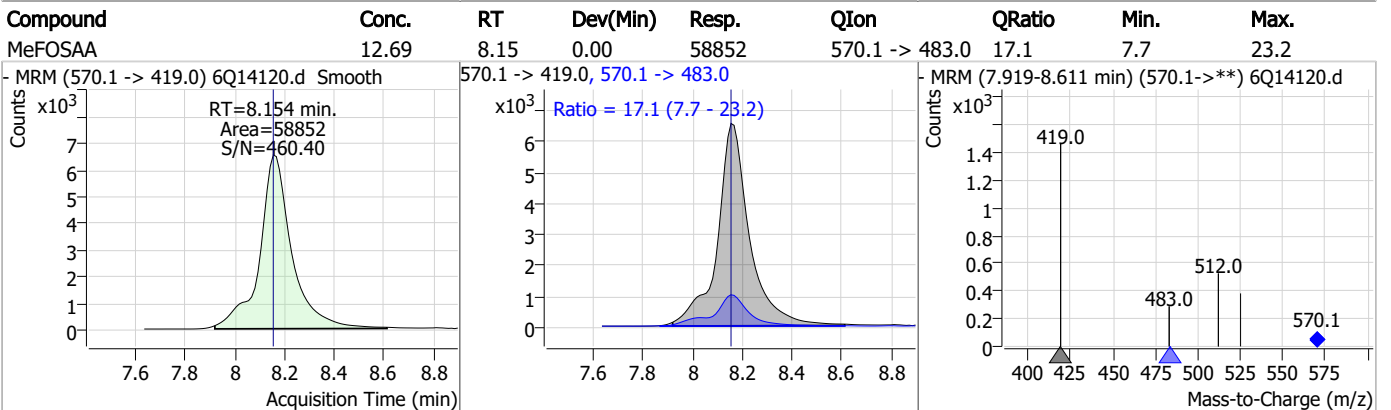
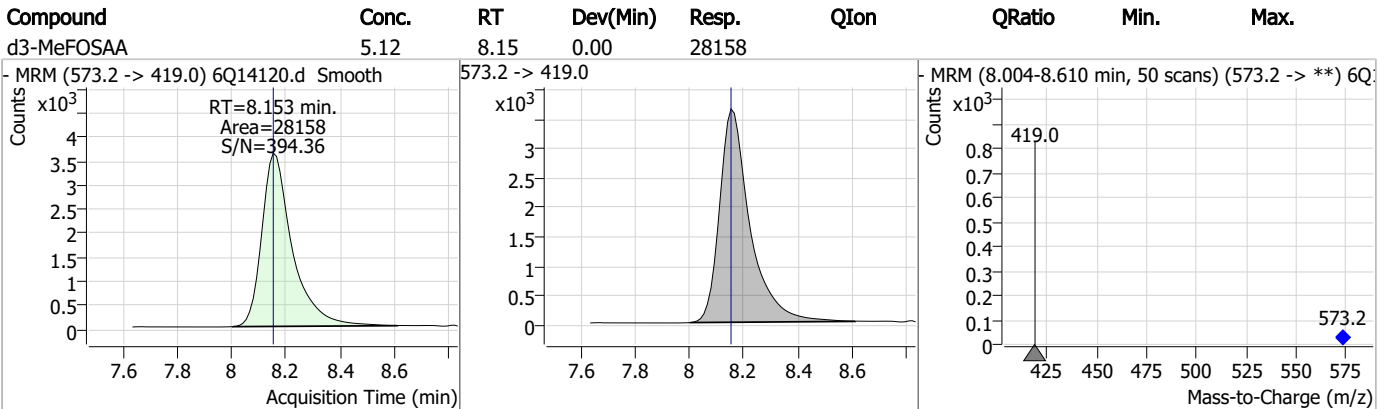
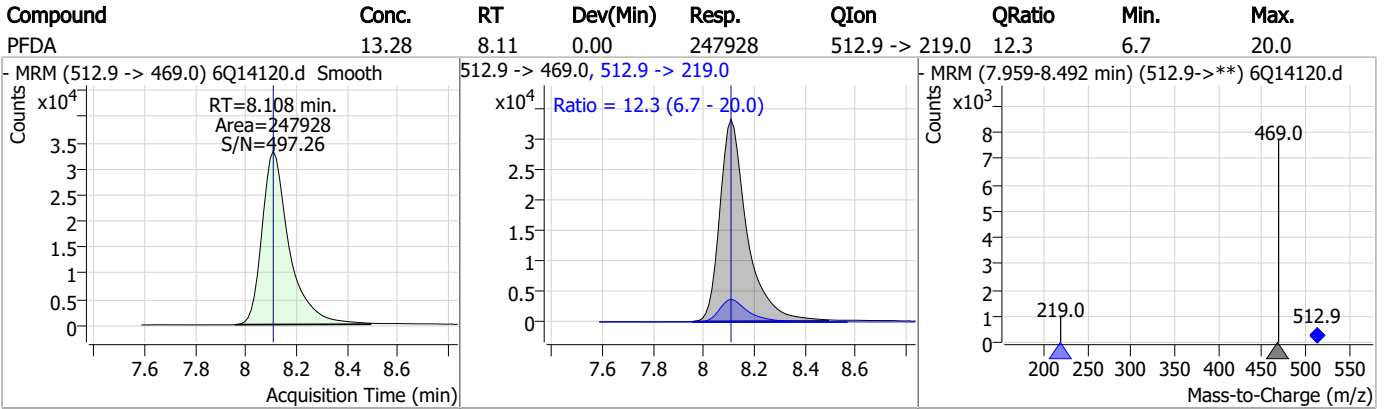
Perfluorinated Compounds by LC/MS/MS



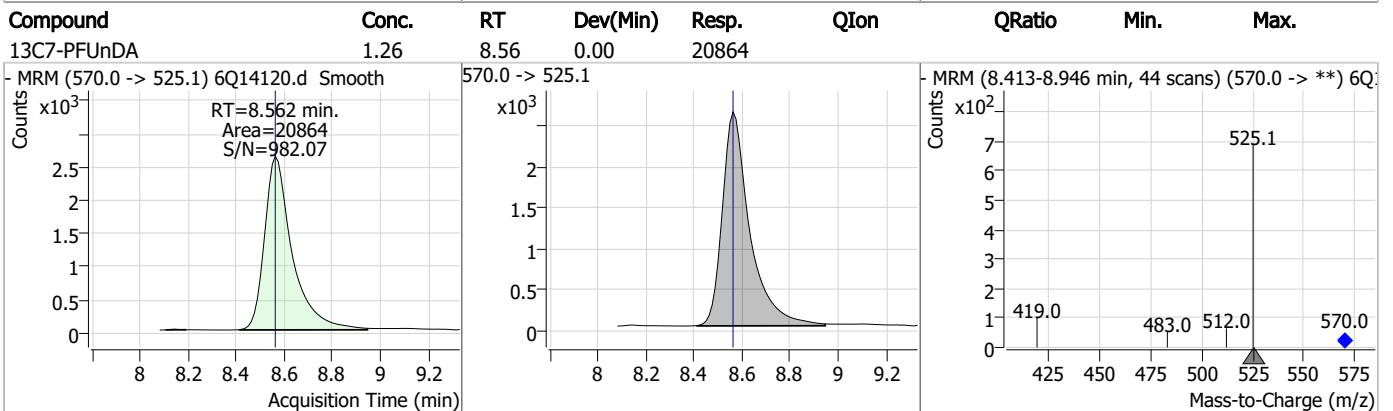
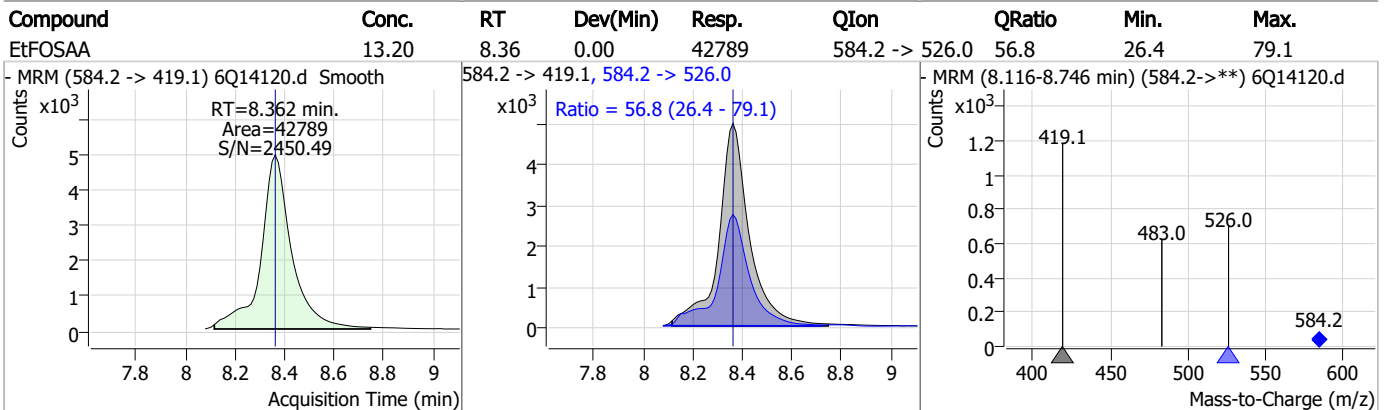
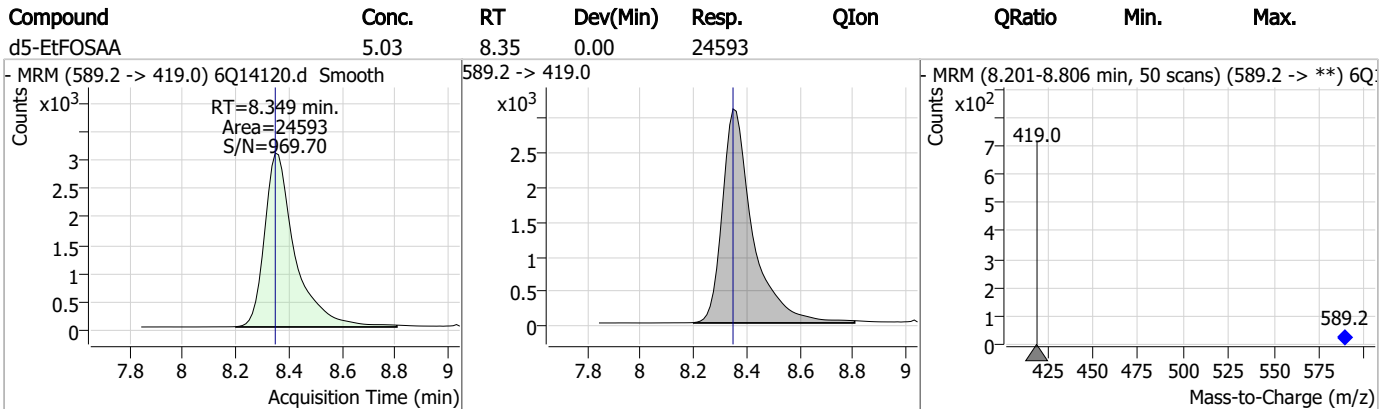
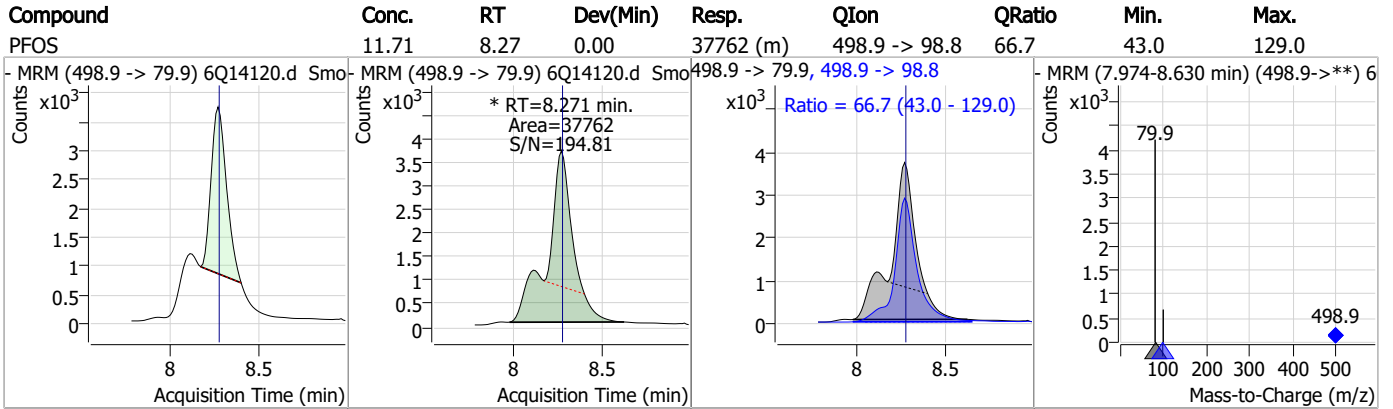
7.6.2

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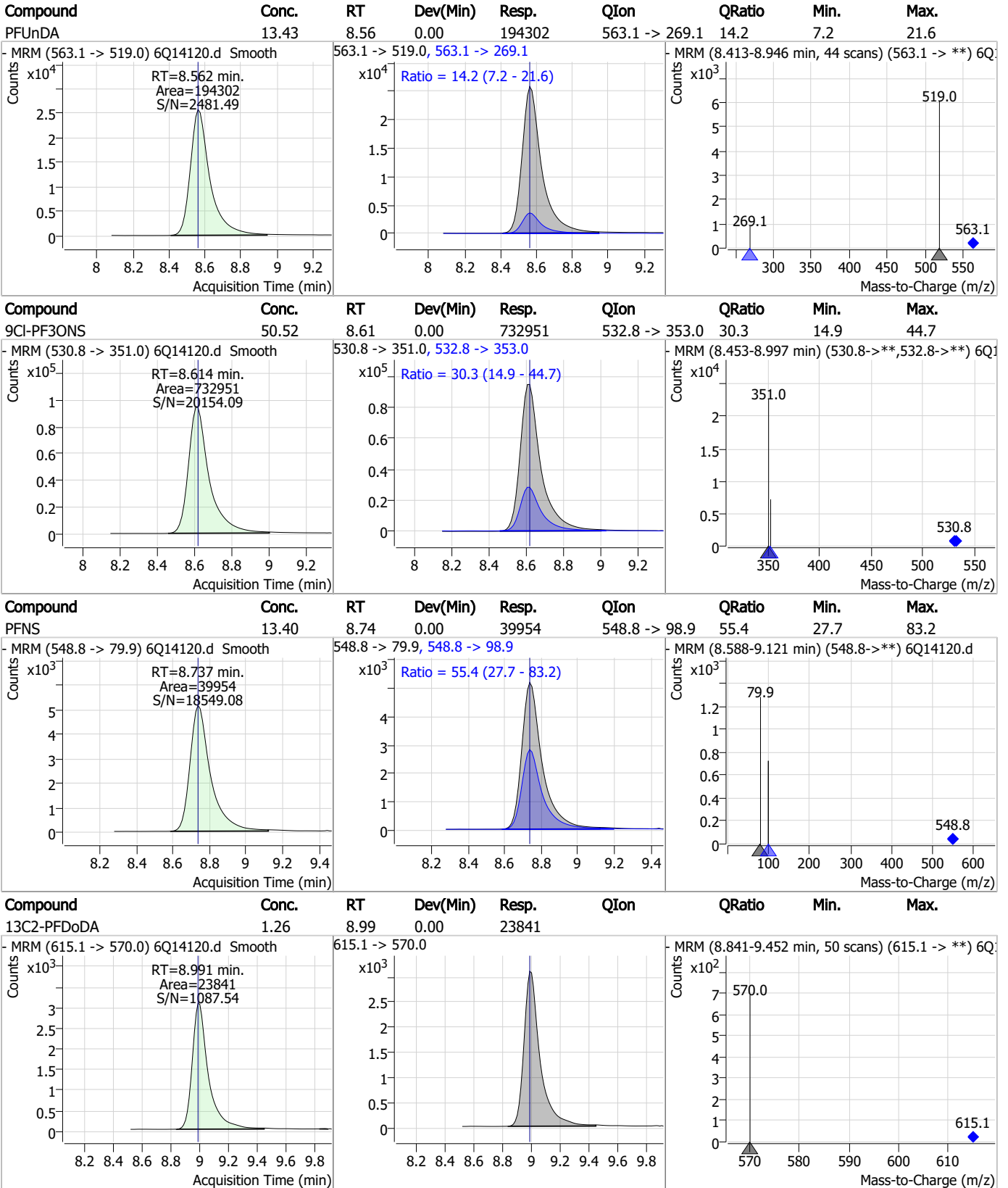
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



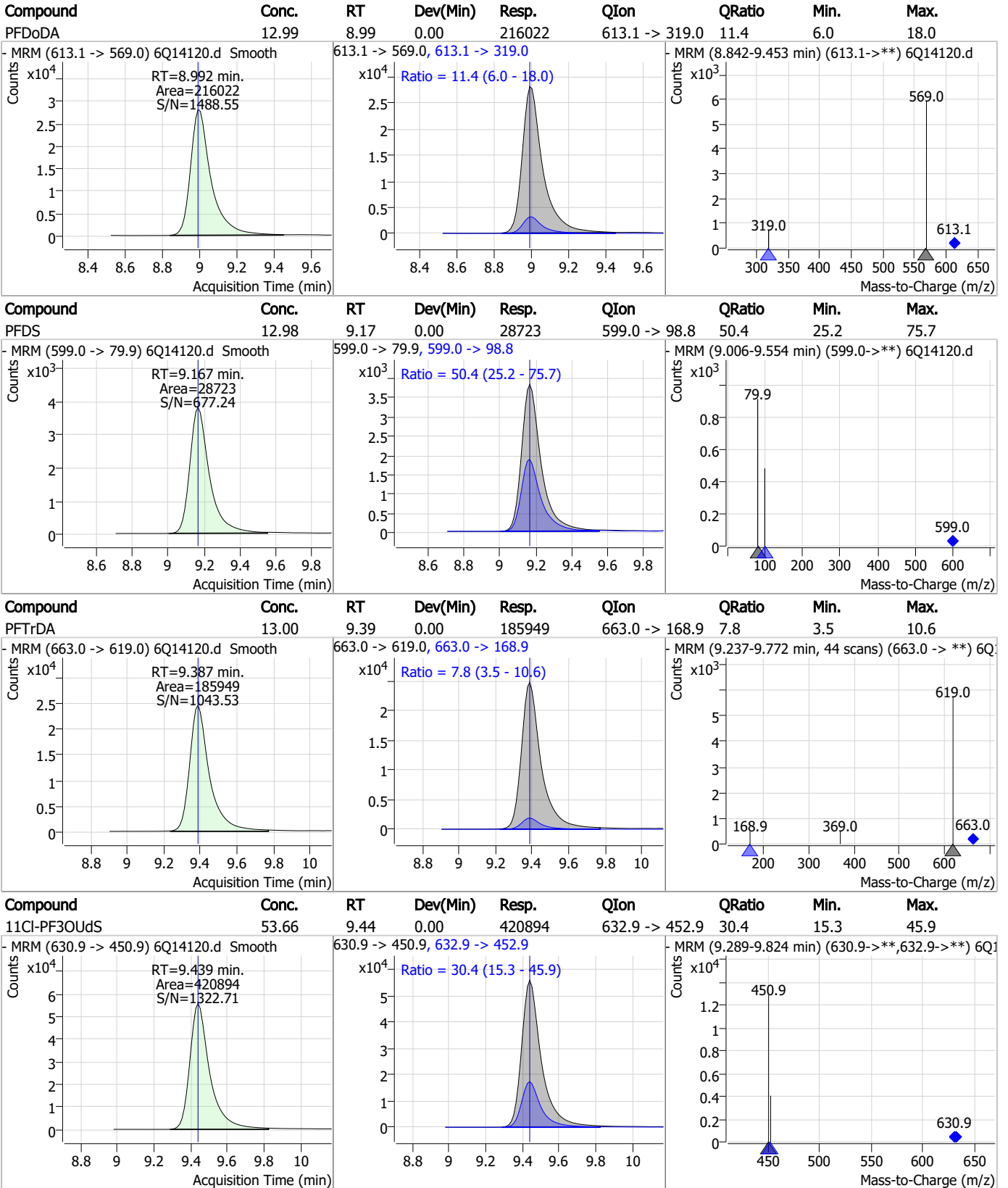
Perfluorinated Compounds by LC/MS/MS



7.6.2

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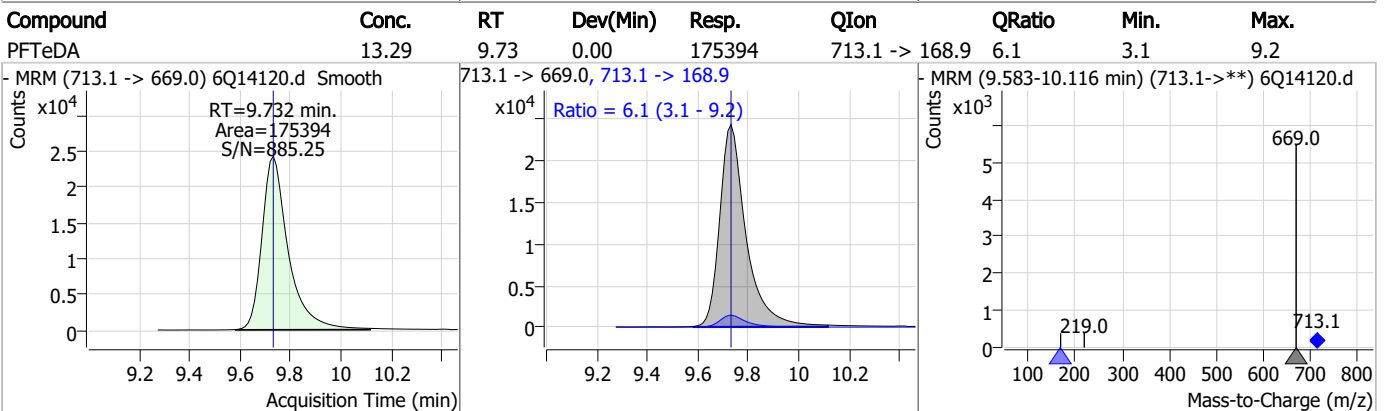
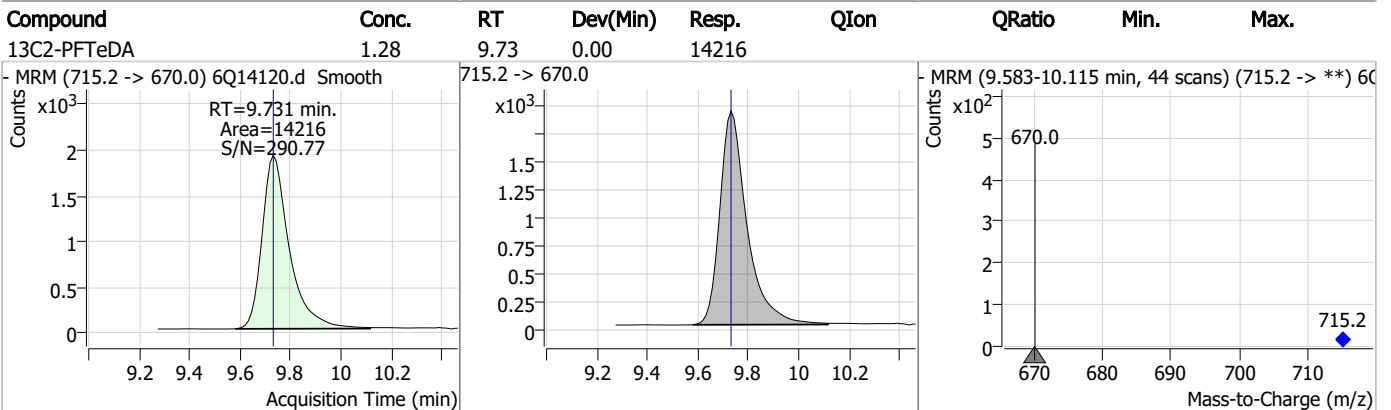
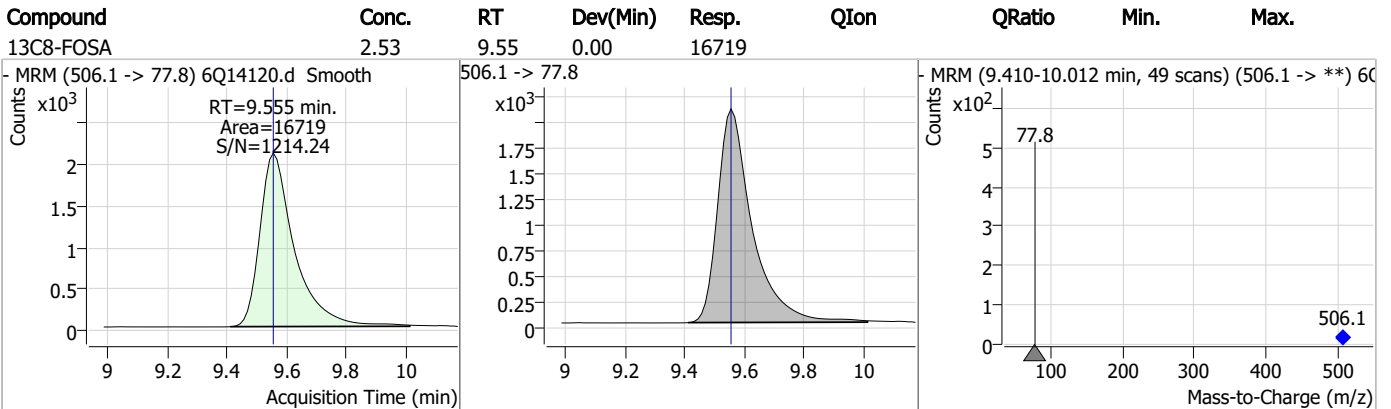
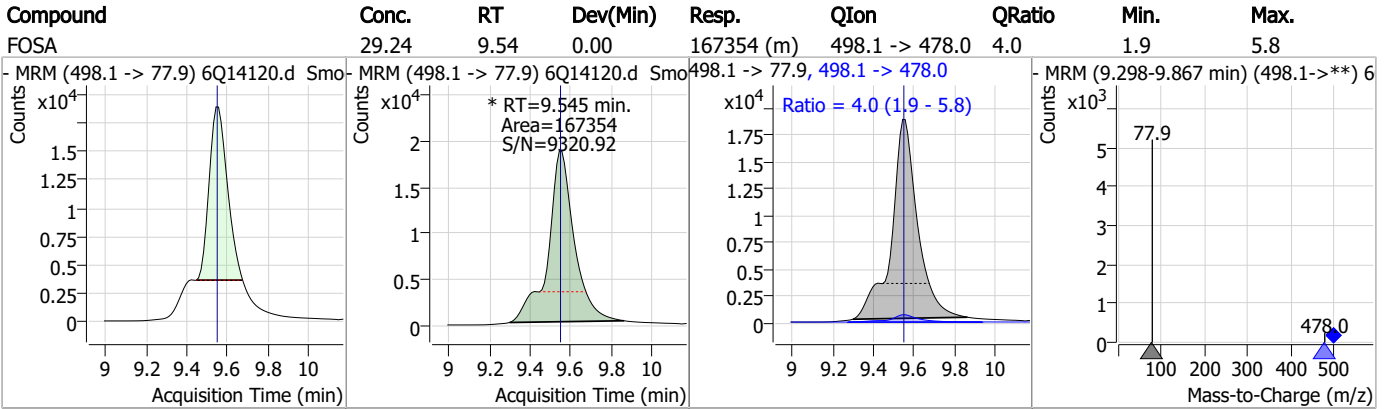
Perfluorinated Compounds by LC/MS/MS



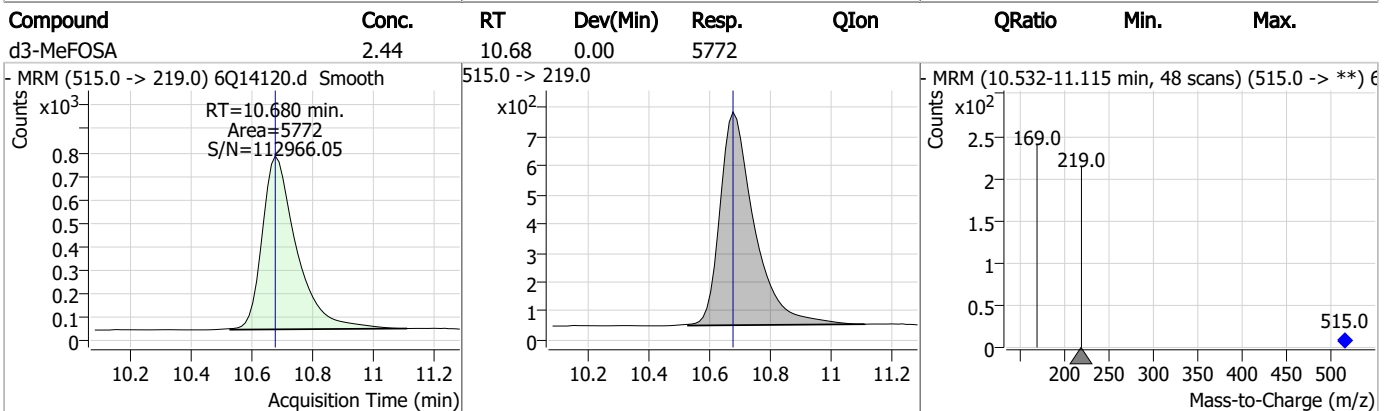
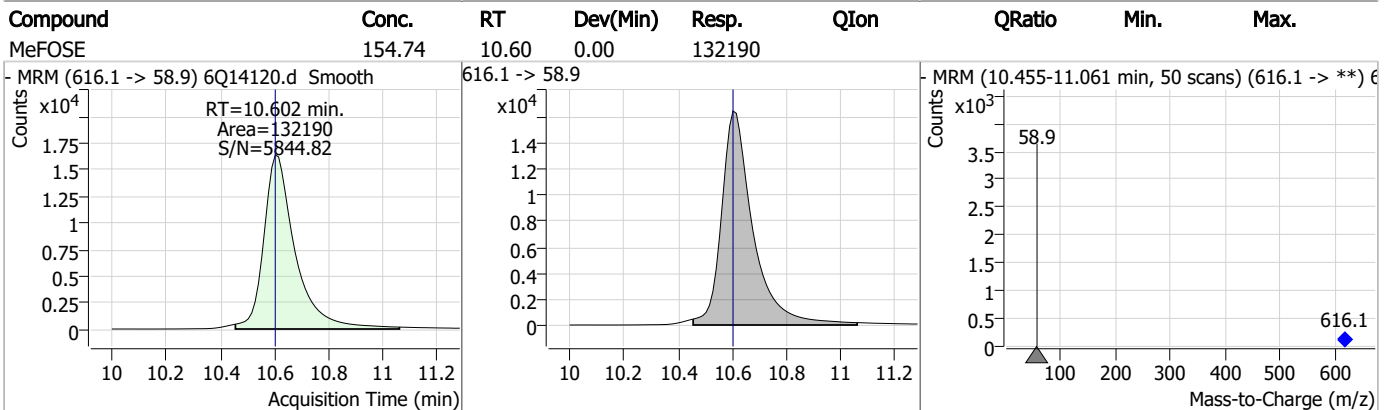
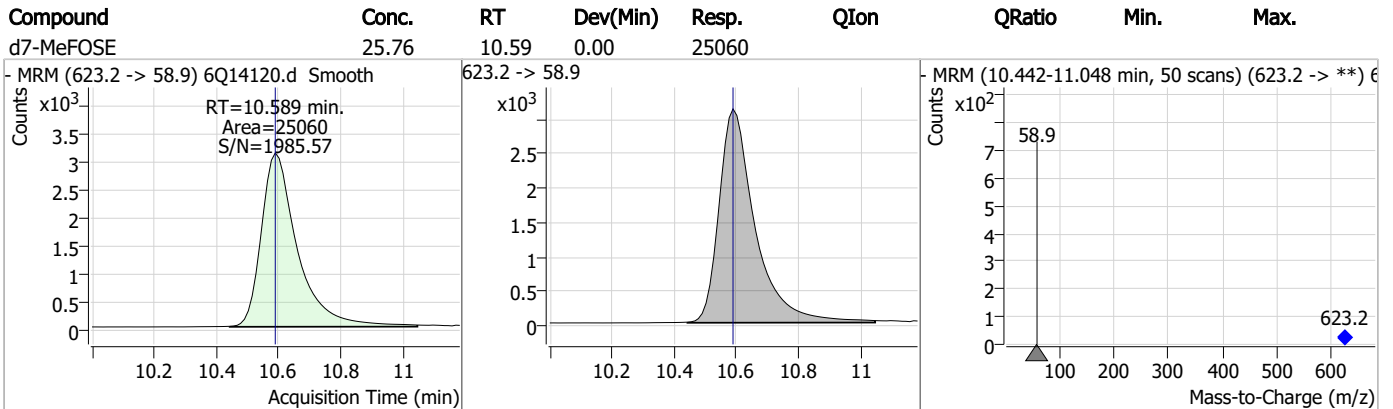
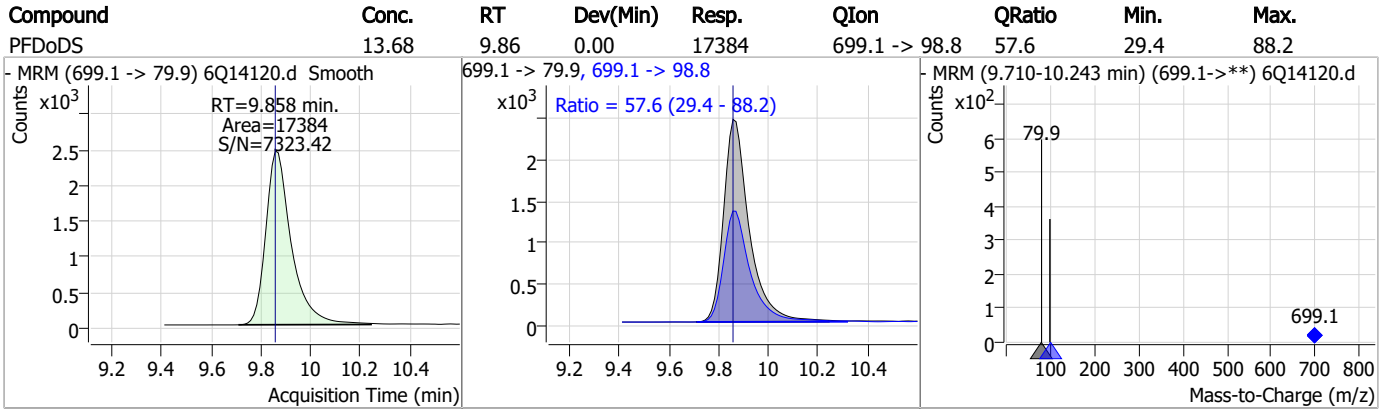
7.6.2

7

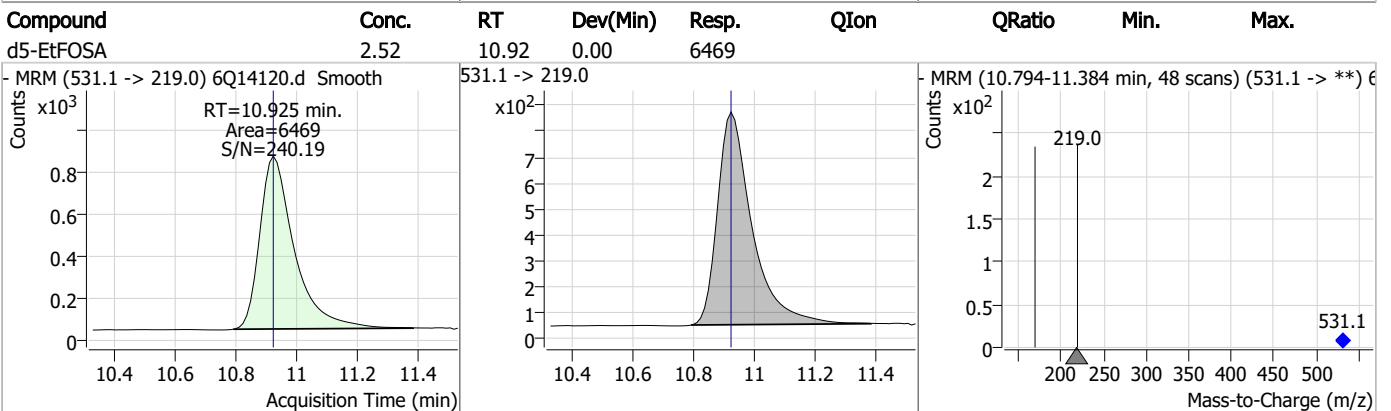
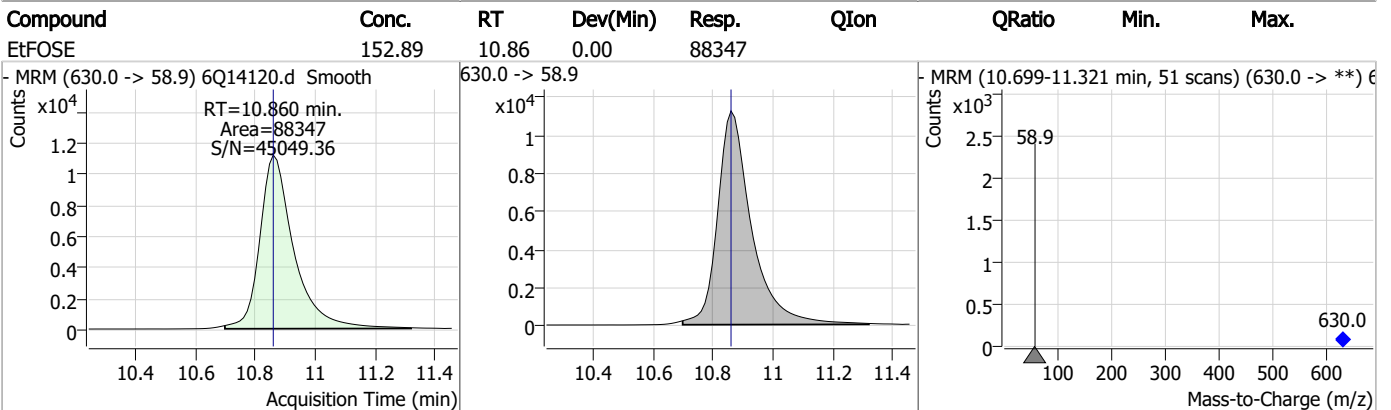
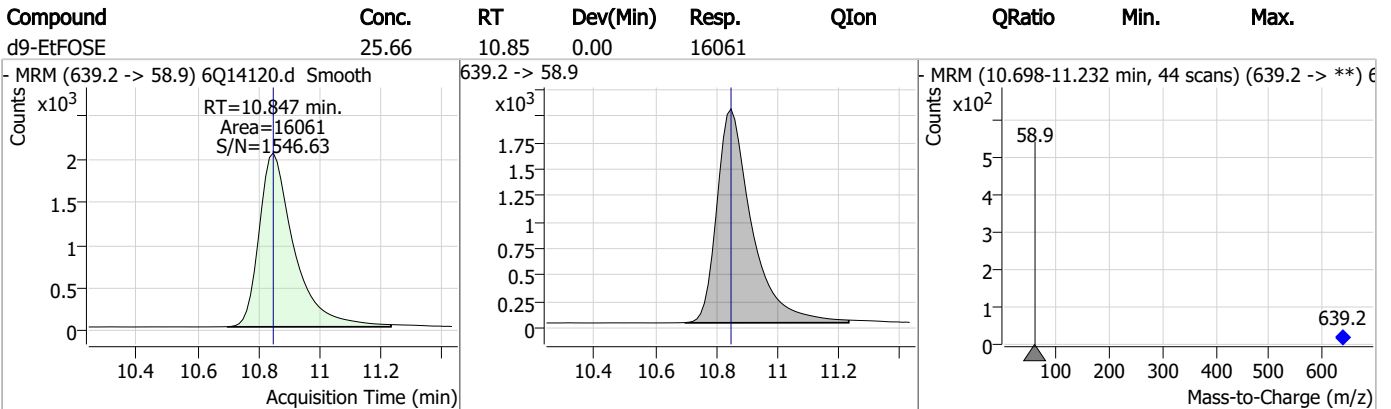
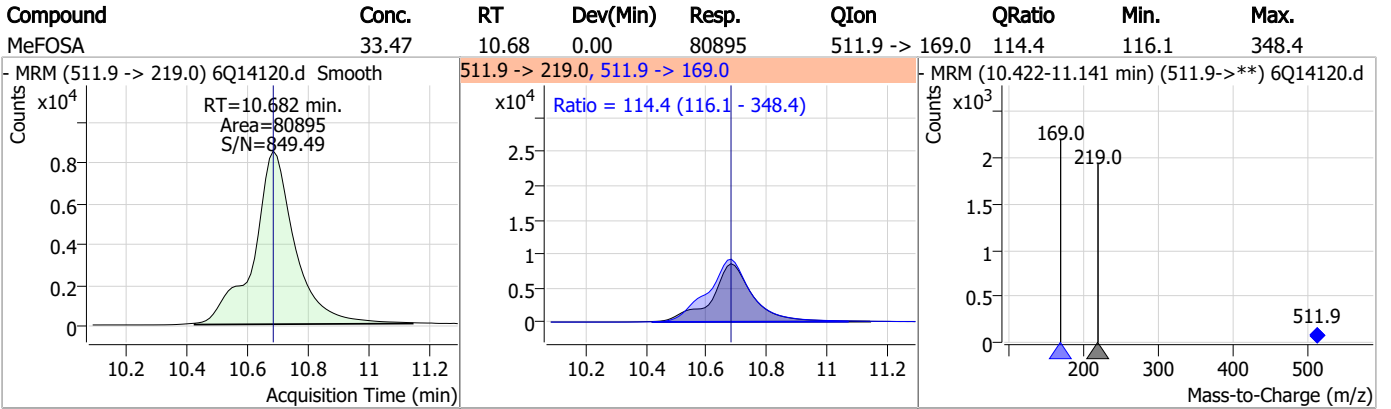
Perfluorinated Compounds by LC/MS/MS



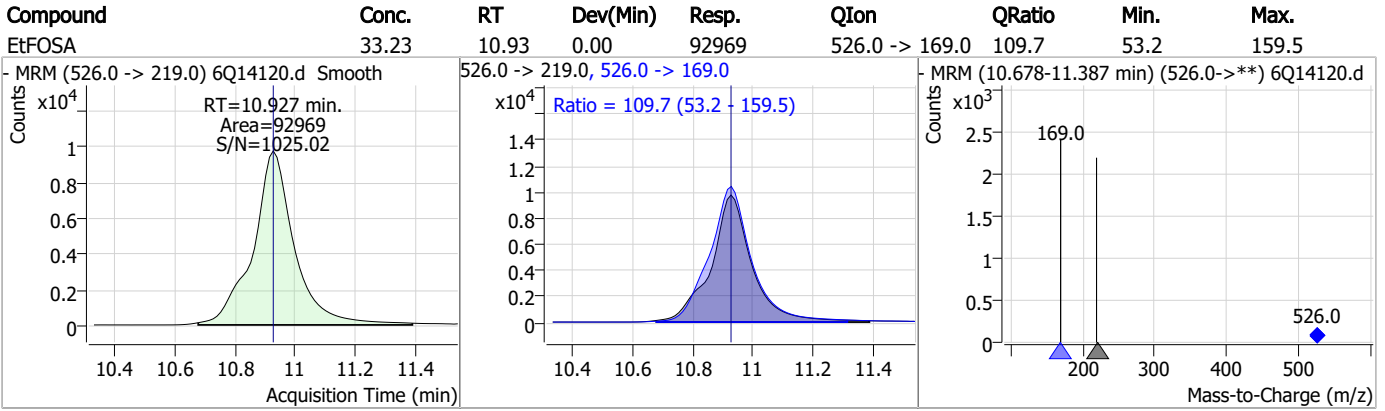
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q216-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14120.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 17:09 Supervisor approved: 02/23/23 16:19 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.10	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorononanoic acid	375-95-1		7.63	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
PFOSA	754-91-6		9.54	Split peak

7.6.2.1
7

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 20 February 2023 09:25:09
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.89E+0 [R] (Torr); 2.91E-5 [H] (Torr)

Source Parameters

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

7.7.1

7

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	0.70	0.75	0.05	Pass	93624
302.00	301.97	-0.03	Pass	0.70	0.72	0.02	Pass	528368
601.98	601.94	-0.04	Pass	0.70	0.68	-0.02	Pass	2663582
1033.99	1033.91	-0.08	Pass	0.70	0.75	0.05	Pass	563241
1633.95	1633.93	-0.02	Pass	0.70	0.82	0.12	Pass	302659
2233.91	2233.88	-0.03	Pass	0.70	0.69	-0.01	Pass	74426

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	0.70	0.63	-0.07	Pass	62842
112.99	112.98	-0.01	Pass	0.70	0.71	0.01	Pass	116837
302.00	302.02	0.02	Pass	0.70	0.69	-0.01	Pass	404839
601.98	601.92	-0.06	Pass	0.70	0.76	0.06	Pass	1506564
1033.99	1033.98	-0.01	Pass	0.70	0.71	0.01	Pass	1124035
1633.95	1633.94	-0.01	Pass	0.70	0.76	0.06	Pass	718272
2233.91	2233.83	-0.08	Pass	0.70	0.73	0.03	Pass	170492

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.95	-0.04	Pass	1.20	1.41	0.21	Pass	118683
302.00	302.01	0.01	Pass	1.20	1.49	0.29	Pass	641203
601.98	601.89	-0.09	Pass	1.20	1.53	0.33	Pass	3670015
1033.99	1033.83	-0.16	Pass	1.20	1.43	0.23	Pass	972447
1633.95	1633.84	-0.11	Pass	1.20	1.43	0.23	Pass	618533
2233.91	2233.87	-0.04	Pass	1.20	1.31	0.11	Pass	128900

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	1.20	1.14	-0.06	Pass	90393
112.99	112.97	-0.02	Pass	1.20	1.26	0.06	Pass	154090
302.00	302.01	0.01	Pass	1.20	1.25	0.05	Pass	548550
601.98	601.99	0.01	Pass	1.20	1.39	0.19	Pass	3220716
1033.99	1033.98	-0.01	Pass	1.20	1.33	0.13	Pass	2416225
1633.95	1633.85	-0.10	Pass	1.20	1.48	0.28	Pass	1818503
2233.91	2233.86	-0.05	Pass	1.20	1.32	0.12	Pass	457699

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	2.50	2.80	0.30	Pass	139859
302.00	301.83	-0.17	Pass	2.50	2.88	0.38	Pass	704262
601.98	601.70	-0.28	Pass	2.50	2.85	0.35	Pass	5010166
1033.99	1033.81	-0.18	Pass	2.50	2.74	0.24	Pass	2134395
1633.95	1633.78	-0.17	Pass	2.50	2.48	-0.02	Pass	1322120
2233.91	2233.59	-0.32	Pass	2.50	2.41	-0.09	Pass	417641

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.01	0.01	Pass	2.50	2.50	0.00	Pass	106939
112.99	113.01	0.02	Pass	2.50	2.49	-0.01	Pass	235073
302.00	301.99	-0.01	Pass	2.50	2.52	0.02	Pass	739899
601.98	601.99	0.01	Pass	2.50	2.76	0.26	Pass	4776815
1033.99	1033.91	-0.08	Pass	2.50	2.88	0.38	Pass	4687396
1633.95	1633.98	0.03	Pass	2.50	2.81	0.31	Pass	3580732
2233.91	2233.76	-0.15	Pass	2.50	2.59	0.09	Pass	1058847

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14122.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 5:37:31 PM
 Sample Name : ic216-1
 Vial : P1-A2
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	93369	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	47462	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	40919	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	42499	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	77475	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22879	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	19057	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	22660	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	24645	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	14366	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17185	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15550	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	10250	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	9258	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2730	5.00 µg/L	0.000
M2-6:2FTS	6.858	429.1 -> 80.9	3450	5.00 µg/L	-0.012
M2-8:2FTS	7.895	529.1 -> 80.9	3251	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	31270	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	16075	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	27216	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	26315	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16956	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6597	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6251	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	11406	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	41023	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7454	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	84104	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	25062	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	25614	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	41397	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2730	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-6:2FTS	6.858	429.1 -> 80.9	3450	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3251	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFDoDA	9.004	615.1 -> 570.0	24645	1.27 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14366	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFBS	5.456	302.1 -> 79.9	15550	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C3-PFHxS	7.212	402.1 -> 79.9	10250	2.54 µg/L	0.000

7.7.2
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 = 101.7%		
13C4-PFBA	2.938	216.8 -> 171.9	93369	10.10 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.452	367.1 -> 322.0	42499	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C5-PFHxA	5.513	318.0 -> 273.0	40919	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C5-PFPeA	4.337	268.3 -> 223.0	47462	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C6-PFDA	8.108	519.1 -> 474.1	19057	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C7-PFUnDA	8.562	570.0 -> 525.1	22660	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C8-FOSA	9.555	506.1 -> 77.8	17185	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C8-PFOA	7.097	421.1 -> 376.0	77475	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C8-PFOS	8.270	507.1 -> 79.9	9258	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C9-PFNA	7.626	472.1 -> 427.0	22879	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
d3-MeFOSAA	8.153	573.2 -> 419.0	31270	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-HFPO-DA	5.878	286.9 -> 168.9	16075	10.18 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
d3-MeFOSA	10.680	515.0 -> 219.0	6251	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.3%		
d5-EtFOSAA	8.361	589.2 -> 419.0	27216	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
d7-MeFOSE	10.589	623.2 -> 58.9	26315	24.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
d9-EtFOSE	10.847	639.2 -> 58.9	16956	24.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
d5-EtFOSA	10.925	531.1 -> 219.0	6597	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.4%		
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	3707	0.71 µg/L	95
		327.1 -> 80.9	900		
6:2FTS	6.859	427.1 -> 407.0	3118	0.73 µg/L	97
		427.1 -> 80.9	601		
8:2FTS	7.896	527.1 -> 507.0	1435	0.67 µg/L	77
		527.1 -> 80.8	509		
EtFOSAA	8.362	584.2 -> 419.1	599	0.17 µg/L	77
		584.2 -> 526.0	411		
FOSA	9.557	498.1 -> 77.9	1089	0.19 µg/L	99
		498.1 -> 478.0	39		
MeFOSAA	8.154	570.1 -> 419.0	962	0.19 µg/L	98
		570.1 -> 483.0	140		
PFBA	2.944	212.8 -> 168.9	1349	0.72 µg/L	100
PFBS	5.457	298.7 -> 79.9	813	0.16 µg/L	95
		298.7 -> 98.8	419		
PFDA	8.108	512.9 -> 469.0	2923	0.15 µg/L	95
		512.9 -> 219.0	448		
PFDODA	8.992	613.1 -> 569.0	4172	0.24 µg/L	94
		613.1 -> 319.0	408		
PFDS	9.167	599.0 -> 79.9	450	0.18 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	232			
PFHpA	6.453	363.1 -> 319.0	3523	0.17	µg/L	99
		363.1 -> 169.0	513			
PFHpS	7.765	449.0 -> 79.9	510	0.16	µg/L	90
		449.0 -> 98.9	363			
PFHxA	5.516	313.0 -> 269.0	2759	0.21	µg/L	# 95
		313.0 -> 118.9	145			
PFHxS	7.213	398.7 -> 79.9	695	0.18	µg/L	m 91
		398.7 -> 98.9	378			
PFNA	7.627	463.0 -> 419.0	2058	0.17	µg/L	91
		463.0 -> 219.0	513			
PFNS	8.749	548.8 -> 79.9	508	0.15	µg/L	75
		548.8 -> 98.9	374			
PFOA	7.098	413.0 -> 369.0	5077	0.17	µg/L	m 94
		413.0 -> 169.0	691			
PFOS	8.271	498.9 -> 79.9	771	0.21	µg/L	66
		498.9 -> 98.8	423			
PFPeA	4.338	263.0 -> 219.0	2917	0.35	µg/L	100
PFPeS	6.517	349.1 -> 79.9	830	0.17	µg/L	96
		349.1 -> 98.9	421			
PFTeDA	9.732	713.1 -> 669.0	2844	0.21	µg/L	98
		713.1 -> 168.9	158			
PFTrDA	9.387	663.0 -> 619.0	2908	0.20	µg/L	99
		663.0 -> 168.9	196			
PFUnDA	8.562	563.1 -> 519.0	2779	0.18	µg/L	97
		563.1 -> 269.1	369			
11CI-PF3OUdS	9.439	630.9 -> 450.9	6035	0.70	µg/L	93
		632.9 -> 452.9	1624			
9CI-PF3ONS	8.614	530.8 -> 351.0	10413	0.65	µg/L	94
		532.8 -> 353.0	3414			
ADONA	6.704	376.9 -> 250.9	20699	0.66	µg/L	100
		376.9 -> 84.8	4538			
HFPO-DA	5.879	284.9 -> 168.9	929	0.72	µg/L	97
		284.9 -> 184.9	121			
3:3FTCA	3.804	241.0 -> 177.0	394	0.93	µg/L	94
		241.0 -> 117.0	60			
5:3FTCA	6.156	341.0 -> 237.1	13110	4.45	µg/L	99
		341.0 -> 217.0	11513			
7:3FTCA	7.579	441.0 -> 316.9	6857	4.34	µg/L	92
		441.0 -> 336.9	13789			
EtFOSA	10.927	526.0 -> 219.0	595	0.21	µg/L	78
		526.0 -> 169.0	498			
EtFOSE	10.860	630.0 -> 58.9	1099	1.80	µg/L	100
MeFOSA	10.694	511.9 -> 219.0	425	0.16	µg/L	# 26
		511.9 -> 169.0	466			
MeFOSE	10.615	616.1 -> 58.9	1503	1.68	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	228	0.16	µg/L	84
		699.1 -> 98.8	162			
NFDHA	5.395	295.0 -> 201.0	197	0.27	µg/L	# 53
		295.0 -> 84.9	169			
PFMBA	4.750	279.0 -> 85.1	861	0.36	µg/L	100
PFMPA	3.500	229.0 -> 84.9	794	0.36	µg/L	100
PFEESA	5.996	314.8 -> 134.9	5901	0.32	µg/L	100
		314.8 -> 82.9	151			

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

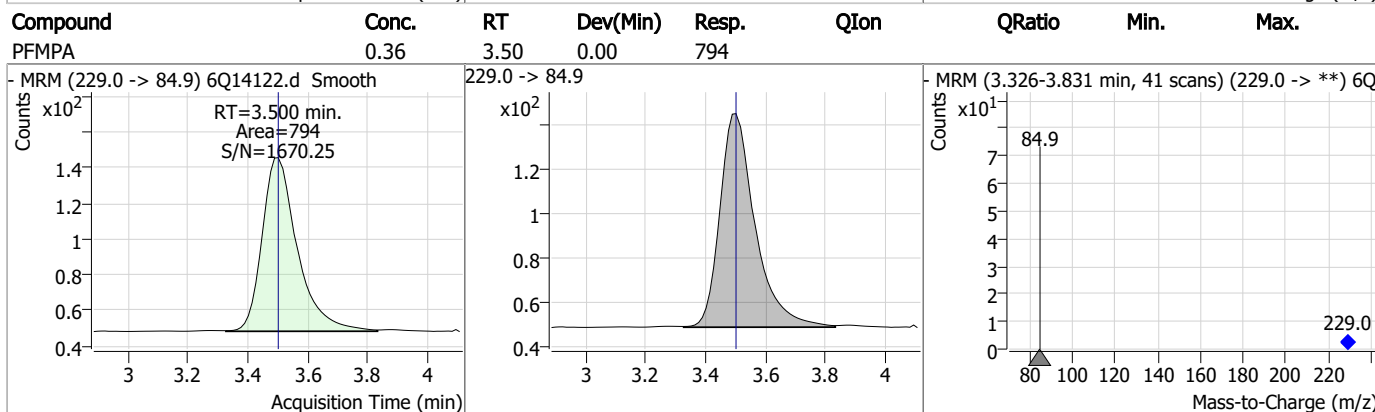
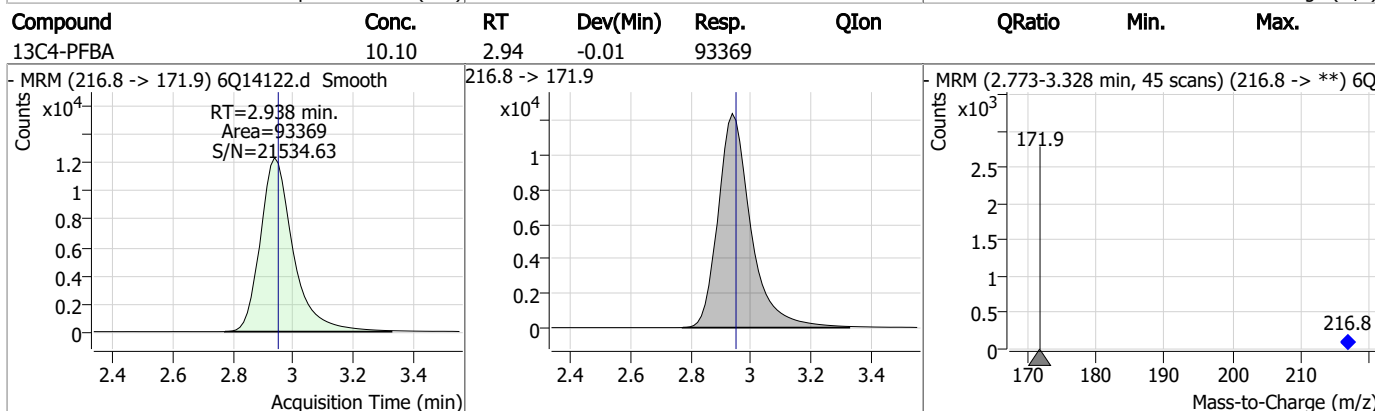
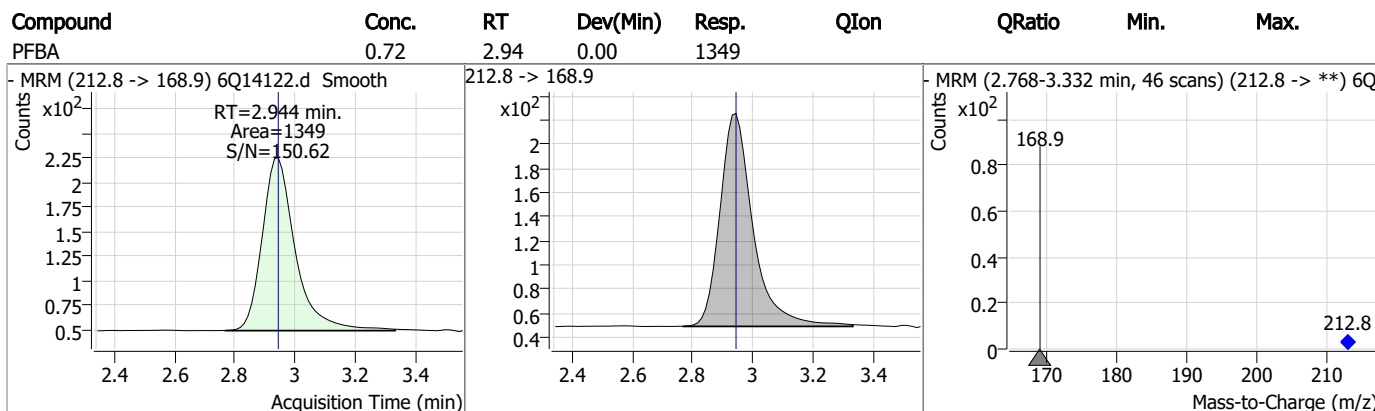
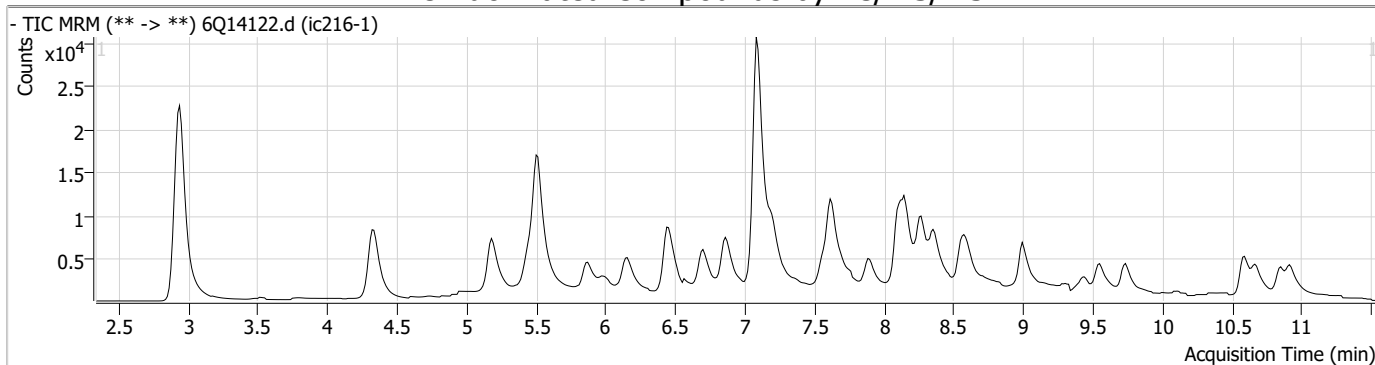
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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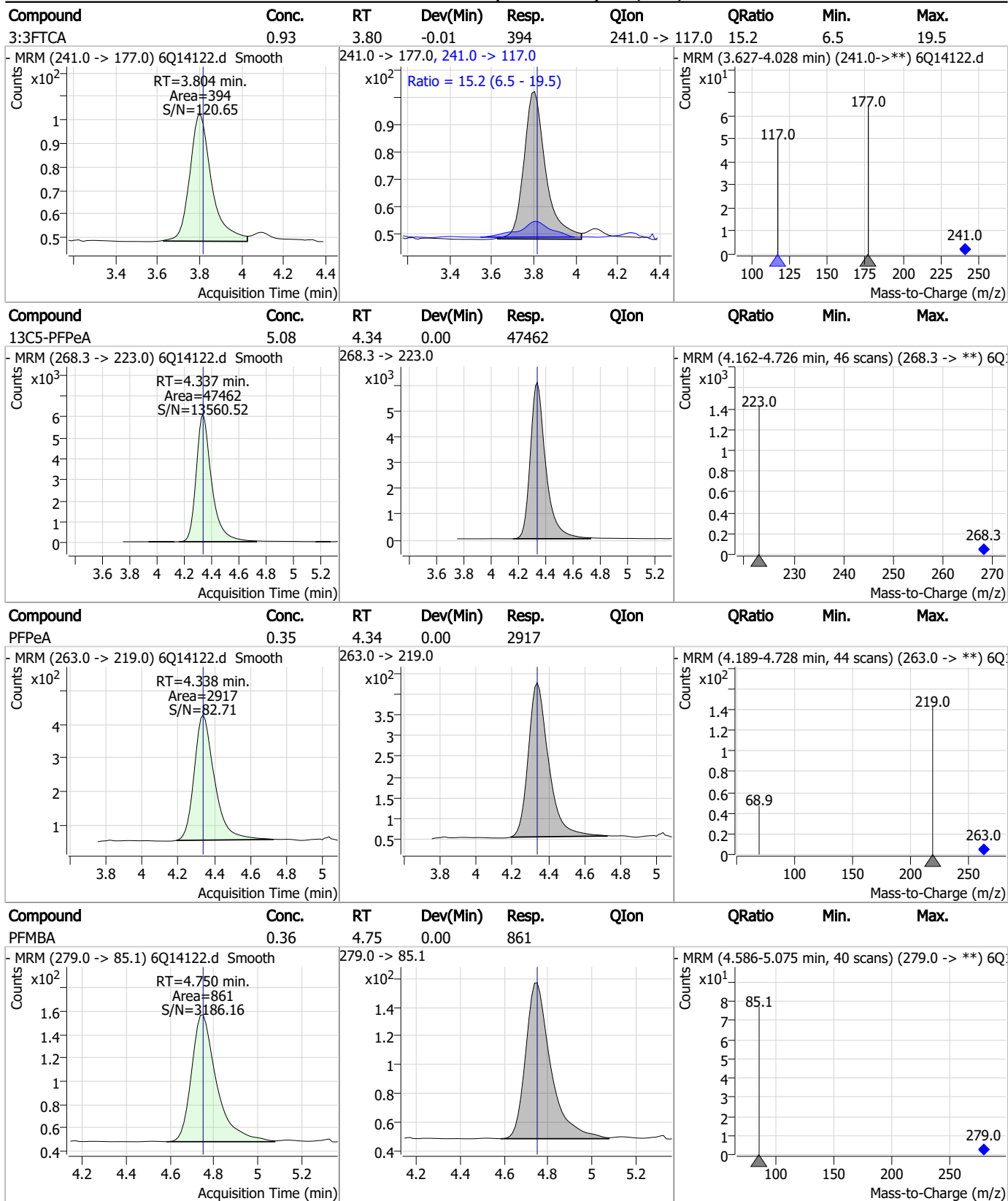
7.7.2
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Perfluorinated Compounds by LC/MS/MS

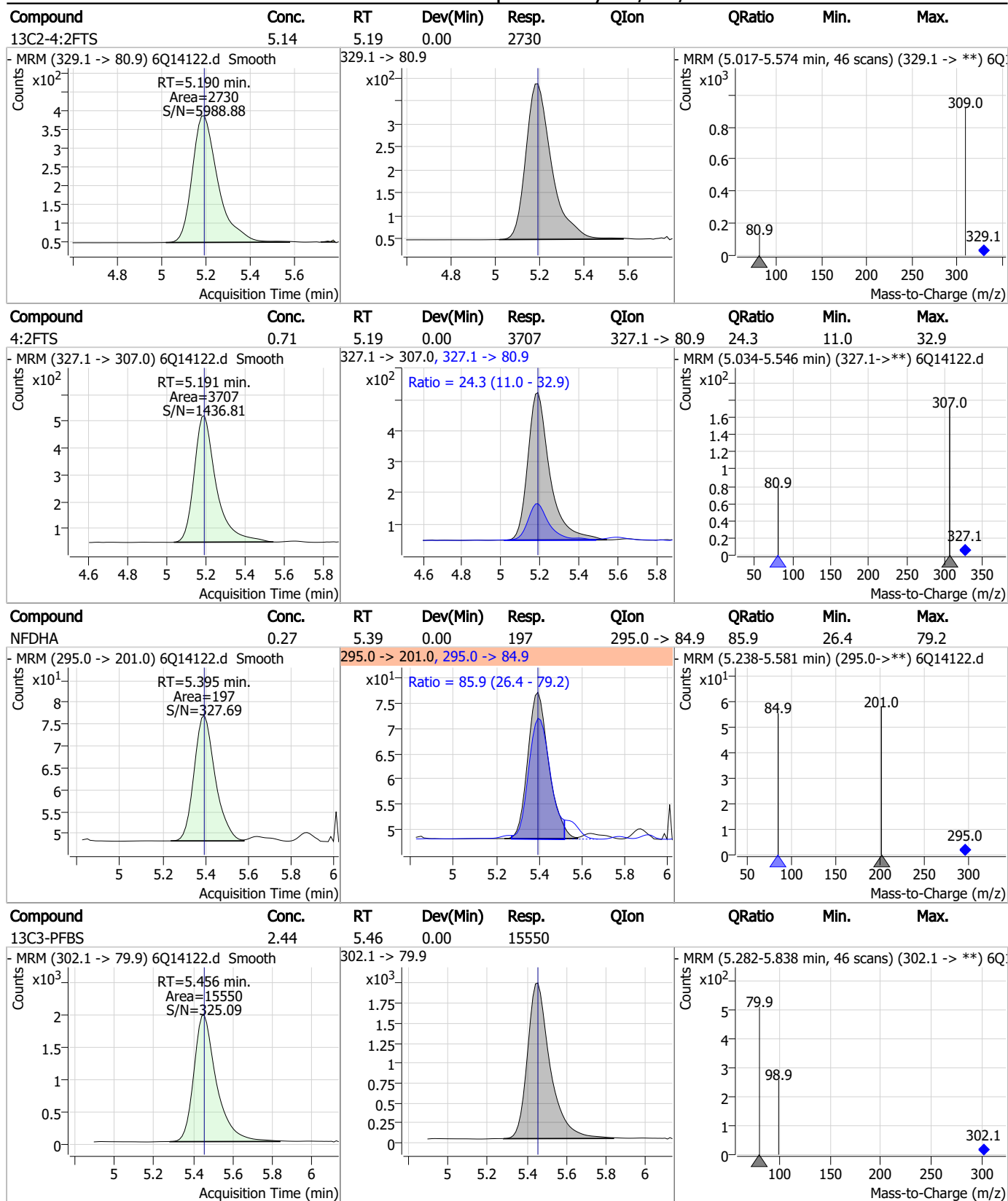


Perfluorinated Compounds by LC/MS/MS



7.7.2
7

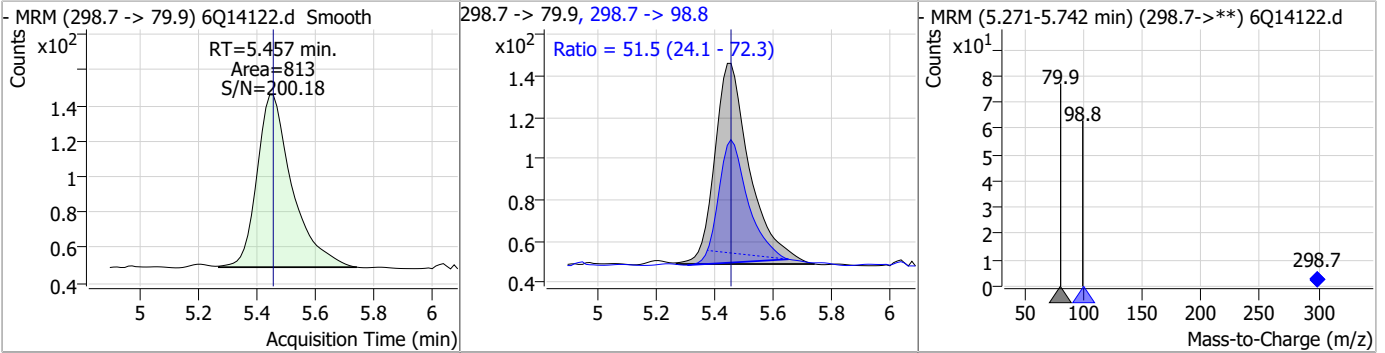
Perfluorinated Compounds by LC/MS/MS



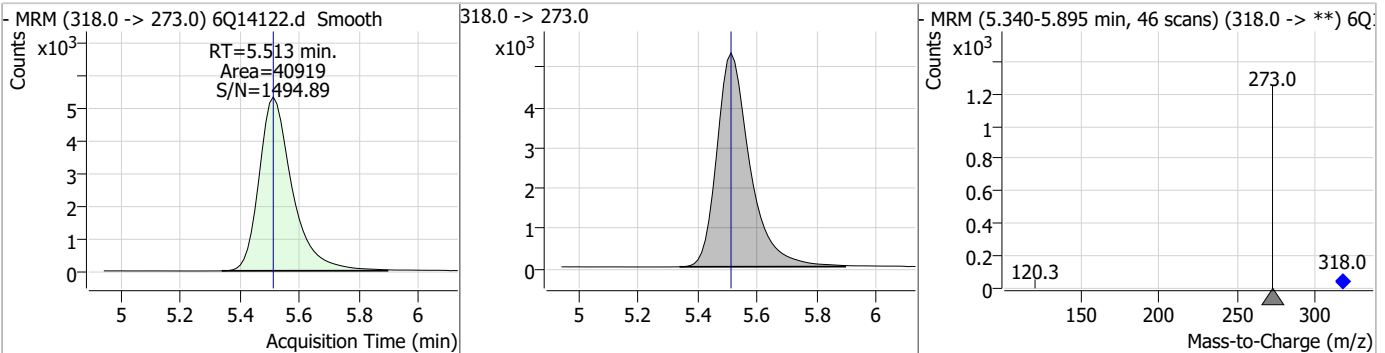
7.7.2
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Perfluorinated Compounds by LC/MS/MS

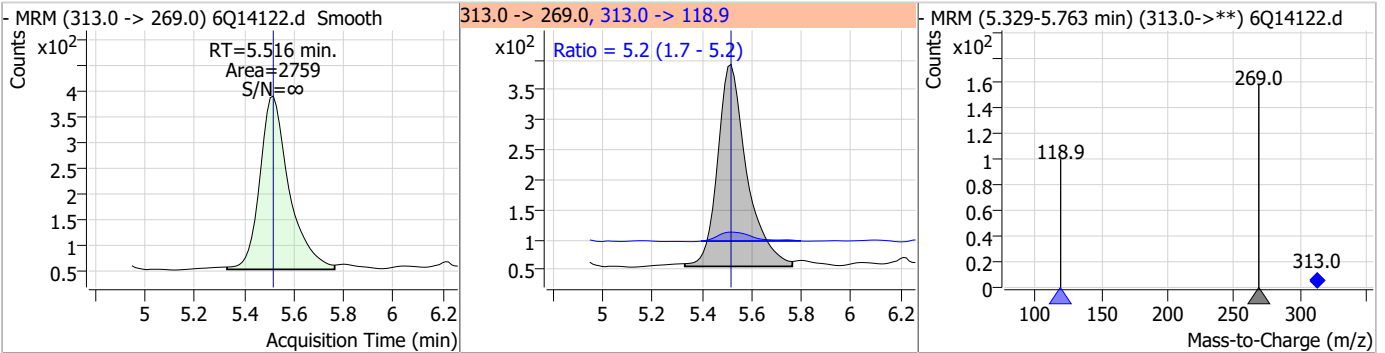
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.46	0.00	813	298.7 -> 98.8	51.5	24.1	72.3



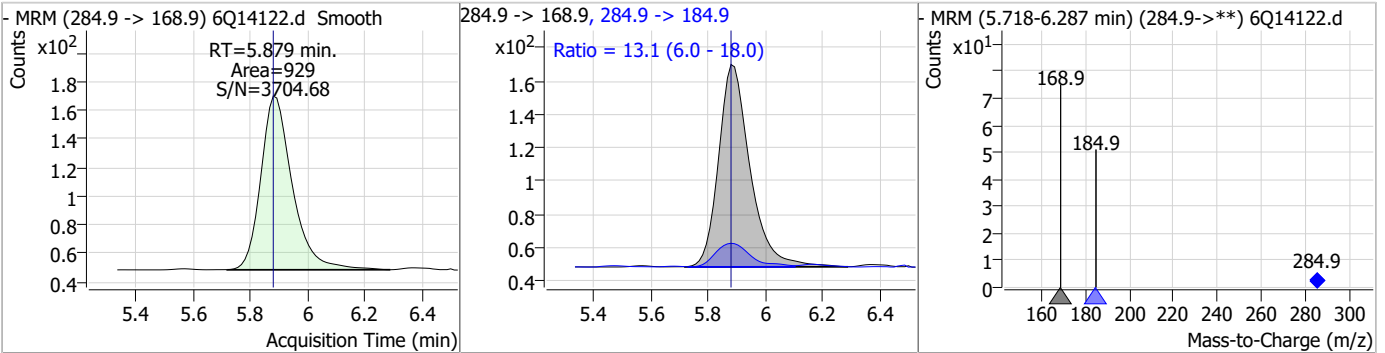
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.51	0.00	40919				



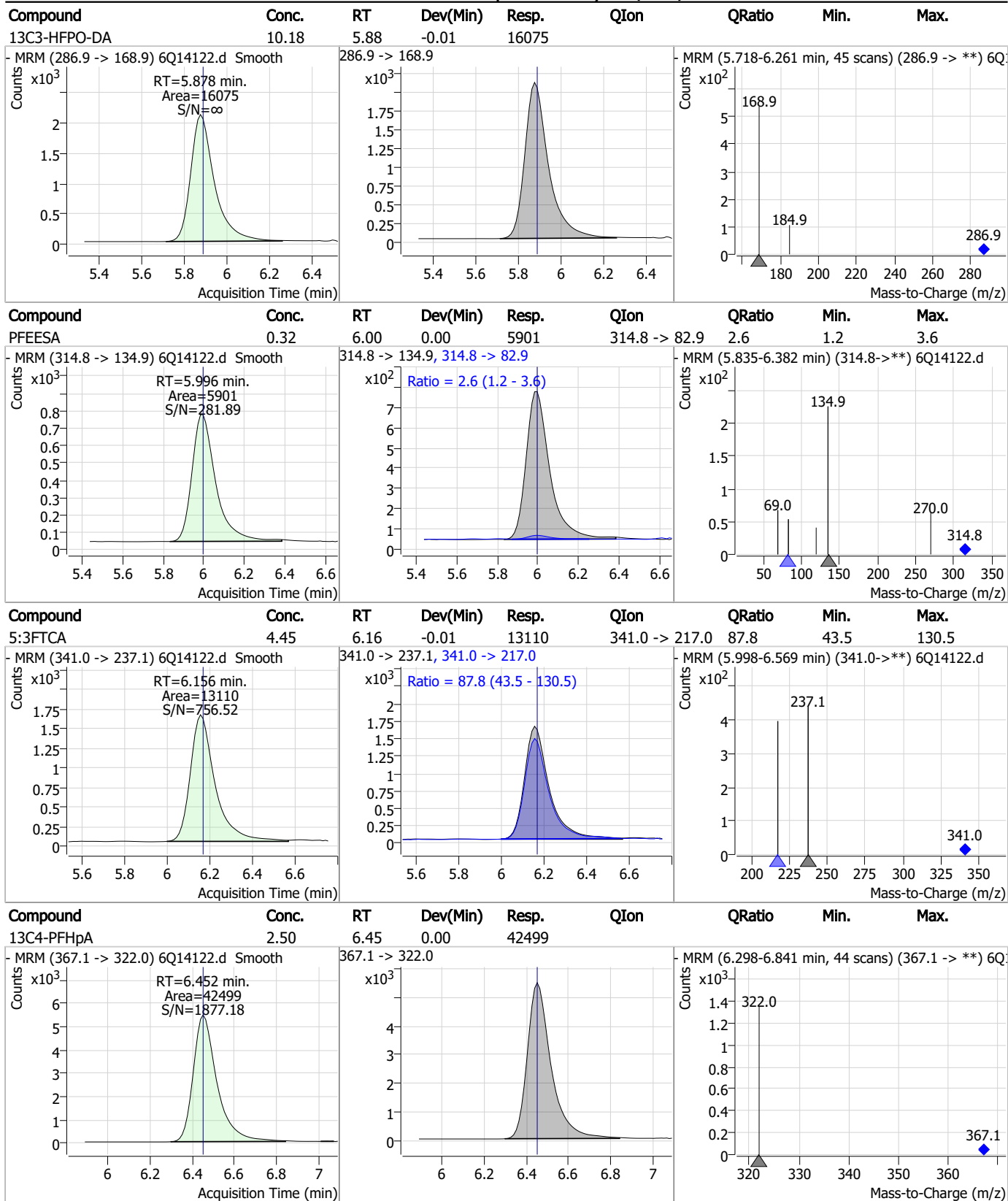
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.52	0.00	2759	313.0 -> 118.9	5.2	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.72	5.88	0.00	929	284.9 -> 184.9	13.1	6.0	18.0

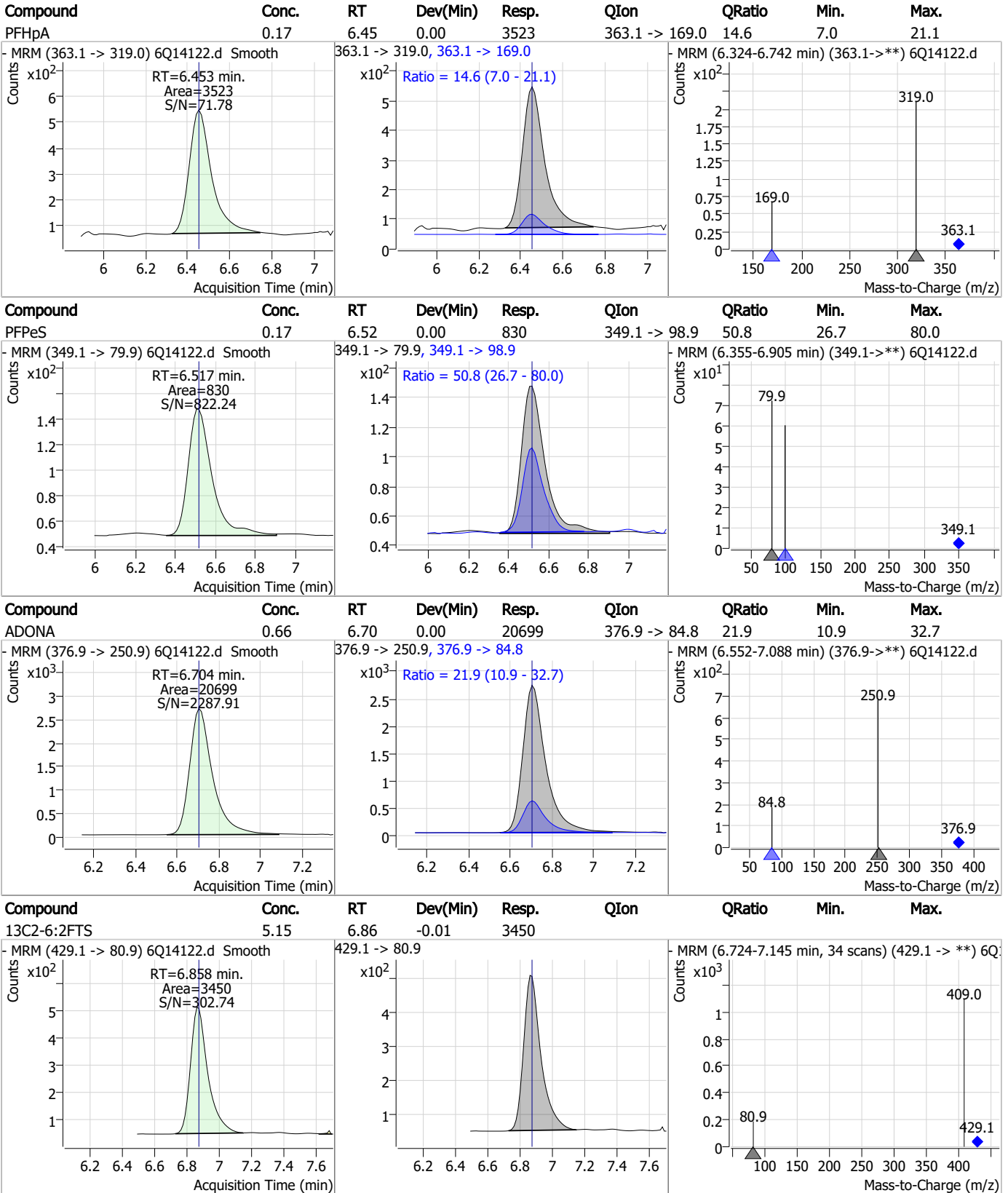


Perfluorinated Compounds by LC/MS/MS



7.7.2
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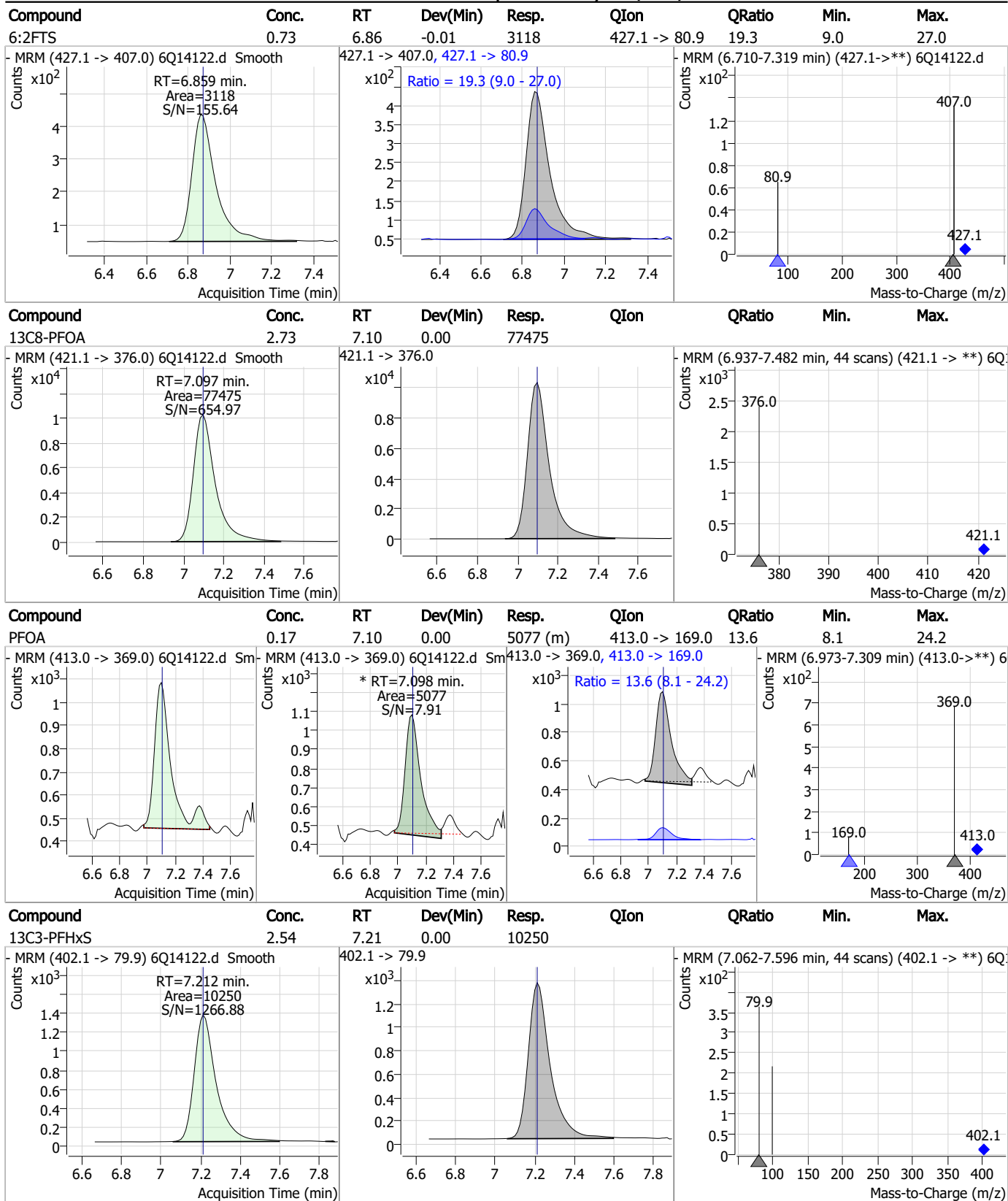
Perfluorinated Compounds by LC/MS/MS



7.7.2

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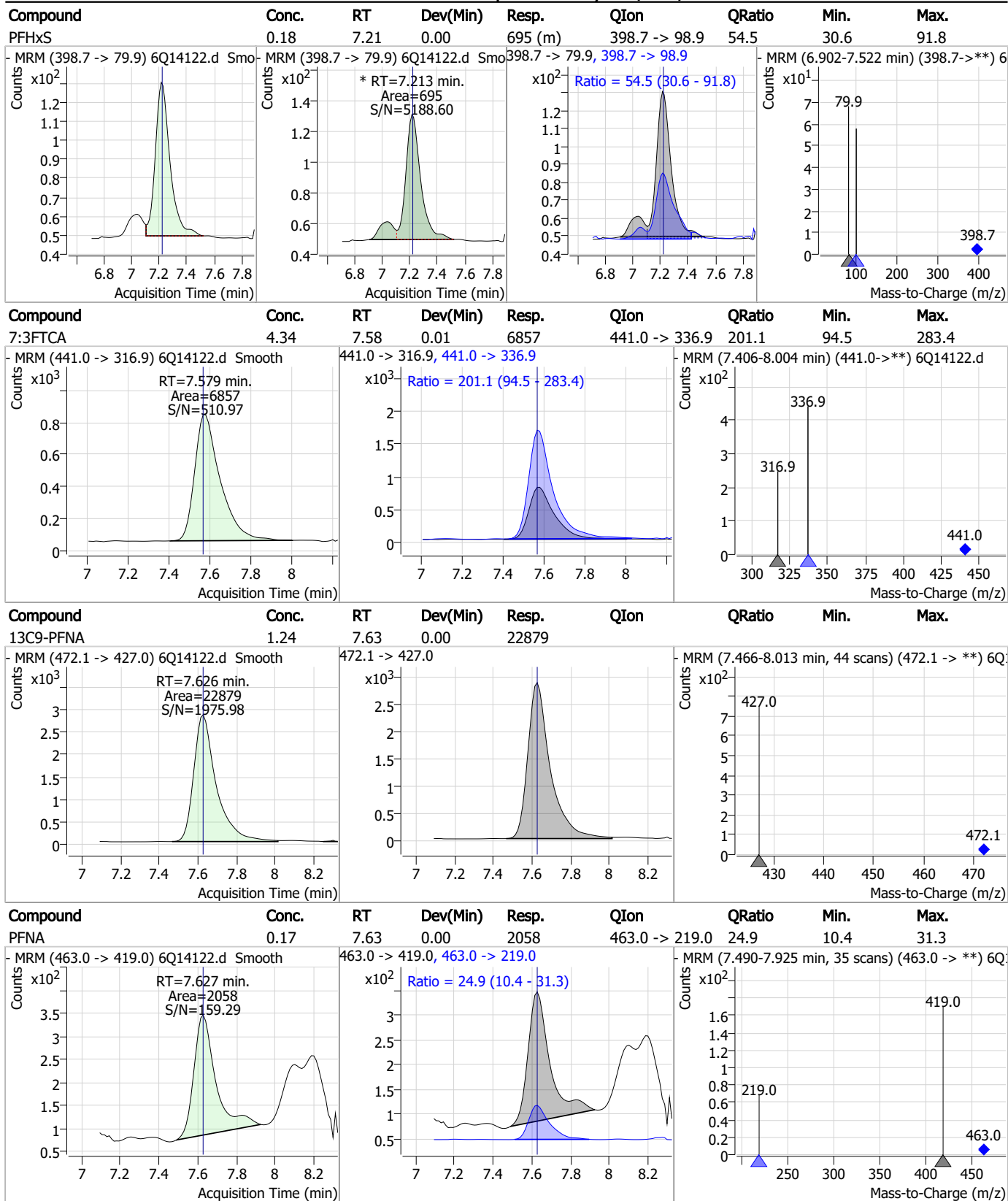
Perfluorinated Compounds by LC/MS/MS



7.7.2
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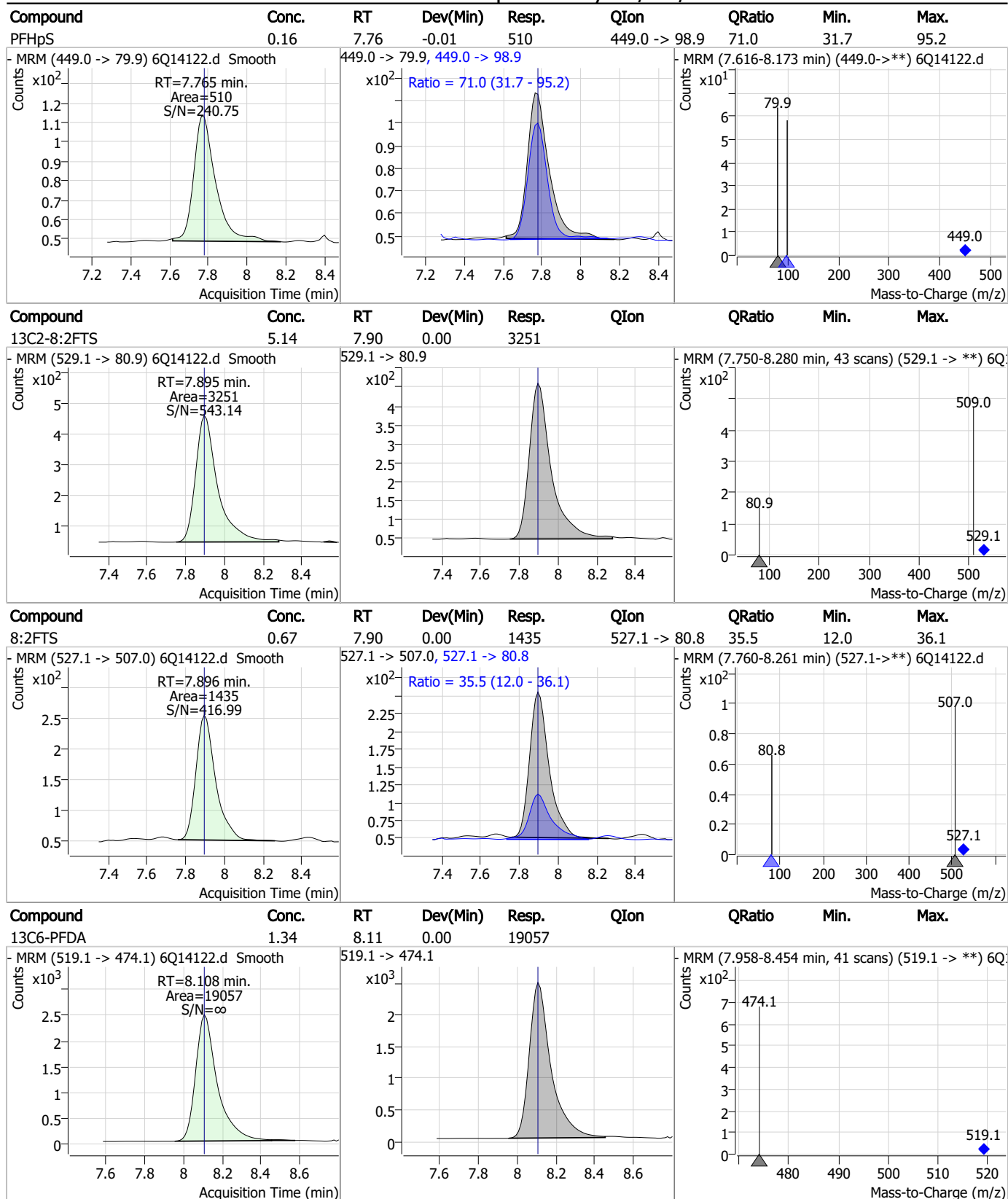


Perfluorinated Compounds by LC/MS/MS



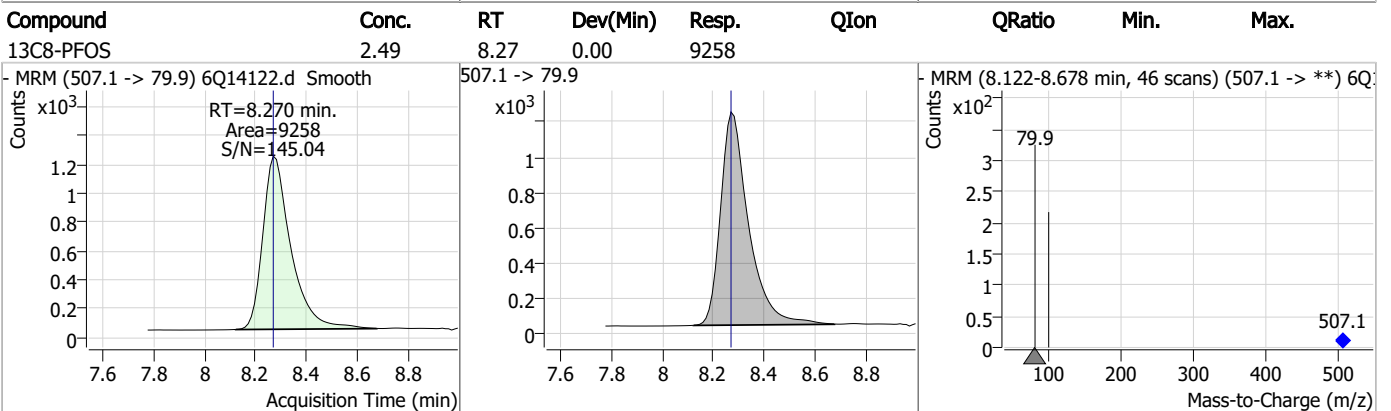
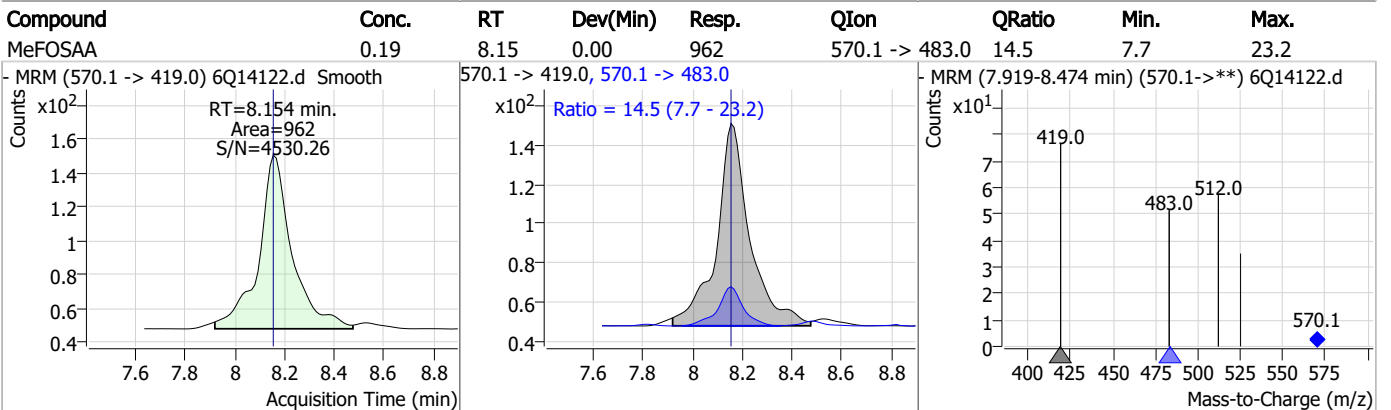
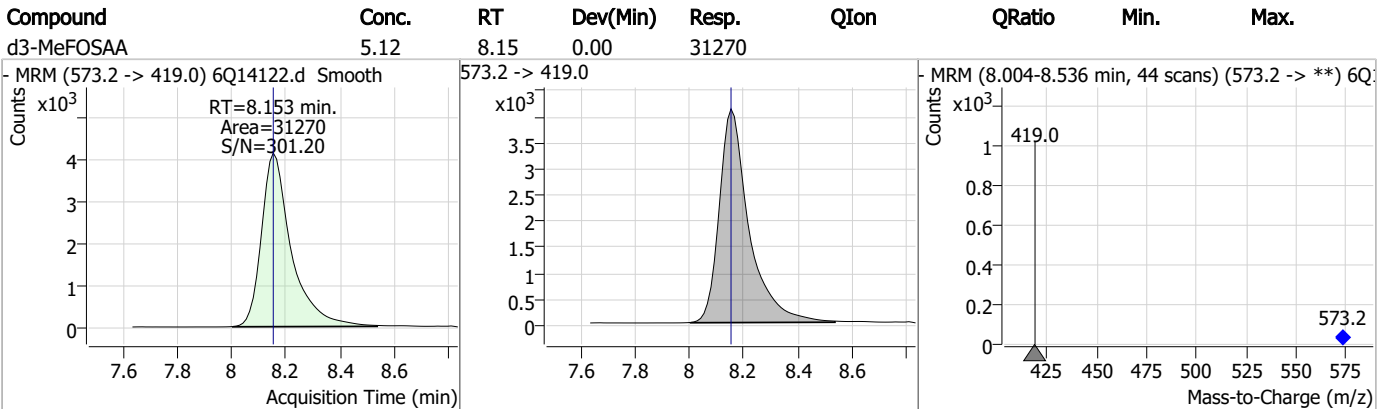
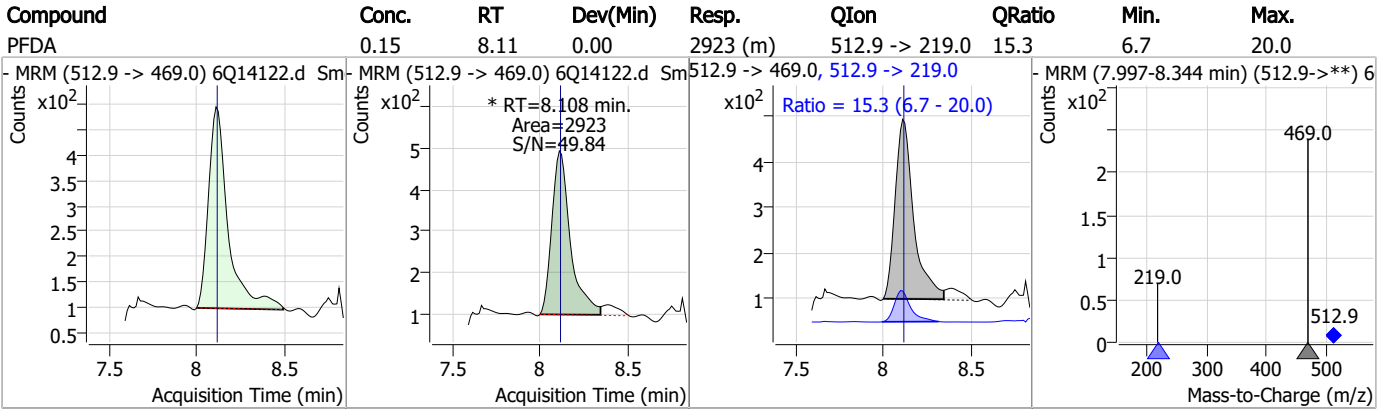
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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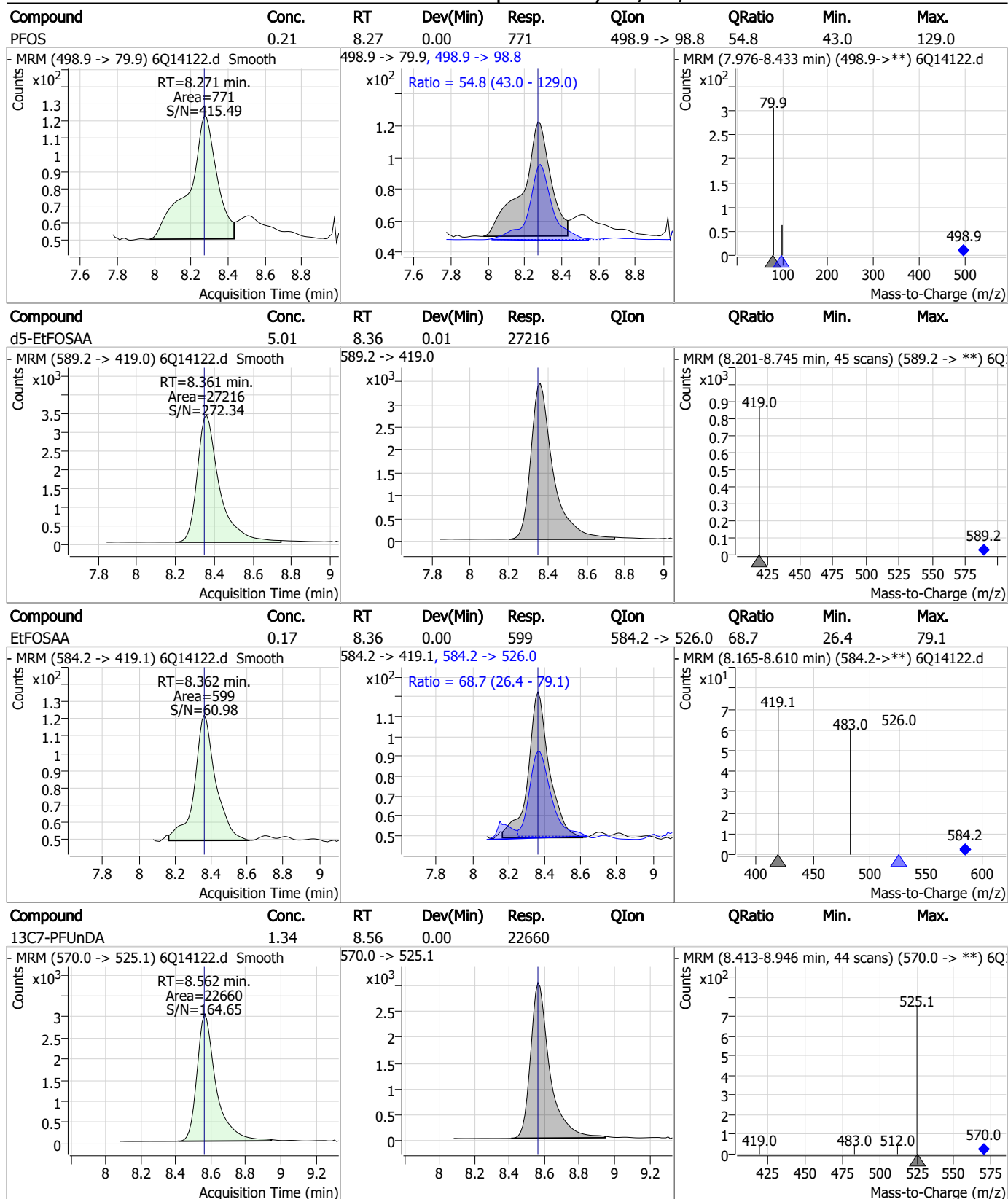
Perfluorinated Compounds by LC/MS/MS



7.7.2

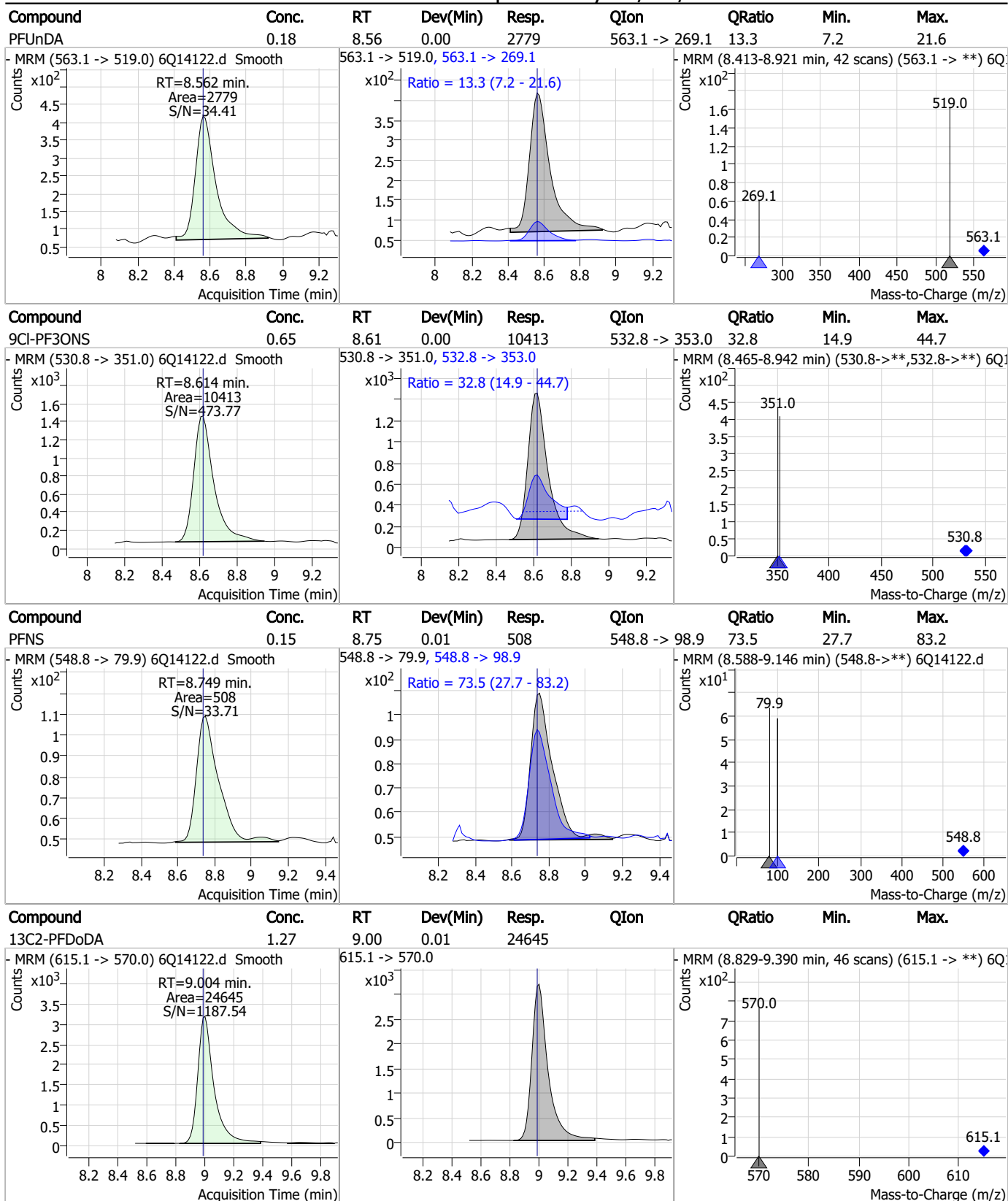
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Perfluorinated Compounds by LC/MS/MS



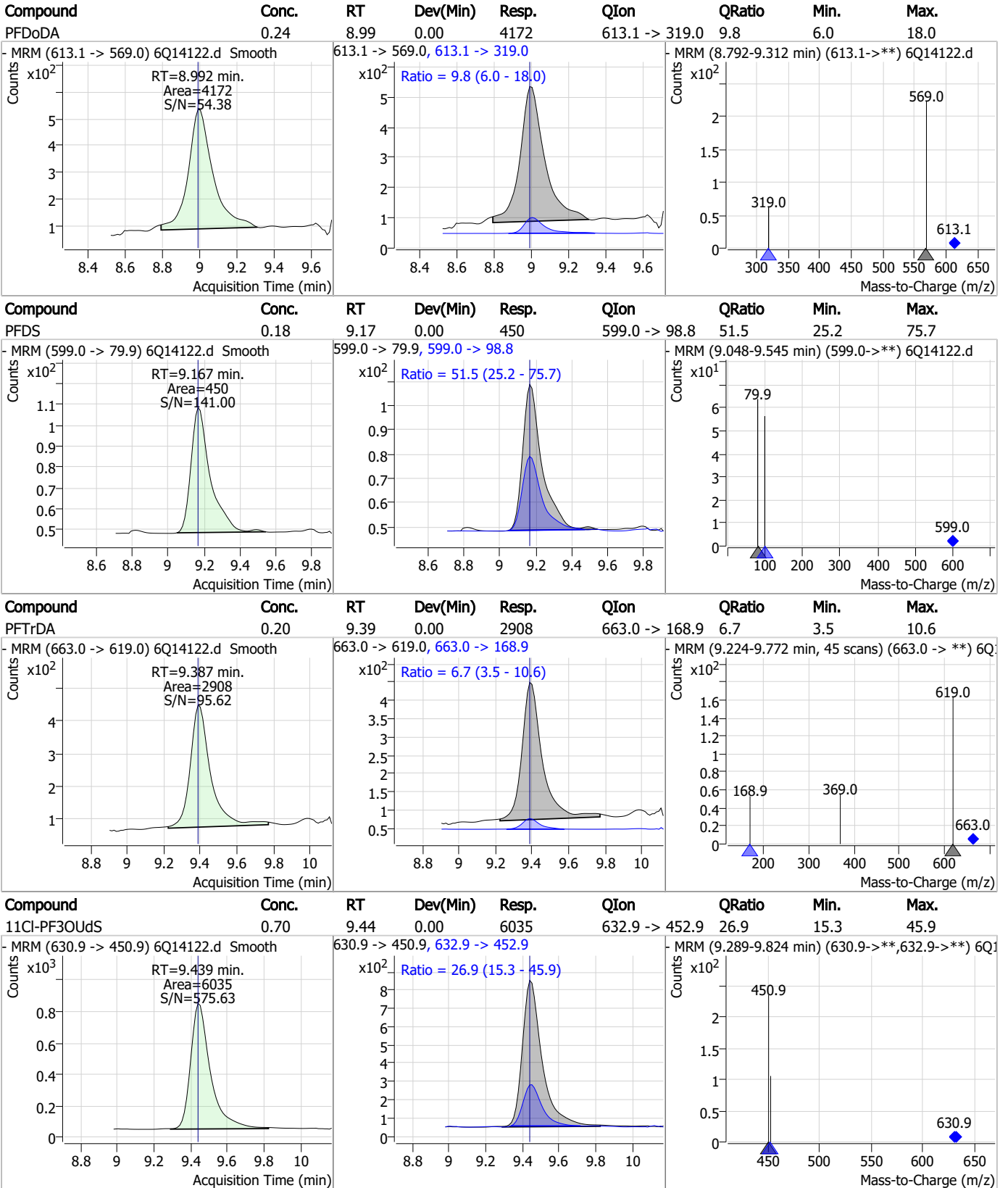
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Perfluorinated Compounds by LC/MS/MS

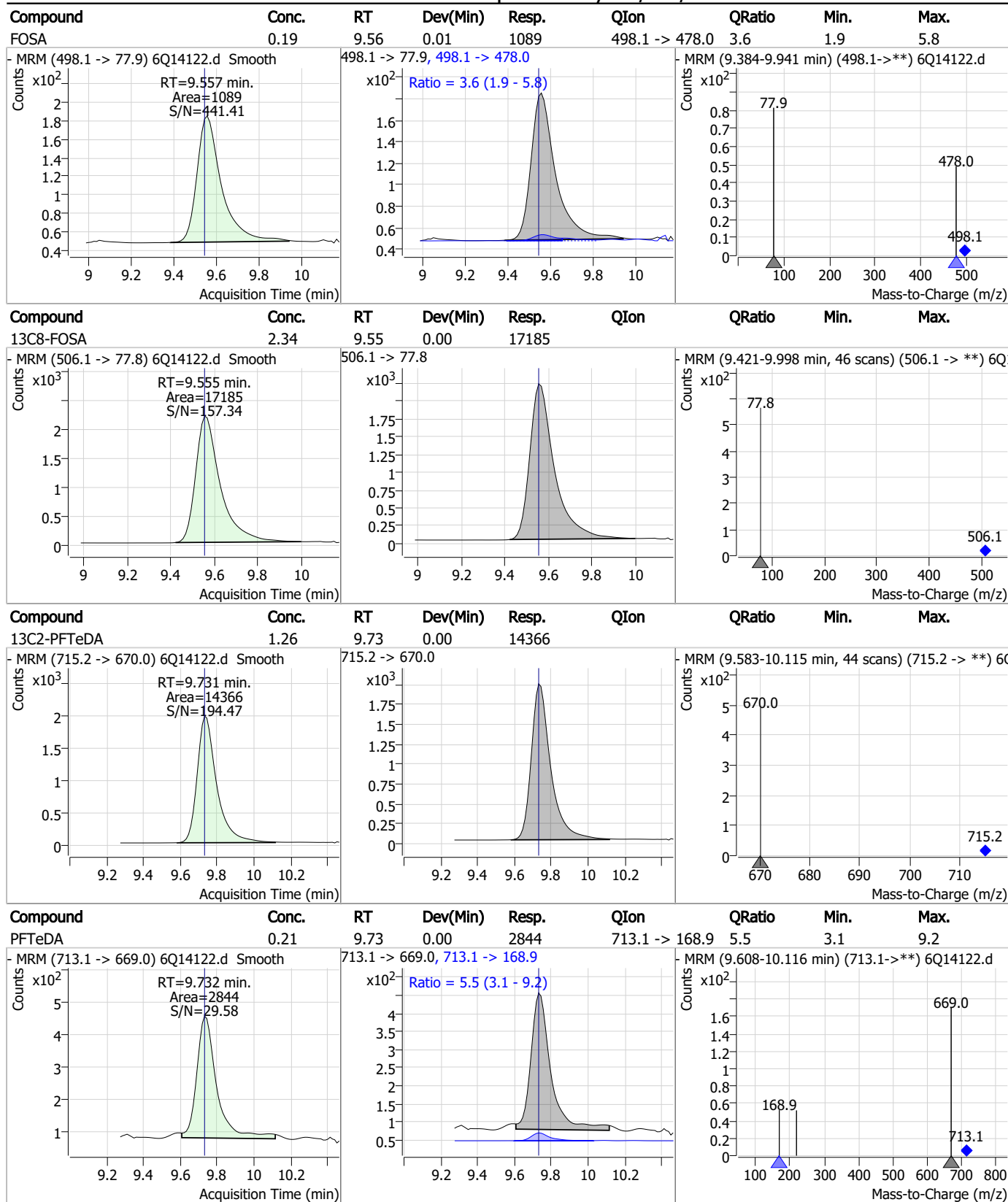


7.7.2

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Perfluorinated Compounds by LC/MS/MS



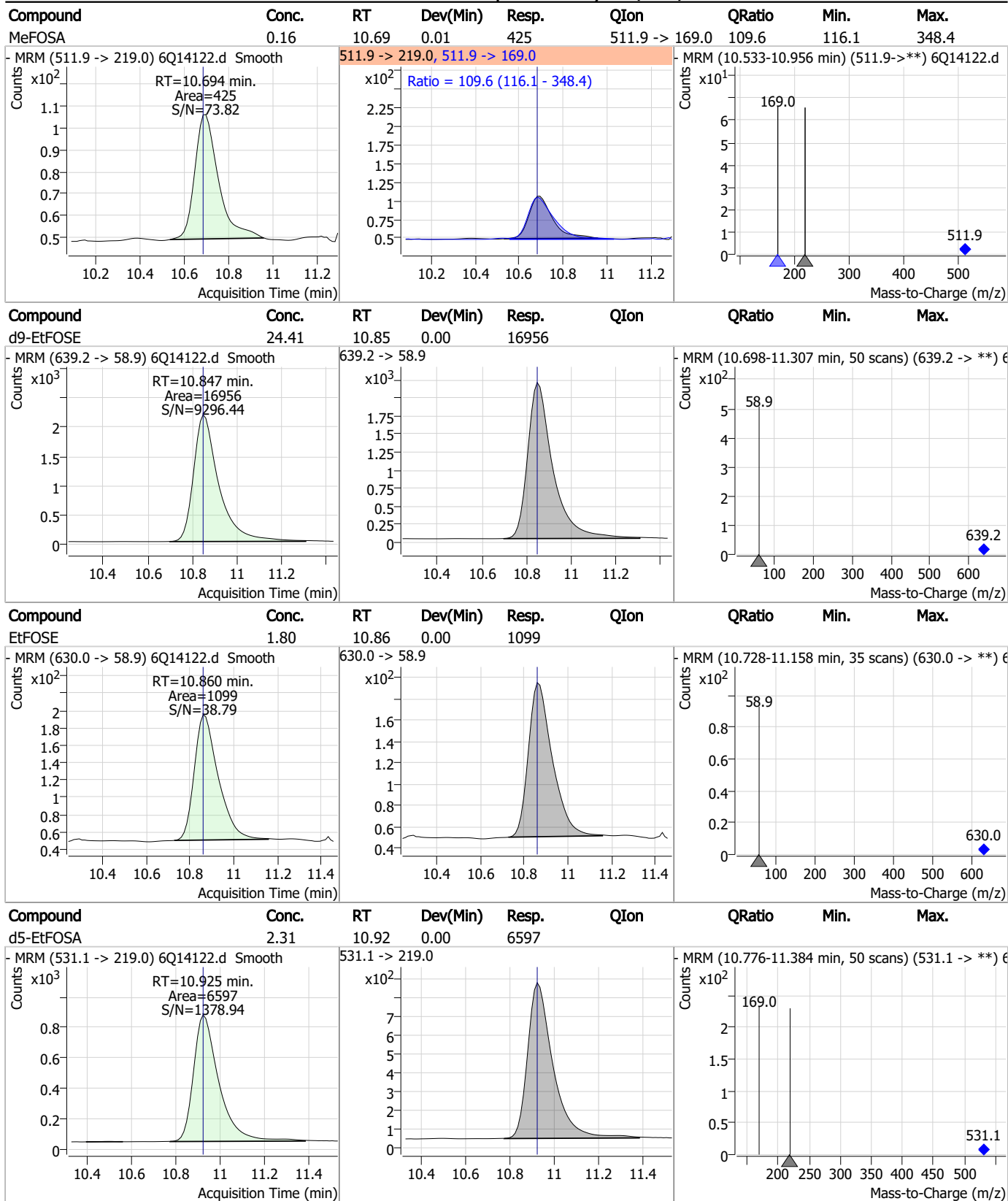
7.7.2
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.16	9.87	0.01	228	699.1 -> 98.8	70.9	29.4	88.2
d7-MeFOSE	24.37	10.59	0.00	26315				
MeFOSE	1.68	10.61	0.01	1503				
d3-MeFOSA	2.38	10.68	0.00	6251				

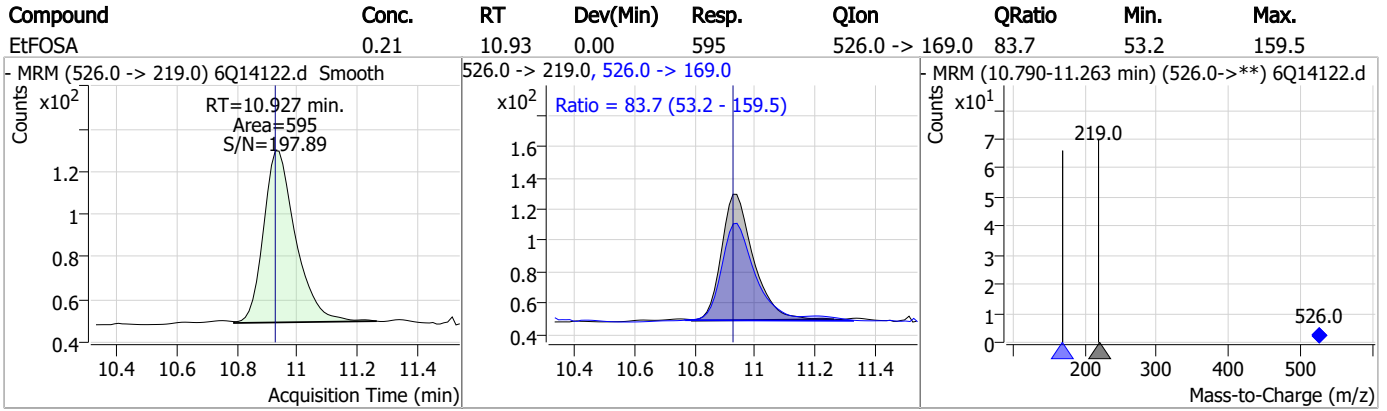
7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2
7

Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q216-IC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14122.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 17:37 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.10	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorodecanoic acid	335-76-2		8.11	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14123.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 5:51:31 PM
 Sample Name : ic216-2
 Vial : P1-A3
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	92450	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	47938	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	40948	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	43712	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	77133	2.50 µg/L	0.000
M9-PFNA	7.614	472.1 -> 427.0	24690	1.25 µg/L	-0.012
M6-PFDA	8.108	519.1 -> 474.1	18724	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	22923	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	25838	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	15277	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18663	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15749	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9894	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	9375	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2883	5.00 µg/L	0.000
M2-6:2FTS	6.858	429.1 -> 80.9	3527	5.00 µg/L	-0.012
M2-8:2FTS	7.895	529.1 -> 80.9	3362	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	29559	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	15850	10.00 µg/L	-0.012
M5-EtFOSAA	8.349	589.2 -> 419.0	28314	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	27193	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17848	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7336	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6108	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10834	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	41249	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7450	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	88675	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	26688	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	25440	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	42877	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2883	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-6:2FTS	6.858	429.1 -> 80.9	3527	5.26 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3362	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFDoDA	8.991	615.1 -> 570.0	25838	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.731	715.2 -> 670.0	15277	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFBS	5.456	302.1 -> 79.9	15749	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFHxS	7.212	402.1 -> 79.9	9894	2.45 µg/L	0.000

7.7.3
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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 = 98.2%	
13C4-PFBA	2.938	216.8 -> 171.9	92450	9.95 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.452	367.1 -> 322.0	43712	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFHxA	5.513	318.0 -> 273.0	40948	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C5-PFPeA	4.337	268.3 -> 223.0	47938	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.108	519.1 -> 474.1	18724	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.562	570.0 -> 525.1	22923	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.555	506.1 -> 77.8	18663	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C8-PFOA	7.097	421.1 -> 376.0	77133	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C8-PFOS	8.270	507.1 -> 79.9	9375	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C9-PFNA	7.614	472.1 -> 427.0	24690	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
d3-MeFOSAA	8.153	573.2 -> 419.0	29559	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	15850	9.70 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	6108	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSAA	8.349	589.2 -> 419.0	28314	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
d7-MeFOSE	10.589	623.2 -> 58.9	27193	26.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d9-EtFOSE	10.847	639.2 -> 58.9	17848	27.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	7336	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
Target Compounds					QValue
4:2FTS	5.178	327.1 -> 307.0	10133	1.83 µg/L	97
		327.1 -> 80.9	2086		
6:2FTS	6.859	427.1 -> 407.0	8327	1.90 µg/L	96
		427.1 -> 80.9	1635		
8:2FTS	7.896	527.1 -> 507.0	4256	1.91 µg/L	95
		527.1 -> 80.8	1135		
EtFOSAA	8.362	584.2 -> 419.1	1675	0.45 µg/L	81
		584.2 -> 526.0	1103		
FOSA	9.557	498.1 -> 77.9	3066	0.48 µg/L	99
		498.1 -> 478.0	106		
MeFOSAA	8.154	570.1 -> 419.0	2145	0.44 µg/L	98
		570.1 -> 483.0	313		
PFBA	2.944	212.8 -> 168.9	3584	1.93 µg/L	100
PFBS	5.457	298.7 -> 79.9	2131	0.42 µg/L	92
		298.7 -> 98.8	1142		
PFDA	8.108	512.9 -> 469.0	9792	0.52 µg/L	98
		512.9 -> 219.0	1225		
PFDODA	8.992	613.1 -> 569.0	8969	0.50 µg/L	99
		613.1 -> 319.0	1035		
PFDS	9.167	599.0 -> 79.9	1133	0.45 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	593			
PFHpA	6.453	363.1 -> 319.0	10143	0.48	µg/L	99
		363.1 -> 169.0	1399			
PFHpS	7.765	449.0 -> 79.9	1526	0.46	µg/L	90
		449.0 -> 98.9	847			
PFHxA	5.516	313.0 -> 269.0	6654	0.50	µg/L	99
		313.0 -> 118.9	219			
PFHxS	7.213	398.7 -> 79.9	1736	0.46	µg/L	m 100
		398.7 -> 98.9	1062			
PFNA	7.627	463.0 -> 419.0	5466	0.42	µg/L	94
		463.0 -> 219.0	1299			
PFNS	8.737	548.8 -> 79.9	1515	0.45	µg/L	98
		548.8 -> 98.9	860			
PFOA	7.098	413.0 -> 369.0	14787	0.51	µg/L	91
		413.0 -> 169.0	1786			
PFOS	8.271	498.9 -> 79.9	1701	0.47	µg/L	m 75
		498.9 -> 98.8	1079			
PFPeA	4.338	263.0 -> 219.0	7954	0.96	µg/L	100
PFPeS	6.517	349.1 -> 79.9	2234	0.48	µg/L	98
		349.1 -> 98.9	1165			
PFTeDA	9.732	713.1 -> 669.0	7089	0.50	µg/L	100
		713.1 -> 168.9	444			
PFTrDA	9.387	663.0 -> 619.0	7586	0.49	µg/L	100
		663.0 -> 168.9	551			
PFUnDA	8.562	563.1 -> 519.0	7857	0.49	µg/L	100
		563.1 -> 269.1	1122			
11CI-PF3OUdS	9.439	630.9 -> 450.9	14957	1.76	µg/L	95
		632.9 -> 452.9	4968			
9CI-PF3ONS	8.602	530.8 -> 351.0	28651	1.82	µg/L	99
		532.8 -> 353.0	8633			
ADONA	6.704	376.9 -> 250.9	57705	1.86	µg/L	99
		376.9 -> 84.8	12865			
HFPO-DA	5.879	284.9 -> 168.9	2532	1.98	µg/L	99
		284.9 -> 184.9	296			
3:3FTCA	3.804	241.0 -> 177.0	1023	2.39	µg/L	97
		241.0 -> 117.0	144			
5:3FTCA	6.156	341.0 -> 237.1	35100	11.91	µg/L	99
		341.0 -> 217.0	31007			
7:3FTCA	7.567	441.0 -> 316.9	18648	11.80	µg/L	95
		441.0 -> 336.9	36614			
EtFOSA	10.927	526.0 -> 219.0	1414	0.45	µg/L	98
		526.0 -> 169.0	1477			
EtFOSE	10.860	630.0 -> 58.9	3032	4.72	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	1362	0.53	µg/L	# 19
		511.9 -> 169.0	1317			
MeFOSE	10.615	616.1 -> 58.9	4590	4.95	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	692	0.48	µg/L	97
		699.1 -> 98.8	424			
NFDHA	5.407	295.0 -> 201.0	693	0.94	µg/L	96
		295.0 -> 84.9	346			
PFMBA	4.738	279.0 -> 85.1	2242	0.92	µg/L	100
PFMPA	3.500	229.0 -> 84.9	2135	0.96	µg/L	100
PFEESA	5.983	314.8 -> 134.9	15690	0.85	µg/L	99
		314.8 -> 82.9	430			

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

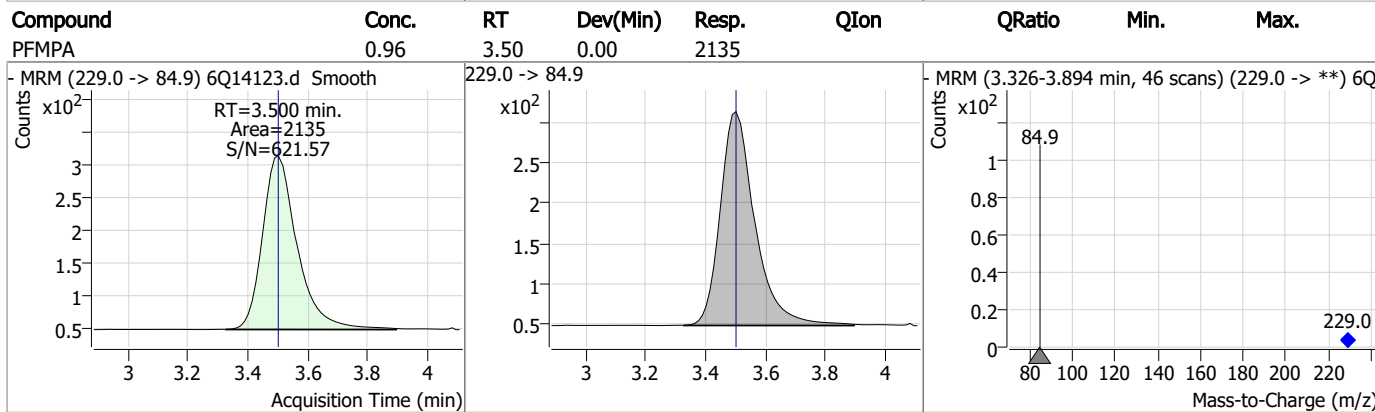
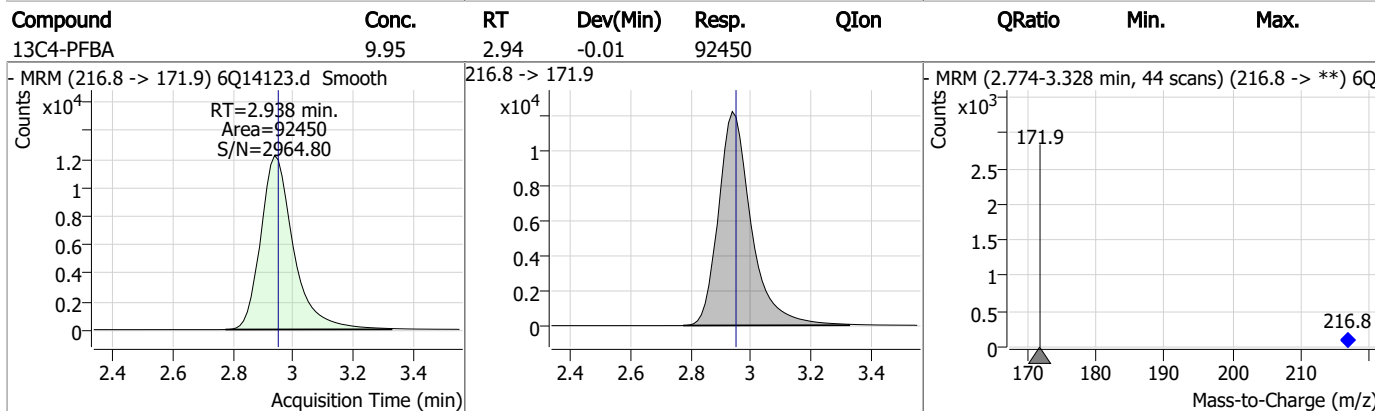
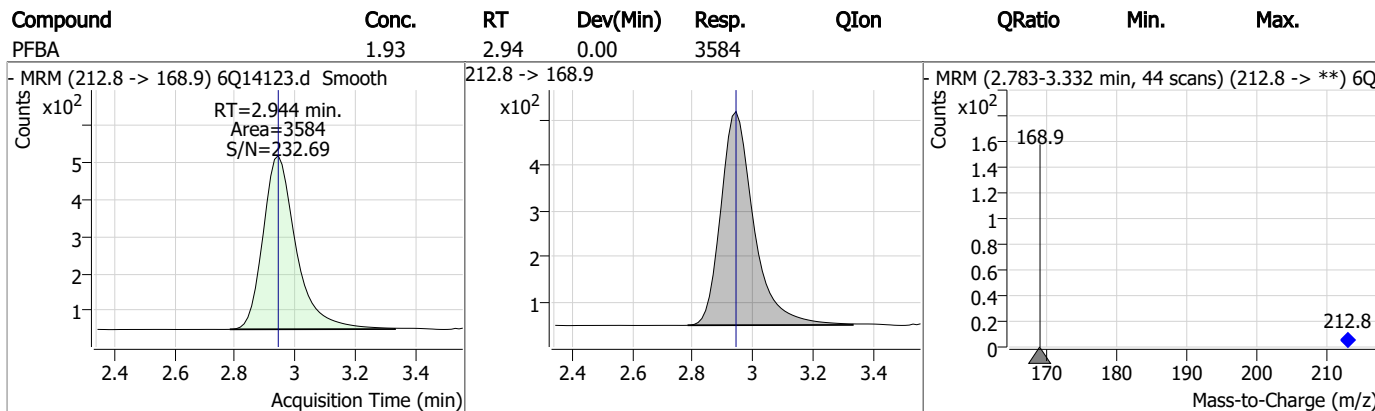
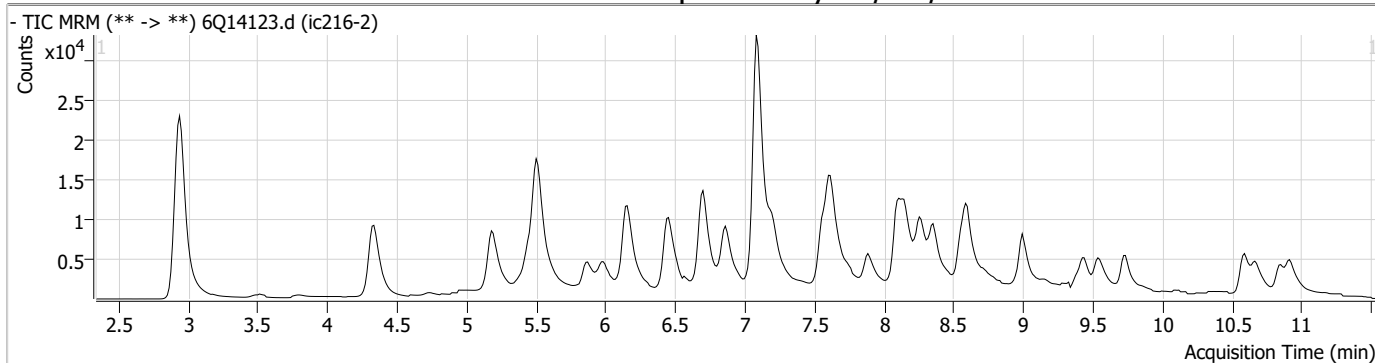
Perfluorinated Compounds by LC/MS/MS

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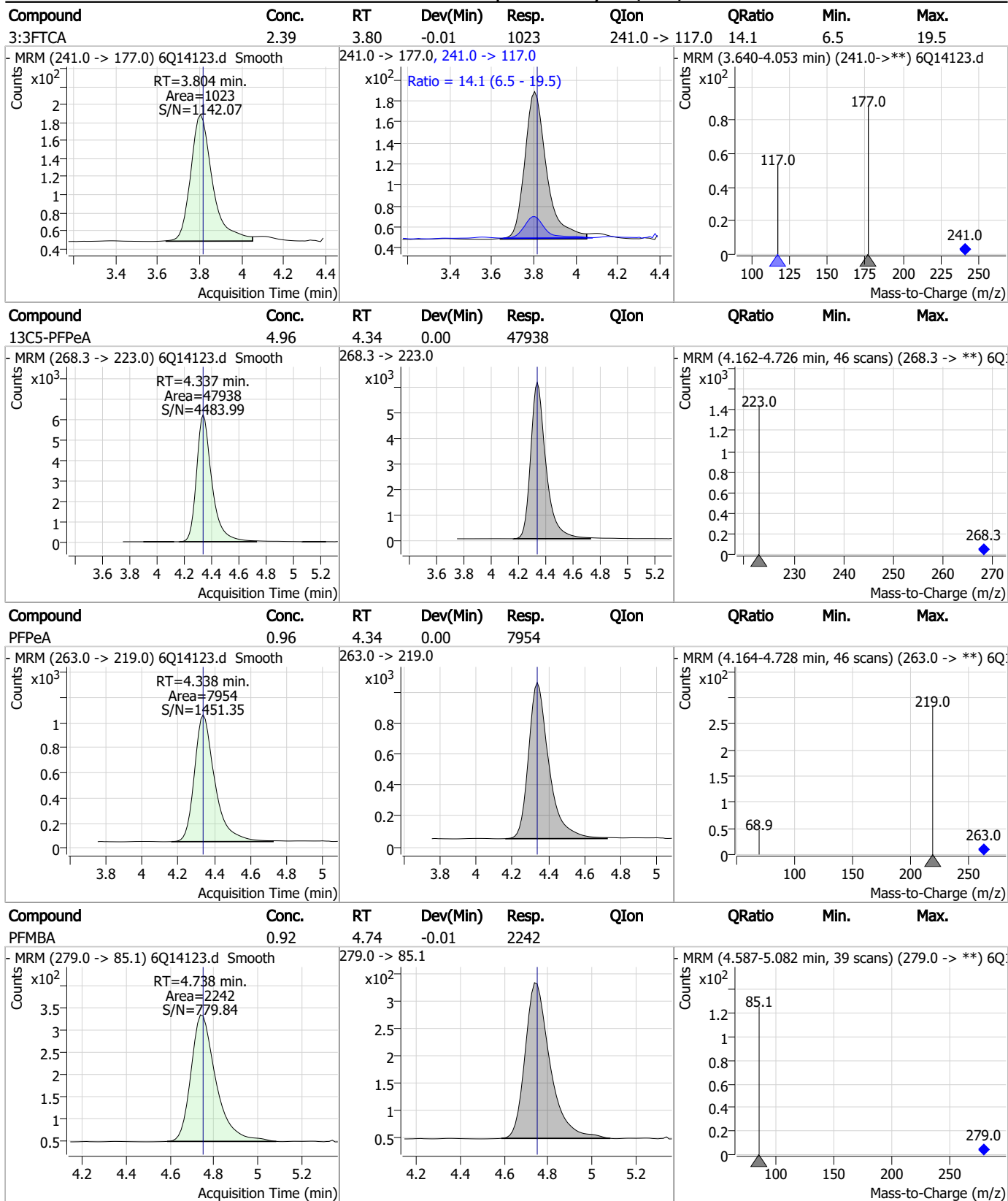


Perfluorinated Compounds by LC/MS/MS



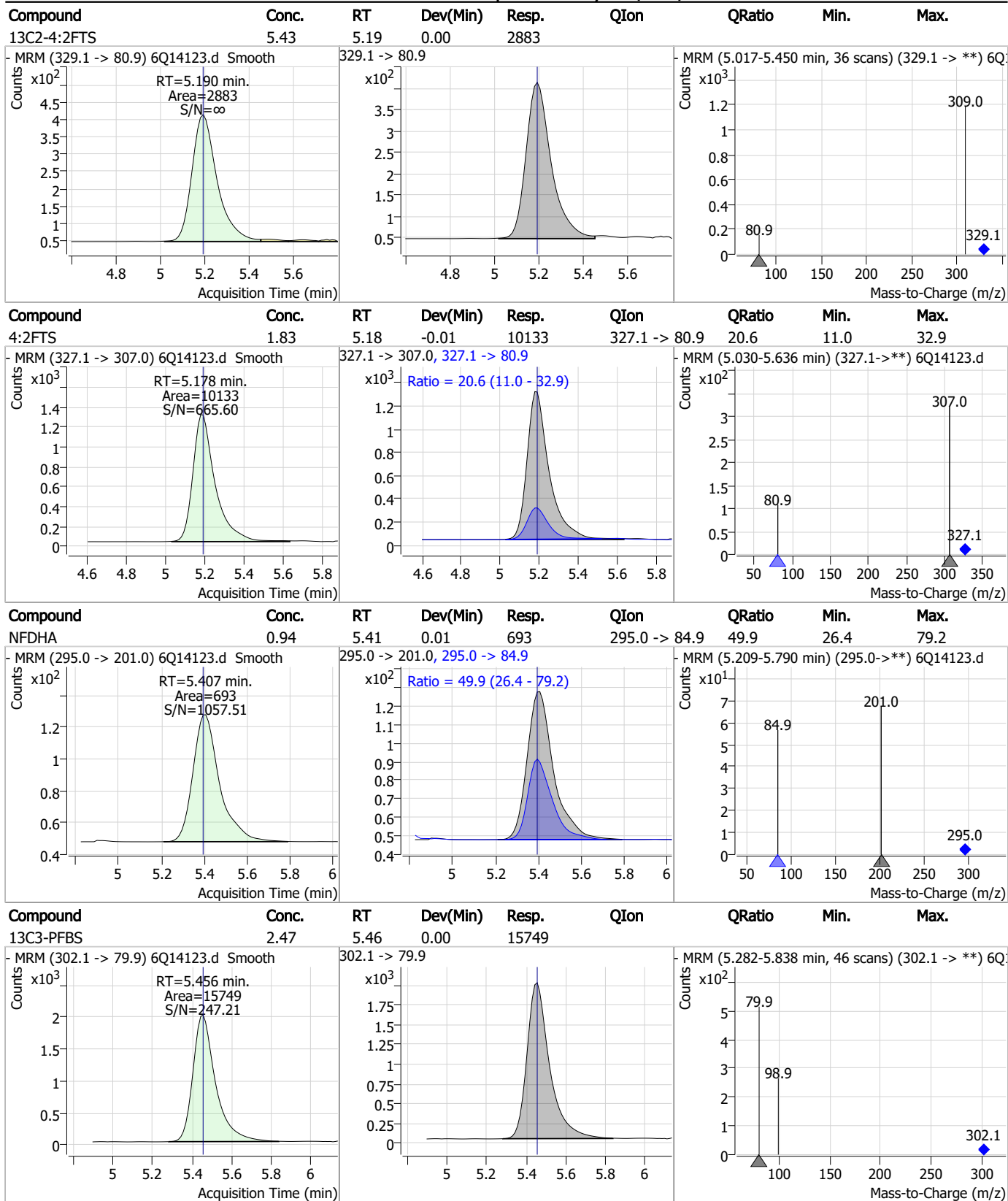
7.7.3
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Perfluorinated Compounds by LC/MS/MS



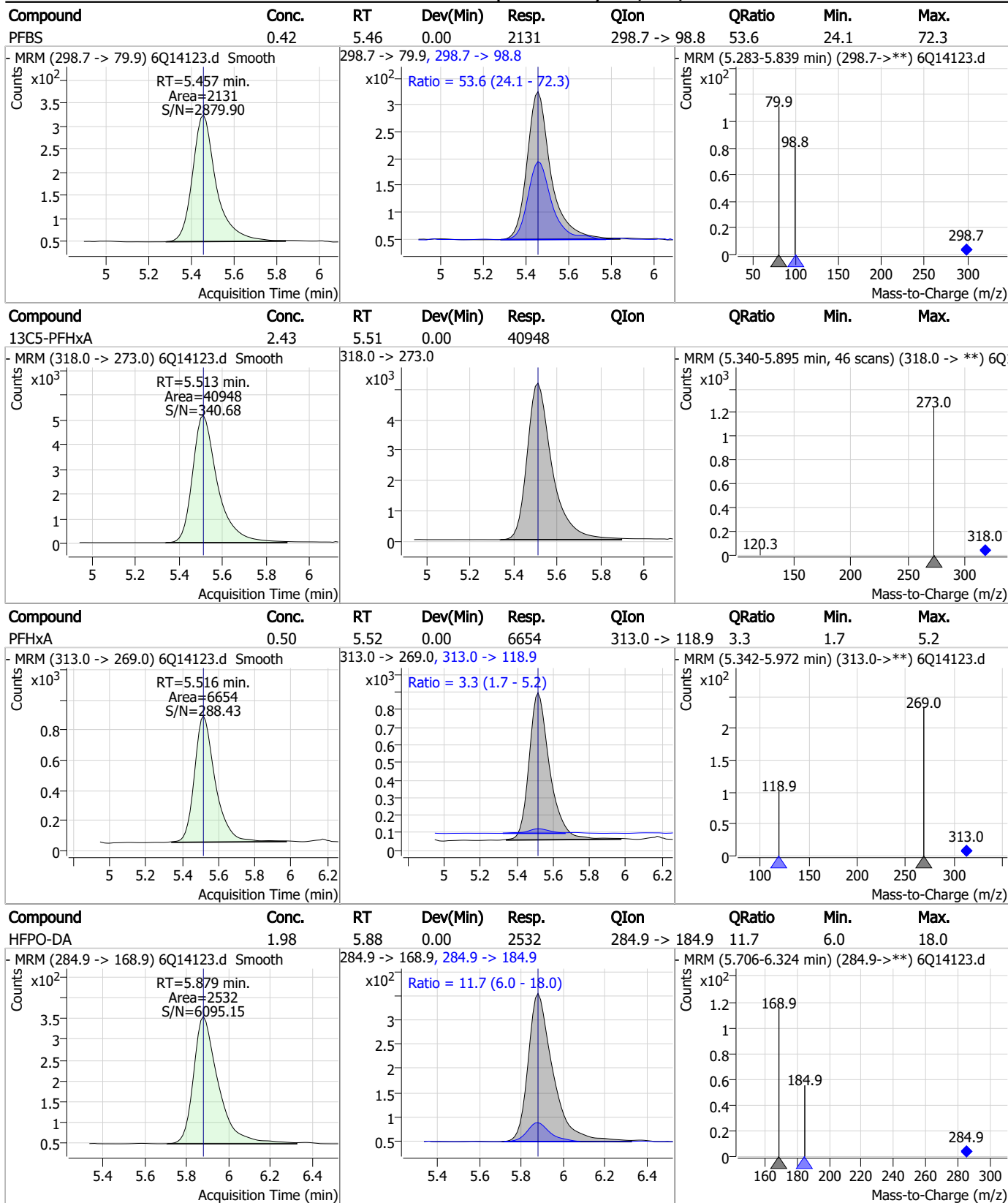
7.7.3
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Perfluorinated Compounds by LC/MS/MS



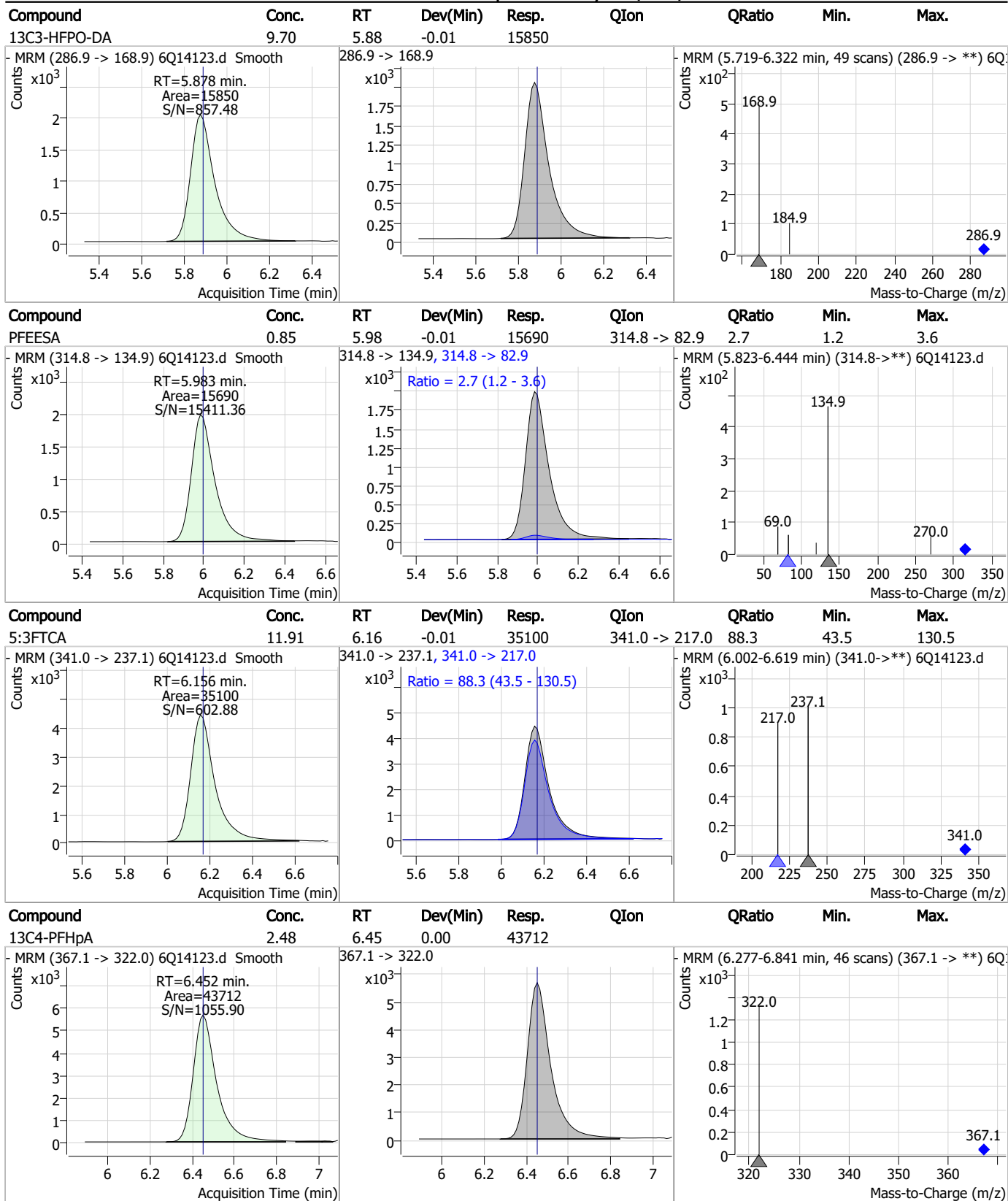
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



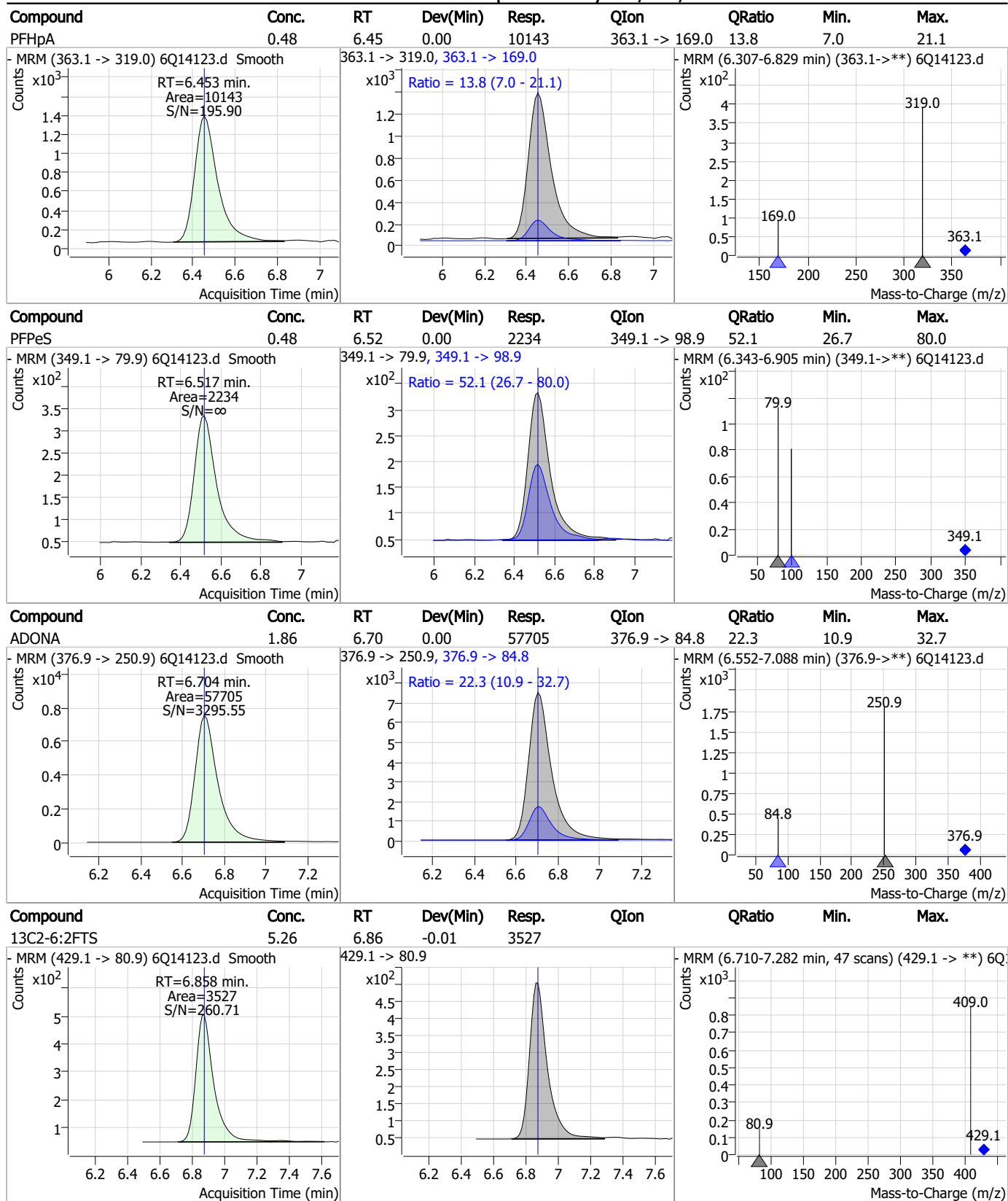
7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3
7

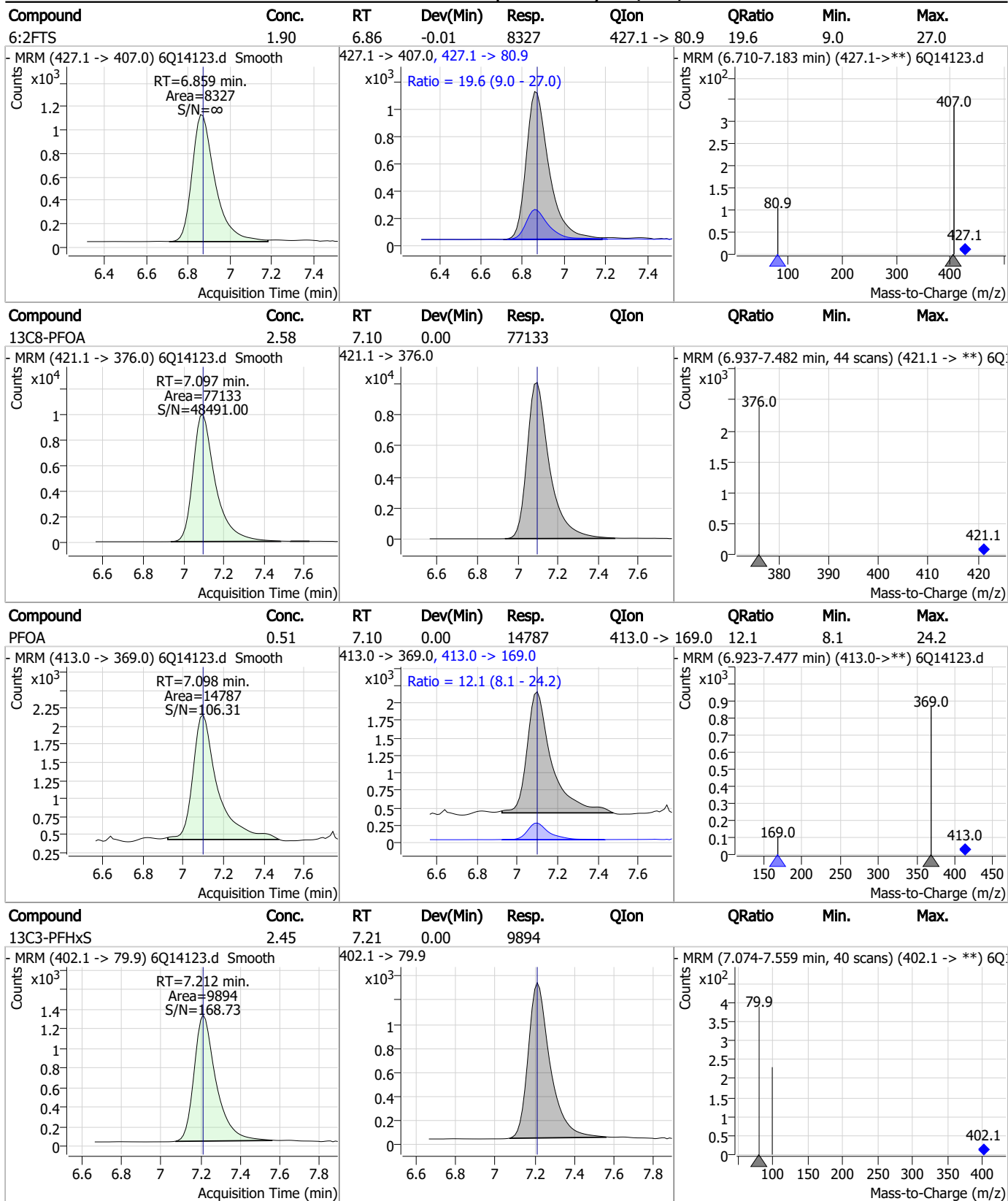
Perfluorinated Compounds by LC/MS/MS



7.7.3
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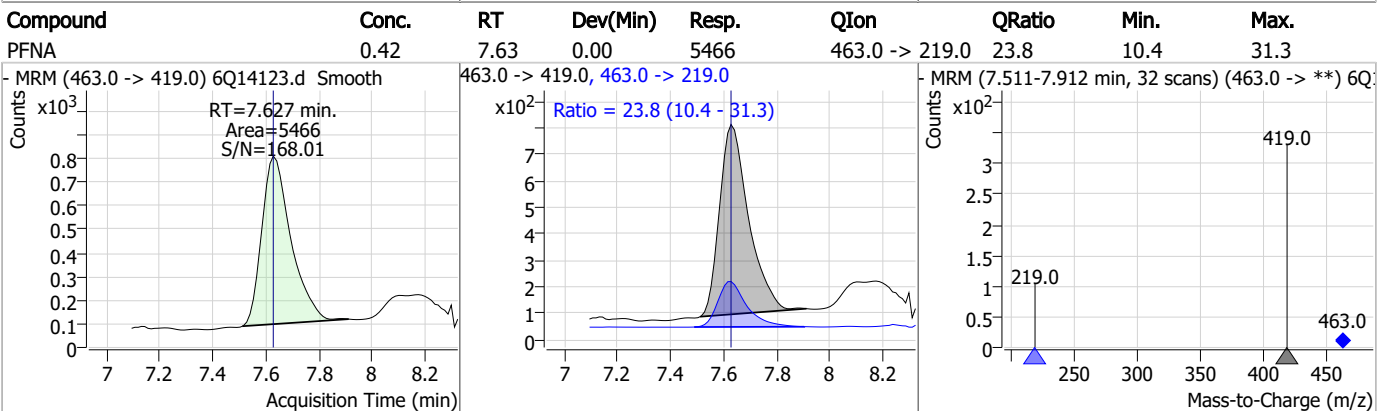
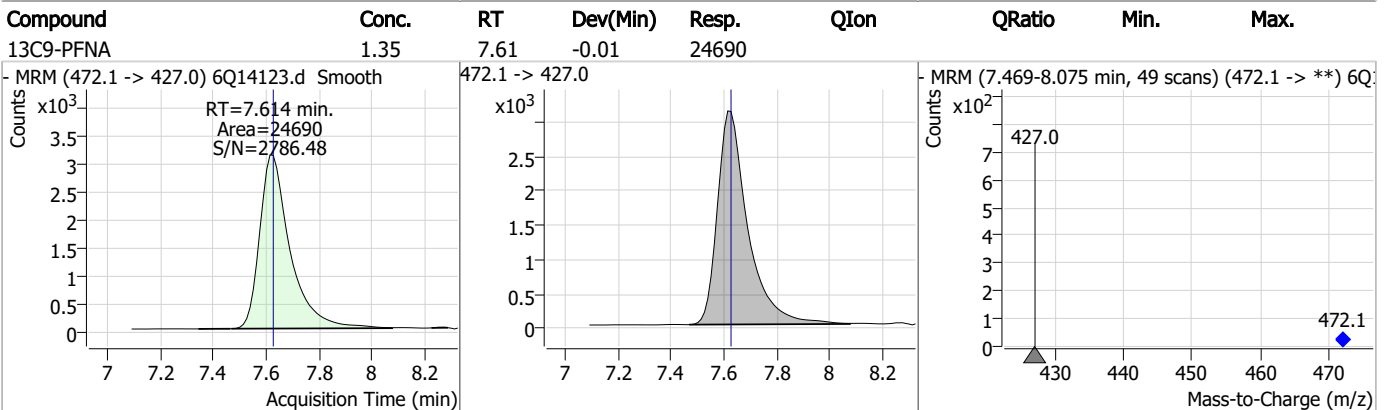
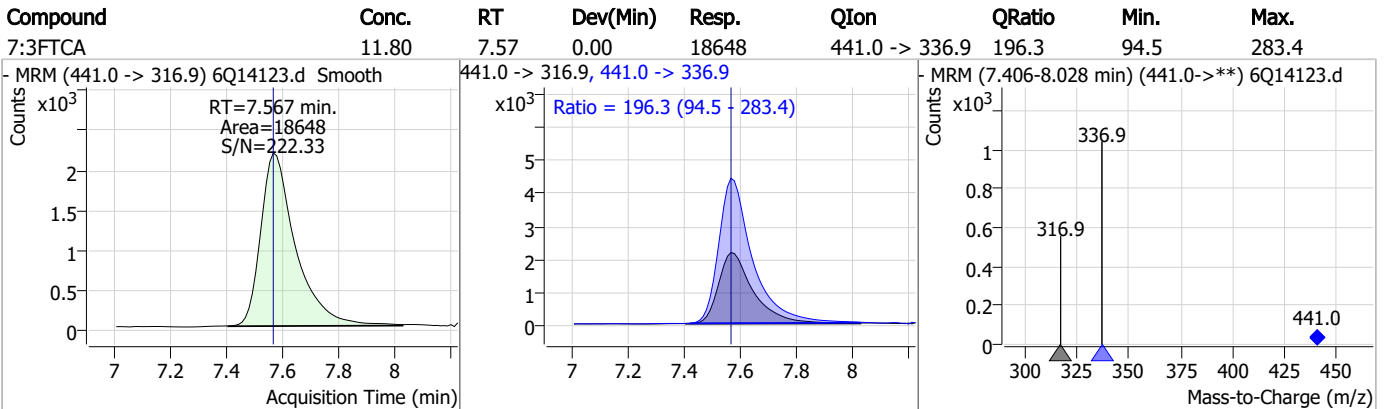
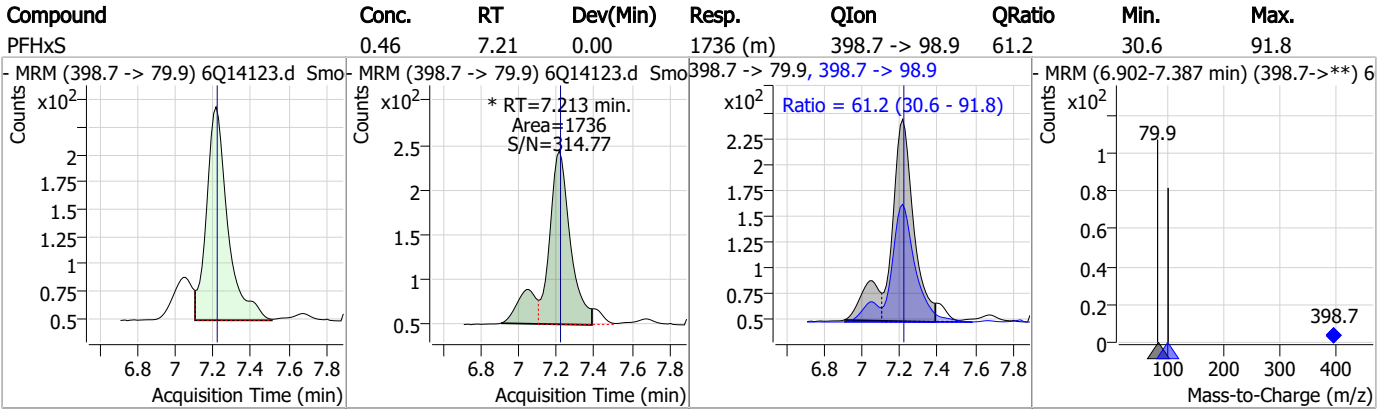


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

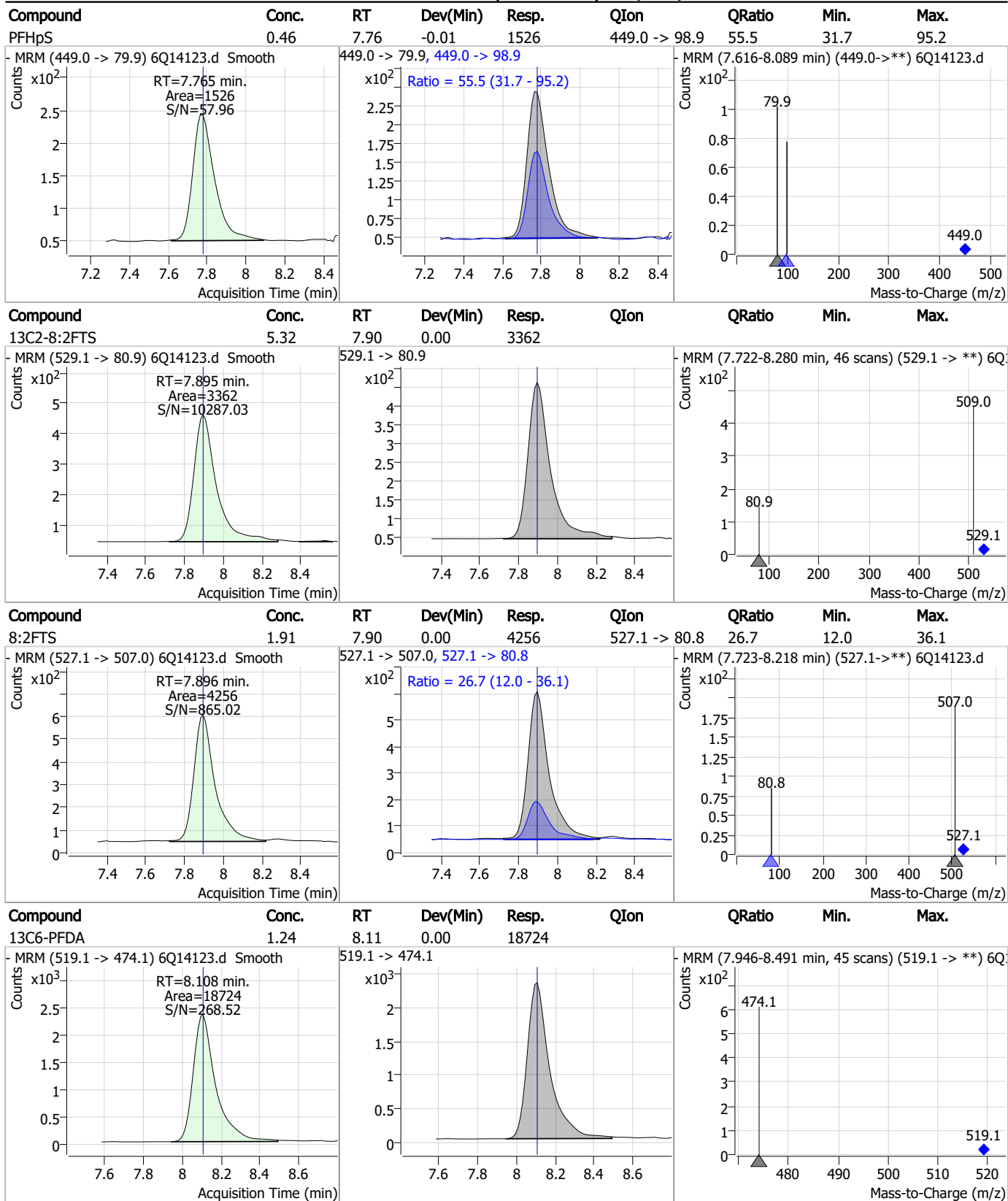
Perfluorinated Compounds by LC/MS/MS



7.7.3

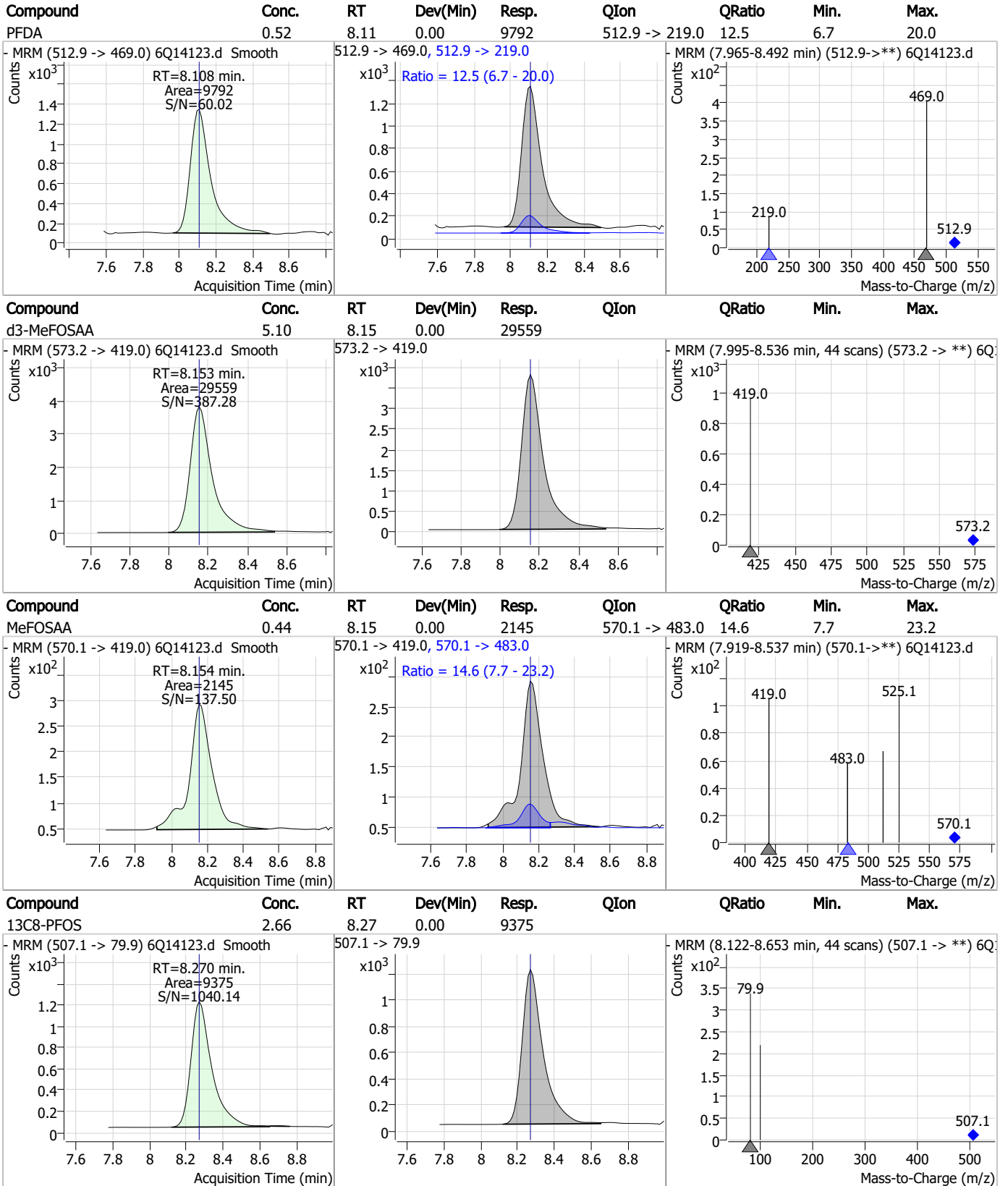
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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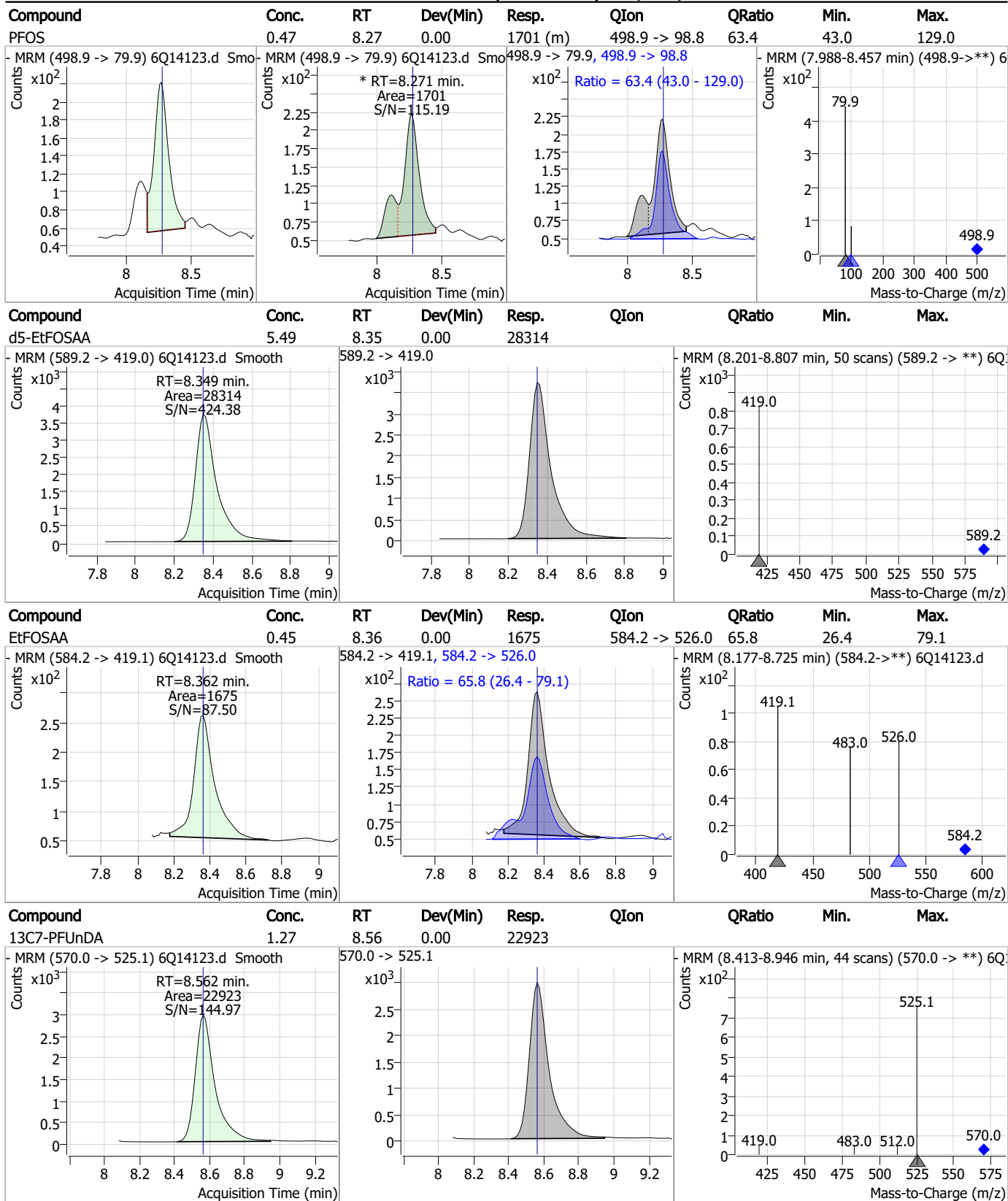
Perfluorinated Compounds by LC/MS/MS



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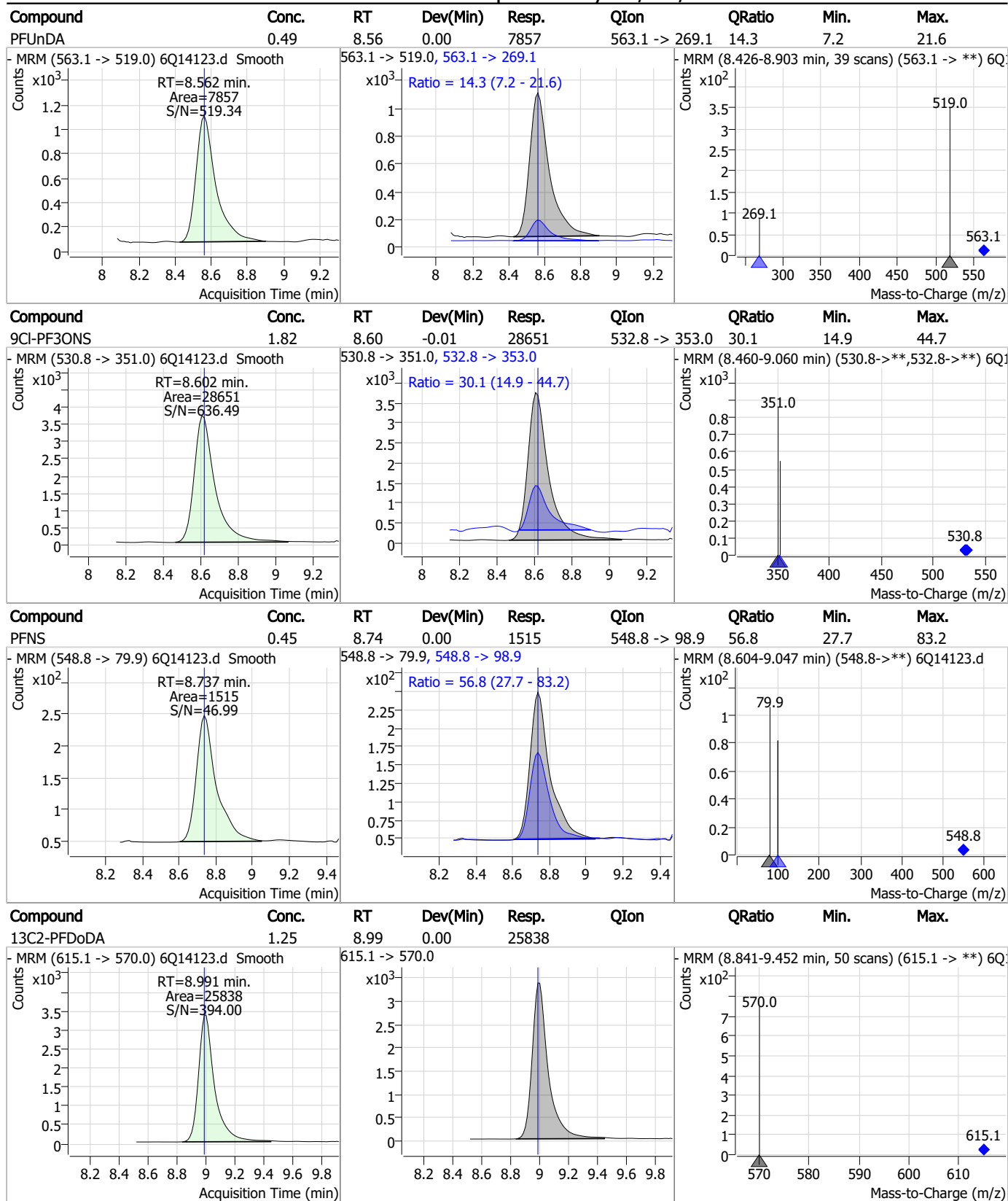
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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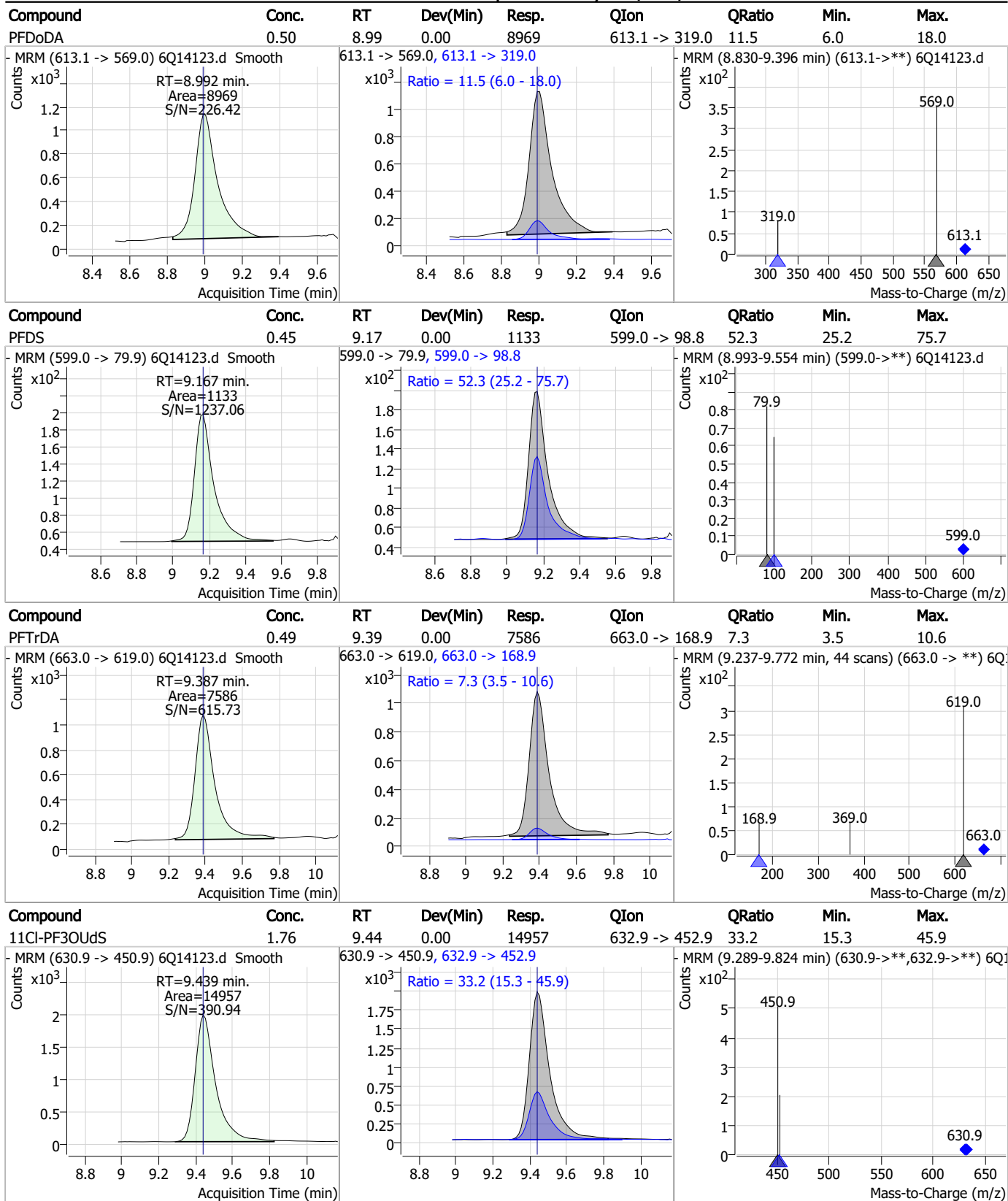
Perfluorinated Compounds by LC/MS/MS



7.7.3

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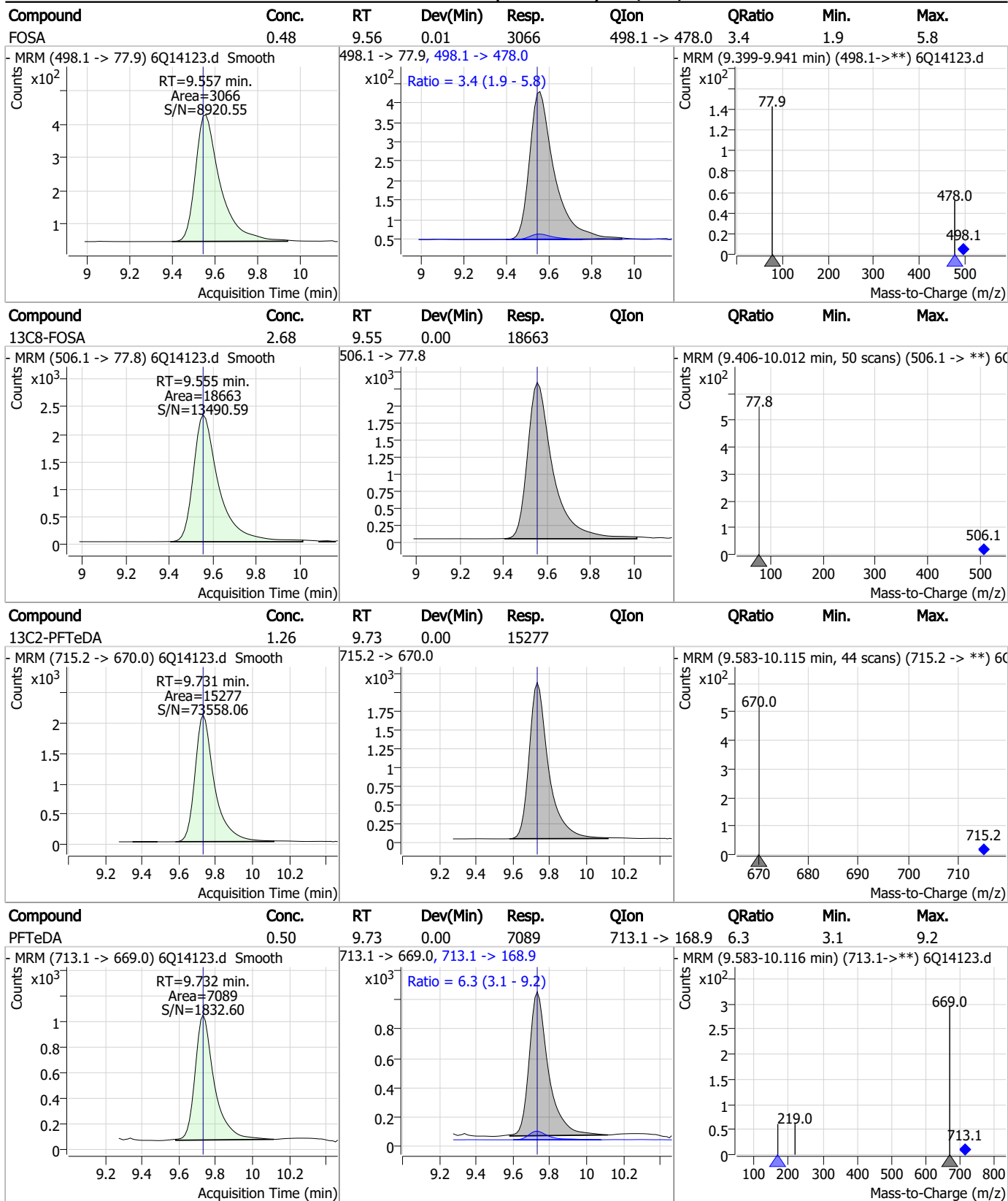
Perfluorinated Compounds by LC/MS/MS



7.7.3
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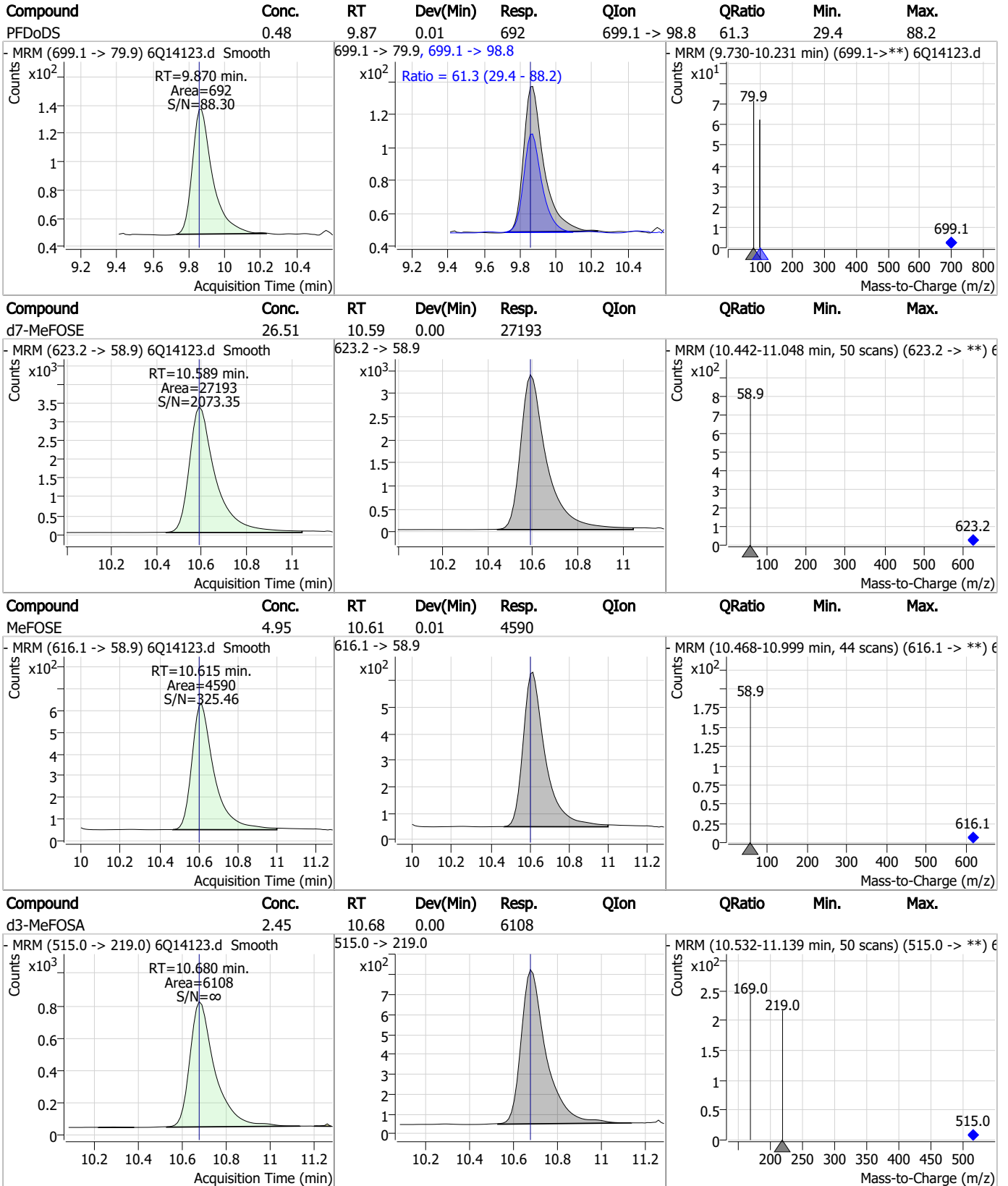


Perfluorinated Compounds by LC/MS/MS

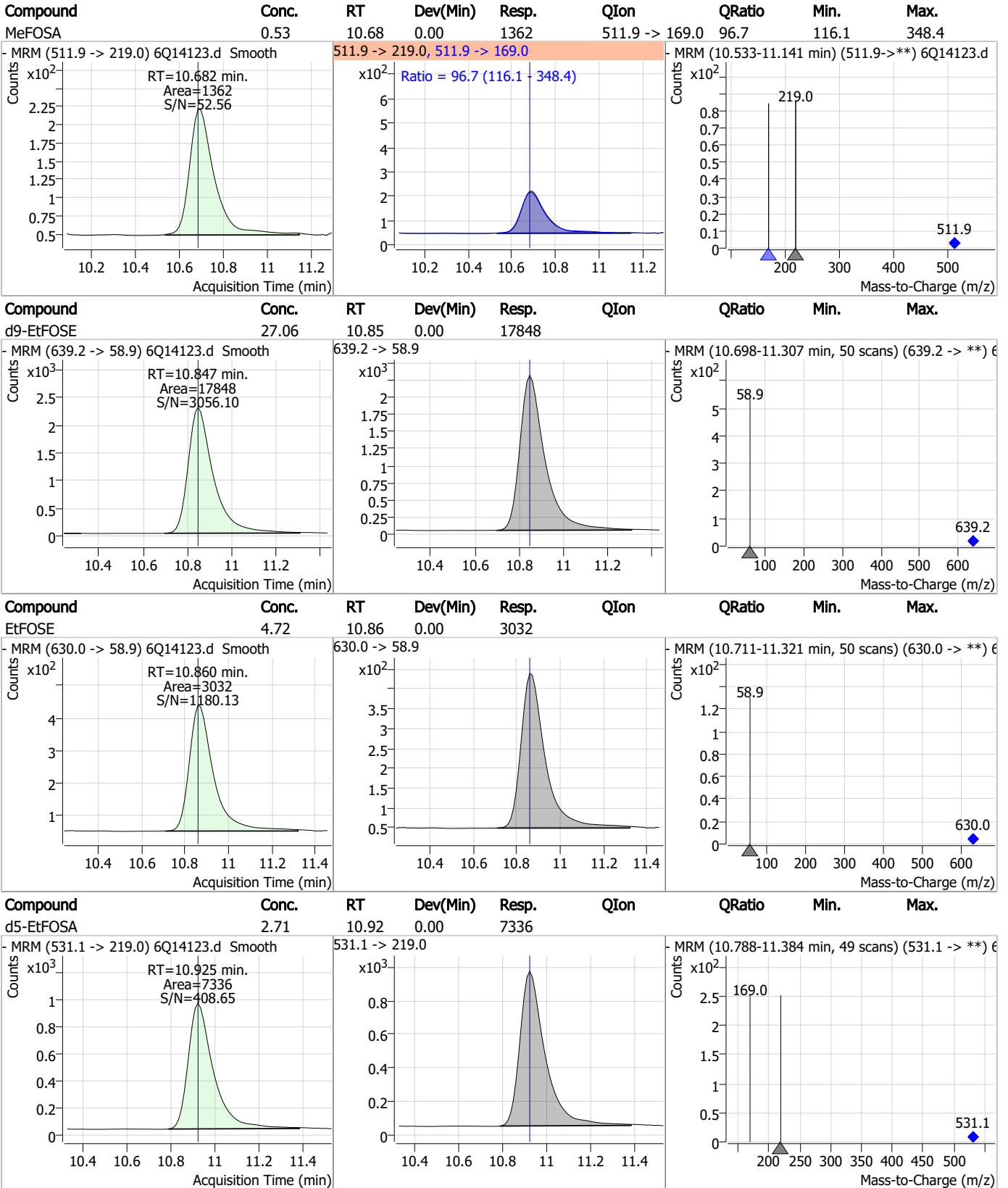


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

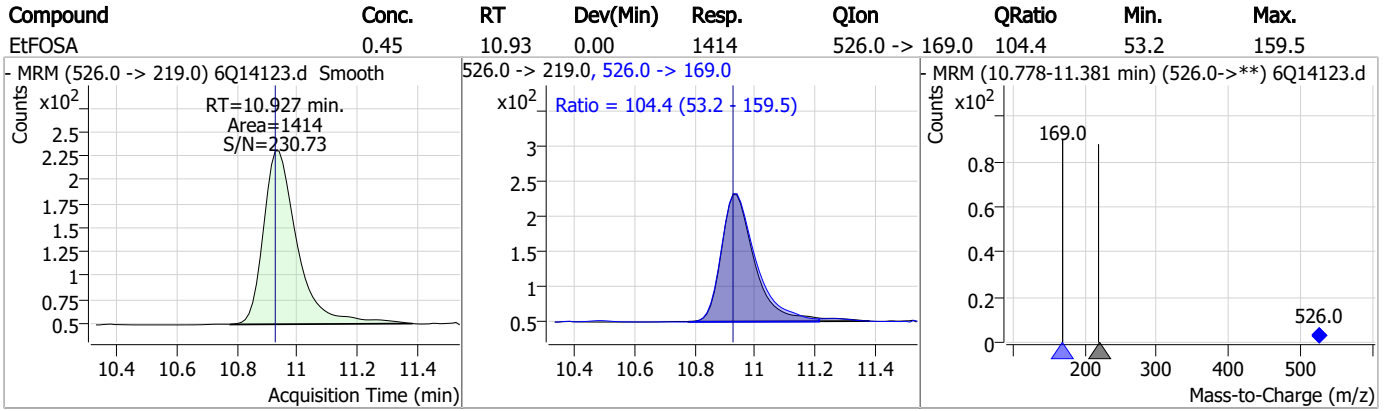


7.7.3

7



Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S6Q216-IC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14123.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 17:51 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.7.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14124.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 6:05:30 PM
 Sample Name : ic216-3
 Vial : P1-A4
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	94696	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	47958	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	41694	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	44829	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	74456	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	24049	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	18639	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	22701	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	25308	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	15607	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18132	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	16771	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	10160	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	9636	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2694	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3546	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	3470	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	32048	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	15769	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	27195	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	27793	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17969	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7296	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6491	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	11481	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	42078	5.00 µg/L	0.000
18O2-PFHxS	7.223	403.0 -> 83.9	7671	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	87885	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	28211	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	27053	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	44176	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2694	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3546	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3470	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-PFDoDA	9.004	615.1 -> 570.0	25308	1.16 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-PFTeDA	9.731	715.2 -> 670.0	15607	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.456	302.1 -> 79.9	16771	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.212	402.1 -> 79.9	10160	2.45 µg/L	0.000

7.7.4
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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 = 97.9%		
13C4-PFBA	2.938	216.8 -> 171.9	94696	9.99 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C4-PFHpA	6.452	367.1 -> 322.0	44829	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFHxA	5.513	318.0 -> 273.0	41694	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C5-PFPeA	4.337	268.3 -> 223.0	47958	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C6-PFDA	8.108	519.1 -> 474.1	18639	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C7-PFUnDA	8.562	570.0 -> 525.1	22701	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C8-FOSA	9.555	506.1 -> 77.8	18132	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C8-PFOA	7.097	421.1 -> 376.0	74456	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C8-PFOS	8.270	507.1 -> 79.9	9636	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C9-PFNA	7.626	472.1 -> 427.0	24049	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
d3-MeFOSAA	8.153	573.2 -> 419.0	32048	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-HFPO-DA	5.878	286.9 -> 168.9	15769	9.36 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
d3-MeFOSA	10.680	515.0 -> 219.0	6491	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
d5-EtFOSAA	8.361	589.2 -> 419.0	27195	4.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
d7-MeFOSE	10.589	623.2 -> 58.9	27793	25.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
d9-EtFOSE	10.847	639.2 -> 58.9	17969	25.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
d5-EtFOSA	10.925	531.1 -> 219.0	7296	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	26146	5.07 µg/L	97
		327.1 -> 80.9	5305		
6:2FTS	6.871	427.1 -> 407.0	20674	4.70 µg/L	93
		427.1 -> 80.9	4379		
8:2FTS	7.896	527.1 -> 507.0	10560	4.59 µg/L	95
		527.1 -> 80.8	2815		
EtFOSAA	8.362	584.2 -> 419.1	4414	1.23 µg/L	m 93
		584.2 -> 526.0	2548		
FOSA	9.557	498.1 -> 77.9	7747	1.25 µg/L	97
		498.1 -> 478.0	233		
MeFOSAA	8.154	570.1 -> 419.0	6242	1.18 µg/L	95
		570.1 -> 483.0	1093		
PFBA	2.944	212.8 -> 168.9	9091	4.78 µg/L	100
PFBS	5.457	298.7 -> 79.9	5750	1.06 µg/L	98
		298.7 -> 98.8	2706		
PFDA	8.108	512.9 -> 469.0	23090	1.24 µg/L	98
		512.9 -> 219.0	3271		
PFDODA	9.005	613.1 -> 569.0	22023	1.25 µg/L	98
		613.1 -> 319.0	2474		
PFDS	9.167	599.0 -> 79.9	2727	1.06 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1478			
PFHpA	6.453	363.1 -> 319.0	27300	1.25	µg/L	99
		363.1 -> 169.0	3701			
PFHpS	7.779	449.0 -> 79.9	3553	1.05	µg/L	97
		449.0 -> 98.9	2345			
PFHxA	5.516	313.0 -> 269.0	16193	1.19	µg/L	97
		313.0 -> 118.9	705			
PFHxS	7.213	398.7 -> 79.9	4416	1.14	µg/L	m 93
		398.7 -> 98.9	2453			
PFNA	7.627	463.0 -> 419.0	15163	1.21	µg/L	98
		463.0 -> 219.0	3337			
PFNS	8.737	548.8 -> 79.9	3951	1.14	µg/L	93
		548.8 -> 98.9	2381			
PFOA	7.098	413.0 -> 369.0	36023	1.28	µg/L	92
		413.0 -> 169.0	4498			
PFOS	8.271	498.9 -> 79.9	3771	1.01	µg/L	m 81
		498.9 -> 98.8	2600			
PFPeA	4.338	263.0 -> 219.0	20467	2.46	µg/L	100
PFPeS	6.517	349.1 -> 79.9	5770	1.22	µg/L	98
		349.1 -> 98.9	3012			
PFTeDA	9.732	713.1 -> 669.0	16968	1.17	µg/L	99
		713.1 -> 168.9	1011			
PFTrDA	9.387	663.0 -> 619.0	19238	1.27	µg/L	98
		663.0 -> 168.9	1512			
PFUnDA	8.562	563.1 -> 519.0	18703	1.19	µg/L	97
		563.1 -> 269.1	2905			
11CI-PF3OUdS	9.439	630.9 -> 450.9	40933	4.85	µg/L	100
		632.9 -> 452.9	12555			
9CI-PF3ONS	8.614	530.8 -> 351.0	74653	4.78	µg/L	96
		532.8 -> 353.0	23893			
ADONA	6.704	376.9 -> 250.9	153536	4.98	µg/L	98
		376.9 -> 84.8	31950			
HFPO-DA	5.879	284.9 -> 168.9	6457	5.08	µg/L	98
		284.9 -> 184.9	729			
3:3FTCA	3.804	241.0 -> 177.0	2301	5.37	µg/L	87
		241.0 -> 117.0	415			
5:3FTCA	6.156	341.0 -> 237.1	94426	31.48	µg/L	99
		341.0 -> 217.0	82966			
7:3FTCA	7.579	441.0 -> 316.9	51533	32.03	µg/L	97
		441.0 -> 336.9	95114			
EtFOSA	10.927	526.0 -> 219.0	3699	1.17	µg/L	91
		526.0 -> 169.0	3597			
EtFOSE	10.860	630.0 -> 58.9	7385	11.42	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	3464	1.27	µg/L	# 21
		511.9 -> 169.0	3504			
MeFOSE	10.602	616.1 -> 58.9	11393	12.02	µg/L	100
PFDoDS	9.858	699.1 -> 79.9	1592	1.08	µg/L	89
		699.1 -> 98.8	1063			
NFDHA	5.395	295.0 -> 201.0	1927	2.57	µg/L	96
		295.0 -> 84.9	969			
PFMBA	4.738	279.0 -> 85.1	5855	2.41	µg/L	100
PFMPA	3.500	229.0 -> 84.9	5386	2.41	µg/L	100
PFEESA	5.996	314.8 -> 134.9	40038	2.12	µg/L	100
		314.8 -> 82.9	1010			

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

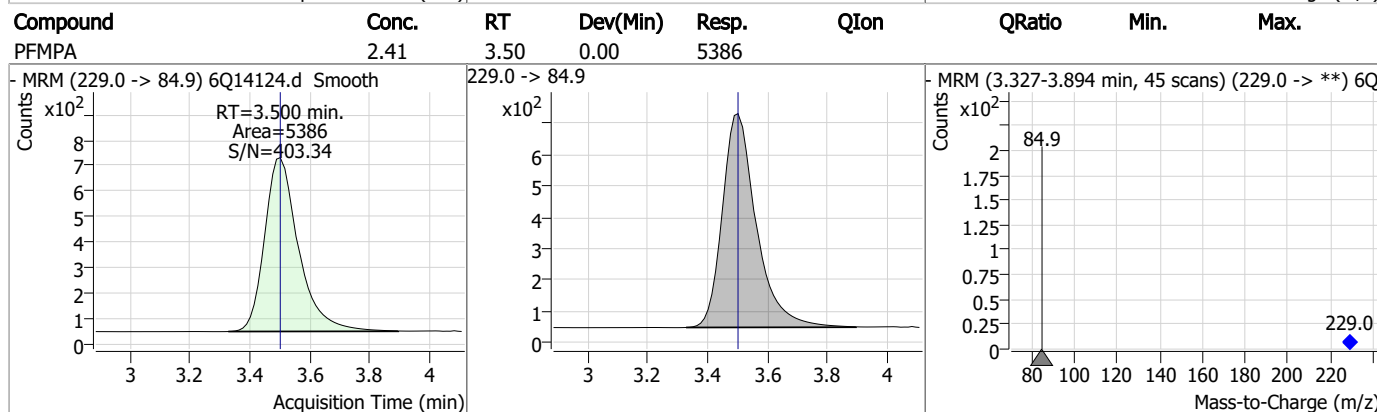
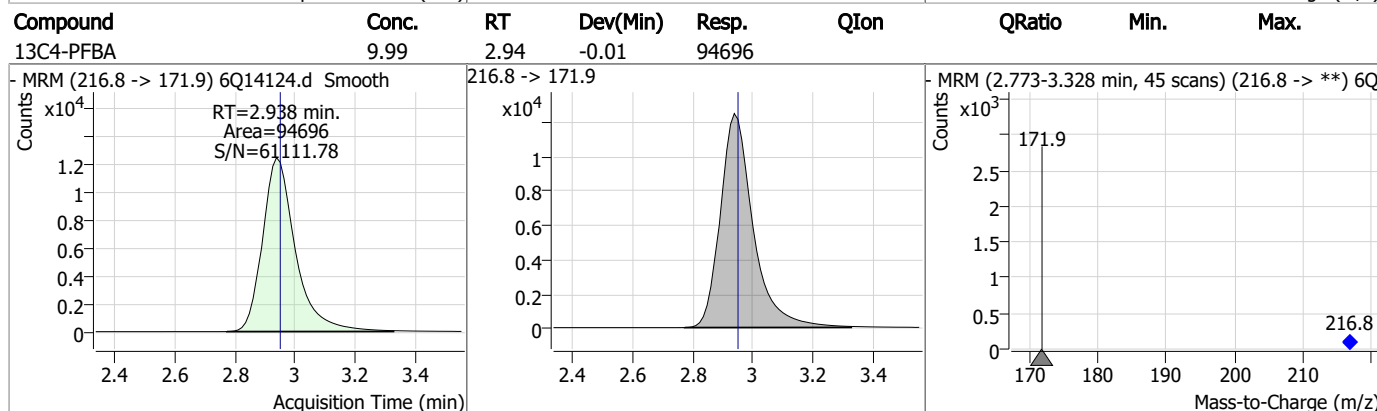
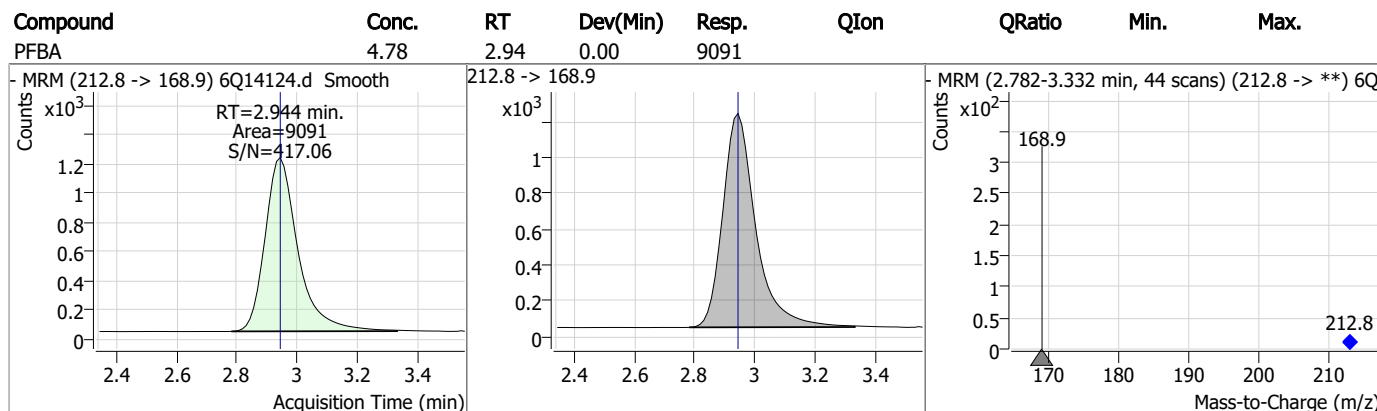
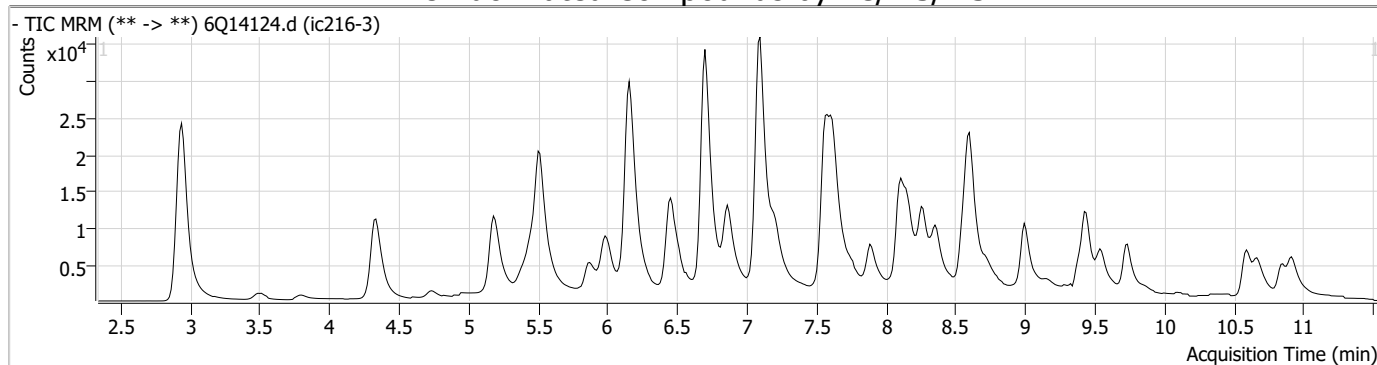
Perfluorinated Compounds by LC/MS/MS

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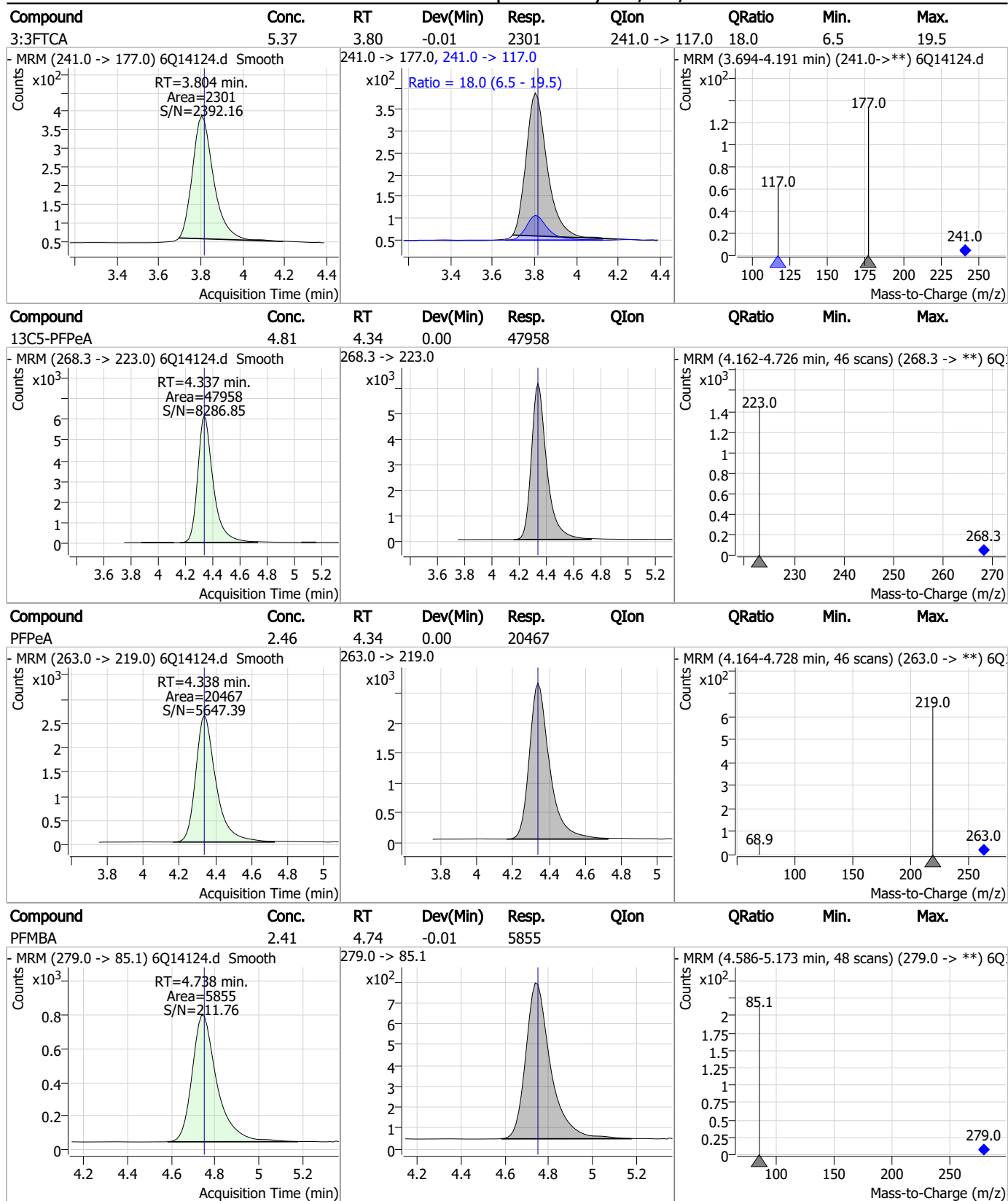
7.7.4

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Perfluorinated Compounds by LC/MS/MS



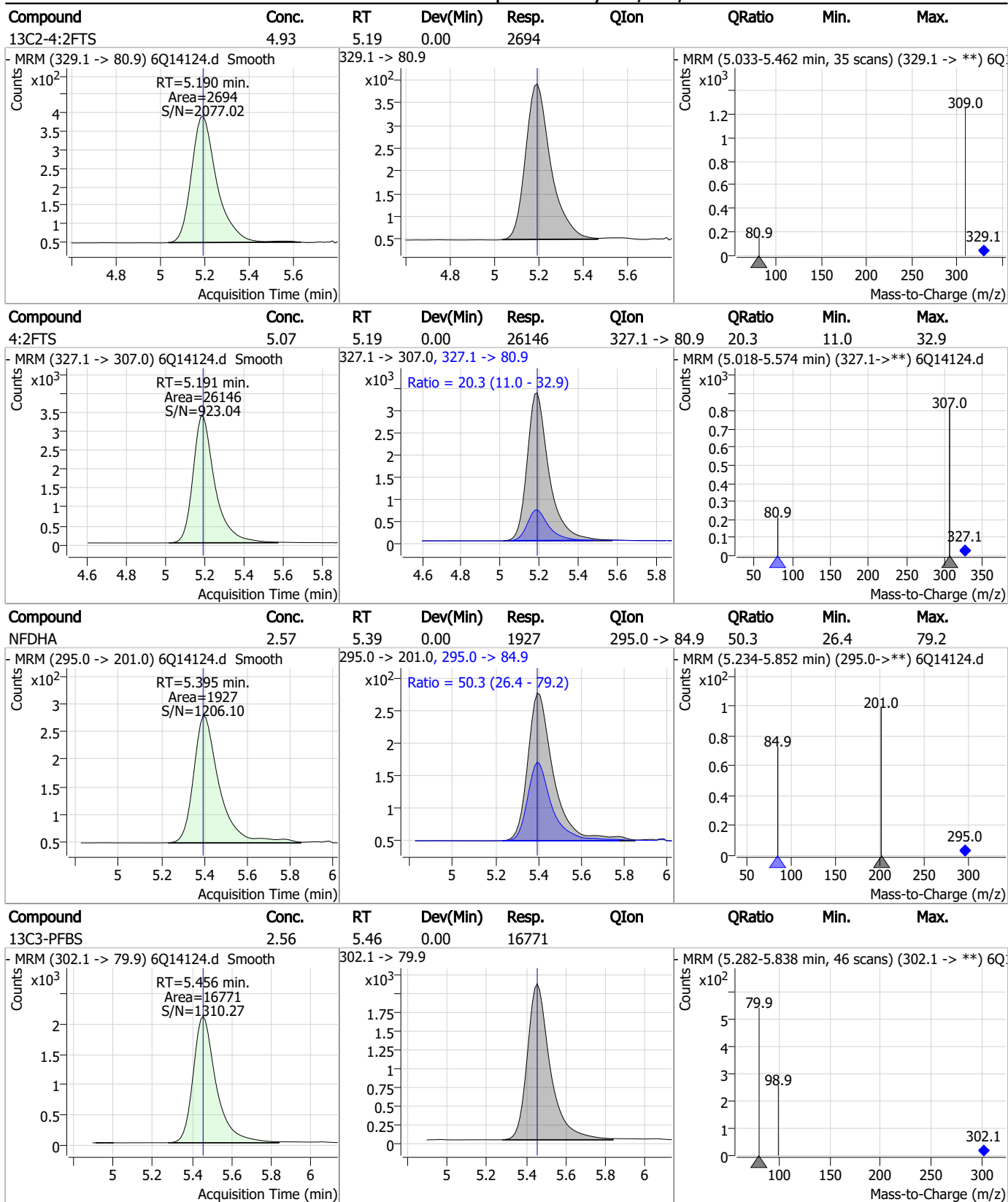
Perfluorinated Compounds by LC/MS/MS



7.7.4

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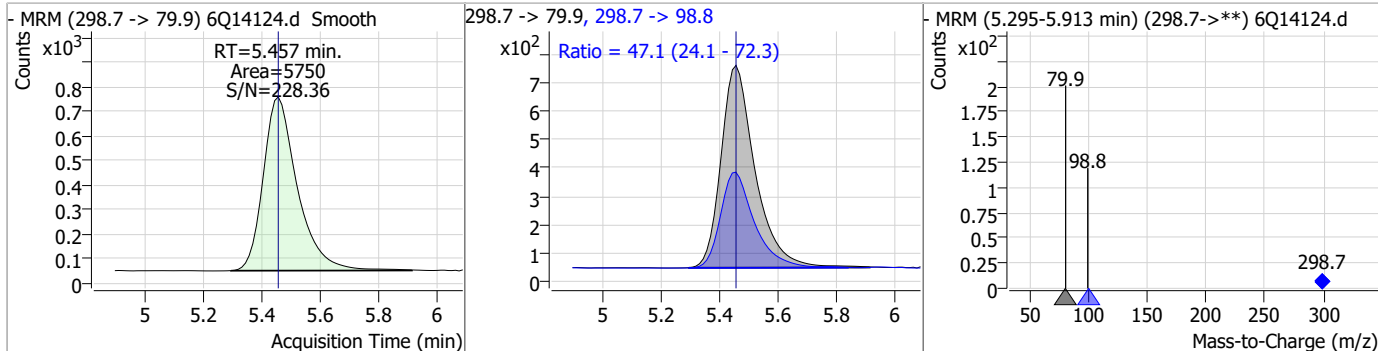
Perfluorinated Compounds by LC/MS/MS



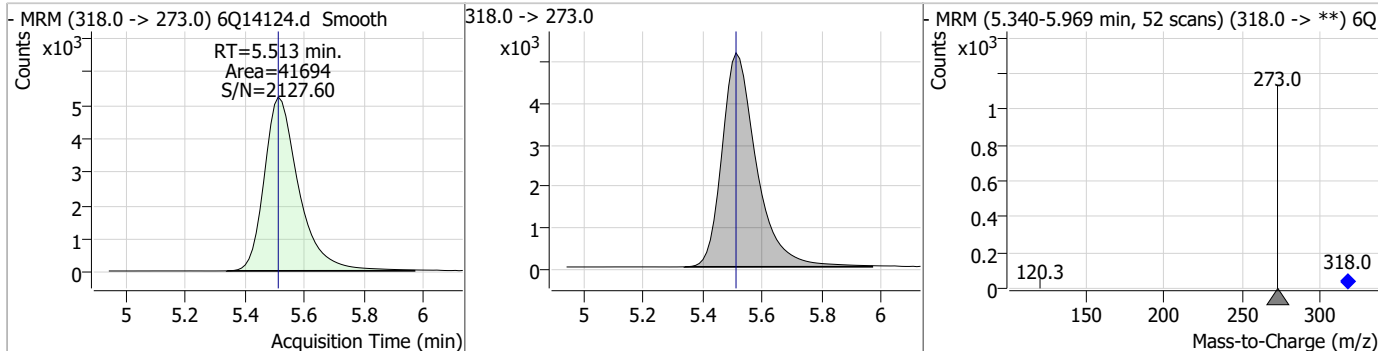
7.7.4
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Perfluorinated Compounds by LC/MS/MS

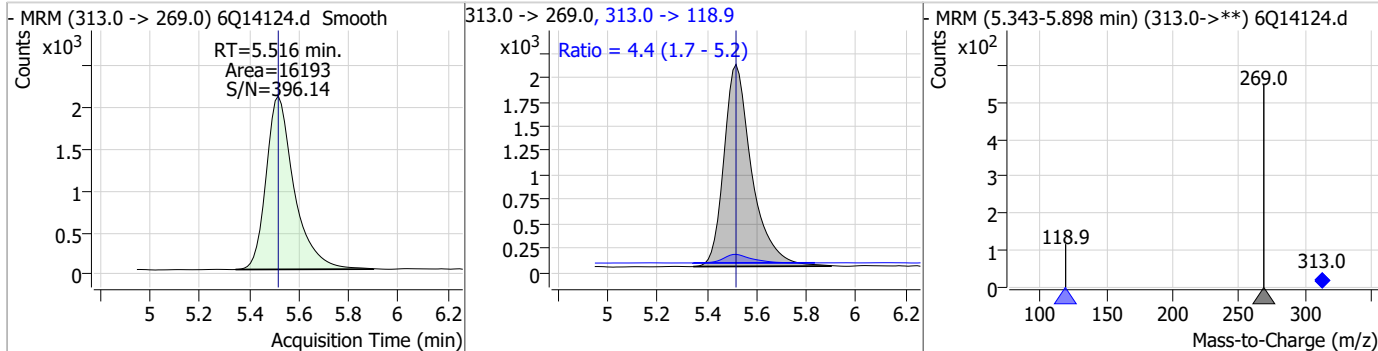
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.06	5.46	0.00	5750	298.7 -> 98.8	47.1	24.1	72.3



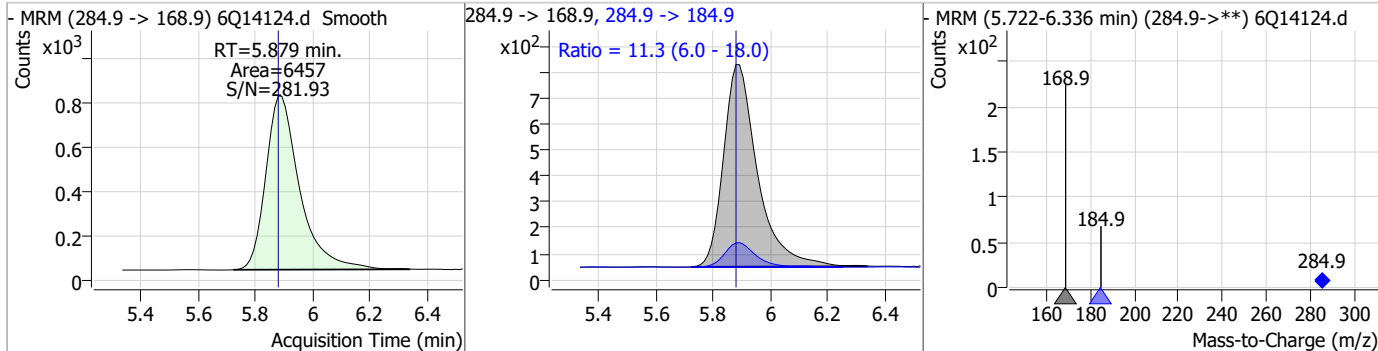
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.41	5.51	0.00	41694				



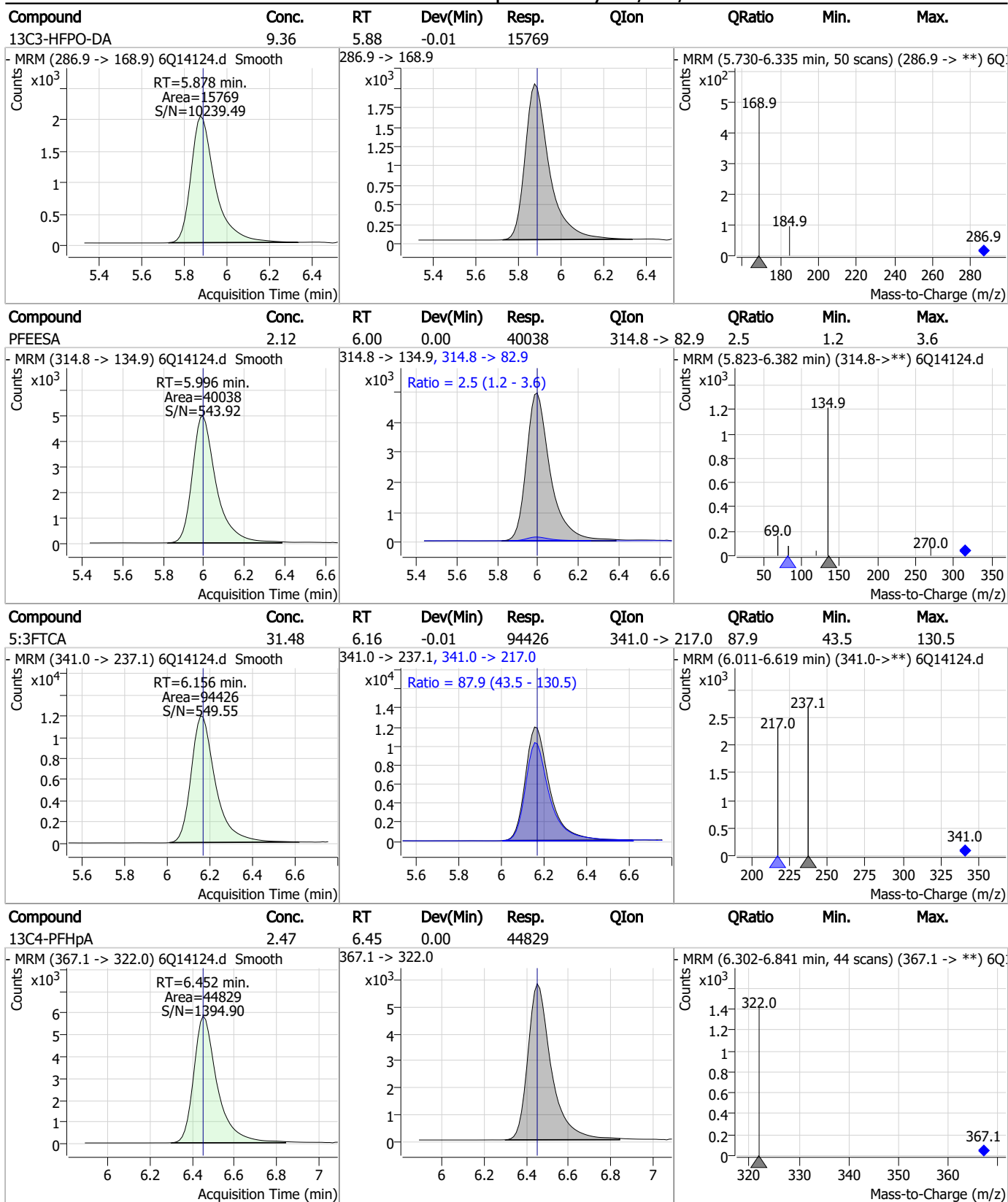
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.19	5.52	0.00	16193	313.0 -> 118.9	4.4	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.08	5.88	0.00	6457	284.9 -> 184.9	11.3	6.0	18.0

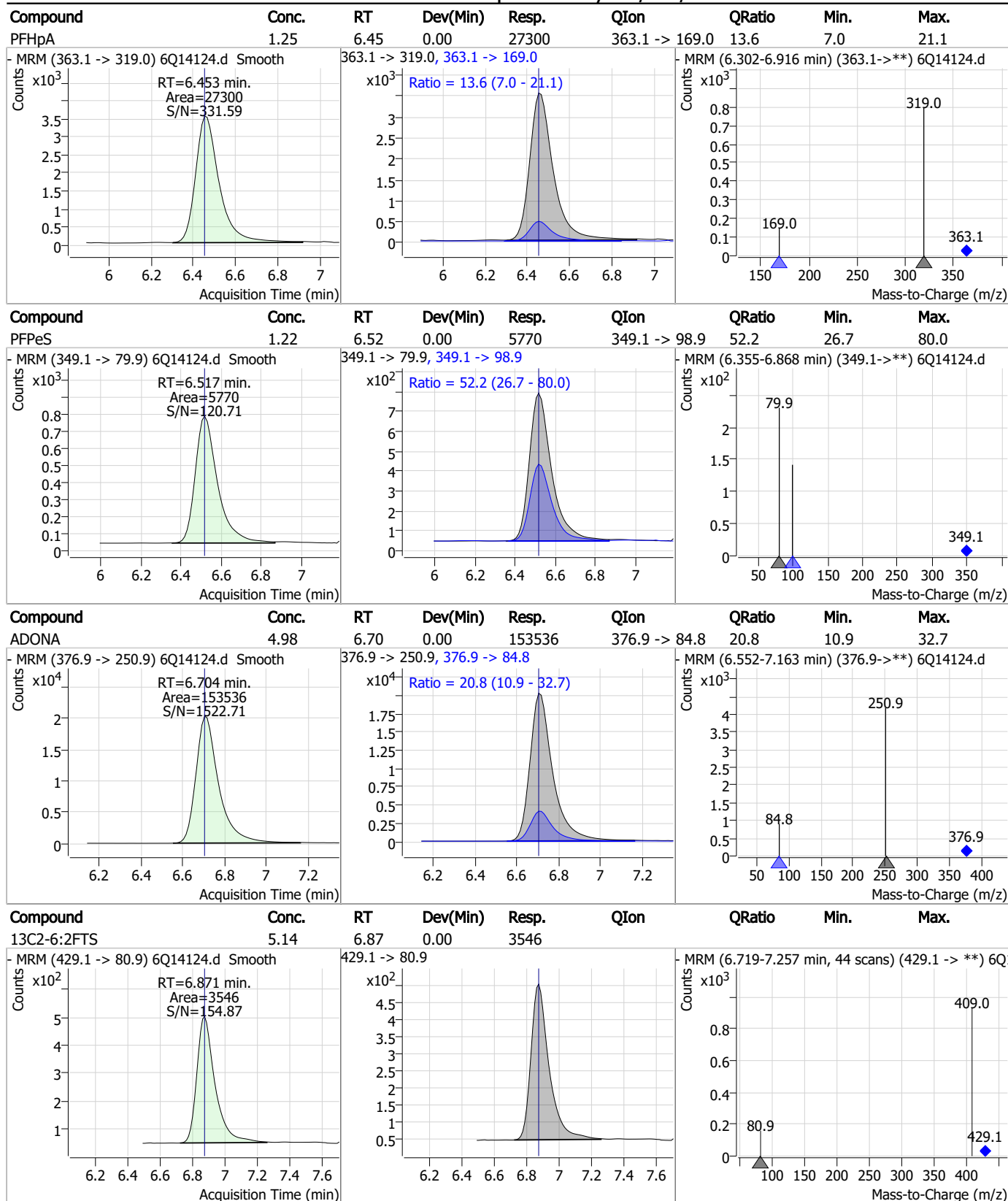


Perfluorinated Compounds by LC/MS/MS



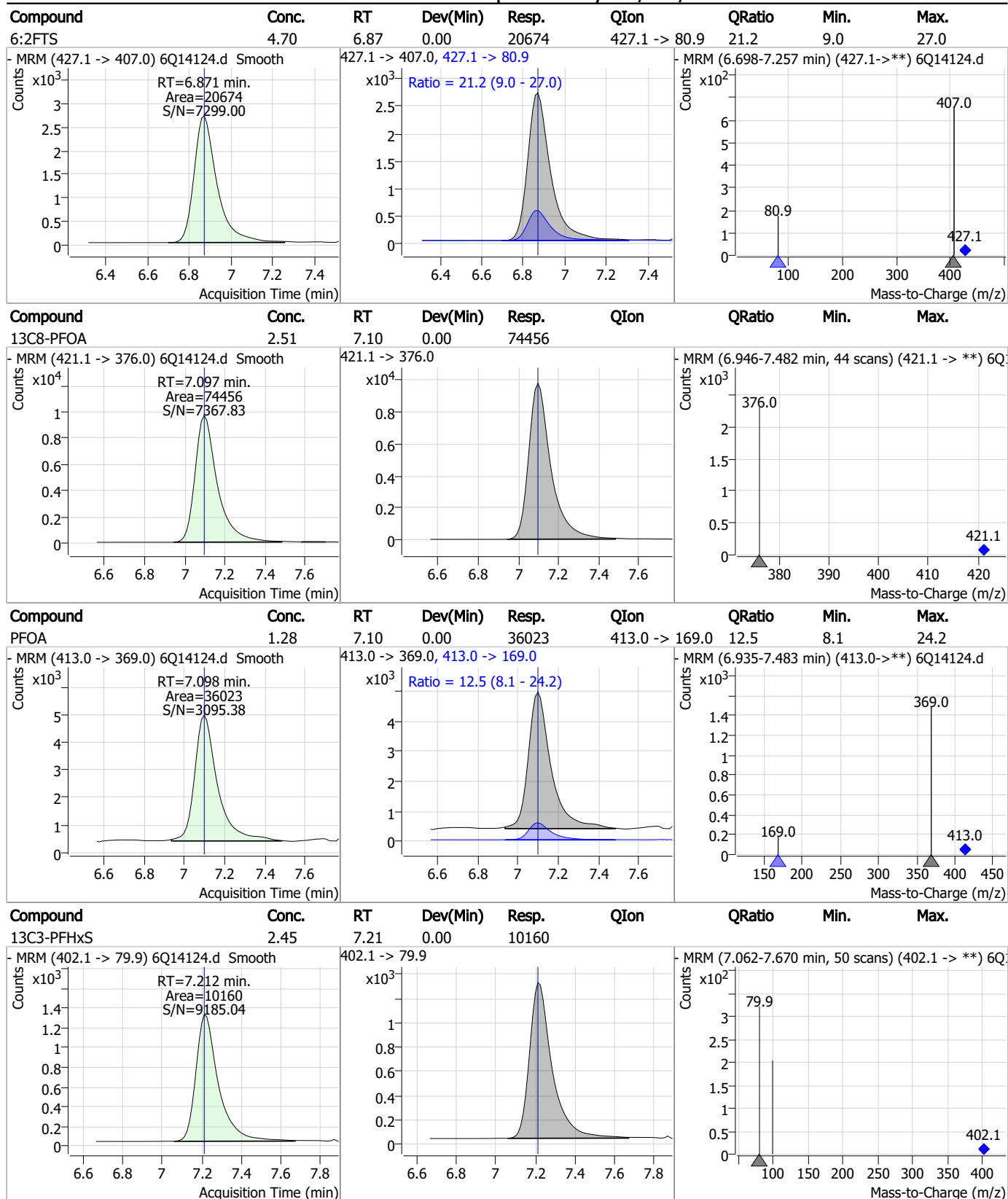
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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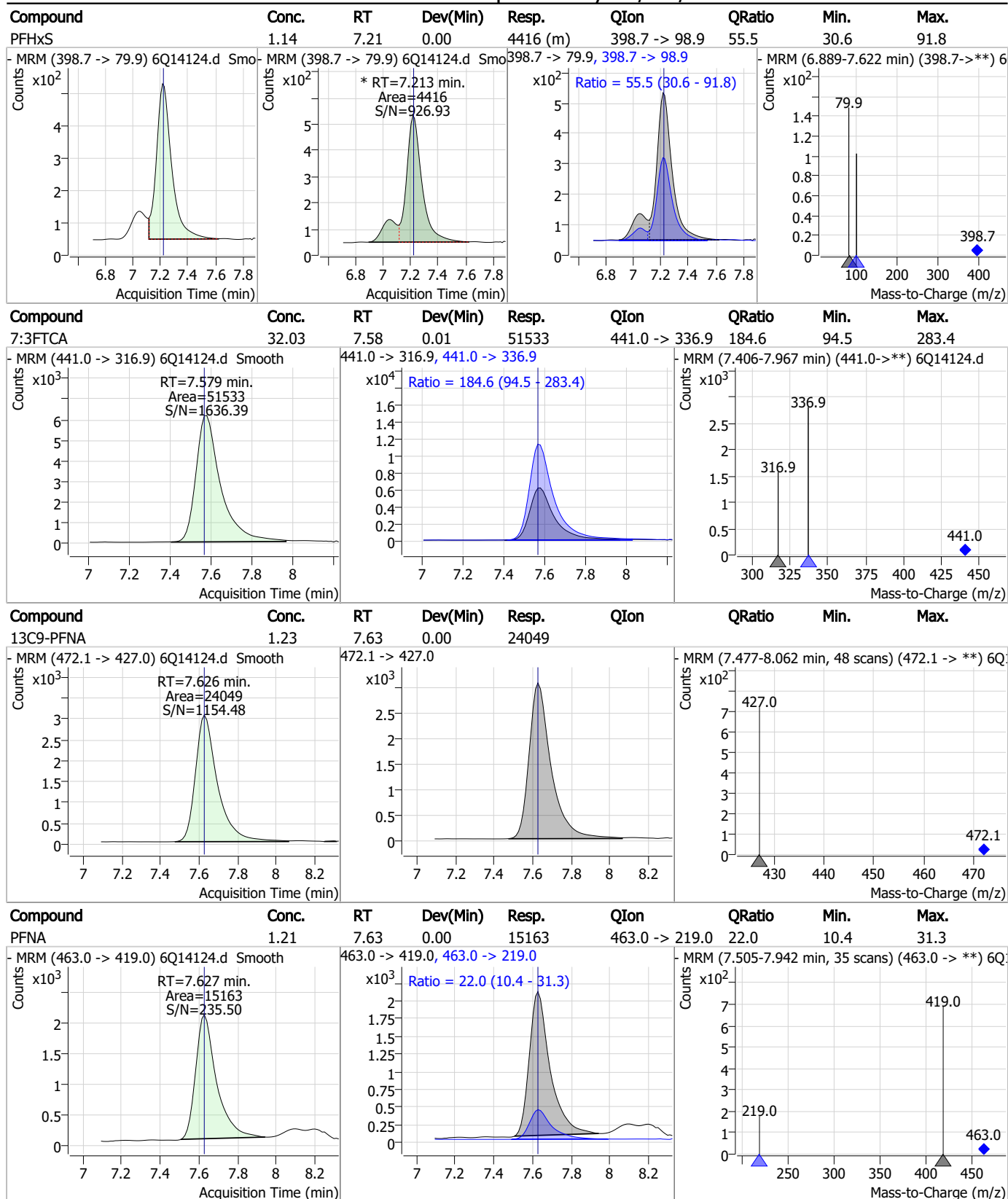
Perfluorinated Compounds by LC/MS/MS



7.7.4

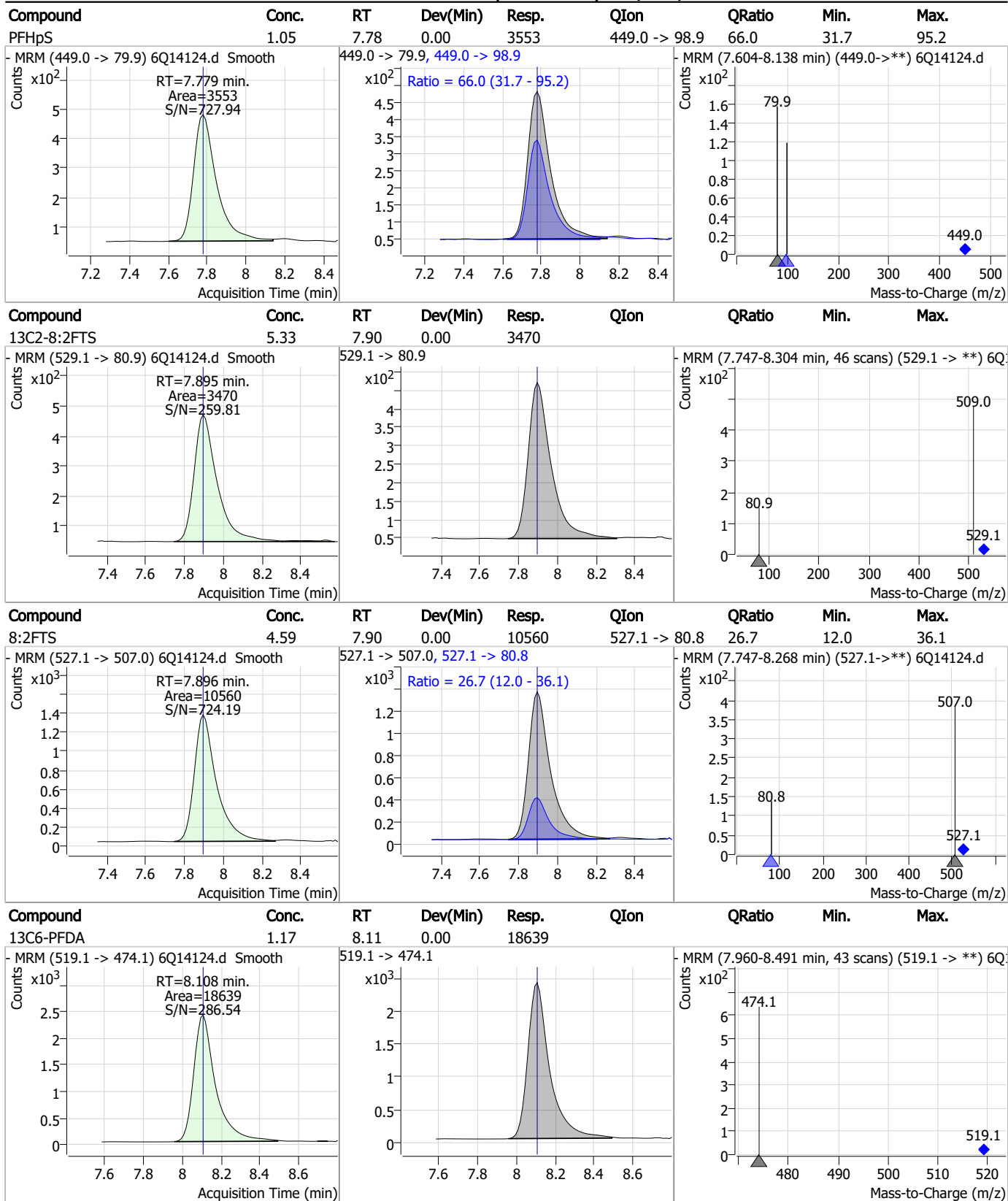
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Perfluorinated Compounds by LC/MS/MS



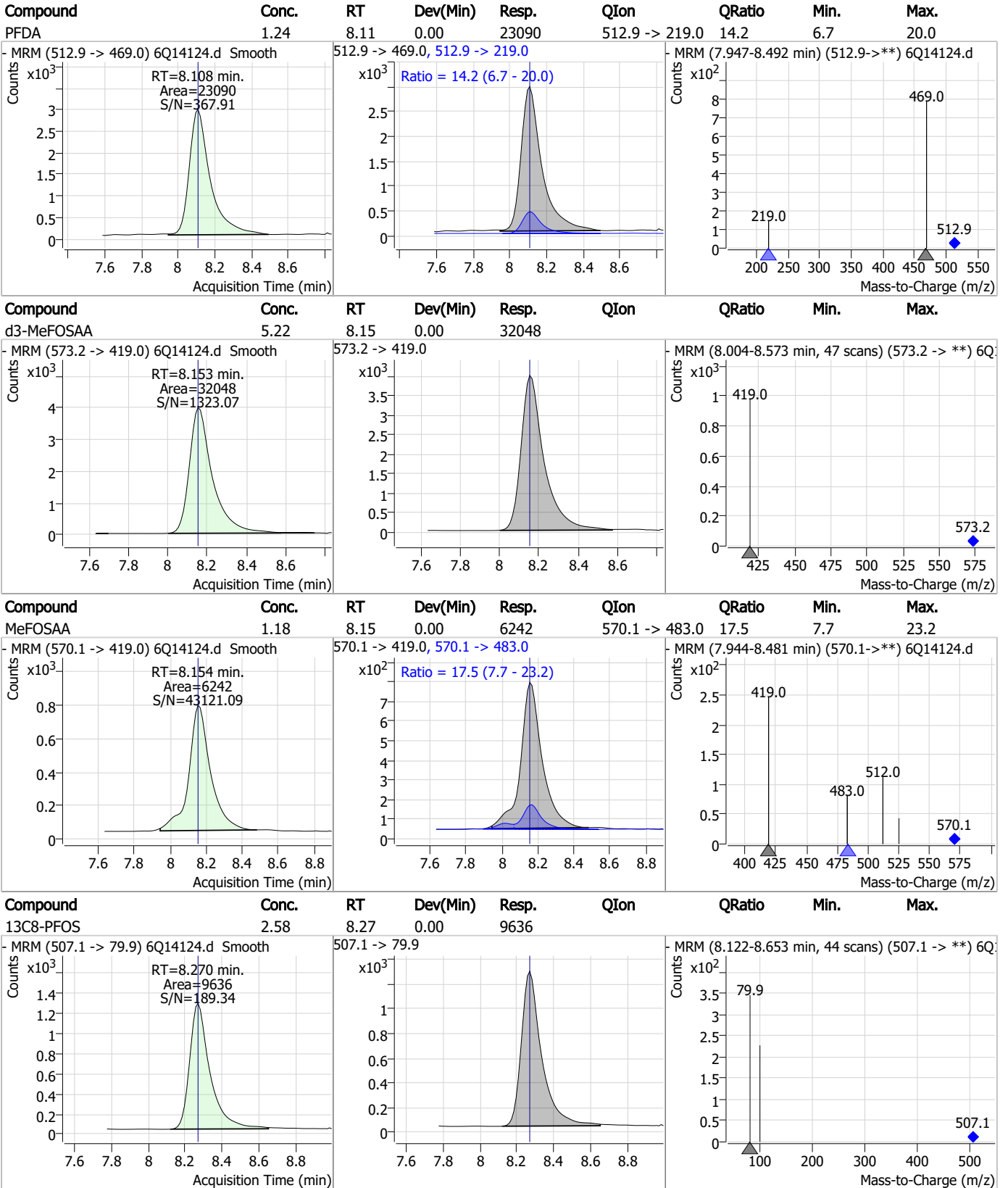
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

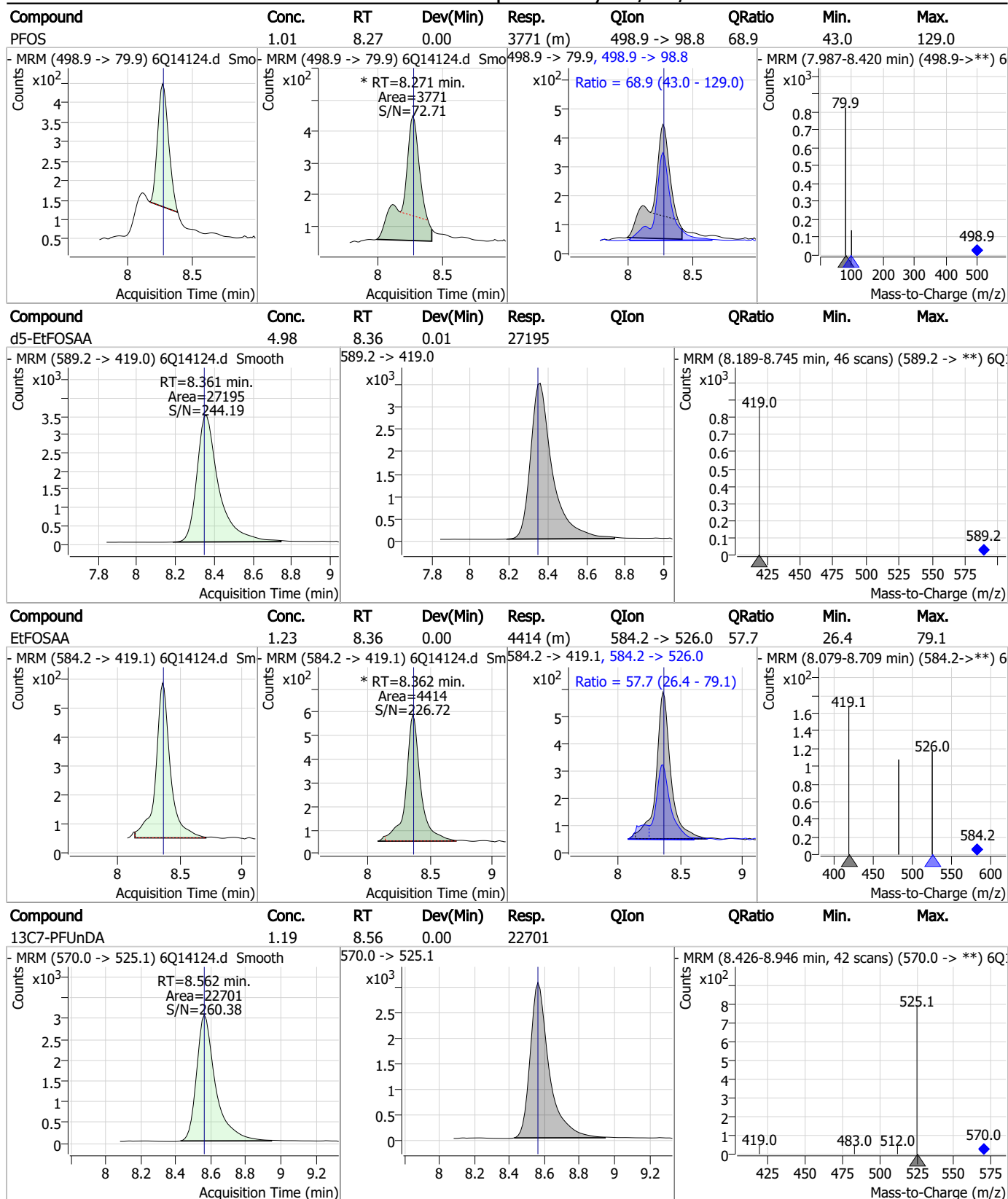
Perfluorinated Compounds by LC/MS/MS



7.7.4

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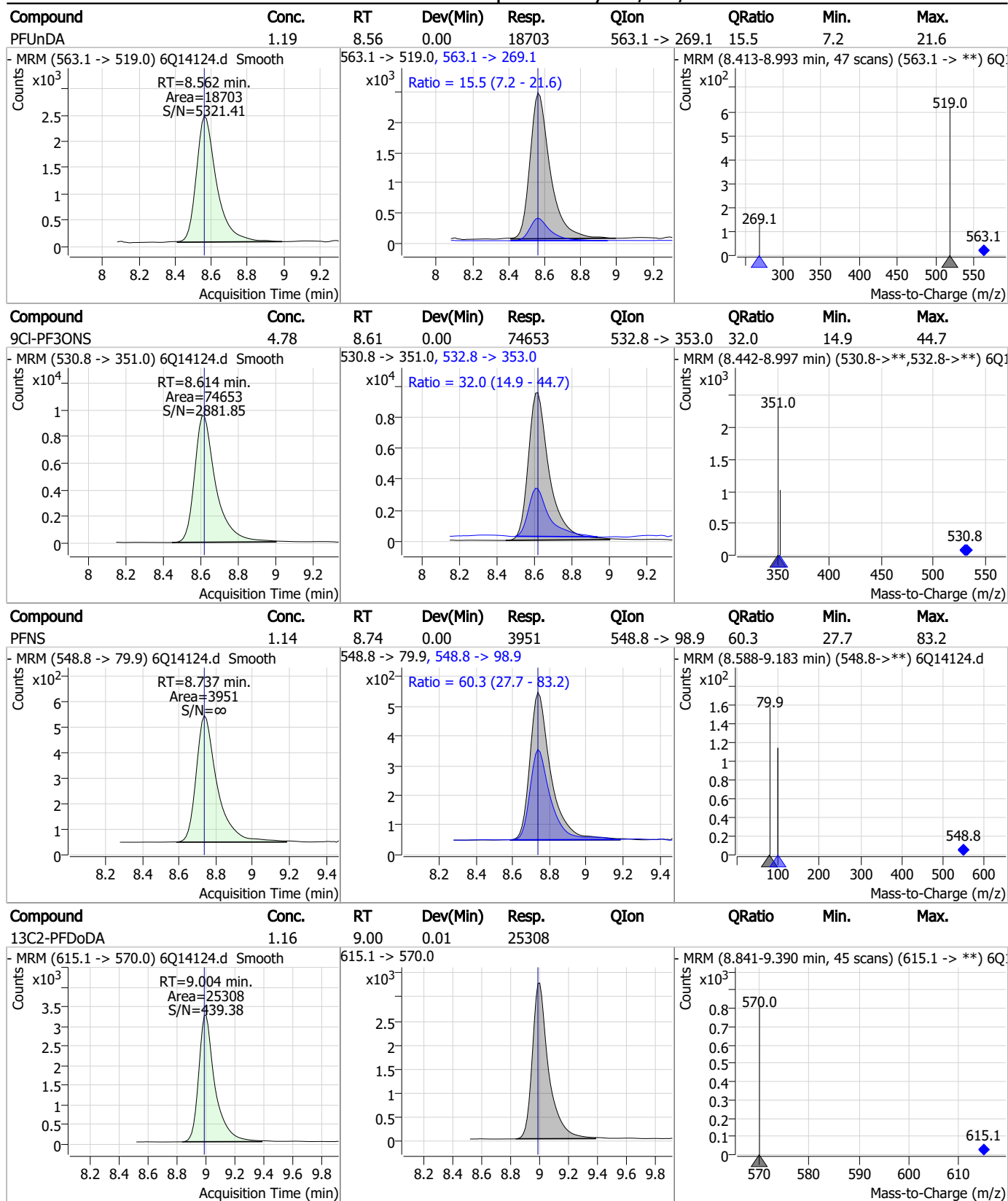
Perfluorinated Compounds by LC/MS/MS



7.7.4

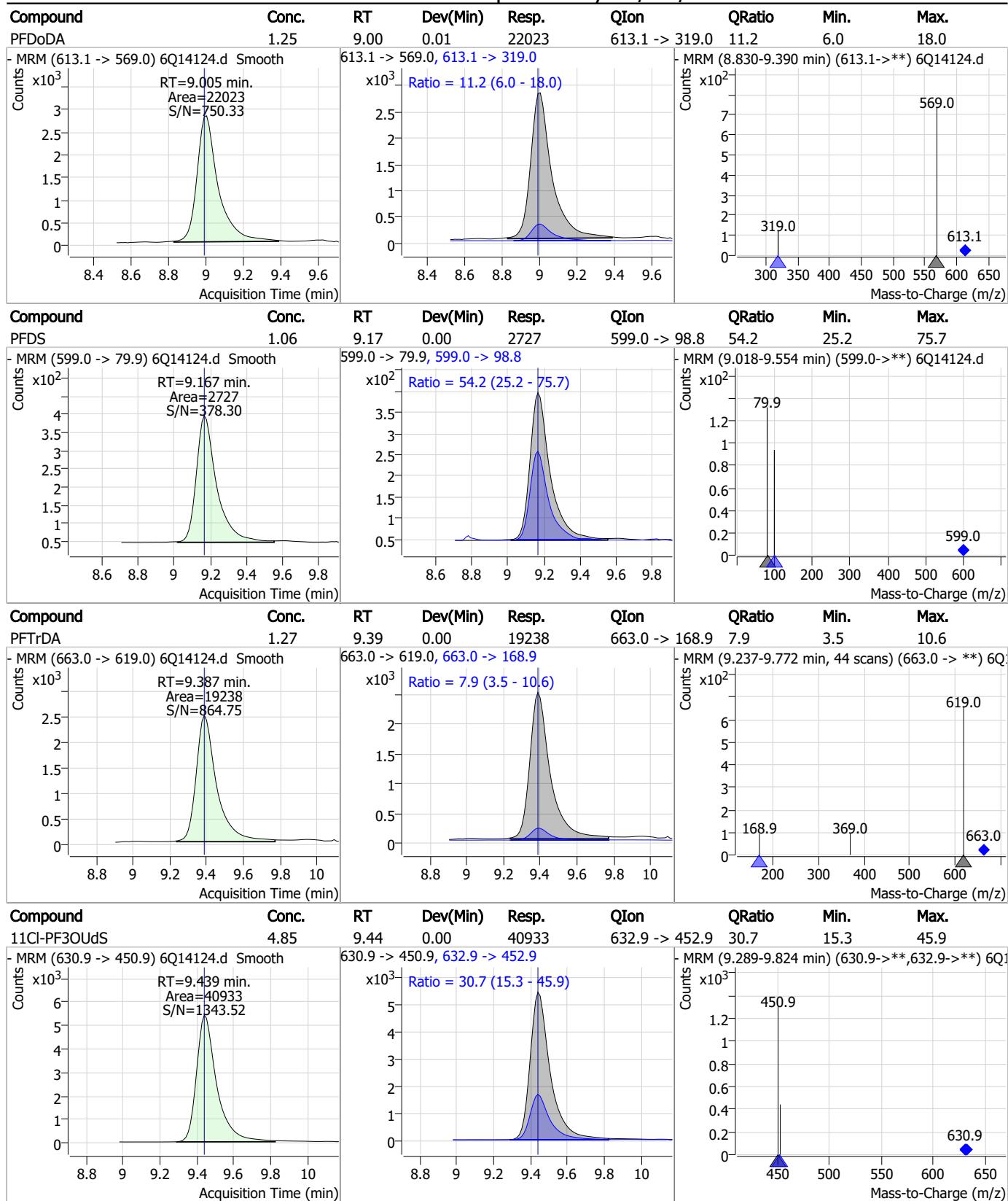
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Perfluorinated Compounds by LC/MS/MS



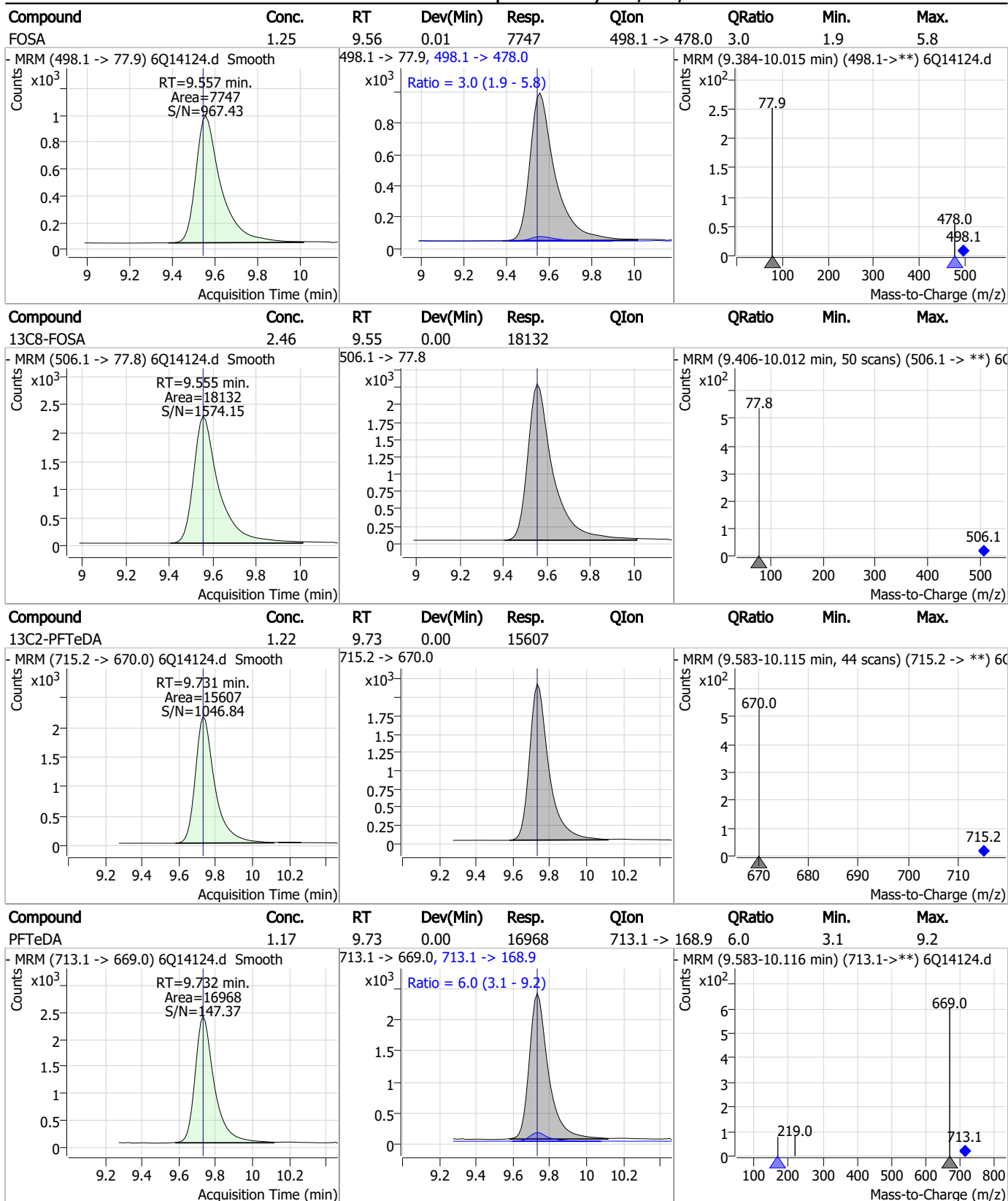
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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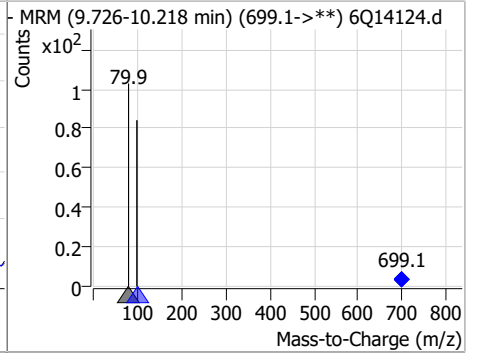
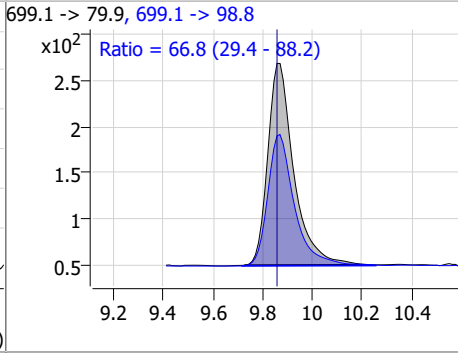
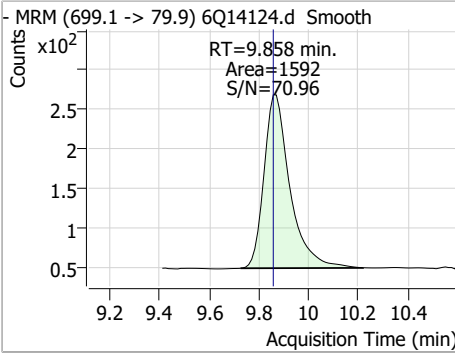
Perfluorinated Compounds by LC/MS/MS



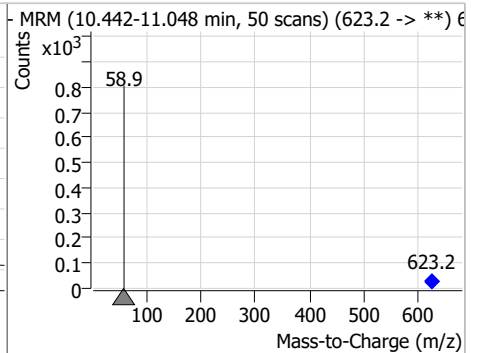
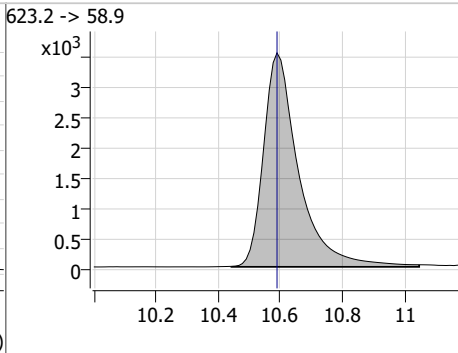
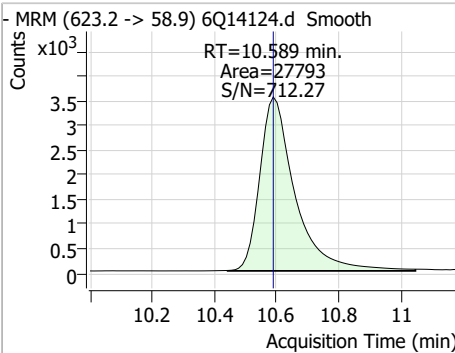
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Perfluorinated Compounds by LC/MS/MS

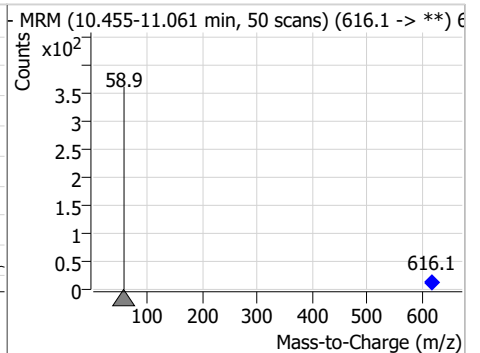
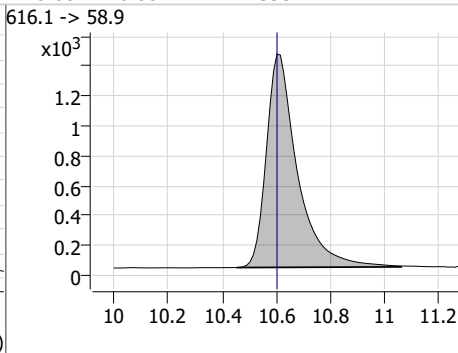
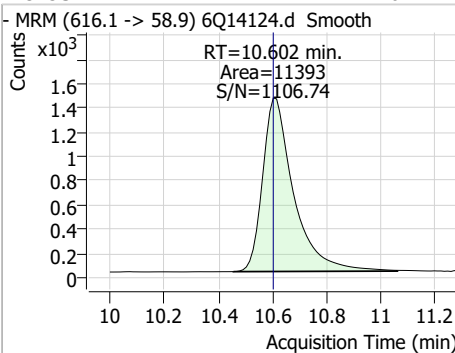
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.08	9.86	0.00	1592	699.1 -> 98.8	66.8	29.4	88.2



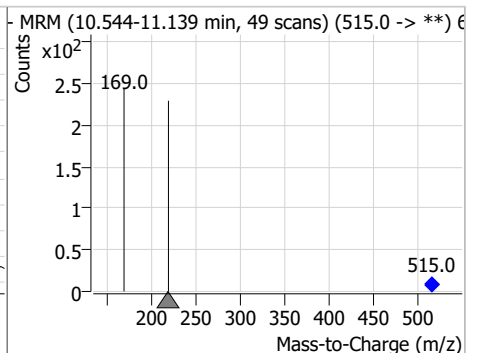
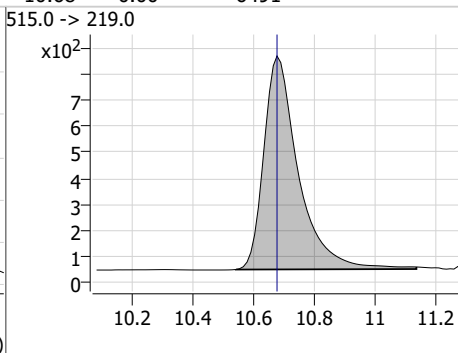
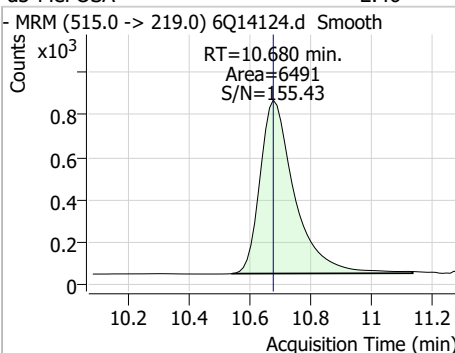
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.57	10.59	0.00	27793				



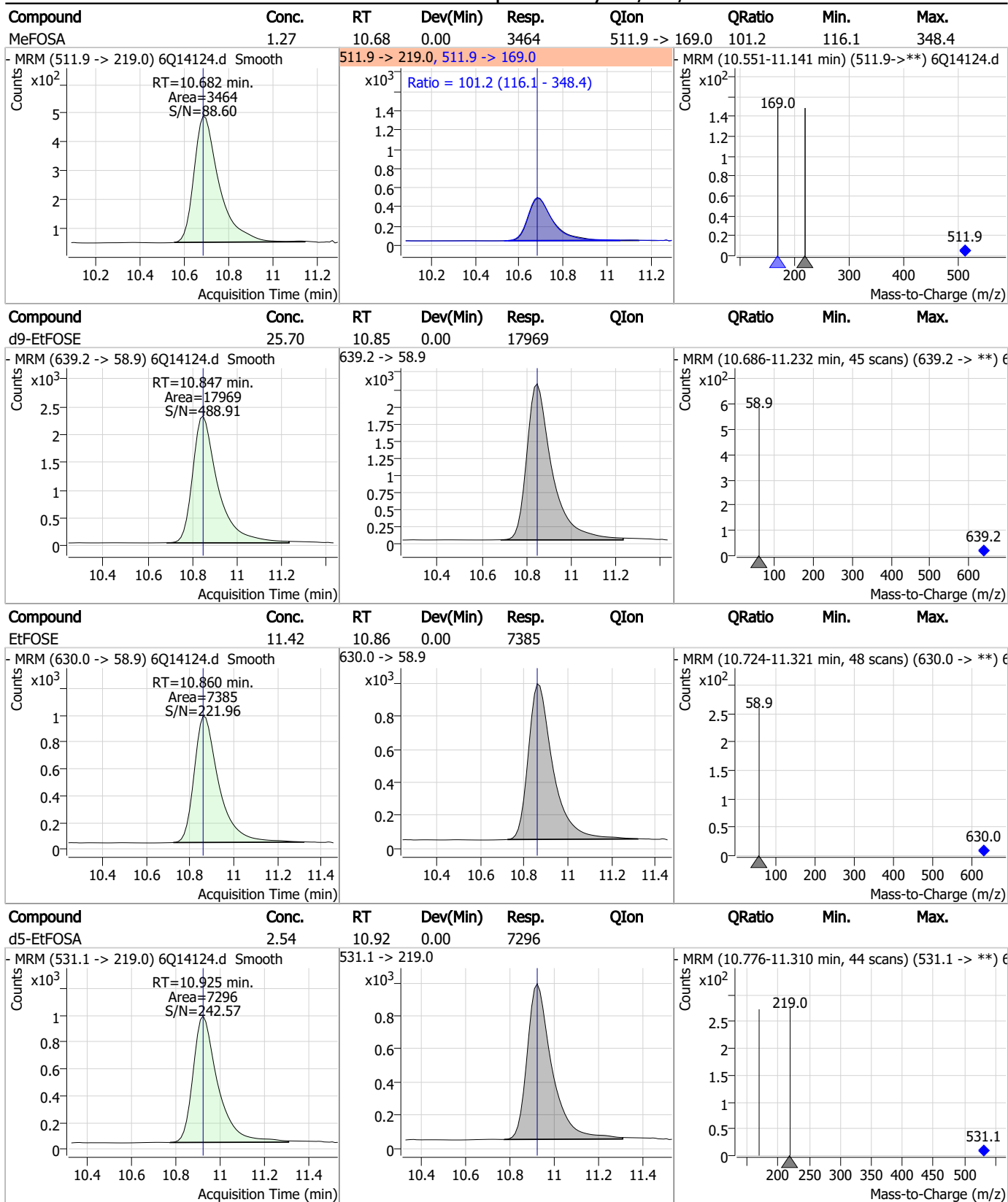
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.02	10.60	0.00	11393				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.68	0.00	6491				



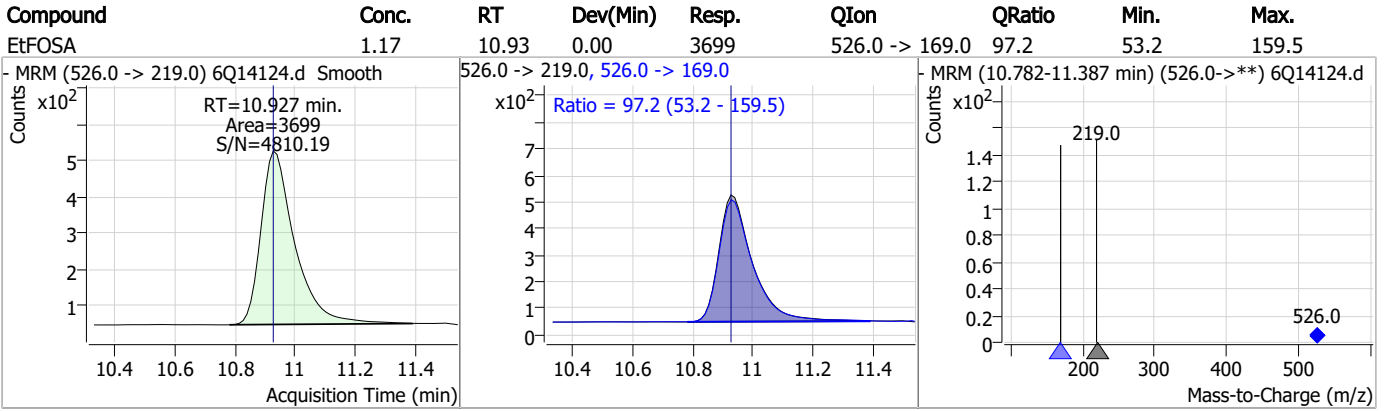
Perfluorinated Compounds by LC/MS/MS



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: S6Q216-IC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14124.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 18:05 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14125.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 6:19:29 PM
 Sample Name : icc216-4
 Vial : P1-A5
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	89120	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	44599	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	39723	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	41717	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	69365	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22293	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	17461	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	22419	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	24688	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	13739	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	16756	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	14784	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9914	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8448	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2673	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3479	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	3143	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	28125	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	14954	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	24616	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	25648	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16802	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6616	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6194	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10515	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	39674	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	6909	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	81281	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	25137	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	25228	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	38694	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2673	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3479	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3143	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	9.004	615.1 -> 570.0	24688	1.27 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.731	715.2 -> 670.0	13739	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.456	302.1 -> 79.9	14784	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.212	402.1 -> 79.9	9914	2.65 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 = 106.1%	
13C4-PFBA	2.938	216.8 -> 171.9	89120	9.97 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.452	367.1 -> 322.0	41717	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C5-PFHxA	5.513	318.0 -> 273.0	39723	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C5-PFPeA	4.337	268.3 -> 223.0	44599	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.108	519.1 -> 474.1	17461	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C7-PFUnDA	8.562	570.0 -> 525.1	22419	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C8-FOSA	9.555	506.1 -> 77.8	16756	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.097	421.1 -> 376.0	69365	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOS	8.270	507.1 -> 79.9	8448	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C9-PFNA	7.626	472.1 -> 427.0	22293	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.153	573.2 -> 419.0	28125	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	14954	10.14 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	6194	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
d5-EtFOSAA	8.361	589.2 -> 419.0	24616	4.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d7-MeFOSE	10.589	623.2 -> 58.9	25648	25.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	16802	26.24 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	6616	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	47613	9.30 µg/L	99
		327.1 -> 80.9	10600		
6:2FTS	6.871	427.1 -> 407.0	40425	9.36 µg/L	95
		427.1 -> 80.9	8146		
8:2FTS	7.896	527.1 -> 507.0	22043	10.57 µg/L	98
		527.1 -> 80.8	5064		
EtFOSAA	8.362	584.2 -> 419.1	8743	2.69 µg/L	m 96
		584.2 -> 526.0	4861		
FOSA	9.557	498.1 -> 77.9	14822	2.58 µg/L	100
		498.1 -> 478.0	570		
MeFOSAA	8.154	570.1 -> 419.0	12419	2.68 µg/L	97
		570.1 -> 483.0	2088		
PFBA	2.944	212.8 -> 168.9	17728	9.91 µg/L	100
PFBS	5.457	298.7 -> 79.9	10980	2.30 µg/L	99
		298.7 -> 98.8	5377		
PFDA	8.108	512.9 -> 469.0	46952	2.69 µg/L	99
		512.9 -> 219.0	5970		
PFDoDA	9.005	613.1 -> 569.0	41307	2.40 µg/L	98
		613.1 -> 319.0	5225		
PFDS	9.167	599.0 -> 79.9	5841	2.59 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2935			
PFHpA	6.453	363.1 -> 319.0	50295	2.47	µg/L	99
		363.1 -> 169.0	7199			
PFHpS	7.779	449.0 -> 79.9	7527	2.54	µg/L	93
		449.0 -> 98.9	4358			
PFHxA	5.516	313.0 -> 269.0	31495	2.42	µg/L	98
		313.0 -> 118.9	1265			
PFHxS	7.213	398.7 -> 79.9	8314	2.20	µg/L	m 94
		398.7 -> 98.9	4693			
PFNA	7.627	463.0 -> 419.0	29398	2.53	µg/L	96
		463.0 -> 219.0	5638			
PFNS	8.737	548.8 -> 79.9	7597	2.50	µg/L	99
		548.8 -> 98.9	4183			
PFOA	7.098	413.0 -> 369.0	66171	2.53	µg/L	91
		413.0 -> 169.0	8091			
PFOS	8.271	498.9 -> 79.9	7286	2.22	µg/L	m 83
		498.9 -> 98.8	5141			
PFPeA	4.338	263.0 -> 219.0	39533	5.11	µg/L	100
PFPeS	6.517	349.1 -> 79.9	10612	2.29	µg/L	100
		349.1 -> 98.9	5644			
PFTeDA	9.732	713.1 -> 669.0	31499	2.47	µg/L	98
		713.1 -> 168.9	2192			
PFTrDA	9.387	663.0 -> 619.0	36162	2.44	µg/L	97
		663.0 -> 168.9	2890			
PFUnDA	8.562	563.1 -> 519.0	36841	2.37	µg/L	99
		563.1 -> 269.1	5169			
11Cl-PF3OUdS	9.439	630.9 -> 450.9	78248	9.77	µg/L	99
		632.9 -> 452.9	24394			
9Cl-PF3ONS	8.614	530.8 -> 351.0	144146	9.73	µg/L	99
		532.8 -> 353.0	42565			
ADONA	6.716	376.9 -> 250.9	278111	9.50	µg/L	97
		376.9 -> 84.8	64827			
HFPO-DA	5.879	284.9 -> 168.9	10648	8.84	µg/L	97
		284.9 -> 184.9	1385			
3:3FTCA	3.804	241.0 -> 177.0	5194	13.03	µg/L	96
		241.0 -> 117.0	751			
5:3FTCA	6.156	341.0 -> 237.1	176055	61.61	µg/L	95
		341.0 -> 217.0	161268			
7:3FTCA	7.567	441.0 -> 316.9	93806	61.19	µg/L	91
		441.0 -> 336.9	190178			
EtFOSA	10.927	526.0 -> 219.0	6911	2.42	µg/L	98
		526.0 -> 169.0	7202			
EtFOSE	10.860	630.0 -> 58.9	13776	22.79	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	6417	2.47	µg/L	# 23
		511.9 -> 169.0	6652			
MeFOSE	10.615	616.1 -> 58.9	21172	24.21	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	3391	2.62	µg/L	99
		699.1 -> 98.8	2014			
NFDHA	5.395	295.0 -> 201.0	3693	5.18	µg/L	91
		295.0 -> 84.9	1709			
PFMBA	4.738	279.0 -> 85.1	11510	5.09	µg/L	100
PFMPA	3.500	229.0 -> 84.9	10665	5.14	µg/L	100
PFEESA	5.983	314.8 -> 134.9	79951	4.45	µg/L	100
		314.8 -> 82.9	1948			

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

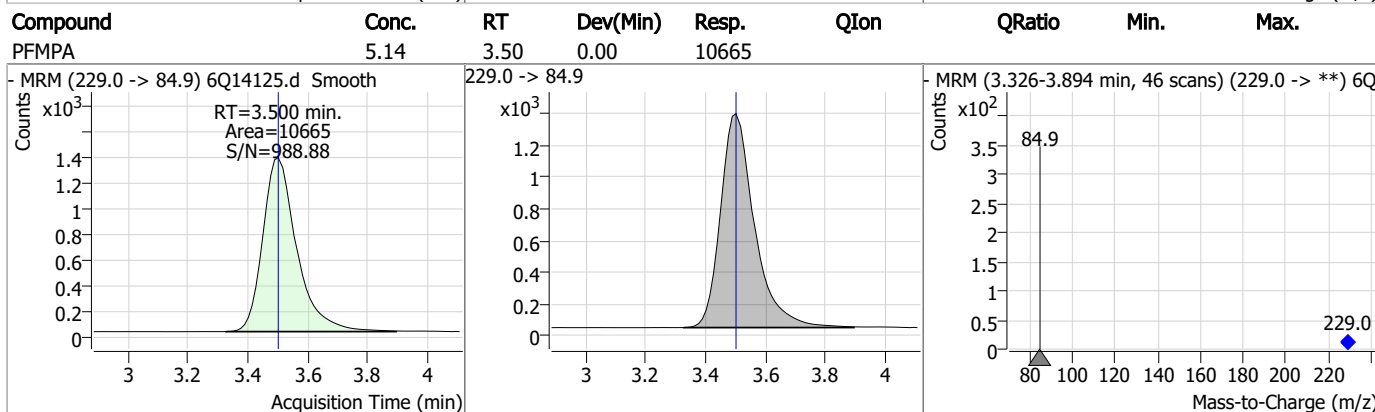
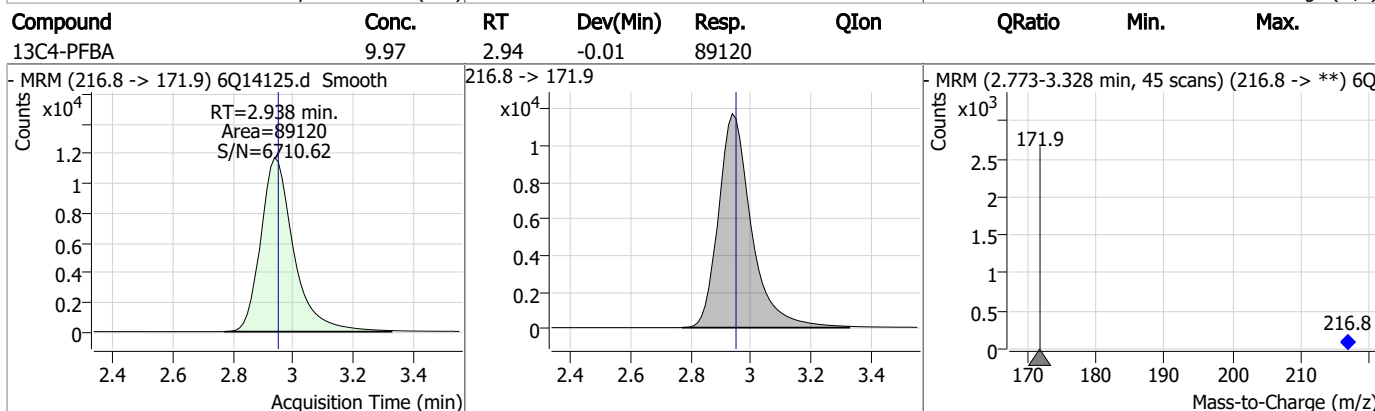
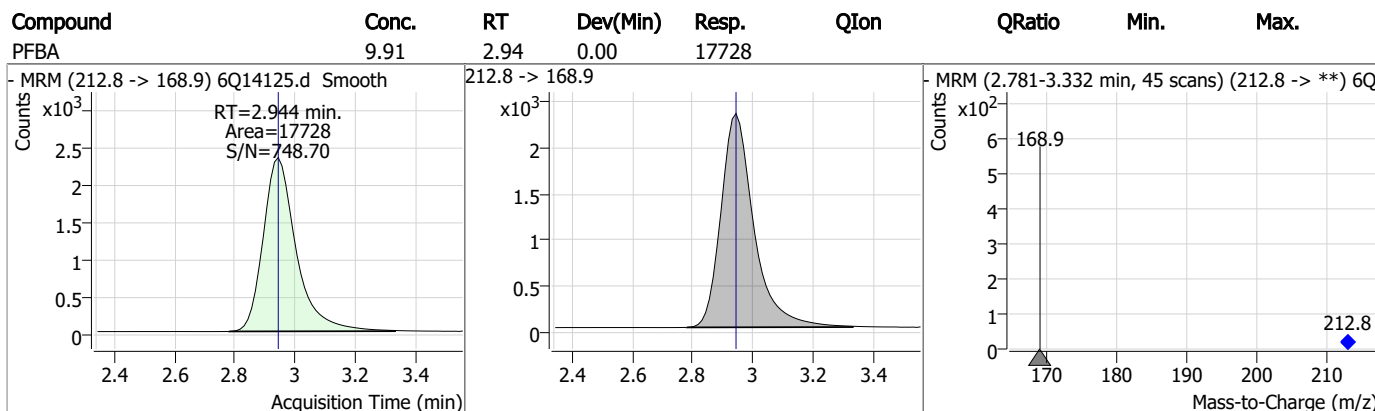
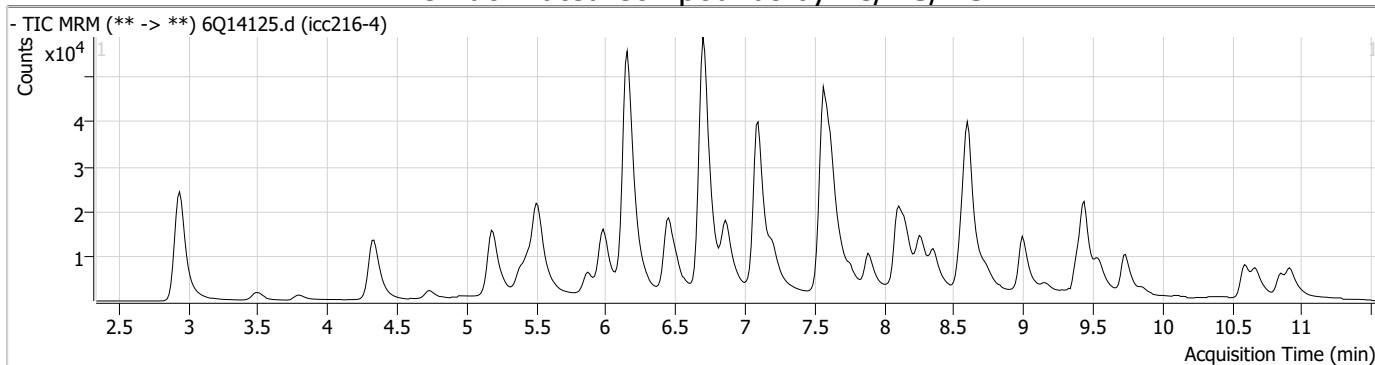
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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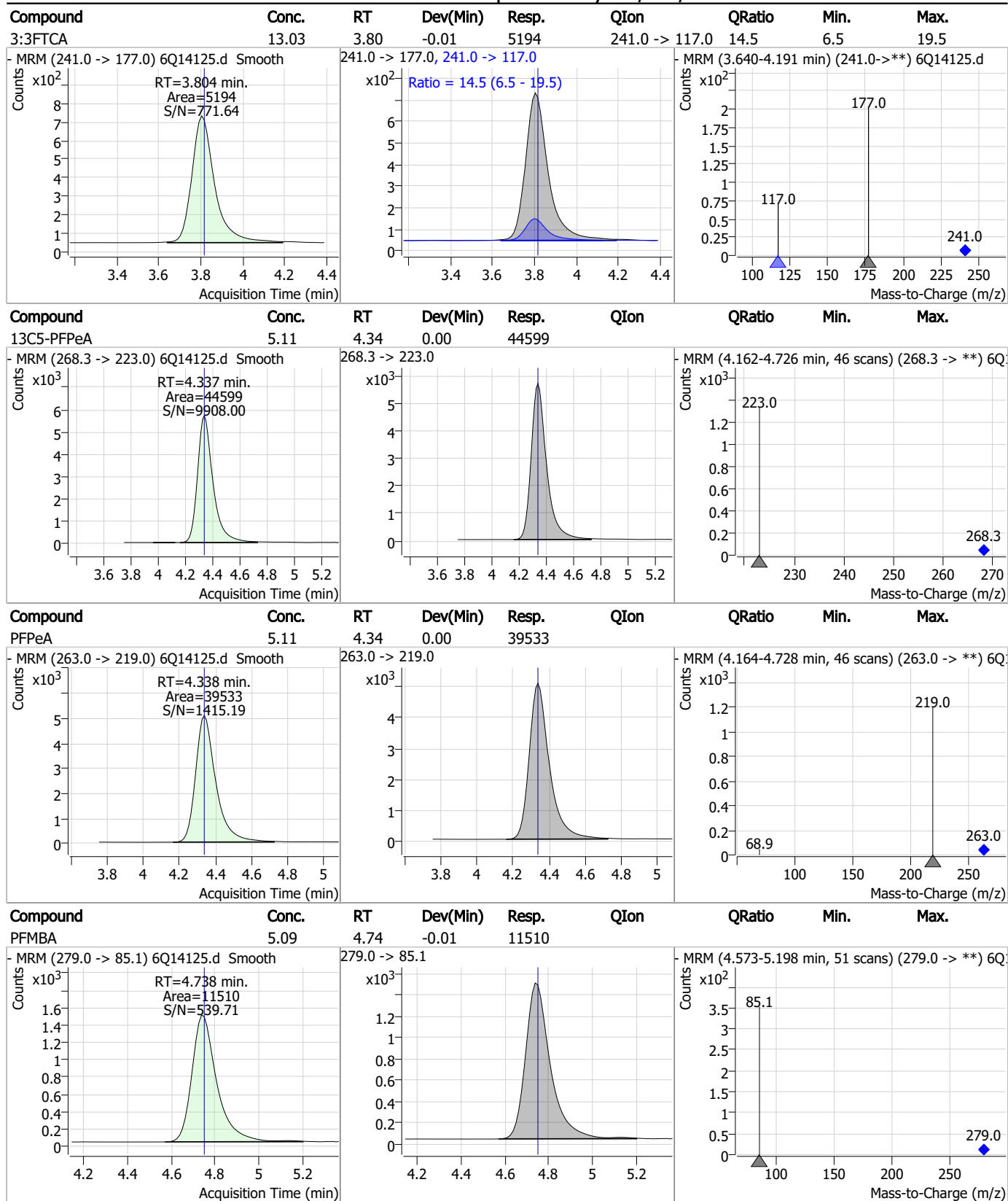
7.7.5

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Perfluorinated Compounds by LC/MS/MS



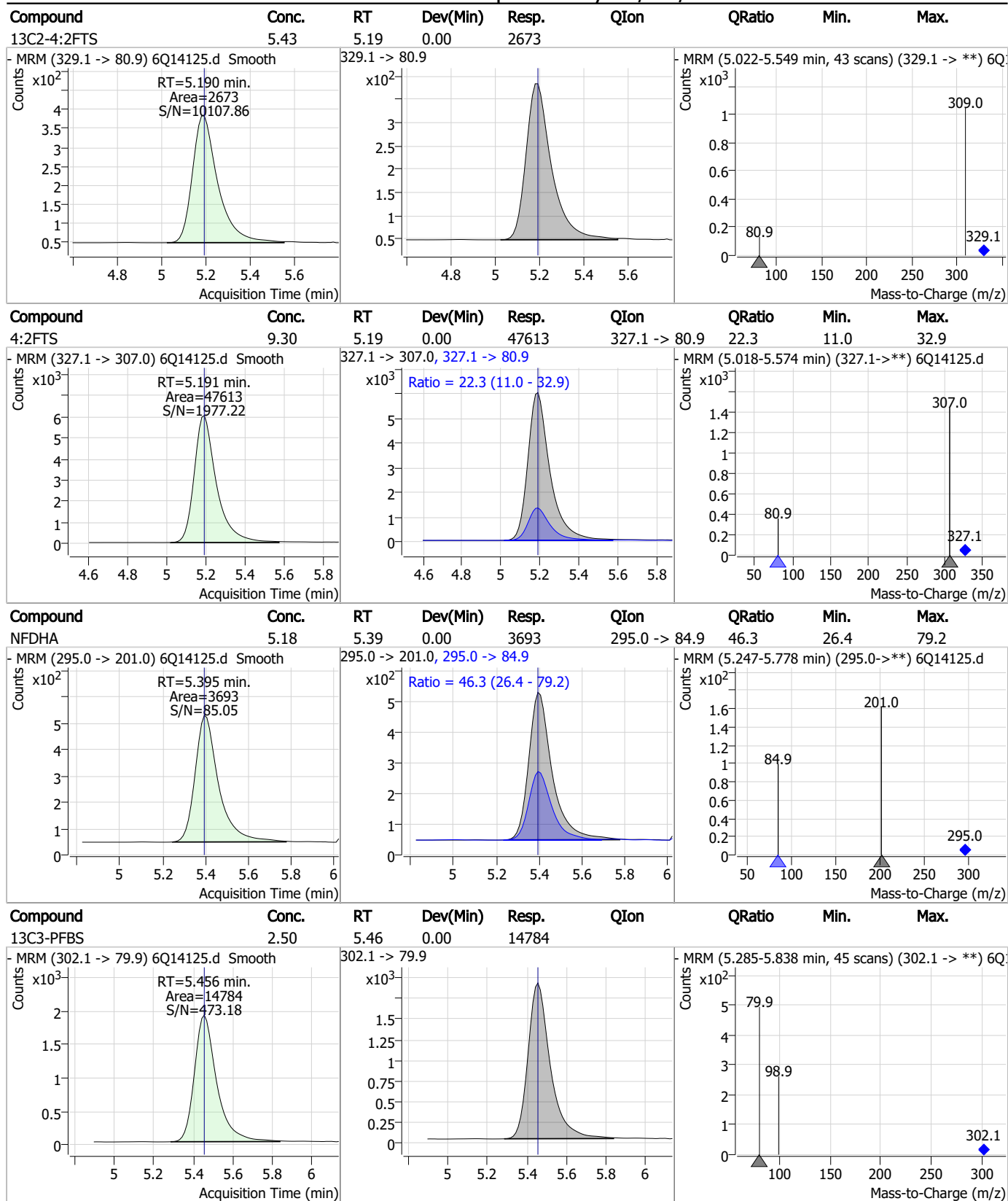
Perfluorinated Compounds by LC/MS/MS



7.7.5

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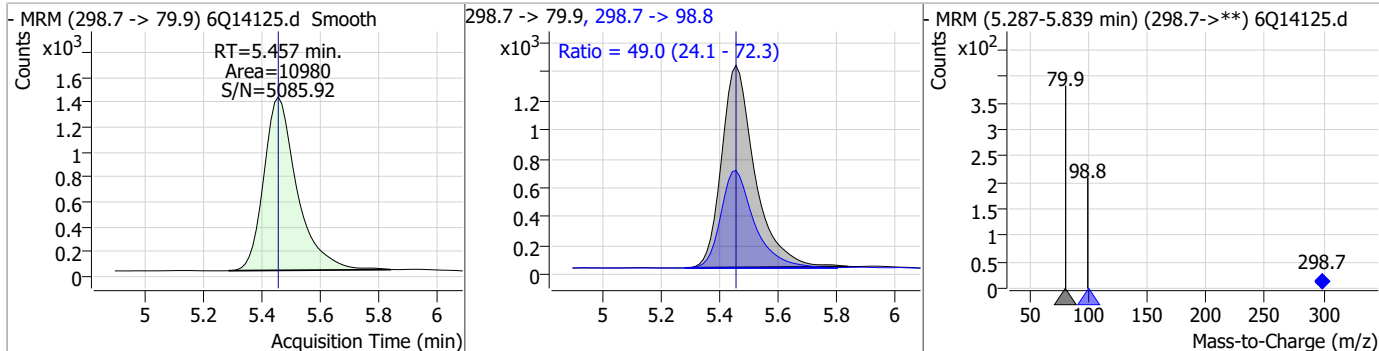
Perfluorinated Compounds by LC/MS/MS



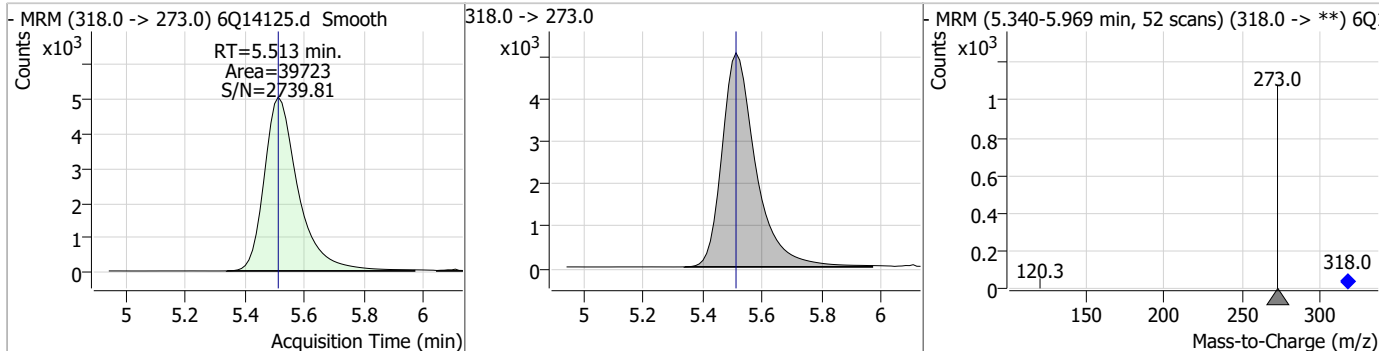
7.7.5
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Perfluorinated Compounds by LC/MS/MS

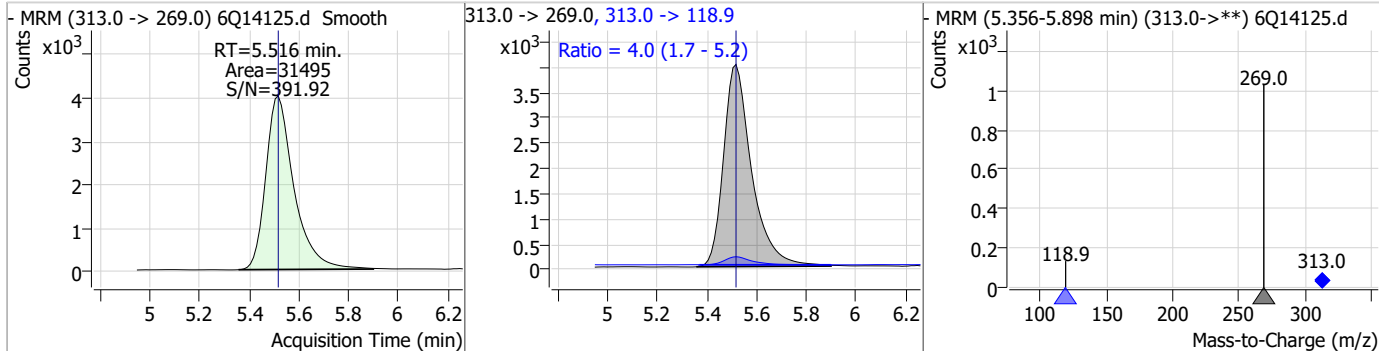
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.30	5.46	0.00	10980	298.7 -> 98.8	49.0	24.1	72.3



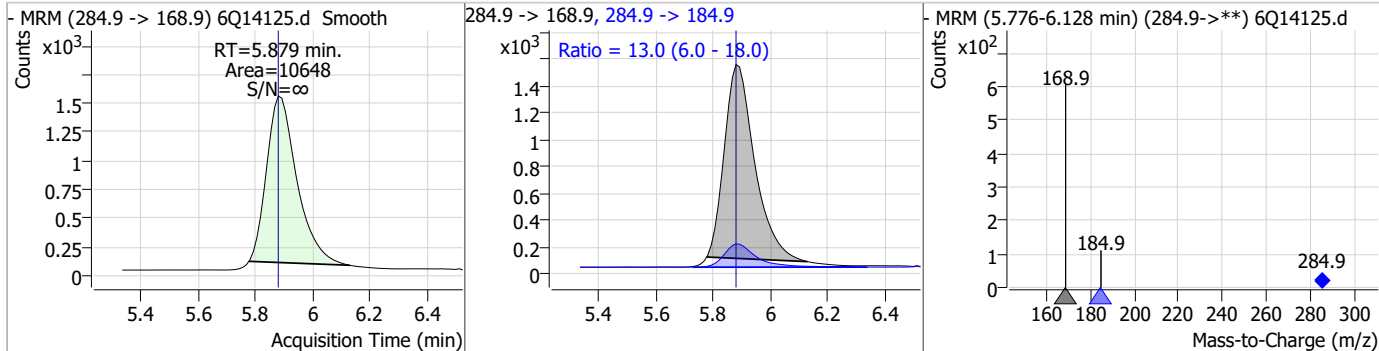
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.62	5.51	0.00	39723				



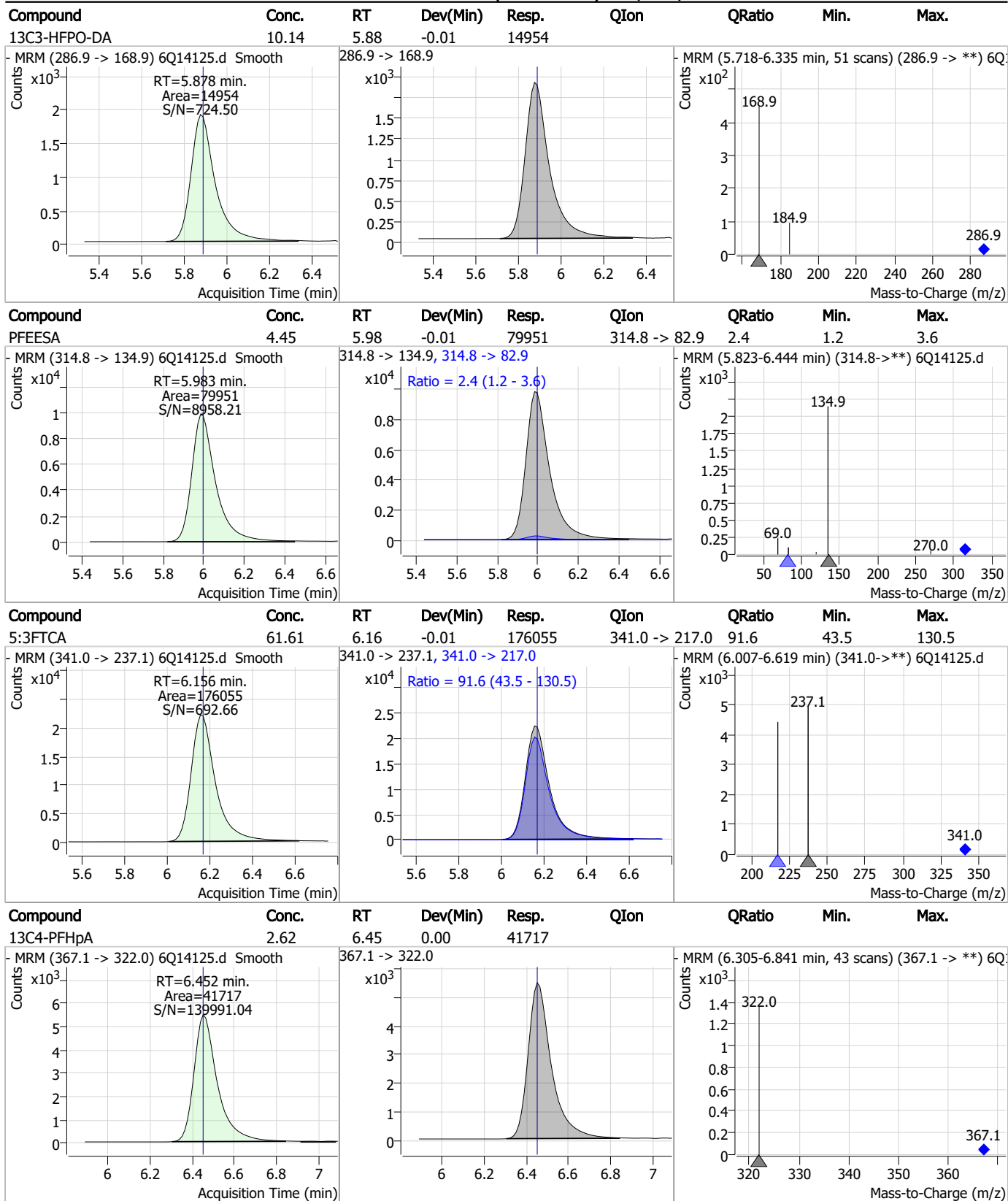
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.42	5.52	0.00	31495	313.0 -> 118.9	4.0	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	8.84	5.88	0.00	10648	284.9 -> 184.9	13.0	6.0	18.0

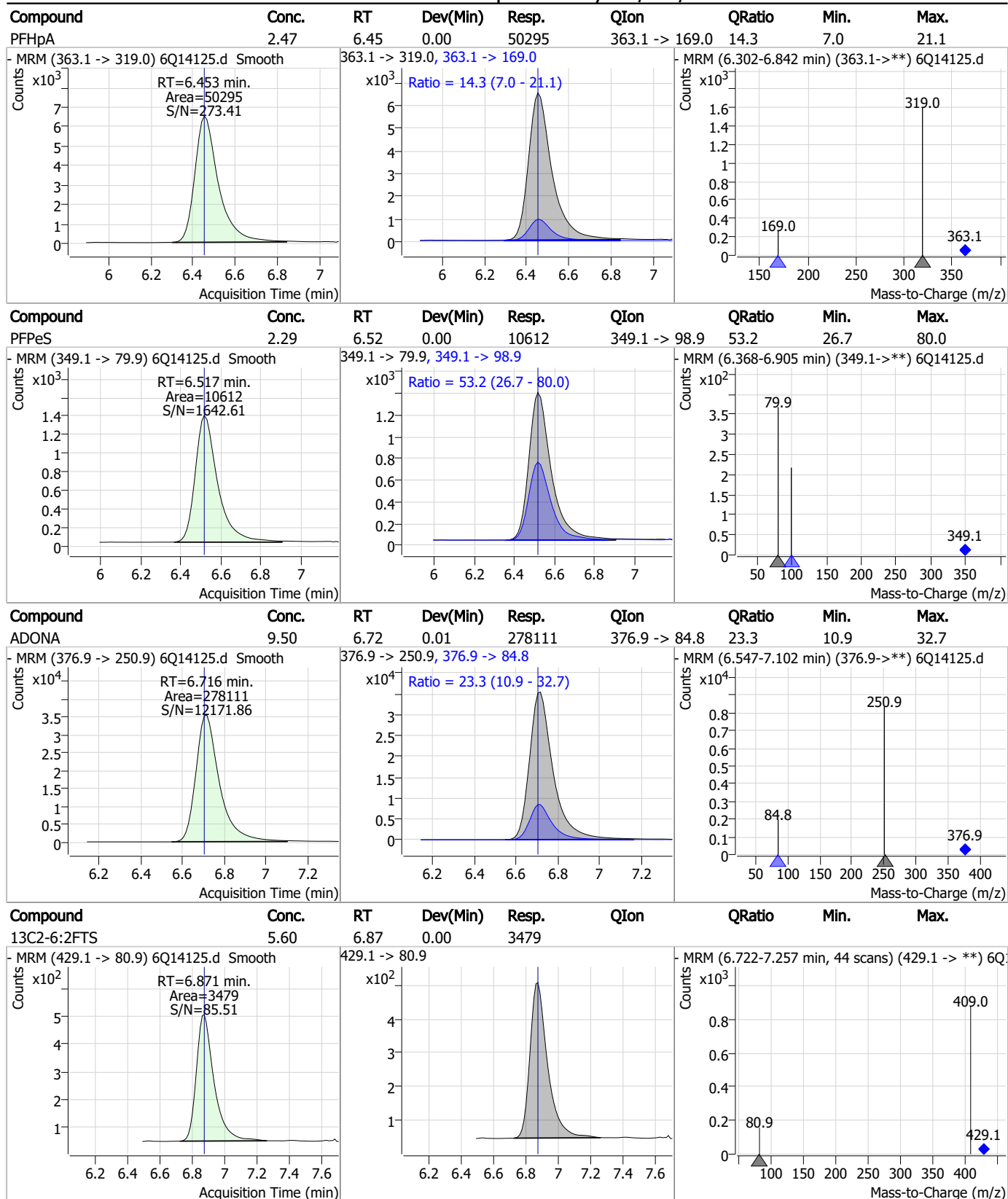


Perfluorinated Compounds by LC/MS/MS



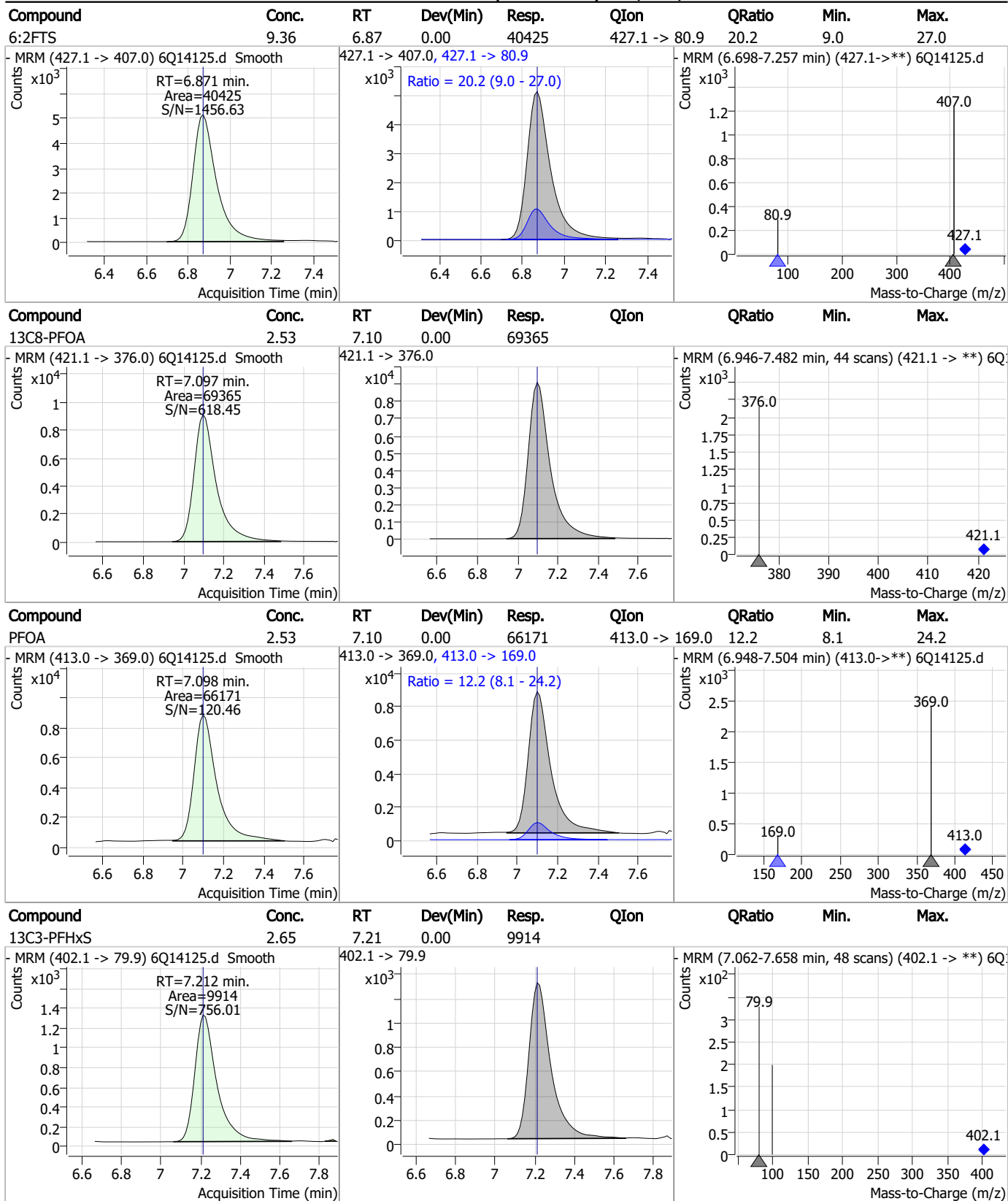
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



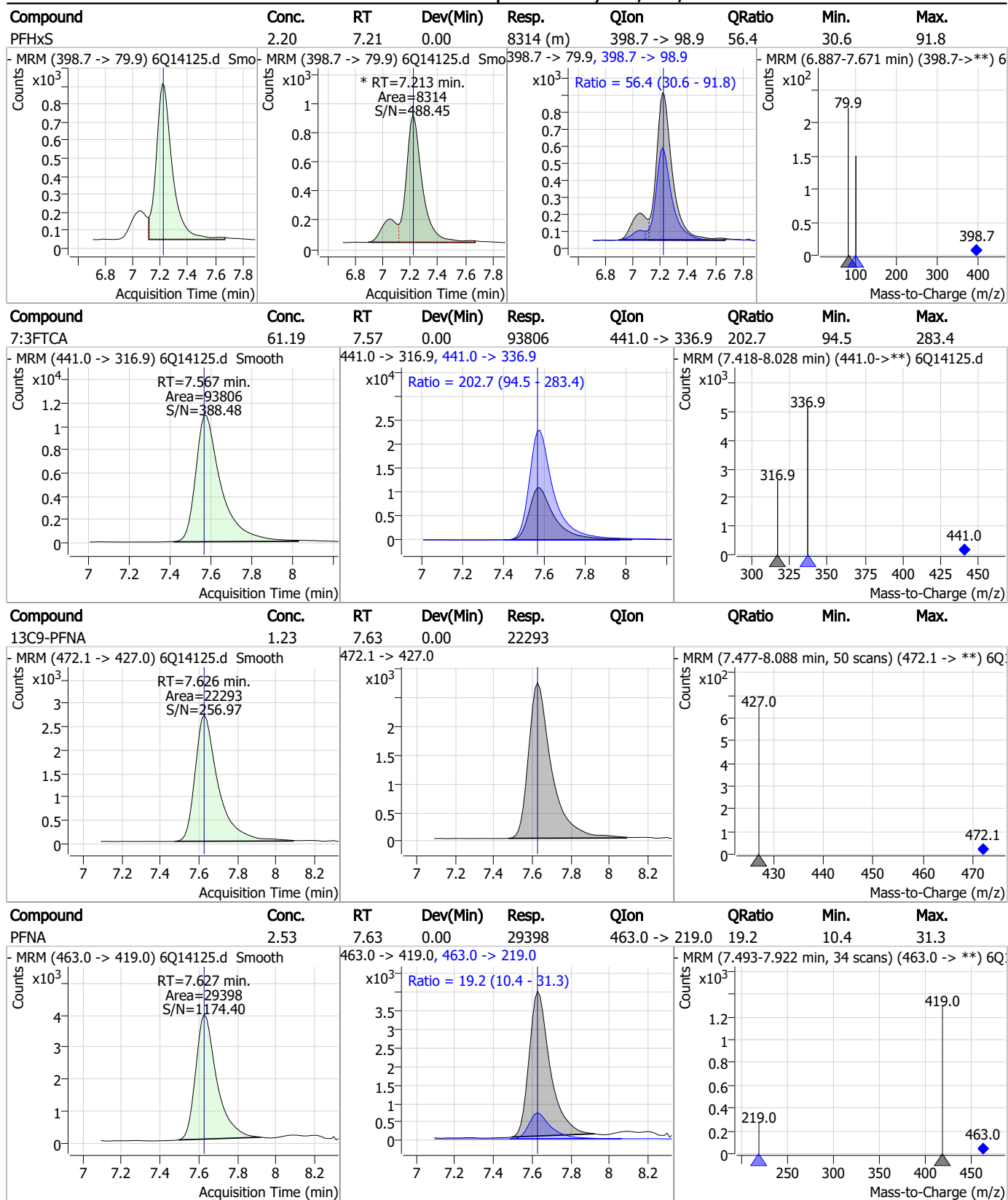
7.7.5
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Perfluorinated Compounds by LC/MS/MS



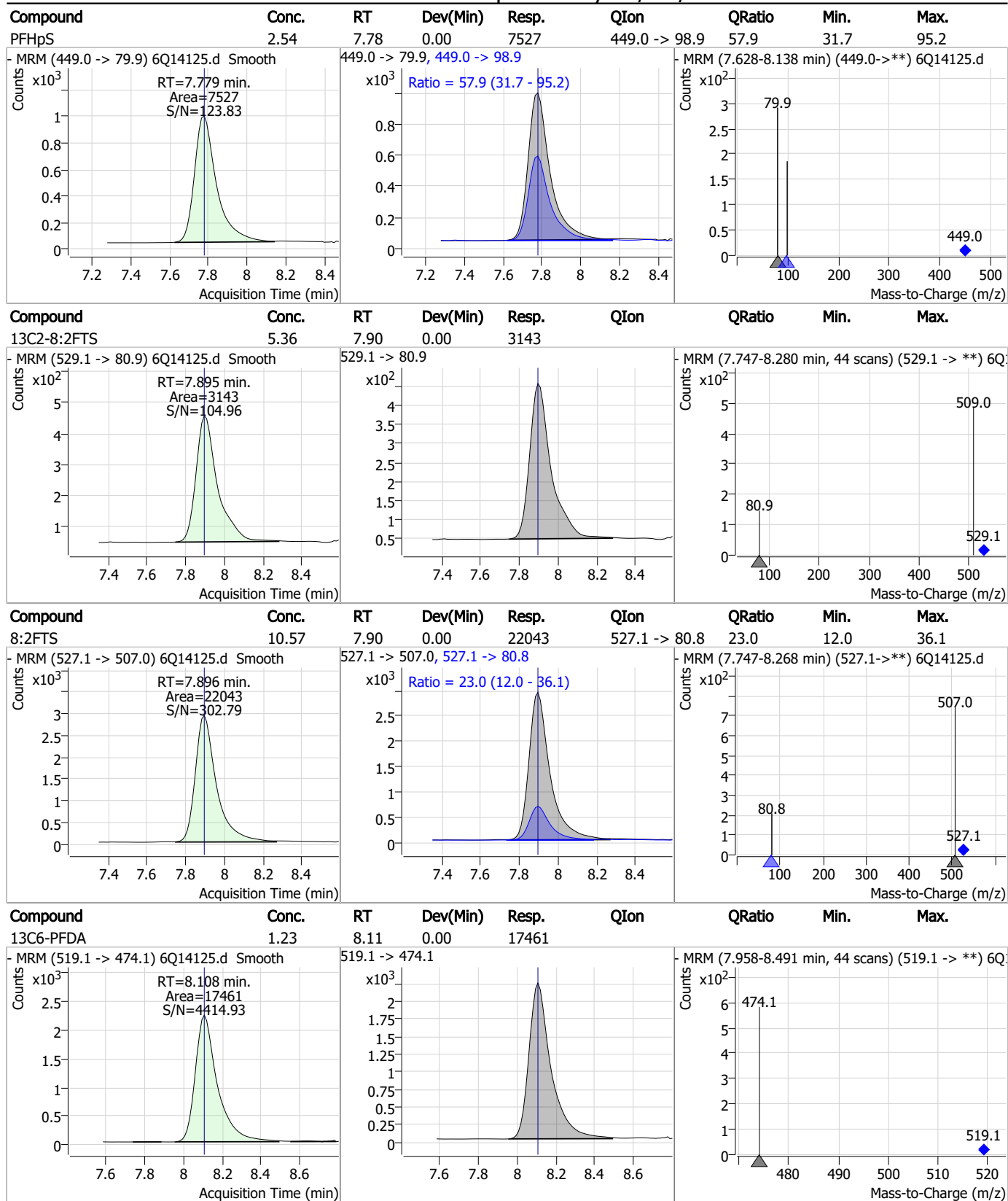
7.7.5
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Perfluorinated Compounds by LC/MS/MS



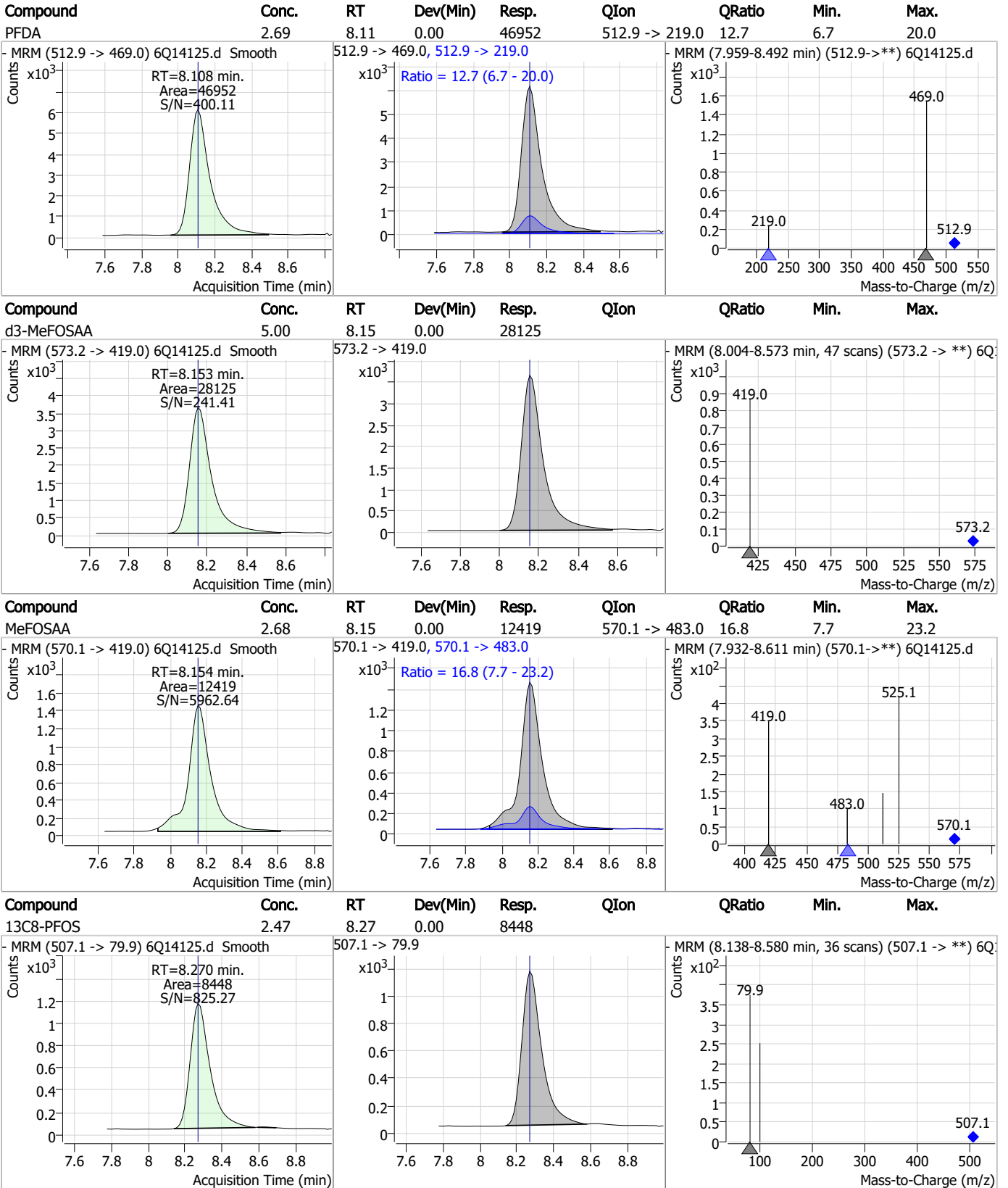
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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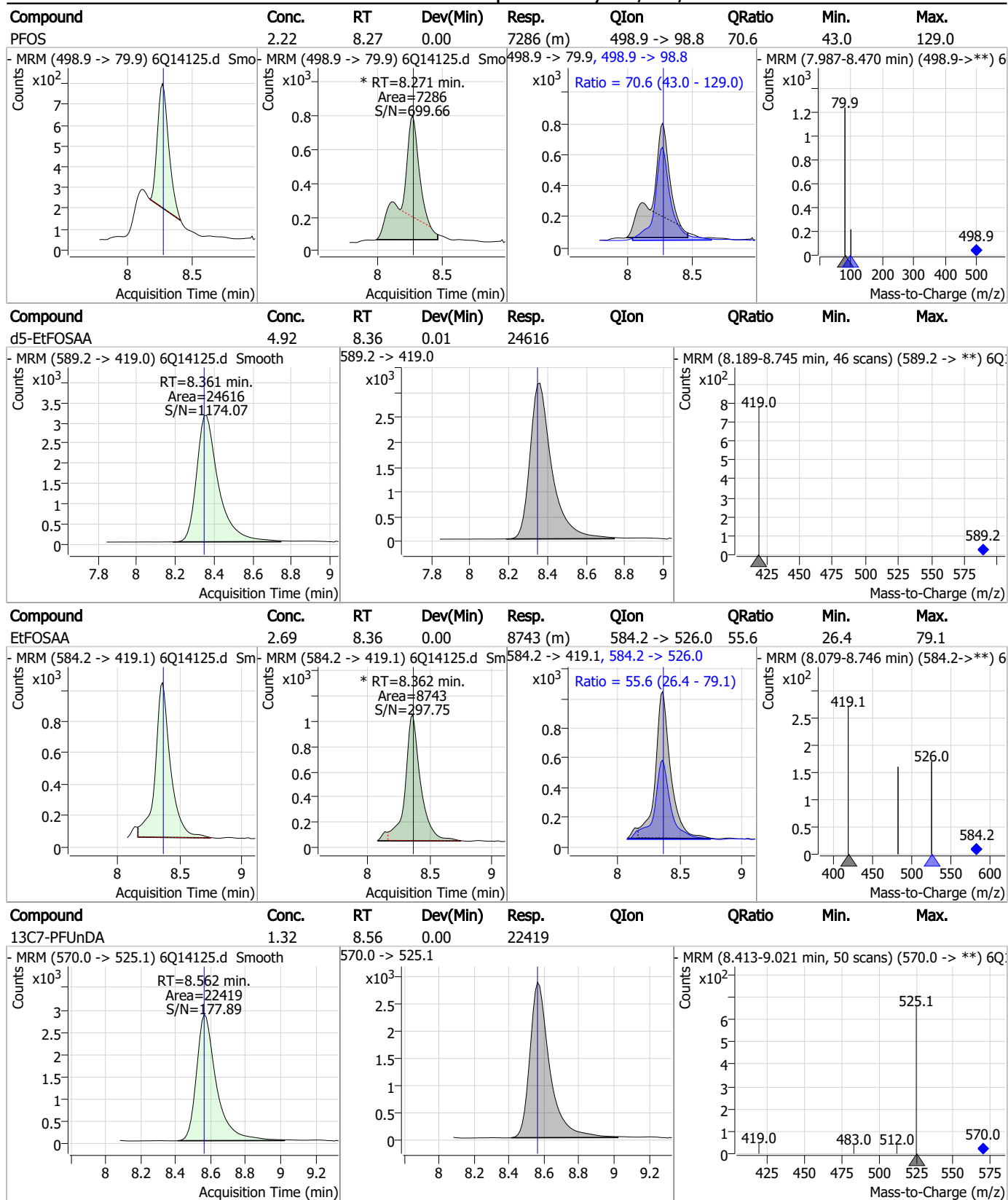
Perfluorinated Compounds by LC/MS/MS



7.7.5

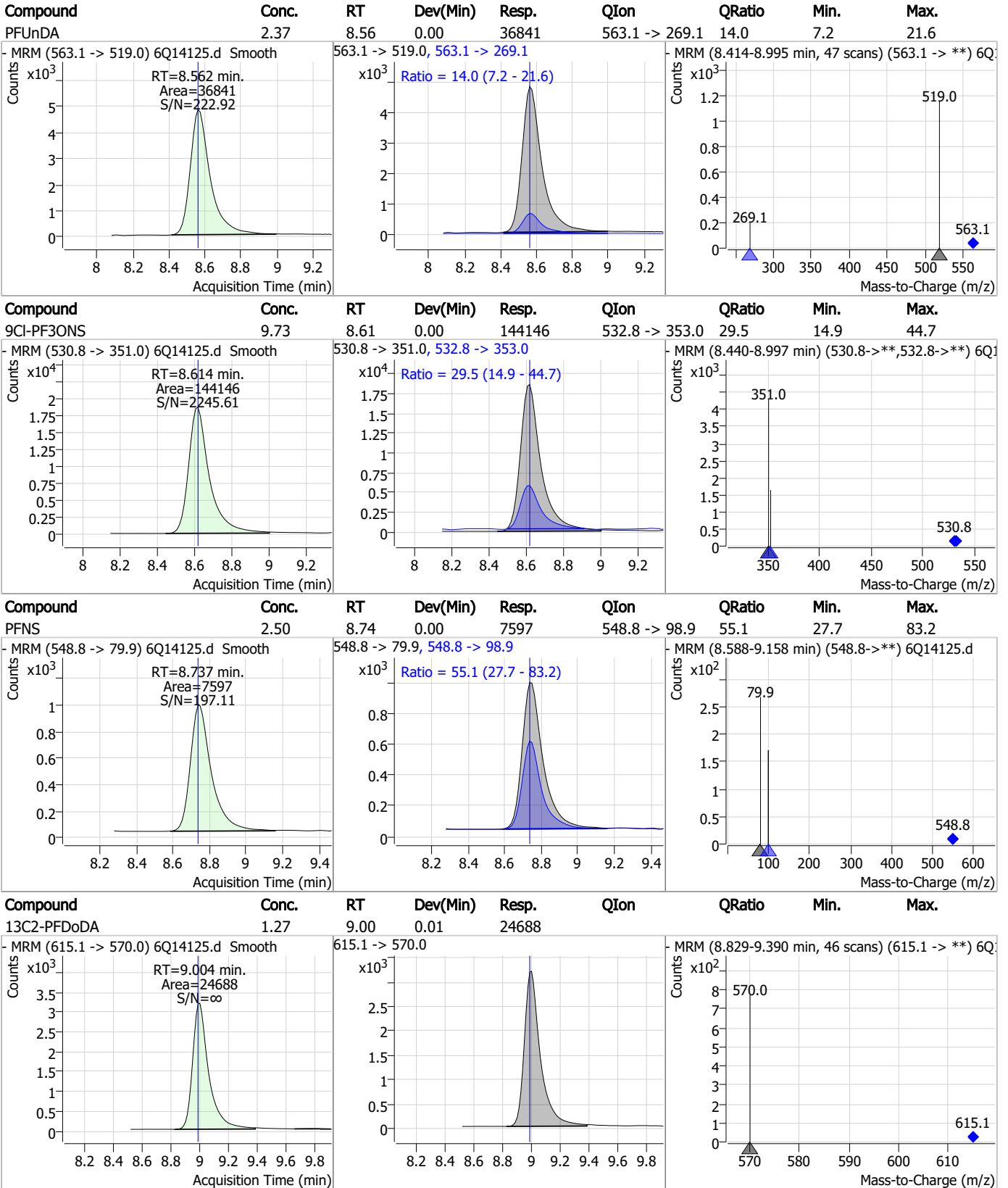
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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Perfluorinated Compounds by LC/MS/MS

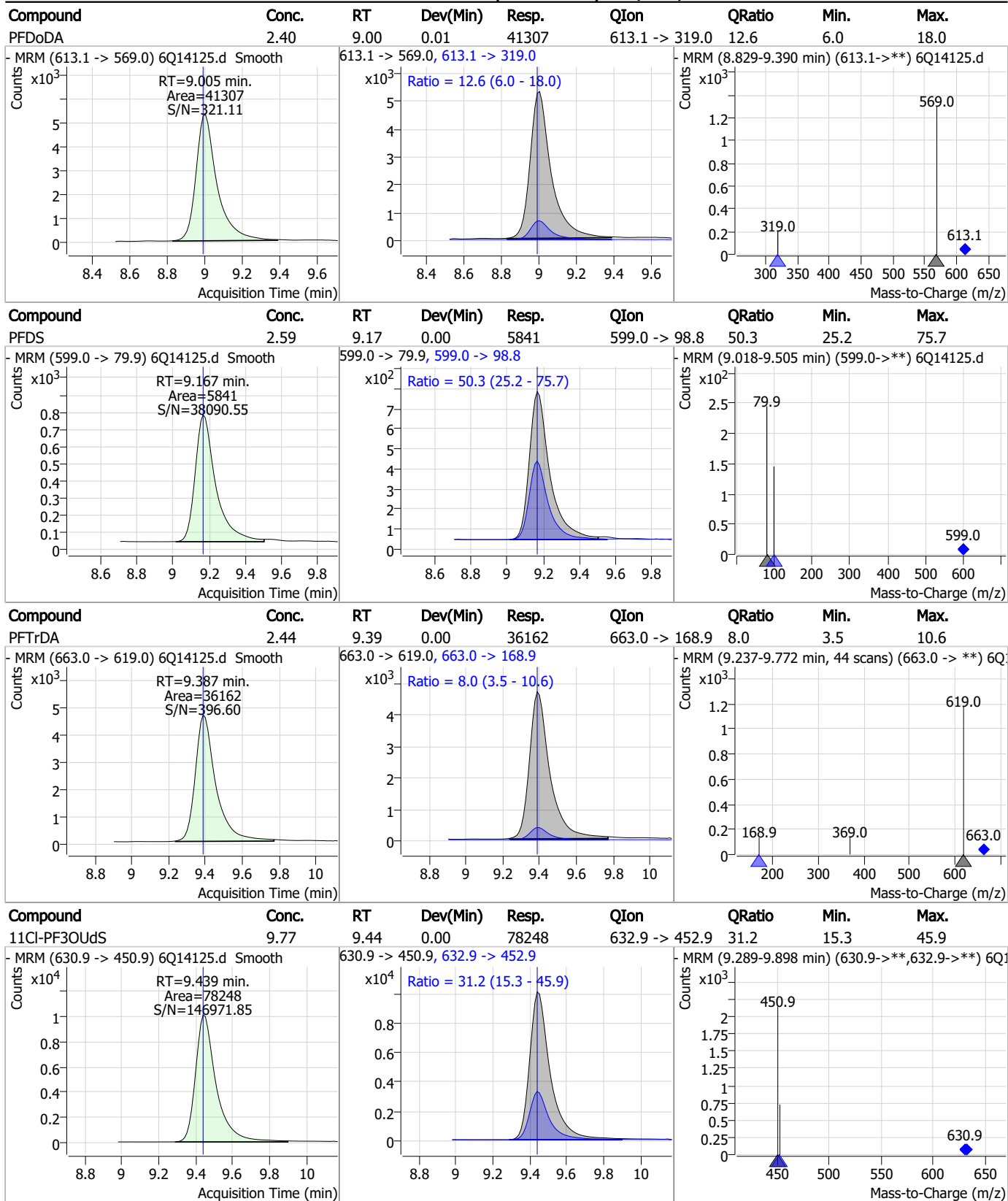


7.7.5

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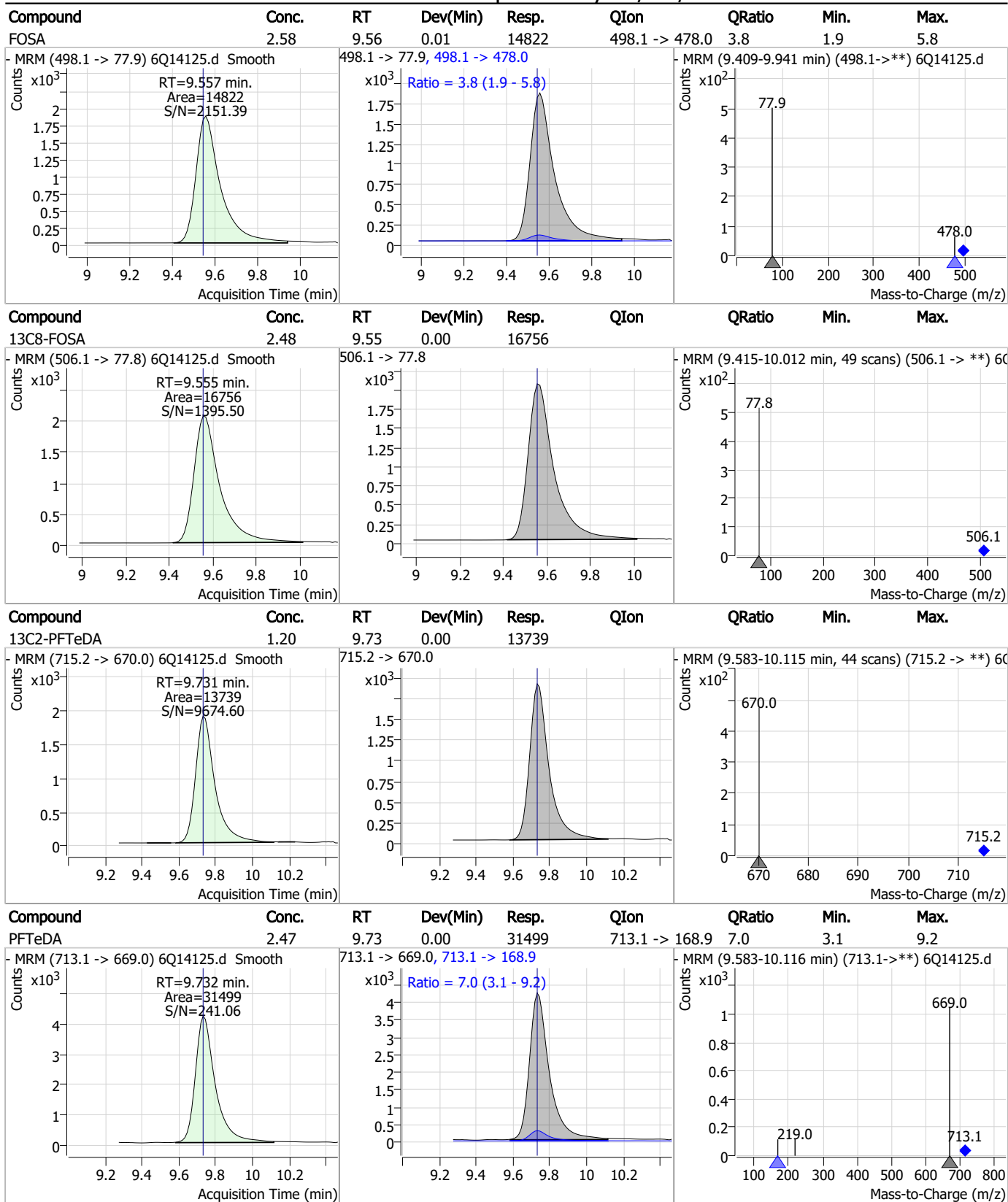


Perfluorinated Compounds by LC/MS/MS



7.7.5
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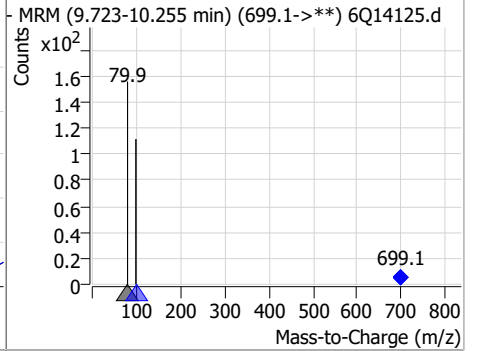
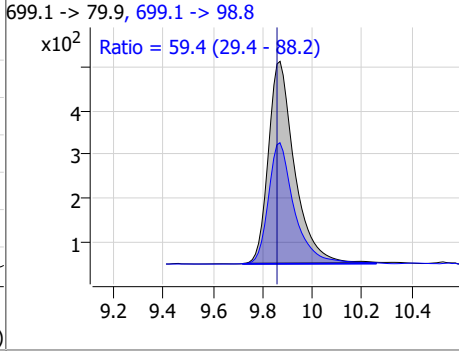
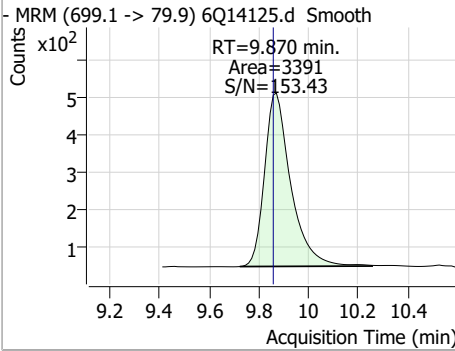
Perfluorinated Compounds by LC/MS/MS



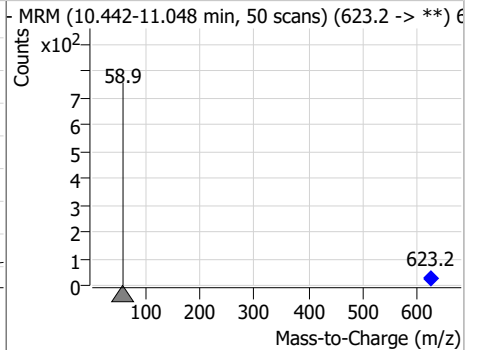
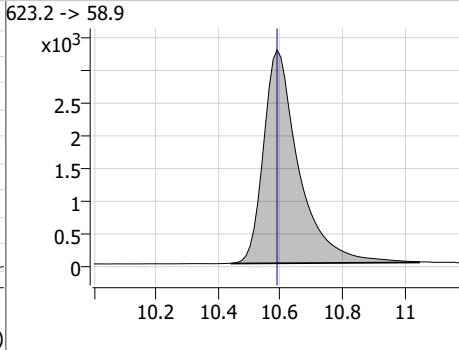
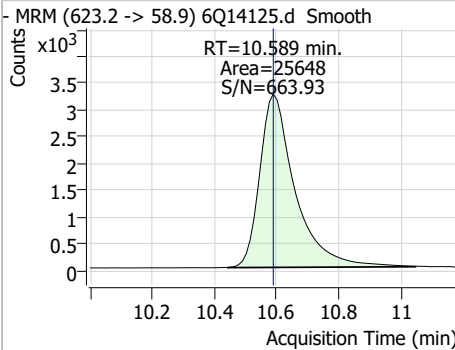
7.7.5
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Perfluorinated Compounds by LC/MS/MS

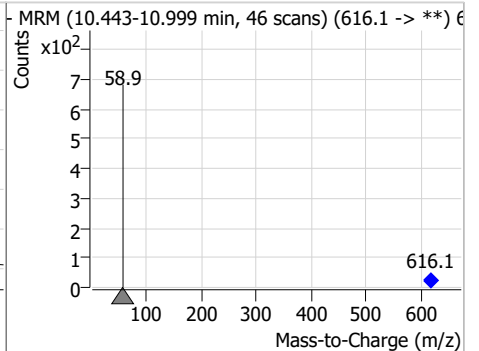
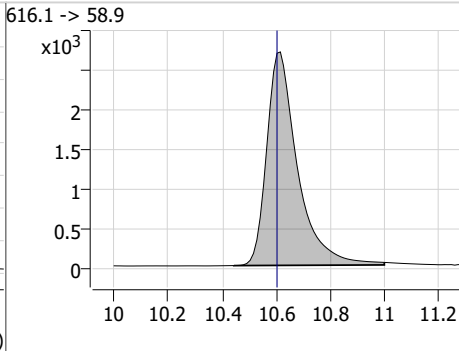
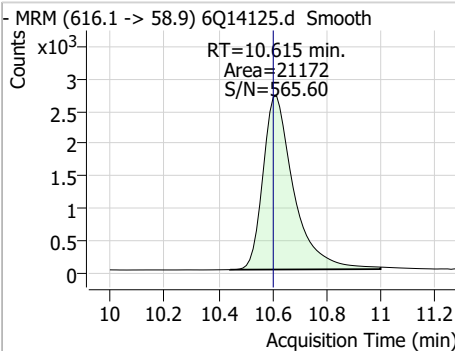
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.62	9.87	0.01	3391	699.1 -> 98.8	59.4	29.4	88.2



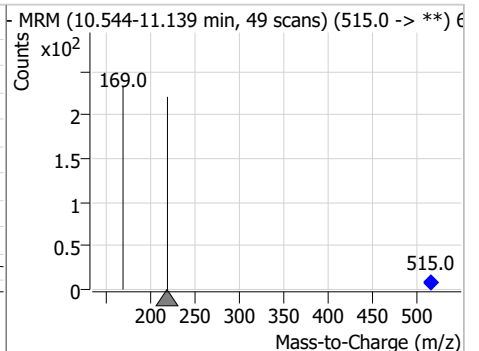
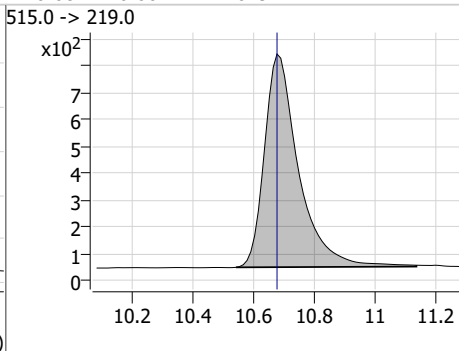
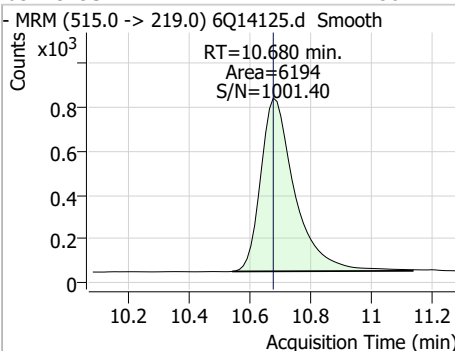
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.76	10.59	0.00	25648	623.2 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.21	10.61	0.01	21172	616.1 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	10.68	0.00	6194	515.0 -> 219.0			

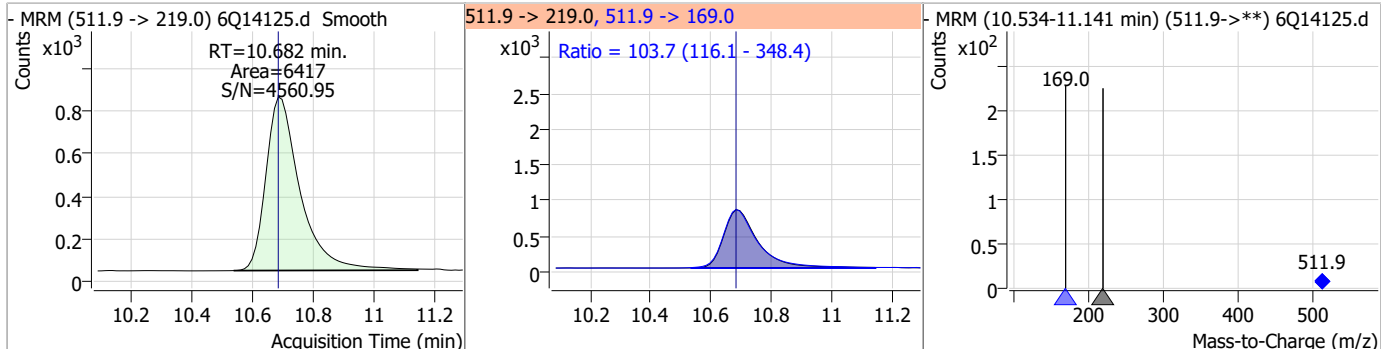


7.7.5

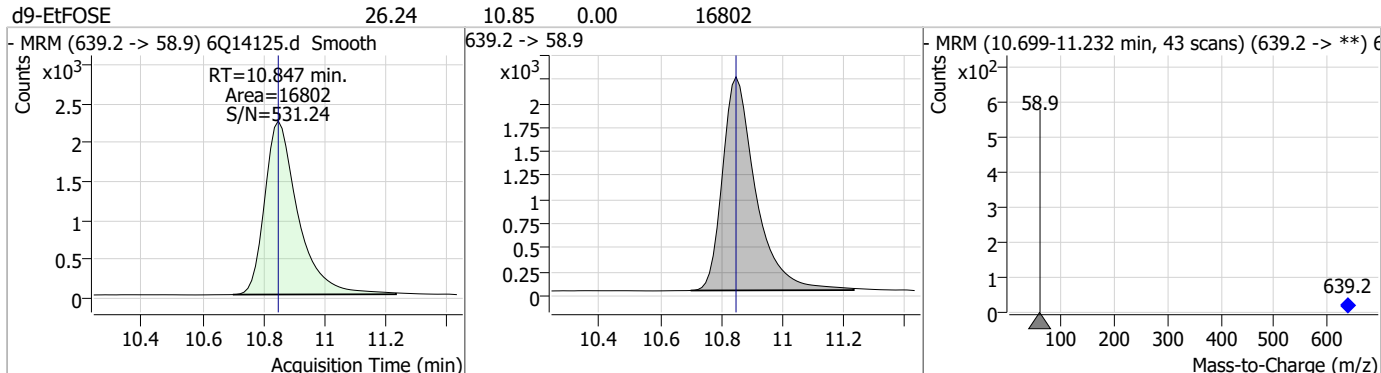
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Perfluorinated Compounds by LC/MS/MS

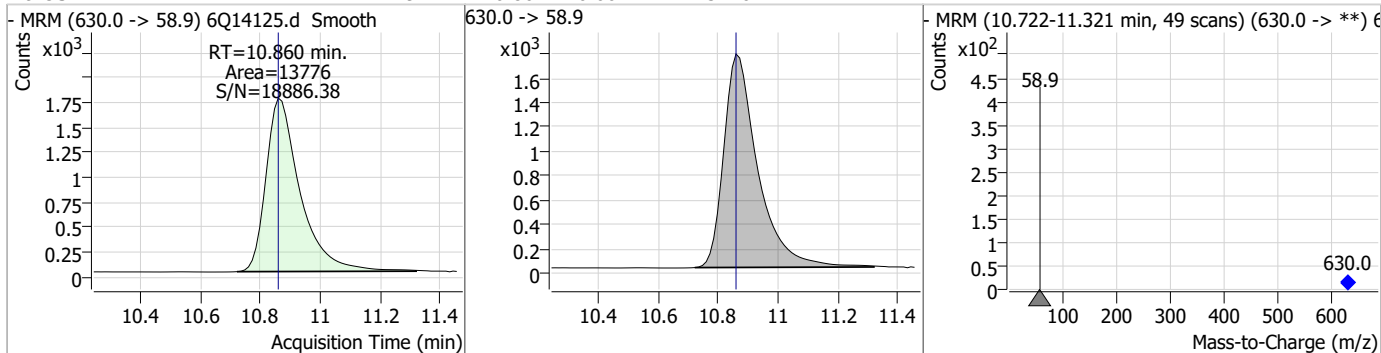
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.47	10.68	0.00	6417	511.9 -> 169.0	103.7	116.1	348.4



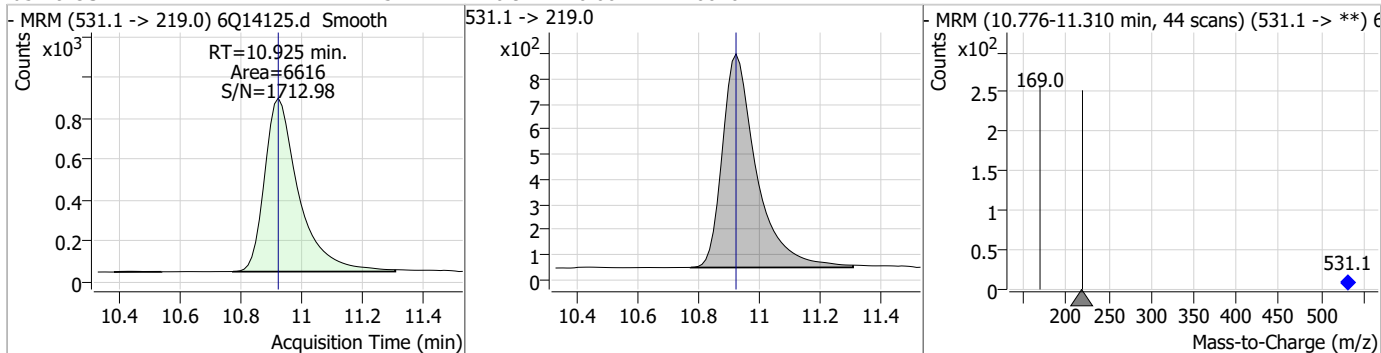
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.24	10.85	0.00	16802				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	22.79	10.86	0.00	13776				

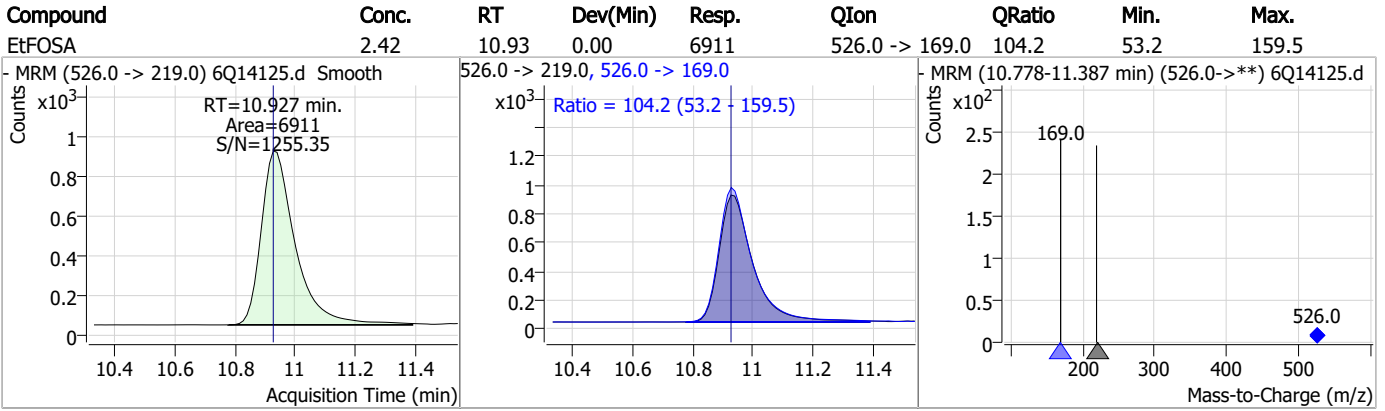


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.51	10.92	0.00	6616				



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q216-ICC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14125.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 18:19 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.7.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 02/23/23 16:30

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14126.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 6:33:28 PM
 Sample Name : ic216-5
 Vial : P1-A6
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	93665	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	47376	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	41047	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	42543	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	69921	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	24065	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	18780	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	21884	1.25 µg/L	0.000
M2-PFDoDA	9.004	615.1 -> 570.0	25480	1.25 µg/L	0.013
M2-PFTeDA	9.731	715.2 -> 670.0	14578	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17880	2.50 µg/L	0.000
M3-PFBS	5.443	302.1 -> 79.9	16516	2.50 µg/L	-0.012
M3-PFHxS	7.212	402.1 -> 79.9	9847	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8615	2.50 µg/L	0.000
M2-4:2FTS	5.178	329.1 -> 80.9	2919	5.00 µg/L	-0.012
M2-6:2FTS	6.858	429.1 -> 80.9	3406	5.00 µg/L	-0.012
M2-8:2FTS	7.895	529.1 -> 80.9	3259	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	30348	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	16103	10.00 µg/L	-0.012
M5-EtFOSAA	8.349	589.2 -> 419.0	26089	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	27432	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17087	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7031	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6547	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	11227	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	41328	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7135	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	87125	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	27259	1.25 µg/L	0.000
13C5-PFNA	7.614	468.0 -> 423.0	26035	1.25 µg/L	-0.012
13C2-PFHxA	5.514	315.1 -> 270.0	42003	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.178	329.1 -> 80.9	2919	5.74 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.8%		
13C2-6:2FTS	6.858	429.1 -> 80.9	3406	5.31 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3259	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFDoDA	9.004	615.1 -> 570.0	25480	1.21 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14578	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.2%		
13C3-PFBS	5.443	302.1 -> 79.9	16516	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C3-PFHxS	7.212	402.1 -> 79.9	9847	2.55 µg/L	0.000

7.7.6
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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 = 102.0%	
13C4-PFBA	2.938	216.8 -> 171.9	93665	10.06 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.452	367.1 -> 322.0	42543	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.513	318.0 -> 273.0	41047	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFPeA	4.337	268.3 -> 223.0	47376	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.108	519.1 -> 474.1	18780	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C7-PFUnDA	8.562	570.0 -> 525.1	21884	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C8-FOSA	9.555	506.1 -> 77.8	17880	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOA	7.097	421.1 -> 376.0	69921	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C8-PFOS	8.270	507.1 -> 79.9	8615	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C9-PFNA	7.626	472.1 -> 427.0	24065	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	8.153	573.2 -> 419.0	30348	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	16103	10.05 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	6547	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
d5-EtFOSAA	8.349	589.2 -> 419.0	26089	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d7-MeFOSE	10.589	623.2 -> 58.9	27432	25.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	17087	25.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	7031	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
Target Compounds					QValue
4:2FTS	5.178	327.1 -> 307.0	100777	18.02 µg/L	97
		327.1 -> 80.9	20757		
6:2FTS	6.859	427.1 -> 407.0	84682	20.04 µg/L	98
		427.1 -> 80.9	15938		
8:2FTS	7.896	527.1 -> 507.0	41515	19.20 µg/L	99
		527.1 -> 80.8	10104		
EtFOSAA	8.362	584.2 -> 419.1	17284	5.03 µg/L	91
		584.2 -> 526.0	10251		
FOSA	9.557	498.1 -> 77.9	29070	4.75 µg/L	99
		498.1 -> 478.0	1204		
MeFOSAA	8.154	570.1 -> 419.0	24423	4.89 µg/L	94
		570.1 -> 483.0	4391		
PFBA	2.944	212.8 -> 168.9	37365	19.88 µg/L	100
PFBS	5.457	298.7 -> 79.9	23270	4.37 µg/L	95
		298.7 -> 98.8	10493		
PFDA	8.108	512.9 -> 469.0	91789	4.88 µg/L	100
		512.9 -> 219.0	12272		
PFDODA	9.005	613.1 -> 569.0	83489	4.70 µg/L	99
		613.1 -> 319.0	9767		
PFDS	9.167	599.0 -> 79.9	11633	5.06 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	5856			
PFHpA	6.453	363.1 -> 319.0	104364	5.03	µg/L	100
		363.1 -> 169.0	14636			
PFHpS	7.765	449.0 -> 79.9	15343	5.07	µg/L	94
		449.0 -> 98.9	9085			
PFHxA	5.516	313.0 -> 269.0	66939	4.98	µg/L	98
		313.0 -> 118.9	2732			
PFHxS	7.213	398.7 -> 79.9	17459	4.66	µg/L	m 93
		398.7 -> 98.9	9710			
PFNA	7.627	463.0 -> 419.0	61349	4.89	µg/L	99
		463.0 -> 219.0	12656			
PFNS	8.737	548.8 -> 79.9	16152	5.21	µg/L	97
		548.8 -> 98.9	9375			
PFOA	7.098	413.0 -> 369.0	130684	4.96	µg/L	93
		413.0 -> 169.0	17305			
PFOS	8.271	498.9 -> 79.9	16343	4.88	µg/L	m 72
		498.9 -> 98.8	9887			
PFPeA	4.338	263.0 -> 219.0	82650	10.05	µg/L	100
PFPeS	6.517	349.1 -> 79.9	21248	4.62	µg/L	98
		349.1 -> 98.9	11569			
PFTeDA	9.732	713.1 -> 669.0	65075	4.81	µg/L	98
		713.1 -> 168.9	4440			
PFTrDA	9.387	663.0 -> 619.0	77774	5.09	µg/L	97
		663.0 -> 168.9	6205			
PFUnDA	8.562	563.1 -> 519.0	78390	5.17	µg/L	100
		563.1 -> 269.1	11221			
11CI-PF3OUdS	9.439	630.9 -> 450.9	165711	19.22	µg/L	100
		632.9 -> 452.9	51027			
9CI-PF3ONS	8.602	530.8 -> 351.0	295928	18.55	µg/L	99
		532.8 -> 353.0	90142			
ADONA	6.704	376.9 -> 250.9	621975	19.74	µg/L	98
		376.9 -> 84.8	128834			
HFPO-DA	5.879	284.9 -> 168.9	25996	20.04	µg/L	100
		284.9 -> 184.9	3098			
3:3FTCA	3.804	241.0 -> 177.0	10571	24.97	µg/L	94
		241.0 -> 117.0	1630			
5:3FTCA	6.156	341.0 -> 237.1	374817	126.92	µg/L	97
		341.0 -> 217.0	336554			
7:3FTCA	7.567	441.0 -> 316.9	198710	125.44	µg/L	99
		441.0 -> 336.9	377353			
EtFOSA	10.927	526.0 -> 219.0	15150	4.98	µg/L	90
		526.0 -> 169.0	14500			
EtFOSE	10.860	630.0 -> 58.9	30290	49.27	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	13256	4.84	µg/L	# 22
		511.9 -> 169.0	13685			
MeFOSE	10.615	616.1 -> 58.9	45425	48.58	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	6413	4.86	µg/L	91
		699.1 -> 98.8	4220			
NFDHA	5.395	295.0 -> 201.0	7516	10.20	µg/L	97
		295.0 -> 84.9	3790			
PFMBA	4.738	279.0 -> 85.1	23907	9.95	µg/L	100
PFMPA	3.488	229.0 -> 84.9	21795	9.88	µg/L	100
PFEESA	5.983	314.8 -> 134.9	165348	8.90	µg/L	99
		314.8 -> 82.9	4270			

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

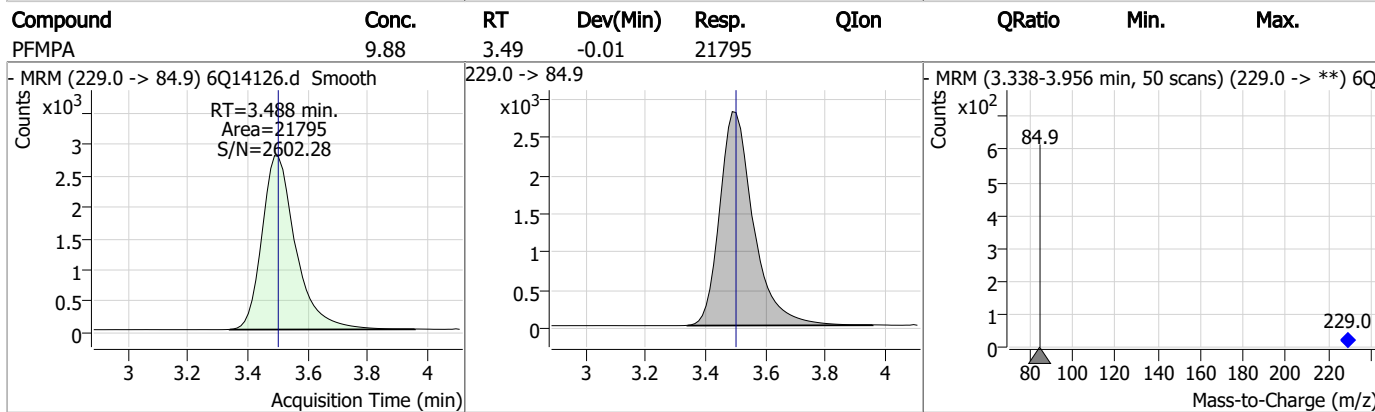
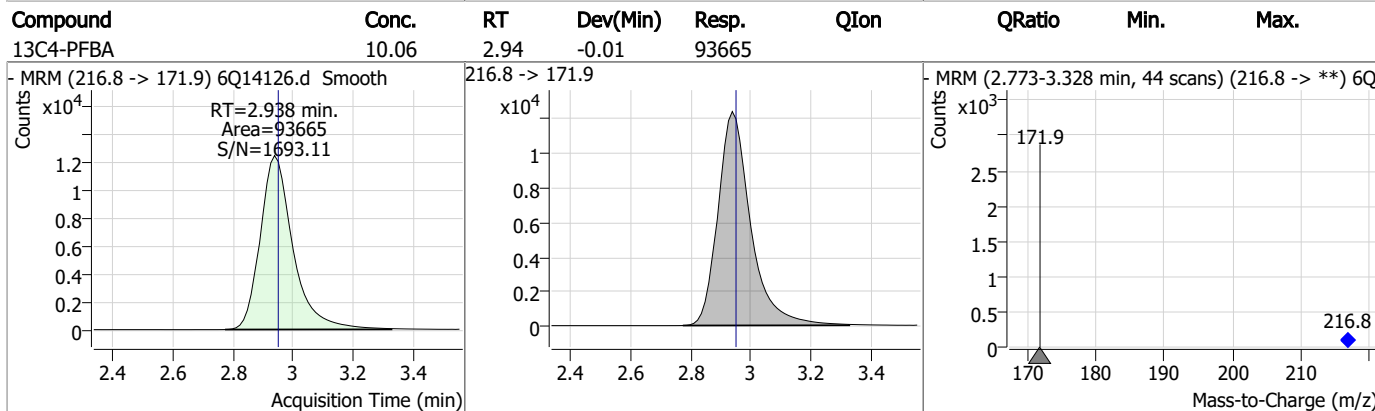
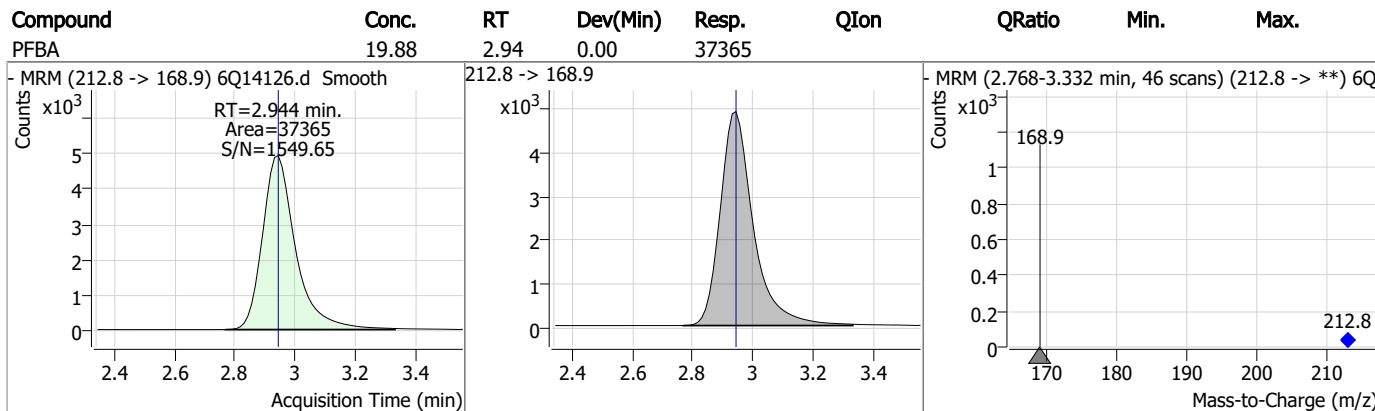
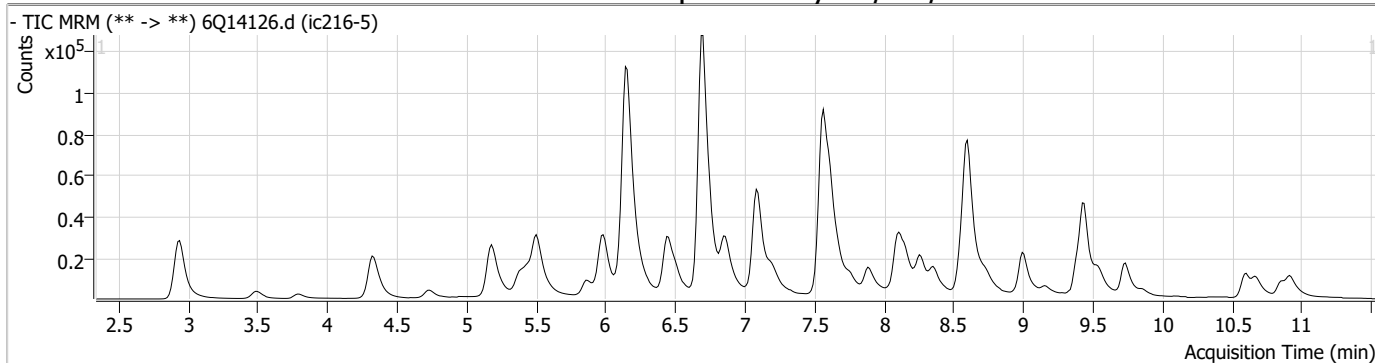
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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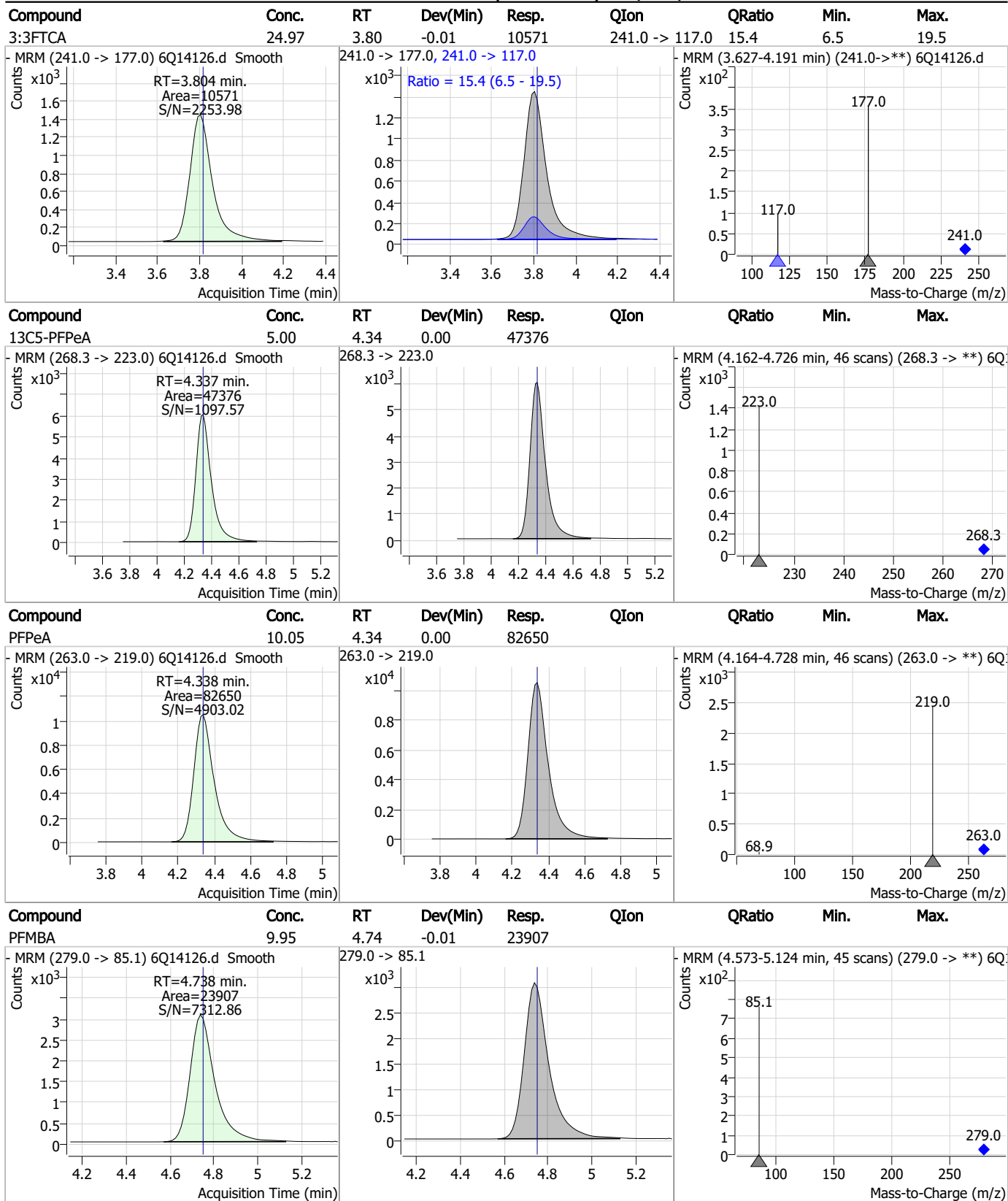
7.7.6

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Perfluorinated Compounds by LC/MS/MS

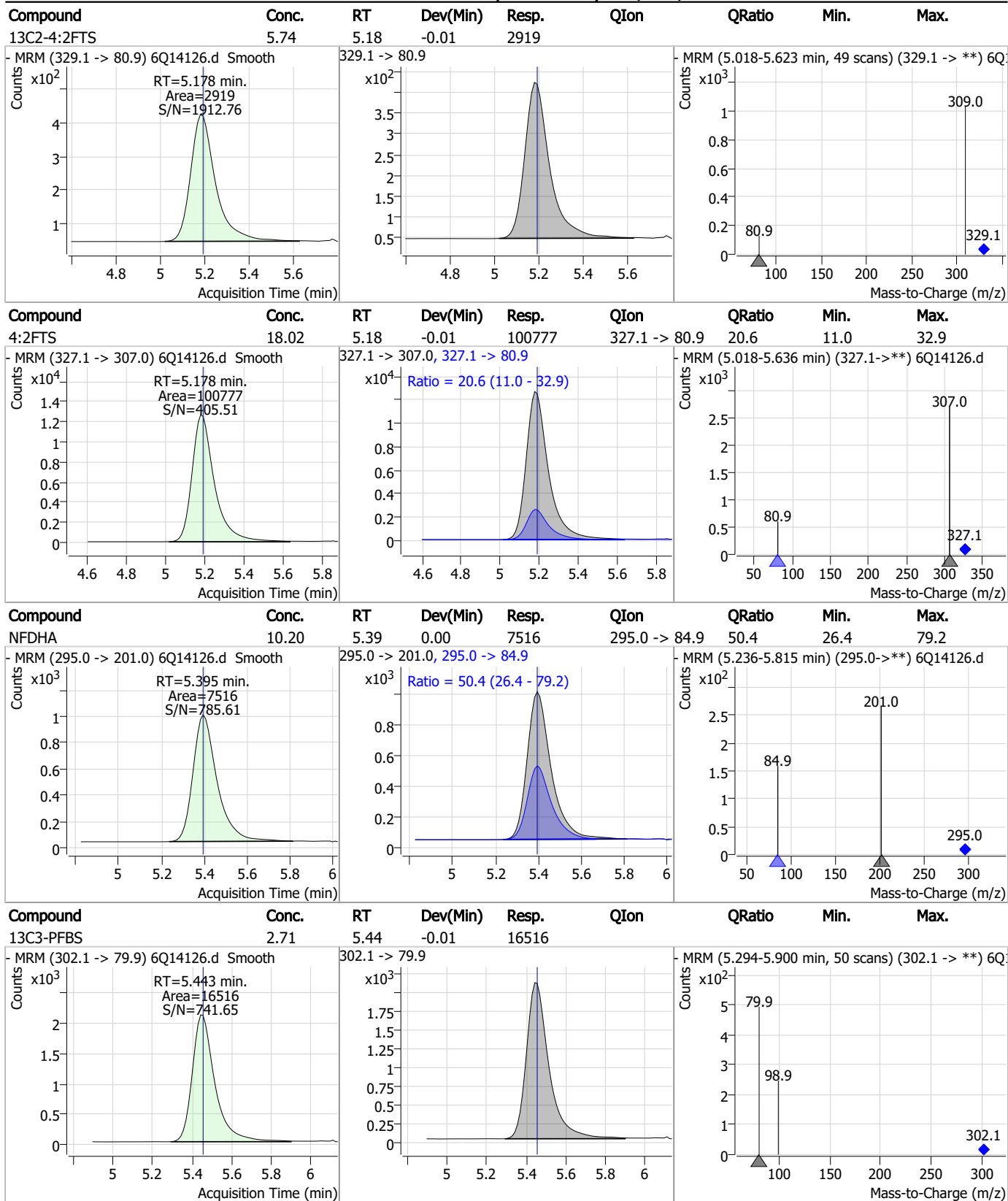


Perfluorinated Compounds by LC/MS/MS



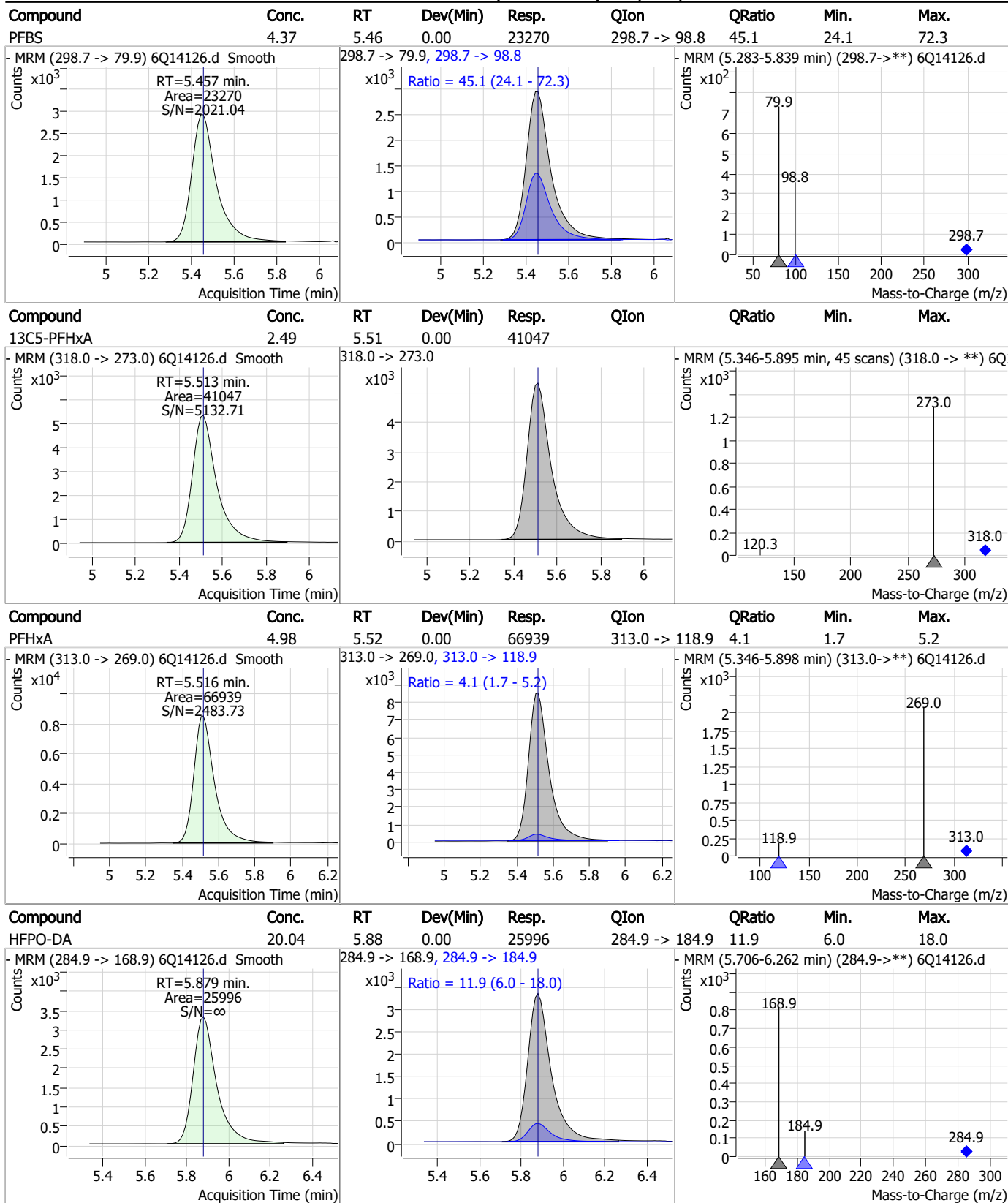
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Perfluorinated Compounds by LC/MS/MS



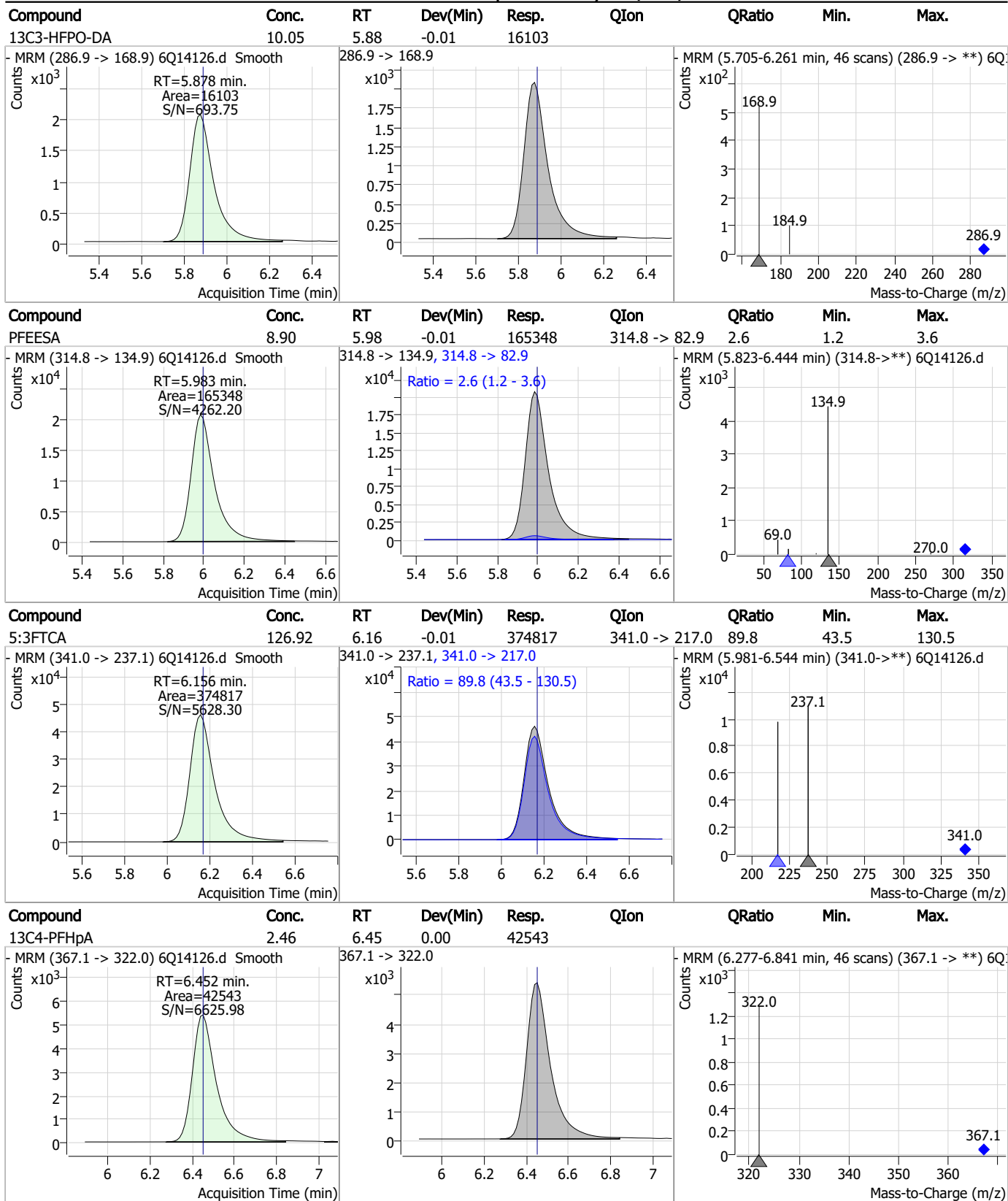
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Perfluorinated Compounds by LC/MS/MS



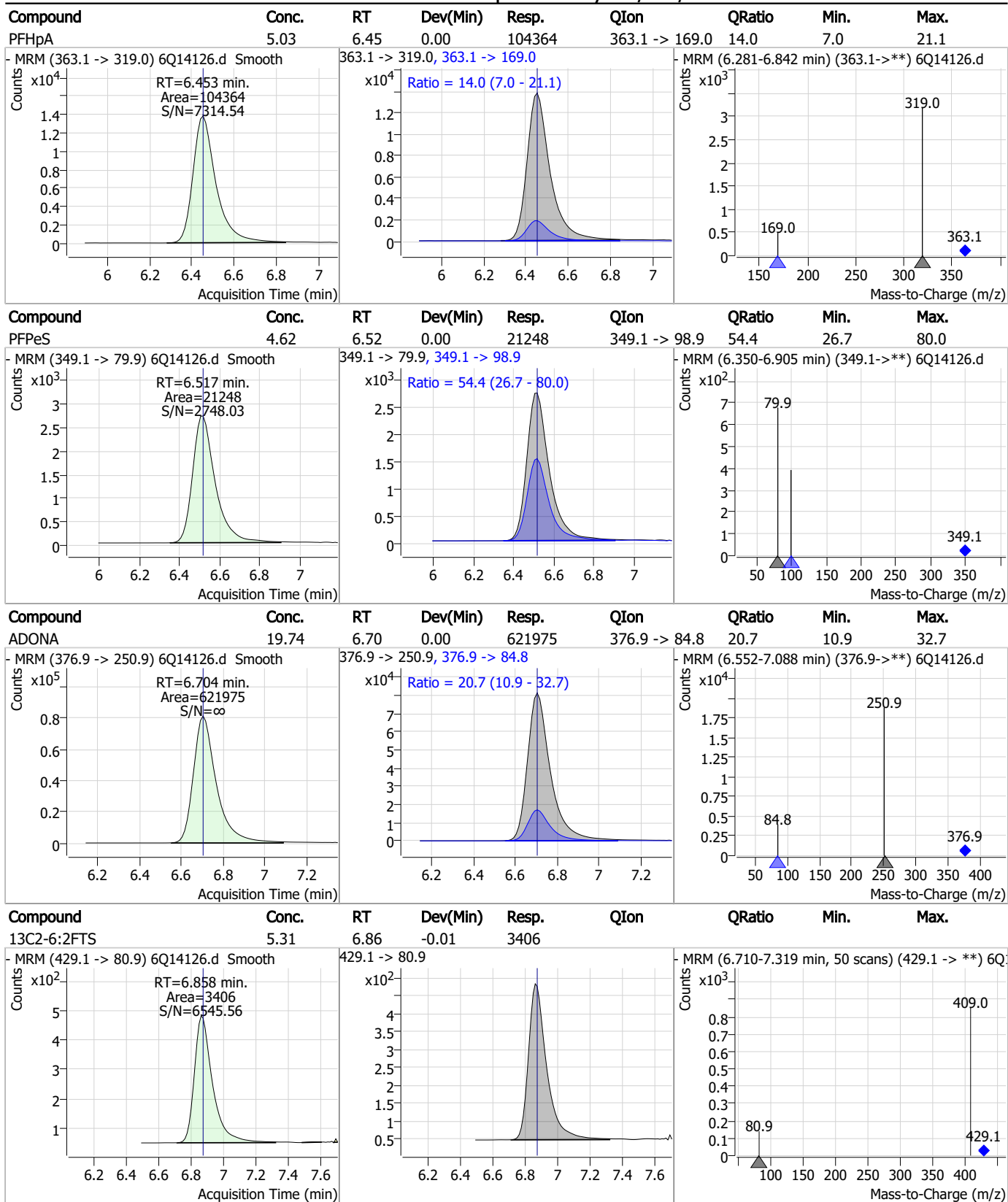
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Perfluorinated Compounds by LC/MS/MS



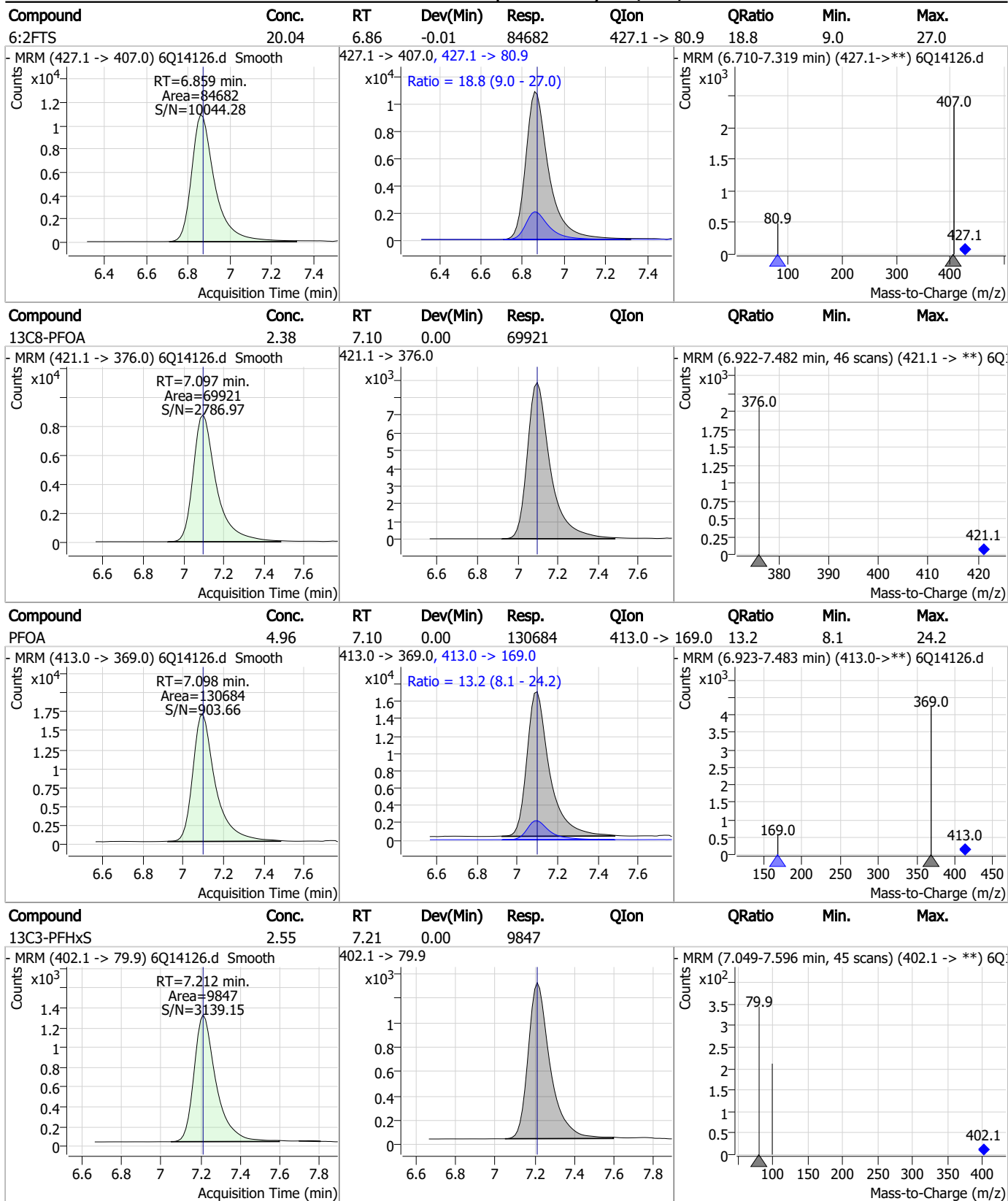
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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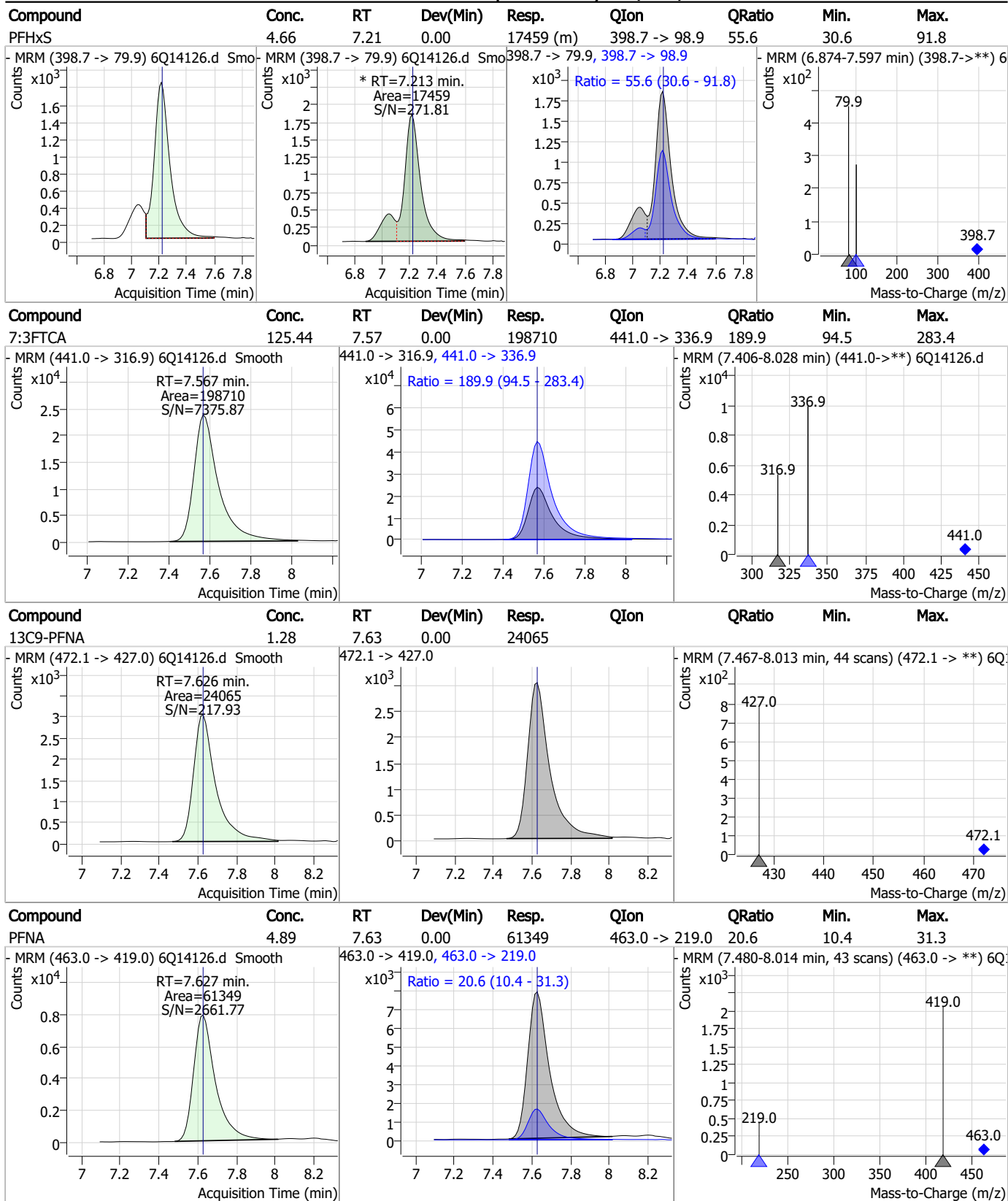
Perfluorinated Compounds by LC/MS/MS



7.7.6

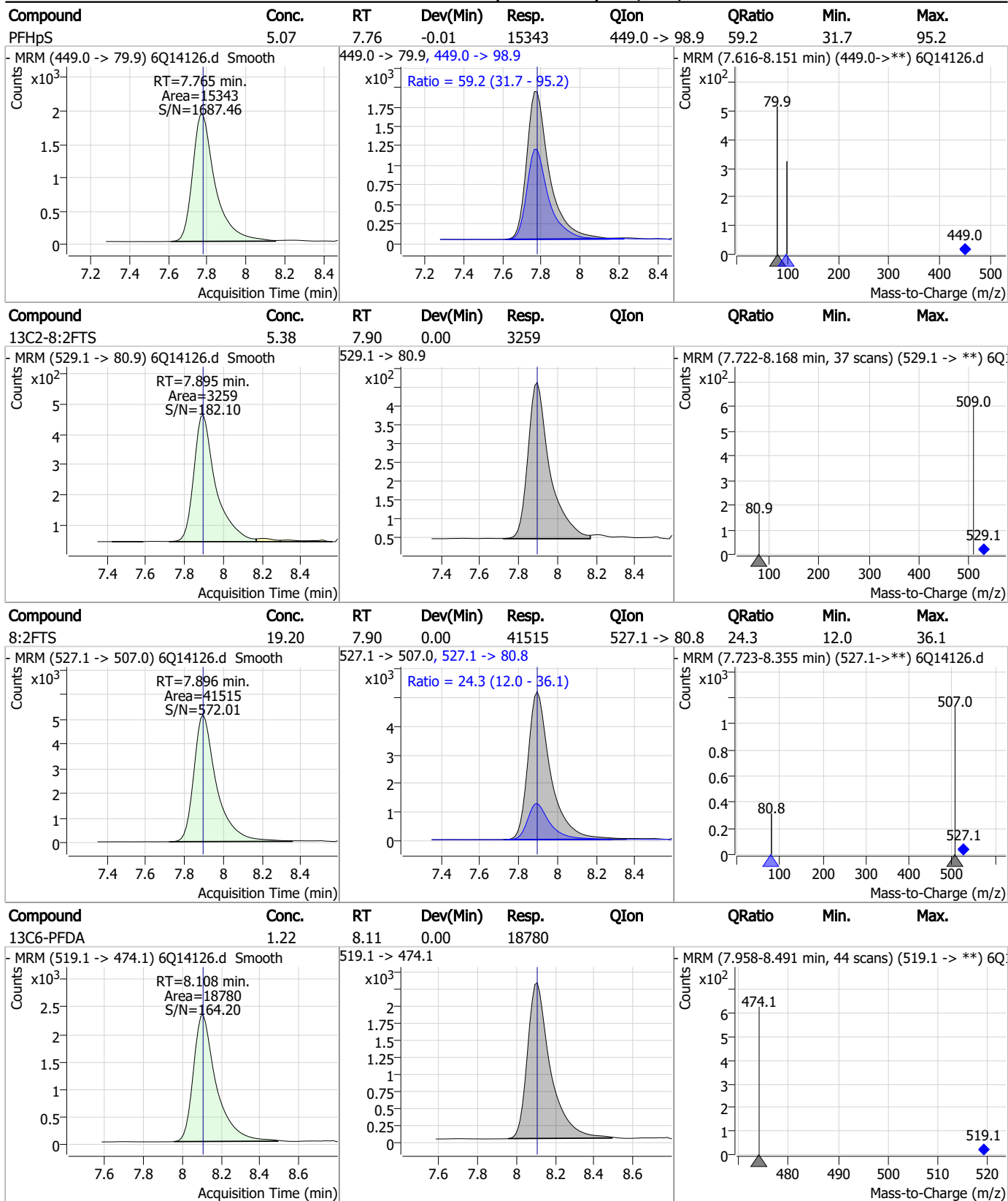
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Perfluorinated Compounds by LC/MS/MS



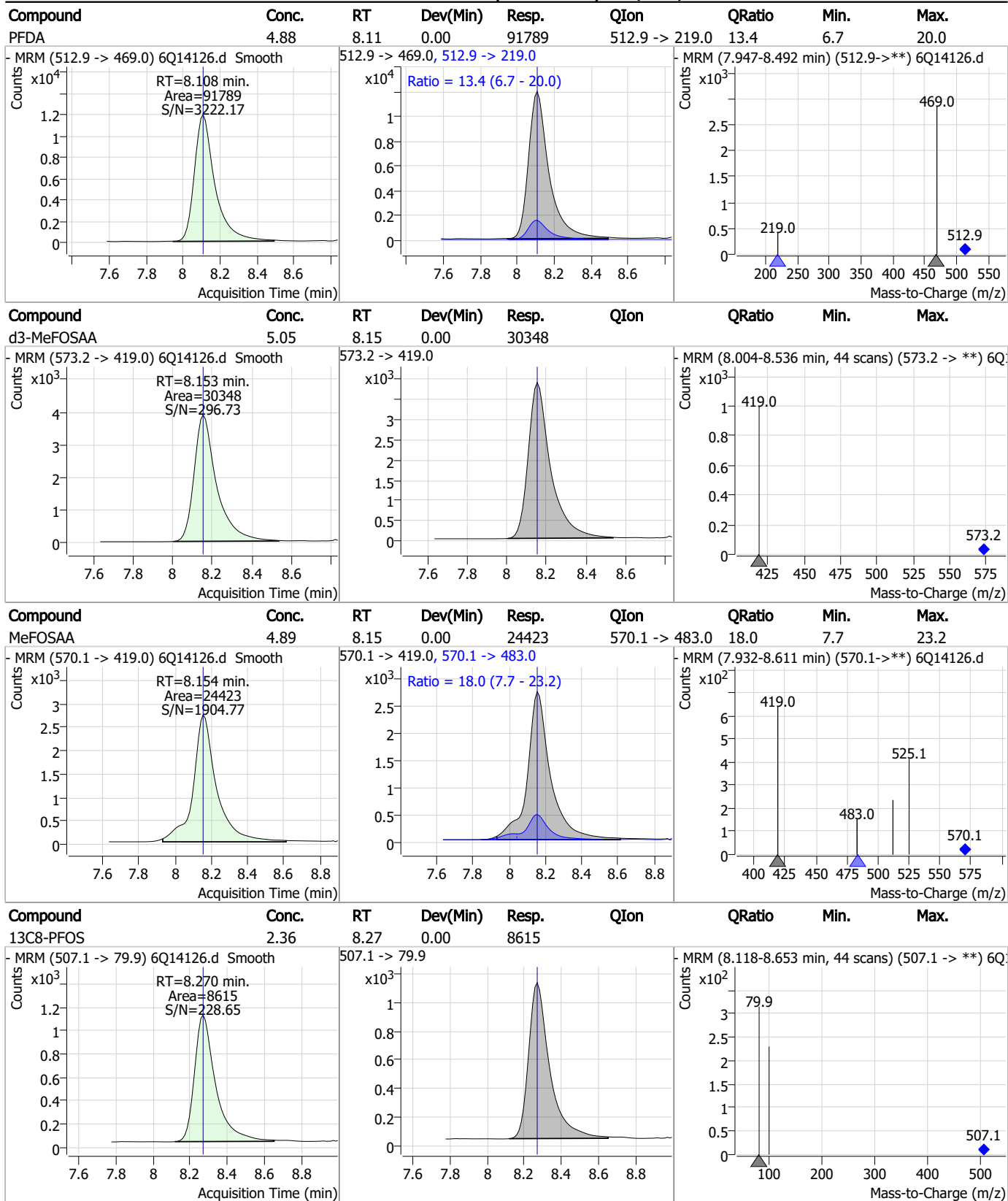
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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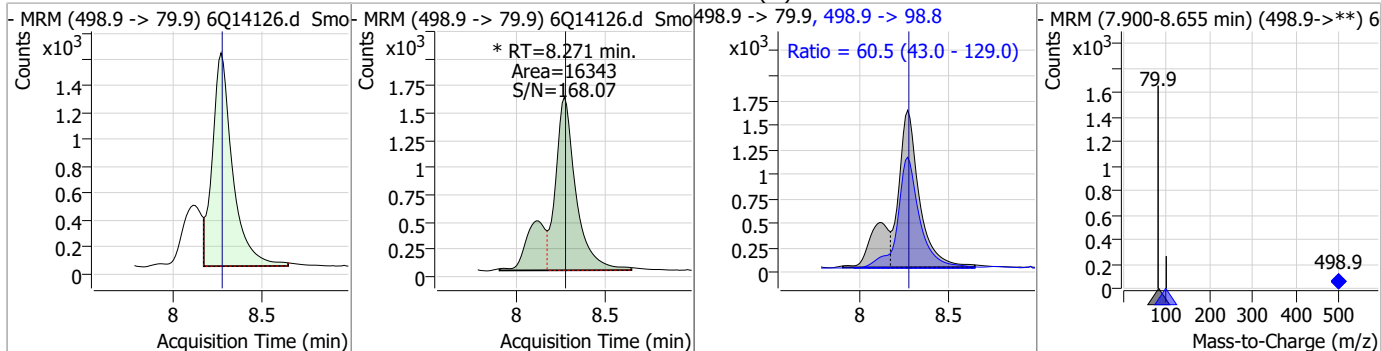
Perfluorinated Compounds by LC/MS/MS



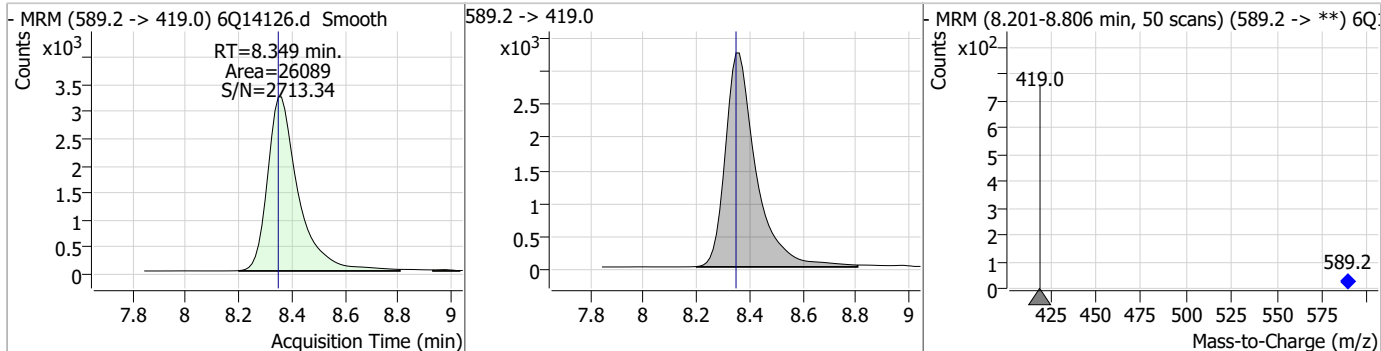
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Perfluorinated Compounds by LC/MS/MS

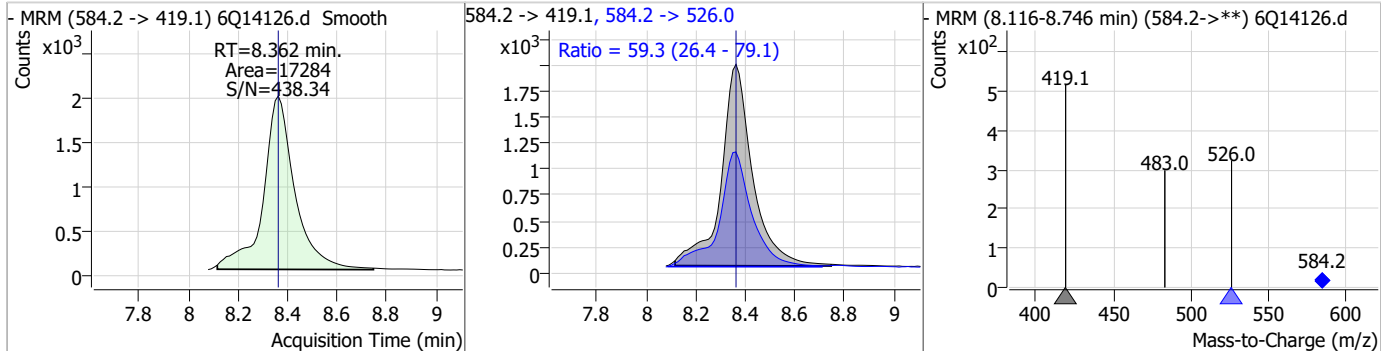
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.88	8.27	0.00	16343 (m)	498.9 -> 98.8	60.5	43.0	129.0



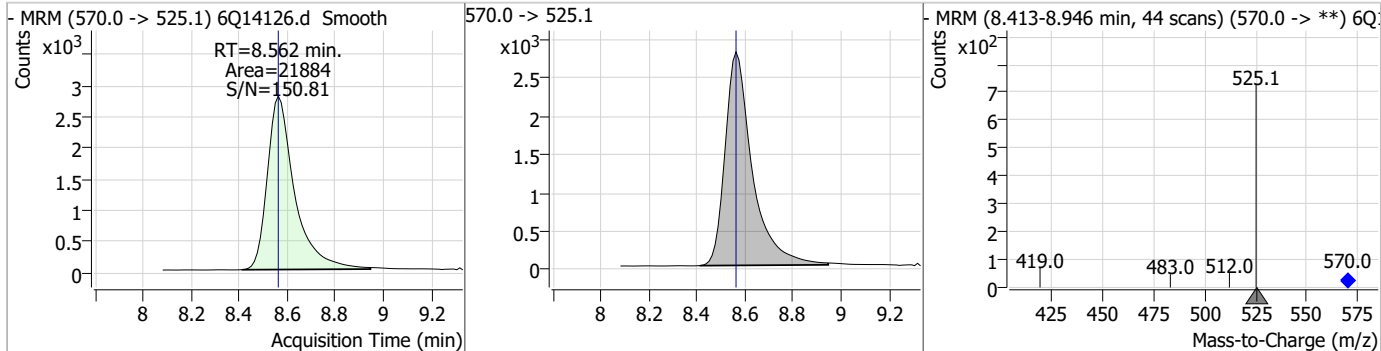
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.88	8.35	0.00	26089	589.2 -> 419.0	59.3	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	5.03	8.36	0.00	17284	584.2 -> 526.0	59.3	26.4	79.1

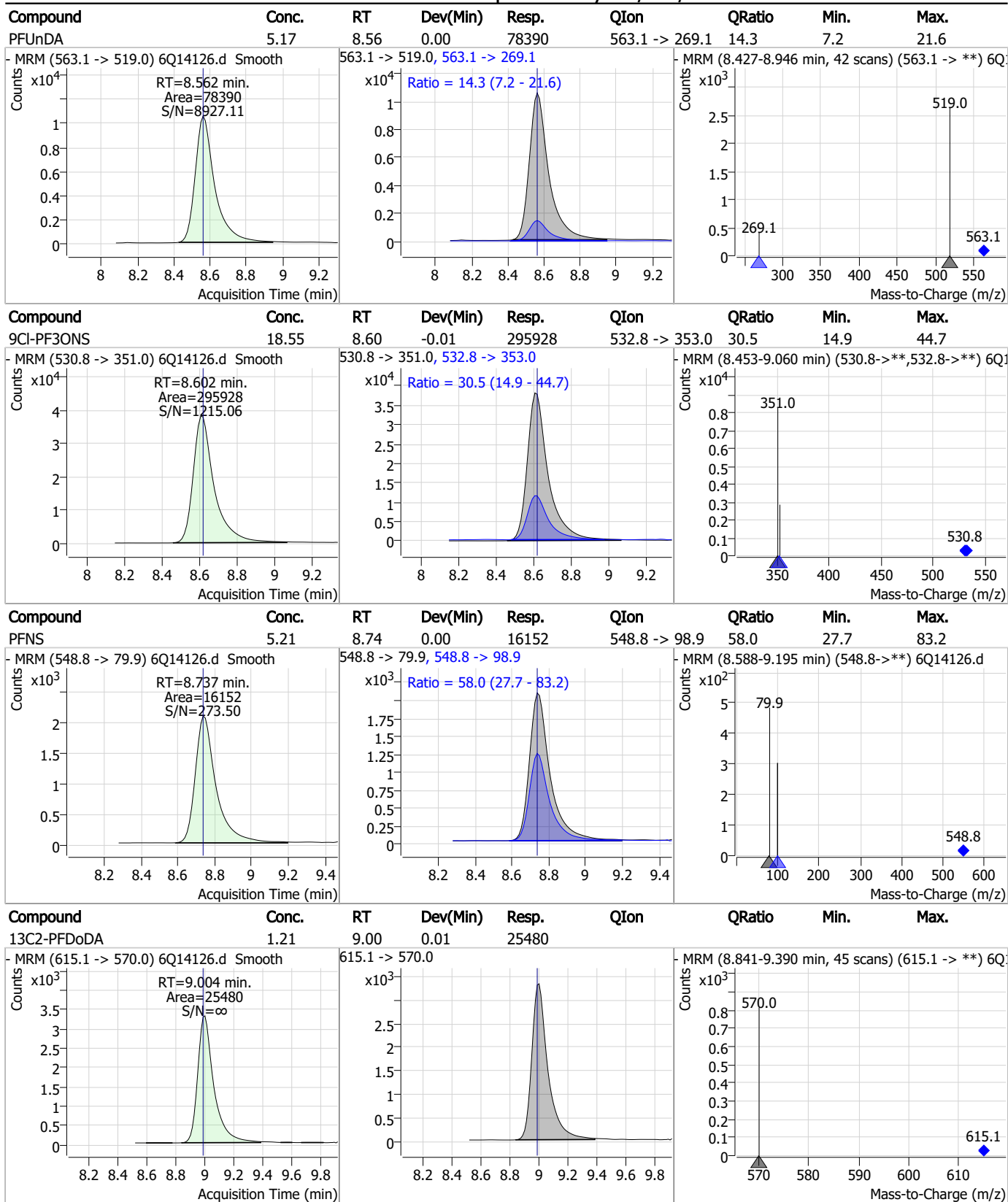


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.19	8.56	0.00	21884	570.0 -> 525.1	59.3	26.4	79.1



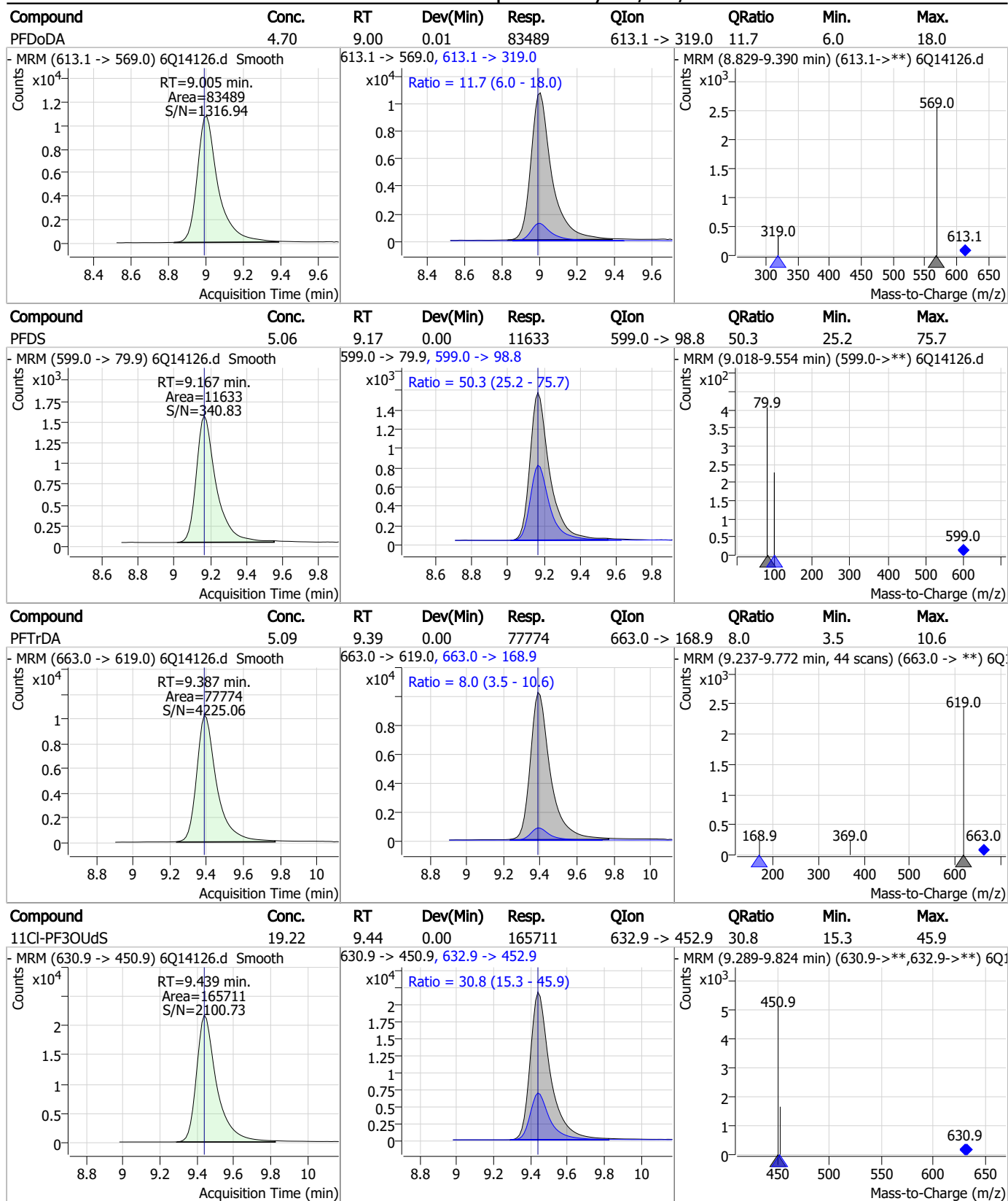
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS

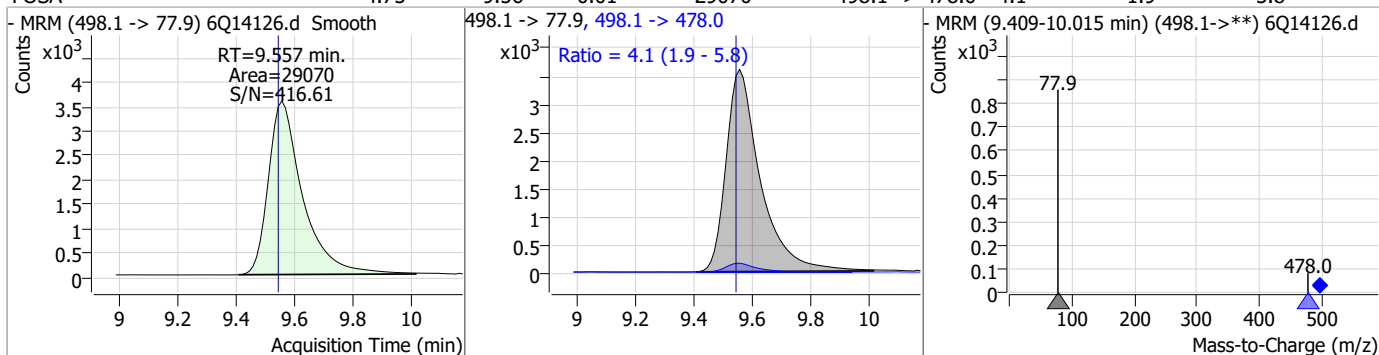


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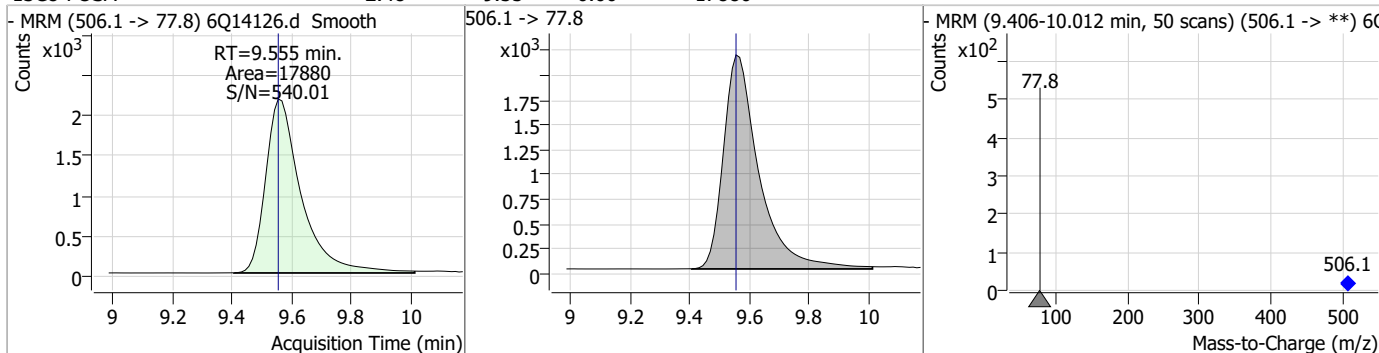
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Perfluorinated Compounds by LC/MS/MS

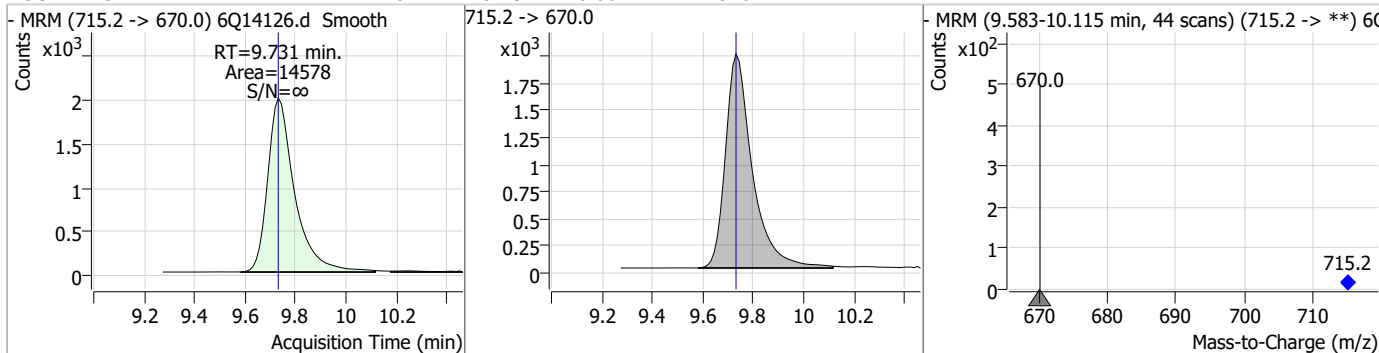
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.75	9.56	0.01	29070	498.1 -> 478.0	4.1	1.9	5.8



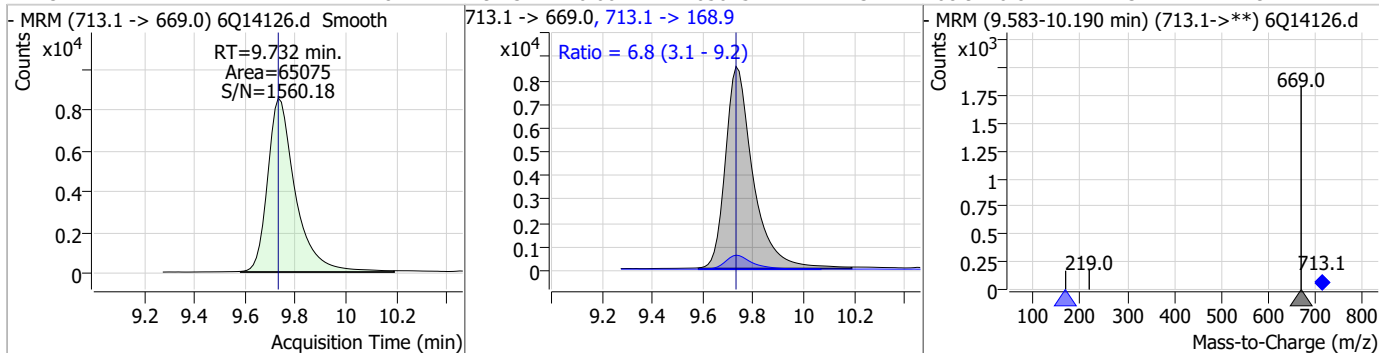
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.55	0.00	17880				



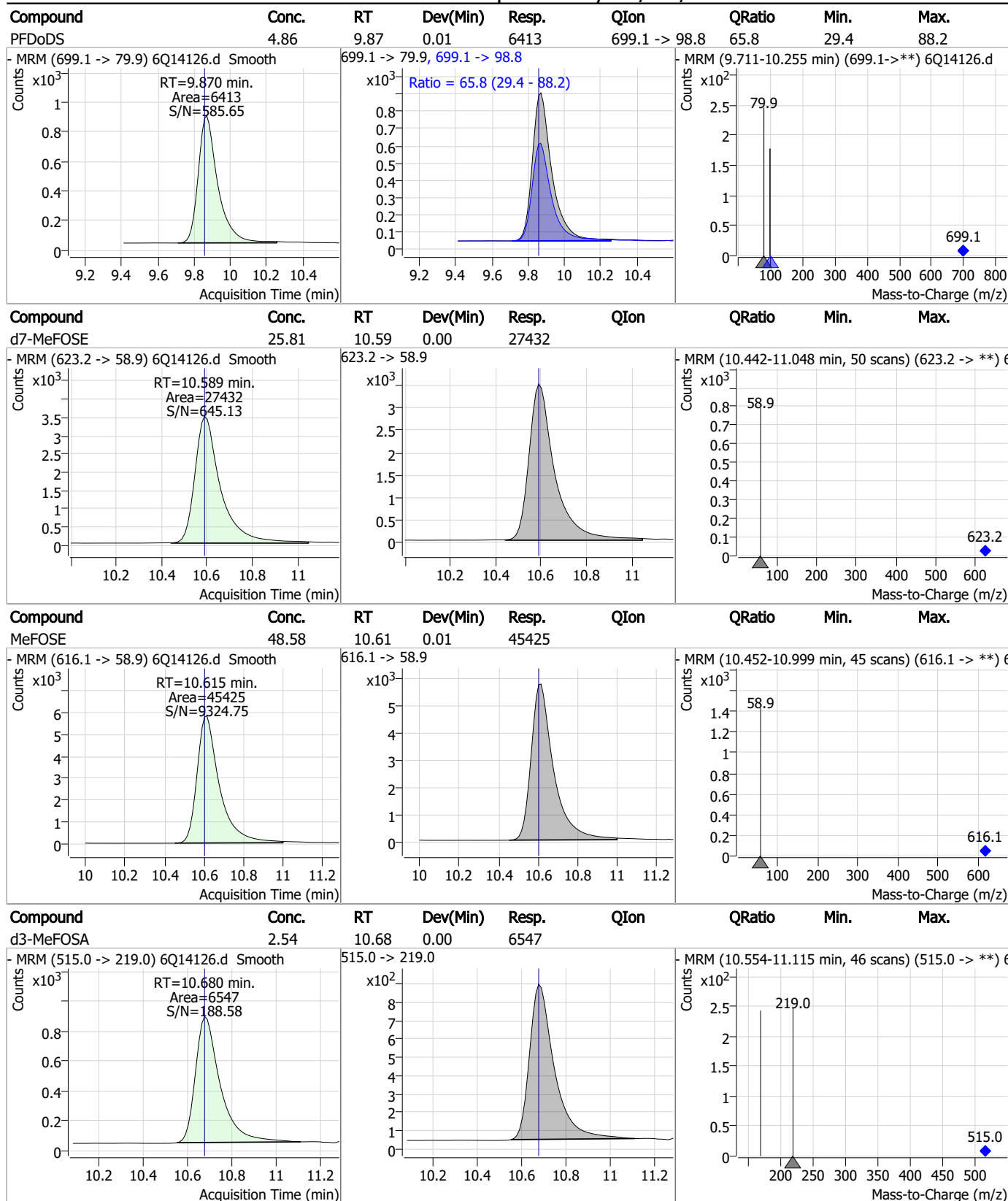
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.18	9.73	0.00	14578				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.81	9.73	0.00	65075	713.1 -> 168.9	6.8	3.1	9.2



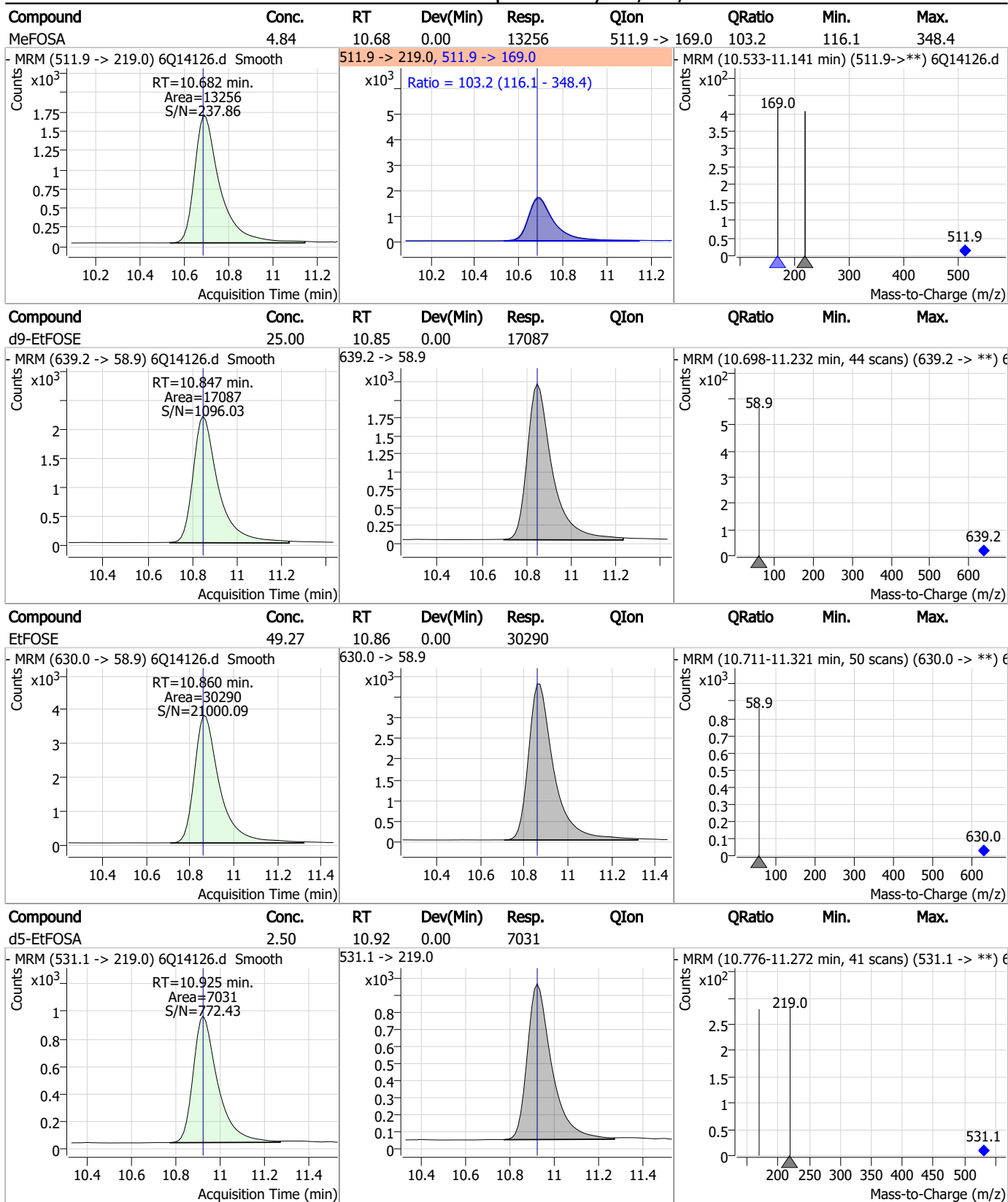
Perfluorinated Compounds by LC/MS/MS



7.7.6

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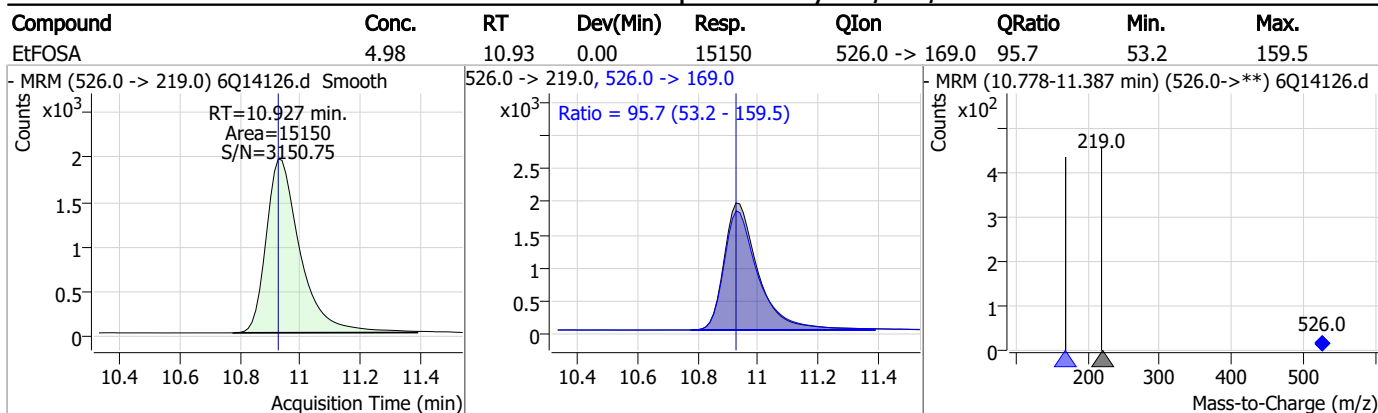
Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Manual Integration Approval Summary

Sample Number: S6Q216-IC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14126.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 18:33 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.7.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14127.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 6:47:28 PM
 Sample Name : ic216-6
 Vial : P1-A7
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	89360	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	45900	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	40908	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	41060	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	71612	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22489	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	18872	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	21881	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	26056	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	14848	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17992	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15665	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9929	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8734	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2443	5.00 µg/L	0.000
M2-6:2FTS	6.858	429.1 -> 80.9	3179	5.00 µg/L	-0.012
M2-8:2FTS	7.895	529.1 -> 80.9	2773	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	28169	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	15456	10.00 µg/L	-0.012
M5-EtFOSAA	8.349	589.2 -> 419.0	26207	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	24615	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16004	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7083	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6095	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10709	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	39567	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7446	2.50 µg/L	-0.012
13C4-PFOA	7.083	417.1 -> 372.0	84778	2.50 µg/L	-0.014
13C2-PFDA	8.108	515.1 -> 470.1	24489	1.25 µg/L	0.000
13C5-PFNA	7.614	468.0 -> 423.0	24005	1.25 µg/L	-0.012
13C2-PFHxA	5.514	315.1 -> 270.0	39934	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2443	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C2-6:2FTS	6.858	429.1 -> 80.9	3179	4.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2773	4.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-PFDoDA	8.991	615.1 -> 570.0	26056	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14848	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFBS	5.456	302.1 -> 79.9	15665	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C3-PFHxS	7.212	402.1 -> 79.9	9929	2.46 µg/L	0.000

7.7.7
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 = 98.6%	
13C4-PFBA	2.938	216.8 -> 171.9	89360	10.02 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.452	367.1 -> 322.0	41060	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C5-PFHxA	5.513	318.0 -> 273.0	40908	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.337	268.3 -> 223.0	45900	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C6-PFDA	8.108	519.1 -> 474.1	18872	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C7-PFUnDA	8.562	570.0 -> 525.1	21881	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C8-FOSA	9.555	506.1 -> 77.8	17992	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-PFOA	7.097	421.1 -> 376.0	71612	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.270	507.1 -> 79.9	8734	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C9-PFNA	7.626	472.1 -> 427.0	22489	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
d3-MeFOSAA	8.153	573.2 -> 419.0	28169	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	15456	10.15 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSA	10.680	515.0 -> 219.0	6095	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSAA	8.349	589.2 -> 419.0	26207	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d7-MeFOSE	10.589	623.2 -> 58.9	24615	24.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d9-EtFOSE	10.847	639.2 -> 58.9	16004	24.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSA	10.925	531.1 -> 219.0	7083	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	246510	52.66 µg/L	100
		327.1 -> 80.9	54334		
6:2FTS	6.859	427.1 -> 407.0	206354	52.31 µg/L	99
		427.1 -> 80.9	38326		
8:2FTS	7.896	527.1 -> 507.0	105460	57.33 µg/L	100
		527.1 -> 80.8	25377		
EtFOSAA	8.350	584.2 -> 419.1	46261	13.39 µg/L	m 98
		584.2 -> 526.0	25022		
FOSA	9.557	498.1 -> 77.9	80731	13.11 µg/L	100
		498.1 -> 478.0	3021		
MeFOSAA	8.154	570.1 -> 419.0	64854	13.98 µg/L	95
		570.1 -> 483.0	11230		
PFBA	2.944	212.8 -> 168.9	97738	54.49 µg/L	100
PFBS	5.457	298.7 -> 79.9	60456	11.96 µg/L	96
		298.7 -> 98.8	27675		
PFDA	8.108	512.9 -> 469.0	247400	13.09 µg/L	99
		512.9 -> 219.0	33689		
PFDoDA	8.992	613.1 -> 569.0	229627	12.64 µg/L	99
		613.1 -> 319.0	26336		
PFDS	9.167	599.0 -> 79.9	29668	12.73 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16117			
PFHpA	6.453	363.1 -> 319.0	285689	14.27	µg/L	99
		363.1 -> 169.0	38795			
PFHpS	7.765	449.0 -> 79.9	40503	13.21	µg/L	88
		449.0 -> 98.9	21913			
PFHxA	5.516	313.0 -> 269.0	172612	12.89	µg/L	99
		313.0 -> 118.9	6712			
PFHxS	7.213	398.7 -> 79.9	44793	11.85	µg/L	m 95
		398.7 -> 98.9	25586			
PFNA	7.627	463.0 -> 419.0	163263	13.91	µg/L	98
		463.0 -> 219.0	32416			
PFNS	8.737	548.8 -> 79.9	41492	13.21	µg/L	94
		548.8 -> 98.9	24987			
PFOA	7.098	413.0 -> 369.0	345270	12.80	µg/L	93
		413.0 -> 169.0	45715			
PFOS	8.271	498.9 -> 79.9	39054	11.49	µg/L	m 77
		498.9 -> 98.8	25401			
PFPeA	4.338	263.0 -> 219.0	214710	26.95	µg/L	100
PFPeS	6.517	349.1 -> 79.9	56865	12.26	µg/L	99
		349.1 -> 98.9	30794			
PFTeDA	9.732	713.1 -> 669.0	186626	13.54	µg/L	99
		713.1 -> 168.9	11249			
PFTrDA	9.387	663.0 -> 619.0	204955	13.11	µg/L	100
		663.0 -> 168.9	14818			
PFUnDA	8.562	563.1 -> 519.0	201822	13.31	µg/L	98
		563.1 -> 269.1	27747			
11CI-PF3OUdS	9.439	630.9 -> 450.9	430302	51.99	µg/L	99
		632.9 -> 452.9	134898			
9CI-PF3ONS	8.602	530.8 -> 351.0	786348	51.35	µg/L	95
		532.8 -> 353.0	256035			
ADONA	6.704	376.9 -> 250.9	1571275	51.95	µg/L	100
		376.9 -> 84.8	341776			
HFPO-DA	5.879	284.9 -> 168.9	69509	55.82	µg/L	98
		284.9 -> 184.9	8907			
3:3FTCA	3.804	241.0 -> 177.0	28148	68.62	µg/L	97
		241.0 -> 117.0	4030			
5:3FTCA	6.156	341.0 -> 237.1	960163	326.25	µg/L	98
		341.0 -> 217.0	854570			
7:3FTCA	7.567	441.0 -> 316.9	530838	336.26	µg/L	99
		441.0 -> 336.9	1012499			
EtFOSA	10.939	526.0 -> 219.0	39013	12.74	µg/L	97
		526.0 -> 169.0	40141			
EtFOSE	10.860	630.0 -> 58.9	81823	142.11	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	36843	14.44	µg/L	# 18
		511.9 -> 169.0	35498			
MeFOSE	10.602	616.1 -> 58.9	122069	145.47	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	17392	13.00	µg/L	92
		699.1 -> 98.8	11326			
NFDHA	5.395	295.0 -> 201.0	21269	28.96	µg/L	96
		295.0 -> 84.9	10575			
PFMBA	4.738	279.0 -> 85.1	63692	27.37	µg/L	100
PFMPA	3.500	229.0 -> 84.9	57179	26.76	µg/L	100
PFEESA	5.983	314.8 -> 134.9	452400	24.43	µg/L	100
		314.8 -> 82.9	10622			

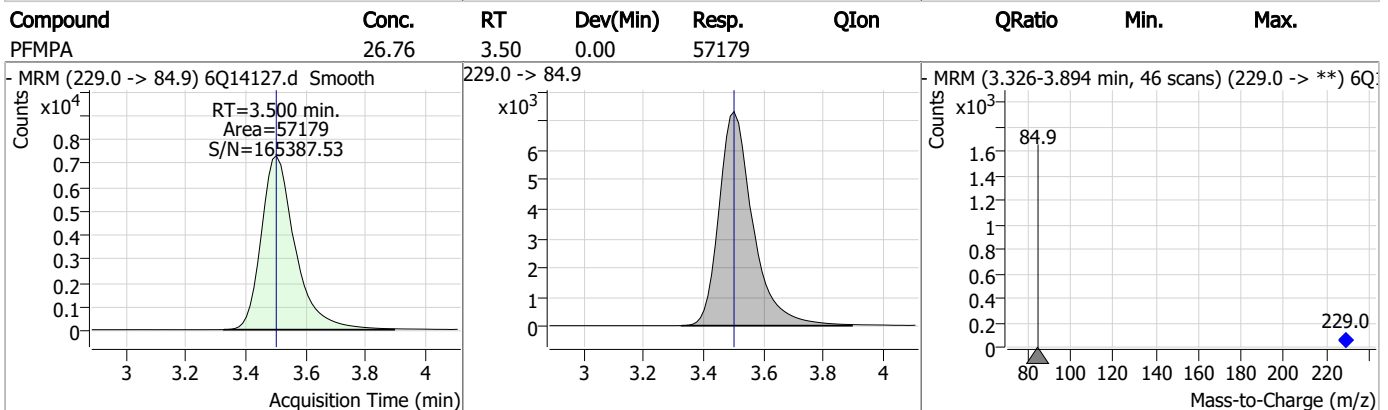
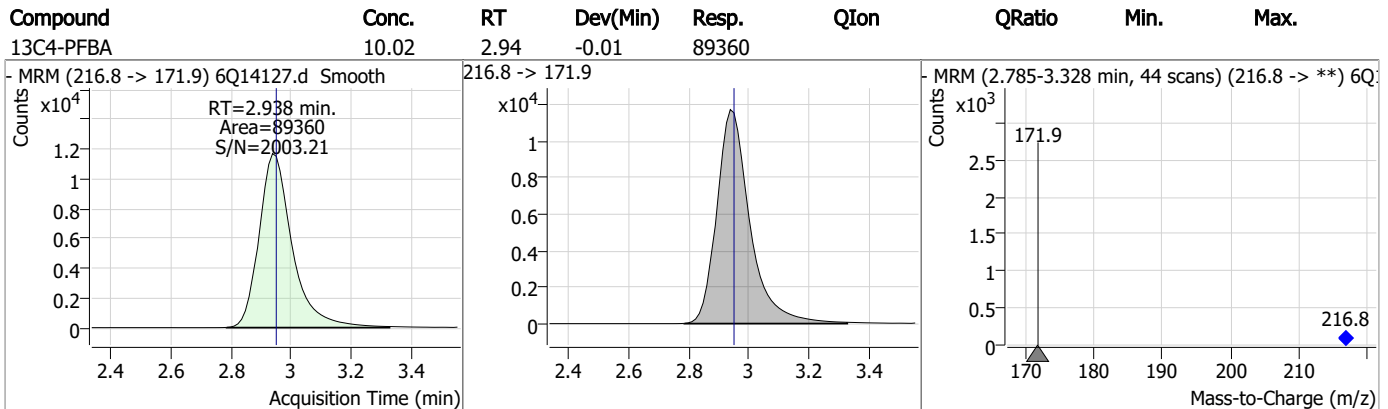
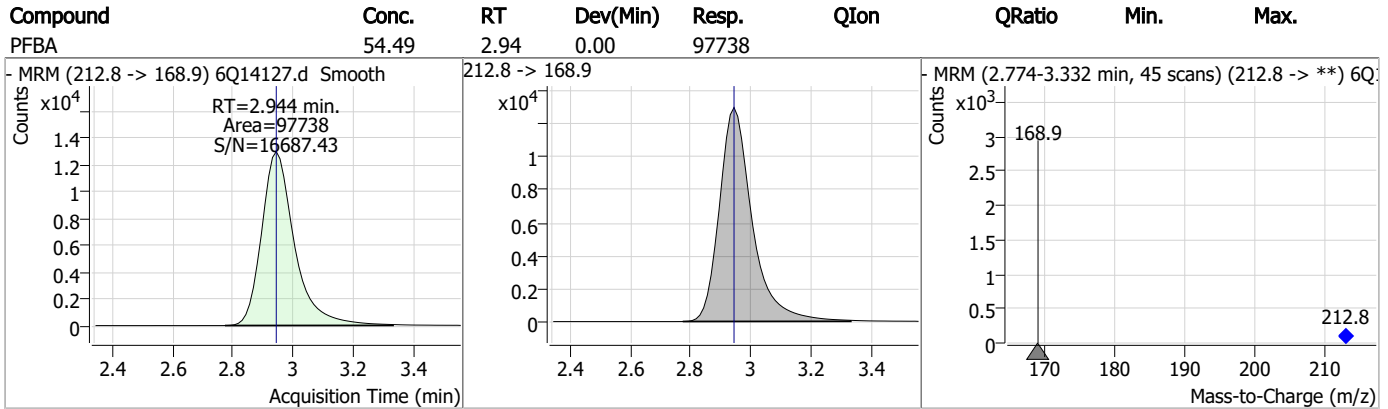
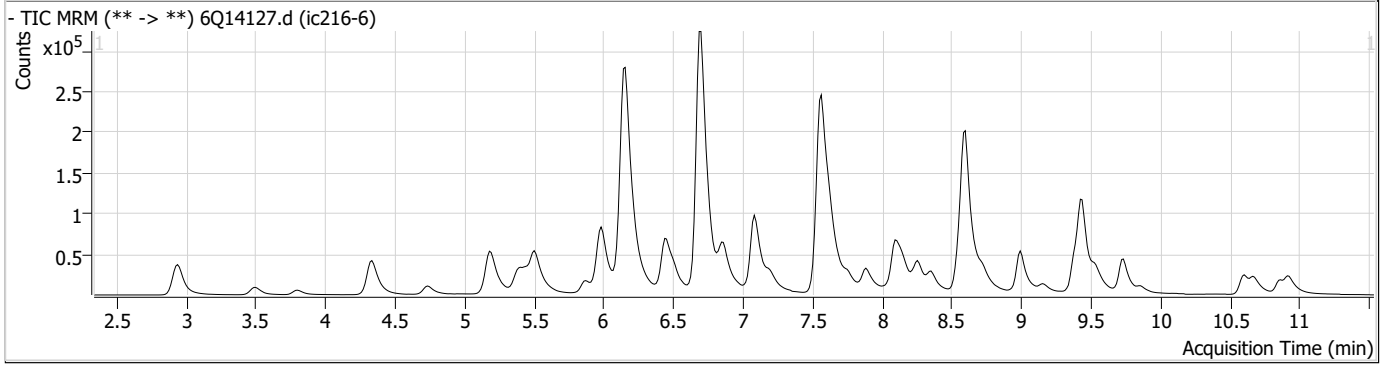
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

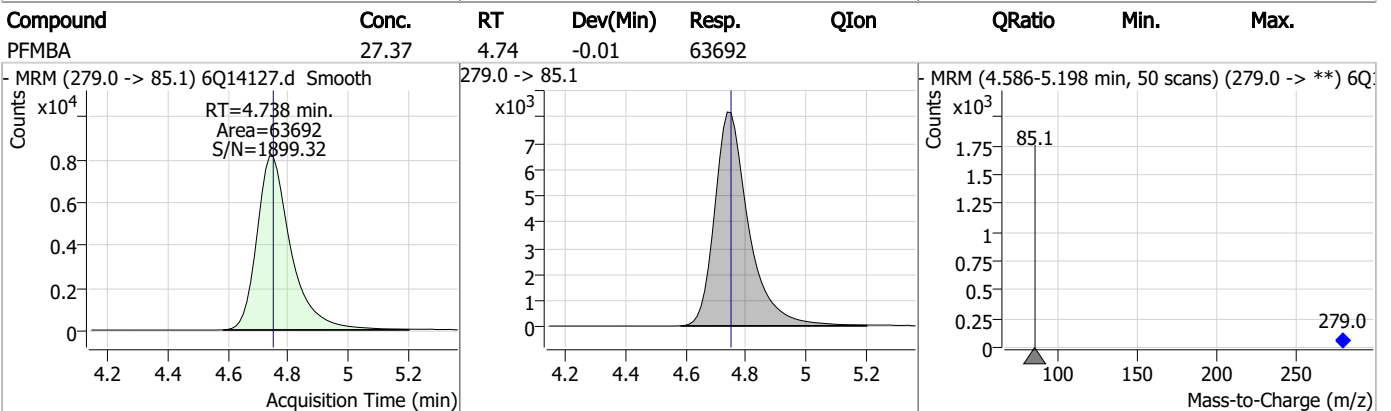
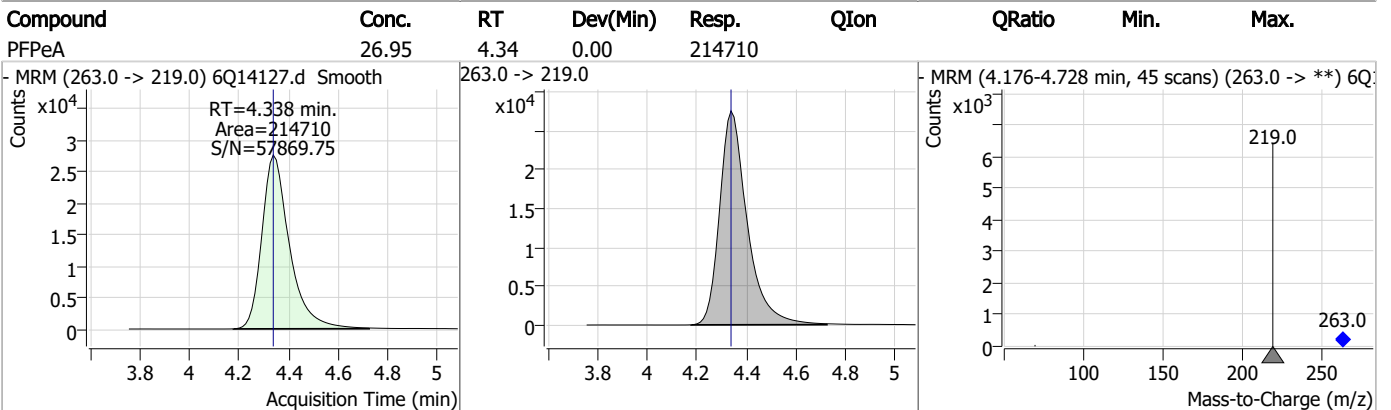
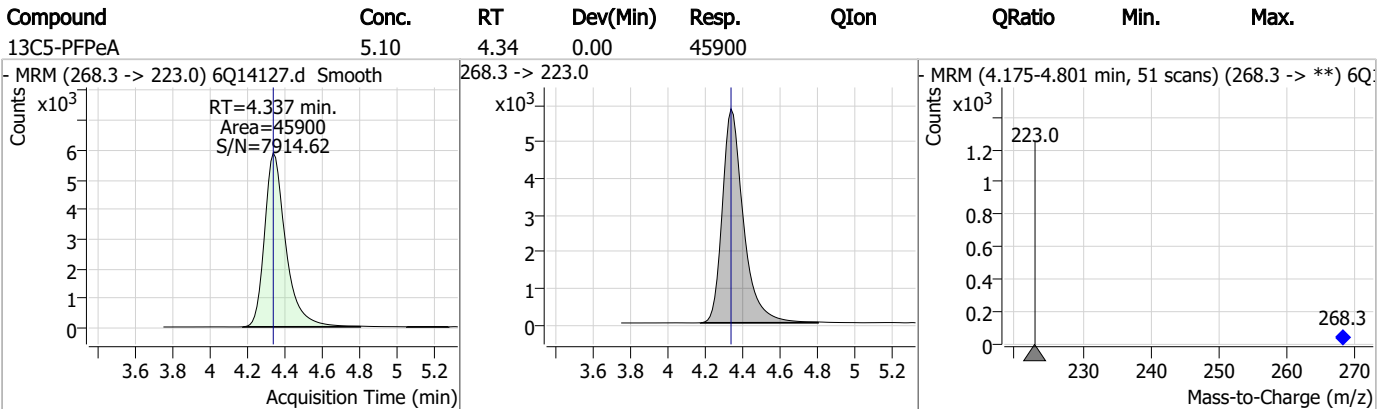
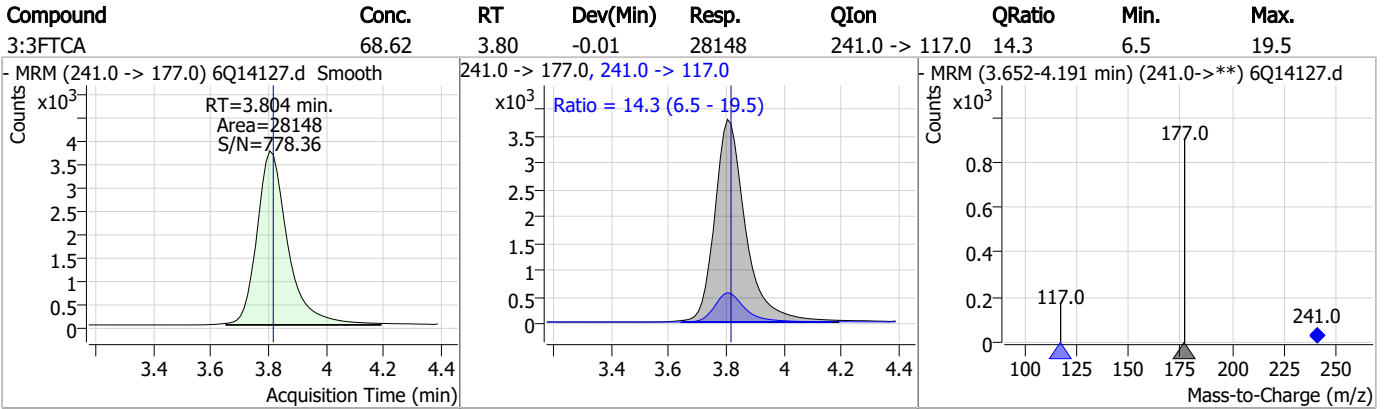
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
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Perfluorinated Compounds by LC/MS/MS

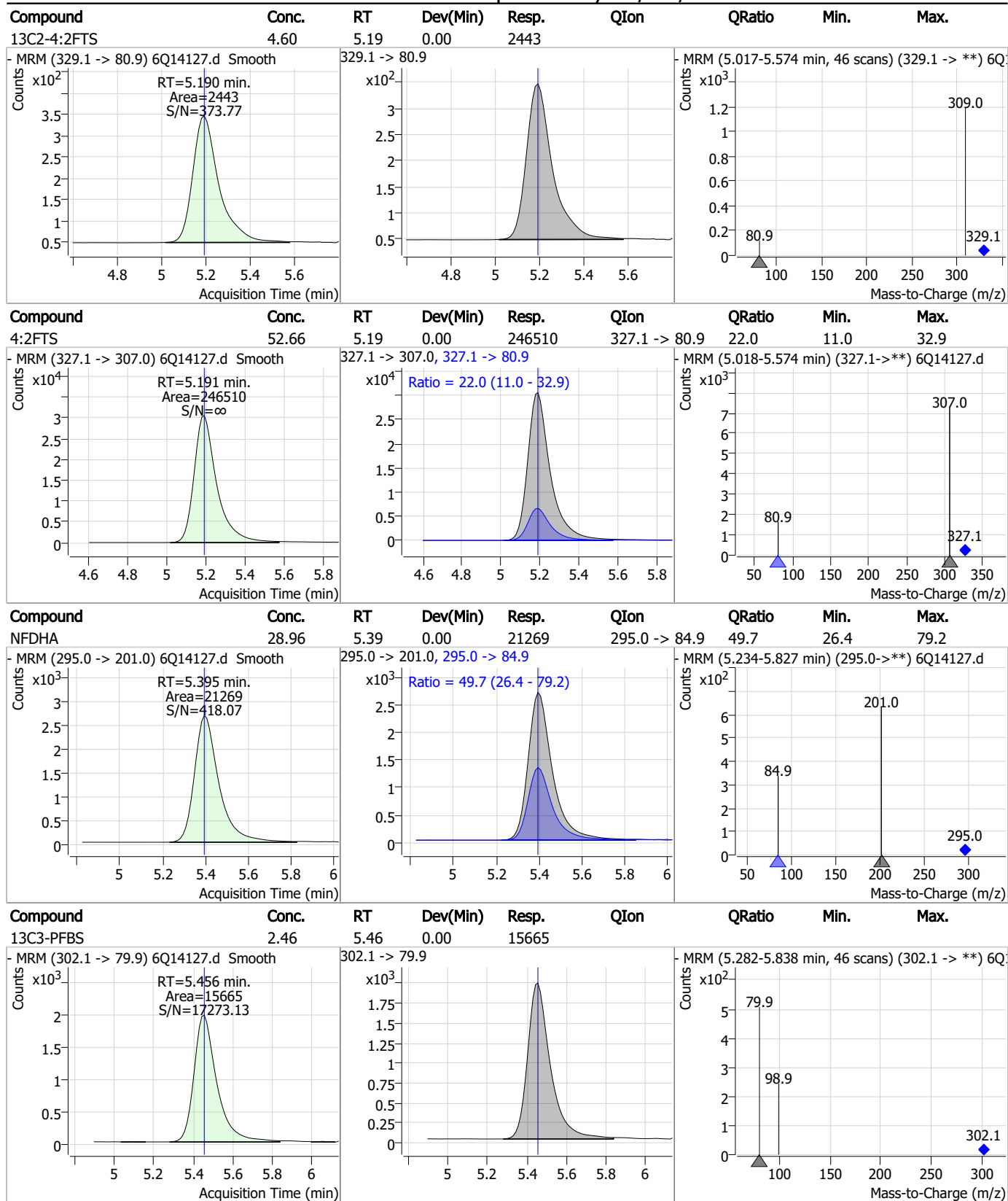


Perfluorinated Compounds by LC/MS/MS



7.7.7
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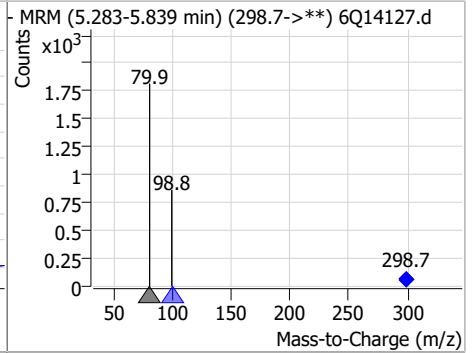
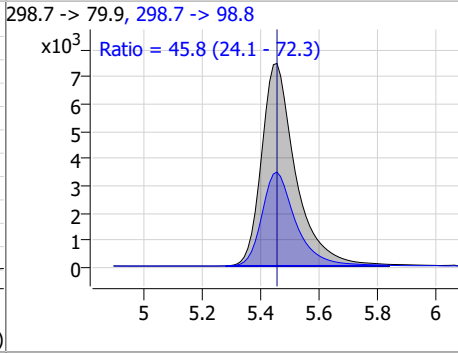
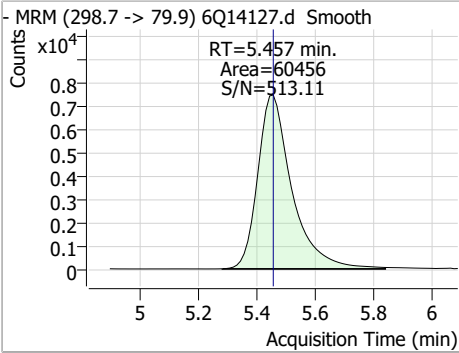
Perfluorinated Compounds by LC/MS/MS



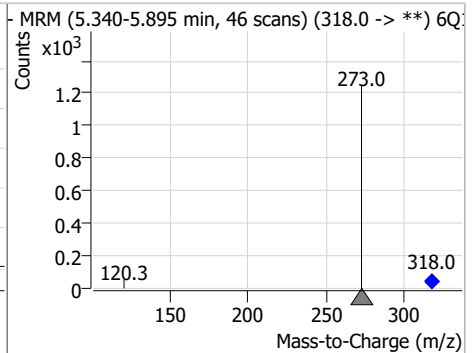
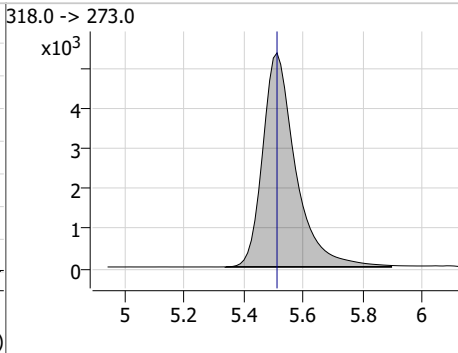
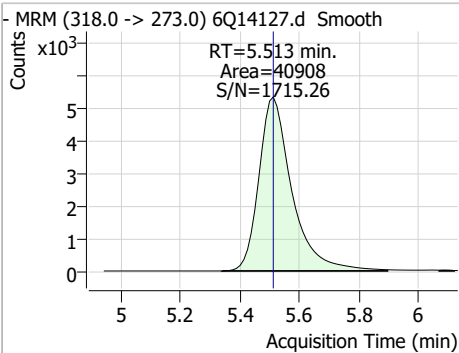
7.7.7
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Perfluorinated Compounds by LC/MS/MS

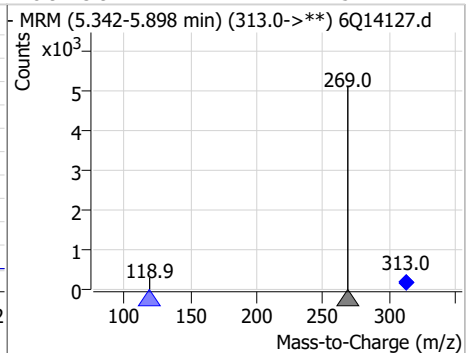
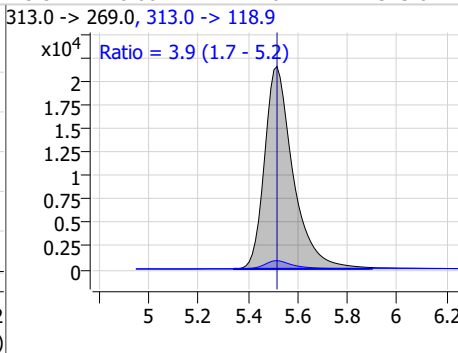
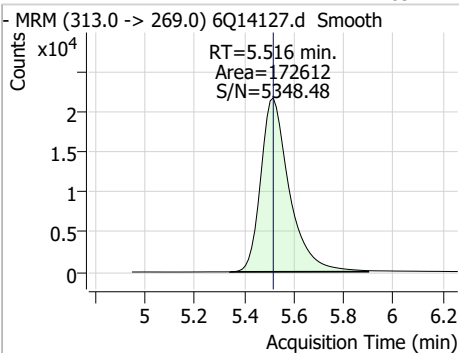
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.96	5.46	0.00	60456	298.7 -> 98.8	45.8	24.1	72.3



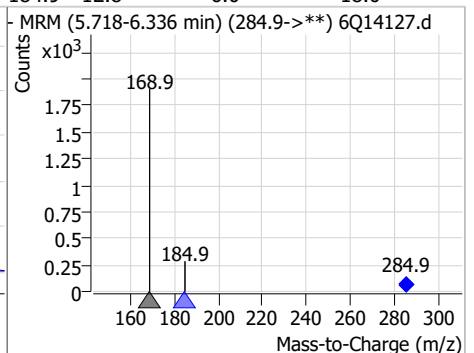
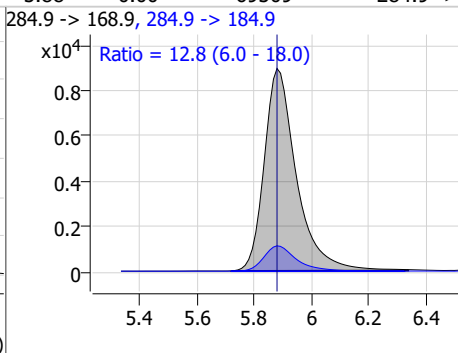
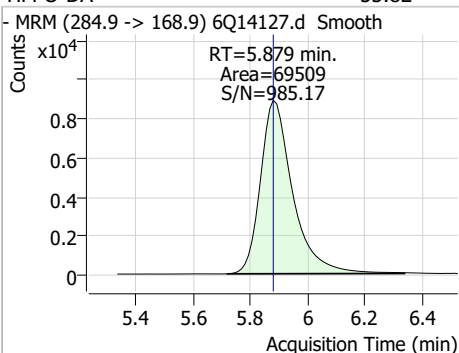
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.51	0.00	40908	318.0 -> 273.0			



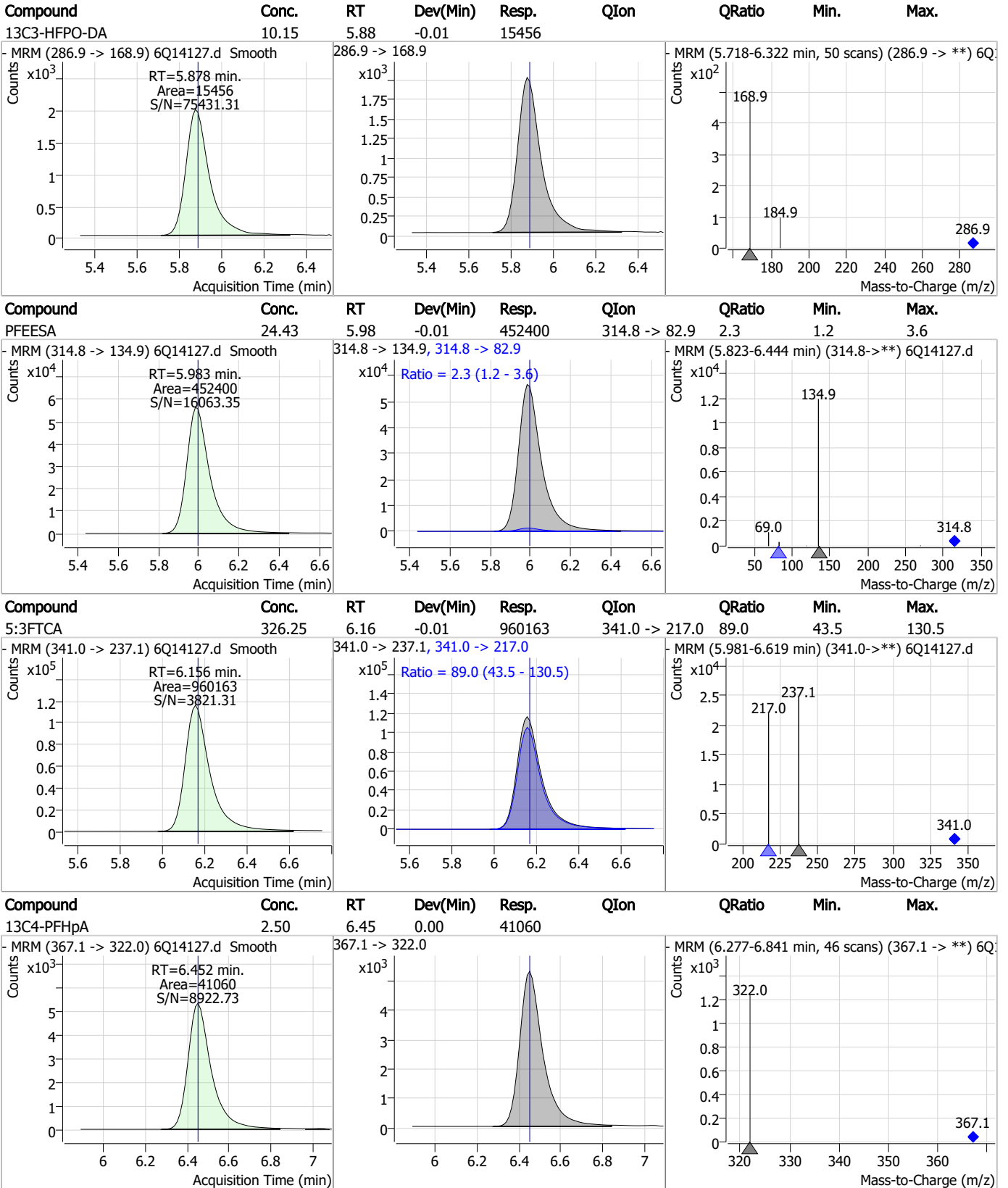
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.89	5.52	0.00	172612	313.0 -> 118.9	3.9	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	55.82	5.88	0.00	69509	284.9 -> 184.9	12.8	6.0	18.0



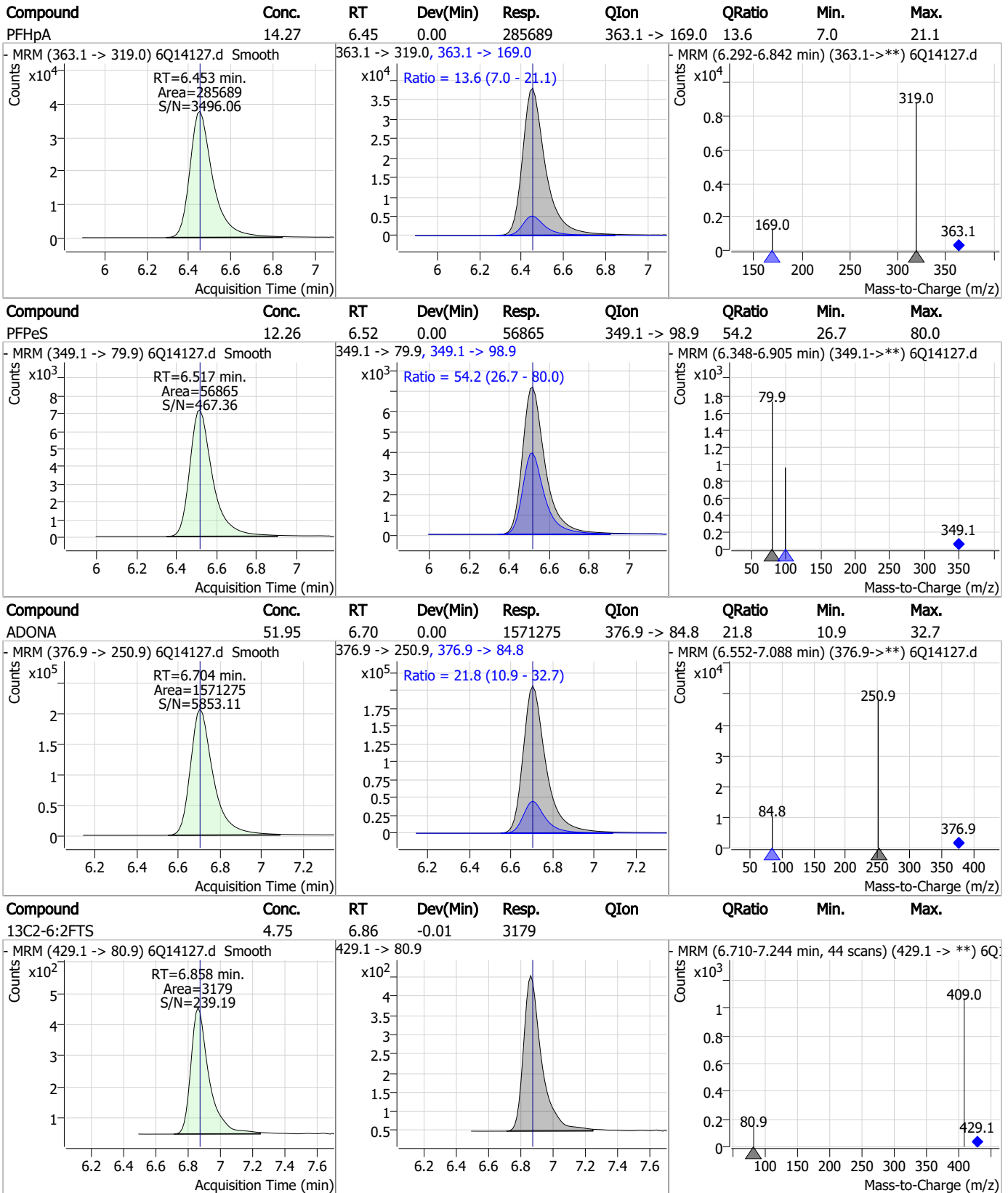
Perfluorinated Compounds by LC/MS/MS



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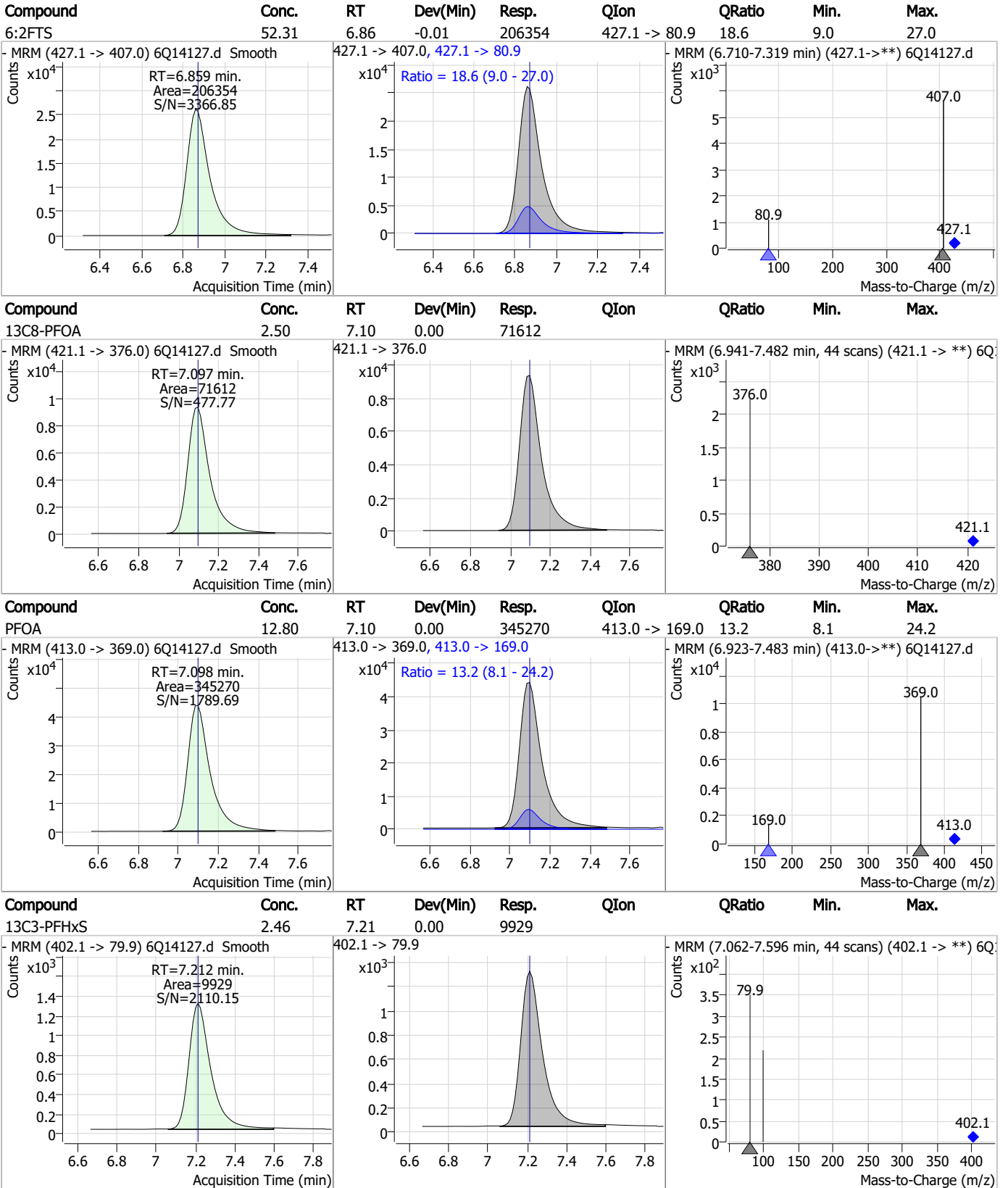
Perfluorinated Compounds by LC/MS/MS



7.7.7

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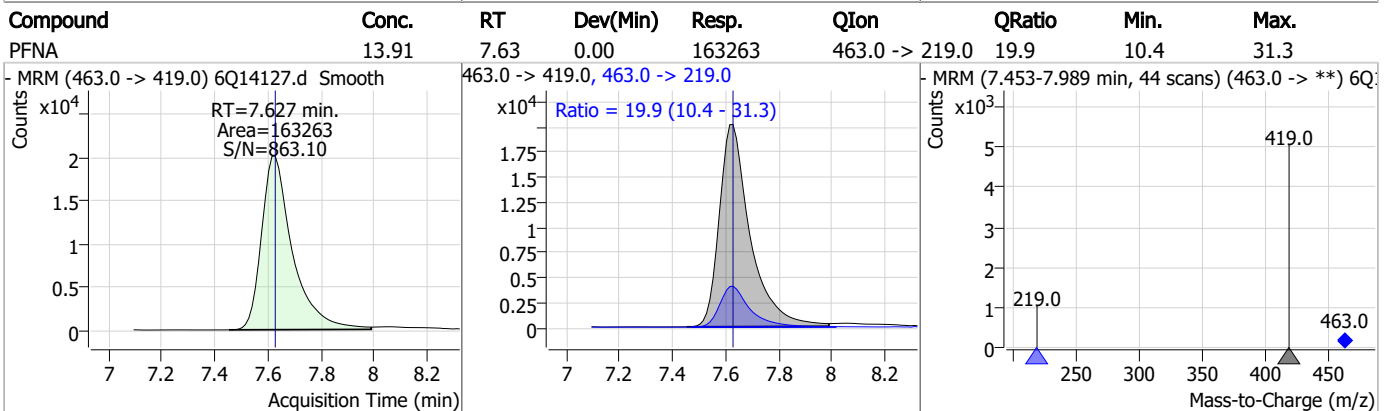
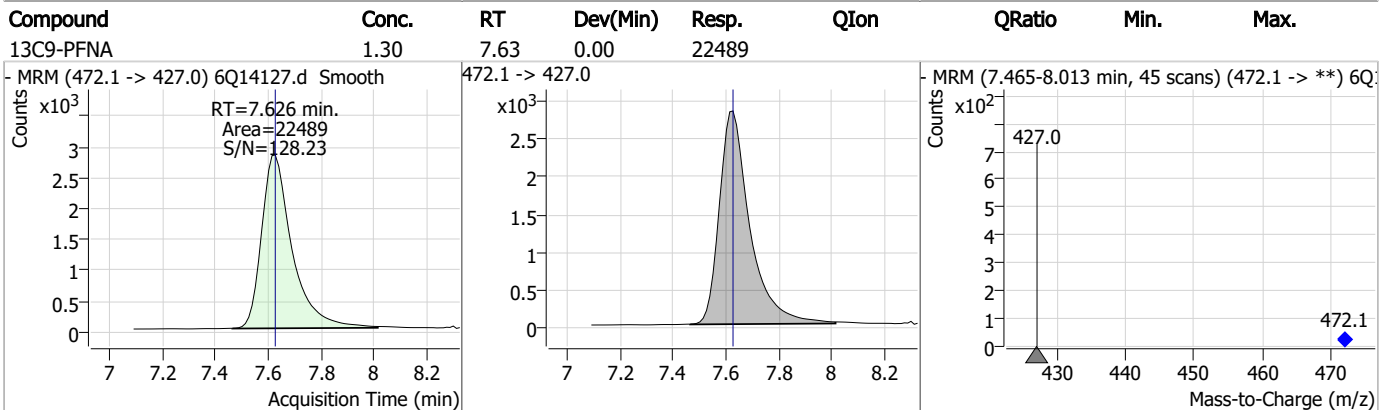
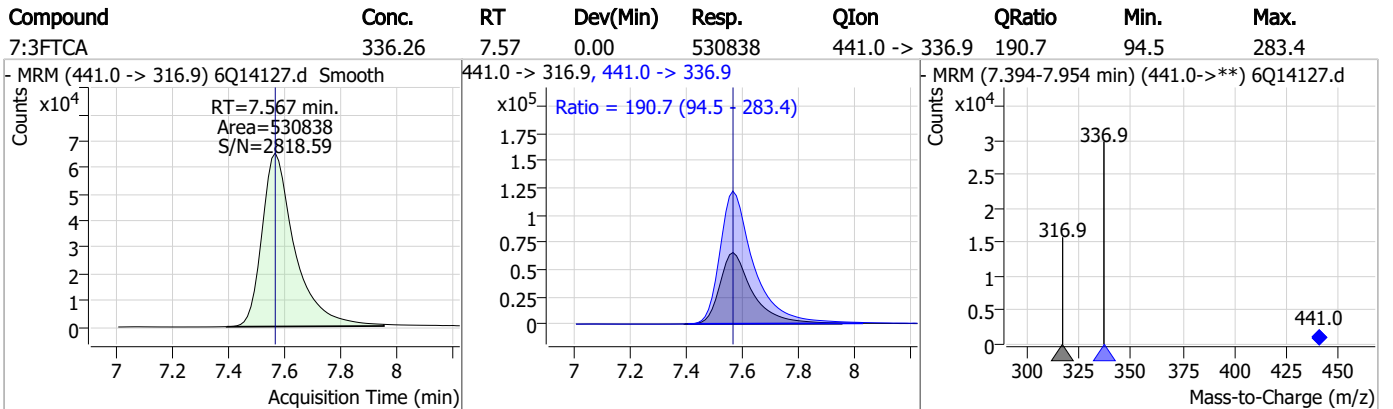
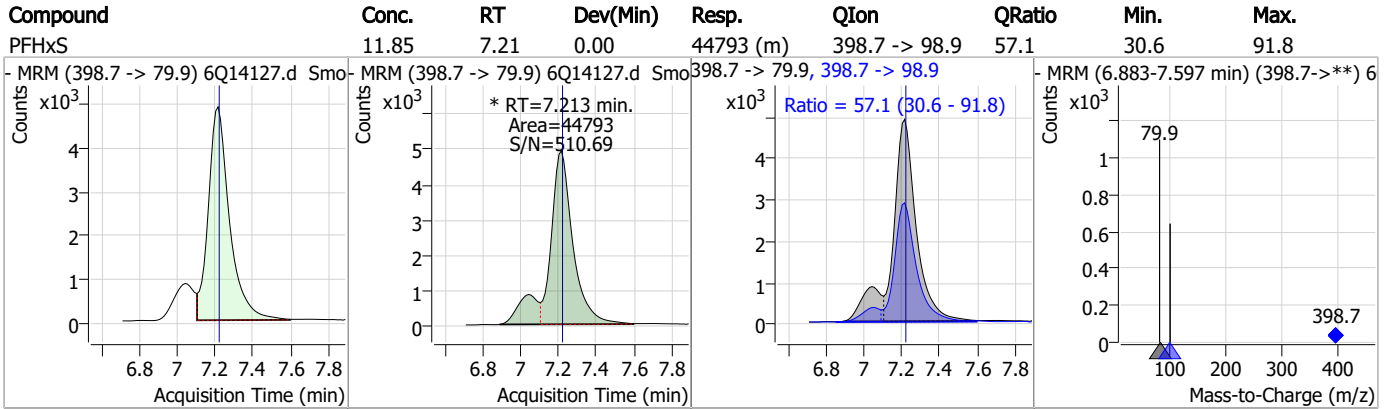
Perfluorinated Compounds by LC/MS/MS



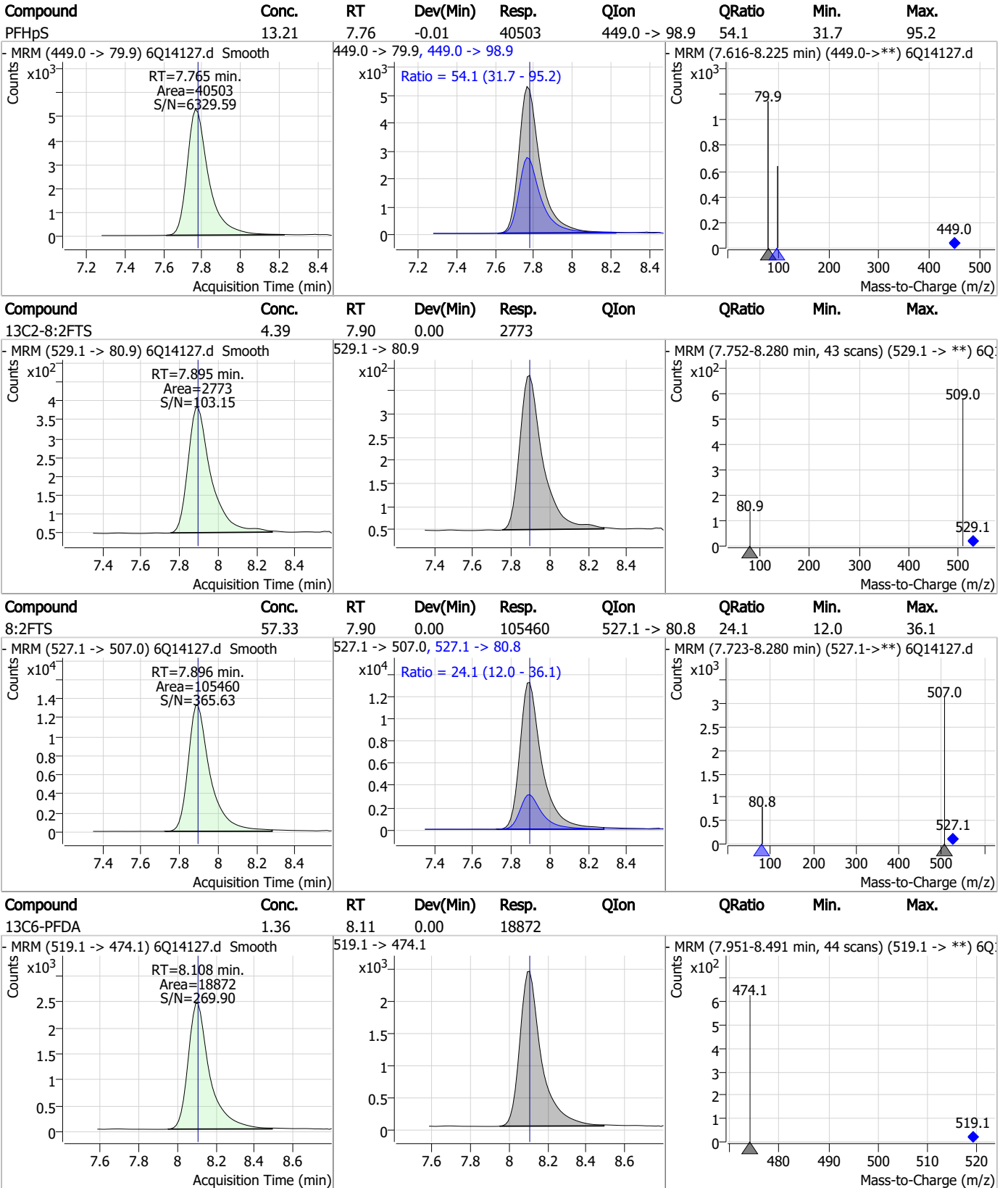
7.7.7

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Perfluorinated Compounds by LC/MS/MS



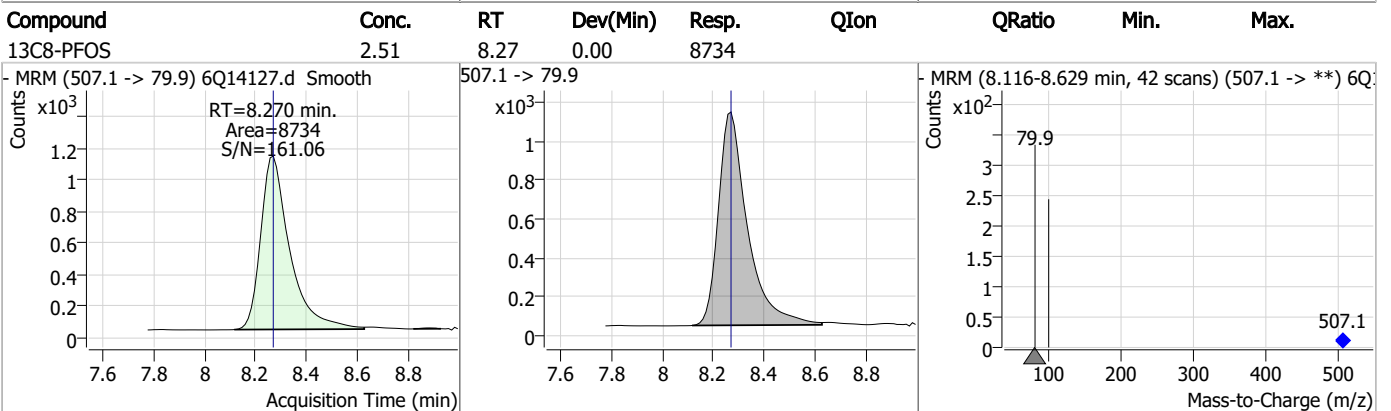
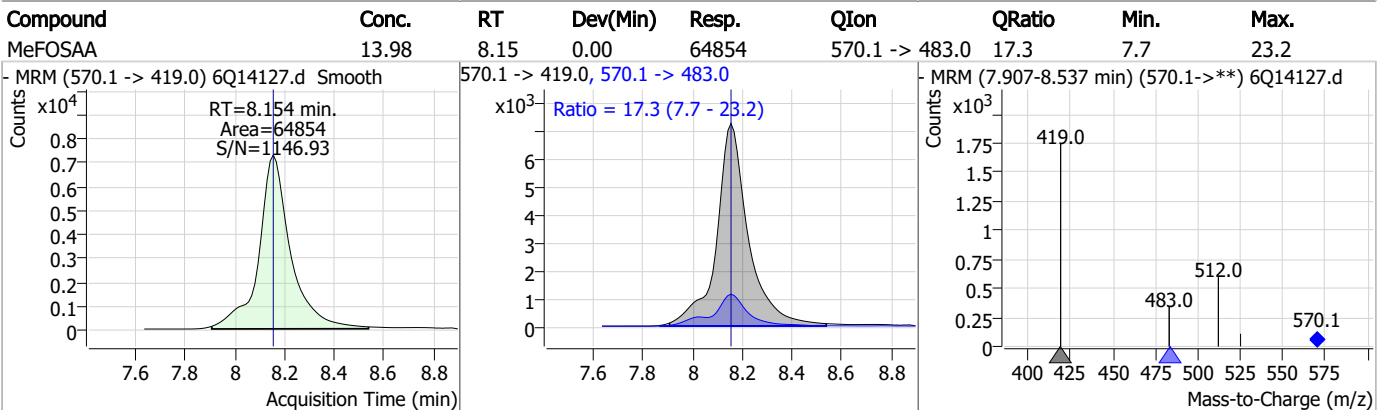
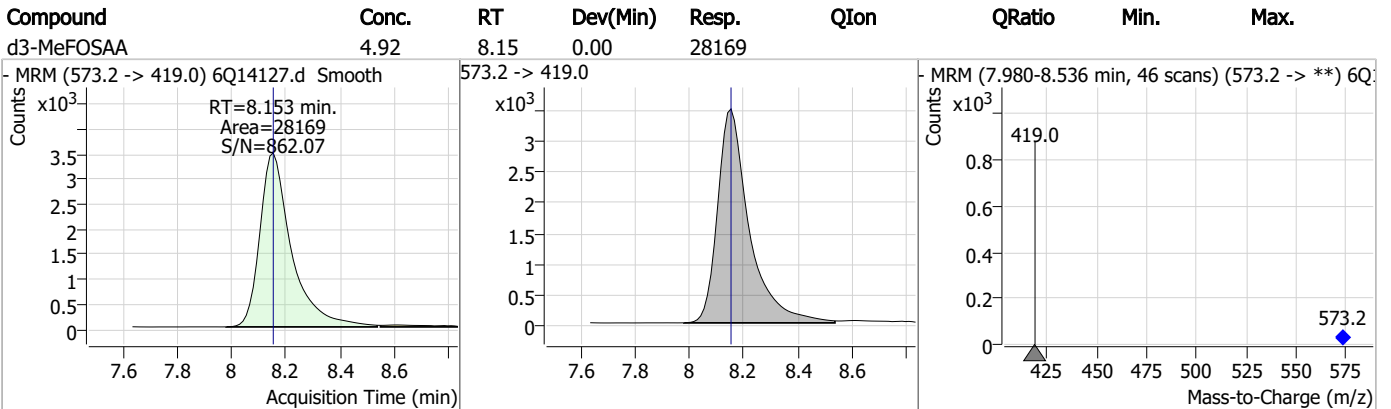
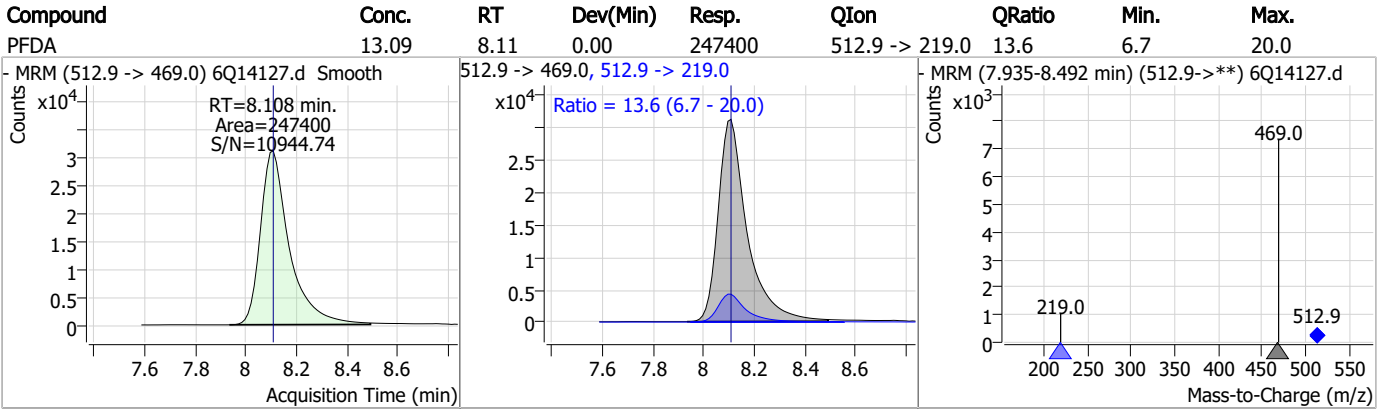
Perfluorinated Compounds by LC/MS/MS



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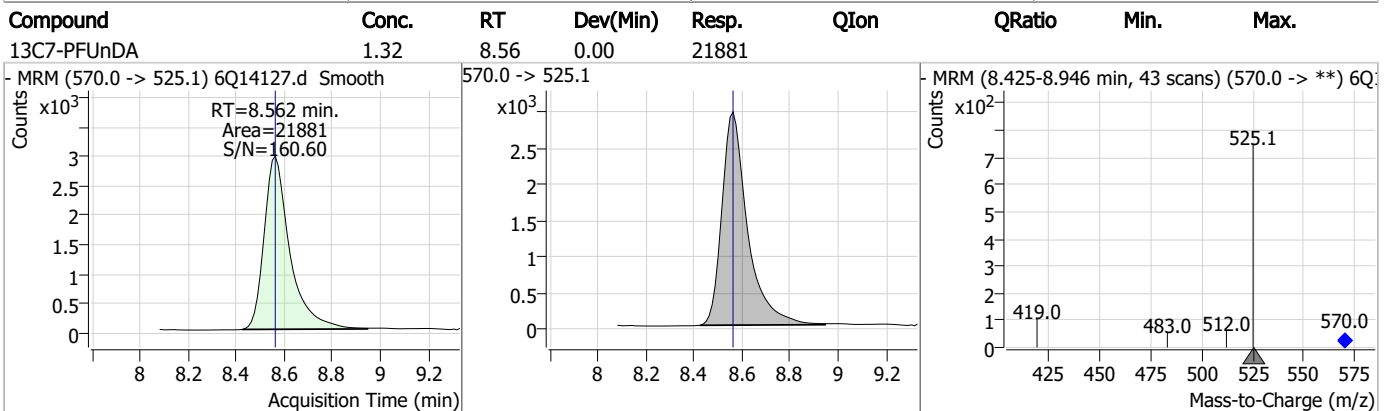
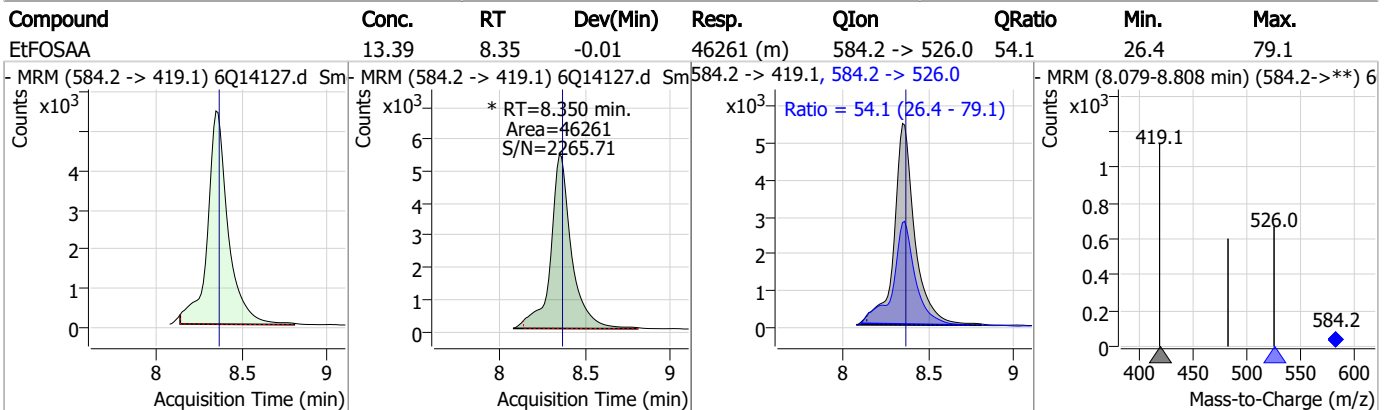
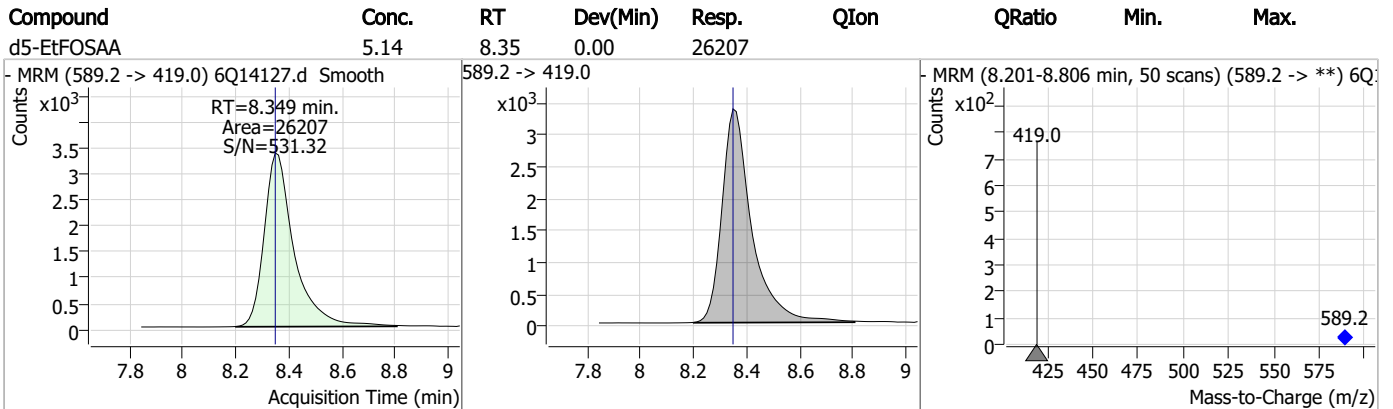
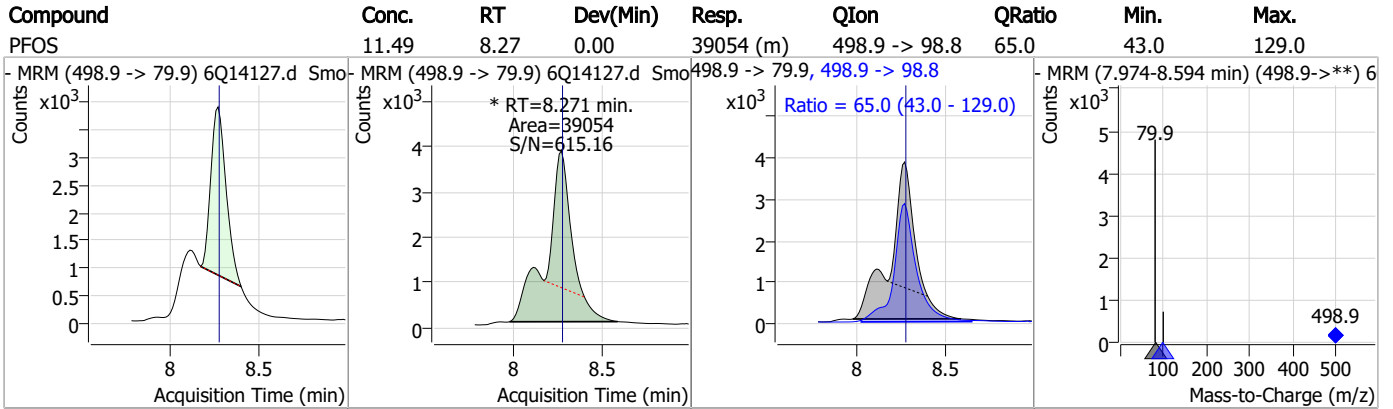
Perfluorinated Compounds by LC/MS/MS



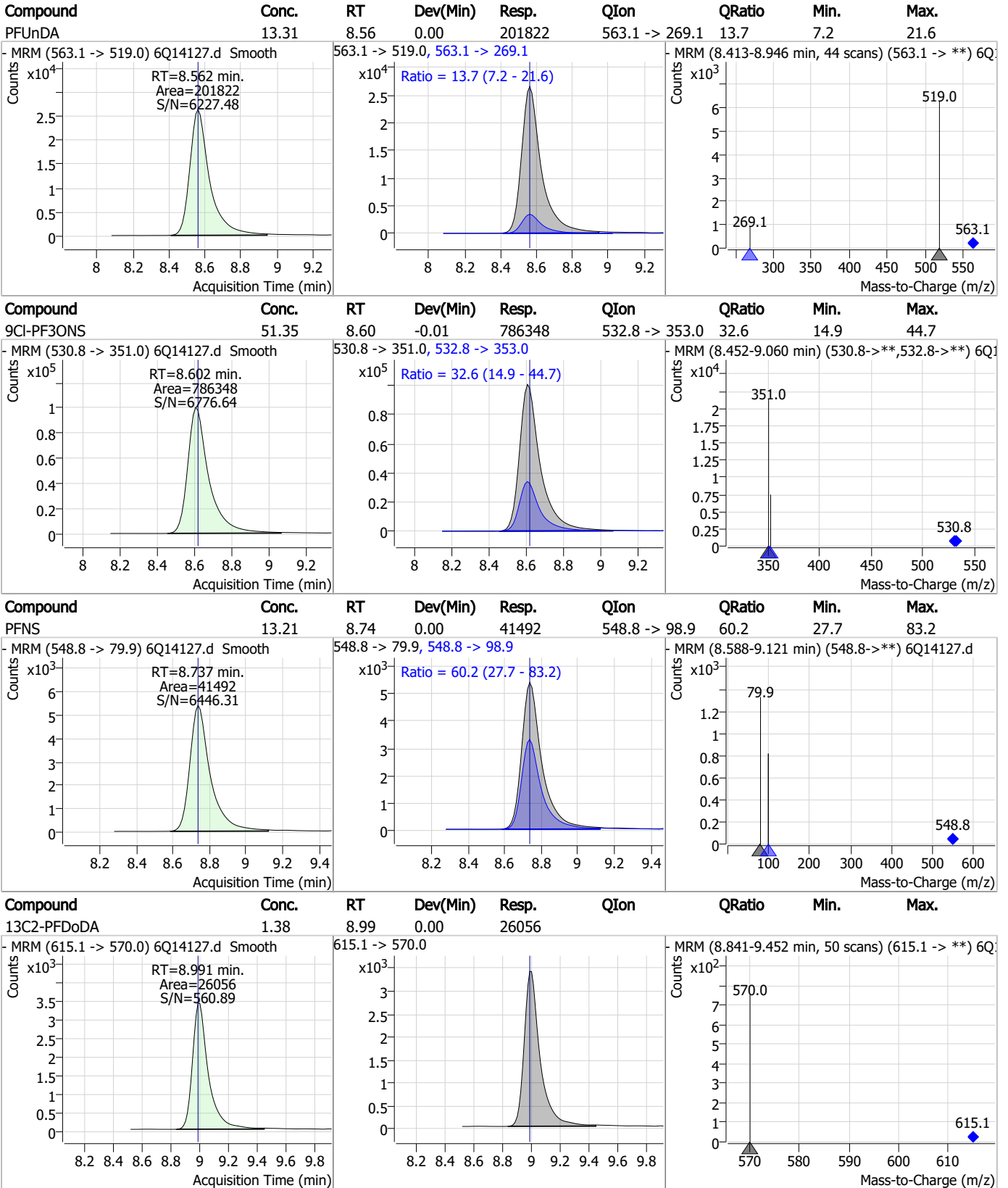
7.7.7

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Perfluorinated Compounds by LC/MS/MS



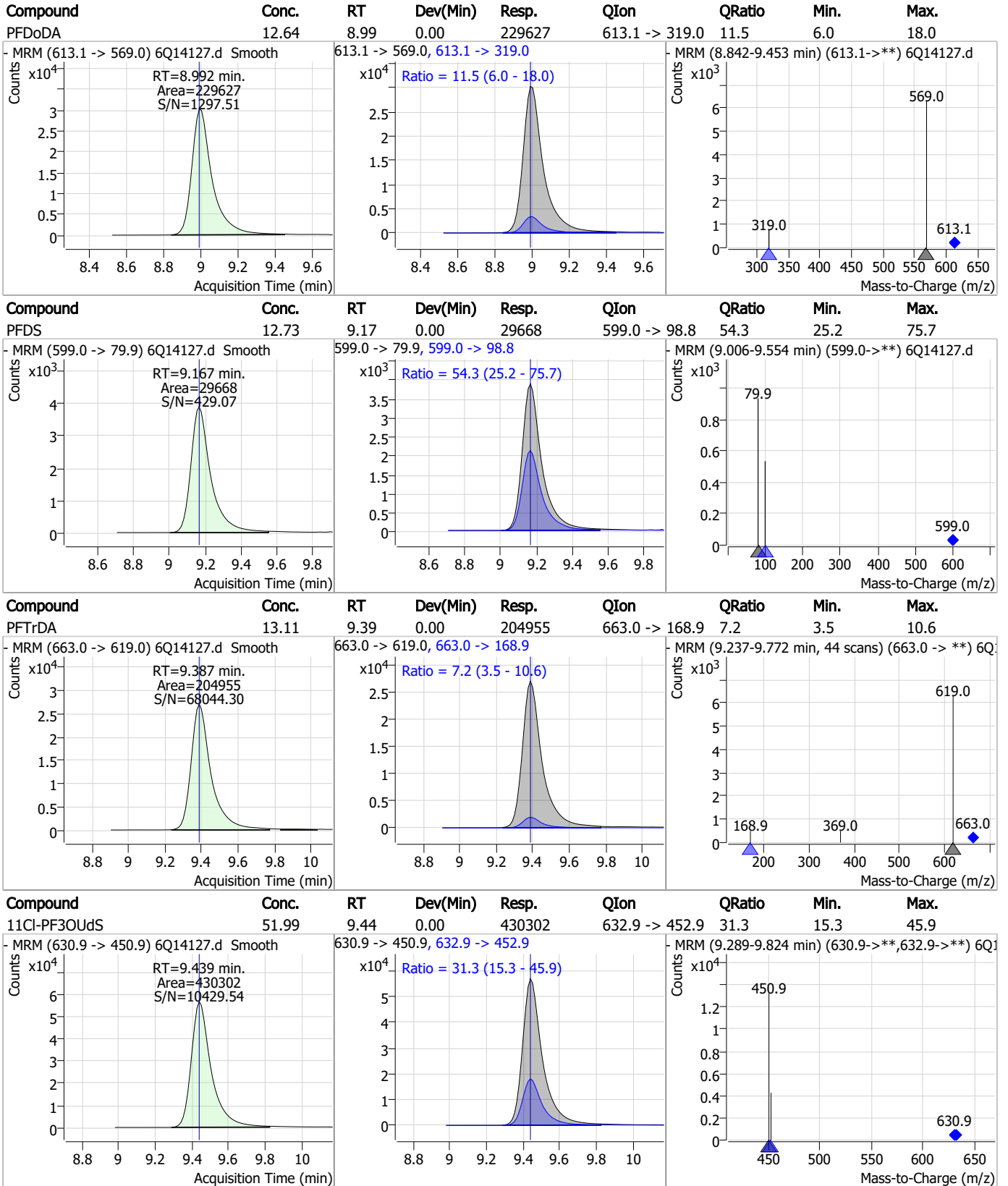
Perfluorinated Compounds by LC/MS/MS



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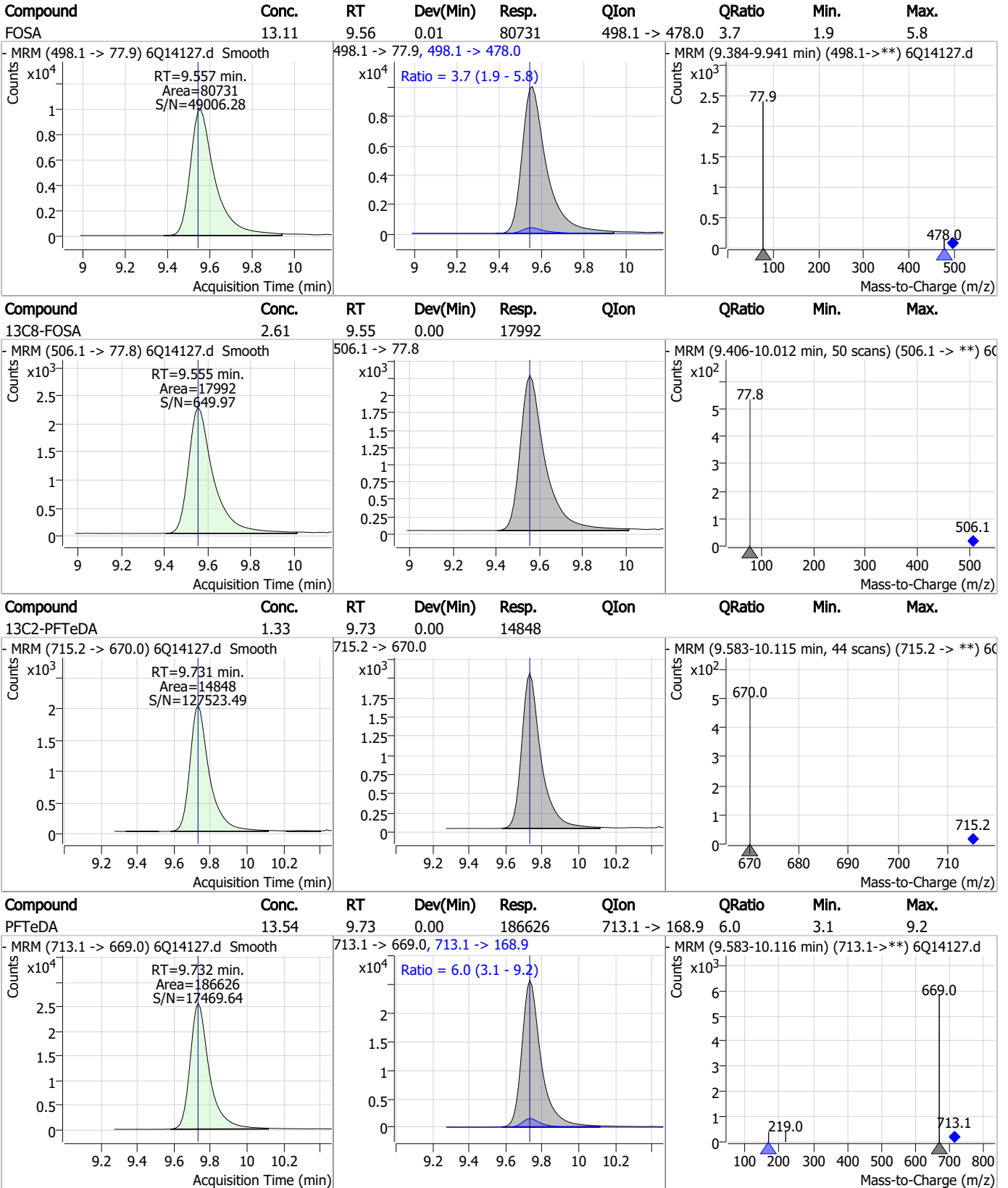
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Perfluorinated Compounds by LC/MS/MS



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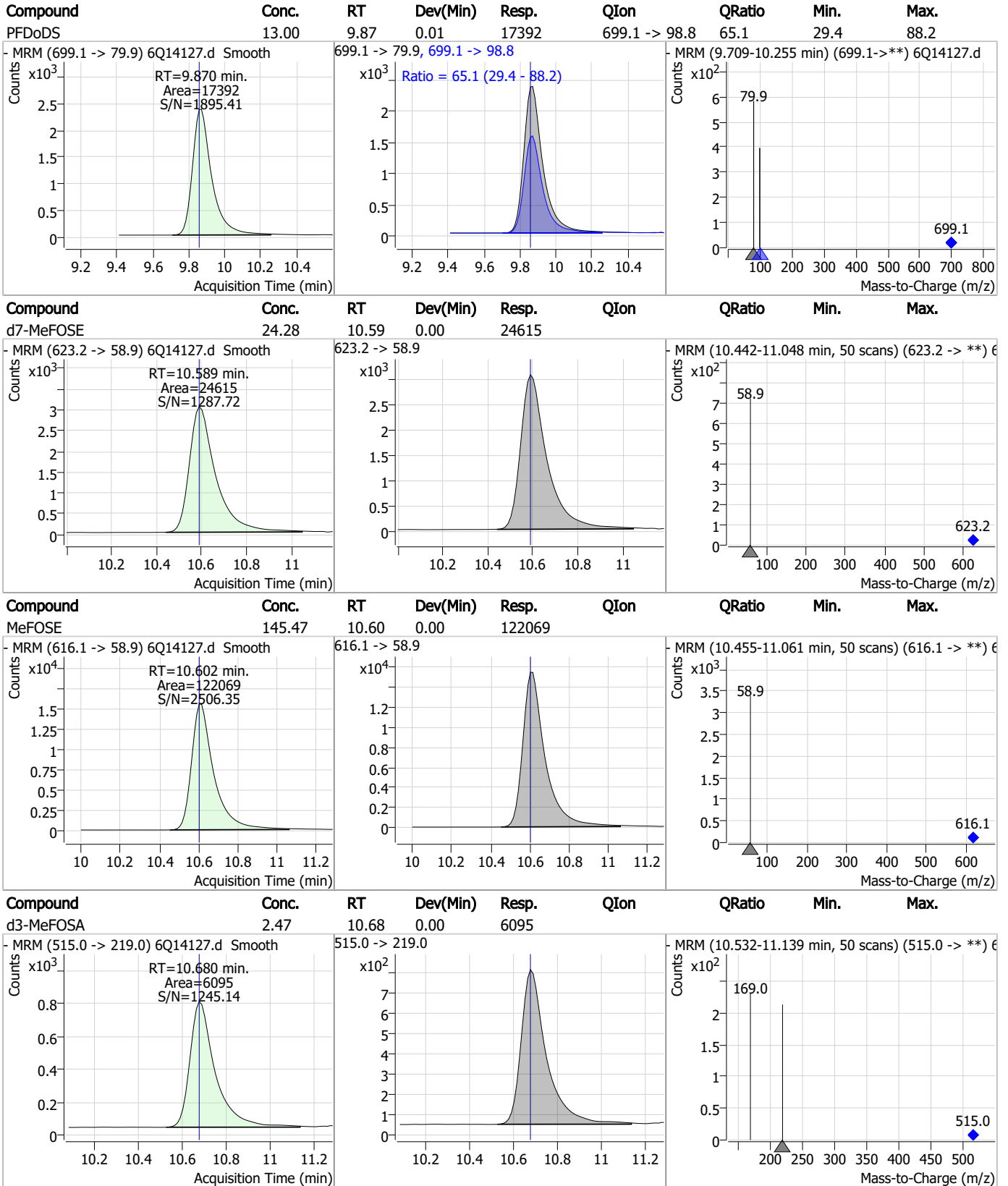
Perfluorinated Compounds by LC/MS/MS



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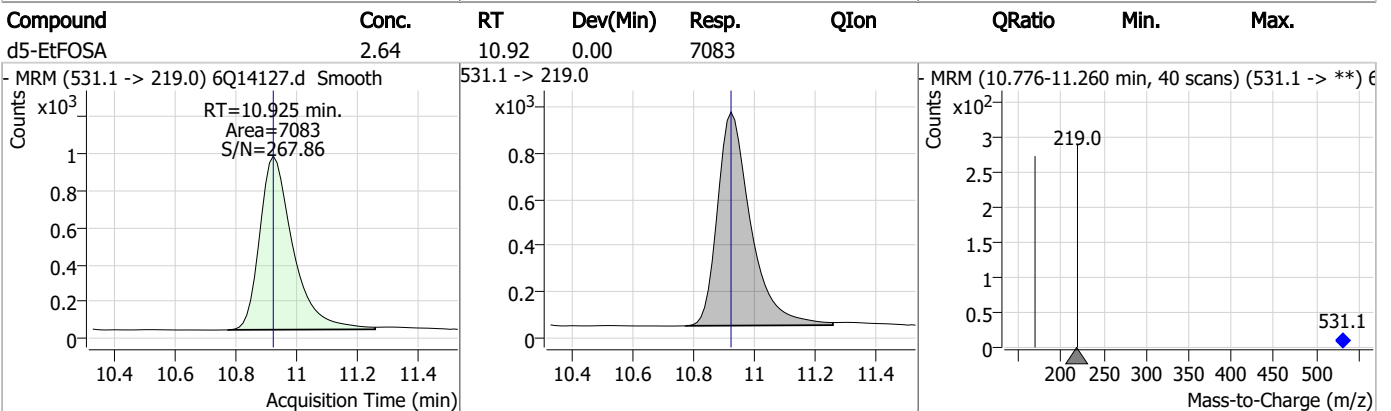
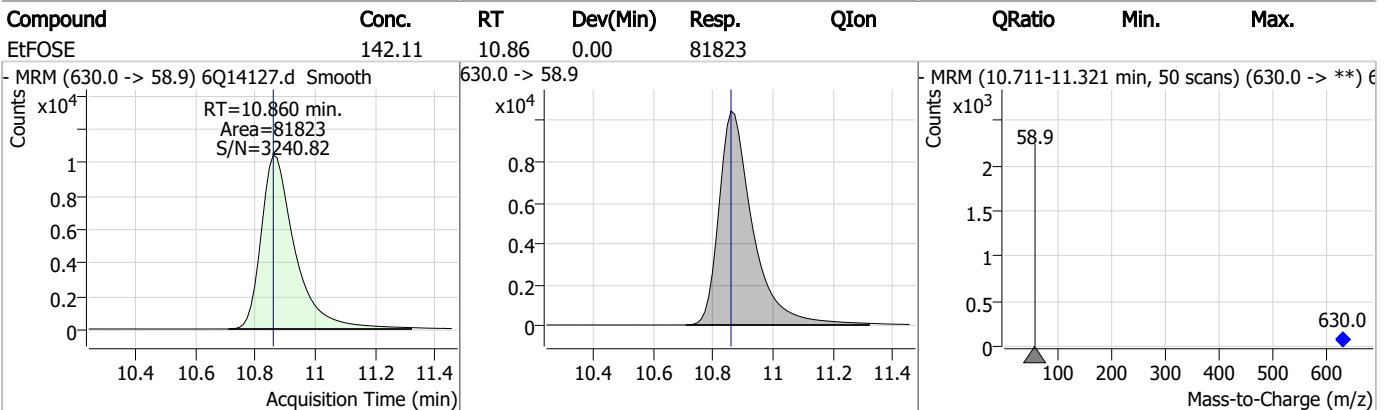
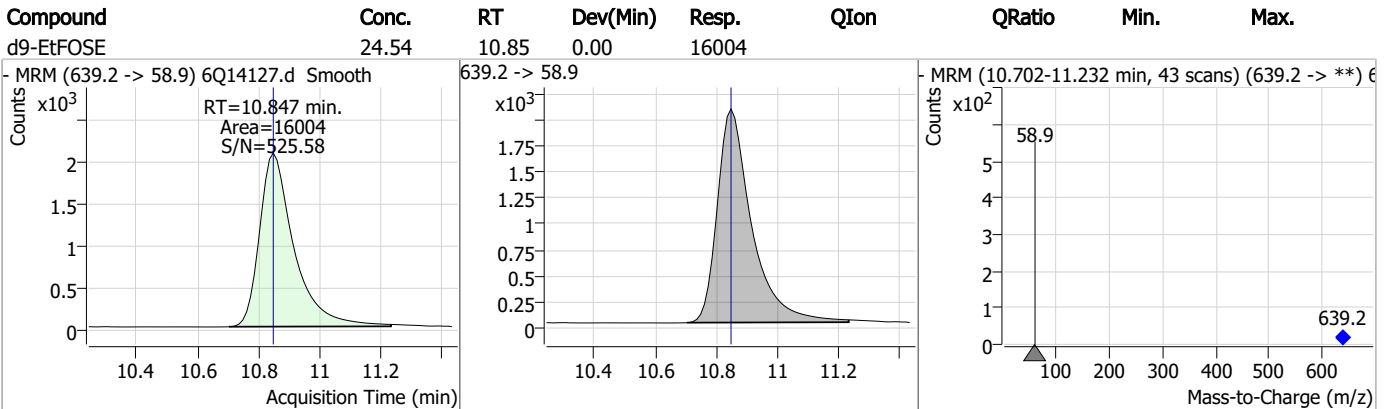
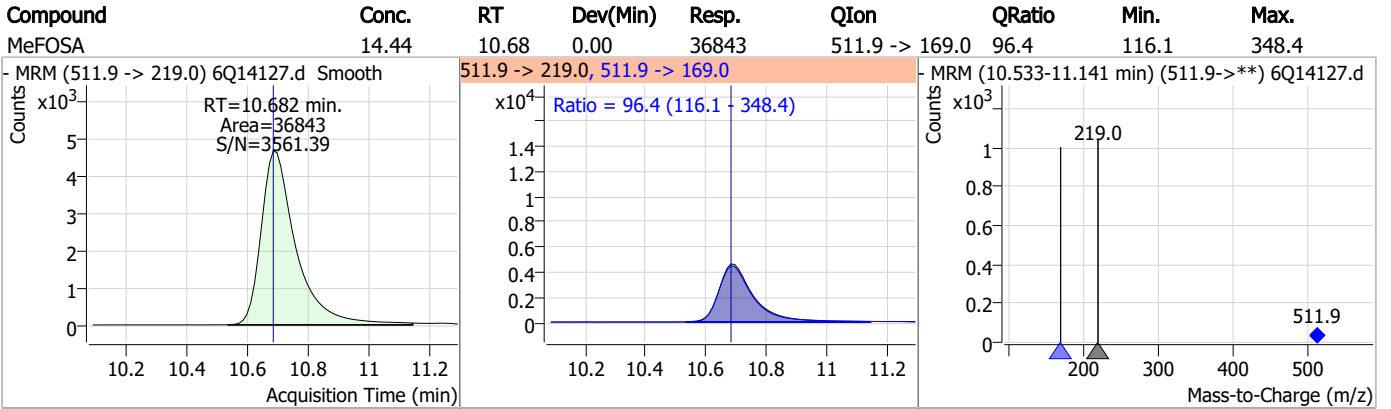
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

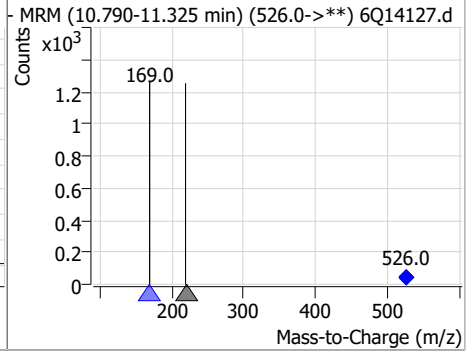
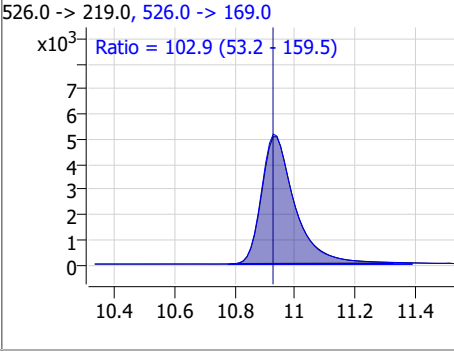
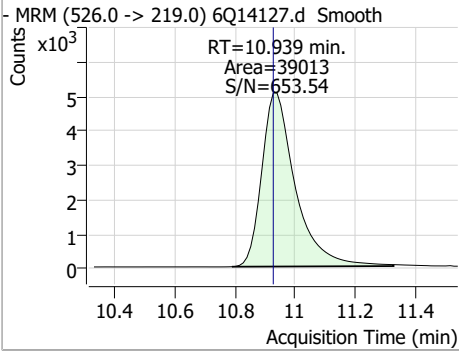


7.7.7

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	12.74	10.94	0.01	39013	526.0 -> 169.0	102.9	53.2	159.5



7.7.7
7

Manual Integration Approval Summary

Sample Number: S6Q216-IC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14127.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 18:47 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.35	Split peak

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Manual Integrations
APPROVED
(compounds with "m" flag)

Norman Farmer
02/23/23 16:30

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14128.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 2/22/2023 7:01:28 PM
Sample Name : ic216-7
Vial : P1-A8
DA Method File : 1633_022223_S6Q216.quantmethod.xml
Batch Name : s6q216.batch.bin
Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	85987	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	44665	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	38198	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	40185	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	68735	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	21883	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	17711	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	21007	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	23987	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	14309	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	16924	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15569	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9582	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8330	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2344	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3074	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2664	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	27316	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	14863	10.00 µg/L	-0.012
M5-EtFOSAA	8.349	589.2 -> 419.0	25130	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	24802	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	15472	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6216	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6128	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10973	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	38169	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7303	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	83271	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	25220	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	24842	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	39779	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2344	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3074	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2664	4.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.9%		
13C2-PFDoDA	8.991	615.1 -> 570.0	23987	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14309	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFBS	5.456	302.1 -> 79.9	15569	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C3-PFHxS	7.212	402.1 -> 79.9	9582	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 = 97.0%	
13C4-PFBA	2.938	216.8 -> 171.9	85987	10.00 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.452	367.1 -> 322.0	40185	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFHxA	5.513	318.0 -> 273.0	38198	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFPeA	4.337	268.3 -> 223.0	44665	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	8.108	519.1 -> 474.1	17711	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.562	570.0 -> 525.1	21007	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-FOSA	9.555	506.1 -> 77.8	16924	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOA	7.097	421.1 -> 376.0	68735	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.270	507.1 -> 79.9	8330	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C9-PFNA	7.626	472.1 -> 427.0	21883	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSAA	8.153	573.2 -> 419.0	27316	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	14863	9.80 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSA	10.680	515.0 -> 219.0	6128	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.349	589.2 -> 419.0	25130	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d7-MeFOSE	10.589	623.2 -> 58.9	24802	23.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d9-EtFOSE	10.847	639.2 -> 58.9	15472	23.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
d5-EtFOSA	10.925	531.1 -> 219.0	6216	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	427449	95.18 µg/L	97
		327.1 -> 80.9	88153		
6:2FTS	6.871	427.1 -> 407.0	348008	91.25 µg/L	95
		427.1 -> 80.9	70470		
8:2FTS	7.896	527.1 -> 507.0	181649	102.78 µg/L	98
		527.1 -> 80.8	45660		
EtFOSAA	8.362	584.2 -> 419.1	87419	26.39 µg/L	100
		584.2 -> 526.0	46363		
FOSA	9.557	498.1 -> 77.9	149382	25.79 µg/L	100
		498.1 -> 478.0	5876		
MeFOSAA	8.154	570.1 -> 419.0	120594	26.81 µg/L	97
		570.1 -> 483.0	20222		
PFBA	2.944	212.8 -> 168.9	182086	105.51 µg/L	100
PFBS	5.457	298.7 -> 79.9	114820	22.86 µg/L	95
		298.7 -> 98.8	51184		
PFDA	8.108	512.9 -> 469.0	473049	26.68 µg/L	99
		512.9 -> 219.0	64788		
PFDoDA	8.992	613.1 -> 569.0	409124	24.46 µg/L	100
		613.1 -> 319.0	49687		
PFDS	9.167	599.0 -> 79.9	56495	25.42 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	30793			
PFHpA	6.453	363.1 -> 319.0	522354	26.67	µg/L	99
		363.1 -> 169.0	71784			
PFHpS	7.779	449.0 -> 79.9	76612	26.20	µg/L	89
		449.0 -> 98.9	42186			
PFHxA	5.516	313.0 -> 269.0	322386	25.79	µg/L	99
		313.0 -> 118.9	12461			
PFHxS	7.213	398.7 -> 79.9	82651	22.67	µg/L	m 95
		398.7 -> 98.9	47510			
PFNA	7.627	463.0 -> 419.0	304417	26.66	µg/L	99
		463.0 -> 219.0	62465			
PFNS	8.737	548.8 -> 79.9	79275	26.47	µg/L	98
		548.8 -> 98.9	44911			
PFOA	7.098	413.0 -> 369.0	653021	25.22	µg/L	94
		413.0 -> 169.0	88097			
PFOS	8.271	498.9 -> 79.9	81390	25.11	µg/L	m 73
		498.9 -> 98.8	49973			
PFPeA	4.338	263.0 -> 219.0	406327	52.42	µg/L	100
PFPeS	6.517	349.1 -> 79.9	109579	24.49	µg/L	98
		349.1 -> 98.9	56711			
PFTeDA	9.732	713.1 -> 669.0	339183	25.53	µg/L	99
		713.1 -> 168.9	21943			
PFTrDA	9.387	663.0 -> 619.0	374331	26.01	µg/L	98
		663.0 -> 168.9	28537			
PFUnDA	8.562	563.1 -> 519.0	387977	26.64	µg/L	97
		563.1 -> 269.1	51624			
11Cl-PF3OUdS	9.439	630.9 -> 450.9	776503	97.55	µg/L	93
		632.9 -> 452.9	266856			
9Cl-PF3ONS	8.602	530.8 -> 351.0	1437407	97.62	µg/L	96
		532.8 -> 353.0	459722			
ADONA	6.704	376.9 -> 250.9	2810924	96.65	µg/L	100
		376.9 -> 84.8	618491			
HFPO-DA	5.879	284.9 -> 168.9	132116	110.34	µg/L	99
		284.9 -> 184.9	15545			
3:3FTCA	3.804	241.0 -> 177.0	51272	128.45	µg/L	96
		241.0 -> 117.0	7557			
5:3FTCA	6.156	341.0 -> 237.1	1821555	662.84	µg/L	99
		341.0 -> 217.0	1573417			
7:3FTCA	7.567	441.0 -> 316.9	965958	655.28	µg/L	99
		441.0 -> 336.9	1842842			
EtFOSA	10.927	526.0 -> 219.0	75970	28.26	µg/L	89
		526.0 -> 169.0	72102			
EtFOSE	10.860	630.0 -> 58.9	151319	271.84	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	66534	25.93	µg/L	# 21
		511.9 -> 169.0	66974			
MeFOSE	10.602	616.1 -> 58.9	225916	267.20	µg/L	100
PFDoS	9.858	699.1 -> 79.9	34511	27.04	µg/L	95
		699.1 -> 98.8	21560			
NFDHA	5.395	295.0 -> 201.0	37737	55.02	µg/L	97
		295.0 -> 84.9	19005			
PFMBA	4.738	279.0 -> 85.1	119695	52.86	µg/L	100
PFMPA	3.500	229.0 -> 84.9	108619	52.23	µg/L	100
PFEESA	5.996	314.8 -> 134.9	830226	48.01	µg/L	100
		314.8 -> 82.9	19604			

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

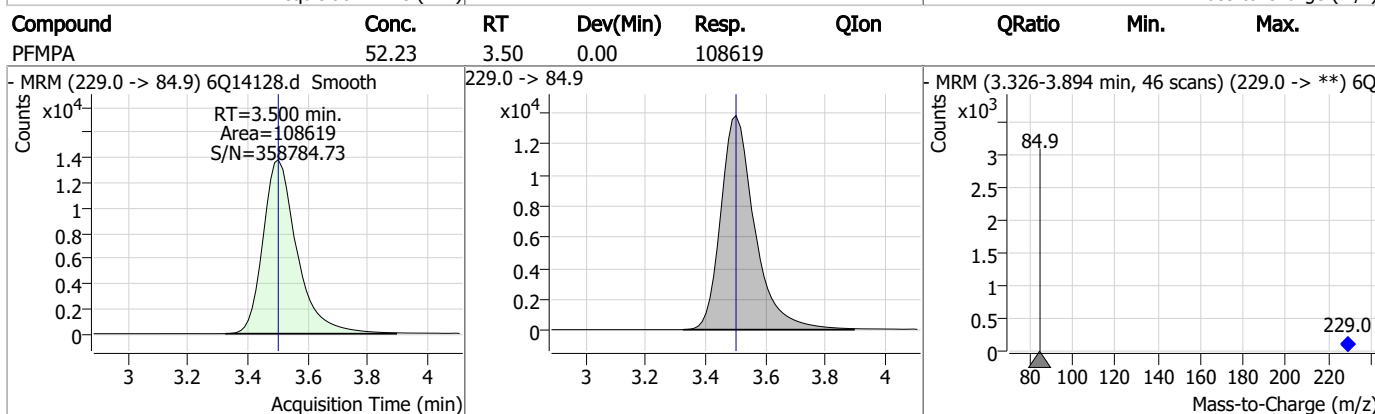
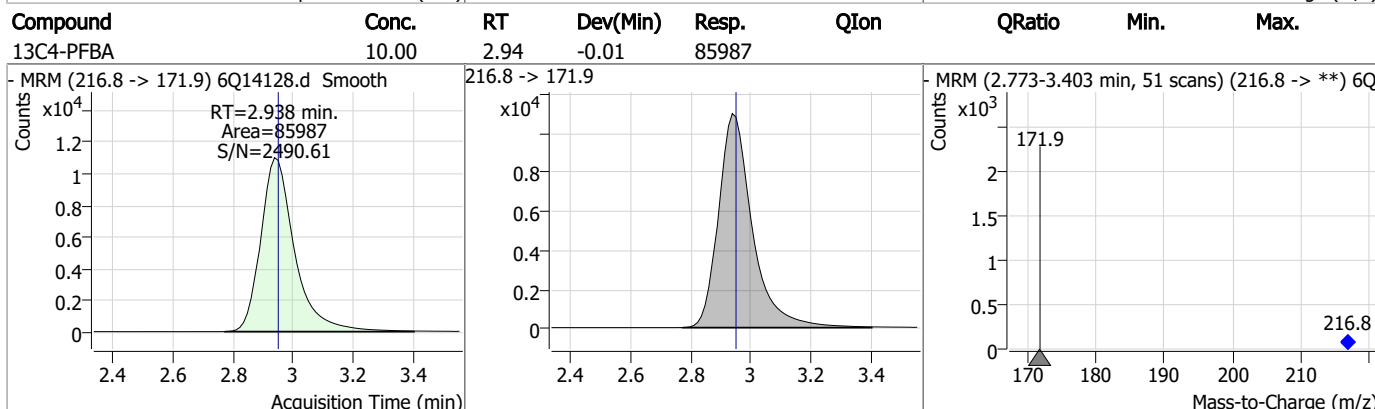
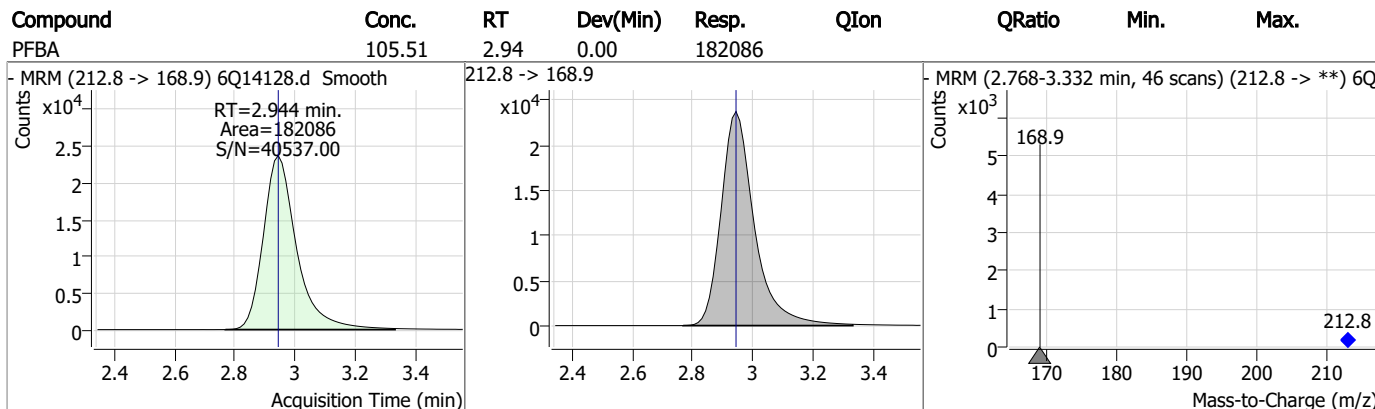
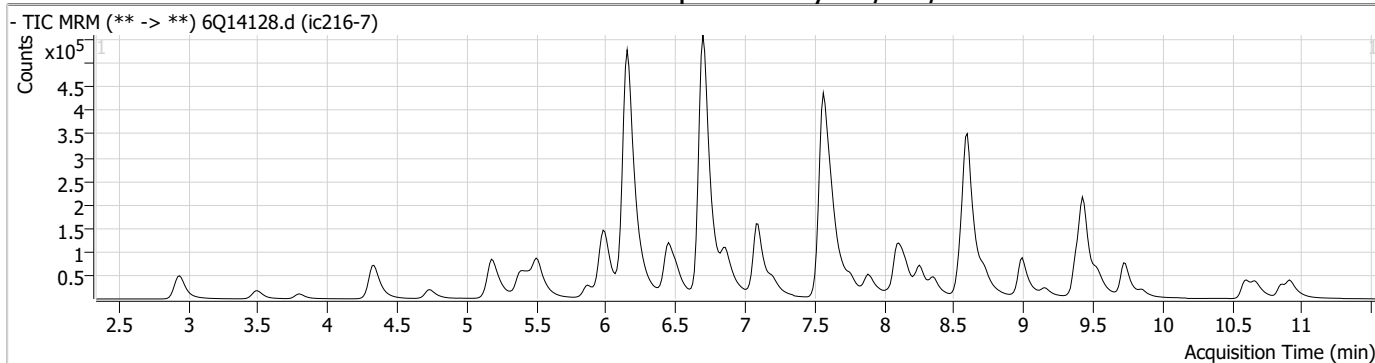
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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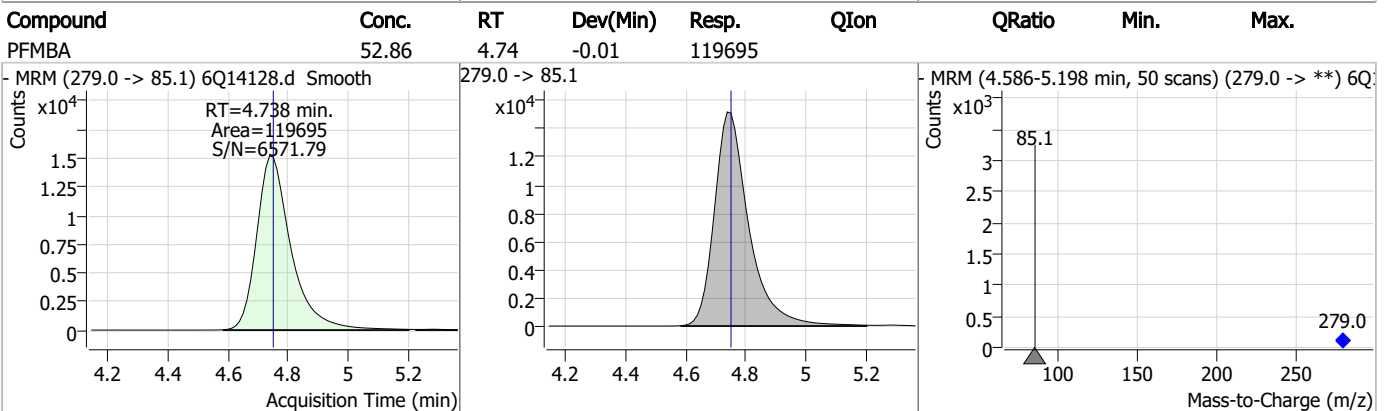
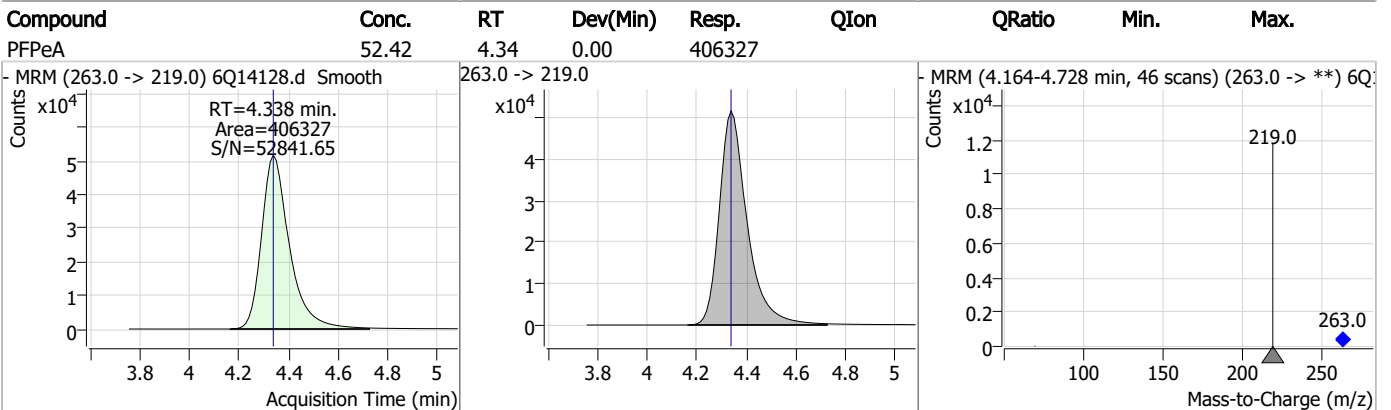
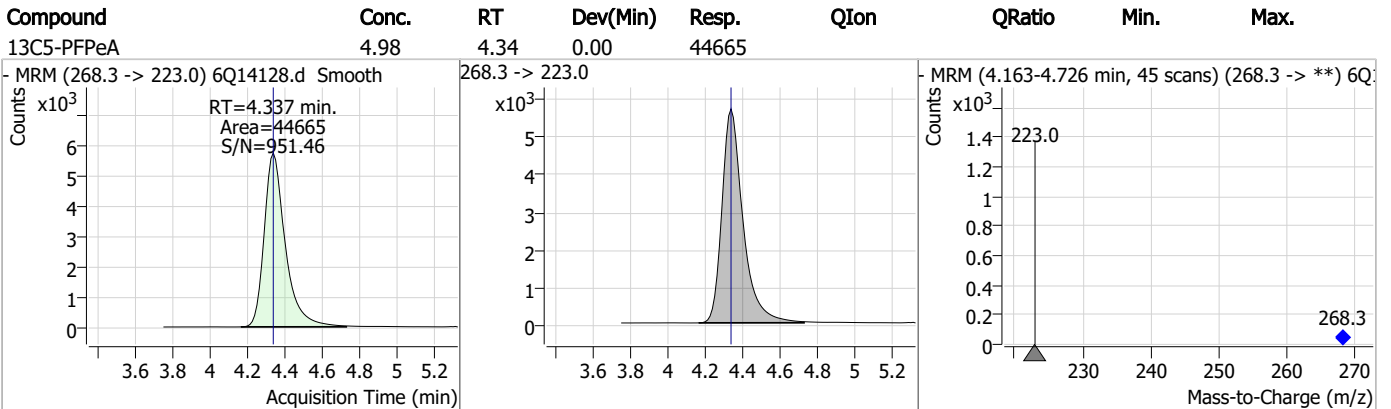
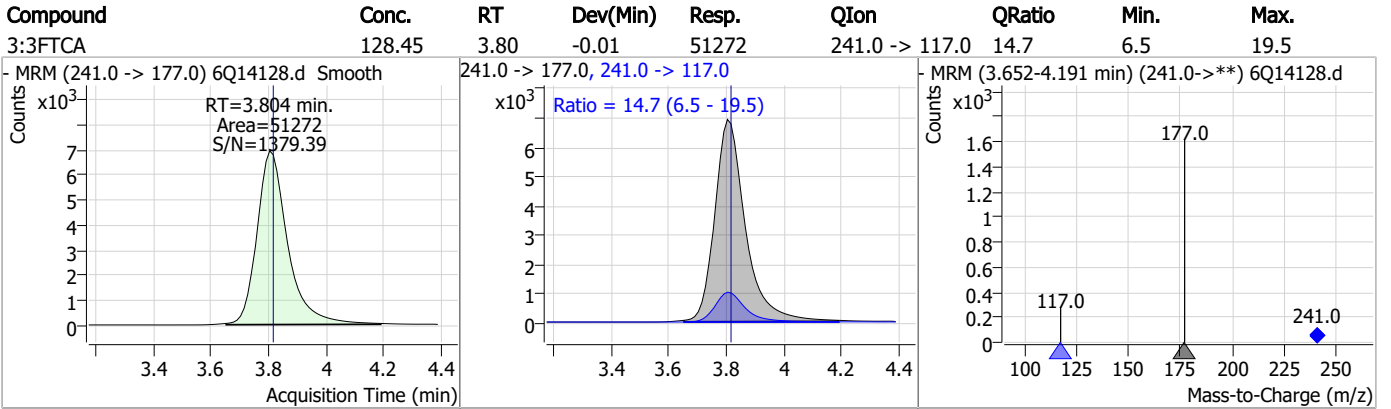


Perfluorinated Compounds by LC/MS/MS



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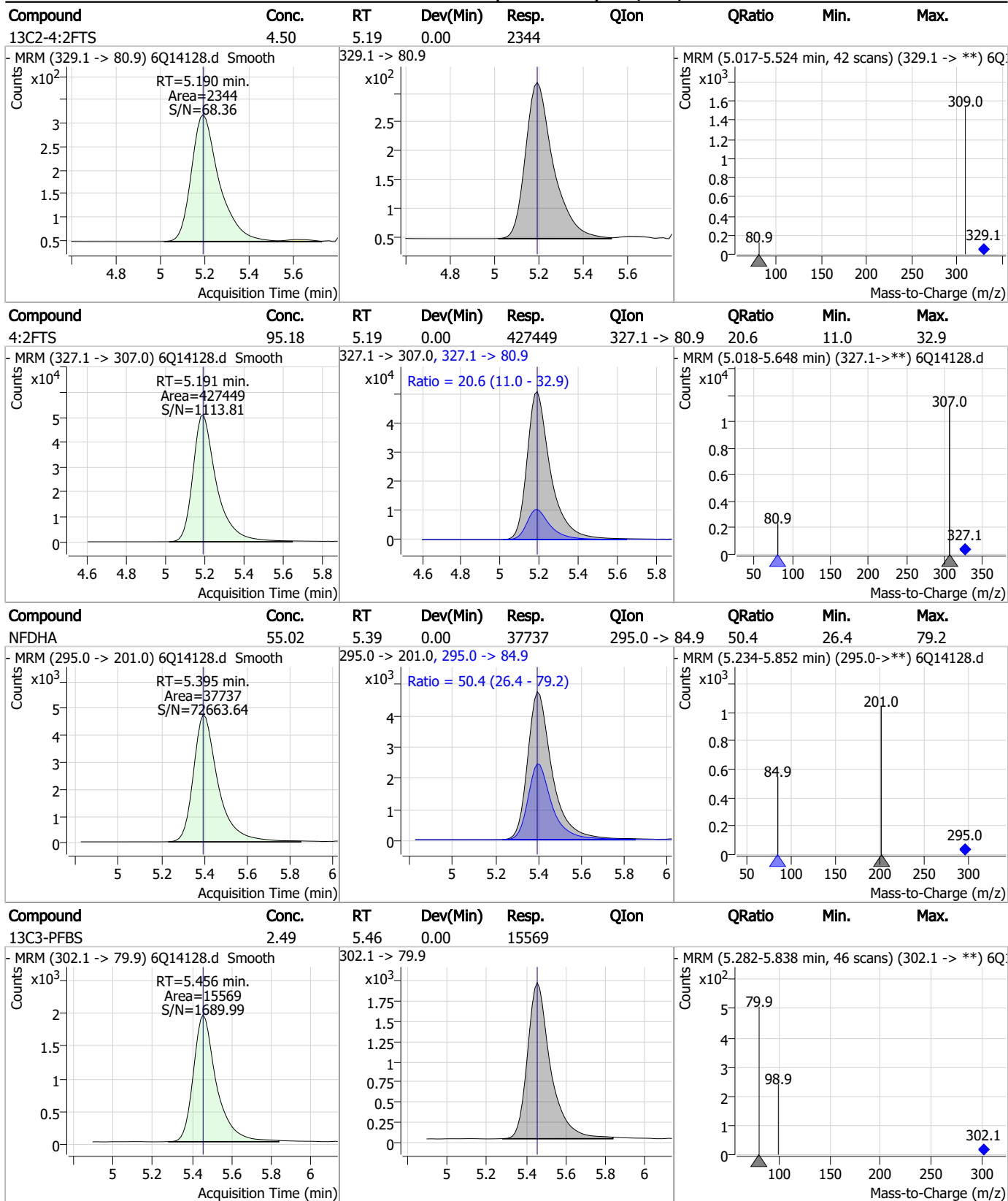
Perfluorinated Compounds by LC/MS/MS



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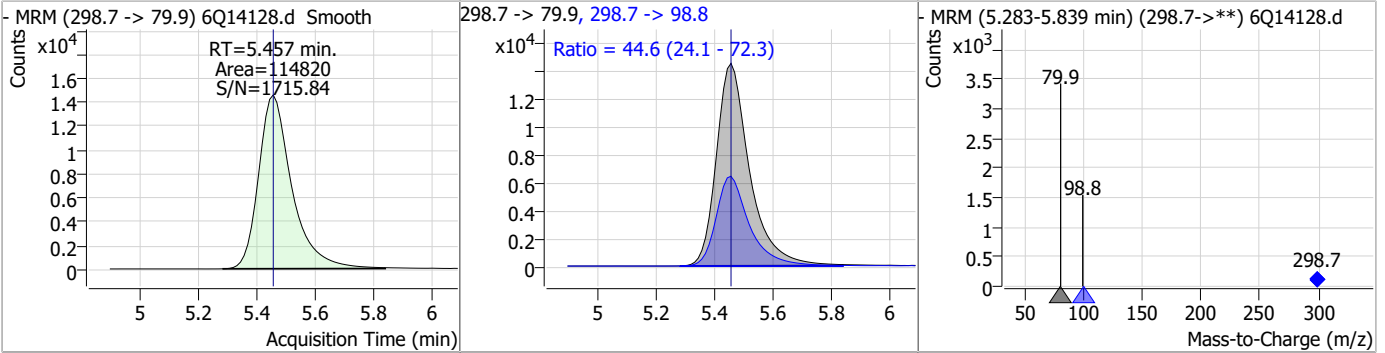
Perfluorinated Compounds by LC/MS/MS



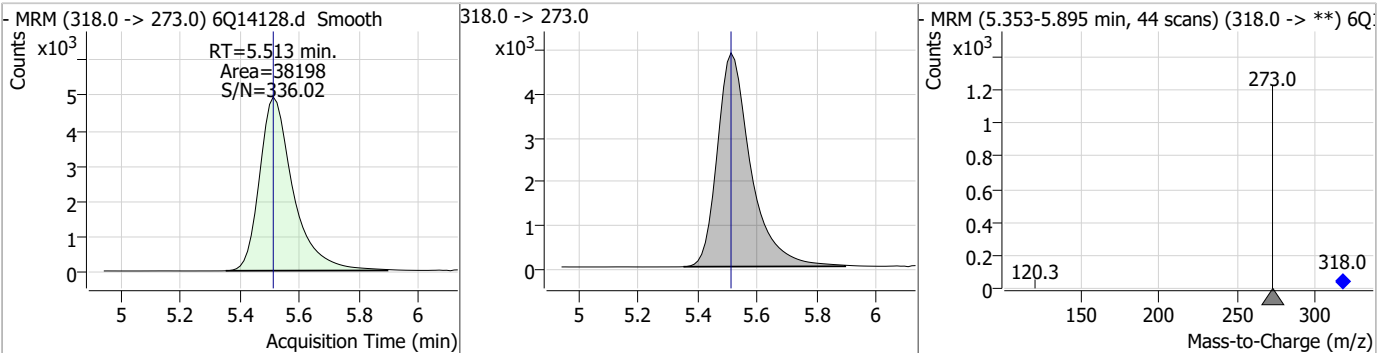
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Perfluorinated Compounds by LC/MS/MS

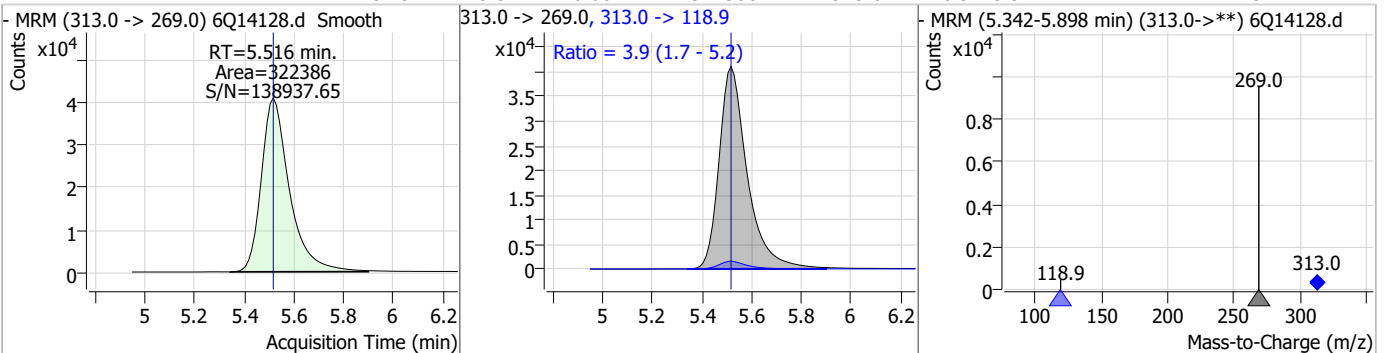
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.86	5.46	0.00	114820	298.7 -> 98.8	44.6	24.1	72.3



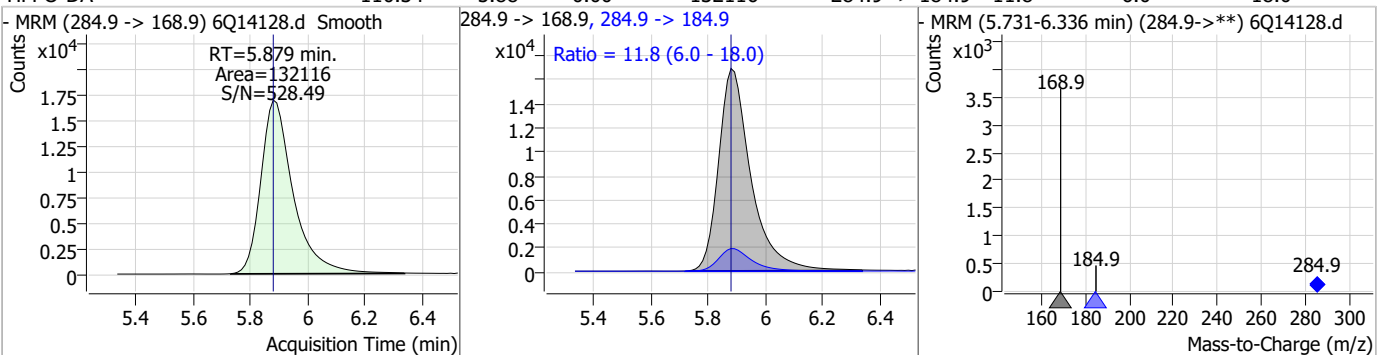
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.45	5.51	0.00	38198				



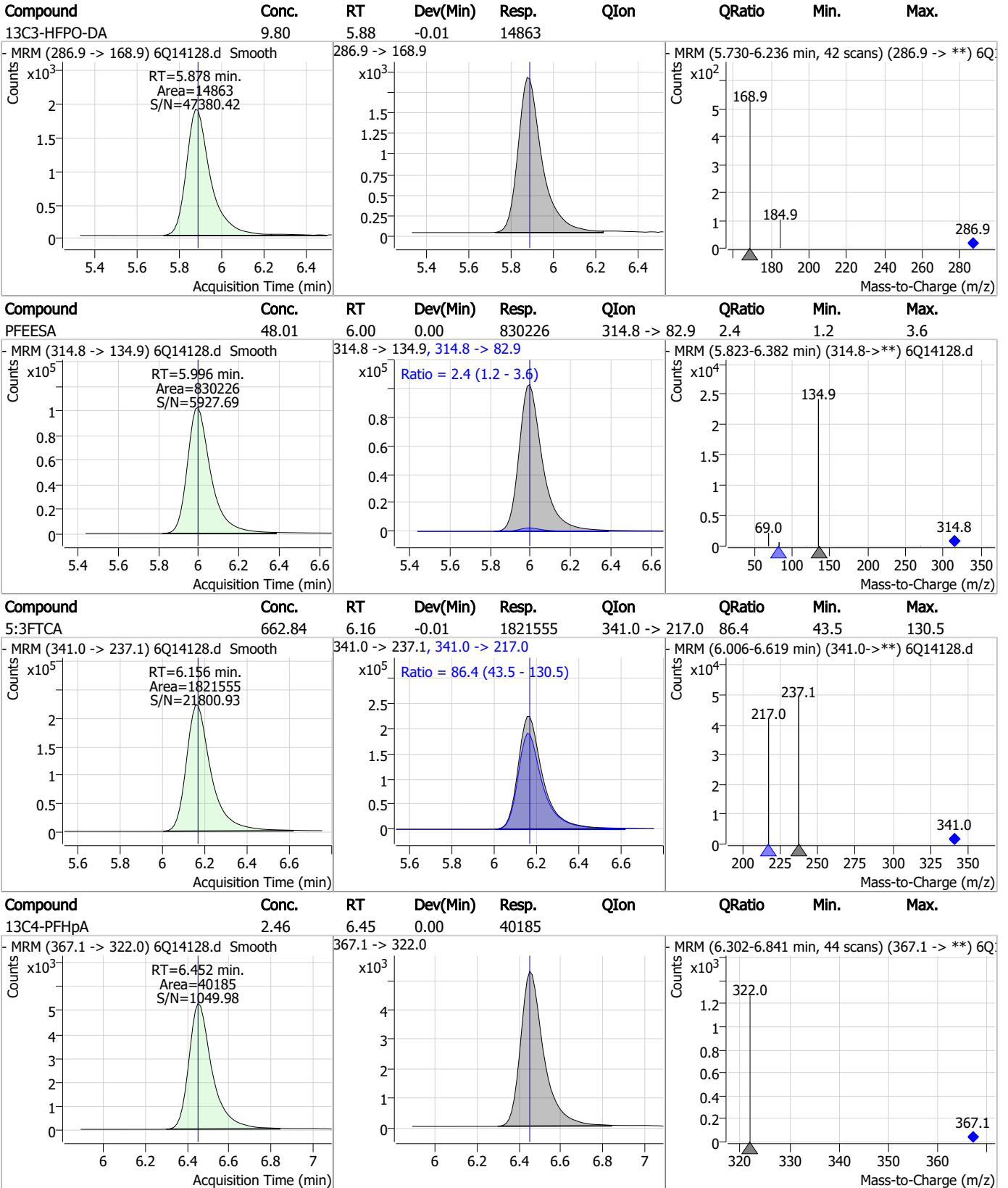
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.79	5.52	0.00	322386	313.0 -> 118.9	3.9	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	110.34	5.88	0.00	132116	284.9 -> 184.9	11.8	6.0	18.0



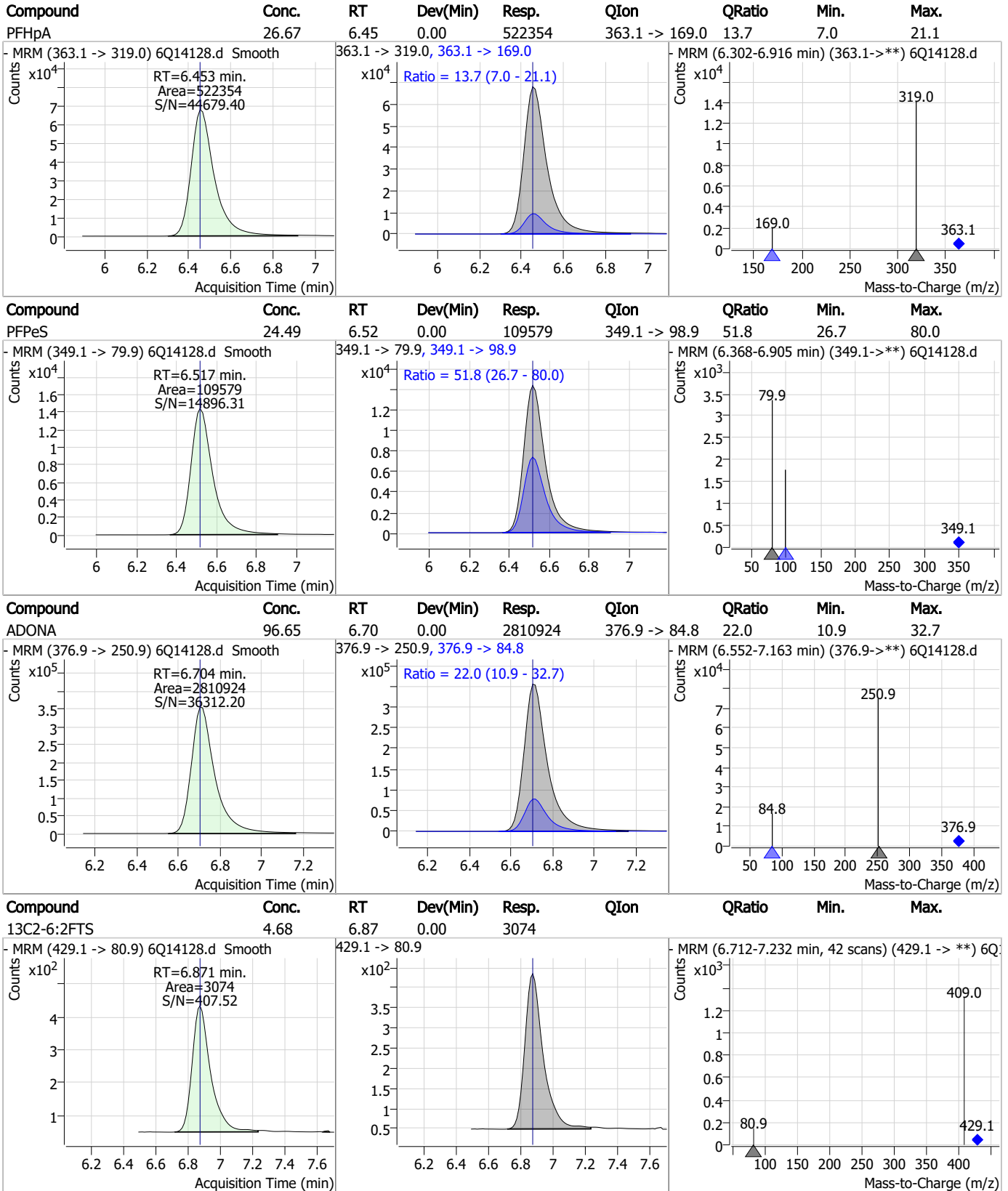
Perfluorinated Compounds by LC/MS/MS



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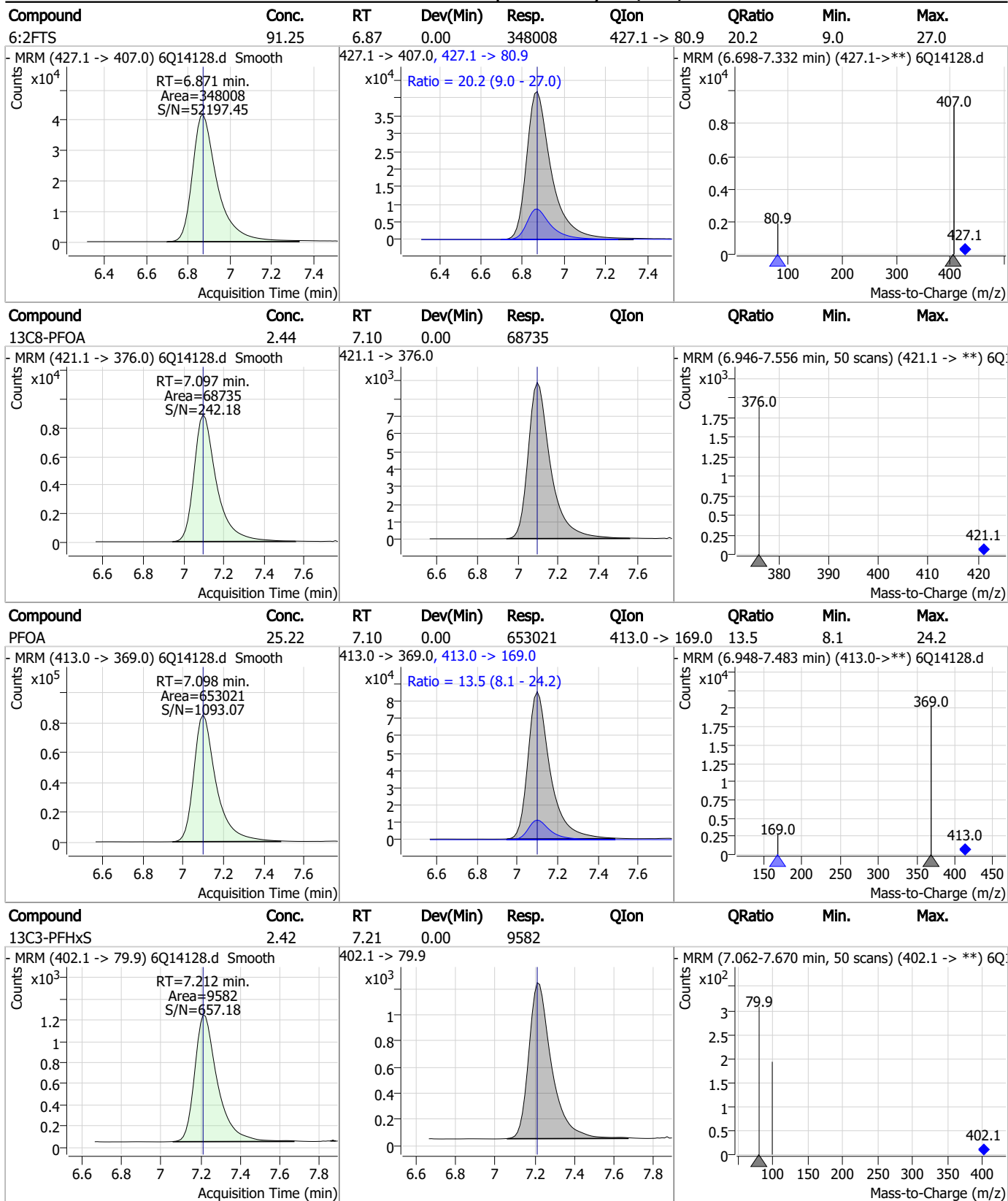
Perfluorinated Compounds by LC/MS/MS



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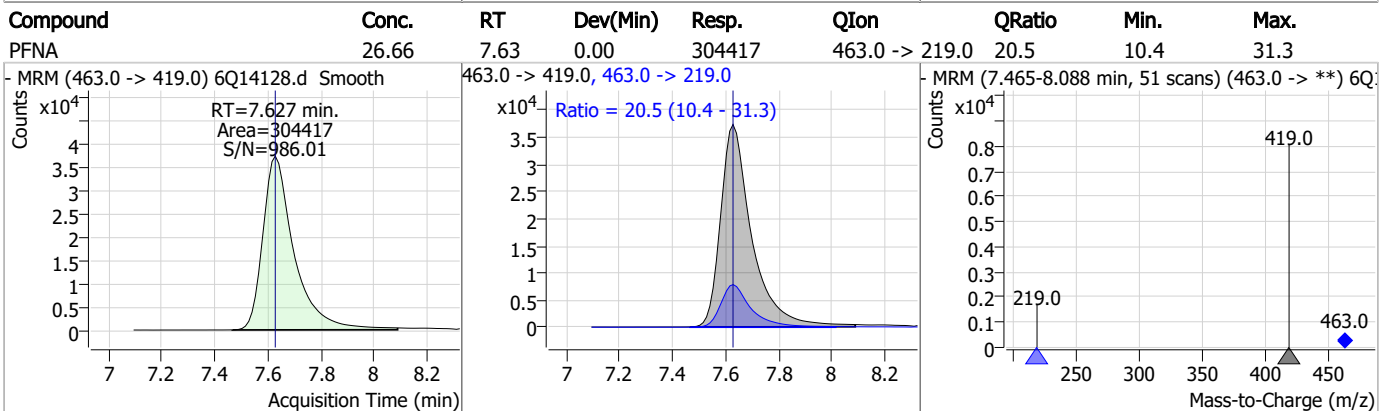
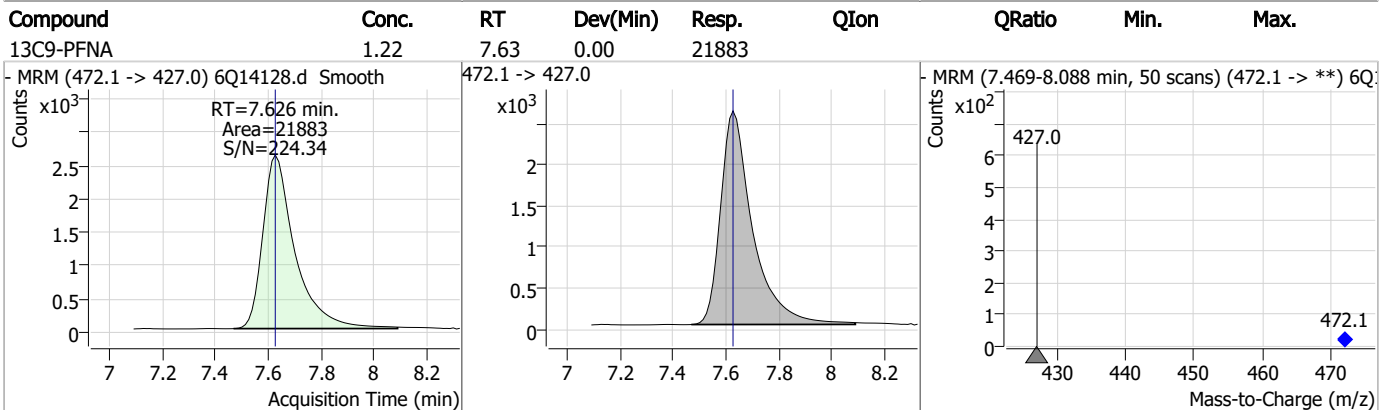
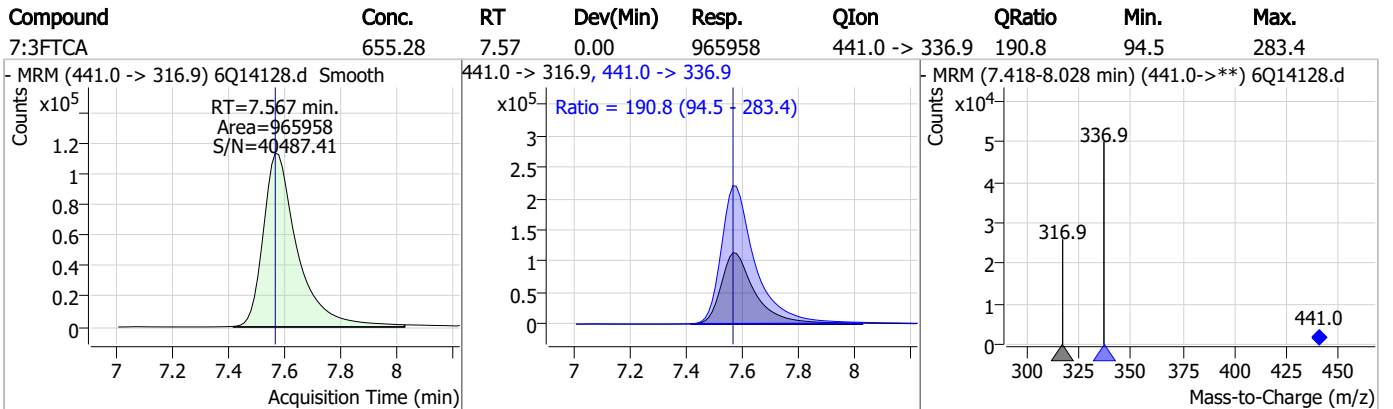
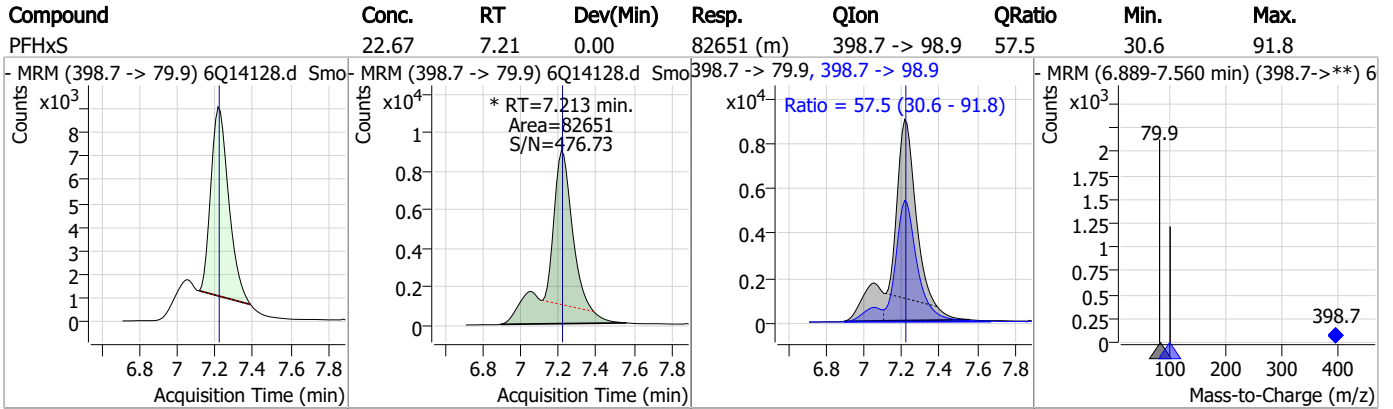
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Perfluorinated Compounds by LC/MS/MS



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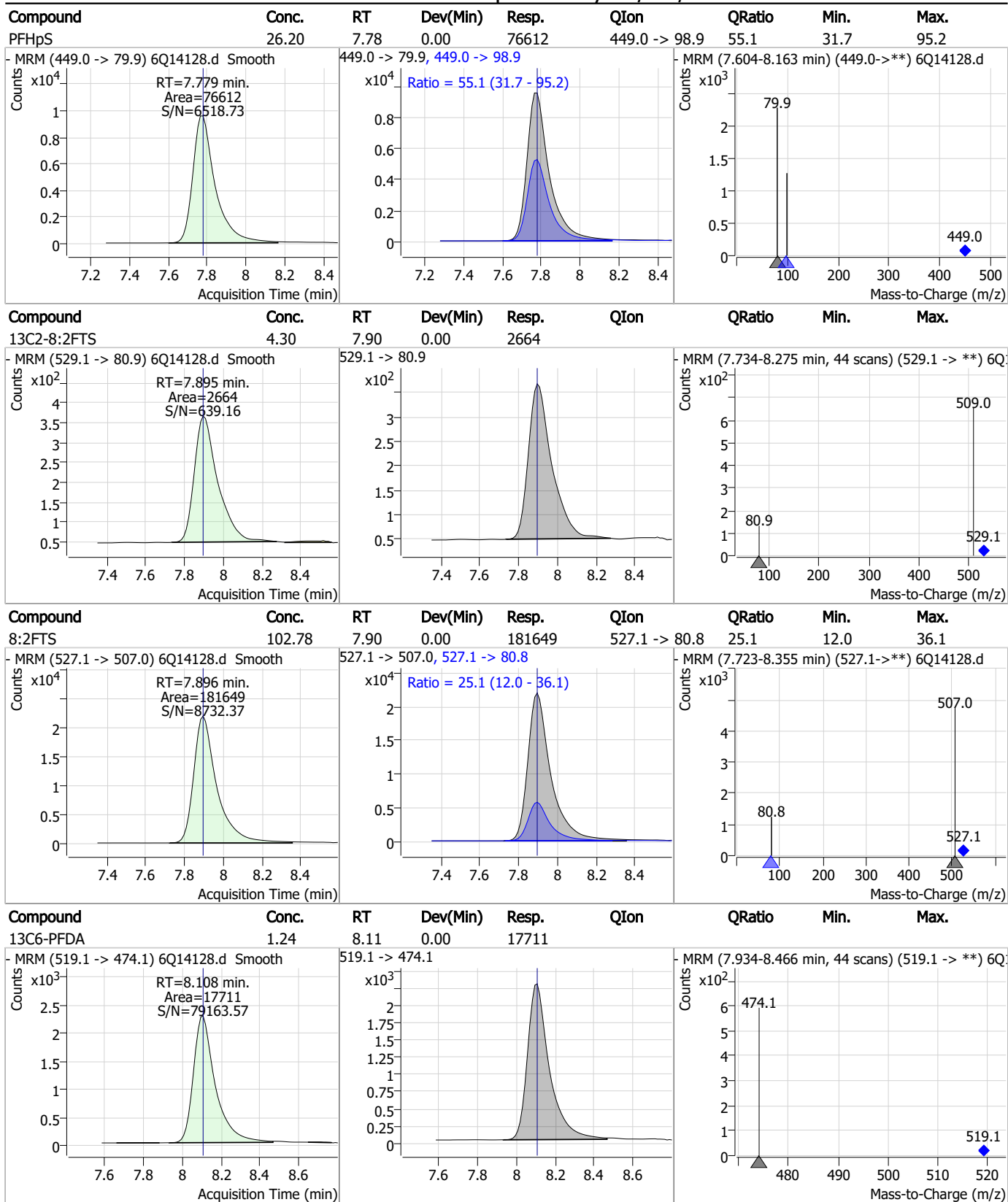
Perfluorinated Compounds by LC/MS/MS



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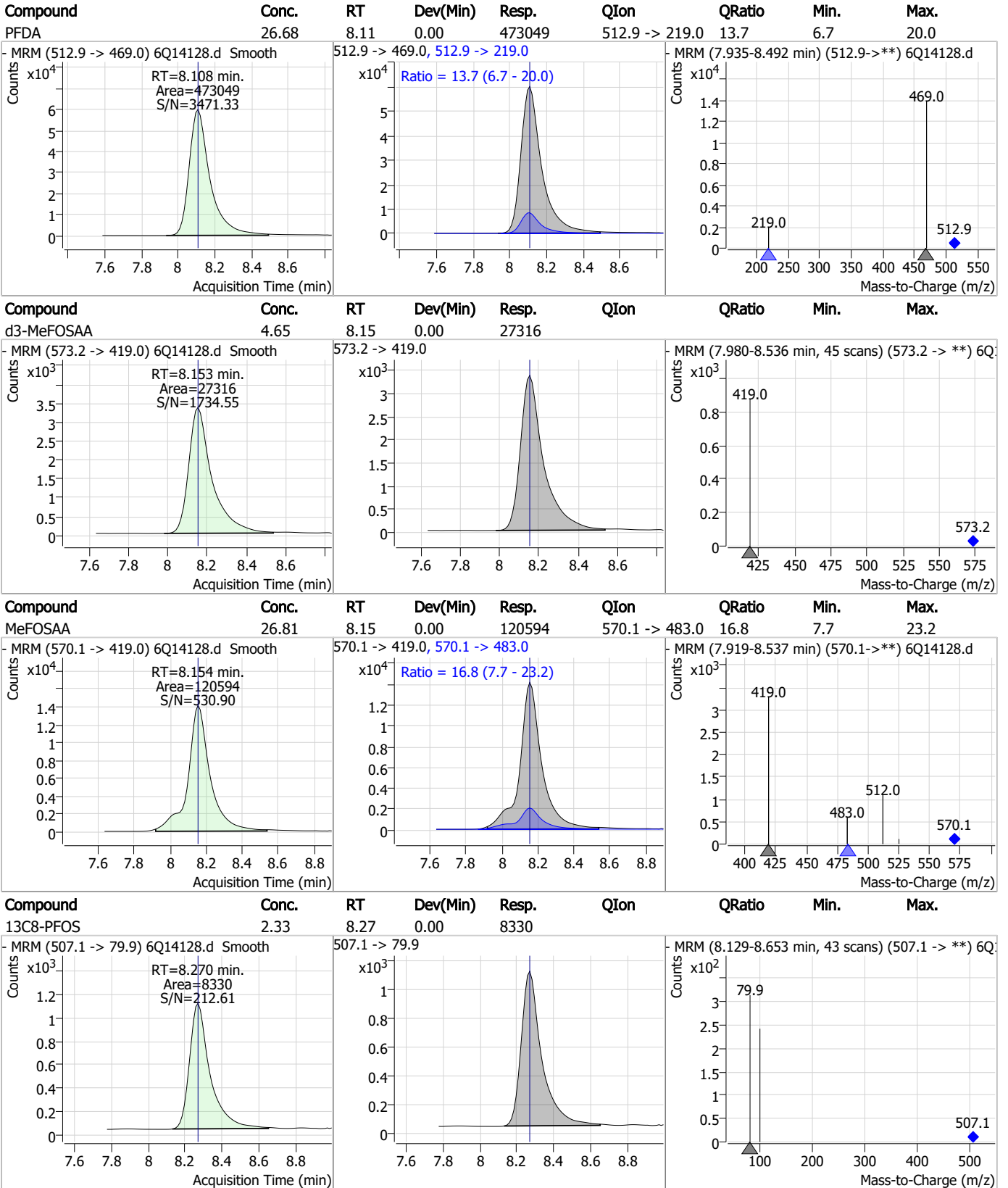
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Perfluorinated Compounds by LC/MS/MS



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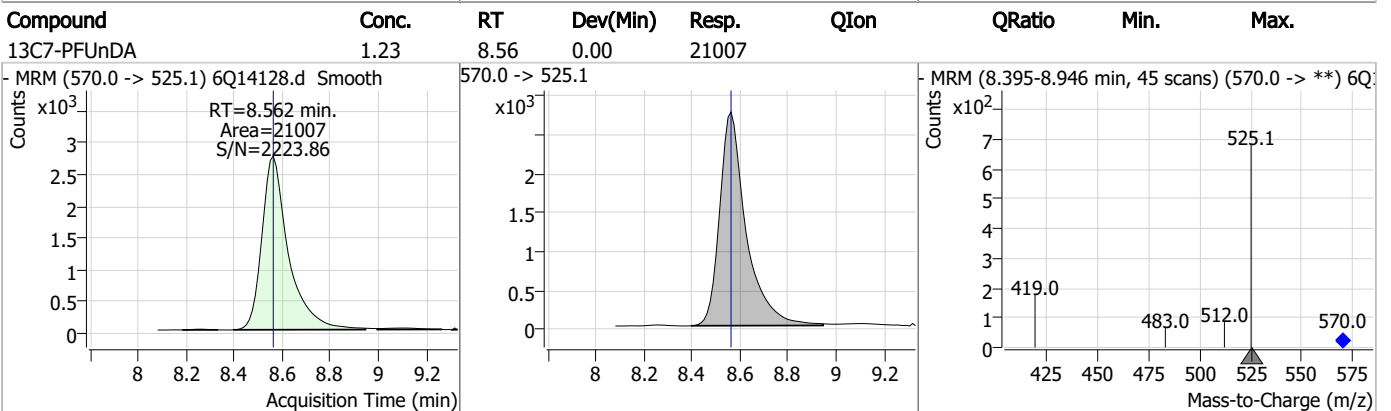
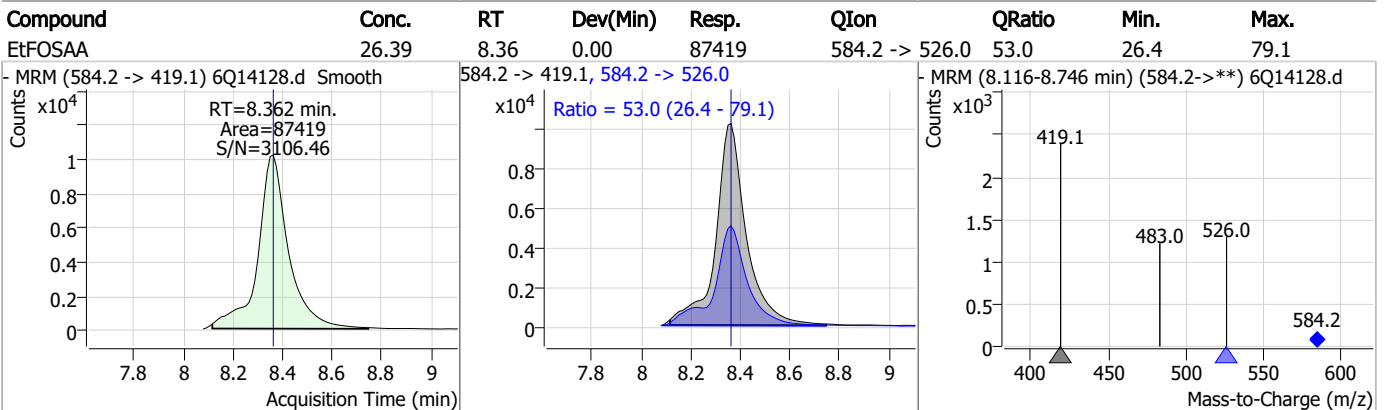
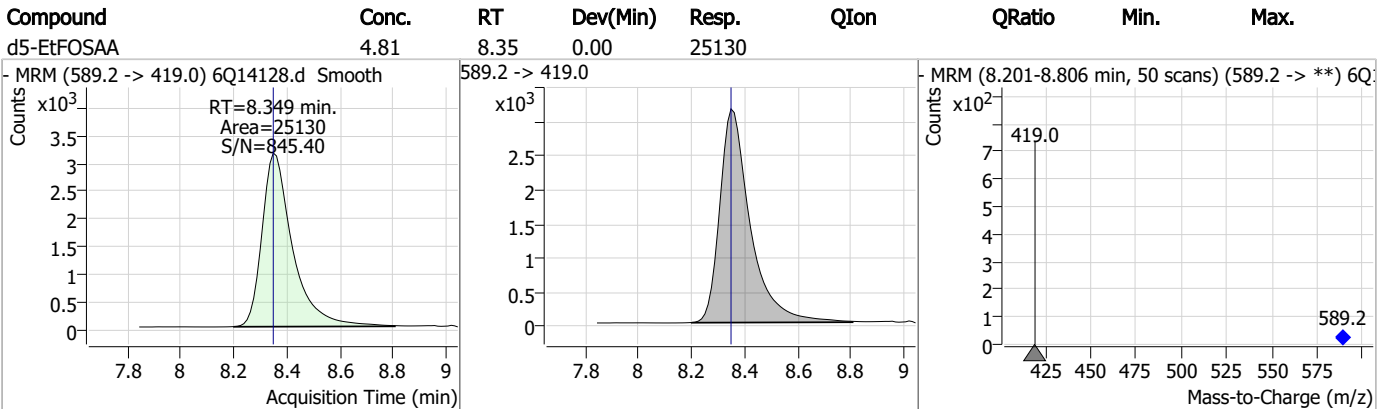
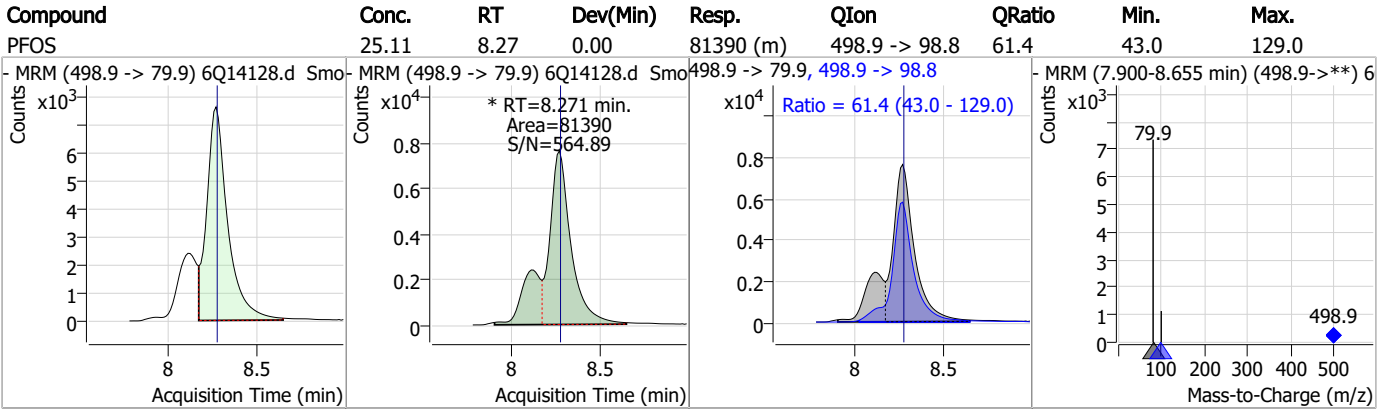
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

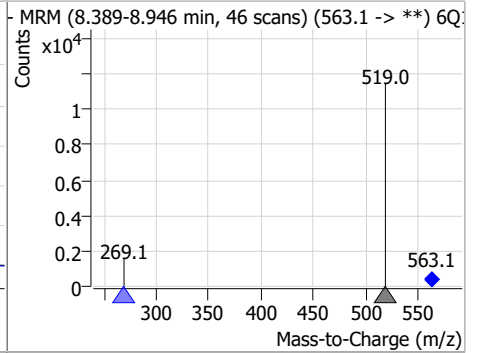
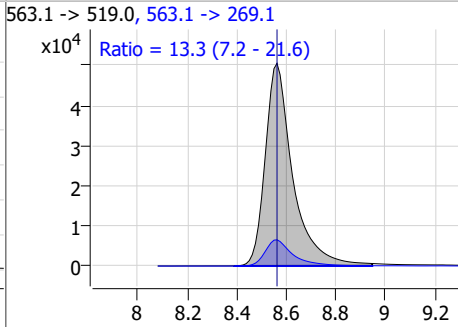
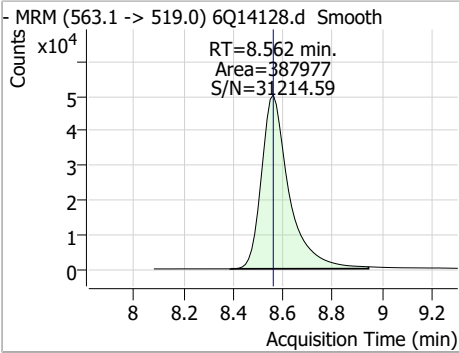


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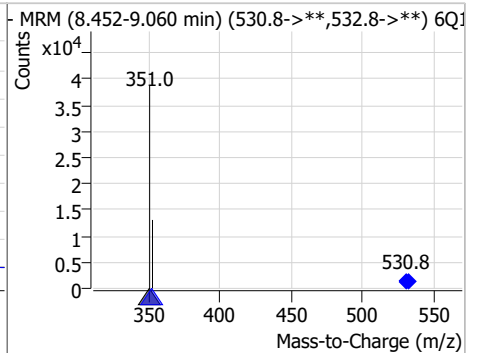
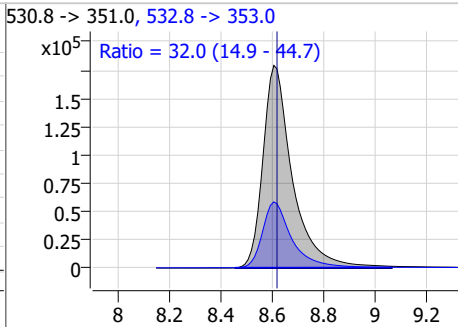
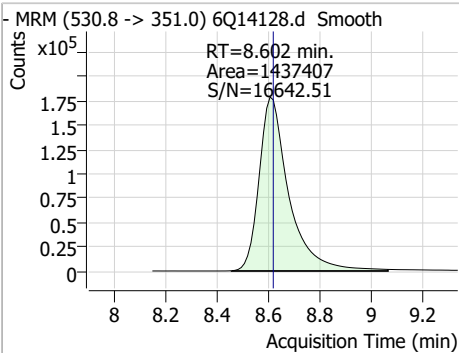
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Perfluorinated Compounds by LC/MS/MS

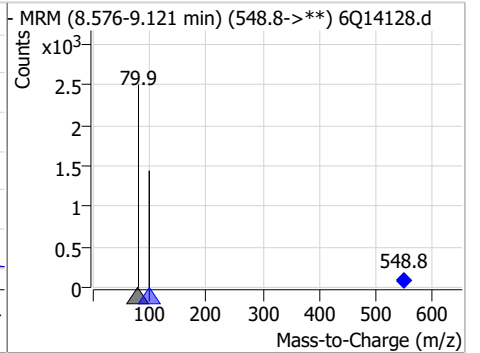
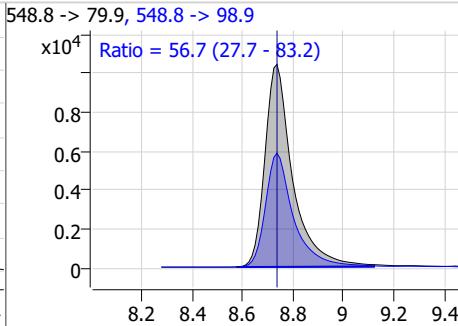
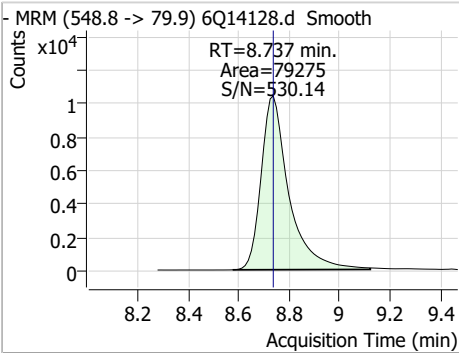
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	26.64	8.56	0.00	387977	563.1 -> 269.1	13.3	7.2	21.6



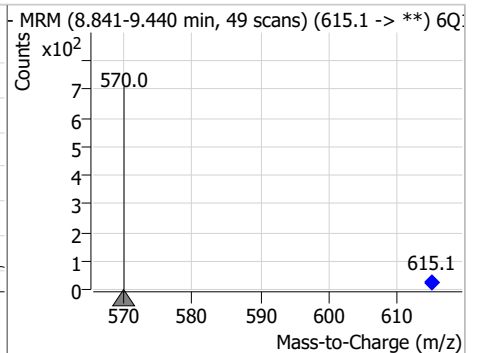
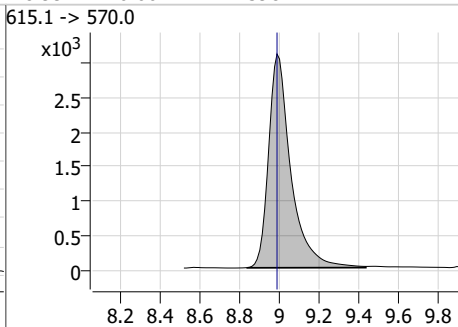
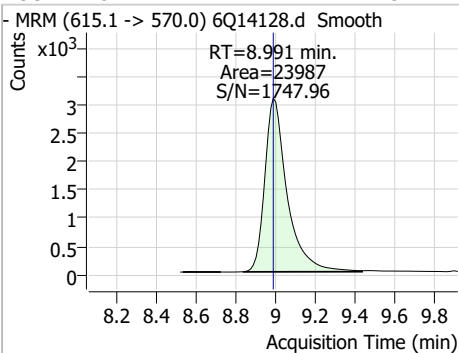
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	97.62	8.60	-0.01	1437407	532.8 -> 353.0	32.0	14.9	44.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	26.47	8.74	0.00	79275	548.8 -> 98.9	56.7	27.7	83.2

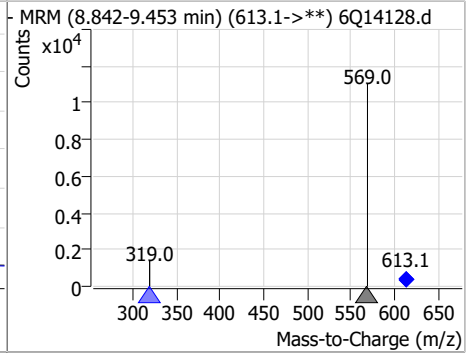
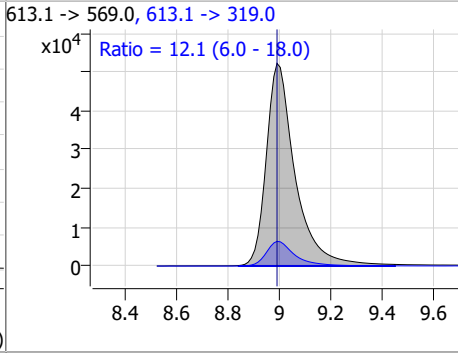
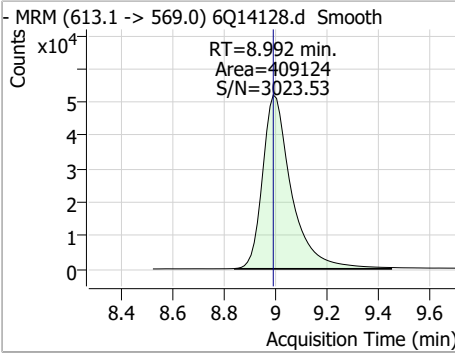


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	8.99	0.00	23987	615.1 -> 570.0			

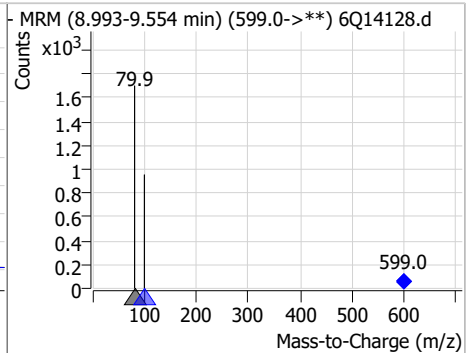
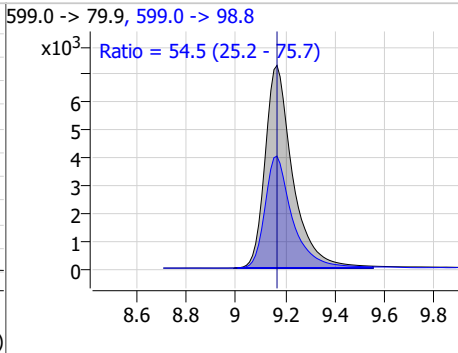
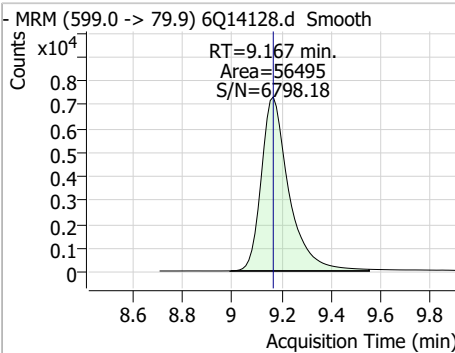


Perfluorinated Compounds by LC/MS/MS

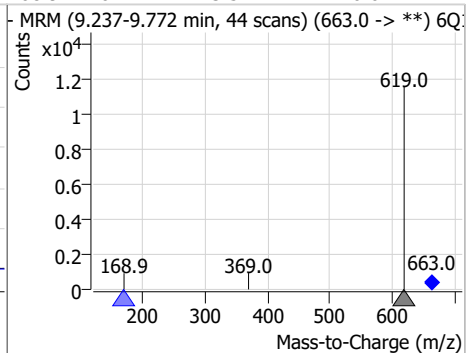
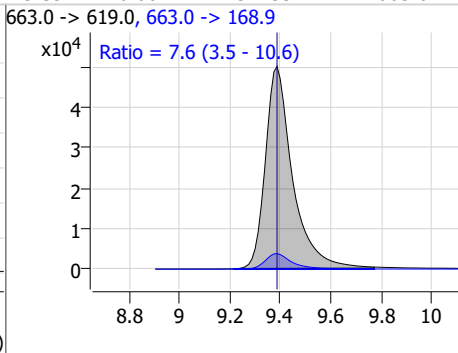
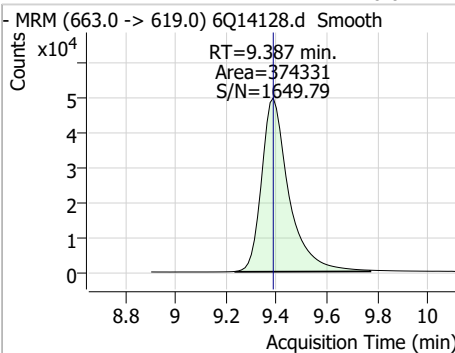
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	24.46	8.99	0.00	409124	613.1 -> 319.0	12.1	6.0	18.0



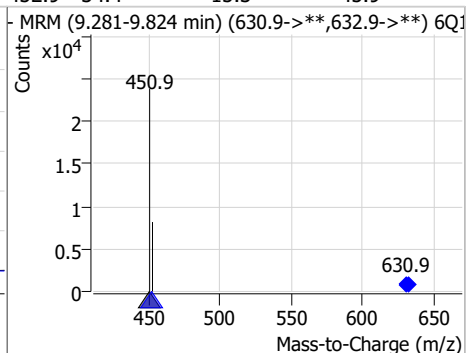
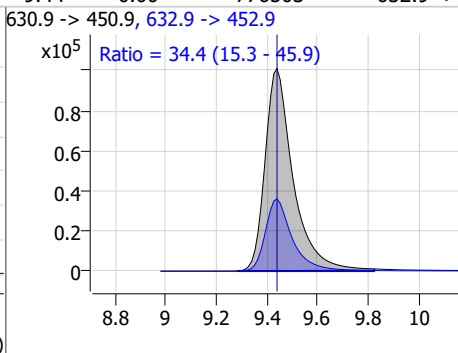
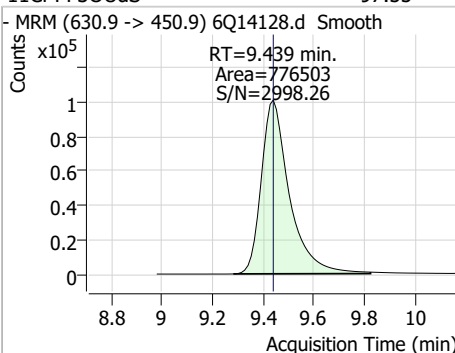
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	25.42	9.17	0.00	56495	599.0 -> 98.8	54.5	25.2	75.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	26.01	9.39	0.00	374331	663.0 -> 168.9	7.6	3.5	10.6

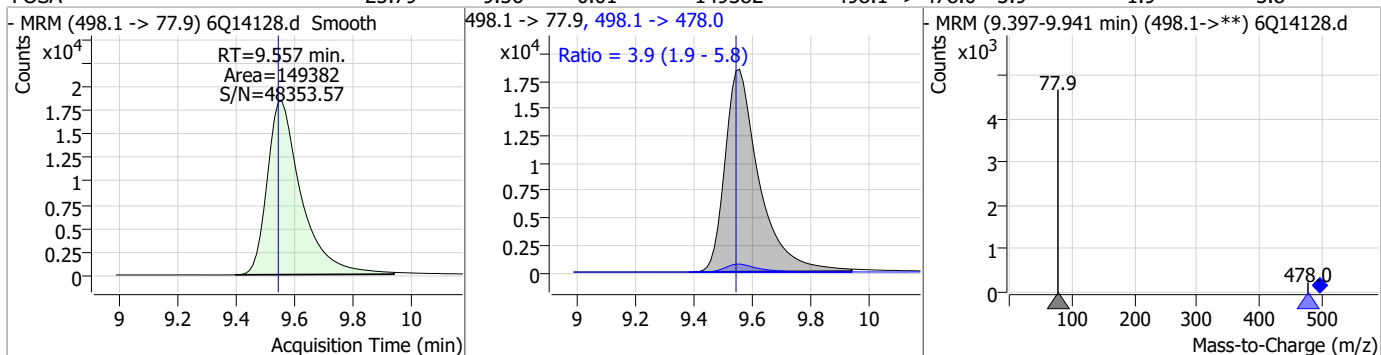


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUs	97.55	9.44	0.00	776503	632.9 -> 452.9	34.4	15.3	45.9

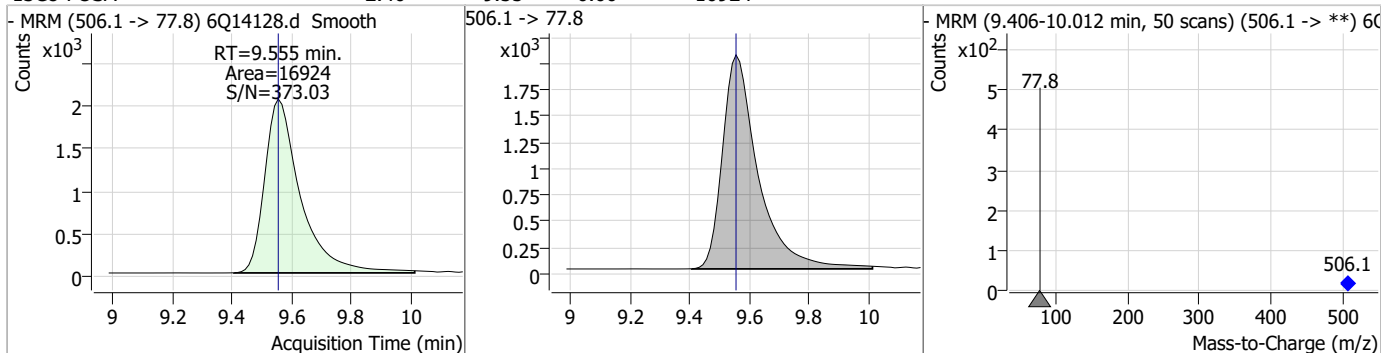


Perfluorinated Compounds by LC/MS/MS

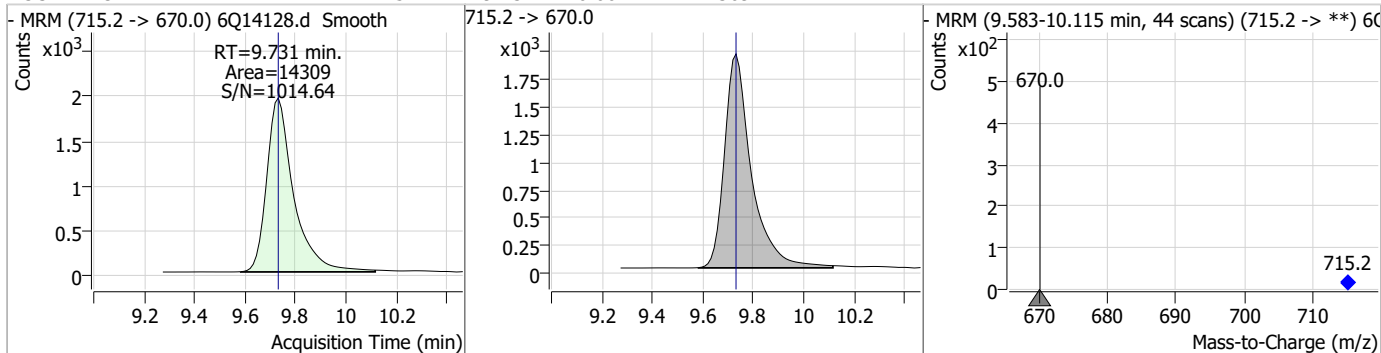
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	25.79	9.56	0.01	149382	498.1 -> 478.0	3.9	1.9	5.8



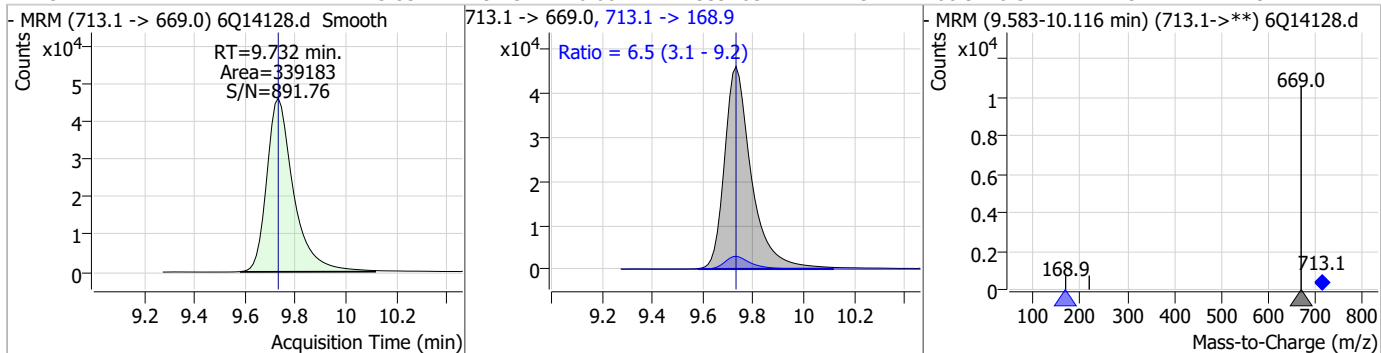
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.40	9.55	0.00	16924				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.73	0.00	14309				

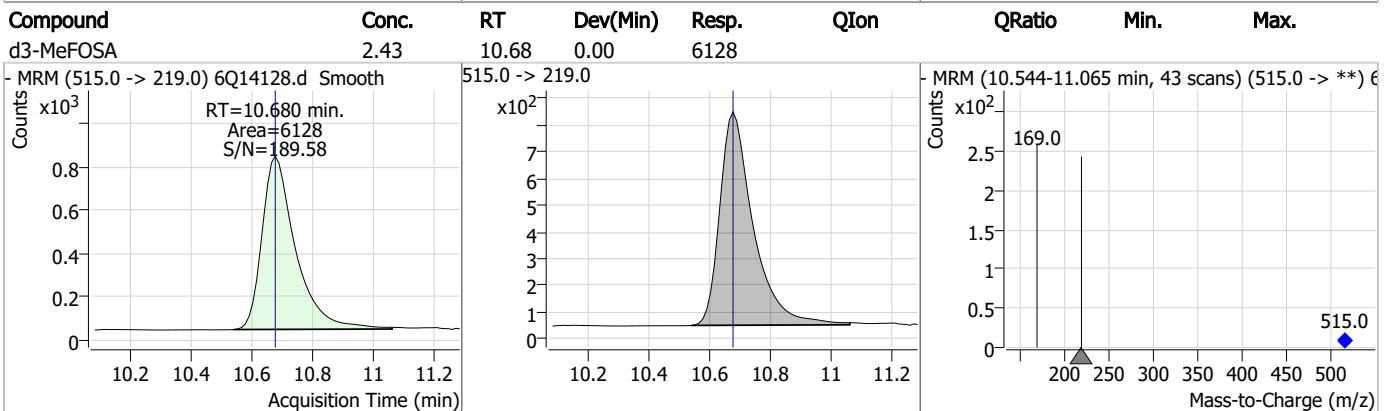
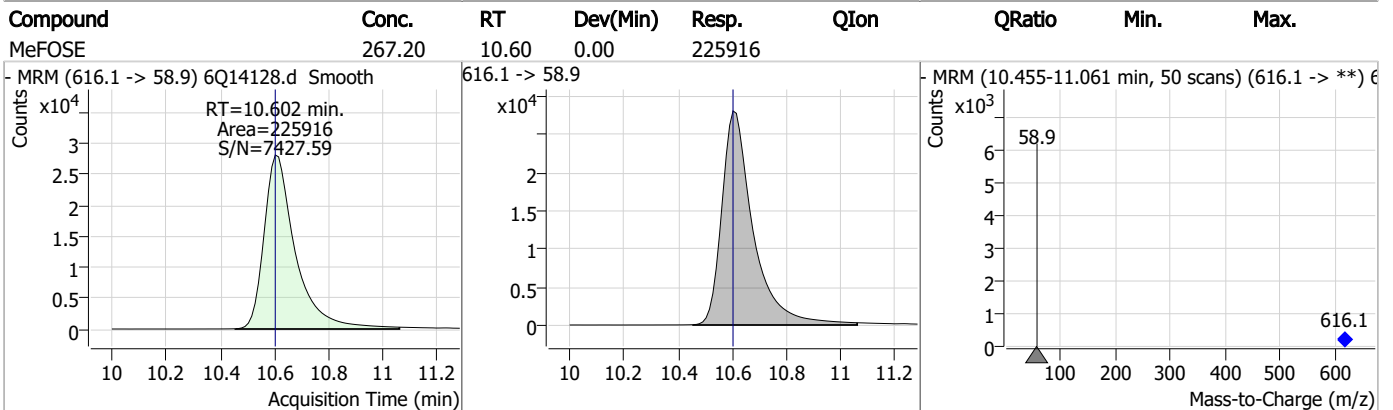
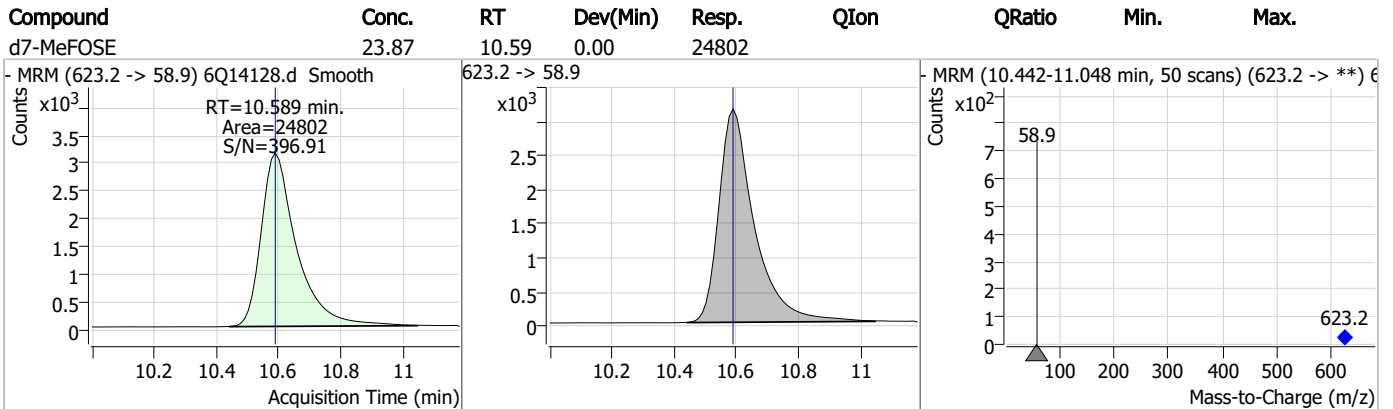
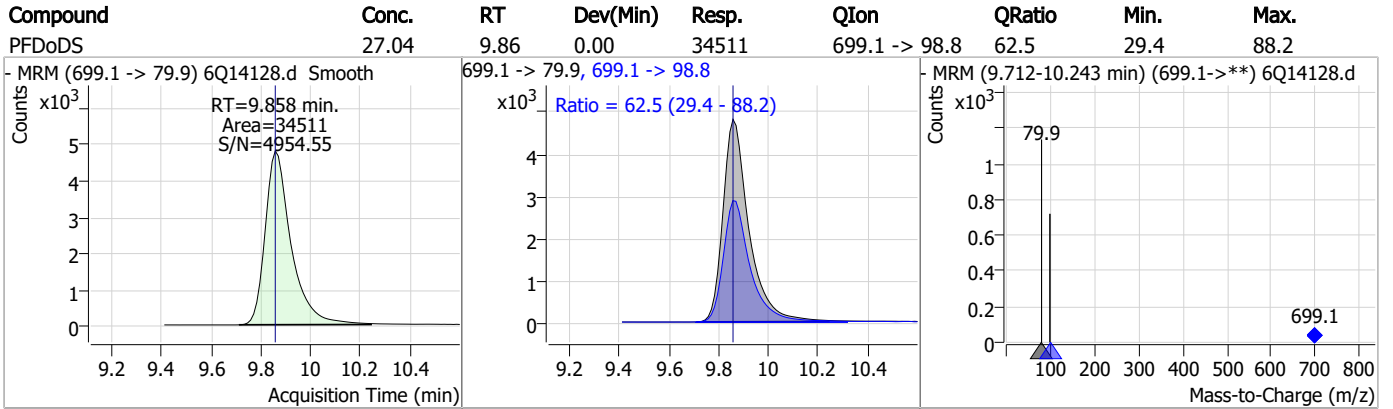


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	25.53	9.73	0.00	339183	713.1 -> 168.9	6.5	3.1	9.2



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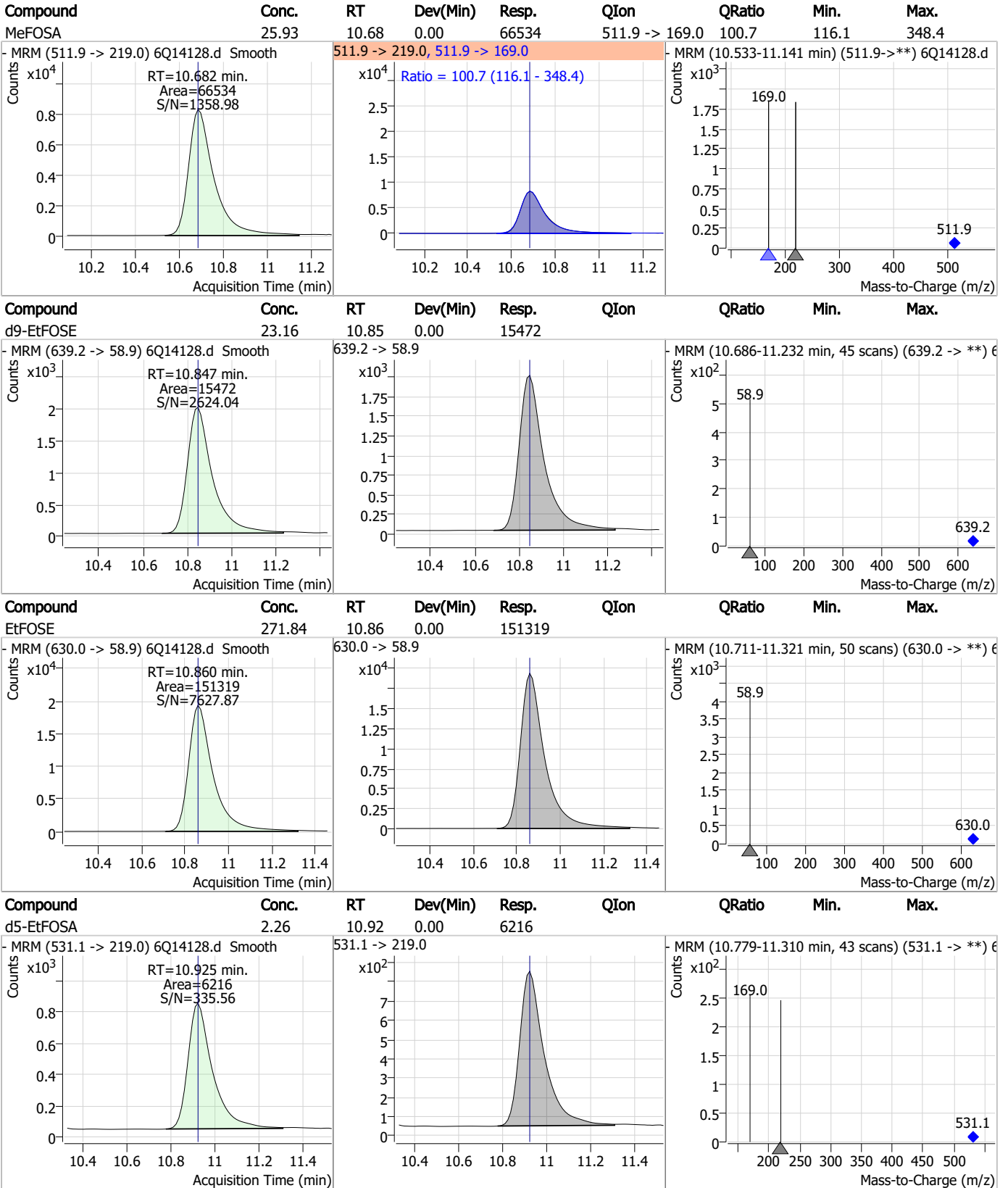
Perfluorinated Compounds by LC/MS/MS



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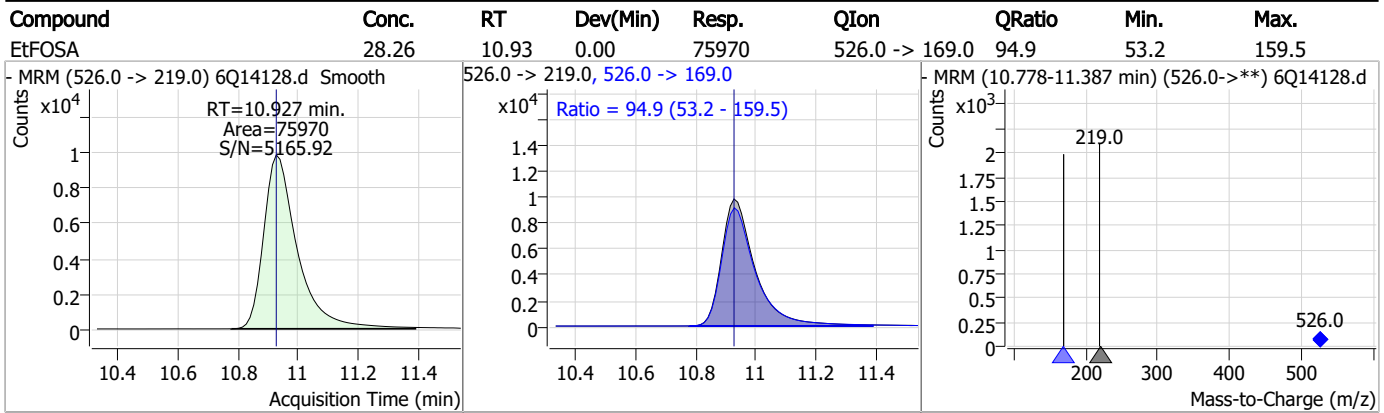
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q216-IC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14128.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 19:01 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.7.8.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14129.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 7:15:27 PM
 Sample Name : ic216-8
 Vial : P1-A9
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	79593	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	43394	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	37575	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	40114	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	66695	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	20758	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	17819	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	19961	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	25144	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	15525	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	16787	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	14283	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9379	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8695	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2122	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	2606	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	2866	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	27192	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	15697	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	23256	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	23179	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	14948	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6483	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6399	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10275	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	35637	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7036	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	84346	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	26372	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	25027	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	38767	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2122	4.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.6%		
13C2-6:2FTS	6.871	429.1 -> 80.9	2606	4.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.4%		
13C2-8:2FTS	7.895	529.1 -> 80.9	2866	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFDoDA	8.991	615.1 -> 570.0	25144	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.731	715.2 -> 670.0	15525	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C3-PFBS	5.456	302.1 -> 79.9	14283	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C3-PFHxS	7.212	402.1 -> 79.9	9379	2.46 µg/L	0.000

7.7.9
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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	2.938	216.8 -> 171.9	79593	9.91 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.452	367.1 -> 322.0	40114	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFHxA	5.513	318.0 -> 273.0	37575	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.337	268.3 -> 223.0	43394	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C6-PFDA	8.108	519.1 -> 474.1	17819	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C7-PFUnDA	8.562	570.0 -> 525.1	19961	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.8%	
13C8-FOSA	9.555	506.1 -> 77.8	16787	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOA	7.097	421.1 -> 376.0	66695	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-PFOS	8.270	507.1 -> 79.9	8695	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C9-PFNA	7.626	472.1 -> 427.0	20758	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.1%	
d3-MeFOSAA	8.153	573.2 -> 419.0	27192	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	15697	10.62 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
d3-MeFOSA	10.680	515.0 -> 219.0	6399	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
d5-EtFOSAA	8.361	589.2 -> 419.0	23256	4.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d7-MeFOSE	10.589	623.2 -> 58.9	23179	23.83 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
d9-EtFOSE	10.847	639.2 -> 58.9	14948	23.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d5-EtFOSA	10.925	531.1 -> 219.0	6483	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	862421	212.10 µg/L	99
		327.1 -> 80.9	185564		
6:2FTS	6.871	427.1 -> 407.0	728652	225.34 µg/L	97
		427.1 -> 80.9	141733		
8:2FTS	7.896	527.1 -> 507.0	373017	196.21 µg/L	98
		527.1 -> 80.8	93897		
EtFOSAA	8.362	584.2 -> 419.1	205518	67.05 µg/L	93
		584.2 -> 526.0	118486		
FOSA	9.557	498.1 -> 77.9	377952	65.77 µg/L	99
		498.1 -> 478.0	13430		
MeFOSAA	8.154	570.1 -> 419.0	279158	62.34 µg/L	96
		570.1 -> 483.0	48124		
PFBA	2.944	212.8 -> 168.9	418616	262.04 µg/L	100
PFBS	5.457	298.7 -> 79.9	268498	58.26 µg/L	99
		298.7 -> 98.8	131353		
PFDA	8.108	512.9 -> 469.0	1153707	64.66 µg/L	98
		512.9 -> 219.0	145478		
PFDoDA	9.005	613.1 -> 569.0	989312	56.43 µg/L	99
		613.1 -> 319.0	123890		
PFDS	9.167	599.0 -> 79.9	140783	60.69 µg/L	98

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	72819			
PFHpA	6.453	363.1 -> 319.0	1214567	62.11	µg/L	99
		363.1 -> 169.0	174795			
PFHpS	7.779	449.0 -> 79.9	179121	58.68	µg/L	94
		449.0 -> 98.9	104790			
PFHxA	5.516	313.0 -> 269.0	767028	62.38	µg/L	99
		313.0 -> 118.9	30181			
PFHxS	7.213	398.7 -> 79.9	204994	57.43	µg/L	m 95
		398.7 -> 98.9	117284			
PFNA	7.627	463.0 -> 419.0	782371	72.23	µg/L	96
		463.0 -> 219.0	147828			
PFNS	8.737	548.8 -> 79.9	187863	60.08	µg/L	95
		548.8 -> 98.9	110763			
PFOA	7.098	413.0 -> 369.0	1645327	65.48	µg/L	92
		413.0 -> 169.0	208410			
PFOS	8.271	498.9 -> 79.9	176052	52.04	µg/L	m 79
		498.9 -> 98.8	118128			
PFPeA	4.338	263.0 -> 219.0	962044	127.74	µg/L	100
PFPeS	6.517	349.1 -> 79.9	252152	57.56	µg/L	99
		349.1 -> 98.9	132985			
PFTeDA	9.732	713.1 -> 669.0	850805	59.02	µg/L	100
		713.1 -> 168.9	52166			
PFTrDA	9.387	663.0 -> 619.0	887460	58.82	µg/L	100
		663.0 -> 168.9	62693			
PFUnDA	8.562	563.1 -> 519.0	920311	66.51	µg/L	99
		563.1 -> 269.1	128401			
11Cl-PF3OUdS	9.439	630.9 -> 450.9	1850046	220.07	µg/L	98
		632.9 -> 452.9	587422			
9Cl-PF3ONS	8.602	530.8 -> 351.0	3463877	222.73	µg/L	98
		532.8 -> 353.0	1076582			
ADONA	6.704	376.9 -> 250.9	6674433	217.29	µg/L	99
		376.9 -> 84.8	1415517			
HFPO-DA	5.879	284.9 -> 168.9	312977	247.48	µg/L	99
		284.9 -> 184.9	38514			
3:3FTCA	3.804	241.0 -> 177.0	130498	336.50	µg/L	97
		241.0 -> 117.0	18541			
5:3FTCA	6.156	341.0 -> 237.1	4352194	1609.96	µg/L	99
		341.0 -> 217.0	3737851			
7:3FTCA	7.567	441.0 -> 316.9	2362560	1629.27	µg/L	98
		441.0 -> 336.9	4377668			
EtFOSA	10.927	526.0 -> 219.0	178145	63.53	µg/L	94
		526.0 -> 169.0	178863			
EtFOSE	10.860	630.0 -> 58.9	376260	699.65	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	160019	59.72	µg/L	# 23
		511.9 -> 169.0	165346			
MeFOSE	10.602	616.1 -> 58.9	512221	648.23	µg/L	100
PFDoDS	9.870	699.1 -> 79.9	82445	61.88	µg/L	96
		699.1 -> 98.8	50641			
NFDHA	5.395	295.0 -> 201.0	88074	130.55	µg/L	93
		295.0 -> 84.9	41906			
PFMBA	4.738	279.0 -> 85.1	290139	131.87	µg/L	100
PFMPA	3.500	229.0 -> 84.9	265344	131.33	µg/L	100
PFEESA	5.983	314.8 -> 134.9	1940801	114.09	µg/L	100
		314.8 -> 82.9	45375			

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

7.7.9
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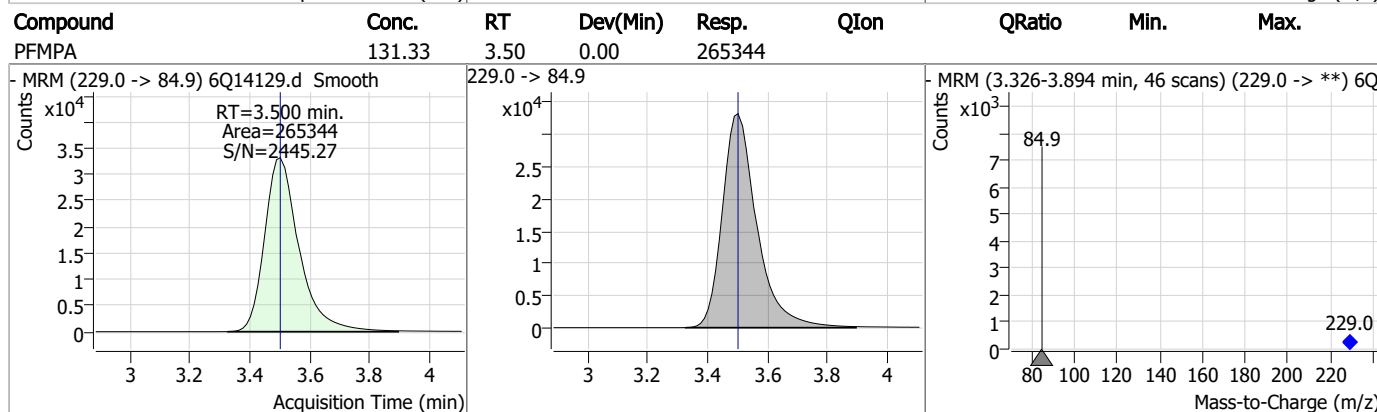
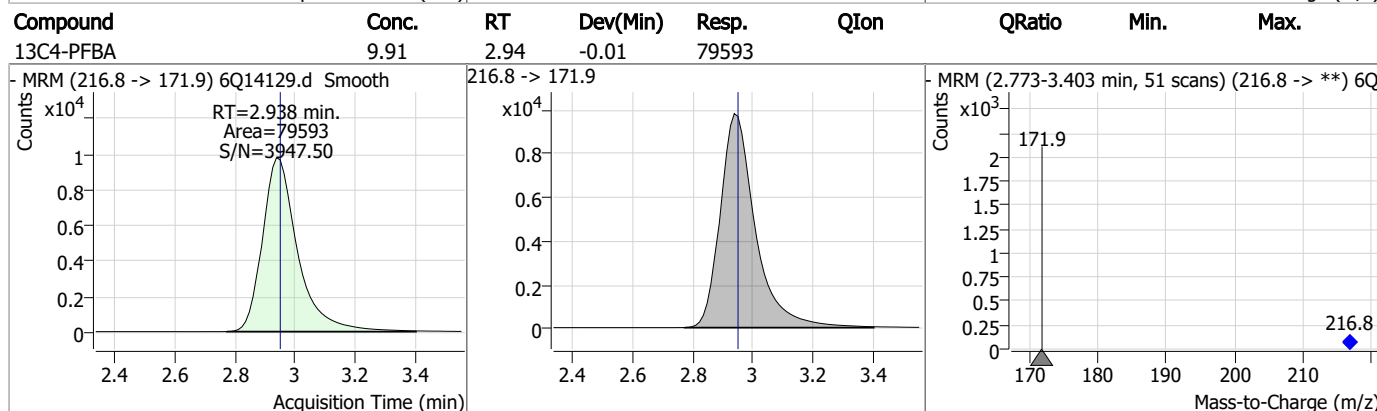
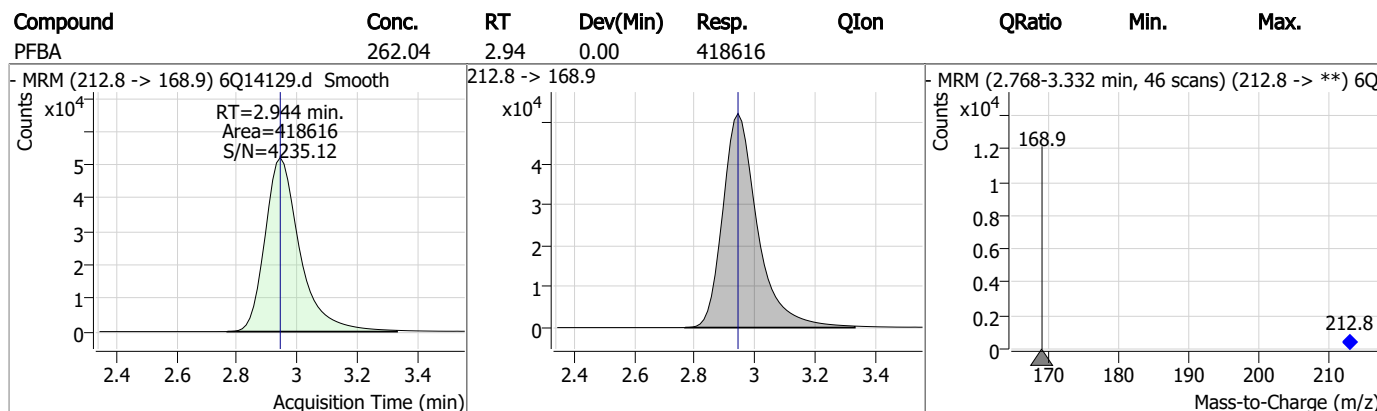
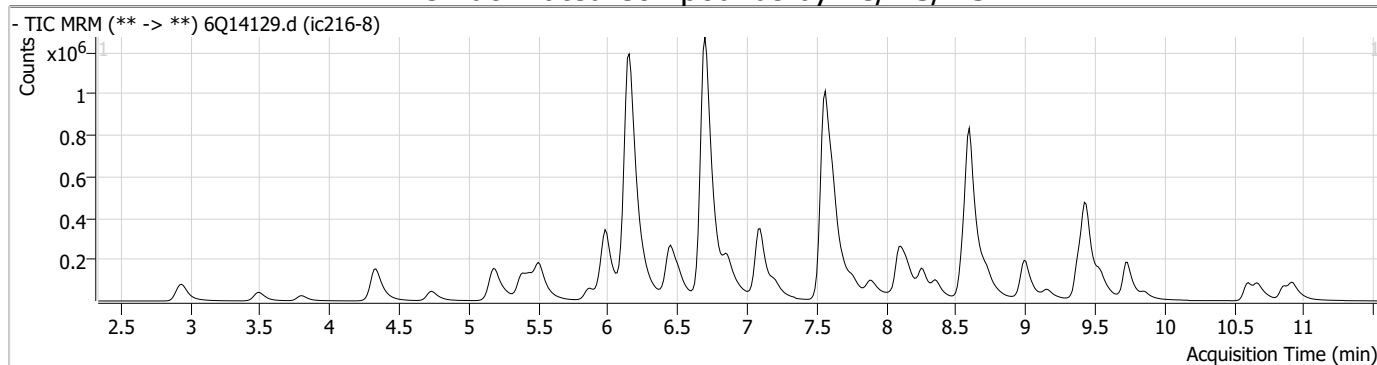
Perfluorinated Compounds by LC/MS/MS

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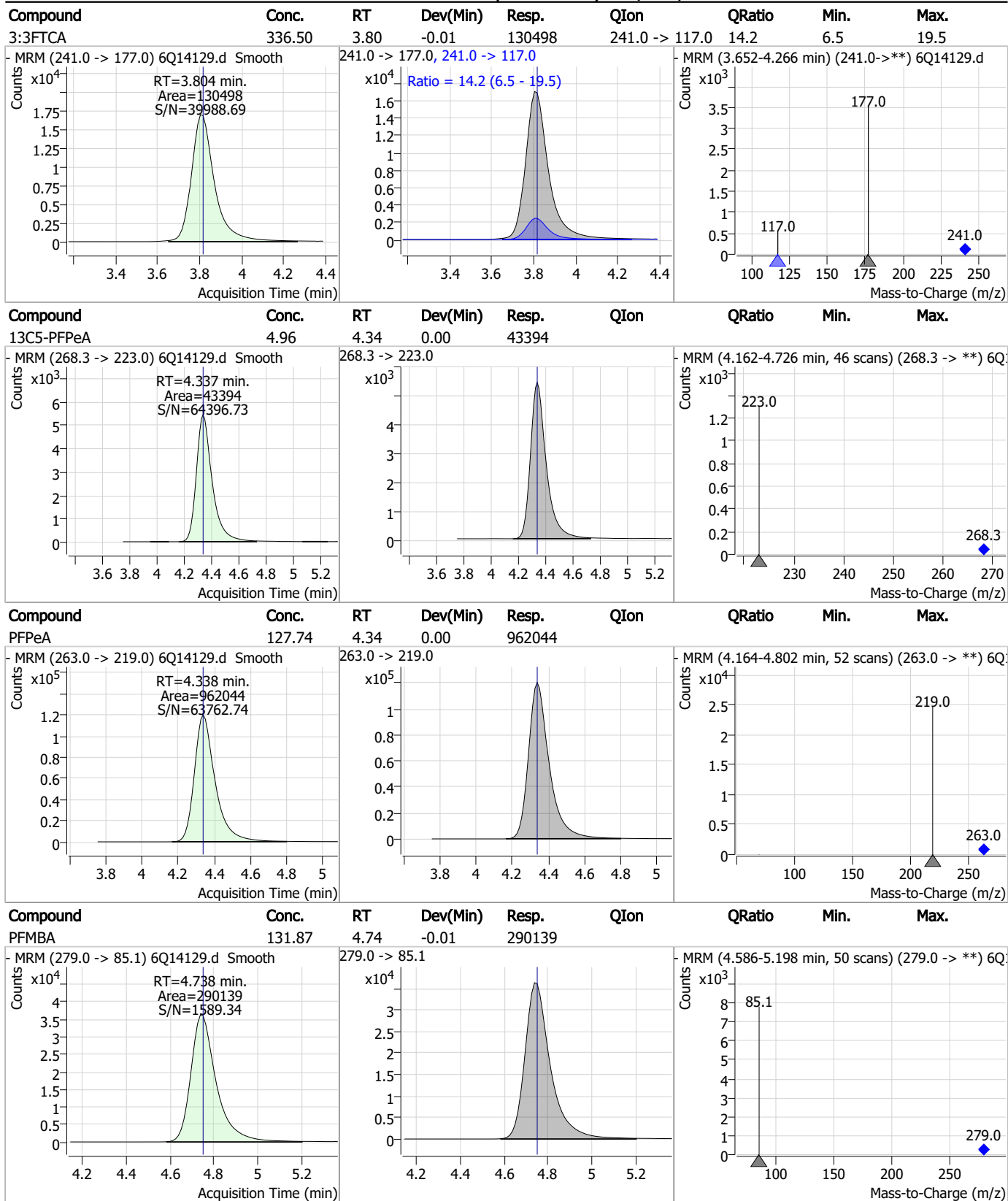
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Perfluorinated Compounds by LC/MS/MS



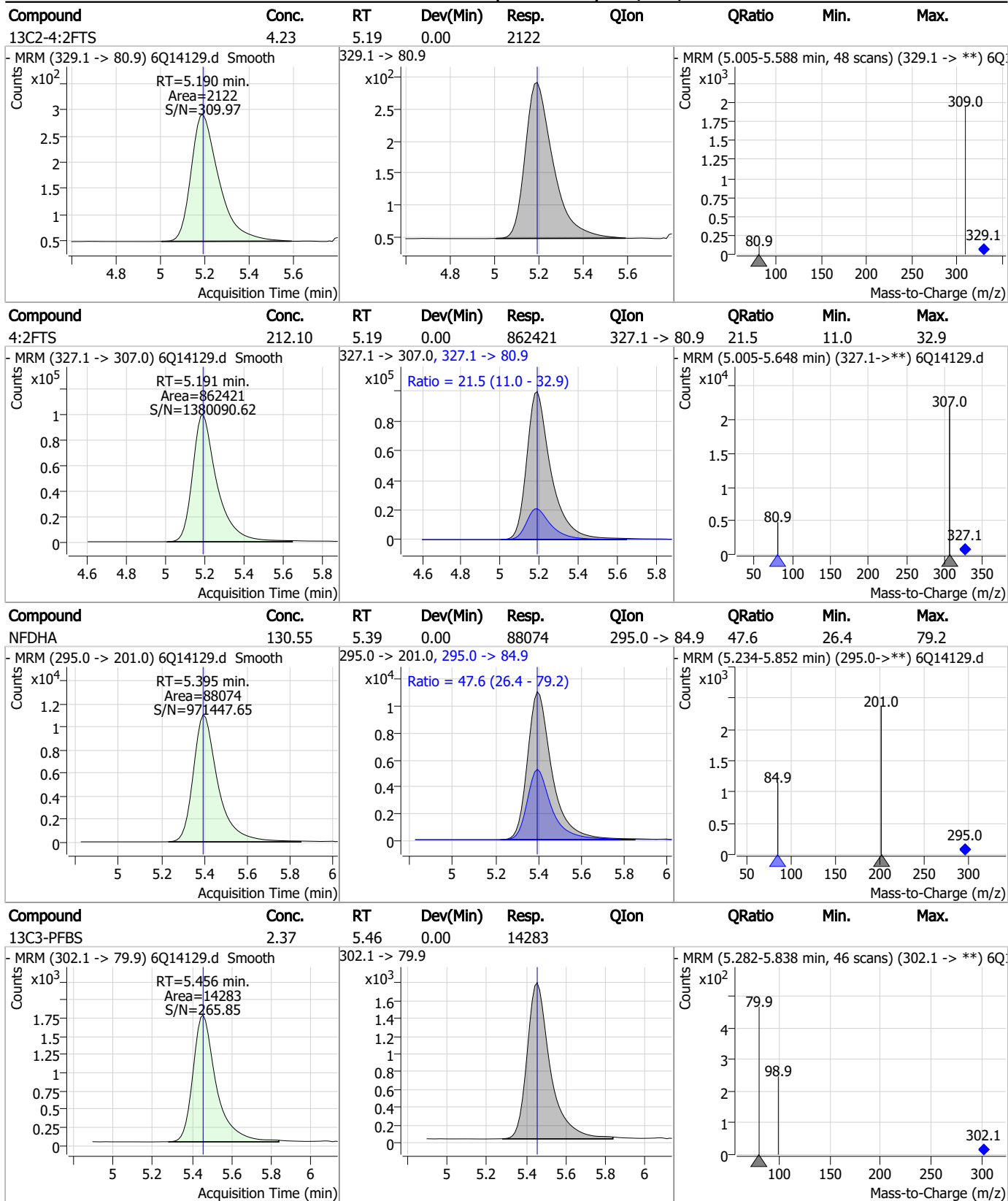
Perfluorinated Compounds by LC/MS/MS



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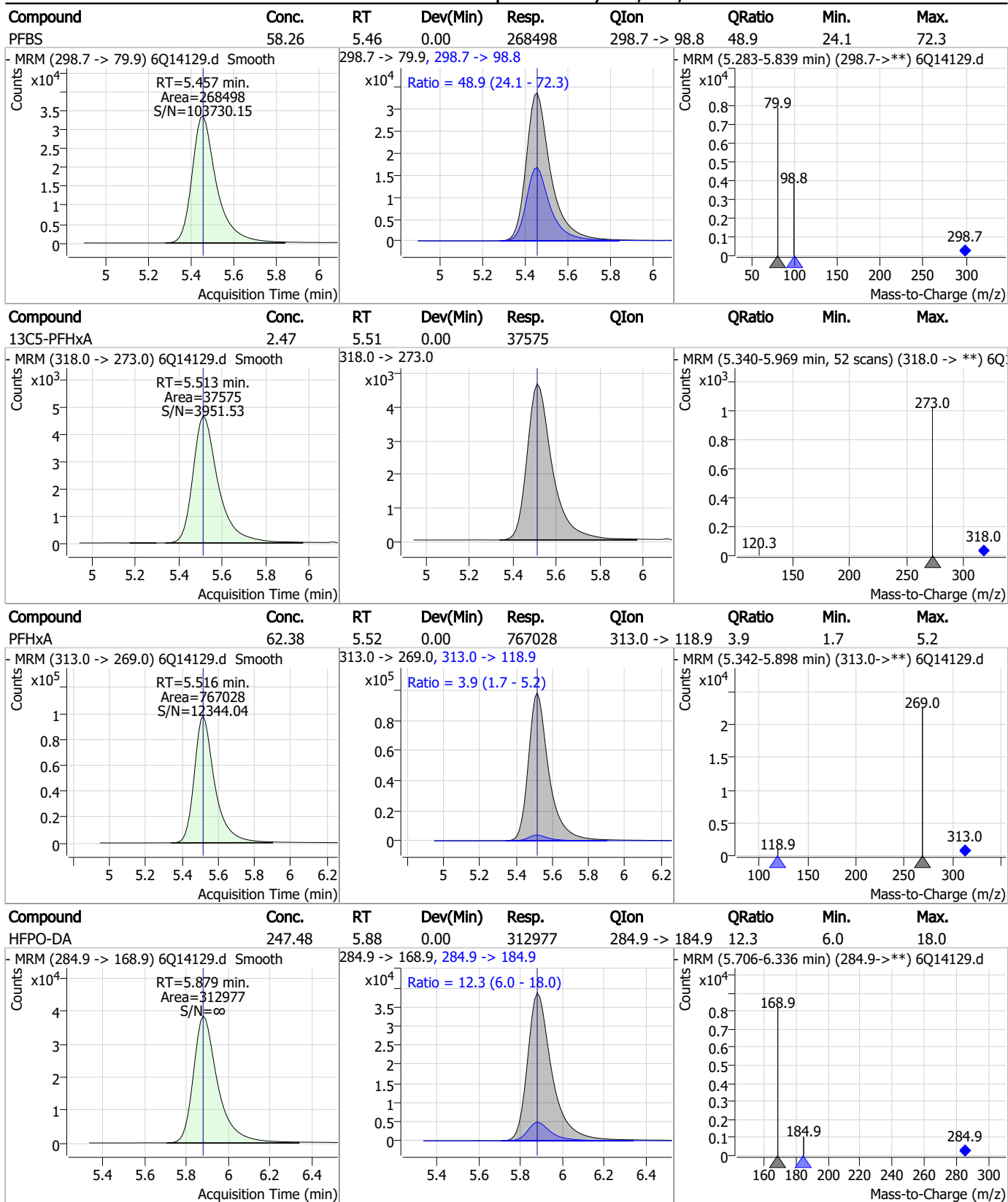


Perfluorinated Compounds by LC/MS/MS



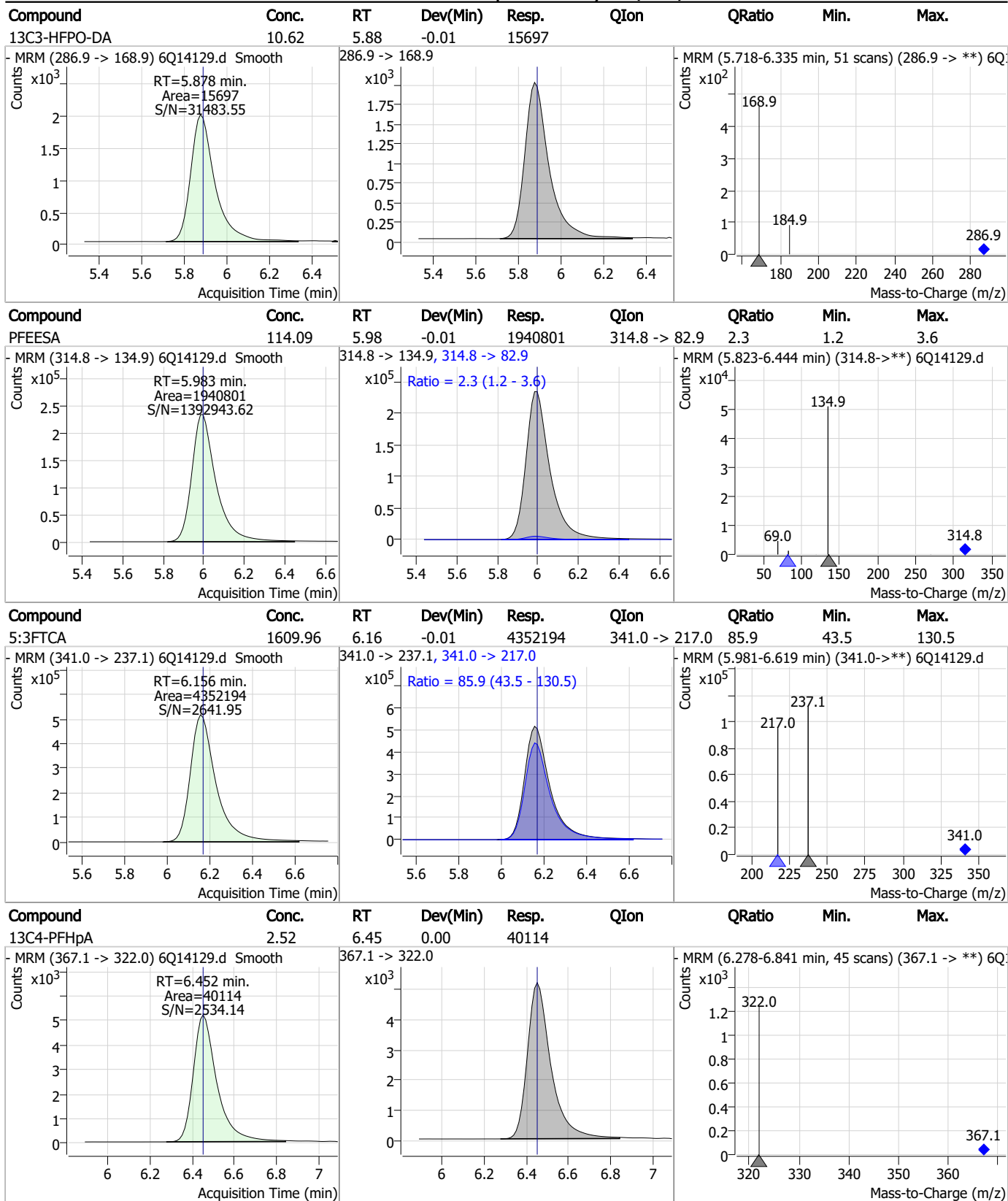
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Perfluorinated Compounds by LC/MS/MS



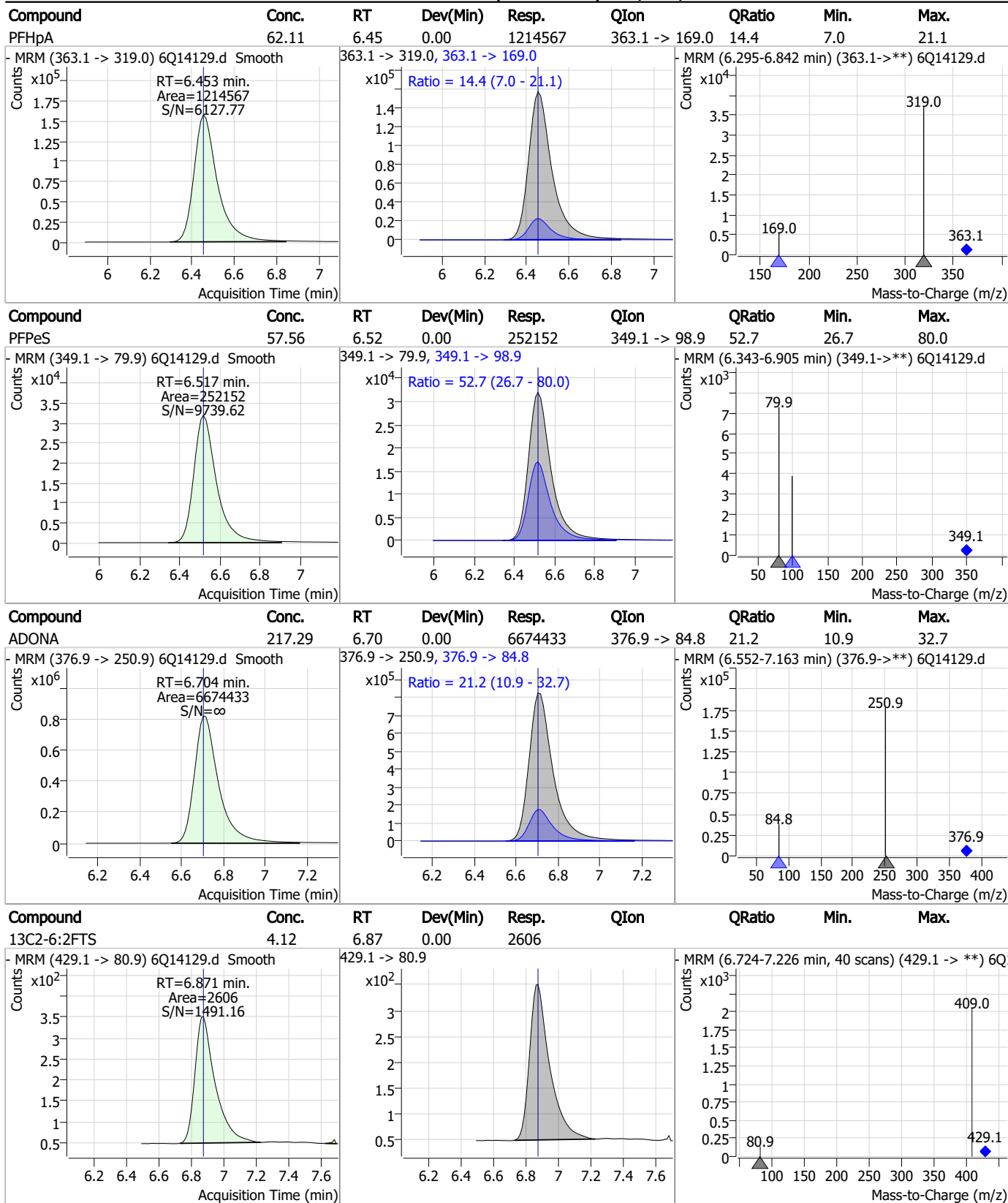
7.7.9
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Perfluorinated Compounds by LC/MS/MS



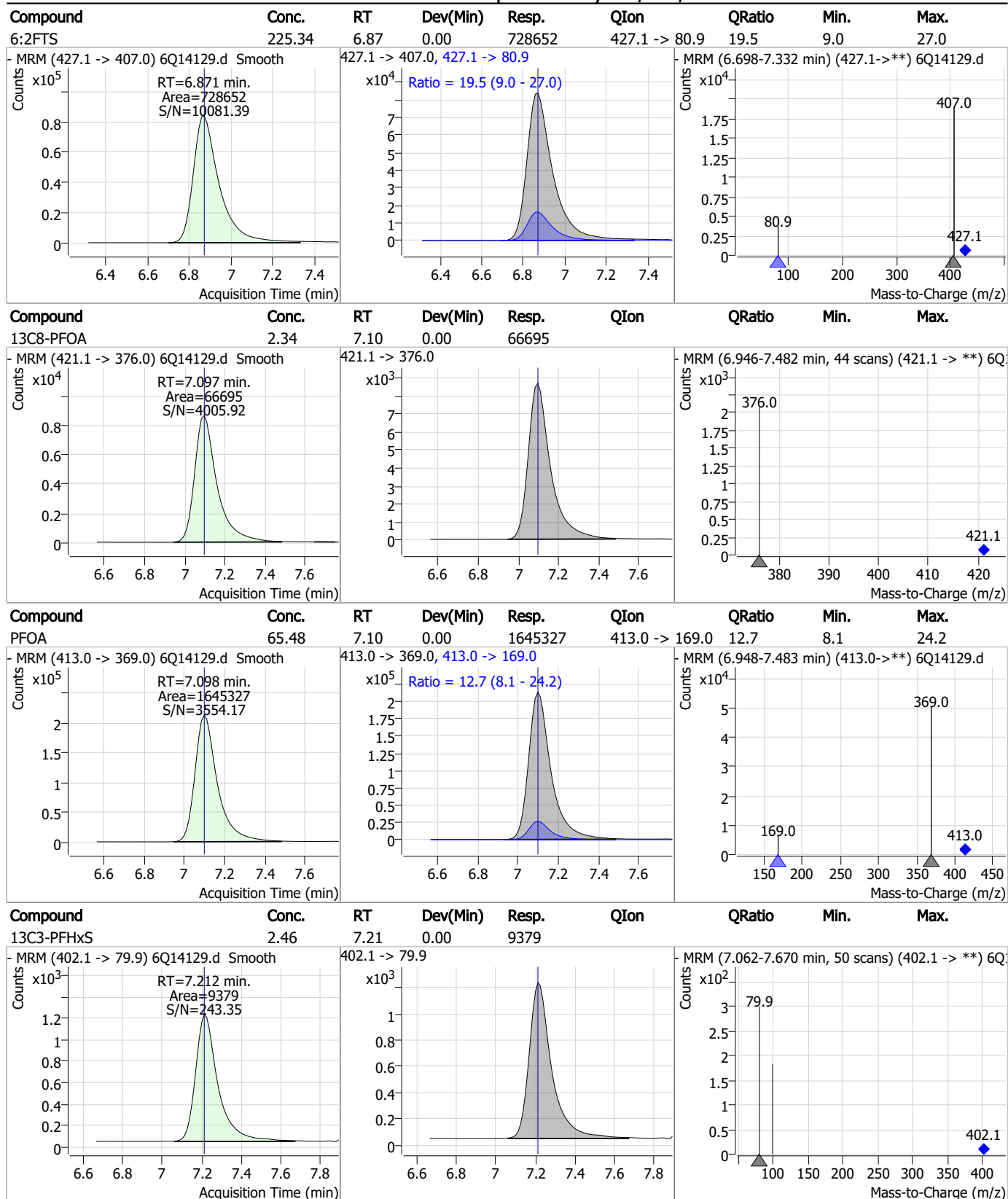
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Perfluorinated Compounds by LC/MS/MS



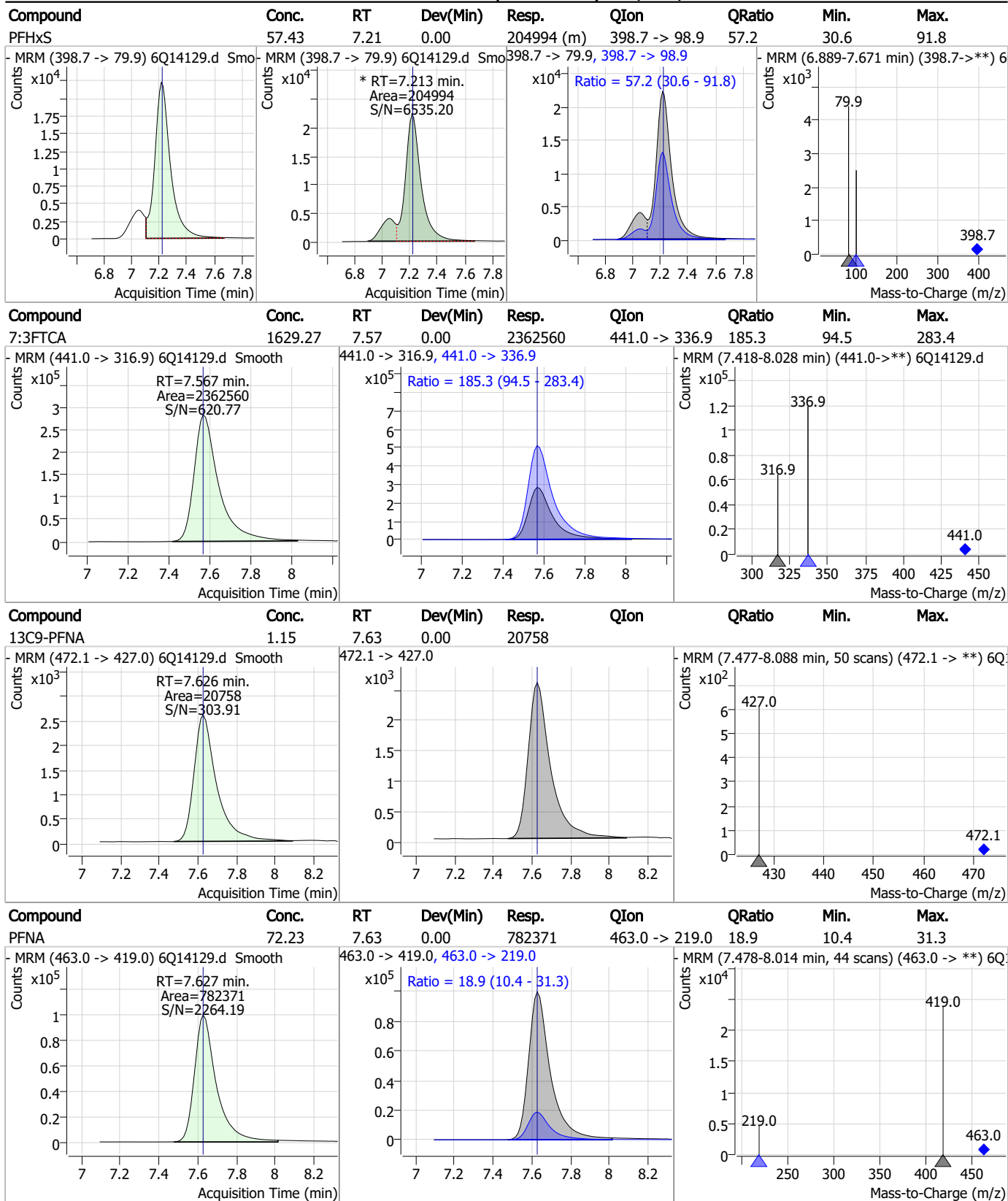
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Perfluorinated Compounds by LC/MS/MS



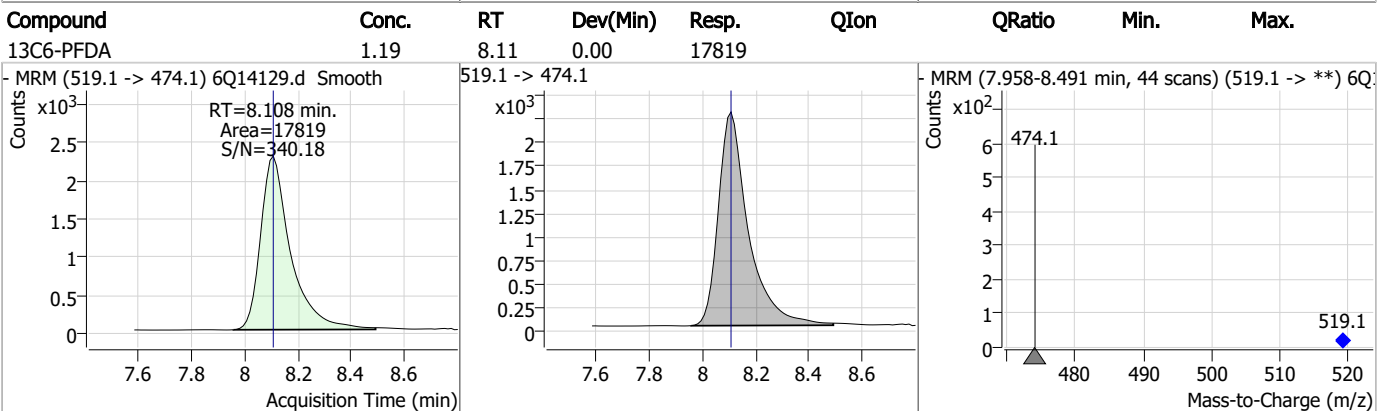
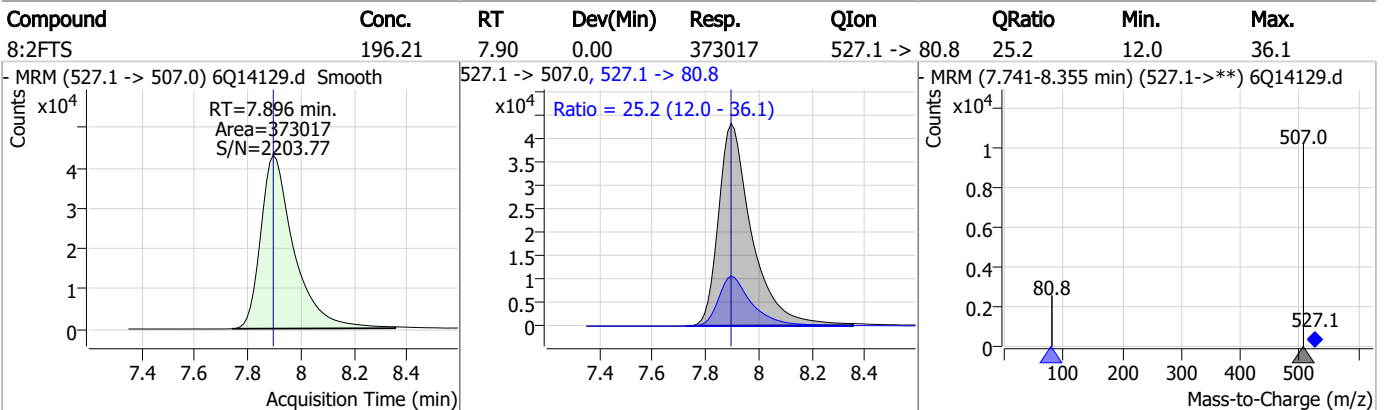
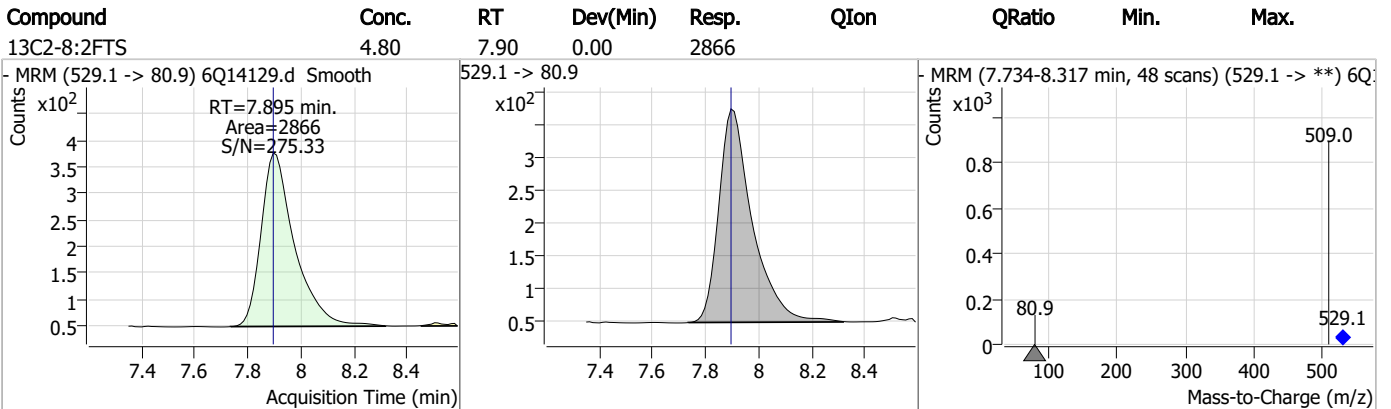
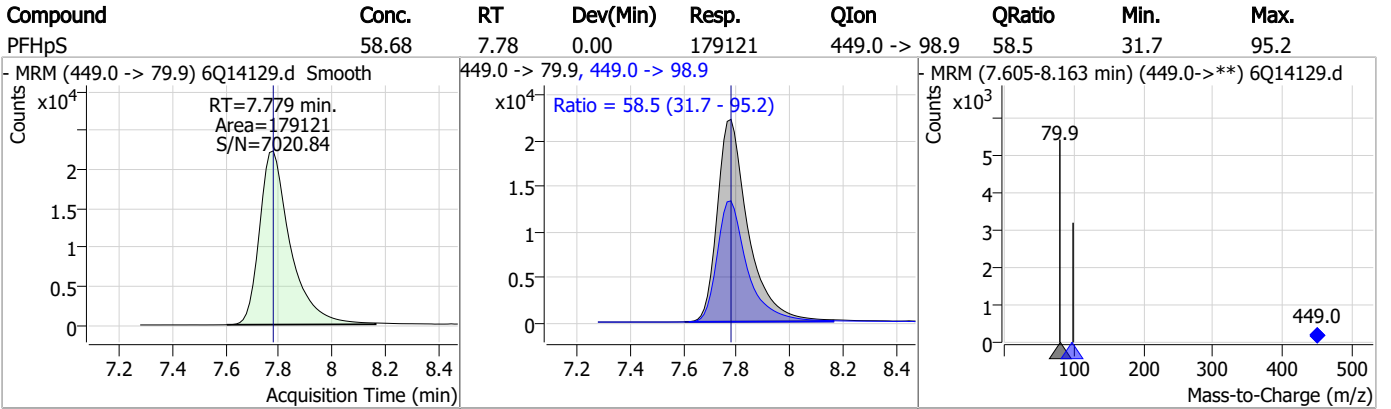
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Perfluorinated Compounds by LC/MS/MS



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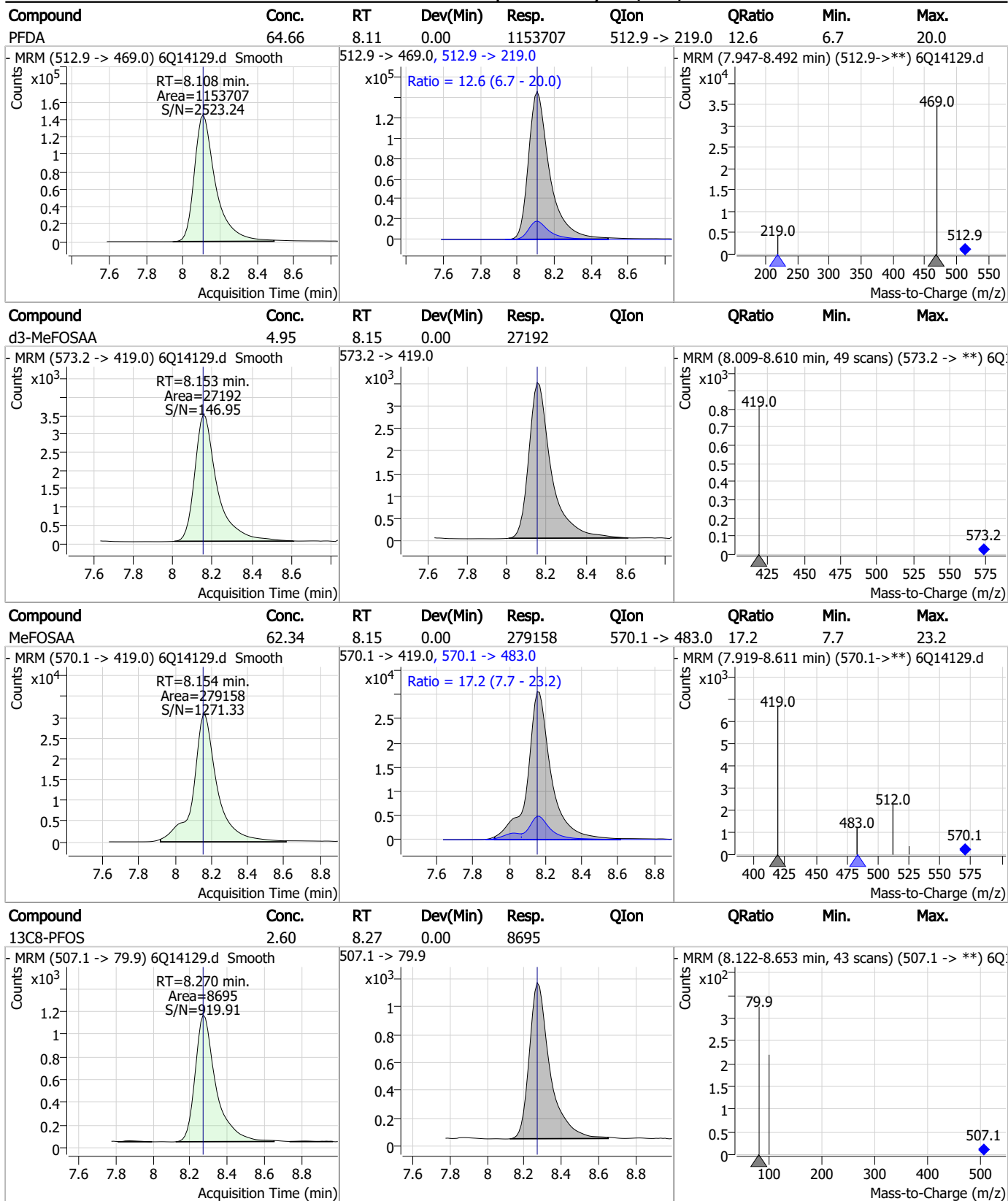
Perfluorinated Compounds by LC/MS/MS



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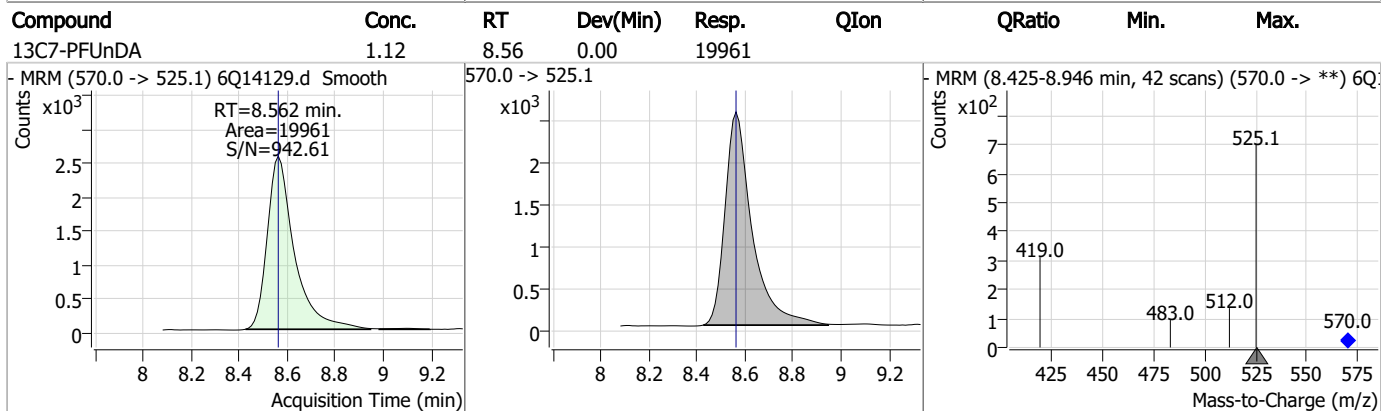
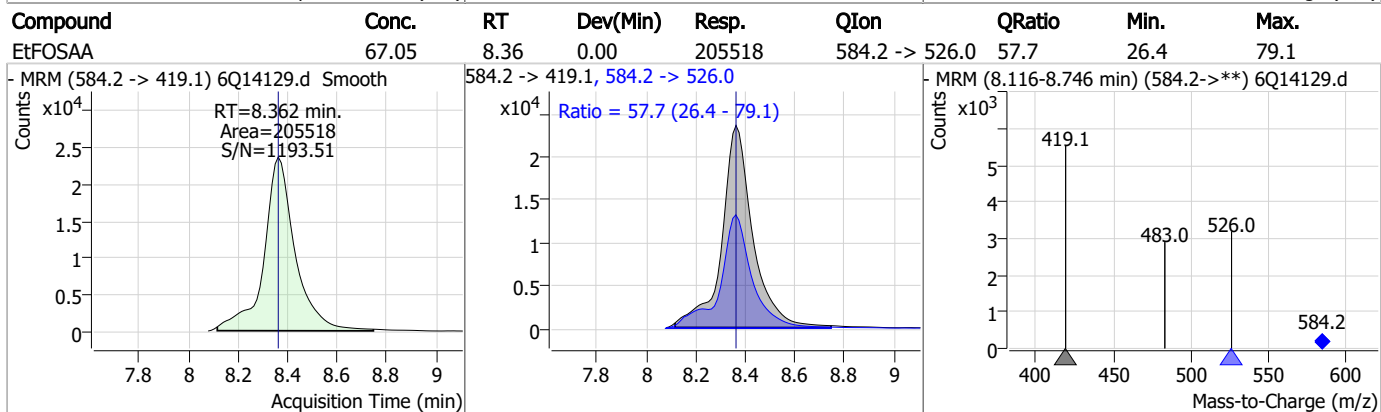
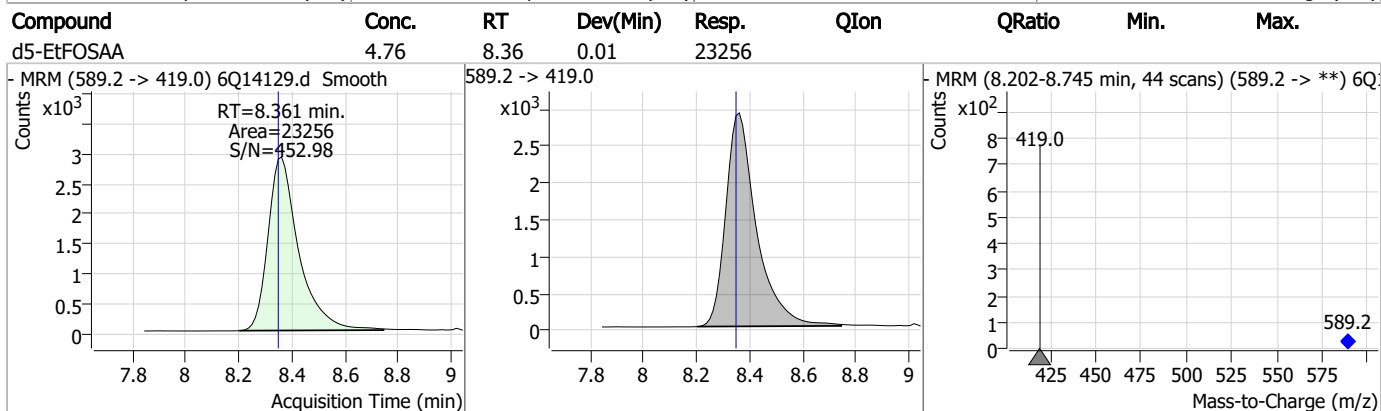
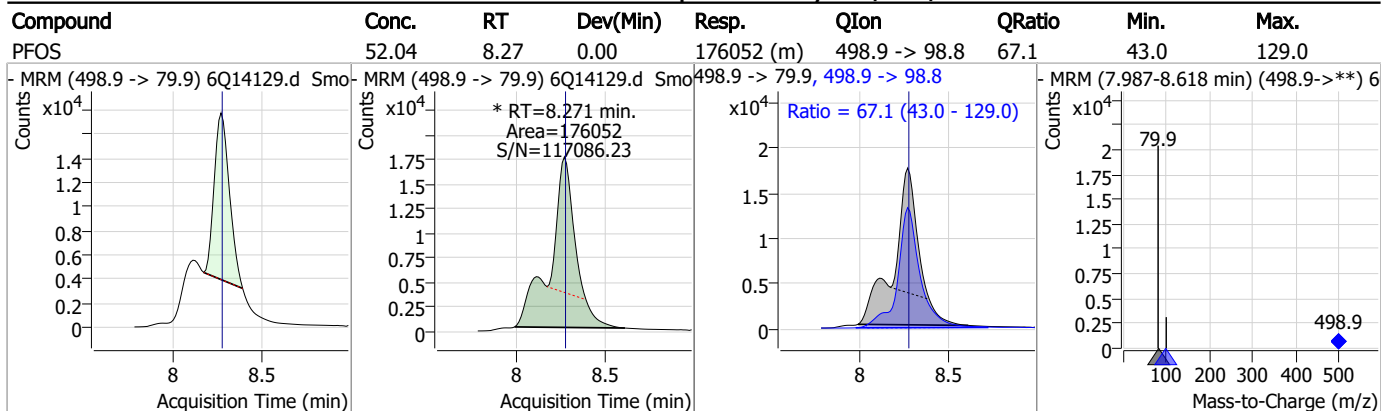
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Perfluorinated Compounds by LC/MS/MS

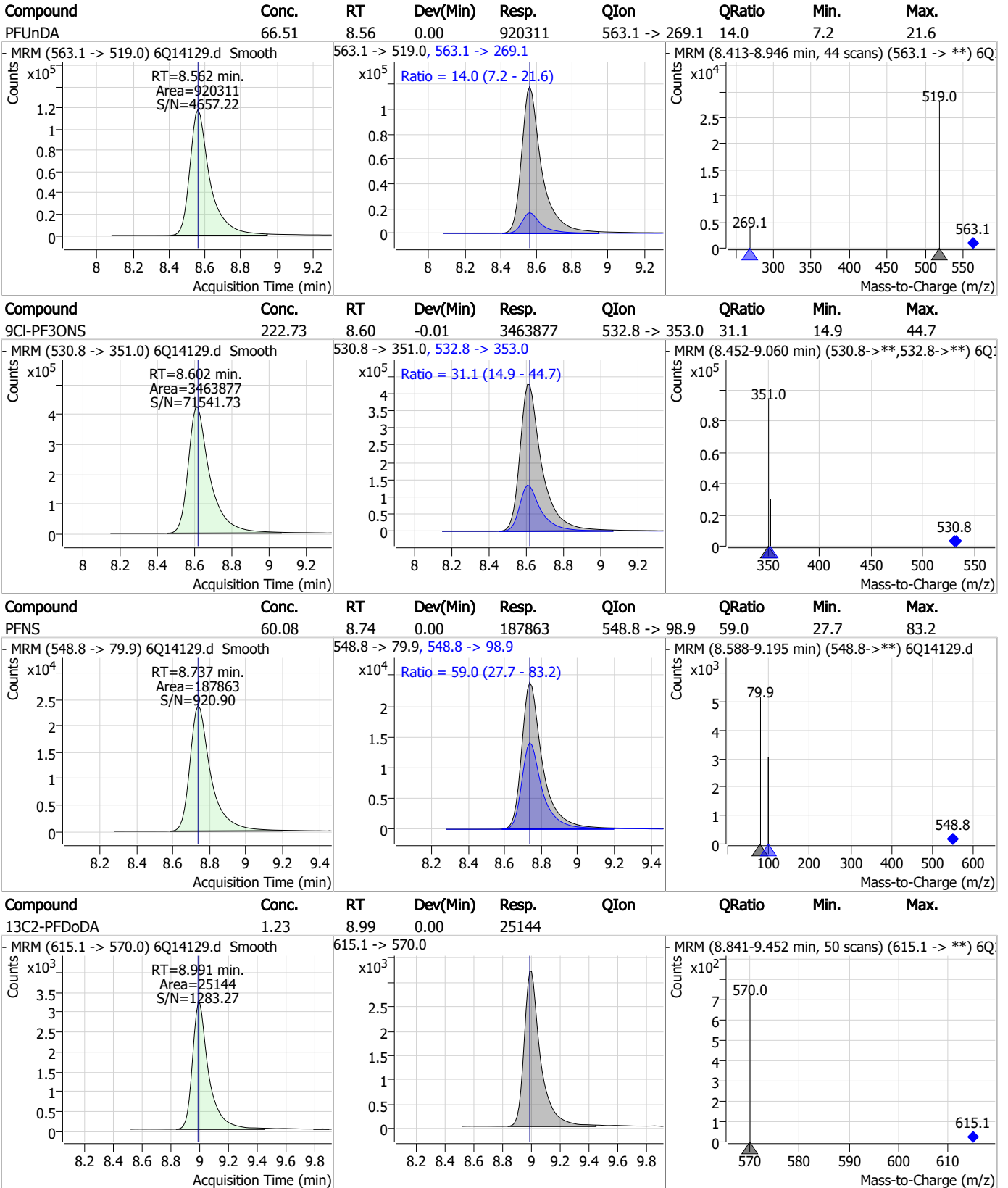


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

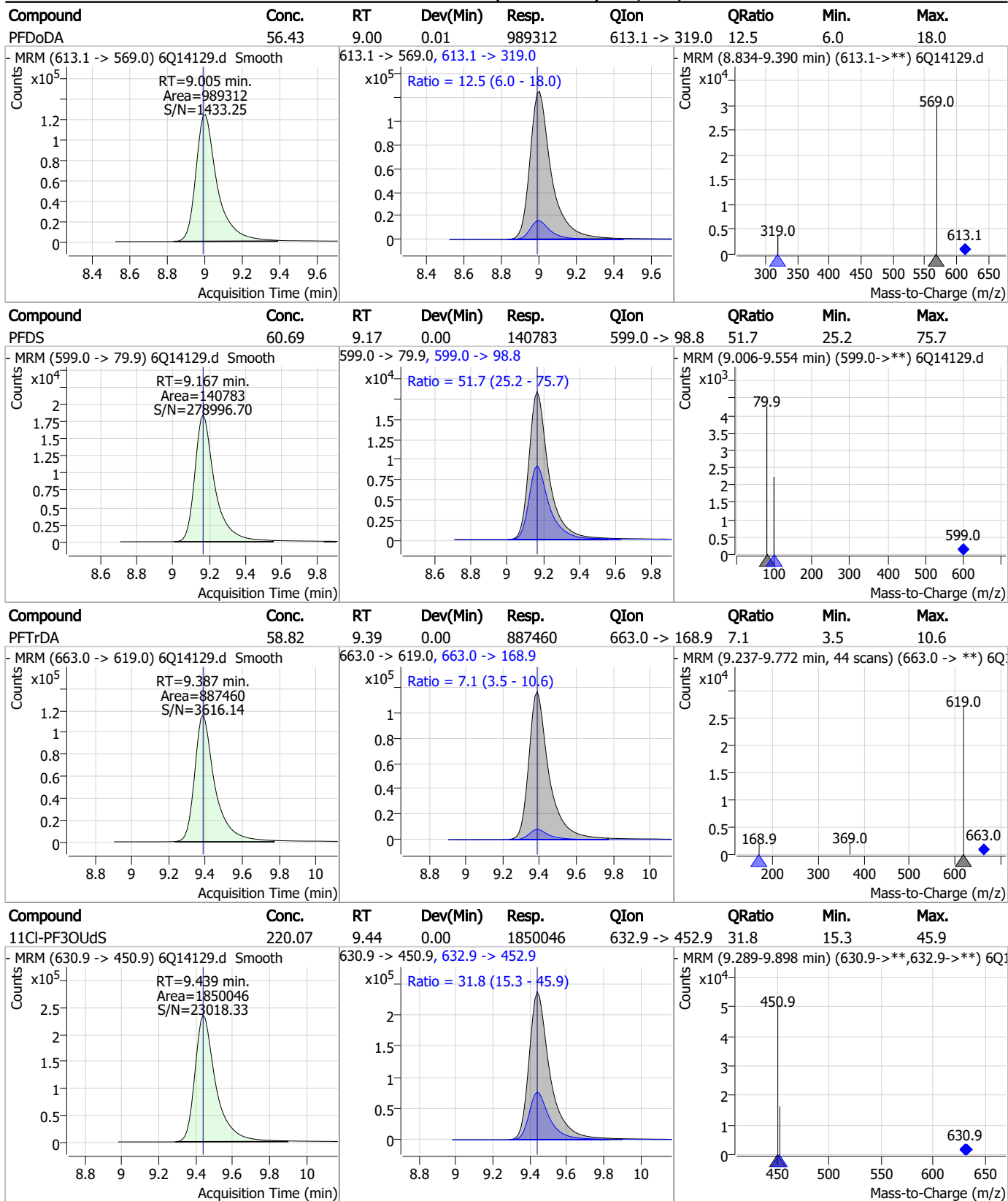


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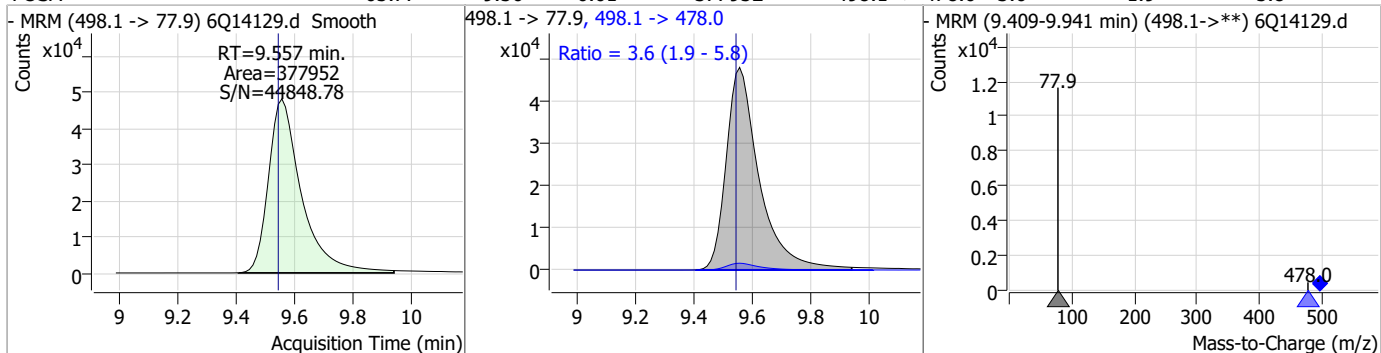
Perfluorinated Compounds by LC/MS/MS



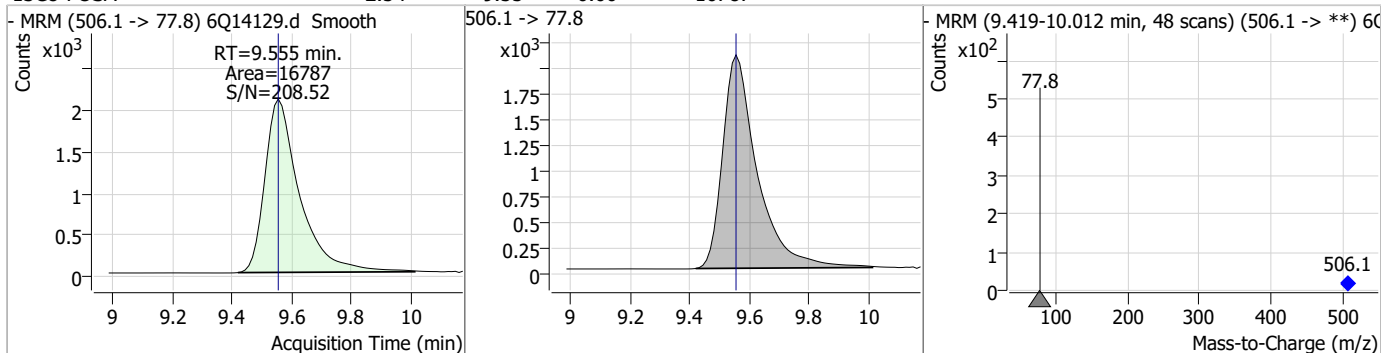
7.7.9
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Perfluorinated Compounds by LC/MS/MS

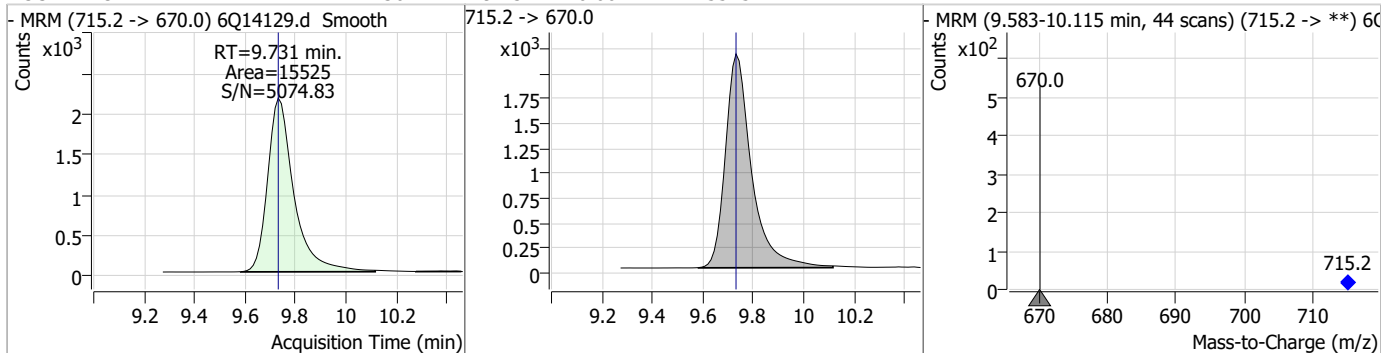
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	65.77	9.56	0.01	377952	498.1 -> 478.0	3.6	1.9	5.8



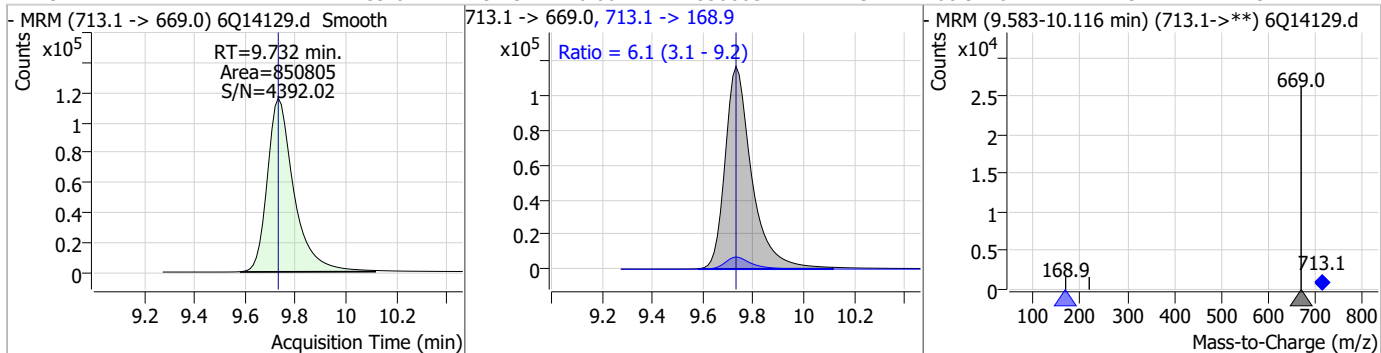
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.54	9.55	0.00	16787				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.73	0.00	15525				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	59.02	9.73	0.00	850805	713.1 -> 168.9	6.1	3.1	9.2



7.7.9
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	61.88	9.87	0.01	82445	699.1 -> 98.8	61.4	29.4	88.2
d7-MeFOSE	23.83	10.59	0.00	23179				
MeFOSE	648.23	10.60	0.00	512221				
d3-MeFOSA	2.71	10.68	0.00	6399				

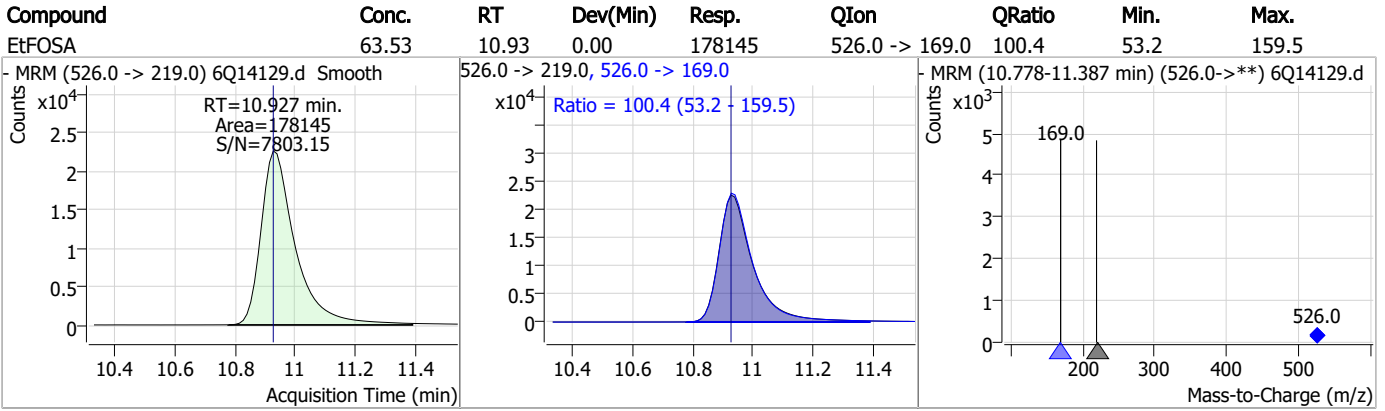
7.7.9
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	59.72	10.68	0.00	160019	511.9 -> 169.0	103.3	116.1	348.4
d9-EtFOSE	23.89	10.85	0.00	14948				
EtFOSE	699.65	10.86	0.00	376260				
d5-EtFOSA	2.52	10.92	0.00	6483				

7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S6Q216-IC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14129.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 19:15 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.7.9.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14132.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 7:57:25 PM
 Sample Name : icv216-20
 Vial : P1-B2
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	92536	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	46372	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	41308	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	41644	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	73892	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22659	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	19305	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	22338	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	25159	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	14524	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17197	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15534	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9957	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	9181	2.50 µg/L	0.000
M2-4:2FTS	5.178	329.1 -> 80.9	2736	5.00 µg/L	-0.012
M2-6:2FTS	6.858	429.1 -> 80.9	3318	5.00 µg/L	-0.012
M2-8:2FTS	7.895	529.1 -> 80.9	3131	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	28830	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	16320	10.00 µg/L	-0.012
M5-EtFOSAA	8.349	589.2 -> 419.0	26402	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	25496	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16495	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	7024	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6047	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10970	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	40426	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7521	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	86395	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	26485	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	26150	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	42199	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.178	329.1 -> 80.9	2736	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-6:2FTS	6.858	429.1 -> 80.9	3318	4.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3131	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFDoDA	8.991	615.1 -> 570.0	25159	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14524	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFBS	5.456	302.1 -> 79.9	15534	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFHxS	7.212	402.1 -> 79.9	9957	2.45 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 = 97.9%	
13C4-PFBA	2.938	216.8 -> 171.9	92536	10.16 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C4-PFHpA	6.452	367.1 -> 322.0	41644	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFHxA	5.513	318.0 -> 273.0	41308	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.337	268.3 -> 223.0	46372	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C6-PFDA	8.108	519.1 -> 474.1	19305	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C7-PFUnDA	8.562	570.0 -> 525.1	22338	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-FOSA	9.555	506.1 -> 77.8	17197	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-PFOA	7.097	421.1 -> 376.0	73892	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOS	8.270	507.1 -> 79.9	9181	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C9-PFNA	7.626	472.1 -> 427.0	22659	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSAA	8.153	573.2 -> 419.0	28830	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	16320	10.14 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	6047	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.349	589.2 -> 419.0	26402	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d7-MeFOSE	10.589	623.2 -> 58.9	25496	24.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	16495	24.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d5-EtFOSA	10.925	531.1 -> 219.0	7024	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
Target Compounds					QValue
4:2FTS	5.178	327.1 -> 307.0	107283	20.46 µg/L	98
		327.1 -> 80.9	24442		
6:2FTS	6.859	427.1 -> 407.0	90843	22.07 µg/L	98
		427.1 -> 80.9	17142		
8:2FTS	7.896	527.1 -> 507.0	44343	21.35 µg/L	98
		527.1 -> 80.8	11112		
EtFOSAA	8.362	584.2 -> 419.1	75889	21.81 µg/L	100
		584.2 -> 526.0	39974		
FOSA	9.557	498.1 -> 77.9	129050	21.92 µg/L	100
		498.1 -> 478.0	4911		
MeFOSAA	8.154	570.1 -> 419.0	103126	21.72 µg/L	98
		570.1 -> 483.0	16869		
PFBA	2.944	212.8 -> 168.9	37428	20.15 µg/L	100
PFBS	5.444	298.7 -> 79.9	110363	22.02 µg/L	98
		298.7 -> 98.8	51990		
PFDA	8.108	512.9 -> 469.0	390617	20.21 µg/L	99
		512.9 -> 219.0	54129		
PFDoDA	8.992	613.1 -> 569.0	302405	17.24 µg/L	99
		613.1 -> 319.0	35227		
PFDS	9.167	599.0 -> 79.9	48868	19.95 µg/L	99

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.453	599.0 -> 98.8	25018	21.24	µg/L	98
		363.1 -> 319.0	431233			
PFHpS	7.765	363.1 -> 169.0	57485	21.42	µg/L	98
		449.0 -> 79.9	69041			
PFHxA	5.516	449.0 -> 98.9	42888	21.10	µg/L	99
		313.0 -> 269.0	285181			
PFHxS	7.213	313.0 -> 118.9	10521	22.22	µg/L	m
		398.7 -> 79.9	84194			
PFNA	7.627	398.7 -> 98.9	45284	24.72	µg/L	96
		463.0 -> 419.0	292349			
PFNS	8.737	463.0 -> 219.0	55687	20.90	µg/L	98
		548.8 -> 79.9	69013			
PFOA	7.098	548.8 -> 98.9	39452	18.73	µg/L	94
		413.0 -> 369.0	521435			
PFOS	8.271	413.0 -> 169.0	71021	17.13	µg/L	m
		498.9 -> 79.9	61202			
PFPeA	4.338	498.9 -> 98.8	35115	22.13	µg/L	100
		263.0 -> 219.0	178067			
PFPeS	6.517	349.1 -> 79.9	101168	21.75	µg/L	99
		349.1 -> 98.9	52876			
PFTeDA	9.732	713.1 -> 669.0	289815	21.49	µg/L	99
		713.1 -> 168.9	19423			
PFTrDA	9.387	663.0 -> 619.0	303388	20.10	µg/L	100
		663.0 -> 168.9	21660			
PFUnDA	8.562	563.1 -> 519.0	307958	19.89	µg/L	96
		563.1 -> 269.1	39412			
11Cl-PF3OUdS	9.439	630.9 -> 450.9	190166	21.76	µg/L	99
		632.9 -> 452.9	59190			
9Cl-PF3ONS	8.602	530.8 -> 351.0	321682	19.90	µg/L	97
		532.8 -> 353.0	100906			
ADONA	6.704	376.9 -> 250.9	683156	21.39	µg/L	98
		376.9 -> 84.8	141291			
HFPO-DA	5.879	284.9 -> 168.9	26242	19.96	µg/L	100
		284.9 -> 184.9	3158			
3:3FTCA	3.804	241.0 -> 177.0	8446	20.38	µg/L	96
		241.0 -> 117.0	1236			
5:3FTCA	6.156	341.0 -> 237.1	62723	21.11	µg/L	100
		341.0 -> 217.0	54388			
7:3FTCA	7.567	441.0 -> 316.9	32034	20.09	µg/L	100
		441.0 -> 336.9	60338			
EtFOSA	10.927	526.0 -> 219.0	55667	18.32	µg/L	94
		526.0 -> 169.0	55964			
EtFOSE	10.860	630.0 -> 58.9	53600	90.32	µg/L	100
		511.9 -> 219.0	50193			
MeFOSA	10.682	511.9 -> 169.0	52877	19.82	µg/L	#
		616.1 -> 58.9	75157			
MeFOSE	10.615	699.1 -> 79.9	24742	86.47	µg/L	100
		699.1 -> 98.8	16776			
PFDoDS	9.870	295.0 -> 201.0	15365	17.59	µg/L	88
		295.0 -> 84.9	7664			
NFDHA	5.395	279.0 -> 85.1	47013	20.72	µg/L	96
		279.0 -> 85.1	47013			
PFMBA	4.738	229.0 -> 84.9	43504	20.15	µg/L	100
		314.8 -> 134.9	327250			
PFEESA	5.983	314.8 -> 82.9	7679	17.50	µg/L	100

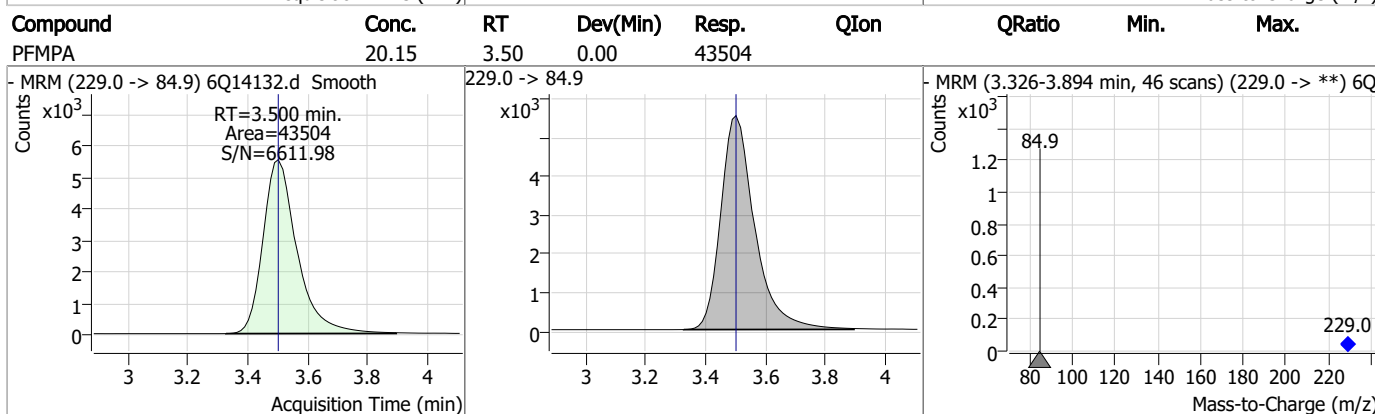
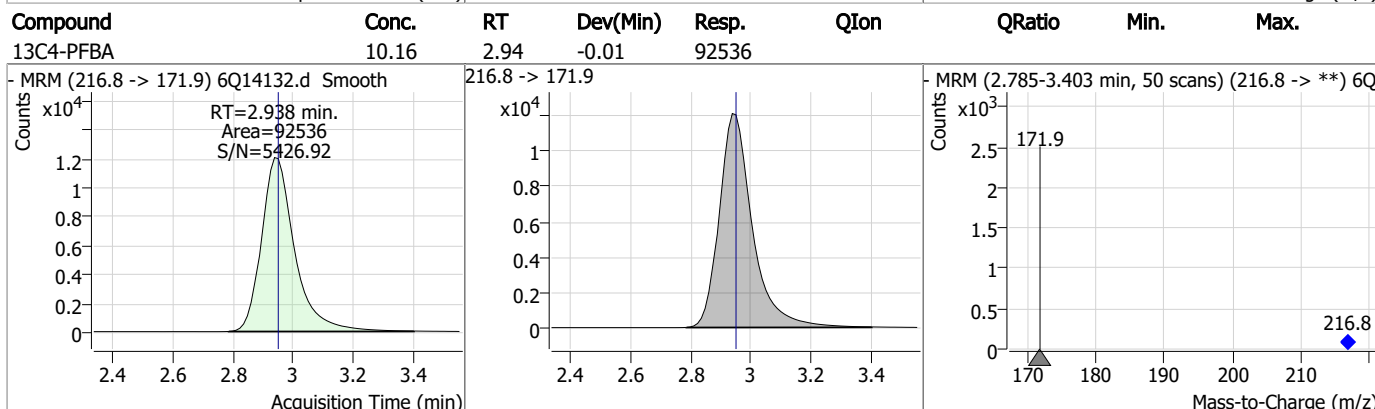
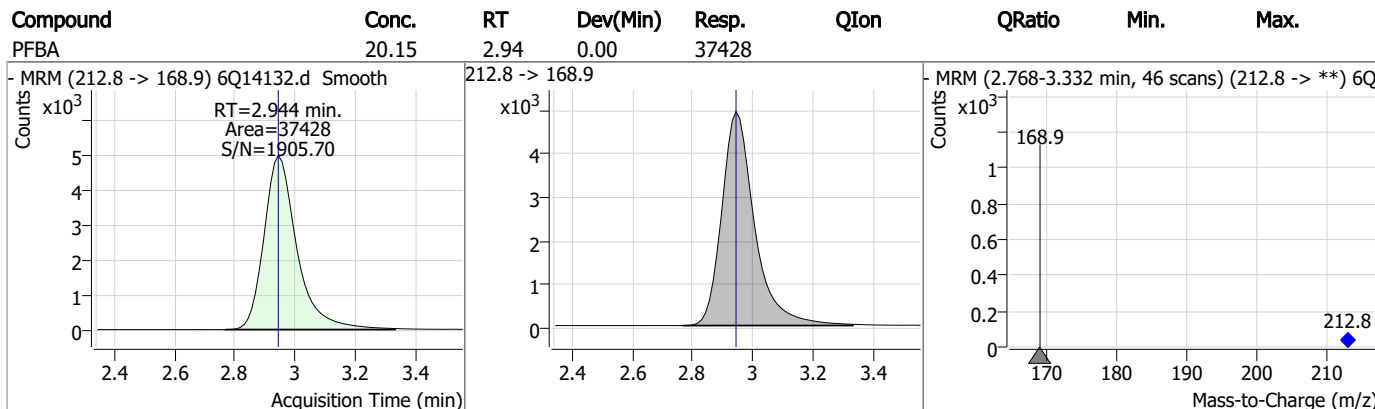
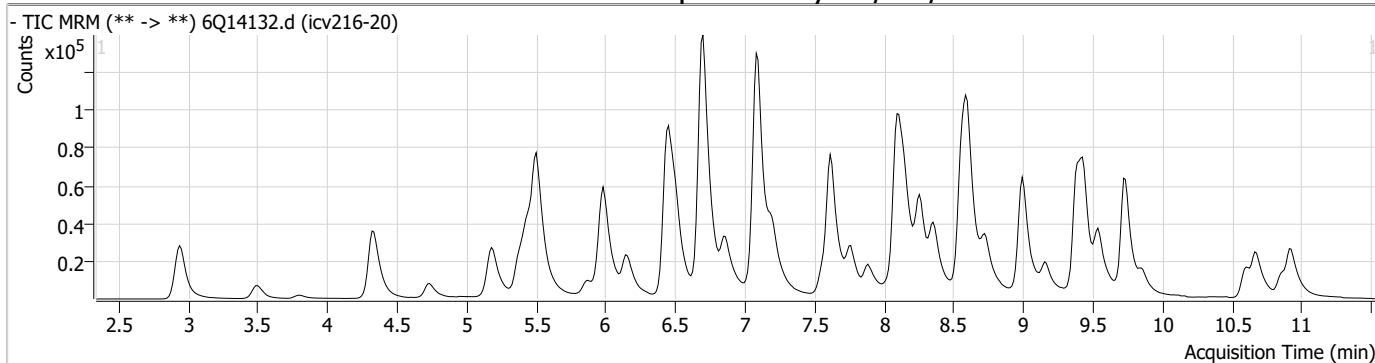
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

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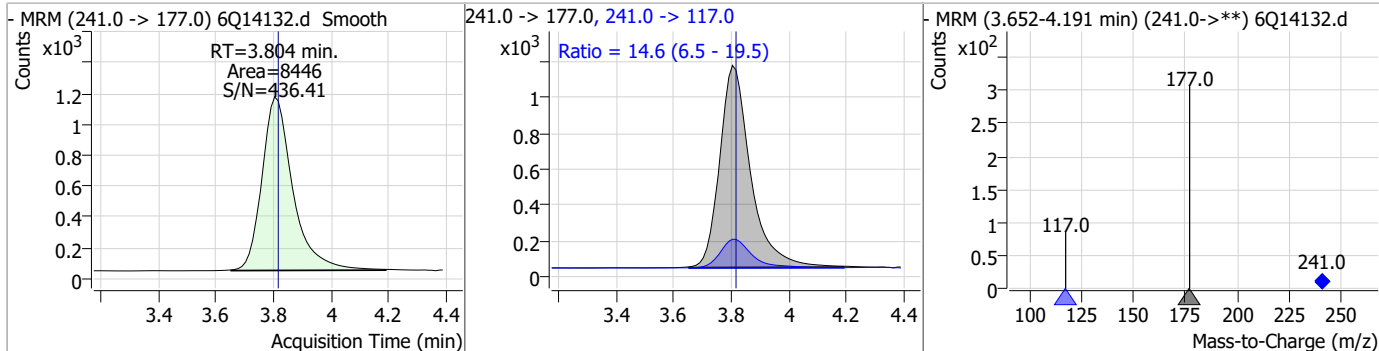
Perfluorinated Compounds by LC/MS/MS



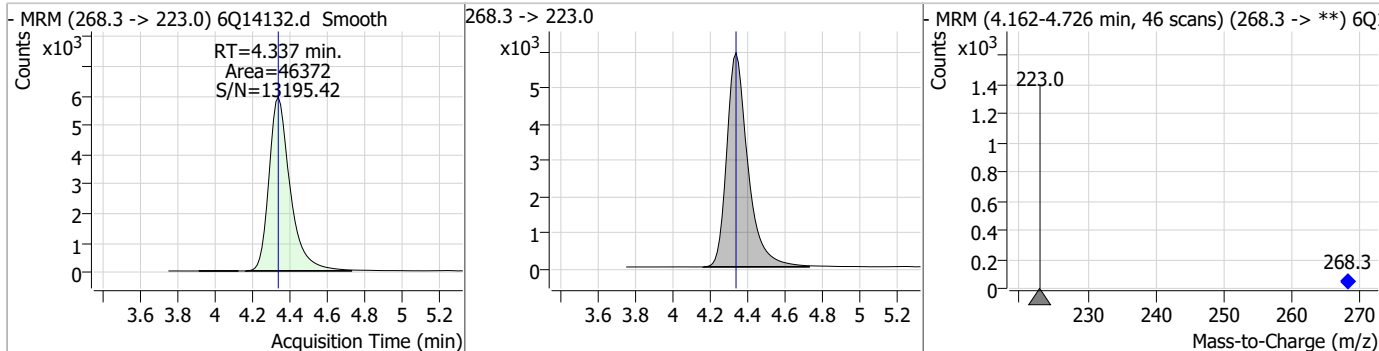
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Perfluorinated Compounds by LC/MS/MS

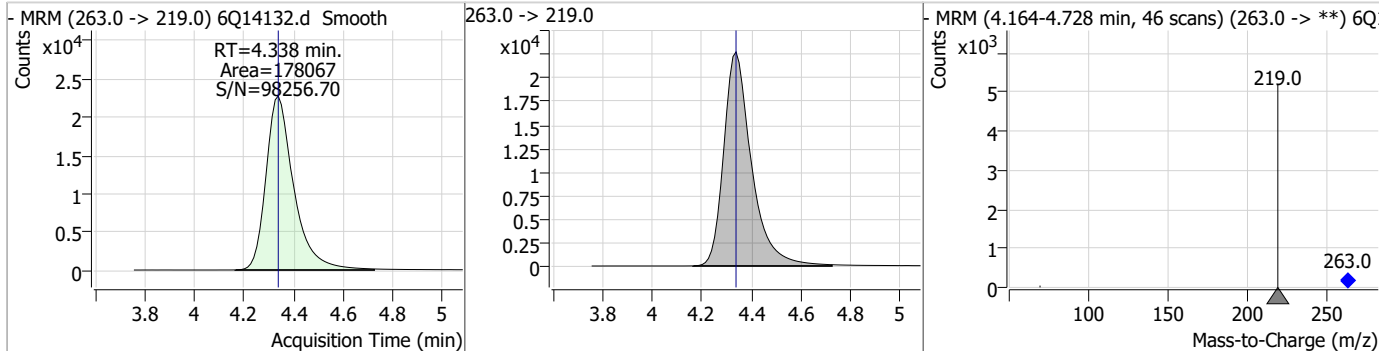
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	20.38	3.80	-0.01	8446	241.0 -> 117.0	14.6	6.5	19.5



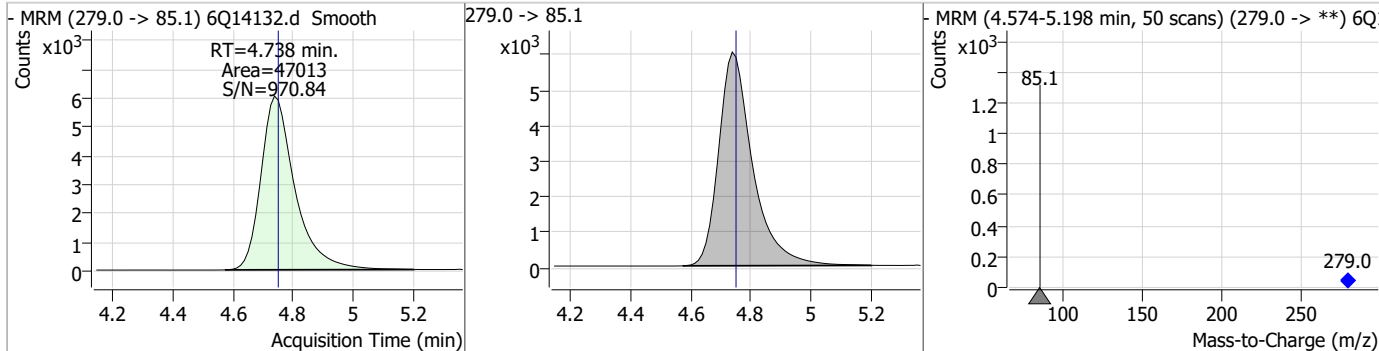
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.87	4.34	0.00	46372				



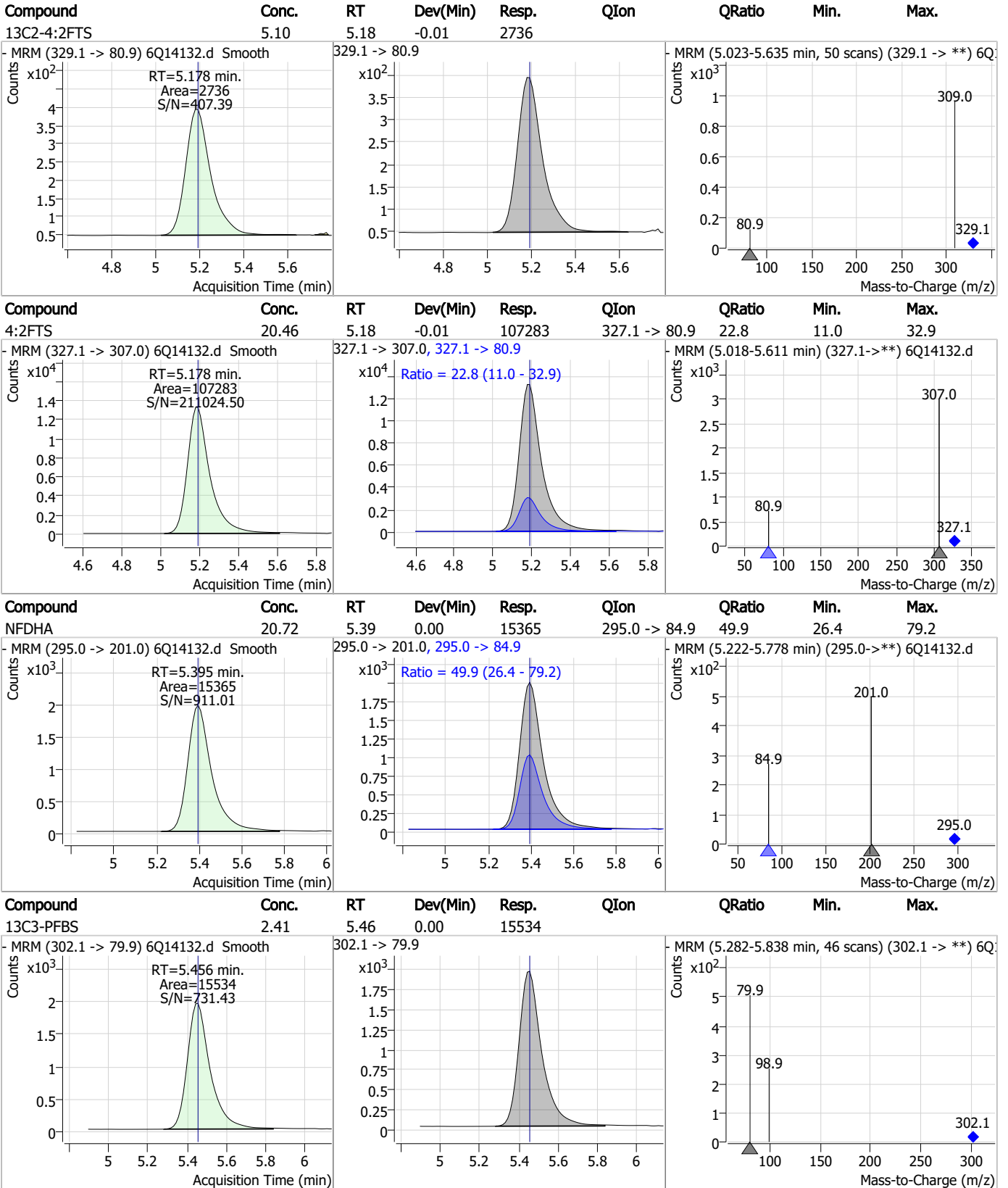
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	22.13	4.34	0.00	178067				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	20.00	4.74	-0.01	47013				



Perfluorinated Compounds by LC/MS/MS

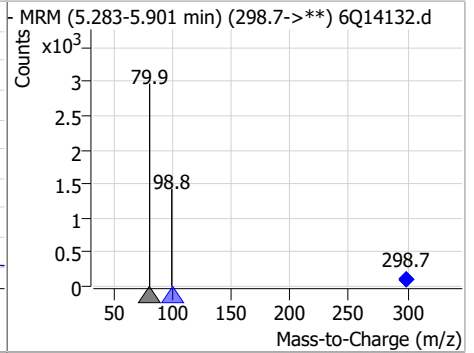
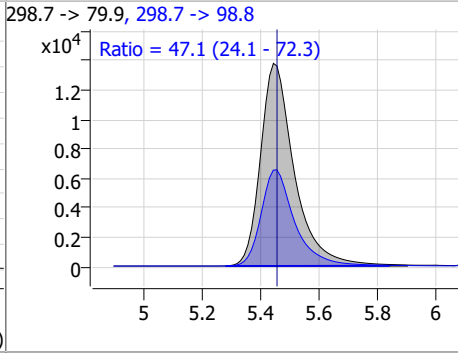
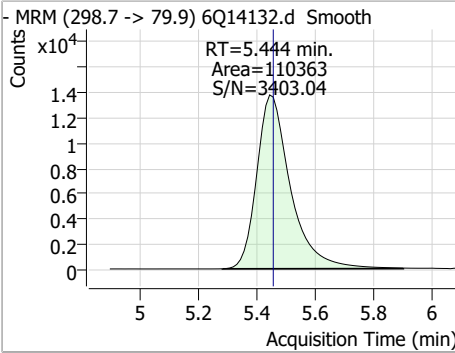


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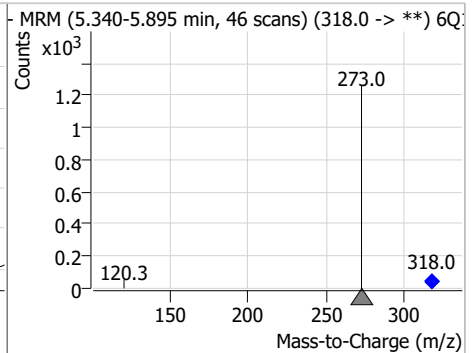
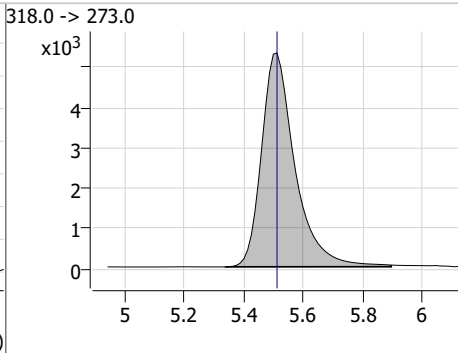
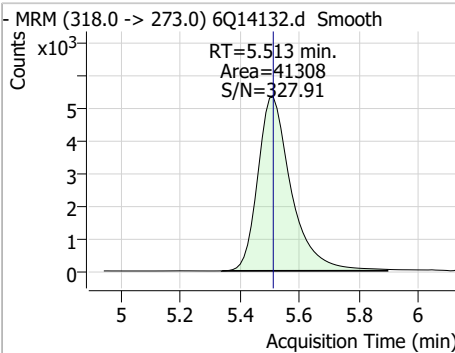


Perfluorinated Compounds by LC/MS/MS

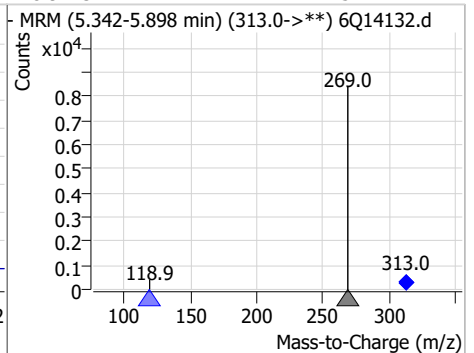
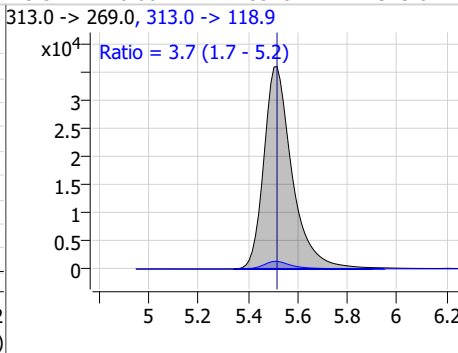
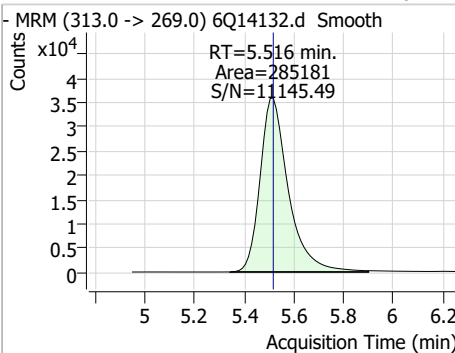
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	22.02	5.44	-0.01	110363	298.7 -> 98.8	47.1	24.1	72.3



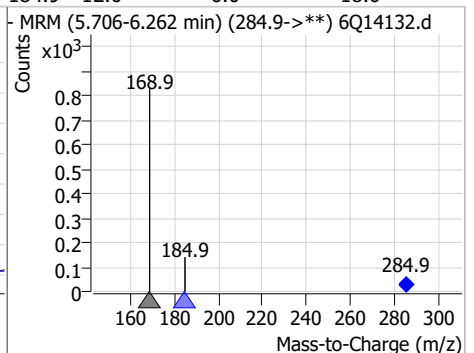
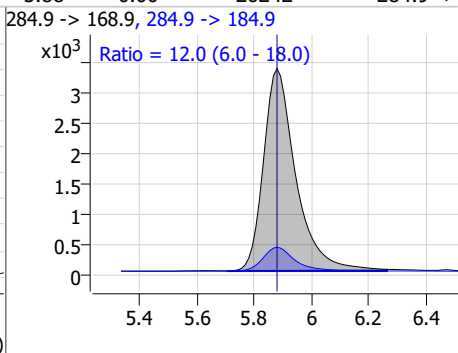
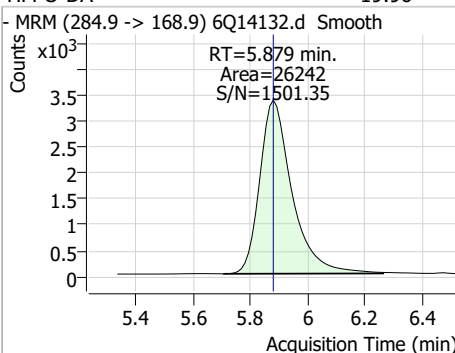
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.51	0.00	41308				



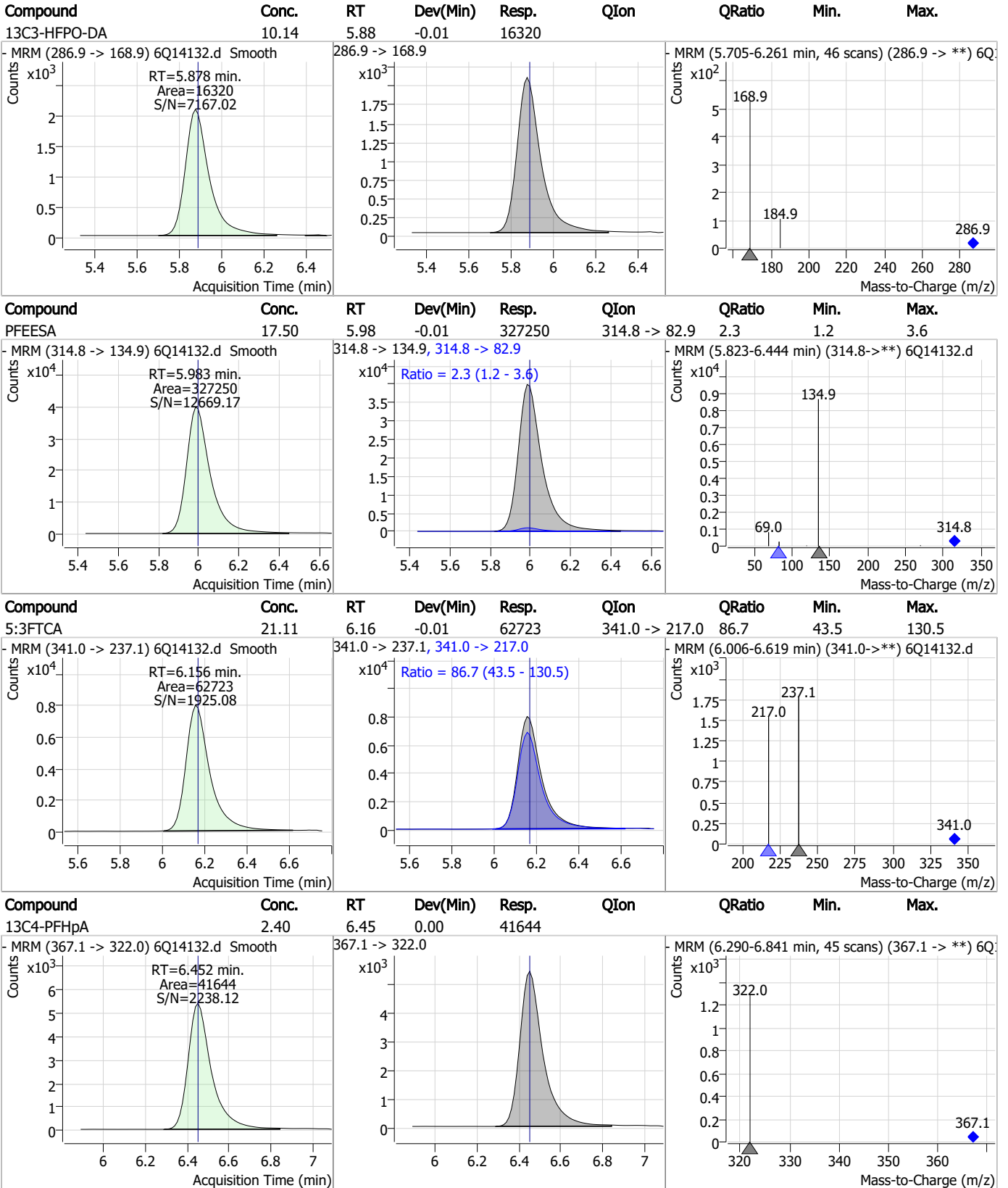
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.10	5.52	0.00	285181	313.0 -> 118.9	3.7	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.96	5.88	0.00	26242	284.9 -> 184.9	12.0	6.0	18.0



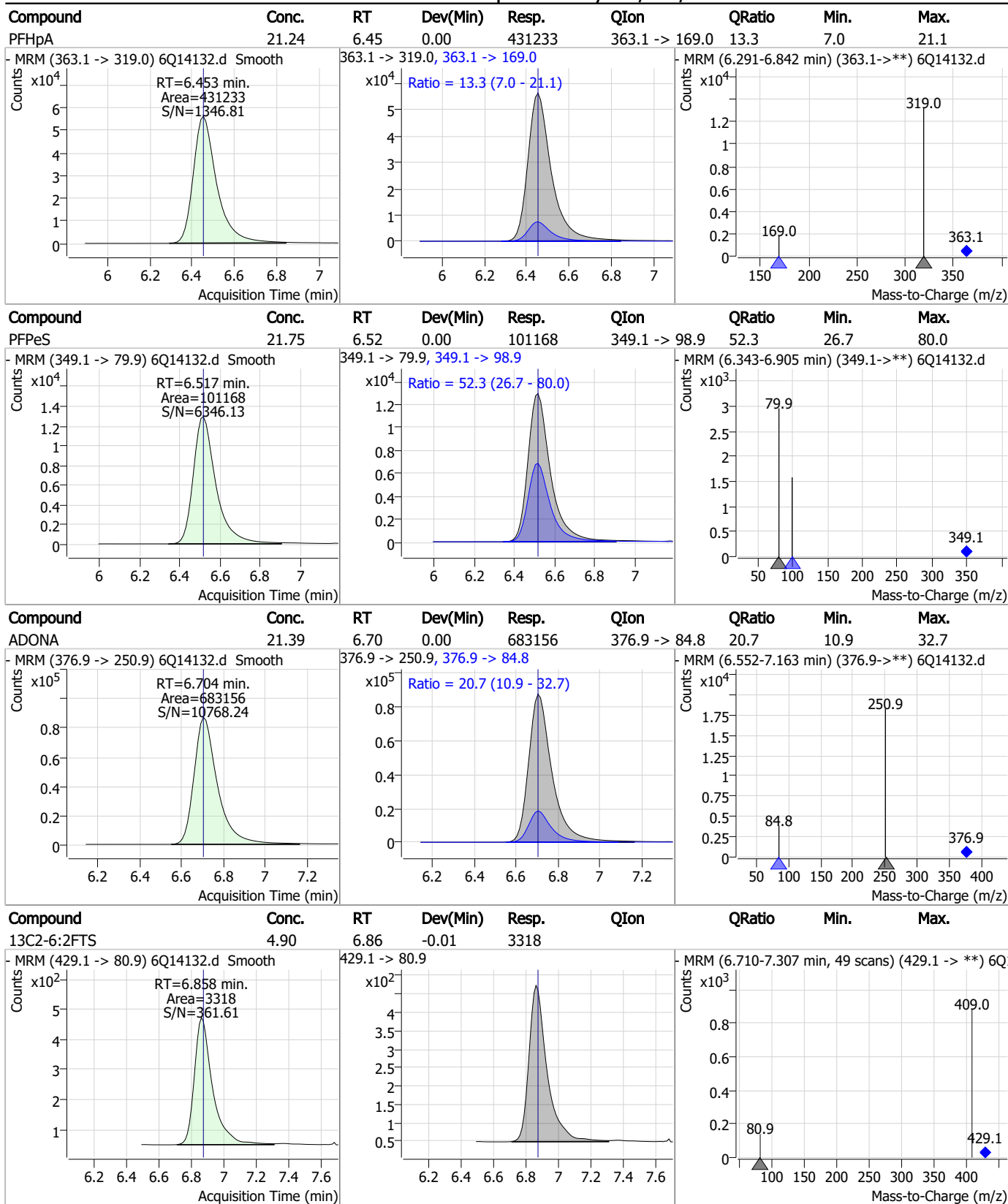
Perfluorinated Compounds by LC/MS/MS



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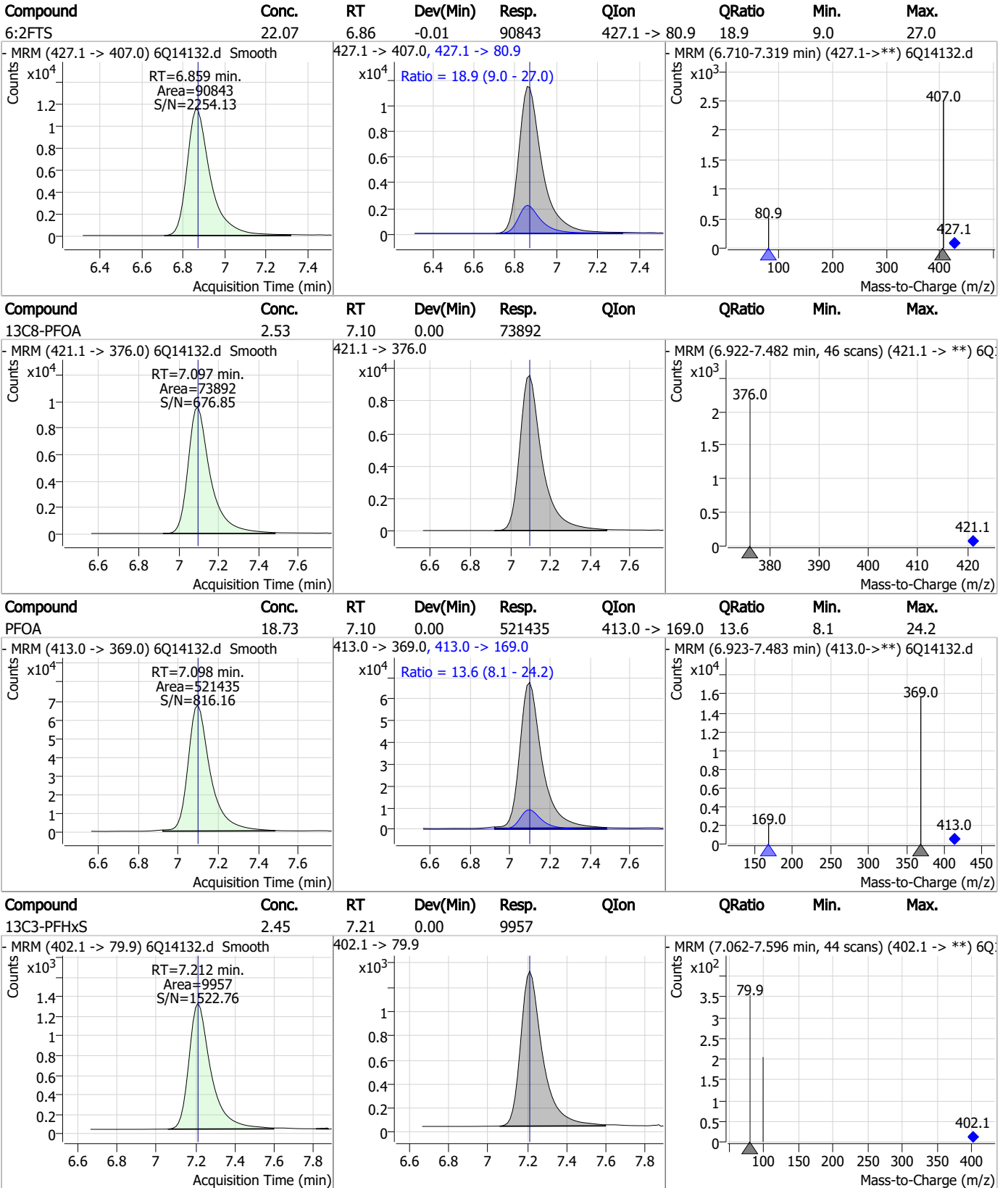


Perfluorinated Compounds by LC/MS/MS



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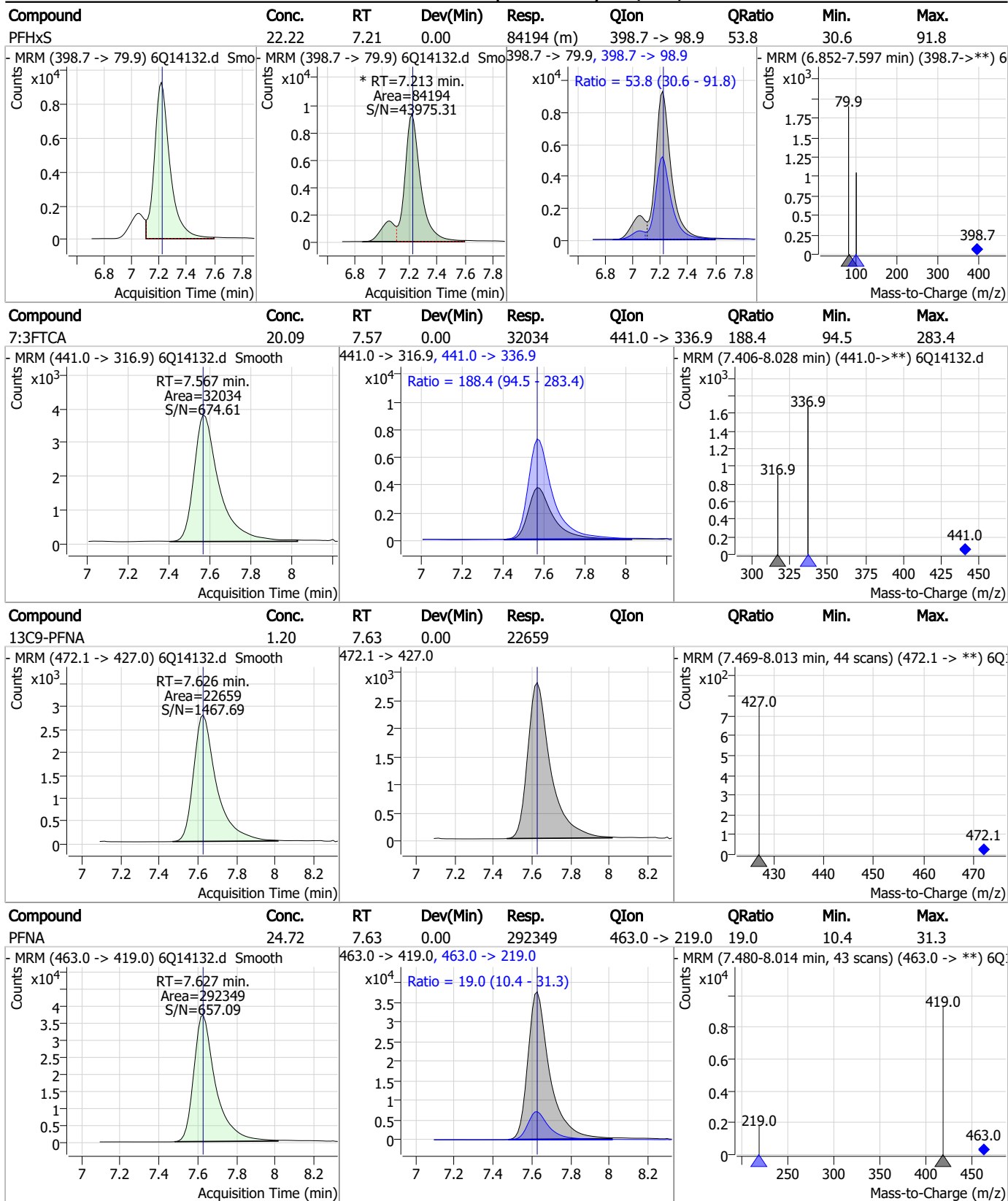
Perfluorinated Compounds by LC/MS/MS



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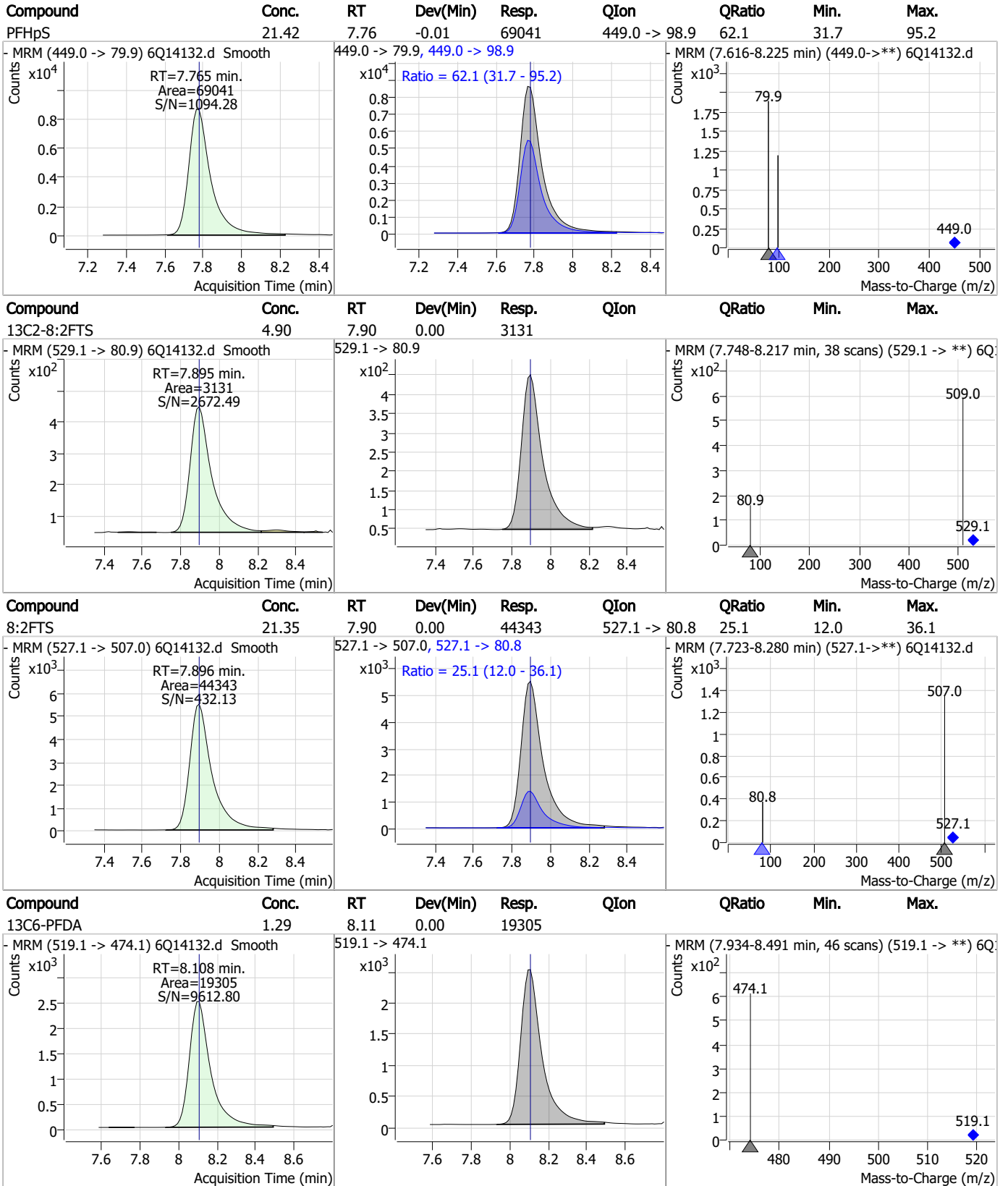


Perfluorinated Compounds by LC/MS/MS



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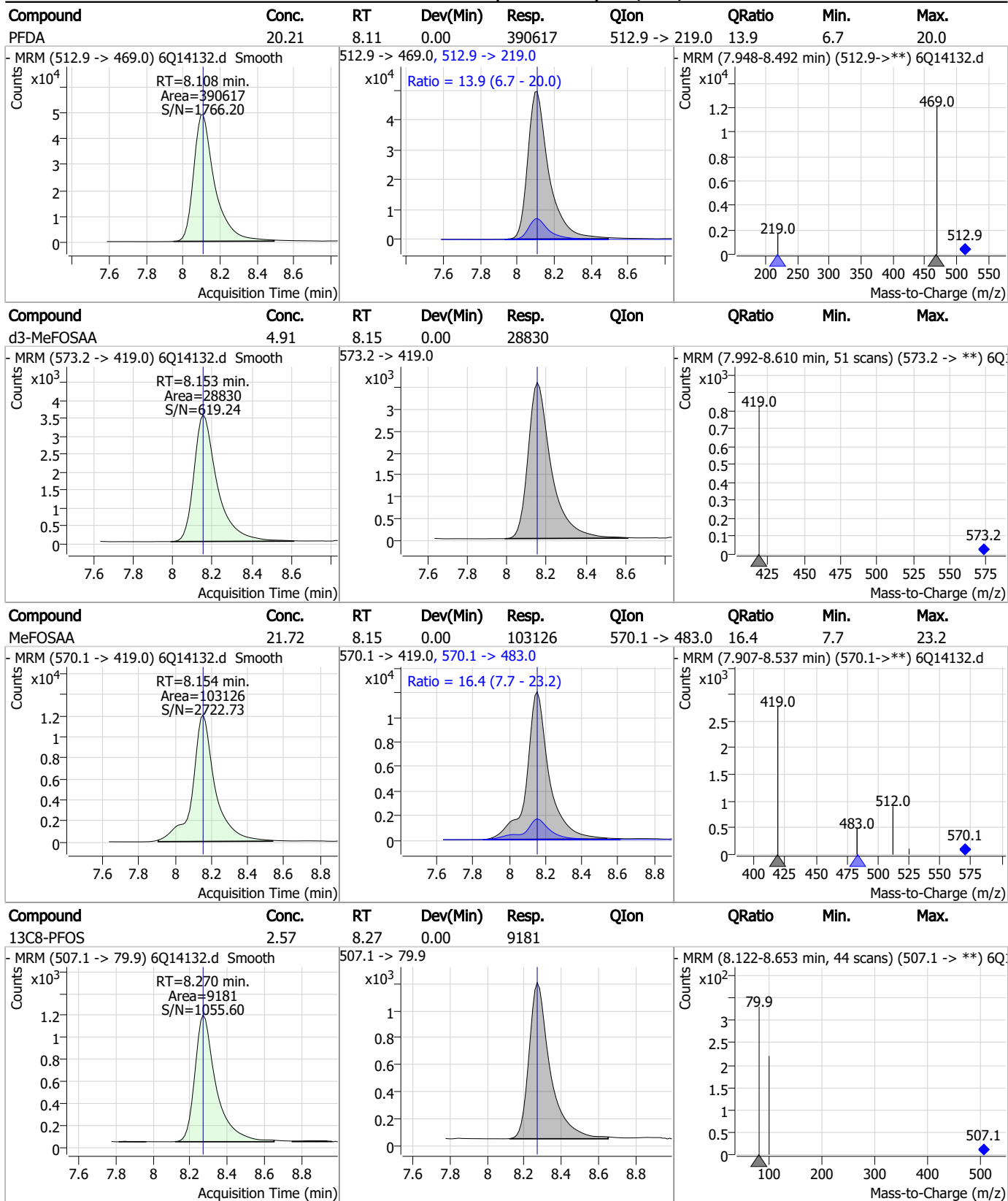
Perfluorinated Compounds by LC/MS/MS



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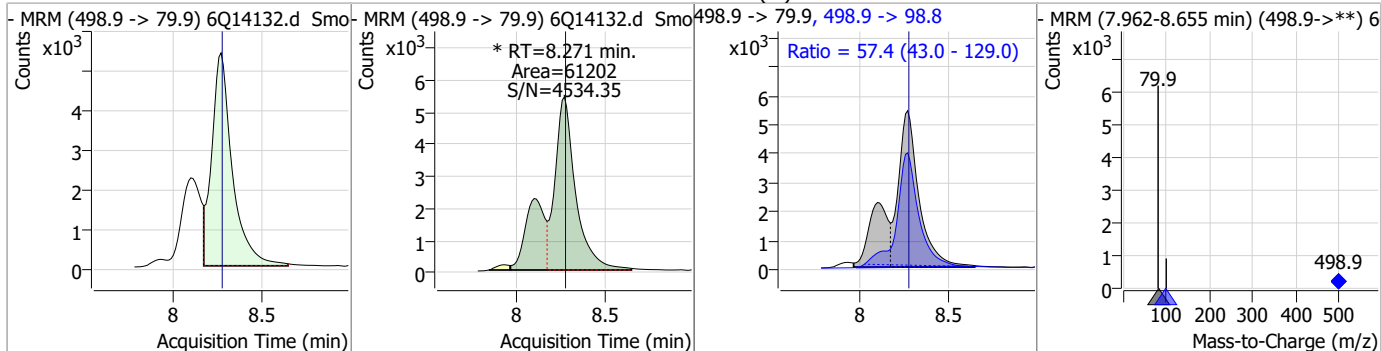
Perfluorinated Compounds by LC/MS/MS



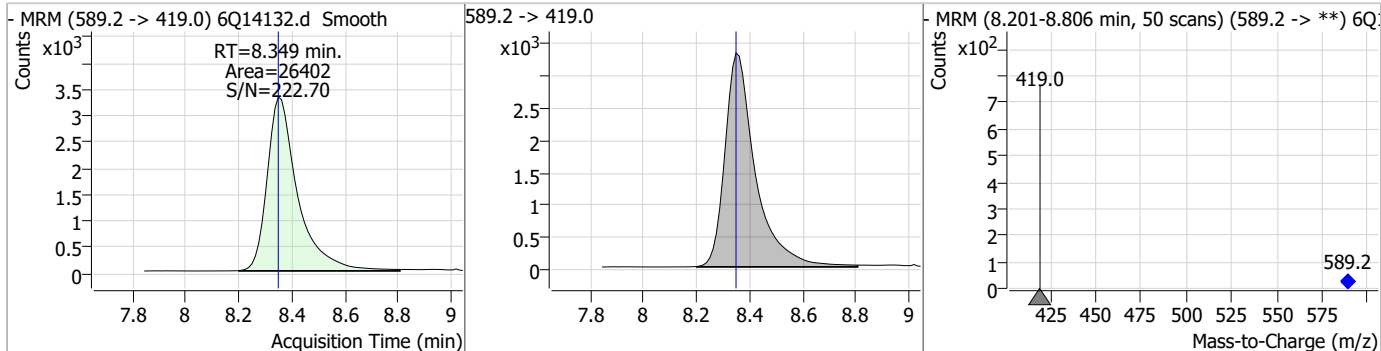
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Perfluorinated Compounds by LC/MS/MS

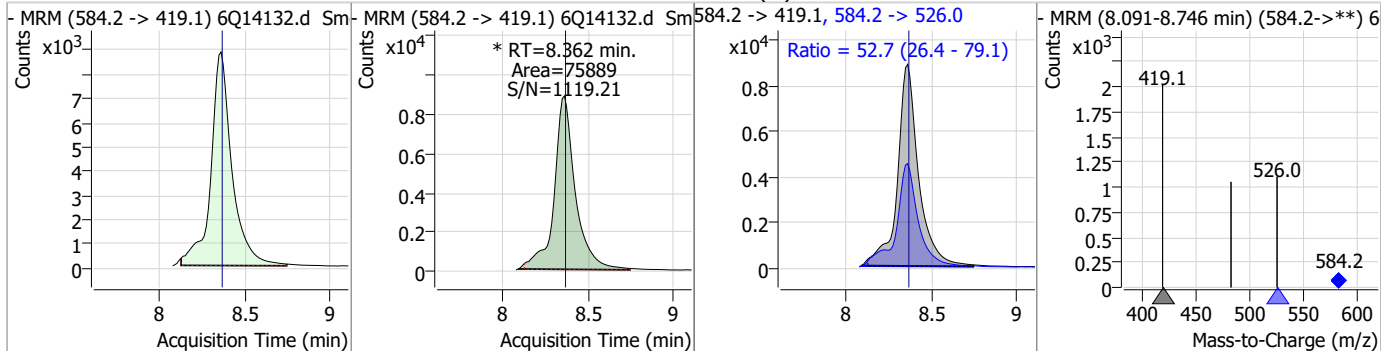
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.13	8.27	0.00	61202 (m)	498.9 -> 98.8	57.4	43.0	129.0



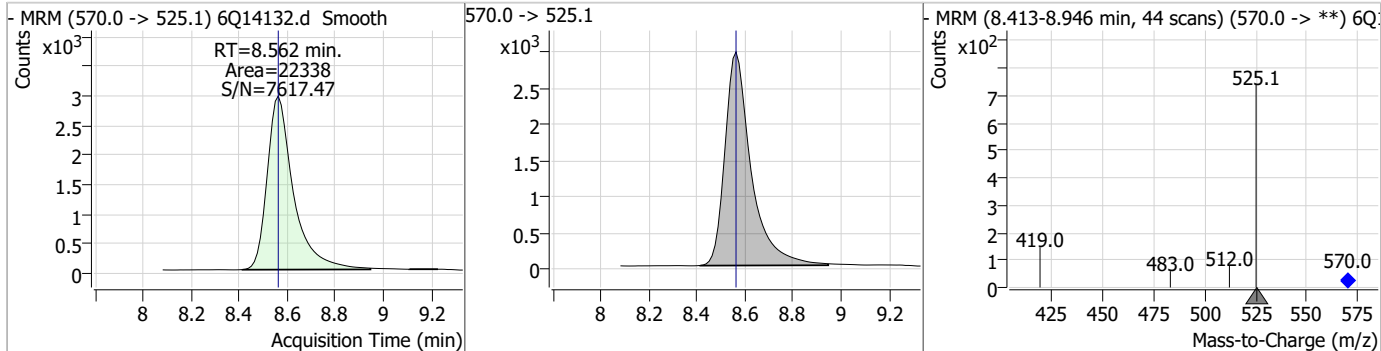
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.06	8.35	0.00	26402				



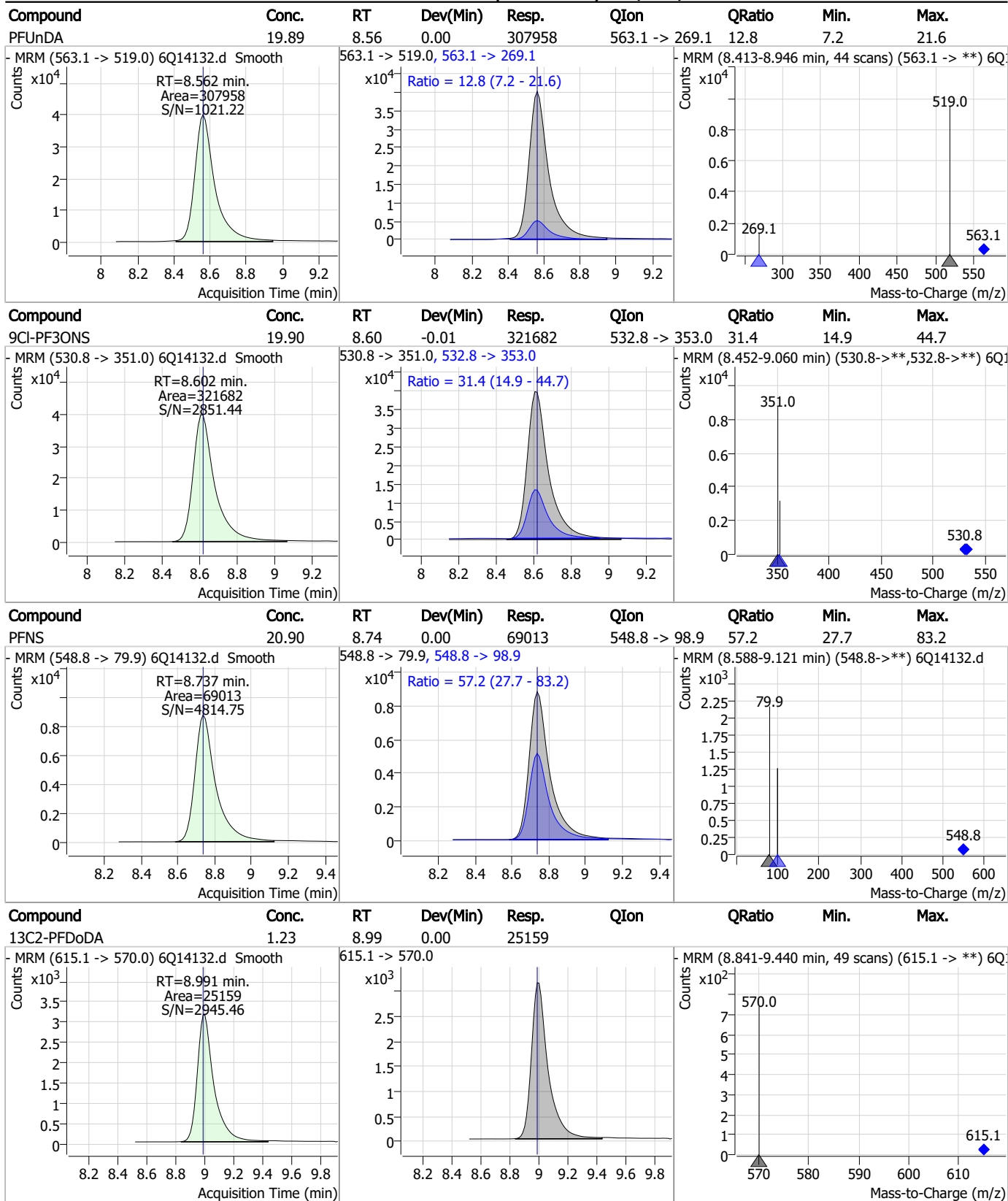
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	21.81	8.36	0.00	75889 (m)	584.2 -> 526.0	52.7	26.4	79.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.56	0.00	22338				



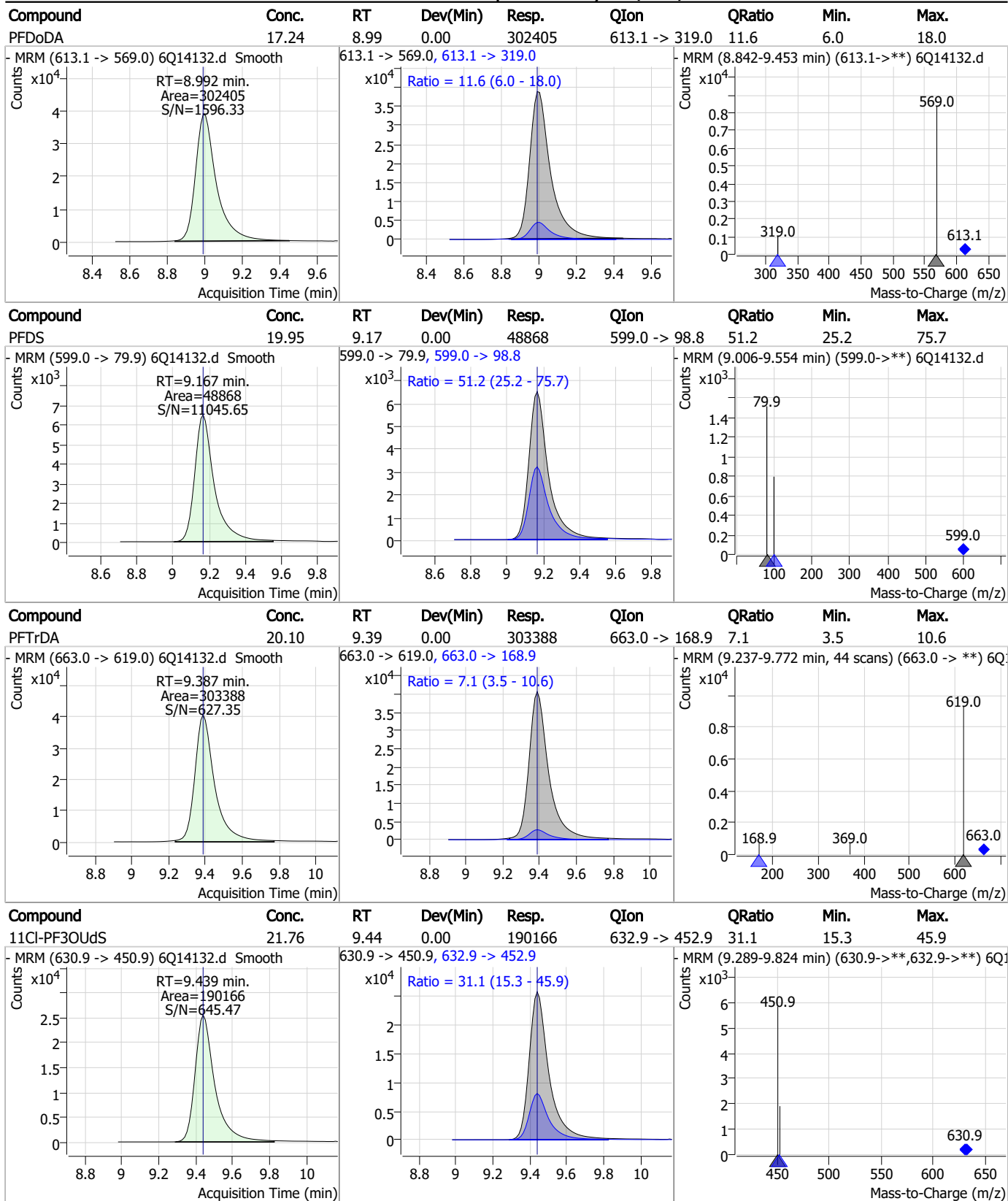
Perfluorinated Compounds by LC/MS/MS



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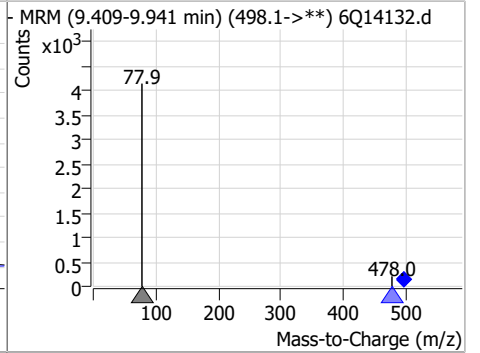
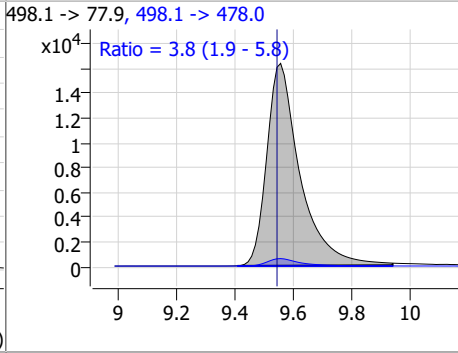
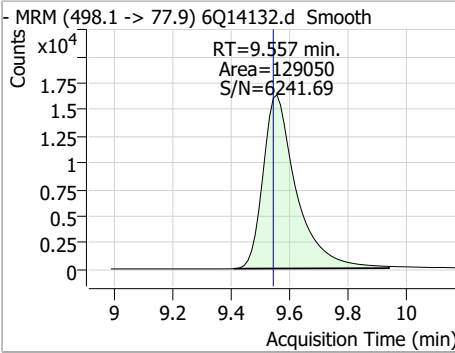
Perfluorinated Compounds by LC/MS/MS



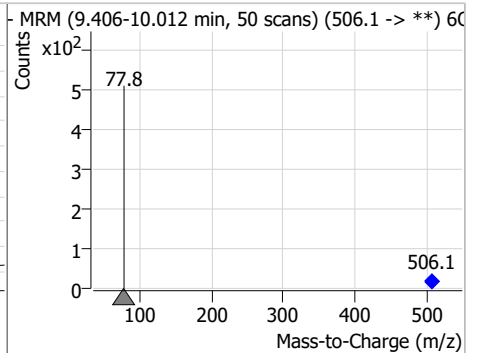
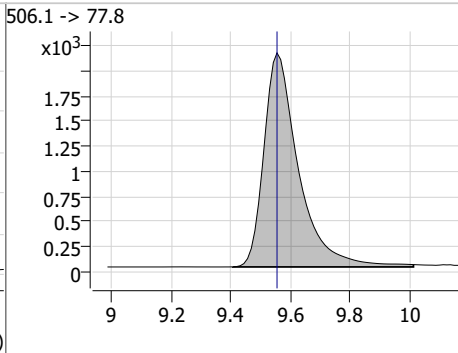
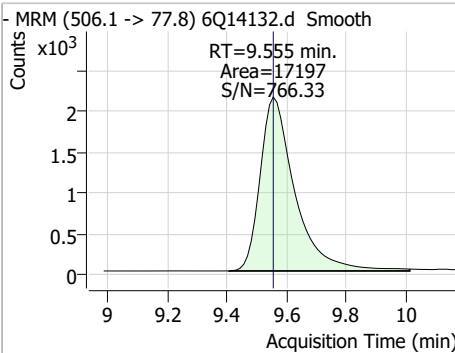
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

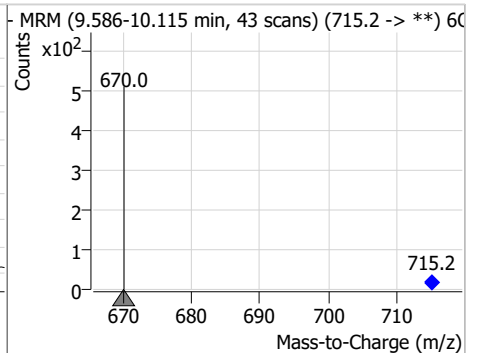
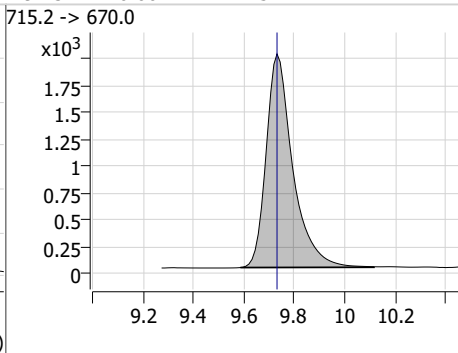
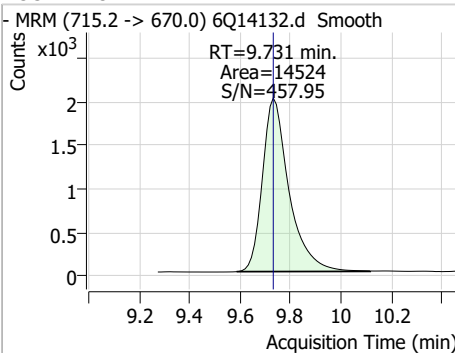
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	21.92	9.56	0.01	129050	498.1 -> 478.0	3.8	1.9	5.8



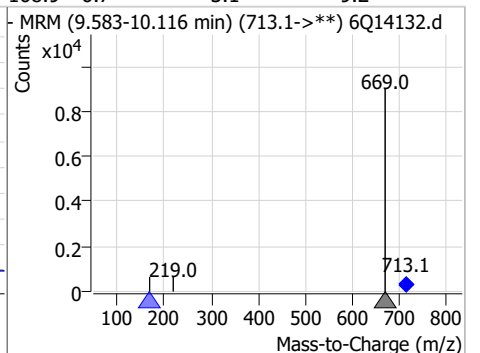
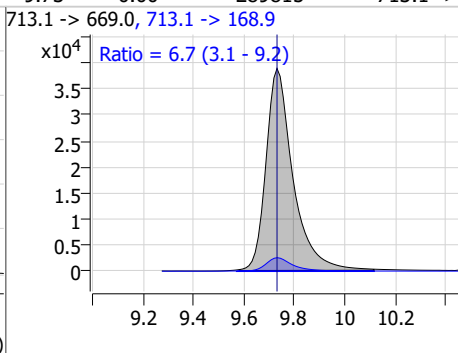
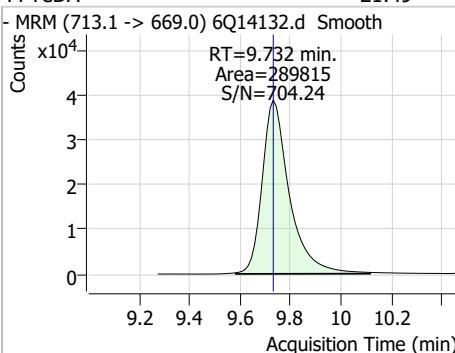
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.44	9.55	0.00	17197				



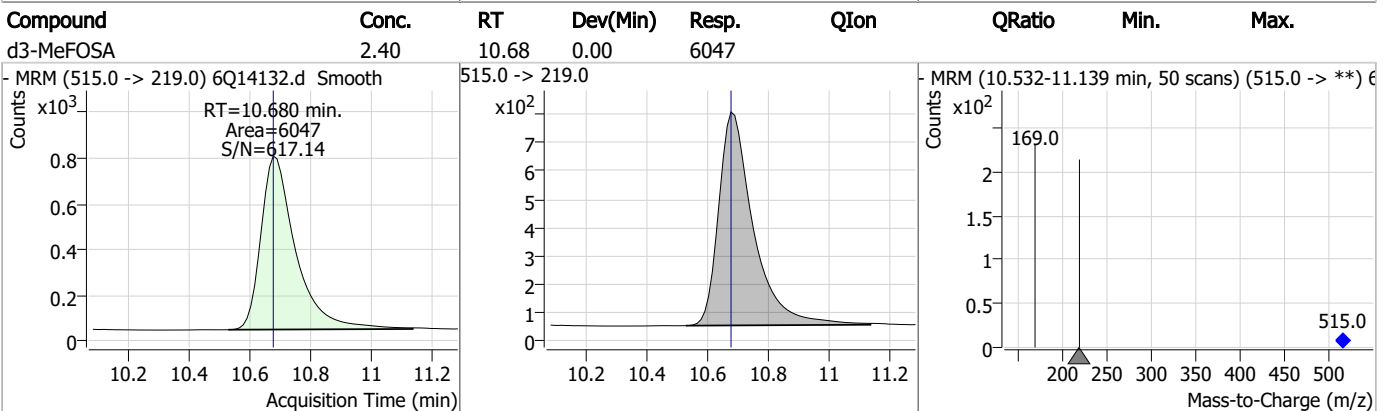
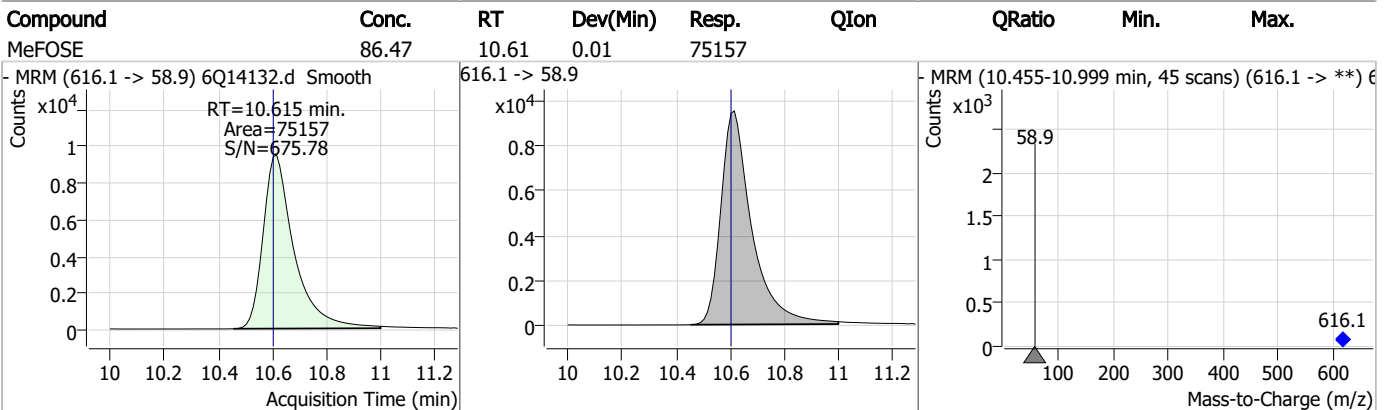
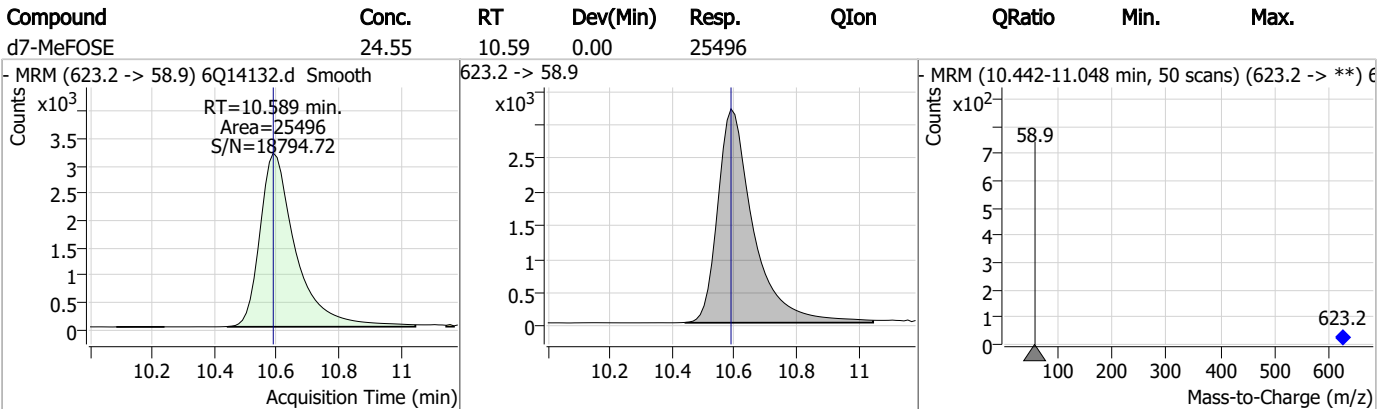
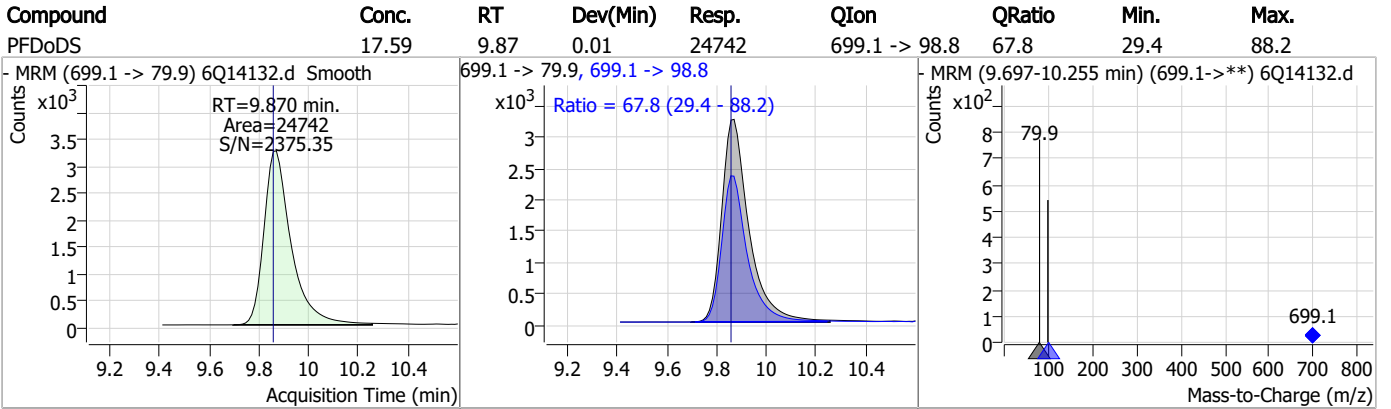
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.73	0.00	14524				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	21.49	9.73	0.00	289815	713.1 -> 168.9	6.7	3.1	9.2



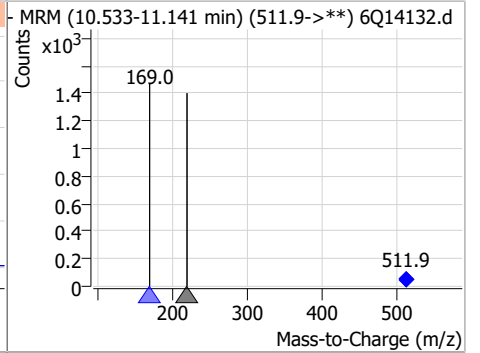
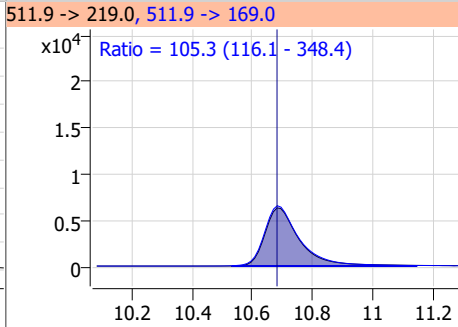
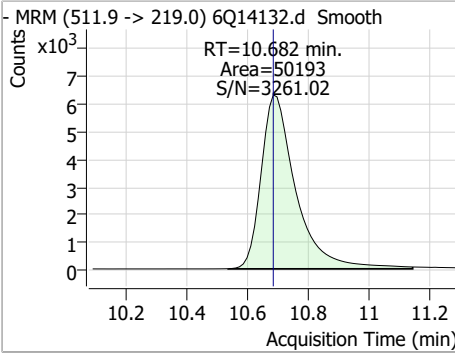
Perfluorinated Compounds by LC/MS/MS



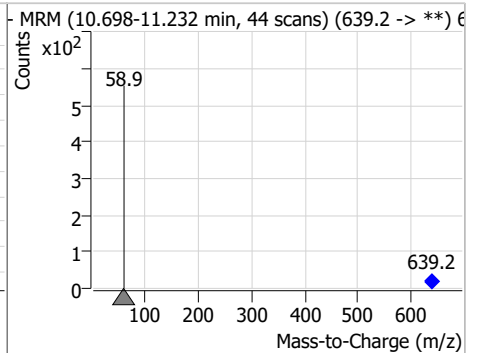
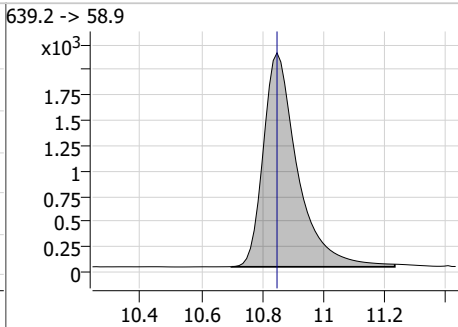
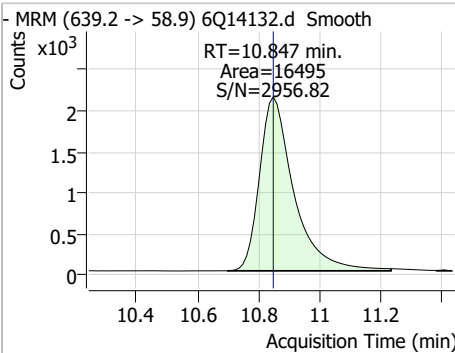
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Perfluorinated Compounds by LC/MS/MS

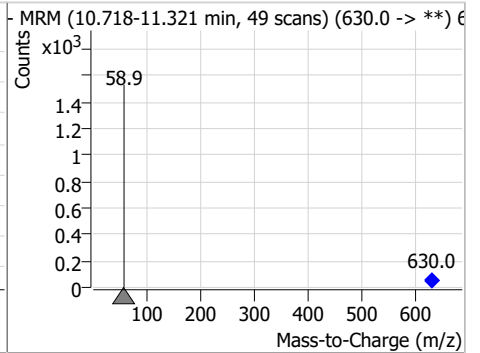
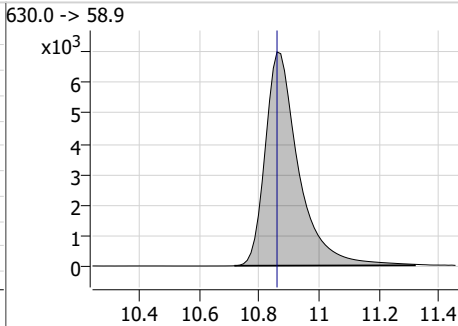
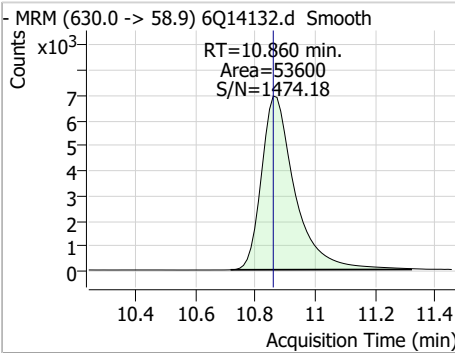
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	19.82	10.68	0.00	50193	511.9 -> 169.0	105.3	116.1	348.4



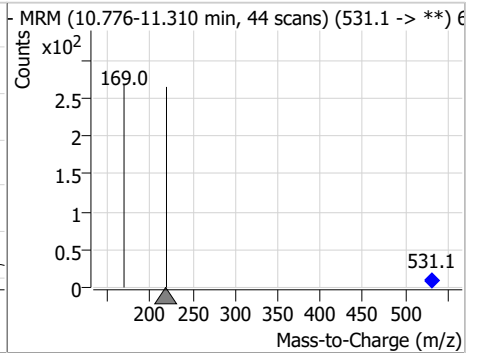
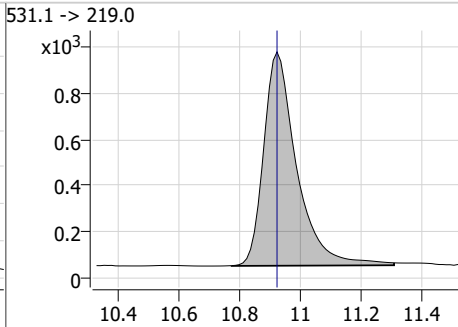
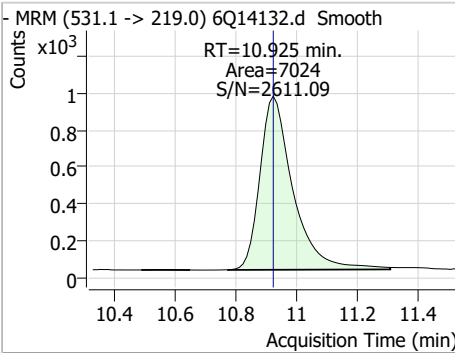
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.69	10.85	0.00	16495	639.2 -> 58.9			



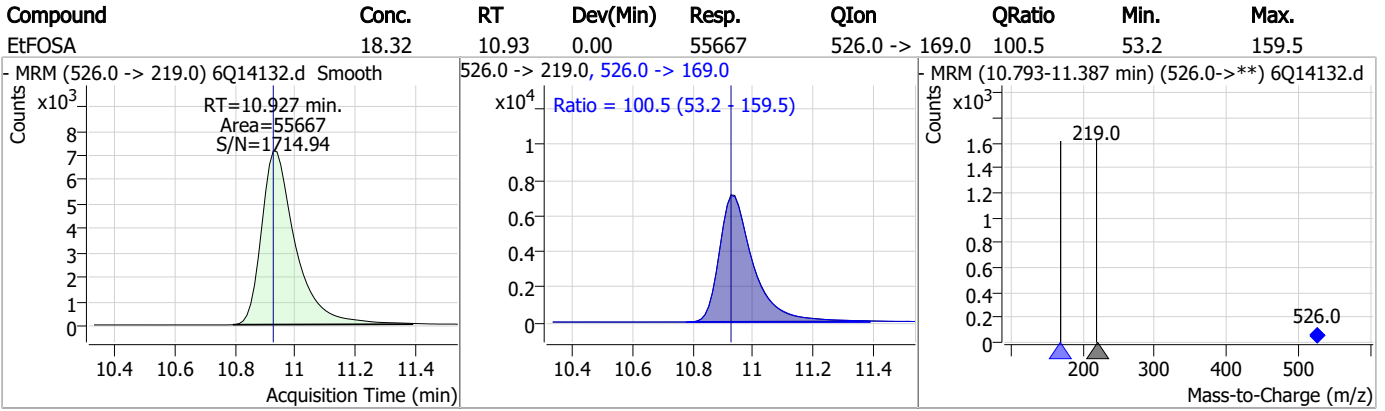
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	90.32	10.86	0.00	53600	630.0 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.56	10.92	0.00	7024	531.1 -> 219.0			



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q216-ICV216 Method: EPA DRAFT 1633
Lab FileID: 6Q14132.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 19:57 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14133.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 8:11:24 PM
 Sample Name : cc216-4
 Vial : P1-A5
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	87717	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	44648	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	39932	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	39629	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	68948	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22333	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	18336	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	19658	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	23840	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	14727	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	17476	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15507	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	10046	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8869	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2573	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3040	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	3419	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	29111	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	15129	10.00 µg/L	-0.012
M5-EtFOSAA	8.349	589.2 -> 419.0	25933	5.00 µg/L	0.000
M7-MeFOSE	10.589	623.2 -> 58.9	24925	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	16751	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6502	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5818	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10013	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	39056	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7071	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	85806	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	24934	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	23459	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	39306	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2573	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3040	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3419	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-PFDoDA	8.991	615.1 -> 570.0	23840	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14727	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-PFBS	5.456	302.1 -> 79.9	15507	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFHxS	7.212	402.1 -> 79.9	10046	2.63 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 = 105.0%	
13C4-PFBA	2.938	216.8 -> 171.9	87717	9.97 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.452	367.1 -> 322.0	39629	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFHxA	5.513	318.0 -> 273.0	39932	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFPeA	4.337	268.3 -> 223.0	44648	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C6-PFDA	8.108	519.1 -> 474.1	18336	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C7-PFUnDA	8.562	570.0 -> 525.1	19658	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-FOSA	9.555	506.1 -> 77.8	17476	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-PFOA	7.097	421.1 -> 376.0	68948	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C8-PFOS	8.270	507.1 -> 79.9	8869	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C9-PFNA	7.626	472.1 -> 427.0	22333	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
d3-MeFOSAA	8.153	573.2 -> 419.0	29111	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	15129	10.09 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSA	10.680	515.0 -> 219.0	5818	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
d5-EtFOSAA	8.349	589.2 -> 419.0	25933	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.9%	
d7-MeFOSE	10.589	623.2 -> 58.9	24925	26.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	16751	27.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.9%	
d5-EtFOSA	10.925	531.1 -> 219.0	6502	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	49186	9.98 µg/L	100
		327.1 -> 80.9	10695		
6:2FTS	6.871	427.1 -> 407.0	40287	10.68 µg/L	97
		427.1 -> 80.9	7845		
8:2FTS	7.896	527.1 -> 507.0	20293	8.95 µg/L	98
		527.1 -> 80.8	5021		
EtFOSAA	8.362	584.2 -> 419.1	8255	2.41 µg/L	98
		584.2 -> 526.0	4247		
FOSA	9.557	498.1 -> 77.9	14970	2.50 µg/L	99
		498.1 -> 478.0	558		
MeFOSAA	8.154	570.1 -> 419.0	11766	2.45 µg/L	96
		570.1 -> 483.0	1999		
PFBA	2.944	212.8 -> 168.9	17581	9.99 µg/L	100
PFBS	5.457	298.7 -> 79.9	10941	2.19 µg/L	97
		298.7 -> 98.8	5088		
PFDA	8.108	512.9 -> 469.0	46135	2.51 µg/L	98
		512.9 -> 219.0	6509		
PFDODA	8.992	613.1 -> 569.0	39699	2.39 µg/L	99
		613.1 -> 319.0	4585		
PFDS	9.167	599.0 -> 79.9	5790	2.45 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	2961			
PFHpA	6.453	363.1 -> 319.0	50449	2.61	µg/L	99
		363.1 -> 169.0	7280			
PFHpS	7.779	449.0 -> 79.9	7356	2.36	µg/L	90
		449.0 -> 98.9	4114			
PFHxA	5.516	313.0 -> 269.0	33688	2.58	µg/L	100
		313.0 -> 118.9	1208			
PFHxS	7.213	398.7 -> 79.9	8728	2.28	µg/L	m 95
		398.7 -> 98.9	4981			
PFNA	7.627	463.0 -> 419.0	30050	2.58	µg/L	97
		463.0 -> 219.0	5841			
PFNS	8.737	548.8 -> 79.9	7762	2.43	µg/L	98
		548.8 -> 98.9	4443			
PFOA	7.098	413.0 -> 369.0	63593	2.45	µg/L	94
		413.0 -> 169.0	8678			
PFOS	8.271	498.9 -> 79.9	8328	2.41	µg/L	m 71
		498.9 -> 98.8	4912			
PFPeA	4.338	263.0 -> 219.0	39160	5.05	µg/L	100
PFPeS	6.517	349.1 -> 79.9	10251	2.18	µg/L	97
		349.1 -> 98.9	5669			
PFTeDA	9.732	713.1 -> 669.0	32765	2.40	µg/L	98
		713.1 -> 168.9	2235			
PFTrDA	9.387	663.0 -> 619.0	36939	2.58	µg/L	98
		663.0 -> 168.9	2887			
PFUnDA	8.562	563.1 -> 519.0	38540	2.83	µg/L	99
		563.1 -> 269.1	5315			
11CI-PF3OUdS	9.439	630.9 -> 450.9	79388	9.80	µg/L	98
		632.9 -> 452.9	25041			
9CI-PF3ONS	8.602	530.8 -> 351.0	145026	9.68	µg/L	98
		532.8 -> 353.0	45116			
ADONA	6.716	376.9 -> 250.9	283924	9.59	µg/L	99
		376.9 -> 84.8	62663			
HFPO-DA	5.879	284.9 -> 168.9	12233	10.04	µg/L	100
		284.9 -> 184.9	1468			
3:3FTCA	3.804	241.0 -> 177.0	5149	12.90	µg/L	95
		241.0 -> 117.0	775			
5:3FTCA	6.169	341.0 -> 237.1	180374	62.79	µg/L	98
		341.0 -> 217.0	160165			
7:3FTCA	7.567	441.0 -> 316.9	90855	58.96	µg/L	87
		441.0 -> 336.9	188989			
EtFOSA	10.927	526.0 -> 219.0	7548	2.68	µg/L	94
		526.0 -> 169.0	7524			
EtFOSE	10.860	630.0 -> 58.9	15293	25.38	µg/L	100
MeFOSA	10.682	511.9 -> 219.0	6556	2.69	µg/L	# 22
		511.9 -> 169.0	6751			
MeFOSE	10.602	616.1 -> 58.9	21376	25.16	µg/L	100
PFDoDS	9.858	699.1 -> 79.9	3272	2.41	µg/L	98
		699.1 -> 98.8	1968			
NFDHA	5.395	295.0 -> 201.0	3504	4.89	µg/L	99
		295.0 -> 84.9	1878			
PFMBA	4.738	279.0 -> 85.1	11486	5.07	µg/L	100
PFMPA	3.500	229.0 -> 84.9	10357	4.98	µg/L	100
PFEESA	5.996	314.8 -> 134.9	81850	4.53	µg/L	100
		314.8 -> 82.9	1869			

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



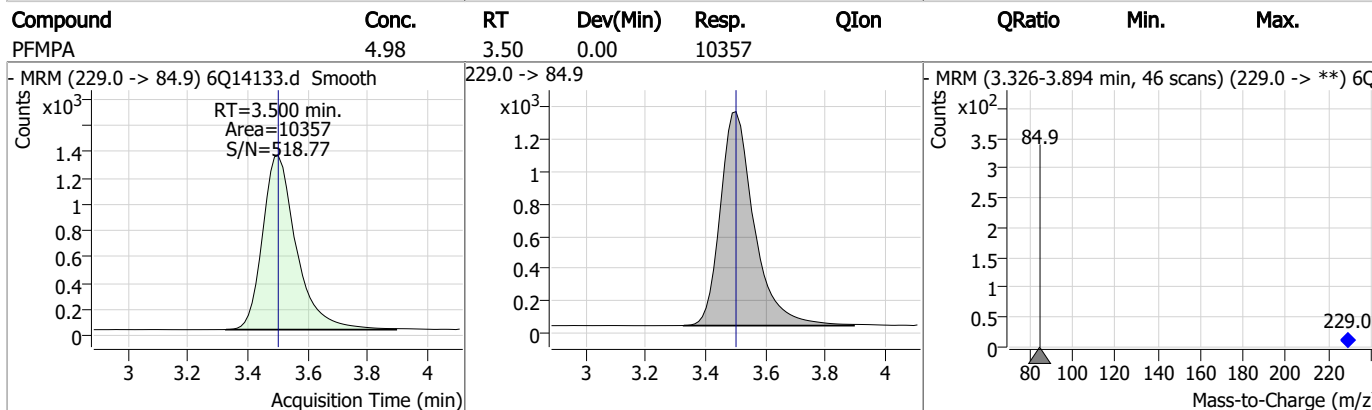
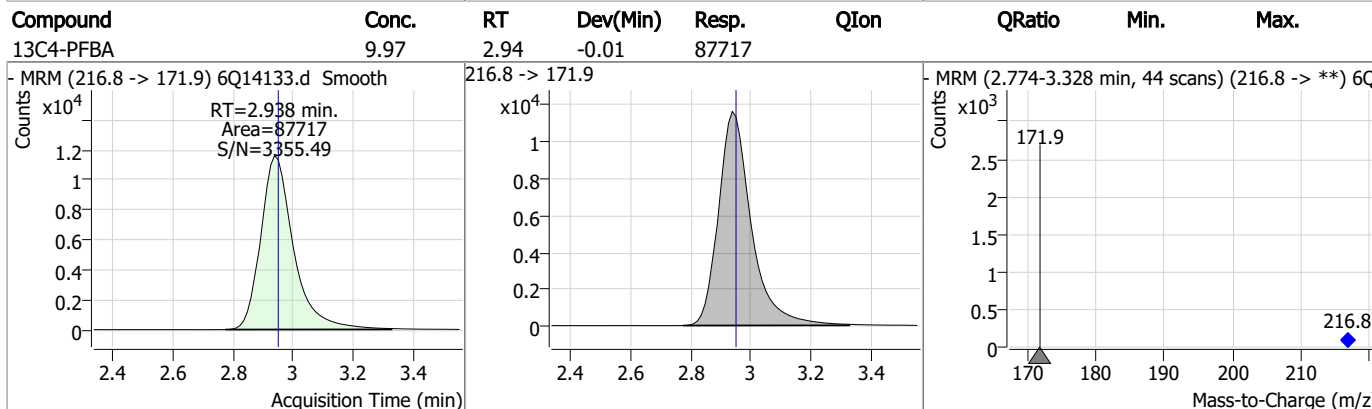
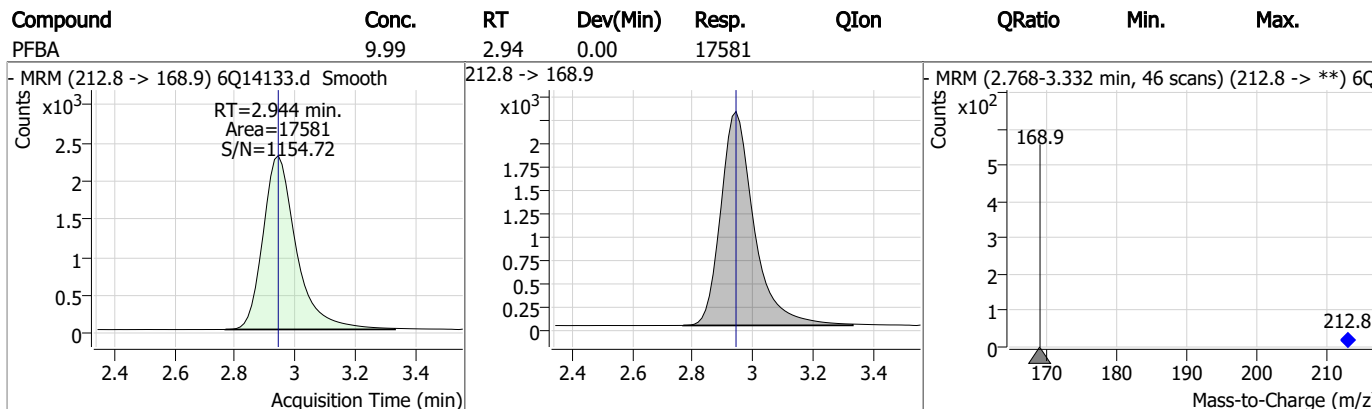
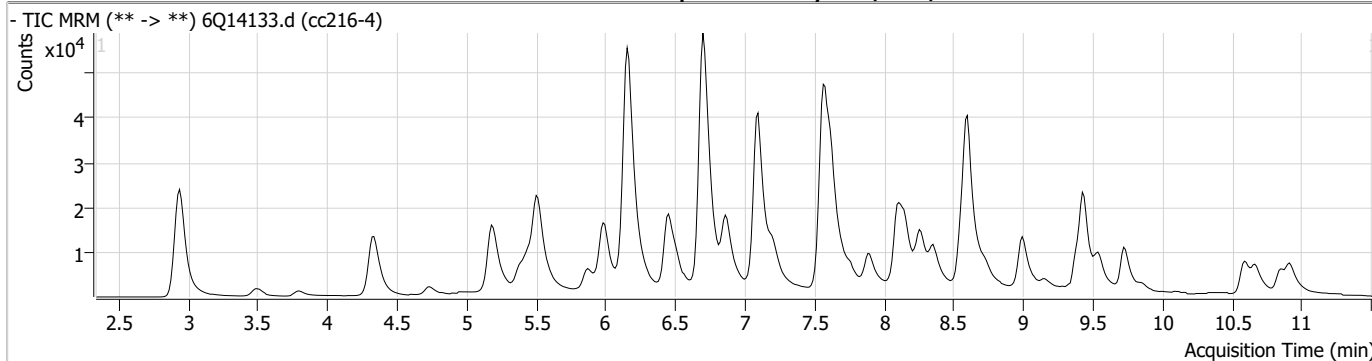
Perfluorinated Compounds by LC/MS/MS

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

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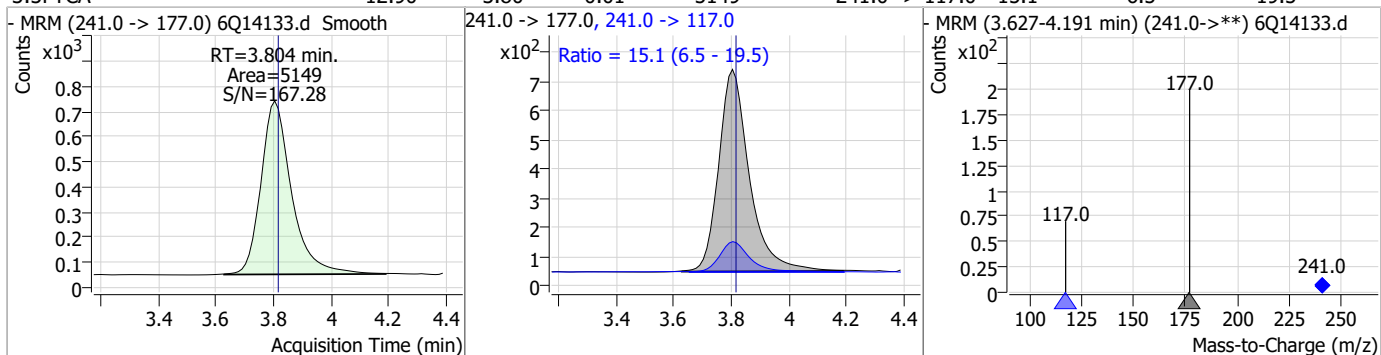
Perfluorinated Compounds by LC/MS/MS



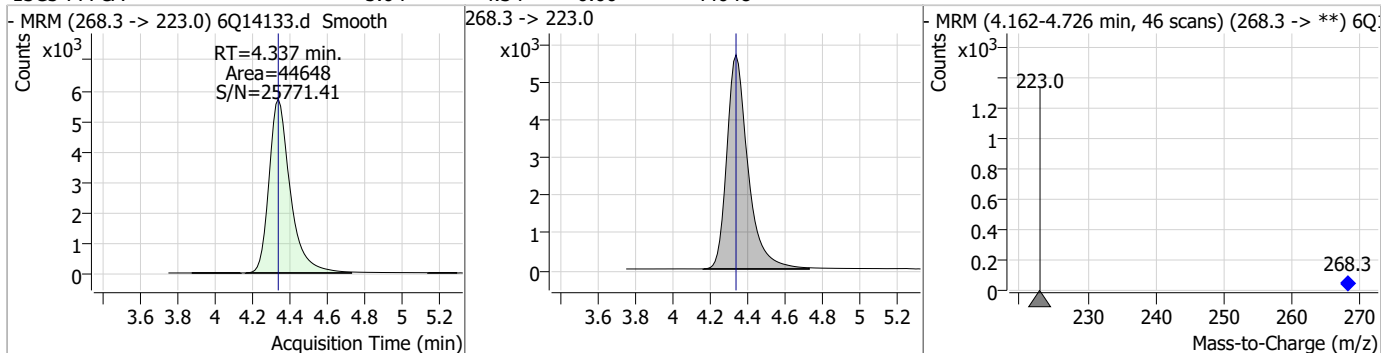
7.7.11
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Perfluorinated Compounds by LC/MS/MS

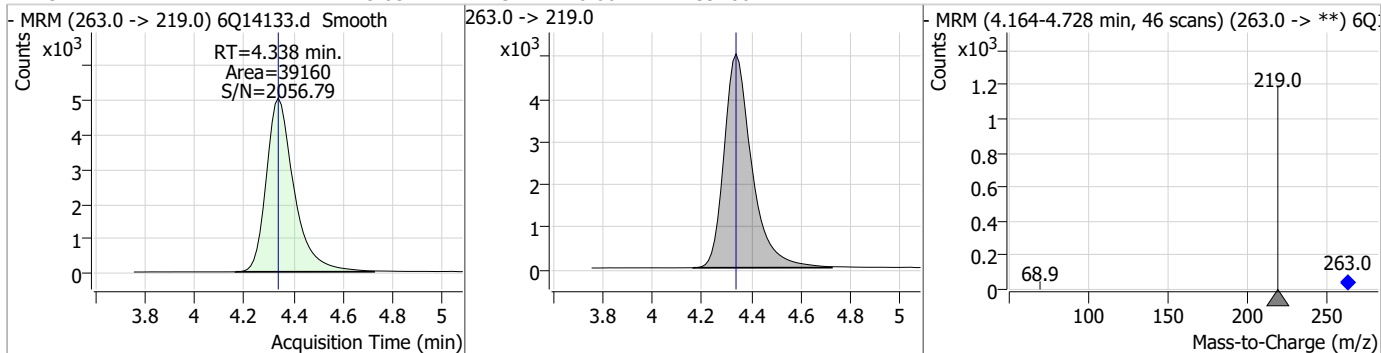
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.90	3.80	-0.01	5149	241.0 -> 117.0	15.1	6.5	19.5



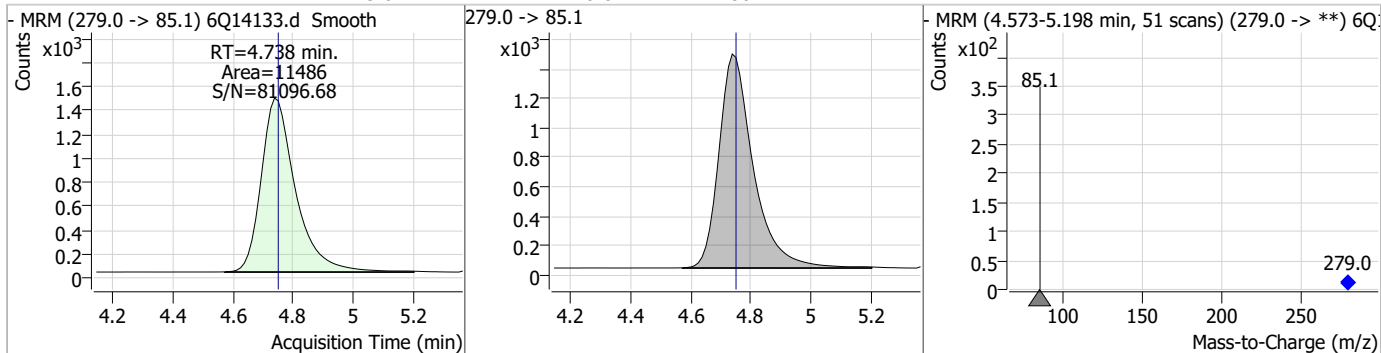
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.04	4.34	0.00	44648				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.05	4.34	0.00	39160				

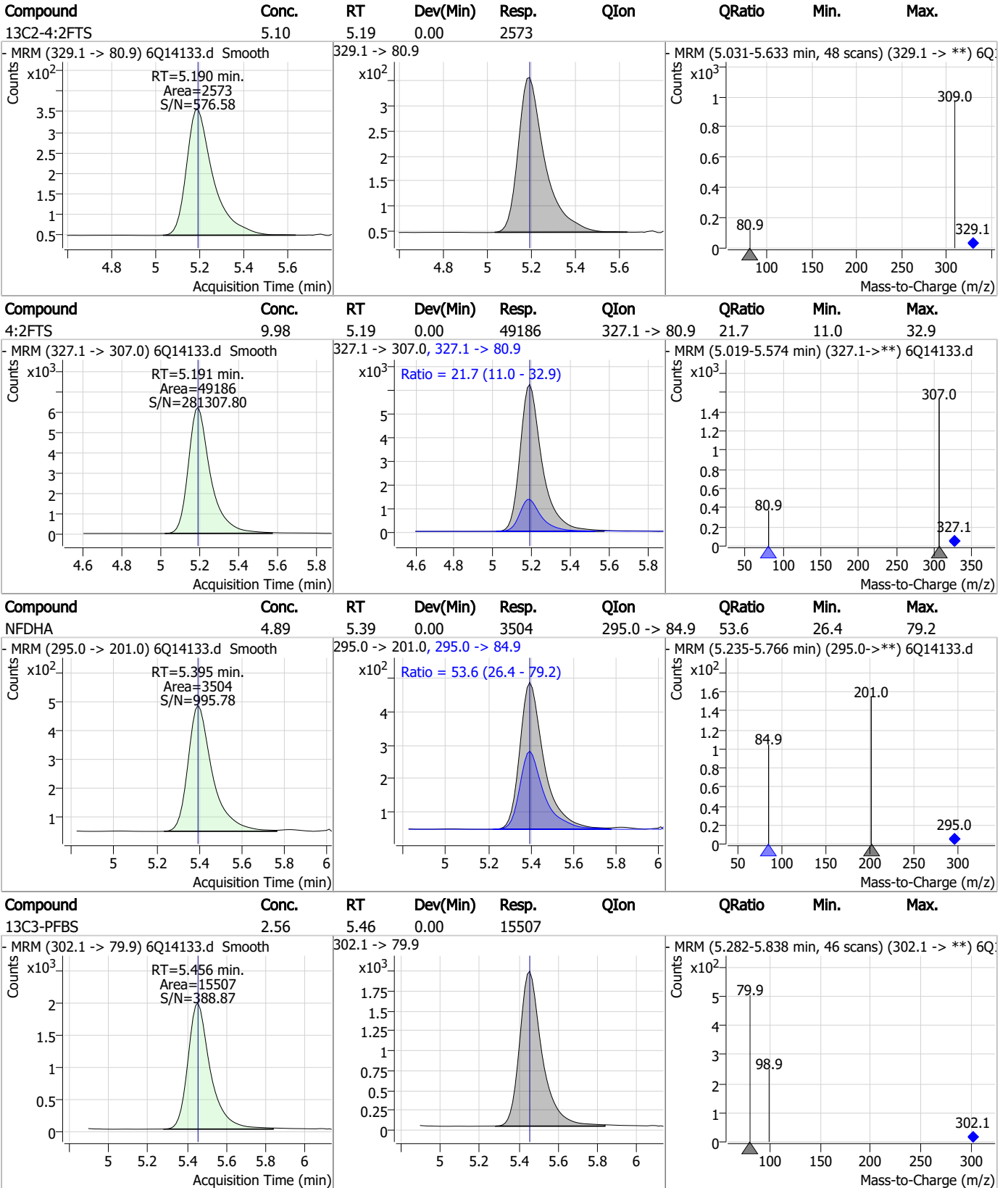


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.07	4.74	-0.01	11486				



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Perfluorinated Compounds by LC/MS/MS

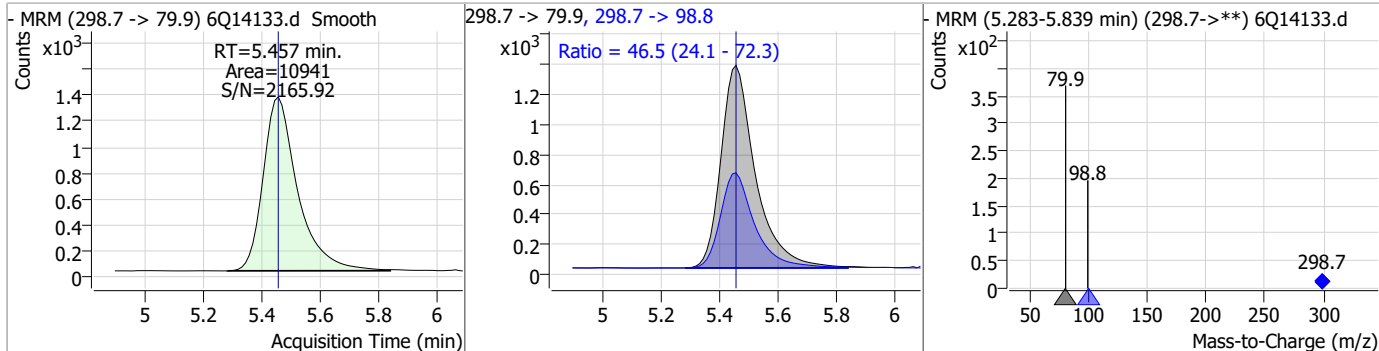


7.7.11
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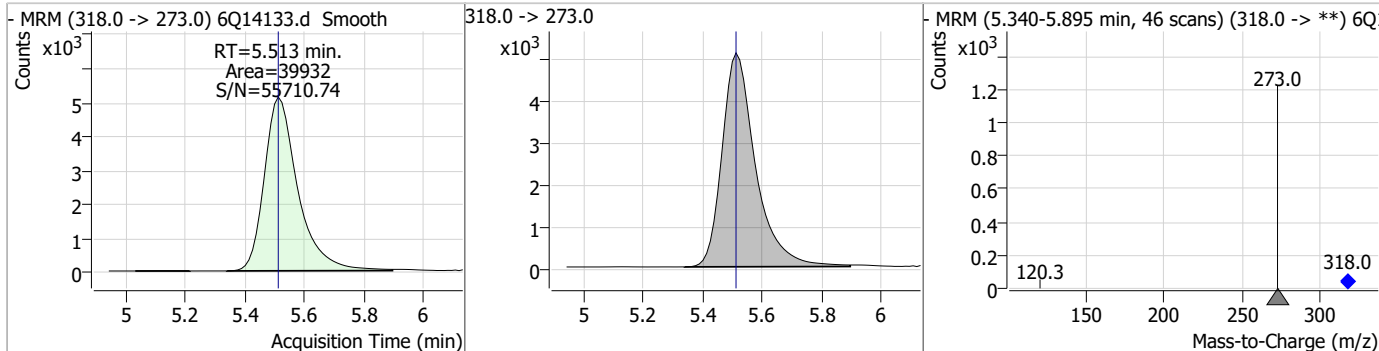


Perfluorinated Compounds by LC/MS/MS

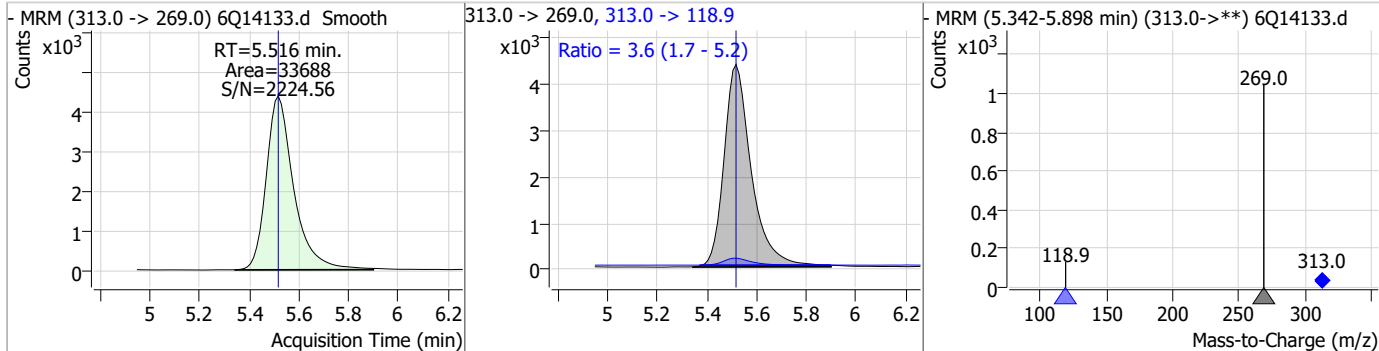
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.19	5.46	0.00	10941	298.7 -> 98.8	46.5	24.1	72.3



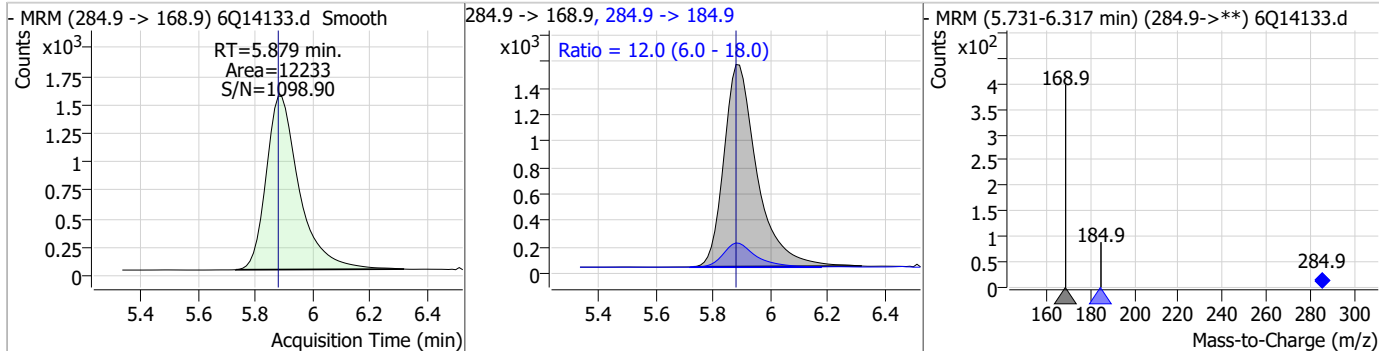
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.51	0.00	39932				



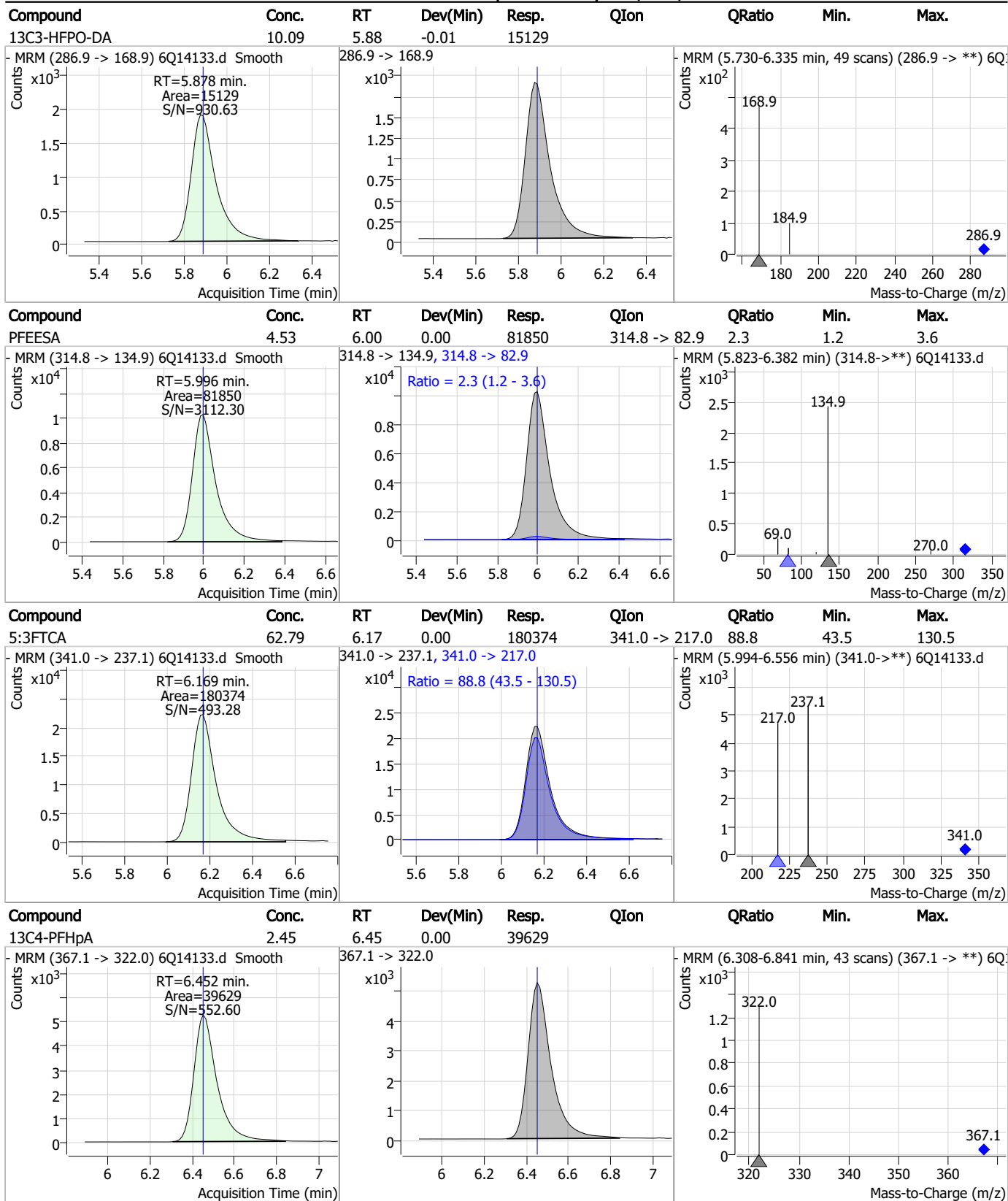
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.58	5.52	0.00	33688	313.0 -> 118.9	3.6	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.04	5.88	0.00	12233	284.9 -> 184.9	12.0	6.0	18.0



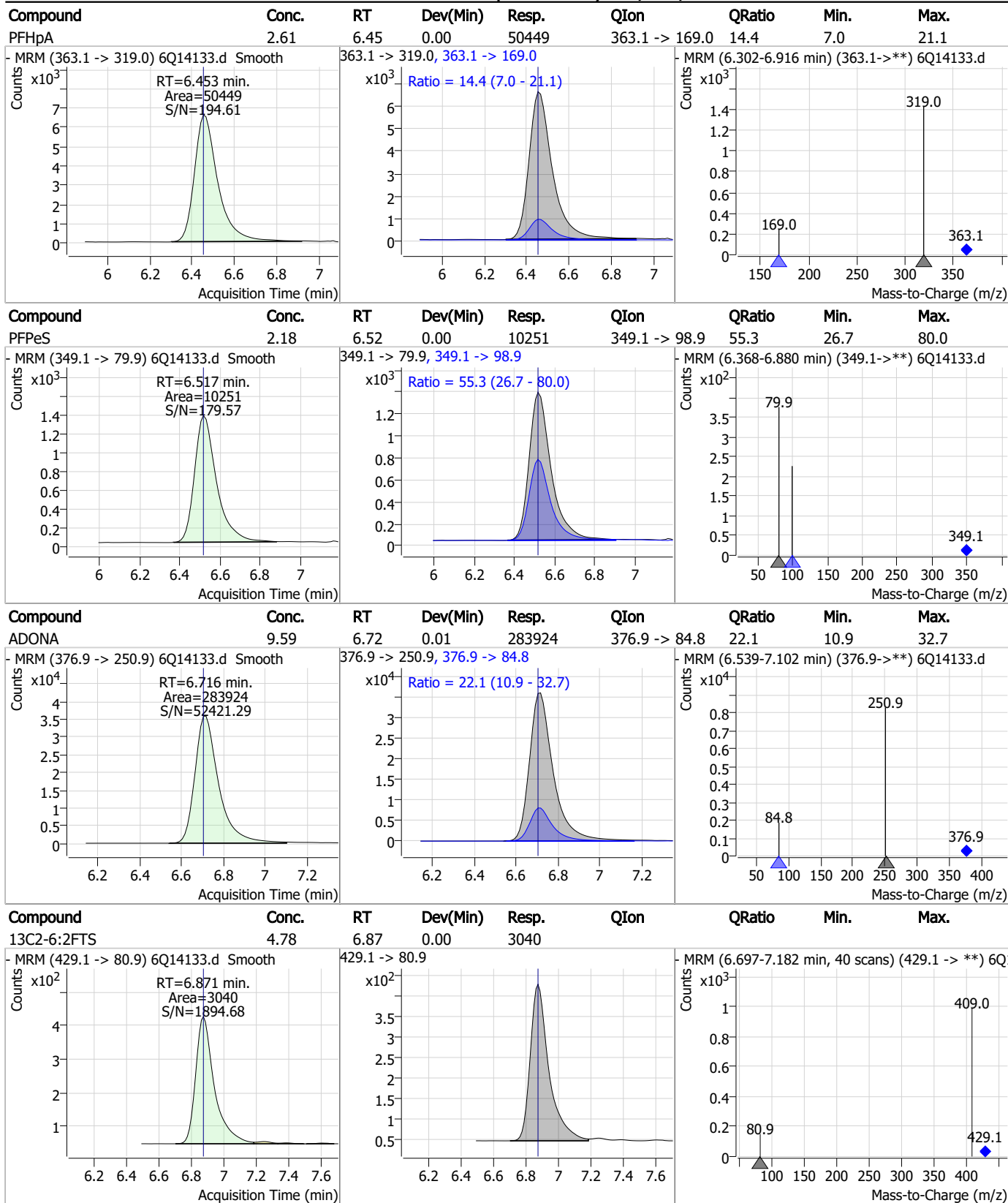
Perfluorinated Compounds by LC/MS/MS



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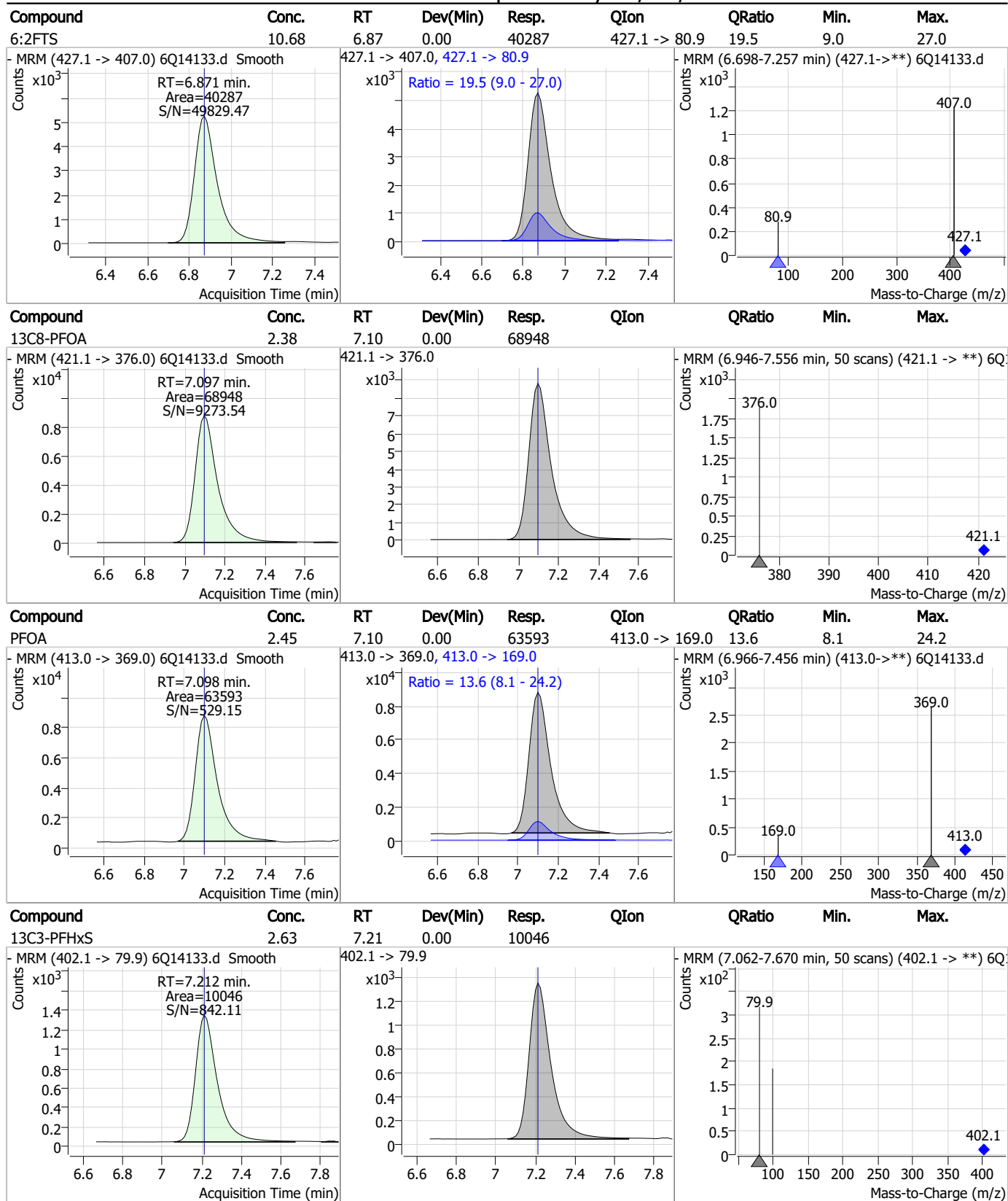


Perfluorinated Compounds by LC/MS/MS



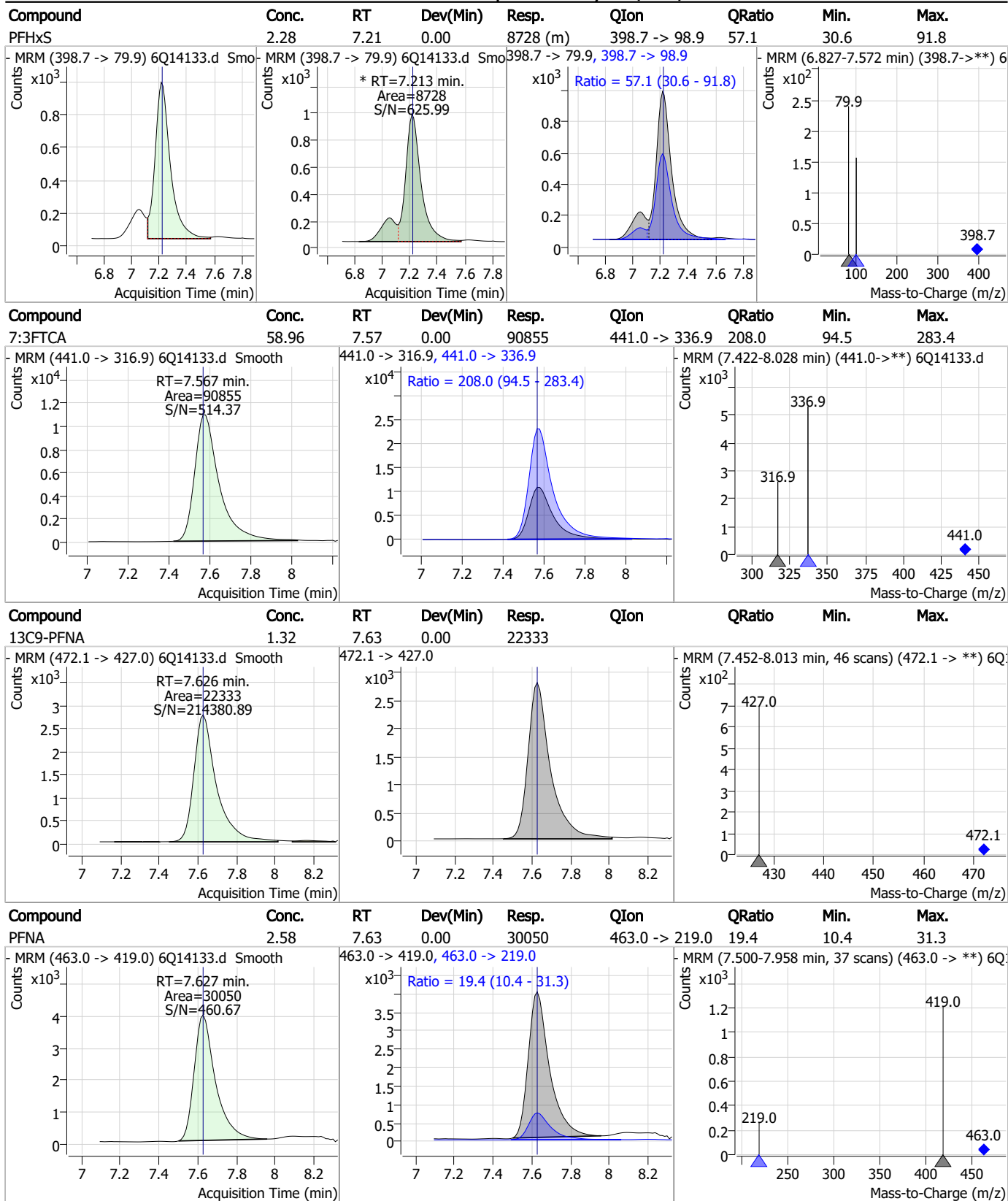
7.7.11
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Perfluorinated Compounds by LC/MS/MS



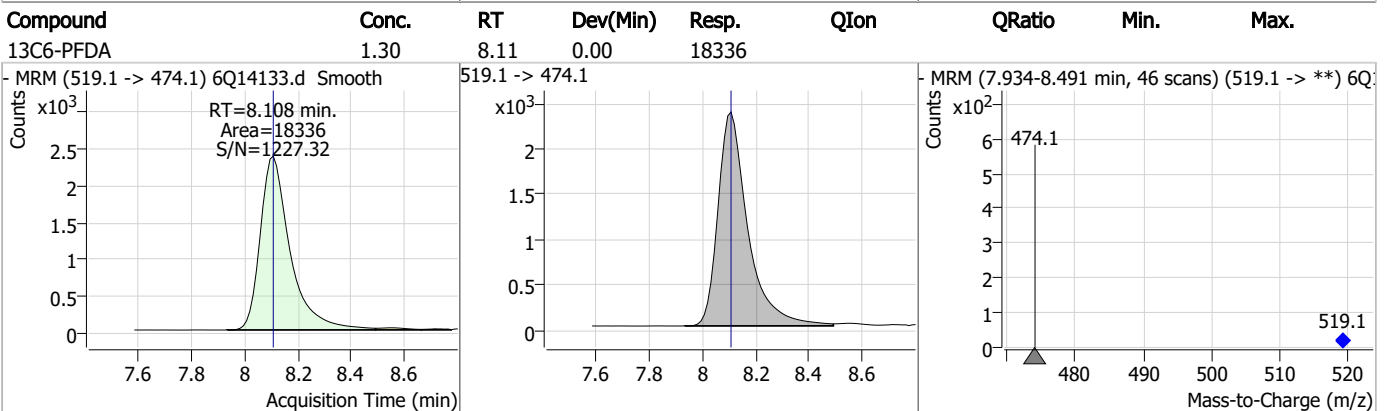
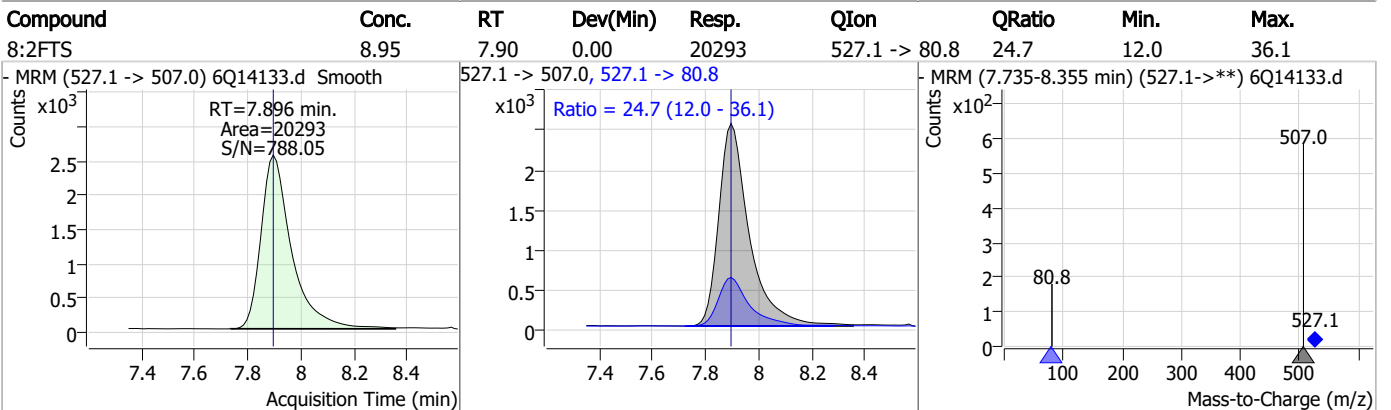
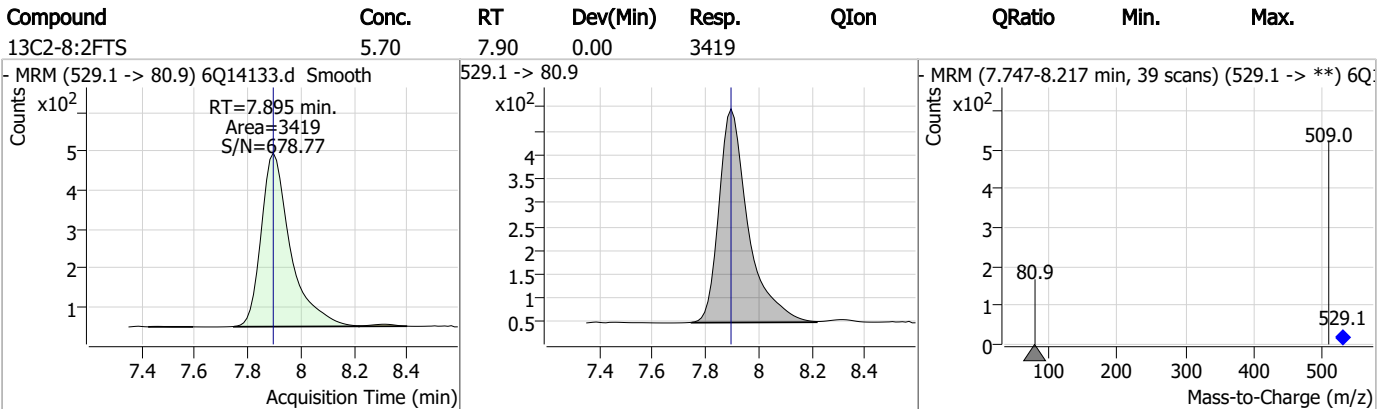
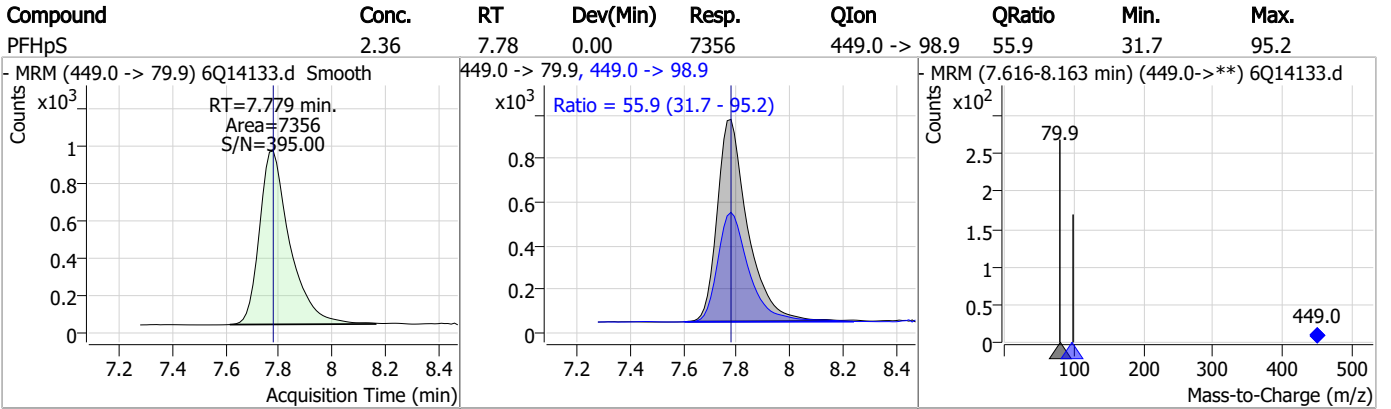
7.7.11
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Perfluorinated Compounds by LC/MS/MS

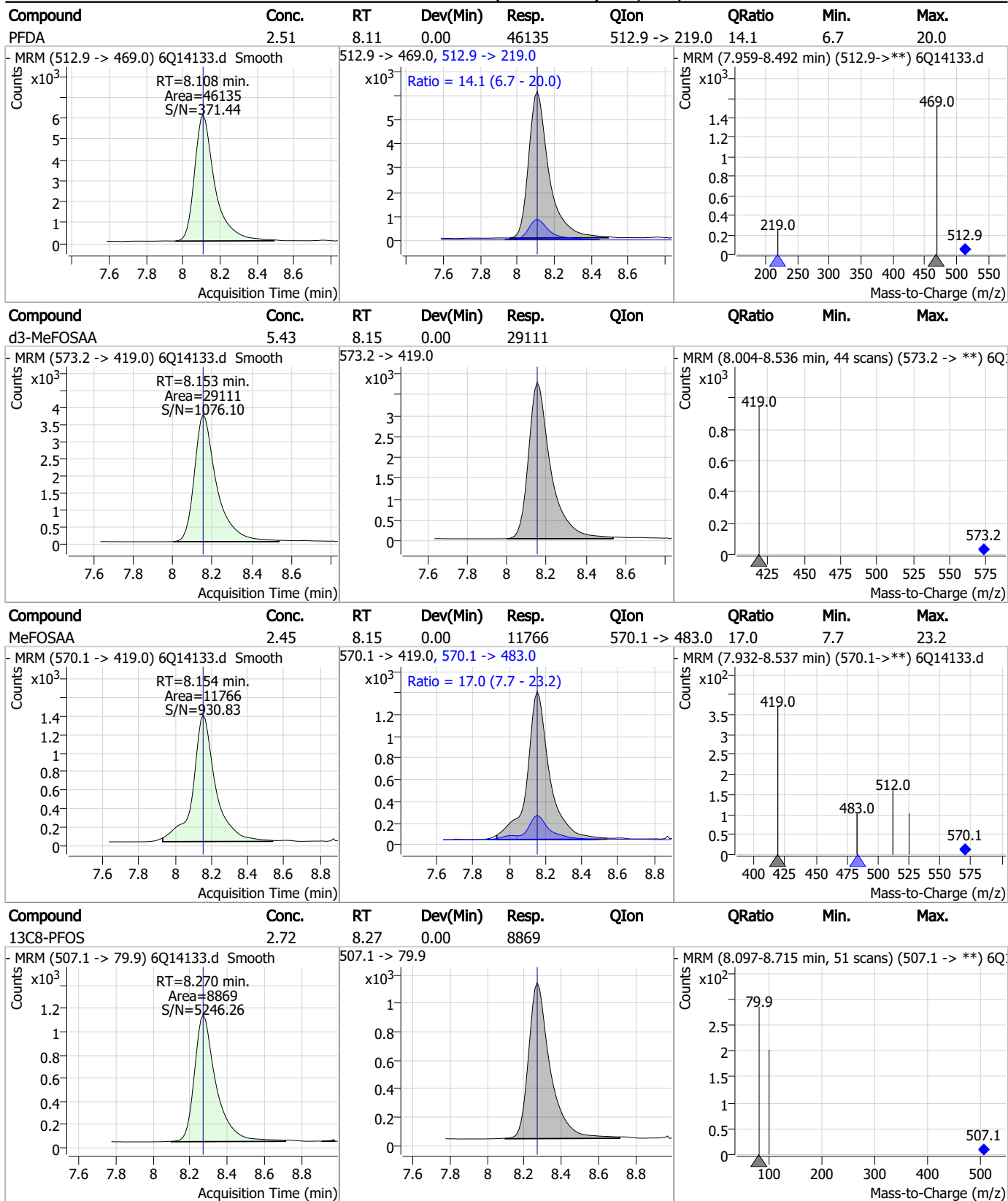


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Perfluorinated Compounds by LC/MS/MS

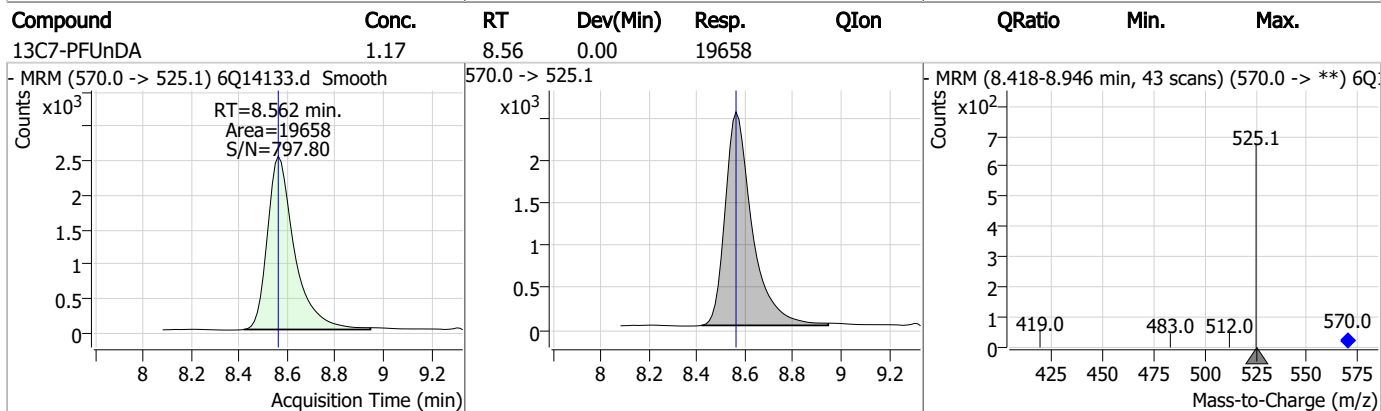
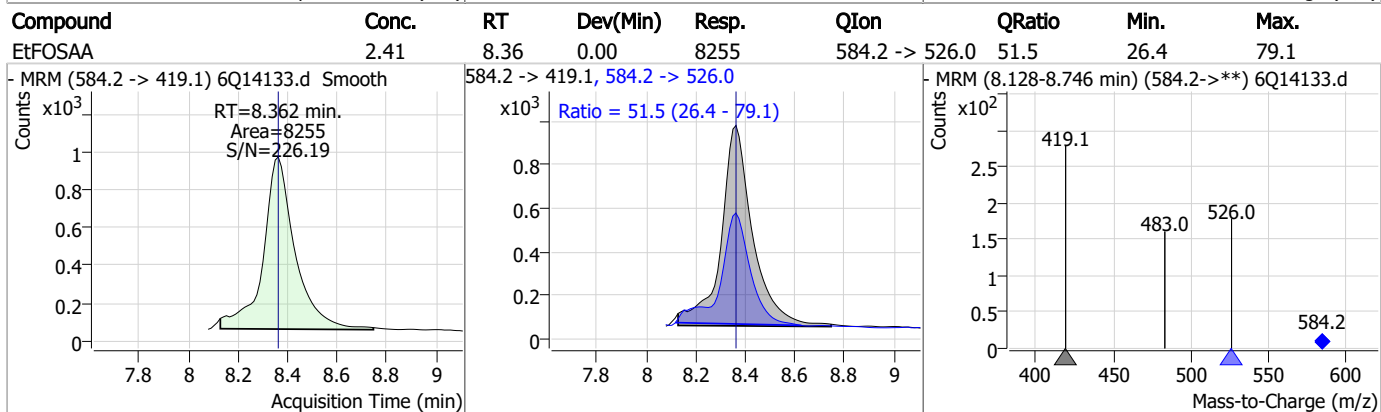
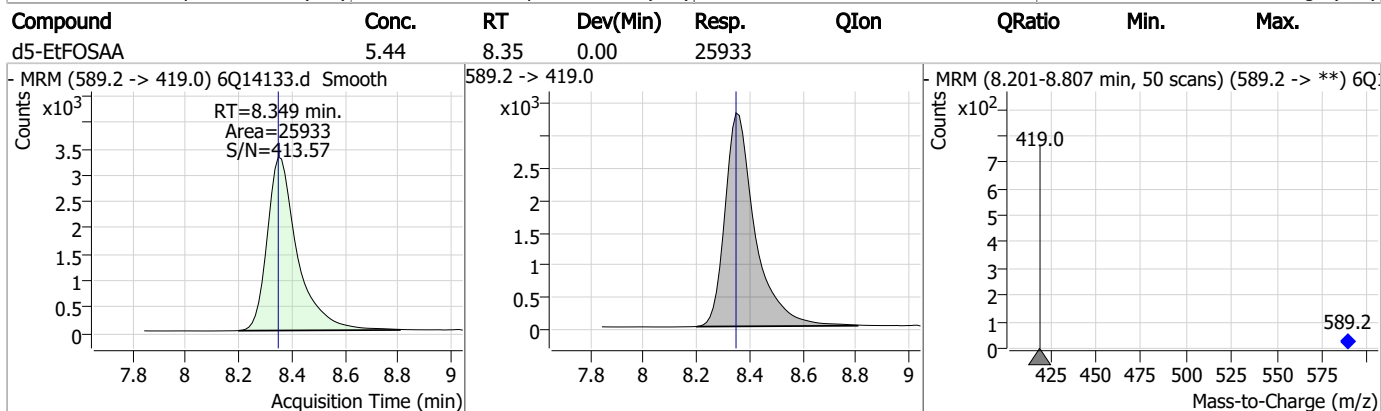
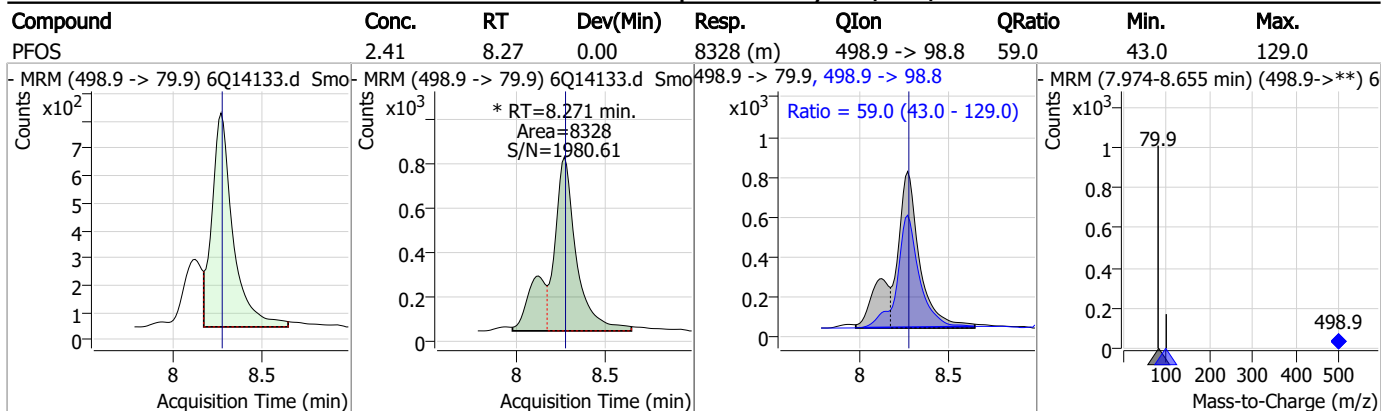


Perfluorinated Compounds by LC/MS/MS

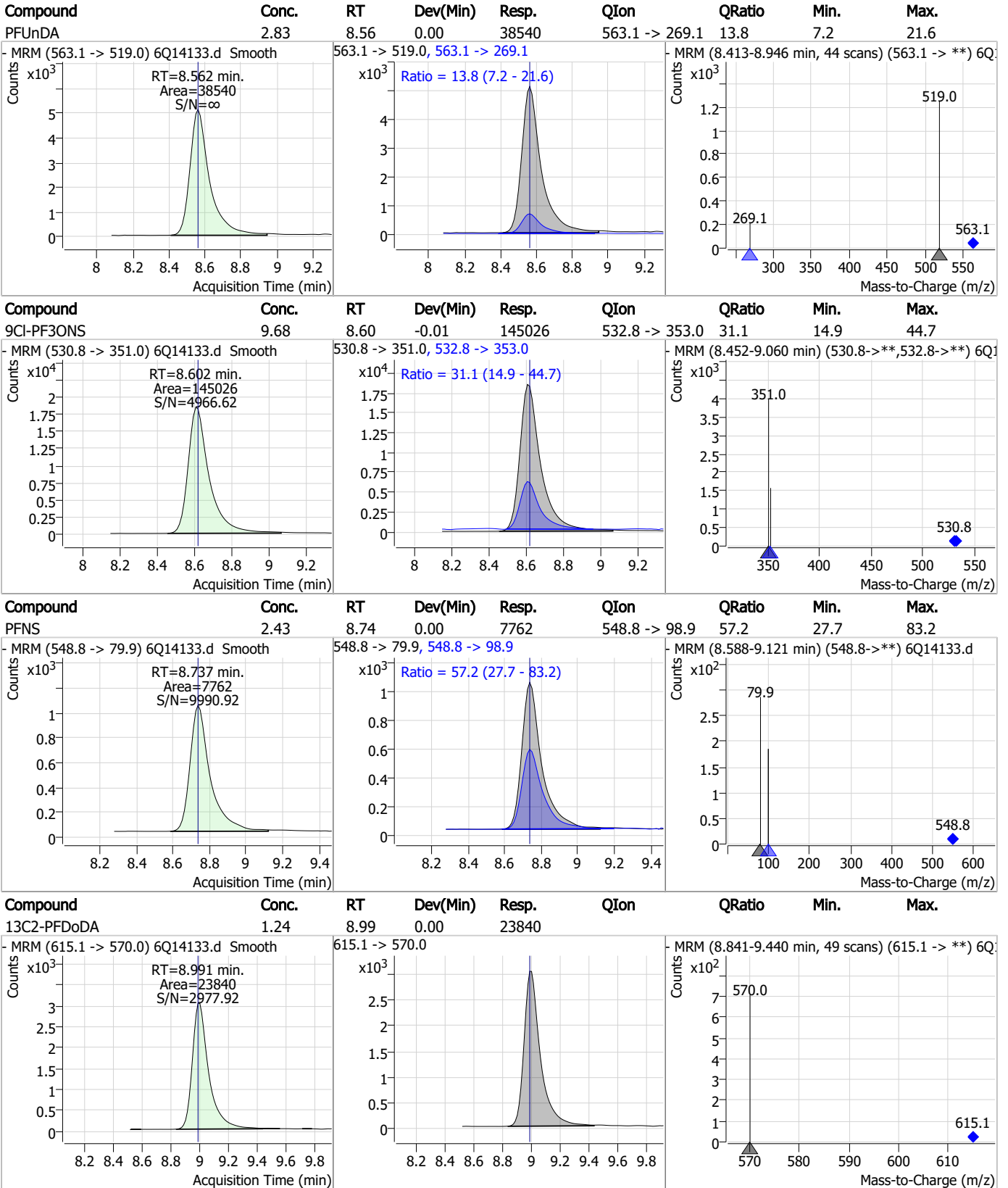


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Perfluorinated Compounds by LC/MS/MS



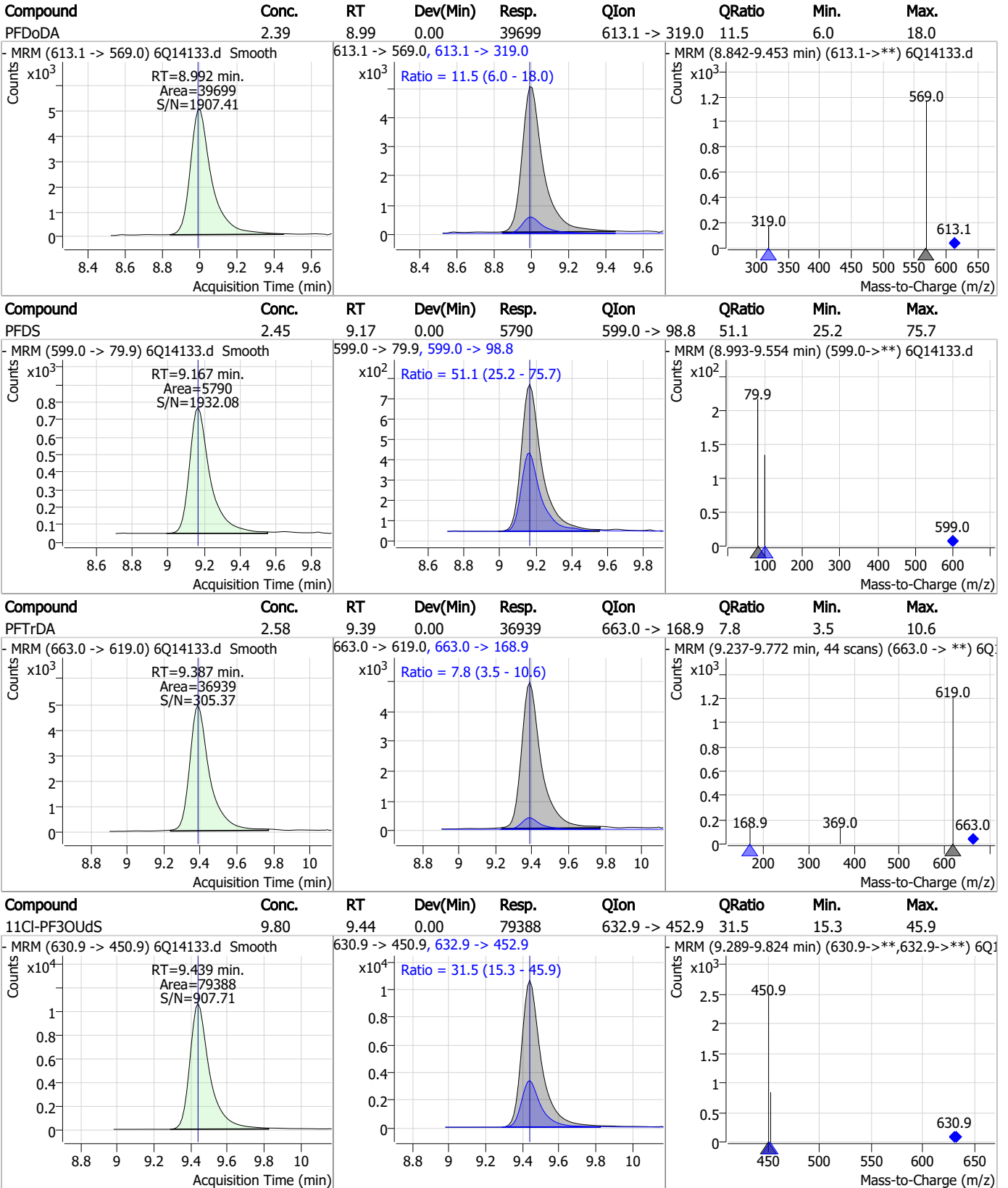
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



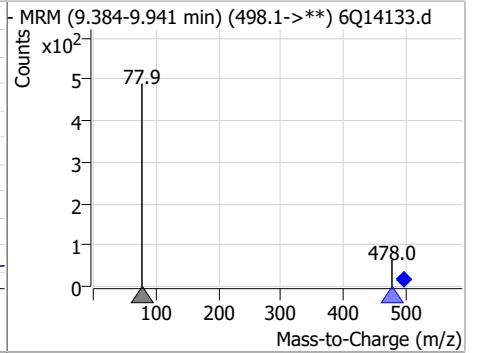
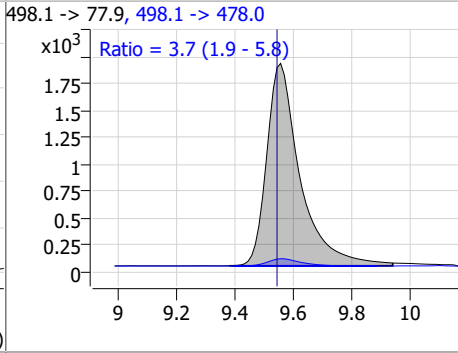
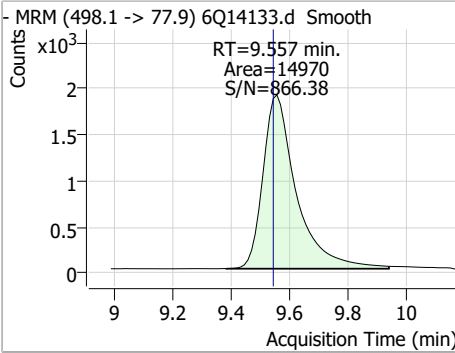
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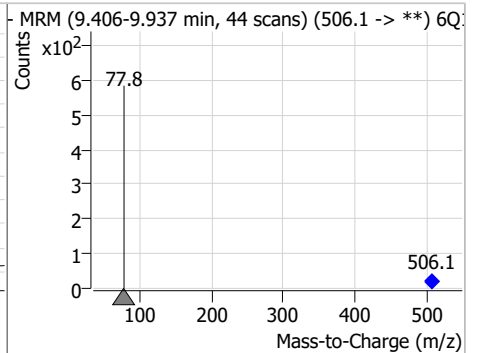
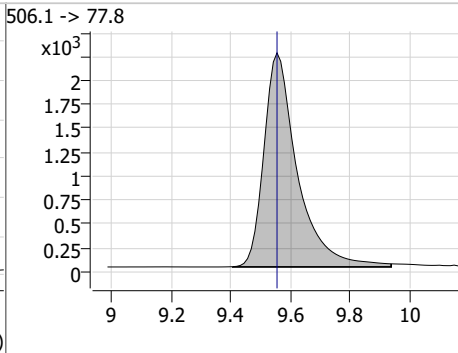
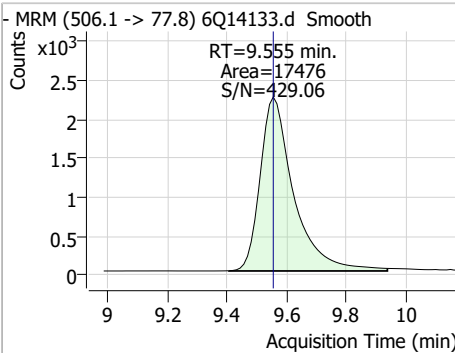


Perfluorinated Compounds by LC/MS/MS

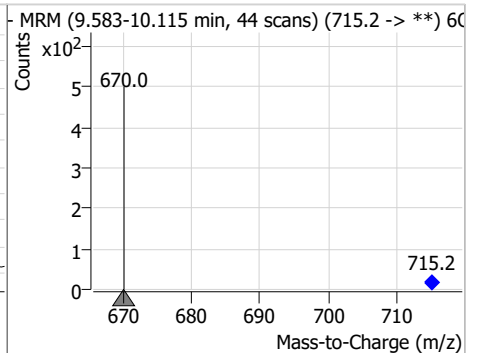
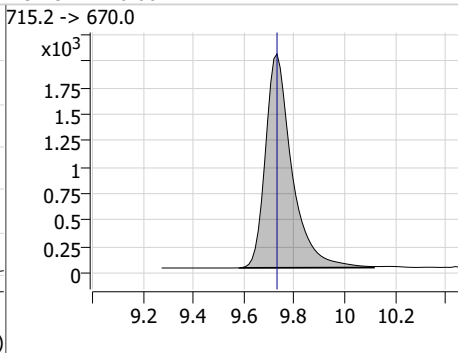
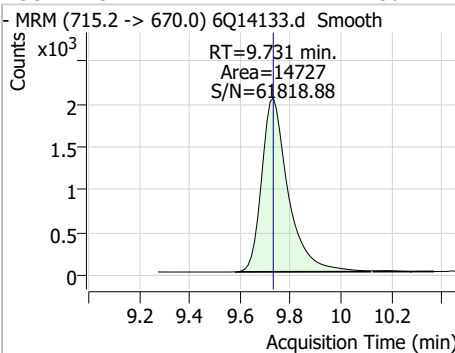
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.50	9.56	0.01	14970	498.1 -> 478.0	3.7	1.9	5.8



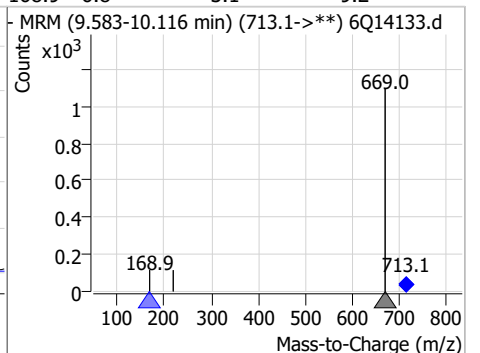
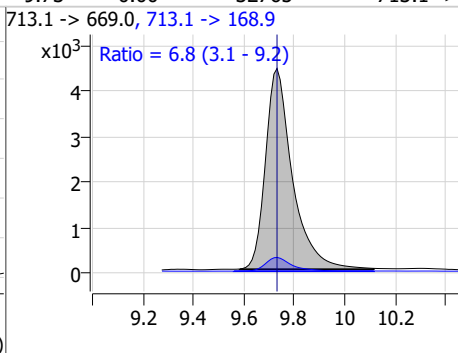
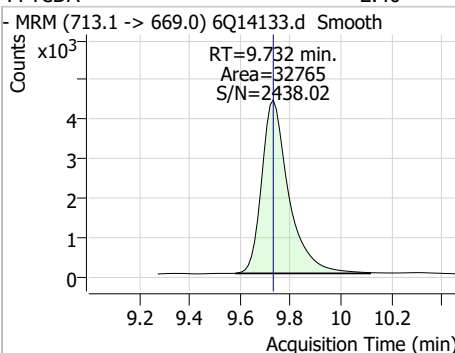
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.72	9.55	0.00	17476	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.73	0.00	14727	715.2 -> 670.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.40	9.73	0.00	32765	713.1 -> 168.9	6.8	3.1	9.2



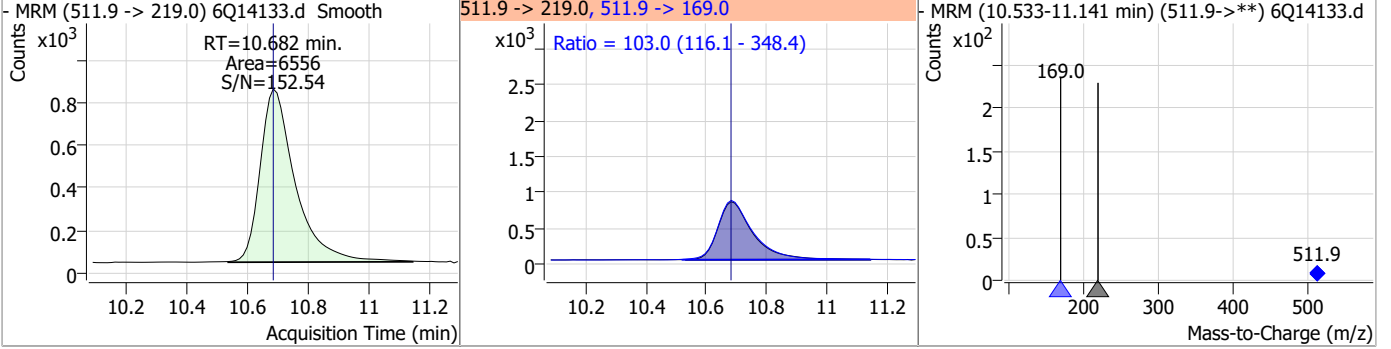
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.41	9.86	0.00	3272	699.1 -> 98.8	60.1	29.4	88.2
d7-MeFOSE	26.29	10.59	0.00	24925				
MeFOSE	25.16	10.60	0.00	21376				
d3-MeFOSA	2.53	10.68	0.00	5818				

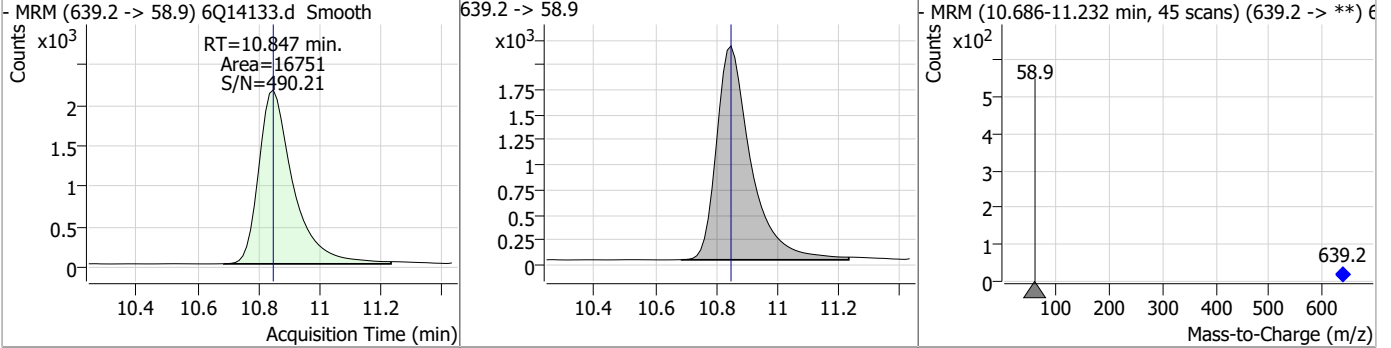
7.7.11
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Perfluorinated Compounds by LC/MS/MS

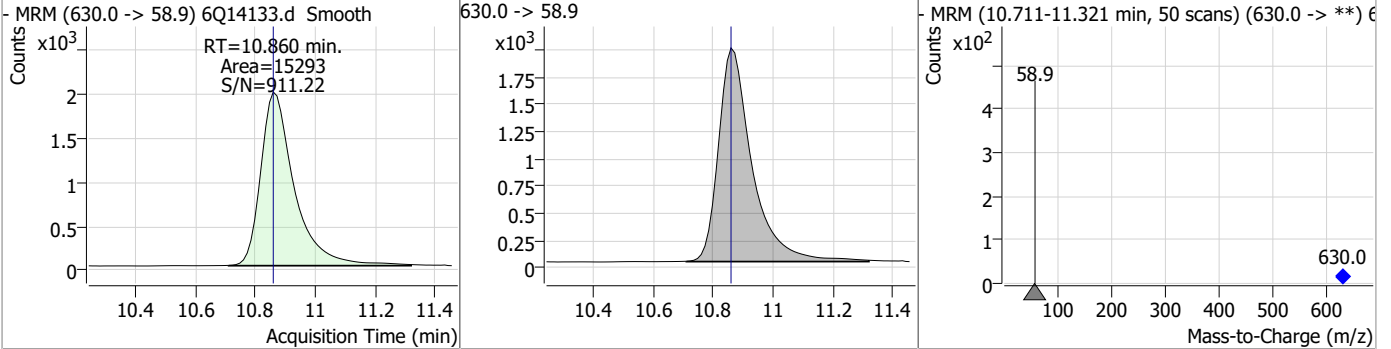
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.69	10.68	0.00	6556	511.9 -> 169.0	103.0	116.1	348.4



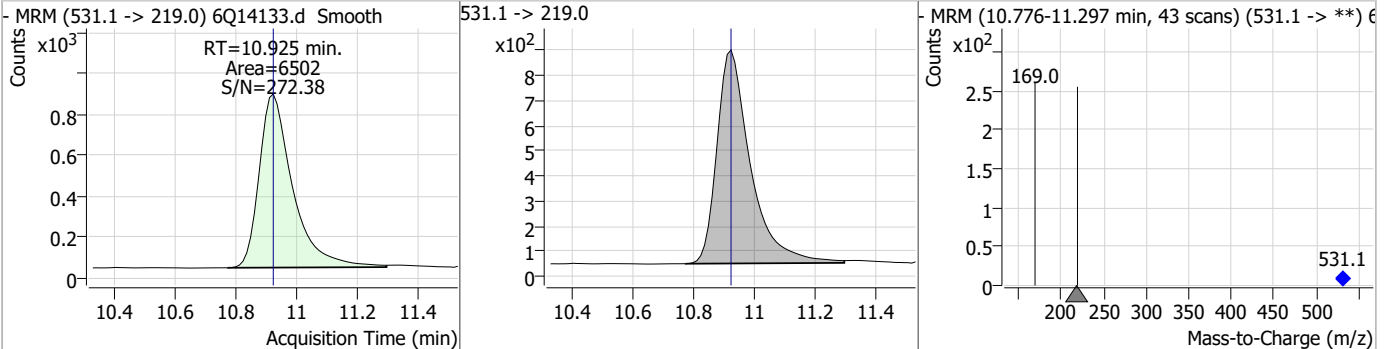
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.47	10.85	0.00	16751				



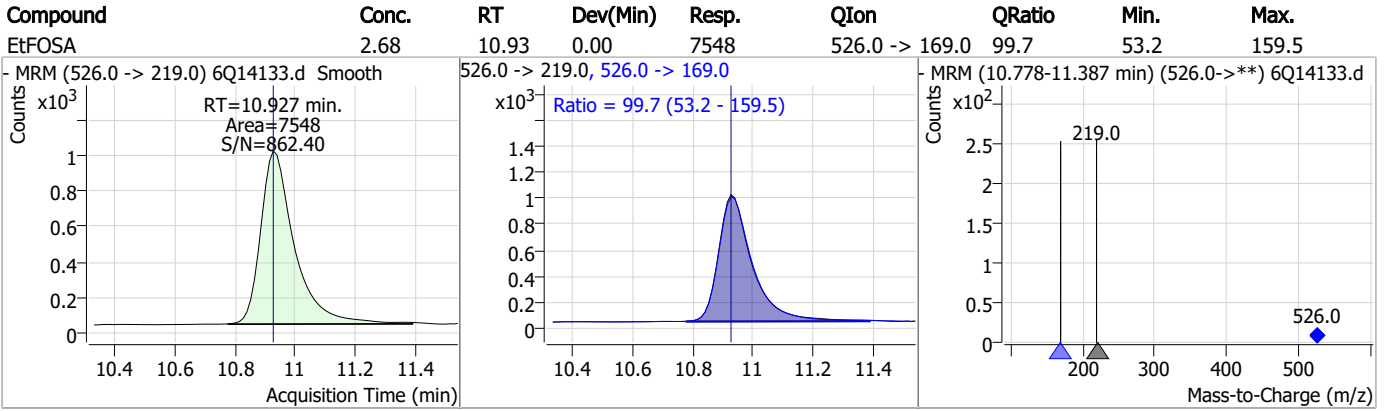
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	25.38	10.86	0.00	15293				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.59	10.92	0.00	6502				



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q216-CC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14133.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 20:11 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14134.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 8:25:25 PM
 Sample Name : cc216-1.0LL
 Vial : P1-A2
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	92152	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	46268	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	40620	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	42469	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	72161	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	23963	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	18780	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	21077	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	26452	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	14848	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	18502	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	16042	2.50 µg/L	0.000
M3-PFHxS	7.224	402.1 -> 79.9	9955	2.50 µg/L	0.012
M8-PFOS	8.270	507.1 -> 79.9	8904	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2832	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3574	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	3172	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	28989	5.00 µg/L	0.000
M3-HFPO-DA	5.878	286.9 -> 168.9	15155	10.00 µg/L	-0.012
M5-EtFOSAA	8.361	589.2 -> 419.0	26084	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	26754	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	17183	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6905	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	6159	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	10545	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	40608	5.00 µg/L	0.000
18O2-PFHxS	7.223	403.0 -> 83.9	7317	2.50 µg/L	0.000
13C4-PFOA	7.098	417.1 -> 372.0	90315	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	26965	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	23893	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	42533	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2832	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3574	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3172	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-PFDoDA	8.991	615.1 -> 570.0	26452	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.731	715.2 -> 670.0	14848	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.456	302.1 -> 79.9	16042	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.224	402.1 -> 79.9	9955	2.51 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 = 100.6%	
13C4-PFBA	2.938	216.8 -> 171.9	92152	10.07 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.452	367.1 -> 322.0	42469	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C5-PFHxA	5.513	318.0 -> 273.0	40620	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C5-PFPeA	4.337	268.3 -> 223.0	46268	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C6-PFDA	8.108	519.1 -> 474.1	18780	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C7-PFUnDA	8.562	570.0 -> 525.1	21077	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C8-FOSA	9.555	506.1 -> 77.8	18502	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-PFOA	7.097	421.1 -> 376.0	72161	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-PFOS	8.270	507.1 -> 79.9	8904	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C9-PFNA	7.626	472.1 -> 427.0	23963	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.3%	
d3-MeFOSAA	8.153	573.2 -> 419.0	28989	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	5.878	286.9 -> 168.9	15155	9.34 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.4%	
d3-MeFOSA	10.680	515.0 -> 219.0	6159	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
d5-EtFOSAA	8.361	589.2 -> 419.0	26084	5.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d7-MeFOSE	10.589	623.2 -> 58.9	26754	26.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
d9-EtFOSE	10.847	639.2 -> 58.9	17183	26.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d5-EtFOSA	10.925	531.1 -> 219.0	6905	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
Target Compounds					QValue
4:2FTS	5.178	327.1 -> 307.0	3611	0.67 µg/L	100
		327.1 -> 80.9	785		
6:2FTS	6.871	427.1 -> 407.0	3266	0.74 µg/L	98
		427.1 -> 80.9	561		
8:2FTS	7.896	527.1 -> 507.0	1509	0.72 µg/L	90
		527.1 -> 80.8	438		
EtFOSAA	8.362	584.2 -> 419.1	627	0.18 µg/L	93
		584.2 -> 526.0	360		
FOSA	9.557	498.1 -> 77.9	1126	0.18 µg/L	96
		498.1 -> 478.0	59		
MeFOSAA	8.154	570.1 -> 419.0	901	0.19 µg/L	97
		570.1 -> 483.0	128		
PFBA	2.944	212.8 -> 168.9	1322	0.71 µg/L	100
PFBS	5.457	298.7 -> 79.9	761	0.15 µg/L	94
		298.7 -> 98.8	338		
PFDA	8.108	512.9 -> 469.0	3188	0.17 µg/L	93
		512.9 -> 219.0	507		
PFDODA	8.992	613.1 -> 569.0	3829	0.21 µg/L	94
		613.1 -> 319.0	371		
PFDS	9.167	599.0 -> 79.9	406	0.17 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	6.453	599.0 -> 98.8	220	0.18 µg/L	99
		363.1 -> 319.0	3741		
PFHpS	7.779	363.1 -> 169.0	542	0.20 µg/L	72
		449.0 -> 79.9	622		
PFHxA	5.516	449.0 -> 98.9	257	0.19 µg/L	#
		313.0 -> 269.0	2529		
PFHxS	7.213	313.0 -> 118.9	136	0.19 µg/L	79
		398.7 -> 79.9	715		
PFNA	7.627	398.7 -> 98.9	322	0.16 µg/L	95
		463.0 -> 419.0	2027		
PFNS	8.737	463.0 -> 219.0	470	0.20 µg/L	87
		548.8 -> 79.9	639		
PFOA	7.111	548.8 -> 98.9	296	0.19 µg/L	95
		413.0 -> 369.0	5153		
PFOS	8.271	413.0 -> 169.0	721	0.16 µg/L	m
		498.9 -> 79.9	553		
PFPeA	4.338	498.9 -> 98.8	458	0.37 µg/L	100
		263.0 -> 219.0	2932		
PFPeS	6.517	349.1 -> 79.9	828	0.18 µg/L	89
		349.1 -> 98.9	377		
PFTeDA	9.732	713.1 -> 669.0	2674	0.19 µg/L	94
		713.1 -> 168.9	218		
PFTrDA	9.387	663.0 -> 619.0	3017	0.19 µg/L	100
		663.0 -> 168.9	213		
PFUnDA	8.562	563.1 -> 519.0	2889	0.20 µg/L	97
		563.1 -> 269.1	379		
11Cl-PF3OUdS	9.439	630.9 -> 450.9	5734	0.71 µg/L	99
		632.9 -> 452.9	1783		
9Cl-PF3ONS	8.602	530.8 -> 351.0	10561	0.70 µg/L	99
		532.8 -> 353.0	3077		
ADONA	6.716	376.9 -> 250.9	20656	0.70 µg/L	99
		376.9 -> 84.8	4573		
HFPO-DA	5.879	284.9 -> 168.9	881	0.72 µg/L	98
		284.9 -> 184.9	100		
3:3FTCA	3.804	241.0 -> 177.0	386	0.93 µg/L	93
		241.0 -> 117.0	40		
5:3FTCA	6.169	341.0 -> 237.1	13151	4.50 µg/L	99
		341.0 -> 217.0	11578		
7:3FTCA	7.579	441.0 -> 316.9	7125	4.55 µg/L	99
		441.0 -> 336.9	13320		
EtFOSA	10.927	526.0 -> 219.0	602	0.20 µg/L	87
		526.0 -> 169.0	558		
EtFOSE	10.860	630.0 -> 58.9	1215	1.97 µg/L	100
		511.9 -> 219.0	436		
MeFOSA	10.694	511.9 -> 169.0	500	0.17 µg/L	#
		616.1 -> 58.9	1630		
MeFOSE	10.602	699.1 -> 79.9	227	1.79 µg/L	100
		699.1 -> 98.8	146		
PFDoDS	9.858	295.0 -> 201.0	299	0.17 µg/L	92
		295.0 -> 84.9	127		
NFDHA	5.395	279.0 -> 85.1	827	0.41 µg/L	85
		229.0 -> 84.9	741		
PFMBA	4.738	314.8 -> 134.9	5701	0.35 µg/L	100
		314.8 -> 82.9	178		
PFMPA	3.500			0.34 µg/L	100
PFEESA	5.996			0.31 µg/L	98

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

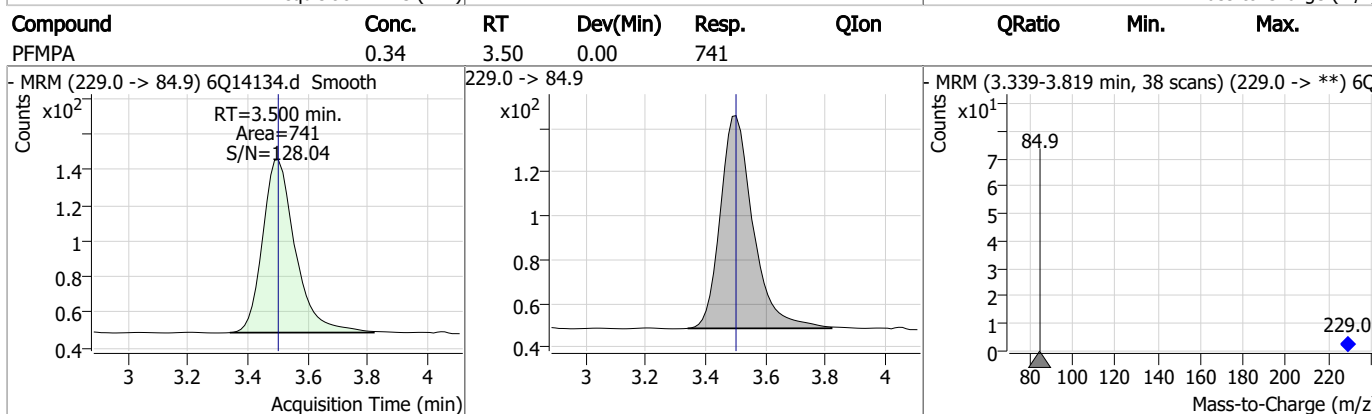
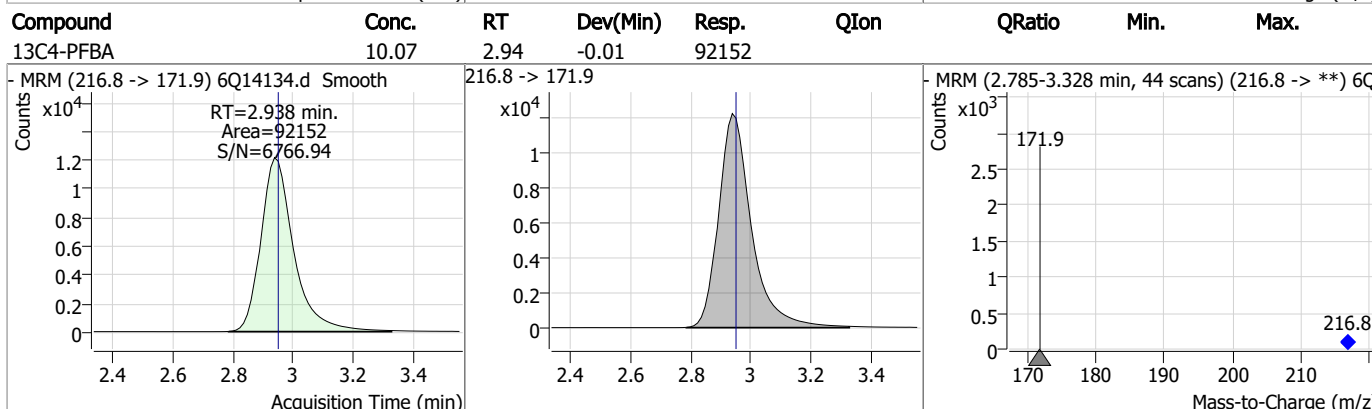
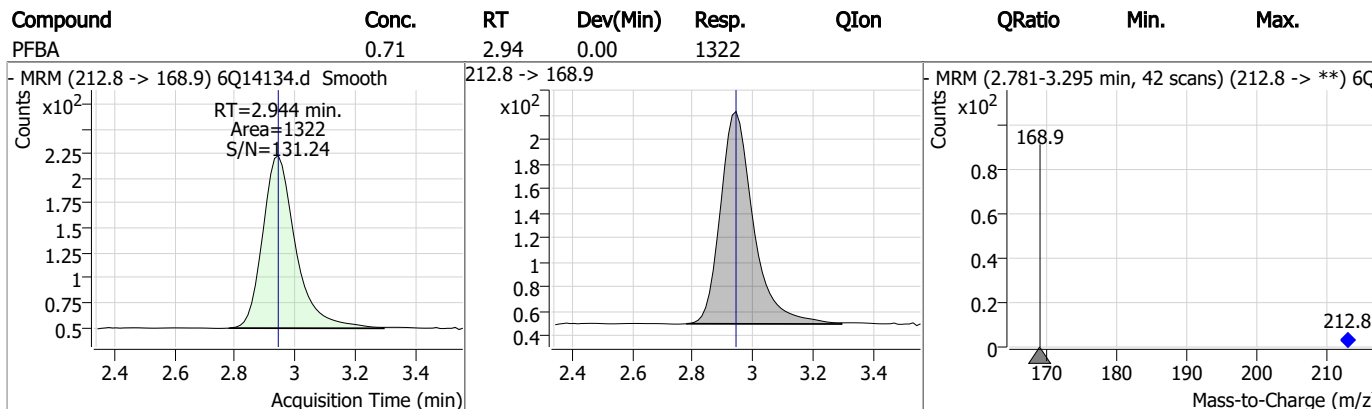
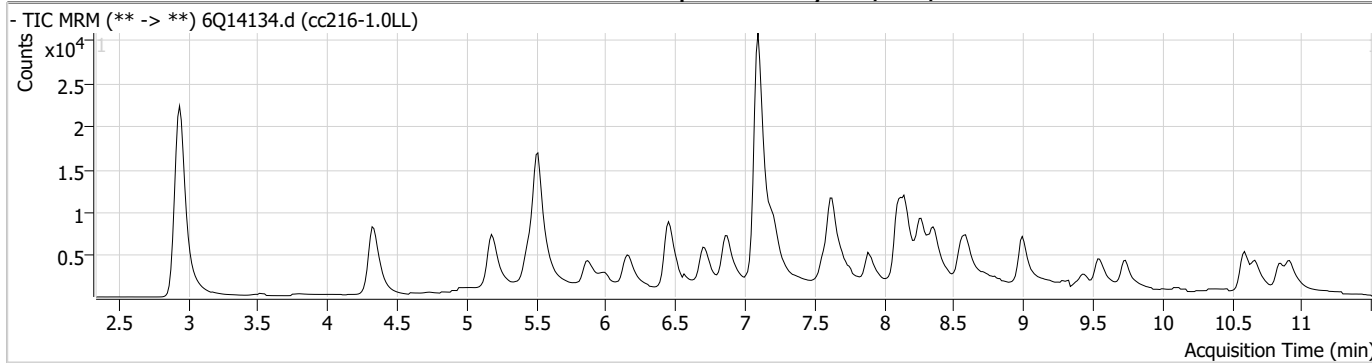
Perfluorinated Compounds by LC/MS/MS

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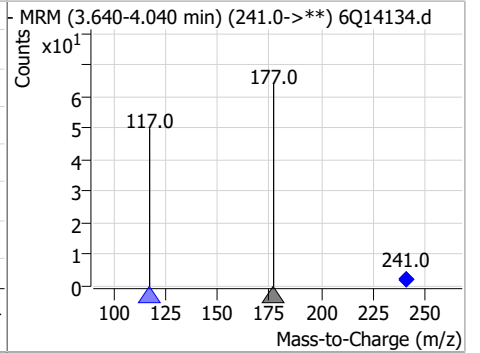
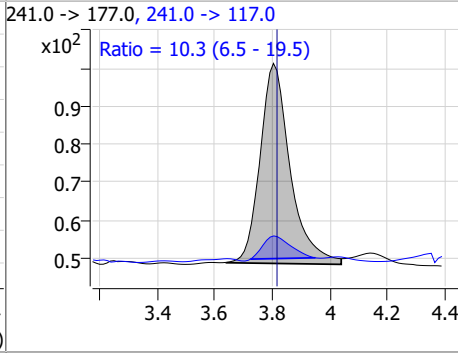
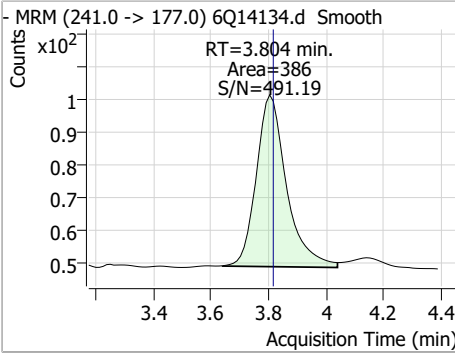
Perfluorinated Compounds by LC/MS/MS



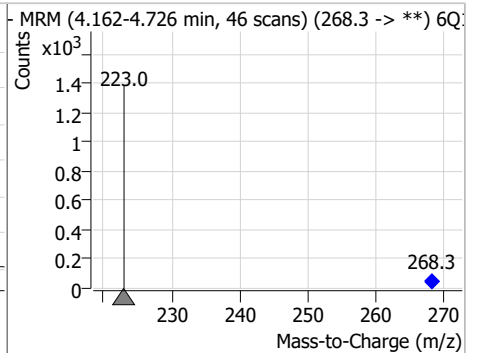
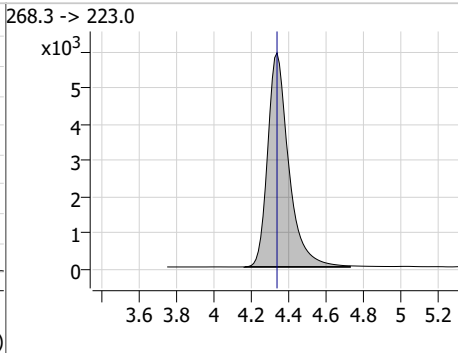
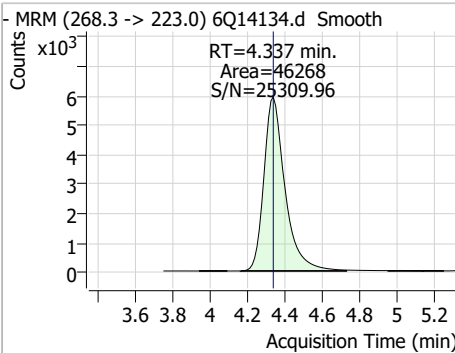
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Perfluorinated Compounds by LC/MS/MS

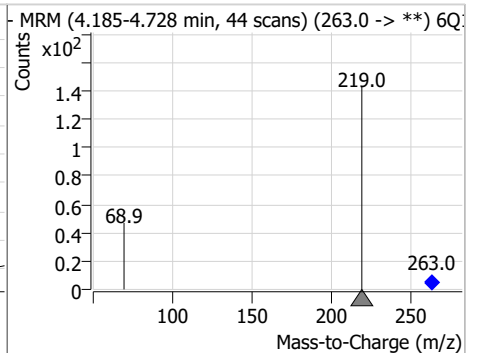
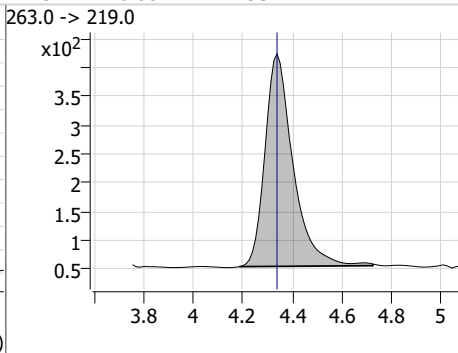
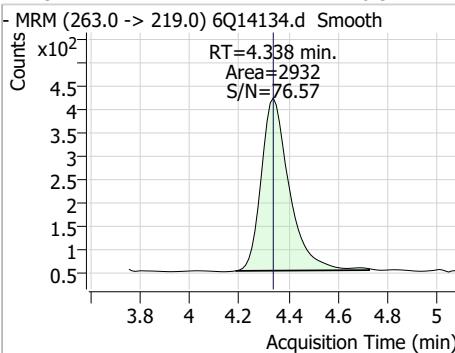
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.93	3.80	-0.01	386	241.0 -> 117.0	10.3	6.5	19.5



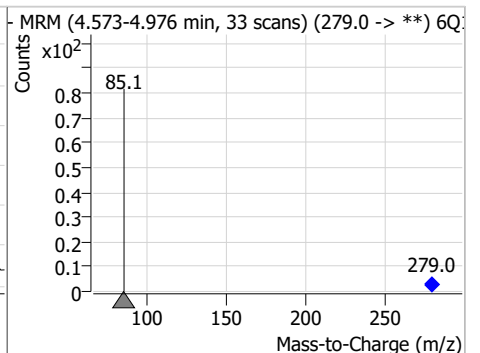
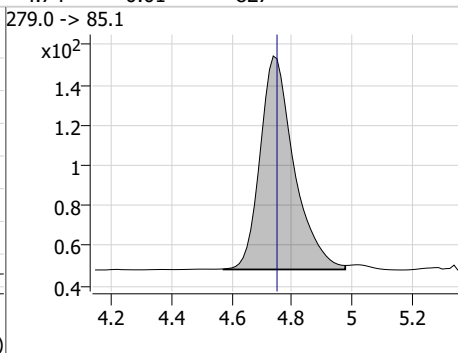
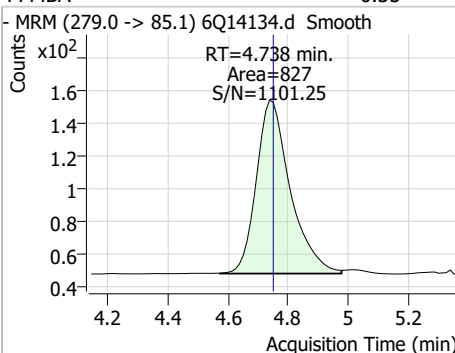
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.82	4.34	0.00	46268				



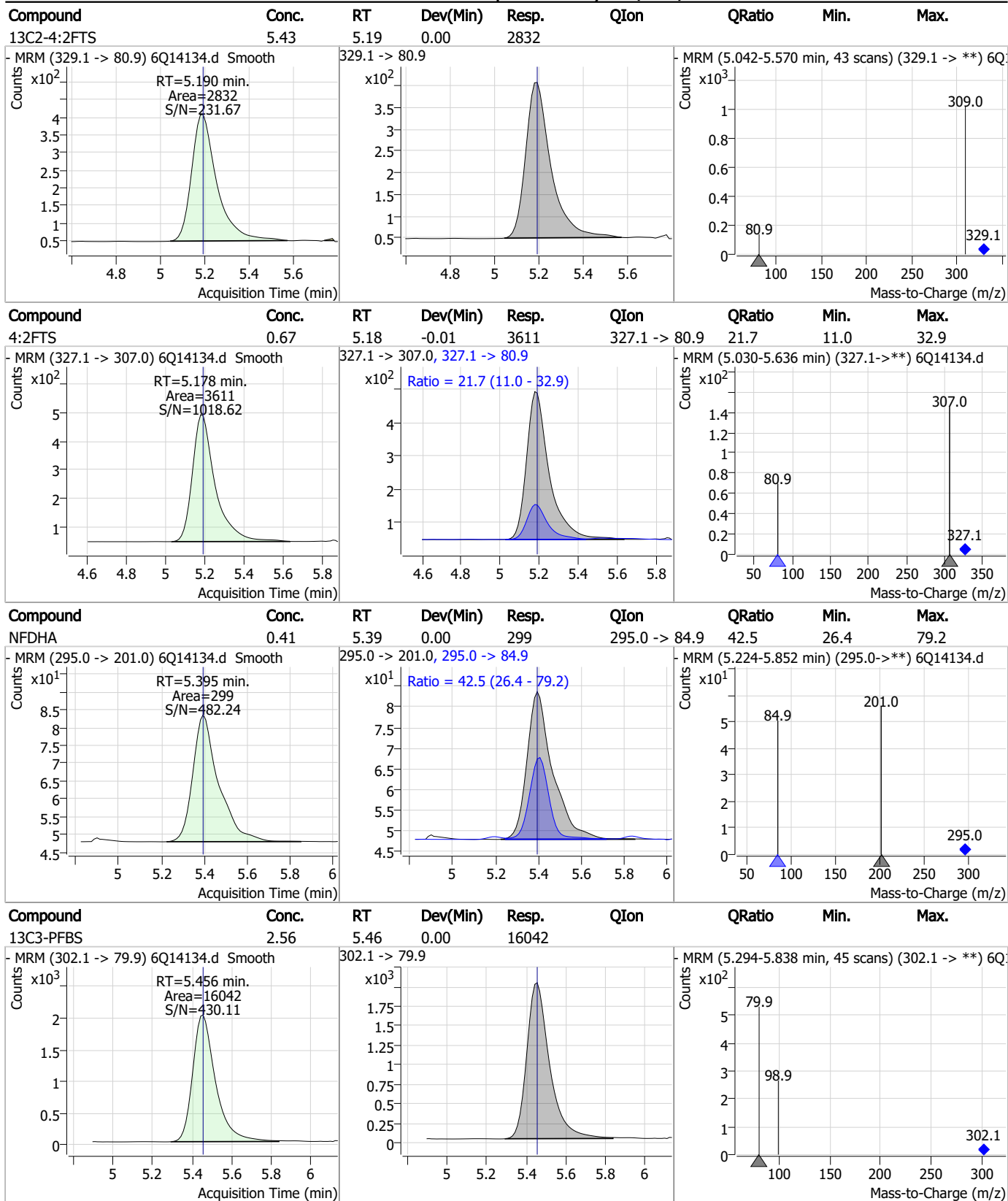
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.37	4.34	0.00	2932				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.35	4.74	-0.01	827				



Perfluorinated Compounds by LC/MS/MS



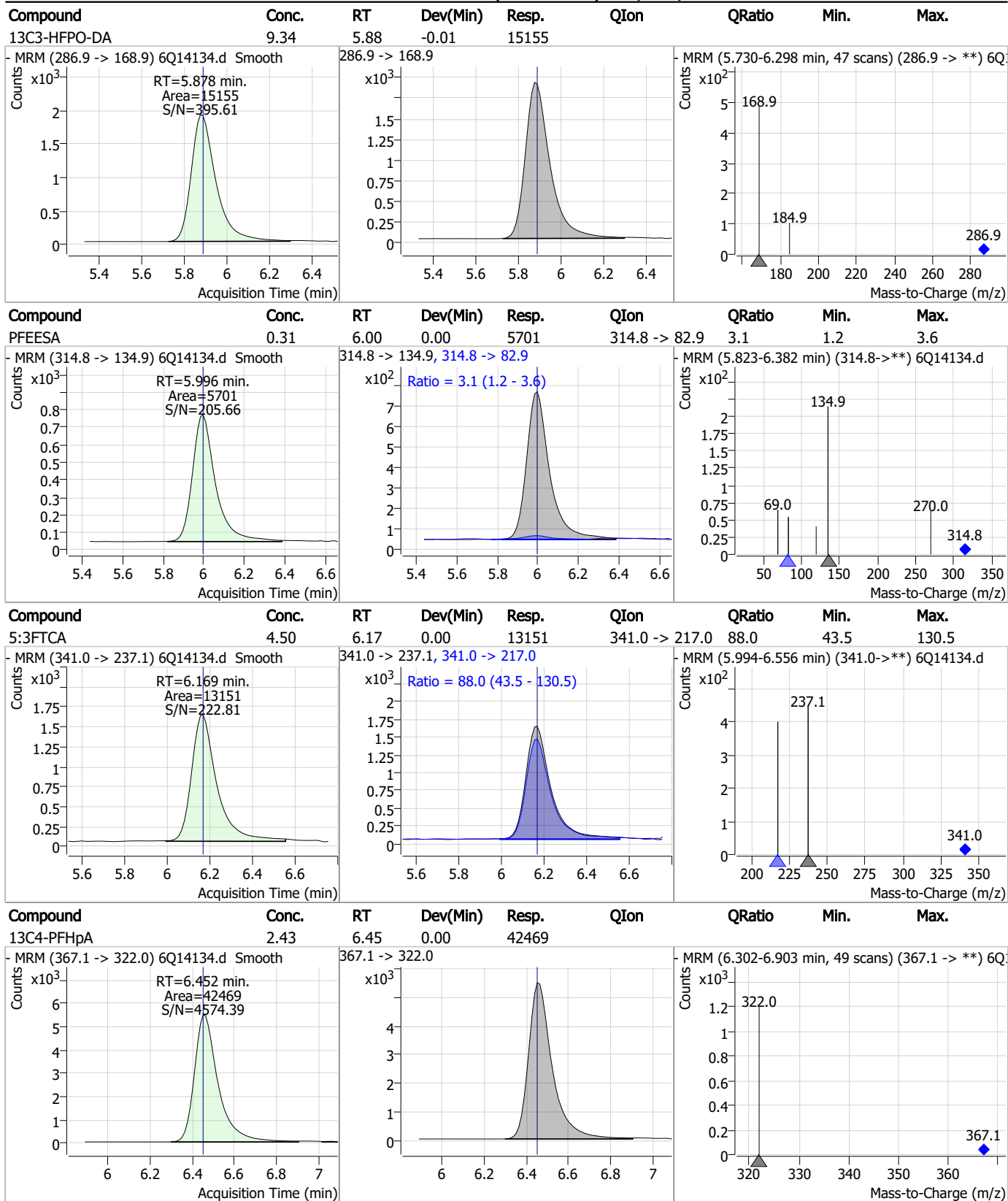
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.15	5.46	0.00	761	298.7 -> 98.8	44.4	24.1	72.3
13C5-PFHxA	2.43	5.51	0.00	40620				
PFHxA	0.19	5.52	0.00	2529	313.0 -> 118.9	5.4	1.7	5.2
HFPO-DA	0.72	5.88	0.00	881	284.9 -> 184.9	11.3	6.0	18.0

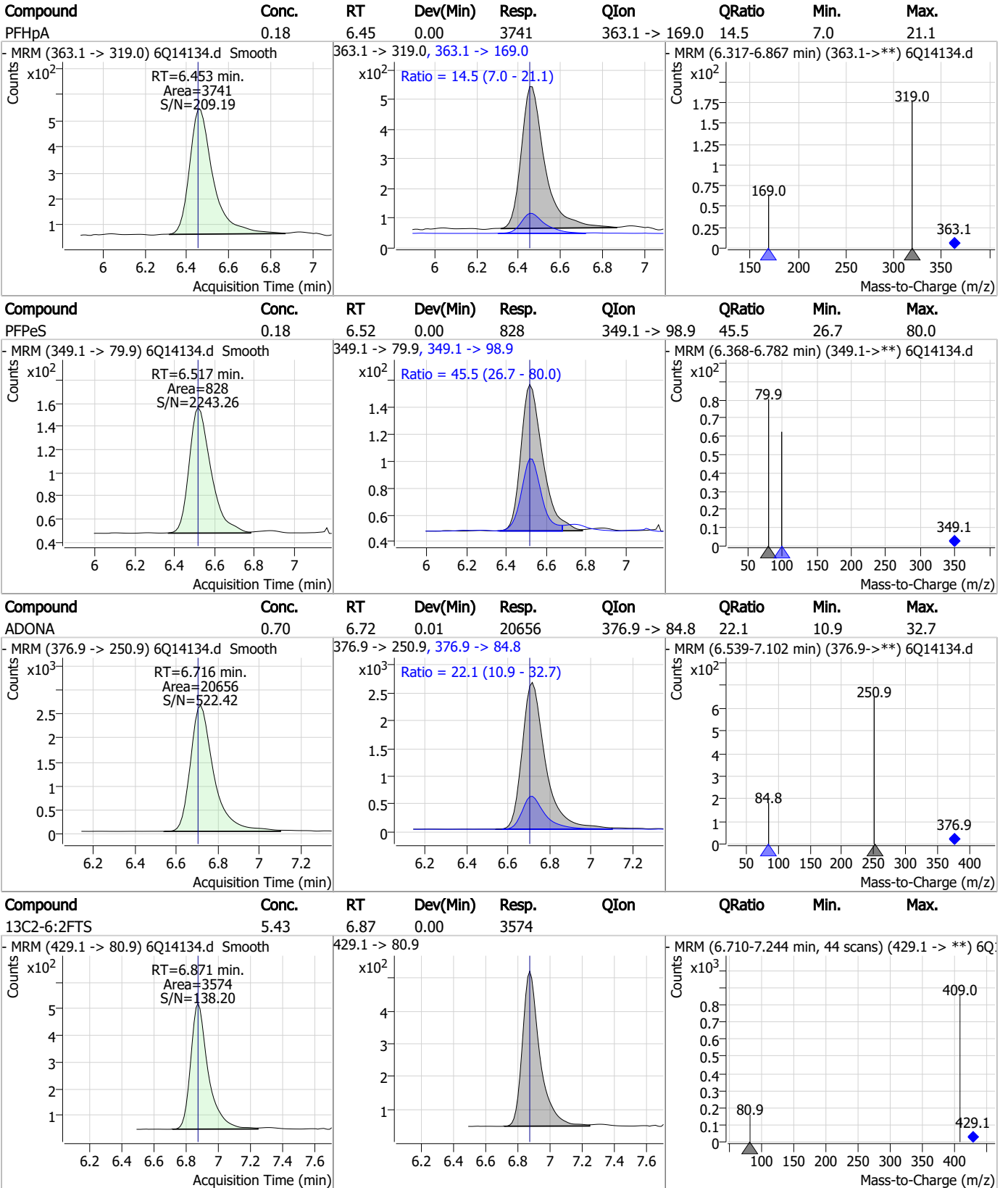
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Perfluorinated Compounds by LC/MS/MS



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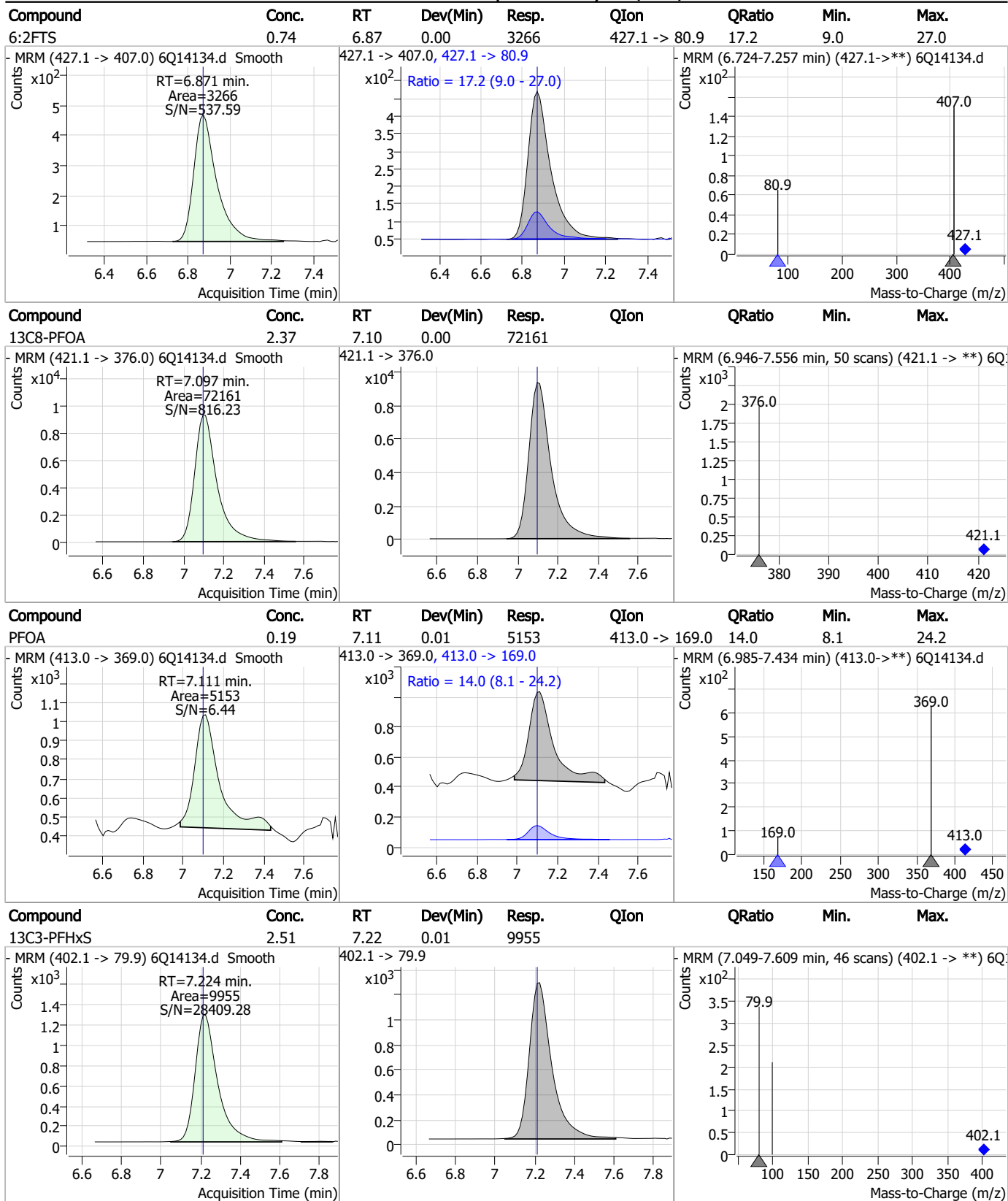
Perfluorinated Compounds by LC/MS/MS



7.7.12 7

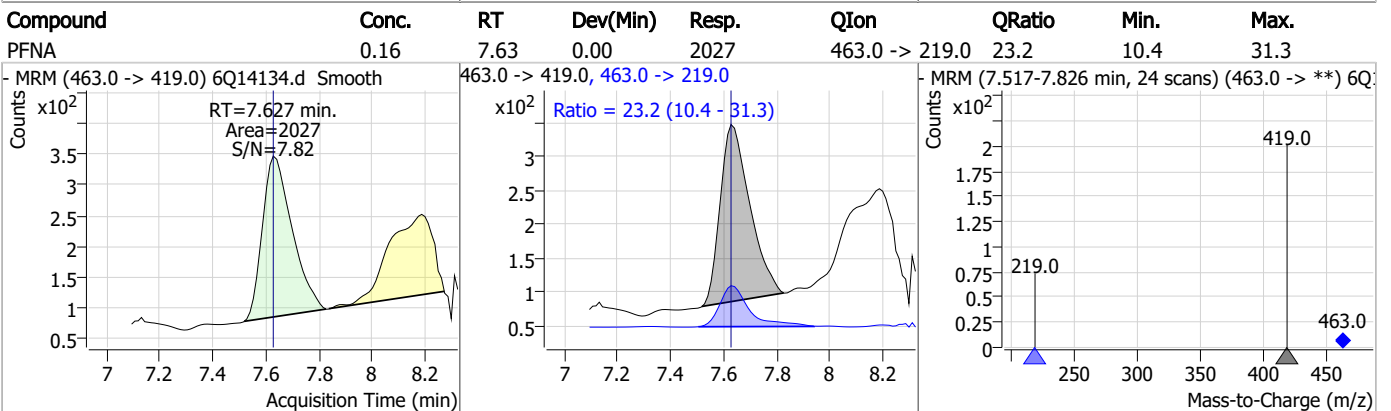
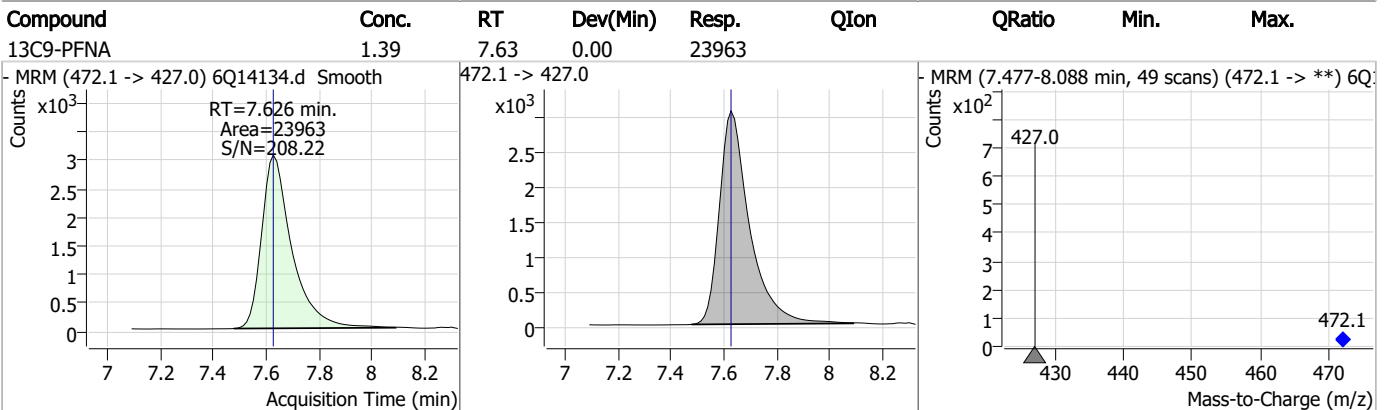
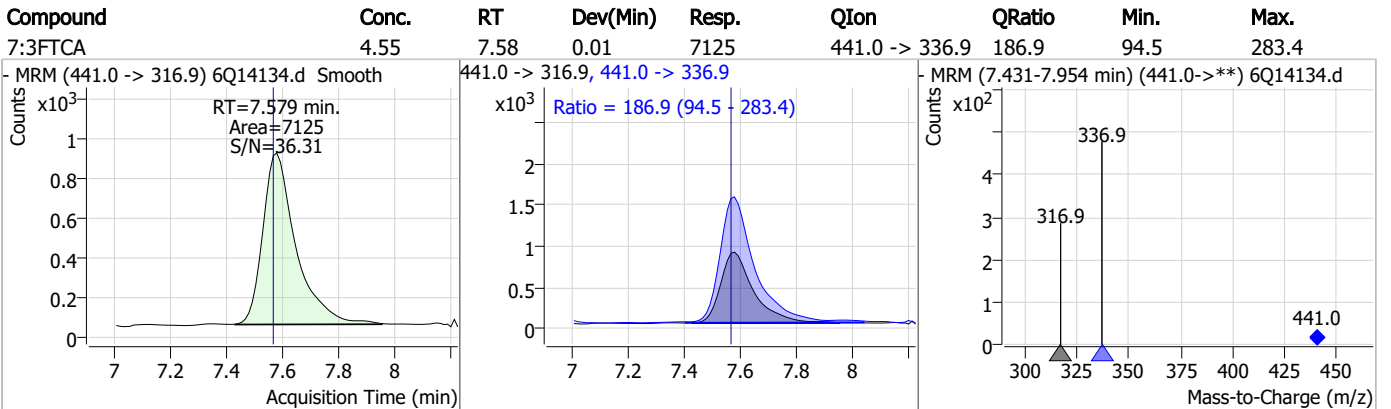
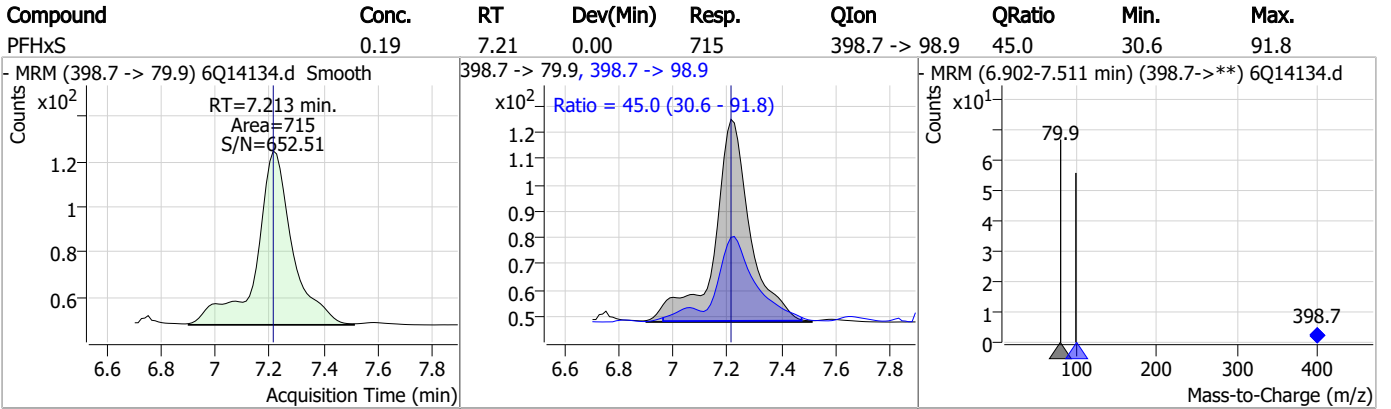


Perfluorinated Compounds by LC/MS/MS



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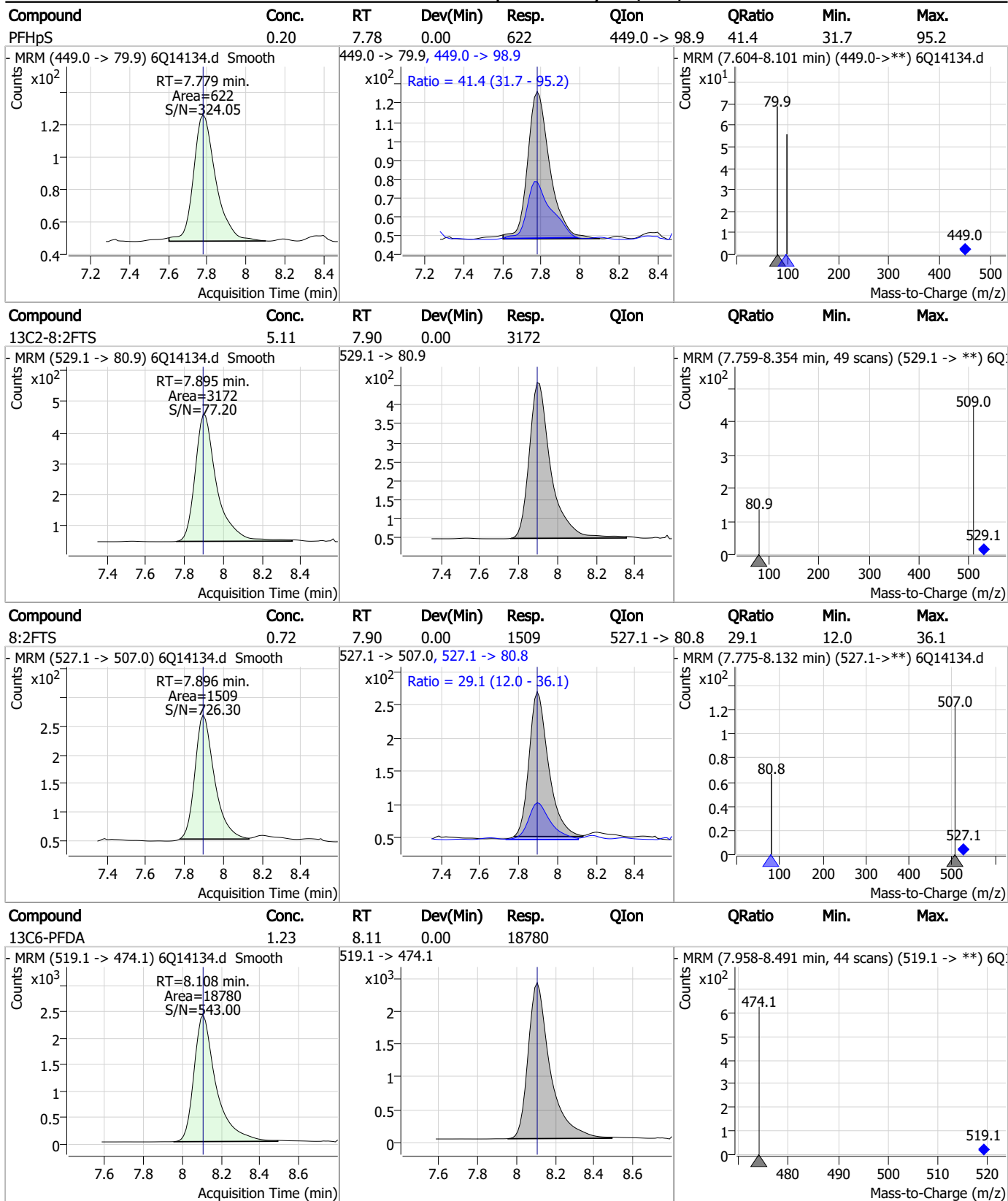
Perfluorinated Compounds by LC/MS/MS



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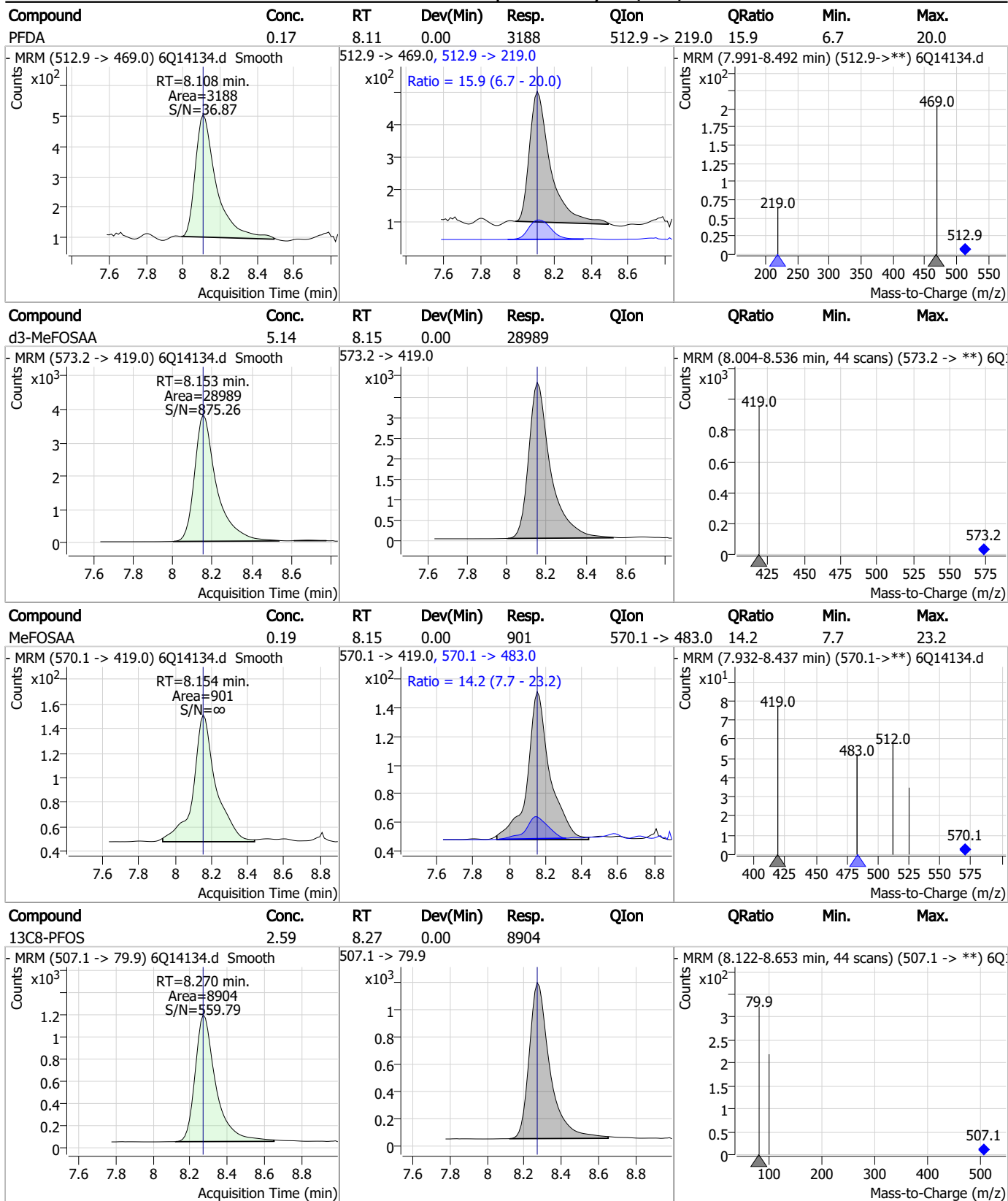


Perfluorinated Compounds by LC/MS/MS



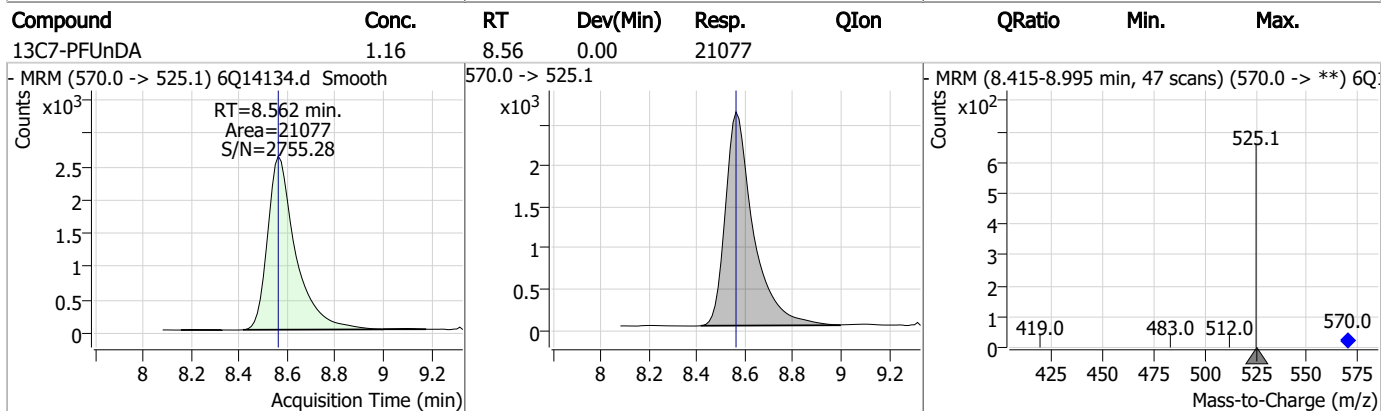
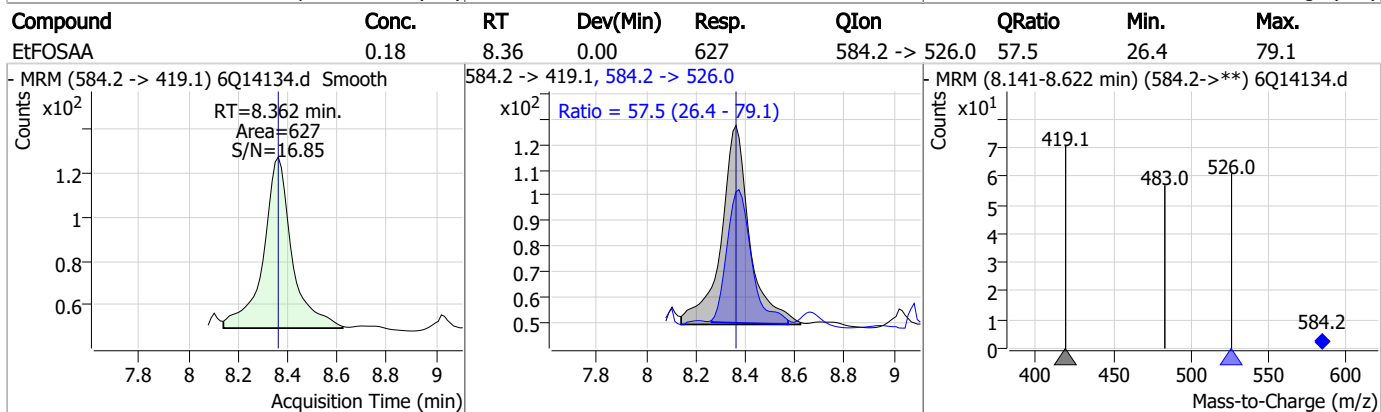
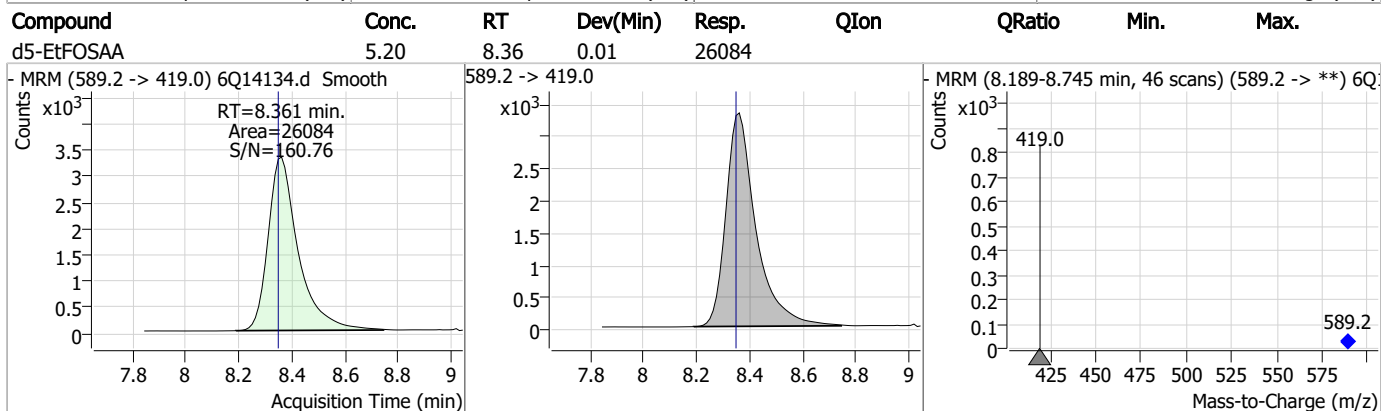
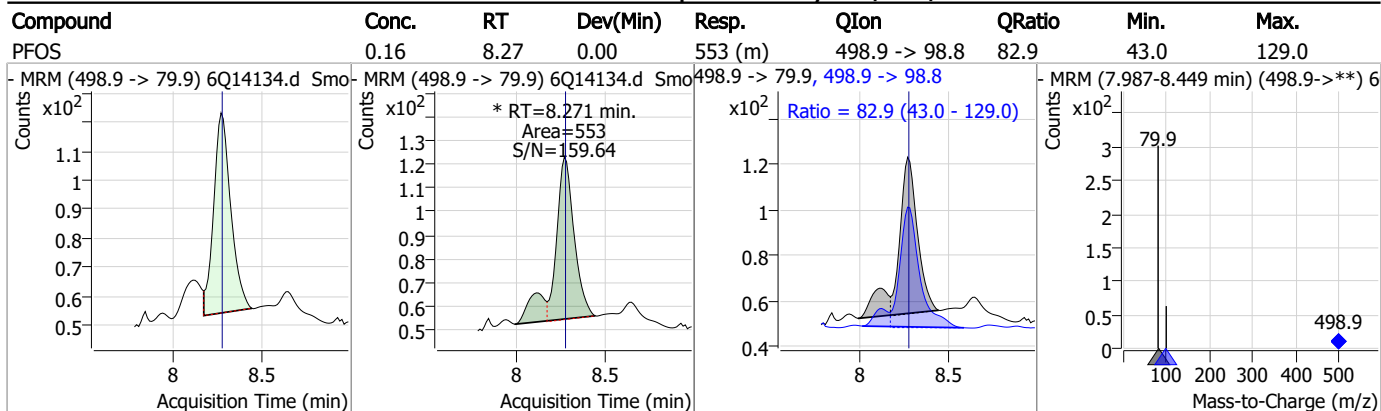
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Perfluorinated Compounds by LC/MS/MS



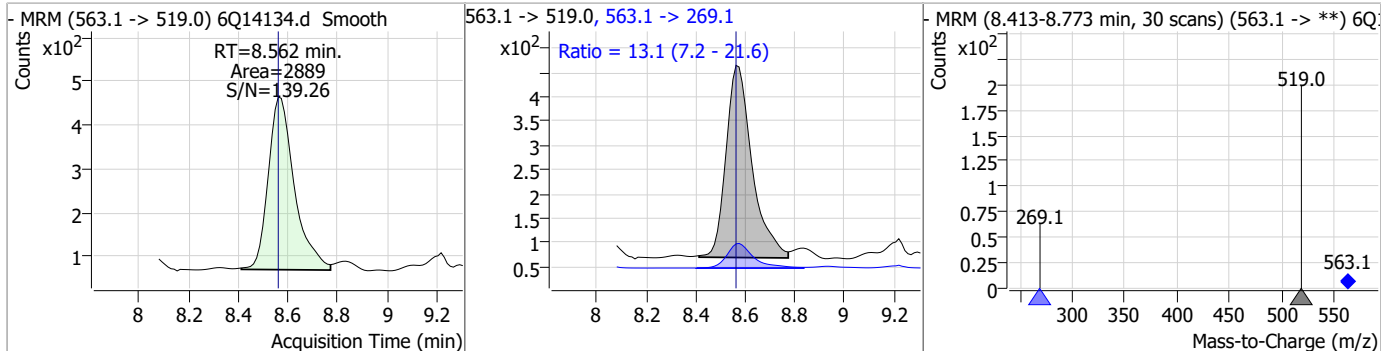
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Perfluorinated Compounds by LC/MS/MS

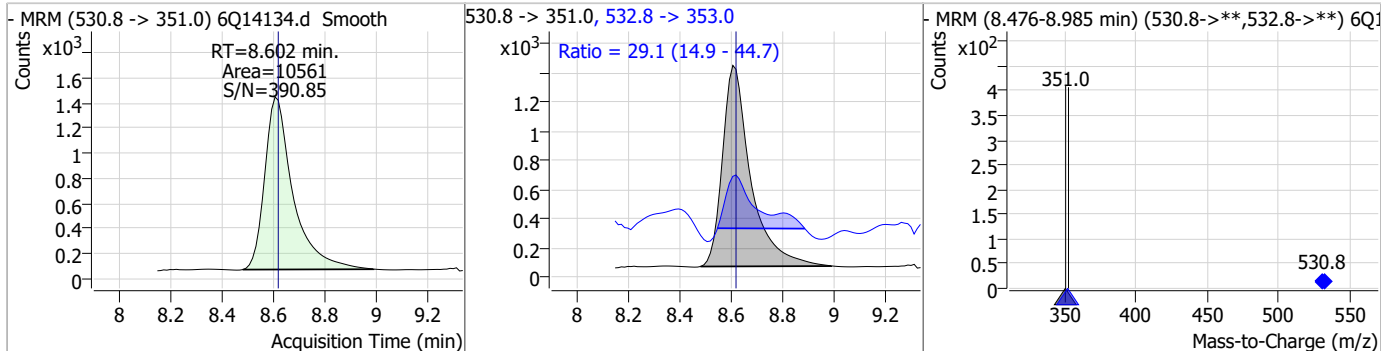


Perfluorinated Compounds by LC/MS/MS

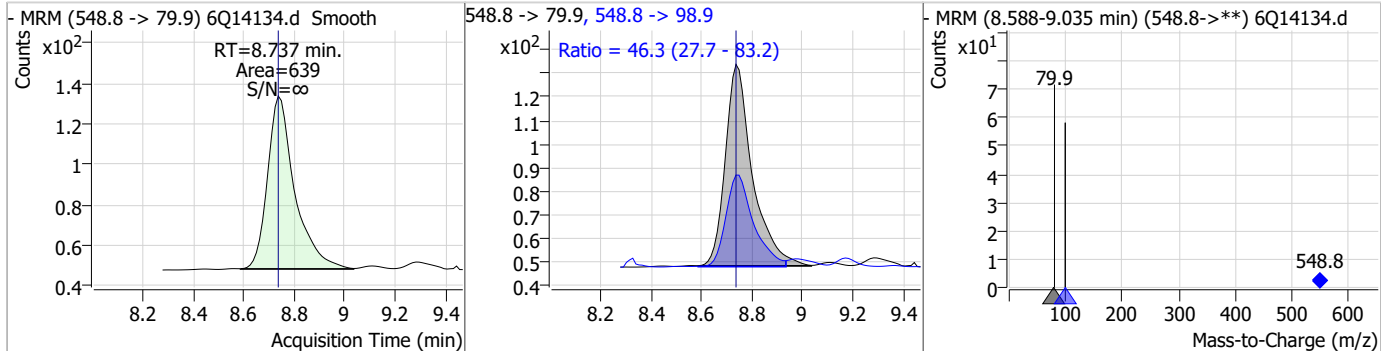
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.20	8.56	0.00	2889	563.1 -> 269.1	13.1	7.2	21.6



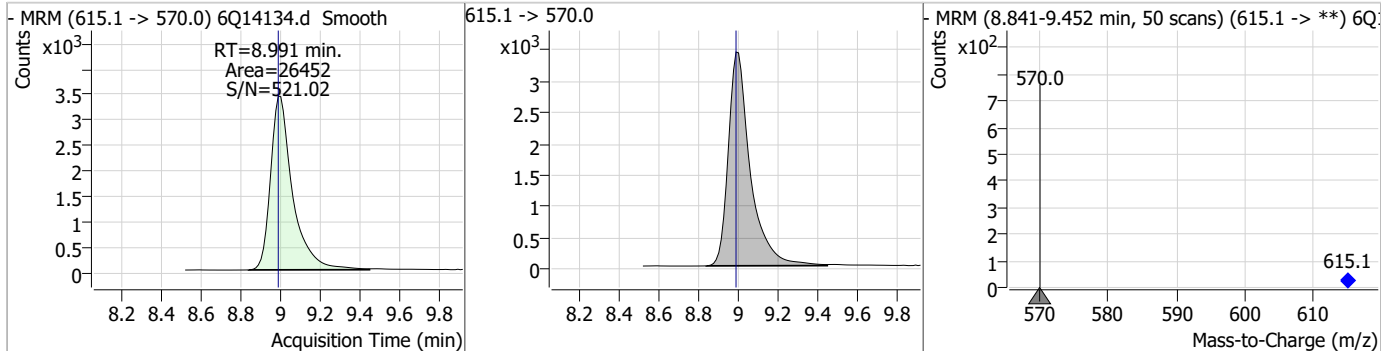
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.70	8.60	-0.01	10561	532.8 -> 353.0	29.1	14.9	44.7



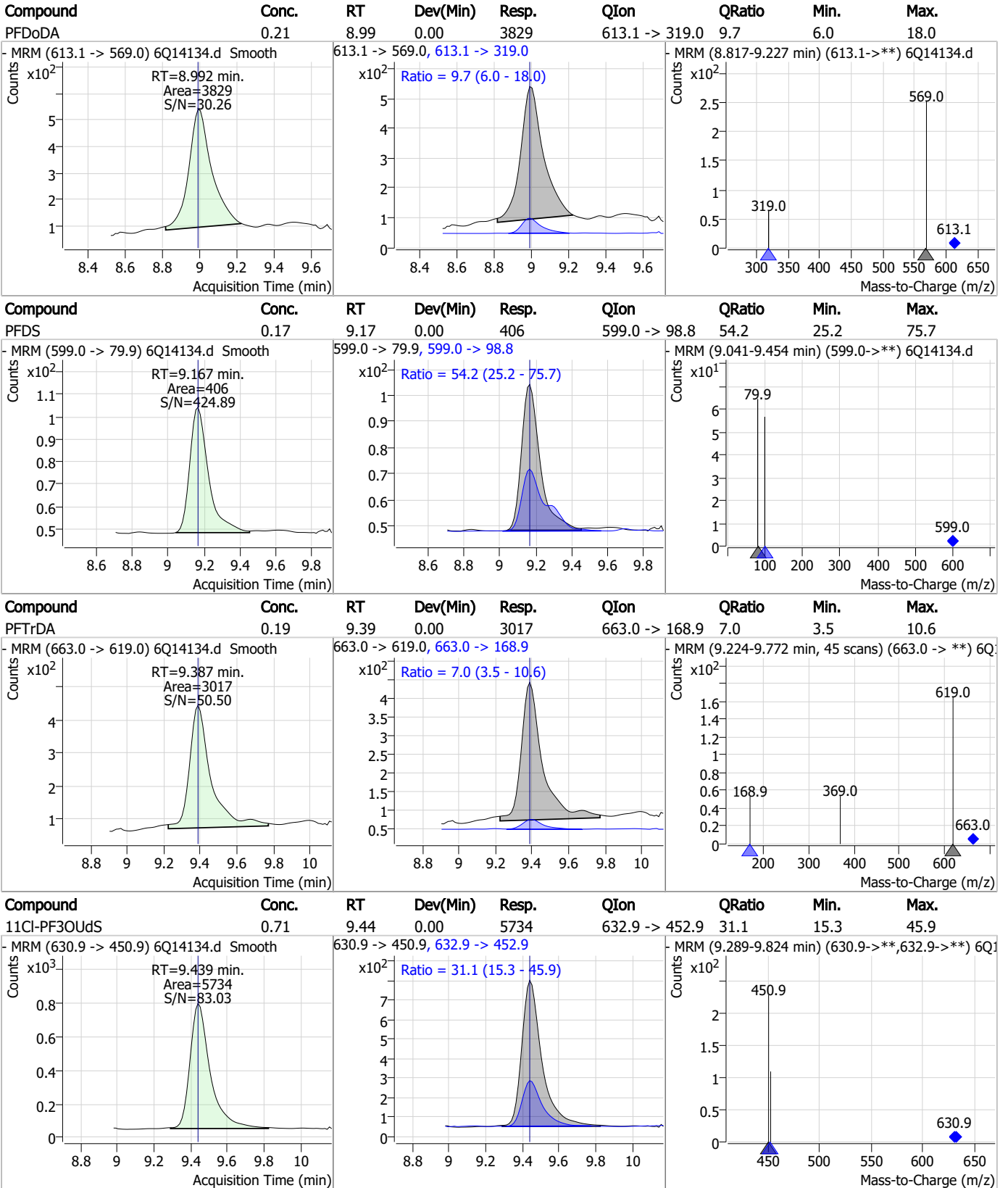
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.20	8.74	0.00	639	548.8 -> 98.9	46.3	27.7	83.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	8.99	0.00	26452	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

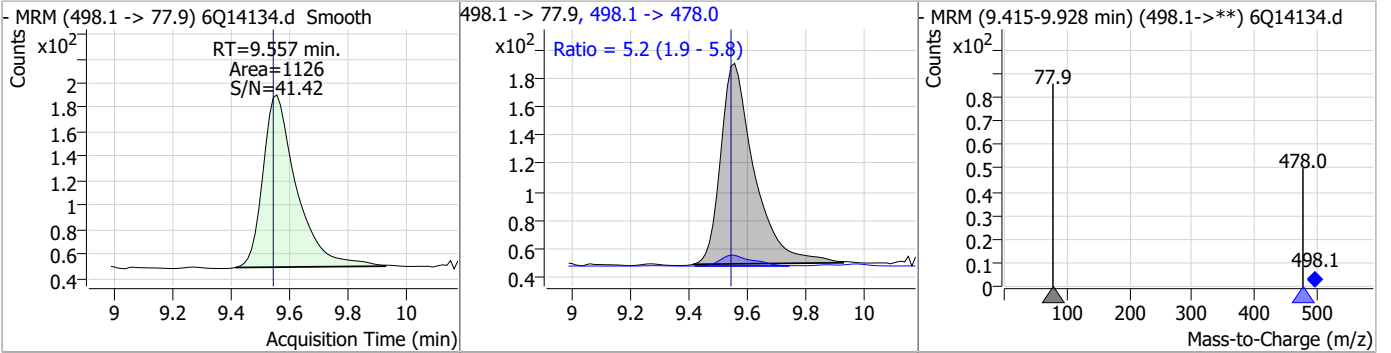


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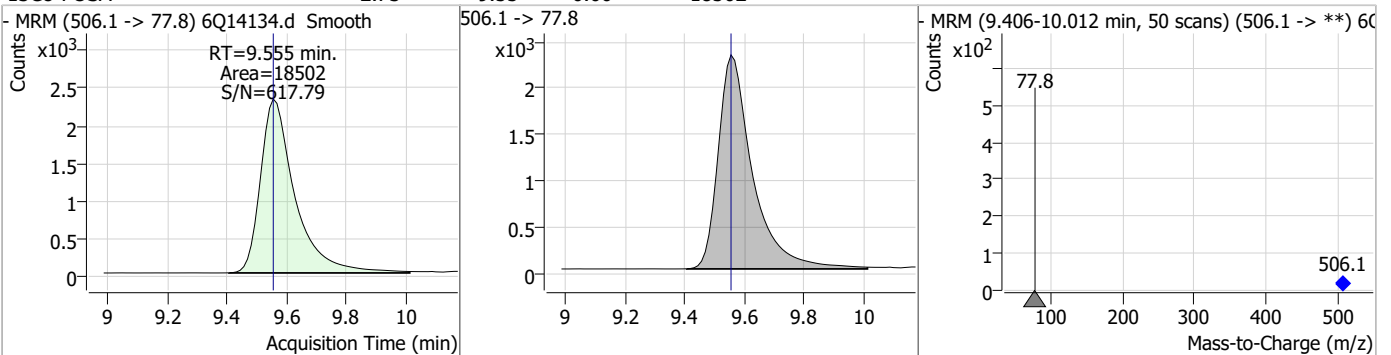


Perfluorinated Compounds by LC/MS/MS

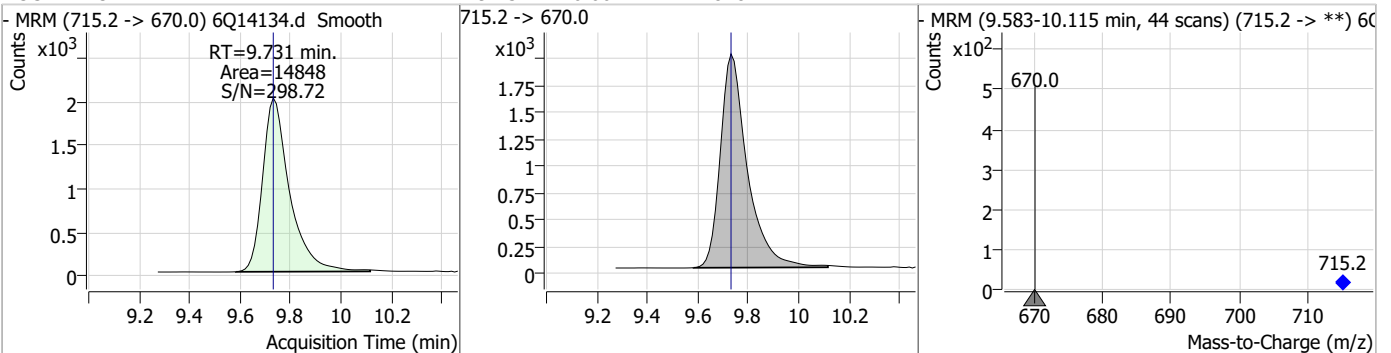
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.18	9.56	0.01	1126	498.1 -> 478.0	5.2	1.9	5.8



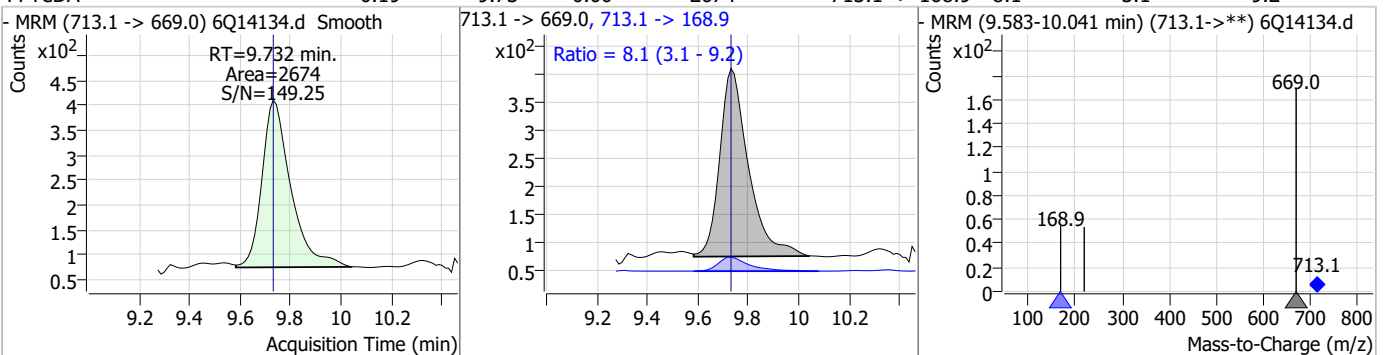
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.73	9.55	0.00	18502				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.73	0.00	14848				

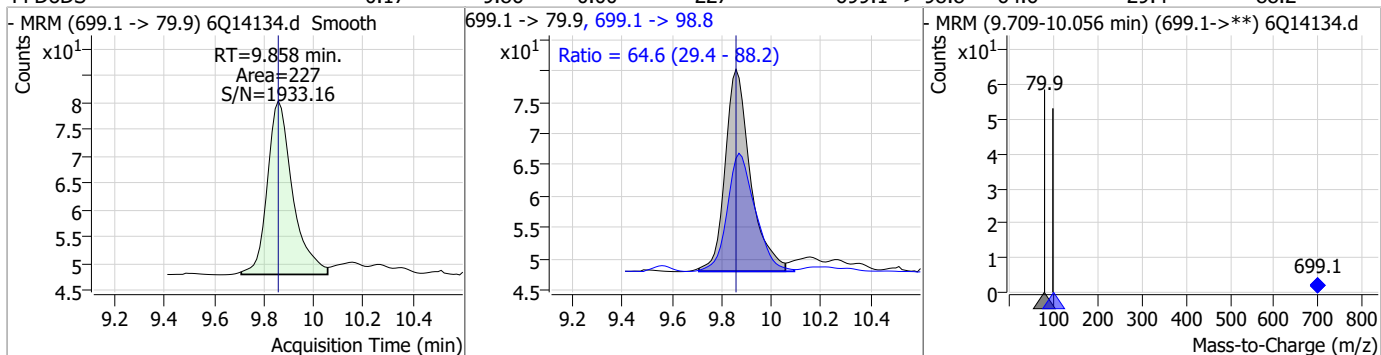


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.73	0.00	2674	713.1 -> 168.9	8.1	3.1	9.2

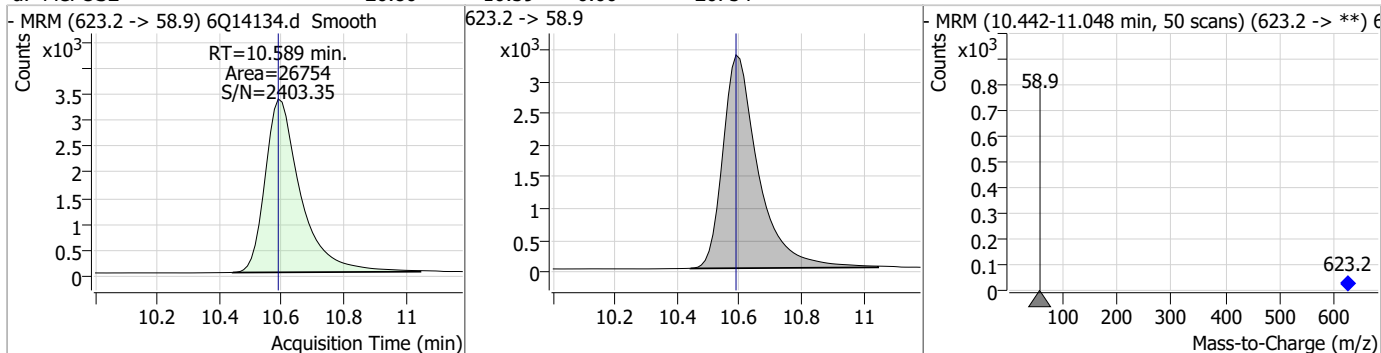


Perfluorinated Compounds by LC/MS/MS

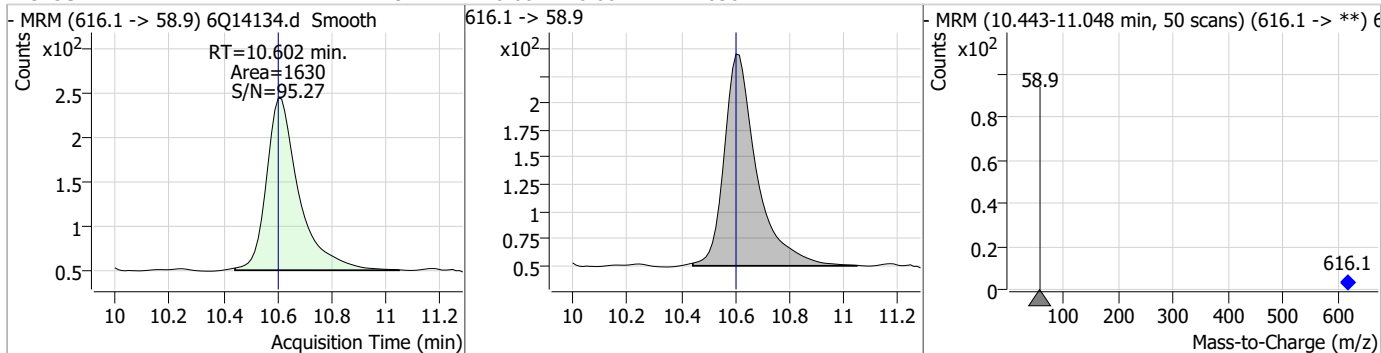
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.17	9.86	0.00	227	699.1 -> 98.8	64.6	29.4	88.2



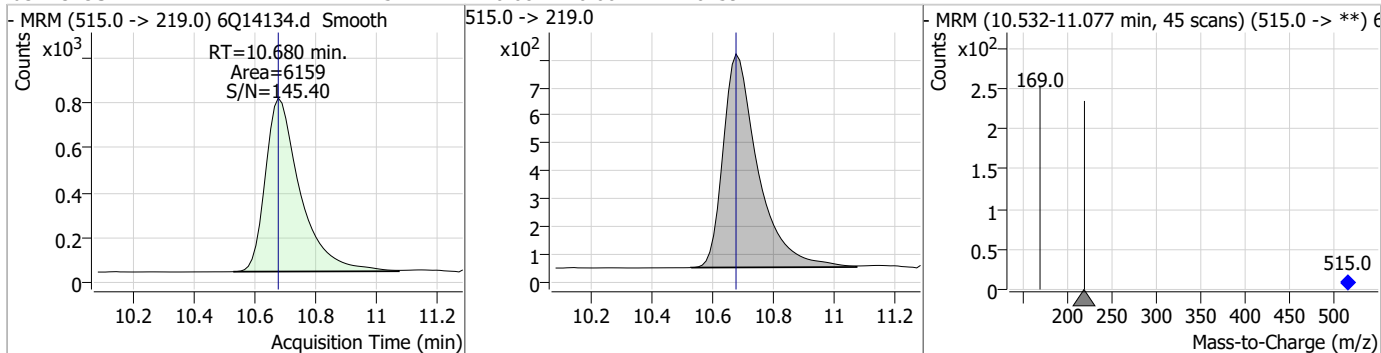
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.80	10.59	0.00	26754				



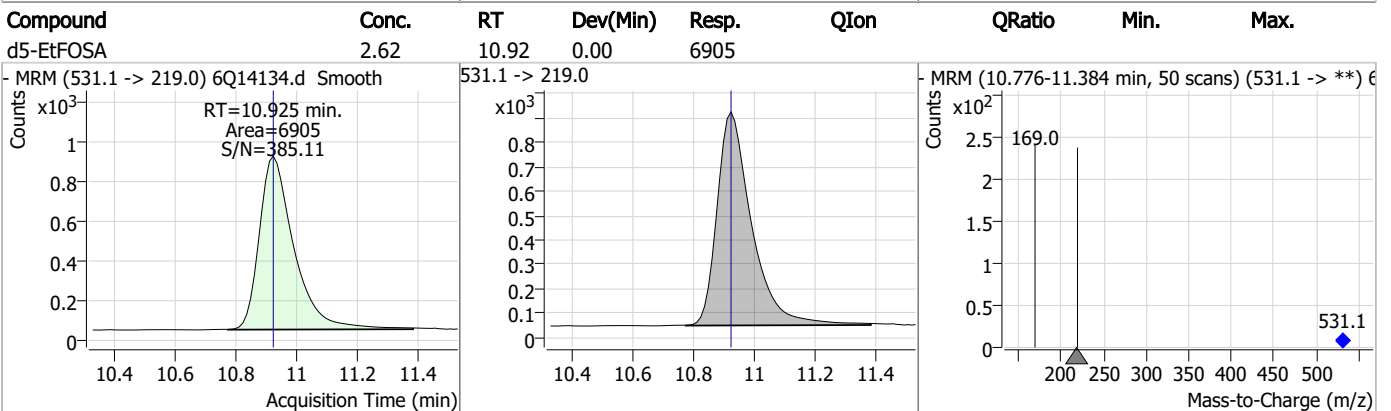
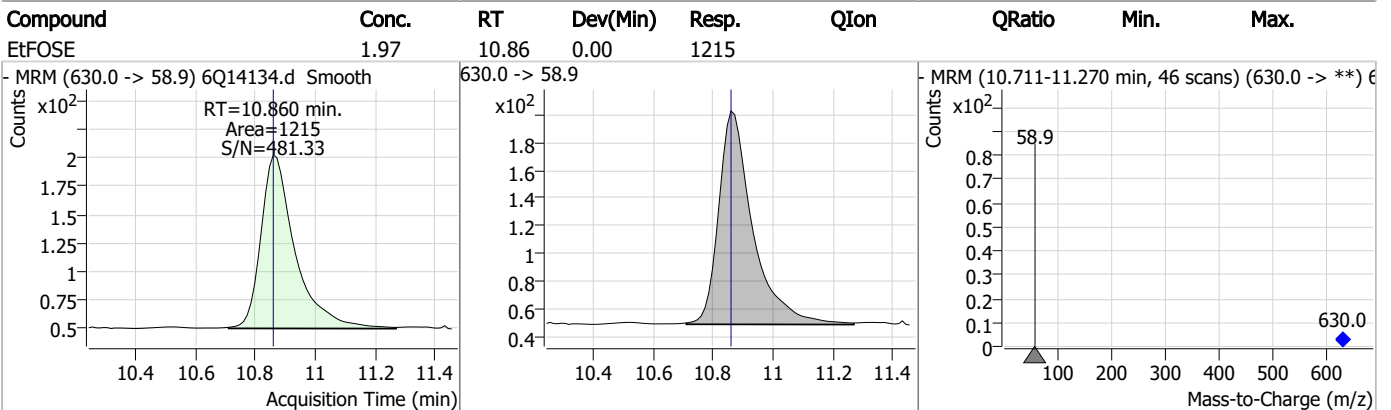
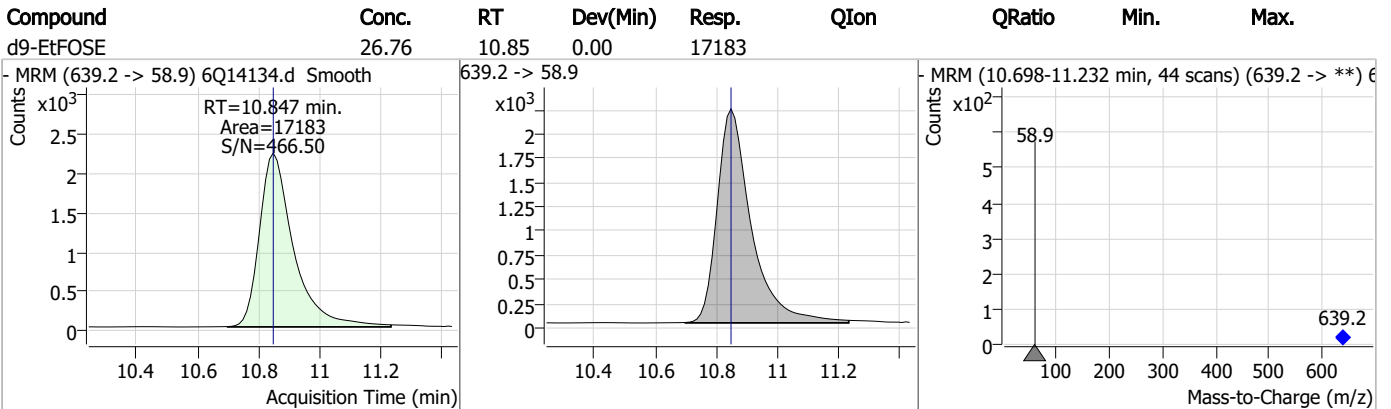
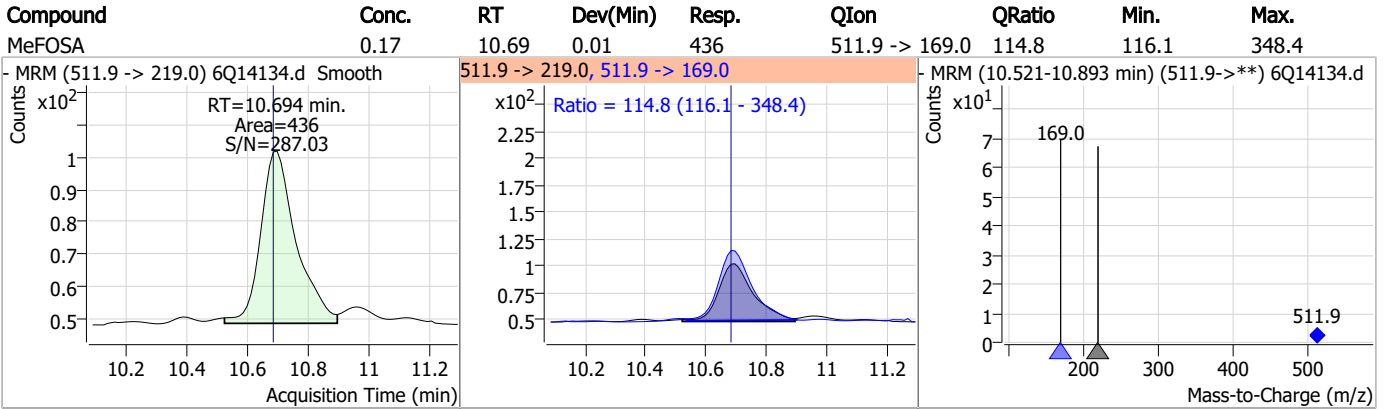
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.79	10.60	0.00	1630				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	10.68	0.00	6159				



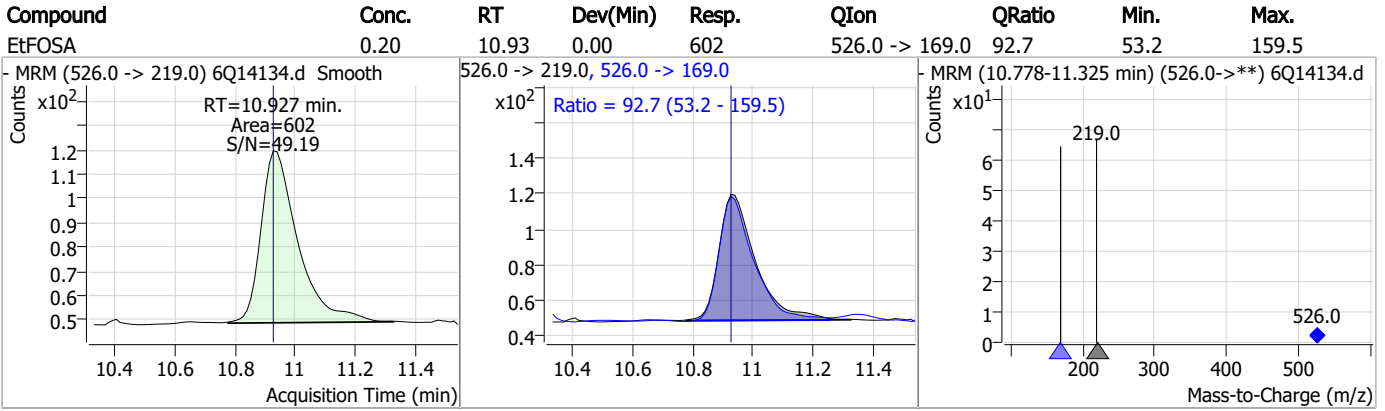
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S6Q216-CC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14134.D Analyst approved: 02/23/23 13:26 Lindsay Ritner
Injection Time: 02/22/23 20:25 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14145.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 2/22/2023 10:59:16 PM
 Sample Name : cc216-4
 Vial : P1-A5
 DA Method File : 1633_022223_S6Q216.quantmethod.xml
 Batch Name : s6q216.batch.bin
 Sample Information : OP95462,S6Q216,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.938	216.8 -> 171.9	89308	10.00 µg/L	-0.012
M5-PFPeA	4.337	268.3 -> 223.0	44230	5.00 µg/L	0.000
M5-PFHxA	5.513	318.0 -> 273.0	40405	2.50 µg/L	0.000
M4-PFHpA	6.452	367.1 -> 322.0	41367	2.50 µg/L	0.000
M8-PFOA	7.097	421.1 -> 376.0	70212	2.50 µg/L	0.000
M9-PFNA	7.626	472.1 -> 427.0	22687	1.25 µg/L	0.000
M6-PFDA	8.108	519.1 -> 474.1	17932	1.25 µg/L	0.000
M7-PFUnDA	8.562	570.0 -> 525.1	21755	1.25 µg/L	0.000
M2-PFDoDA	8.991	615.1 -> 570.0	24698	1.25 µg/L	0.000
M2-PFTeDA	9.731	715.2 -> 670.0	15469	1.25 µg/L	0.000
M8-FOSA	9.555	506.1 -> 77.8	16877	2.50 µg/L	0.000
M3-PFBS	5.456	302.1 -> 79.9	15077	2.50 µg/L	0.000
M3-PFHxS	7.212	402.1 -> 79.9	9831	2.50 µg/L	0.000
M8-PFOS	8.270	507.1 -> 79.9	8949	2.50 µg/L	0.000
M2-4:2FTS	5.190	329.1 -> 80.9	2728	5.00 µg/L	0.000
M2-6:2FTS	6.871	429.1 -> 80.9	3386	5.00 µg/L	0.000
M2-8:2FTS	7.895	529.1 -> 80.9	3151	5.00 µg/L	0.000
M3-MeFOSAA	8.153	573.2 -> 419.0	28745	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	15920	10.00 µg/L	0.000
M5-EtFOSAA	8.361	589.2 -> 419.0	26801	5.00 µg/L	0.012
M7-MeFOSE	10.589	623.2 -> 58.9	24659	25.00 µg/L	0.000
M9-EtFOSE	10.847	639.2 -> 58.9	15780	25.00 µg/L	0.000
M5-EtFOSA	10.925	531.1 -> 219.0	6477	2.50 µg/L	0.000
M3-MeFOSA	10.680	515.0 -> 219.0	5810	2.50 µg/L	0.000
13C4-PFOS	8.271	502.8 -> 79.9	9654	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	38841	5.00 µg/L	0.000
18O2-PFHxS	7.211	403.0 -> 83.9	7373	2.50 µg/L	-0.012
13C4-PFOA	7.098	417.1 -> 372.0	85730	2.50 µg/L	0.000
13C2-PFDA	8.108	515.1 -> 470.1	24902	1.25 µg/L	0.000
13C5-PFNA	7.627	468.0 -> 423.0	25166	1.25 µg/L	0.000
13C2-PFHxA	5.514	315.1 -> 270.0	41236	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.190	329.1 -> 80.9	2728	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-6:2FTS	6.871	429.1 -> 80.9	3386	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-8:2FTS	7.895	529.1 -> 80.9	3151	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFDoDA	8.991	615.1 -> 570.0	24698	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-PFTeDA	9.731	715.2 -> 670.0	15469	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-PFBS	5.456	302.1 -> 79.9	15077	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFHxS	7.212	402.1 -> 79.9	9831	2.46 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 = 98.6%		
13C4-PFBA	2.938	216.8 -> 171.9	89308	10.20 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C4-PFHpA	6.452	367.1 -> 322.0	41367	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C5-PFHxA	5.513	318.0 -> 273.0	40405	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C5-PFPeA	4.337	268.3 -> 223.0	44230	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C6-PFDA	8.108	519.1 -> 474.1	17932	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C7-PFUnDA	8.562	570.0 -> 525.1	21755	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C8-FOSA	9.555	506.1 -> 77.8	16877	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C8-PFOA	7.097	421.1 -> 376.0	70212	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C8-PFOS	8.270	507.1 -> 79.9	8949	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C9-PFNA	7.626	472.1 -> 427.0	22687	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
d3-MeFOSAA	8.153	573.2 -> 419.0	28745	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C3-HFPO-DA	5.890	286.9 -> 168.9	15920	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
d3-MeFOSA	10.680	515.0 -> 219.0	5810	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
d5-EtFOSAA	8.361	589.2 -> 419.0	26801	5.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
d7-MeFOSE	10.589	623.2 -> 58.9	24659	26.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
d9-EtFOSE	10.847	639.2 -> 58.9	15780	26.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
d5-EtFOSA	10.925	531.1 -> 219.0	6477	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.2%		
Target Compounds					QValue
4:2FTS	5.191	327.1 -> 307.0	49625	9.50 µg/L	98
		327.1 -> 80.9	11255		
6:2FTS	6.871	427.1 -> 407.0	39722	9.46 µg/L	93
		427.1 -> 80.9	8344		
8:2FTS	7.896	527.1 -> 507.0	21314	10.20 µg/L	99
		527.1 -> 80.8	5238		
EtFOSAA	8.362	584.2 -> 419.1	8918	2.52 µg/L	m 98
		584.2 -> 526.0	4834		
FOSA	9.557	498.1 -> 77.9	14590	2.53 µg/L	99
		498.1 -> 478.0	517		
MeFOSAA	8.154	570.1 -> 419.0	13311	2.81 µg/L	95
		570.1 -> 483.0	2337		
PFBA	2.944	212.8 -> 168.9	17665	9.86 µg/L	100
PFBS	5.457	298.7 -> 79.9	11210	2.30 µg/L	96
		298.7 -> 98.8	5095		
PFDA	8.108	512.9 -> 469.0	46306	2.58 µg/L	98
		512.9 -> 219.0	5758		
PFDODA	8.992	613.1 -> 569.0	41772	2.43 µg/L	97
		613.1 -> 319.0	4579		
PFDS	9.167	599.0 -> 79.9	5623	2.36 µg/L	97

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.453	599.0 -> 98.8	2942	2.62	µg/L	99
		363.1 -> 319.0	52793			
PFHpS	7.779	363.1 -> 169.0	7230	2.31	µg/L	95
		449.0 -> 79.9	7245			
PFHxA	5.516	449.0 -> 98.9	4324	2.42	µg/L	100
		313.0 -> 269.0	31938			
PFHxS	7.225	313.0 -> 118.9	1164	2.14	µg/L	m
		398.7 -> 79.9	8011			
PFNA	7.627	398.7 -> 98.9	4855	2.60	µg/L	97
		463.0 -> 419.0	30811			
PFNS	8.737	463.0 -> 219.0	6062	2.43	µg/L	96
		548.8 -> 79.9	7809			
PFOA	7.098	548.8 -> 98.9	4109	2.40	µg/L	94
		413.0 -> 369.0	63369			
PFOS	8.271	413.0 -> 169.0	8467	2.10	µg/L	m
		498.9 -> 79.9	7302			
PFPeA	4.338	498.9 -> 98.8	4754	5.13	µg/L	100
		263.0 -> 219.0	39358			
PFPeS	6.517	349.1 -> 79.9	10656	2.32	µg/L	97
		349.1 -> 98.9	5902			
PFTeDA	9.732	713.1 -> 669.0	34505	2.40	µg/L	100
		713.1 -> 168.9	2141			
PFTrDA	9.387	663.0 -> 619.0	37336	2.52	µg/L	99
		663.0 -> 168.9	2789			
PFUnDA	8.562	563.1 -> 519.0	37725	2.50	µg/L	98
		563.1 -> 269.1	5062			
11CI-PF3OUdS	9.439	630.9 -> 450.9	80527	9.45	µg/L	97
		632.9 -> 452.9	23321			
9CI-PF3ONS	8.614	530.8 -> 351.0	145843	9.25	µg/L	99
		532.8 -> 353.0	44078			
ADONA	6.716	376.9 -> 250.9	293804	9.43	µg/L	98
		376.9 -> 84.8	61587			
HFPO-DA	5.891	284.9 -> 168.9	12698	9.90	µg/L	100
		284.9 -> 184.9	1530			
3:3FTCA	3.804	241.0 -> 177.0	5076	12.84	µg/L	96
		241.0 -> 117.0	750			
5:3FTCA	6.169	341.0 -> 237.1	179517	61.76	µg/L	99
		341.0 -> 217.0	158575			
7:3FTCA	7.579	441.0 -> 316.9	99236	63.64	µg/L	96
		441.0 -> 336.9	182336			
EtFOSA	10.927	526.0 -> 219.0	7211	2.57	µg/L	91
		526.0 -> 169.0	7006			
EtFOSE	10.860	630.0 -> 58.9	15002	26.42	µg/L	100
		511.9 -> 219.0	6442			
MeFOSA	10.682	511.9 -> 169.0	6446	2.65	µg/L	#
		616.1 -> 58.9	22130			
MeFOSE	10.602	699.1 -> 79.9	3424	26.33	µg/L	100
		699.1 -> 98.8	1972			
PFDoDS	9.858	295.0 -> 201.0	3623	2.50	µg/L	98
		295.0 -> 84.9	1880			
NFDHA	5.395	279.0 -> 85.1	11714	4.99	µg/L	99
		229.0 -> 84.9	10314			
PFMBA	4.750	314.8 -> 134.9	81918	5.22	µg/L	100
PFMPA	3.500	314.8 -> 82.9	1992	5.01	µg/L	100
PFEESA	5.996			4.48	µg/L	100

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



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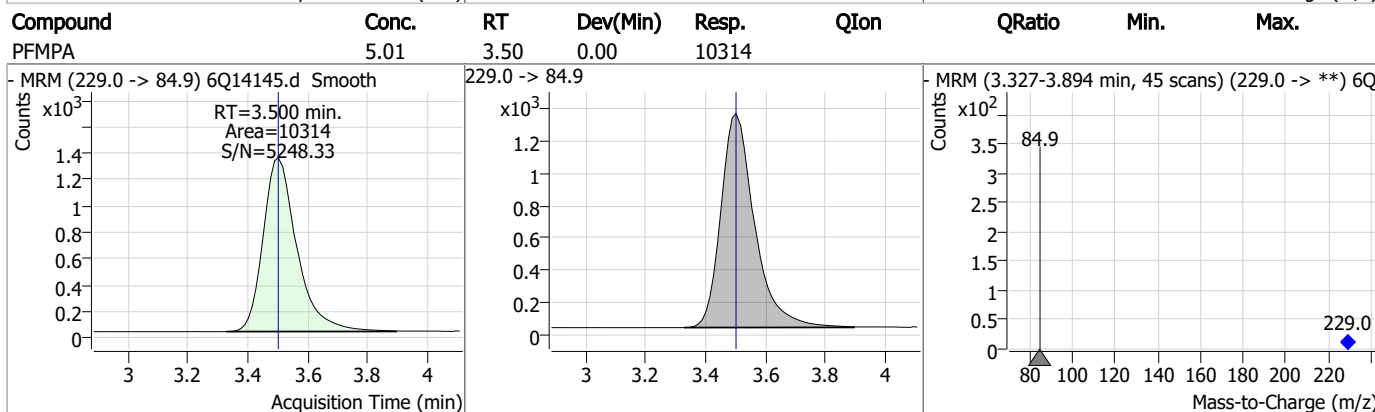
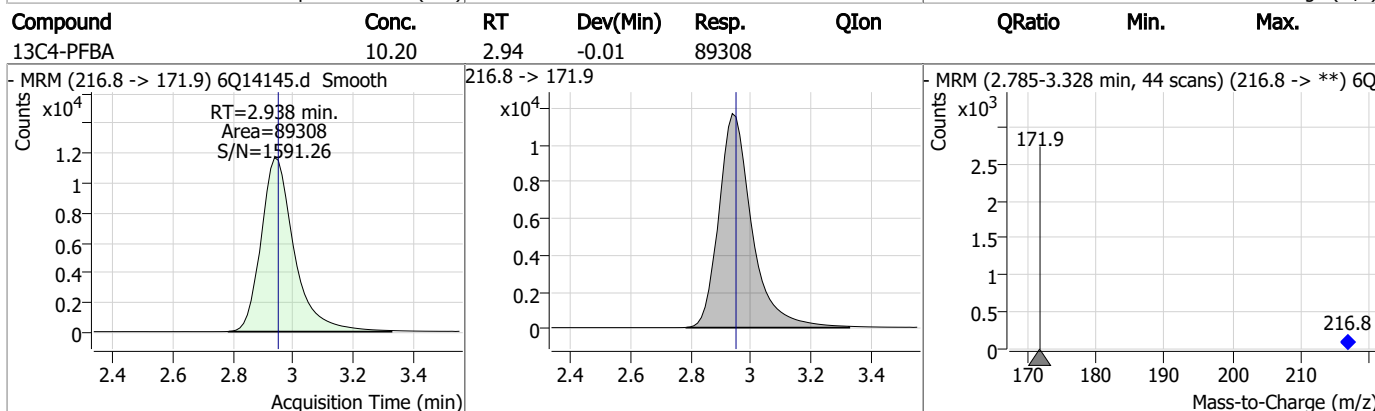
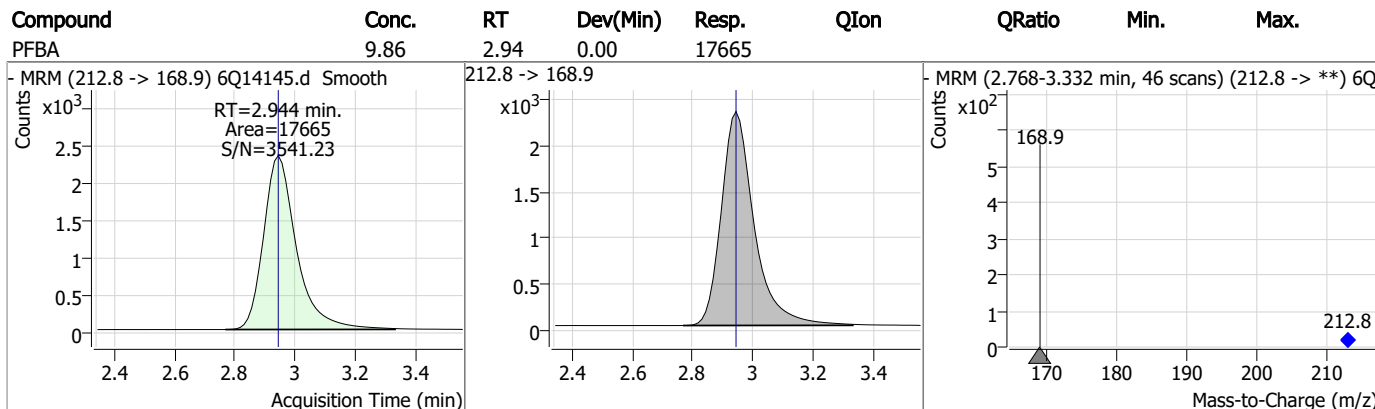
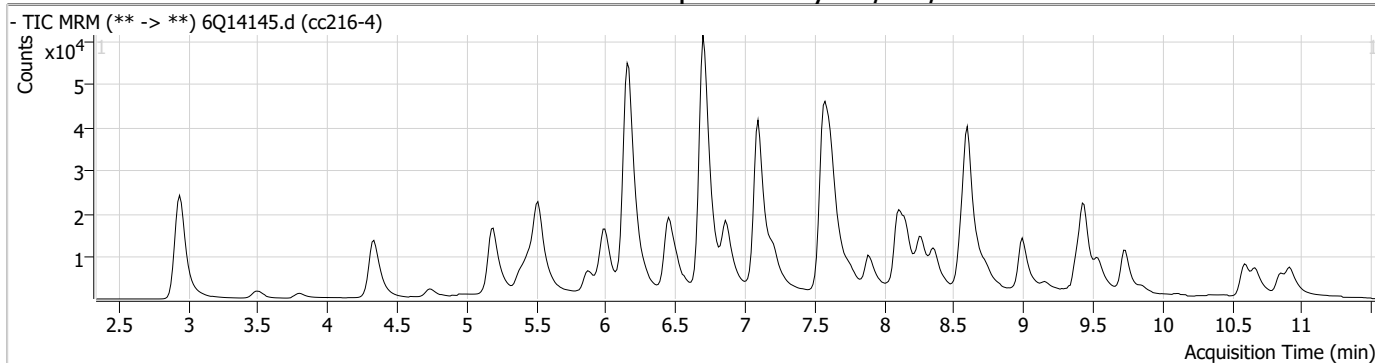
Perfluorinated Compounds by LC/MS/MS

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

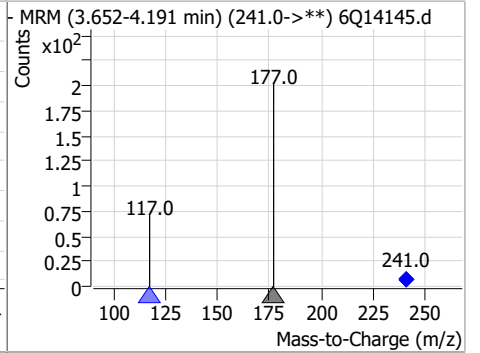
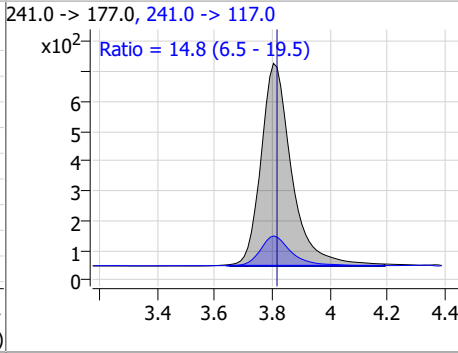
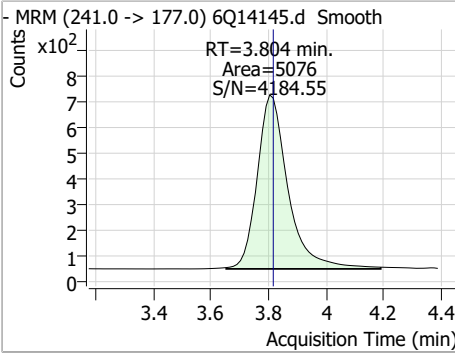
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Perfluorinated Compounds by LC/MS/MS

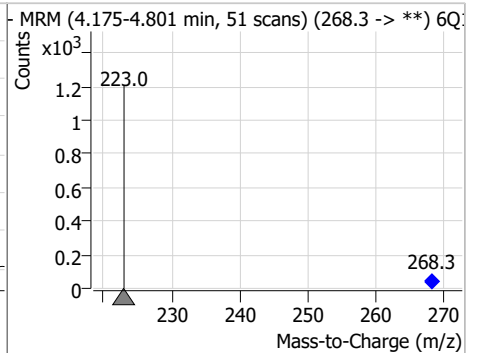
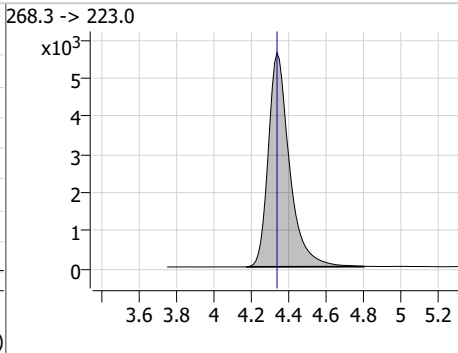
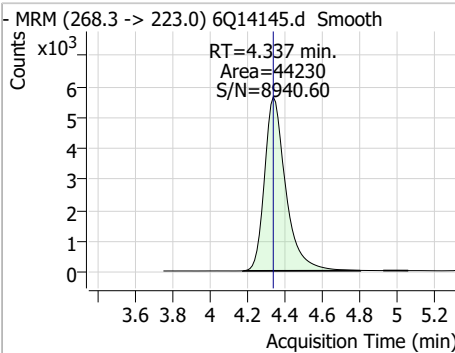


Perfluorinated Compounds by LC/MS/MS

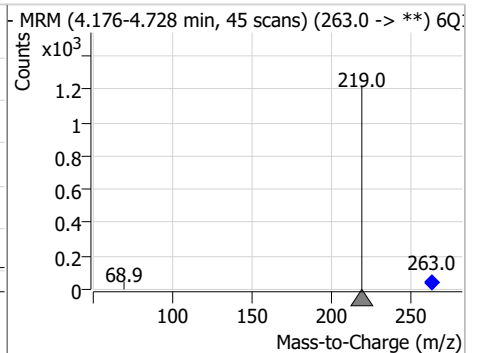
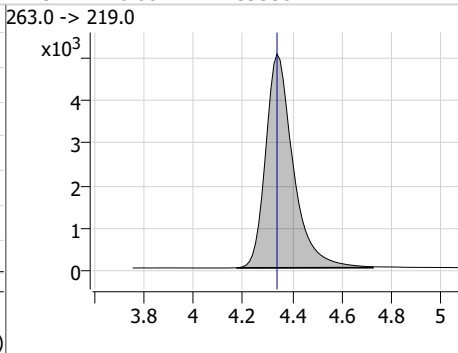
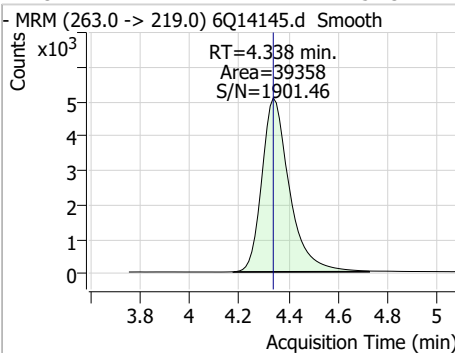
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.84	3.80	-0.01	5076	241.0 -> 117.0	14.8	6.5	19.5



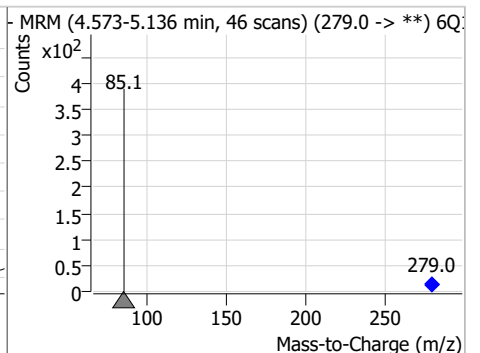
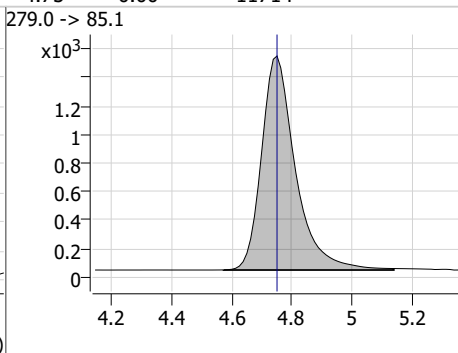
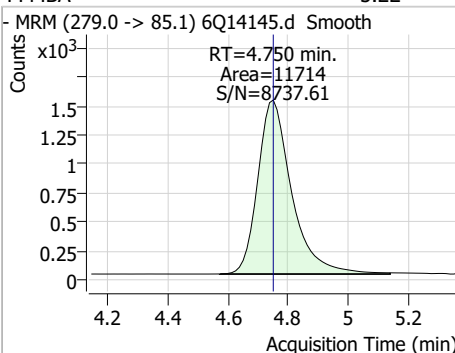
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.76	4.34	0.00	44230				



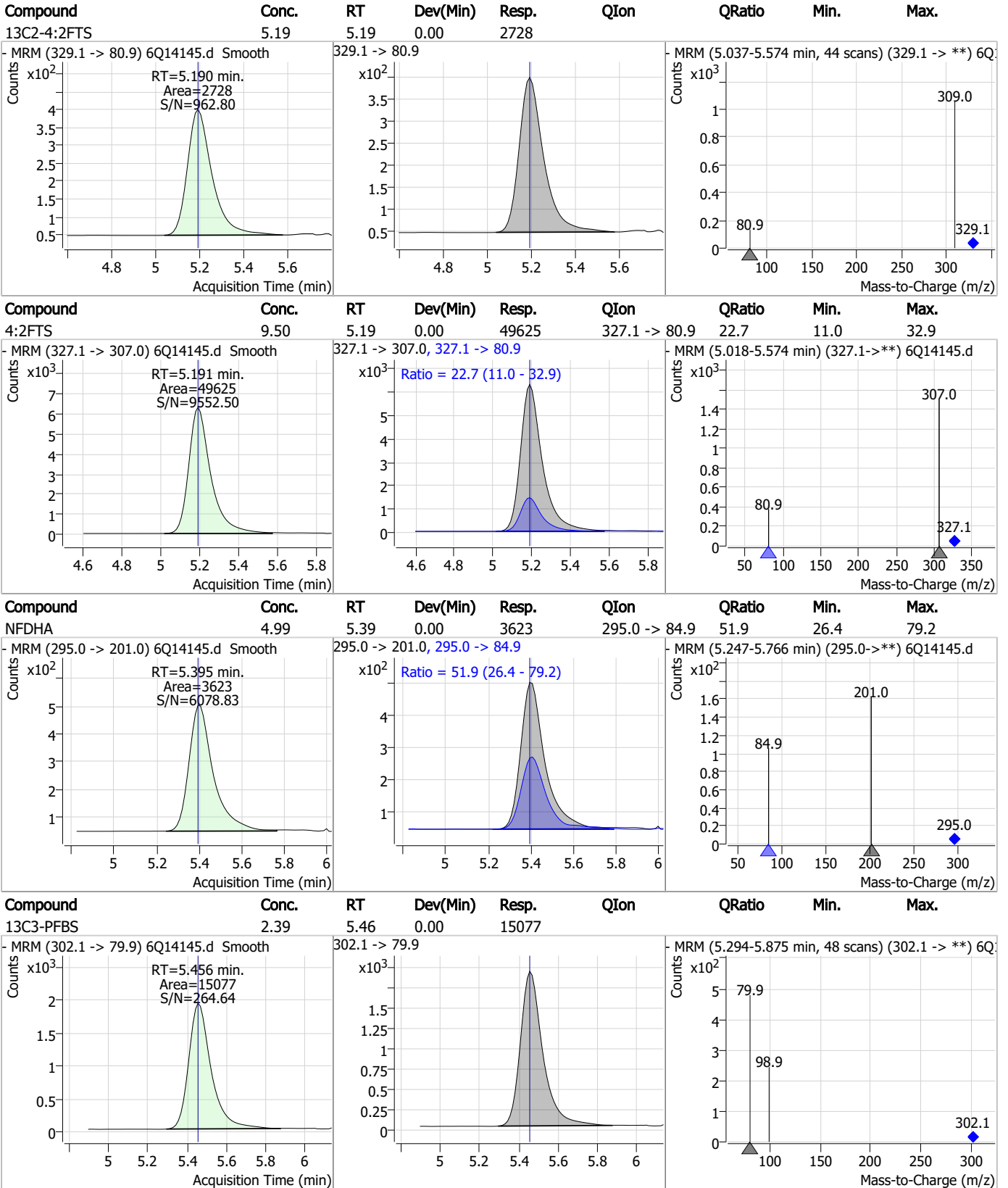
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.13	4.34	0.00	39358				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.22	4.75	0.00	11714				



Perfluorinated Compounds by LC/MS/MS

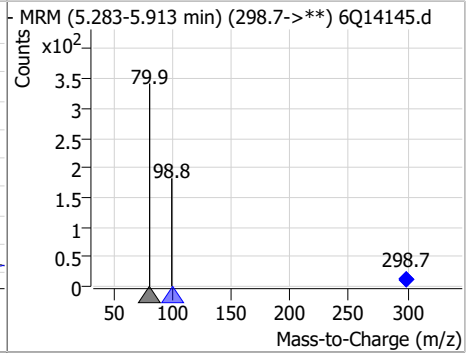
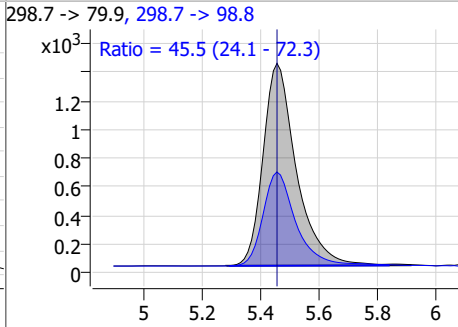
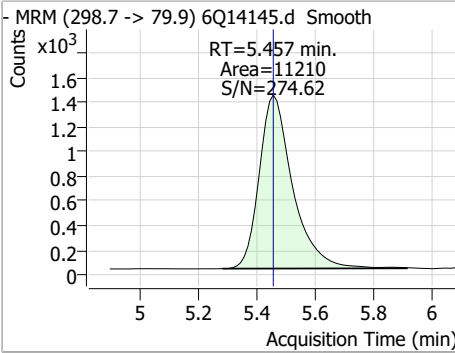


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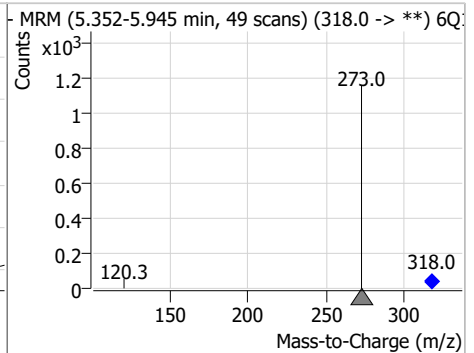
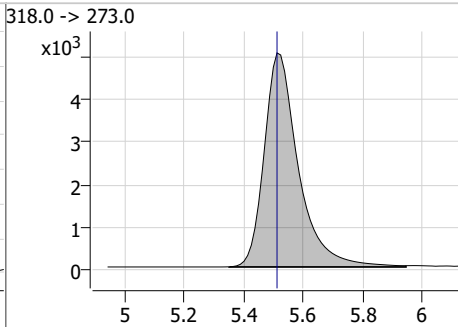
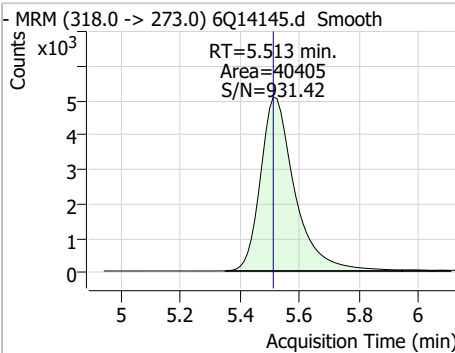


Perfluorinated Compounds by LC/MS/MS

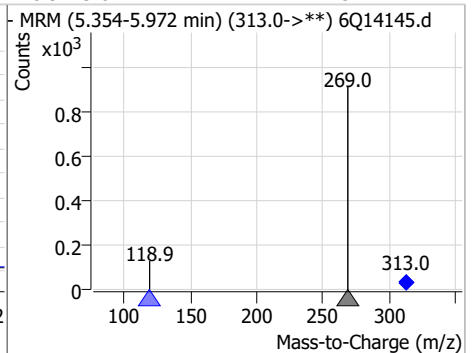
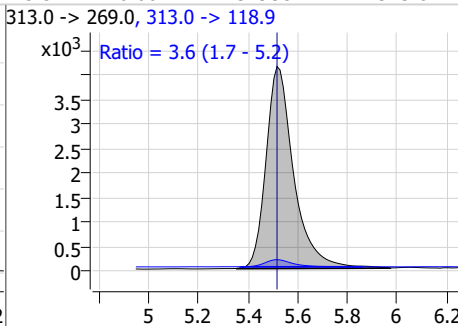
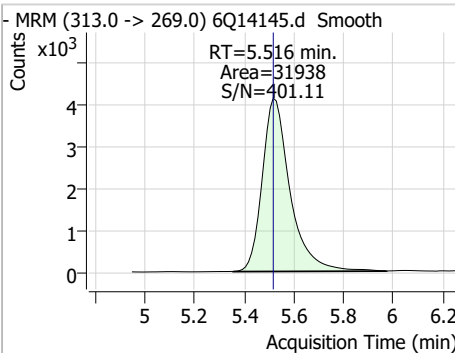
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.30	5.46	0.00	11210	298.7 -> 98.8	45.5	24.1	72.3



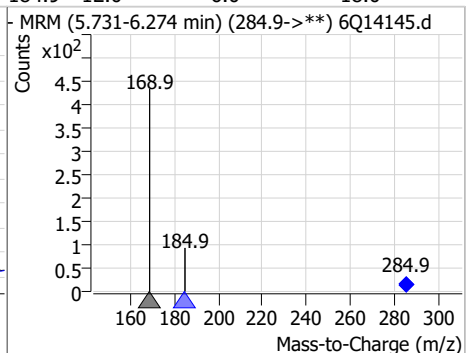
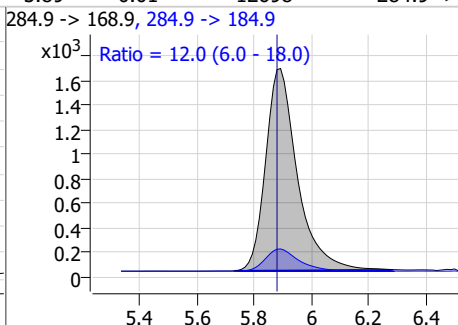
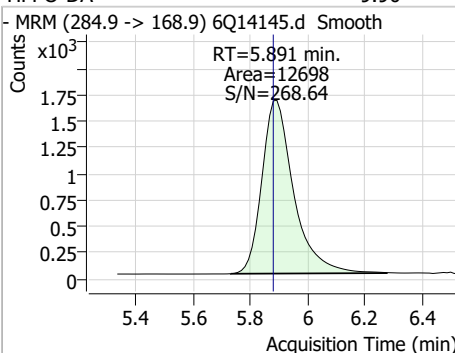
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.51	0.00	40405	318.0 -> 273.0			



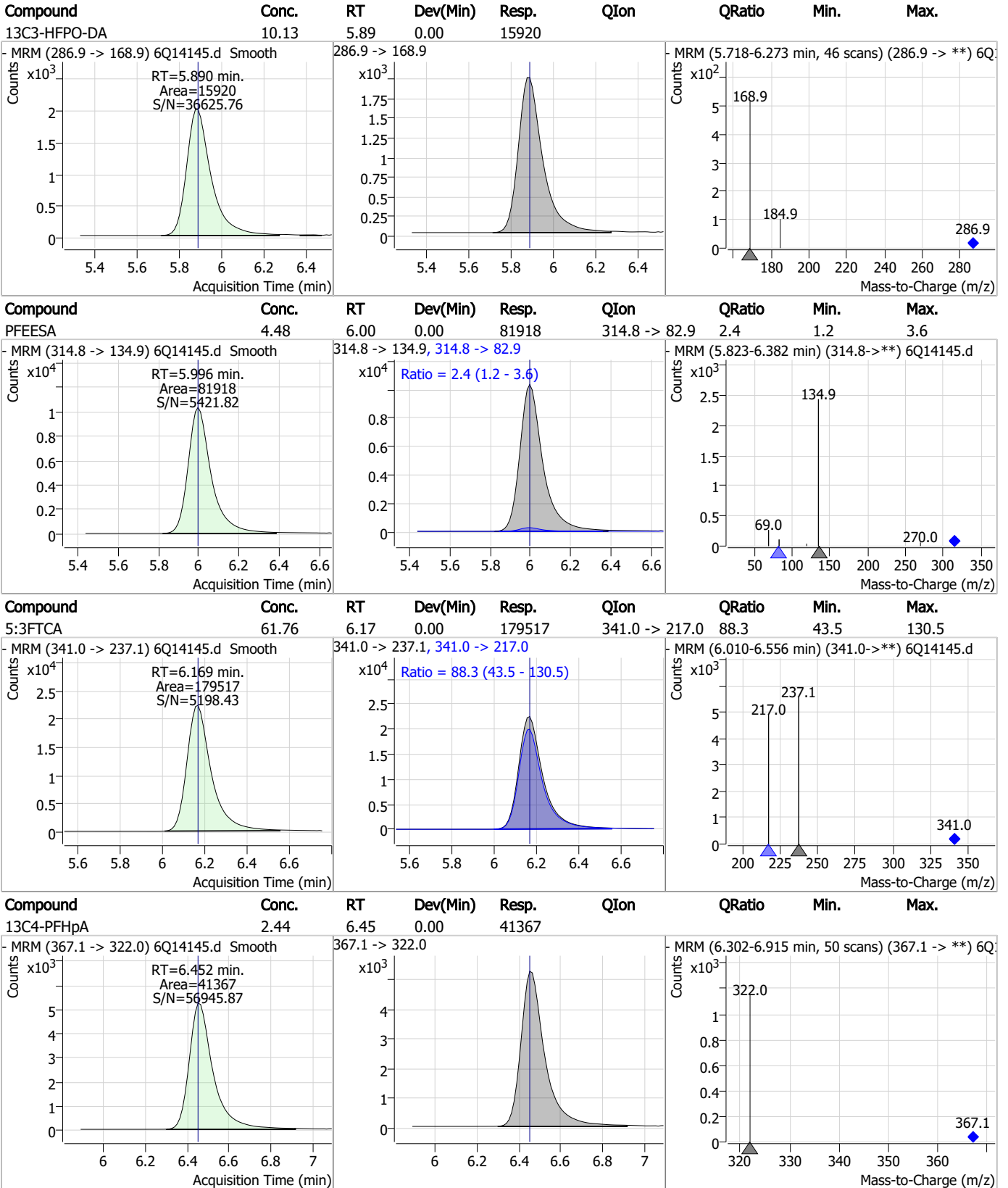
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.42	5.52	0.00	31938	313.0 -> 118.9	3.6	1.7	5.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.90	5.89	0.01	12698	284.9 -> 184.9	12.0	6.0	18.0



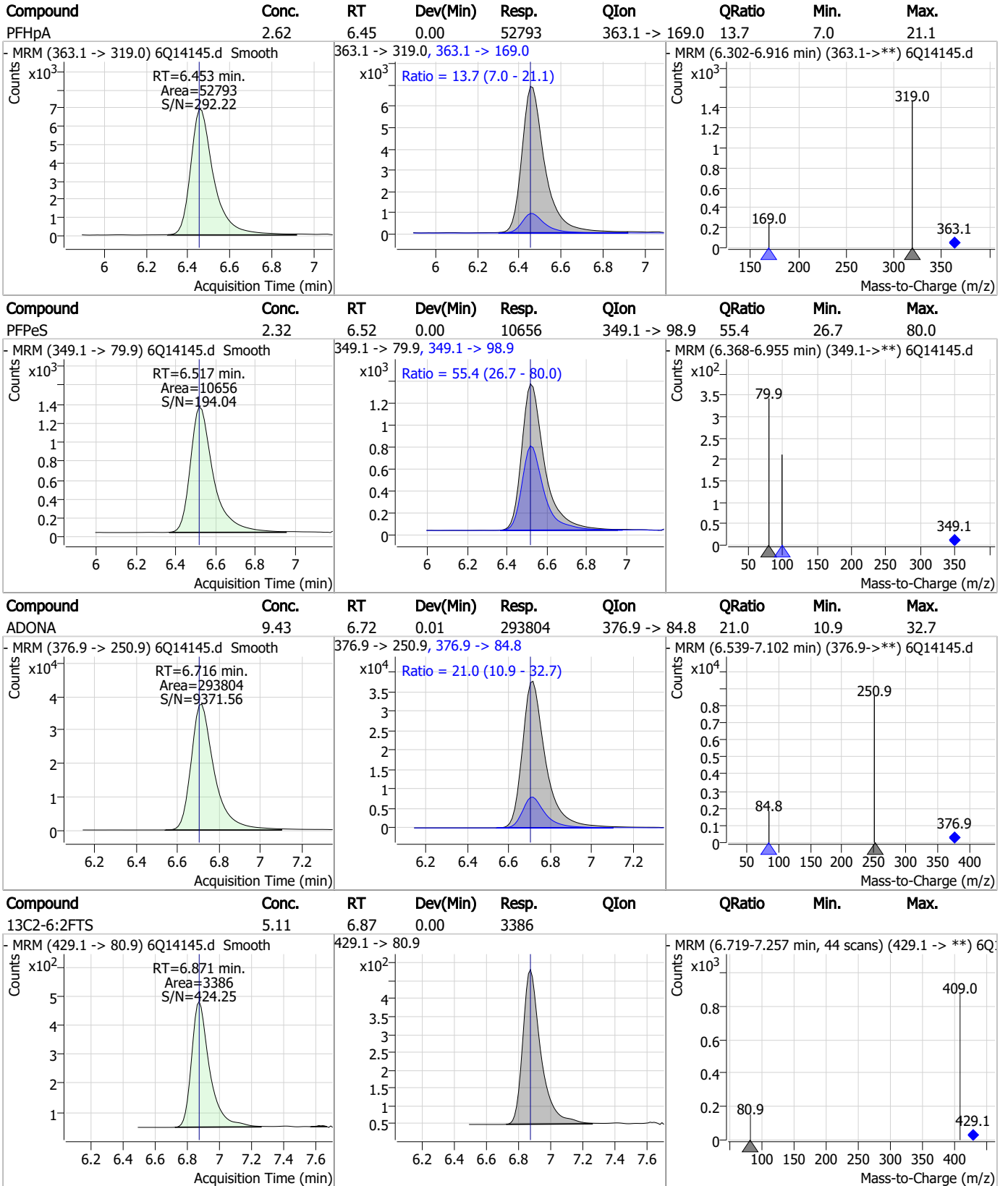
Perfluorinated Compounds by LC/MS/MS



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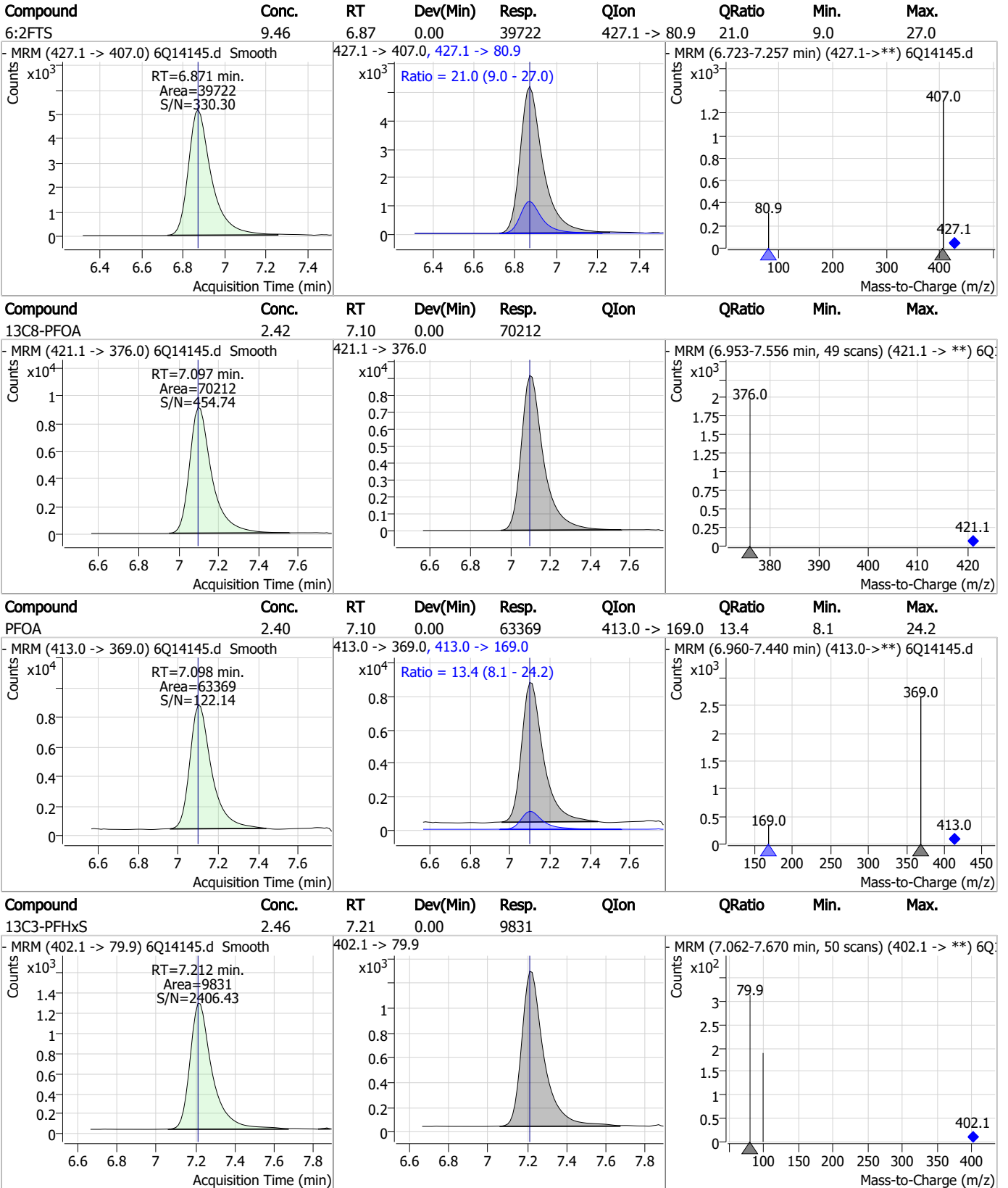
Perfluorinated Compounds by LC/MS/MS



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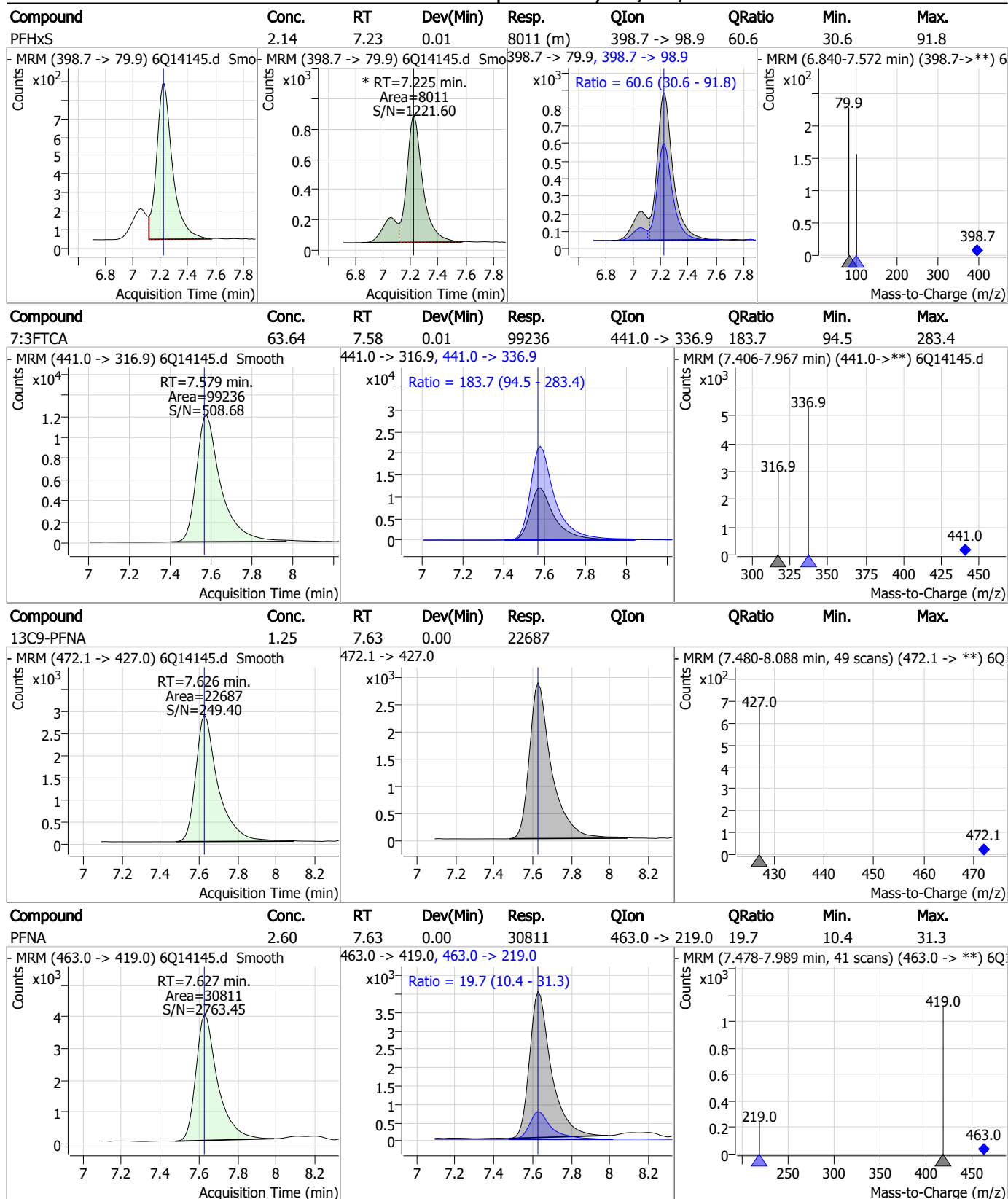
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



7.7.13 7

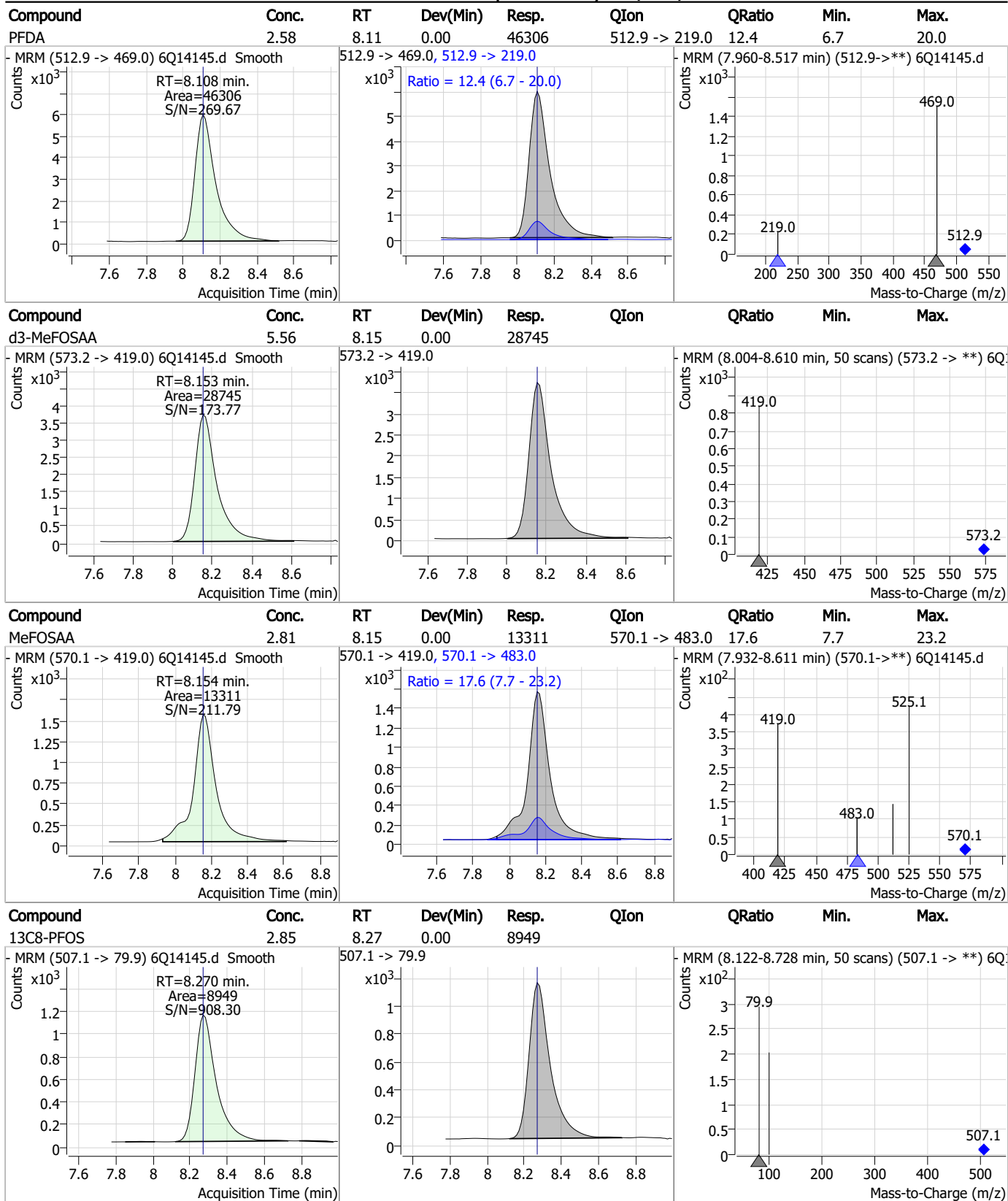
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.31	7.78	0.00	7245	449.0 -> 98.9	59.7	31.7	95.2
13C2-8:2FTS	5.03	7.90	0.00	3151	529.1 -> 80.9			
8:2FTS	10.20	7.90	0.00	21314	527.1 -> 80.8	24.6	12.0	36.1
13C6-PFDA	1.27	8.11	0.00	17932	519.1 -> 474.1			

7.7.13

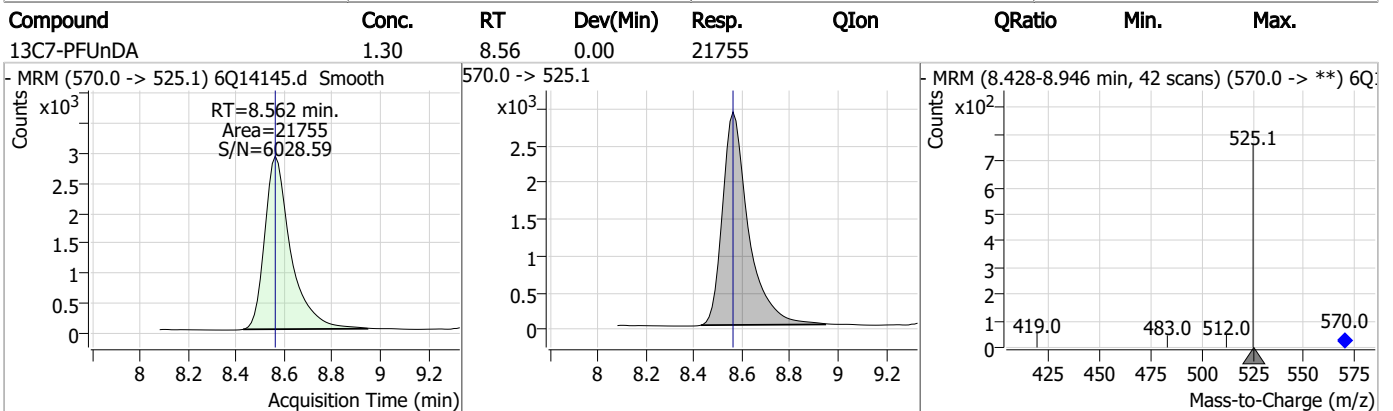
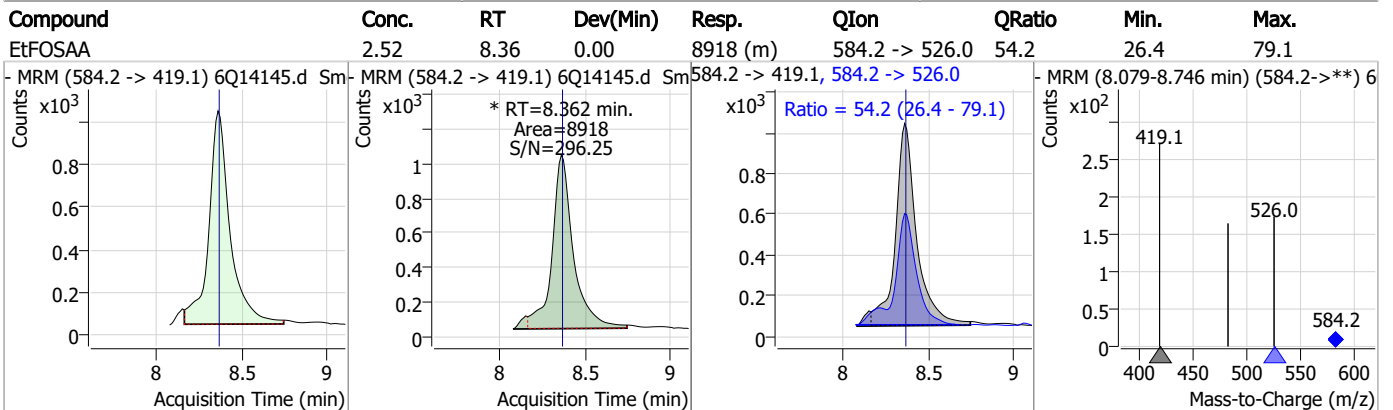
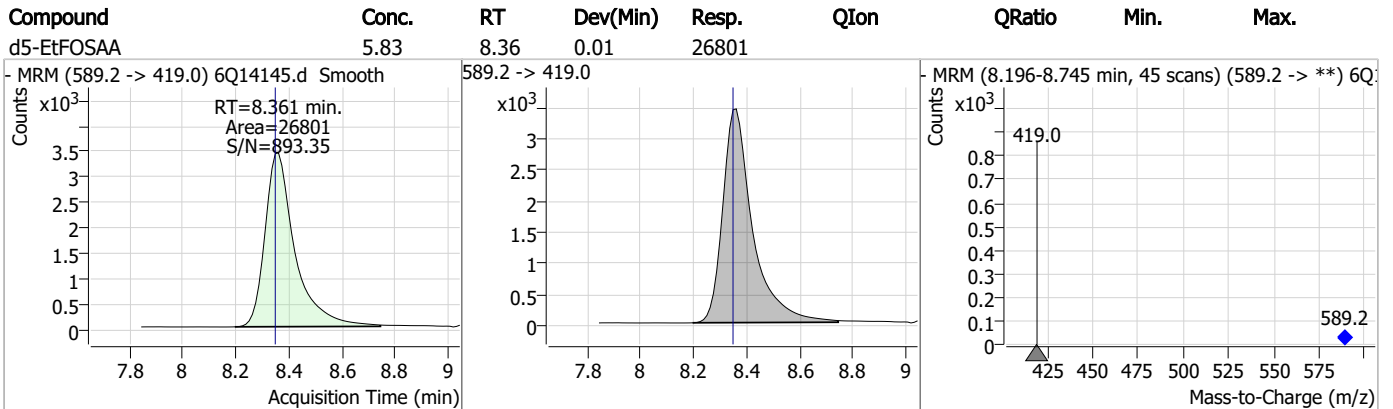
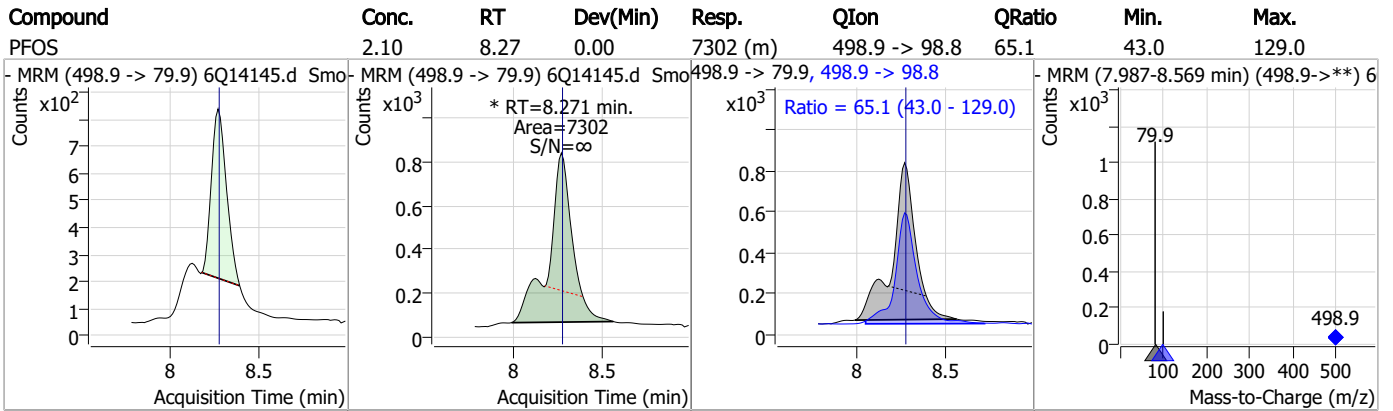
7

Perfluorinated Compounds by LC/MS/MS



7.7.13
7

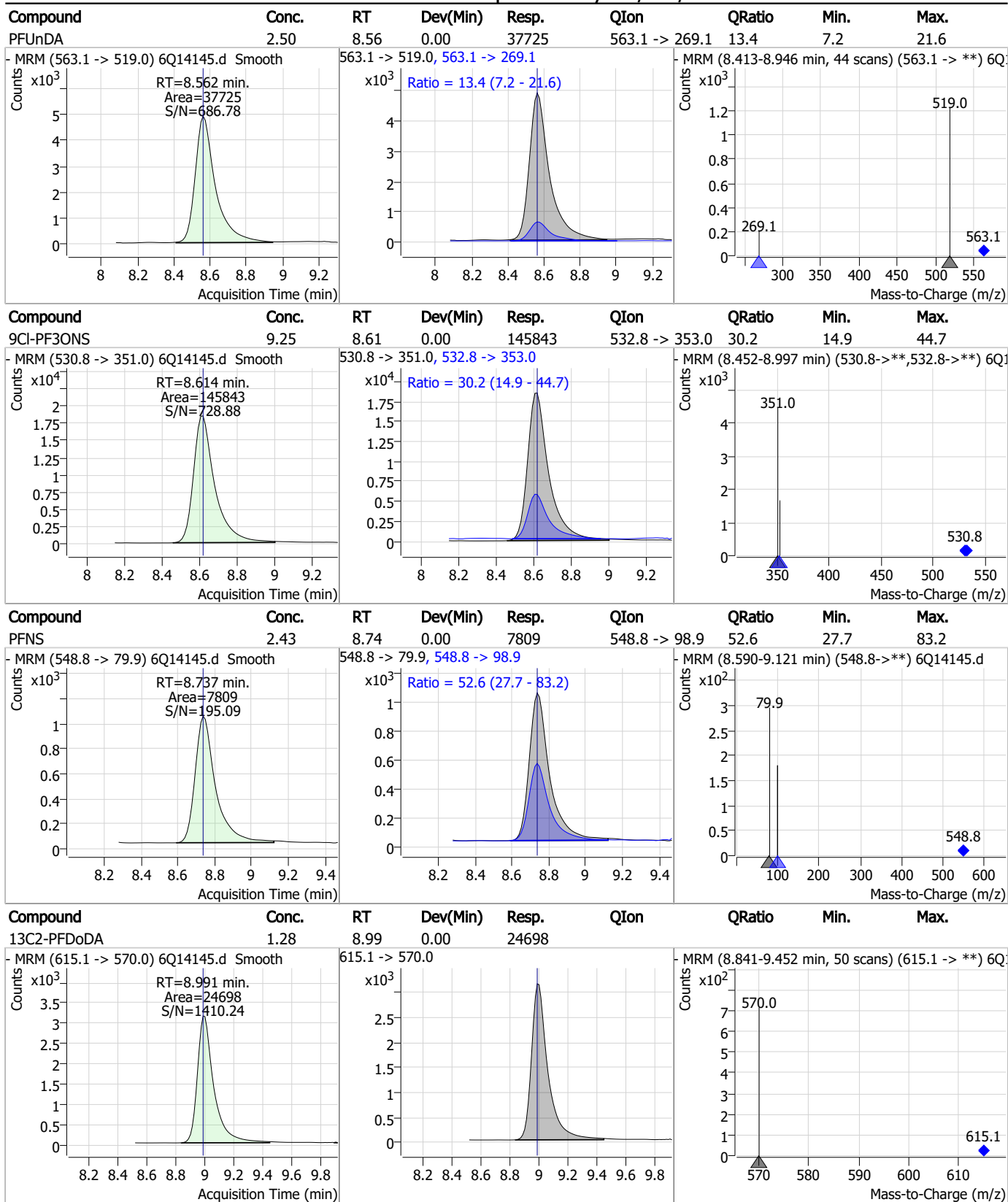
Perfluorinated Compounds by LC/MS/MS



7.7.13
7



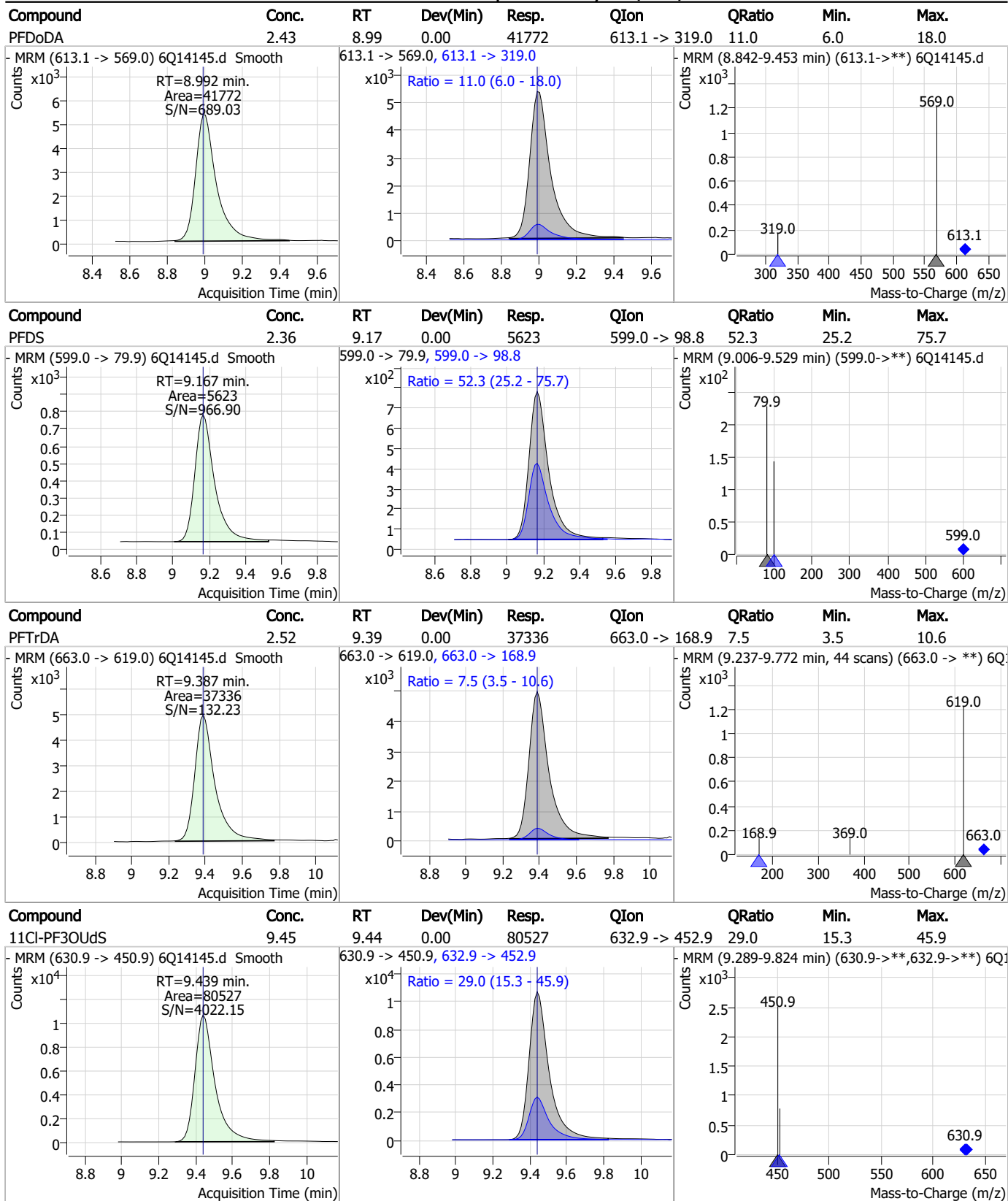
Perfluorinated Compounds by LC/MS/MS



7.7.13

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Perfluorinated Compounds by LC/MS/MS

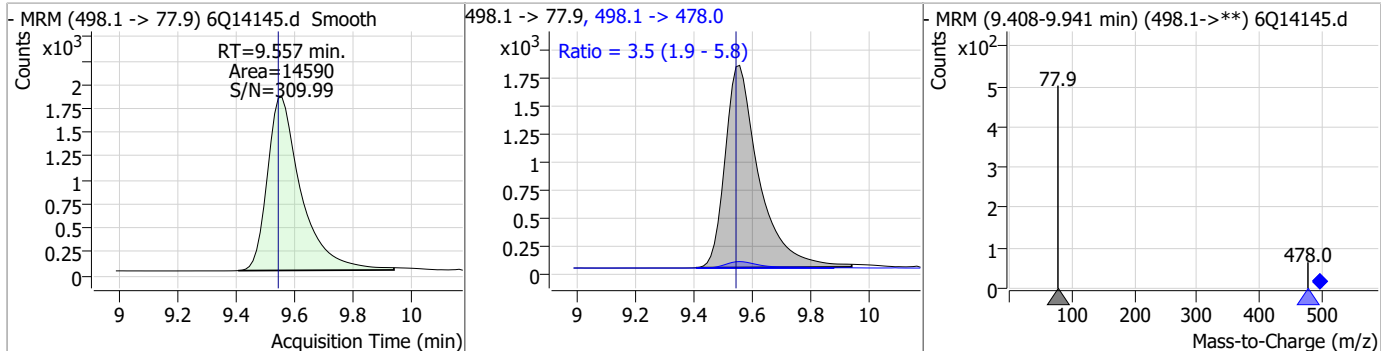


7.7.13
7

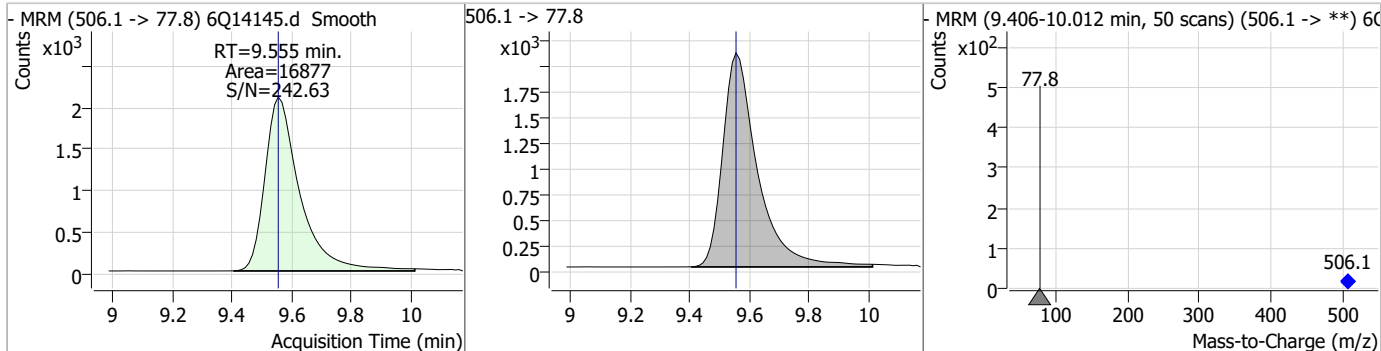


Perfluorinated Compounds by LC/MS/MS

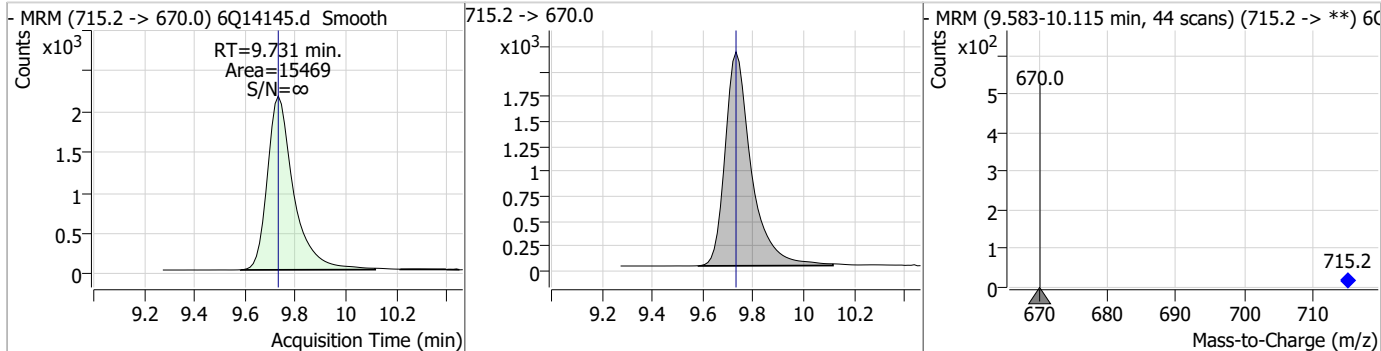
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.53	9.56	0.01	14590	498.1 -> 478.0	3.5	1.9	5.8



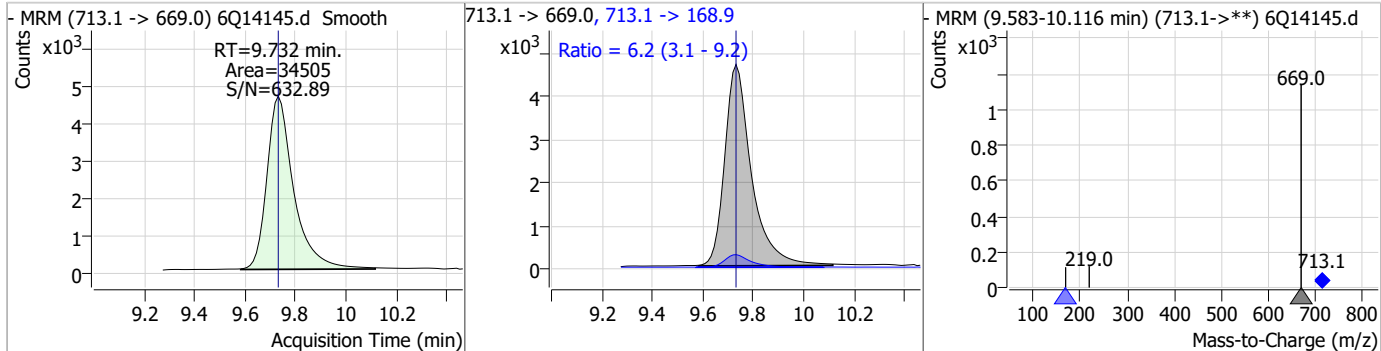
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.72	9.55	0.00	16877				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.37	9.73	0.00	15469				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.40	9.73	0.00	34505	713.1 -> 168.9	6.2	3.1	9.2



7.7.13
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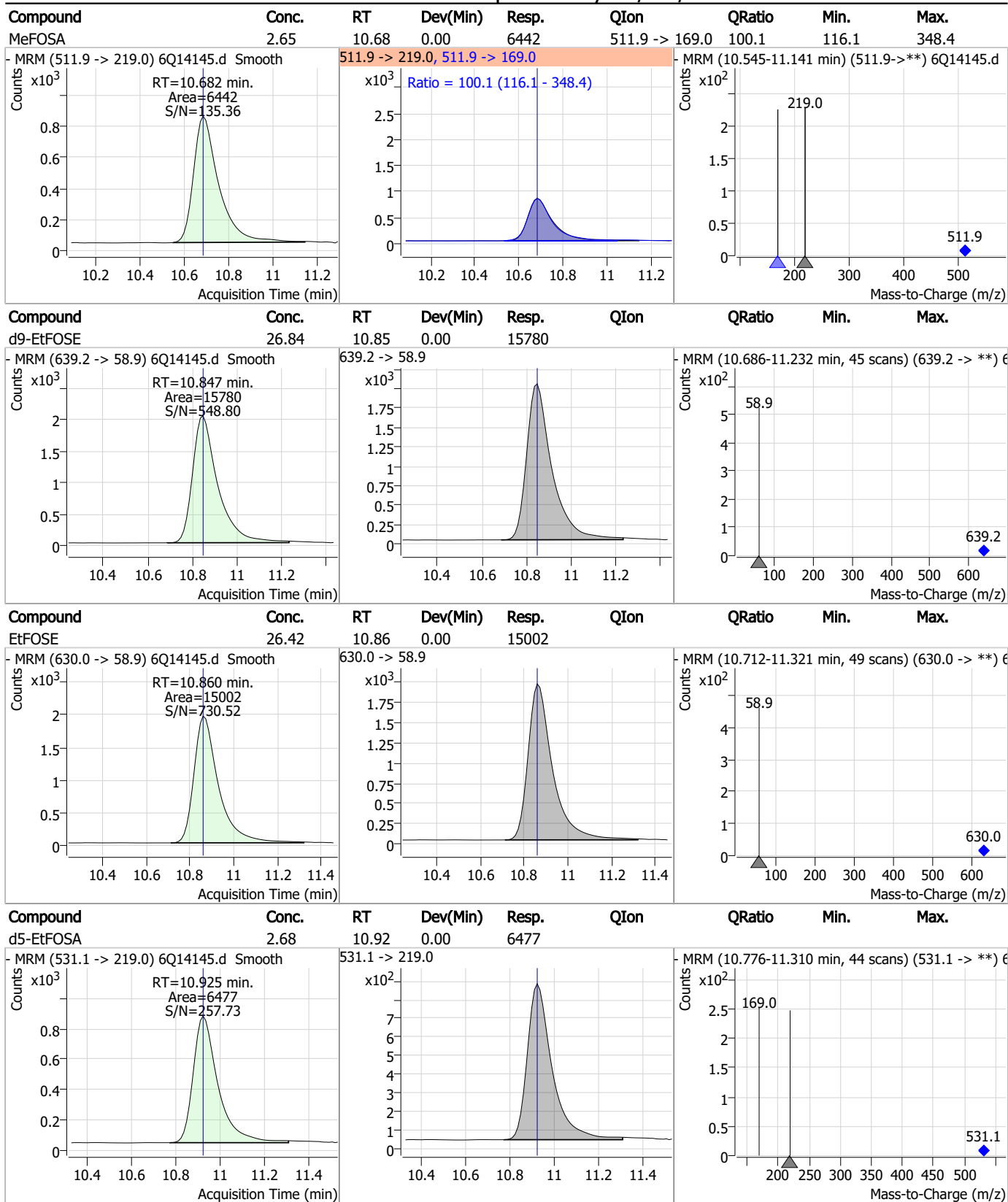
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.50	9.86	0.00	3424	699.1 -> 98.8	57.6	29.4	88.2
- MRM (699.1 -> 79.9) 6Q14145.d Smooth			699.1 -> 79.9, 699.1 -> 98.8			- MRM (9.722-10.243 min) (699.1->**) 6Q14145.d		
d7-MeFOSE	26.98	10.59	0.00	24659				
- MRM (623.2 -> 58.9) 6Q14145.d Smooth			623.2 -> 58.9			- MRM (10.444-10.973 min, 43 scans) (623.2 -> **) 6Q14145.d		
MeFOSE	26.33	10.60	0.00	22130				
- MRM (616.1 -> 58.9) 6Q14145.d Smooth			616.1 -> 58.9			- MRM (10.458-11.061 min, 49 scans) (616.1 -> **) 6Q14145.d		
d3-MeFOSA	2.62	10.68	0.00	5810				
- MRM (515.0 -> 219.0) 6Q14145.d Smooth			515.0 -> 219.0			- MRM (10.532-11.139 min, 50 scans) (515.0 -> **) 6Q14145.d		

7.7.13

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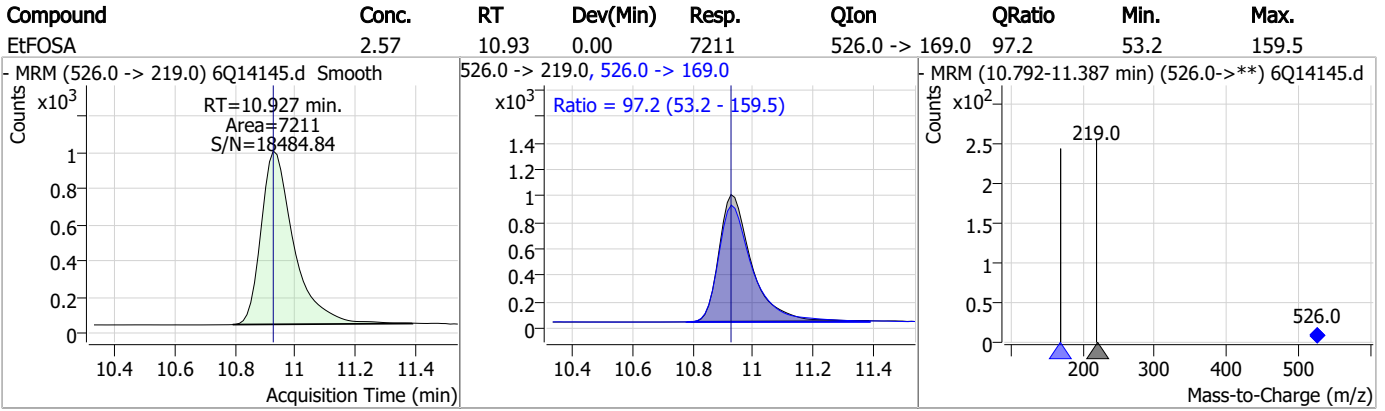
Perfluorinated Compounds by LC/MS/MS



7.7.13

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Perfluorinated Compounds by LC/MS/MS



7.7.13
7



Manual Integration Approval Summary

Sample Number: S6Q216-CC216 Method: EPA DRAFT 1633
Lab FileID: 6Q14145.D Analyst approved: 02/23/23 14:32 Natasha Gumtie
Injection Time: 02/22/23 22:59 Supervisor approved: 02/23/23 16:30 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.36	Split peak

7.7.13.1

7

SGS ORLANDO

DATE:	02/22/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_022223_S6Q216
CAL DATE:	02/22/23
ANALYST:	M. Valls
RUN BATCH:	S6Q216

ELUENT A LOT #:	AGN 220228
ELUENT B LOT #:	LCMS 2057
IC/CC STD LOT #:	LCMS 2073D
ICV STD LOT #:	LCMS 2073D/2071
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q14117.d	P1-A1	CCB	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	✓
2	6Q14118.d	P1-A1	CCB	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	✓
3	6Q14119.d	P1-B3	RT TDCA	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	✓
4	6Q14120.d	P1-B4	RT BR-LN	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	✓
5	6Q14121.d	P1-A1	ic216-0	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	✓
6	6Q14122.d	P1-A2	ic216-1	1633full.m	Calibration	1.6/500	OP95462,S6Q216,500,,,5.0,1,water	✓
7	6Q14123.d	P1-A3	ic216-2	1633full.m	Calibration	4/500	OP95462,S6Q216,500,,,5.0,1,water	✓
8	6Q14124.d	P1-A4	ic216-3	1633full.m	Calibration	10/500	OP95462,S6Q216,500,,,5.0,1,water	✓
9	6Q14125.d	P1-A5	ic216-4	1633full.m	Calibration	20/500	OP95462,S6Q216,500,,,5.0,1,water	✓
10	6Q14126.d	P1-A6	ic216-5	1633full.m	Calibration	40/500	OP95462,S6Q216,500,,,5.0,1,water	✓
11	6Q14127.d	P1-A7	ic216-6	1633full.m	Calibration	100/500	OP95462,S6Q216,500,,,5.0,1,water	✓
12	6Q14128.d	P1-A8	ic216-7	1633full.m	Calibration	200/500	OP95462,S6Q216,500,,,5.0,1,water	✓
13	6Q14129.d	P1-A9	ic216-8	1633full.m	Calibration	1x	OP95462,S6Q216,500,,,5.0,1,water	✓
14	6Q14130.d	P1-A1	IBLK	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	✓
15	6Q14131.d	P1-B1	test	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	not use.
16	6Q14132.d	P1-B2	icv216-20	1633full.m	QC	100/500	OP95462,S6Q216,500,,,5.0,1,water	✓
17	6Q14133.d	P1-A5	cc216-4	1633full.m	QC	20/500	OP95462,S6Q216,500,,,5.0,1,water	✓
18	6Q14134.d	P1-A2	cc216-1,0LL	1633full.m	QC	1.6/500	OP95462,S6Q216,500,,,5.0,1,water	✓
19	6Q14135.d	P6-A1	op95501-bs	1633full.m	Sample		OP95501,S6Q216,500,,,5.0,1,water	✓
20	6Q14136.d	P6-A2	op95501-llbs:3	1633full.m	Sample		OP95501,S6Q216,500,,,5.0,1,water	✓
21	6Q14137.d	P6-A3	op95501-mb	1633full.m	Sample		OP95501,S6Q216,500,,,5.0,1,water	✓
22	6Q14138.d	P6-A4	FC2715-1	1633full.m	Sample		OP95501,S6Q216,540,,,5.0,1,water	✓
23	6Q14139.d	P6-A5	op95501-ms	1633full.m	Sample		OP95501,S6Q216,530,,,5.0,1,water	✓
24	6Q14140.d	P6-A6	FC2715-2	1633full.m	Sample		OP95501,S6Q216,520,,,5.0,1,water	✓
25	6Q14141.d	P6-A7	FC2715-3	1633full.m	Sample		OP95501,S6Q216,540,,,5.0,1,water	✓
26	6Q14142.d	P6-A8	FC2715-4	1633full.m	Sample		OP95501,S6Q216,530,,,5.0,1,water	✓
27	6Q14143.d	P6-A9	op95501-dup	1633full.m	Sample		OP95501,S6Q216,550,,,5.0,1,water	✓
28	6Q14144.d	P6-B1	FC2715-5	1633full.m	Sample		OP95501,S6Q216,530,,,5.0,1,water	✓
29	6Q14145.d	P1-A5	cc216-4	1633full.m	QC	20/500	OP95462,S6Q2165,500,,,5.0,1,water	✓
30	6Q14146.d	P1-A1	iccb	1633full.m	Sample		OP95462,S6Q216,500,,,5.0,1,water	✓
31	6Q14147.d	P6-B2	op95476-bs	1633full.m	Sample		OP95476,S6Q216,500,,,5.0,1,water	✓
32	6Q14148.d	P6-B3	op95476-llbs:2	1633full.m	Sample		OP95476,S6Q216,500,,,5.0,1,water	✓
33	6Q14149.d	P6-B4	op95476-mb	1633full.m	Sample		OP95476,S6Q216,500,,,5.0,1,water	✓
34	6Q14150.d	P6-B5	JD59989-1A	1633full.m	Sample		OP95476,S6Q216,60,,,5.0,1,water	✓
35	6Q14151.d	P6-B6	JD59989-3A	1633full.m	Sample		OP95476,S6Q216,560,,,5.0,1,water	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q14152.d	P6-B7	JD59989-4A	1633full.m	Sample	OP95476,S6Q216,60,,,5.0,1,water	✓
37	6Q14153.d	P6-B8	JD59989-5A	1633full.m	Sample	OP95476,S6Q216,560,,,5.0,1,water	✓
38	6Q14154.d	P6-B9	JD59989-6A	1633full.m	Sample	OP95476,S6Q216,570,,,5.0,1,water	✓
39	6Q14155.d	P6-C1	JD60049-1A	1633full.m	Sample	OP95476,S6Q216,570,,,5.0,1,water	rr 10x d3/d5 high
40	6Q14156.d	P6-C2	JD60049-2A	1633full.m	Sample	OP95476,S6Q216,560,,,5.0,1,water	✓
41	6Q14157.d	P1-A5	cc216-4	1633full.m	QC	OP95462,S6Q216,500,,,5.0,1,water	✓
42	6Q14158.d	P1-A2	cc216-1.0LL	1633full.m	QC	OP95462,S6Q216,500,,,5.0,1,water	✓
43	6Q14159.d	P1-A1	iccb	1633full.m	Sample	OP95462,S6Q216,500,,,5.0,1,water	✓
44	6Q14160.d	P6-C3	JD60049-3A	1633full.m	Sample	OP95476,S6Q216,60,,,5.0,1,water	✓
45	6Q14161.d	P6-C4	JD60049-4A	1633full.m	Sample	OP95476,S6Q216,570,,,5.0,1,water	✓
46	6Q14162.d	P6-C5	op95476-ms	1633full.m	Sample	OP95476,S6Q216,530,,,5.0,1,water	✓
47	6Q14163.d	P6-C6	op95476-msd	1633full.m	Sample	OP95476,S6Q216,570,,,5.0,1,water	✓
48	6Q14164.d	P6-C7	JD60049-5A	1633full.m	Sample	OP95476,S6Q216,60,,,5.0,1,water	✓
49	6Q14165.d	P6-C8	JD60049-6A	1633full.m	Sample	OP95476,S6Q216,60,,,5.0,1,water	✓
50	6Q14166.d	P6-C9	JD60049-7A	1633full.m	Sample	OP95476,S6Q216,570,,,5.0,1,water	✓
51	6Q14167.d	P6-D1	JD60059-21	1633full.m	Sample	OP95476,S6Q216,550,,,5.0,1,water	✓
52	6Q14168.d	P6-D2	JD60059-32	1633full.m	Sample	OP95476,S6Q216,560,,,5.0,1,water	✓
53	6Q14169.d	P6-D3	JD60059-33	1633full.m	Sample	OP95476,S6Q216,570,,,5.0,1,water	✓
54	6Q14170.d	P1-A5	cc216-4	1633full.m	QC	OP95462,S6Q216,500,,,5.0,1,water	✓
55	6Q14171.d	P1-A1	iccb	1633full.m	Sample	OP95462,S6Q216,500,,,5.0,1,water	✓
56	6Q14172.d	P6-D4	op95521-bs	1633full.m	Sample	OP95521,S6Q216,500,,,5.0,1,water	✓
57	6Q14173.d	P6-D5	op95521-llbs:3	1633full.m	Sample	OP95521,S6Q216,500,,,5.0,1,water	✓
58	6Q14174.d	P6-D6	op95521-mb	1633full.m	Sample	OP95521,S6Q216,500,,,5.0,1,water	✓
59	6Q14175.d	P6-D7	FC2521-1	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
60	6Q14176.d	P6-D8	FC2521-2	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
61	6Q14177.d	P6-D9	op95521-ms	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
62	6Q14178.d	P6-E1	op95521-msd	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
63	6Q14179.d	P6-E2	FC2521-3	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
64	6Q14180.d	P6-E3	FC2521-4	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
65	6Q14181.d	P6-E4	FC2521-5	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
66	6Q14182.d	P1-A5	cc216-4	1633full.m	QC	OP95462,S6Q216,500,,,5.0,1,water	✓
67	6Q14183.d	P1-A1	iccb	1633full.m	Sample	OP95462,S6Q216,500,,,5.0,1,water	✓
68	6Q14184.d	P6-E5	FC2521-6	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
69	6Q14185.d	P6-E6	FC2521-7	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
70	6Q14186.d	P6-E7	FC2521-8	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
71	6Q14187.d	P6-E8	FC2521-9	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
72	6Q14188.d	P6-E9	FC2521-10	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
73	6Q14189.d	P6-F1	FC2521-11	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
74	6Q14190.d	P6-F2	FC2521-12	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
75	6Q14191.d	P6-F3	FC2521-13	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
76	6Q14192.d	P6-F4	FC2521-14	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
77	6Q14193.d	P6-F5	FC2521-15	1633full.m	Sample	OP95521,S6Q216,570,,,5.0,1,water	✓
78	6Q14194.d	P1-A5	cc216-4	1633full.m	QC	OP95462,S6Q216,500,,,5.0,1,water	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q14195.d	P1-A1	iccb	1633full.m	Sample	OP95462.S6Q216.500,,,5.0,1,water	✓
80	6Q14196.d	P6-F6	FC2521-16	1633full.m	Sample	OP95521.S6Q216.570,,,5.0,1,water	✓
81	6Q14197.d	P6-F7	FC2521-17	1633full.m	Sample	OP95521.S6Q216.570,,,5.0,1,water	✓
82	6Q14198.d	P1-A5	ecc216-4	1633full.m	QC	OP95462.S6Q216.500,,,5.0,1,water	✓
83	6Q14199.d	P1-A1	iccb	1633full.m	Sample	OP95462.S6Q216.500,,,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 2071	SPiKE Full list std.	11606	PEOA Bod 28	Absolute	11/9/23	2/7/24	1.0ppm	200uL	2.0mL	100ppb	95% MeOH + 5% H ₂ O	2/16/23	3/21/23	MW
		LCMS 1987	400157	SGS std.										
		LCMS 1986	400157											
		LCMS 2012	FOSGA											
LCMS 2072	A-C 1633 (spike) Cal std.	11599	PFAC-MxH	Wellington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	42.5 125 250ppb	1633 mix	2/20/23	8/20/23	NV
		11491	PFAC-MxI											
		11600	PFAC-MxI											
		11621A	PFAC-MxI											
		11637B	PFAC-MxI											
		11489	PFAC-MxG											
		11602	PFAC-MxG											
		11618B	PFAC-MxJ											
LCMS 2073A-D	1633 spikc Cal std.	11599	PFAC-MxH	Wellington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	42.5 125 250ppb	1633 mix	2/22/23	8/22/23	NV
		11638	PFAC-MxH											
		11600	PFAC-MxI											
		11639	PFAC-MxI											
		11627B	PFAC-MxI											
		11640A,B	PFAC-MxI											
		11602	PFAC-MxG											
		11641	PFAC-MxG											
		11618B	PFAC-MxJ											
		11628A	PFAC-MxJ											

* based on date opened as specified in each SGS - Orlando SOP.

NG 02/23/23



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 2071	SPiKe Full list std.	116006	PF04 BOD 28 Ceram.	456016	11/9/27	2/7/24	1.0ppm	200uL	2.0mL	100ppb	9576 grech + Storch	2/16/23	3/21/23	NW
		LCMS 1987	4001st Add on #2	SGS std.	—	—	1.0ppm	200uL	—	—	—	—	—	—
		LCMS 1986	FOSE std.	—	—	—	5.0ppm	200uL	—	—	—	—	—	—
		LCMS 2012	Wellington	—	—	—	1-11 ppm	250uL	4mL	42.5 ppb	1633 mix	2/20/23	8/20/23	NV
LCMS 2072	A-C 1633 (old std.)	11599	PFAC-MxH	Wellington	8/8/27	2/7/24	1-10 ppm	250uL	—	250ppb	—	—	—	—
		11491	PFAC-MxI	—	9/14/26	2/7/24	1-10 ppm	250uL	—	625ppb	—	—	—	—
		11600	PFAC-MxI	—	9/14/26	2/20/24	1-10 ppm	250uL	—	625ppb	—	—	—	—
		11637A	PFAC-MxI	—	1/11/25	2/7/24	2.0ppm	500uL	—	250ppb	—	—	—	—
		11637B	PFAC-MxI	—	1/11/25	2/20/24	2.0ppm	500uL	—	250ppb	—	—	—	—
		11489	PFAC-MxS	—	2/22/27	2/7/24	2.0ppm	250uL	—	125ppb	—	—	—	—
		11602	PFAC-MxS	—	12/1/27	2/20/24	2.0ppm	250uL	—	125ppb	—	—	—	—
		11618B	PFAC-MxJ	—	9/14/26	2/7/24	4-20 ppm	312uL	—	312/1100 ppb	—	—	—	—

* 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 1987	40 List Std ADD-ON #1	10736A	10:3 PFS	Wallington Labs	03/03/23	03/03/23	50ppm	80uL	4.0mL	1ppm	95/1104 S/1170	10/18/22	03/21/23	NG
		10840	PFDOS		07/01/26	10/18/23								
		10829	N-HENOSA		08/03/26	08/23/23								
		10837	N-ETHOSA		08/03/26	08/23/23								
		10842	PTHADA		05/20/26	10/18/23								
		10841	PEODA		05/01/26	10/18/23								
		10844	3:3FPCA PFPFA		11/12/25	03/21/23								
		10654	5:3FPCA PFPFA		11/12/25	08/23/23								
		10834	7:3FPCA FHPFA		11/12/25	03/21/23								
		11117	PFECHS		10/14/26	06/23/23								
		10723	PFEESA		05/13/25	10/18/23								
		10735	PFAOA		03/21/25	10/18/23								
		10744	PFNPA		03/21/25	03/21/23								
		10768	PFHDA 3:6OPFA		03/21/25	10/18/23								

10/18/22

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819 * 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 1985A/B	List 40 ADD-ON EXPENSIVE	11333	D7-N- METOSE	Wellington Labs	01/27/27	10/12/23	50ppm	200uL	20mL	1/5 ppm	95/ANCOH	10/18/22	01/18/23	NS
↓	↓	11339	D4-N- ETROSE	↓	01/27/27	10/12/23	↓	200uL	↓	↓	↓	↓	↓	NS
↓	↓	11115	MA- PHTOM	↓	11/23/28	08/12/23	↓	40uL	↓	↓	↓	↓	↓	NS
↓	↓	10836	D-N- ETROSA	↓	12/20/25	08/12/23	↓	40uL	↓	↓	↓	↓	↓	NS
LCMS 1986	40 List Std. ADD-ON #2	11224	PSA-1	Wellington Labs	11/10/26	06/12/23	50ppm	80uL	4.0mL	1ppm	95/ANCOH S/1420	10/18/22	01/18/23	NS
↓	↓	11225	PKSA-1	↓	12/20/26	06/12/23	50ppm	80uL	↓	↓	↓	↓	↓	NS
↓	↓	11140	L-PTS	↓	01/12/26	05/26/23	50ppm	80uL	↓	↓	↓	↓	↓	NS
NS Site 18/22														

* 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 A 2009 &	PFC SPIKE	11483	PROA-D00 (SAMSUNG)	Wellington Labs	08/05/27	11/08/23	1.0 ppm	2 mL	5 mL	400 ppb	951/1807 S/1/420	11/08/22	05/10/23	NS
		10839	N-HE-ROSA-M		08/23/26	09/12/23	500 ppm	40 uL						NS
		11294	ROSA-1		11/10/26	06/12/23								NS
		11249	FLXSA-1		12/22/26	11/23/23								NS
		11332	PFCCHS		03/28/27	10/18/23								NS
LCMS A-B 2010	(SPIKE) 1033 CAL. STD.	10855F	PFAC-NX4	Wellington Labs	09/14/26	11/04/23	1-H ppm	250 uL	4 mL	42.5/125/250 ppb	1033	11/09/22	05/10/23	NS
		10853E	PFAC-NX1		09/14/26	11/04/23	1-H ppm	250 uL		12.5/125 ppb				NS
		10856I	PFAC-NXF		05/10/23	05/10/23	2 ppm	500 uL		250 ppb				NS
		10854E	PFAC-NXG		03/10/23	11/04/23	2 ppm	250 uL		125 ppb				NS
		10857D	PFAC-NXJ		10/12/23	11/08/23	4-20 ppm	32 uL		24/11/60 ppb				NS
LCMS 2011	(SPIKE) Full List Std.	11410	PROA-D00 (SAMSUNG)	Absolute	08/05/27	10/24/23	1.0 ppm	400 uL	4 mL	100 ppb	951/1807 S/1/420	11/10/22	02/10/23	NS
		1085	NO LIST					400 uL		100 ppb				NS
		1087	ADD-011			02/12/23	1.0 ppm	400 uL		100 ppb				NS
		1085	NO LIST			01/18/23	1.0 ppm	400 uL		100 ppb				NS
		1086	ADD-012			05/11/23	500 ppm	400 uL		500 ppb				NS
LCMS 2012	FOSE STD.	11336	N-HE-ROSA	Wellington Labs	05/13/27	09/19/23	500 ppm	200 uL	2.0 mL	5 ppm	951/1807 S/1/420	11/10/22	05/11/23	NS
		11338	N-HE-ROSA		05/13/27	09/19/23	500 ppm	200 uL		5 ppm				NS

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

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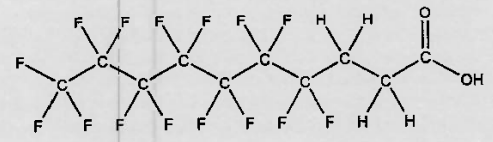
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: C₁₀H₉F₁₅O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12
SOLVENT(S): Methanol

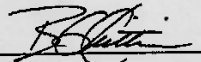
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By: 
B.G. Chittim, General Manager

Date: 11/27/2020
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPrPA

LOT NUMBER:

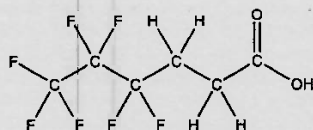
FPrPA1020

COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:**CAS #:**

356-02-5

**MOLECULAR FORMULA:** $C_6H_5F_7O_2$ **MOLECULAR WEIGHT:**

242.09

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **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.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_8H_5F_7O_2$) as an impurity determined by ^{19}F NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

FPePA1120

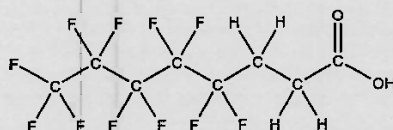
COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:

CAS #:

914637-49-3



MOLECULAR FORMULA:

C₈H₅F₁₁O₂

MOLECULAR WEIGHT:

342.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

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.
- Contains <1% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) as an impurity determined by ¹⁹F NMR.

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Certified By:

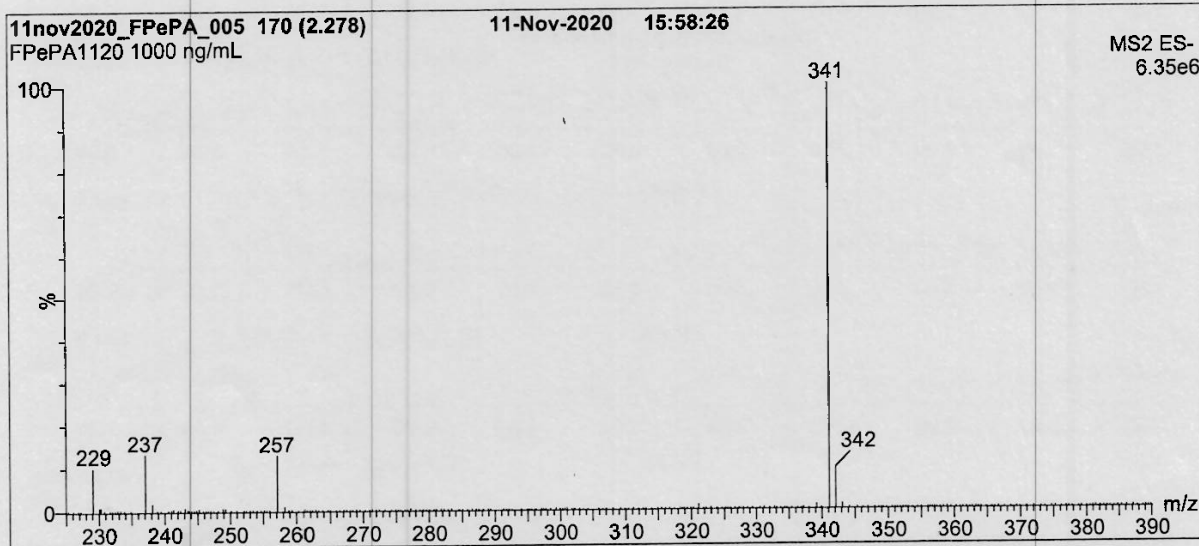
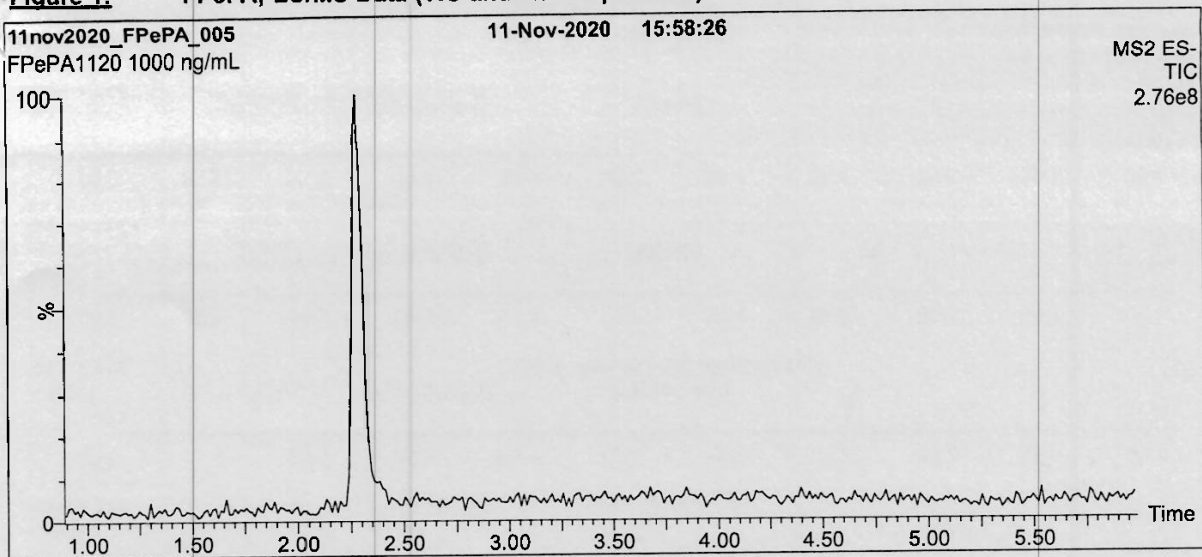
B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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Figure 1: FPePA; 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 RP_{1a}
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) = 18.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

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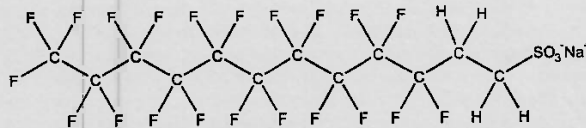


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CERTIFICATE OF ANALYSIS DOCUMENTATION

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

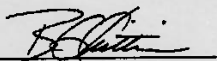
DOCUMENTATION/ DATA ATTACHED:

- 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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

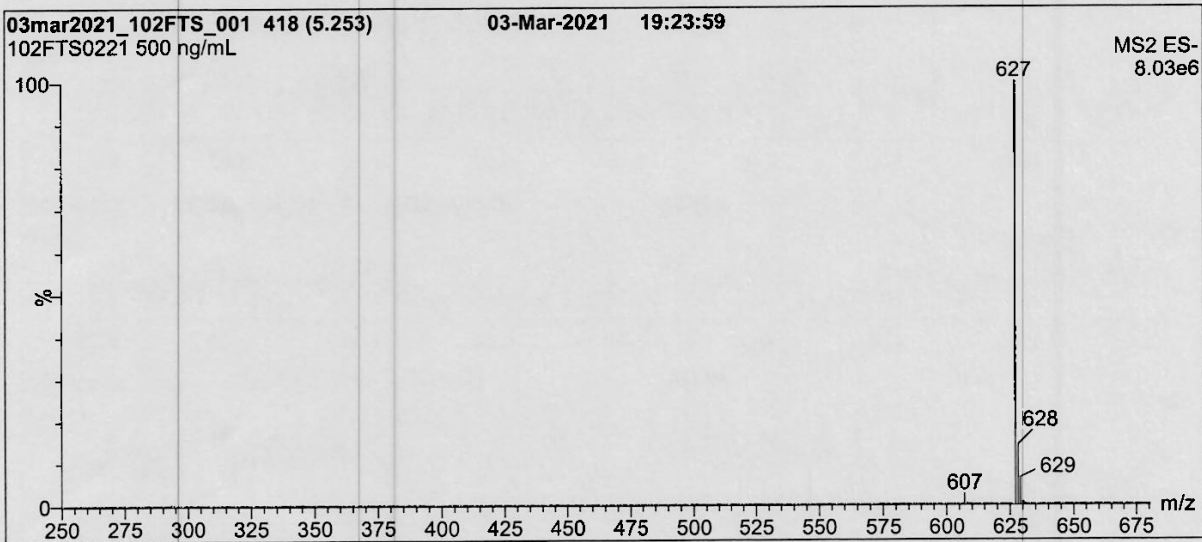
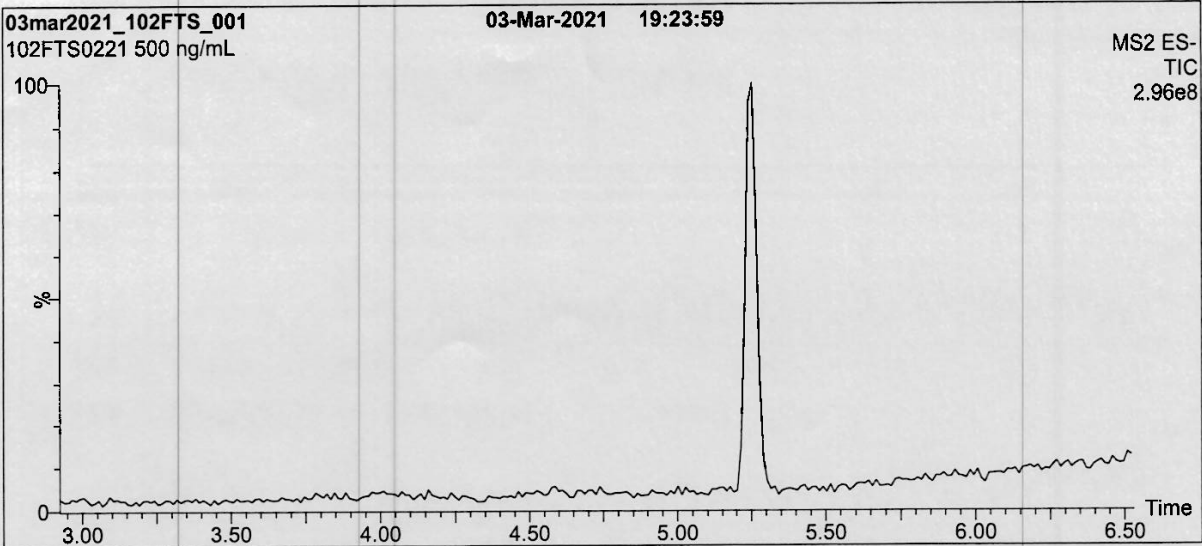
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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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

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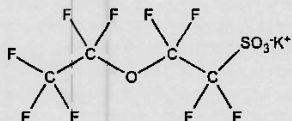
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CERTIFICATE OF ANALYSIS DOCUMENTATION

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 **MOLECULAR WEIGHT:** 354.19

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

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

DOCUMENTATION/ DATA ATTACHED:

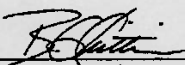
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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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 Revision#:7, Revised 2020-01-09

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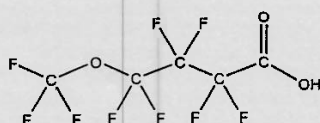
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

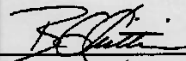
DOCUMENTATION/ DATA ATTACHED:

- 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: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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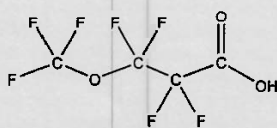
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

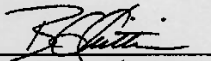
DOCUMENTATION/ DATA ATTACHED:

- 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: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)
rev1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

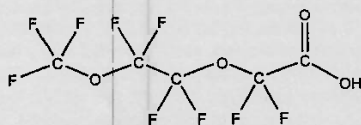
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10829



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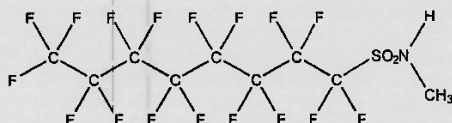
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

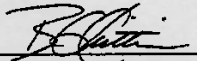
DOCUMENTATION/ DATA ATTACHED:

- 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.

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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Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

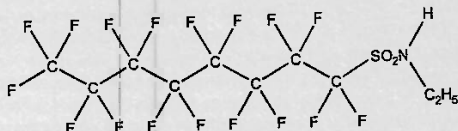
10837

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.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021
(mm/dd/yyyy)

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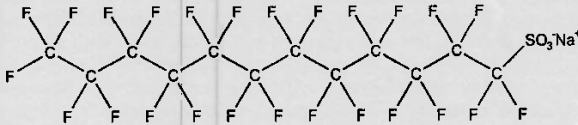
10840

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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LPFDoS0721 (1 of 4)
rev0

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10847 NS 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

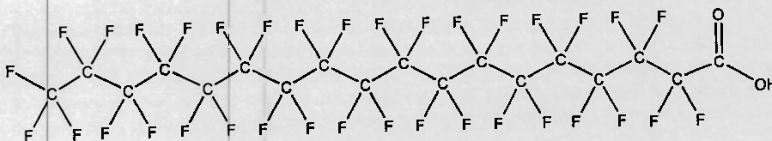
COMPOUND:

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 ampoules 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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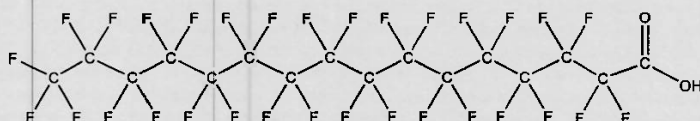


10842 * NG 01/18/23

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

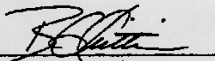
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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1117



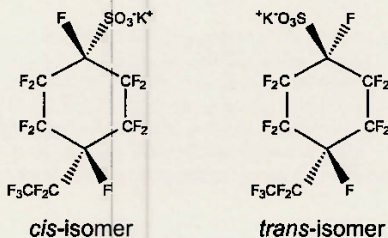
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CERTIFICATE OF ANALYSIS DOCUMENTATION

7.9.1
7

PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021
COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



MOLECULAR FORMULA: C₈F₁₆SO₃K **MOLECULAR WEIGHT:** 500.22
CONCENTRATION: 50.0 ± 2.5 µg/mL (K salt) **SOLVENT(S):** Methanol
 46.2 ± 2.3 µg/mL (PFECHS acid)
 46.1 ± 2.3 µg/mL (PFECHS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/14/2021
EXPIRY DATE: (mm/dd/yyyy) 10/14/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

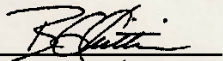
DOCUMENTATION/ DATA ATTACHED:

- 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 a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 10/15/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFECHS1021 (1 of 4)
 rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

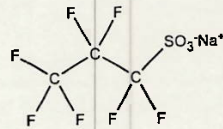
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

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.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

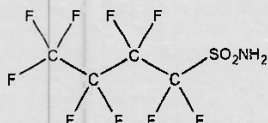
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11224


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 DOCUMENTATION

PRODUCT CODE: FBSA-I **LOT NUMBER:** FBSA11211
COMPOUND: Perfluoro-1-butananesulfonamide
STRUCTURE: **CAS #:** 30334-69-1



MOLECULAR FORMULA: C₄H₂F₉NO₂S **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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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11225



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PRODUCT CODE:

FHxSA-I

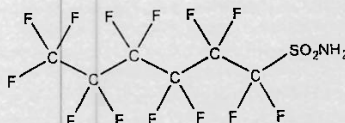
LOT NUMBER: FHxSA12211

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



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)

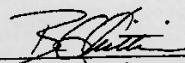
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

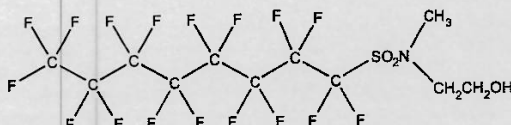
NMeFOSE0522M

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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11383 A-J



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-HIF-ES

**Mass-Labelled PFAS Extraction
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES0822
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/20/2022
LAST TESTED: (mm/dd/yyyy) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic 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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Table A: MPFAC-HIF-ES; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

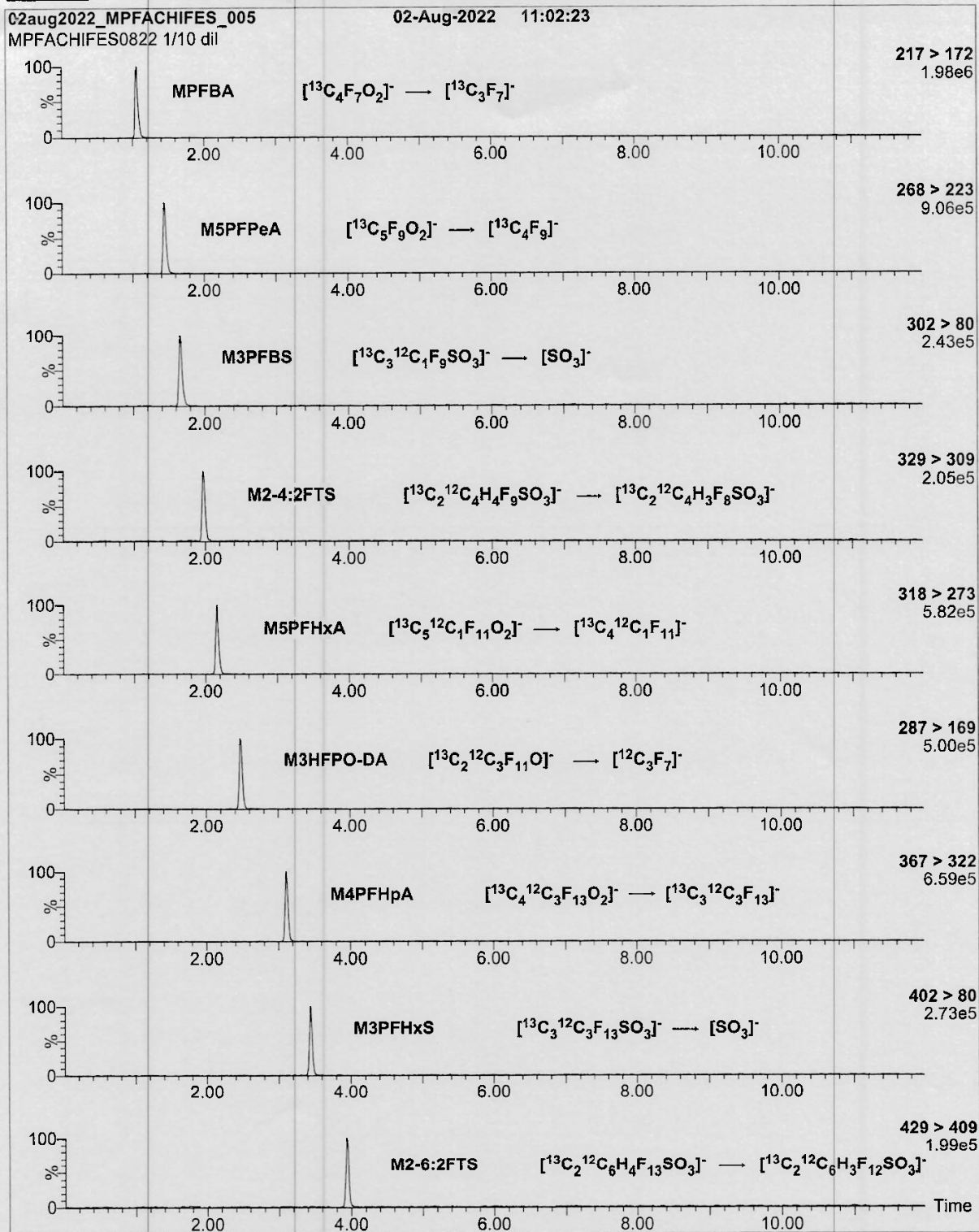
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₇)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		17
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		23
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		18
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 ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		22
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: 08/02/2022
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



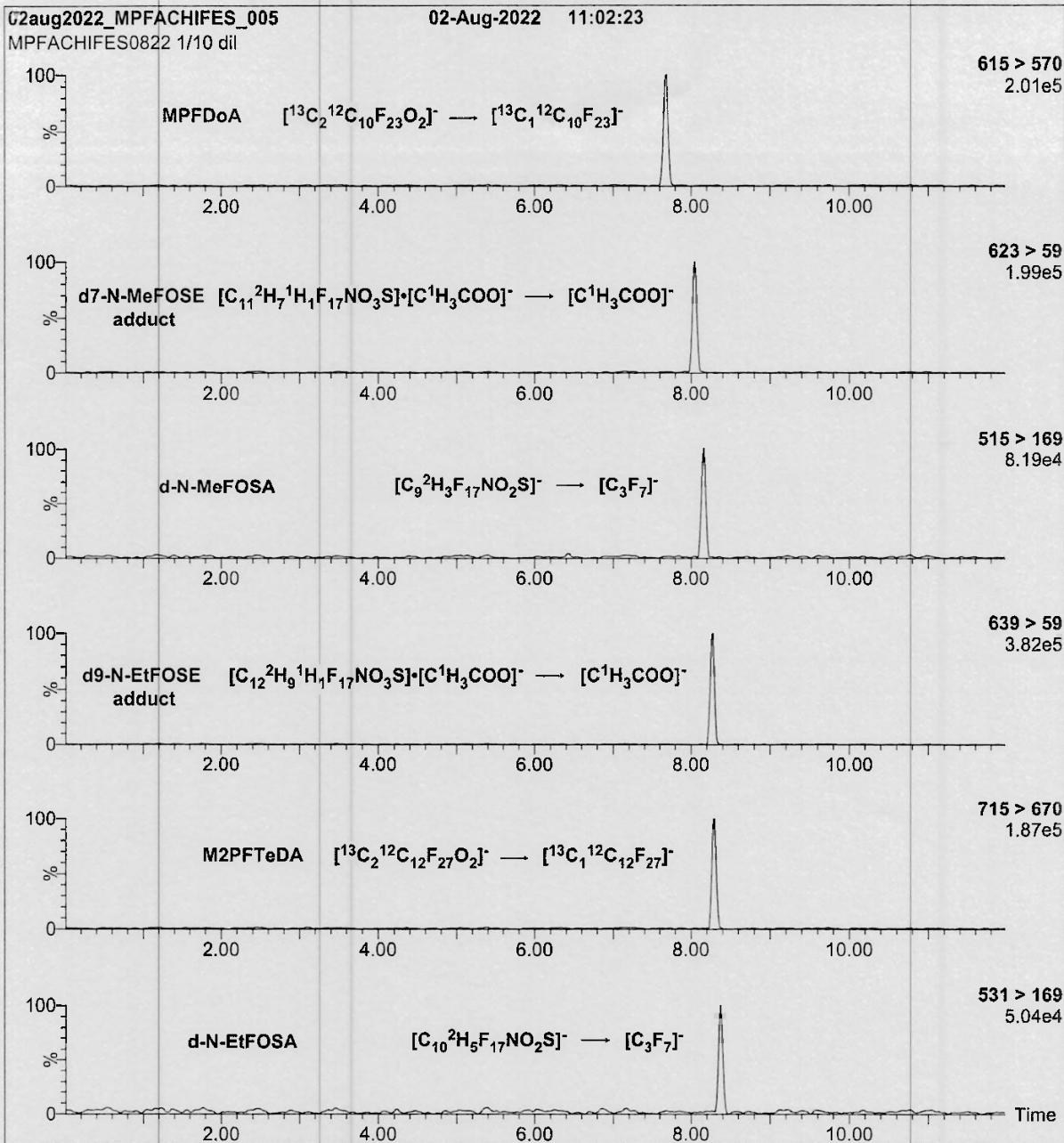
Form# 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

MPFACHIFES0822 (5 of 7)
rev0

7.9.1

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Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-ES)
 Mobile phase: Same as Figure 1
 Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.24e-3
 Collision Energy (eV) = 4-64 (variable)

11384 A-J



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled Perfluoroalkyl Substance
Injection Standard Solution/Mixture

<u>PRODUCT CODE:</u>	MPFAC-HIF-IS
<u>LOT NUMBER:</u>	MPFACHIFIS0921
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/07/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/07/2026
<u>RECOMMENDED STORAGE:</u>	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 (C₈ and C₉). 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

MPFACHIFIS0921 (1 of 5)
rev1


7.9.1

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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

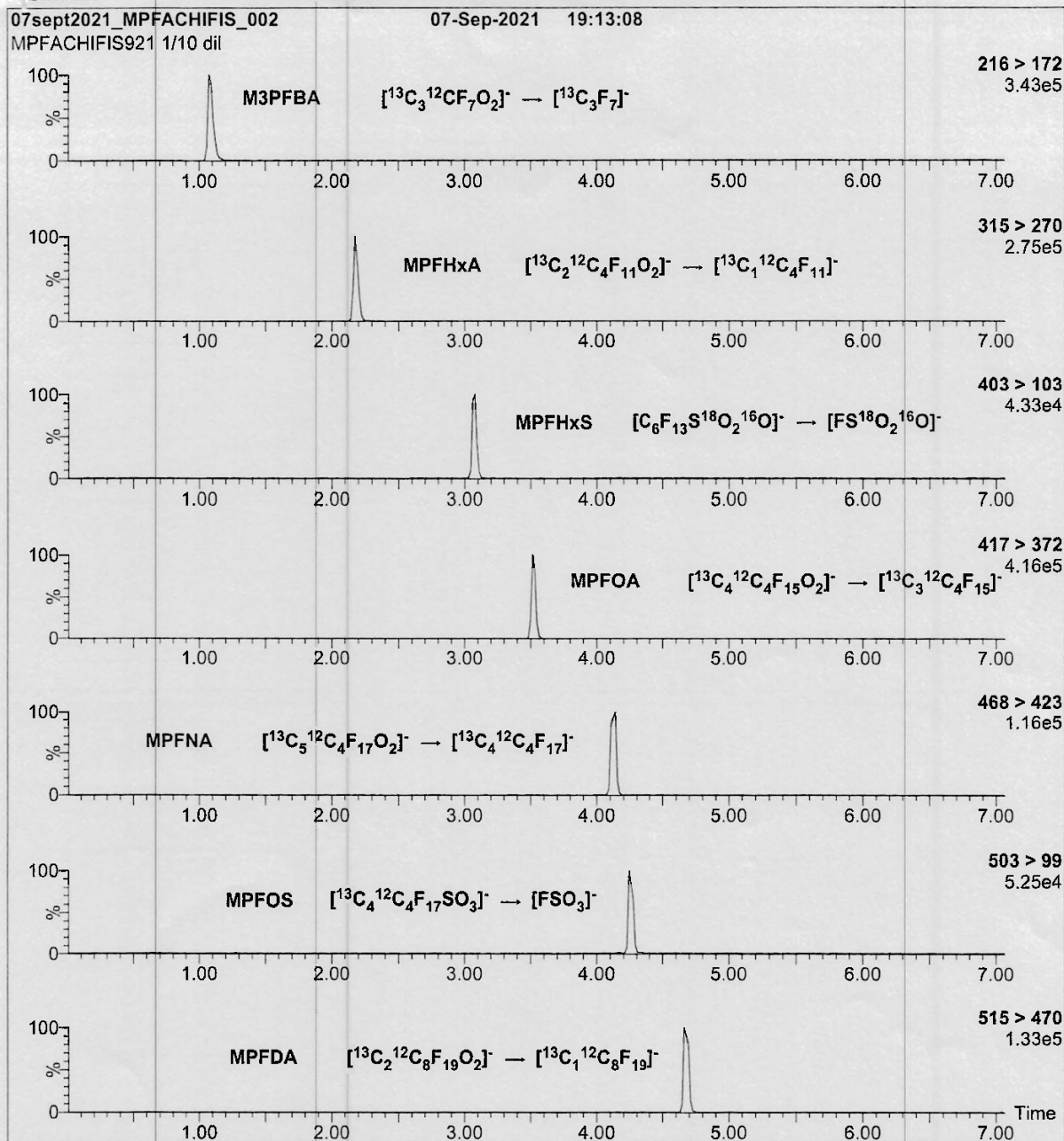
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	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: 
 B.G. Chittim, General Manager

Date: 10/13/2021
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-IS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-IS)
 Mobile phase: Same as Figure 1
 Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.18e-3
 Collision Energy (eV) = 4-64 (variable)

11599
rec'd 01/10/23



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, C₉, 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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PFACMXH0822 (1 of 11)
rev0

7.9.1

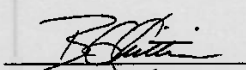
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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

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-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	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-perfluorodecanesulfonate	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)

11600
rec'd 01/10/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

Native Perfluorooctanesulfonamide and Perfluorooctanesulfonamidoethanol Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<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-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). 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
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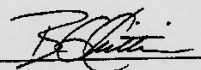
PFACMXI0921 (1 of 5)
rev0

7.9.1

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Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By: 
 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

Form# 13, Issued 2004-11-10
 Revision# 9, Revised 2020-12-23

11602
rec'd 01/10/23



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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Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

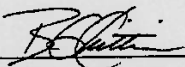
PFACMXG1122 (1 of 5)
revD

7.9.1
7

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)



116060 rec'd: 01/13/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110927**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **GUTB**

Solvent(s): **Methanol (1 mM KOH)**
2-Propanol

Lot# **102722 (98%)**
32500 (2%)

SE-05 Balance Uncertainty
0.012 Peak Uncertainty

Formulated By: <i>Prashant Chauhan</i>	110922
Prashant Chauhan	DATE
Reviewed By: <i>Pedro L. Rantas</i>	110922
Pedro L. Rantas	DATE

Volume(s) shown below were combined and diluted to: **100.0**
Note: All assigned values are amine 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)	LOSO
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	ip-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	ori-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 (PFTriDA)	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. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (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	27619-67-2	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	39108-34-4	N/A	N/A
25. 2-(heptafluoropropyl)-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-oxaundecane-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-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.6	1.00	0.05	756426-58-1	N/A	N/A
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	ip-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	ip-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	5.3	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 References: Taylor, B.N. and Kaye, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11618 A-B rec'd 01/19/23



**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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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

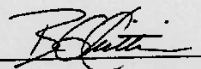
PFACMXJ0921 (1 of 5)
rev1

7.9.1
7

Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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)

11627 A-B
rec'd 01/26/23



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-dioxanonanoate (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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PFACMXF0122 (1 of 5)
rev0

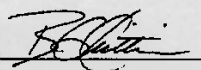
7.9.1
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

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-dioxanonanoate	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)

11628 A-B
rec'd 01/26/23



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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Form# 13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23


PFACMXJ0921 (1 of 5)
rev1

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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
(m/m/dd/yyyy)

11638
rec'd 02/06/23



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 ampoules

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, 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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Revision#: 9, Revised 2020-12-23

PFACMXH0822 (1 of 11)
rev0

7.9.1
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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 *	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid *	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 perfluorohexanesulfonate *	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate *	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-PFDcS	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

* See Table B for percent composition of linear and branched N-MeFOSAA isomers.

* See Table C for percent composition of linear and branched N-EtFOSAA isomers.

* See Table D for percent composition of linear and branched PFHxSK isomers.

* 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)

11639
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<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-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). 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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Revision#: 9, Revised 2020-12-23

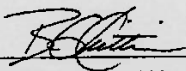
PFACMXI0921 (1 of 5)
rev0

7.9.1
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Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By:


 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

11640 A-B
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0122
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 01/10/2022
LAST TESTED: (mm/dd/yyyy) 01/11/2022
EXPIRY DATE: (mm/dd/yyyy) 01/11/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-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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PFACMXF0122 (1 of 5)
rev0

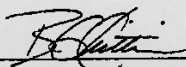
7.9.1
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

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-dioxanonanoate	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. Chitrim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11641
rec'd: 02/06/23



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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PFACMXG1122 (1 of 5)
rev0

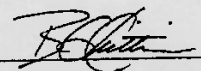
7.9.1
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; \pm 5% in methanol/water (<1%))

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)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 02/16/23 09:00
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 2/20/23 14:47
Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP95501 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 95501 MB		500	7	N/A	25				
OP 95501 BS		500				200	5	AG	
OP 95501 LLBS		500				80			
FC2715-1	2	540							
	2	520							
	3	540							
	4	530							
	5	530	7	N/A	25		5	AG	
OPFC2715-1 MS	3	530	7	N/A	25	200	5	AG	
OP MSD									
OPFC2715-4 DUP	3	550	7	N/A	25		5	AG	

Comments:

EIS (SURR) ID: 11630E-H Conc: 250-500 ng/ml Exp. Date: 02/13/24 Inj. By: GH Ver. By: AG
 SPIKE.1 ID: LCMS20626 Conc: VARIED Exp. Date: 08/07/23 Inj. By: GH Ver. By: AG
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11637A-C Conc: 250-1000 ng/ml Exp. Date: 2/20/24 Inj. By: ES Ver. By: AG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 221028 1% NH4OH MeOH PE277 SPE Lot # 0664244-03
 Water Lot# OP95448 0.3M Formic Acid PE269 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PE275 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: Matthias Du Heudon
 Accepted By: MW

Date: 02/16/23
 Date: 2/20/23

7.10.1
7