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## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC10326**

**Sampling Date: 10/06/23**



### Report to:

**AECOM, Inc**  
**7595 Technology Way**  
**Denver, CO 80237**  
**katie.abbott@aecom.com; mark.kromis@aecom.com;**  
**watson.tanji@aecom.com; kristin.rutherford@aecom.com;**  
**ATTN: Katie Abbott**

**Total number of pages in report: 596**



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 unless noted in the narrative, comments or footnotes.

**Norm Farmer**  
**Technical Director**

**Client Service contact: Elvin Kumar 407-425-6700**

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)

DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),

AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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Test results relate only to samples analyzed.

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### Sample Summary

AECOM, INC.

Job No: FC10326

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC10326-1	10/06/23	09:50	AYES	10/11/23	AQ Ground Water	AF-RHMW04-WGN01LF-2310
FC10326-2	10/06/23	10:20	CH	10/11/23	AQ Ground Water	AF-RHMW02-WGN01LF-2310
FC10326-3	10/06/23	10:20	CH	10/11/23	AQ Ground Water	AF-RHMW02-WGFD01LF-2310
FC10326-4	10/06/23	12:20	AYES	10/11/23	AQ Ground Water	AF-RHMW06-WGN01LF-2310
FC10326-5	10/06/23	12:35	CH	10/11/23	AQ Ground Water	AF-RHMW03-WGN01LF-2310

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC10326

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 10/18/2023 10:01:28 AM

On 10/11/2023, 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 4.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC10326 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:** OP99514

Sample(s) FC10326-1MS, FC10326-4DUP 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:

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

## Summary of Hits

**Job Number:** FC10326  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 10/06/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC10326-1	AF-RHMW04-WGN01LF-2310					
	Perfluorooctanesulfonic acid	0.86 J	3.6	1.8	ng/l	EPA DRAFT 1633
FC10326-2	AF-RHMW02-WGN01LF-2310					
	Perfluoropentanoic acid	36.1	7.5	1.9	ng/l	EPA DRAFT 1633
	6:2 Fluorotelomer sulfonate	3.8 J	19	7.5	ng/l	EPA DRAFT 1633
FC10326-3	AF-RHMW02-WGFD01LF-2310					
	Perfluorobutanoic acid	53.4	16	4.0	ng/l	EPA DRAFT 1633
	Perfluoropentanoic acid	45.4	8.0	2.0	ng/l	EPA DRAFT 1633
FC10326-4	AF-RHMW06-WGN01LF-2310					
No hits reported in this sample.						
FC10326-5	AF-RHMW03-WGN01LF-2310					
	Perfluoropentanoic acid	3.4 J	8.0	2.0	ng/l	EPA DRAFT 1633
	Perfluorohexanoic acid	3.6 J	4.0	2.0	ng/l	EPA DRAFT 1633
	Perfluoroheptanoic acid	2.0 J	4.0	2.0	ng/l	EPA DRAFT 1633
	Perfluorooctanoic acid	0.52 J	4.0	1.0	ng/l	EPA DRAFT 1633
	Perfluorododecanoic acid	1.1 J	4.0	2.0	ng/l	EPA DRAFT 1633
	6:2 Fluorotelomer sulfonate	6.7 J	20	8.0	ng/l	EPA DRAFT 1633

**Sample Results**

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**Report of Analysis**

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SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW04-WGN01LF-2310		
Lab Sample ID:	FC10326-1	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	6Q26489.D	1	10/16/23 21:15	MV	10/13/23 09:50	OP99514	S6Q372
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	

## PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	0.86	3.6	1.8	0.49	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	

## FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	

## PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2310		
Lab Sample ID:	FC10326-1	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

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

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

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

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

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

**PER and POLYFLUOROETHER SULFONIC ACIDS**

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

**FLUOROTELOMER CARBOXYLIC ACIDS**

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

CAS No. ID Standard Recoveries Run# 1 Run# 2 Limits

13C4-PFBA	98%	20-150%
13C5-PFPeA	105%	20-150%
13C5-PFHxA	108%	20-150%
13C4-PFHpA	110%	20-150%
13C8-PFOA	99%	20-150%
13C9-PFNA	106%	20-150%
13C6-PFDA	107%	20-150%
13C7-PFUnDA	110%	20-150%
13C2-PFDoDA	106%	20-150%
13C2-PFTeDA	94%	20-150%
13C3-PFBS	102%	20-150%
13C3-PFHxS	99%	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

4.1  
 4



## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW04-WGN01LF-2310	
<b>Lab Sample ID:</b>	FC10326-1	<b>Date Sampled:</b> 10/06/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 10/11/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	93%		20-150%
	13C8-FOSA	82%		20-150%
	d3-MeFOSA	71%		20-150%
	d5-EtFOSA	71%		20-150%
	d3-MeFOSAA	104%		20-150%
	d5-EtFOSAA	102%		20-150%
	d7-MeFOSE	78%		20-150%
	d9-EtFOSE	81%		20-150%
	13C2-4:2FTS	121%		20-180%
	13C2-6:2FTS	122%		20-180%
	13C2-8:2FTS	111%		20-180%
	13C3-HFPO-DA	102%		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-RHMW02-WGN01LF-2310		
Lab Sample ID:	FC10326-2	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	6Q26491.D	1	10/16/23 21:43	MV	10/13/23 09:50	OP99514	S6Q372
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
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	36.1	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	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	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	3.8	19	7.5	3.3	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	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-RHMW02-WGN01LF-2310		
Lab Sample ID:	FC10326-2	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.74	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	82%		20-150%
	13C5-PFPeA	102%		20-150%
	13C5-PFHxA	109%		20-150%
	13C4-PFHpA	117%		20-150%
	13C8-PFOA	99%		20-150%
	13C9-PFNA	99%		20-150%
	13C6-PFDA	112%		20-150%
	13C7-PFUnDA	103%		20-150%
	13C2-PFDoDA	92%		20-150%
	13C2-PFTeDA	79%		20-150%
	13C3-PFBS	104%		20-150%
	13C3-PFHxS	109%		20-150%

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

## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW02-WGN01LF-2310	
<b>Lab Sample ID:</b>	FC10326-2	<b>Date Sampled:</b> 10/06/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 10/11/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	95%		20-150%
	13C8-FOSA	93%		20-150%
	d3-MeFOSA	81%		20-150%
	d5-EtFOSA	83%		20-150%
	d3-MeFOSAA	98%		20-150%
	d5-EtFOSAA	90%		20-150%
	d7-MeFOSE	84%		20-150%
	d9-EtFOSE	86%		20-150%
	13C2-4:2FTS	109%		20-180%
	13C2-6:2FTS	99%		20-180%
	13C2-8:2FTS	101%		20-180%
	13C3-HFPO-DA	97%		20-150%

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

SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW02-WGFD01LF-2310		
Lab Sample ID:	FC10326-3	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	6Q26492.D	1	10/16/23 21:58	MV	10/13/23 09:50	OP99514	S6Q372
Run #2							

Run #	Initial Volume	Final Volume
Run #1	500 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	53.4	16	4.0	1.9	ng/l	
2706-90-3	Perfluoropentanoic acid	45.4	8.0	2.0	0.94	ng/l	
307-24-4	Perfluorohexanoic acid	2.0 U	4.0	2.0	0.50	ng/l	
375-85-9	Perfluoroheptanoic acid	2.0 U	4.0	2.0	0.50	ng/l	
335-67-1	Perfluorooctanoic acid	1.0 U	4.0	1.0	0.50	ng/l	
375-95-1	Perfluorononanoic acid	2.0 U	4.0	2.0	0.61	ng/l	
335-76-2	Perfluorodecanoic acid	2.0 U	4.0	2.0	0.50	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.0 U	4.0	2.0	0.60	ng/l	
307-55-1	Perfluorododecanoic acid	2.0 U	4.0	2.0	0.60	ng/l	
72629-94-8	Perfluorotridecanoic acid	2.0 U	4.0	2.0	0.84	ng/l	
376-06-7	Perfluorotetradecanoic acid	2.0 U	4.0	2.0	0.50	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	2.0 U	4.0	2.0	0.50	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	4.0 U	5.0	4.0	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2.0 U	4.0	2.0	0.70	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	2.0 U	4.0	2.0	0.50	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.0 U	4.0	2.0	0.54	ng/l	
68259-12-1	Perfluorononanesulfonic acid	2.0 U	4.0	2.0	0.57	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.0 U	4.0	2.0	0.64	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	4.0 U	5.0	4.0	1.1	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	8.0 U	20	8.0	3.2	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	8.0 U	20	8.0	3.5	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	8.0 U	20	8.0	4.1	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	2.0 U	4.0	2.0	0.67	ng/l	
31506-32-8	MeFOSA	4.0 U	8.0	4.0	1.0	ng/l	
4151-50-2	EtFOSA	4.0 U	8.0	4.0	1.0	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-RHMW02-WGFD01LF-2310		
Lab Sample ID:	FC10326-3	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	4.0 U	5.0	4.0	1.0	ng/l	
2991-50-6	EtFOSAA	4.0 U	5.0	4.0	1.3	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	20 U	40	20	4.4	ng/l	
1691-99-2	EtFOSE	20 U	40	20	7.4	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	2.0 U	4.0	2.0	1.0	ng/l	
919005-14-4	ADONA	4.0 U	8.0	4.0	1.9	ng/l	
377-73-1	PFMPA	2.0 U	8.0	2.0	1.0	ng/l	
863090-89-5	PFMBA	4.0 U	8.0	4.0	1.1	ng/l	
151772-58-6	NFDHA	4.0 U	8.0	4.0	1.2	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	4.0 U	8.0	4.0	1.4	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.0 U	8.0	4.0	1.8	ng/l	
113507-82-7	PFEESA	2.0 U	8.0	2.0	0.78	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	10 U	20	10	4.5	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	20 U	100	20	8.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	20 U	100	20	7.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	85%		20-150%
	13C5-PFPeA	96%		20-150%
	13C5-PFHxA	110%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	110%		20-150%
	13C9-PFNA	98%		20-150%
	13C6-PFDA	105%		20-150%
	13C7-PFUnDA	93%		20-150%
	13C2-PFDoDA	89%		20-150%
	13C2-PFTeDA	76%		20-150%
	13C3-PFBS	99%		20-150%
	13C3-PFHxS	95%		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

<b>Client Sample ID:</b>	AF-RHMW02-WGFD01LF-2310		
<b>Lab Sample ID:</b>	FC10326-3	<b>Date Sampled:</b>	10/06/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b>	10/11/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b>	n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	95%		20-150%
	13C8-FOSA	91%		20-150%
	d3-MeFOSA	77%		20-150%
	d5-EtFOSA	73%		20-150%
	d3-MeFOSAA	92%		20-150%
	d5-EtFOSAA	92%		20-150%
	d7-MeFOSE	82%		20-150%
	d9-EtFOSE	77%		20-150%
	13C2-4:2FTS	85%		20-180%
	13C2-6:2FTS	96%		20-180%
	13C2-8:2FTS	96%		20-180%
	13C3-HFPO-DA	89%		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-RHMW06-WGN01LF-2310		
Lab Sample ID:	FC10326-4	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	6Q26493.D	1	10/16/23 22:12	MV	10/13/23 09:50	OP99514	S6Q372
Run #2							

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

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

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound



# Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2310	
Lab Sample ID:	FC10326-4	Date Sampled: 10/06/23
Matrix:	AQ - Ground Water	Date Received: 10/11/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

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

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

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

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

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

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

**PER and POLYFLUOROETHER SULFONIC ACIDS**

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

**FLUOROTELOMER CARBOXYLIC ACIDS**

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	101%		20-150%
	13C5-PFPeA	105%		20-150%
	13C5-PFHxA	108%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	100%		20-150%
	13C9-PFNA	97%		20-150%
	13C6-PFDA	98%		20-150%
	13C7-PFUnDA	84%		20-150%
	13C2-PFDoDA	81%		20-150%
	13C2-PFTeDA	75%		20-150%
	13C3-PFBS	106%		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

## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW06-WGN01LF-2310	
<b>Lab Sample ID:</b>	FC10326-4	<b>Date Sampled:</b> 10/06/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 10/11/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	93%		20-150%
	13C8-FOSA	84%		20-150%
	d3-MeFOSA	77%		20-150%
	d5-EtFOSA	74%		20-150%
	d3-MeFOSAA	87%		20-150%
	d5-EtFOSAA	84%		20-150%
	d7-MeFOSE	77%		20-150%
	d9-EtFOSE	83%		20-150%
	13C2-4:2FTS	107%		20-180%
	13C2-6:2FTS	105%		20-180%
	13C2-8:2FTS	108%		20-180%
	13C3-HFPO-DA	101%		20-150%

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

SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW03-WGN01LF-2310		
Lab Sample ID:	FC10326-5	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	6Q26495.D	1	10/16/23 22:41	MV	10/13/23 09:50	OP99514	S6Q372
Run #2							

Run #	Initial Volume	Final Volume
Run #1	500 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	4.0 U	16	4.0	1.9	ng/l	
2706-90-3	Perfluoropentanoic acid	3.4	8.0	2.0	0.94	ng/l	J
307-24-4	Perfluorohexanoic acid	3.6	4.0	2.0	0.50	ng/l	J
375-85-9	Perfluoroheptanoic acid	2.0	4.0	2.0	0.50	ng/l	J
335-67-1	Perfluorooctanoic acid	0.52	4.0	1.0	0.50	ng/l	J
375-95-1	Perfluorononanoic acid	2.0 U	4.0	2.0	0.61	ng/l	
335-76-2	Perfluorodecanoic acid	2.0 U	4.0	2.0	0.50	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.0 U	4.0	2.0	0.60	ng/l	
307-55-1	Perfluorododecanoic acid	1.1	4.0	2.0	0.60	ng/l	J
72629-94-8	Perfluorotridecanoic acid	2.0 U	4.0	2.0	0.84	ng/l	
376-06-7	Perfluorotetradecanoic acid	2.0 U	4.0	2.0	0.50	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	2.0 U	4.0	2.0	0.50	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	4.0 U	5.0	4.0	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2.0 U	4.0	2.0	0.70	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	2.0 U	4.0	2.0	0.50	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.0 U	4.0	2.0	0.54	ng/l	
68259-12-1	Perfluorononanesulfonic acid	2.0 U	4.0	2.0	0.57	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.0 U	4.0	2.0	0.64	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	4.0 U	5.0	4.0	1.1	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	8.0 U	20	8.0	3.2	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	6.7	20	8.0	3.5	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	8.0 U	20	8.0	4.1	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	2.0 U	4.0	2.0	0.67	ng/l	
31506-32-8	MeFOSA	4.0 U	8.0	4.0	1.0	ng/l	
4151-50-2	EtFOSA	4.0 U	8.0	4.0	1.0	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-RHMW03-WGN01LF-2310		
Lab Sample ID:	FC10326-5	Date Sampled:	10/06/23
Matrix:	AQ - Ground Water	Date Received:	10/11/23
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	4.0 U	5.0	4.0	1.0	ng/l	
2991-50-6	EtFOSAA	4.0 U	5.0	4.0	1.3	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	20 U	40	20	4.4	ng/l	
1691-99-2	EtFOSE	20 U	40	20	7.4	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	2.0 U	4.0	2.0	1.0	ng/l	
919005-14-4	ADONA	4.0 U	8.0	4.0	1.9	ng/l	
377-73-1	PFMPA	2.0 U	8.0	2.0	1.0	ng/l	
863090-89-5	PFMBA	4.0 U	8.0	4.0	1.1	ng/l	
151772-58-6	NFDHA	4.0 U	8.0	4.0	1.2	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	4.0 U	8.0	4.0	1.4	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.0 U	8.0	4.0	1.8	ng/l	
113507-82-7	PFEESA	2.0 U	8.0	2.0	0.78	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	10 U	20	10	4.5	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	20 U	100	20	8.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	20 U	100	20	7.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
---------	------------------------	--------	--------	--------

	13C4-PFBA	102%		20-150%
	13C5-PFPeA	106%		20-150%
	13C5-PFHxA	104%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	112%		20-150%
	13C9-PFNA	105%		20-150%
	13C6-PFDA	91%		20-150%
	13C7-PFUnDA	97%		20-150%
	13C2-PFDoDA	82%		20-150%
	13C2-PFTeDA	73%		20-150%
	13C3-PFBS	116%		20-150%
	13C3-PFHxS	103%		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

<b>Client Sample ID:</b>	AF-RHMW03-WGN01LF-2310		
<b>Lab Sample ID:</b>	FC10326-5	<b>Date Sampled:</b>	10/06/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b>	10/11/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b>	n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	94%		20-150%
	13C8-FOSA	87%		20-150%
	d3-MeFOSA	80%		20-150%
	d5-EtFOSA	74%		20-150%
	d3-MeFOSAA	93%		20-150%
	d5-EtFOSAA	91%		20-150%
	d7-MeFOSE	78%		20-150%
	d9-EtFOSE	77%		20-150%
	13C2-4:2FTS	108%		20-180%
	13C2-6:2FTS	102%		20-180%
	13C2-8:2FTS	105%		20-180%
	13C3-HFPO-DA	103%		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**

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**Includes the following where applicable:**

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





SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811  
TEL: 407-425-5700 FAX: 407-425-0707  
www.sgs.com

FC10326

COC #: 2310AFSG01

SGS - ORLANDO JOB #:

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Client / Reporting Information		Project Information		Analytical Information										Matrix Codes		
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge CI - 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 # 23F0104 - 60697810														
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #														
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253														
Sampler(s) Name(s) (Printed)		Sampler 1: <i>Christina</i> Sampler 2: <i>Haley</i>														
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY	
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	INONE	INCI	INCH	INCS	INSDA	INCH-ZINC	INWATER		INMESH
2	AF-RHMW02-WGN01LF-2310	10/6/23	1020	CAH	GW	3		X								X
3	AF-RHMW02-WGFD01LF-2310	10/6/23	1020	CAH	GW	3		X								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 _____ Rush TIA Data Available VIA Email or Lablink		<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 <i>AWB# 016-97170754</i>										
Sample Custody must be documented below each time samples change possession, including courier delivery.																
Relinquished by Sampler/Affiliation	Date Time: <i>10/4/23</i>	Received By/Affiliation	<i>2 Alex Edwards AE on 9/10</i>	Relinquished By/Affiliation	Date Time: <i>10/6/23</i>	Received By/Affiliation	<i>4 UC</i>									
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	<i>6 UC 10/1/23</i>	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	<i>8</i>									
Lab Use Only: Cooler Temperature (s) Celsius (corrected):				<a href="http://www.sgs.com/en/terms-and-conditions">http://www.sgs.com/en/terms-and-conditions</a>												

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FC10326: Chain of Custody

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SGS North America Inc - Orlando

Chain of Custody

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

FC10326

DOC #: 2310AFSG02

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes			
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge 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 Abbot Email: katie.abbot@aecom.com		Project # 23F0104 - 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253															
Sampler(s) Name(s) (Printed) Sampler 1: <i>Chris Wernack</i> Sampler 2: <i>Chris Wernack</i>																	
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY		
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NOX	HCl	NO <sub>2</sub>	NO <sub>3</sub>	PERC	MACH/ZINC	DI/WATER		MEDIA	
5	AF-RHMW03-WGN01LF-2310	10/6/23	1235	CB	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 AMZ 018-971770754											
Rush TIA 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: 10/6/23	Received By/Affiliation	Date Time: 10/6/23	Relinquished By/Affiliation	Date Time: 10/6/23	Received By/Affiliation	Date Time: 10/6/23	Relinquished By/Affiliation	Date Time: 10/6/23	Received By/Affiliation	Date Time: 10/6/23	Relinquished By/Affiliation	Date Time: 10/6/23	Received By/Affiliation	Date Time: 10/6/23		
1 UC		2 Alex Edmonds AECOM		3 Alex Edmonds AECOM		4 UC		5 UC		6 UC		7		8			
Lab Use Only: Cooler Temperature (s) Celsius (corrected):		http://www.sgs.com/en/terms-and-conditions															

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# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC10326  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 10/06/23

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

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

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\* Sample used for QC is not from job FC10326

## MS Semi-volatiles

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### QC Data Summaries

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#### 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: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q372-IBLK	6Q26481.D	1	10/16/23	MV	n/a	n/a	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

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

# Instrument Blank

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q372-IBLK	6Q26481.D	1	10/16/23	MV	n/a	n/a	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	105% 20-150%
	13C4-PFHpA	105% 20-150%
	13C8-PFOA	103% 20-150%
	13C9-PFNA	93% 20-150%
	13C6-PFDA	112% 20-150%
	13C7-PFUnDA	110% 20-150%
	13C2-PFDoDA	106% 20-150%
	13C2-PFTeDA	109% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	107% 20-150%
	13C8-FOSA	99% 20-150%
	d3-MeFOSAA	97% 20-150%
	d5-EtFOSAA	100% 20-150%
	13C2-4:2FTS	104% 20-180%
	13C2-6:2FTS	112% 20-180%
	13C2-8:2FTS	106% 20-180%

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6

**Method Blank Summary**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-MB	6Q26488.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

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



# Method Blank Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-MB	6Q26488.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	120% 20-150%
	13C5-PFPeA	119% 20-150%
	13C5-PFHxA	122% 20-150%
	13C4-PFHpA	122% 20-150%
	13C8-PFOA	123% 20-150%
	13C9-PFNA	113% 20-150%
	13C6-PFDA	113% 20-150%
	13C7-PFUnDA	106% 20-150%
	13C2-PFDoDA	104% 20-150%
	13C2-PFTeDA	94% 20-150%
	13C3-PFBS	119% 20-150%
	13C3-PFHxS	122% 20-150%
	13C8-PFOS	120% 20-150%
	13C8-FOSA	93% 20-150%
	d3-MeFOSA	88% 20-150%
	d5-EtFOSA	90% 20-150%
	d3-MeFOSAA	111% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	90% 20-150%
	d9-EtFOSE	100% 20-150%
	13C2-4:2FTS	129% 20-180%
	13C2-6:2FTS	117% 20-180%
	13C2-8:2FTS	131% 20-180%
	13C3-HFPO-DA	120% 20-150%

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**Blank Spike Summary**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-LLBS	6Q26487.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0293	98	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0145	97	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0074	99	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0071	95	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0069	92	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0076	101	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0079	105	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0075	100	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0074	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0075	100	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0076	101	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0065	98	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0065	92	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0061	89	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0072	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0059	85	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0066	91	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0072	99	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0065	89	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0282	100	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0303	106	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0325	113	40-150
754-91-6	PFOSA	0.0075	0.0077	103	40-150
31506-32-8	MeFOSA	0.015	0.0167	111	40-150
4151-50-2	EtFOSA	0.015	0.0159	106	40-150
2355-31-9	MeFOSAA	0.0075	0.0073	97	40-150
2991-50-6	EtFOSAA	0.0075	0.0071	95	40-150
24448-09-7	MeFOSE	0.0375	0.0367	98	40-150
1691-99-2	EtFOSE	0.0375	0.0359	96	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0141	94	40-150
919005-14-4	ADONA	0.0142	0.0135	95	40-150
377-73-1	PFMPA	0.015	0.0140	93	40-150
863090-89-5	PFMBA	0.015	0.0141	94	40-150
151772-58-6	NFDHA	0.015	0.0139	93	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0128	91	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0128	90	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-LLBS	6Q26487.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0122	91	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0285	76	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.174	93	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.166	89	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	112%	20-150%
	13C5-PFPeA	117%	20-150%
	13C5-PFHxA	119%	20-150%
	13C4-PFHpA	118%	20-150%
	13C8-PFOA	112%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	106%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	100%	20-150%
	13C2-PFTeDA	95%	20-150%
	13C3-PFBS	116%	20-150%
	13C3-PFHxS	113%	20-150%
	13C8-PFOS	114%	20-150%
	13C8-FOSA	88%	20-150%
	d3-MeFOSA	71%	20-150%
	d5-EtFOSA	75%	20-150%
	d3-MeFOSAA	108%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	82%	20-150%
	d9-EtFOSE	85%	20-150%
	13C2-4:2FTS	115%	20-180%
	13C2-6:2FTS	114%	20-180%
	13C2-8:2FTS	109%	20-180%
	13C3-HFPO-DA	117%	20-150%

\* = Outside of Control Limits.

**Blank Spike Summary**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-BS	6Q26486.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0892	89	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0433	87	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0216	86	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0210	84	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0233	93	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0213	85	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0214	86	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0215	86	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0226	90	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0227	91	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0224	90	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0200	90	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0204	87	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0205	90	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0225	94	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0214	92	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0206	86	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0226	94	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0209	86	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0803	86	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0869	91	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0961	100	40-150
754-91-6	PFOSA	0.025	0.0227	91	40-150
31506-32-8	MeFOSA	0.05	0.0488	98	40-150
4151-50-2	EtFOSA	0.05	0.0493	99	40-150
2355-31-9	MeFOSAA	0.025	0.0214	86	40-150
2991-50-6	EtFOSAA	0.025	0.0197	79	40-150
24448-09-7	MeFOSE	0.125	0.111	89	40-150
1691-99-2	EtFOSE	0.125	0.110	88	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0438	88	40-150
919005-14-4	ADONA	0.0473	0.0433	92	40-150
377-73-1	PFMPA	0.05	0.0350	70	40-150
863090-89-5	PFMBA	0.05	0.0409	82	40-150
151772-58-6	NFDHA	0.05	0.0433	87	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0405	87	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0423	90	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-BS	6Q26486.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0362	81	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.133	106	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.509	81	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.499	80	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	57%	20-150%
	13C5-PFPeA	120%	20-150%
	13C5-PFHxA	121%	20-150%
	13C4-PFHpA	118%	20-150%
	13C8-PFOA	116%	20-150%
	13C9-PFNA	114%	20-150%
	13C6-PFDA	121%	20-150%
	13C7-PFUnDA	118%	20-150%
	13C2-PFDoDA	113%	20-150%
	13C2-PFTeDA	104%	20-150%
	13C3-PFBS	114%	20-150%
	13C3-PFHxS	112%	20-150%
	13C8-PFOS	107%	20-150%
	13C8-FOSA	86%	20-150%
	d3-MeFOSA	80%	20-150%
	d5-EtFOSA	75%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	113%	20-150%
	d7-MeFOSE	80%	20-150%
	d9-EtFOSE	84%	20-150%
	13C2-4:2FTS	124%	20-180%
	13C2-6:2FTS	122%	20-180%
	13C2-8:2FTS	109%	20-180%
	13C3-HFPO-DA	114%	20-150%

\* = Outside of Control Limits.

## Matrix Spike Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-MS	6Q26490.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372
FC10326-1	6Q26489.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	FC10326-1 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0926	0.0886	96	40-150
2706-90-3	Perfluoropentanoic acid	0.0073 U	0.0463	0.0438	95	40-150
307-24-4	Perfluorohexanoic acid	0.0036 U	0.0231	0.0218	94	40-150
375-85-9	Perfluoroheptanoic acid	0.0036 U	0.0231	0.0224	97	40-150
335-67-1	Perfluorooctanoic acid	0.0036 U	0.0231	0.0212	92	40-150
375-95-1	Perfluorononanoic acid	0.0036 U	0.0231	0.0228	98	40-150
335-76-2	Perfluorodecanoic acid	0.0036 U	0.0231	0.0238	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.0036 U	0.0231	0.0230	99	40-150
307-55-1	Perfluorododecanoic acid	0.0036 U	0.0231	0.0230	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.0036 U	0.0231	0.0208	90	40-150
376-06-7	Perfluorotetradecanoic acid	0.0036 U	0.0231	0.0226	98	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0036 U	0.0205	0.0209	102	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	0.0218	0.0199	91	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0036 U	0.0212	0.0192	91	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U	0.0221	0.0204	92	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00086 J	0.0215	0.0202	90	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0036 U	0.0223	0.0199	89	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0036 U	0.0223	0.0194	87	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	0.0225	0.0194	86	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0868	0.0815	94	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.088	0.0815	93	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0889	0.0854	96	40-150
754-91-6	PFOSA	0.0036 U	0.0231	0.0225	97	40-150
31506-32-8	MeFOSA	0.0073 U	0.0463	0.0446	96	40-150
4151-50-2	EtFOSA	0.0073 U	0.0463	0.0452	98	40-150
2355-31-9	MeFOSAA	0.0045 U	0.0231	0.0225	97	40-150
2991-50-6	EtFOSAA	0.0045 U	0.0231	0.0211	91	40-150
24448-09-7	MeFOSE	0.036 U	0.116	0.112	97	40-150
1691-99-2	EtFOSE	0.036 U	0.116	0.107	92	40-150
13252-13-6	HFPO-DA (GenX)	0.0036 U	0.0463	0.0439	95	40-150
919005-14-4	ADONA	0.0073 U	0.0438	0.0415	95	40-150
377-73-1	PFMPA	0.0073 U	0.0463	0.0424	92	40-150
863090-89-5	PFMBA	0.0073 U	0.0463	0.0418	90	40-150
151772-58-6	NFDHA	0.0073 U	0.0463	0.0419	91	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U	0.0433	0.0428	99	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U	0.0438	0.0397	91	40-150

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-MS	6Q26490.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372
FC10326-1	6Q26489.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	FC10326-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0073	U	0.0412	0.0370	90	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018	U	0.116	0.0873	75	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.091	U	0.579	0.497	86	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.091	U	0.579	0.526	91	40-150

CAS No.	ID Standard Recoveries	MS	FC10326-1	Limits
	13C4-PFBA	89%	98%	20-150%
	13C5-PFPeA	104%	105%	20-150%
	13C5-PFHxA	105%	108%	20-150%
	13C4-PFHpA	102%	110%	20-150%
	13C8-PFOA	95%	99%	20-150%
	13C9-PFNA	95%	106%	20-150%
	13C6-PFDA	95%	107%	20-150%
	13C7-PFUnDA	103%	110%	20-150%
	13C2-PFDoDA	96%	106%	20-150%
	13C2-PFTeDA	89%	94%	20-150%
	13C3-PFBS	98%	102%	20-150%
	13C3-PFHxS	103%	99%	20-150%
	13C8-PFOS	102%	93%	20-150%
	13C8-FOSA	87%	82%	20-150%
	d3-MeFOSA	78%	71%	20-150%
	d5-EtFOSA	75%	71%	20-150%
	d3-MeFOSAA	109%	104%	20-150%
	d5-EtFOSAA	113%	102%	20-150%
	d7-MeFOSE	79%	78%	20-150%
	d9-EtFOSE	85%	81%	20-150%
	13C2-4:2FTS	115%	121%	20-180%
	13C2-6:2FTS	111%	122%	20-180%
	13C2-8:2FTS	110%	111%	20-180%
	13C3-HFPO-DA	99%	102%	20-150%

\* = Outside of Control Limits.

## Duplicate Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-DUP	6Q26494.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372
FC10326-4	6Q26493.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	FC10326-4 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	ND		nc		30
2706-90-3	Perfluoropentanoic acid	0.0073 U	ND		nc		30
307-24-4	Perfluorohexanoic acid	0.0036 U	ND		nc		30
375-85-9	Perfluoroheptanoic acid	0.0036 U	ND		nc		30
335-67-1	Perfluorooctanoic acid	0.0036 U	ND		nc		30
375-95-1	Perfluorononanoic acid	0.0036 U	ND		nc		30
335-76-2	Perfluorodecanoic acid	0.0036 U	ND		nc		30
2058-94-8	Perfluoroundecanoic acid	0.0036 U	ND		nc		30
307-55-1	Perfluorododecanoic acid	0.0036 U	ND		nc		30
72629-94-8	Perfluorotridecanoic acid	0.0036 U	ND		nc		30
376-06-7	Perfluorotetradecanoic acid	0.0036 U	ND		nc		30
375-73-5	Perfluorobutanesulfonic acid	0.0036 U	ND		nc		30
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	ND		nc		30
355-46-4	Perfluorohexanesulfonic acid	0.0036 U	ND		nc		30
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U	ND		nc		30
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U	ND		nc		30
68259-12-1	Perfluorononanesulfonic acid	0.0036 U	ND		nc		30
335-77-3	Perfluorodecanesulfonic acid	0.0036 U	ND		nc		30
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	ND		nc		30
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	ND		nc		30
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	ND		nc		30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	ND		nc		30
754-91-6	PFOSA	0.0036 U	ND		nc		30
31506-32-8	MeFOSA	0.0073 U	ND		nc		30
4151-50-2	EtFOSA	0.0073 U	ND		nc		30
2355-31-9	MeFOSAA	0.0045 U	ND		nc		30
2991-50-6	EtFOSAA	0.0045 U	ND		nc		30
24448-09-7	MeFOSE	0.036 U	ND		nc		30
1691-99-2	EtFOSE	0.036 U	ND		nc		30
13252-13-6	HFPO-DA (GenX)	0.0036 U	ND		nc		30
919005-14-4	ADONA	0.0073 U	ND		nc		30
377-73-1	PFMPA	0.0073 U	ND		nc		30
863090-89-5	PFMBA	0.0073 U	ND		nc		30
151772-58-6	NFDHA	0.0073 U	ND		nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U	ND		nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U	ND		nc		30

\* = Outside of Control Limits.



# Duplicate Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99514-DUP	6Q26494.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372
FC10326-4	6Q26493.D	1	10/16/23	MV	10/13/23	OP99514	S6Q372

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC10326-1, FC10326-2, FC10326-3, FC10326-4, FC10326-5

CAS No.	Compound	FC10326-4 ug/l	DUP Q ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0073 U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.091 U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC10326-4	Limits
	13C4-PFBA	100%	101%	20-150%
	13C5-PFPeA	109%	105%	20-150%
	13C5-PFHxA	112%	108%	20-150%
	13C4-PFHpA	109%	110%	20-150%
	13C8-PFOA	105%	100%	20-150%
	13C9-PFNA	98%	97%	20-150%
	13C6-PFDA	99%	98%	20-150%
	13C7-PFUnDA	99%	84%	20-150%
	13C2-PFDoDA	93%	81%	20-150%
	13C2-PFTeDA	82%	75%	20-150%
	13C3-PFBS	101%	106%	20-150%
	13C3-PFHxS	99%	108%	20-150%
	13C8-PFOS	98%	93%	20-150%
	13C8-FOSA	85%	84%	20-150%
	d3-MeFOSA	82%	77%	20-150%
	d5-EtFOSA	83%	74%	20-150%
	d3-MeFOSAA	103%	87%	20-150%
	d5-EtFOSAA	90%	84%	20-150%
	d7-MeFOSE	84%	77%	20-150%
	d9-EtFOSE	85%	83%	20-150%
	13C2-4:2FTS	103%	107%	20-180%
	13C2-6:2FTS	101%	105%	20-180%
	13C2-8:2FTS	101%	108%	20-180%
	13C3-HFPO-DA	109%	101%	20-150%

\* = Outside of Control Limits.

# Injection Standard Area Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q372-CC372	Injection Date:	10/16/23
Lab File ID:	6Q26484.D	Injection Time:	20:03
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 <sup>b</sup>	52640	2.93	41253	5.57	61380	7.14	21614	7.65	21236	8.13
Check Std <sup>c</sup>	53895	2.92	40709	5.55	63877	7.14	21303	7.65	21574	8.13
Upper Limit <sup>d</sup>	105280	3.32	82506	5.95	122760	7.54	43228	8.05	42472	8.53
Lower Limit <sup>e</sup>	21056	2.52	16501	5.15	24552	6.74	8646	7.25	8494	7.73

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF <sup>a</sup>
OP99514-BS	52832	2.97	38634	5.57	56836	7.14	20845	7.65	19432	8.13	1
OP99514-LLBS	53000	2.95	39395	5.57	62079	7.14	22064	7.65	21944	8.13	1
OP99514-MB	49040	2.95	37399	5.57	55109	7.14	19874	7.65	20051	8.13	1
FC10326-1	52414	2.97	40600	5.57	62383	7.14	21999	7.67	21170	8.13	1
OP99514-MS	52434	2.97	38648	5.57	59869	7.14	22067	7.65	20815	8.13	1
FC10326-2	46958	2.95	39763	5.57	62808	7.14	23518	7.65	21936	8.13	1
FC10326-3	47685	2.95	40994	5.57	59217	7.14	22398	7.65	20972	8.13	1
FC10326-4	52927	2.97	39453	5.57	60125	7.14	21544	7.67	21923	8.13	1
OP99514-DUP	54961	2.97	40659	5.57	62258	7.14	21946	7.65	21636	8.13	1
FC10326-5	53768	2.97	41419	5.57	60653	7.14	21553	7.65	22494	8.13	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: S6Q372-ICC372 6Q26476.D 10/16/23 18:08. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

# Injection Standard Area Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q372-CC372	Injection Date:	10/16/23
Lab File ID:	6Q26484.D	Injection Time:	20:03
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	6364	7.24	9256	8.29
Check Std <sup>c</sup>	6639	7.24	9592	8.27
Upper Limit <sup>d</sup>	12728	7.64	18512	8.67
Lower Limit <sup>e</sup>	2546	6.84	3702	7.87

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
OP99514-BS	6008	7.24	9166	8.29	1
OP99514-LLBS	6277	7.24	9268	8.29	1
OP99514-MB	5798	7.24	8183	8.29	1
FC10326-1	6521	7.24	10125	8.29	1
OP99514-MS	6282	7.24	8886	8.29	1
FC10326-2	6434	7.24	9893	8.27	1
FC10326-3	6559	7.24	9774	8.29	1
FC10326-4	6131	7.24	9338	8.29	1
OP99514-DUP	6858	7.24	9828	8.29	1
FC10326-5	6134	7.24	9522	8.29	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q372-ICC372 6Q26476.D 10/16/23 18:08. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1  
6

**TDCA Retention Time Check**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q372-RT	Injection Date:	10/16/23
Lab File ID:	6Q26470.D	Injection Time:	16:38
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.275	--	--
TDCA	6.861	1.414	1.000
TCDCA	6.712	1.563	1.000
TUDCA	5.873	2.402	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
S6Q372-IC372	6Q26472.D	10/16/23	17:11	00:33	Mass Calibration Verification
S6Q372-IC372	6Q26473.D	10/16/23	17:25	00:47	Initial cal 1
S6Q372-IC372	6Q26474.D	10/16/23	17:40	01:02	Initial cal 2
S6Q372-IC372	6Q26475.D	10/16/23	17:54	01:16	Initial cal 3
S6Q372-ICC372	6Q26476.D	10/16/23	18:08	01:30	Initial cal 4
S6Q372-IC372	6Q26477.D	10/16/23	18:23	01:45	Initial cal 5
S6Q372-IC372	6Q26478.D	10/16/23	18:37	01:59	Initial cal 6
S6Q372-IC372	6Q26479.D	10/16/23	18:51	02:13	Initial cal 7
S6Q372-IC372	6Q26480.D	10/16/23	19:06	02:28	Initial cal 8
S6Q372-IBLK	6Q26481.D	10/16/23	19:20	02:42	Instrument Blank
S6Q372-IBLK	6Q26481.D	10/16/23	19:20	02:42	Instrument Blank
S6Q372-ICV372	6Q26482.D	10/16/23	19:34	02:56	Initial cal verification 4
S6Q372-ICV372	6Q26483.D	10/16/23	19:49	03:11	Initial cal verification 20
S6Q372-CC372	6Q26484.D	10/16/23	20:03	03:25	Continuing cal 4
S6Q372-CC372	6Q26485.D	10/16/23	20:17	03:39	Continuing cal 1.0LL
OP99514-BS	6Q26486.D	10/16/23	20:32	03:54	Blank Spike
OP99514-LLBS	6Q26487.D	10/16/23	20:46	04:08	Blank Spike
OP99514-MB	6Q26488.D	10/16/23	21:00	04:22	Method Blank
FC10326-1	6Q26489.D	10/16/23	21:15	04:37	AF-RHMW04-WGN01LF-2310
OP99514-MS	6Q26490.D	10/16/23	21:29	04:51	Matrix Spike
FC10326-2	6Q26491.D	10/16/23	21:43	05:05	AF-RHMW02-WGN01LF-2310
FC10326-3	6Q26492.D	10/16/23	21:58	05:20	AF-RHMW02-WGFD01LF-2310
FC10326-4	6Q26493.D	10/16/23	22:12	05:34	AF-RHMW06-WGN01LF-2310
OP99514-DUP	6Q26494.D	10/16/23	22:26	05:48	Duplicate
FC10326-5	6Q26495.D	10/16/23	22:41	06:03	AF-RHMW03-WGN01LF-2310
S6Q372-CC372	6Q26496.D	10/16/23	22:55	06:17	Continuing cal 4
S6Q372-ICCB	6Q26497.D	10/16/23	23:09	06:31	Continuing Calibration Blank
OP99513-BS	6Q26498.D	10/16/23	23:24	06:46	Blank Spike
OP99513-LLBS	6Q26499.D	10/16/23	23:38	07:00	Blank Spike
OP99513-MB	6Q26500.D	10/16/23	23:52	07:14	Method Blank
ZZZZZZ	6Q26501.D	10/17/23	00:07	07:29	(unrelated sample)
ZZZZZZ	6Q26502.D	10/17/23	00:21	07:43	(unrelated sample)
ZZZZZZ	6Q26503.D	10/17/23	00:35	07:57	(unrelated sample)
ZZZZZZ	6Q26504.D	10/17/23	00:50	08:12	(unrelated sample)

# TDCA Retention Time Check

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q372-RT	Injection Date:	10/16/23
Lab File ID:	6Q26470.D	Injection Time:	16:38
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q26505.D	10/17/23	01:04	08:26	(unrelated sample)
ZZZZZZ	6Q26506.D	10/17/23	01:18	08:40	(unrelated sample)
ZZZZZZ	6Q26507.D	10/17/23	01:33	08:55	(unrelated sample)
S6Q372-CC372	6Q26508.D	10/17/23	01:47	09:09	Continuing cal 4
S6Q372-ICCB	6Q26509.D	10/17/23	02:01	09:23	Continuing Calibration Blank
S6Q372-ICCB	6Q26509.D	10/17/23	02:01	09:23	Continuing Calibration Blank
ZZZZZZ	6Q26510.D	10/17/23	02:15	09:37	(unrelated sample)
ZZZZZZ	6Q26511.D	10/17/23	02:30	09:52	(unrelated sample)
ZZZZZZ	6Q26512.D	10/17/23	02:44	10:06	(unrelated sample)
ZZZZZZ	6Q26513.D	10/17/23	02:58	10:20	(unrelated sample)
ZZZZZZ	6Q26514.D	10/17/23	03:13	10:35	(unrelated sample)
FC9904-2	6Q26515.D	10/17/23	03:27	10:49	(used for QC only; not part of job FC10326)
ZZZZZZ	6Q26517.D	10/17/23	03:56	11:18	(unrelated sample)
ZZZZZZ	6Q26518.D	10/17/23	04:10	11:32	(unrelated sample)
ZZZZZZ	6Q26519.D	10/17/23	04:24	11:46	(unrelated sample)
S6Q372-CC372	6Q26520.D	10/17/23	04:39	12:01	Continuing cal 4
S6Q372-ICCB	6Q26521.D	10/17/23	04:53	12:15	Continuing Calibration Blank
S6Q372-ICCB	6Q26521.D	10/17/23	04:53	12:15	Continuing Calibration Blank
ZZZZZZ	6Q26522.D	10/17/23	05:07	12:29	(unrelated sample)
ZZZZZZ	6Q26523.D	10/17/23	05:22	12:44	(unrelated sample)
ZZZZZZ	6Q26524.D	10/17/23	05:36	12:58	(unrelated sample)
ZZZZZZ	6Q26525.D	10/17/23	05:50	13:12	(unrelated sample)
OP99369-BS	6Q26526.D	10/17/23	06:05	13:27	Blank Spike
OP99369-LLBS	6Q26527.D	10/17/23	06:19	13:41	Blank Spike
OP99369-MB	6Q26528.D	10/17/23	06:33	13:55	Method Blank
ZZZZZZ	6Q26529.D	10/17/23	06:48	14:10	(unrelated sample)
ZZZZZZ	6Q26530.D	10/17/23	07:02	14:24	(unrelated sample)
ZZZZZZ	6Q26531.D	10/17/23	07:16	14:38	(unrelated sample)
S6Q372-CC372	6Q26532.D	10/17/23	07:31	14:53	Continuing cal 4
S6Q372-ICCB	6Q26533.D	10/17/23	07:45	15:07	Continuing Calibration Blank
S6Q372-ICCB	6Q26533.D	10/17/23	07:45	15:07	Continuing Calibration Blank
ZZZZZZ	6Q26534.D	10/17/23	07:59	15:21	(unrelated sample)
ZZZZZZ	6Q26535.D	10/17/23	08:14	15:36	(unrelated sample)
ZZZZZZ	6Q26536.D	10/17/23	08:28	15:50	(unrelated sample)
FC9933-7	6Q26537.D	10/17/23	08:42	16:04	(used for QC only; not part of job FC10326)
OP99369-MS	6Q26538.D	10/17/23	08:57	16:19	Matrix Spike
OP99369-MSD	6Q26539.D	10/17/23	09:11	16:33	Matrix Spike Duplicate
ZZZZZZ	6Q26540.D	10/17/23	09:25	16:47	(unrelated sample)
ZZZZZZ	6Q26541.D	10/17/23	09:39	17:01	(unrelated sample)
ZZZZZZ	6Q26542.D	10/17/23	09:54	17:16	(unrelated sample)
ZZZZZZ	6Q26543.D	10/17/23	10:08	17:30	(unrelated sample)
S6Q372-CC372	6Q26544.D	10/17/23	10:22	17:44	Continuing cal 4
S6Q372-ICCB	6Q26545.D	10/17/23	10:37	17:59	Continuing Calibration Blank
OP99491-BS	6Q26546.D	10/17/23	10:53	18:15	Blank Spike

# TDCA Retention Time Check

**Job Number:** FC10326  
**Account:** AECOMCOD AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System

<b>Sample:</b> S6Q372-RT	<b>Injection Date:</b> 10/16/23
<b>Lab File ID:</b> 6Q26470.D	<b>Injection Time:</b> 16:38
<b>Instrument ID:</b> GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP99491-LLBS	6Q26547.D	10/17/23	11:07	18:29	Blank Spike
OP99491-MB	6Q26548.D	10/17/23	11:22	18:44	Method Blank
ZZZZZZ	6Q26549.D	10/17/23	11:36	18:58	(unrelated sample)
ZZZZZZ	6Q26550.D	10/17/23	11:50	19:12	(unrelated sample)
ZZZZZZ	6Q26551.D	10/17/23	12:05	19:27	(unrelated sample)
S6Q372-ECC372	6Q26553.D	10/17/23	12:21	19:43	Ending cal 4
S6Q372-ICCB	6Q26554.D	10/17/23	12:35	19:57	Continuing Calibration Blank

6.6.1

6

# Ion Ratio Summary

Job Number: FC10326  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q372 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios (Set 1)		PFHxA	PFHpA	PFOA	PFDoDA	PFOS
		PFBA	PFPeA					
S6Q372-ICC372	6Q26476.D	0	0	5.3	14.4	18	11.1	50.2
FC10326-1	6Q26489.D							8.4
FC10326-2	6Q26491.D		0					
FC10326-3	6Q26492.D	0	0					
FC10326-4	6Q26493.D							
FC10326-5	6Q26495.D		0	3.1	12.9	19.2	1.2	

6.7.1

6

# Ion Ratio Summary

**Job Number:** FC10326  
**Account:** AECOMCOD AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System

<b>Run ID:</b> S6Q372	<b>Method:</b> EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios (Set 2) 6:2FTS
S6Q372-ICC372	6Q26476.D	38.9
FC10326-1	6Q26489.D	
FC10326-2	6Q26491.D	37.2
FC10326-3	6Q26492.D	
FC10326-4	6Q26493.D	
FC10326-5	6Q26495.D	35.3



# Isotope Dilution Standard Recovery Summary

Job Number: FC10326  
 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
FC10326-1	6Q26489.D	98	105	108	110	99	106	107	110
FC10326-2	6Q26491.D	82	102	109	117	99	99	112	103
FC10326-3	6Q26492.D	85	96	110	110	110	98	105	93
FC10326-4	6Q26493.D	101	105	108	110	100	97	98	84
FC10326-5	6Q26495.D	102	106	104	110	112	105	91	97
OP99514-BS	6Q26486.D	57	120	121	118	116	114	121	118
OP99514-DUP	6Q26494.D	100	109	112	109	105	98	99	99
OP99514-LLBS	6Q26487.D	112	117	119	118	112	107	106	107
OP99514-MB	6Q26488.D	120	119	122	122	123	113	113	106
OP99514-MS	6Q26490.D	89	104	105	102	95	95	95	103
S6Q372-IBLK	6Q26481.D	100	101	105	105	103	93	112	110

**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: FC10326  
 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
FC10326-1	6Q26489.D	106	94	102	99	93	82	71	71
FC10326-2	6Q26491.D	92	79	104	109	95	93	81	83
FC10326-3	6Q26492.D	89	76	99	95	95	91	77	73
FC10326-4	6Q26493.D	81	75	106	108	93	84	77	74
FC10326-5	6Q26495.D	82	73	116	103	94	87	80	74
OP99514-BS	6Q26486.D	113	104	114	112	107	86	80	75
OP99514-DUP	6Q26494.D	93	82	101	99	98	85	82	83
OP99514-LLBS	6Q26487.D	100	95	116	113	114	88	71	75
OP99514-MB	6Q26488.D	104	94	119	122	120	93	88	90
OP99514-MS	6Q26490.D	96	89	98	103	102	87	78	75
S6Q372-IBLK	6Q26481.D	106	109	103	103	107	99		

**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: FC10326  
 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
FC10326-1	6Q26489.D	104	102	78	81	121	122	111	102
FC10326-2	6Q26491.D	98	90	84	86	109	99	101	97
FC10326-3	6Q26492.D	92	92	82	77	85	96	96	89
FC10326-4	6Q26493.D	87	84	77	83	107	105	108	101
FC10326-5	6Q26495.D	93	91	78	77	108	102	105	103
OP99514-BS	6Q26486.D	114	113	80	84	124	122	109	114
OP99514-DUP	6Q26494.D	103	90	84	85	103	101	101	109
OP99514-LLBS	6Q26487.D	108	105	82	85	115	114	109	117
OP99514-MB	6Q26488.D	111	111	90	100	129	117	131	120
OP99514-MS	6Q26490.D	109	113	79	85	115	111	110	99
S6Q372-IBLK	6Q26481.D	97	100			104	112	106	

**Isotope Dilution Standards**

**Recovery Limits**

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

6.8.1  
6

# Initial Calibration Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-ICC372  
 Lab FileID: 6Q26476.D

## Initial Calibration Report

Method Path	D:\MassHunter\Methods	Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
Method File	D:\MassHunter\Data\101623_1633_S6Q372.quantmethod.xml	1	D:\MassHunter\Data\101623_1633_S6Q372\6Q26473.d	Avg RF	0.3919	0.3990	0.3861	0.3787	0.3827	0.3950	0.4040	0.3917	0.3911	2.147
Batch Name	D:\MassHunter\Data\101623_1633_S6Q372\6Q26474.d	2	D:\MassHunter\Data\101623_1633_S6Q372\6Q26475.d	Avg RF	0.0550	0.0541	0.0519	0.0499	0.0512	0.0526	0.0559	0.0591	0.0537	5.482
Last Calib Update	10/17/2023 10:53:47 AM	3	D:\MassHunter\Data\101623_1633_S6Q372\6Q26476.d	Avg RF	0.7529	0.7443	0.7369	0.7164	0.7318	0.7535	0.7805	0.7666	0.7479	2.700
		4	D:\MassHunter\Data\101623_1633_S6Q372\6Q26477.d	Avg RF	1.2196	1.1895	1.1610	1.1343	1.1697	1.2081	1.2271	1.2063	1.1895	2.698
		5	D:\MassHunter\Data\101623_1633_S6Q372\6Q26478.d	Avg RF	0.9255	0.9370	0.9081	0.8749	0.8922	0.9238	0.9473	0.9125	0.9152	2.578
		6	D:\MassHunter\Data\101623_1633_S6Q372\6Q26479.d	Avg RF	0.1117	0.1285	0.1132	0.1156	0.1198	0.1232	0.1268	0.1119	0.1188	5.679
		7	D:\MassHunter\Data\101623_1633_S6Q372\6Q26480.d	Avg RF	1.5283	1.5274	1.3541	1.3786	1.3488	1.5061	1.5256	1.4960	1.4581	5.626
		8		Avg RF	1.3205	1.1547	1.0596	1.0279	1.0384	1.1318	1.0841	1.0650	1.1102	8.605
				Avg RF	0.7632	0.8202	0.8261	0.7412	0.7196	0.7936	0.8060	0.8837	0.7994	6.588
				Avg RF	1.0347	0.9939	1.0084	0.9979	1.0404	1.0460	1.0257	1.0637	1.0263	2.394
				Avg RF	1.0319	0.9497	0.9513	0.9409	0.9456	0.9810	1.0492	1.0186	0.9835	4.437
				Avg RF										

Generated at 10:54 AM on 10/17/2023

Page 1 of 3



# Initial Calibration Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-ICC372  
 Lab FileID: 6Q26476.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9355	0.9643	1.0677	0.9590	0.9736	0.9907	1.0515	1.0056	0.9935	4.634
T PFTIDA	Avg RF	0.7569	0.7558	0.7958	0.7266	0.7630	0.7897	0.8286	0.7208	0.7671	4.713
I M2-PFTeDA	Avg RF	1.7212	1.7506	1.6767	1.6946	1.6559	1.6678	1.7205	1.6184	1.6882	2.507
T PFTeDA	Avg RF	1.1366	1.0589	0.9936	0.9766	0.9375	1.0248	1.0569	1.0353	1.0275	5.892
I M8-FOSA	Avg RF	0.8967	0.8499	0.7978	0.7653	0.7750	0.8458	0.8437	0.8389	0.8266	5.317
T FOSA	Avg RF	1.4564	1.4206	1.4531	1.4071	1.3832	1.3393	1.4540	1.4739	1.4235	3.189
I M3-PFBS	Avg RF	1.2469	1.0964	1.0692	1.0486	1.0413	1.0419	1.1396	1.0784	1.0953	6.350
T PFBS	Avg RF	1.1628	1.2756	1.1602	1.0524	1.2067	1.1325	1.1741	1.1238	1.1610	5.580
I M3-PFHxS	Avg RF	1.1571	1.2719	1.0946	1.0917	1.2297	1.1521	1.1465	1.1694	1.1641	5.289
T PFHxS	Avg RF	1.0098	1.0214	0.8965	0.9247	0.9736	0.9235	0.9310	0.9640	0.9556	4.637
I M8-PFOS	Avg RF	0.6533	0.6982	0.6527	0.6658	0.6768	0.6383	0.6434	0.6564	0.6506	2.933
T PFOS	Avg RF	0.3618	0.3155	0.3494	0.3461	0.3529	0.3463	0.3625	0.3555	0.3487	4.256
I M2-4:2FTS	Avg RF	9.4867	9.3929	9.0683	8.8982	9.1691	8.5982	9.3955	8.6794	9.0860	3.712
T 4:2FTS	Avg RF	7.2871	6.0929	5.4518	4.9714	4.9569	5.4309	4.9147	5.5865	5.865	15.358
I M2-6:2FTS	Avg RF	4.3264	4.0237	3.9974	4.1825	4.0621	3.3799	3.9144	2.9698	3.8570	11.734
T 6:2FTS	Avg RF	0.9318	1.0528	0.9787	0.9081	0.9998	1.0890	1.1067	1.0508	1.0147	7.113
I M2-8:2FTS	Avg RF	1.1806	1.0087	1.1727	0.9876	1.0933	1.0645	1.1067	1.0198	1.0792	6.743
T 8:2FTS	Avg RF	14.32	14.58	14.72	13.52	14.20	13.41	14.31	13.55	14.08	3.626
I M3-MeFOSAA	Avg RF	5.0597	5.6235	5.4936	4.9856	5.6515	5.0503	5.3131	4.7125	5.2362	6.446
T MeFOSAA	Avg RF	2.9706	3.0312	3.0507	2.8145	3.1591	2.9340	3.0991	2.6392	2.9623	5.665
I M3-HFO-DA	Avg RF	0.8713	0.9656	0.8174	0.8800	0.7745	0.9153	0.8692	0.8765	0.8712	6.611
T HFO-DA	Avg RF	1.1060	1.1238	1.0100	1.0127	1.0438	1.0652	1.0852	1.1056	1.0690	4.073
I M7-MeFOSE	Avg RF	1.0510	1.1419	1.0341	1.0328	1.1045	1.0734	1.1965	1.1241	1.0948	5.285
T MeFOSE	Avg RF	1.0510	1.1419	1.0341	1.0328	1.1045	1.0734	1.1965	1.1241	1.0948	5.285

# Initial Calibration Summary

Job Number: FC10326  
 Account: AECOM AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-ICC372  
 Lab FileID: 6Q26476.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA	Avg RF	1.2583	1.2234	1.2143	1.1686	1.1758	1.2511	1.2552	1.2232	1.2212	2.823
T EFOSA						ISTD					
I M3-MeFOSA	Avg RF	1.3465	1.3354	1.3399	1.2695	1.2605	1.2403	1.2632	1.1440	1.2749	5.281
T MeFOSA						ISTD					
I 13C4-PFOS						ISTD					
S d3-MeFOSAA	Avg RF	1.1065	1.1167	1.1144	1.0758	1.1417	1.0990	1.0652	1.0471	1.0958	2.828
S 13C8-PFOS	Avg RF	1.1219	1.0430	1.1364	1.0017	1.0075	1.0878	1.1057	1.0656	1.0712	4.735
S d5-EFOSAA	Avg RF	0.9196	0.8441	1.0105	0.8393	0.9129	0.8849	0.9333	0.9333	0.9097	6.057
S 13C8-FOSA	Avg RF	2.0153	1.9203	2.0426	1.8847	1.9978	2.0282	2.0336	2.0777	2.0000	3.254
S d7-MeFOSE	Avg RF	0.6637	0.6323	0.7211	0.6213	0.6489	0.6729	0.6767	0.6774	0.6643	4.673
S d3-MeFOSA	Avg RF	0.5626	0.5521	0.5637	0.5133	0.5663	0.6256	0.6004	0.6735	0.5822	8.511
S d9-EFOSE	Avg RF	0.7926	0.7315	0.8268	0.7298	0.7400	0.7898	0.7359	0.7829	0.7662	4.767
S d5-EFOSA	Avg RF	0.6516	0.6543	0.6953	0.6164	0.6502	0.6628	0.6647	0.6863	0.6602	3.652
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	1.2448	1.2103	1.2208	1.2301	1.2320	1.2311	1.2511	1.2409	1.2327	1.065
I 18O2-PFHxS						ISTD					
S 13C2-4:2FTS	Avg RF	0.1724	0.1713	0.1611	0.1573	0.1583	0.1604	0.1383	0.1261	0.1557	10.195
S 13C3-PBBS	Avg RF	2.8173	2.9329	2.9569	2.9374	2.8385	2.9364	2.8402	2.5851	2.8556	4.281
S 13C2-6:2FTS	Avg RF	0.2275	0.2223	0.2069	0.2049	0.2235	0.2162	0.1973	0.1746	0.2091	8.325
S 13C3-PFHxS	Avg RF	1.5784	1.6716	1.5757	1.6180	1.6492	1.7315	1.5969	1.5454	1.6208	3.740
S 13C2-8:2FTS	Avg RF	0.2105	0.2311	0.2173	0.2102	0.1991	0.2358	0.2107	0.2219	0.2171	5.573
I 13C4-PFOA						ISTD					
S 13C8-PFOA	Avg RF	0.9025	0.8666	0.9186	0.9089	0.8468	0.8705	0.9359	0.8842	0.8917	3.349
I 13C2-PFDA						ISTD					
S 13C6-PFDA	Avg RF	1.1236	1.1611	1.0228	1.0452	1.1567	1.0379	1.0602	1.0283	1.0795	5.388
S 13C7-PFUDA	Avg RF	1.1539	1.2384	1.0730	1.1254	1.2089	1.0892	1.0327	0.9905	1.1140	7.616
S 13C2-PFDODA	Avg RF	1.2178	1.3844	1.1692	1.2833	1.3592	1.2434	1.2460	1.2713	1.2718	5.588
S 13C2-PFTDA	Avg RF	0.4328	0.4792	0.4258	0.4407	0.4879	0.4407	0.4440	0.4431	0.4493	4.925
I 13C5-PFNA						ISTD					
S 13C9-PFNA	Avg RF	1.1490	1.1298	1.0341	1.0908	1.0456	1.1083	1.0331	0.9728	1.0704	5.516
I 13C2-PFHxA						ISTD					
S 13C5-PPFA	Avg RF	0.5167	0.5290	0.5180	0.5126	0.5152	0.5023	0.5081	0.5009	0.5128	1.782
S 13C5-PFHxA	Avg RF	1.0007	1.0086	0.9877	0.9710	0.9404	0.9729	0.9702	0.9888	0.9800	2.176
S 13C3-HFPO-DA	Avg RF	0.1810	0.1797	0.1680	0.1742	0.1697	0.1762	0.1768	0.1858	0.1764	3.327
S 13C4-PFHxA	Avg RF	0.9684	0.9539	1.0129	0.9663	1.0135	0.9275	0.9495	0.9438	0.9670	3.234

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

**Initial Calibration Verification**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-ICV372  
 Lab FileID: 6Q26482.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\101623\_1633\_S6Q372\s6q372.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26473.d  
 2:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26474.d  
 3:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26475.d  
 4:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26476.d  
 5:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26477.d  
 6:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26478.d  
 7:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26479.d  
 8:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26480.d

Data File: 6Q26482  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.957	-0.9	99.1
13C2-6:2FTS	5.000	5.035	0.7	100.7
13C2-8:2FTS	5.000	5.315	6.3	106.3
13C2-PFDoDA	1.250	1.300	4.0	104.0
13C2-PFTeDA	1.250	1.212	-3.1	96.9
13C3-PFBS	2.500	2.389	-4.4	95.6
13C3-PFHxS	2.500	2.604	4.2	104.2
13C4-PFBA	10.000	10.040	0.4	100.4
13C4-PFHpA	2.500	2.690	7.6	107.6
13C5-PFHxA	2.500	2.709	8.4	108.4
13C5-PFPeA	5.000	5.353	7.1	107.1
13C6-PFDA	1.250	1.256	0.5	100.5
13C7-PFUnDA	1.250	1.273	1.9	101.9
13C8-FOSA	2.500	2.389	-4.4	95.6
13C8-PFOA	2.500	2.665	6.6	106.6
13C8-PFOS	2.500	2.320	-7.2	92.8
13C9-PFNA	1.250	1.377	10.2	110.2
4:2FTS	9.375	9.438	0.7	100.7
6:2FTS	9.500	8.791	-7.5	92.5
8:2FTS	9.600	9.512	-0.9	99.1
d3-MeFOSAA	5.000	4.885	-2.3	97.7
EtFOSAA	2.500	2.433	-2.7	97.3
FOSA	2.500	2.376	-5.0	95.0
MeFOSAA	2.500	2.483	-0.7	99.3
PFBA	10.000	9.738	-2.6	97.4
PFBS	2.218	2.160	-2.6	97.4
PFDA	2.500	2.424	-3.0	97.0
PFDoDA	2.500	2.423	-3.1	96.9
PFDS	2.413	2.507	3.9	103.9
PFHpA	2.500	2.340	-6.4	93.6
PFHpS	2.383	2.367	-0.7	99.3
PFHxA	2.500	2.380	-4.8	95.2
PFHxS	2.285	2.138	-6.4	93.6
PFNA	2.500	2.326	-7.0	93.0
PFNS	2.405	2.438	1.4	101.4
PFOA	2.500	2.464	-1.4	98.6
PFOS	2.320	2.383	2.7	102.7

# Initial Calibration Verification

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-ICV372  
 Lab FileID: 6Q26482.D

PFPeA	5.000	4.839	-3.2	96.8
PFPeS	2.353	2.151	-8.6	91.4
PFTeDA	2.500	2.544	1.8	101.8
PFTTrDA	2.500	2.284	-8.7	91.3
PFUnDA	2.500	2.516	0.6	100.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.906	3.8	103.8
13C3-HFPO-DA	10.000	10.645	6.5	106.5
9C1-PF3ONS	4.675	4.669	-0.1	99.9
ADONA	4.725	4.739	0.3	100.3
HFPO-DA	5.000	4.817	-3.7	96.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.739	-5.9	94.1
5:3FTCA	62.400	60.276	-3.4	96.6
7:3FTCA	62.400	58.692	-5.9	94.1
d3-MeFOSA	2.500	2.455	-1.8	98.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.106	2.1	102.1
EtFOSE	12.500	12.230	-2.2	97.8
MeFOSA	5.000	4.588	-8.2	91.8
MeFOSE	12.500	11.619	-7.0	93.0
PFDoDS	2.425	2.401	-1.0	99.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.843	-3.1	96.9
d7-MeFOSE	25.000	24.505	-2.0	98.0
d9-EtFOSE	25.000	23.387	-6.5	93.5
d5-EtFOSA	2.500	2.302	-7.9	92.1
NFDHA	5.000	4.824	-3.5	96.5
PFMBA	5.000	4.817	-3.7	96.3
PFMPA	5.000	4.776	-4.5	95.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.135	-7.1	92.9

CC Criteria: +/- 30%



**Initial Calibration Verification**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-ICV372  
 Lab FileID: 6Q26483.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\101623\_1633\_S6Q372\s6q372.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26473.d  
 2:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26474.d  
 3:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26475.d  
 4:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26476.d  
 5:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26477.d  
 6:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26478.d  
 7:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26479.d  
 8:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26480.d

Data File: 6Q26483  
 Type : QC  
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.963	-0.7	99.3
13C2-6:2FTS	5.000	4.991	-0.2	99.8
13C2-8:2FTS	5.000	5.233	4.7	104.7
13C2-PFDoDA	1.250	1.289	3.1	103.1
13C2-PFTeDA	1.250	1.237	-1.0	99.0
13C3-PFBS	2.500	2.492	-0.3	99.7
13C3-PFHxS	2.500	2.377	-4.9	95.1
13C4-PFBA	10.000	10.027	0.3	100.3
13C4-PFHpA	2.500	2.659	6.4	106.4
13C5-PFHxA	2.500	2.589	3.6	103.6
13C5-PFPeA	5.000	5.117	2.3	102.3
13C6-PFDA	1.250	1.204	-3.7	96.3
13C7-PFUnDA	1.250	1.192	-4.6	95.4
13C8-FOSA	2.500	2.674	7.0	107.0
13C8-PFOA	2.500	2.809	12.4	112.4
13C8-PFOS	2.500	2.712	8.5	108.5
13C9-PFNA	1.250	1.253	0.2	100.2
4:2FTS	20.000	20.336	1.7	101.7
6:2FTS	20.000	20.254	1.3	101.3
8:2FTS	20.000	17.717	-11.4	88.6
d3-MeFOSAA	5.000	5.102	2.0	102.0
EtFOSAA	20.000	18.345	-8.3	91.7
FOSA	20.000	17.624	-11.9	88.1
MeFOSAA	20.000	20.755	3.8	103.8
PFBA	20.000	18.639	-6.8	93.2
PFBS	20.000	18.949	-5.3	94.7
PFDA	20.000	20.657	3.3	103.3
PFDoDA	20.000	16.004	-20.0	80.0
PFDS	20.000	18.888	-5.6	94.4
PFHpA	20.000	18.160	-9.2	90.8
PFHpS	20.000	17.341	-13.3	86.7
PFHxA	20.000	19.449	-2.8	97.2
PFHxS	20.000	20.929	4.6	104.6
PFNA	20.000	21.710	8.5	108.5
PFNS	20.000	17.503	-12.5	87.5
PFOA	20.000	18.012	-9.9	90.1
PFOS	20.000	17.527	-12.4	87.6

# Initial Calibration Verification

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-ICV372  
 Lab FileID: 6Q26483.D

PFPeA	20.000	19.163	-4.2	95.8
PFPeS	20.000	20.799	4.0	104.0
PFTeDA	20.000	19.967	-0.2	99.8
PFTrDA	20.000	17.566	-12.2	87.8
PFUnDA	20.000	18.035	-9.8	90.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	19.949	-0.3	99.7
13C3-HFPO-DA	10.000	9.866	-1.3	98.7
9C1-PF3ONS	20.000	19.161	-4.2	95.8
ADONA	20.000	20.329	1.6	101.6
HFPO-DA	20.000	19.784	-1.1	98.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	18.070	-9.7	90.3
5:3FTCA	20.000	19.697	-1.5	98.5
7:3FTCA	20.000	17.661	-11.7	88.3
d3-MeFOSA	2.500	2.617	4.7	104.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	18.359	-8.2	91.8
EtFOSE	100.000	94.950	-5.1	94.9
MeFOSA	20.000	18.020	-9.9	90.1
MeFOSE	100.000	98.024	-2.0	98.0
PFDoDS	20.000	17.347	-13.3	86.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.326	6.5	106.5
d7-MeFOSE	25.000	25.938	3.8	103.8
d9-EtFOSE	25.000	26.389	5.6	105.6
d5-EtFOSA	2.500	2.501	0.0	100.0
NFDHA	20.000	18.900	-5.5	94.5
PFMBA	20.000	18.750	-6.3	93.7
PFMPA	20.000	18.874	-5.6	94.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	16.645	-16.8	83.2

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-CC372  
 Lab FileID: 6Q26484.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\101623\_1633\_S6Q372\s6q372.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26473.d  
 2:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26474.d  
 3:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26475.d  
 4:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26476.d  
 5:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26477.d  
 6:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26478.d  
 7:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26479.d  
 8:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26480.d

Data File: 6Q26484  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.418	8.4	108.4
13C2-6:2FTS	5.000	4.831	-3.4	96.6
13C2-8:2FTS	5.000	4.951	-1.0	99.0
13C2-PFDoDA	1.250	1.237	-1.1	98.9
13C2-PFTeDA	1.250	1.173	-6.2	93.8
13C3-PFBS	2.500	2.385	-4.6	95.4
13C3-PFHxS	2.500	2.399	-4.1	95.9
13C4-PFBA	10.000	10.125	1.3	101.3
13C4-PFHpA	2.500	2.743	9.7	109.7
13C5-PFHxA	2.500	2.675	7.0	107.0
13C5-PFPeA	5.000	5.179	3.6	103.6
13C6-PFDA	1.250	1.302	4.2	104.2
13C7-PFUnDA	1.250	1.342	7.3	107.3
13C8-FOSA	2.500	2.429	-2.8	97.2
13C8-PFOA	2.500	2.452	-1.9	98.1
13C8-PFOS	2.500	2.509	0.3	100.3
13C9-PFNA	1.250	1.314	5.1	105.1
4:2FTS	9.375	8.329	-11.2	88.8
6:2FTS	9.500	9.273	-2.4	97.6
8:2FTS	9.600	9.258	-3.6	96.4
d3-MeFOSAA	5.000	4.879	-2.4	97.6
EtFOSAA	2.500	2.244	-10.3	89.7
FOSA	2.500	2.422	-3.1	96.9
MeFOSAA	2.500	2.449	-2.0	98.0
PFBA	10.000	9.630	-3.7	96.3
PFBS	2.218	2.297	3.6	103.6
PFDA	2.500	2.393	-4.3	95.7
PFDoDA	2.500	2.508	0.3	100.3
PFDS	2.413	2.275	-5.7	94.3
PFHpA	2.500	2.183	-12.7	87.3
PFHpS	2.383	2.214	-7.1	92.9
PFHxA	2.500	2.357	-5.7	94.3
PFHxS	2.285	2.322	1.6	101.6
PFNA	2.500	2.348	-6.1	93.9
PFNS	2.405	2.260	-6.0	94.0
PFOA	2.500	2.326	-7.0	93.0
PFOS	2.320	2.138	-7.8	92.2

# Continuing Calibration Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-CC372  
 Lab FileID: 6Q26484.D

PFPeA	5.000	4.863	-2.7	97.3
PFPeS	2.353	2.444	3.9	103.9
PFTeDA	2.500	2.590	3.6	103.6
PFTTrDA	2.500	2.513	0.5	100.5
PFUnDA	2.500	2.296	-8.2	91.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.540	-3.9	96.1
13C3-HFPO-DA	10.000	10.341	3.4	103.4
9C1-PF3ONS	4.675	4.606	-1.5	98.5
ADONA	4.725	4.513	-4.5	95.5
HFPO-DA	5.000	4.718	-5.6	94.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.551	-7.4	92.6
5:3FTCA	62.400	58.583	-6.1	93.9
7:3FTCA	62.400	58.973	-5.5	94.5
d3-MeFOSA	2.500	2.314	-7.5	92.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.947	-1.1	98.9
EtFOSE	12.500	11.452	-8.4	91.6
MeFOSA	5.000	5.224	4.5	104.5
MeFOSE	12.500	12.377	-1.0	99.0
PFDoDS	2.425	2.362	-2.6	97.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.189	3.8	103.8
d7-MeFOSE	25.000	24.228	-3.1	96.9
d9-EtFOSE	25.000	24.705	-1.2	98.8
d5-EtFOSA	2.500	2.406	-3.8	96.2
NFDHA	5.000	4.708	-5.8	94.2
PFMBA	5.000	4.801	-4.0	96.0
PFMPA	5.000	4.814	-3.7	96.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.019	-9.7	90.3

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-CC372  
 Lab FileID: 6Q26485.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\101623\_1633\_S6Q372\s6q372.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26473.d  
 2:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26474.d  
 3:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26475.d  
 4:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26476.d  
 5:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26477.d  
 6:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26478.d  
 7:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26479.d  
 8:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26480.d

Data File: 6Q26485  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.538	10.8	110.8
13C2-6:2FTS	5.000	5.239	4.8	104.8
13C2-8:2FTS	5.000	5.266	5.3	105.3
13C2-PFDoDA	1.250	1.217	-2.6	97.4
13C2-PFTeDA	1.250	1.221	-2.3	97.7
13C3-PFBS	2.500	2.443	-2.3	97.7
13C3-PFHxS	2.500	2.438	-2.5	97.5
13C4-PFBA	10.000	9.995	-0.1	99.9
13C4-PFHpA	2.500	2.755	10.2	110.2
13C5-PFHxA	2.500	2.594	3.8	103.8
13C5-PFPeA	5.000	5.229	4.6	104.6
13C6-PFDA	1.250	1.220	-2.4	97.6
13C7-PFUnDA	1.250	1.355	8.4	108.4
13C8-FOSA	2.500	2.351	-5.9	94.1
13C8-PFOA	2.500	2.564	2.6	102.6
13C8-PFOS	2.500	2.383	-4.7	95.3
13C9-PFNA	1.250	1.333	6.7	106.7
4:2FTS	0.750	0.702	-6.5	93.5
6:2FTS	0.760	0.954	25.6	125.6
8:2FTS	0.768	0.751	-2.2	97.8
d3-MeFOSAA	5.000	4.748	-5.0	95.0
EtFOSAA	0.200	0.209	4.6	104.6
FOSA	0.200	0.201	0.7	100.7
MeFOSAA	0.200	0.204	2.0	102.0
PFBA	0.800	0.800	0.0	100.0
PFBS	0.177	0.196	10.8	110.8
PFDA	0.200	0.221	10.3	110.3
PFDoDA	0.200	0.226	13.1	113.1
PFDS	0.193	0.177	-8.4	91.6
PFHpA	0.200	0.187	-6.6	93.4
PFHpS	0.191	0.190	-0.7	99.3
PFHxA	0.200	0.199	-0.6	99.4
PFHxS	0.183	0.209	14.3	114.3
PFNA	0.200	0.210	5.1	105.1
PFNS	0.192	0.178	-7.3	92.7
PFOA	0.200	0.196	-2.1	97.9
PFOS	0.186	0.180	-3.5	96.5

# Continuing Calibration Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-CC372  
 Lab FileID: 6Q26485.D

PFPeA	0.400	0.410	2.6	102.6
PFPeS	0.188	0.199	5.7	105.7
PFTeDA	0.200	0.207	3.4	103.4
PFTTrDA	0.200	0.212	6.2	106.2
PFUnDA	0.200	0.190	-4.8	95.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.379	0.1	100.1
13C3-HFPO-DA	10.000	10.679	6.8	106.8
9C1-PF3ONS	0.374	0.380	1.7	101.7
ADONA	0.378	0.372	-1.7	98.3
HFPO-DA	0.400	0.366	-8.6	91.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.944	-5.4	94.6
5:3FTCA	4.992	5.041	1.0	101.0
7:3FTCA	4.992	4.670	-6.4	93.6
d3-MeFOSA	2.500	2.255	-9.8	90.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.368	-8.1	91.9
EtFOSE	1.000	0.945	-5.5	94.5
MeFOSA	0.400	0.416	4.1	104.1
MeFOSE	1.000	0.951	-4.9	95.1
PFDODS	0.194	0.208	7.2	107.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.614	-7.7	92.3
d7-MeFOSE	25.000	23.881	-4.5	95.5
d9-EtFOSE	25.000	23.647	-5.4	94.6
d5-EtFOSA	2.500	2.382	-4.7	95.3
NFDHA	0.400	0.436	8.9	108.9
PFMBA	0.400	0.393	-1.6	98.4
PFMPA	0.400	0.401	0.1	100.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.342	-4.0	96.0

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-CC372  
 Lab FileID: 6Q26496.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\101623\_1633\_S6Q372\s6q372.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26473.d  
 2:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26474.d  
 3:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26475.d  
 4:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26476.d  
 5:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26477.d  
 6:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26478.d  
 7:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26479.d  
 8:D:\MassHunter\Data\101623\_1633\_S6Q372\6Q26480.d

Data File: 6Q26496  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.189	3.8	103.8
13C2-6:2FTS	5.000	5.543	10.9	110.9
13C2-8:2FTS	5.000	4.863	-2.7	97.3
13C2-PFDoDA	1.250	1.269	1.5	101.5
13C2-PFTeDA	1.250	1.290	3.2	103.2
13C3-PFBS	2.500	2.493	-0.3	99.7
13C3-PFHxS	2.500	2.353	-5.9	94.1
13C4-PFBA	10.000	9.949	-0.5	99.5
13C4-PFHpA	2.500	2.620	4.8	104.8
13C5-PFHxA	2.500	2.486	-0.6	99.4
13C5-PFPeA	5.000	5.061	1.2	101.2
13C6-PFDA	1.250	1.252	0.2	100.2
13C7-PFUnDA	1.250	1.283	2.7	102.7
13C8-FOSA	2.500	2.532	1.3	101.3
13C8-PFOA	2.500	2.635	5.4	105.4
13C8-PFOS	2.500	2.773	10.9	110.9
13C9-PFNA	1.250	1.277	2.2	102.2
4:2FTS	9.375	9.052	-3.4	96.6
6:2FTS	9.500	8.240	-13.3	86.7
8:2FTS	9.600	9.724	1.3	101.3
d3-MeFOSAA	5.000	5.175	3.5	103.5
EtFOSAA	2.500	2.371	-5.2	94.8
FOSA	2.500	2.460	-1.6	98.4
MeFOSAA	2.500	2.347	-6.1	93.9
PFBA	10.000	9.665	-3.4	96.6
PFBS	2.218	2.262	2.0	102.0
PFDA	2.500	2.283	-8.7	91.3
PFDoDA	2.500	2.430	-2.8	97.2
PFDS	2.413	2.266	-6.1	93.9
PFHpA	2.500	2.250	-10.0	90.0
PFHpS	2.383	2.125	-10.8	89.2
PFHxA	2.500	2.520	0.8	100.8
PFHxS	2.285	2.327	1.8	101.8
PFNA	2.500	2.263	-9.5	90.5
PFNS	2.405	2.100	-12.7	87.3
PFOA	2.500	2.461	-1.5	98.5
PFOS	2.320	2.105	-9.3	90.7

# Continuing Calibration Summary

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q372-CC372  
 Lab FileID: 6Q26496.D

PFPeA	5.000	4.800	-4.0	96.0
PFPeS	2.353	2.454	4.3	104.3
PFTeDA	2.500	2.275	-9.0	91.0
PFTTrDA	2.500	2.380	-4.8	95.2
PFUnDA	2.500	2.415	-3.4	96.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.738	0.3	100.3
13C3-HFPO-DA	10.000	10.151	1.5	101.5
9C1-PF3ONS	4.675	4.509	-3.5	96.5
ADONA	4.725	4.361	-7.7	92.3
HFPO-DA	5.000	4.725	-5.5	94.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.677	-6.4	93.6
5:3FTCA	62.400	60.996	-2.3	97.7
7:3FTCA	62.400	60.503	-3.0	97.0
d3-MeFOSA	2.500	2.485	-0.6	99.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.729	-5.4	94.6
EtFOSE	12.500	11.790	-5.7	94.3
MeFOSA	5.000	4.939	-1.2	98.8
MeFOSE	12.500	12.195	-2.4	97.6
PFDoDS	2.425	2.177	-10.2	89.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.169	3.4	103.4
d7-MeFOSE	25.000	24.911	-0.4	99.6
d9-EtFOSE	25.000	25.771	3.1	103.1
d5-EtFOSA	2.500	2.599	4.0	104.0
NFDHA	5.000	4.816	-3.7	96.3
PFMBA	5.000	4.757	-4.9	95.1
PFMPA	5.000	4.828	-3.4	96.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.519	1.5	101.5

CC Criteria: +/- 30%



## Run Sequence Report

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q372	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
S6Q372-RT	6Q26470.D	10/16/23 16:38	n/a	Retention Time Marker
S6Q372-RT	6Q26471.D	10/16/23 16:57	n/a	Retention Time Marker
S6Q372-IC372	6Q26472.D	10/16/23 17:11	n/a	Mass Calibration Verification
S6Q372-IC372	6Q26473.D	10/16/23 17:25	n/a	Initial cal 1
S6Q372-IC372	6Q26474.D	10/16/23 17:40	n/a	Initial cal 2
S6Q372-IC372	6Q26475.D	10/16/23 17:54	n/a	Initial cal 3
S6Q372-ICC372	6Q26476.D	10/16/23 18:08	n/a	Initial cal 4
S6Q372-IC372	6Q26477.D	10/16/23 18:23	n/a	Initial cal 5
S6Q372-IC372	6Q26478.D	10/16/23 18:37	n/a	Initial cal 6
S6Q372-IC372	6Q26479.D	10/16/23 18:51	n/a	Initial cal 7
S6Q372-IC372	6Q26480.D	10/16/23 19:06	n/a	Initial cal 8
S6Q372-IBLK	6Q26481.D	10/16/23 19:20	n/a	Instrument Blank
S6Q372-IBLK	6Q26481.D	10/16/23 19:20	n/a	Instrument Blank
S6Q372-ICV372	6Q26482.D	10/16/23 19:34	n/a	Initial cal verification 4
S6Q372-ICV372	6Q26483.D	10/16/23 19:49	n/a	Initial cal verification 20
S6Q372-CC372	6Q26484.D	10/16/23 20:03	n/a	Continuing cal 4
S6Q372-CC372	6Q26485.D	10/16/23 20:17	n/a	Continuing cal 1.0LL
OP99514-BS	6Q26486.D	10/16/23 20:32	OP99514	Blank Spike
OP99514-LLBS	6Q26487.D	10/16/23 20:46	OP99514	Blank Spike
OP99514-MB	6Q26488.D	10/16/23 21:00	OP99514	Method Blank
FC10326-1	6Q26489.D	10/16/23 21:15	OP99514	AF-RHMW04-WGN01LF-2310
OP99514-MS	6Q26490.D	10/16/23 21:29	OP99514	Matrix Spike
FC10326-2	6Q26491.D	10/16/23 21:43	OP99514	AF-RHMW02-WGN01LF-2310
FC10326-3	6Q26492.D	10/16/23 21:58	OP99514	AF-RHMW02-WGFD01LF-2310
FC10326-4	6Q26493.D	10/16/23 22:12	OP99514	AF-RHMW06-WGN01LF-2310
OP99514-DUP	6Q26494.D	10/16/23 22:26	OP99514	Duplicate
FC10326-5	6Q26495.D	10/16/23 22:41	OP99514	AF-RHMW03-WGN01LF-2310
S6Q372-CC372	6Q26496.D	10/16/23 22:55	n/a	Continuing cal 4
S6Q372-ICCB	6Q26497.D	10/16/23 23:09	n/a	Continuing Calibration Blank
OP99513-BS	6Q26498.D	10/16/23 23:24	OP99513	Blank Spike
OP99513-LLBS	6Q26499.D	10/16/23 23:38	OP99513	Blank Spike
OP99513-MB	6Q26500.D	10/16/23 23:52	OP99513	Method Blank
ZZZZZZ	6Q26501.D	10/17/23 00:07	OP99513	(unrelated sample)
ZZZZZZ	6Q26502.D	10/17/23 00:21	OP99513	(unrelated sample)
ZZZZZZ	6Q26503.D	10/17/23 00:35	OP99513	(unrelated sample)
ZZZZZZ	6Q26504.D	10/17/23 00:50	OP99513	(unrelated sample)
ZZZZZZ	6Q26505.D	10/17/23 01:04	OP99513	(unrelated sample)
ZZZZZZ	6Q26506.D	10/17/23 01:18	OP99513	(unrelated sample)
ZZZZZZ	6Q26507.D	10/17/23 01:33	OP99513	(unrelated sample)
S6Q372-CC372	6Q26508.D	10/17/23 01:47	n/a	Continuing cal 4
S6Q372-ICCB	6Q26509.D	10/17/23 02:01	n/a	Continuing Calibration Blank
S6Q372-ICCB	6Q26509.D	10/17/23 02:01	n/a	Continuing Calibration Blank
ZZZZZZ	6Q26510.D	10/17/23 02:15	OP99513	(unrelated sample)
ZZZZZZ	6Q26511.D	10/17/23 02:30	OP99513	(unrelated sample)
ZZZZZZ	6Q26512.D	10/17/23 02:44	OP99513	(unrelated sample)
ZZZZZZ	6Q26513.D	10/17/23 02:58	OP99345	(unrelated sample)

# Run Sequence Report

Job Number: FC10326  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q372	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	6Q26514.D	10/17/23 03:13	OP99345	(unrelated sample)
FC9904-2	6Q26515.D	10/17/23 03:27	OP99347	(used for QC only; not part of job FC10326)
ZZZZZZ	6Q26517.D	10/17/23 03:56	OP99330	(unrelated sample)
ZZZZZZ	6Q26518.D	10/17/23 04:10	OP99330	(unrelated sample)
ZZZZZZ	6Q26519.D	10/17/23 04:24	OP99330	(unrelated sample)
S6Q372-CC372	6Q26520.D	10/17/23 04:39	n/a	Continuing cal 4
S6Q372-ICCB	6Q26521.D	10/17/23 04:53	n/a	Continuing Calibration Blank
S6Q372-ICCB	6Q26521.D	10/17/23 04:53	n/a	Continuing Calibration Blank
ZZZZZZ	6Q26522.D	10/17/23 05:07	OP99330	(unrelated sample)
ZZZZZZ	6Q26523.D	10/17/23 05:22	OP99424	(unrelated sample)
ZZZZZZ	6Q26524.D	10/17/23 05:36	OP99424	(unrelated sample)
ZZZZZZ	6Q26525.D	10/17/23 05:50	OP99424	(unrelated sample)
OP99369-BS	6Q26526.D	10/17/23 06:05	OP99369	Blank Spike
OP99369-LLBS	6Q26527.D	10/17/23 06:19	OP99369	Blank Spike
OP99369-MB	6Q26528.D	10/17/23 06:33	OP99369	Method Blank
ZZZZZZ	6Q26529.D	10/17/23 06:48	OP99369	(unrelated sample)
ZZZZZZ	6Q26530.D	10/17/23 07:02	OP99369	(unrelated sample)
ZZZZZZ	6Q26531.D	10/17/23 07:16	OP99369	(unrelated sample)
S6Q372-CC372	6Q26532.D	10/17/23 07:31	n/a	Continuing cal 4
S6Q372-ICCB	6Q26533.D	10/17/23 07:45	n/a	Continuing Calibration Blank
S6Q372-ICCB	6Q26533.D	10/17/23 07:45	n/a	Continuing Calibration Blank
ZZZZZZ	6Q26534.D	10/17/23 07:59	OP99369	(unrelated sample)
ZZZZZZ	6Q26535.D	10/17/23 08:14	OP99369	(unrelated sample)
ZZZZZZ	6Q26536.D	10/17/23 08:28	OP99369	(unrelated sample)
FC9933-7	6Q26537.D	10/17/23 08:42	OP99369	(used for QC only; not part of job FC10326)
OP99369-MS	6Q26538.D	10/17/23 08:57	OP99369	Matrix Spike
OP99369-MSD	6Q26539.D	10/17/23 09:11	OP99369	Matrix Spike Duplicate
ZZZZZZ	6Q26540.D	10/17/23 09:25	OP99369	(unrelated sample)
ZZZZZZ	6Q26541.D	10/17/23 09:39	OP99369	(unrelated sample)
ZZZZZZ	6Q26542.D	10/17/23 09:54	OP99369	(unrelated sample)
ZZZZZZ	6Q26543.D	10/17/23 10:08	OP99369	(unrelated sample)
S6Q372-CC372	6Q26544.D	10/17/23 10:22	n/a	Continuing cal 4
S6Q372-ICCB	6Q26545.D	10/17/23 10:37	n/a	Continuing Calibration Blank
OP99491-BS	6Q26546.D	10/17/23 10:53	OP99491	Blank Spike
OP99491-LLBS	6Q26547.D	10/17/23 11:07	OP99491	Blank Spike
OP99491-MB	6Q26548.D	10/17/23 11:22	OP99491	Method Blank
ZZZZZZ	6Q26549.D	10/17/23 11:36	OP99491	(unrelated sample)
ZZZZZZ	6Q26550.D	10/17/23 11:50	OP99491	(unrelated sample)
ZZZZZZ	6Q26551.D	10/17/23 12:05	OP99491	(unrelated sample)
S6Q372-ECC372	6Q26553.D	10/17/23 12:21	n/a	Ending cal 4
S6Q372-ICCB	6Q26554.D	10/17/23 12:35	n/a	Continuing Calibration Blank

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**MS Semi-volatiles**

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**Raw Data**

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26489.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 10/16/2023 9:15:08 PM  
Sample Name : FC10326-1  
Vial : P4-A4  
DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
Batch Name : s6q372.batch.bin  
Sample Information : OP99514,S6Q372,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	126253	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	43686	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	42842	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	43147	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55349	2.50 µg/L	0.000
M9-PFNA	7.666	472.1 -> 427.0	24906	1.25 µg/L	0.012
M6-PFDA	8.134	519.1 -> 474.1	24463	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	25944	1.25 µg/L	0.000
M2-PFDoDA	9.018	615.1 -> 570.0	28431	1.25 µg/L	0.012
M2-PFTeDA	9.720	715.2 -> 670.0	8931	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	16618	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	19036	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10432	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10104	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2449	5.00 µg/L	0.000
M2-6:2FTS	6.922	429.1 -> 80.9	3336	5.00 µg/L	0.000
M2-8:2FTS	7.934	529.1 -> 80.9	3150	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	23140	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	29258	10.00 µg/L	-0.012
M5-EtFOSAA	8.400	589.2 -> 419.0	18839	5.00 µg/L	0.012
M7-MeFOSE	10.665	623.2 -> 58.9	52372	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	63132	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	4727	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	4206	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	10125	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	52414	5.00 µg/L	0.037
18O2-PFHxS	7.238	403.0 -> 83.9	6521	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	62383	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21170	1.25 µg/L	0.000
13C5-PFNA	7.667	468.0 -> 423.0	21999	1.25 µg/L	0.012
13C2-PFHxA	5.565	315.1 -> 270.0	40600	2.50 µg/L	0.000

**System Monitoring Compounds**

13C2-4:2FTS	5.241	329.1 -> 80.9	2449	6.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.6%		
13C2-6:2FTS	6.922	429.1 -> 80.9	3336	6.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.3%		
13C2-8:2FTS	7.934	529.1 -> 80.9	3150	5.56 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.2%		
13C2-PFDoDA	9.018	615.1 -> 570.0	28431	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-PFTeDA	9.720	715.2 -> 670.0	8931	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.483	302.1 -> 79.9	19036	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.239	402.1 -> 79.9	10432	2.47 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 = 98.7%		
13C4-PFBA	2.963	216.8 -> 171.9	126253	9.77 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C4-PFHpA	6.505	367.1 -> 322.0	43147	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C5-PFHxA	5.565	318.0 -> 273.0	42842	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C5-PFPeA	4.359	268.3 -> 223.0	43686	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C6-PFDA	8.134	519.1 -> 474.1	24463	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C7-PFUnDA	8.588	570.0 -> 525.1	25944	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C8-FOSA	9.654	506.1 -> 77.8	16618	2.05 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 82.1%		
13C8-PFOA	7.136	421.1 -> 376.0	55349	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C8-PFOS	8.284	507.1 -> 79.9	10104	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C9-PFNA	7.666	472.1 -> 427.0	24906	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.8%		
d3-MeFOSAA	8.191	573.2 -> 419.0	23140	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-HFPO-DA	5.930	286.9 -> 168.9	29258	10.21 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
d3-MeFOSA	10.745	515.0 -> 219.0	4206	1.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 71.4%		
d5-EtFOSAA	8.400	589.2 -> 419.0	18839	5.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
d7-MeFOSE	10.665	623.2 -> 58.9	52372	19.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 77.9%		
d9-EtFOSE	10.899	639.2 -> 58.9	63132	20.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 81.4%		
d5-EtFOSA	10.977	531.1 -> 219.0	4727	1.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 70.7%		

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.911	427.1 -> 407.0 427.1 -> 80.9	1257 441	0.34 µg/L	93
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	8.758	599.0 -> 79.9	0	µg/L m	1



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	4.998	313.0 -> 269.0	0	µg/L	m	1
		313.0 -> 118.9	0			
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	-	463.0 -> 419.0	-	N.D.		
		463.0 -> 219.0				
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	8.274	498.9 -> 79.9	447	0.10 µg/L	#m	28
		498.9 -> 98.8	37			
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	8.687	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-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.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

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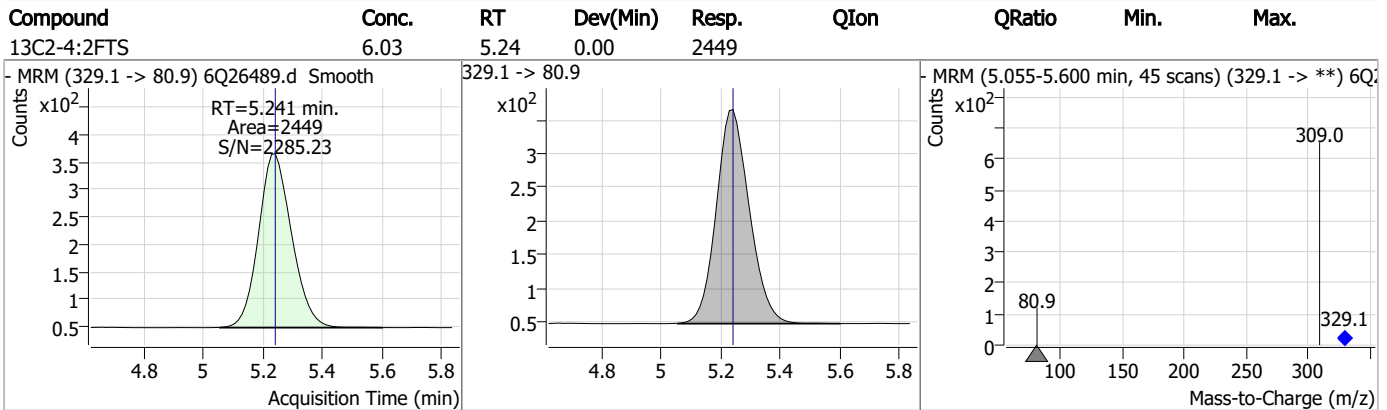
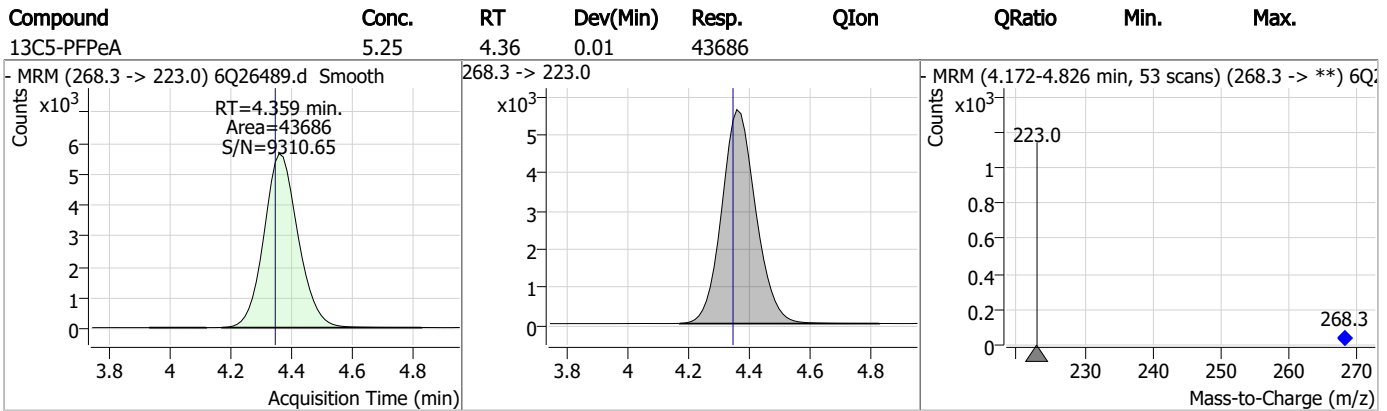
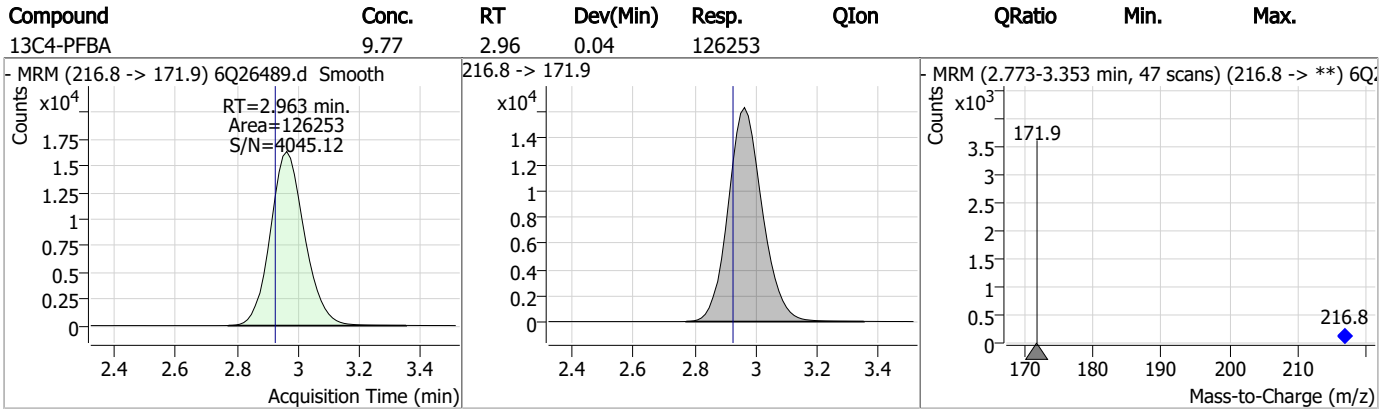
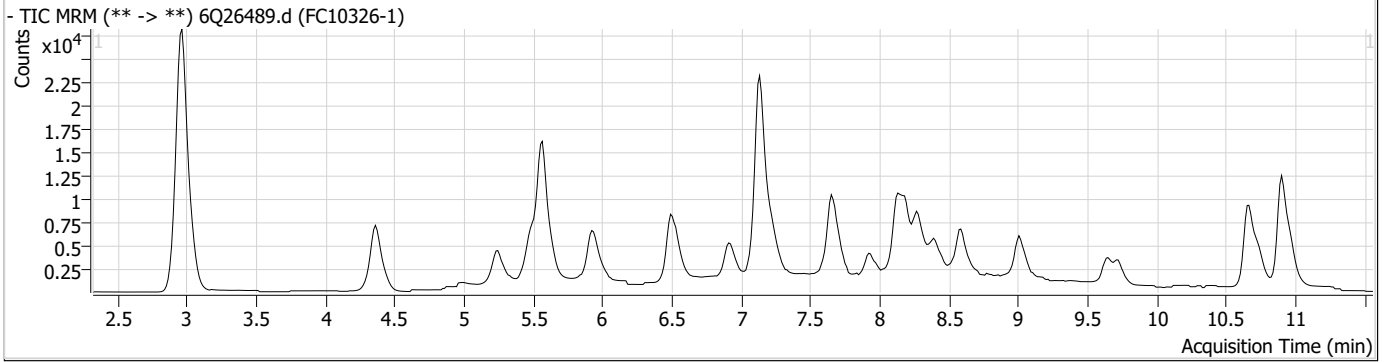
### Perfluorinated Compounds by LC/MS/MS

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

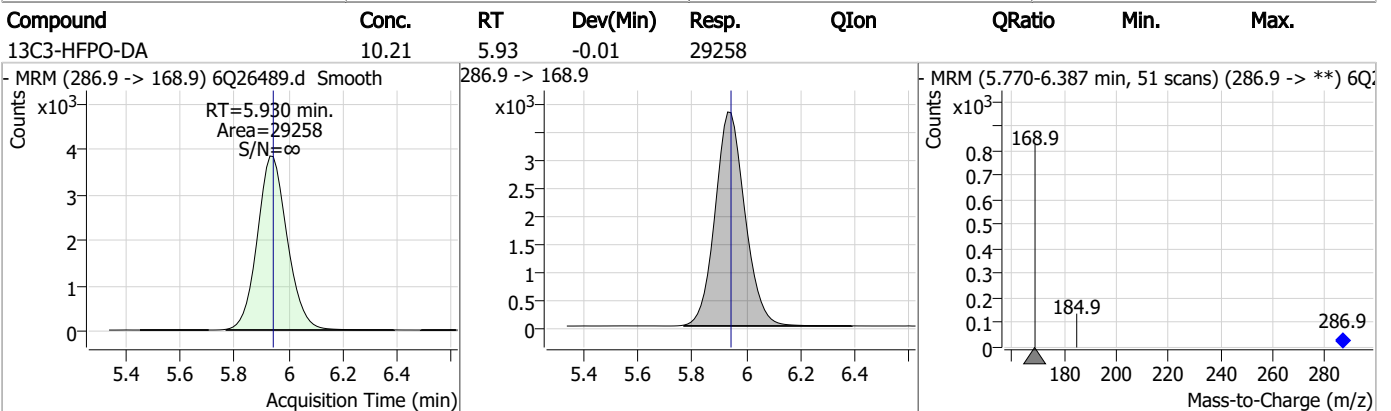
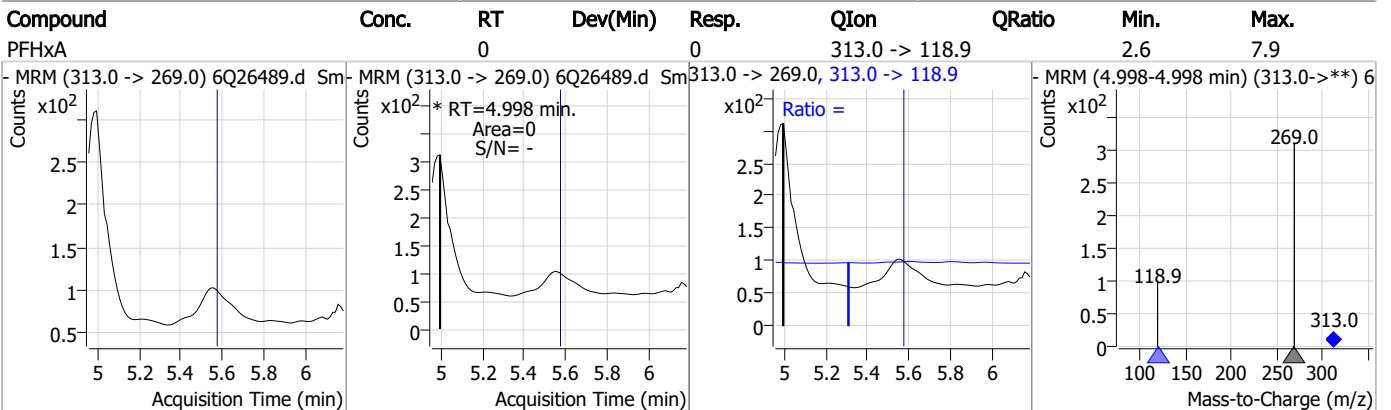
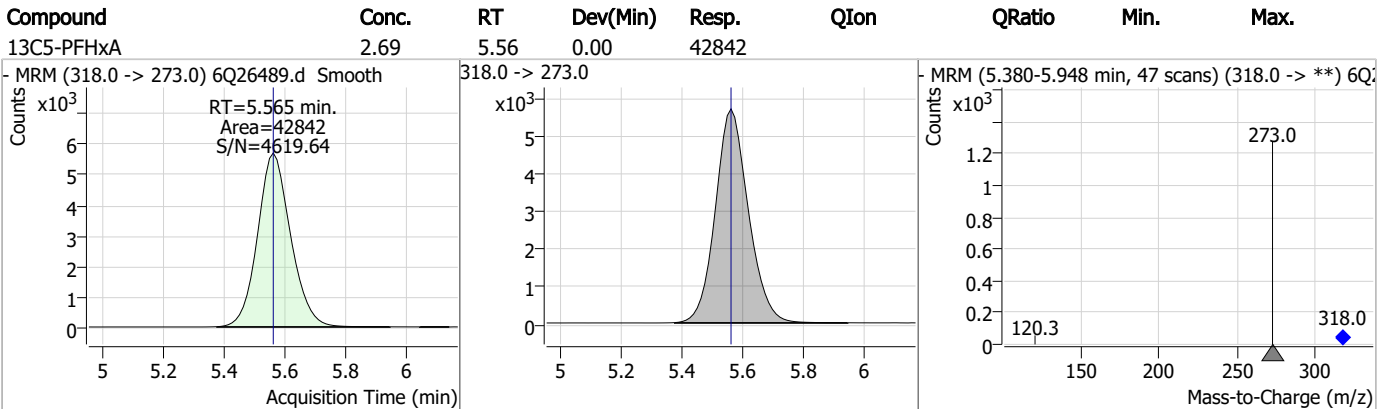
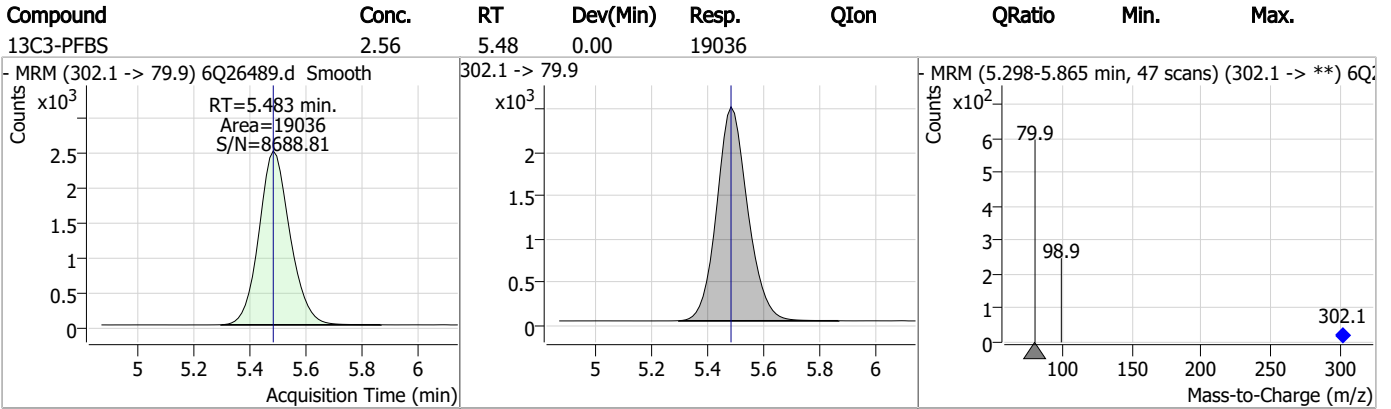


### Perfluorinated Compounds by LC/MS/MS

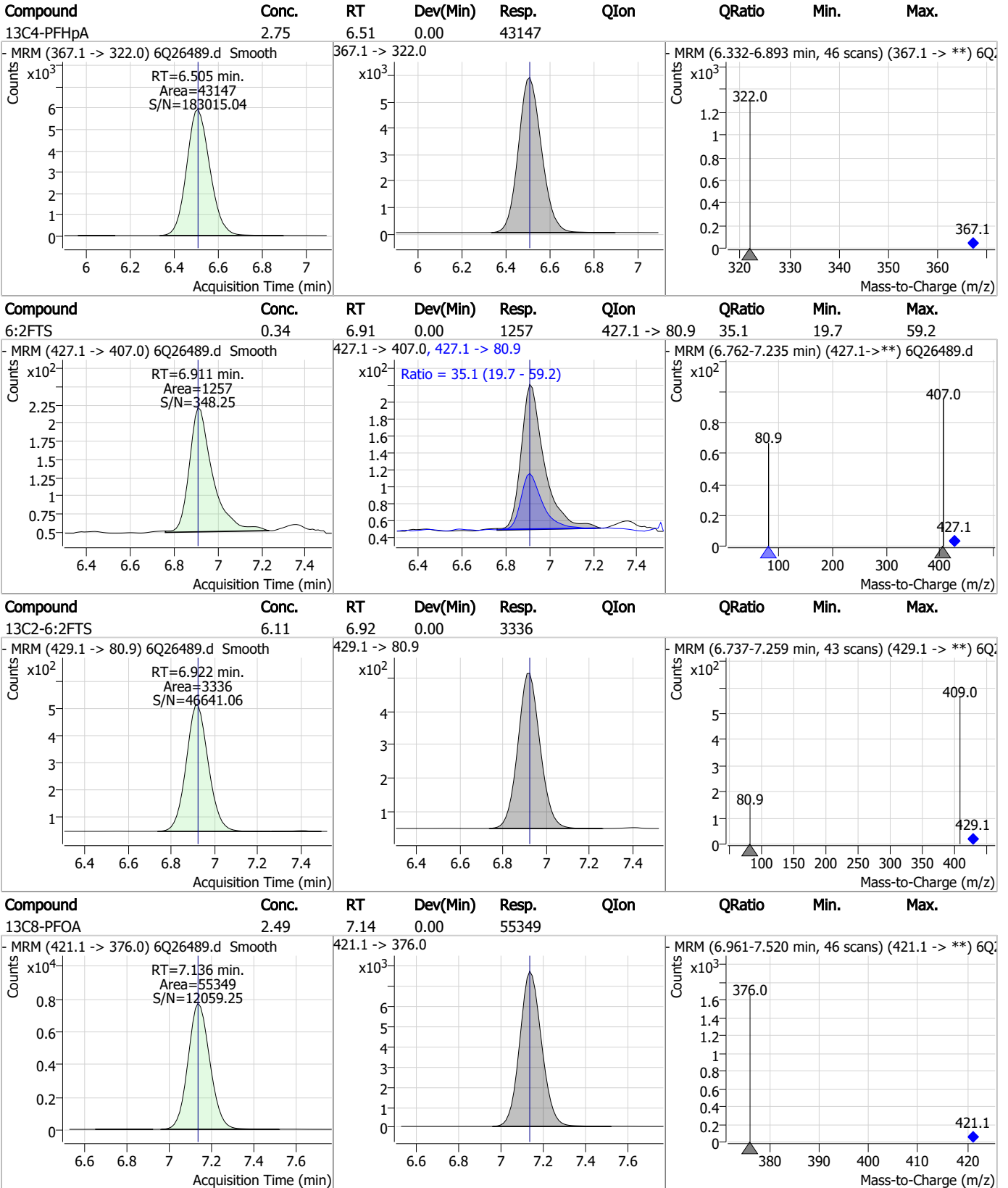




### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



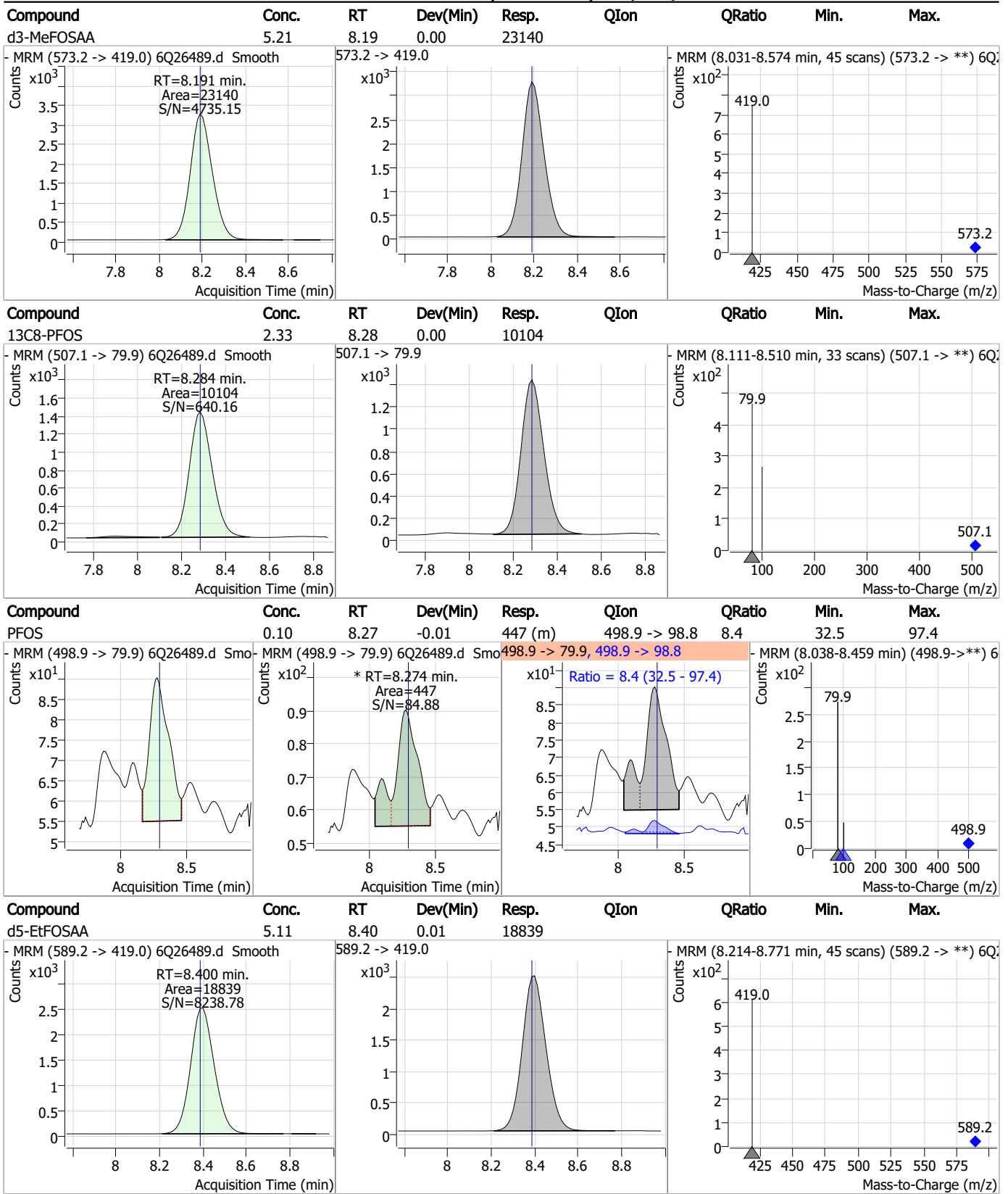
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.47	7.24	0.00	10432				
13C9-PFNA	1.32	7.67	0.01	24906				
13C2-8:2FTS	5.56	7.93	0.01	3150				
13C6-PFDA	1.34	8.13	0.00	24463				

7.1.1

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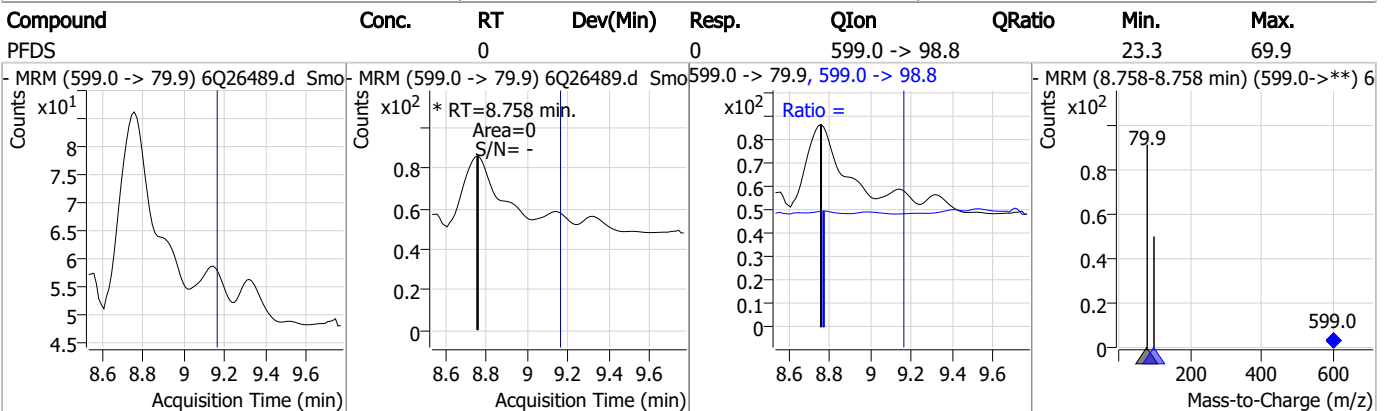
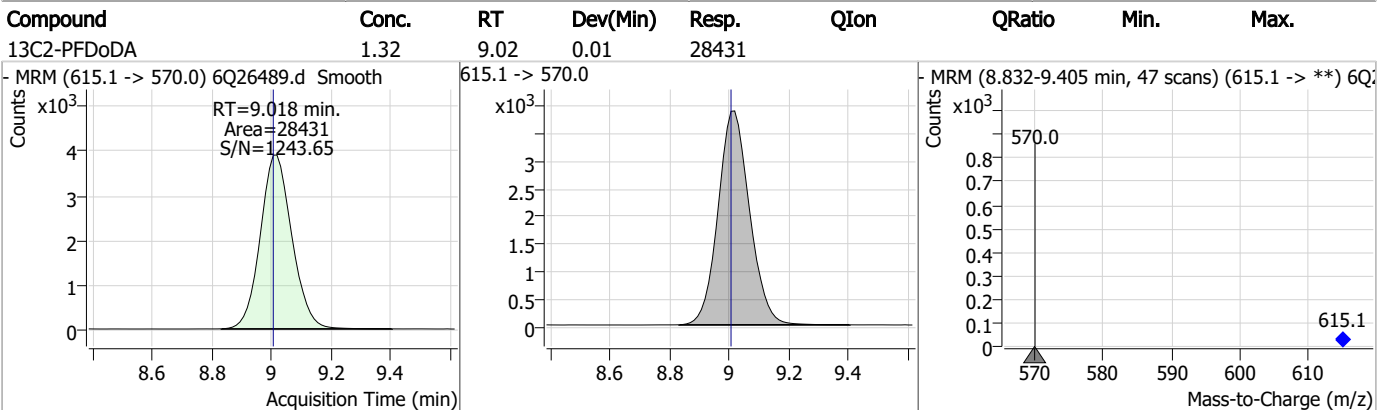
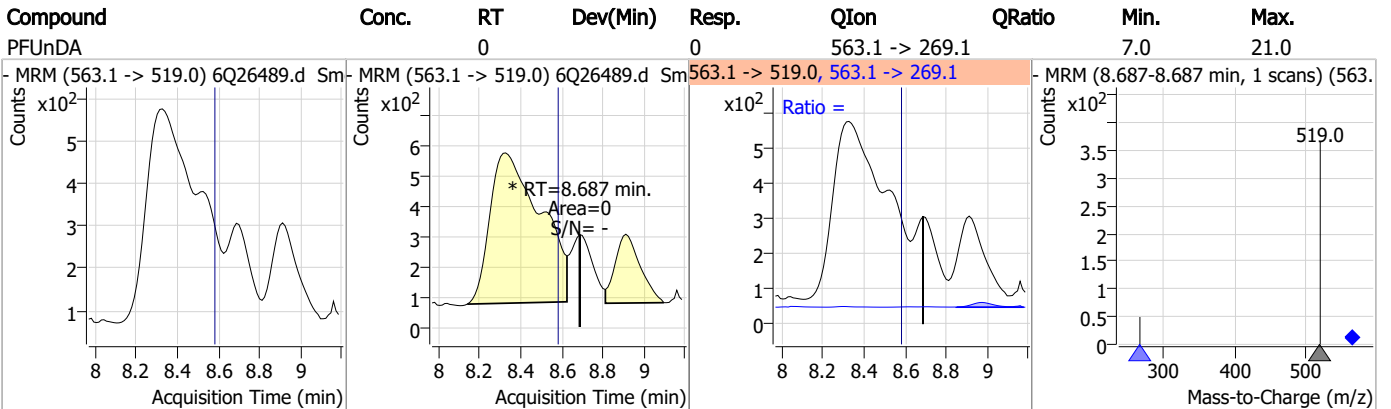
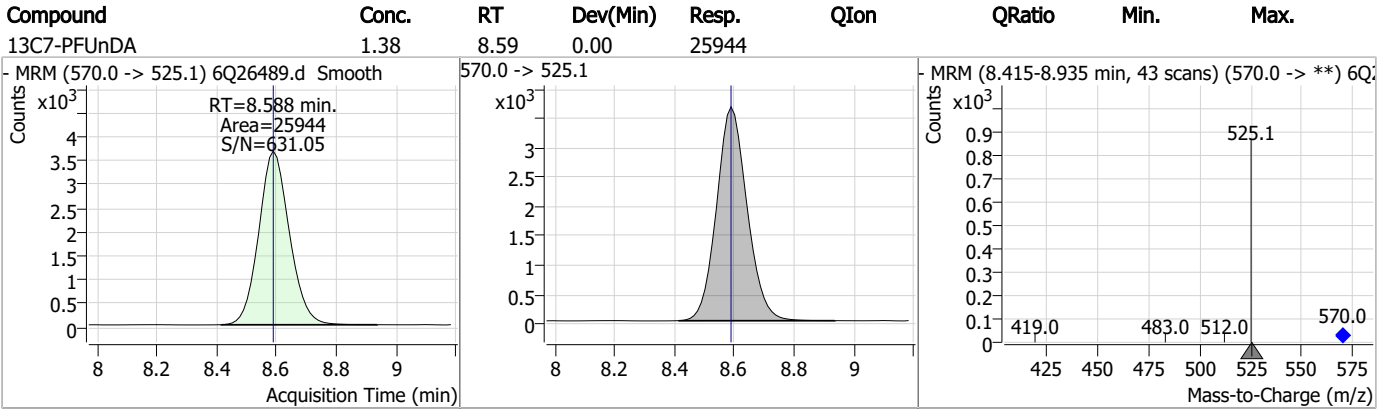
### Perfluorinated Compounds by LC/MS/MS



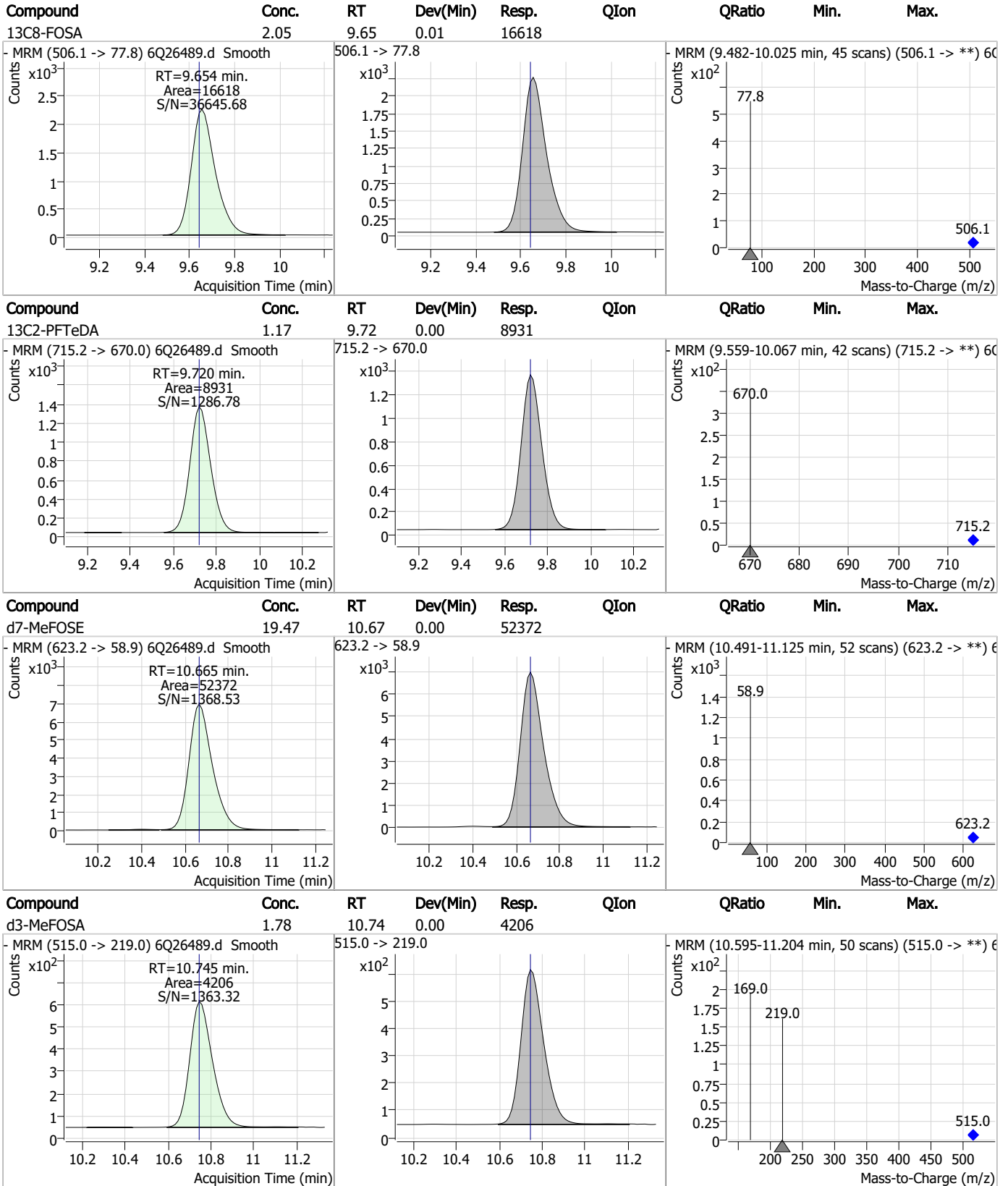
7.1.1  
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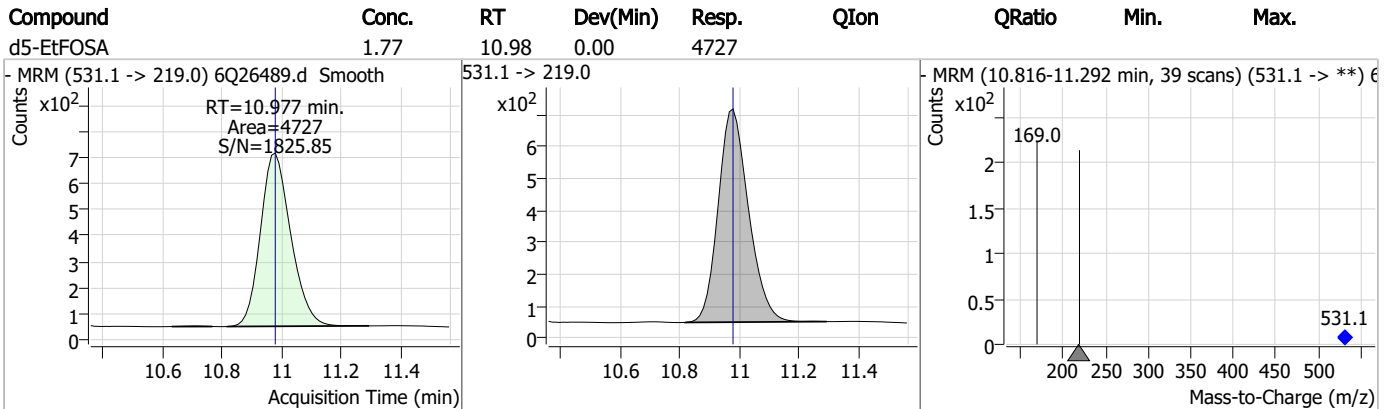
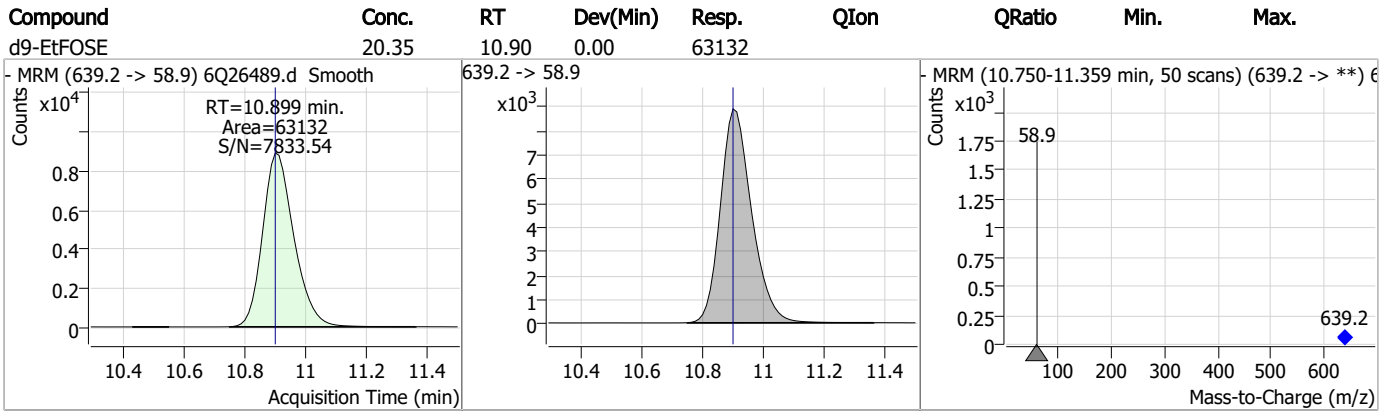
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.1.1  
7



# Manual Integration Approval Summary

Sample Number: FC10326-1                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26489.D                      Analyst approved: 10/17/23 13:27 Martha Valls  
Injection Time: 10/16/23 21:15                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

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

7.1.1.1

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26491.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 9:43:47 PM  
 Sample Name : FC10326-2  
 Vial : P4-A6  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99514,S6Q372,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	94875	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	41551	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	42668	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	44876	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55506	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24802	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	26467	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	25114	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	25632	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	7815	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	18481	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	19150	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	11324	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10033	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2183	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2667	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	2827	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	21242	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	27303	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	16198	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	55193	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	65239	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	5428	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	4654	2.50 µg/L	0.000
13C4-PFOS	8.273	502.8 -> 79.9	9893	2.50 µg/L	-0.012
13C3-PFBA	2.954	216.0 -> 172.0	46958	5.00 µg/L	0.025
18O2-PFHxS	7.238	403.0 -> 83.9	6434	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	62808	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21936	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	23518	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	39763	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2183	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2667	4.96 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2827	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-PFDoDA	9.006	615.1 -> 570.0	25632	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	7815	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.3%		
13C3-PFBS	5.483	302.1 -> 79.9	19150	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFHxS	7.239	402.1 -> 79.9	11324	2.71 µg/L	0.000



7.12  
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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 = 108.6%		
13C4-PFBA	2.963	216.8 -> 171.9	94875	8.20 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 82.0%		
13C4-PFHpA	6.505	367.1 -> 322.0	44876	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C5-PFHxA	5.565	318.0 -> 273.0	42668	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C5-PFPeA	4.359	268.3 -> 223.0	41551	5.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C6-PFDA	8.134	519.1 -> 474.1	26467	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C7-PFUnDA	8.588	570.0 -> 525.1	25114	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C8-FOSA	9.654	506.1 -> 77.8	18481	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C8-PFOA	7.136	421.1 -> 376.0	55506	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C8-PFOS	8.284	507.1 -> 79.9	10033	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C9-PFNA	7.654	472.1 -> 427.0	24802	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
d3-MeFOSAA	8.191	573.2 -> 419.0	21242	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-HFPO-DA	5.930	286.9 -> 168.9	27303	9.73 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
d3-MeFOSA	10.745	515.0 -> 219.0	4654	2.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.8%		
d5-EtFOSAA	8.388	589.2 -> 419.0	16198	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.0%		
d7-MeFOSE	10.665	623.2 -> 58.9	55193	21.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 84.0%		
d9-EtFOSE	10.899	639.2 -> 58.9	65239	21.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 86.1%		
d5-EtFOSA	10.977	531.1 -> 219.0	5428	2.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.1%		

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.911	427.1 -> 407.0	1203	0.40 µg/L	96
		427.1 -> 80.9	448		
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	2.831	212.8 -> 168.9	0	µg/L m	1
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	8.956	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



7.12

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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	5.382	449.0 -> 98.9	0		µg/L	m
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	0	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	4.388	498.9 -> 98.8	37781	3.82	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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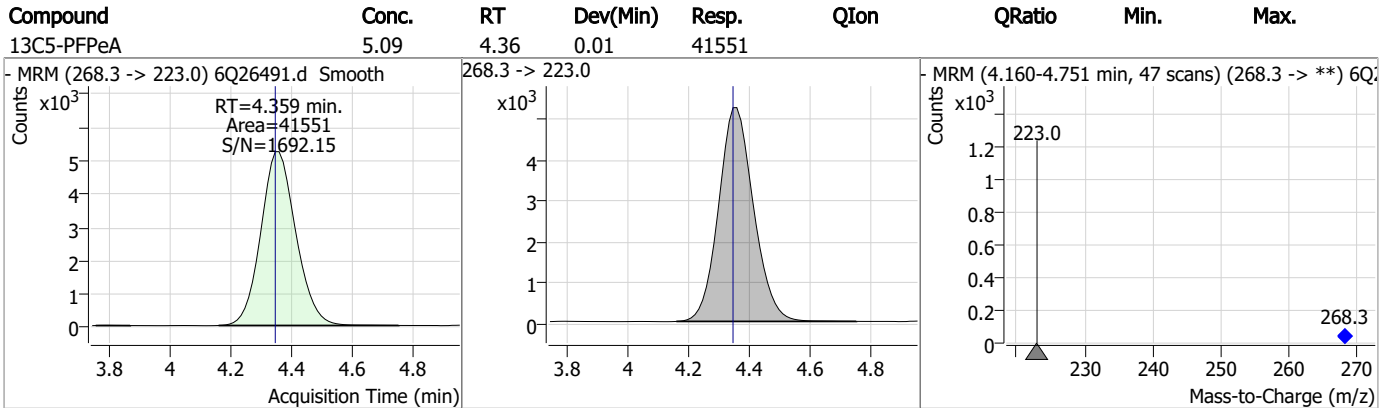
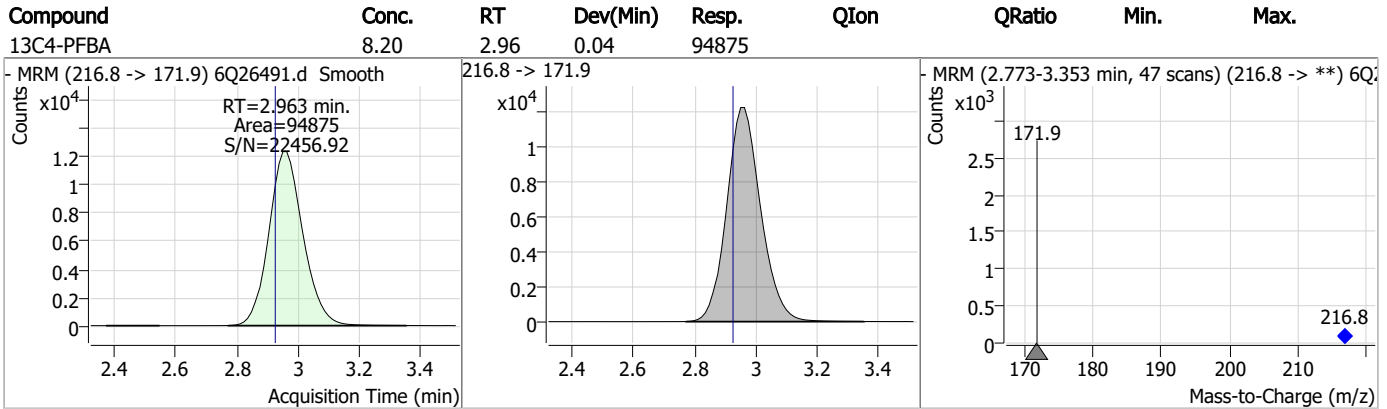
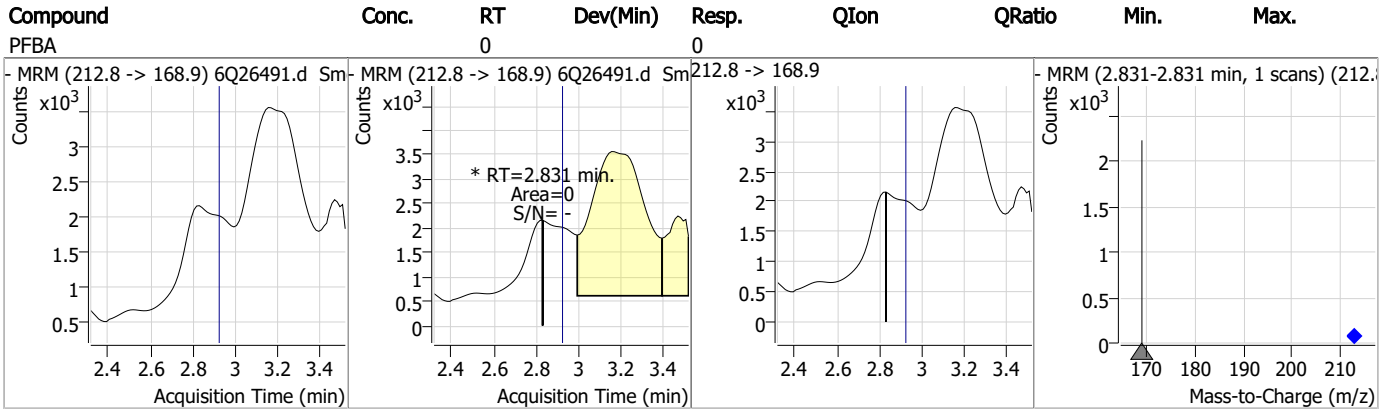
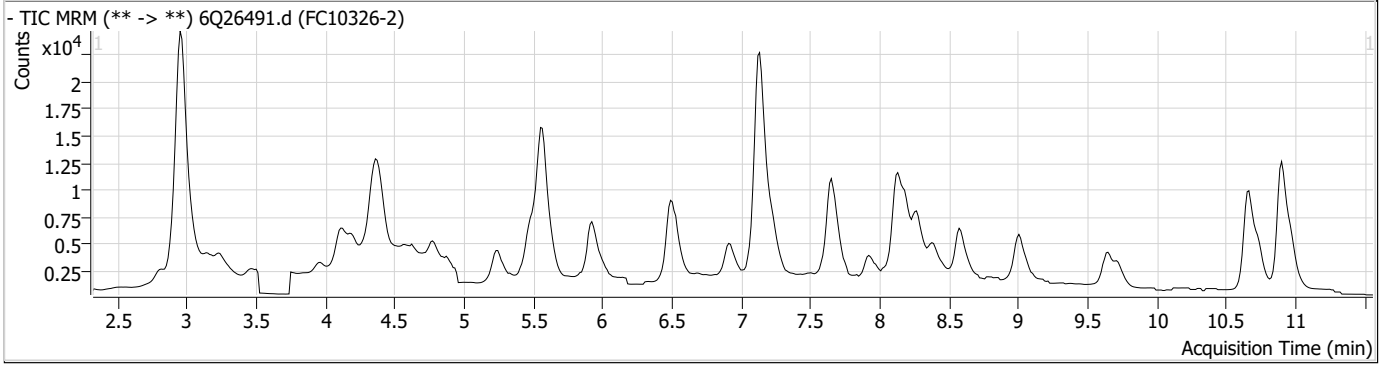
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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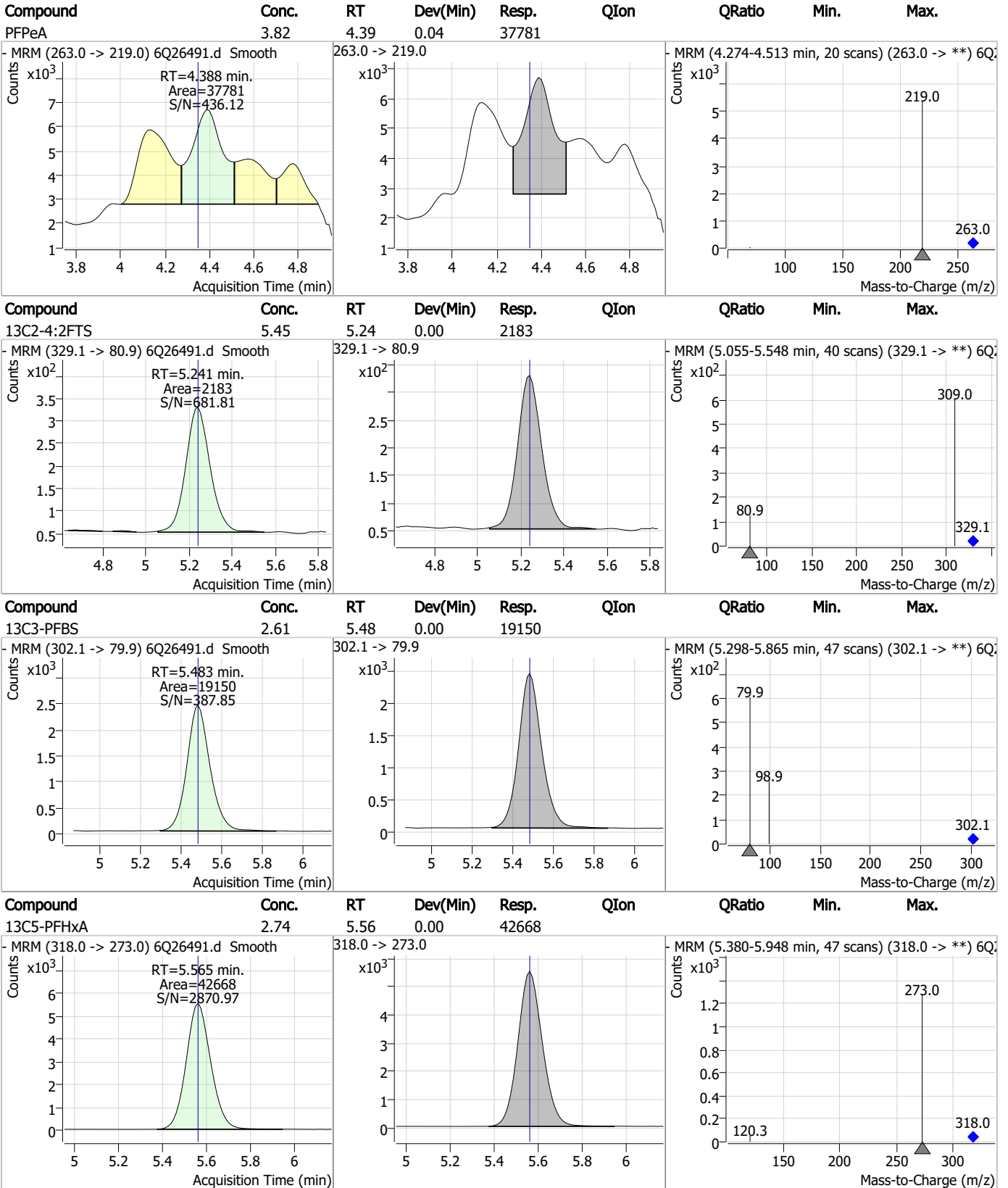
7.1.2  
7



### Perfluorinated Compounds by LC/MS/MS



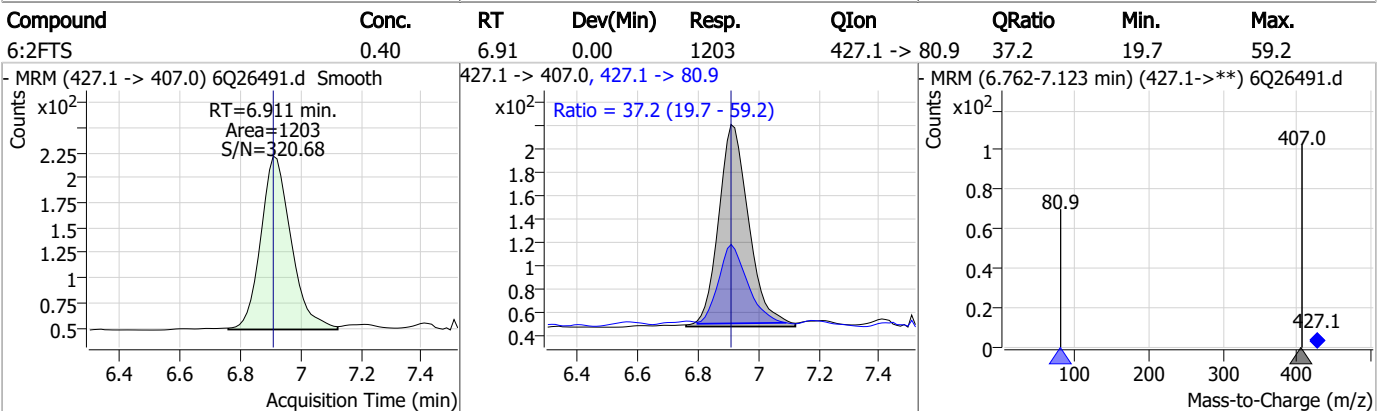
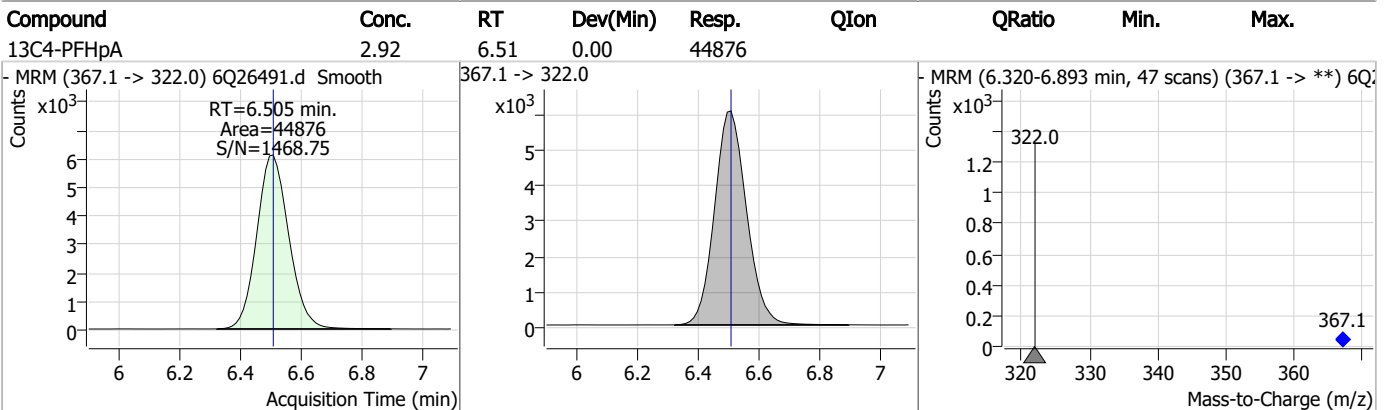
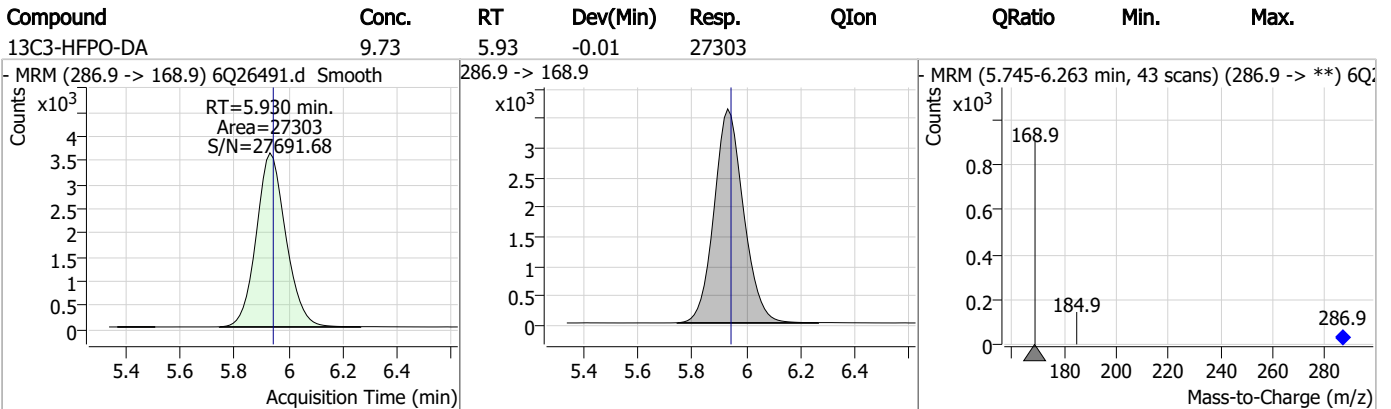
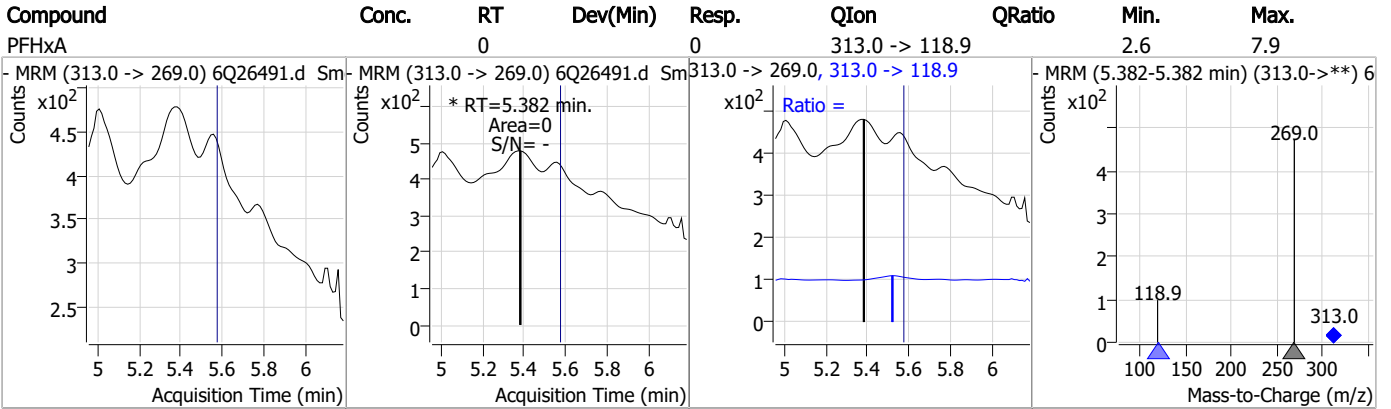
### Perfluorinated Compounds by LC/MS/MS



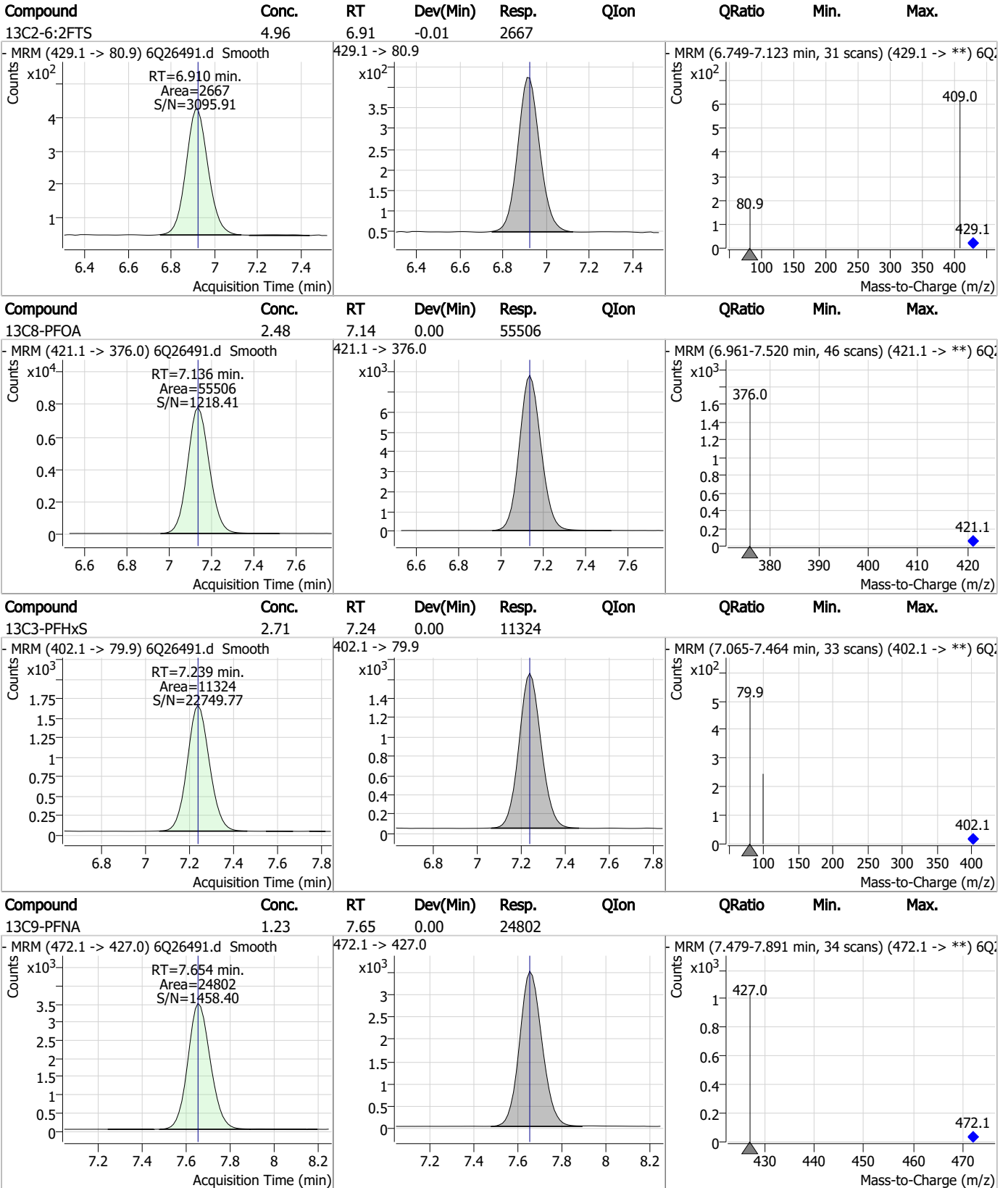
7.1.2

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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

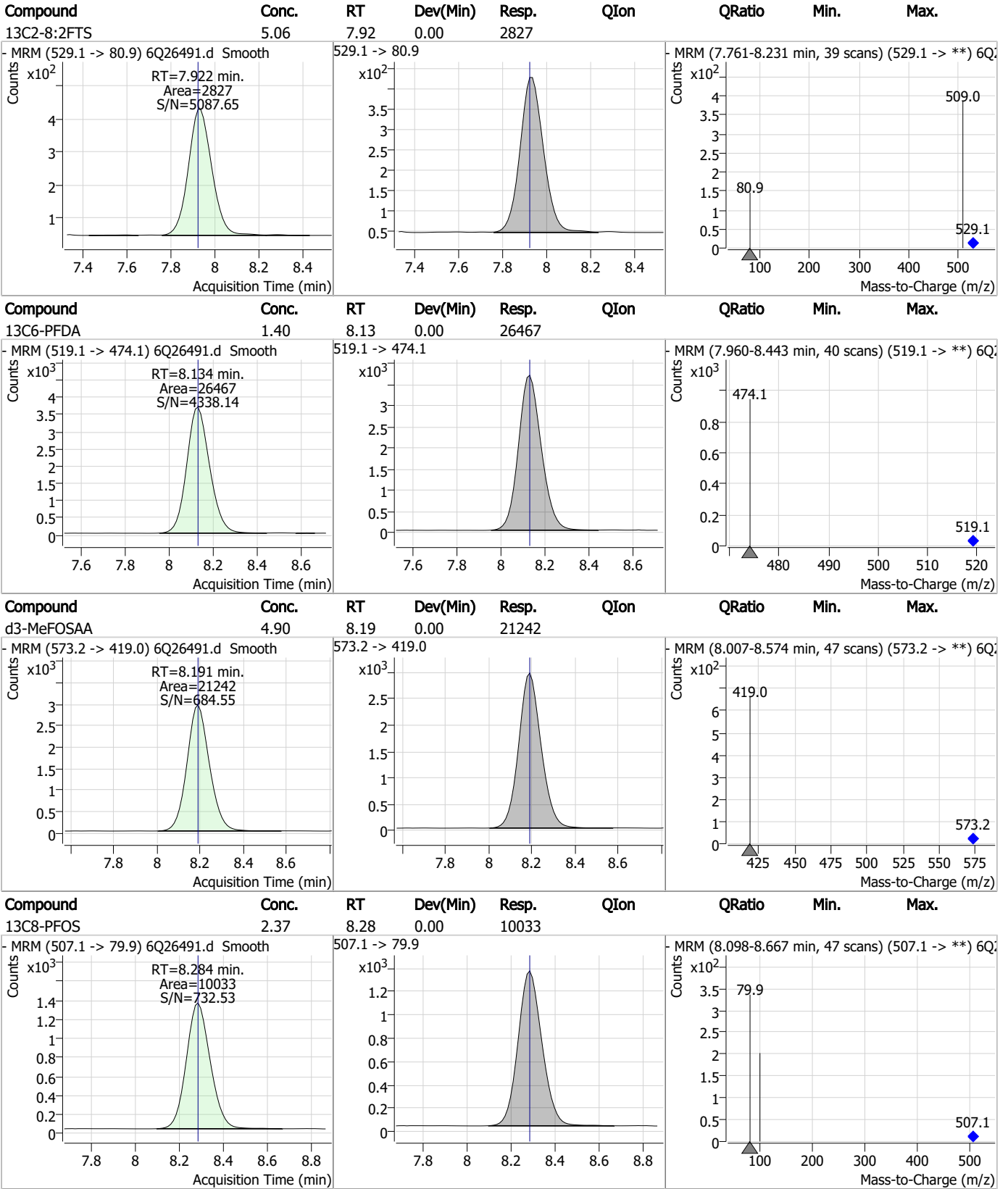


7.1.2

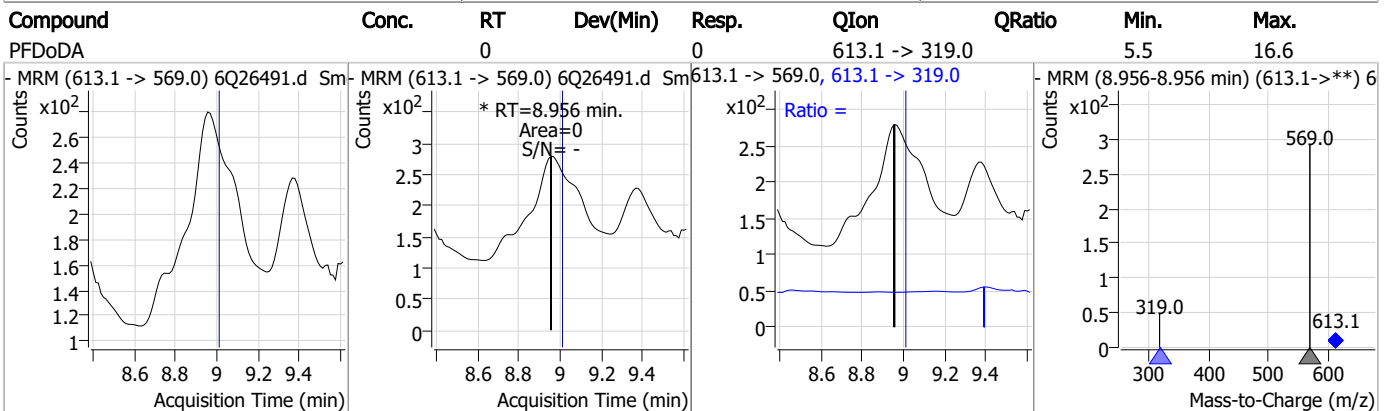
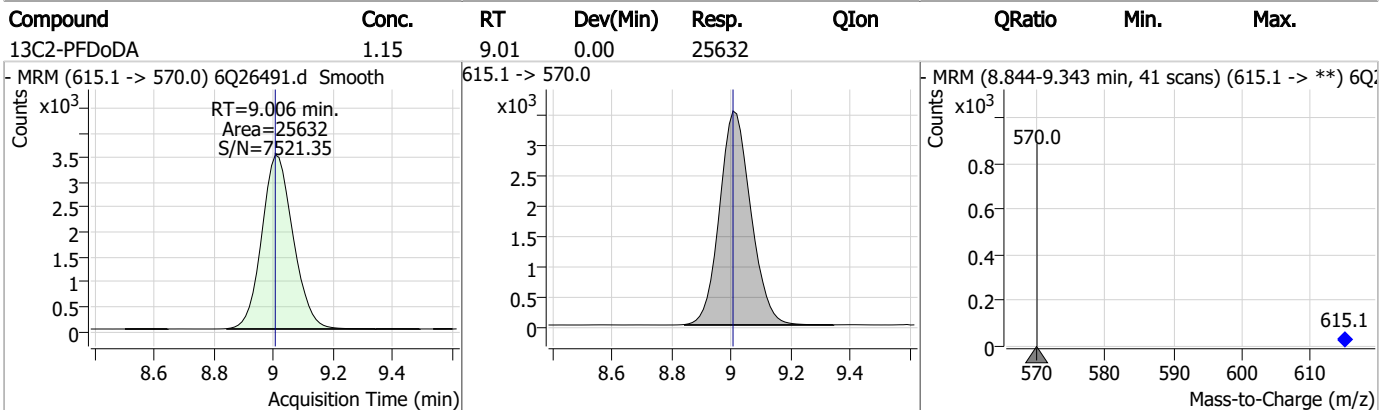
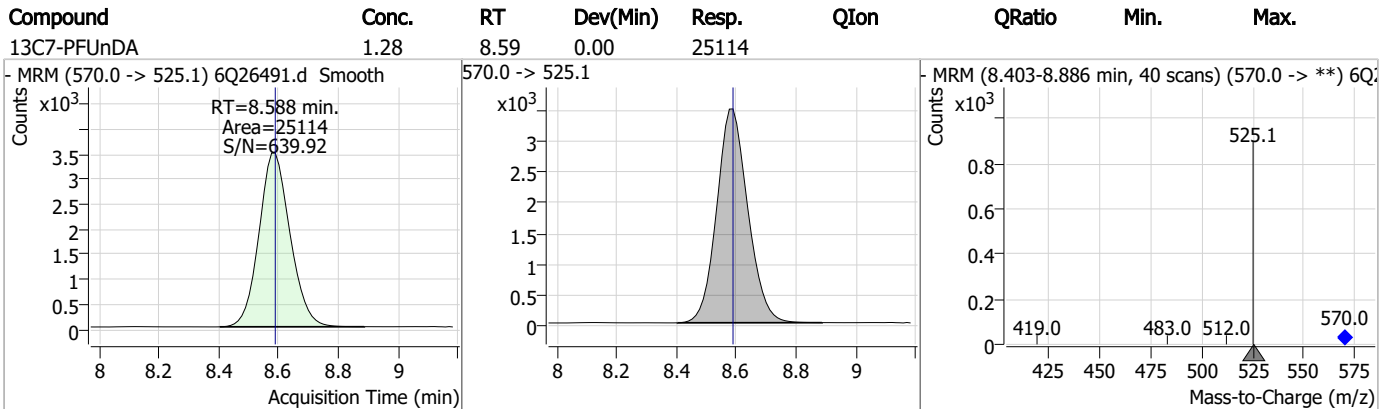
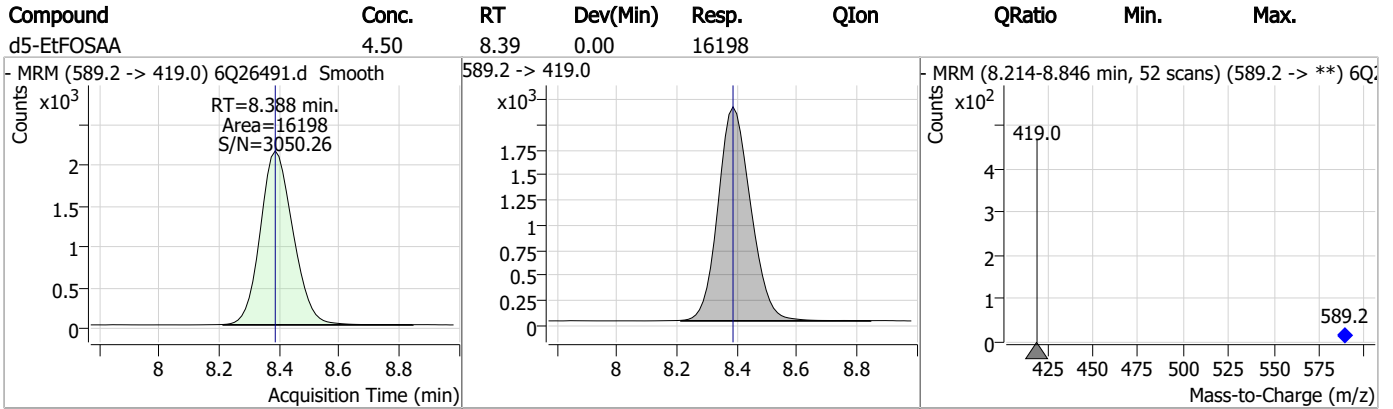
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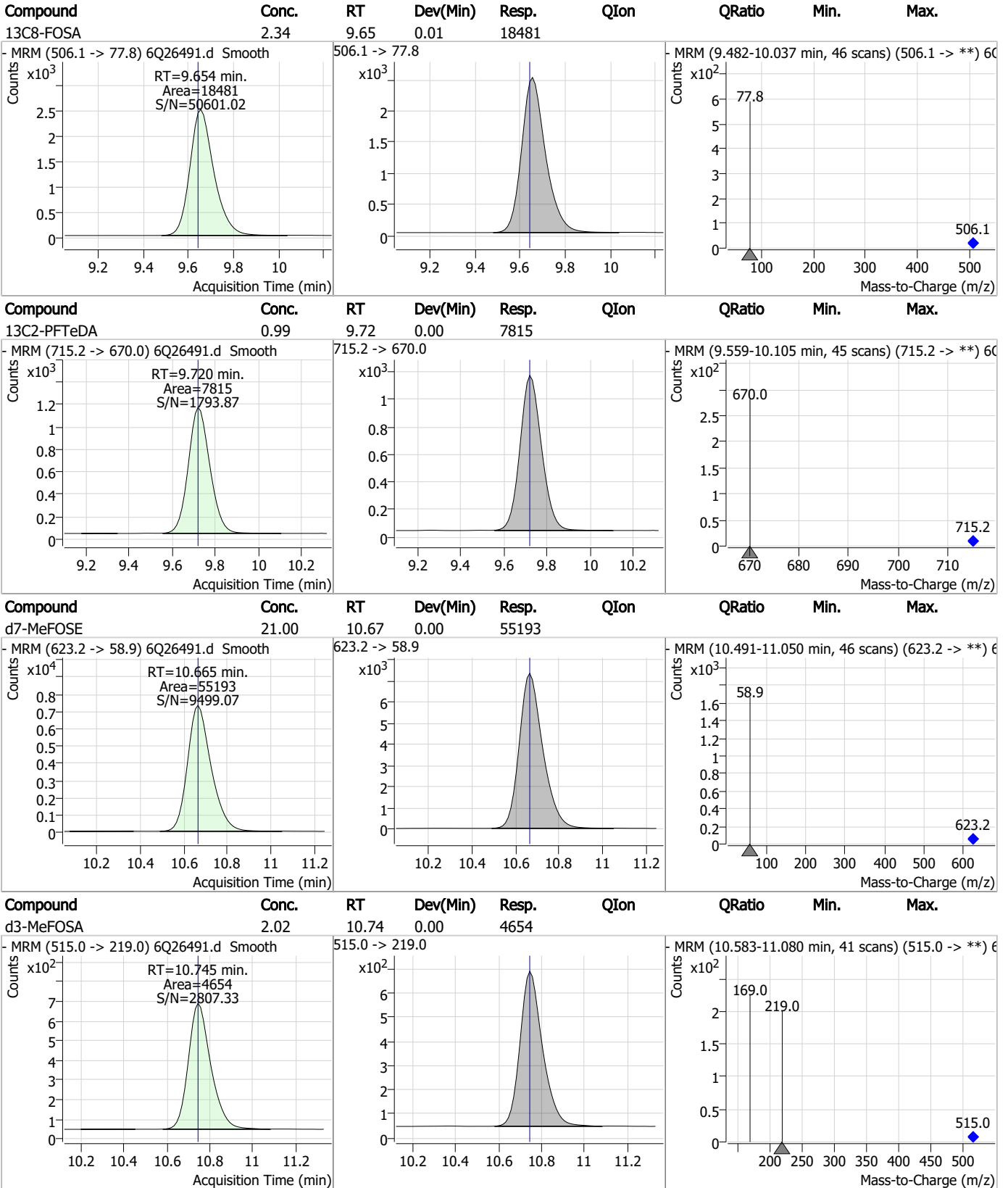
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

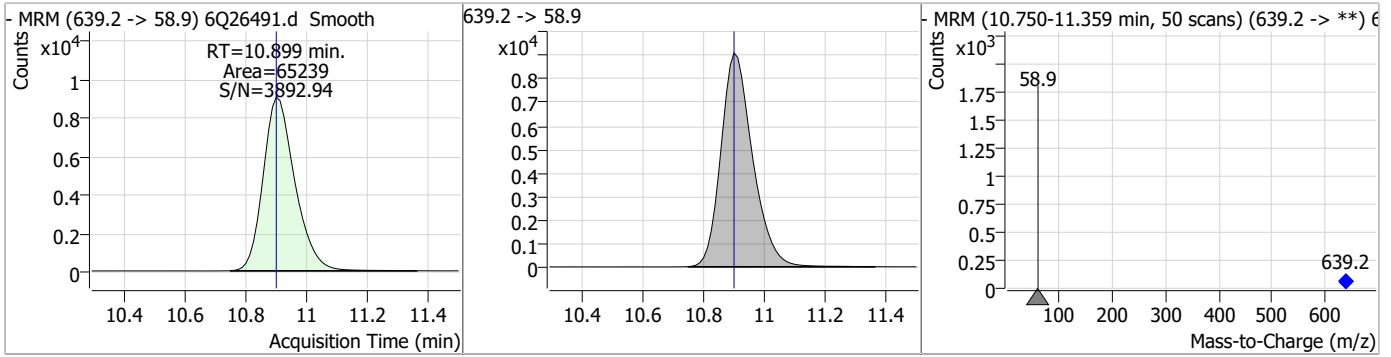


### Perfluorinated Compounds by LC/MS/MS

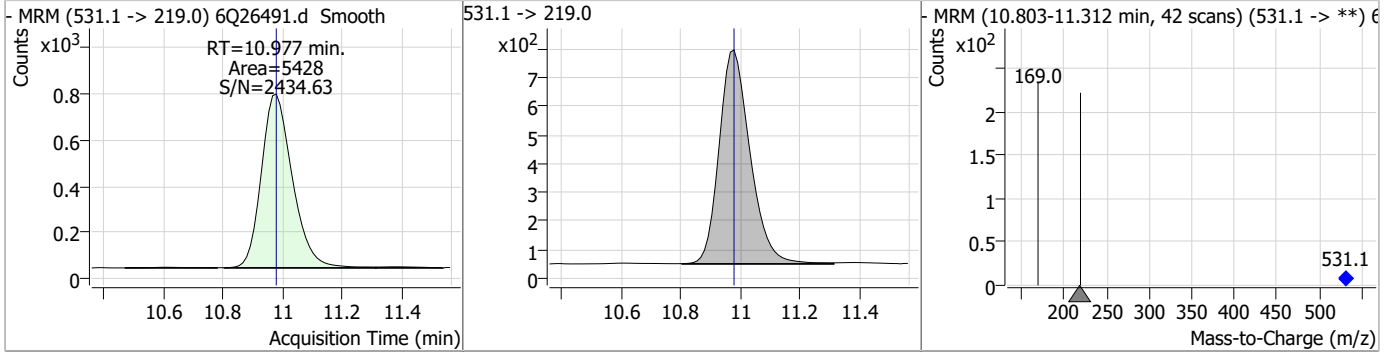


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.2  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26492.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 10/16/2023 9:58:06 PM  
Sample Name : FC10326-3  
Vial : P4-A7  
DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
Batch Name : s6q372.batch.bin  
Sample Information : OP99514,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	99840	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	40516	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	43996	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	43409	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	58215	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	23572	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23720	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	21661	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	23620	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	7141	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	17712	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	18494	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10120	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9967	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	1736	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2641	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	2734	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	19666	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	25833	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	16272	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	53111	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	57570	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	4694	2.50 µg/L	-0.012
M3-MeFOSA	10.745	515.0 -> 219.0	4383	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9774	2.50 µg/L	0.000
13C3-PFBA	2.954	216.0 -> 172.0	47685	5.00 µg/L	0.025
18O2-PFHxS	7.238	403.0 -> 83.9	6559	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	59217	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20972	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	22398	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	40994	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	1736	4.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.0%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2641	4.81 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2734	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFDoDA	9.006	615.1 -> 570.0	23620	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.6%		
13C2-PFTeDA	9.720	715.2 -> 670.0	7141	0.95 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.8%		
13C3-PFBS	5.483	302.1 -> 79.9	18494	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.239	402.1 -> 79.9	10120	2.38 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 = 95.2%	
13C4-PFBA	2.963	216.8 -> 171.9	99840	8.49 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
13C4-PFHpA	6.505	367.1 -> 322.0	43409	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C5-PFHxA	5.565	318.0 -> 273.0	43996	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C5-PFPeA	4.359	268.3 -> 223.0	40516	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C6-PFDA	8.134	519.1 -> 474.1	23720	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C7-PFUnDA	8.588	570.0 -> 525.1	21661	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C8-FOSA	9.654	506.1 -> 77.8	17712	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C8-PFOA	7.136	421.1 -> 376.0	58215	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C8-PFOS	8.284	507.1 -> 79.9	9967	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C9-PFNA	7.654	472.1 -> 427.0	23572	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.191	573.2 -> 419.0	19666	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	25833	8.93 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d3-MeFOSA	10.745	515.0 -> 219.0	4383	1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.0%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16272	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.5%	
d7-MeFOSE	10.665	623.2 -> 58.9	53111	20.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.8%	
d9-EtFOSE	10.899	639.2 -> 58.9	57570	19.22 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.9%	
d5-EtFOSA	10.965	531.1 -> 219.0	4694	1.82 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.8%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	2.831	212.8 -> 168.9	20861	5.34 µg/L	100
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	8.956	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



7.1.3

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.493	599.0 -> 98.8				
		363.1 -> 319.0	781	0.03 µg/L	m	89
PFHpS	-	363.1 -> 169.0	77			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.568	449.0 -> 98.9				
		313.0 -> 269.0	0	µg/L	m	1
PFHxS	-	313.0 -> 118.9	0			
		398.7 -> 79.9	-	N.D.		
PFNA	8.114	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.388	498.9 -> 98.8				
		263.0 -> 219.0	43791	4.54 µg/L		100
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	3.446	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0	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	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
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	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.3

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### Perfluorinated Compounds by LC/MS/MS

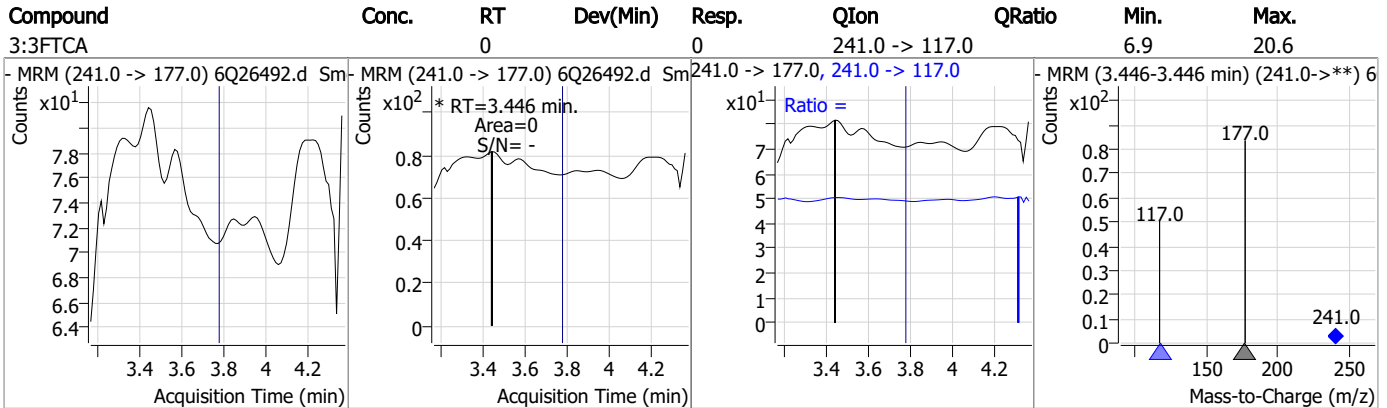
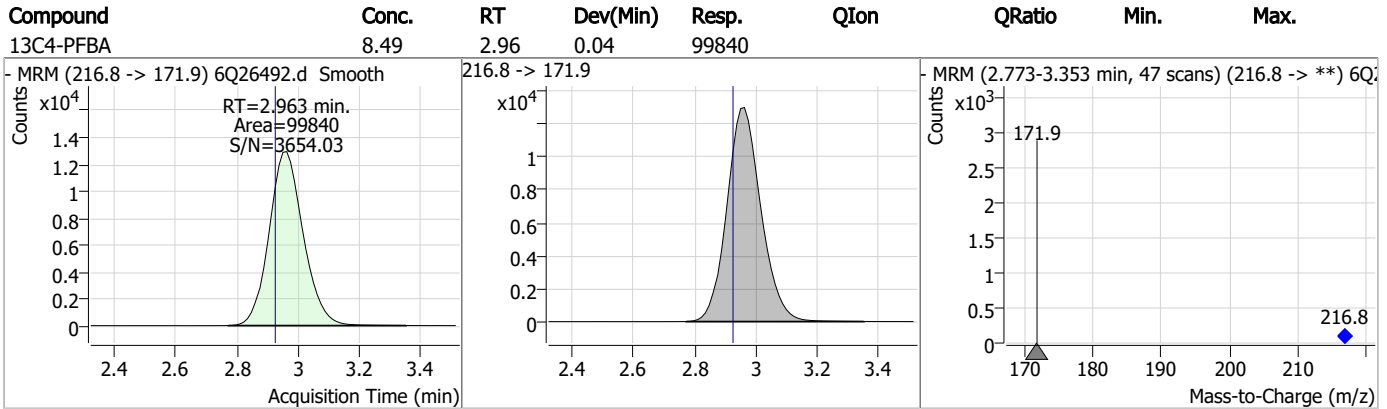
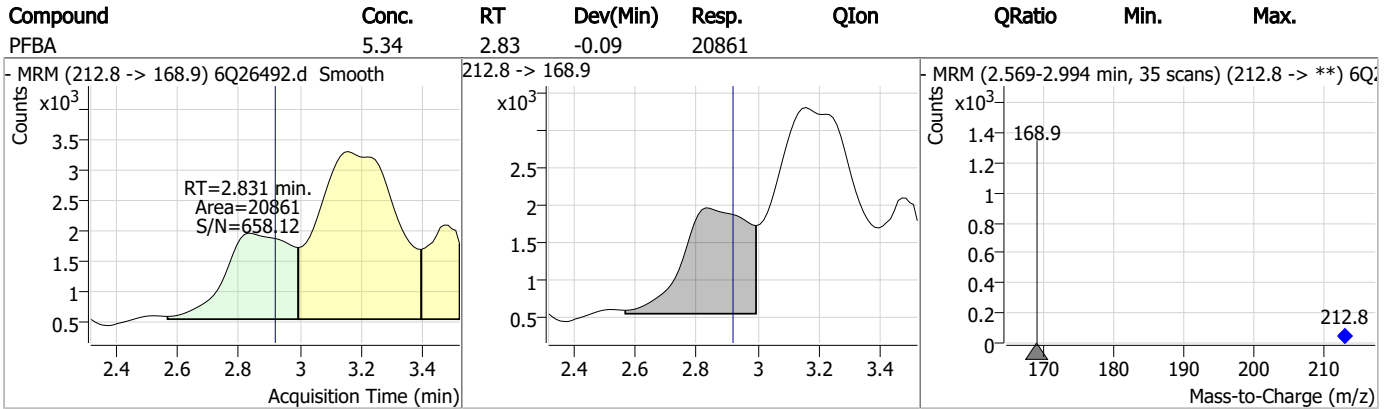
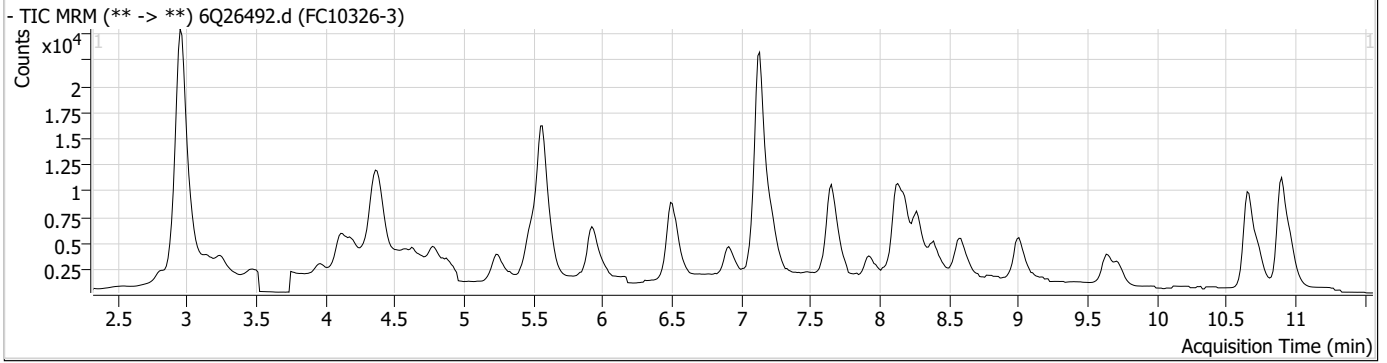
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.3

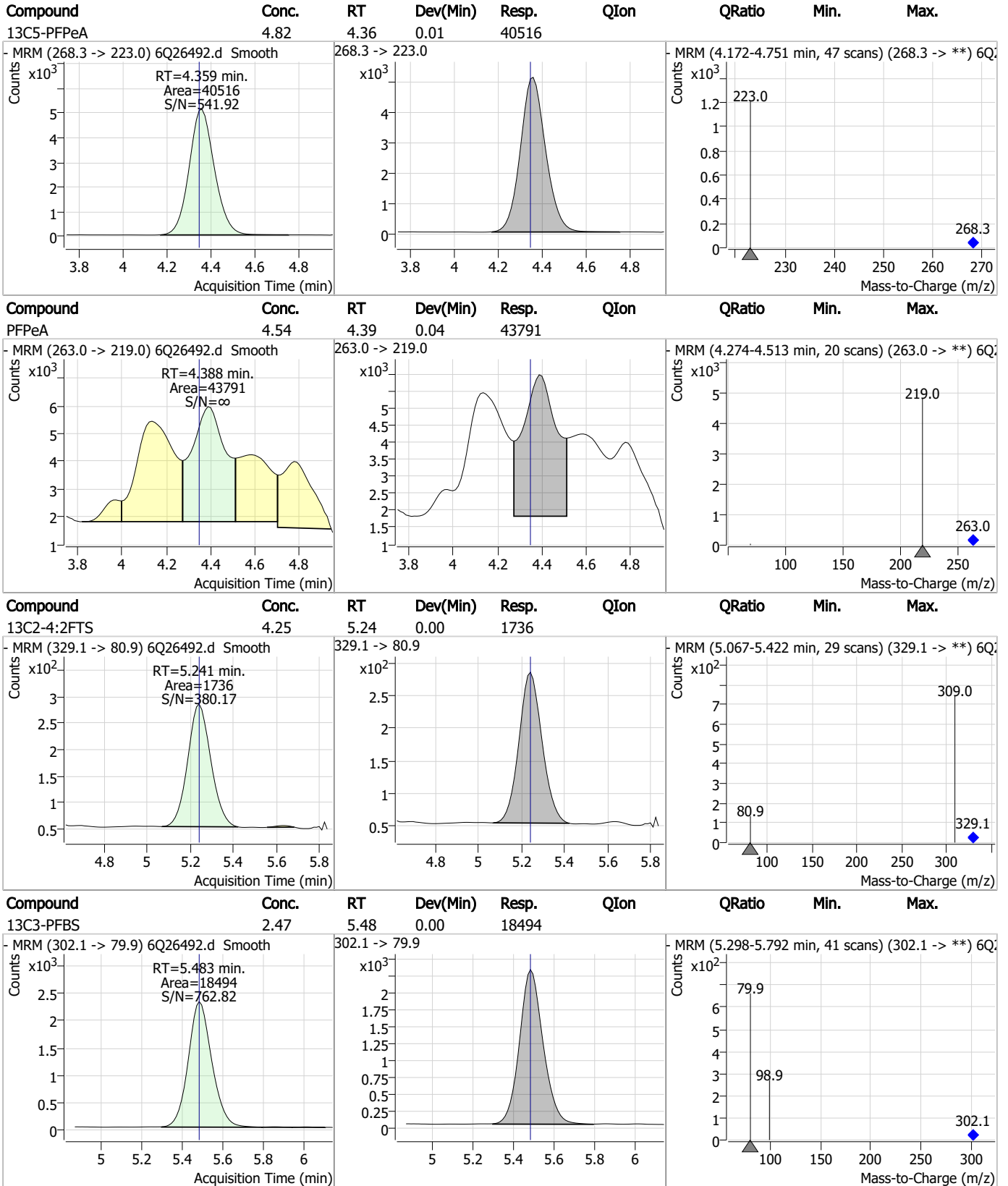
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### Perfluorinated Compounds by LC/MS/MS



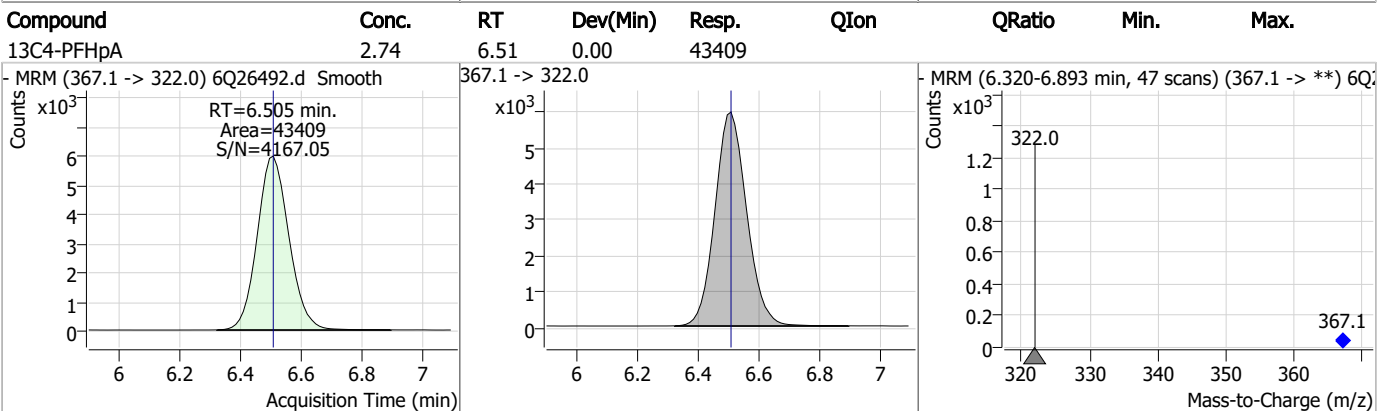
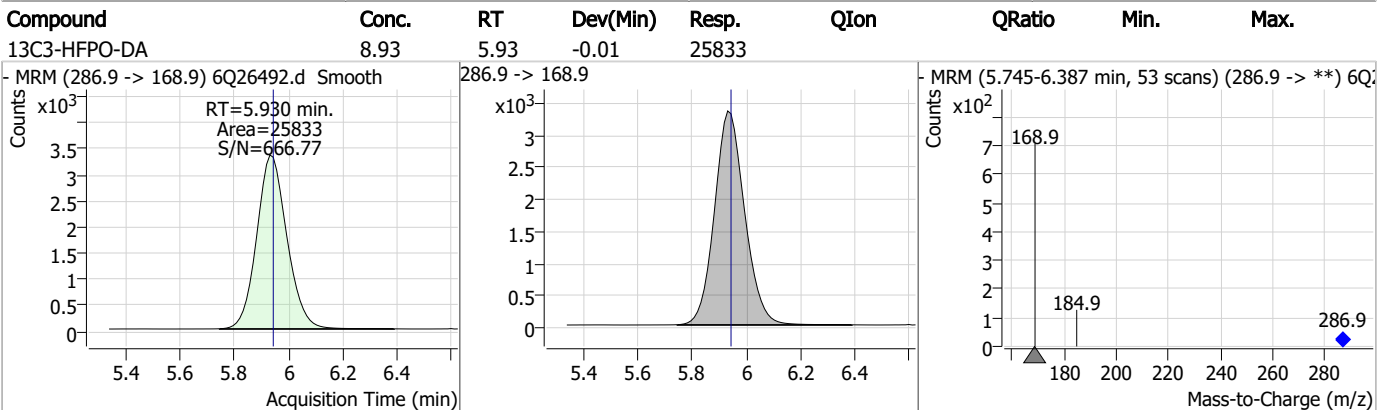
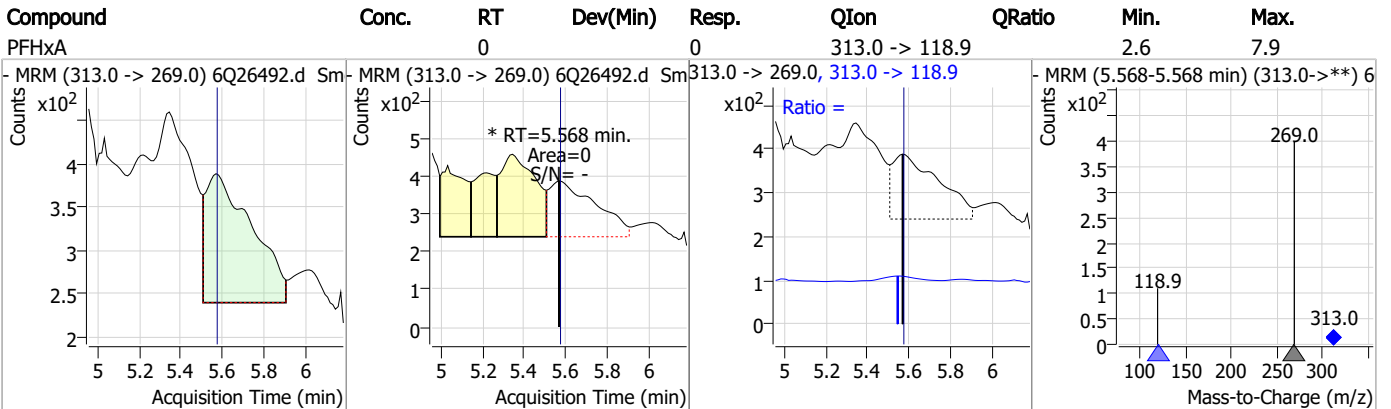
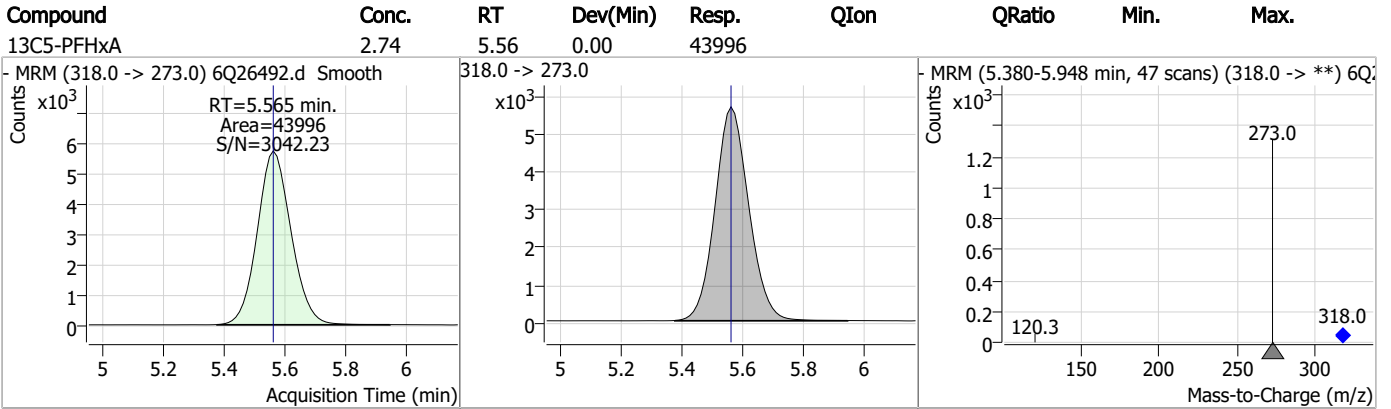
### Perfluorinated Compounds by LC/MS/MS



7.1.3

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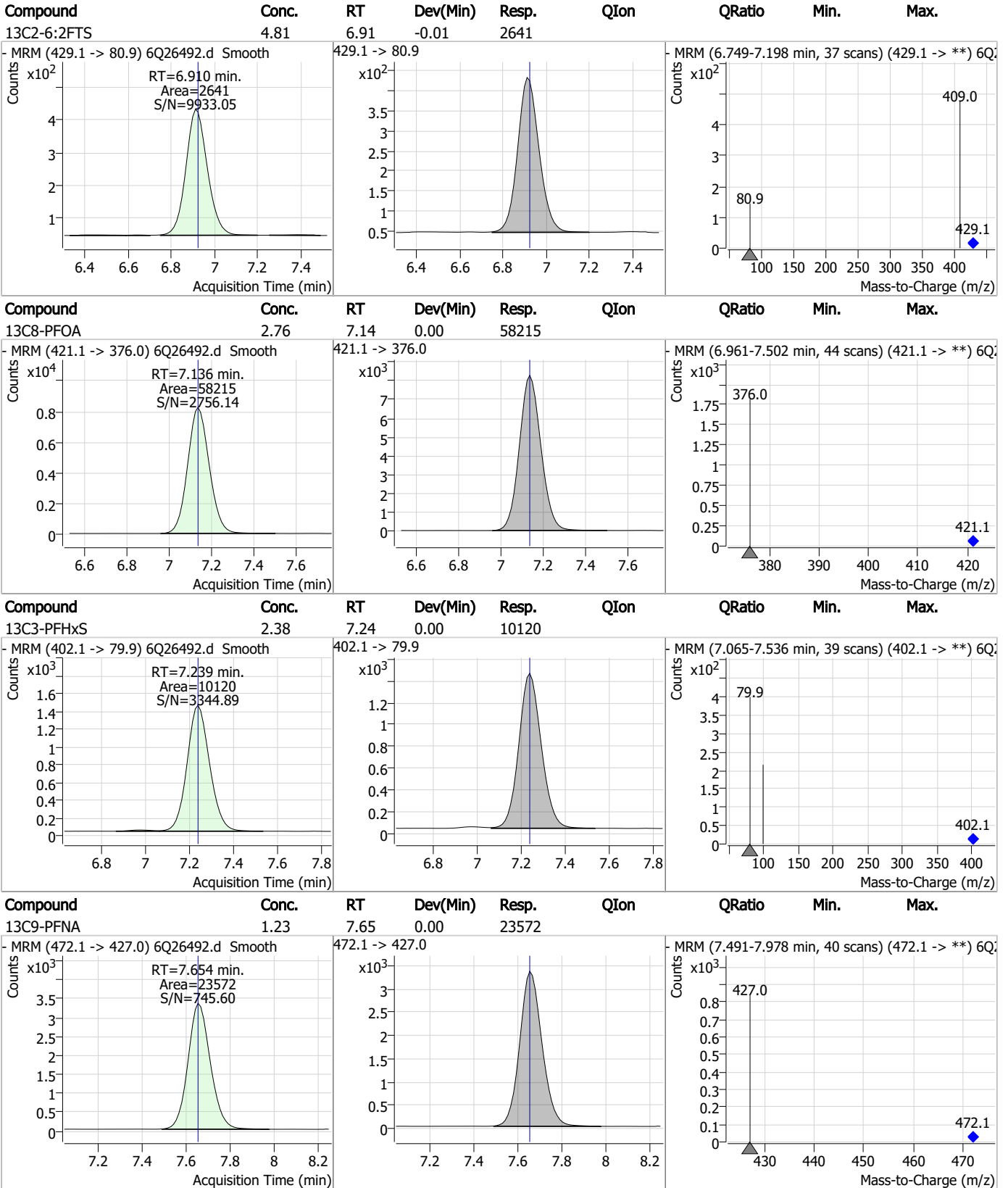
### Perfluorinated Compounds by LC/MS/MS



7.1.3

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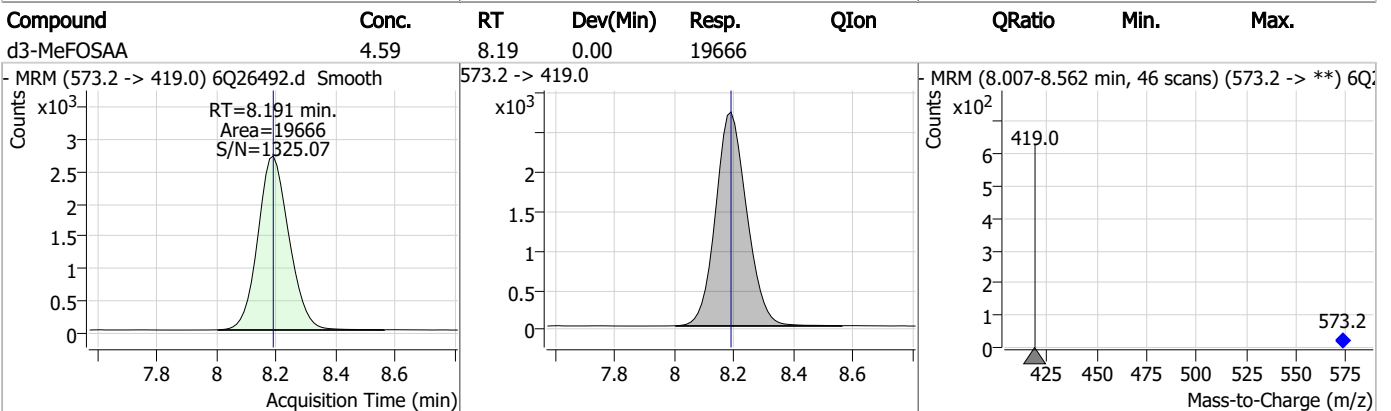
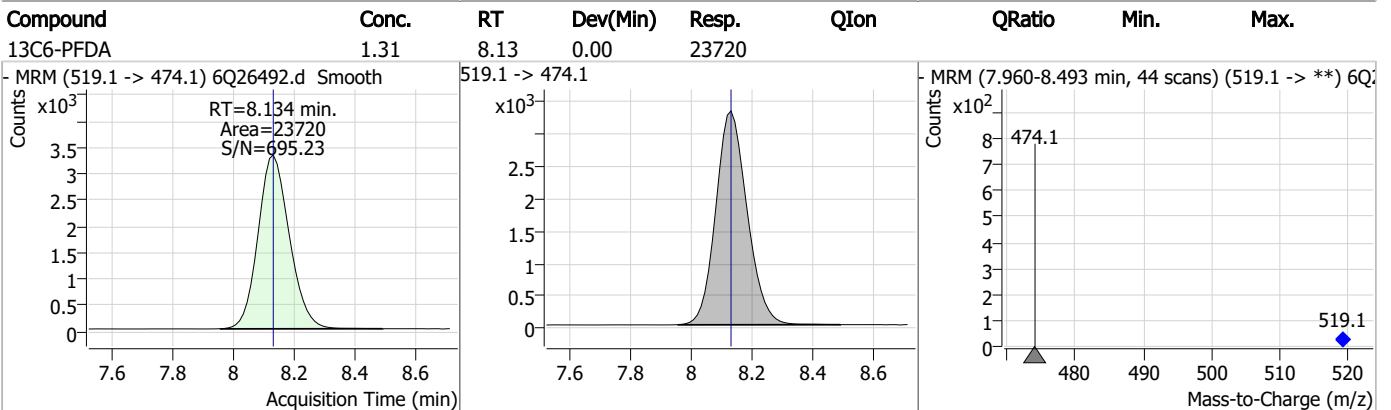
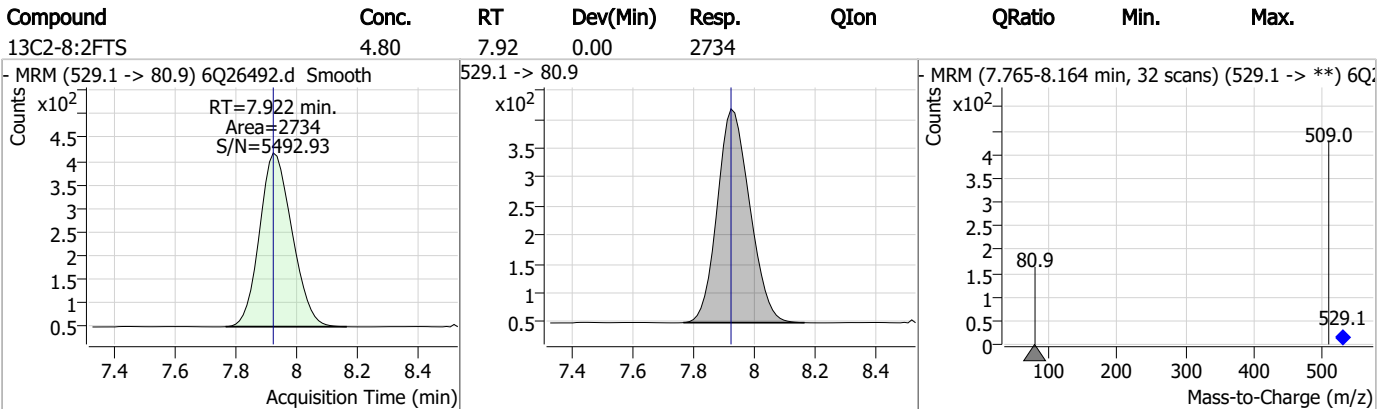
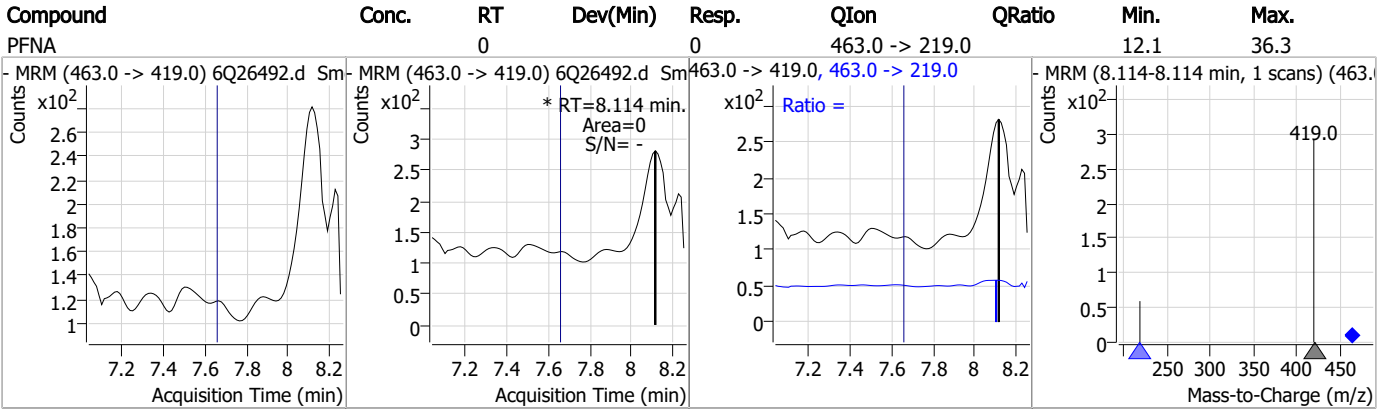
### Perfluorinated Compounds by LC/MS/MS



7.1.3

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### Perfluorinated Compounds by LC/MS/MS



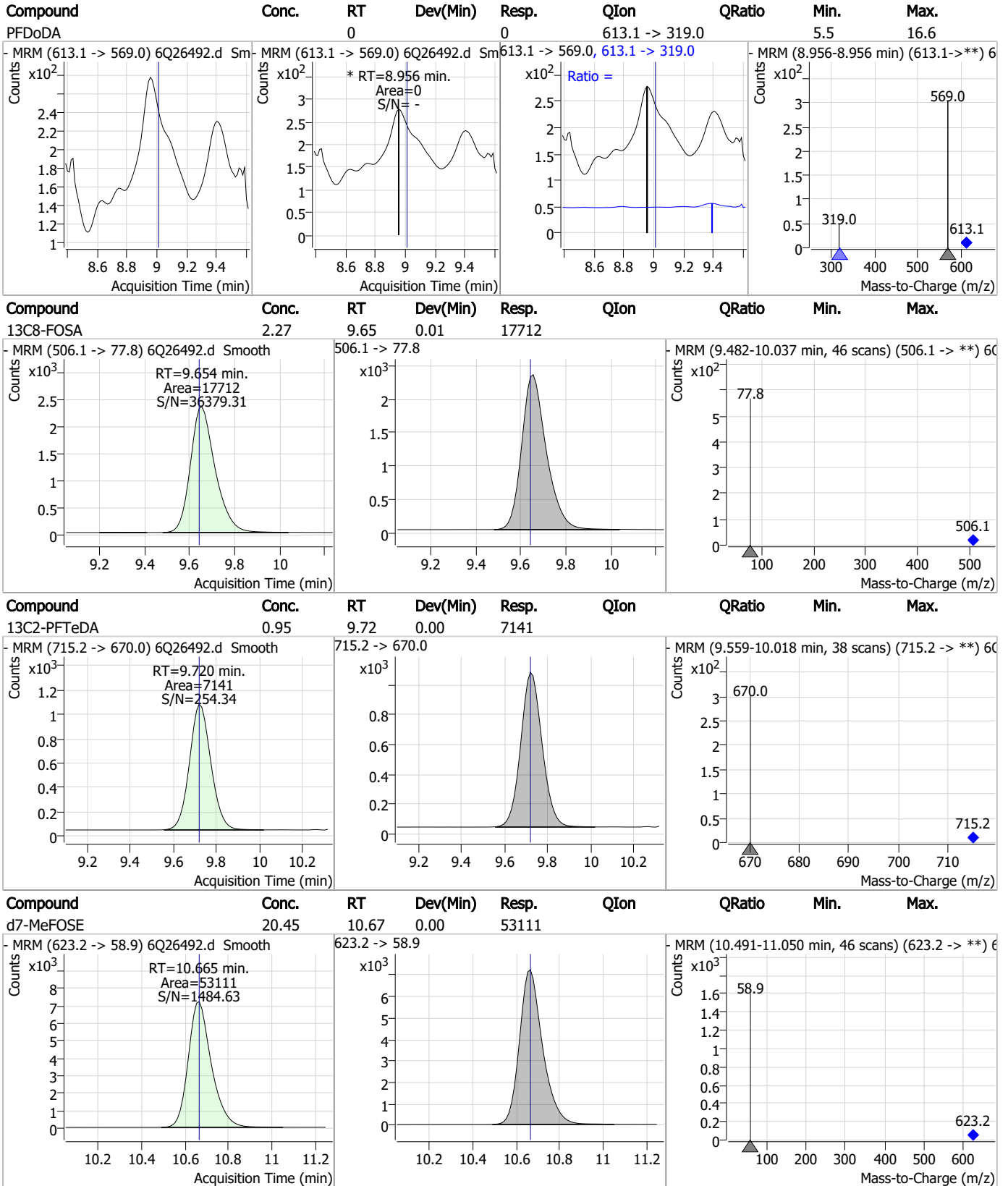
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.38	8.28	0.00	9967				
d5-EtFOSAA	4.58	8.39	0.00	16272				
13C7-PFUnDA	1.16	8.59	0.00	21661				
13C2-PFDoDA	1.11	9.01	0.00	23620				

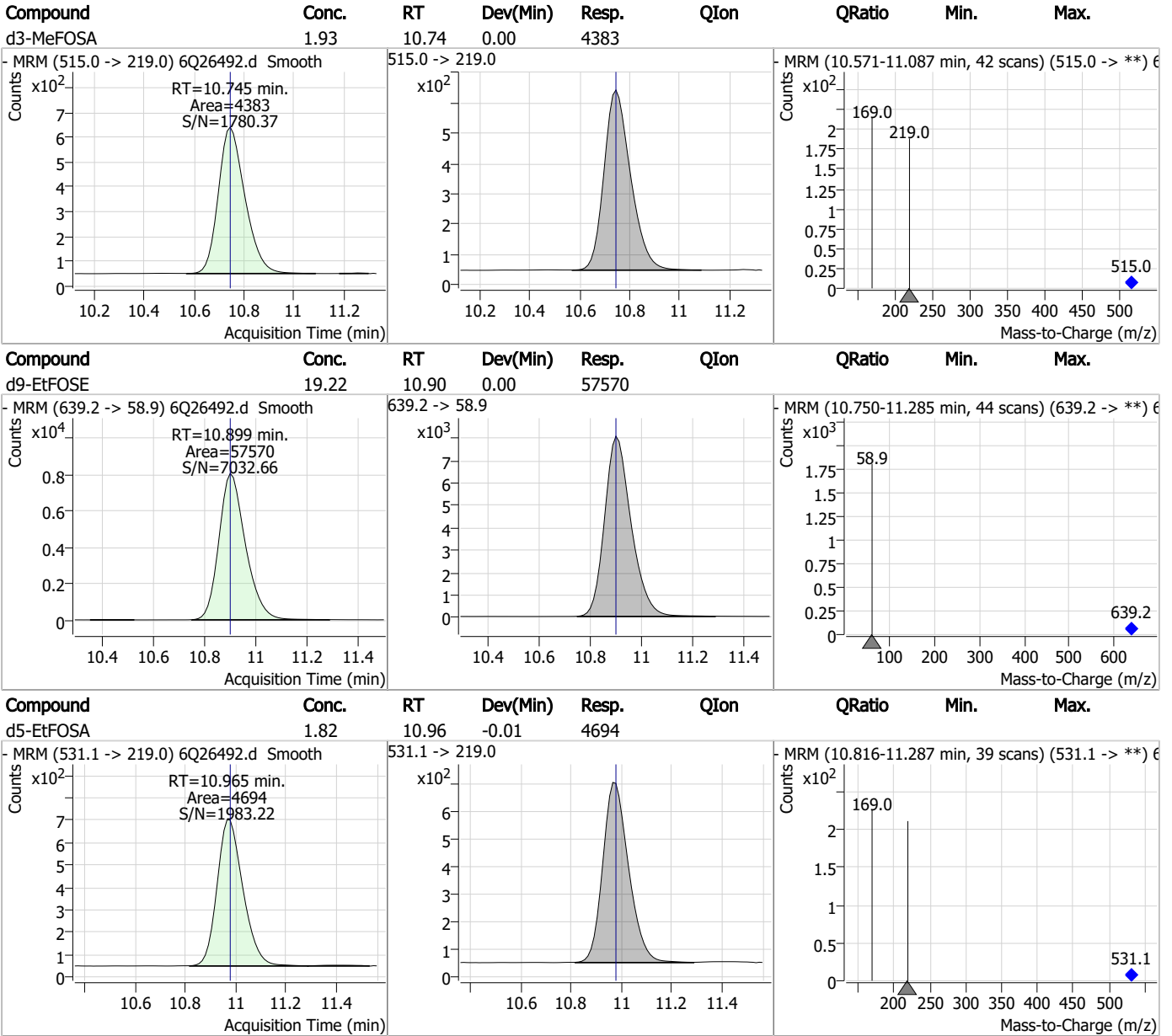
7.1.3

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### Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: FC10326-3                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26492.D                      Analyst approved: 10/17/23 13:27 Martha Valls  
Injection Time: 10/16/23 21:58                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.49	Poorly defined baseline

7.1.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26493.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 10:12:28 PM  
 Sample Name : FC10326-4  
 Vial : P4-A8  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99514,S6Q372,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	131281	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	42591	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	41706	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	41923	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	53719	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	22400	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23269	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	20564	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	22567	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	7358	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	15780	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	18508	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10723	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9270	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2050	5.00 µg/L	0.000
M2-6:2FTS	6.922	429.1 -> 80.9	2682	5.00 µg/L	0.000
M2-8:2FTS	7.934	529.1 -> 80.9	2864	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	17818	5.00 µg/L	0.000
M3-HFPO-DA	5.942	286.9 -> 168.9	28145	10.00 µg/L	0.000
M5-EtFOSAA	8.388	589.2 -> 419.0	14346	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	48064	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	59352	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	4554	2.50 µg/L	-0.012
M3-MeFOSA	10.745	515.0 -> 219.0	4211	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9338	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	52927	5.00 µg/L	0.037
18O2-PFHxS	7.238	403.0 -> 83.9	6131	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	60125	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21923	1.25 µg/L	0.000
13C5-PFNA	7.667	468.0 -> 423.0	21544	1.25 µg/L	0.012
13C2-PFHxA	5.565	315.1 -> 270.0	39453	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2050	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C2-6:2FTS	6.922	429.1 -> 80.9	2682	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2864	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFDoDA	9.006	615.1 -> 570.0	22567	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	7358	0.93 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.7%		
13C3-PFBS	5.483	302.1 -> 79.9	18508	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFHxS	7.239	402.1 -> 79.9	10723	2.70 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 = 107.9%	
13C4-PFBA	2.963	216.8 -> 171.9	131281	10.06 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.505	367.1 -> 322.0	41923	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C5-PFHxA	5.565	318.0 -> 273.0	41706	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C5-PFPeA	4.359	268.3 -> 223.0	42591	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C6-PFDA	8.134	519.1 -> 474.1	23269	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C7-PFUnDA	8.588	570.0 -> 525.1	20564	1.05 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 84.2%	
13C8-FOSA	9.654	506.1 -> 77.8	15780	2.11 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C8-PFOA	7.136	421.1 -> 376.0	53719	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.284	507.1 -> 79.9	9270	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C9-PFNA	7.654	472.1 -> 427.0	22400	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.1%	
d3-MeFOSAA	8.191	573.2 -> 419.0	17818	4.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.1%	
13C3-HFPO-DA	5.942	286.9 -> 168.9	28145	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d3-MeFOSA	10.745	515.0 -> 219.0	4211	1.94 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.5%	
d5-EtFOSAA	8.388	589.2 -> 419.0	14346	4.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.4%	
d7-MeFOSE	10.665	623.2 -> 58.9	48064	19.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.5%	
d9-EtFOSE	10.899	639.2 -> 58.9	59352	20.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.0%	
d5-EtFOSA	10.965	531.1 -> 219.0	4554	1.85 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.9%	

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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	-	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

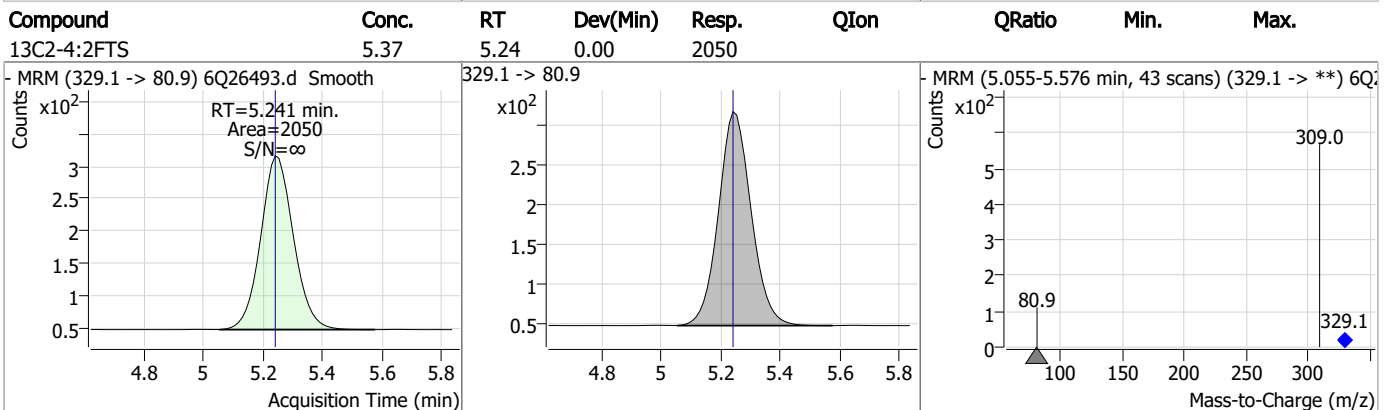
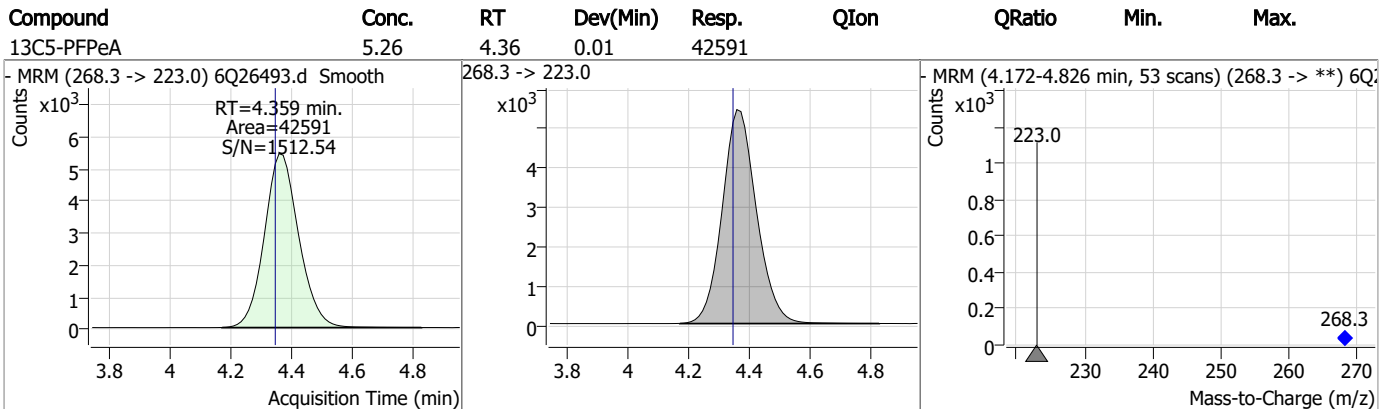
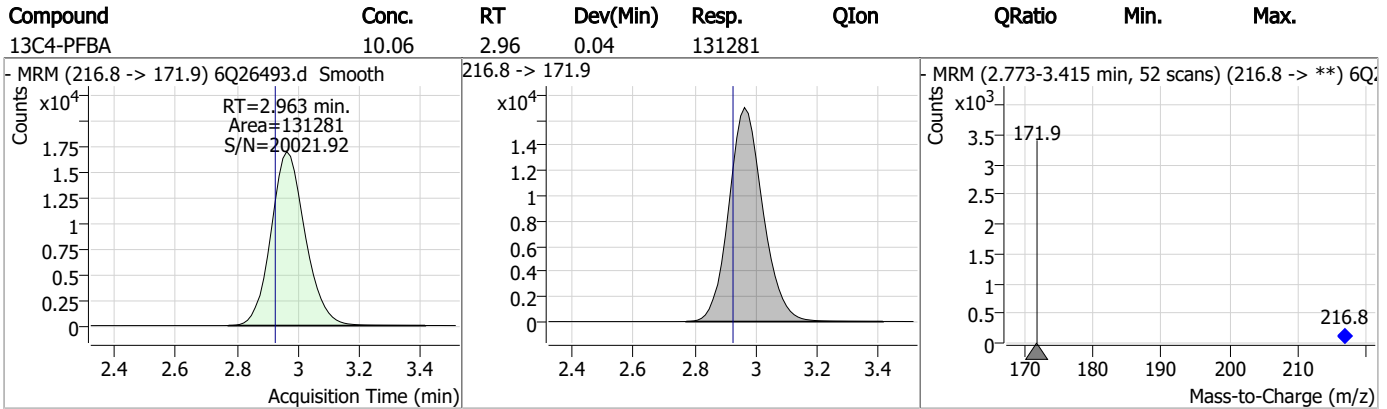
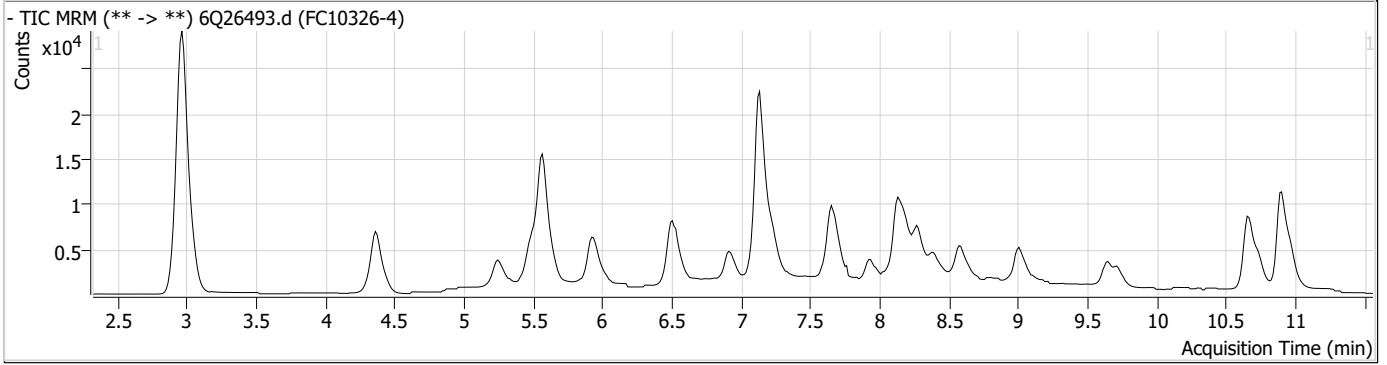
### Perfluorinated Compounds by LC/MS/MS

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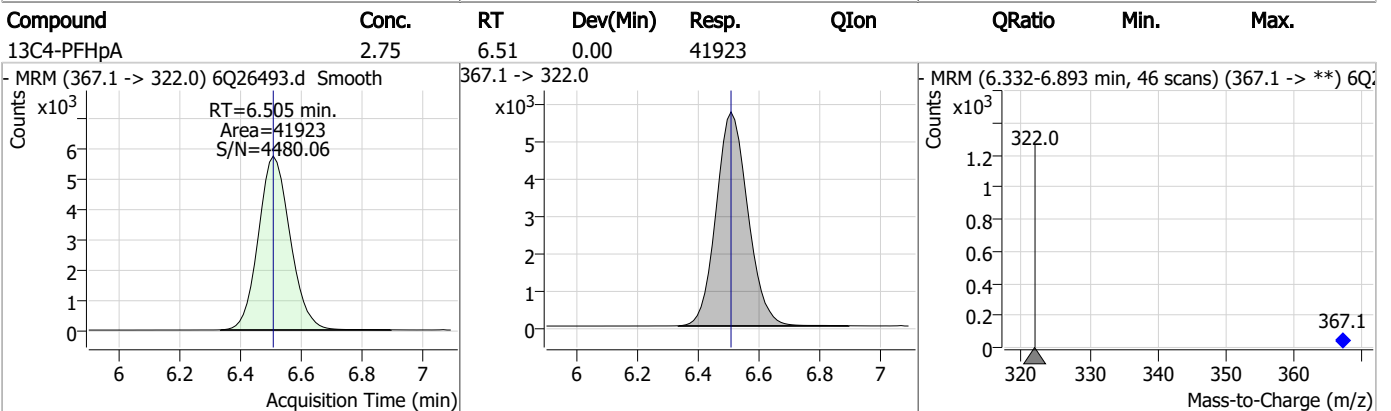
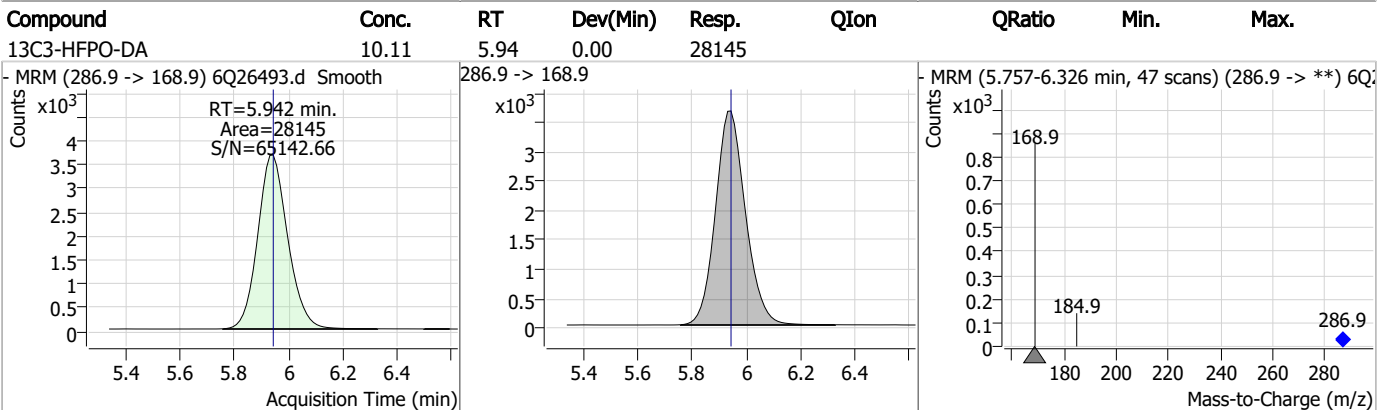
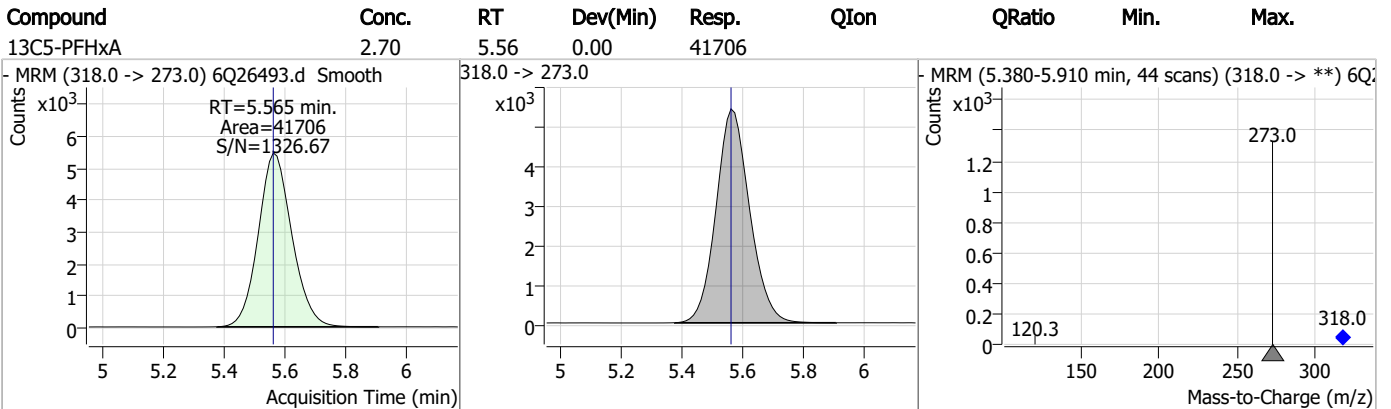
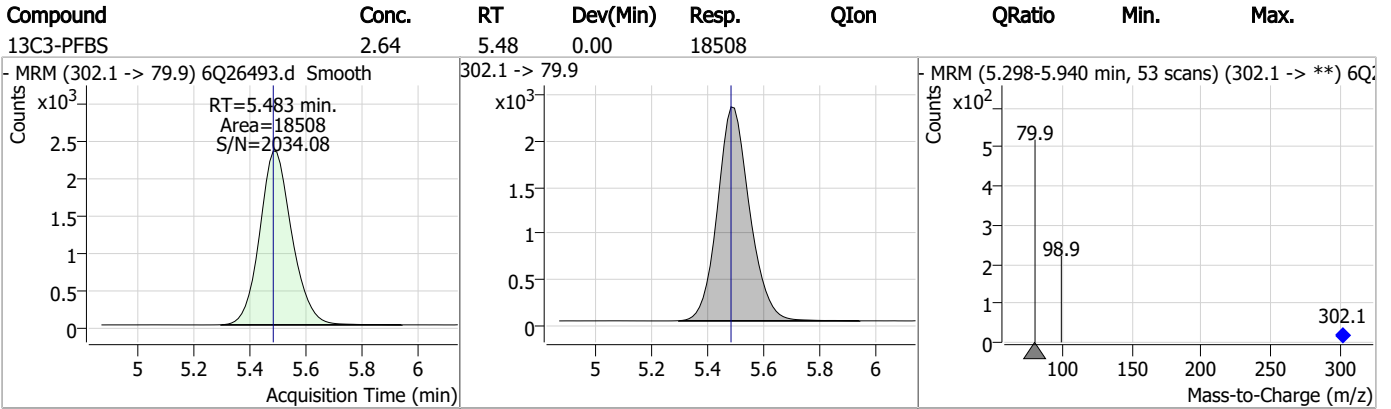
7.1.4  
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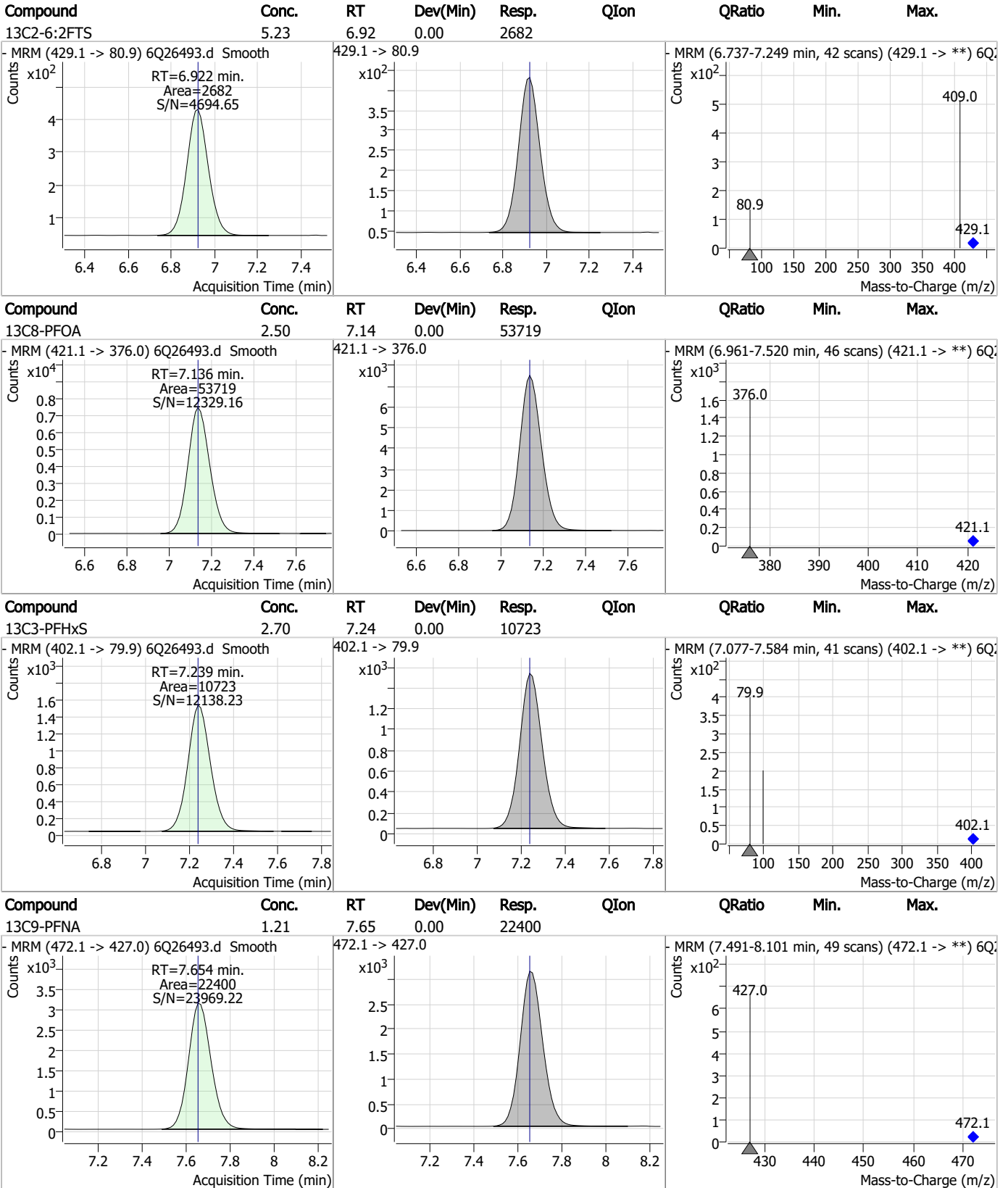
### Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

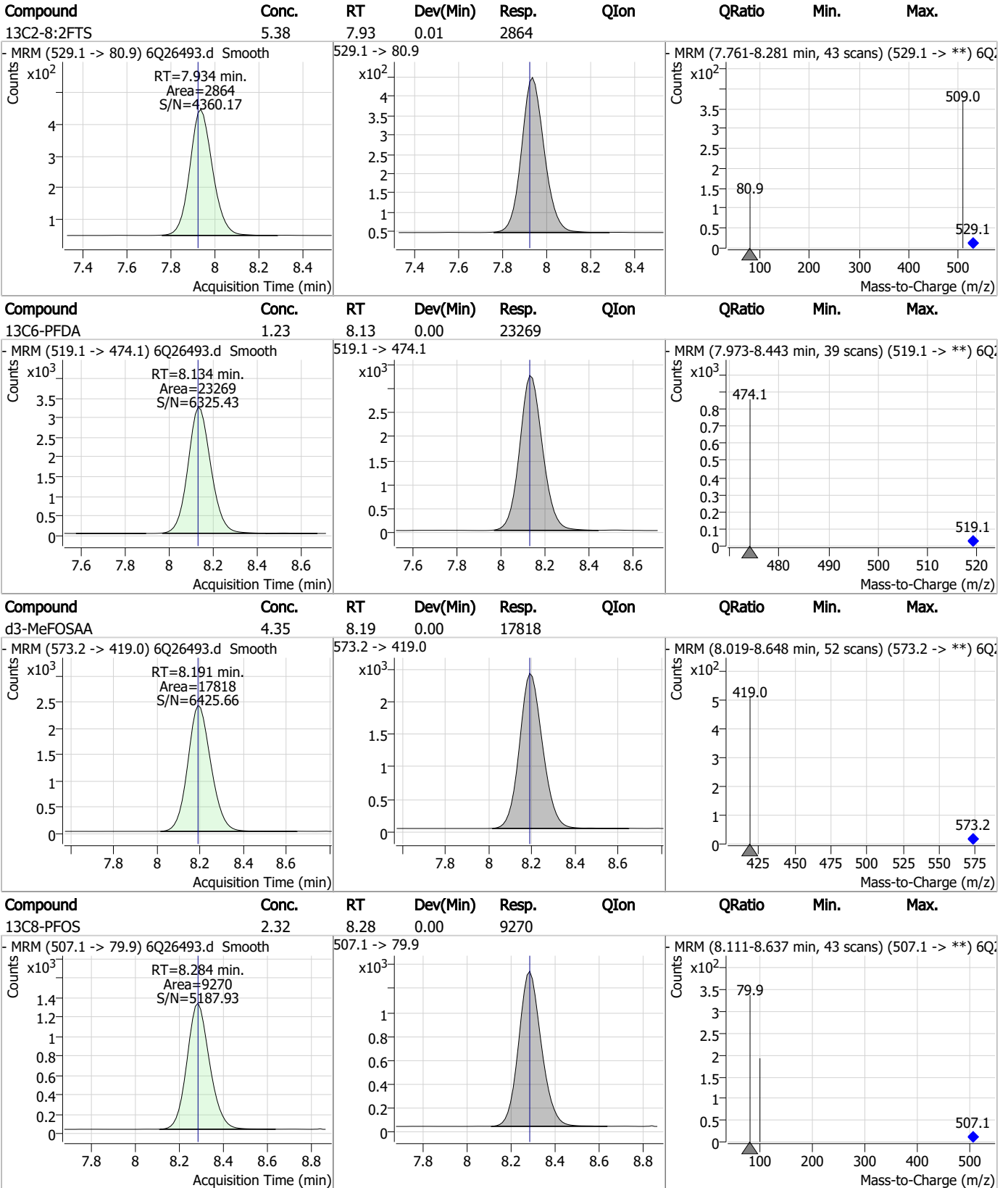


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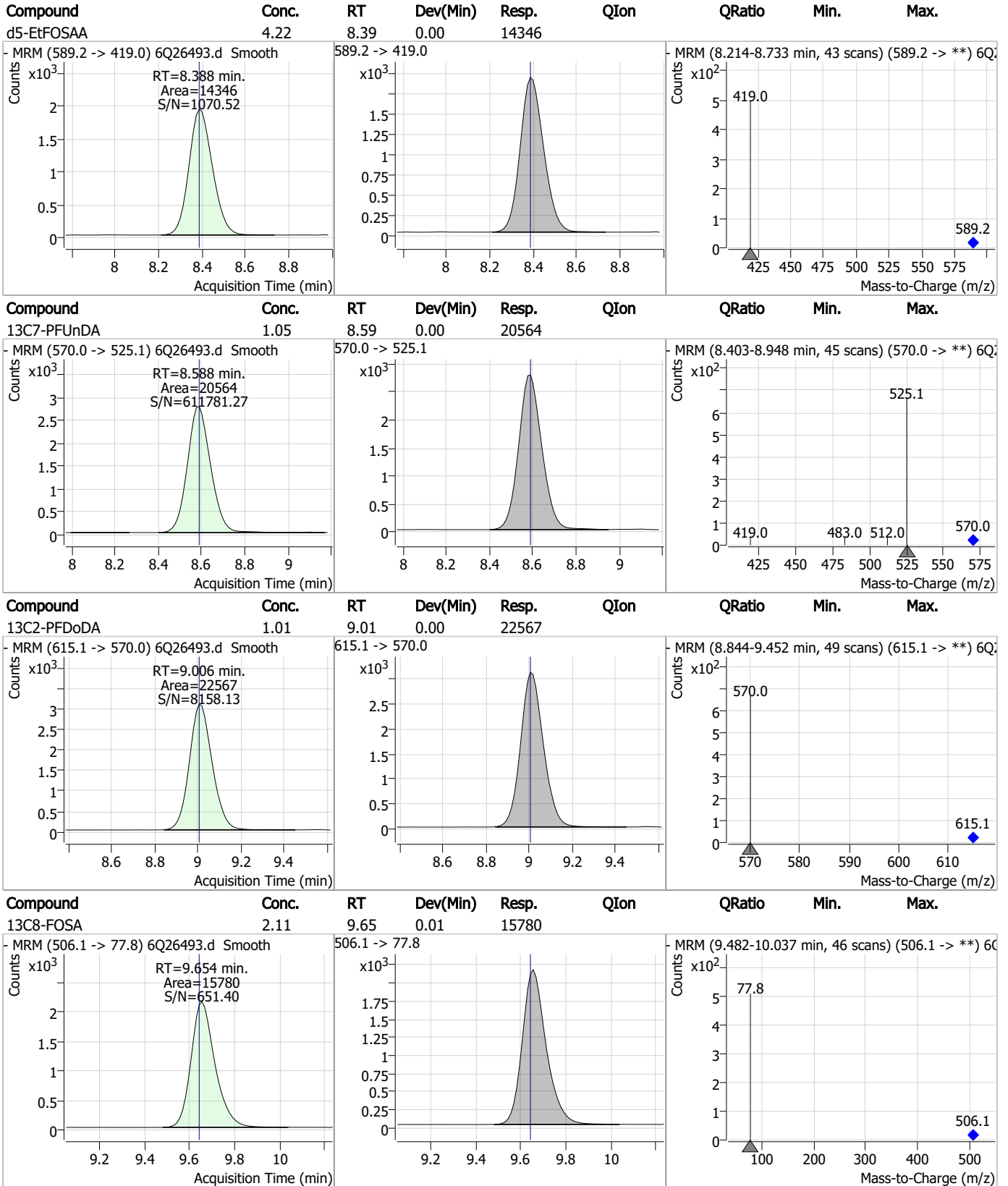
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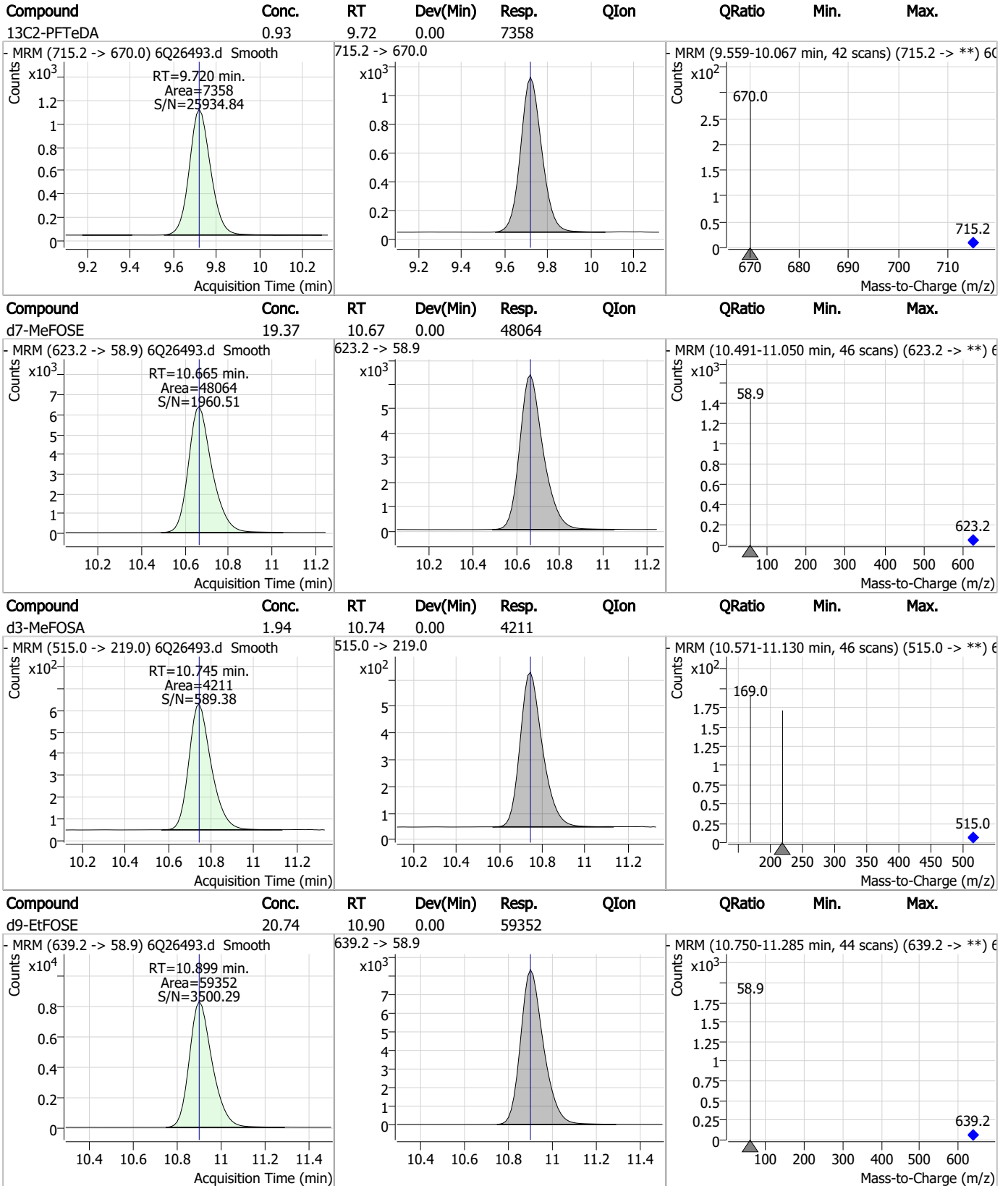
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

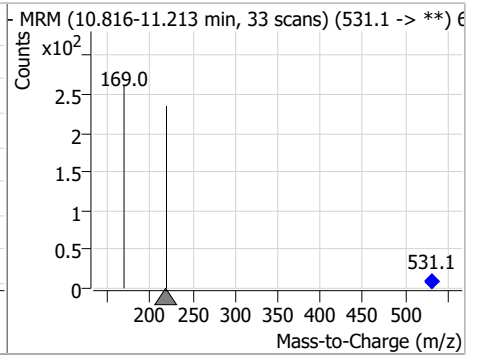
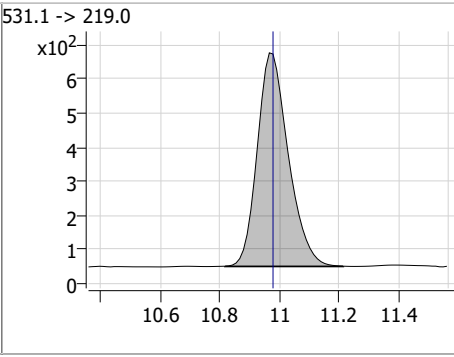
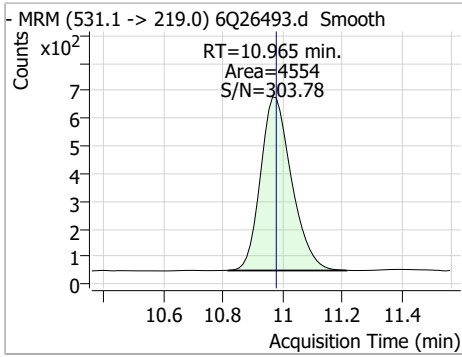


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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.85	10.96	-0.01	4554				



7.1.4  
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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26495.d  
Operator : marthav  
Acq. Method : 1633full.m  
Acq. Date-Time : 10/16/2023 10:41:07 PM  
Sample Name : FC10326-5  
Vial : P4-B1  
DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
Batch Name : s6q372.batch.bin  
Sample Information : OP99514,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	135277	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	45068	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	42228	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	44078	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	60439	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24318	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	22121	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	24318	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	23554	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	7425	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	16556	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	20333	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10276	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9587	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2070	5.00 µg/L	0.000
M2-6:2FTS	6.922	429.1 -> 80.9	2626	5.00 µg/L	0.000
M2-8:2FTS	7.934	529.1 -> 80.9	2795	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	19408	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	30015	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	15829	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	49081	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	56004	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	4657	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	4449	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9522	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	53768	5.00 µg/L	0.037
18O2-PFHxS	7.238	403.0 -> 83.9	6134	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	60653	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	22494	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21553	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	41419	2.50 µg/L	0.000

**System Monitoring Compounds**

13C2-4:2FTS	5.241	329.1 -> 80.9	2070	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-6:2FTS	6.922	429.1 -> 80.9	2626	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2795	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-PFDoDA	9.006	615.1 -> 570.0	23554	1.03 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.3%		
13C2-PFTeDA	9.720	715.2 -> 670.0	7425	0.92 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.5%		
13C3-PFBS	5.483	302.1 -> 79.9	20333	2.90 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C3-PFHxS	7.239	402.1 -> 79.9	10276	2.58 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFBA	2.963	216.8 -> 171.9	135277	10.21 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFHpA	6.505	367.1 -> 322.0	44078	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C5-PFHxA	5.565	318.0 -> 273.0	42228	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFPeA	4.359	268.3 -> 223.0	45068	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C6-PFDA	8.134	519.1 -> 474.1	22121	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C7-PFUnDA	8.588	570.0 -> 525.1	24318	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.654	506.1 -> 77.8	16556	2.17 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.9%	
13C8-PFOA	7.136	421.1 -> 376.0	60439	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C8-PFOS	8.284	507.1 -> 79.9	9587	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C9-PFNA	7.654	472.1 -> 427.0	24318	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
d3-MeFOSAA	8.191	573.2 -> 419.0	19408	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	30015	10.27 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d3-MeFOSA	10.745	515.0 -> 219.0	4449	2.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.3%	
d5-EtFOSAA	8.388	589.2 -> 419.0	15829	4.57 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
d7-MeFOSE	10.665	623.2 -> 58.9	49081	19.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d9-EtFOSE	10.899	639.2 -> 58.9	56004	19.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.8%	
d5-EtFOSA	10.977	531.1 -> 219.0	4657	1.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.1%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.911	427.1 -> 407.0	1967	0.67 µg/L	93
		427.1 -> 80.9	695		
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	8.981	613.1 -> 569.0	2085	0.11 µg/L	# 74
		613.1 -> 319.0	25		
PFDS	-	599.0 -> 79.9	-	N.D.	



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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8				
		363.1 -> 319.0	5186	0.20 µg/L	m	96
PFHpS	-	363.1 -> 169.0	668			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.568	449.0 -> 98.9				
		313.0 -> 269.0	5755	0.36 µg/L	m	93
PFHxS	-	313.0 -> 118.9	176			
		398.7 -> 79.9	-	N.D.		
PFNA	8.126	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.138	548.8 -> 98.9				
		413.0 -> 369.0	1395	0.05 µg/L	m	97
PFOS	-	413.0 -> 169.0	267			
		498.9 -> 79.9	-	N.D.		
PFPeA	4.361	498.9 -> 98.8				
		263.0 -> 219.0	3641	0.34 µg/L		100
PFPeS	6.483	349.1 -> 79.9	0	µg/L	m	1
		349.1 -> 98.9	0			
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	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
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	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFEESA	-					

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



7.1.5

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### Perfluorinated Compounds by LC/MS/MS

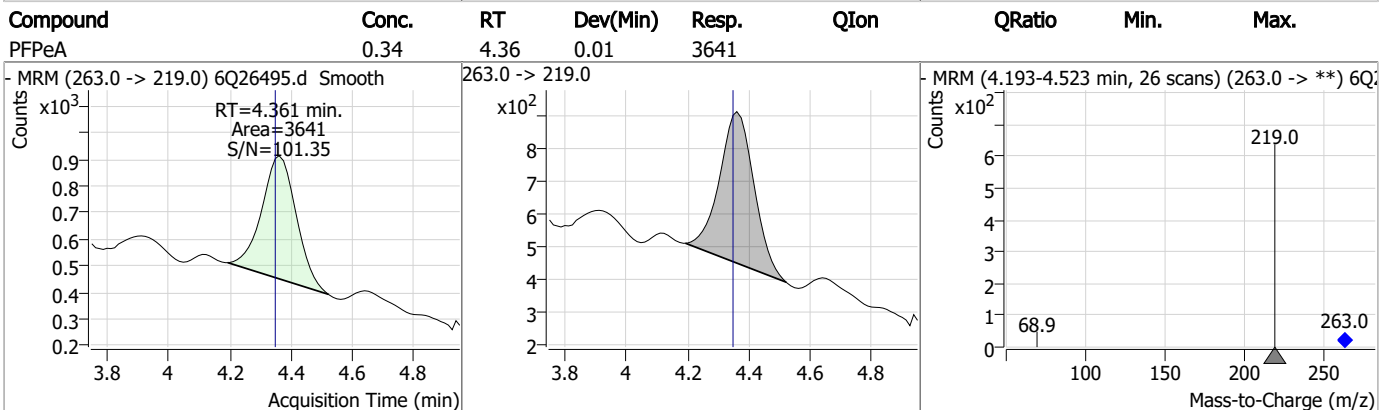
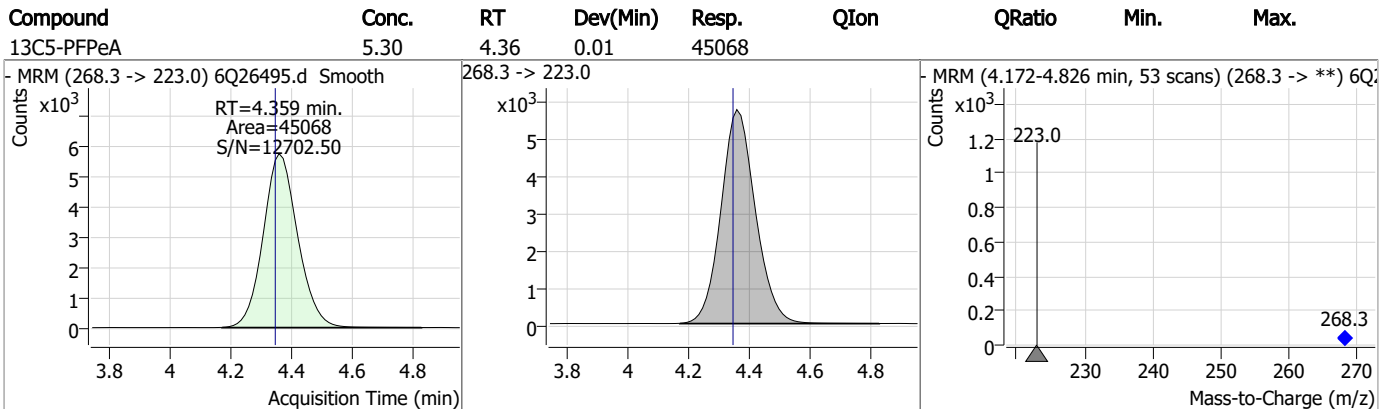
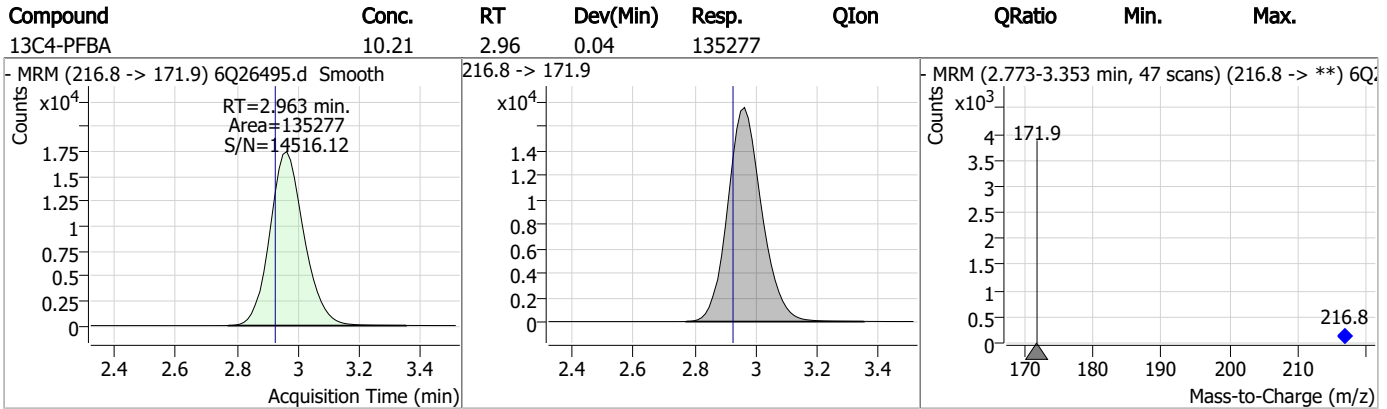
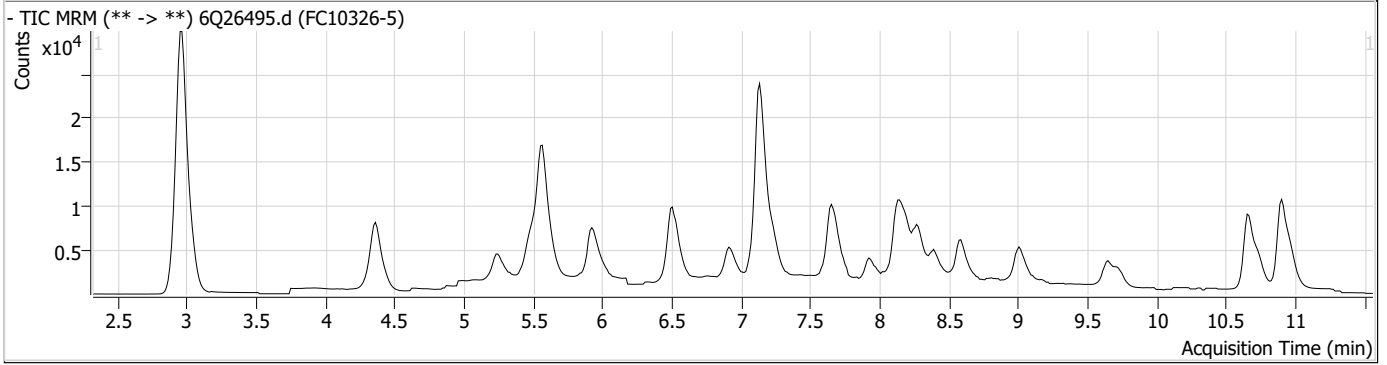
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.5  
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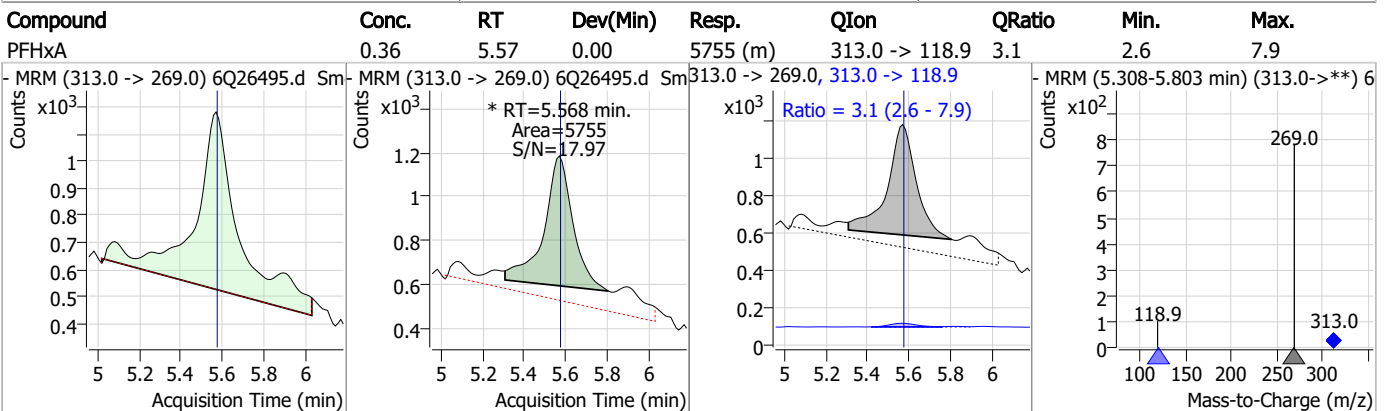
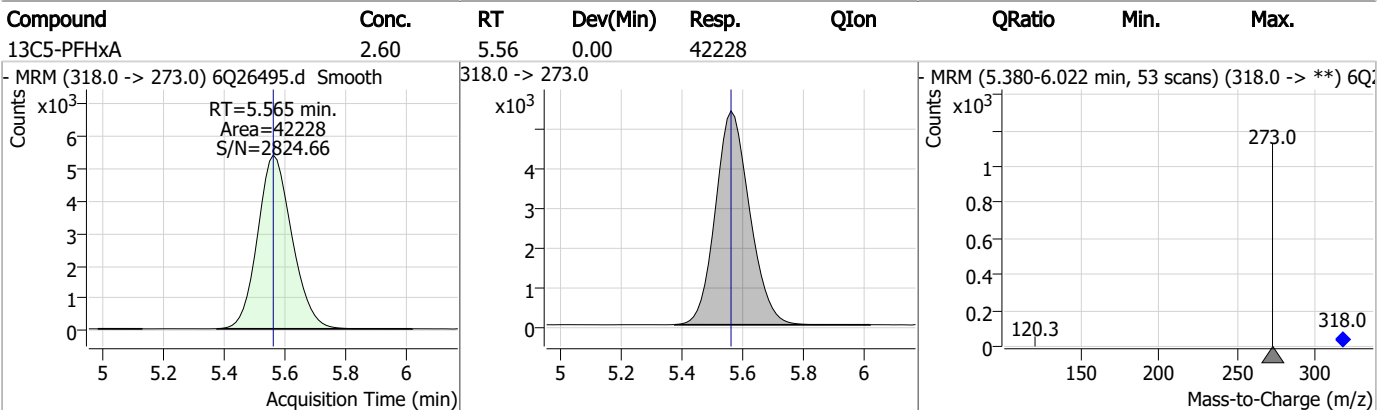
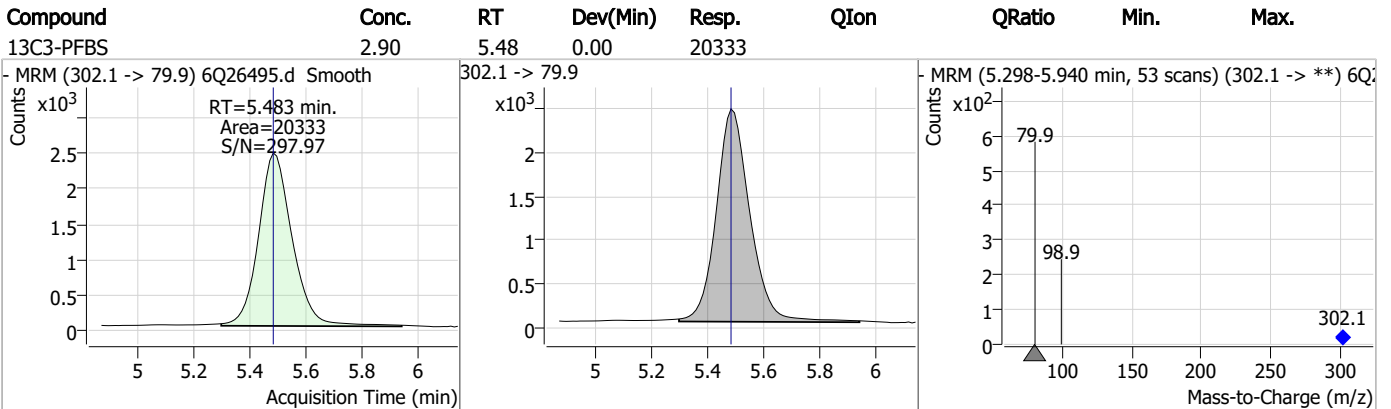
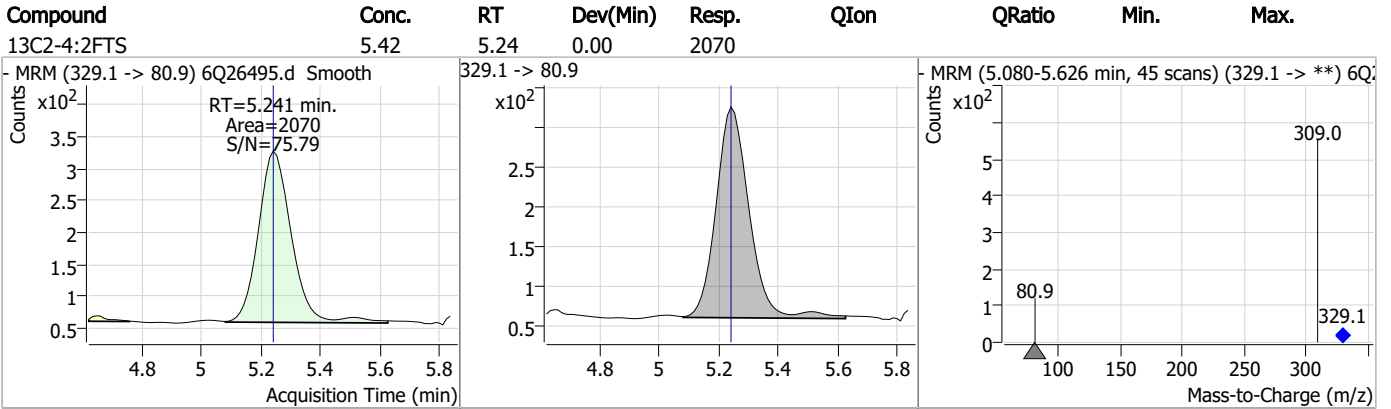




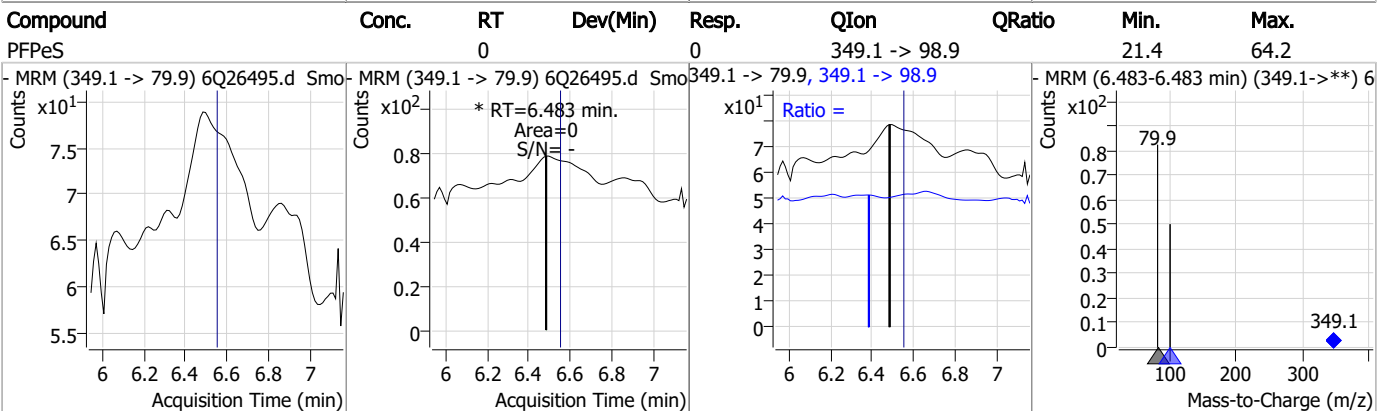
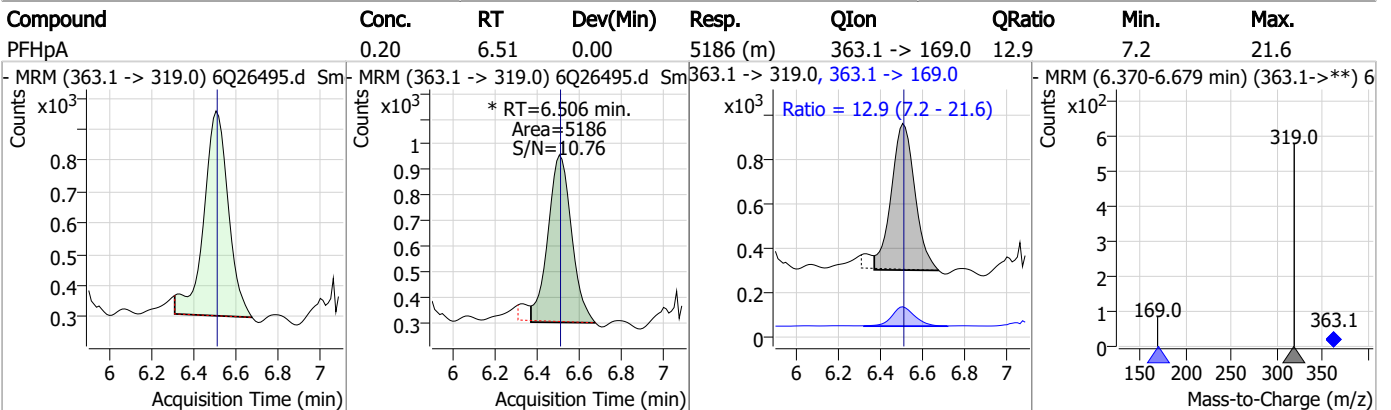
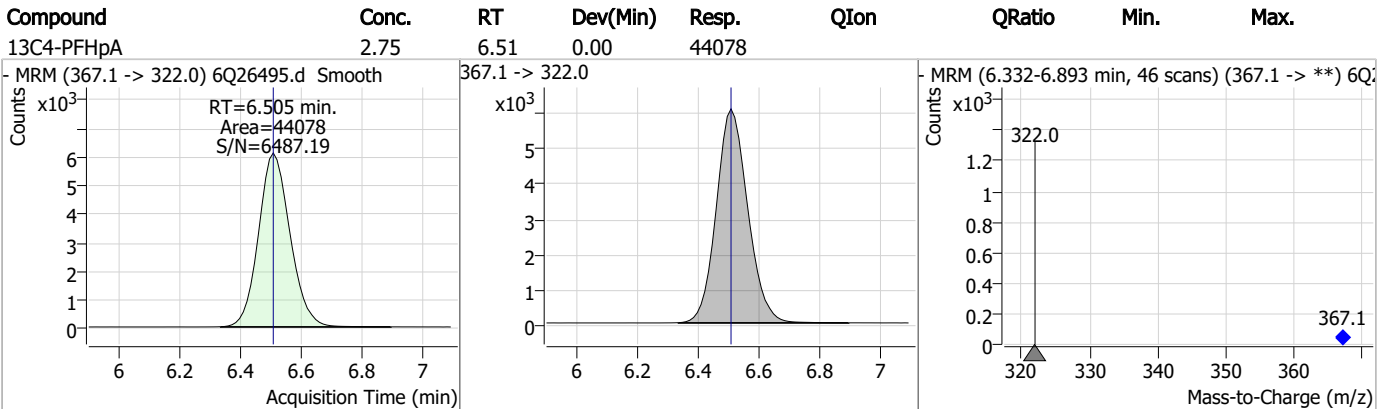
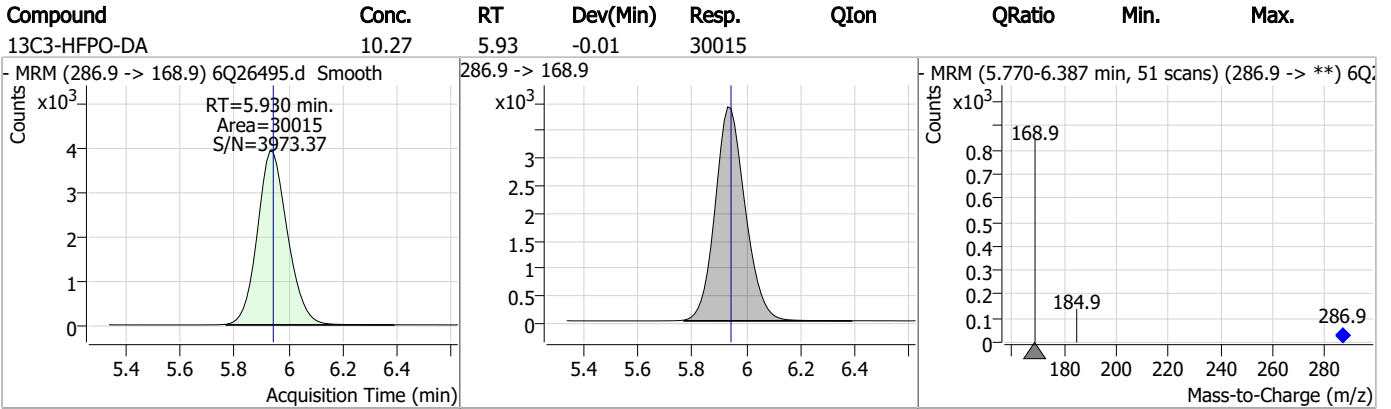
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

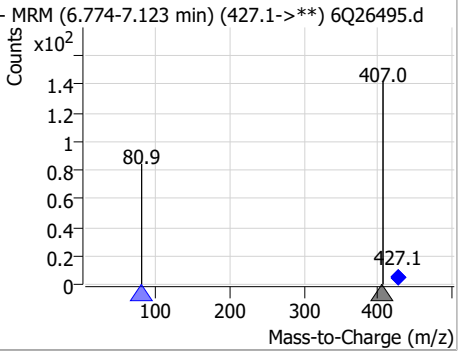
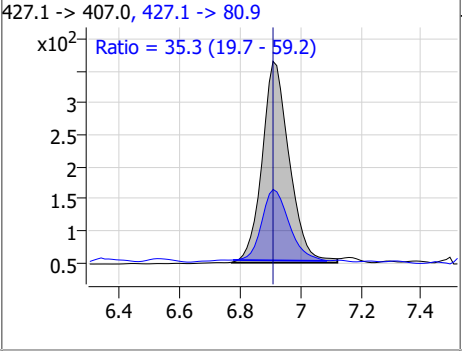
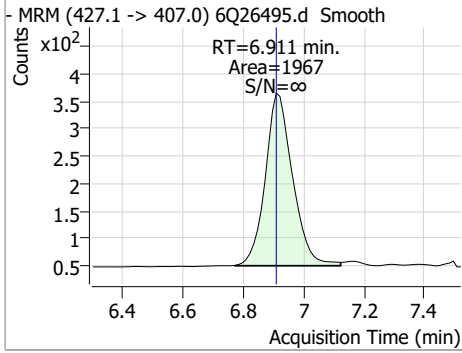


### Perfluorinated Compounds by LC/MS/MS

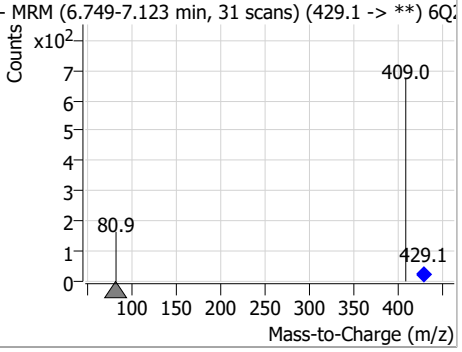
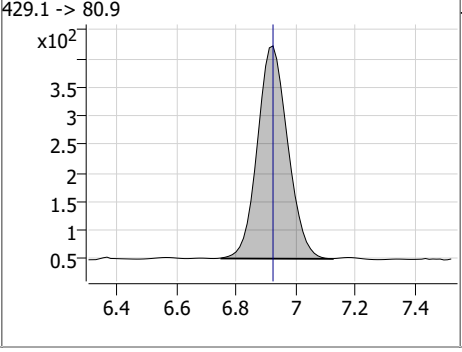
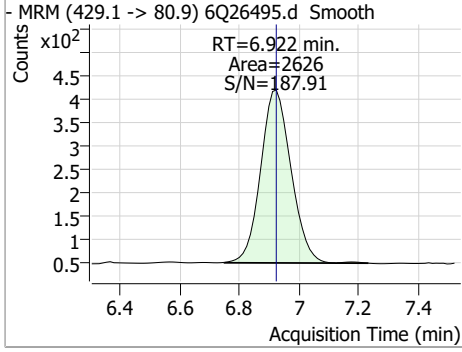


### Perfluorinated Compounds by LC/MS/MS

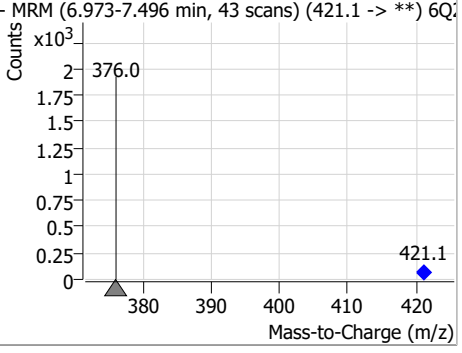
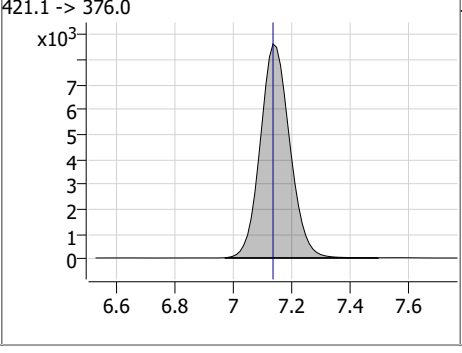
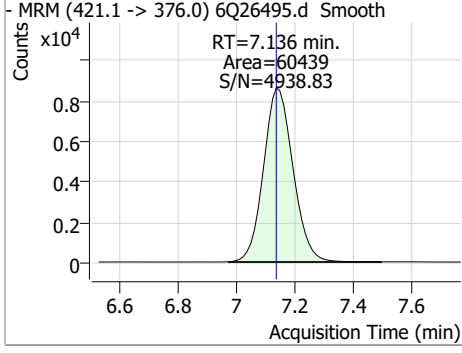
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.67	6.91	0.00	1967	427.1 -> 80.9	35.3	19.7	59.2



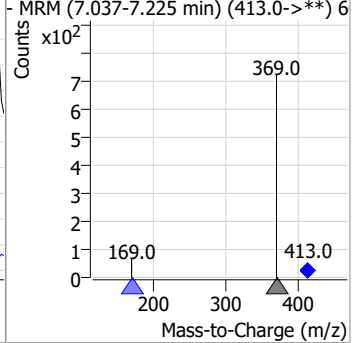
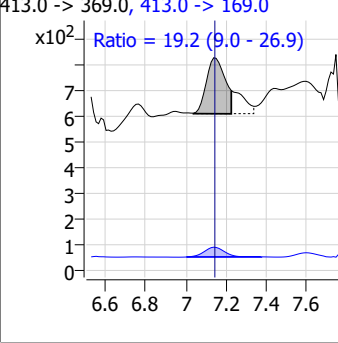
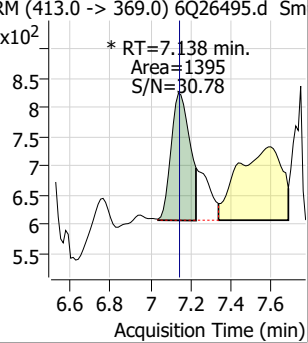
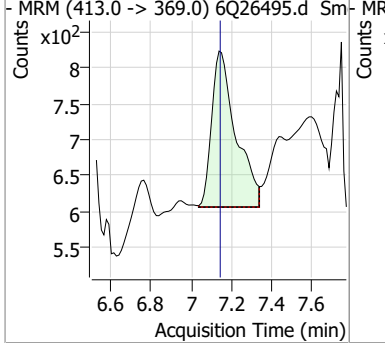
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.12	6.92	0.00	2626	429.1 -> 80.9			



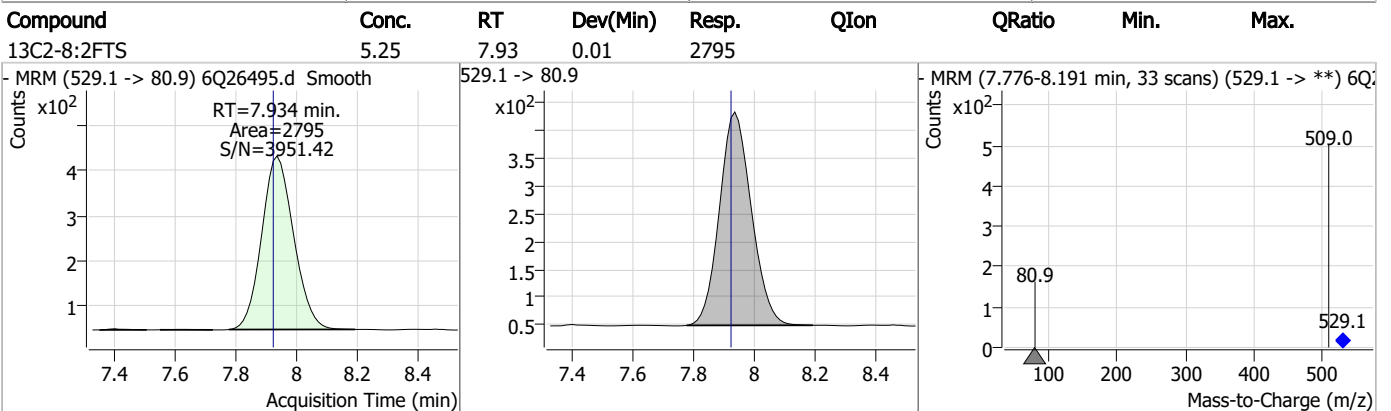
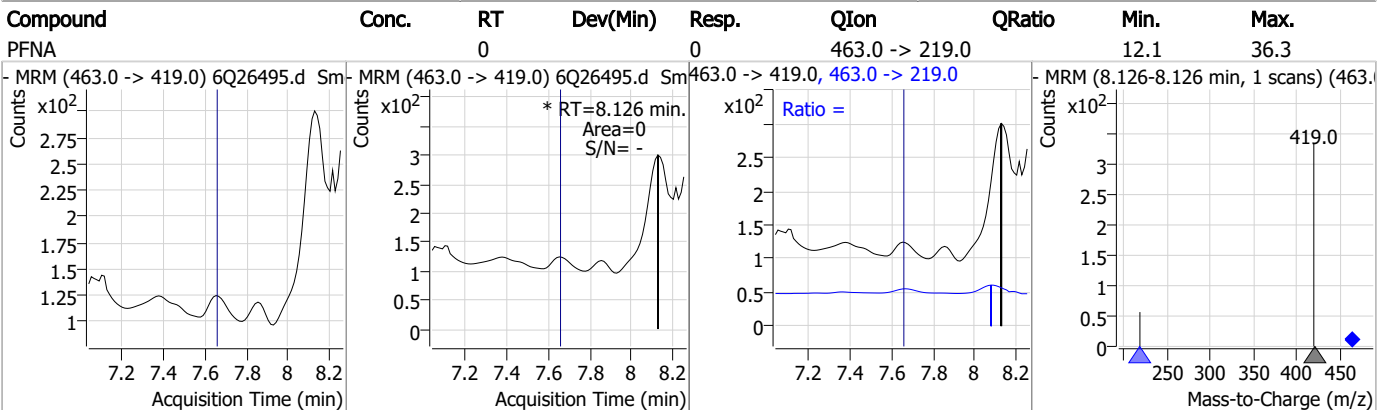
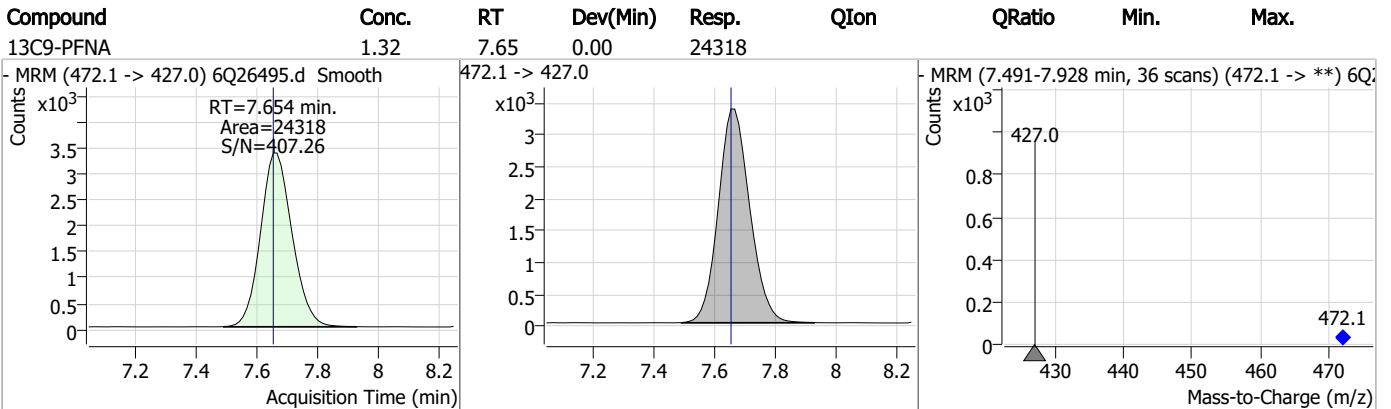
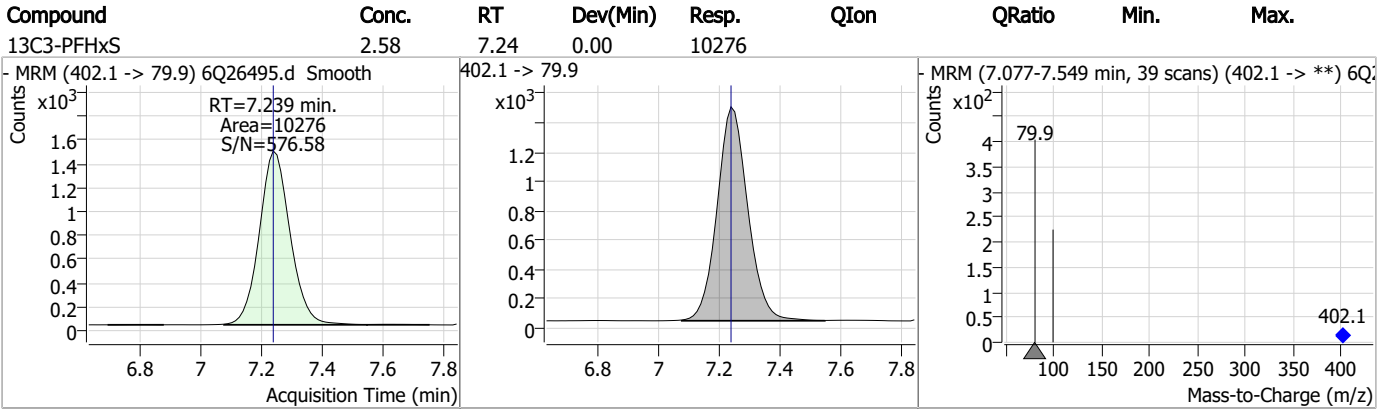
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.79	7.14	0.00	60439	421.1 -> 376.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.05	7.14	0.00	1395 (m)	413.0 -> 169.0	19.2	9.0	26.9



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.
13C6-PFDA	1.14	8.13	0.00	22121				
d3-MeFOSAA	4.65	8.19	0.00	19408				
13C8-PFOS	2.35	8.28	0.00	9587				
d5-EtFOSAA	4.57	8.39	0.00	15829				

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.21	8.59	0.00	24318				
13C2-PFDoDA	1.03	9.01	0.00	23554				
PFDoDA	0.11	8.98	-0.03	2085	613.1 -> 319.0	1.2	5.5	16.6
13C8-FOSA	2.17	9.65	0.01	16556				

7.1.5

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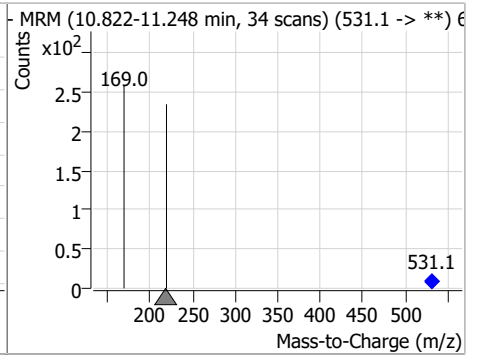
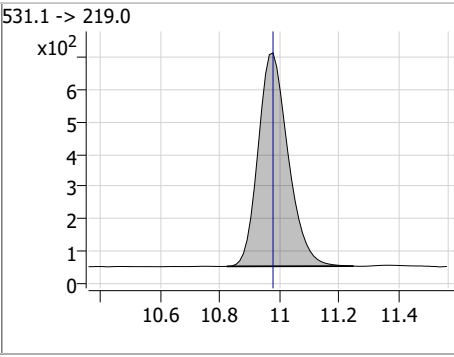
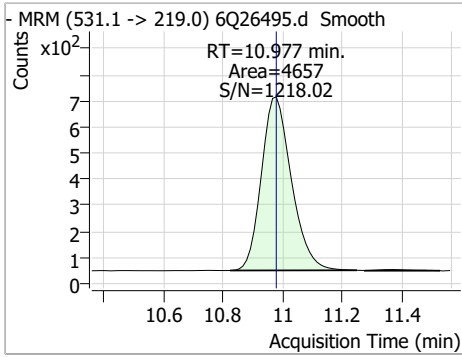
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.92	9.72	0.00	7425				
d7-MeFOSE	19.40	10.67	0.00	49081				
d3-MeFOSA	2.01	10.74	0.00	4449				
d9-EtFOSE	19.19	10.90	0.00	56004				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.85	10.98	0.00	4657				



7.1.5  
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# Manual Integration Approval Summary

Sample Number: FC10326-5                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26495.D                      Analyst approved: 10/17/23 13:27 Martha Valls  
Injection Time: 10/16/23 22:41                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.57	Poorly defined baseline
Perfluoroheptanoic acid	375-85-9		6.51	Poorly defined baseline
Perfluorooctanoic acid	335-67-1		7.14	Poorly defined baseline

7.1.5.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26488.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 9:00:50 PM  
 Sample Name : OP99514-MB  
 Vial : P4-A3  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99514,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	144511	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	45818	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	44566	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	44003	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	60528	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24112	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	24464	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	23591	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	26521	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	8496	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	15193	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	19629	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	11500	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10497	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2336	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2830	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	3296	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	19824	5.00 µg/L	0.000
M3-HFPO-DA	5.942	286.9 -> 168.9	31647	10.00 µg/L	0.000
M5-EtFOSAA	8.388	589.2 -> 419.0	16565	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	49012	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	62679	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	4844	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	4184	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8183	2.50 µg/L	0.000
13C3-PFBA	2.954	216.0 -> 172.0	49040	5.00 µg/L	0.025
18O2-PFHxS	7.238	403.0 -> 83.9	5798	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	55109	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20051	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	19874	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	37399	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2336	6.47 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.4%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2830	5.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C2-8:2FTS	7.934	529.1 -> 80.9	3296	6.55 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.9%		
13C2-PFDoDA	9.006	615.1 -> 570.0	26521	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C2-PFTeDA	9.720	715.2 -> 670.0	8496	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C3-PFBS	5.483	302.1 -> 79.9	19629	2.96 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C3-PFHxS	7.239	402.1 -> 79.9	11500	3.06 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 = 122.4%	
13C4-PFBA	2.963	216.8 -> 171.9	144511	11.95 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.5%	
13C4-PFHpA	6.505	367.1 -> 322.0	44003	3.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.7%	
13C5-PFHxA	5.565	318.0 -> 273.0	44566	3.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 121.6%	
13C5-PFPeA	4.359	268.3 -> 223.0	45818	5.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.4%	
13C6-PFDA	8.134	519.1 -> 474.1	24464	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C7-PFUnDA	8.588	570.0 -> 525.1	23591	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C8-FOSA	9.654	506.1 -> 77.8	15193	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C8-PFOA	7.136	421.1 -> 376.0	60528	3.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.2%	
13C8-PFOS	8.284	507.1 -> 79.9	10497	2.99 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.8%	
13C9-PFNA	7.654	472.1 -> 427.0	24112	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.3%	
d3-MeFOSAA	8.191	573.2 -> 419.0	19824	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C3-HFPO-DA	5.942	286.9 -> 168.9	31647	11.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 119.9%	
d3-MeFOSA	10.745	515.0 -> 219.0	4184	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.8%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16565	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.3%	
d7-MeFOSE	10.665	623.2 -> 58.9	49012	22.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.2%	
d9-EtFOSE	10.899	639.2 -> 58.9	62679	24.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSA	10.977	531.1 -> 219.0	4844	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	

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.	



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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	7.584	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	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

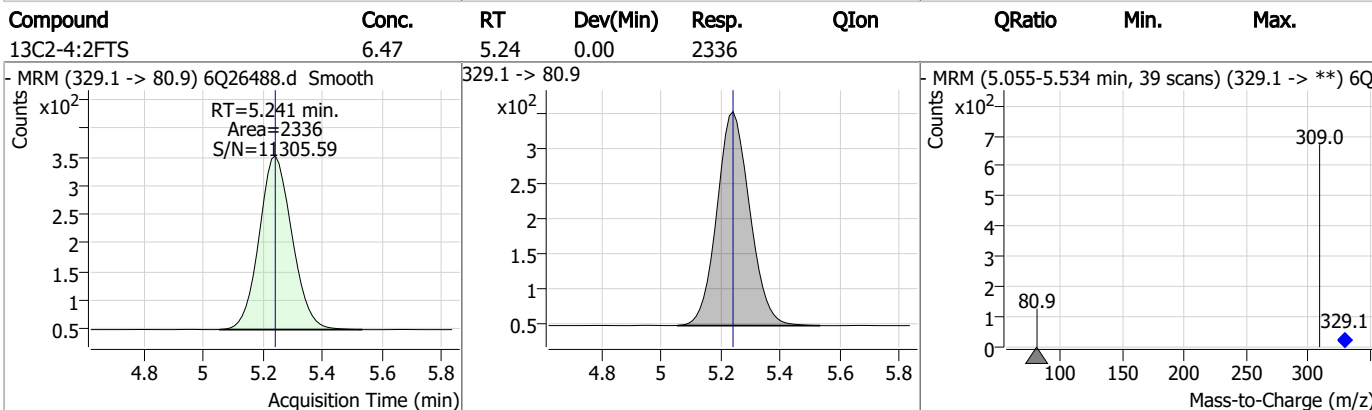
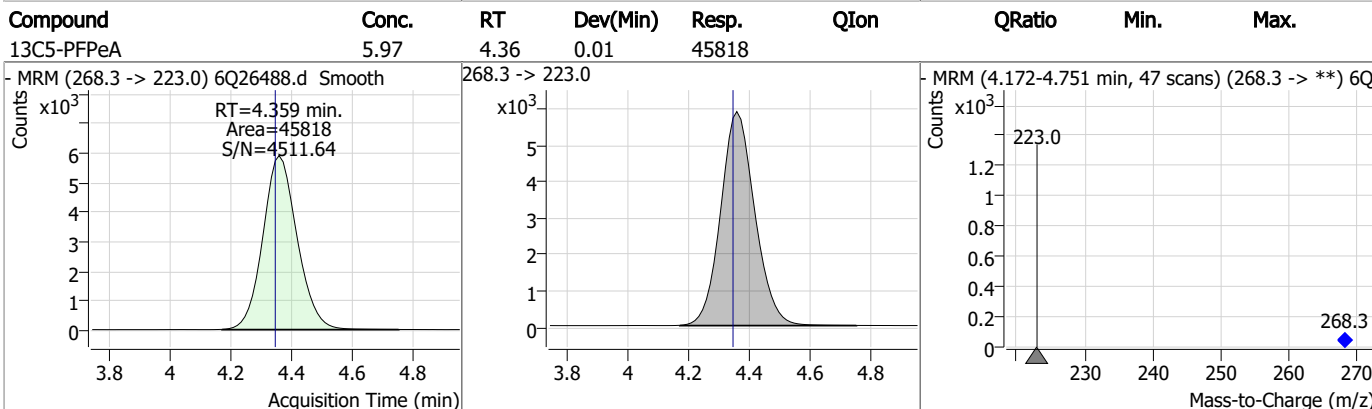
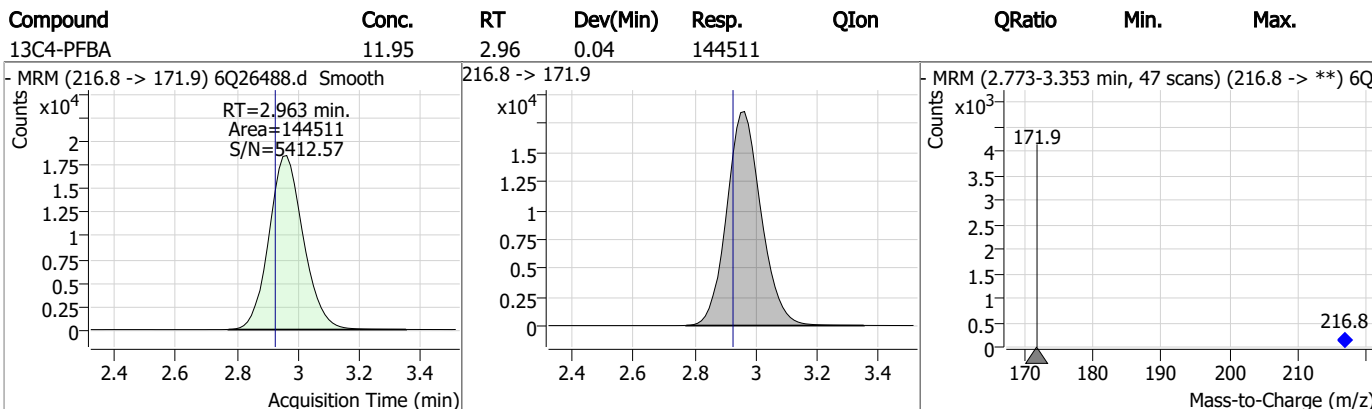
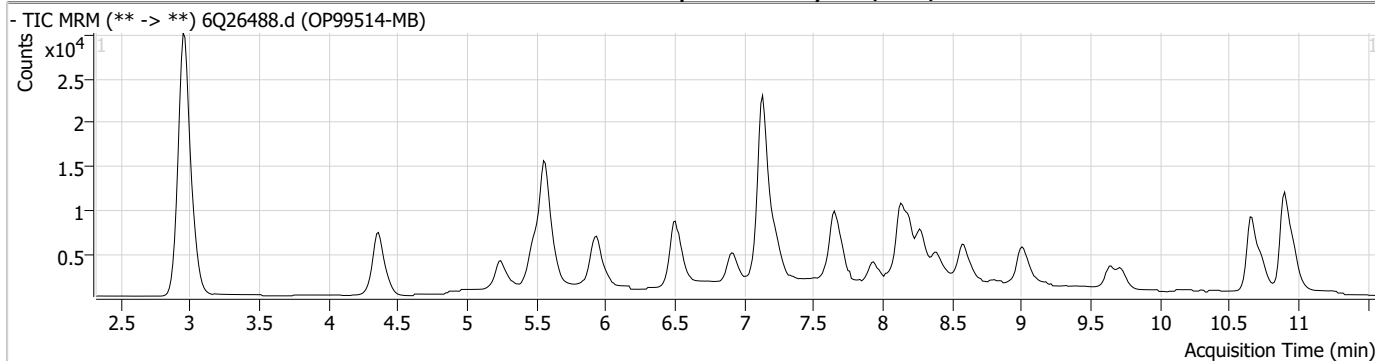
### Perfluorinated Compounds by LC/MS/MS

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



7.2.1  
7

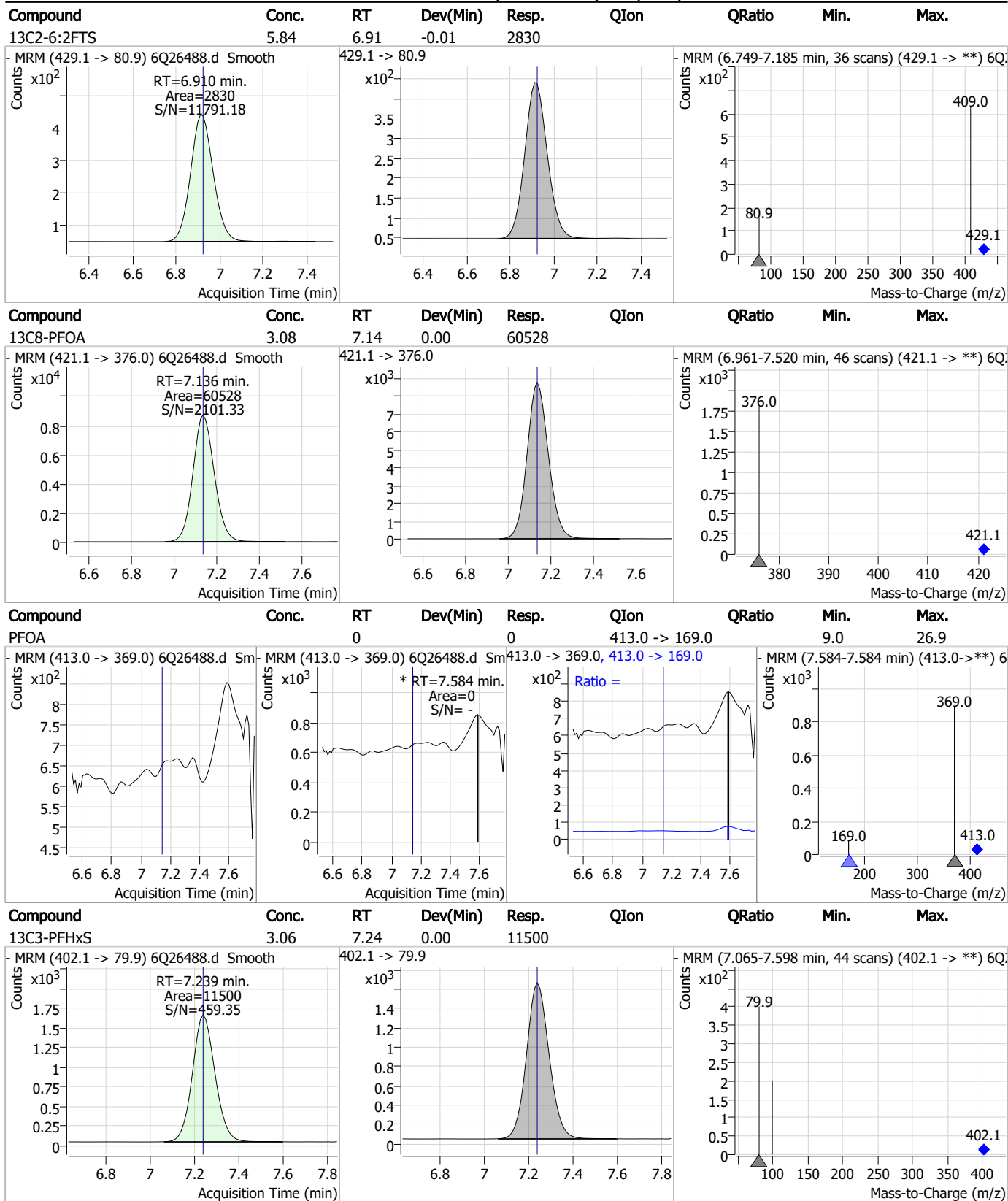
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.96	5.48	0.00	19629				
13C5-PFHxA	3.04	5.56	0.00	44566				
13C3-HFPO-DA	11.99	5.94	0.00	31647				
13C4-PFHpA	3.04	6.51	0.00	44003				

7.2.1  
7

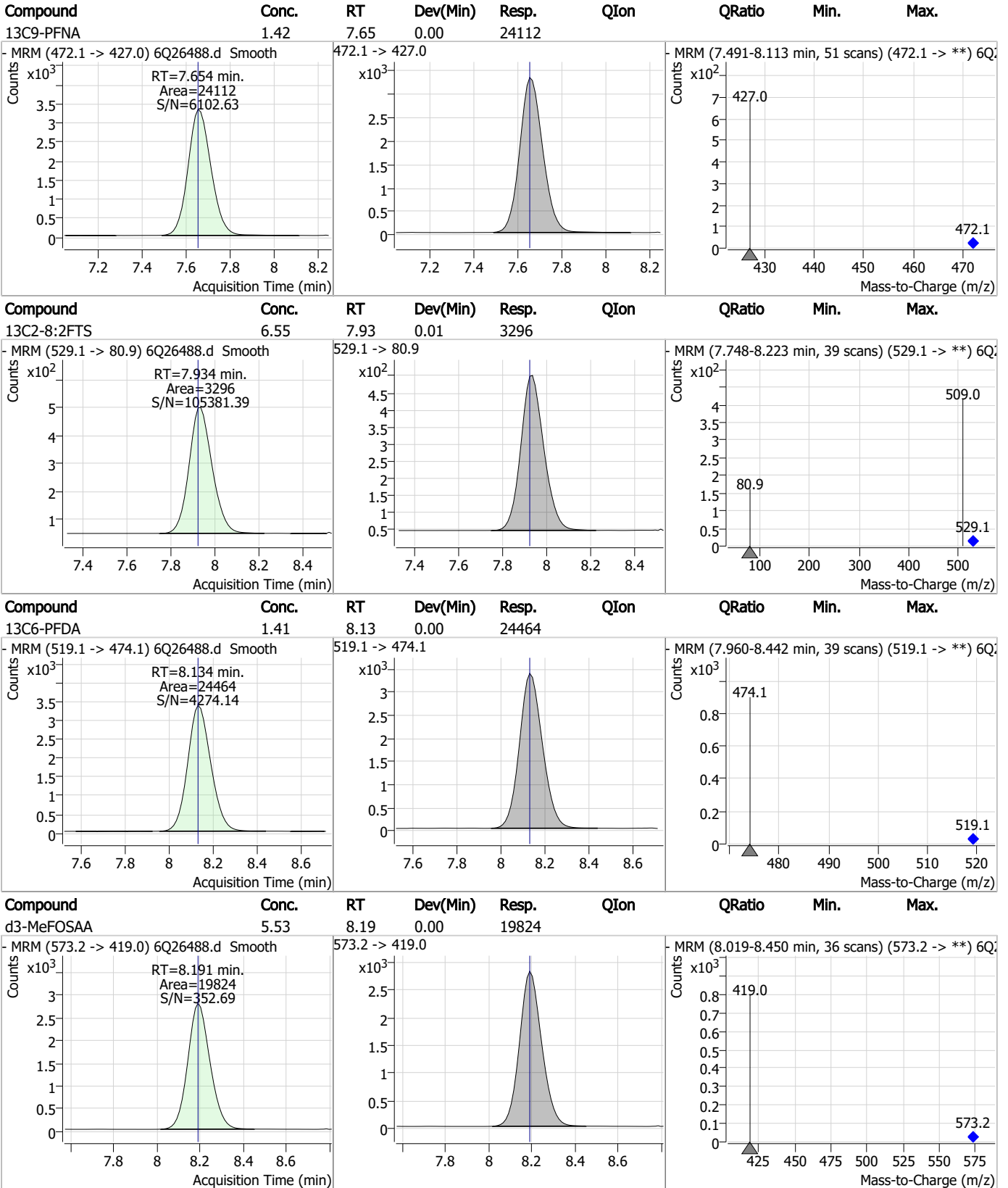


### Perfluorinated Compounds by LC/MS/MS



7.2.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.2.1

7

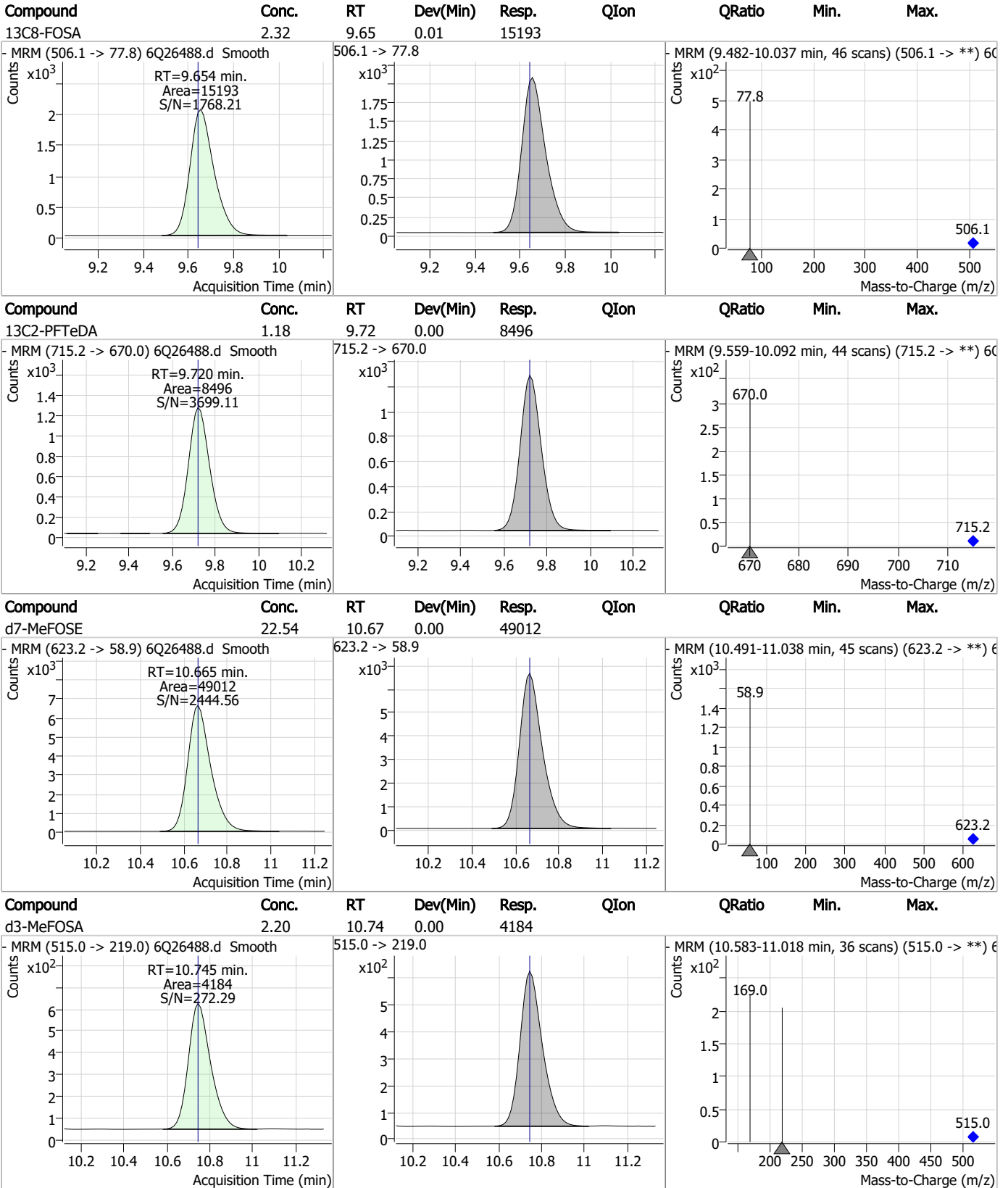
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.99	8.28	0.00	10497				
d5-EtFOSAA	5.56	8.39	0.00	16565				
13C7-PFUnDA	1.32	8.59	0.00	23591				
13C2-PFDoDA	1.30	9.01	0.00	26521				

7.2.1  
7



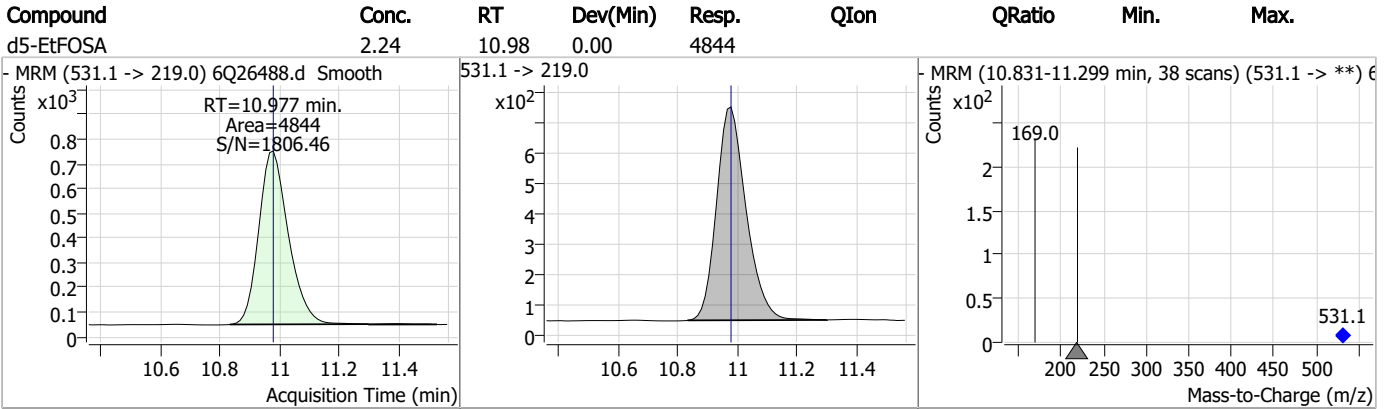
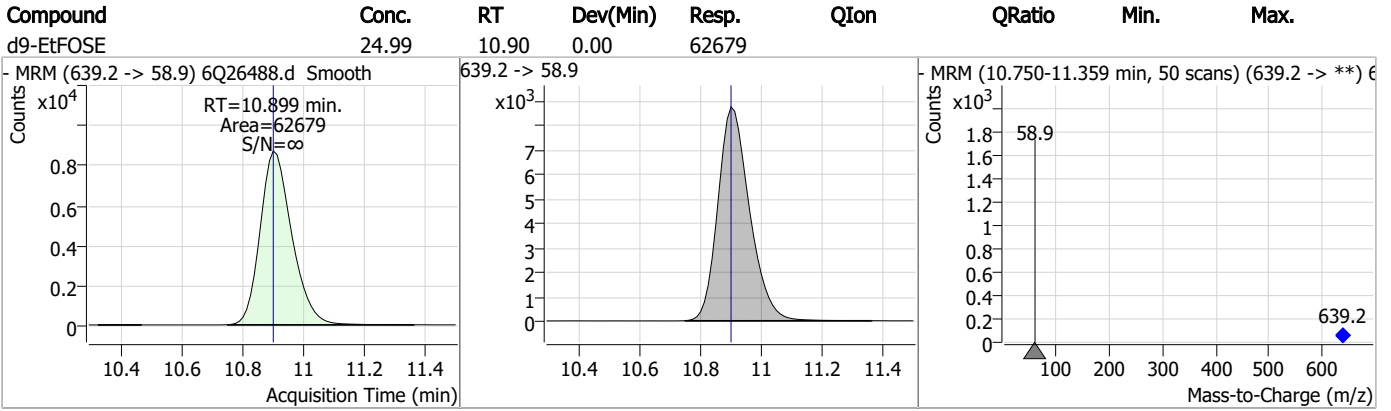
### Perfluorinated Compounds by LC/MS/MS



7.2.1

7

### Perfluorinated Compounds by LC/MS/MS



7.2.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26481.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 7:20:31 PM  
 Sample Name : IBLK  
 Vial : P1-A1  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	132740	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	42903	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	42600	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	41865	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	56320	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	23922	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	24187	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	24638	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	27105	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9794	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	18969	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	18944	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10788	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	11000	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	2090	5.00 µg/L	-0.012
M2-6:2FTS	6.910	429.1 -> 80.9	3034	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2961	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	20466	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	28922	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	17542	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	61583	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	71098	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6102	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5385	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9596	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	53959	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6448	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	61040	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20069	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	23949	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	41401	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.228	329.1 -> 80.9	2090	5.20 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-6:2FTS	6.910	429.1 -> 80.9	3034	5.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2961	5.29 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-PFDoDA	9.006	615.1 -> 570.0	27105	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9794	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C3-PFBS	5.483	302.1 -> 79.9	18944	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.239	402.1 -> 79.9	10788	2.58 µg/L	0.000

7.22  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C4-PFBA	2.926	216.8 -> 171.9	132740	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.505	367.1 -> 322.0	41865	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFHxA	5.565	318.0 -> 273.0	42600	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFPeA	4.346	268.3 -> 223.0	42903	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.134	519.1 -> 474.1	24187	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C7-PFUnDA	8.588	570.0 -> 525.1	24638	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C8-FOSA	9.654	506.1 -> 77.8	18969	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOA	7.136	421.1 -> 376.0	56320	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOS	8.284	507.1 -> 79.9	11000	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C9-PFNA	7.654	472.1 -> 427.0	23922	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.3%	
d3-MeFOSAA	8.191	573.2 -> 419.0	20466	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	28922	9.90 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	10.745	515.0 -> 219.0	5385	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
d5-EtFOSAA	8.388	589.2 -> 419.0	17542	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d7-MeFOSE	10.665	623.2 -> 58.9	61583	24.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d9-EtFOSE	10.899	639.2 -> 58.9	71098	24.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d5-EtFOSA	10.977	531.1 -> 219.0	6102	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	

**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.	



7.2.2  
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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	7.584	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	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

7.2.2  
7



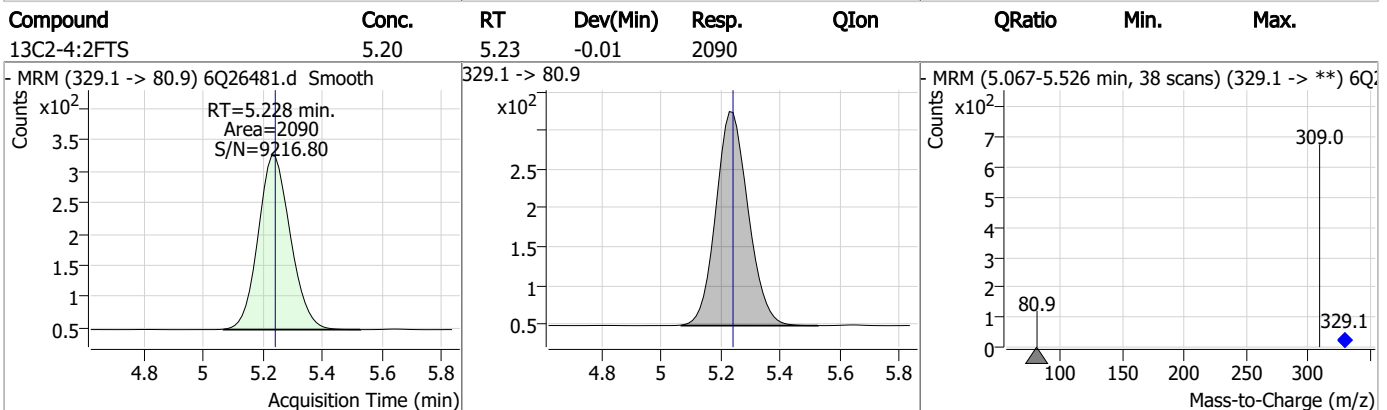
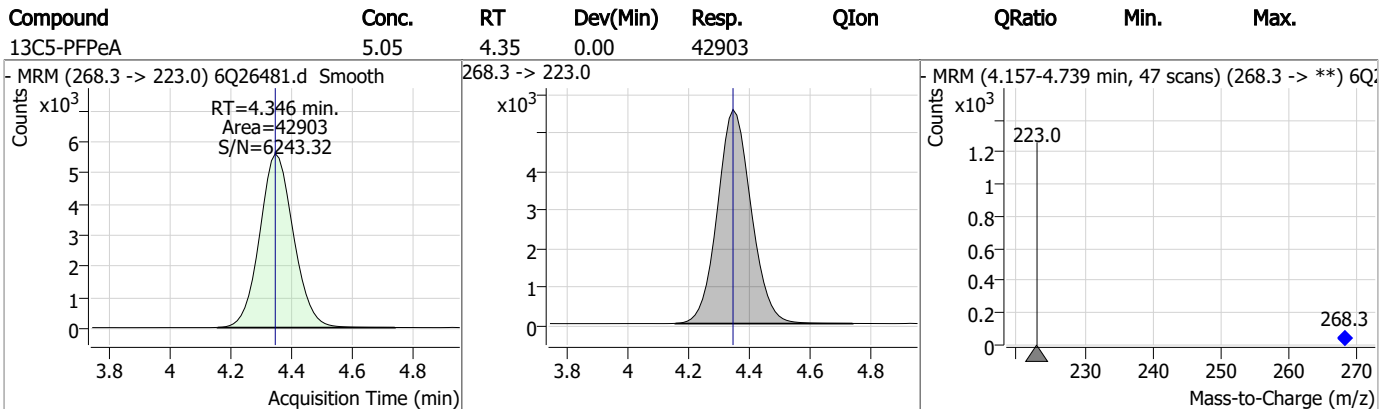
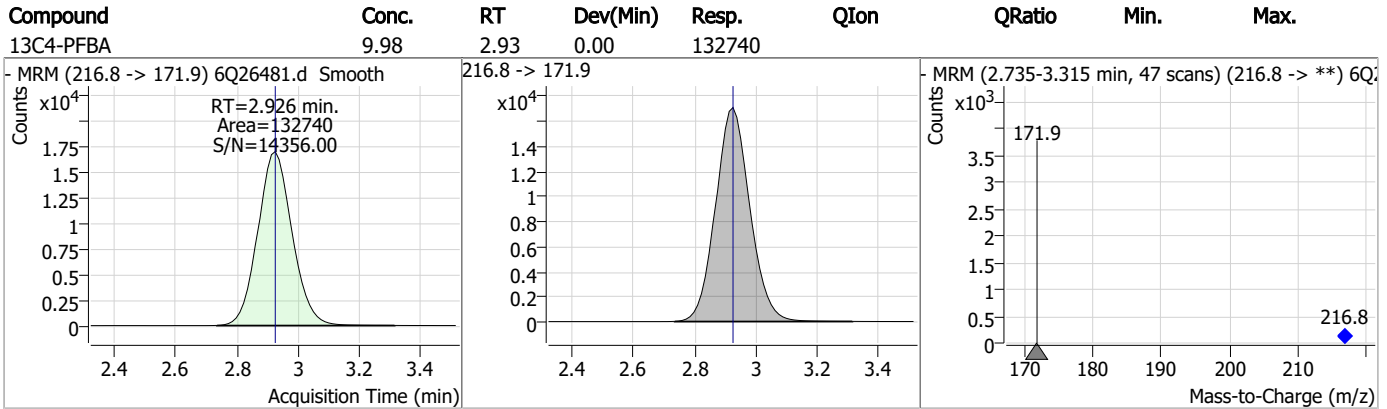
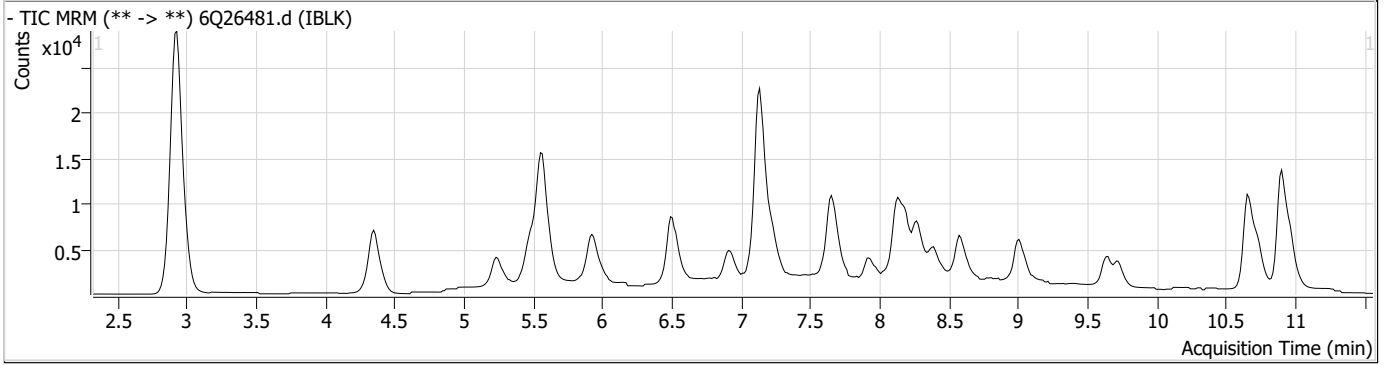
### Perfluorinated Compounds by LC/MS/MS

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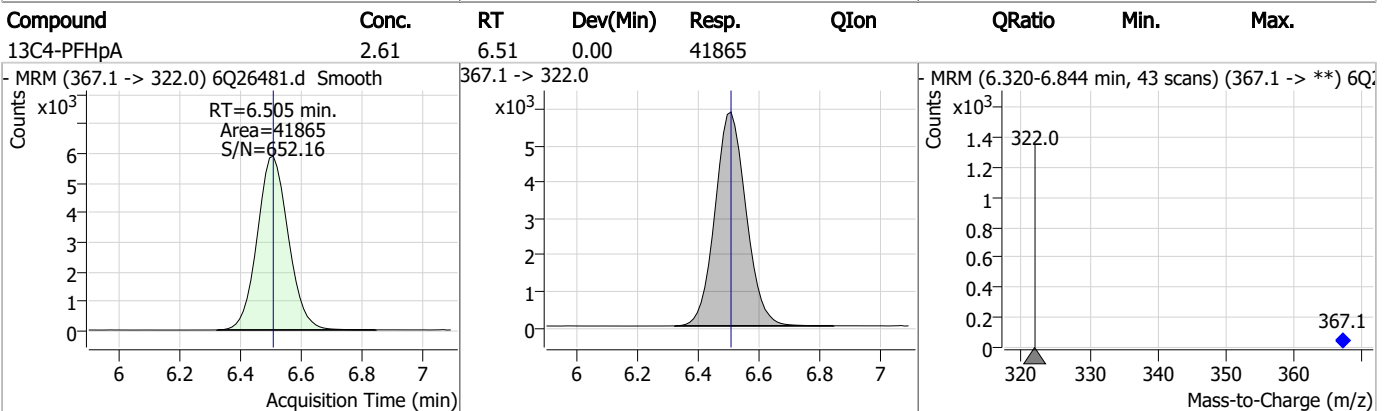
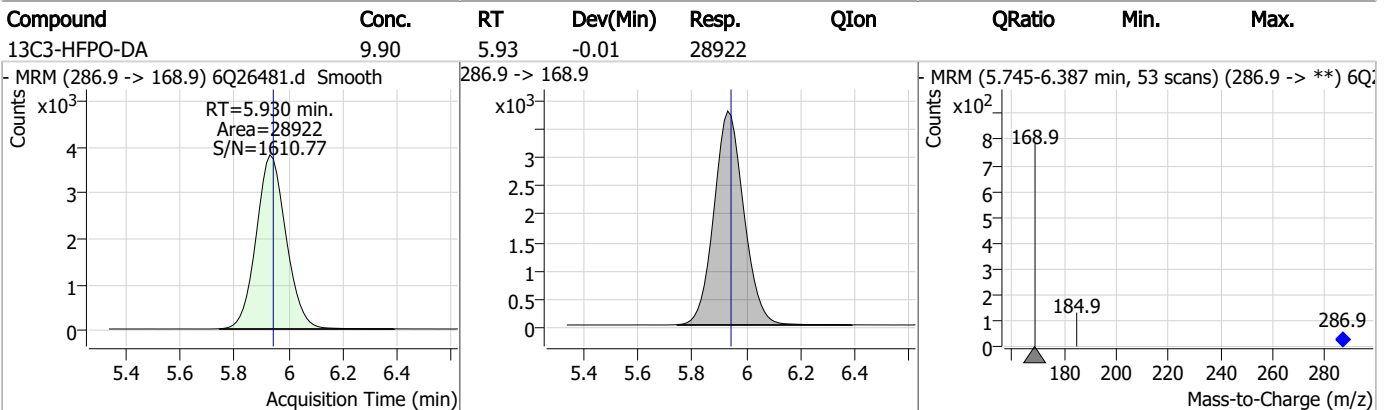
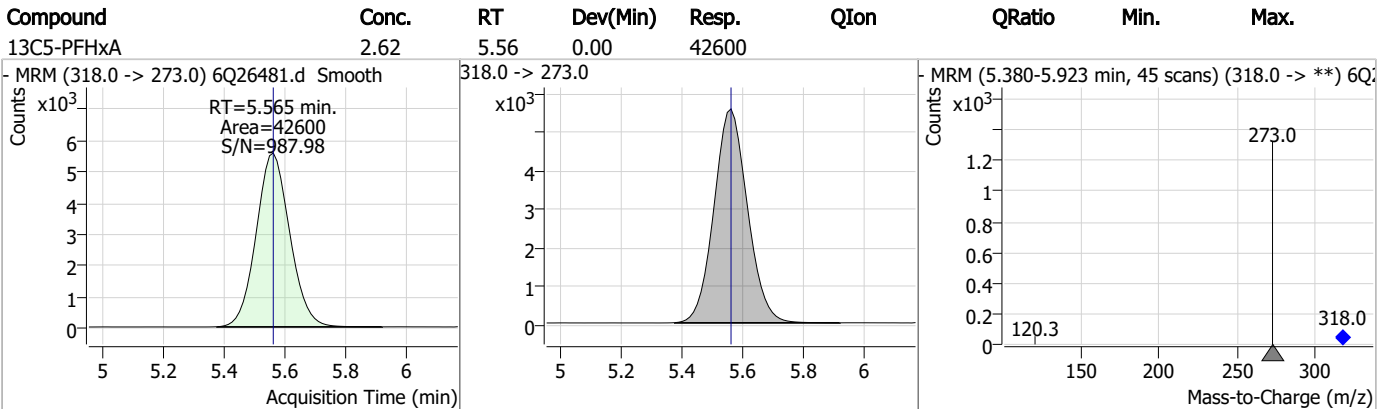
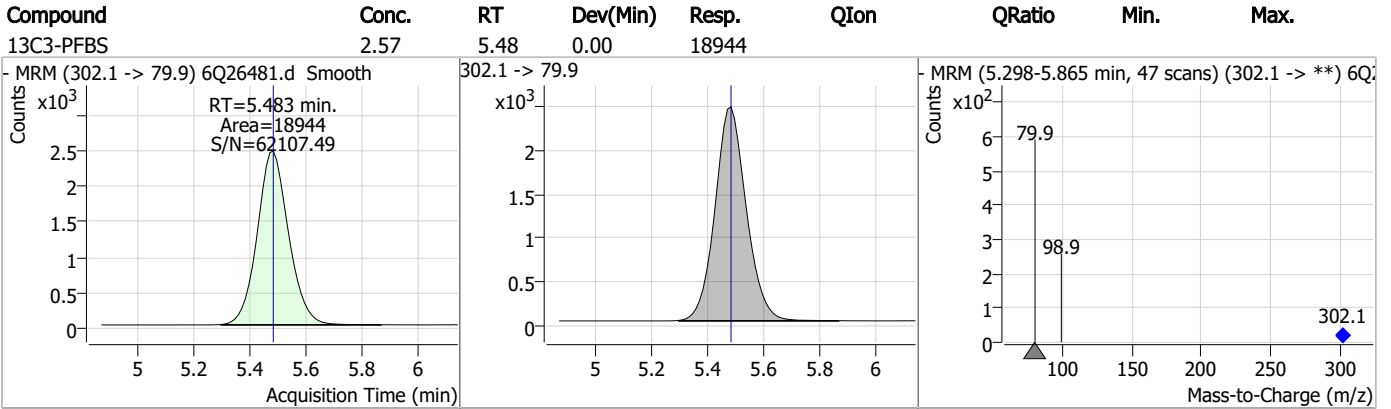
7.2.2

7

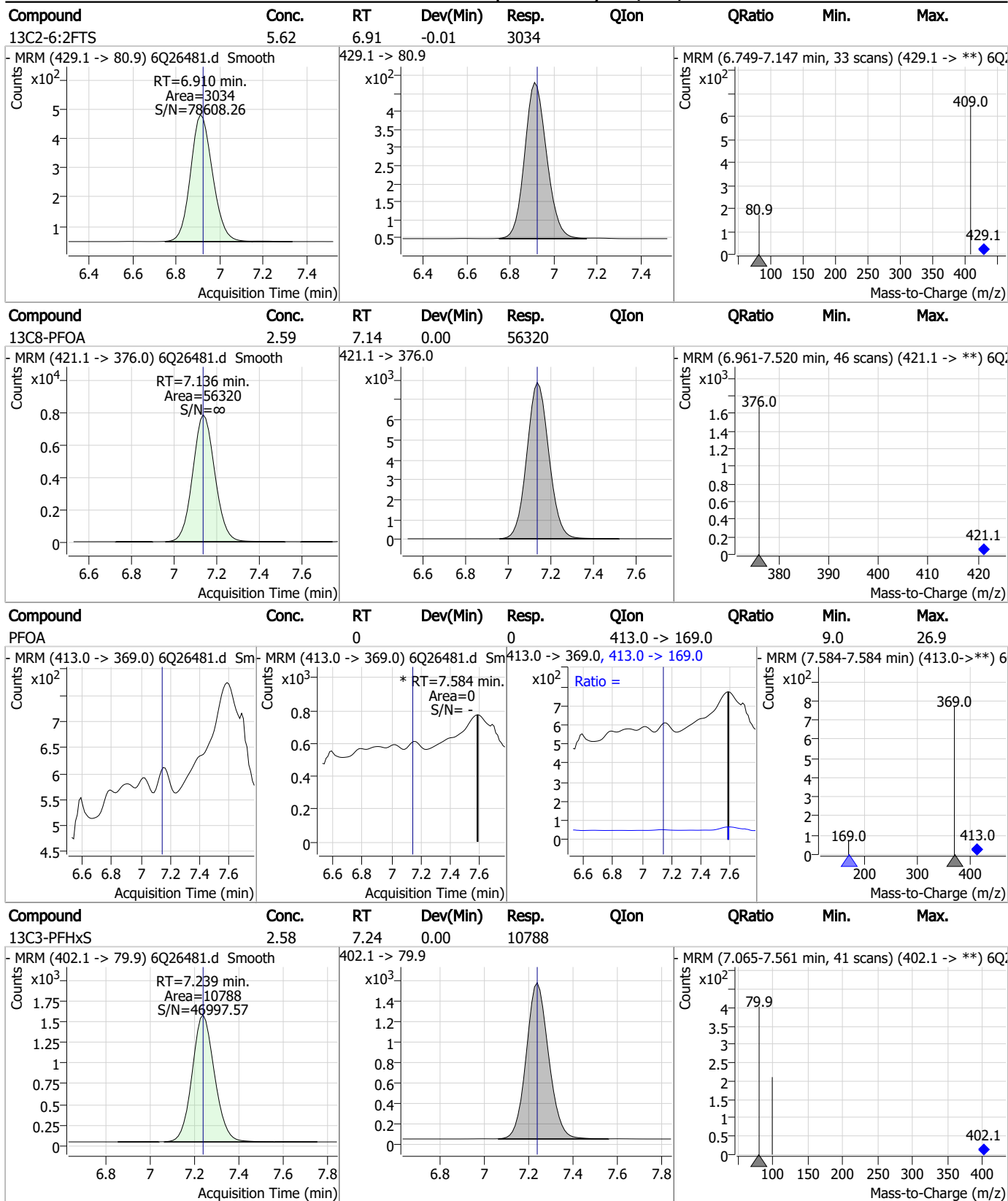
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

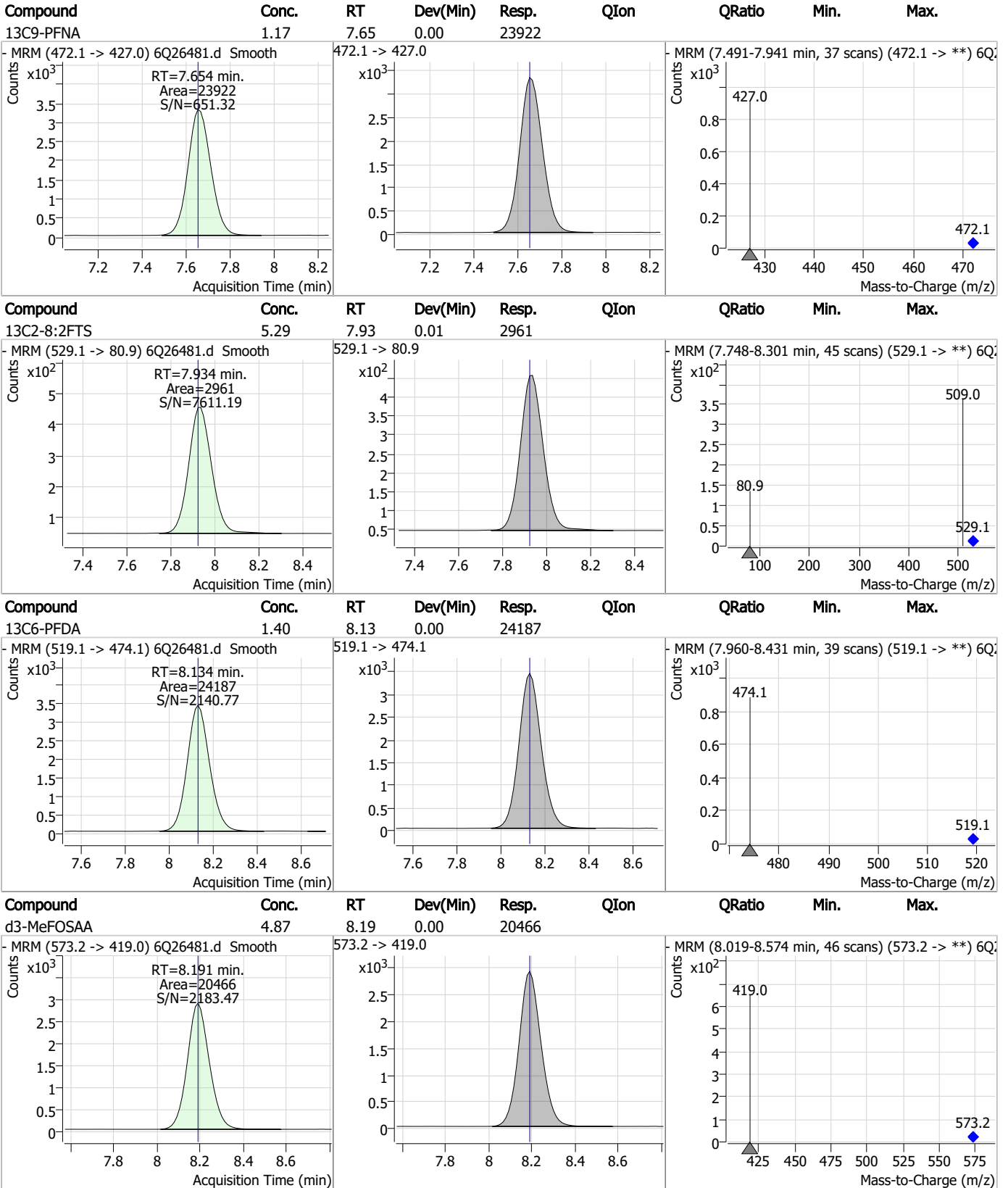


### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7

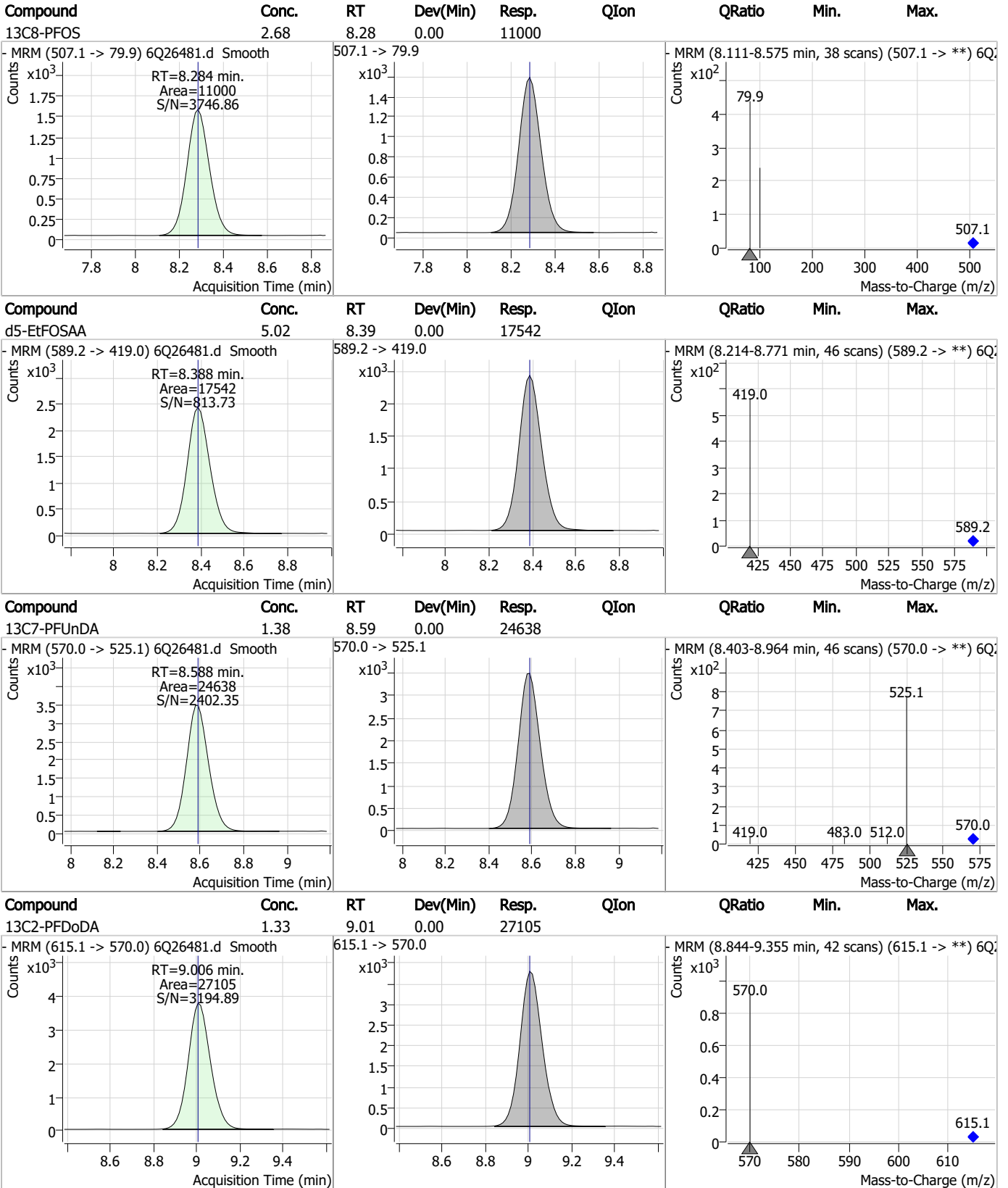
### Perfluorinated Compounds by LC/MS/MS



7.2.2

7

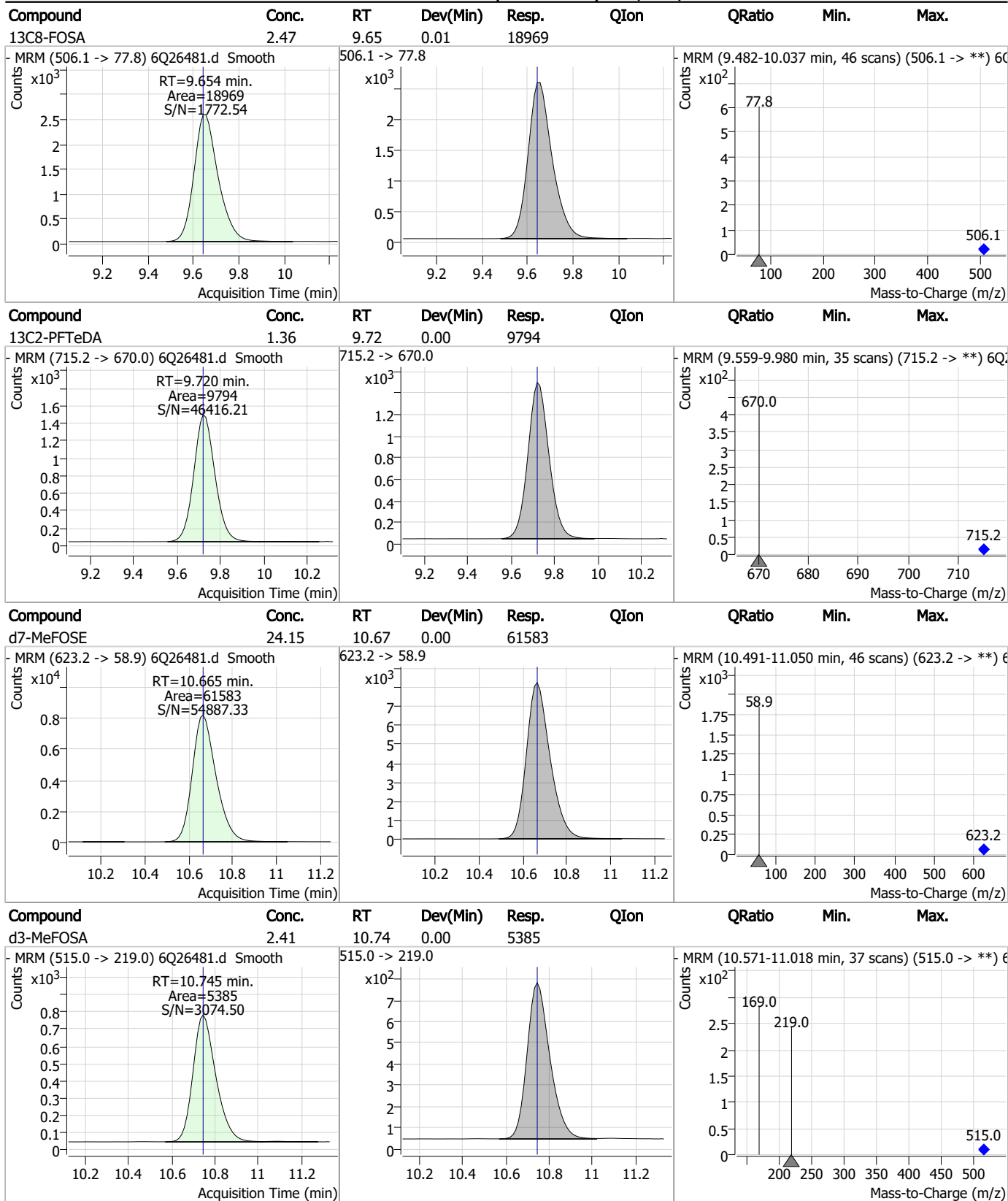
### Perfluorinated Compounds by LC/MS/MS



7.2.2

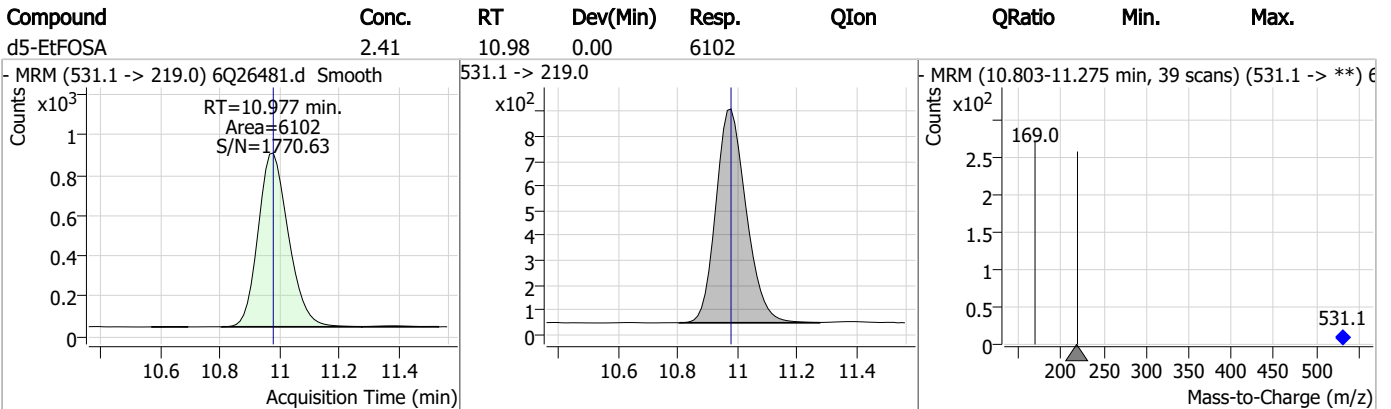
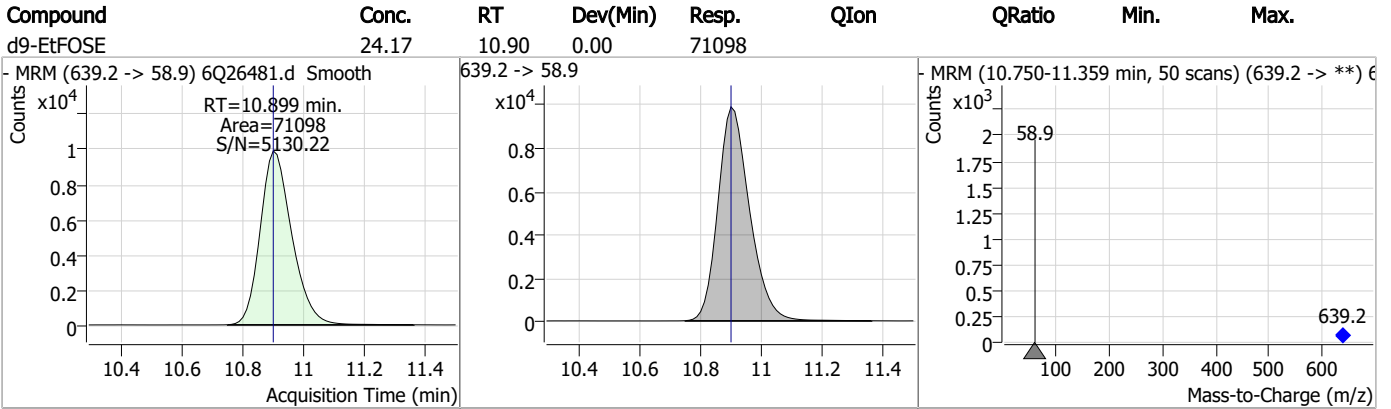
7

### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7





### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26486.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 8:32:11 PM  
 Sample Name : OP99514-BS  
 Vial : P4-A1  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99514,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	74448	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	47745	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	45705	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	44145	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	58552	2.50 µg/L	0.000
M9-PFNA	7.666	472.1 -> 427.0	25536	1.25 µg/L	0.012
M6-PFDA	8.134	519.1 -> 474.1	25418	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	25463	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	27931	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9076	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	15798	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	19552	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10910	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10543	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2324	5.00 µg/L	0.000
M2-6:2FTS	6.922	429.1 -> 80.9	3055	5.00 µg/L	0.000
M2-8:2FTS	7.934	529.1 -> 80.9	2848	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	22898	5.00 µg/L	0.000
M3-HFPO-DA	5.942	286.9 -> 168.9	31137	10.00 µg/L	0.000
M5-EtFOSAA	8.388	589.2 -> 419.0	18791	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	48477	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	59121	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	4547	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	4266	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9166	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	52832	5.00 µg/L	0.037
18O2-PFHxS	7.238	403.0 -> 83.9	6008	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	56836	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	19432	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	20845	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	38634	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2324	6.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.3%		
13C2-6:2FTS	6.922	429.1 -> 80.9	3055	6.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.6%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2848	5.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-PFDoDA	9.006	615.1 -> 570.0	27931	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9076	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-PFBS	5.483	302.1 -> 79.9	19552	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 114.0%		
13C3-PFHxS	7.239	402.1 -> 79.9	10910	2.80 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 = 112.0%	
13C4-PFBA	2.963	216.8 -> 171.9	74448	5.72 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 57.2%	
13C4-PFHpA	6.505	367.1 -> 322.0	44145	2.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.2%	
13C5-PFHxA	5.565	318.0 -> 273.0	45705	3.02 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.7%	
13C5-PFPeA	4.359	268.3 -> 223.0	47745	6.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.5%	
13C6-PFDA	8.134	519.1 -> 474.1	25418	1.51 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 121.2%	
13C7-PFUnDA	8.588	570.0 -> 525.1	25463	1.47 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 117.6%	
13C8-FOSA	9.654	506.1 -> 77.8	15798	2.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.2%	
13C8-PFOA	7.136	421.1 -> 376.0	58552	2.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.5%	
13C8-PFOS	8.284	507.1 -> 79.9	10543	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C9-PFNA	7.666	472.1 -> 427.0	25536	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.4%	
d3-MeFOSAA	8.191	573.2 -> 419.0	22898	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.0%	
13C3-HFPO-DA	5.942	286.9 -> 168.9	31137	11.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d3-MeFOSA	10.745	515.0 -> 219.0	4266	2.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.9%	
d5-EtFOSAA	8.388	589.2 -> 419.0	18791	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.7%	
d7-MeFOSE	10.665	623.2 -> 58.9	48477	19.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.6%	
d9-EtFOSE	10.899	639.2 -> 58.9	59121	21.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.2%	
d5-EtFOSA	10.977	531.1 -> 219.0	4547	1.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	33940	8.03 µg/L	99
		327.1 -> 80.9	13069		
6:2FTS	6.911	427.1 -> 407.0	29677	8.69 µg/L	94
		427.1 -> 80.9	10682		
8:2FTS	7.935	527.1 -> 507.0	21109	9.61 µg/L	92
		527.1 -> 80.8	7705		
EtFOSAA	8.389	584.2 -> 419.1	6436	1.97 µg/L	m 84
		584.2 -> 526.0	4663		
FOSA	9.645	498.1 -> 77.9	14760	2.27 µg/L	99
		498.1 -> 478.0	383		
MeFOSAA	8.192	570.1 -> 419.0	9927	2.14 µg/L	98
		570.1 -> 483.0	2277		
PFBA	2.957	212.8 -> 168.9	25962	8.92 µg/L	100
PFBS	5.484	298.7 -> 79.9	12911	2.00 µg/L	100
		298.7 -> 98.8	4797		
PFDA	8.134	512.9 -> 469.0	44641	2.14 µg/L	100
		512.9 -> 219.0	7527		
PFDODA	9.007	613.1 -> 569.0	50144	2.26 µg/L	98
		613.1 -> 319.0	6004		
PFDS	9.157	599.0 -> 79.9	6284	2.26 µg/L	97

7.3.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8	2821	2.10	µg/L	99
		363.1 -> 319.0	53993			
PFHpS	7.793	363.1 -> 169.0	7664	2.25	µg/L	89
		449.0 -> 79.9	11015			
PFHxA	5.568	449.0 -> 98.9	4945	2.16	µg/L	100
		313.0 -> 269.0	37944			
PFHxS	7.240	313.0 -> 118.9	1990	2.05	µg/L	m
		398.7 -> 79.9	9784			
PFNA	7.667	398.7 -> 98.9	4677	2.13	µg/L	98
		463.0 -> 419.0	34600			
PFNS	8.751	463.0 -> 219.0	8044	2.06	µg/L	95
		548.8 -> 79.9	8296			
PFOA	7.138	548.8 -> 98.9	4451	2.33	µg/L	95
		413.0 -> 369.0	60700			
PFOS	8.286	413.0 -> 169.0	9690	2.14	µg/L	m
		498.9 -> 79.9	10529			
PFPeA	4.361	498.9 -> 98.8	5278	4.33	µg/L	100
		263.0 -> 219.0	49206			
PFPeS	6.558	349.1 -> 79.9	12677	2.04	µg/L	91
		349.1 -> 98.9	6179			
PFTeDA	9.721	713.1 -> 669.0	27422	2.24	µg/L	97
		713.1 -> 168.9	2188			
PFTrDA	9.389	663.0 -> 619.0	38963	2.27	µg/L	99
		663.0 -> 168.9	3250			
PFUnDA	8.589	563.1 -> 519.0	43156	2.15	µg/L	97
		563.1 -> 269.1	6607			
11CI-PF3OUdS	9.429	630.9 -> 450.9	39047	4.23	µg/L	95
		632.9 -> 452.9	11557			
9CI-PF3ONS	8.615	530.8 -> 351.0	65969	4.05	µg/L	100
		532.8 -> 353.0	21134			
ADONA	6.755	376.9 -> 250.9	189747	4.33	µg/L	99
		376.9 -> 84.8	50198			
HFPO-DA	5.943	284.9 -> 168.9	14721	4.38	µg/L	99
		284.9 -> 184.9	1803			
3:3FTCA	3.827	241.0 -> 177.0	5334	13.34	µg/L	99
		241.0 -> 117.0	752			
5:3FTCA	6.222	341.0 -> 237.1	164179	50.91	µg/L	99
		341.0 -> 217.0	120572			
7:3FTCA	7.620	441.0 -> 316.9	104672	49.92	µg/L	92
		441.0 -> 336.9	218721			
EtFOSA	10.966	526.0 -> 219.0	10960	4.93	µg/L	95
		526.0 -> 169.0	15057			
EtFOSE	10.913	630.0 -> 58.9	28504	11.01	µg/L	100
		511.9 -> 219.0	10626			
MeFOSA	10.746	511.9 -> 169.0	14124	4.88	µg/L	95
		616.1 -> 58.9	23085			
MeFOSE	10.678	699.1 -> 79.9	3079	11.14	µg/L	100
		699.1 -> 98.8	1598			
PFDoDS	9.835	295.0 -> 201.0	9397	2.09	µg/L	100
		295.0 -> 84.9	2642			
NFDHA	5.447	279.0 -> 85.1	35773	4.33	µg/L	98
		229.0 -> 84.9	25001			
PFMBA	4.775	314.8 -> 134.9	82288	4.09	µg/L	100
		314.8 -> 82.9	2931			
PFMPA	3.513			3.50	µg/L	100
PFEESA	6.024			3.62	µg/L	100

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

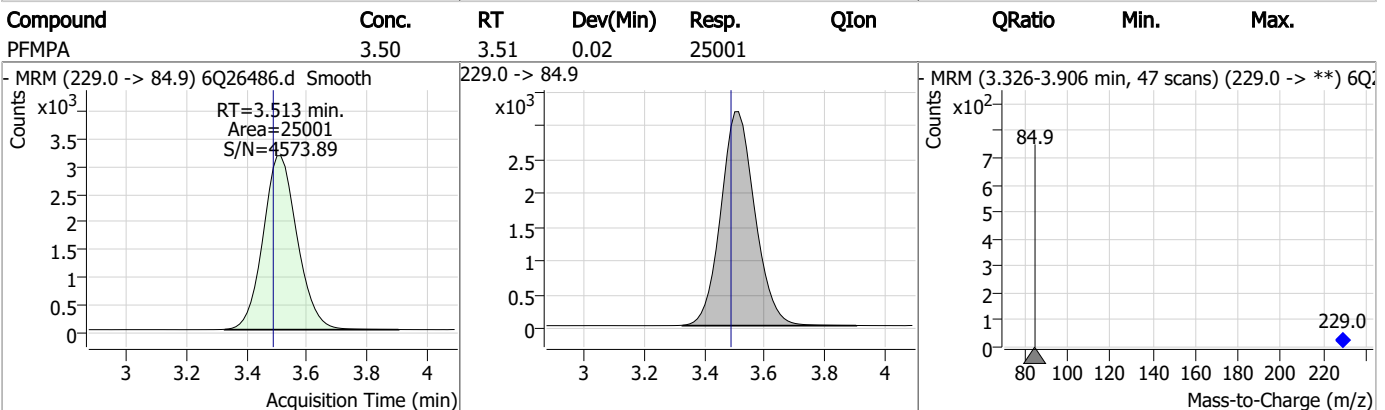
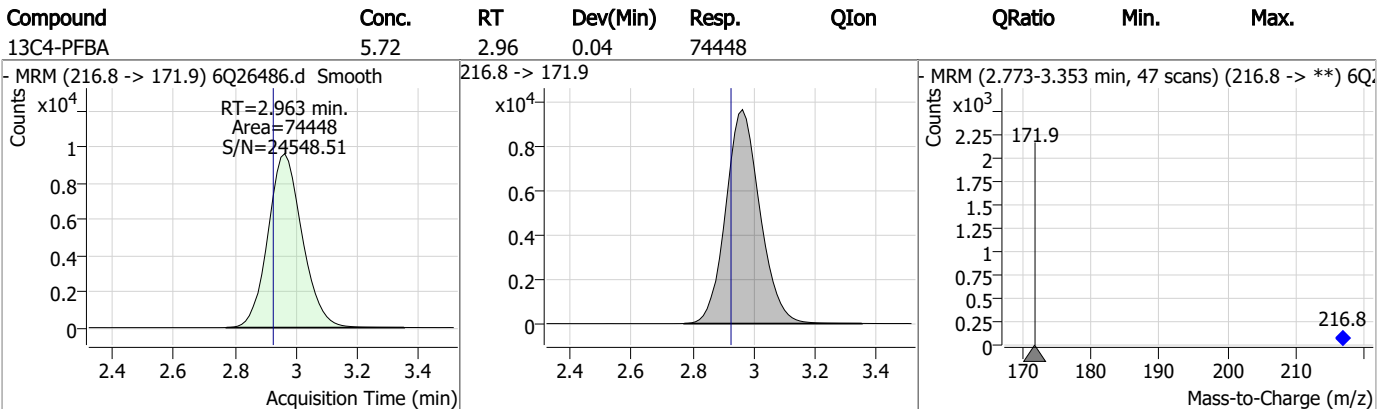
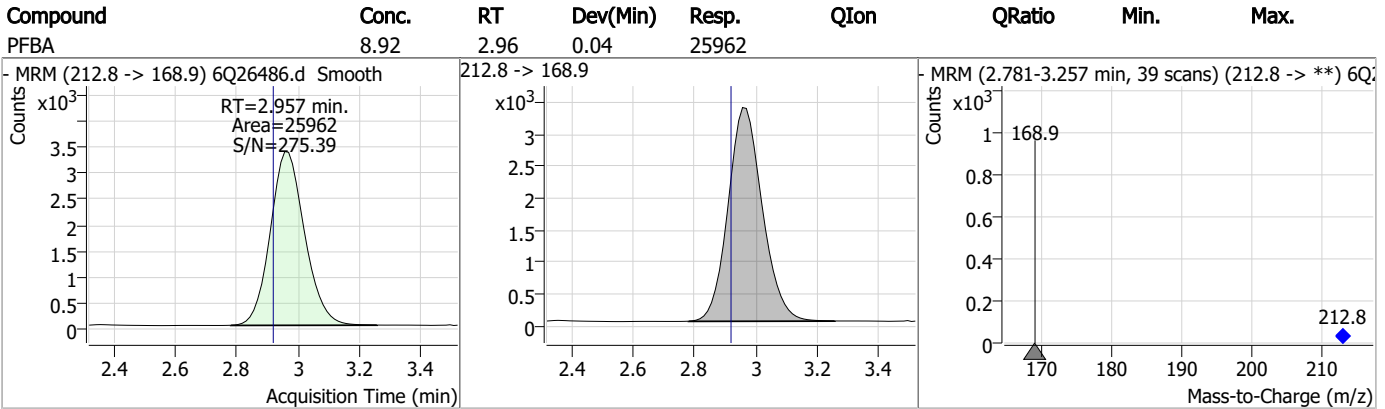
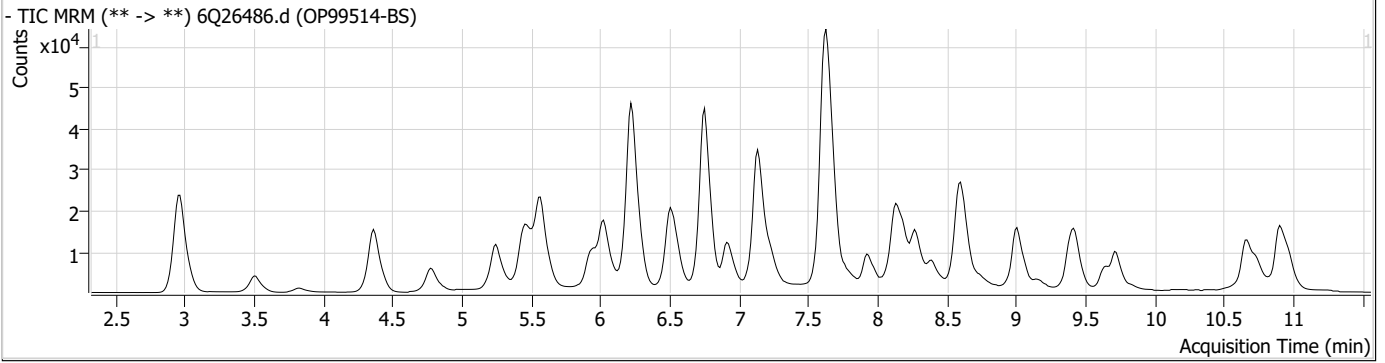
### Perfluorinated Compounds by LC/MS/MS

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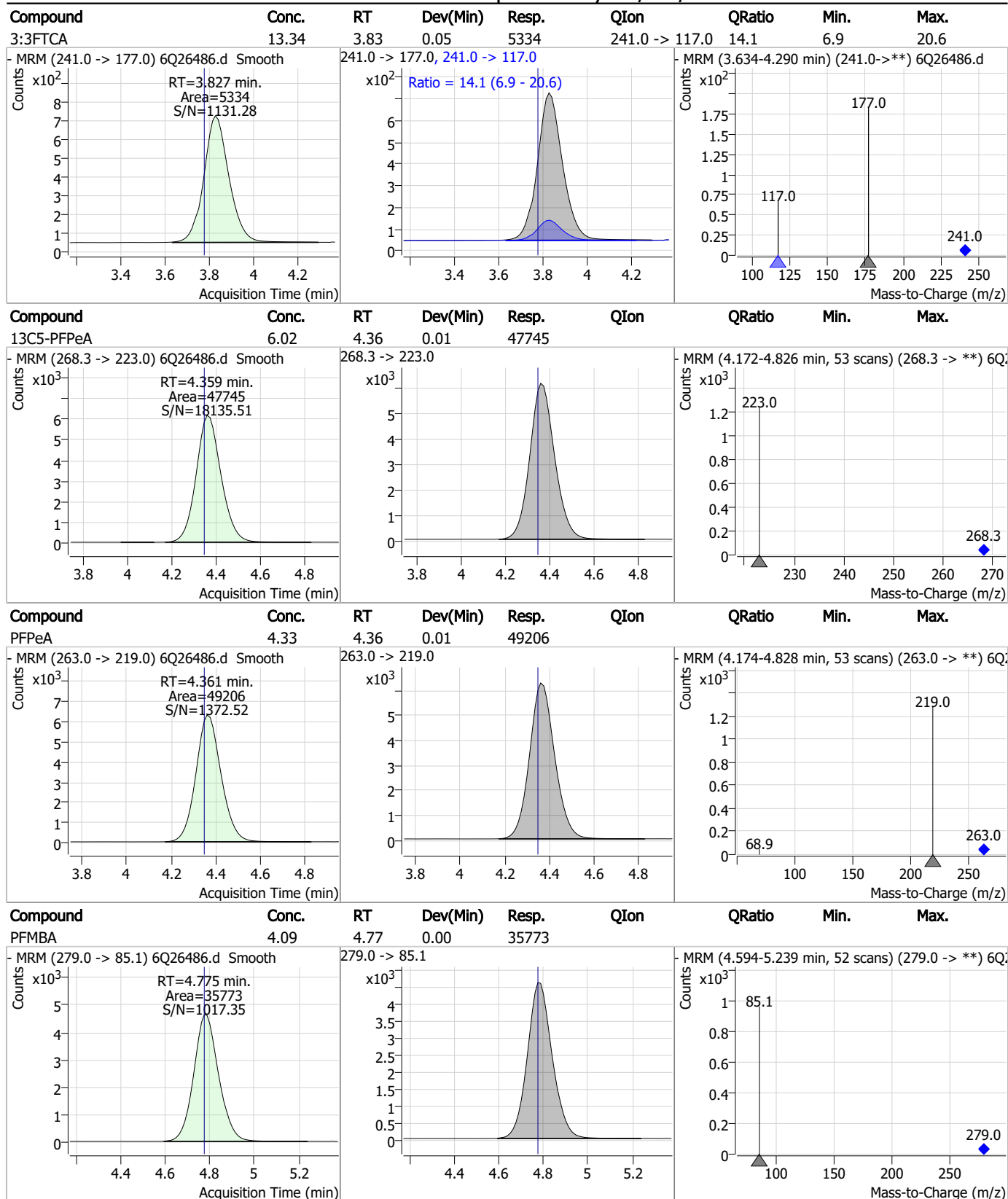
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### Perfluorinated Compounds by LC/MS/MS

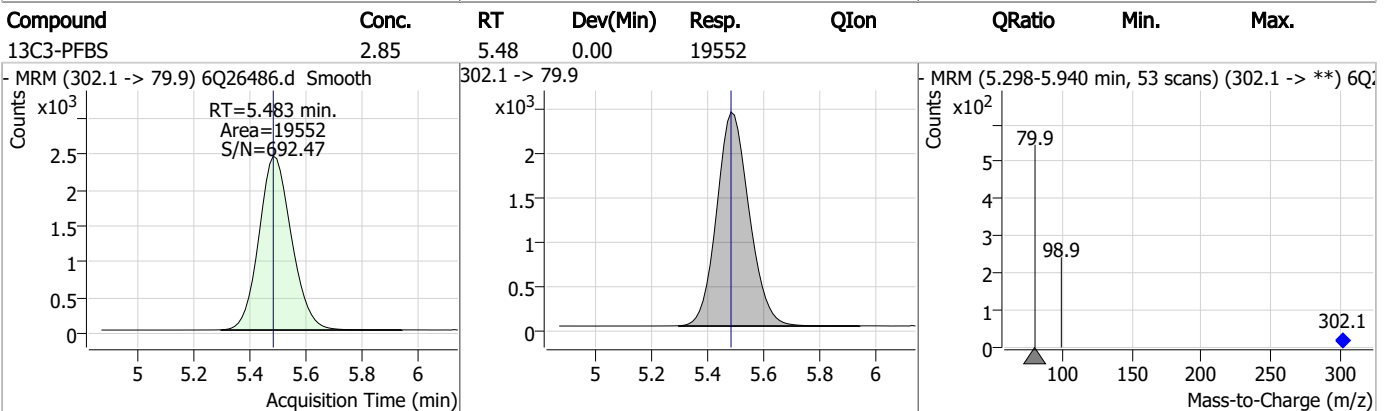
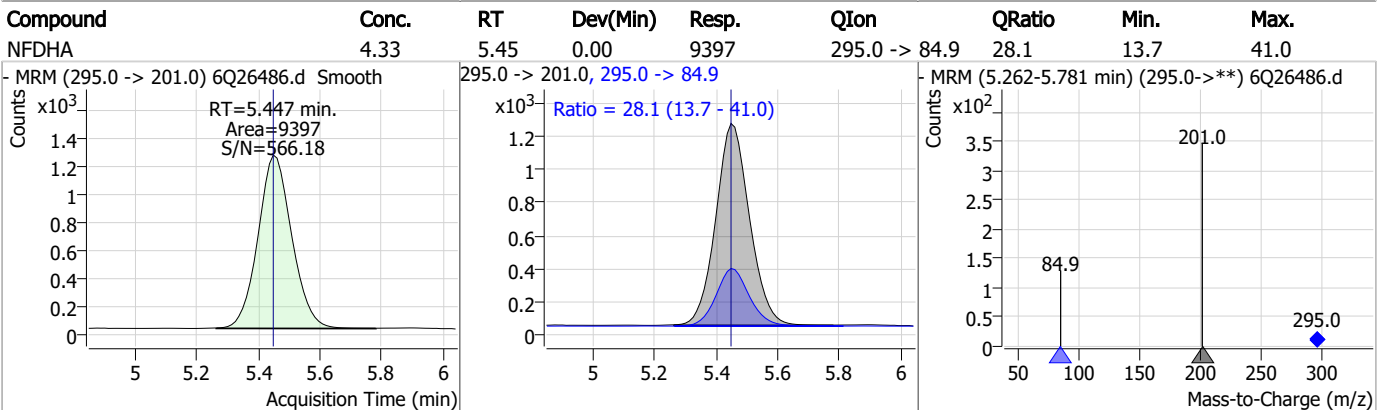
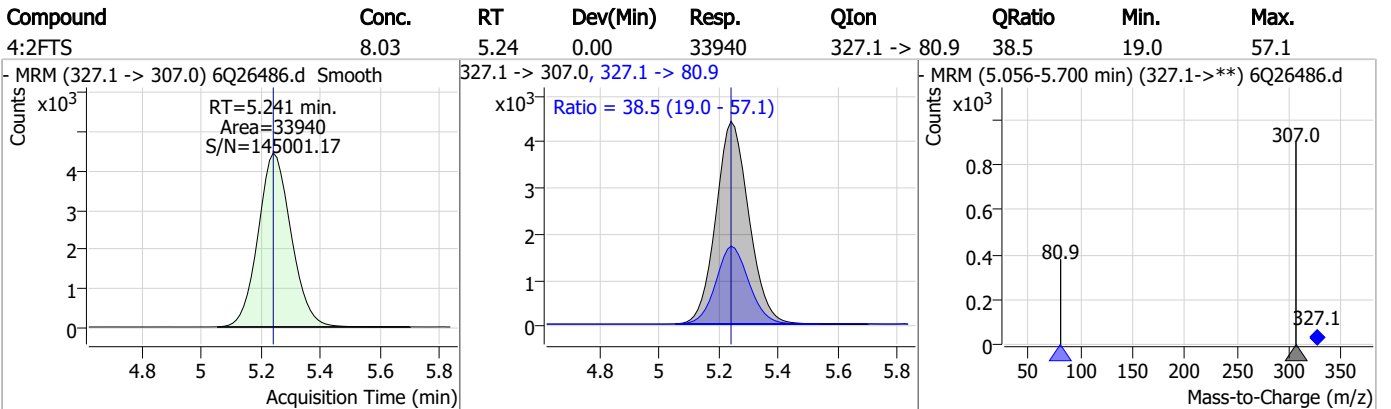
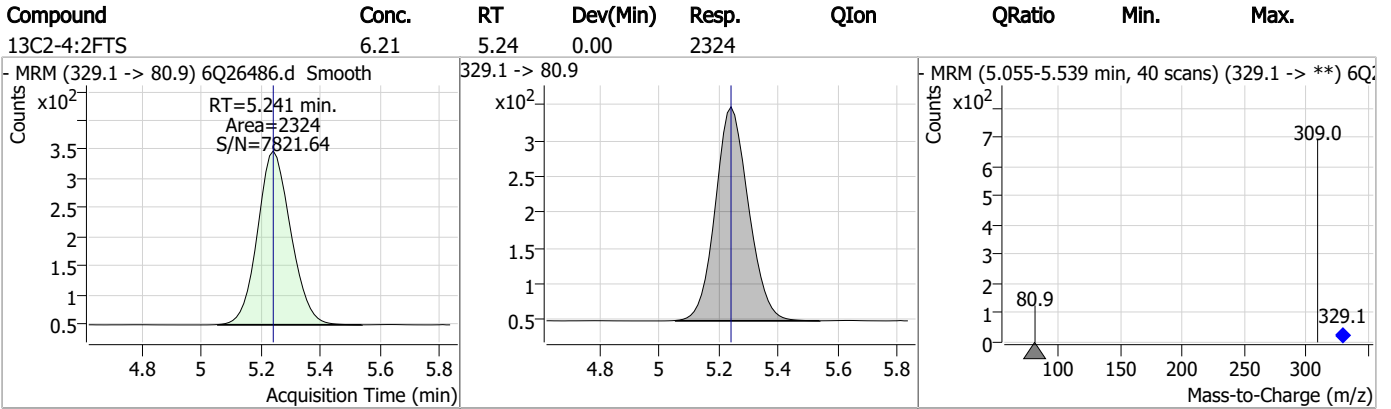


### Perfluorinated Compounds by LC/MS/MS



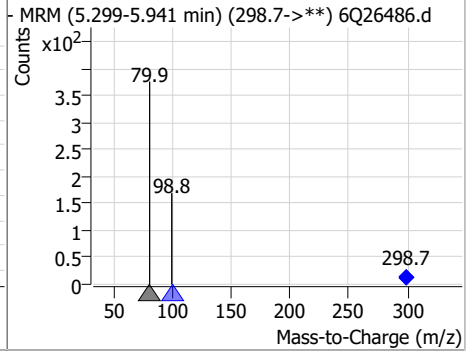
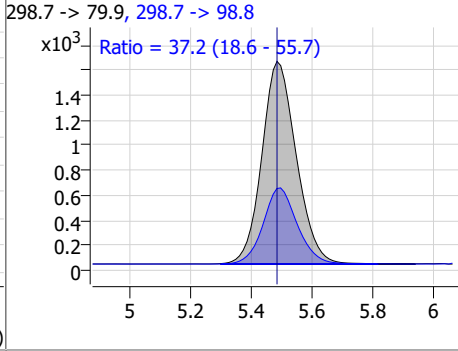
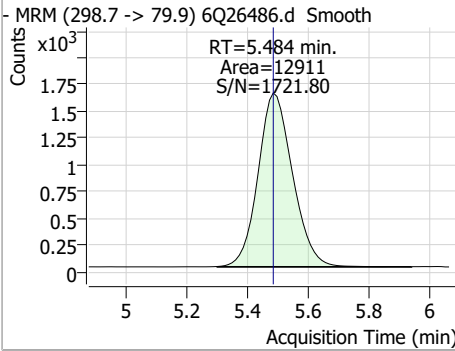
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### Perfluorinated Compounds by LC/MS/MS

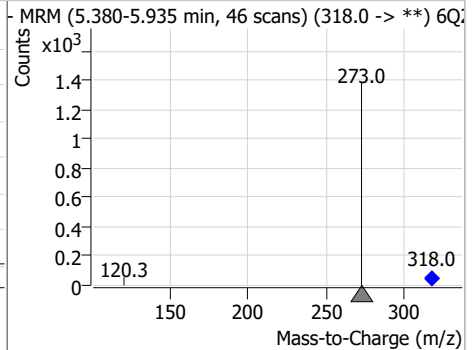
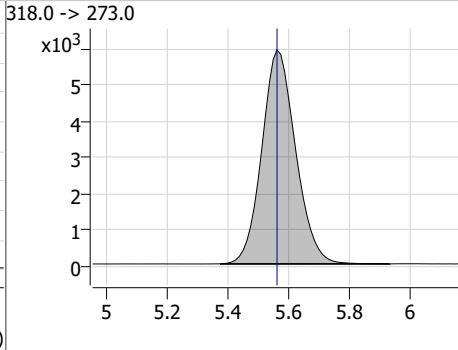
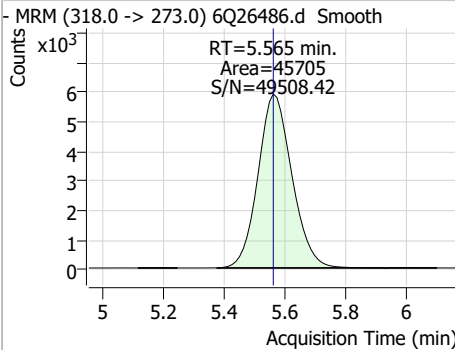


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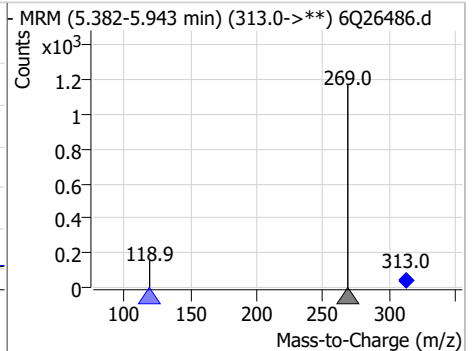
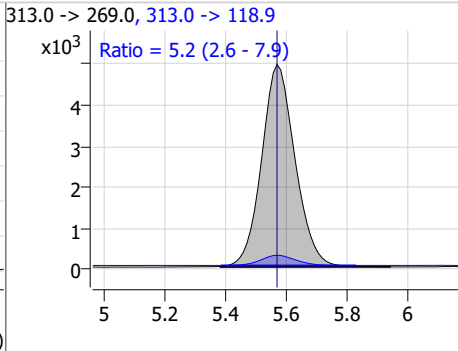
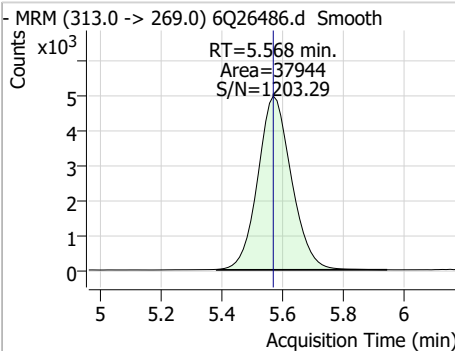
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.00	5.48	0.00	12911	298.7 -> 98.8	37.2	18.6	55.7



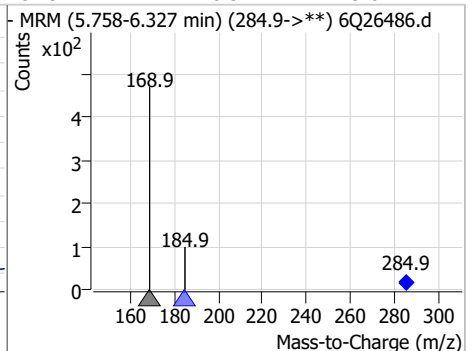
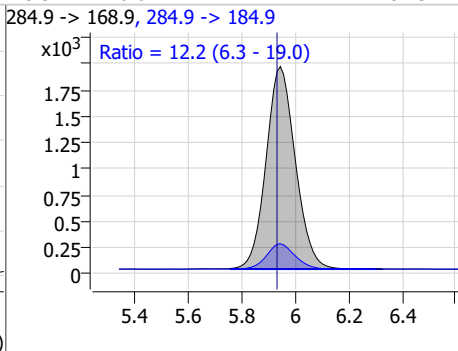
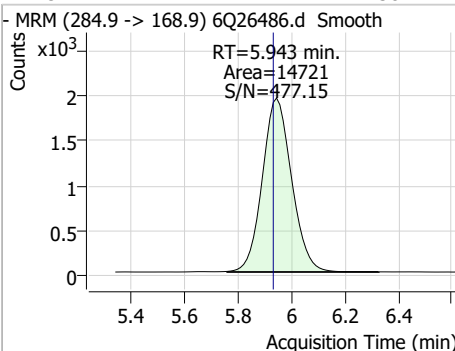
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	3.02	5.56	0.00	45705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.16	5.57	0.00	37944	313.0 -> 118.9	5.2	2.6	7.9

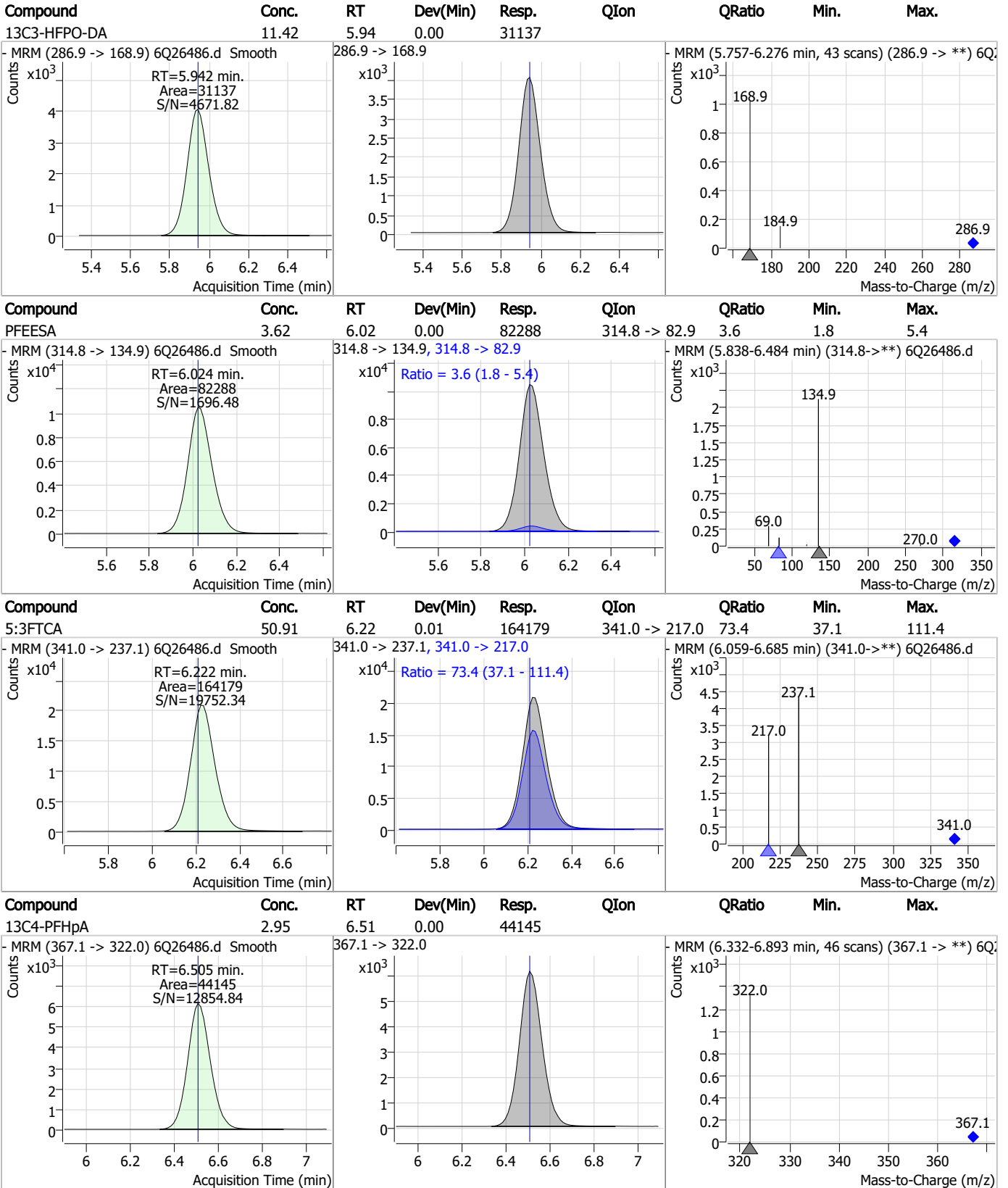


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.38	5.94	0.01	14721	284.9 -> 184.9	12.2	6.3	19.0





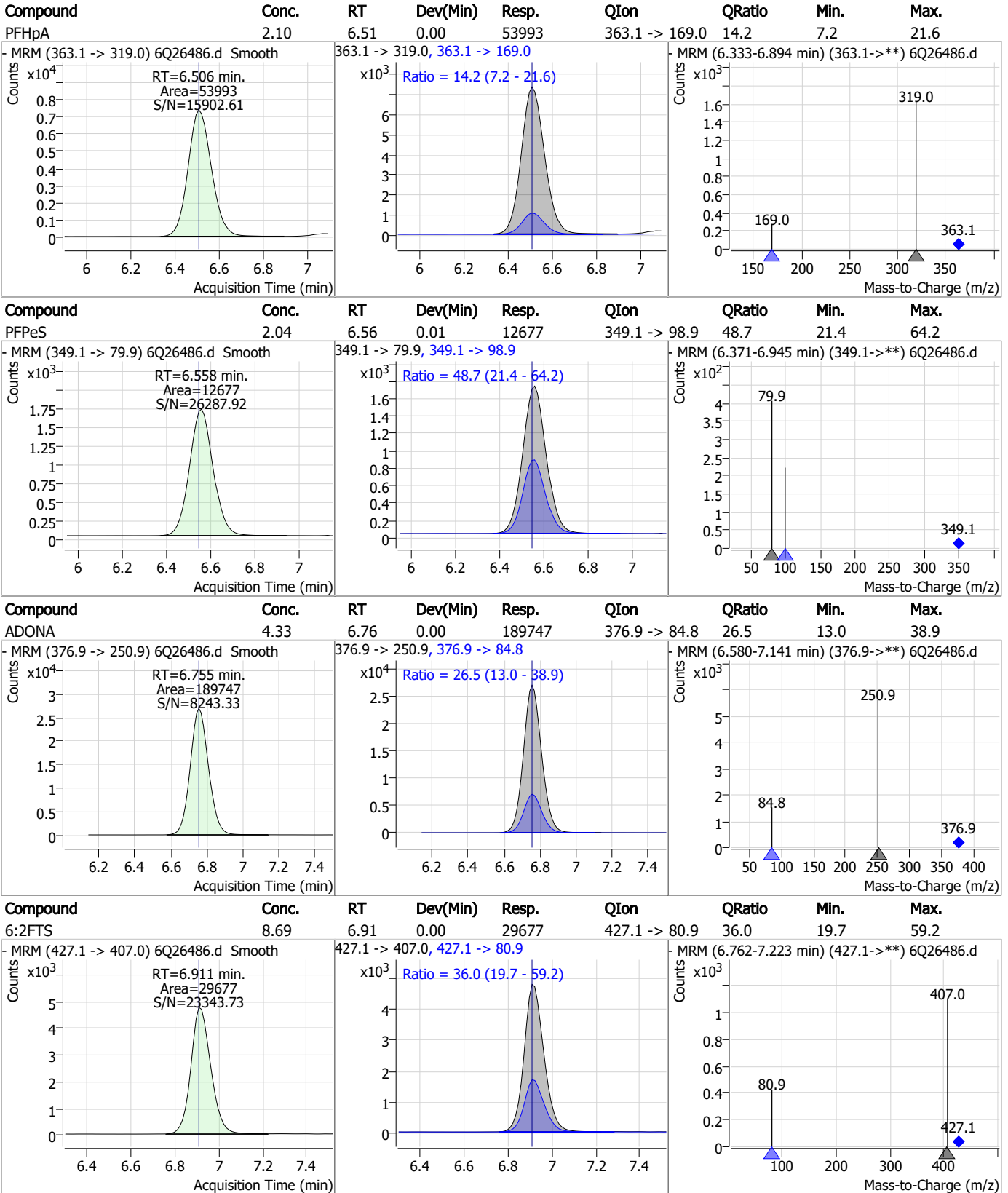
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

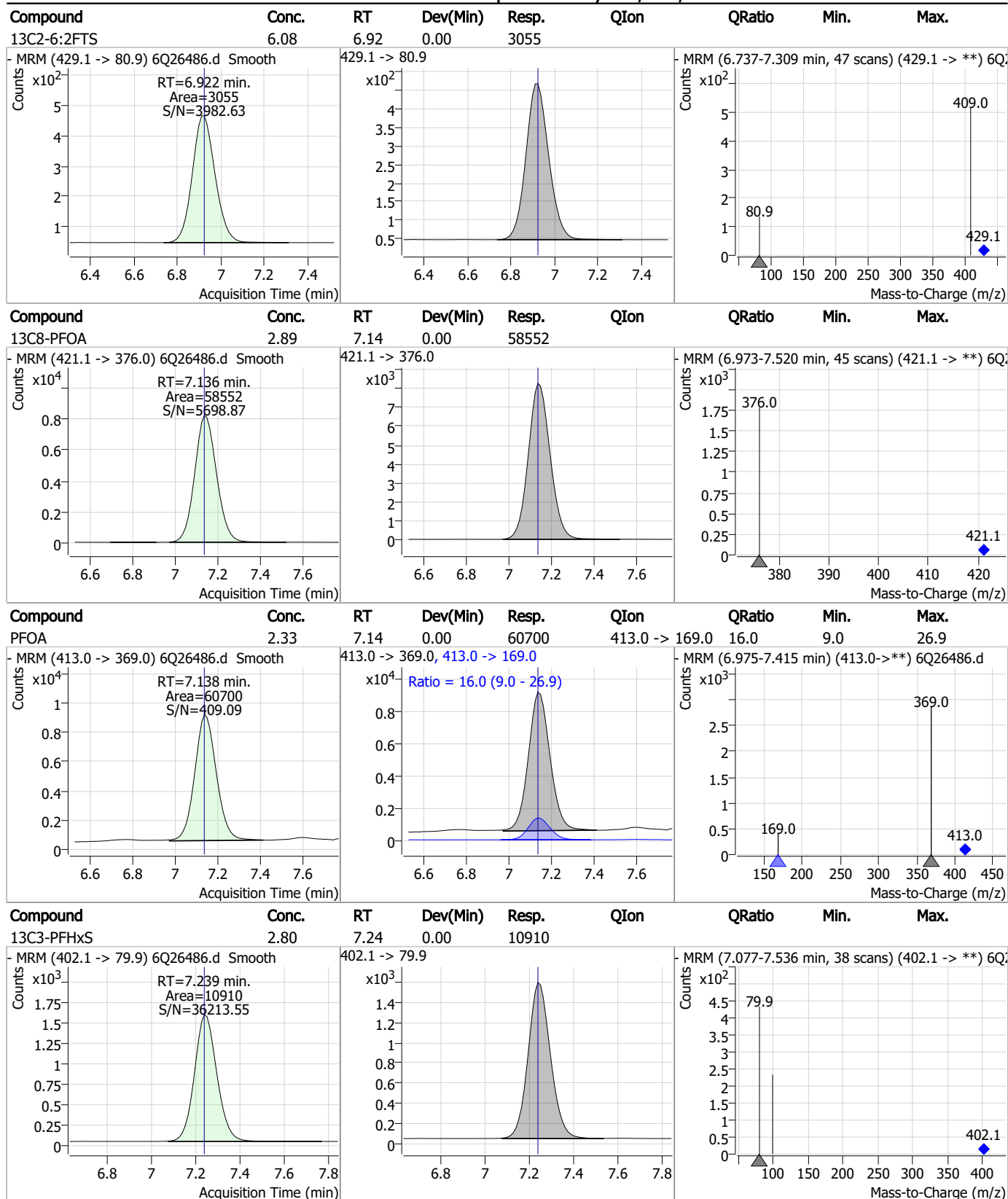


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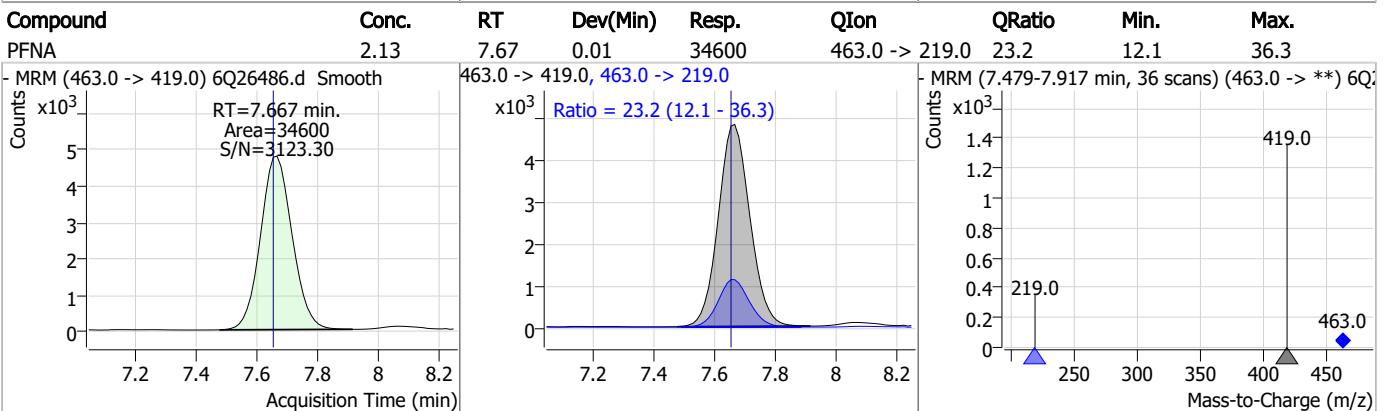
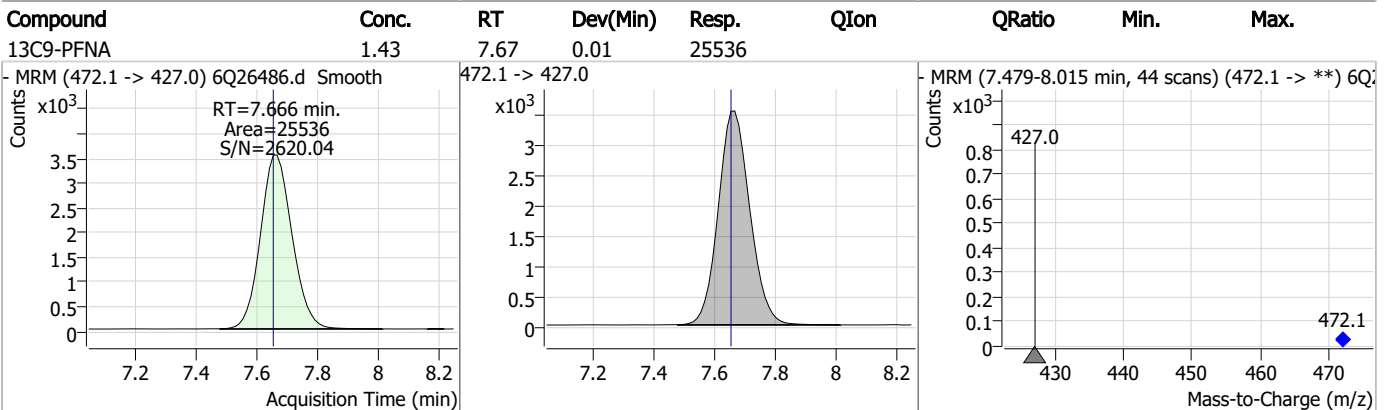
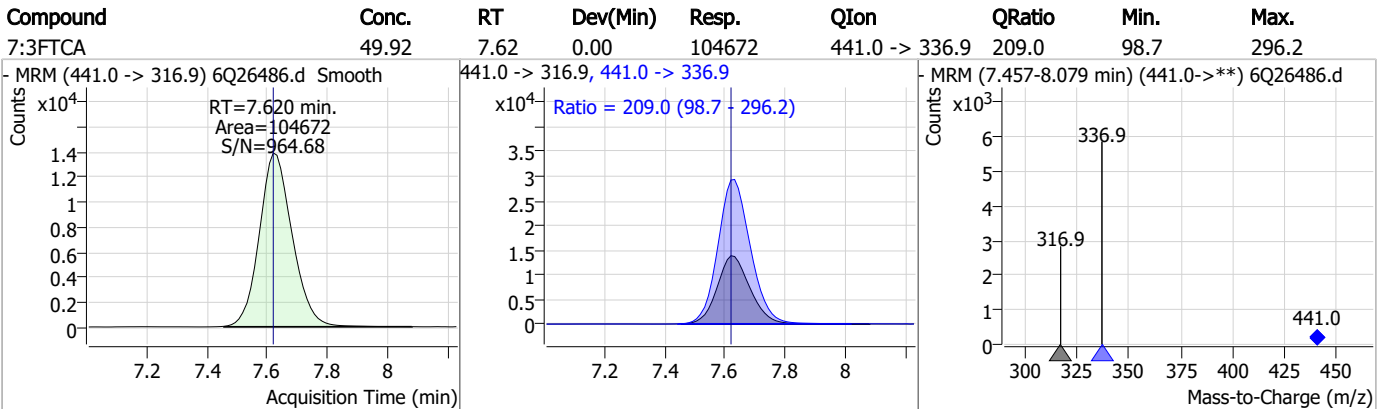
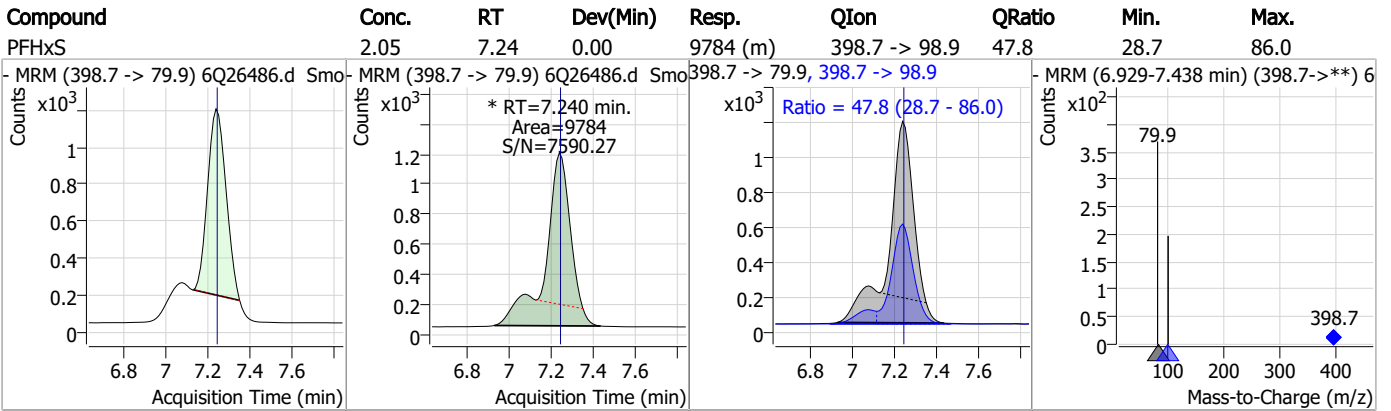


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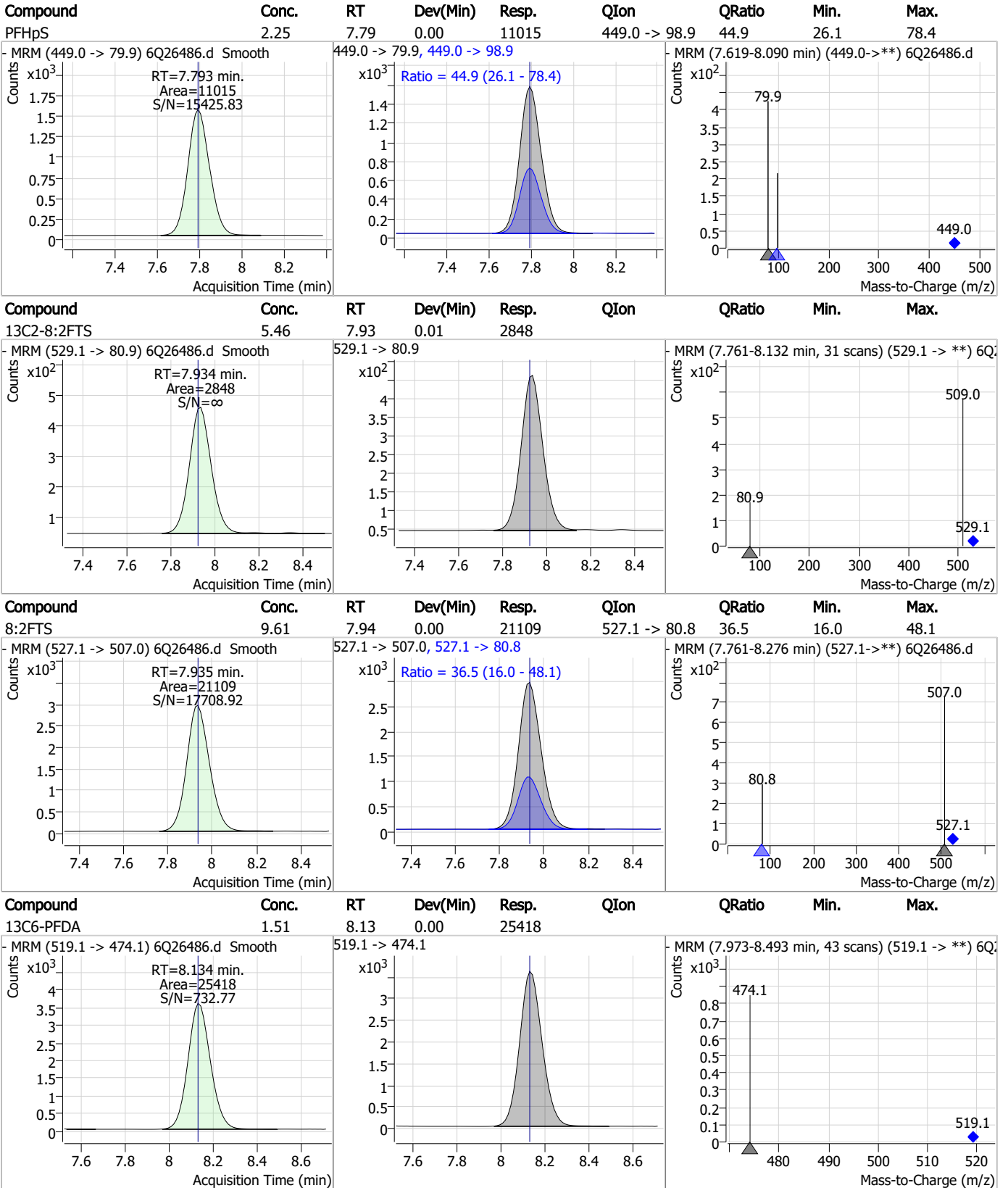


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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

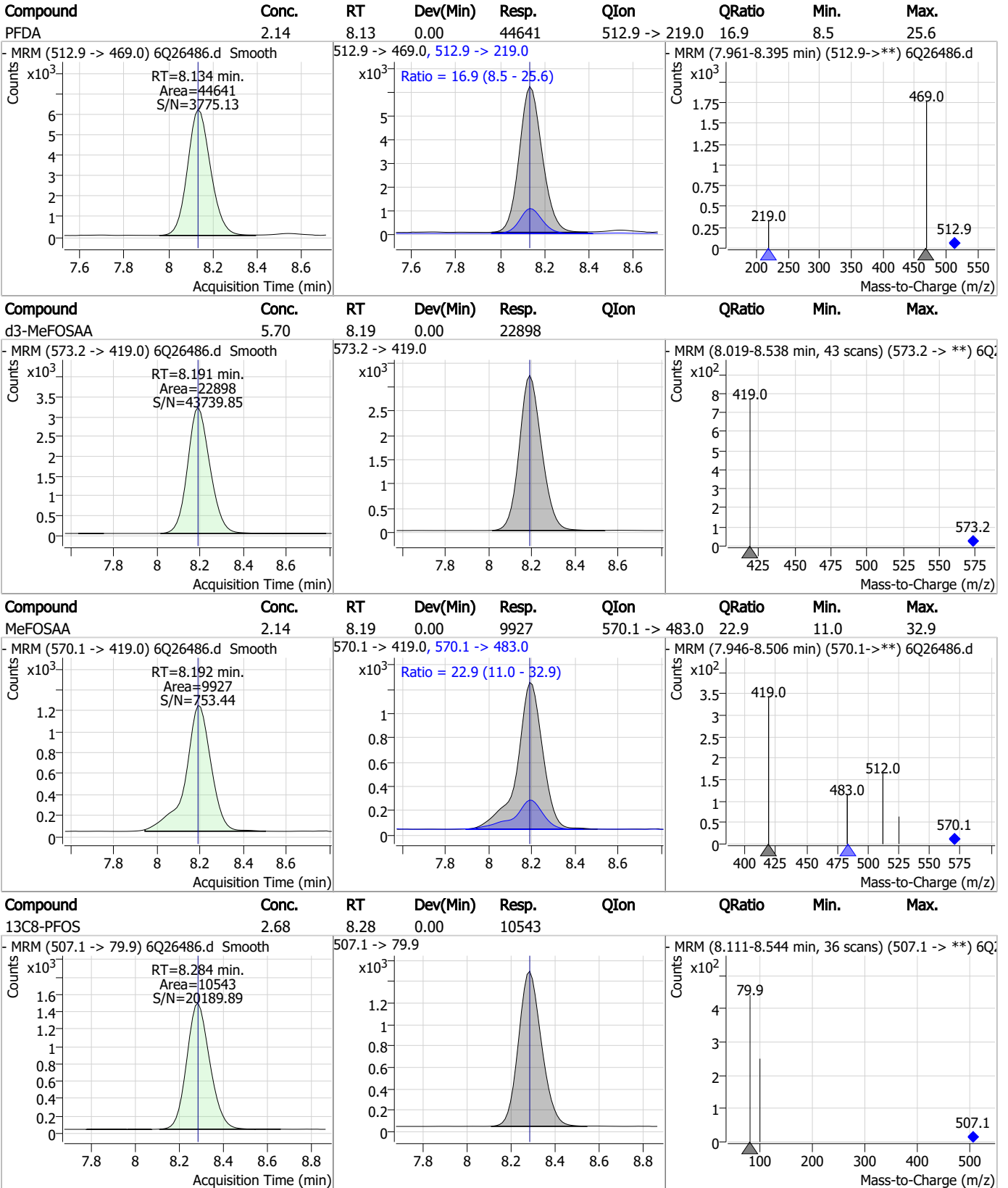


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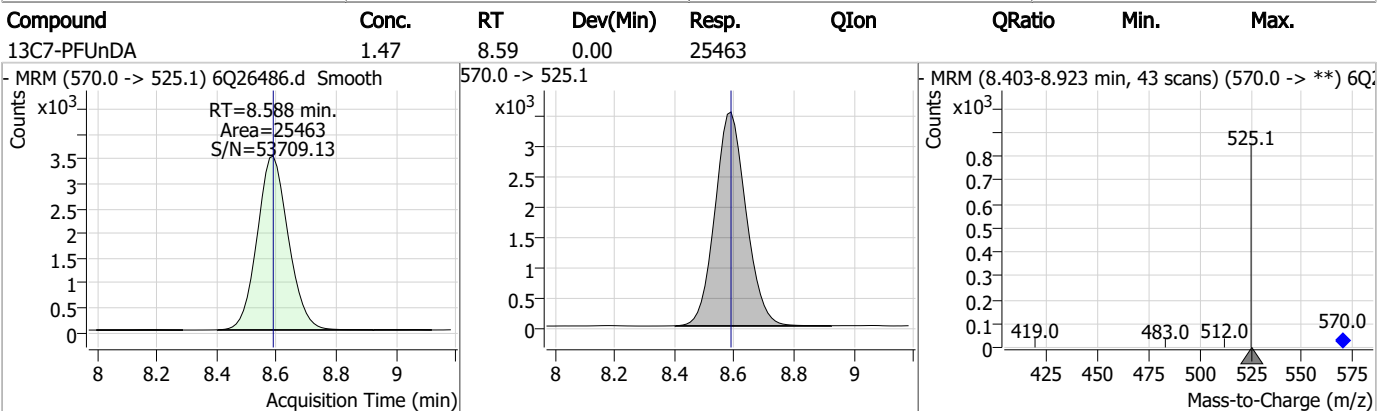
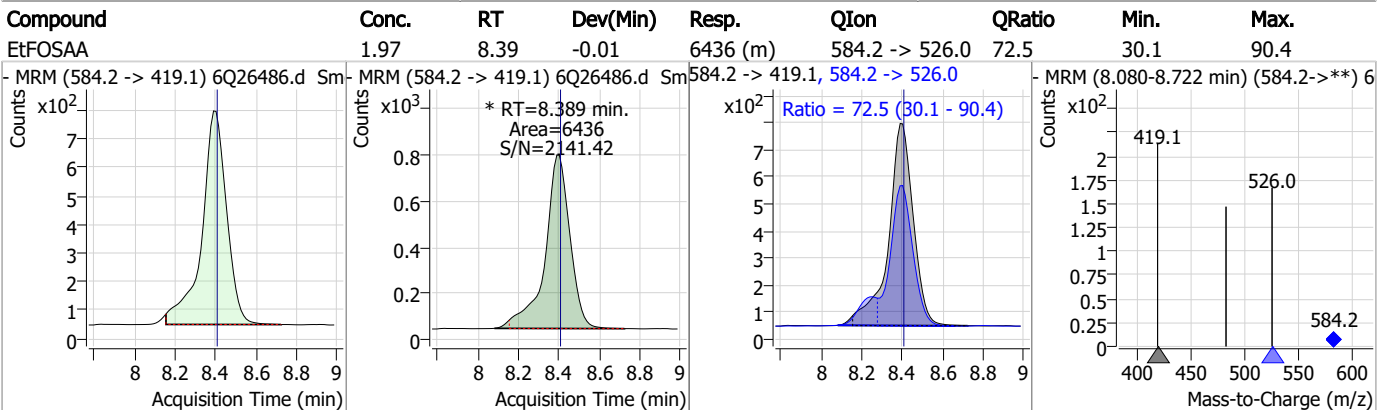
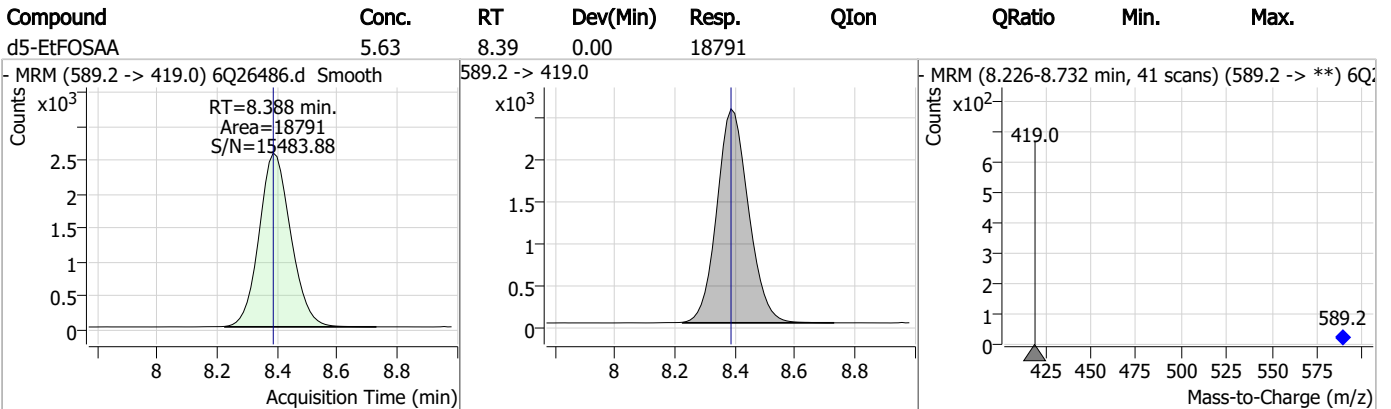
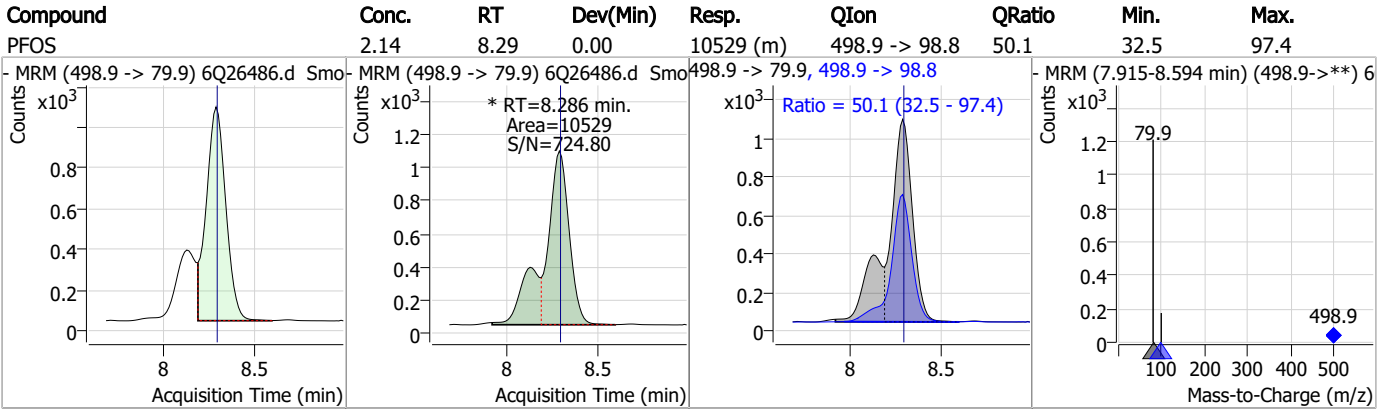
### Perfluorinated Compounds by LC/MS/MS



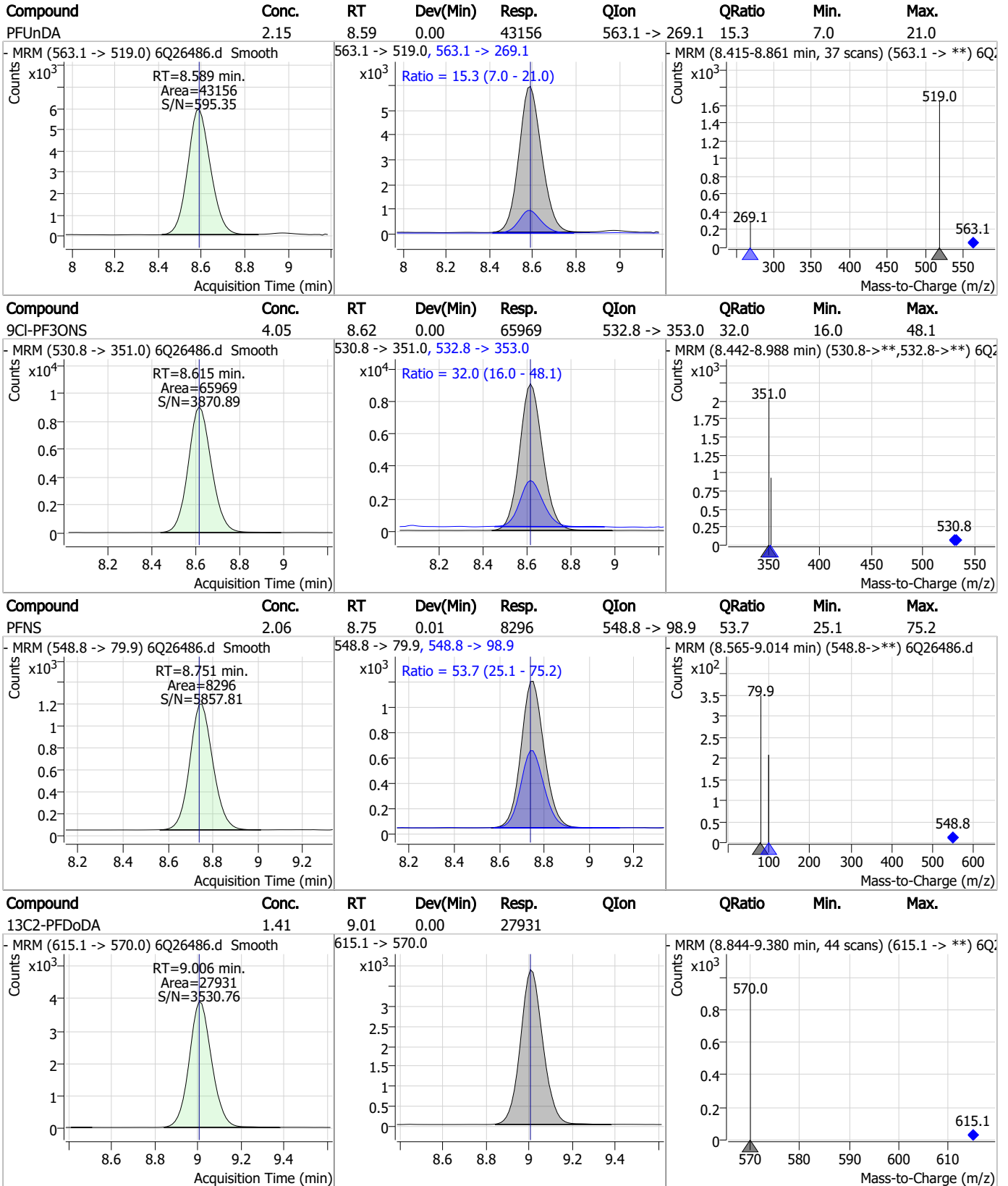
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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

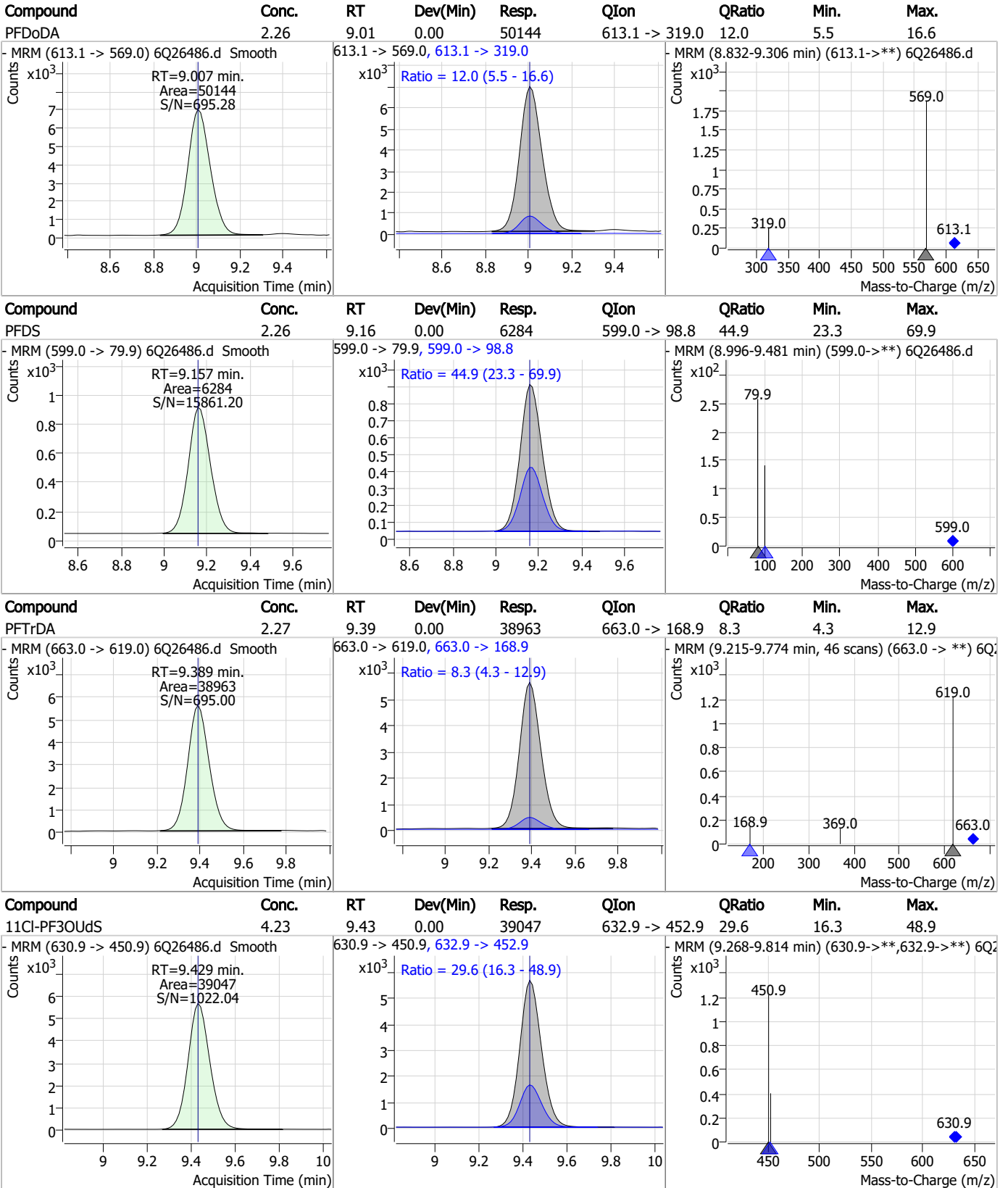


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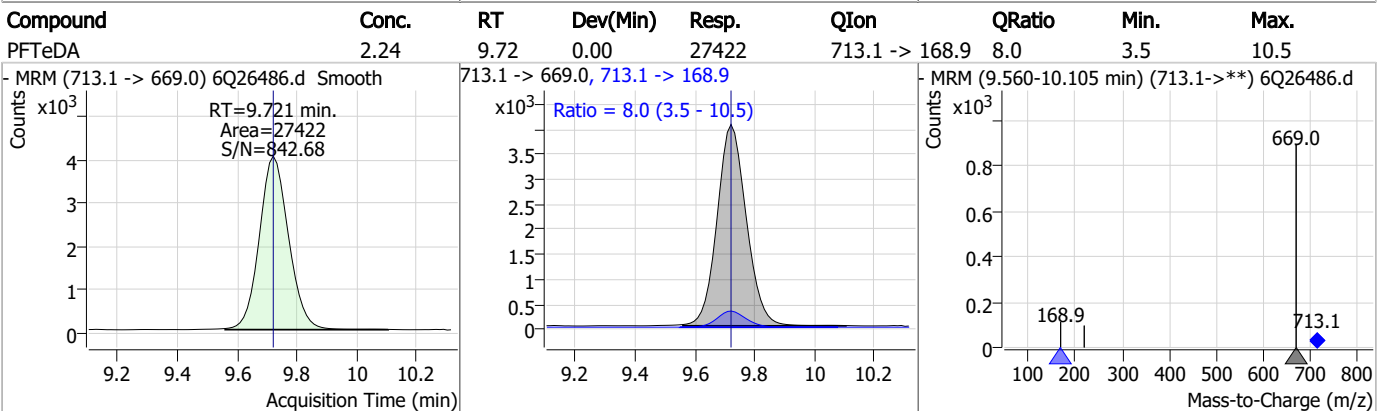
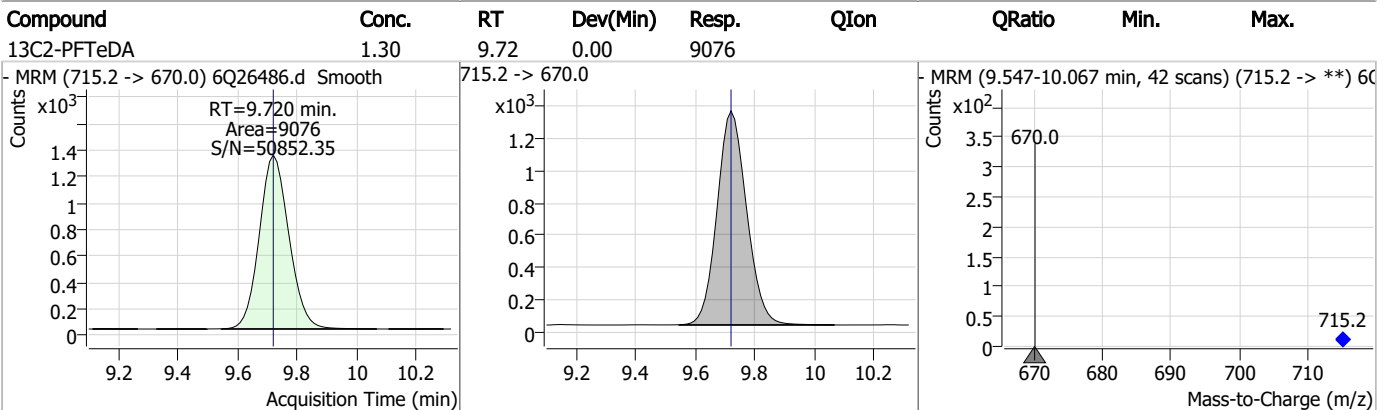
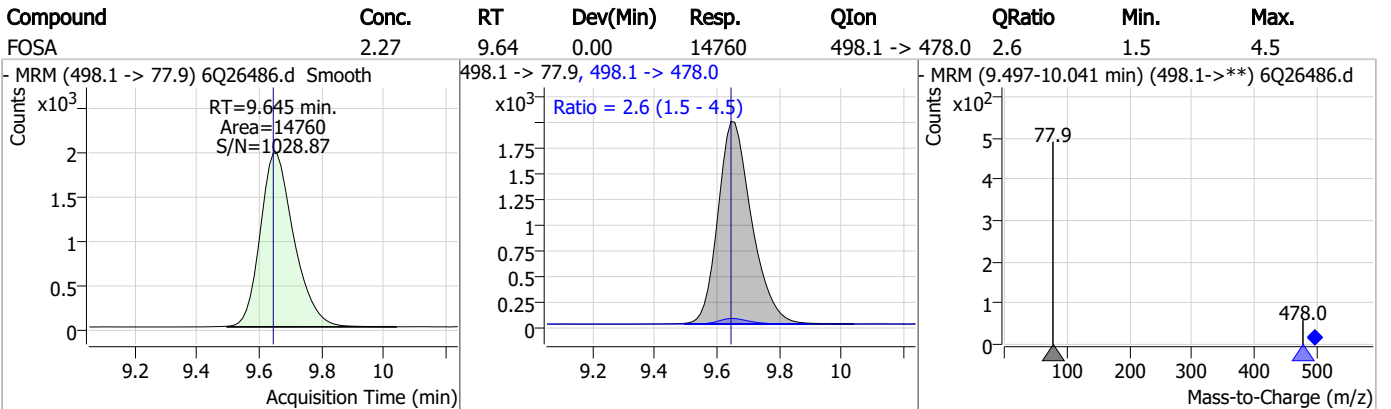
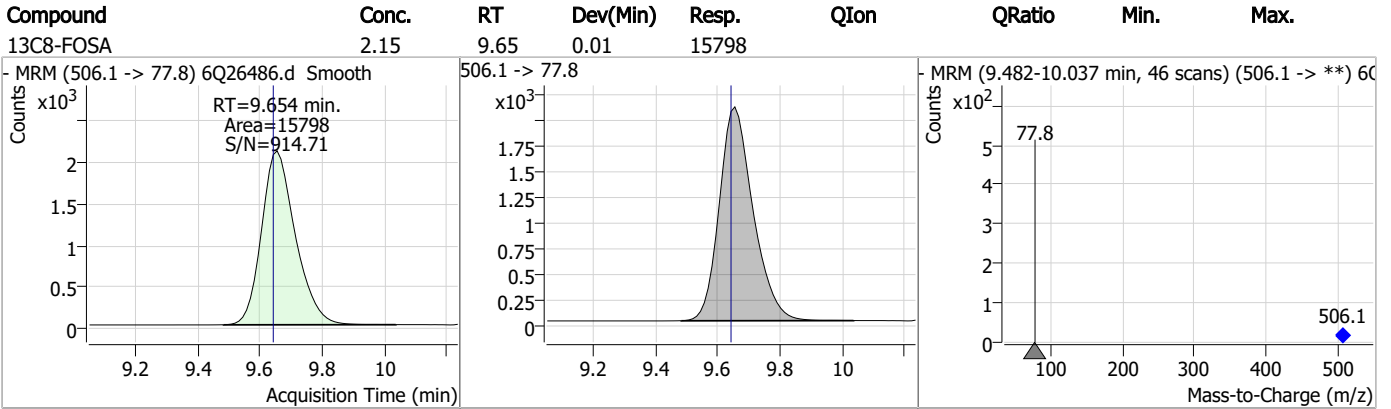
Perfluorinated Compounds by LC/MS/MS



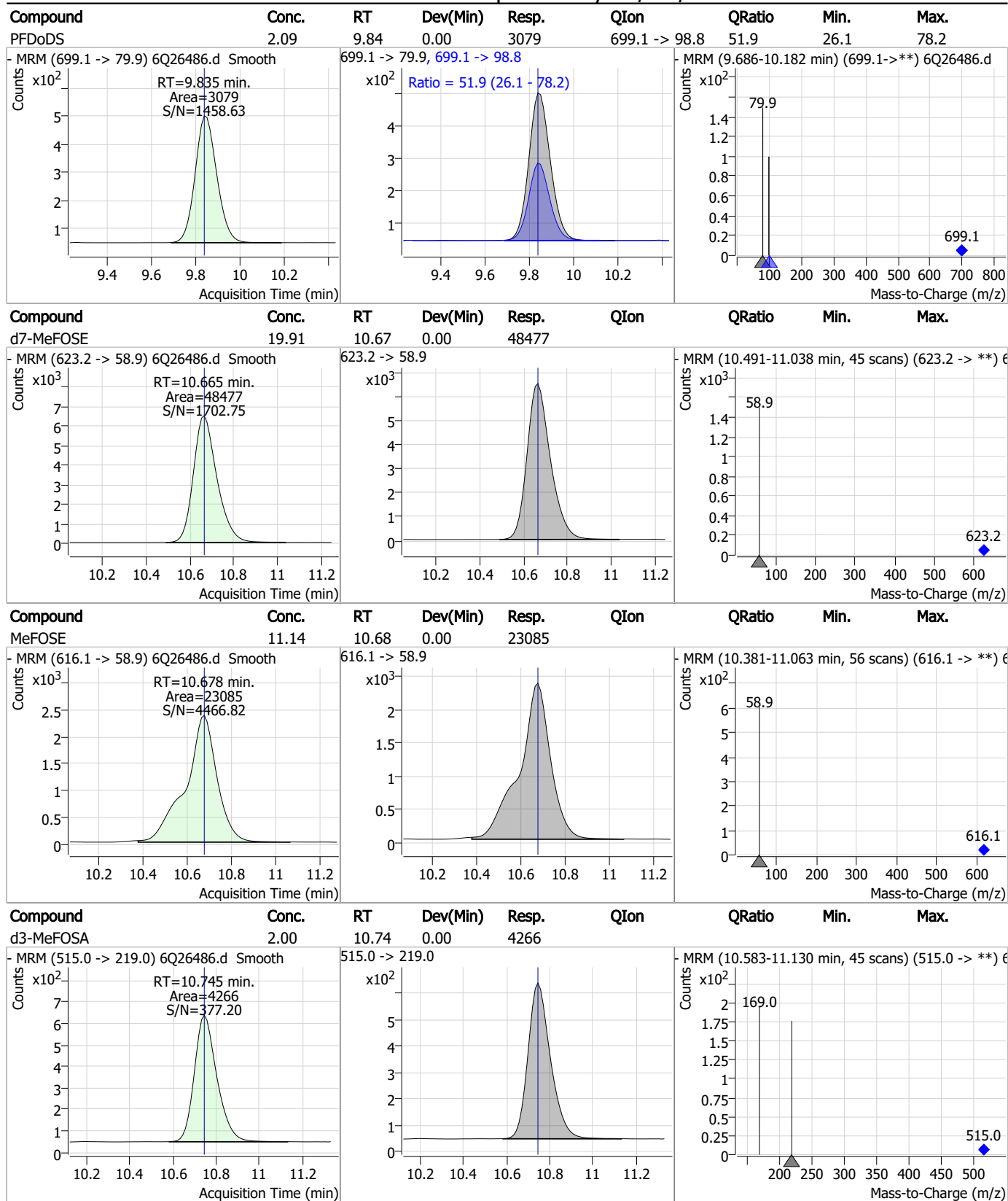
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### Perfluorinated Compounds by LC/MS/MS



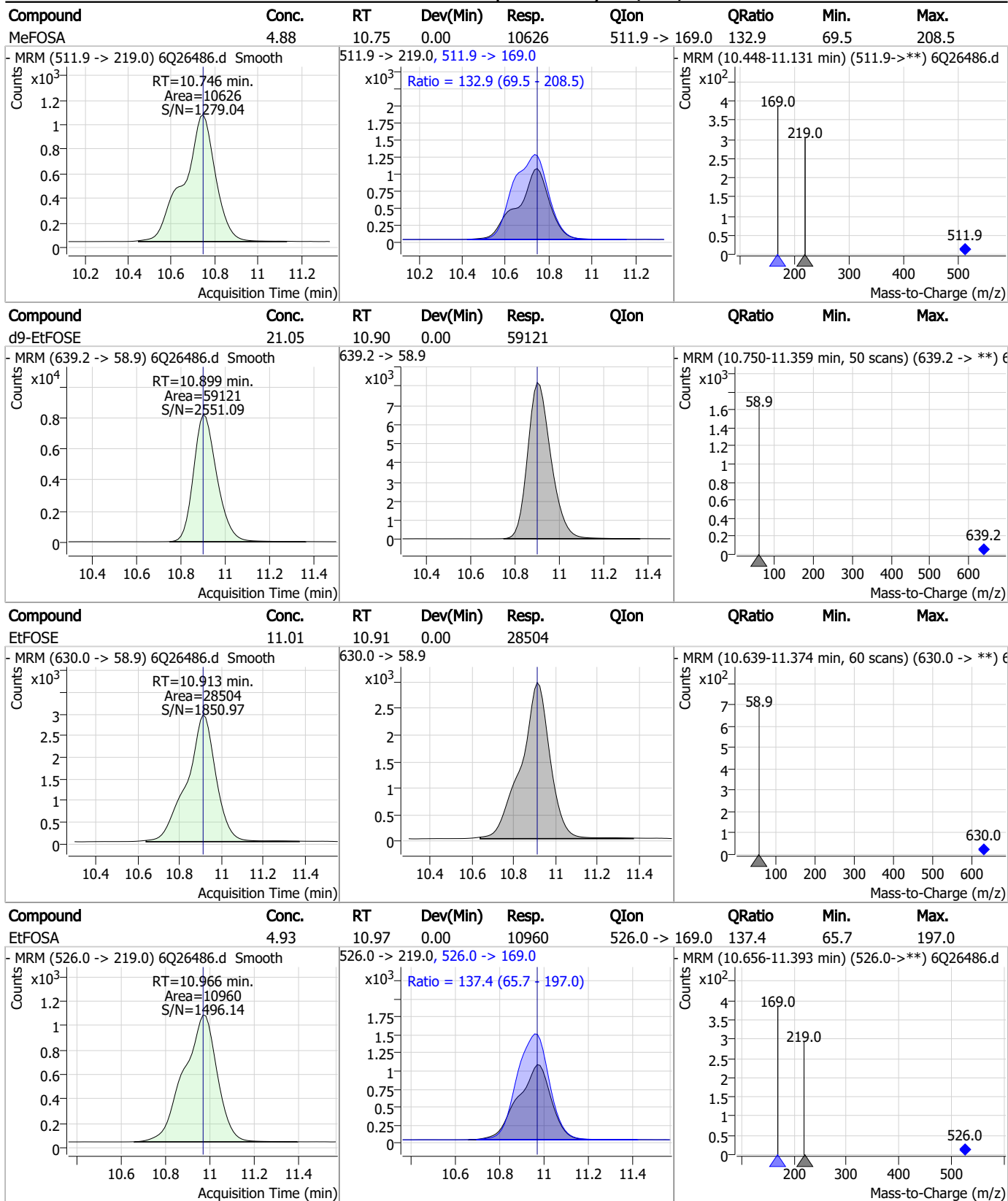
### Perfluorinated Compounds by LC/MS/MS



7.3.1

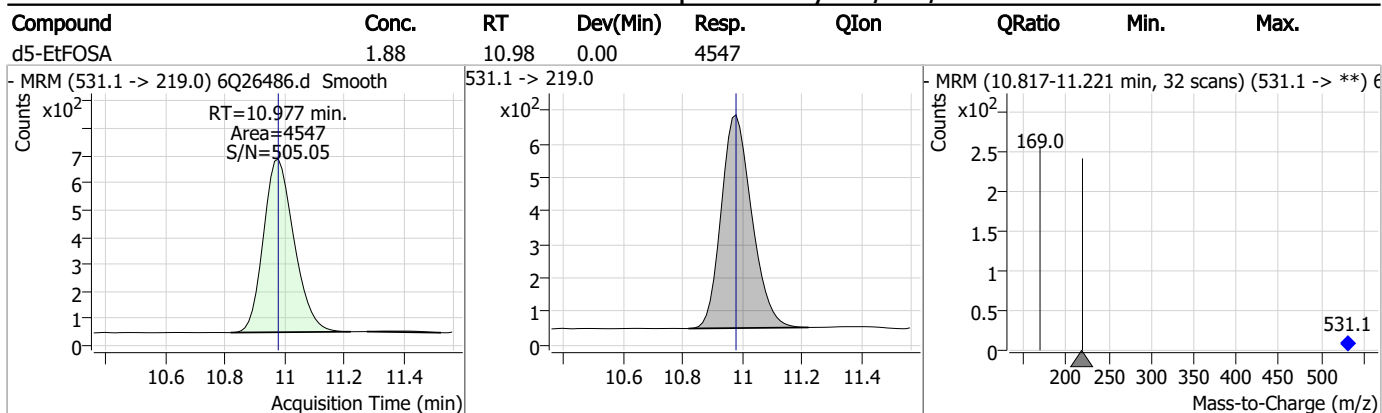
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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### Perfluorinated Compounds by LC/MS/MS



7.3.1  
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# Manual Integration Approval Summary

Sample Number: OP99514-BS                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26486.D                      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 20:32                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.39	Split peak

7.3.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26487.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 8:46:30 PM  
 Sample Name : OP99514-LLBS:3  
 Vial : P4-A2  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99514,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	146986	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	47353	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	45977	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	44994	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	62012	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	25176	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	25176	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	26211	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	27797	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9322	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	16249	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	20704	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	11538	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	11335	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2256	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2992	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2961	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	21939	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	32459	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	17732	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	50476	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	60351	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	4589	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	3842	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9268	2.50 µg/L	0.000
13C3-PFBA	2.954	216.0 -> 172.0	53000	5.00 µg/L	0.025
18O2-PFHxS	7.238	403.0 -> 83.9	6277	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	62079	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21944	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	22064	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	39395	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2256	5.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.4%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2992	5.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2961	5.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-PFDoDA	9.006	615.1 -> 570.0	27797	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9322	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFBS	5.483	302.1 -> 79.9	20704	2.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.5%		
13C3-PFHxS	7.239	402.1 -> 79.9	11538	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 = 113.4%	
13C4-PFBA	2.963	216.8 -> 171.9	146986	11.25 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.5%	
13C4-PFHpA	6.505	367.1 -> 322.0	44994	2.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.1%	
13C5-PFHxA	5.565	318.0 -> 273.0	45977	2.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.1%	
13C5-PFPeA	4.359	268.3 -> 223.0	47353	5.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.2%	
13C6-PFDA	8.134	519.1 -> 474.1	25176	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C7-PFUnDA	8.588	570.0 -> 525.1	26211	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C8-FOSA	9.654	506.1 -> 77.8	16249	2.19 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.7%	
13C8-PFOA	7.136	421.1 -> 376.0	62012	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C8-PFOS	8.284	507.1 -> 79.9	11335	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.2%	
13C9-PFNA	7.654	472.1 -> 427.0	25176	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
d3-MeFOSAA	8.191	573.2 -> 419.0	21939	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	32459	11.68 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 116.8%	
d3-MeFOSA	10.745	515.0 -> 219.0	3842	1.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.2%	
d5-EtFOSAA	8.388	589.2 -> 419.0	17732	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d7-MeFOSE	10.665	623.2 -> 58.9	50476	20.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.0%	
d9-EtFOSE	10.899	639.2 -> 58.9	60351	21.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.0%	
d5-EtFOSA	10.977	531.1 -> 219.0	4589	1.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	11571	2.82 µg/L	96
		327.1 -> 80.9	4694		
6:2FTS	6.911	427.1 -> 407.0	10119	3.03 µg/L	97
		427.1 -> 80.9	4147		
8:2FTS	7.935	527.1 -> 507.0	7420	3.25 µg/L	95
		527.1 -> 80.8	2597		
EtFOSAA	8.401	584.2 -> 419.1	2201	0.71 µg/L	91
		584.2 -> 526.0	1482		
FOSA	9.657	498.1 -> 77.9	5125	0.77 µg/L	100
		498.1 -> 478.0	152		
MeFOSAA	8.192	570.1 -> 419.0	3248	0.73 µg/L	95
		570.1 -> 483.0	789		
PFBA	2.957	212.8 -> 168.9	16842	2.93 µg/L	100
PFBS	5.484	298.7 -> 79.9	4434	0.65 µg/L	99
		298.7 -> 98.8	1684		
PFDA	8.134	512.9 -> 469.0	16279	0.79 µg/L	95
		512.9 -> 219.0	2402		
PFDODA	9.007	613.1 -> 569.0	16275	0.74 µg/L	98
		613.1 -> 319.0	1950		
PFDS	9.157	599.0 -> 79.9	2143	0.72 µg/L	97

7.3.2  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8	1038	0.71	µg/L	99
		363.1 -> 319.0	18686			
PFHpS	7.793	363.1 -> 169.0	2759	0.72	µg/L	88
		449.0 -> 79.9	3789			
PFHxA	5.568	449.0 -> 98.9	1648	0.74	µg/L	98
		313.0 -> 269.0	13072			
PFHxS	7.240	313.0 -> 118.9	606	0.61	µg/L	92
		398.7 -> 79.9	3107			
PFNA	7.655	398.7 -> 98.9	1599	0.76	µg/L	98
		463.0 -> 419.0	12082			
PFNS	8.738	463.0 -> 219.0	2803	0.66	µg/L	95
		548.8 -> 79.9	2864			
PFOA	7.138	548.8 -> 98.9	1536	0.69	µg/L	100
		413.0 -> 369.0	18948			
PFOS	8.286	413.0 -> 169.0	3450	0.59	µg/L	89
		498.9 -> 79.9	3091			
PFPeA	4.361	498.9 -> 98.8	1731	1.45	µg/L	100
		263.0 -> 219.0	16356			
PFPeS	6.558	349.1 -> 79.9	4275	0.65	µg/L	92
		349.1 -> 98.9	2053			
PFTeDA	9.721	713.1 -> 669.0	9512	0.76	µg/L	100
		713.1 -> 168.9	650			
PFTrDA	9.389	663.0 -> 619.0	12850	0.75	µg/L	100
		663.0 -> 168.9	1085			
PFUnDA	8.589	563.1 -> 519.0	15468	0.75	µg/L	97
		563.1 -> 269.1	2338			
11CI-PF3OUdS	9.429	630.9 -> 450.9	12327	1.28	µg/L	98
		632.9 -> 452.9	4142			
9CI-PF3ONS	8.615	530.8 -> 351.0	21819	1.28	µg/L	99
		532.8 -> 353.0	6879			
ADONA	6.755	376.9 -> 250.9	61877	1.35	µg/L	97
		376.9 -> 84.8	16817			
HFPO-DA	5.931	284.9 -> 168.9	4932	1.41	µg/L	98
		284.9 -> 184.9	596			
3:3FTCA	3.827	241.0 -> 177.0	2252	2.85	µg/L	98
		241.0 -> 117.0	331			
5:3FTCA	6.222	341.0 -> 237.1	56388	17.38	µg/L	96
		341.0 -> 217.0	40059			
7:3FTCA	7.620	441.0 -> 316.9	35097	16.64	µg/L	91
		441.0 -> 336.9	74206			
EtFOSA	10.966	526.0 -> 219.0	3566	1.59	µg/L	99
		526.0 -> 169.0	4661			
EtFOSE	10.913	630.0 -> 58.9	9489	3.59	µg/L	100
		511.9 -> 219.0	3273			
MeFOSA	10.746	511.9 -> 169.0	4479	1.67	µg/L	98
		616.1 -> 58.9	7932			
MeFOSE	10.678	699.1 -> 79.9	1032	3.67	µg/L	100
		699.1 -> 98.8	585			
PFDoDS	9.848	295.0 -> 201.0	3027	0.65	µg/L	94
		295.0 -> 84.9	849			
NFDHA	5.447	279.0 -> 85.1	12203	1.39	µg/L	99
		229.0 -> 84.9	9894			
PFMBA	4.775	314.8 -> 134.9	27948	1.41	µg/L	100
		314.8 -> 82.9	1052			
PFMPA	3.500			1.40	µg/L	100
PFEESA	6.024			1.22	µg/L	99

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

7.3.2  
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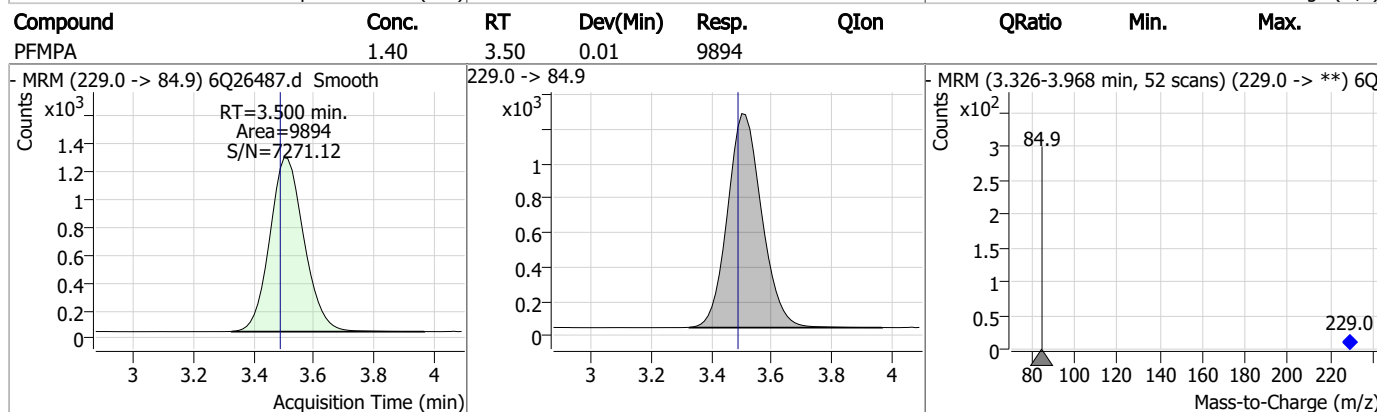
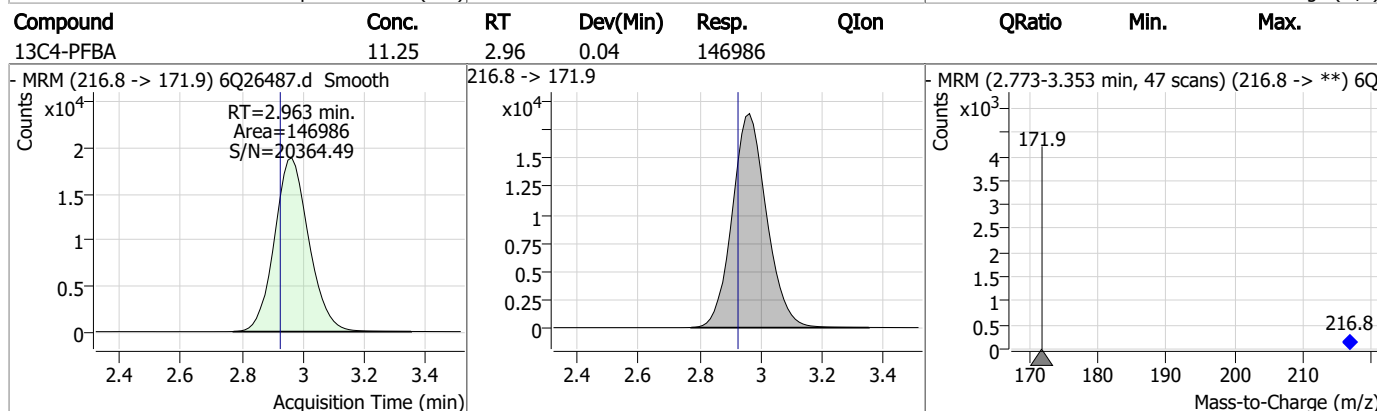
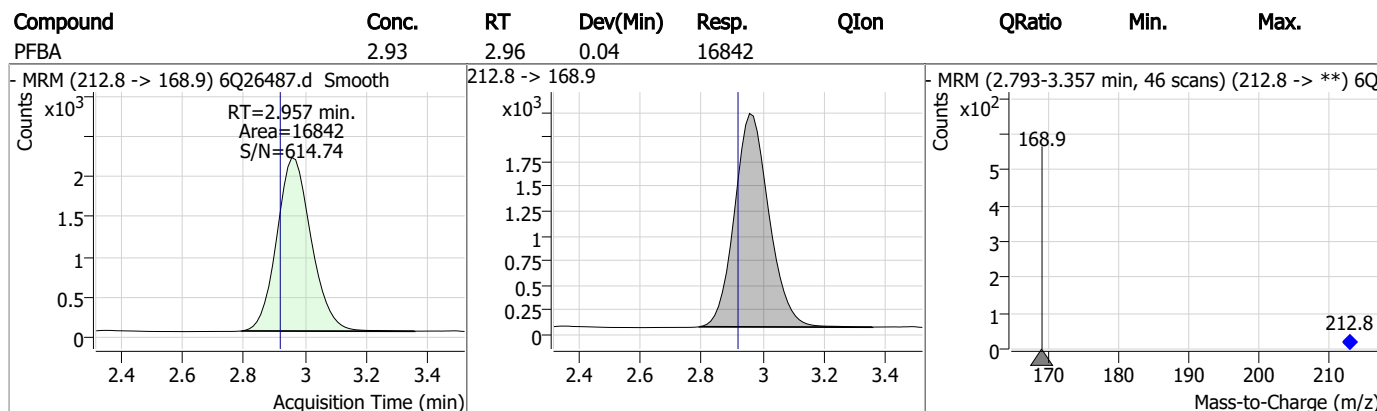
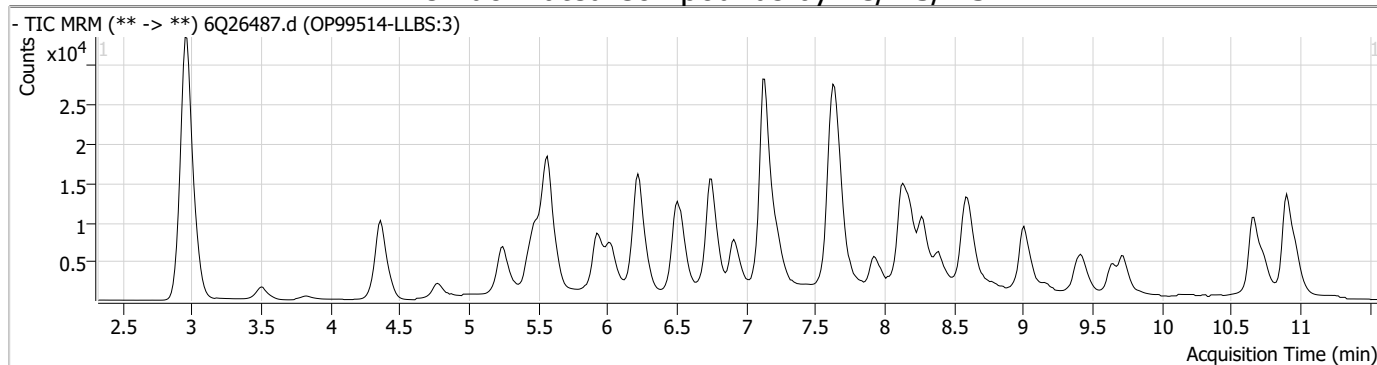
### Perfluorinated Compounds by LC/MS/MS

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

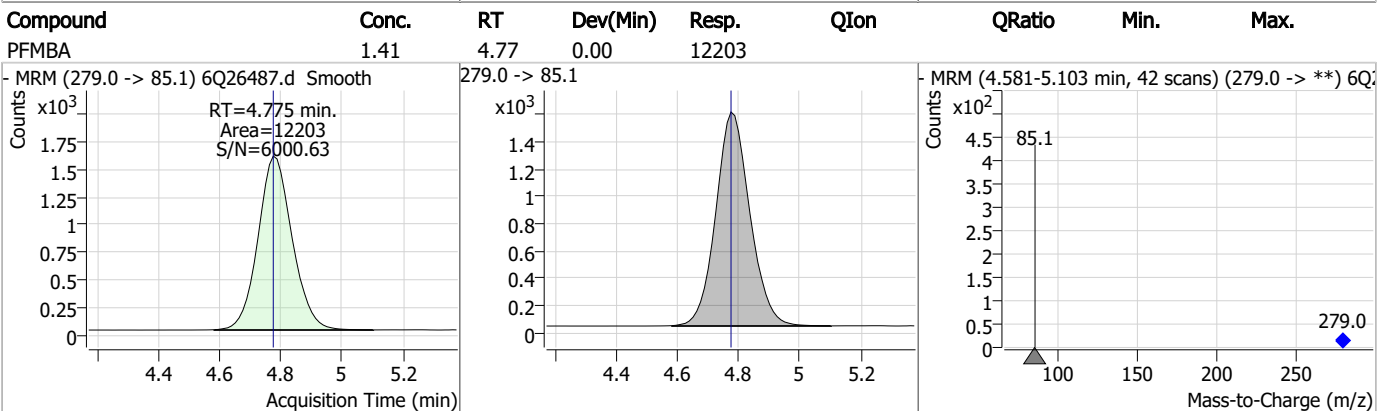
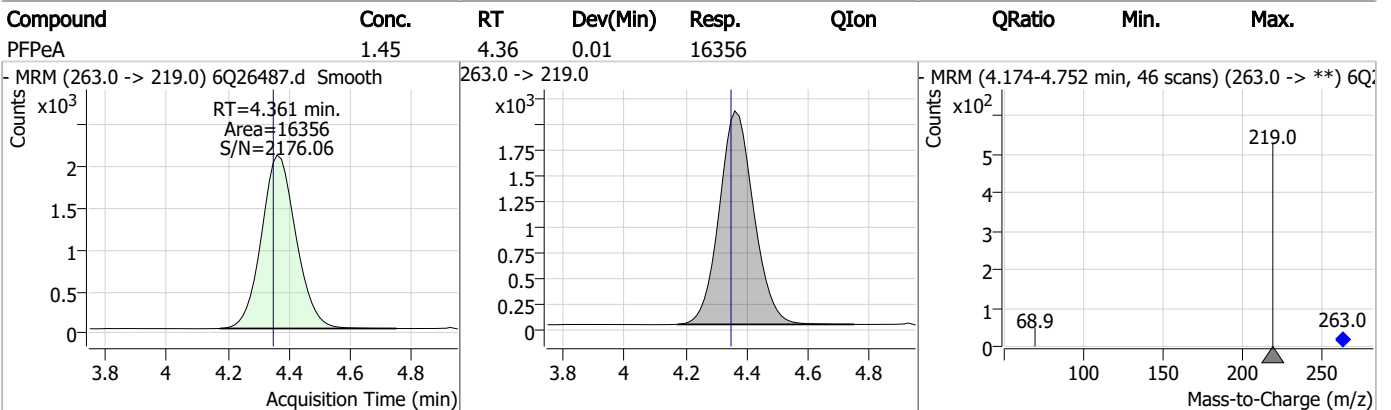
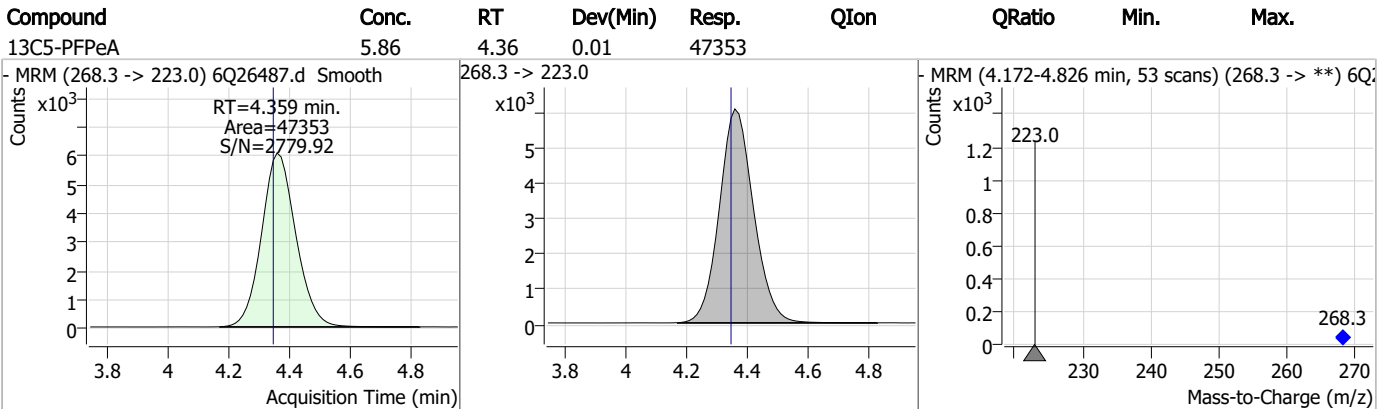
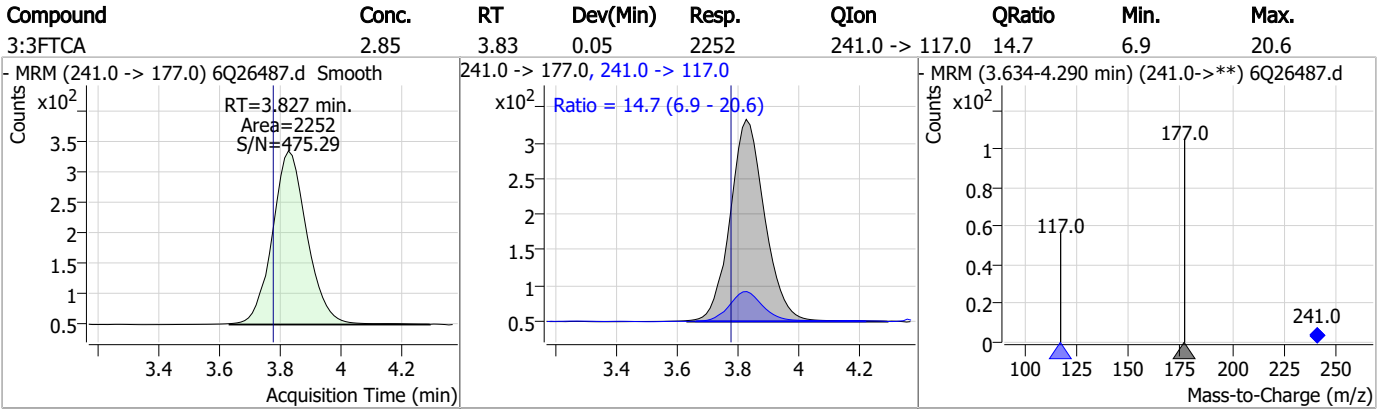
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### Perfluorinated Compounds by LC/MS/MS

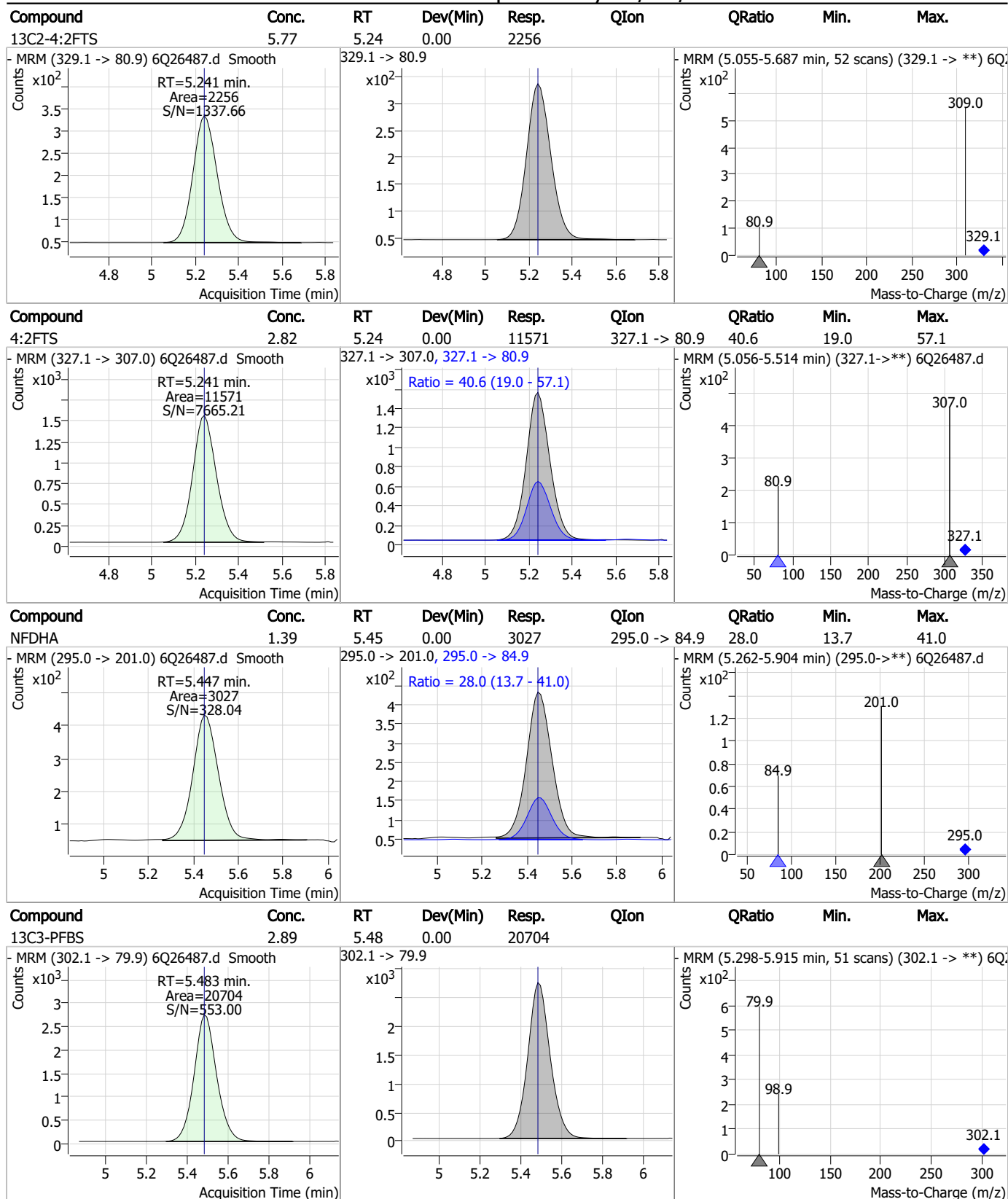


7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

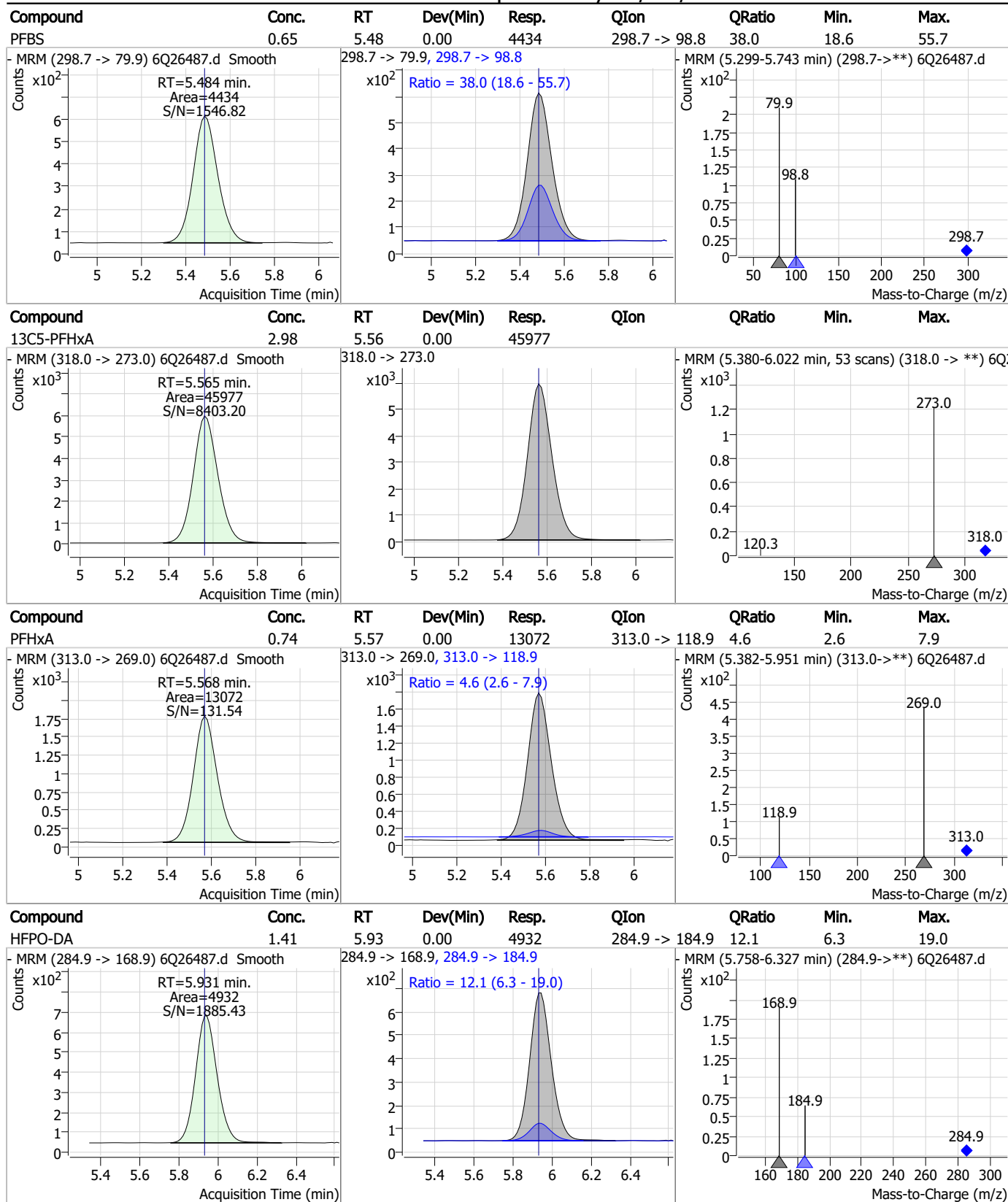


### Perfluorinated Compounds by LC/MS/MS



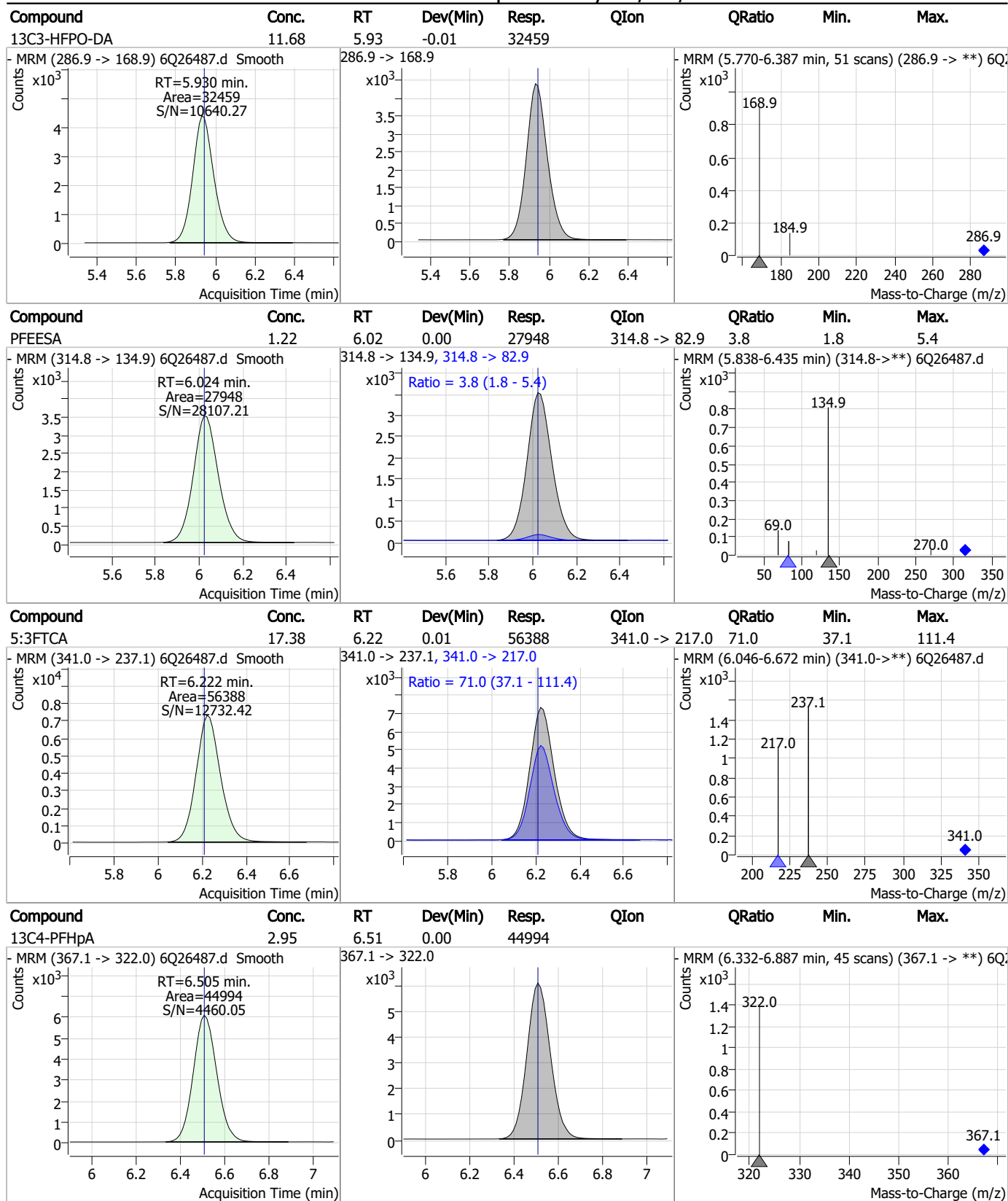
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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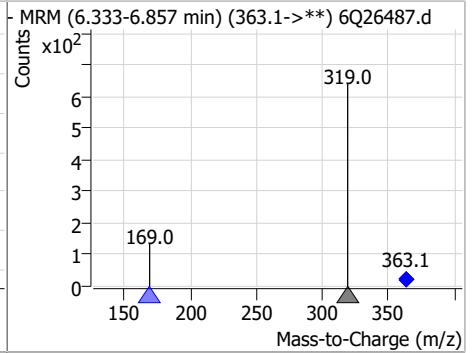
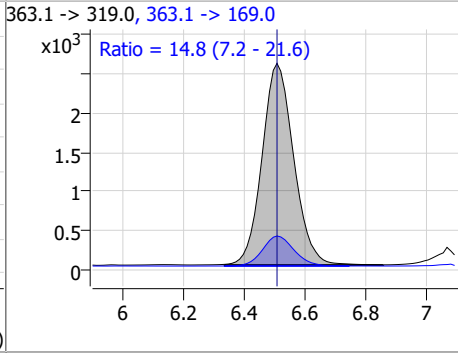
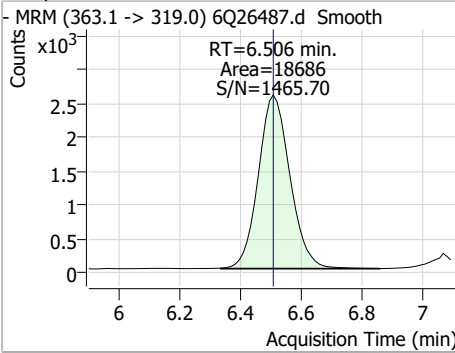
### Perfluorinated Compounds by LC/MS/MS



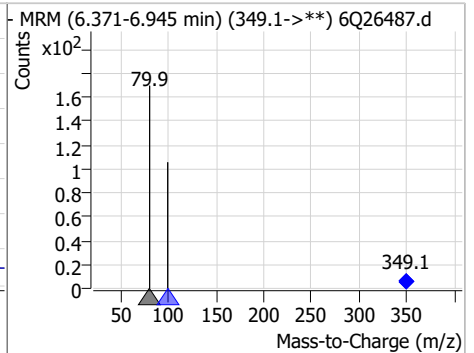
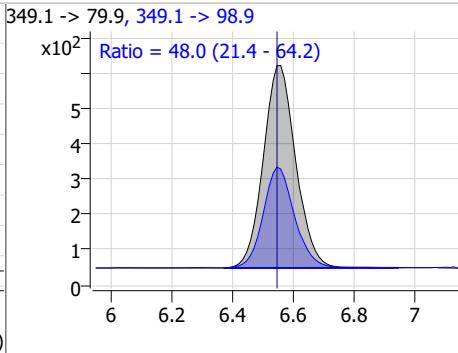
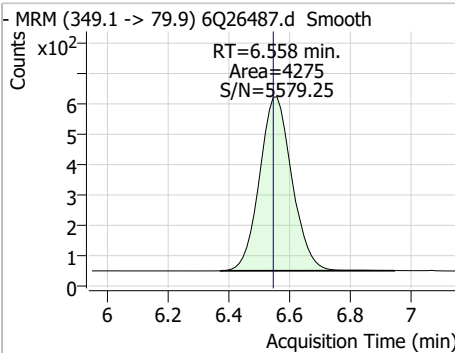
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

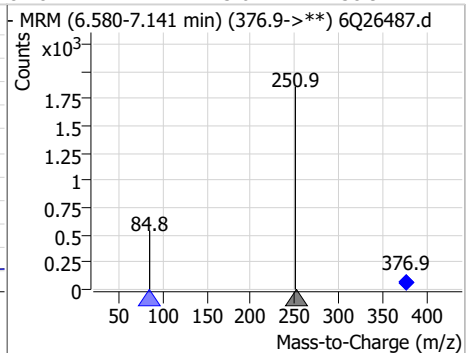
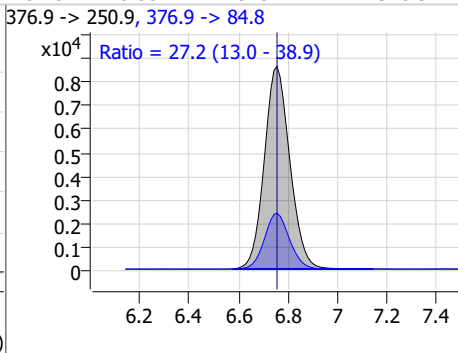
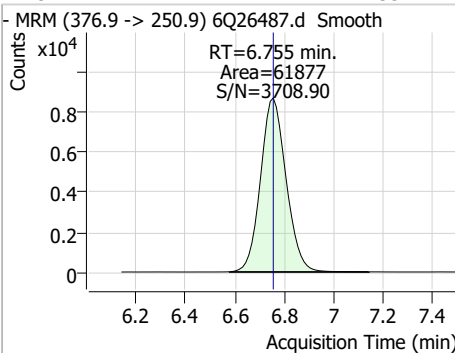
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.71	6.51	0.00	18686	363.1 -> 169.0	14.8	7.2	21.6



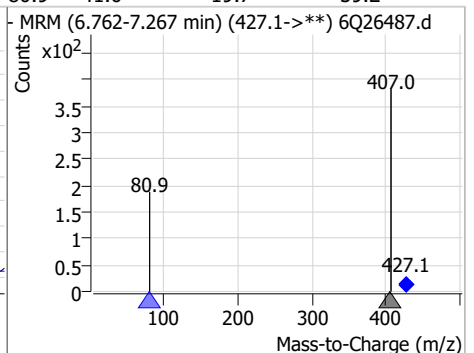
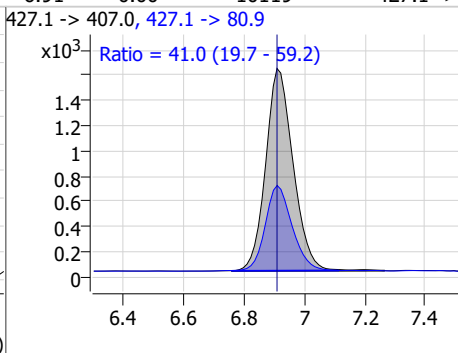
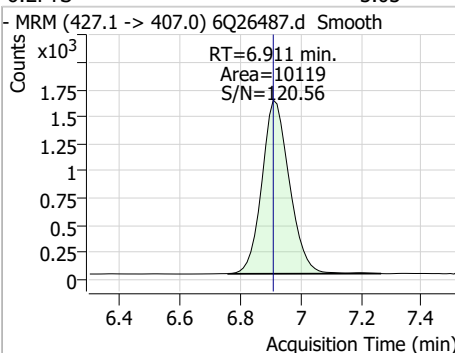
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.65	6.56	0.01	4275	349.1 -> 98.9	48.0	21.4	64.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.35	6.76	0.00	61877	376.9 -> 84.8	27.2	13.0	38.9

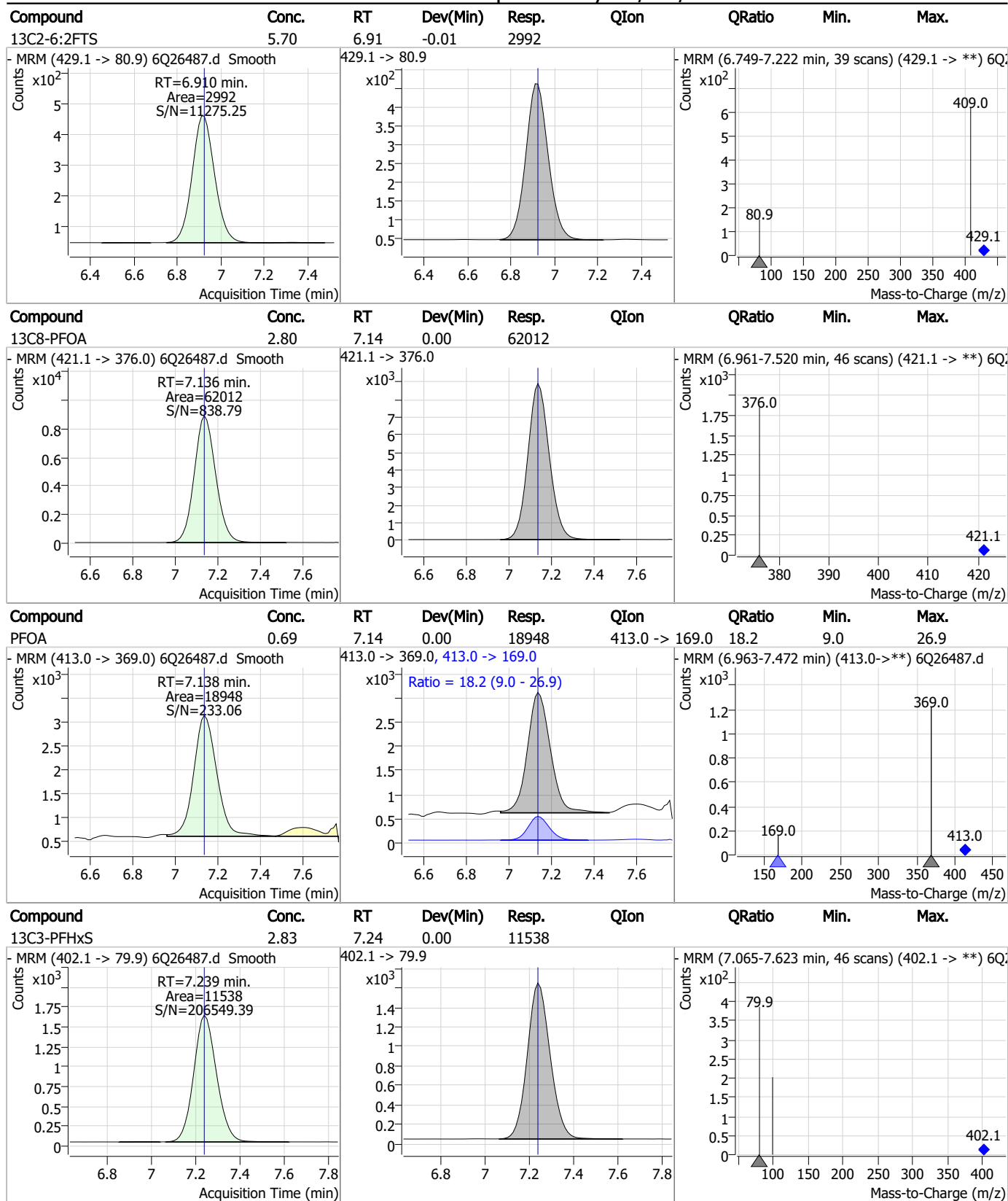


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	3.03	6.91	0.00	10119	427.1 -> 80.9	41.0	19.7	59.2



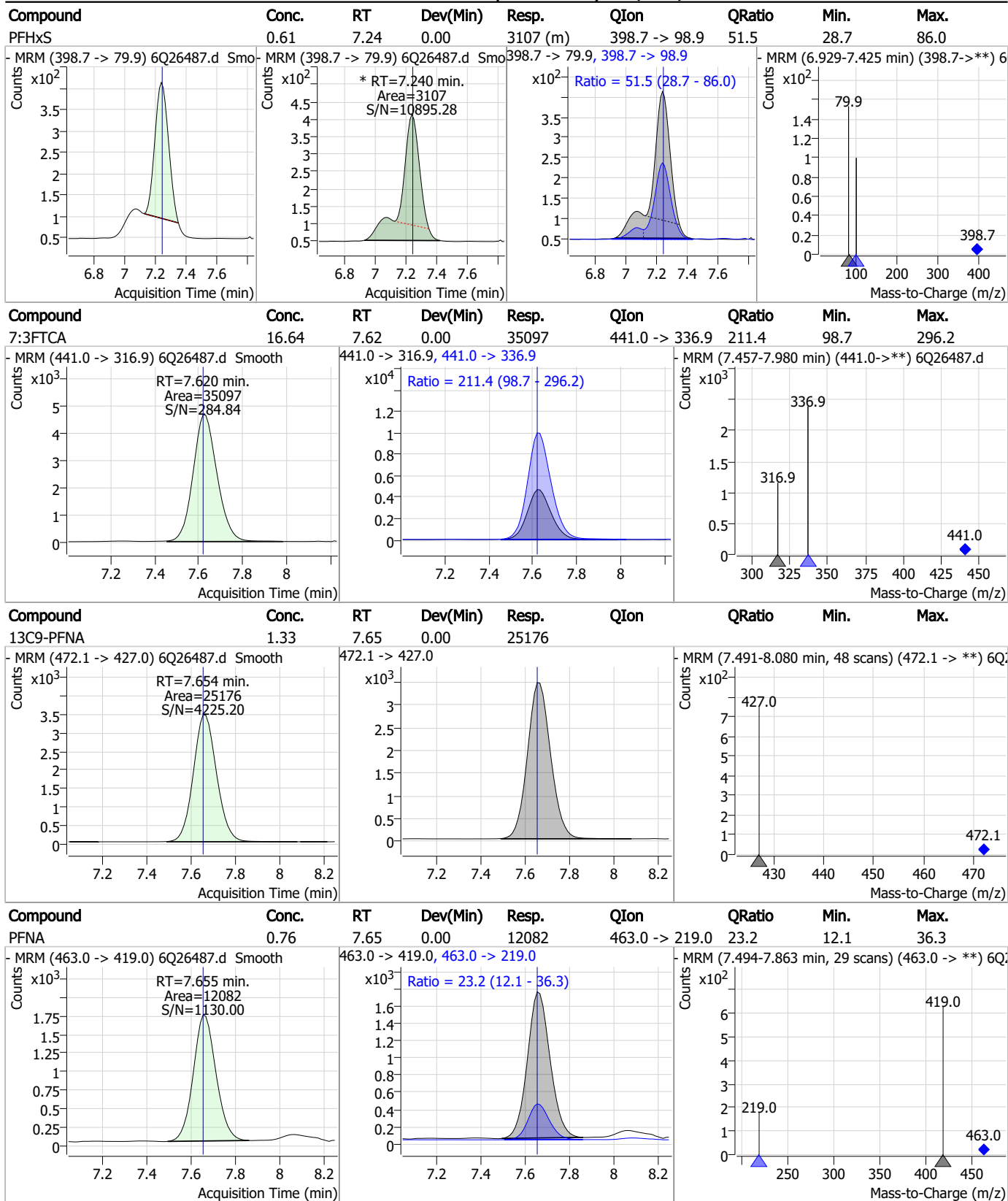


### Perfluorinated Compounds by LC/MS/MS



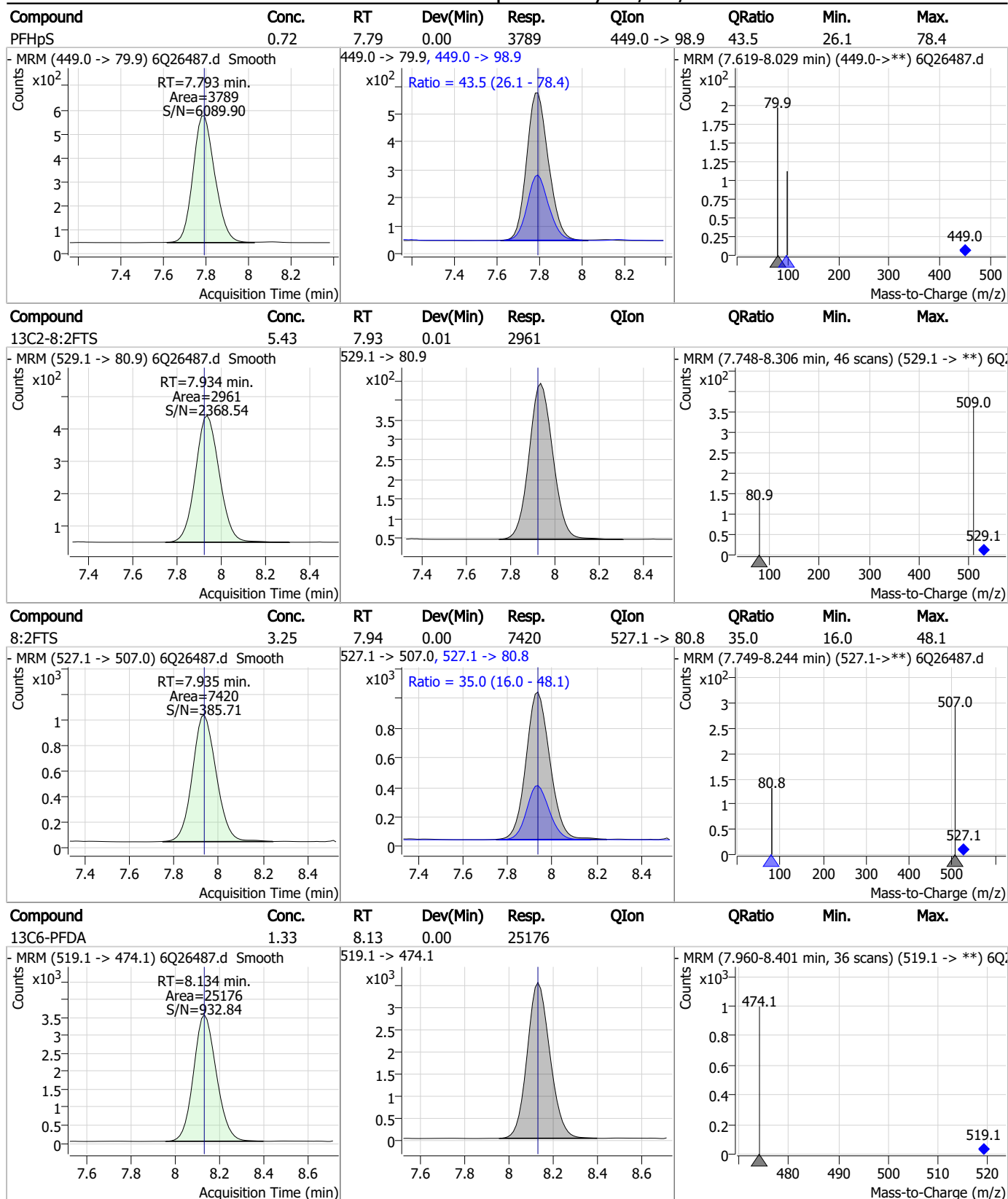
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS



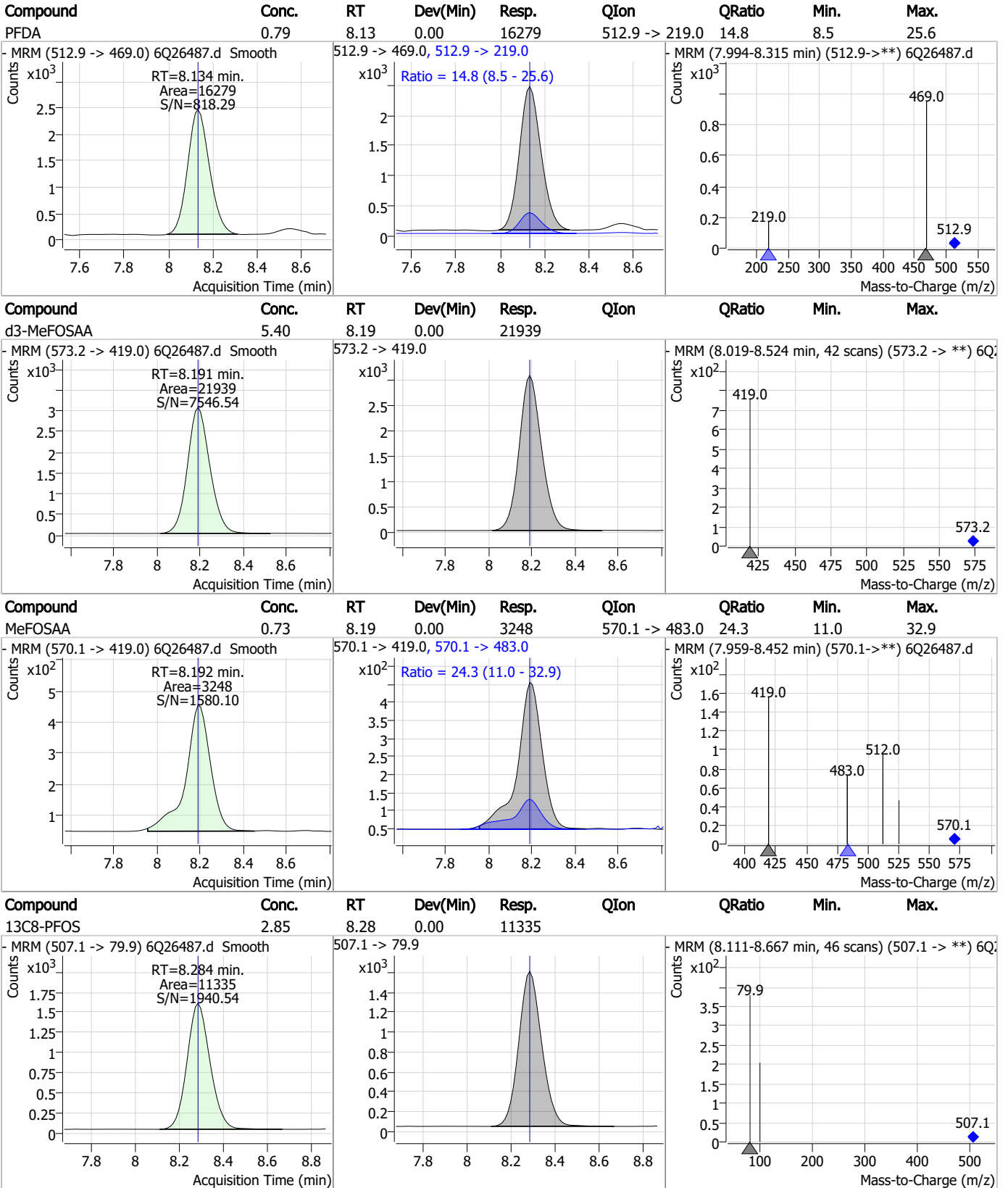
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

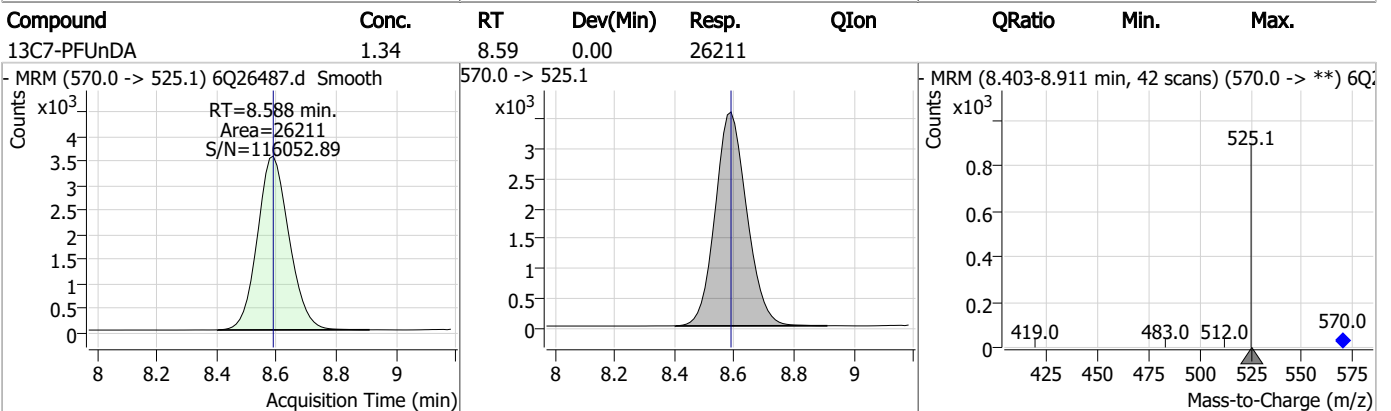
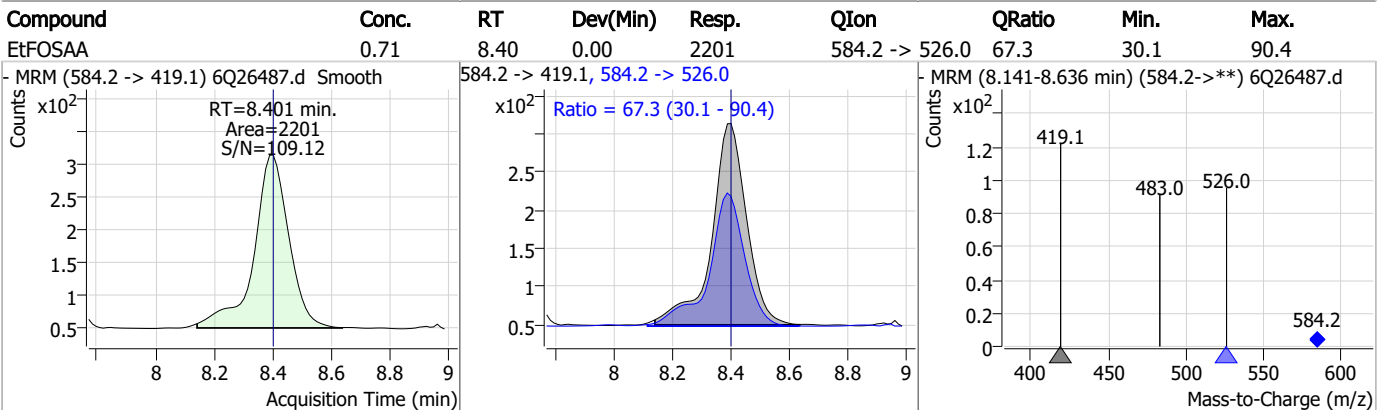
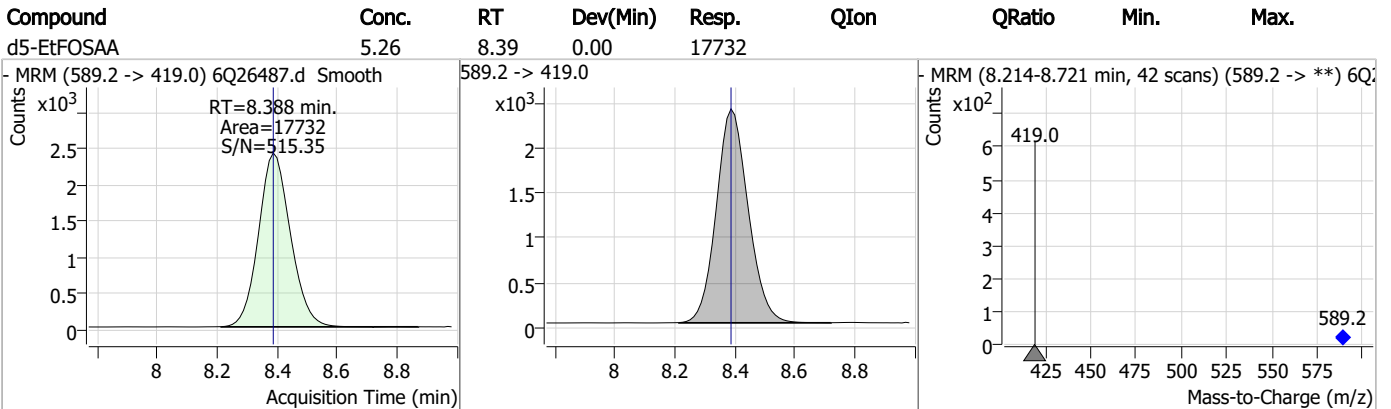
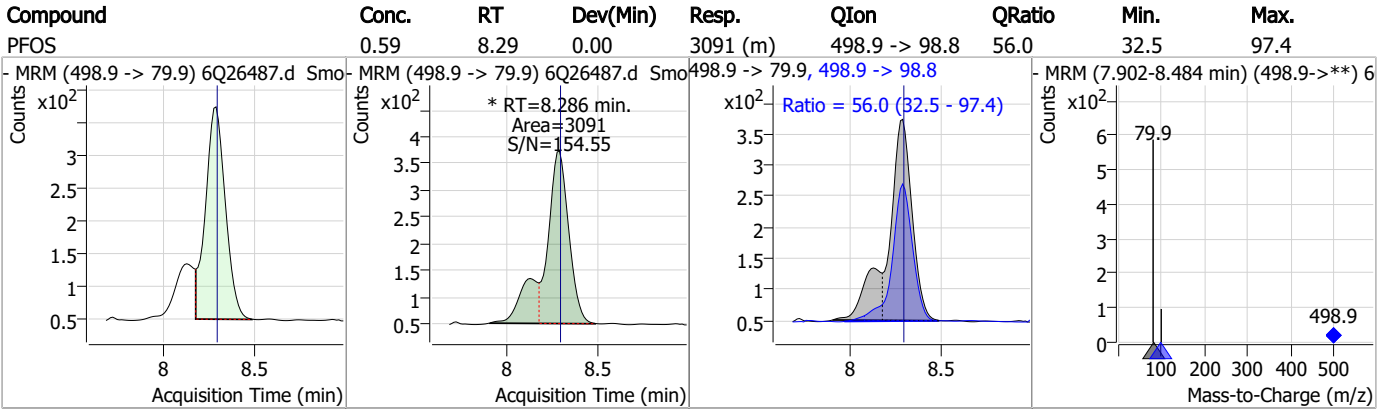


7.3.2

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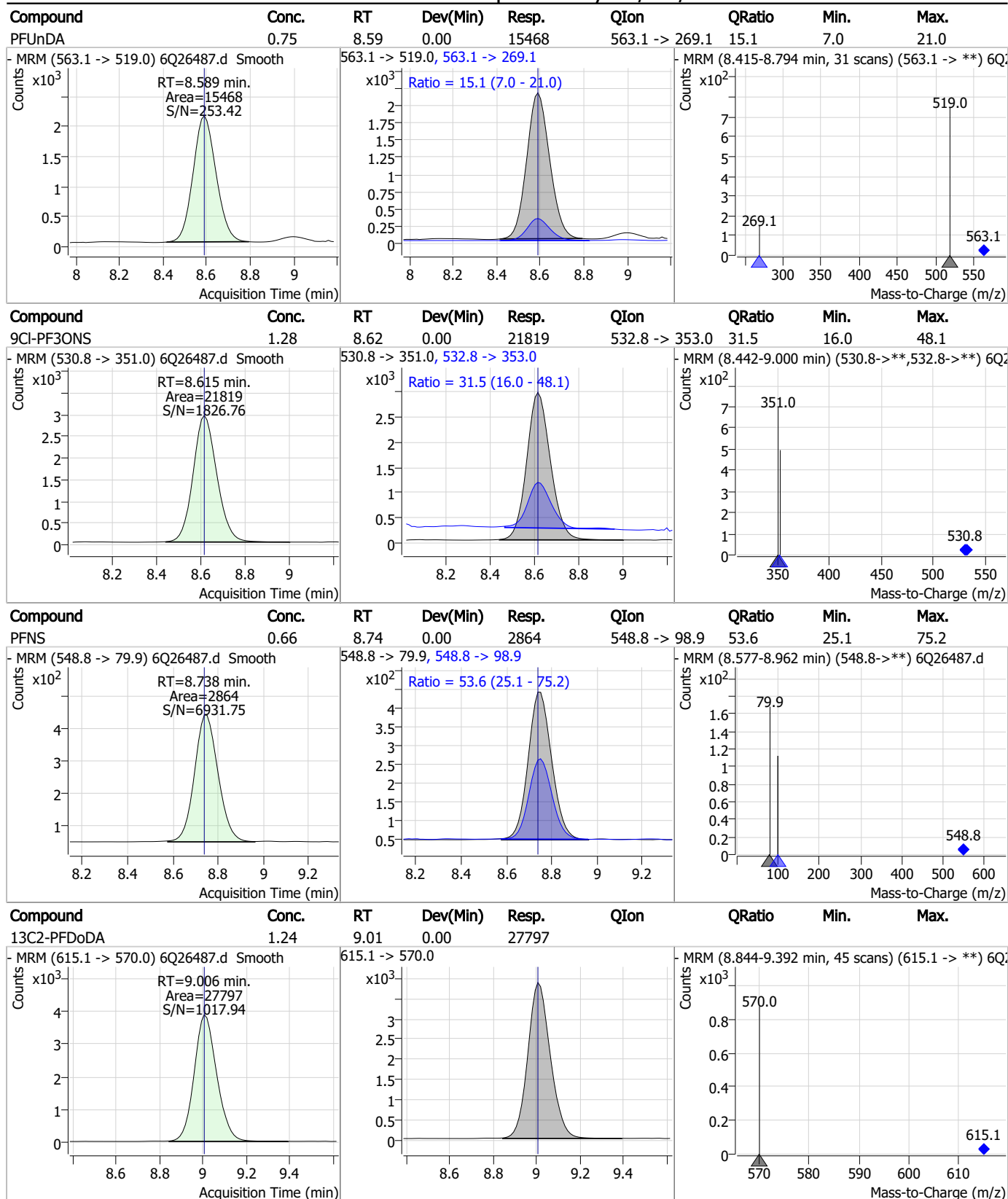
### Perfluorinated Compounds by LC/MS/MS



7.3.2

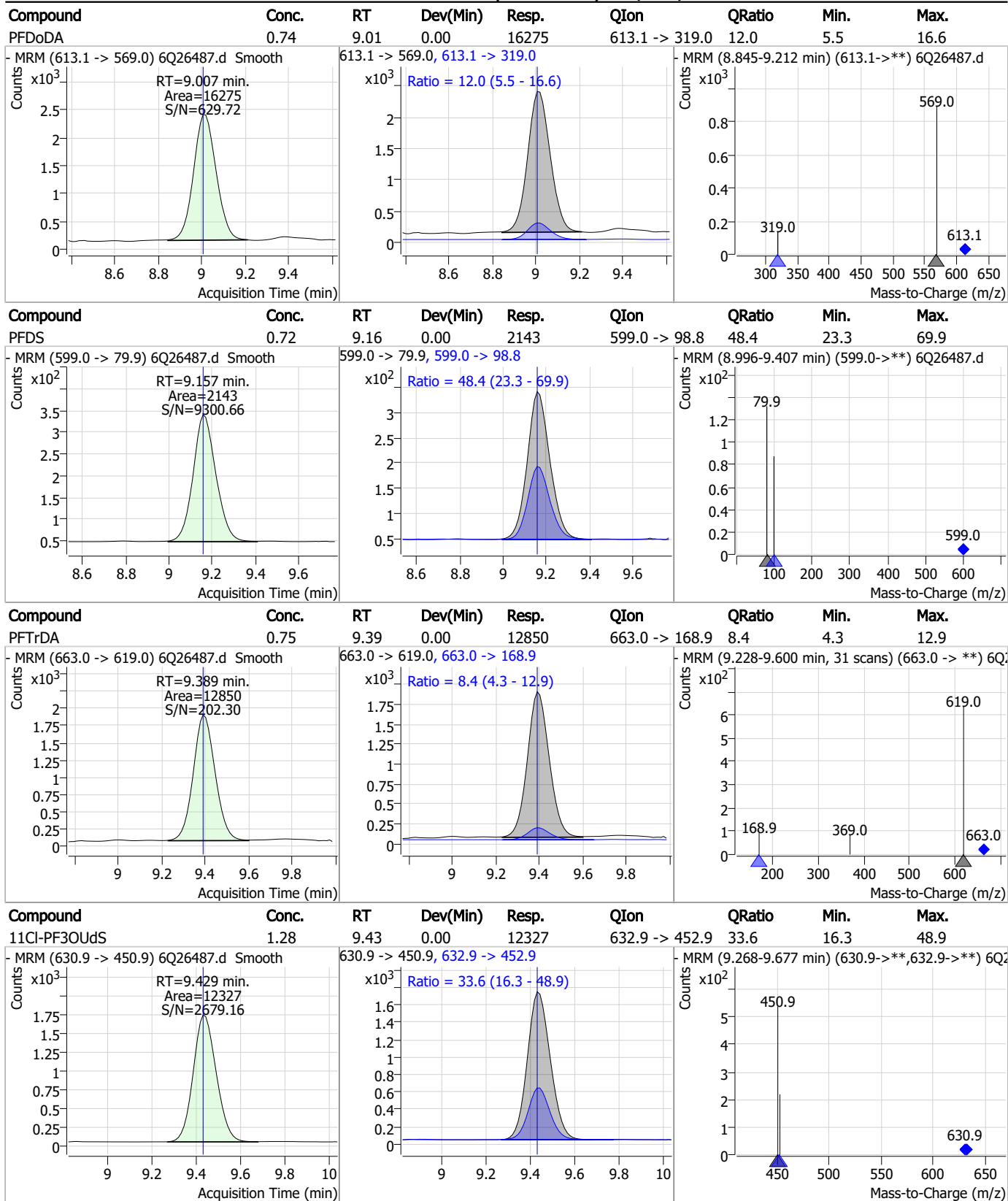
7

### Perfluorinated Compounds by LC/MS/MS



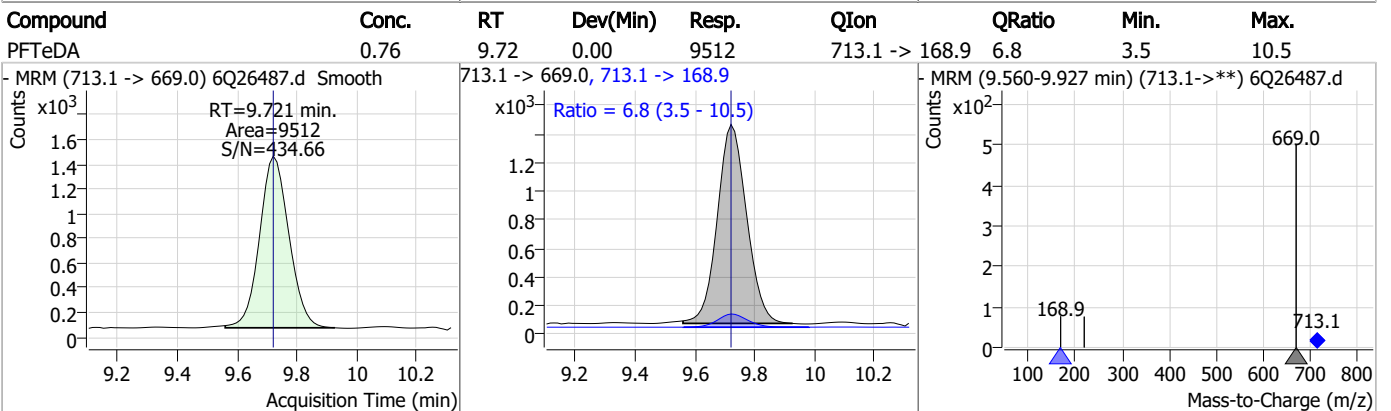
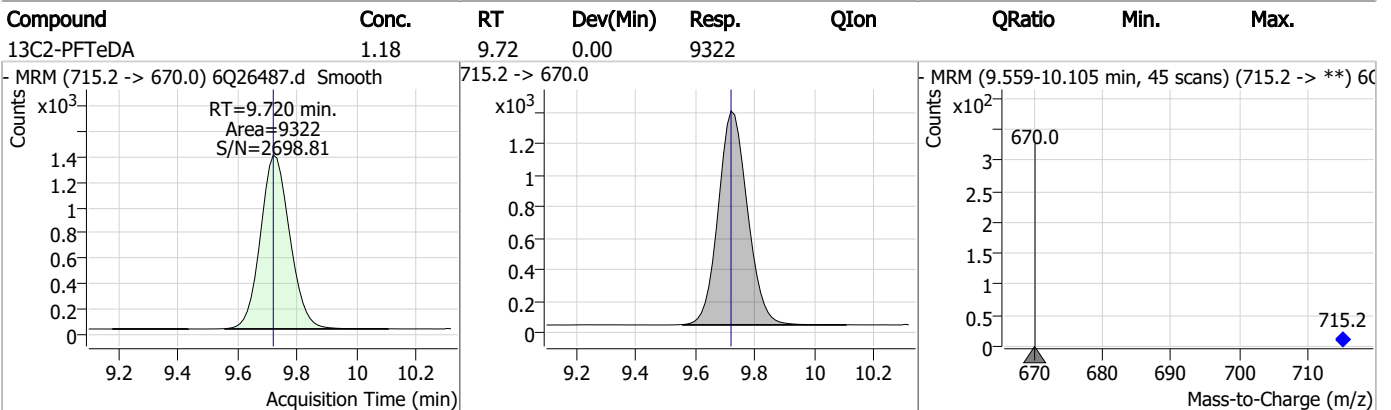
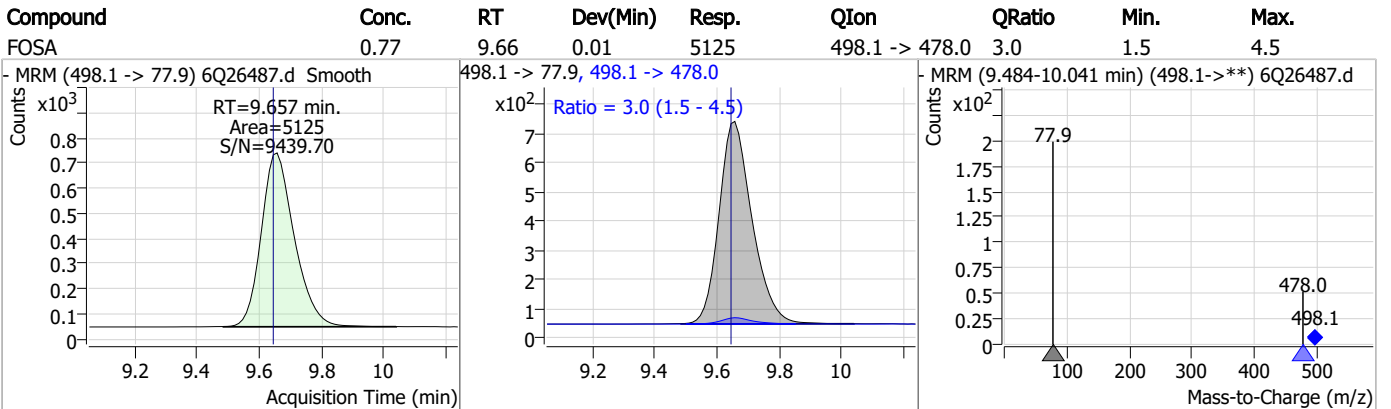
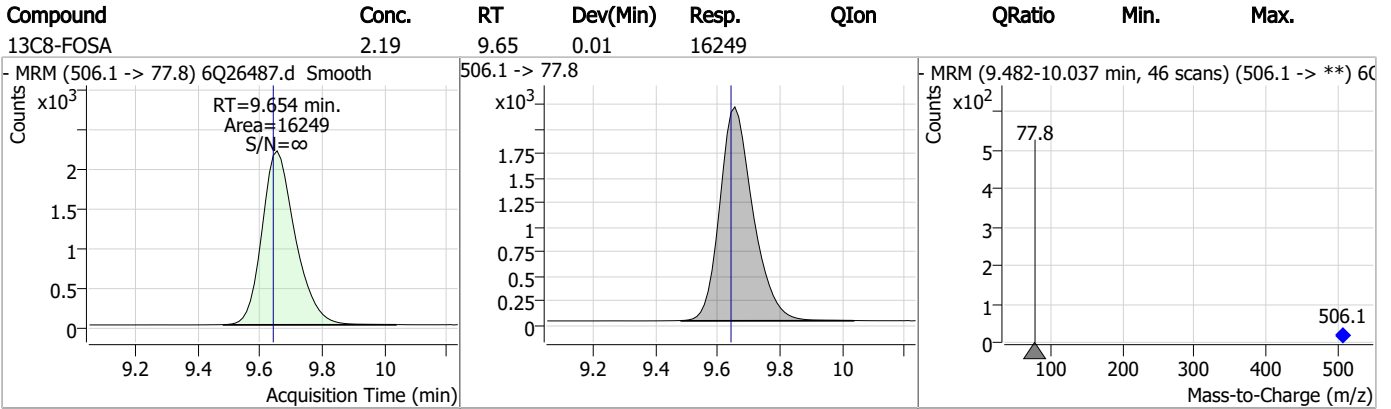
7.3.2  
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### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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### Perfluorinated Compounds by LC/MS/MS

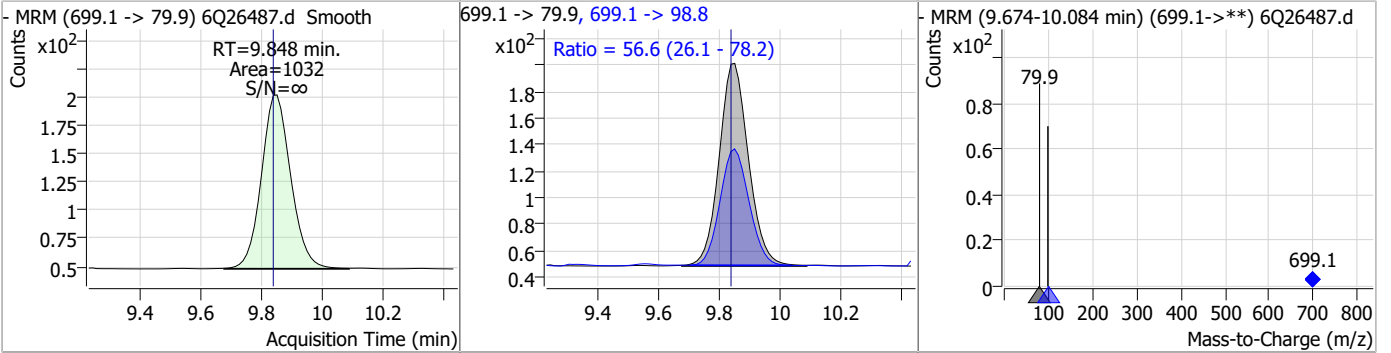


7.3.2  
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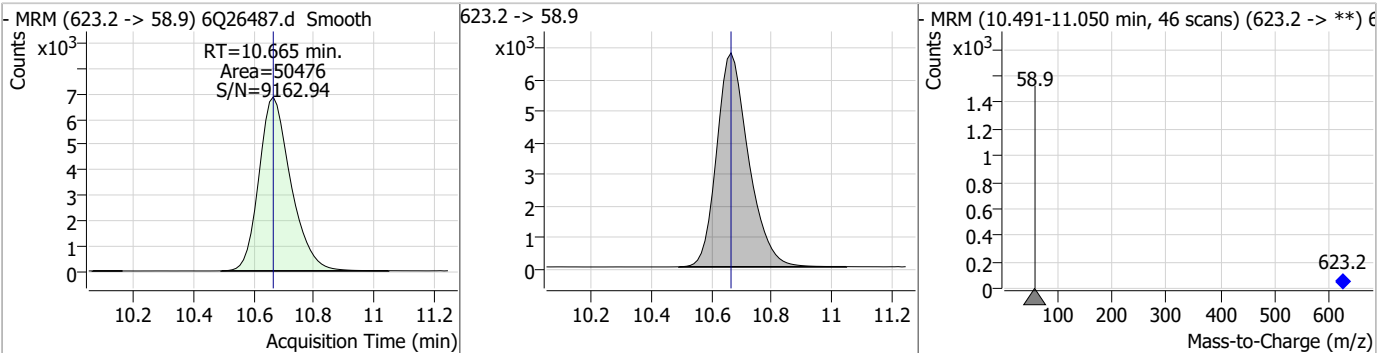


### Perfluorinated Compounds by LC/MS/MS

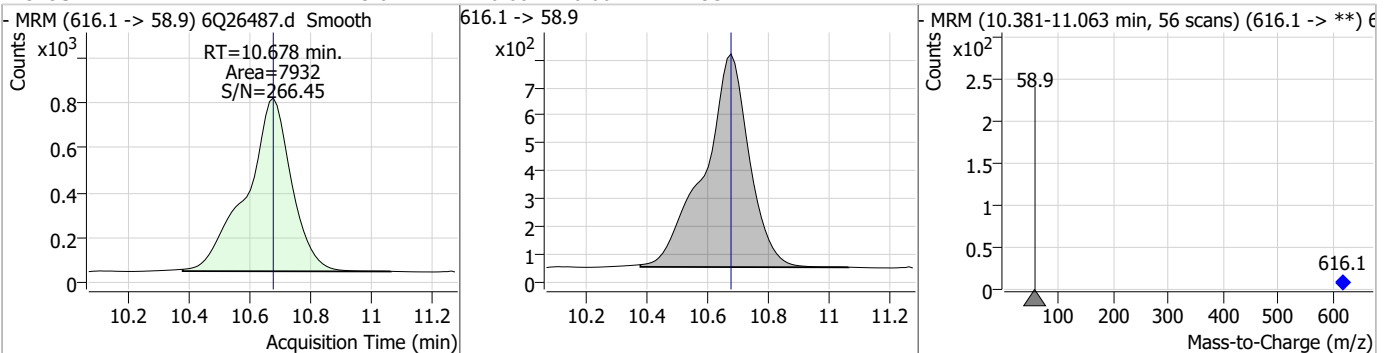
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.65	9.85	0.01	1032	699.1 -> 98.8	56.6	26.1	78.2



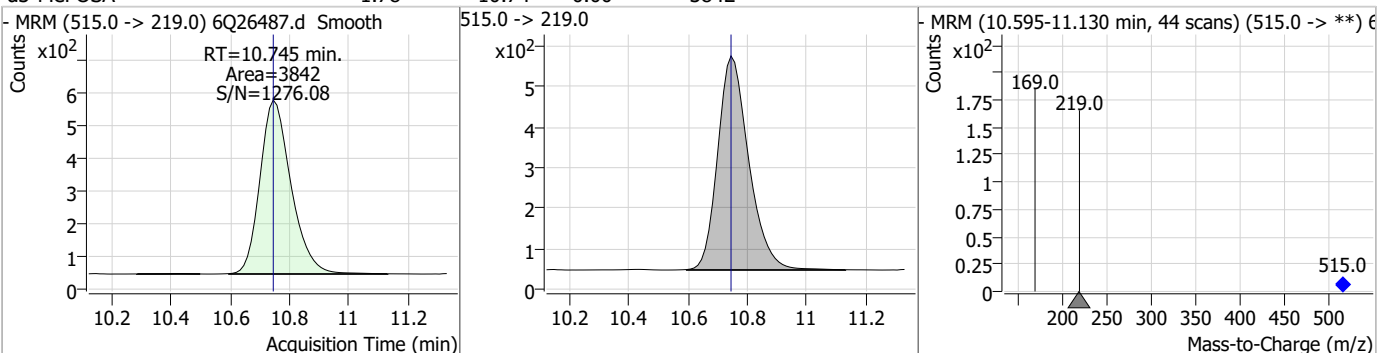
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.50	10.67	0.00	50476				



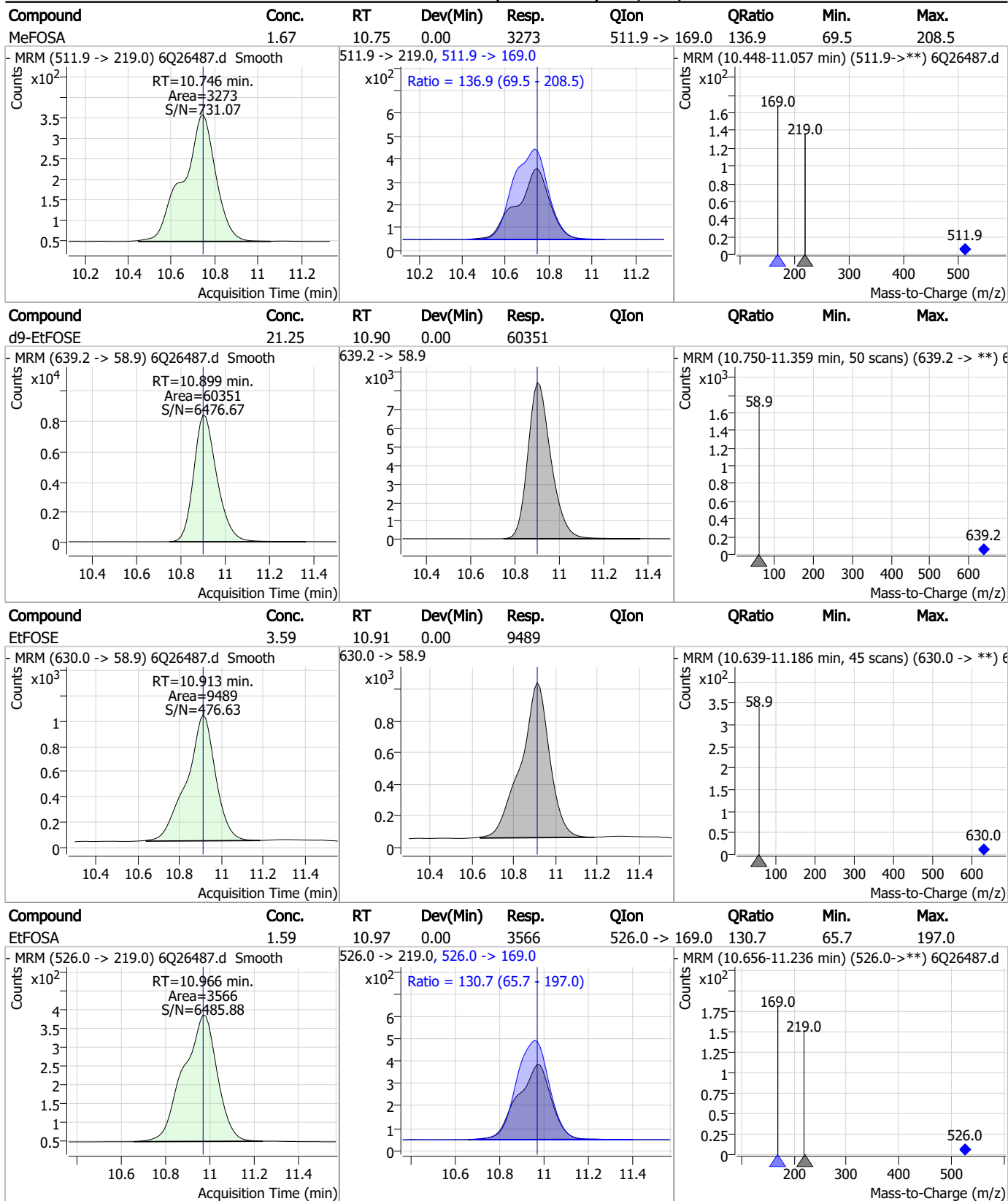
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.67	10.68	0.00	7932				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.78	10.74	0.00	3842				

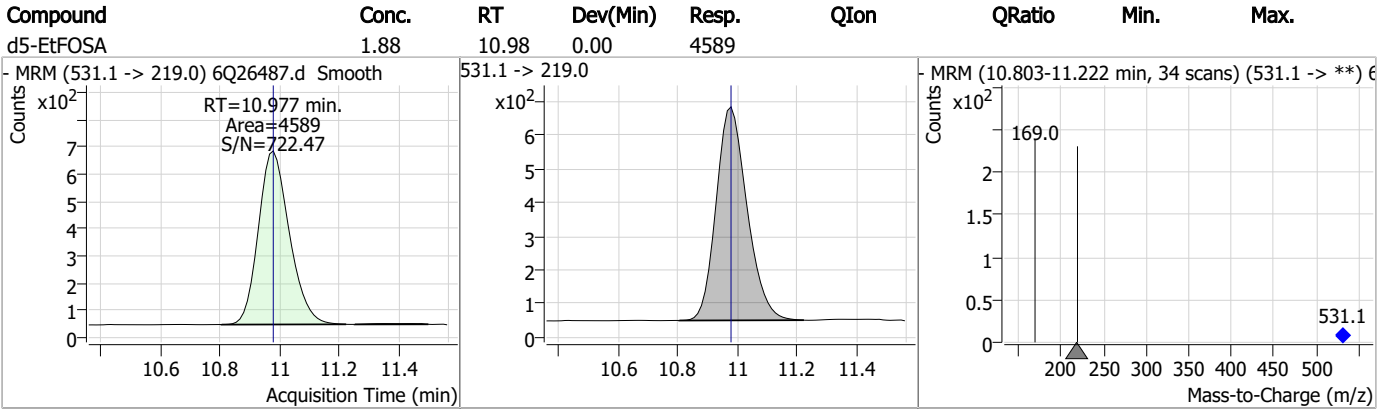


### Perfluorinated Compounds by LC/MS/MS



7.3.2  
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Perfluorinated Compounds by LC/MS/MS



7.3.2

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# Manual Integration Approval Summary

Sample Number: OP99514-LLBS      Method: EPA DRAFT 1633  
Lab FileID: 6Q26487.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 20:46      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.3.2.1

7

### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26490.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 9:29:29 PM  
 Sample Name : OP99514-MS  
 Vial : P4-A5  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99514,S6Q372,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	114869	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	41113	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	39953	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	37996	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	50983	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	22400	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	21257	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	23854	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	25306	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	8329	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	15467	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	17594	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10468	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9750	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2255	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2929	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	3002	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	21239	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	27136	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	18299	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	46626	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	57775	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	4389	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	4029	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8886	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	52434	5.00 µg/L	0.037
18O2-PFHxS	7.238	403.0 -> 83.9	6282	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	59869	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20815	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	22067	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	38648	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2255	5.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.3%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2929	5.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C2-8:2FTS	7.934	529.1 -> 80.9	3002	5.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFDoDA	9.006	615.1 -> 570.0	25306	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-PFTeDA	9.720	715.2 -> 670.0	8329	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.1%		
13C3-PFBS	5.483	302.1 -> 79.9	17594	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.239	402.1 -> 79.9	10468	2.57 µg/L	0.000

7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C4-PFBA	2.963	216.8 -> 171.9	114869	8.89 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
13C4-PFHpA	6.505	367.1 -> 322.0	37996	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.565	318.0 -> 273.0	39953	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C5-PFPeA	4.359	268.3 -> 223.0	41113	5.19 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C6-PFDA	8.134	519.1 -> 474.1	21257	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C7-PFUnDA	8.588	570.0 -> 525.1	23854	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.654	506.1 -> 77.8	15467	2.18 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.0%	
13C8-PFOA	7.136	421.1 -> 376.0	50983	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-PFOS	8.284	507.1 -> 79.9	9750	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C9-PFNA	7.654	472.1 -> 427.0	22400	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.8%	
d3-MeFOSAA	8.191	573.2 -> 419.0	21239	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	27136	9.95 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSA	10.745	515.0 -> 219.0	4029	1.95 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.9%	
d5-EtFOSAA	8.388	589.2 -> 419.0	18299	5.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.2%	
d7-MeFOSE	10.665	623.2 -> 58.9	46626	19.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d9-EtFOSE	10.899	639.2 -> 58.9	57775	21.22 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
d5-EtFOSA	10.977	531.1 -> 219.0	4389	1.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.8%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	36076	8.81 µg/L	99
		327.1 -> 80.9	13916		
6:2FTS	6.911	427.1 -> 407.0	28799	8.80 µg/L	99
		427.1 -> 80.9	11506		
8:2FTS	7.923	527.1 -> 507.0	21367	9.23 µg/L	93
		527.1 -> 80.8	7690		
EtFOSAA	8.401	584.2 -> 419.1	7261	2.28 µg/L	95
		584.2 -> 526.0	4666		
FOSA	9.657	498.1 -> 77.9	15452	2.43 µg/L	100
		498.1 -> 478.0	460		
MeFOSAA	8.192	570.1 -> 419.0	10463	2.43 µg/L	99
		570.1 -> 483.0	2260		
PFBA	2.969	212.8 -> 168.9	42970	9.56 µg/L	100
PFBS	5.484	298.7 -> 79.9	13145	2.26 µg/L	99
		298.7 -> 98.8	4822		
PFDA	8.134	512.9 -> 469.0	44911	2.57 µg/L	96
		512.9 -> 219.0	6858		
PFDODA	9.007	613.1 -> 569.0	50047	2.49 µg/L	94
		613.1 -> 319.0	6667		
PFDS	9.157	599.0 -> 79.9	5410	2.10 µg/L	97

7.4.1  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8	2616	2.42	µg/L	100
		363.1 -> 319.0	53641			
PFHpS	7.793	363.1 -> 169.0	7762	2.20	µg/L	88
		449.0 -> 79.9	9958			
PFHxA	5.568	449.0 -> 98.9	4367	2.35	µg/L	99
		313.0 -> 269.0	36026			
PFHxS	7.240	313.0 -> 118.9	1812	2.08	µg/L	87
		398.7 -> 79.9	9533			
PFNA	7.655	398.7 -> 98.9	4551	2.46	µg/L	97
		463.0 -> 419.0	35069			
PFNS	8.738	463.0 -> 219.0	8011	2.15	µg/L	90
		548.8 -> 79.9	8007			
PFOA	7.138	548.8 -> 98.9	4540	2.29	µg/L	99
		413.0 -> 369.0	51901			
PFOS	8.286	413.0 -> 169.0	9023	2.18	µg/L	80
		498.9 -> 79.9	9901			
PFPeA	4.361	498.9 -> 98.8	4852	4.73	µg/L	100
		263.0 -> 219.0	46310			
PFPeS	6.545	349.1 -> 79.9	12781	2.14	µg/L	100
		349.1 -> 98.9	5501			
PFTeDA	9.721	713.1 -> 669.0	27497	2.44	µg/L	97
		713.1 -> 168.9	2170			
PFTrDA	9.389	663.0 -> 619.0	34913	2.25	µg/L	99
		663.0 -> 168.9	2878			
PFUnDA	8.576	563.1 -> 519.0	46543	2.48	µg/L	98
		563.1 -> 269.1	6922			
11CI-PF3OUdS	9.429	630.9 -> 450.9	34479	4.29	µg/L	98
		632.9 -> 452.9	10795			
9CI-PF3ONS	8.615	530.8 -> 351.0	65615	4.62	µg/L	97
		532.8 -> 353.0	22226			
ADONA	6.755	376.9 -> 250.9	171258	4.48	µg/L	97
		376.9 -> 84.8	46852			
HFPO-DA	5.931	284.9 -> 168.9	13894	4.74	µg/L	98
		284.9 -> 184.9	1666			
3:3FTCA	3.827	241.0 -> 177.0	5816	9.43	µg/L	98
		241.0 -> 117.0	844			
5:3FTCA	6.222	341.0 -> 237.1	151255	53.66	µg/L	99
		341.0 -> 217.0	113647			
7:3FTCA	7.620	441.0 -> 316.9	104193	56.85	µg/L	95
		441.0 -> 336.9	213973			
EtFOSA	10.966	526.0 -> 219.0	10464	4.88	µg/L	95
		526.0 -> 169.0	13156			
EtFOSE	10.913	630.0 -> 58.9	29189	11.54	µg/L	100
		511.9 -> 219.0	9898			
MeFOSA	10.746	511.9 -> 169.0	13644	4.82	µg/L	99
		616.1 -> 58.9	24135			
MeFOSE	10.678	699.1 -> 79.9	2845	12.10	µg/L	100
		699.1 -> 98.8	1475			
PFDoDS	9.848	295.0 -> 201.0	8591	2.09	µg/L	100
		295.0 -> 84.9	2217			
NFDHA	5.447	279.0 -> 85.1	33989	4.52	µg/L	100
		229.0 -> 84.9	28139			
PFMBA	4.775	314.8 -> 134.9	79336	4.58	µg/L	100
		314.8 -> 82.9	2830			
PFMPA	3.513			3.99	µg/L	100
PFEESA	6.024					

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

### Perfluorinated Compounds by LC/MS/MS

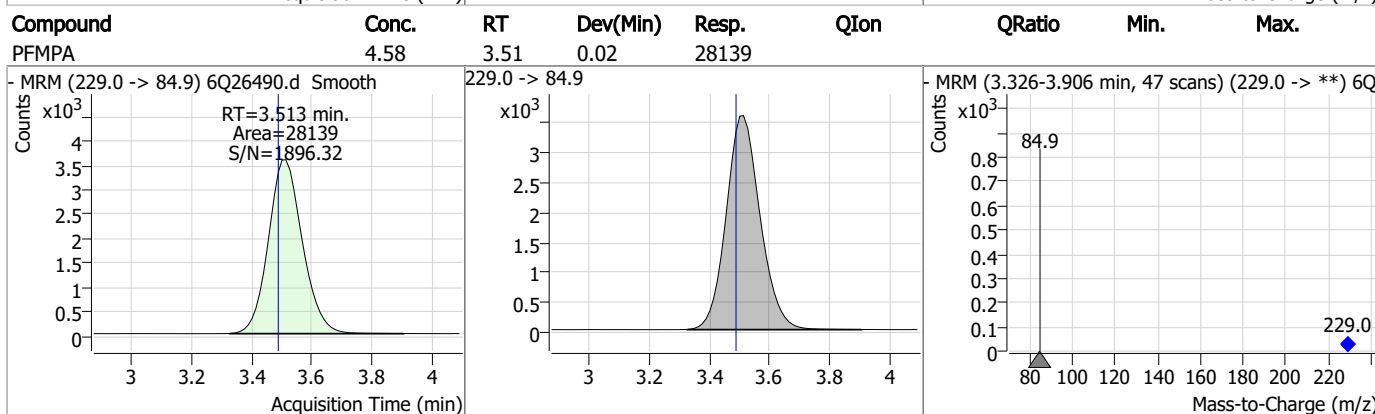
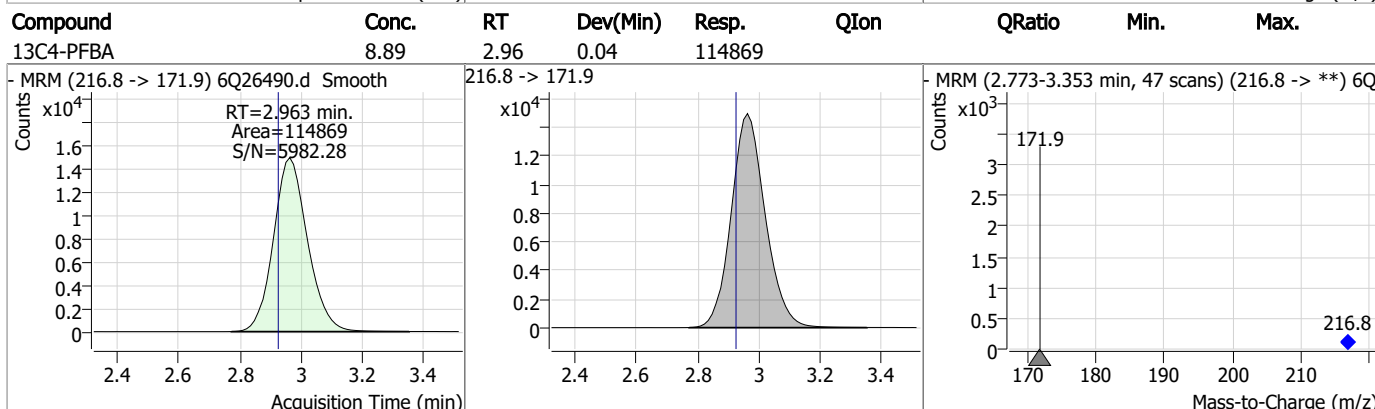
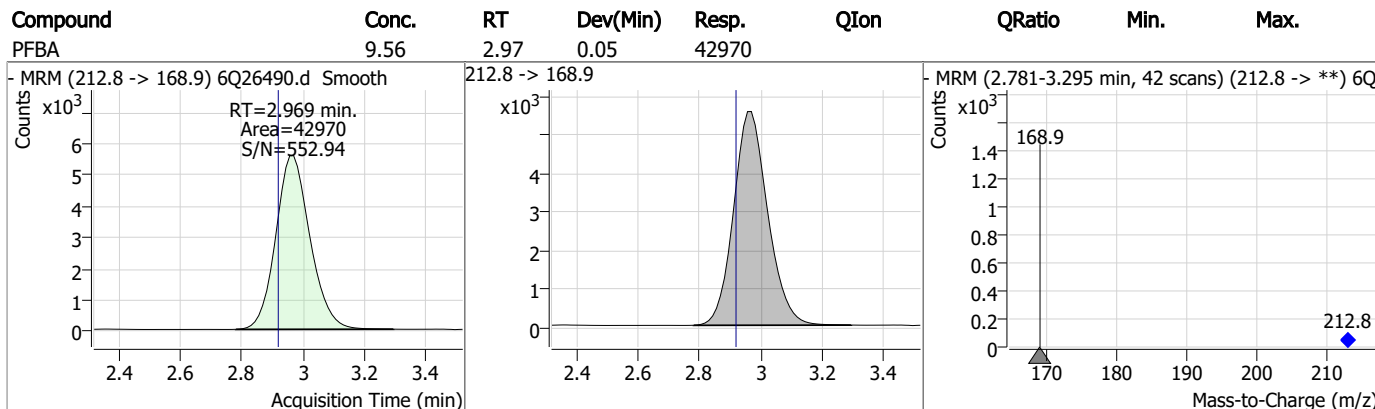
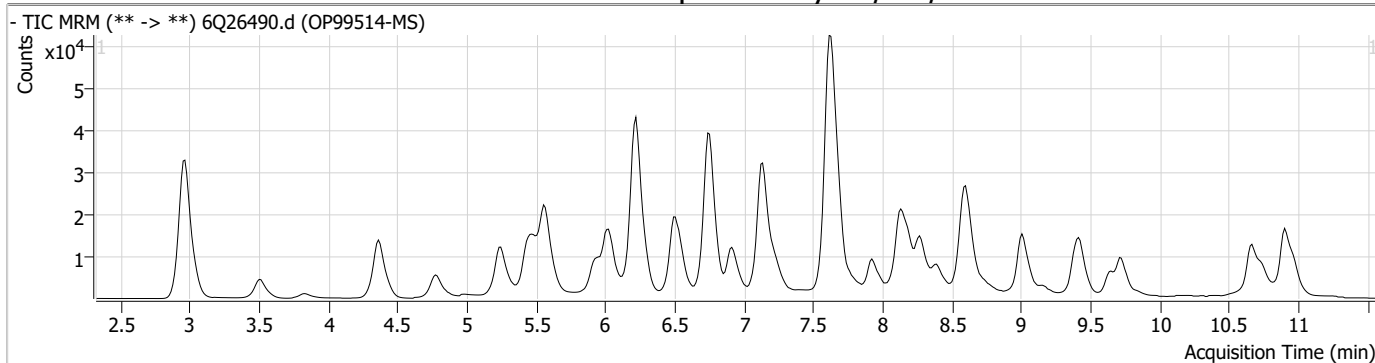
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.4.1

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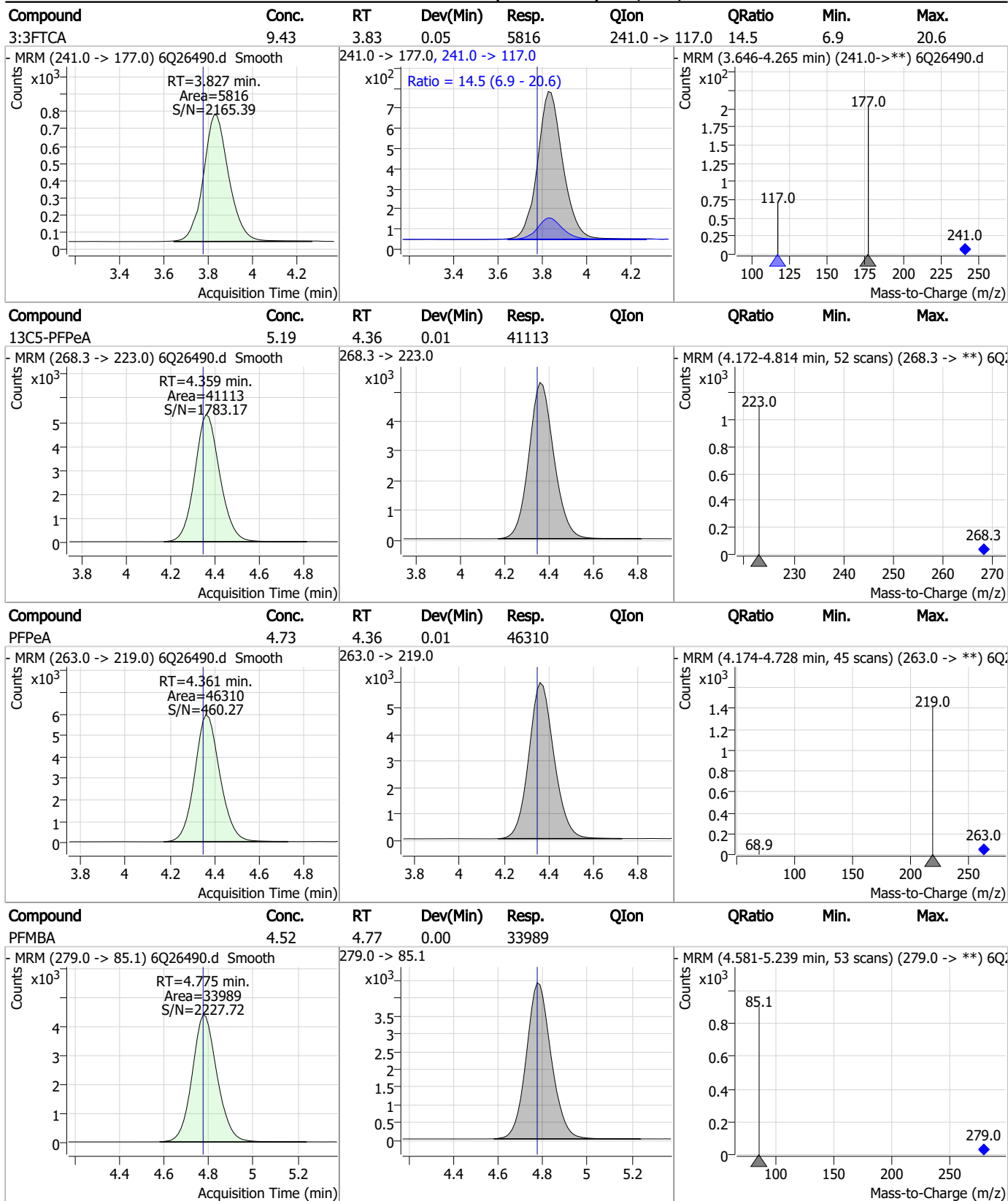


### Perfluorinated Compounds by LC/MS/MS



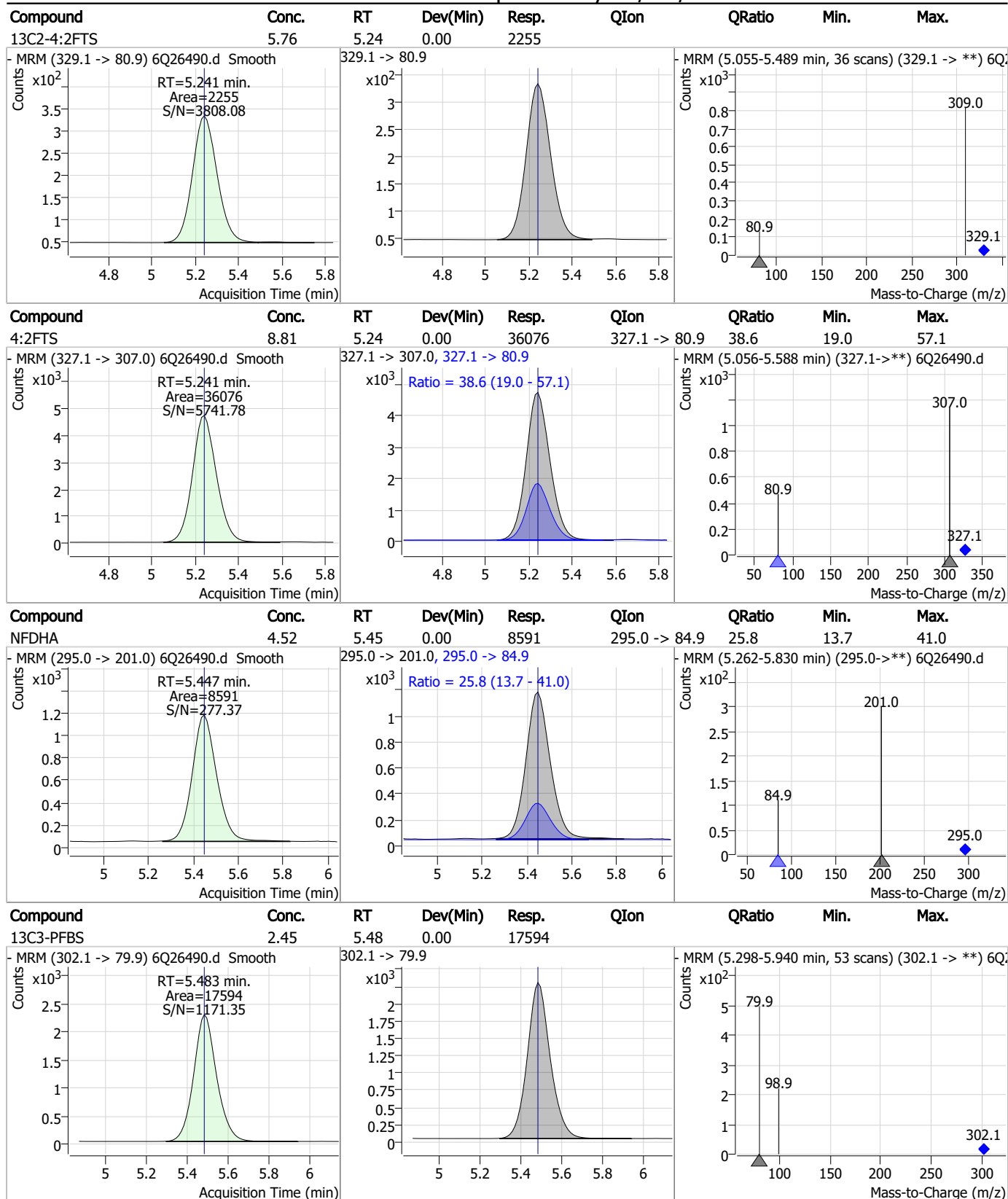
7.4.1  
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### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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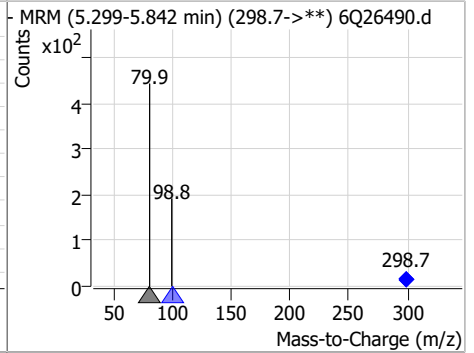
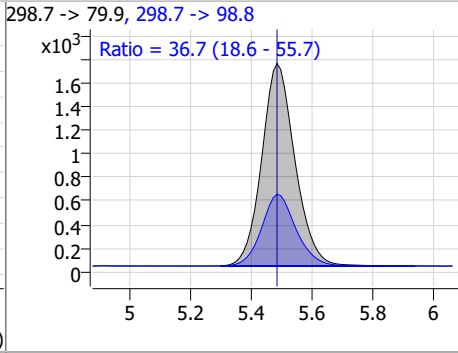
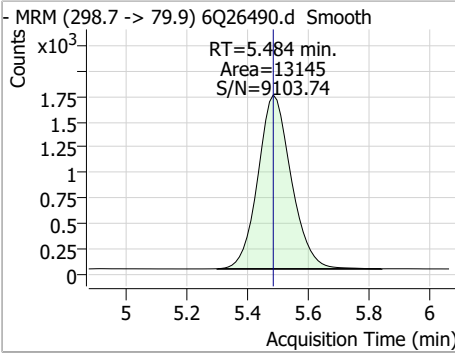
### Perfluorinated Compounds by LC/MS/MS



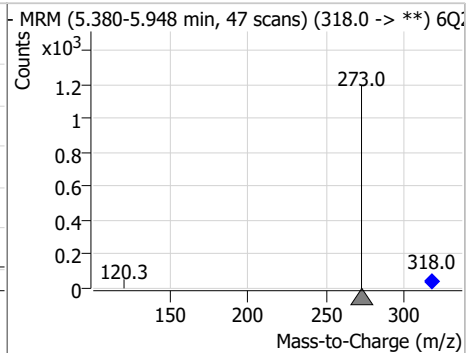
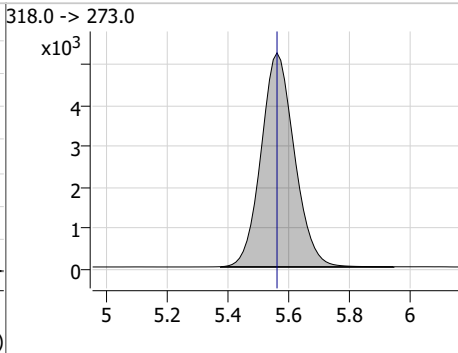
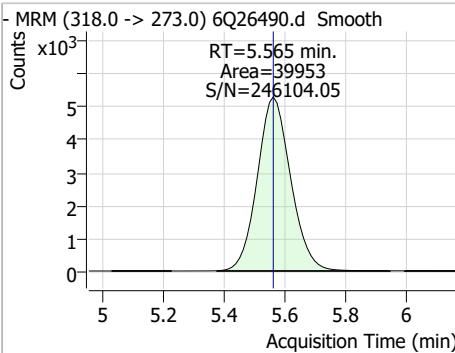
7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

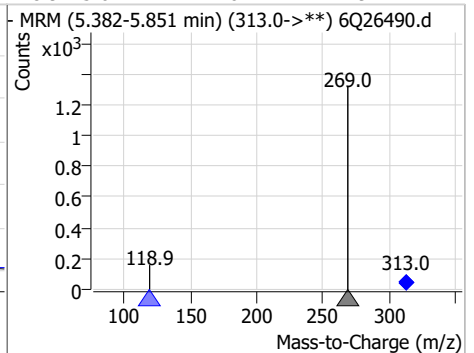
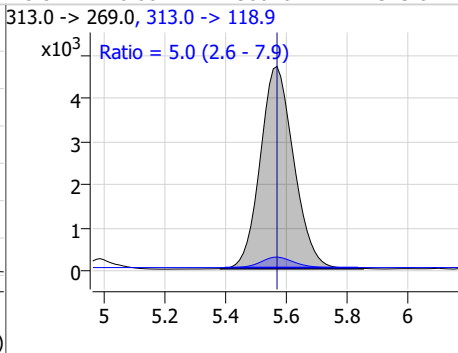
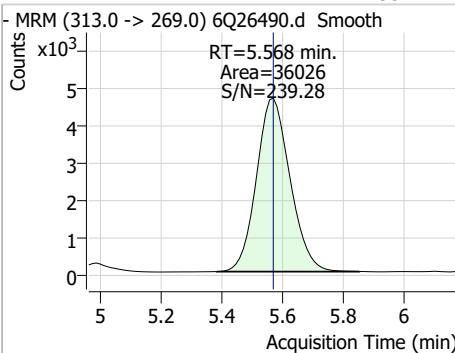
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.26	5.48	0.00	13145	298.7 -> 98.8	36.7	18.6	55.7



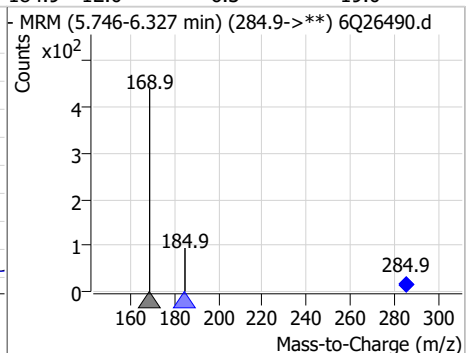
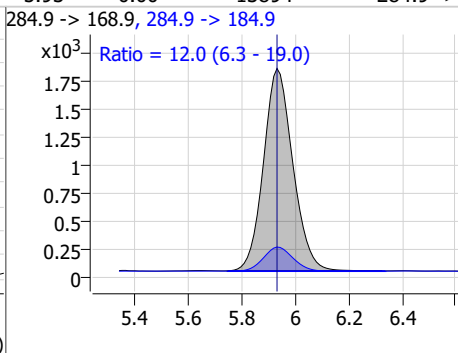
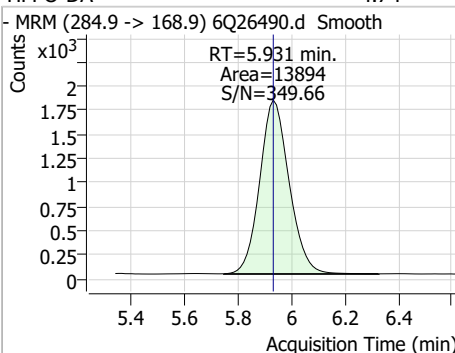
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.64	5.56	0.00	39953				



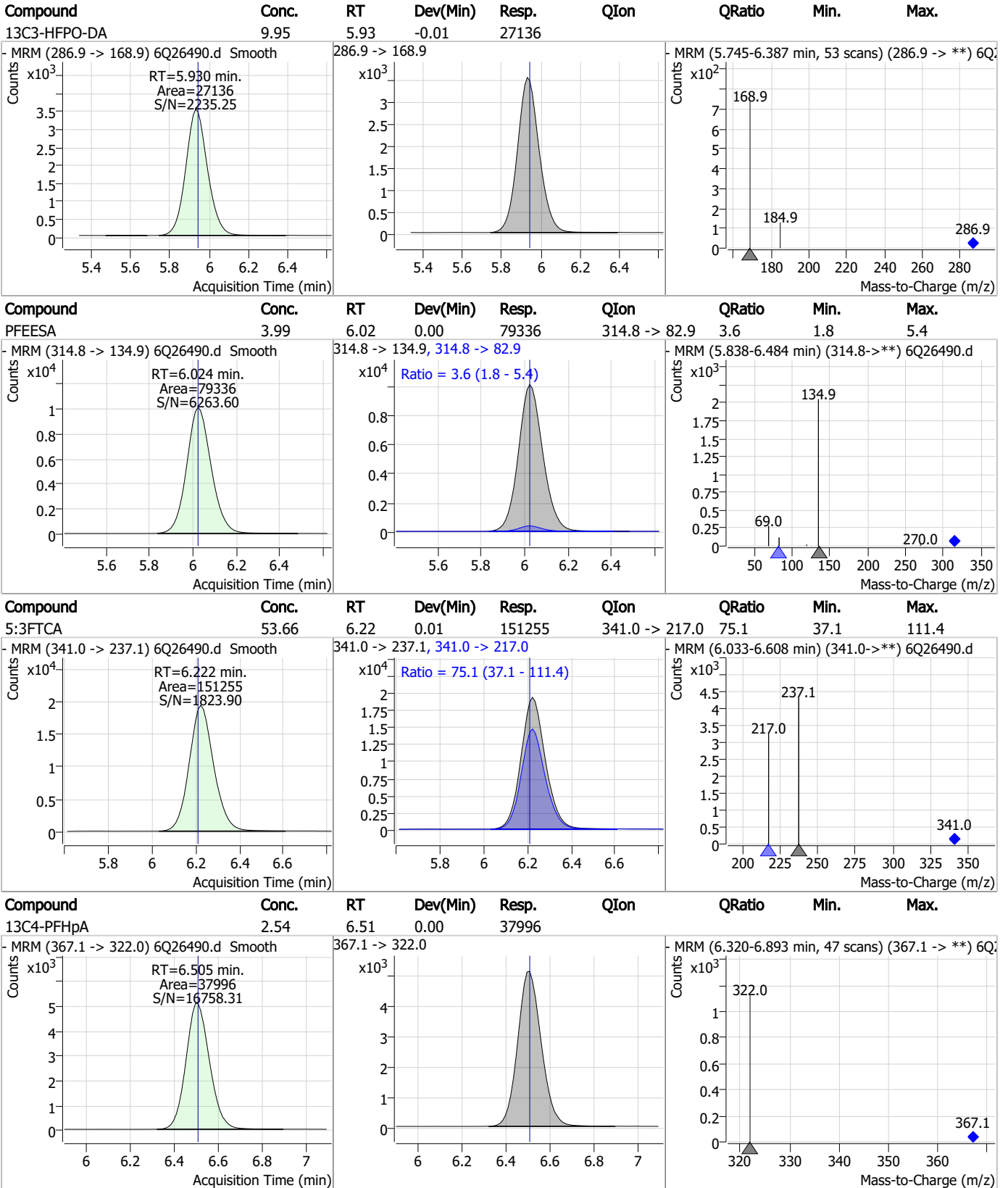
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.35	5.57	0.00	36026	313.0 -> 118.9	5.0	2.6	7.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.74	5.93	0.00	13894	284.9 -> 184.9	12.0	6.3	19.0



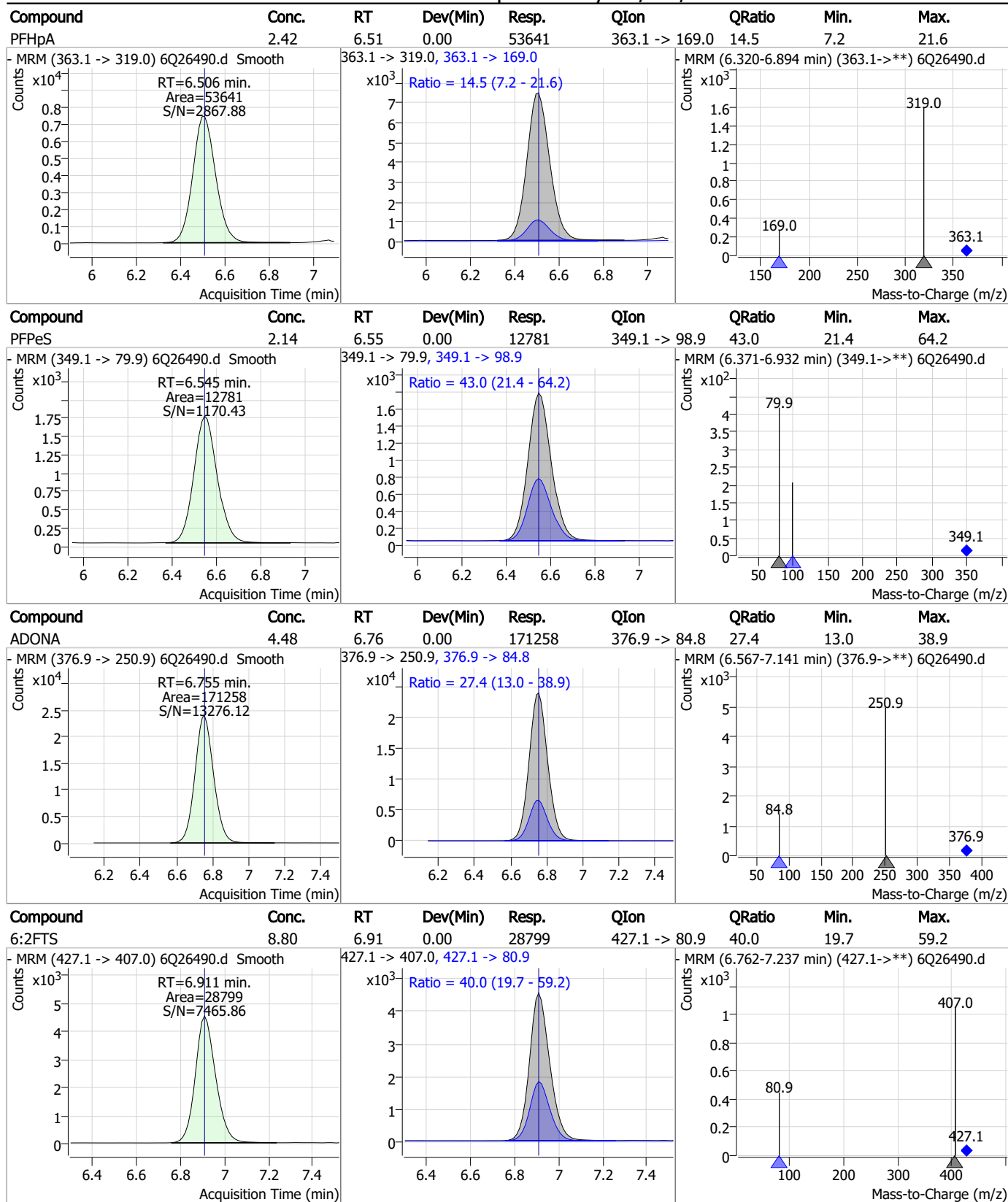
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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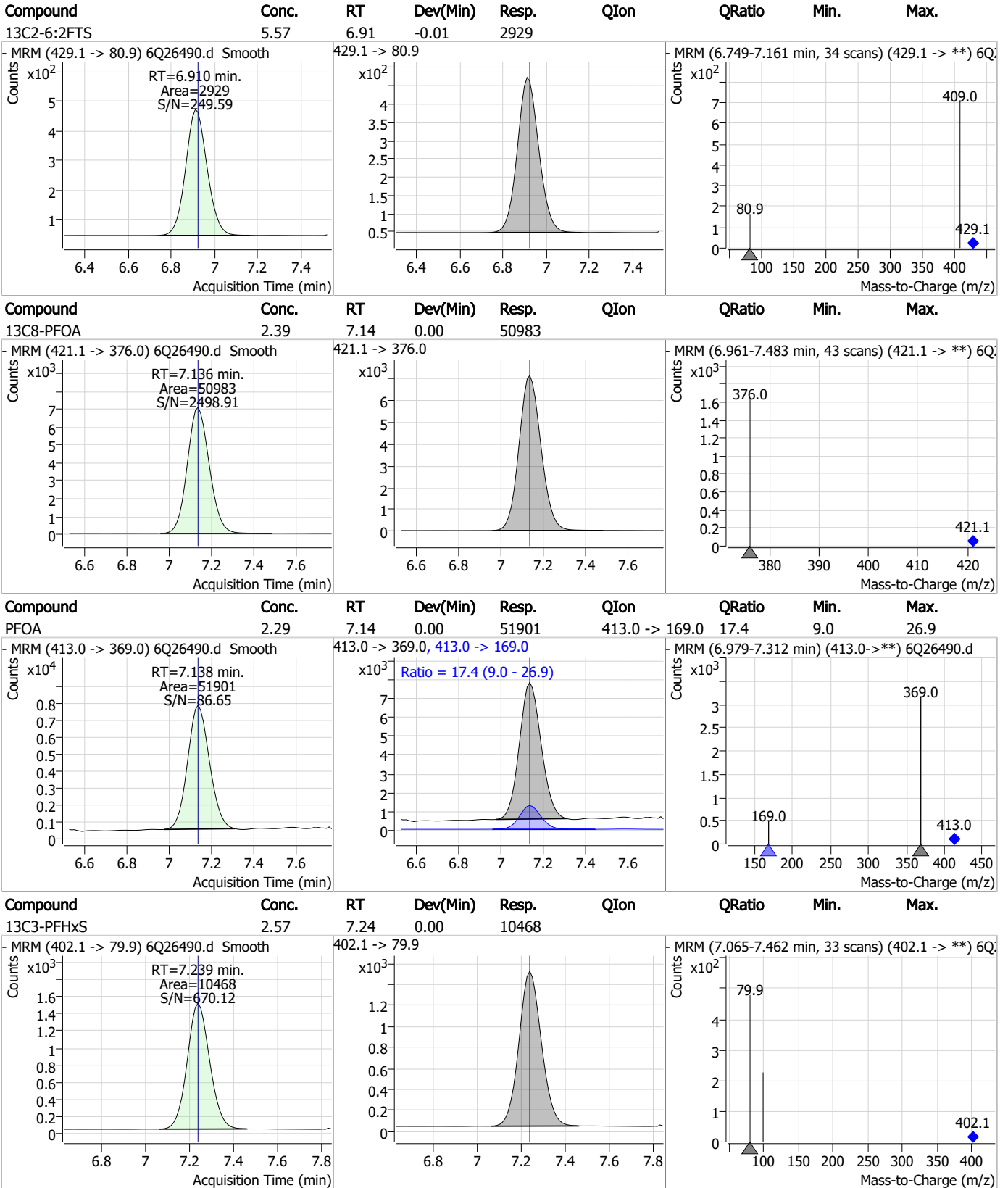
### Perfluorinated Compounds by LC/MS/MS



7.4.1

7

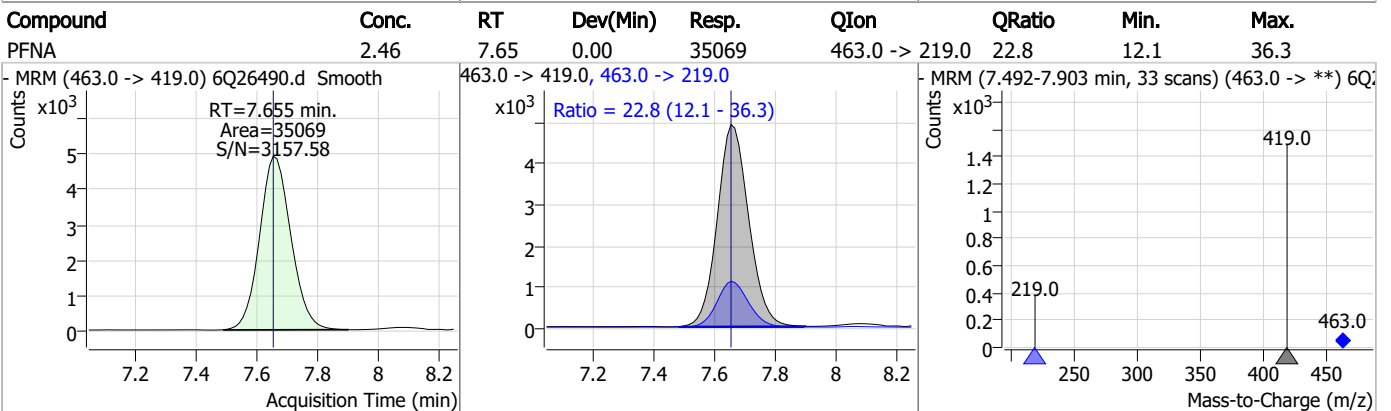
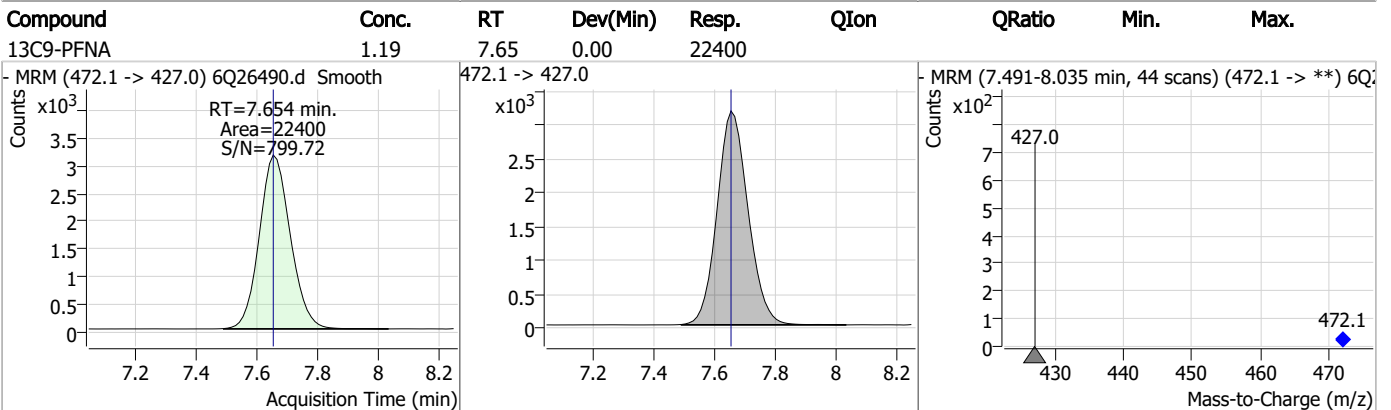
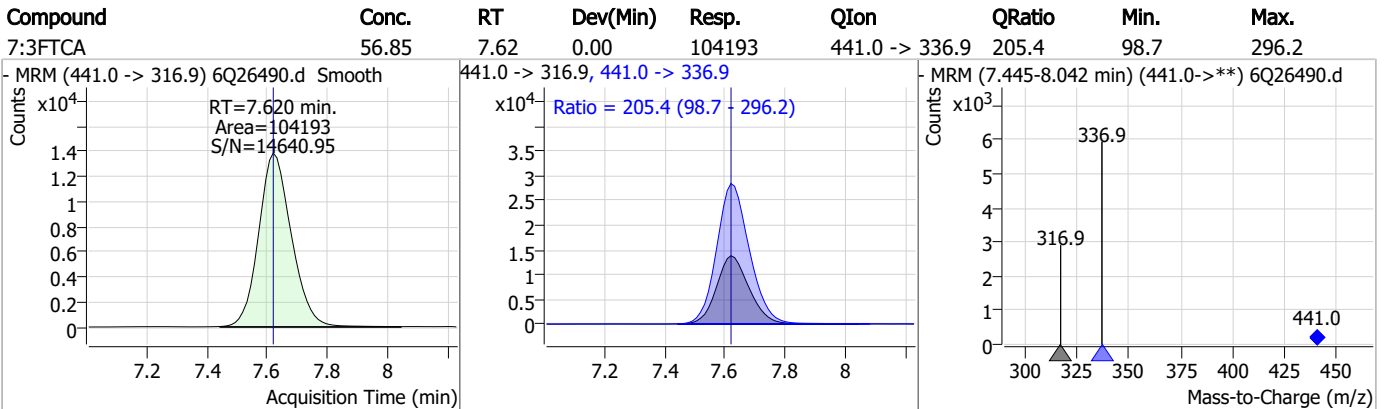
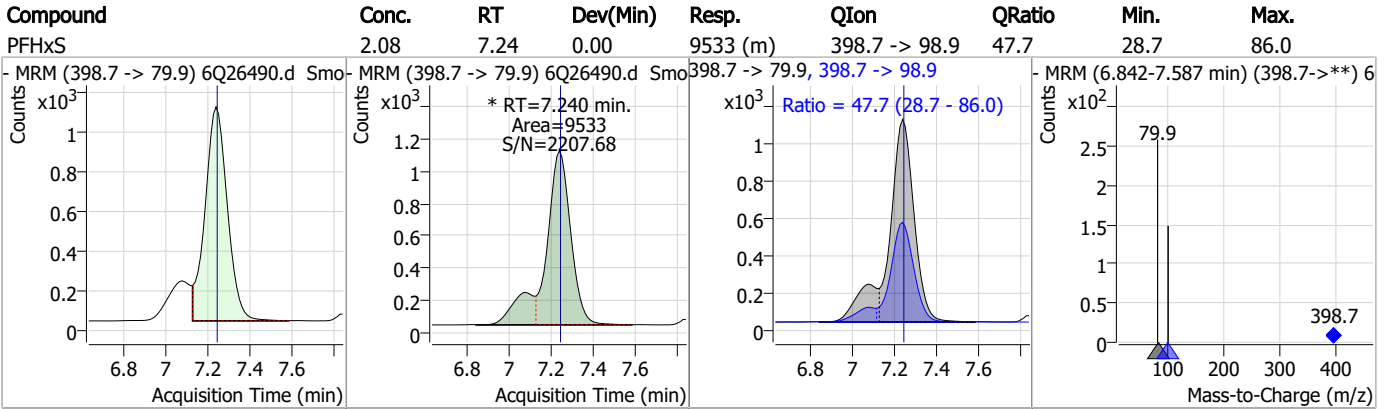
### Perfluorinated Compounds by LC/MS/MS



7.4.1

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### Perfluorinated Compounds by LC/MS/MS



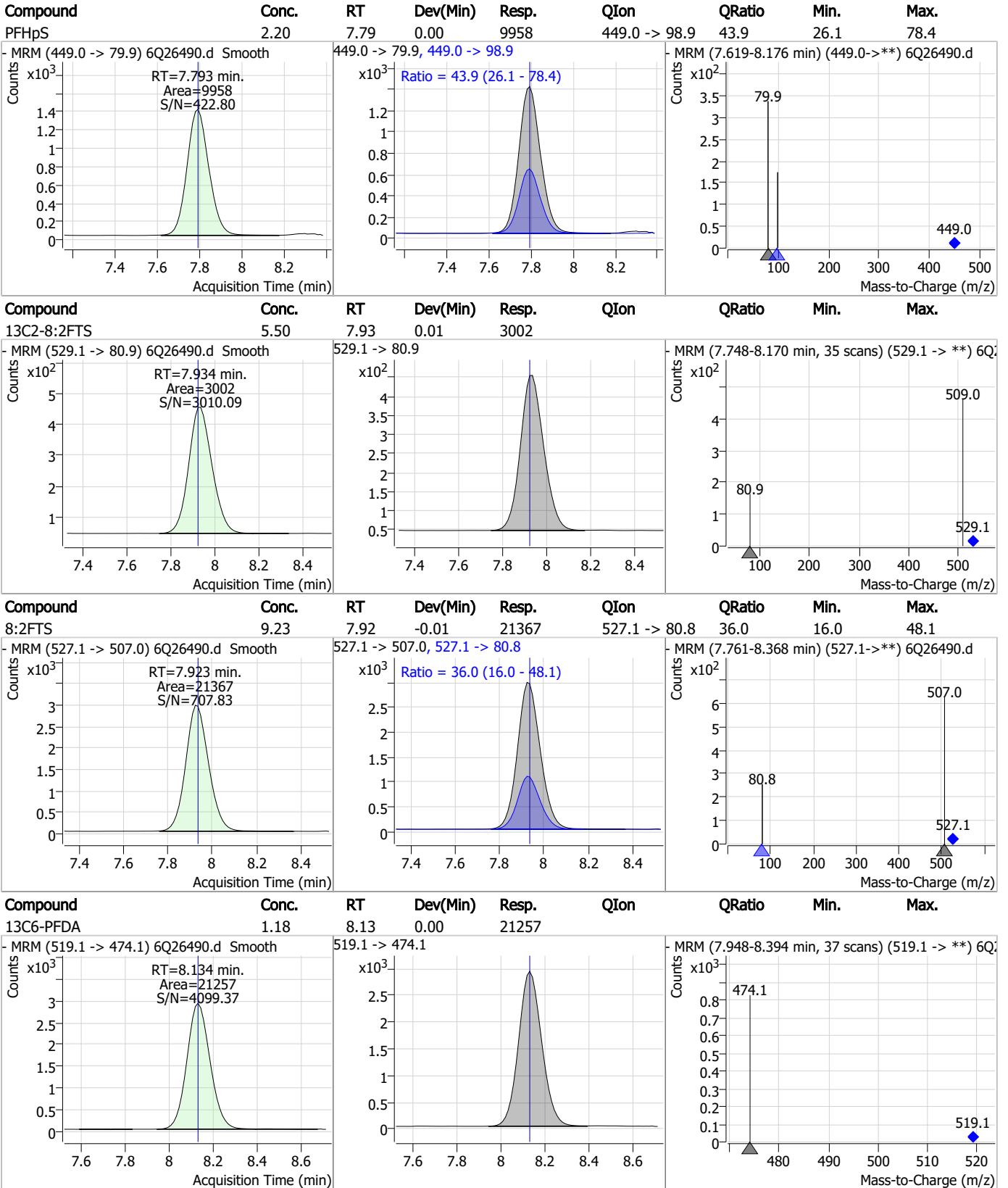
7.4.1

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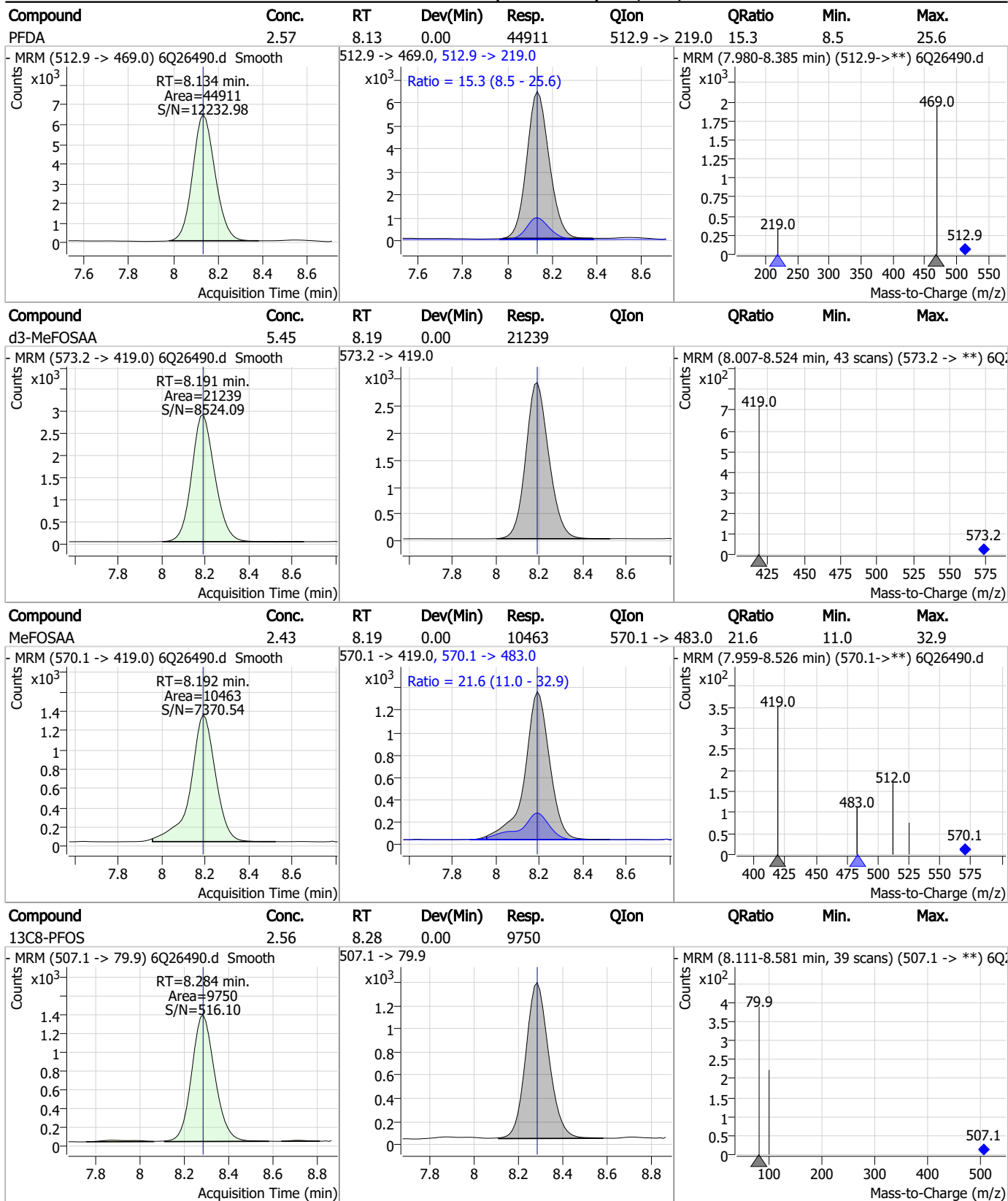
Perfluorinated Compounds by LC/MS/MS



7.4.1

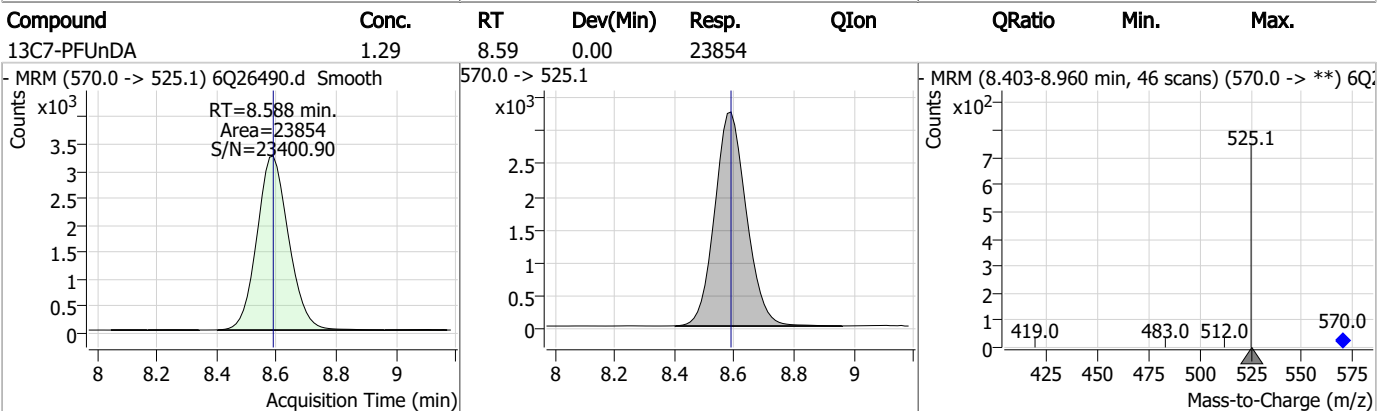
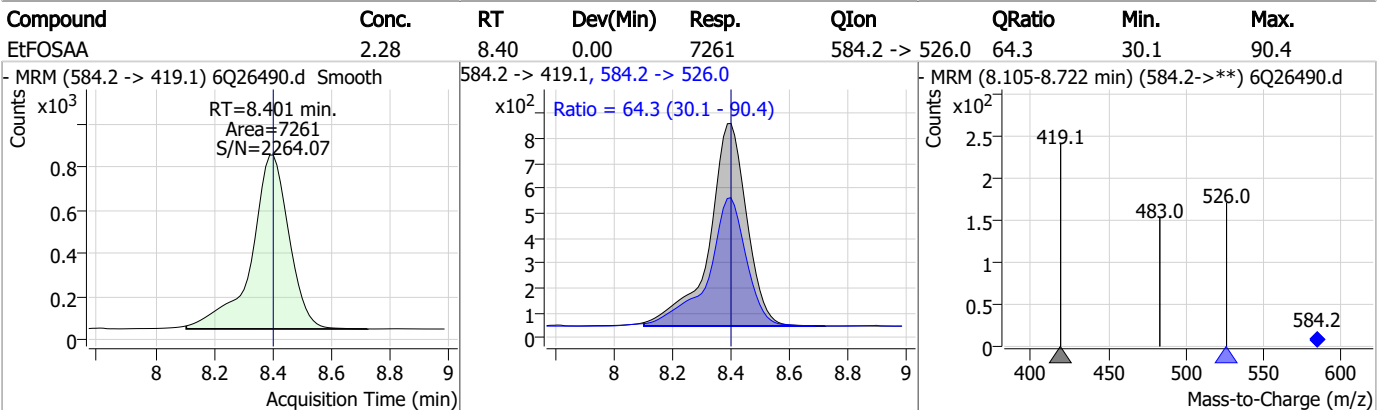
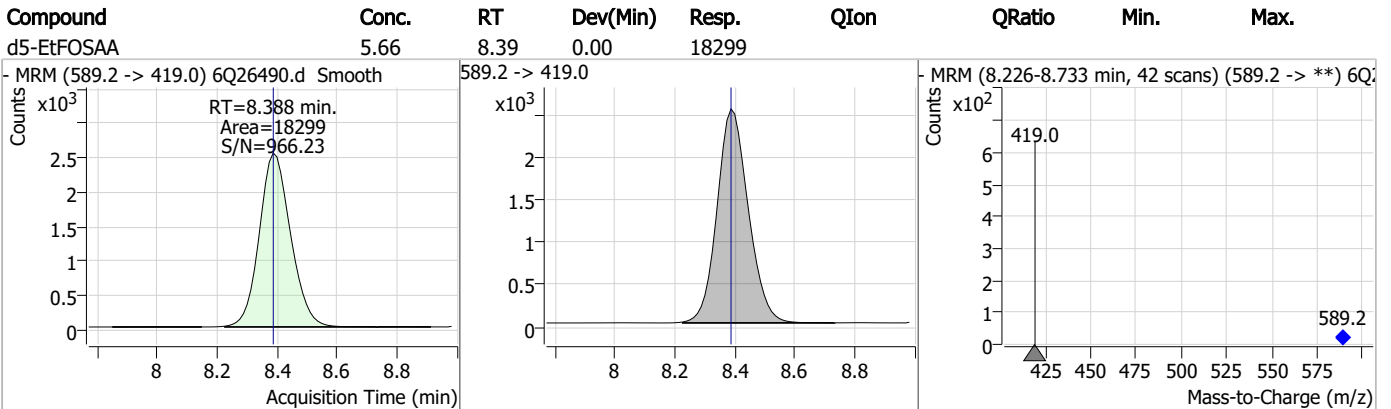
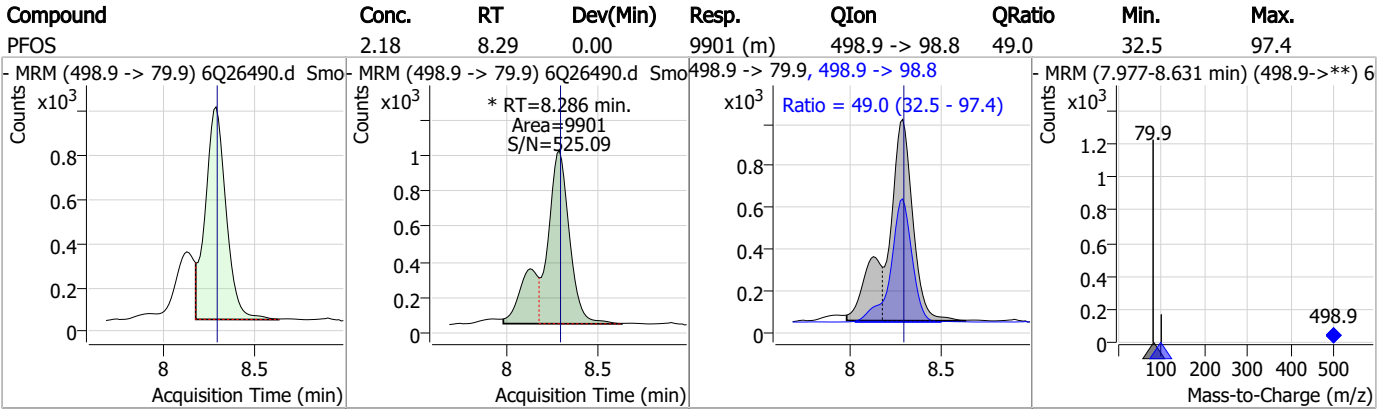
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### Perfluorinated Compounds by LC/MS/MS

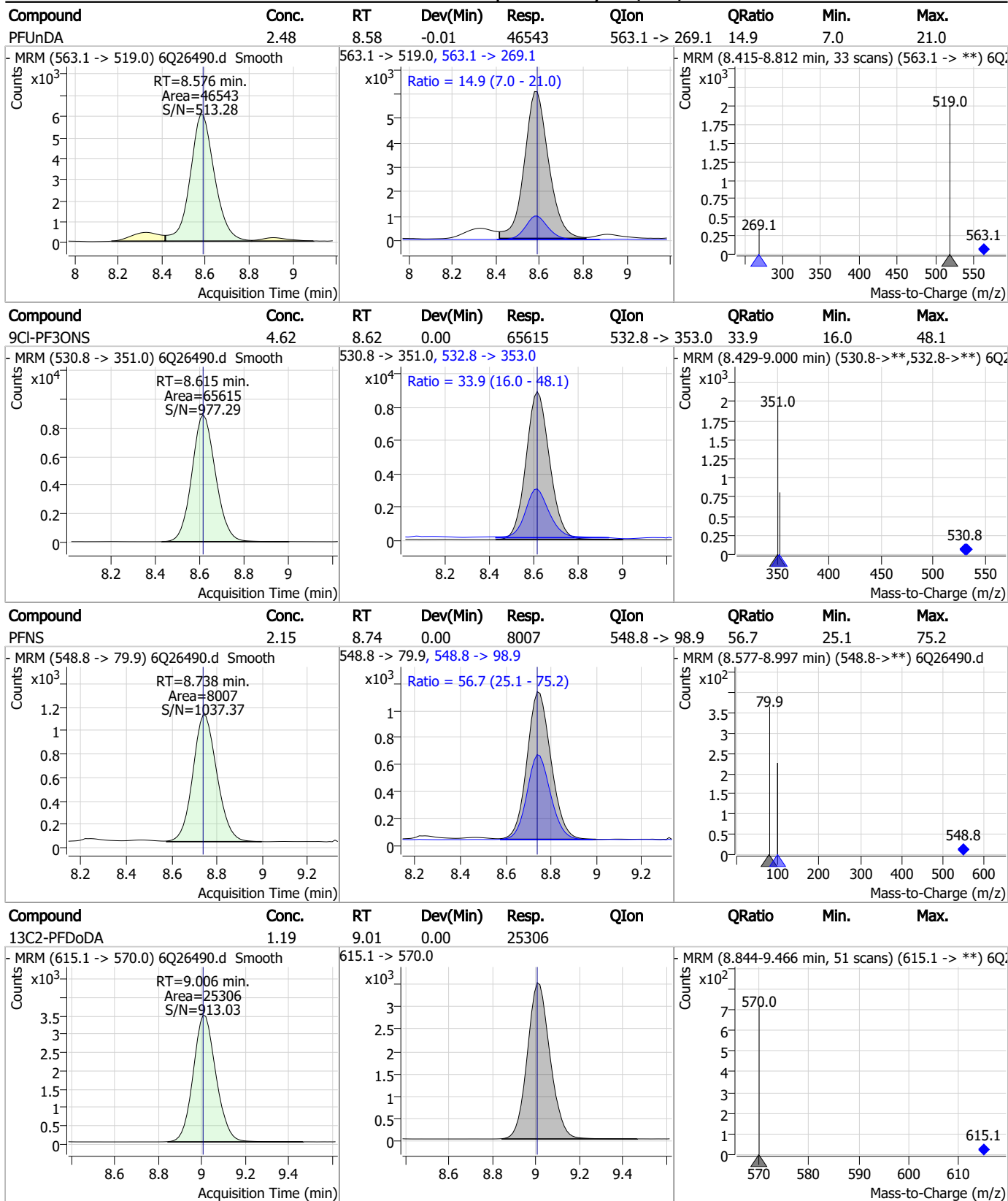


7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

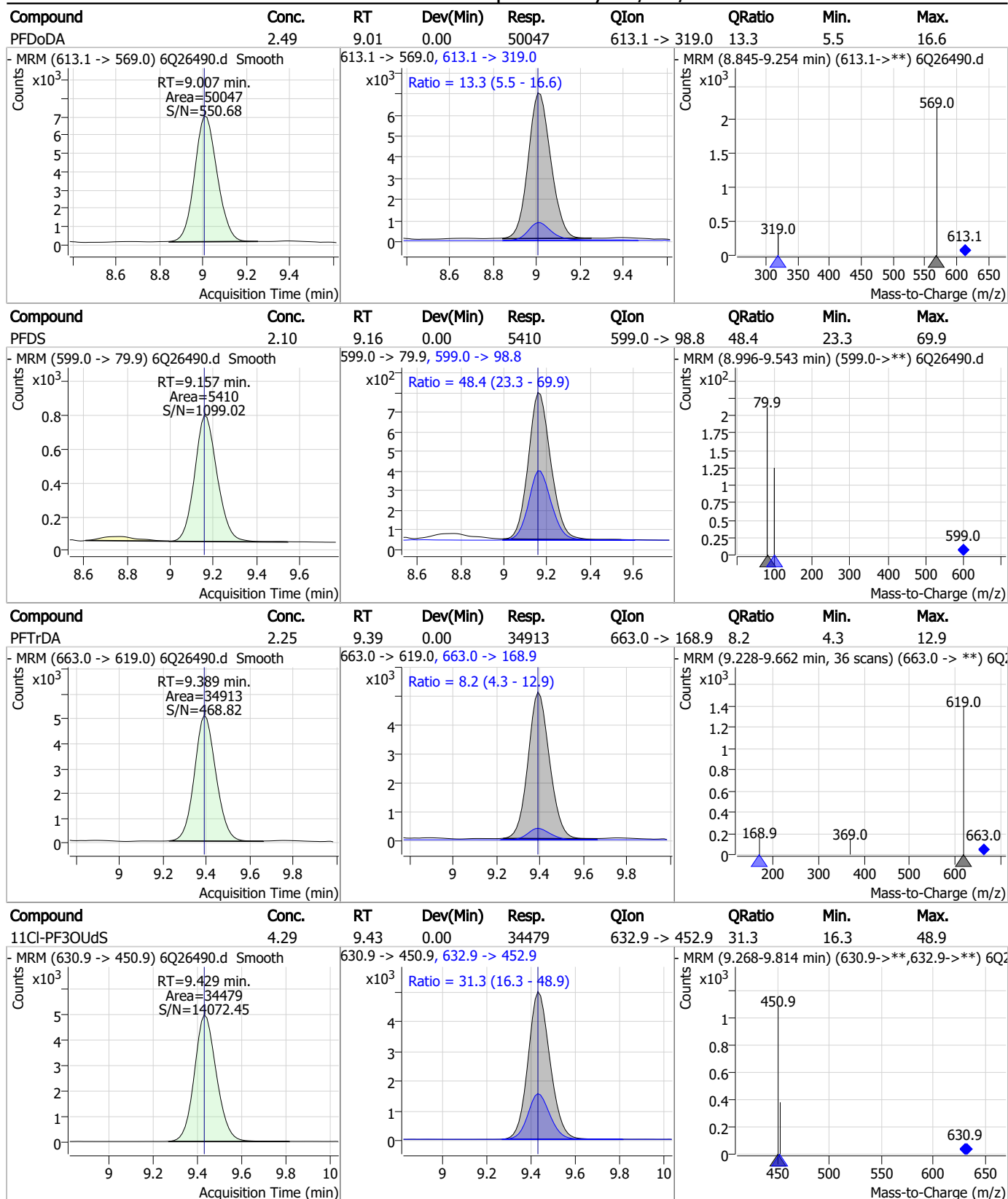


### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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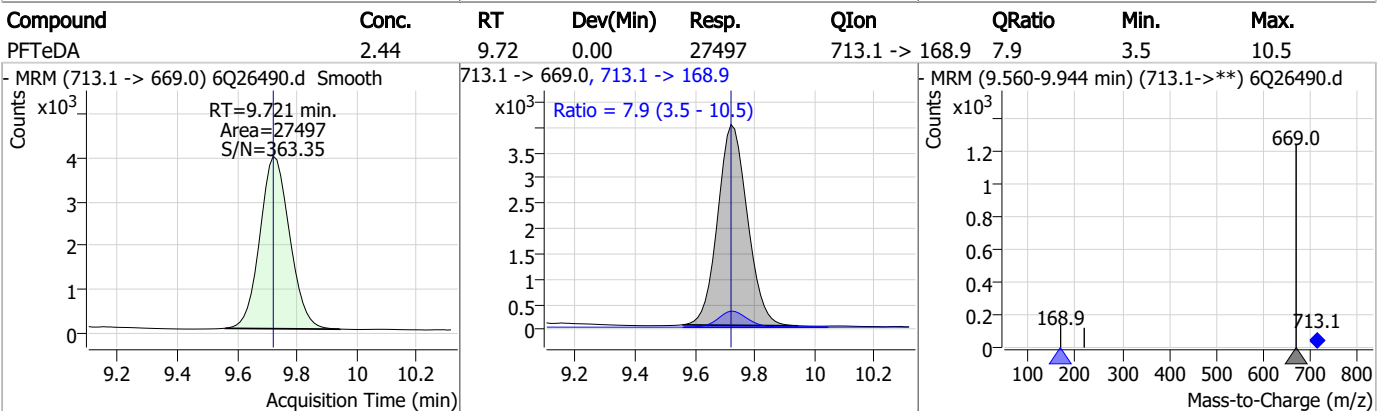
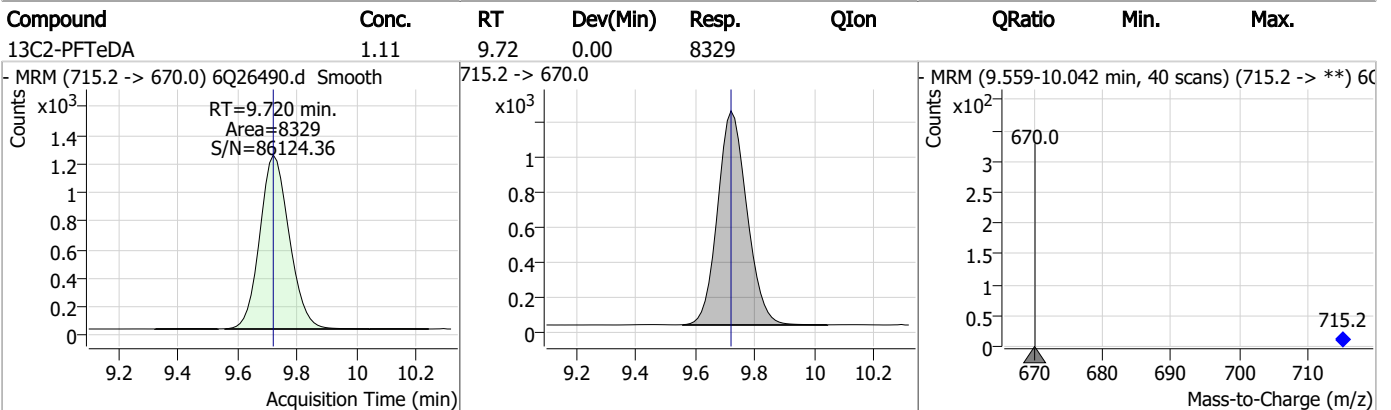
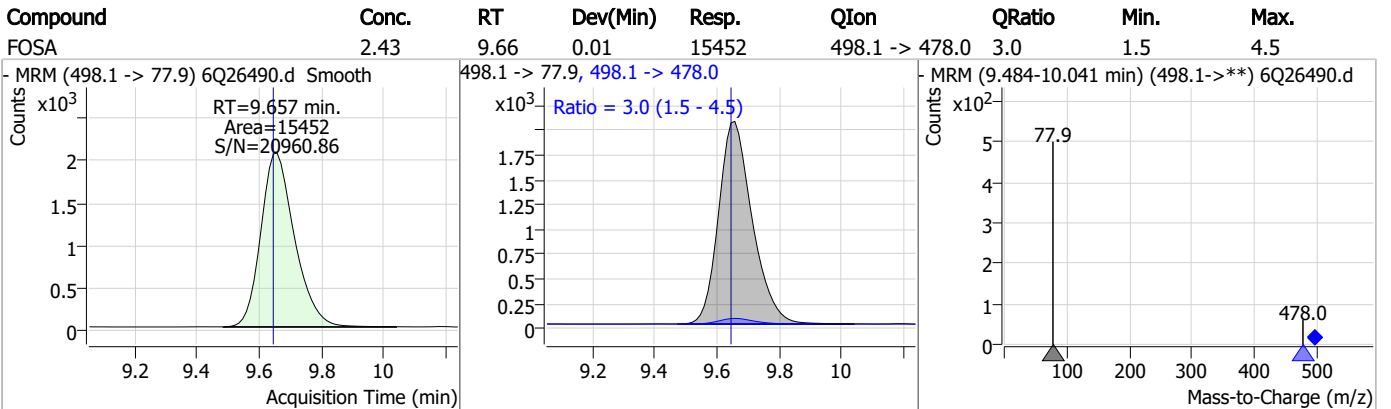
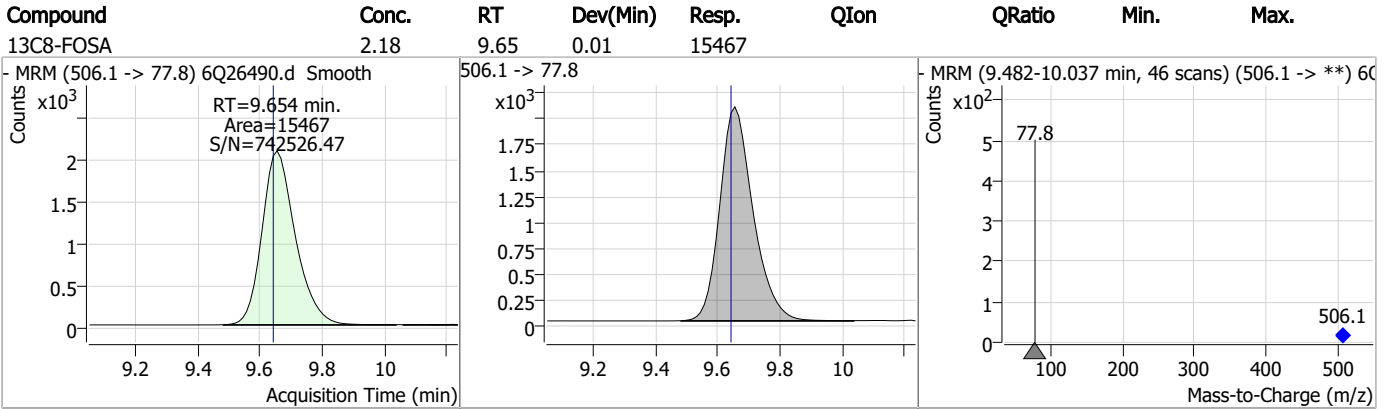
### Perfluorinated Compounds by LC/MS/MS



7.4.1

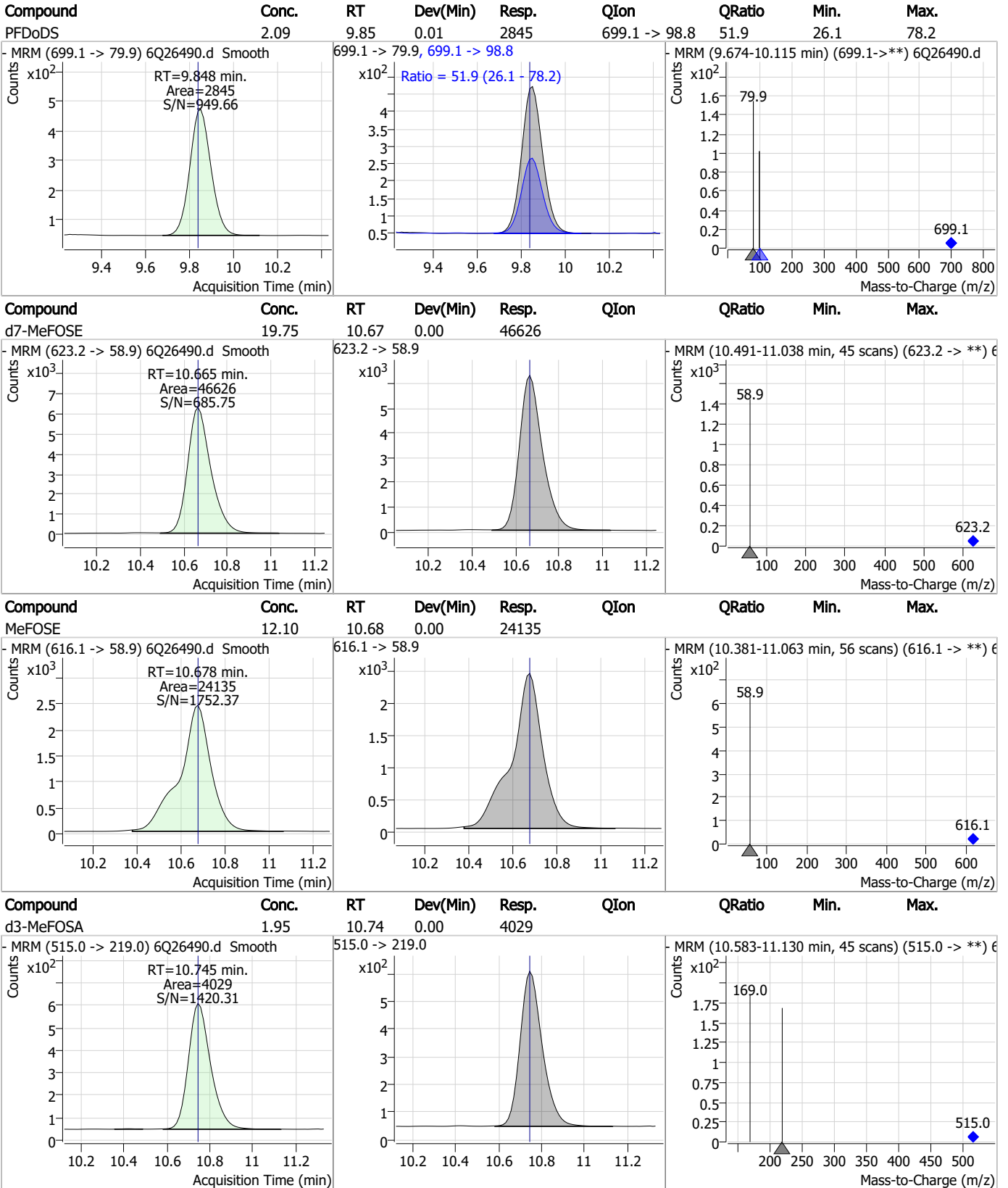
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### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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### Perfluorinated Compounds by LC/MS/MS

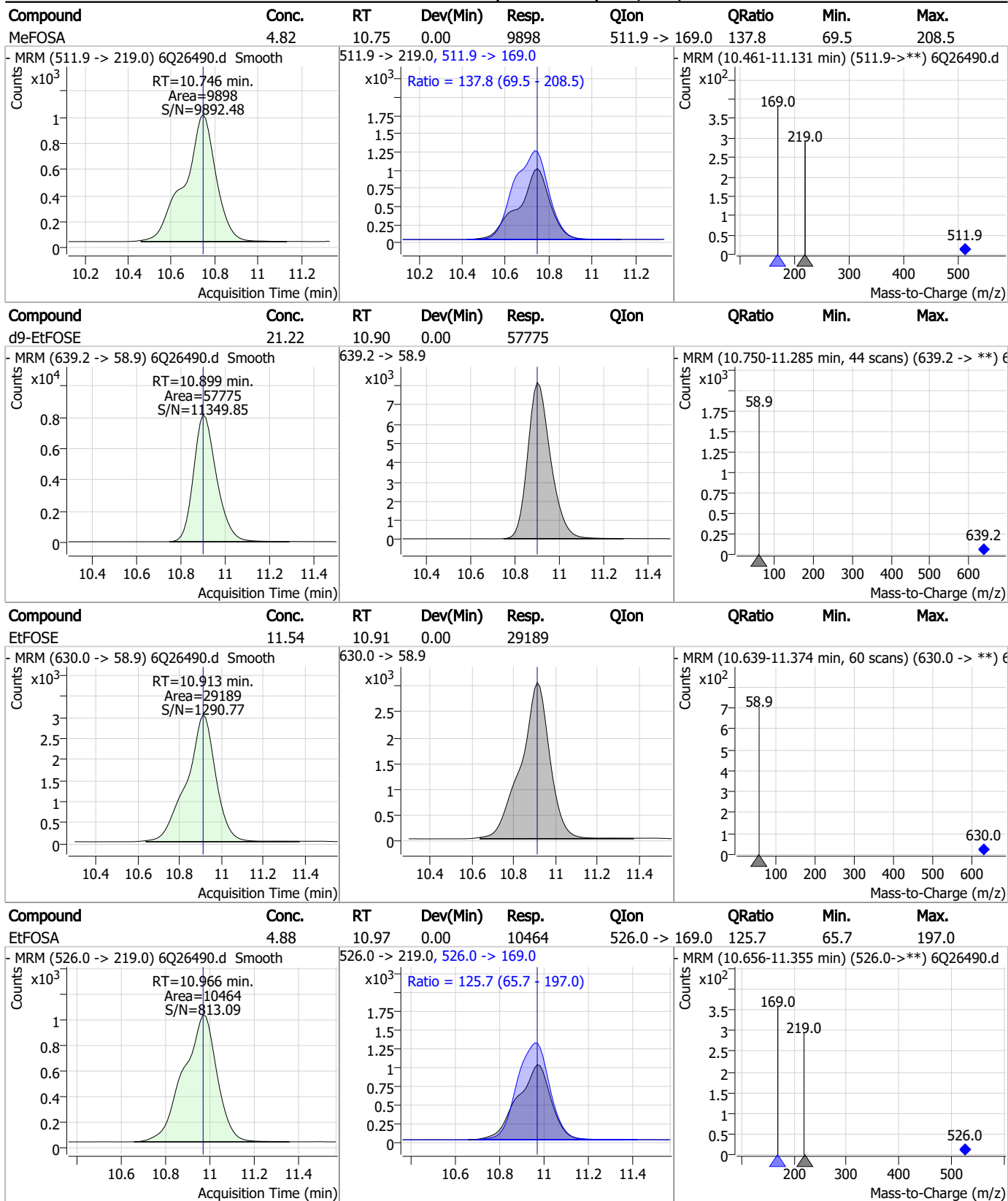


7.4.1

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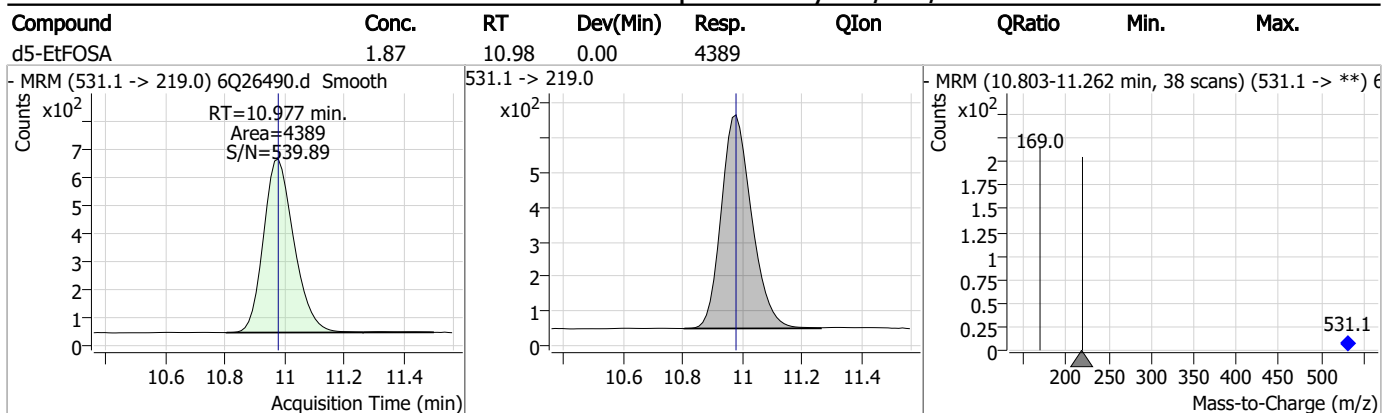
### Perfluorinated Compounds by LC/MS/MS



7.4.1  
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### Perfluorinated Compounds by LC/MS/MS



7.4.1  
7

# Manual Integration Approval Summary

Sample Number: OP99514-MS                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26490.D                      Analyst approved: 10/17/23 13:27 Martha Valls  
Injection Time: 10/16/23 21:29                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.4.1.1

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26494.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 10:26:48 PM  
 Sample Name : OP99514-DUP  
 Vial : P4-A9  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99514,S6Q372,560,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.963	216.8 -> 171.9	135818	10.00 µg/L	0.037
M5-PFPeA	4.359	268.3 -> 223.0	45526	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	44718	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	43037	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	58509	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	23047	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23062	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	23795	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	25560	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	8016	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	16652	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	19753	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	11010	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10360	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2204	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2894	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	3000	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	22107	5.00 µg/L	0.000
M3-HFPO-DA	5.942	286.9 -> 168.9	31367	10.00 µg/L	0.000
M5-EtFOSAA	8.388	589.2 -> 419.0	16112	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	54631	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	63928	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	5396	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	4678	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9828	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	54961	5.00 µg/L	0.037
18O2-PFHxS	7.238	403.0 -> 83.9	6858	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	62258	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21636	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21946	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	40659	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2204	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2894	5.04 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-8:2FTS	7.934	529.1 -> 80.9	3000	5.04 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFDoDA	9.006	615.1 -> 570.0	25560	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	8016	1.03 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.5%		
13C3-PFBS	5.483	302.1 -> 79.9	19753	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFHxS	7.239	402.1 -> 79.9	11010	2.48 µg/L	0.000

7.5.1  
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### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFBA	2.963	216.8 -> 171.9	135818	10.02 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.505	367.1 -> 322.0	43037	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C5-PFHxA	5.565	318.0 -> 273.0	44718	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C5-PFPeA	4.359	268.3 -> 223.0	45526	5.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C6-PFDA	8.134	519.1 -> 474.1	23062	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C7-PFUnDA	8.588	570.0 -> 525.1	23795	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-FOSA	9.654	506.1 -> 77.8	16652	2.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%	
13C8-PFOA	7.136	421.1 -> 376.0	58509	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-PFOS	8.284	507.1 -> 79.9	10360	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C9-PFNA	7.654	472.1 -> 427.0	23047	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSAA	8.191	573.2 -> 419.0	22107	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-HFPO-DA	5.942	286.9 -> 168.9	31367	10.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
d3-MeFOSA	10.745	515.0 -> 219.0	4678	2.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.8%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16112	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.1%	
d7-MeFOSE	10.665	623.2 -> 58.9	54631	20.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.7%	
d9-EtFOSE	10.899	639.2 -> 58.9	63928	21.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
d5-EtFOSA	10.977	531.1 -> 219.0	5396	2.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.2%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	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  
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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

7.5.1  
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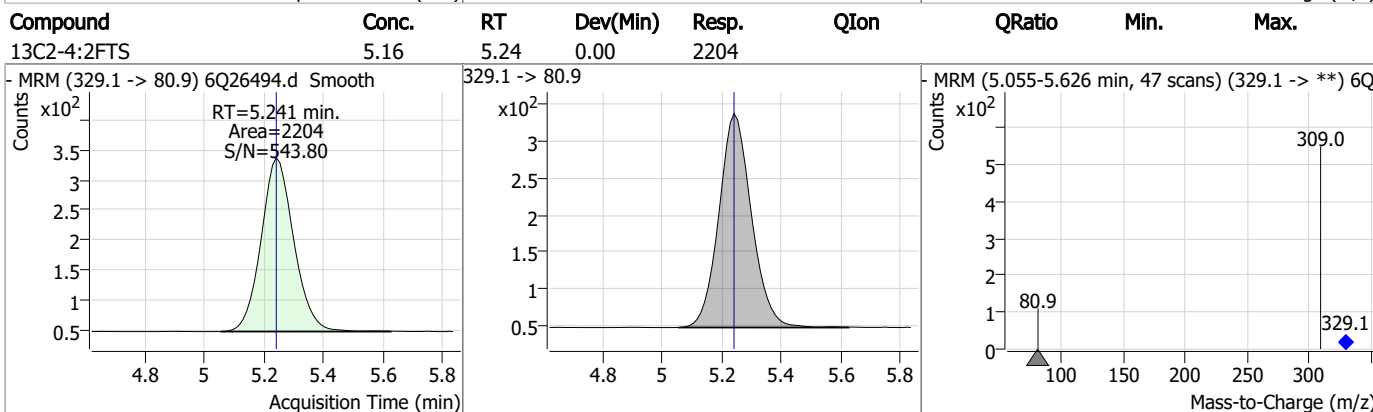
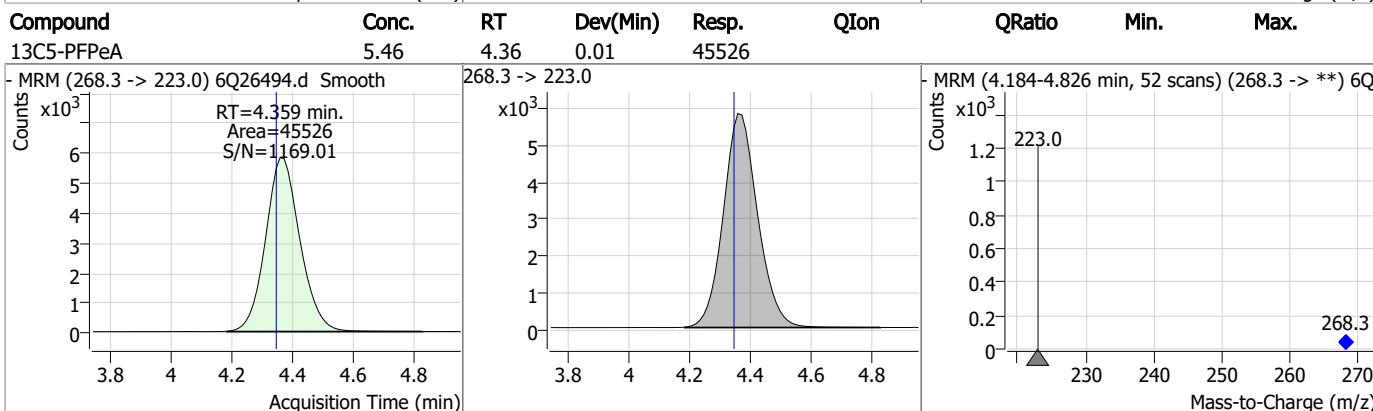
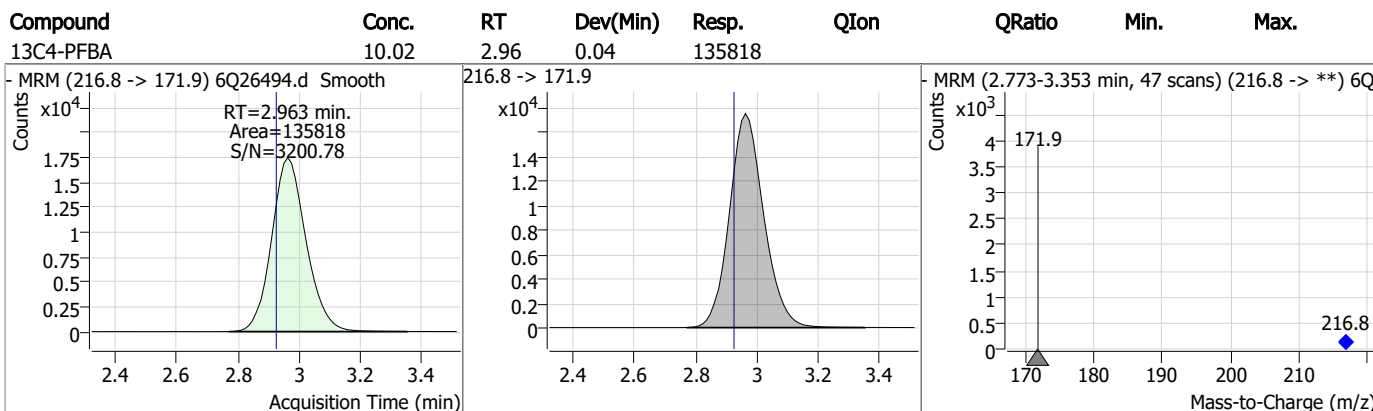
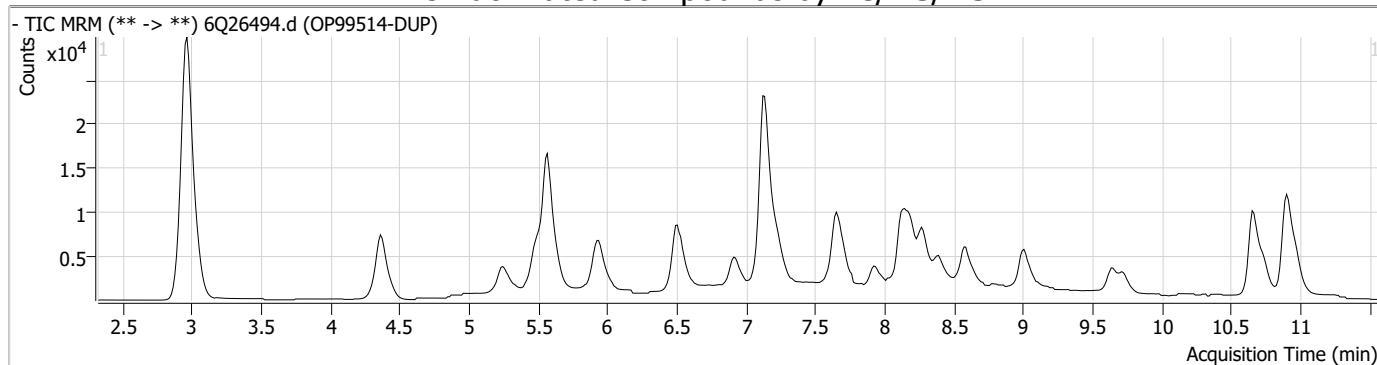
### Perfluorinated Compounds by LC/MS/MS

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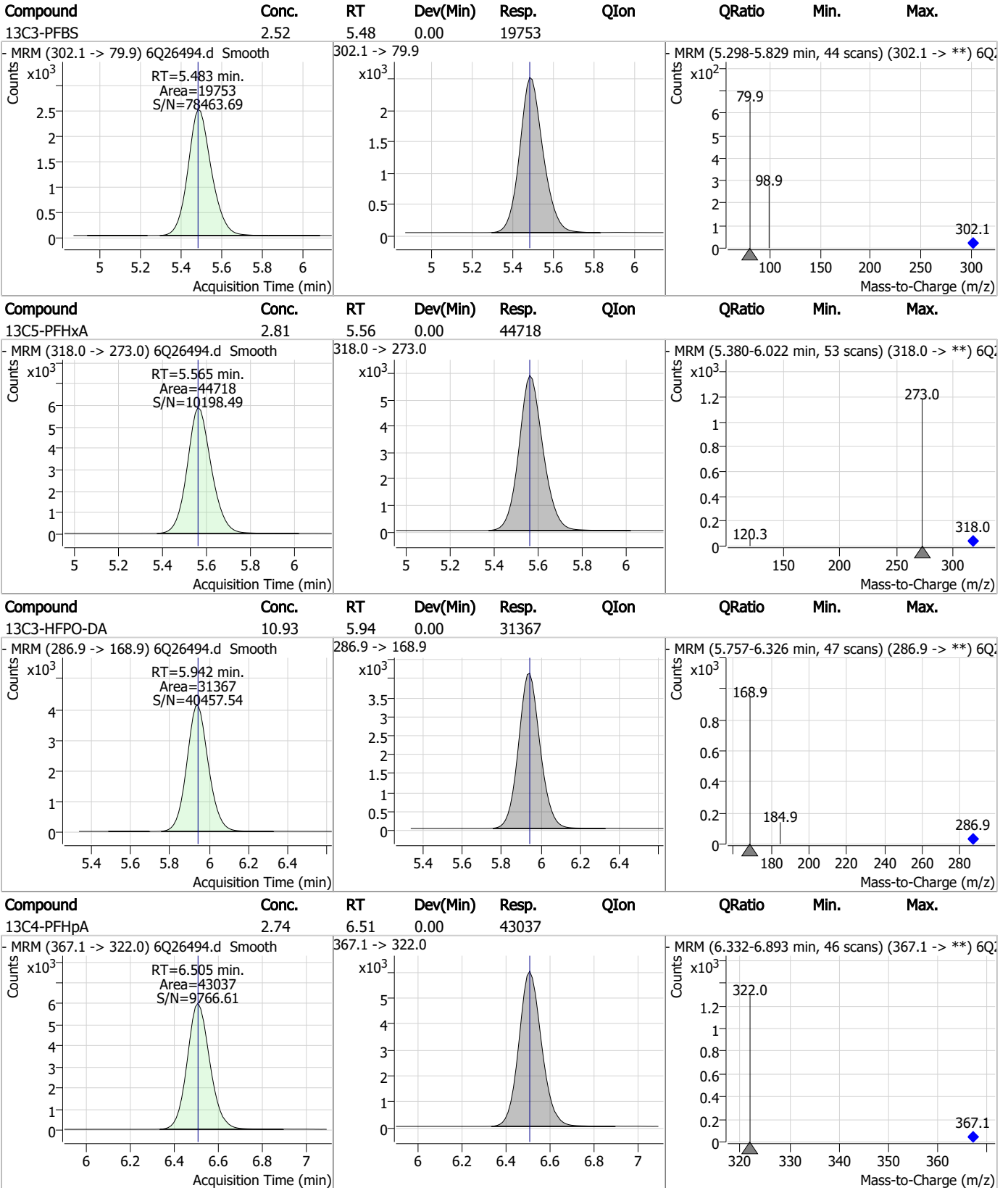
7.5.1

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### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

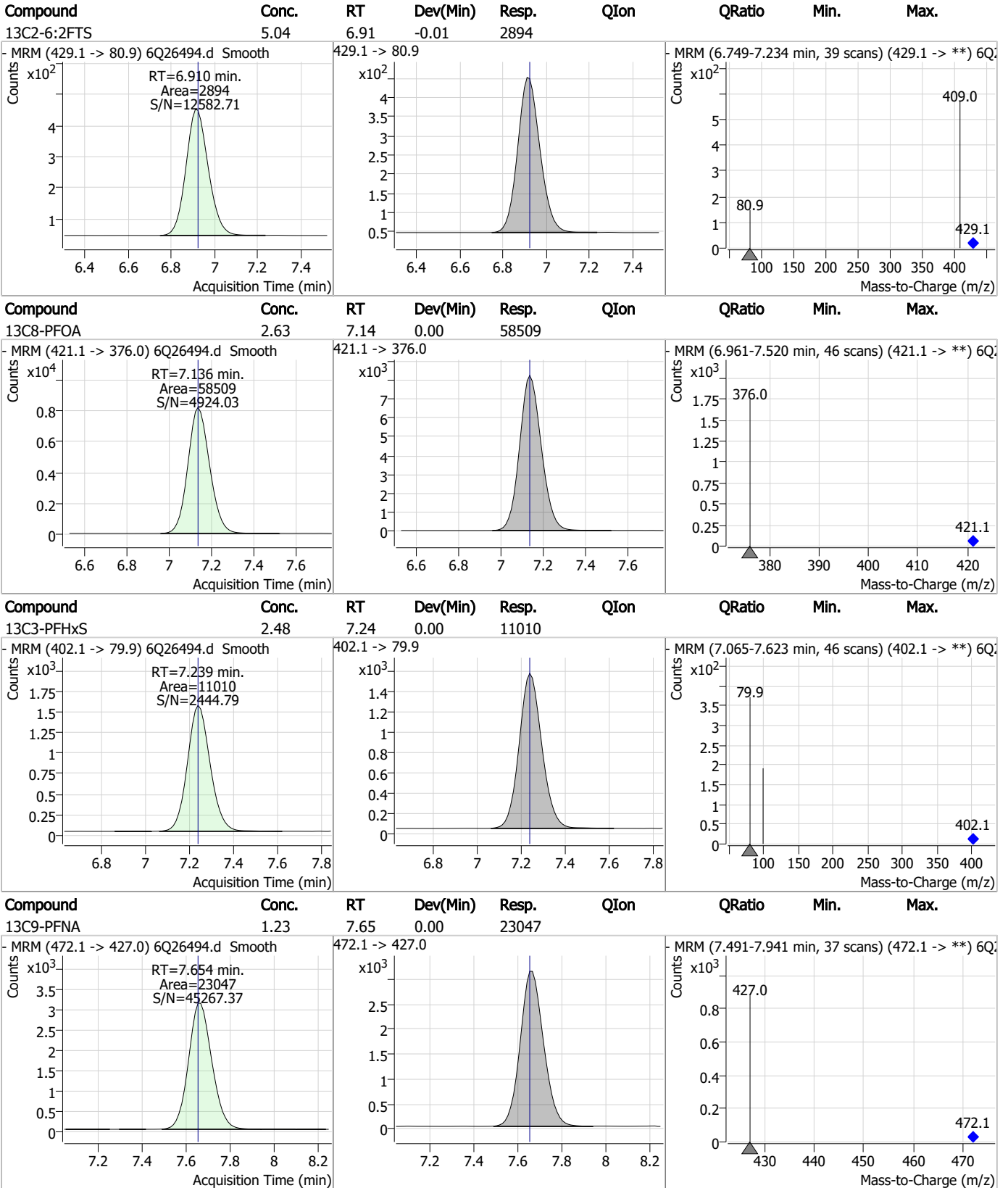


7.5.1

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### Perfluorinated Compounds by LC/MS/MS

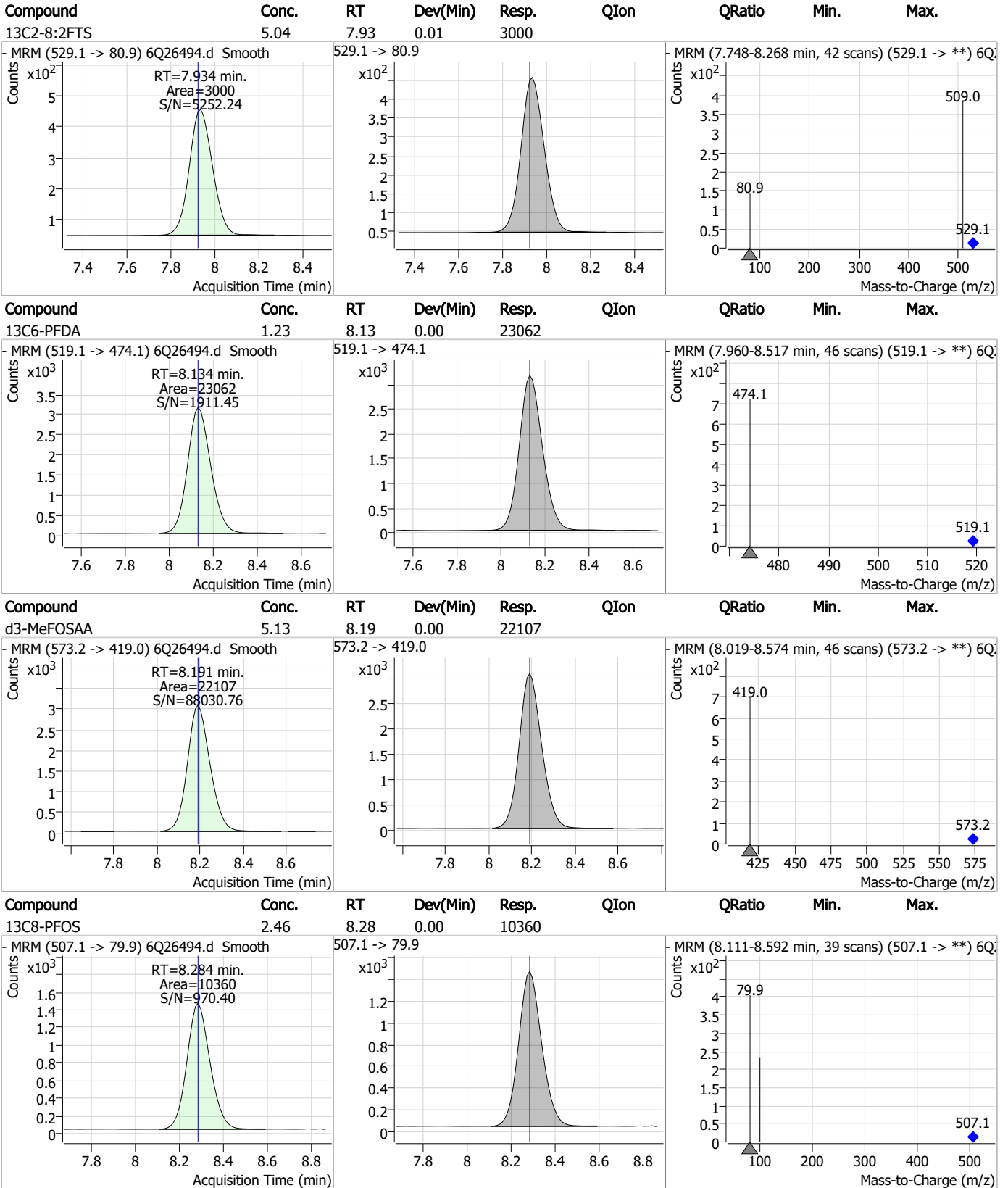


7.5.1

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### Perfluorinated Compounds by LC/MS/MS



7.5.1

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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.51	8.39	0.00	16112				
13C7-PFUnDA	1.23	8.59	0.00	23795				
13C2-PFDoDA	1.16	9.01	0.00	25560				
13C8-FOSA	2.12	9.65	0.01	16652				

7.5.1  
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### Perfluorinated Compounds by LC/MS/MS

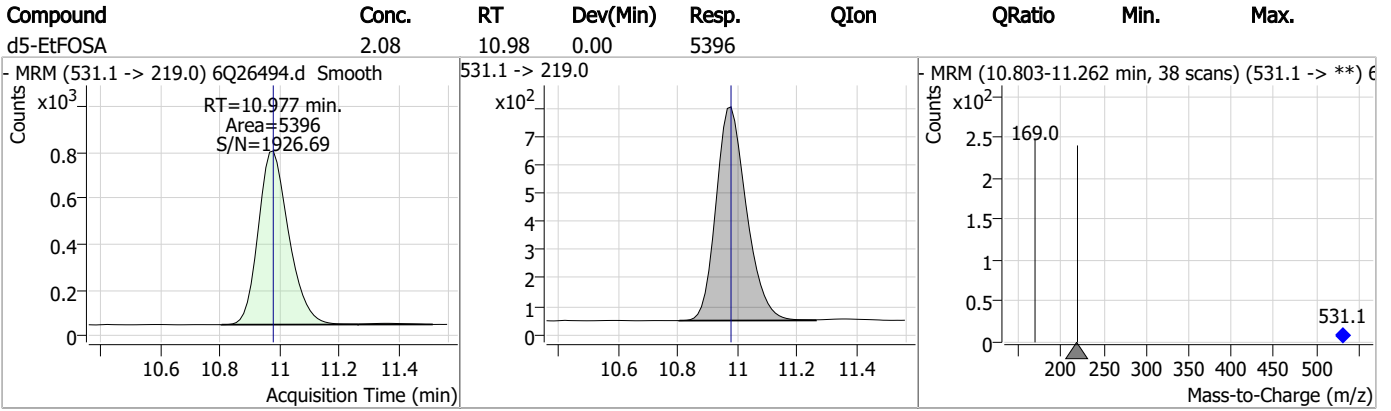
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.03	9.72	0.00	8016				
- MRM (715.2 -> 670.0) 6Q26494.d Smooth Counts x10 <sup>3</sup> RT=9.720 min. Area=8016 S/N=10597.48 Acquisition Time (min)			715.2 -> 670.0 Counts x10 <sup>3</sup> Acquisition Time (min)			- MRM (9.559-10.030 min, 39 scans) (715.2 -> **) 6Q26494.d Smooth Counts x10 <sup>2</sup> 670.0 715.2 Mass-to-Charge (m/z)		
d7-MeFOSE	20.92	10.67	0.00	54631				
- MRM (623.2 -> 58.9) 6Q26494.d Smooth Counts x10 <sup>4</sup> RT=10.665 min. Area=54631 S/N=1174.21 Acquisition Time (min)			623.2 -> 58.9 Counts x10 <sup>3</sup> Acquisition Time (min)			- MRM (10.491-11.050 min, 46 scans) (623.2 -> **) 6Q26494.d Smooth Counts x10 <sup>3</sup> 58.9 623.2 Mass-to-Charge (m/z)		
d3-MeFOSA	2.04	10.74	0.00	4678				
- MRM (515.0 -> 219.0) 6Q26494.d Smooth Counts x10 <sup>2</sup> RT=10.745 min. Area=4678 S/N=732.60 Acquisition Time (min)			515.0 -> 219.0 Counts x10 <sup>2</sup> Acquisition Time (min)			- MRM (10.590-11.130 min, 44 scans) (515.0 -> **) 6Q26494.d Smooth Counts x10 <sup>2</sup> 169.0 515.0 Mass-to-Charge (m/z)		
d9-EtFOSE	21.23	10.90	0.00	63928				
- MRM (639.2 -> 58.9) 6Q26494.d Smooth Counts x10 <sup>4</sup> RT=10.899 min. Area=63928 S/N=25047.05 Acquisition Time (min)			639.2 -> 58.9 Counts x10 <sup>3</sup> Acquisition Time (min)			- MRM (10.750-11.359 min, 50 scans) (639.2 -> **) 6Q26494.d Smooth Counts x10 <sup>3</sup> 58.9 639.2 Mass-to-Charge (m/z)		

7.5.1

7



Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Natasha Gumtie  
 10/17/23 16:39

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26470.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 4:38:33 PM  
 Sample Name : RT TDCA  
 Vial : P1-B3  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s6q372 TDCA.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)	QValue
<b>Internal Standards</b>						
M8-PFOS	8.286	507.1 -> 79.9	14471	2.50 µg/L	0.000	
13C4-PFOS	8.287	502.8 -> 79.9	13784	2.50 µg/L	0.000	
<b>System Monitoring Compounds</b>						
13C8-PFOS	8.286	507.1 -> 79.9	14471	2.66 µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.5%			
<b>Target Compounds</b>						
PFOS	8.275	498.9 -> 79.9 498.9 -> 98.8	14552 7318	2.94 µg/L	m	97
TCDCa	6.712	498.9 -> 79.9	2537	3.80 ng/ml		100
TDCA	6.861	498.9 -> 79.9	2853	4.72 ng/ml		100
TUDCA	5.873	498.9 -> 79.9	3921	3.06 ng/ml		100

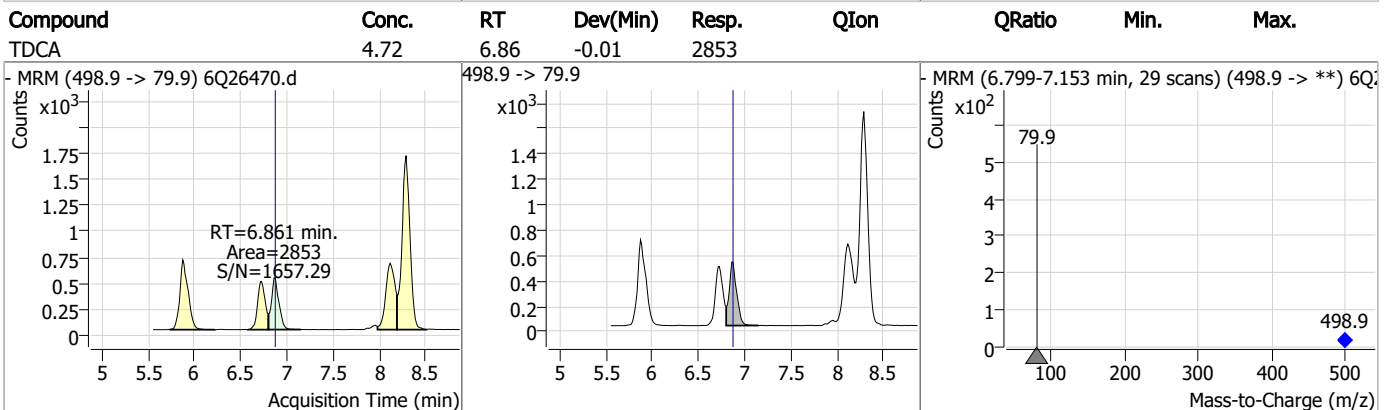
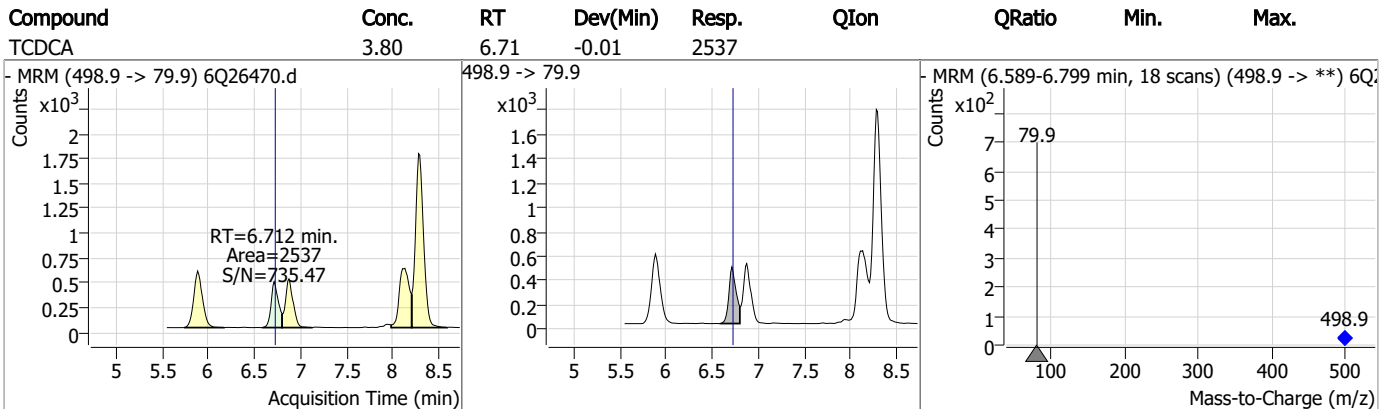
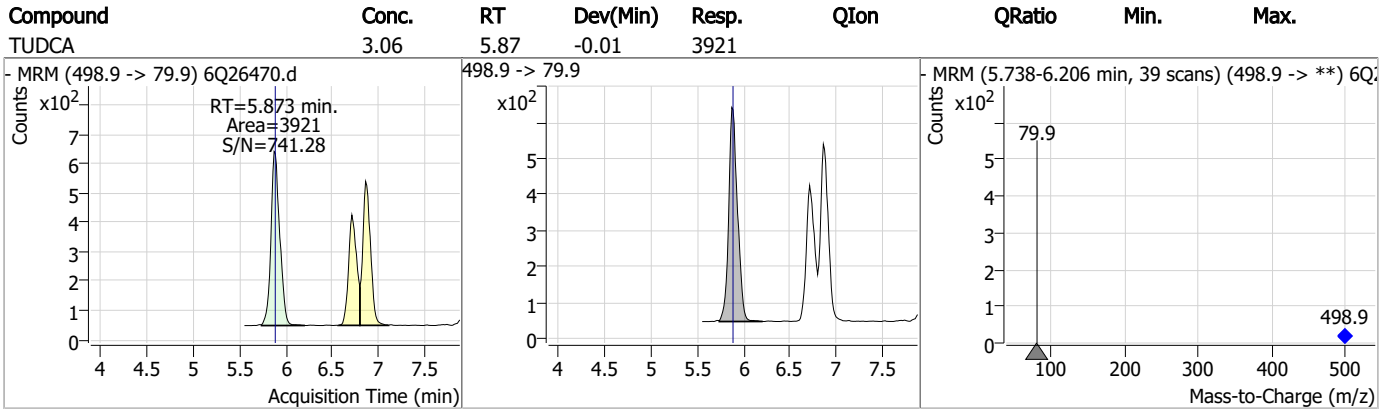
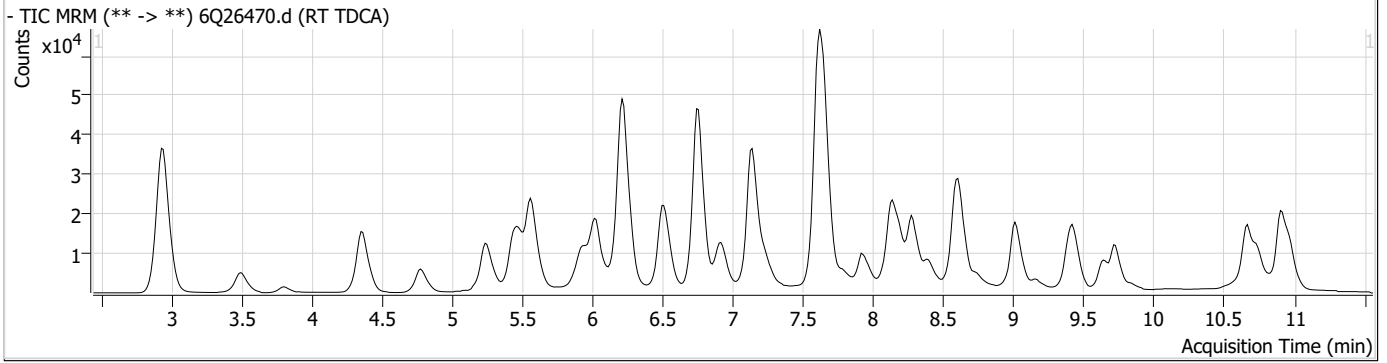
# = Qualifier out of range, m = manually integrated, + = Area summed

7.6.1

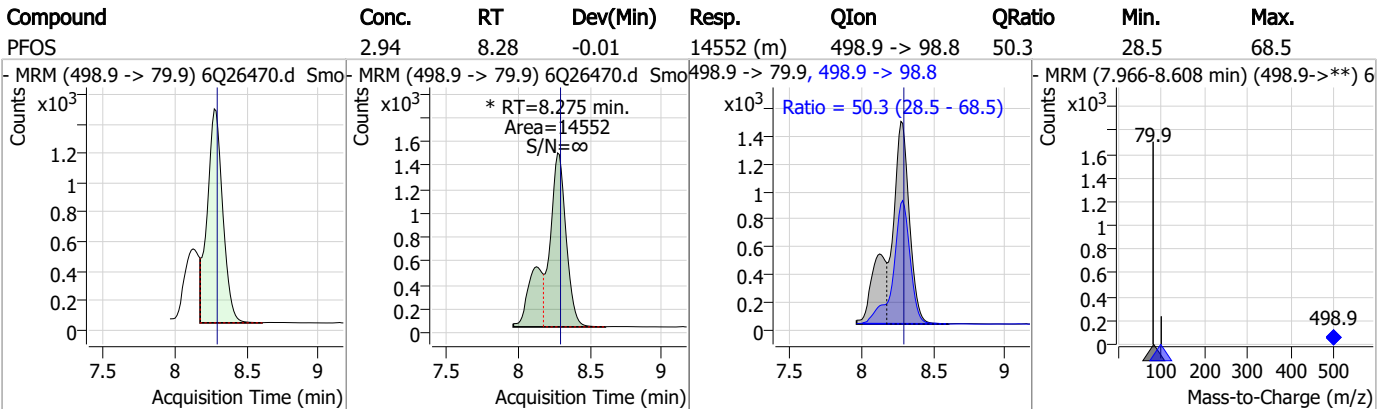
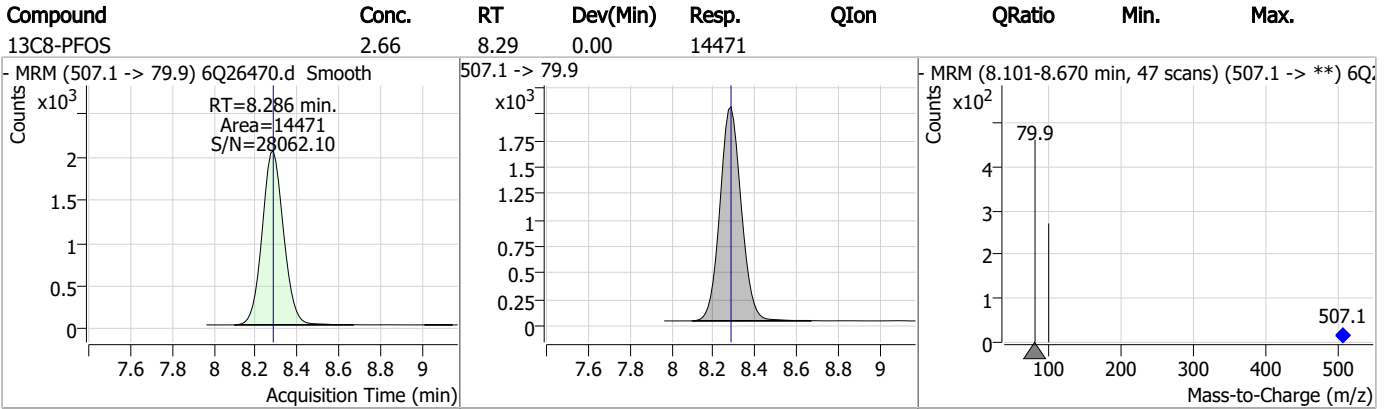
7



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.6.1  
7





# Manual Integration Approval Summary

Sample Number: S6Q372-RT                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26470.D                      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 16:38                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26471.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 4:57:13 PM  
 Sample Name : RT BR-LN  
 Vial : P1-B4  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.950	216.8 -> 171.9	127818	10.00 µg/L	0.025
M5-PFPeA	4.359	268.3 -> 223.0	40689	5.00 µg/L	0.012
M5-PFHxA	5.565	318.0 -> 273.0	39708	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	39178	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	52634	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24354	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	22400	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	21686	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	25020	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9472	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	17315	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	16889	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10338	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9334	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2063	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2437	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2624	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	19311	5.00 µg/L	0.000
M3-HFPO-DA	5.942	286.9 -> 168.9	29332	10.00 µg/L	0.000
M5-EtFOSAA	8.388	589.2 -> 419.0	16324	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	57716	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	68895	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	5817	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5526	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8824	2.50 µg/L	0.000
13C3-PFBA	2.954	216.0 -> 172.0	51482	5.00 µg/L	0.025
18O2-PFHxS	7.238	403.0 -> 83.9	6294	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	57623	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20111	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21208	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	38516	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2063	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2437	4.63 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2624	4.80 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFDoDA	9.006	615.1 -> 570.0	25020	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9472	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C3-PFBS	5.483	302.1 -> 79.9	16889	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFHxS	7.239	402.1 -> 79.9	10338	2.53 µg/L	0.000

7.6.2  
7



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFBA	2.950	216.8 -> 171.9	127818	10.07 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.505	367.1 -> 322.0	39178	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C5-PFHxA	5.565	318.0 -> 273.0	39708	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C5-PFPeA	4.359	268.3 -> 223.0	40689	5.15 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C6-PFDA	8.134	519.1 -> 474.1	22400	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.588	570.0 -> 525.1	21686	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C8-FOSA	9.654	506.1 -> 77.8	17315	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-PFOA	7.136	421.1 -> 376.0	52634	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOS	8.284	507.1 -> 79.9	9334	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C9-PFNA	7.654	472.1 -> 427.0	24354	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
d3-MeFOSAA	8.191	573.2 -> 419.0	19311	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C3-HFPO-DA	5.942	286.9 -> 168.9	29332	10.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
d3-MeFOSA	10.745	515.0 -> 219.0	5526	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16324	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d7-MeFOSE	10.665	623.2 -> 58.9	57716	24.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d9-EtFOSE	10.899	639.2 -> 58.9	68895	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d5-EtFOSA	10.977	531.1 -> 219.0	5817	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	178693	47.67 µg/L	100
		327.1 -> 80.9	67684		
6:2FTS	6.911	427.1 -> 407.0	137045	50.34 µg/L	97
		427.1 -> 80.9	51636		
8:2FTS	7.935	527.1 -> 507.0	96386	47.62 µg/L	93
		527.1 -> 80.8	34532		
EtFOSAA	8.389	584.2 -> 419.1	36051	12.67 µg/L	94
		584.2 -> 526.0	23365		
FOSA	9.645	498.1 -> 77.9	237445	33.36 µg/L	100
		498.1 -> 478.0	6868		
MeFOSAA	8.192	570.1 -> 419.0	53949	13.77 µg/L	98
		570.1 -> 483.0	11466		
PFBA	2.944	212.8 -> 168.9	267168	53.44 µg/L	100
PFBS	5.484	298.7 -> 79.9	69647	12.47 µg/L	99
		298.7 -> 98.8	25633		
PFDA	8.134	512.9 -> 469.0	237872	12.93 µg/L	100
		512.9 -> 219.0	40182		
PFDoDA	9.007	613.1 -> 569.0	277398	13.95 µg/L	98
		613.1 -> 319.0	32587		
PFDS	9.157	599.0 -> 79.9	31766	12.88 µg/L	96

7.6.2

7



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8	15638	12.94	µg/L	100
		363.1 -> 319.0	295705			
PFHpS	7.793	363.1 -> 169.0	42310	12.77	µg/L	93
		449.0 -> 79.9	55351			
PFHxA	5.568	449.0 -> 98.9	26068	13.27	µg/L	99
		313.0 -> 269.0	202062			
PFHxS	7.240	313.0 -> 118.9	9908	11.59	µg/L	m
		398.7 -> 79.9	52499			
PFNA	7.531	398.7 -> 98.9	24953	26.52	µg/L	m
		463.0 -> 419.0	410412			
PFNS	8.738	463.0 -> 219.0	102451	12.46	µg/L	99
		548.8 -> 79.9	44437			
PFOA	7.138	548.8 -> 98.9	22648	29.38	µg/L	m
		413.0 -> 369.0	686676			
PFOS	8.286	413.0 -> 169.0	123442	12.26	µg/L	m
		498.9 -> 79.9	53286			
PFPeA	4.361	498.9 -> 98.8	26751	26.59	µg/L	100
		263.0 -> 219.0	257422			
PFPeS	6.545	349.1 -> 79.9	69445	11.80	µg/L	96
		349.1 -> 98.9	31456			
PFTeDA	9.721	713.1 -> 669.0	164240	12.84	µg/L	100
		713.1 -> 168.9	11348			
PFTrDA	9.389	663.0 -> 619.0	219191	14.27	µg/L	97
		663.0 -> 168.9	16634			
PFUnDA	8.589	563.1 -> 519.0	247309	14.49	µg/L	99
		563.1 -> 269.1	36043			
11Cl-PF3OUdS	9.429	630.9 -> 450.9	212178	24.42	µg/L	97
		632.9 -> 452.9	66053			
9Cl-PF3ONS	8.615	530.8 -> 351.0	365708	23.81	µg/L	99
		532.8 -> 353.0	119635			
ADONA	6.755	376.9 -> 250.9	999216	24.20	µg/L	98
		376.9 -> 84.8	268076			
HFPO-DA	5.943	284.9 -> 168.9	80260	25.35	µg/L	96
		284.9 -> 184.9	8951			
3:3FTCA	3.814	241.0 -> 177.0	45042	65.62	µg/L	99
		241.0 -> 117.0	6037			
5:3FTCA	6.222	341.0 -> 237.1	935766	334.01	µg/L	97
		341.0 -> 217.0	673652			
7:3FTCA	7.620	441.0 -> 316.9	589060	323.36	µg/L	97
		441.0 -> 336.9	1192337			
EtFOSA	10.979	526.0 -> 219.0	138310	48.67	µg/L	93
		526.0 -> 169.0	169484			
EtFOSE	10.913	630.0 -> 58.9	263497	87.34	µg/L	100
		511.9 -> 219.0	122626			
MeFOSA	10.746	511.9 -> 169.0	163931	43.51	µg/L	96
		616.1 -> 58.9	234536			
MeFOSE	10.678	699.1 -> 79.9	16924	95.03	µg/L	100
		699.1 -> 98.8	9329			
PFDoDS	9.848	295.0 -> 201.0	49164	13.00	µg/L	96
		295.0 -> 84.9	12987			
NFDHA	5.447	279.0 -> 85.1	200427	26.05	µg/L	98
		229.0 -> 84.9	162833			
PFMBA	4.775	314.8 -> 134.9	457002	26.91	µg/L	100
		314.8 -> 82.9	16056			
PFMPA	3.500			26.76	µg/L	100
PFEESA	6.024			23.15	µg/L	100

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

7.6.2  
7

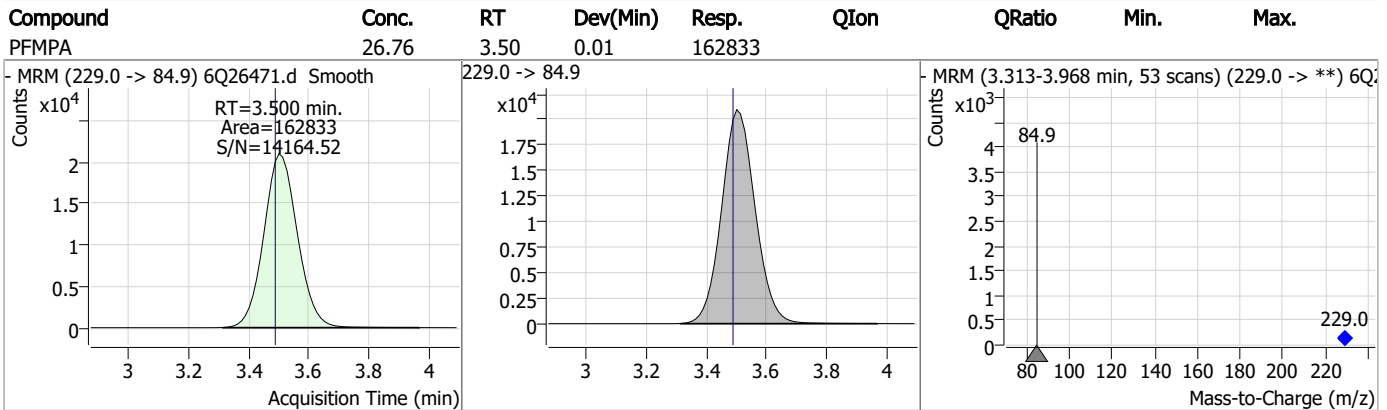
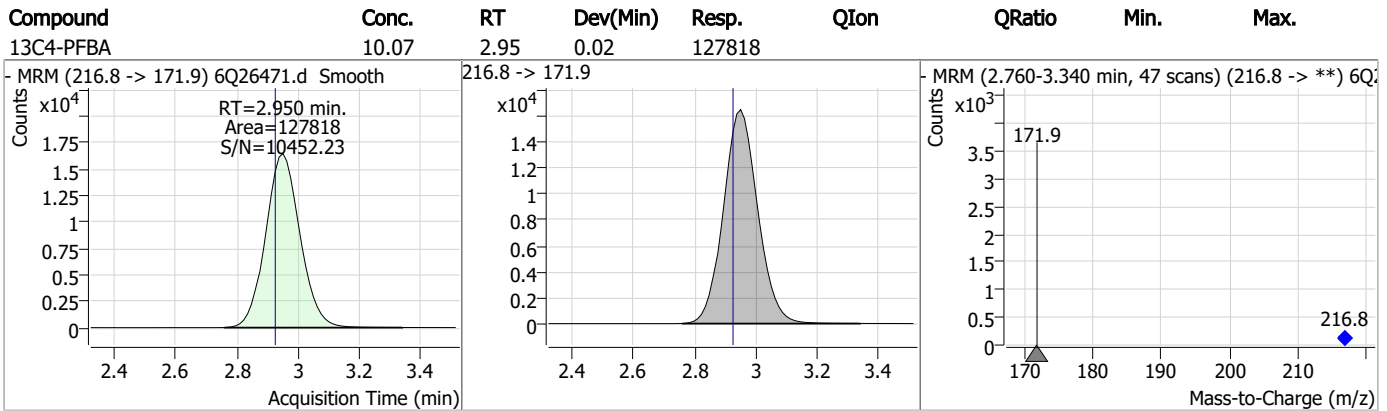
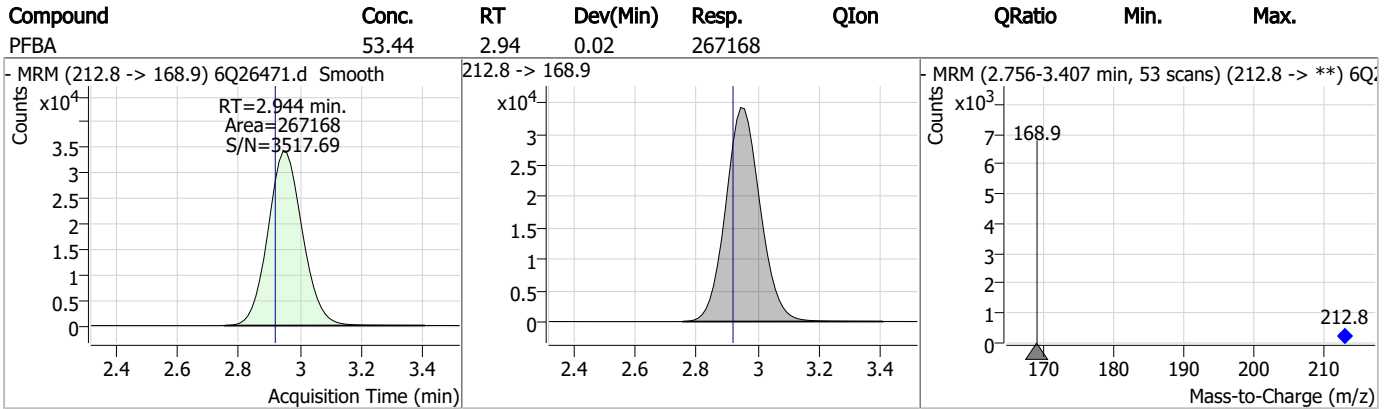
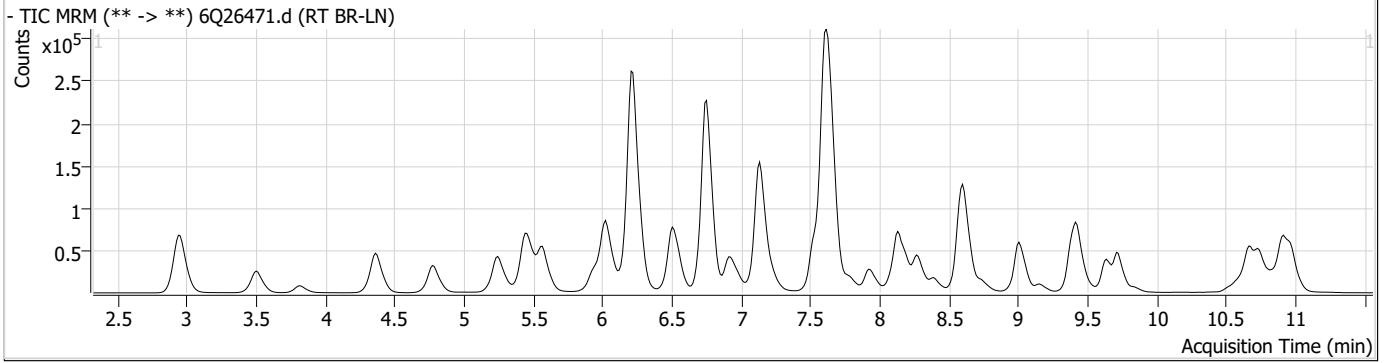
# Perfluorinated Compounds by LC/MS/MS

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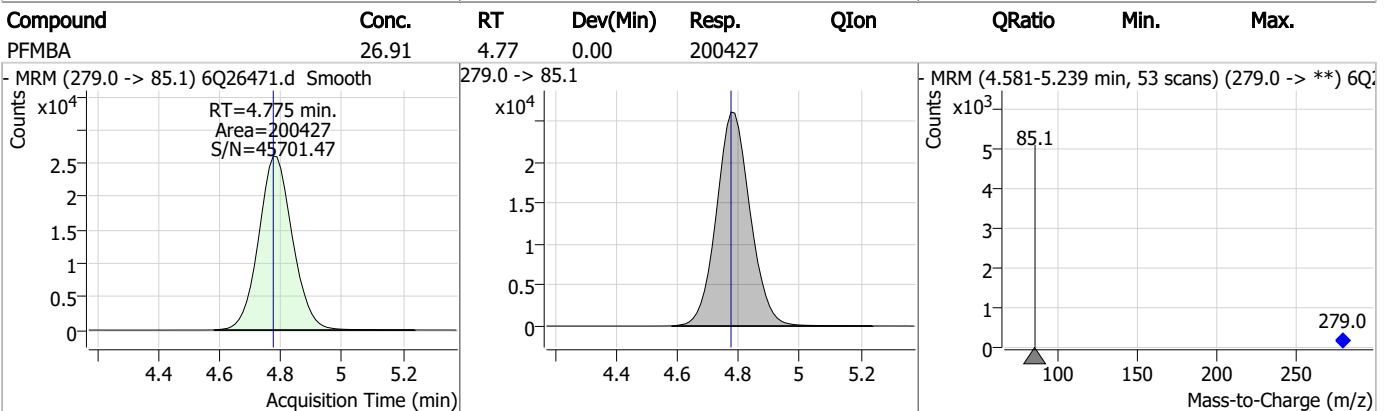
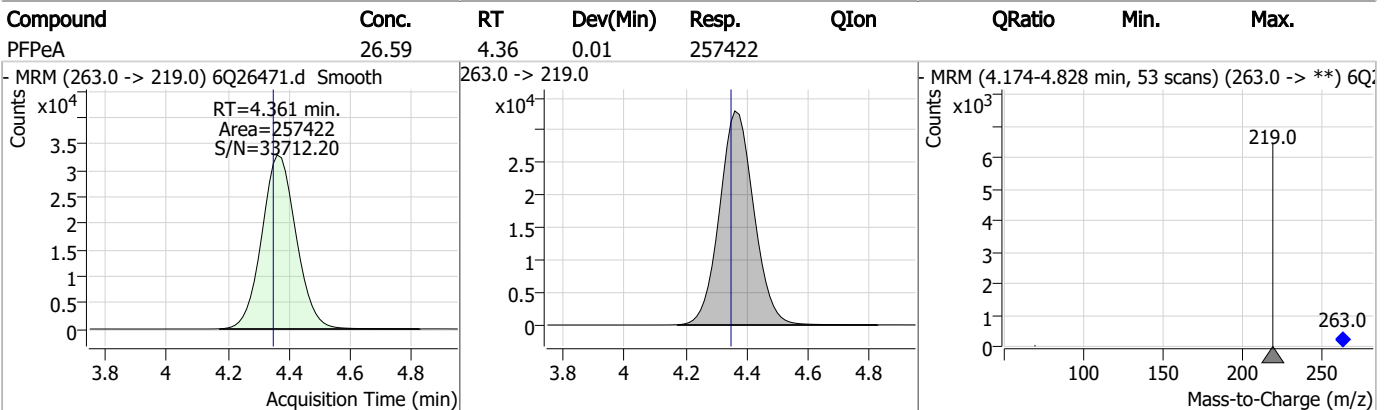
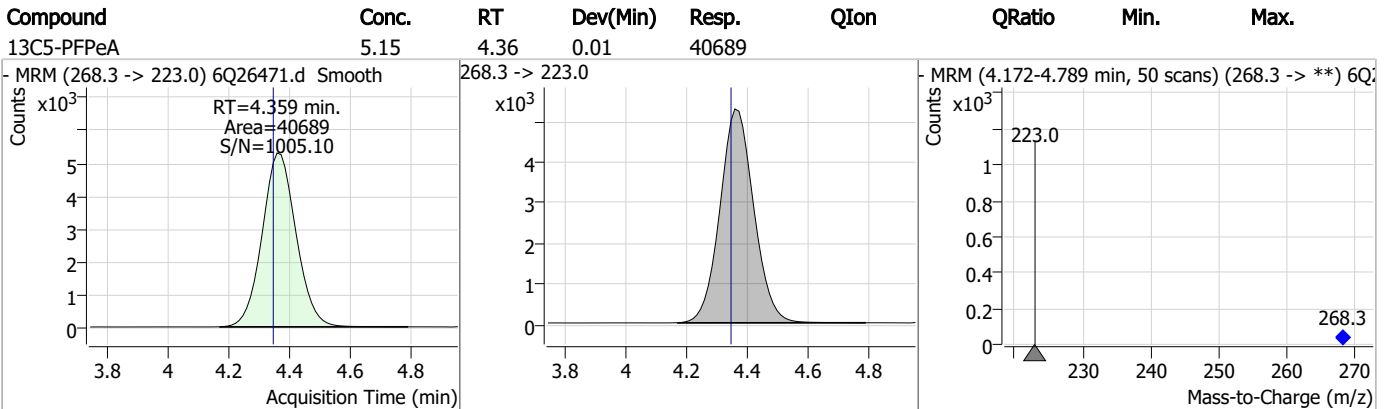
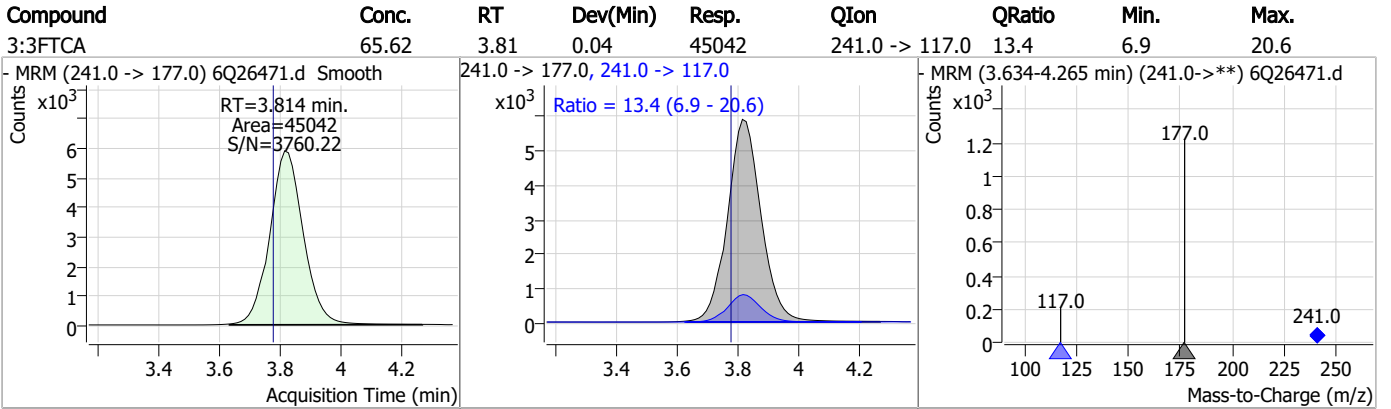
7.6.2

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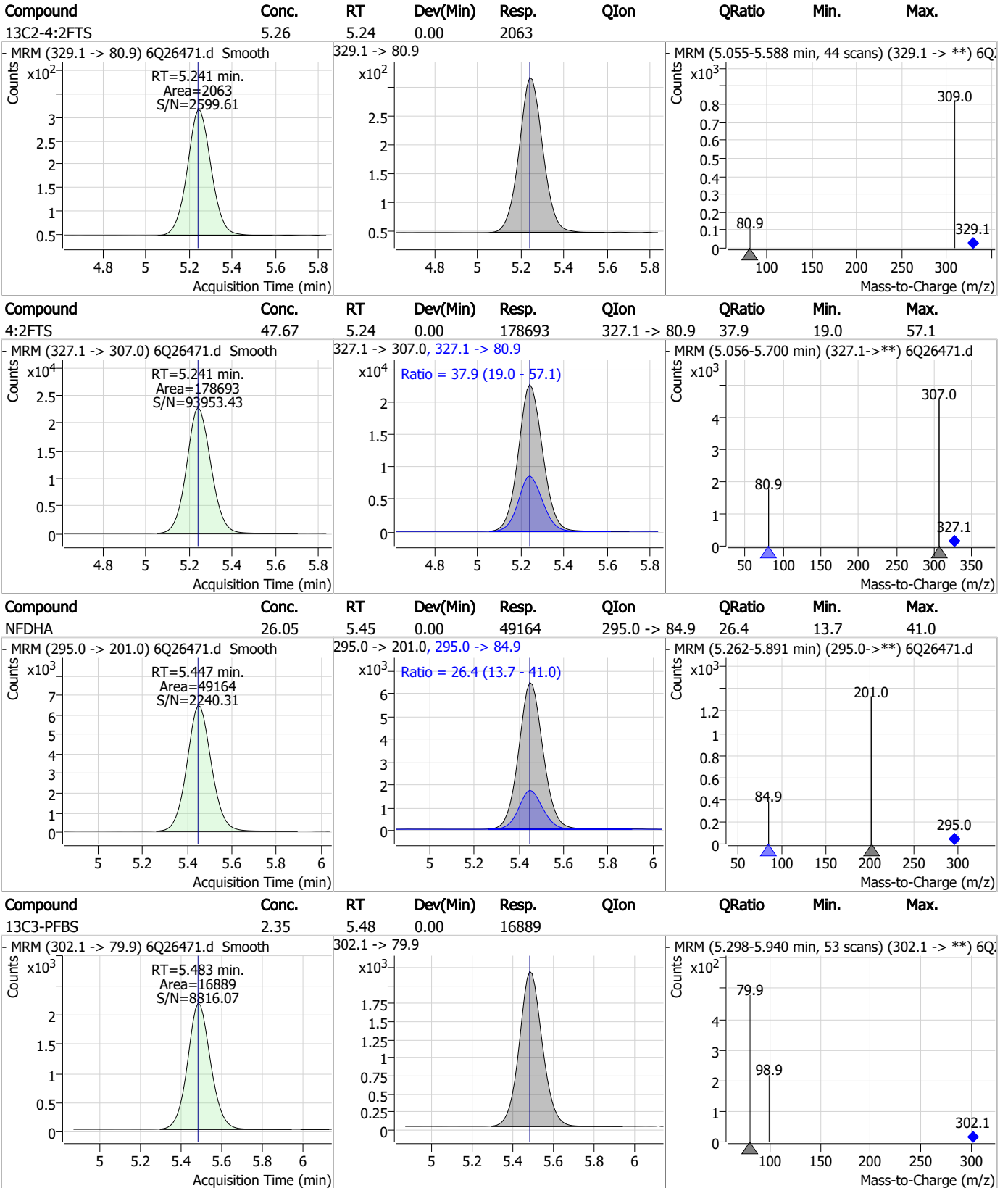
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



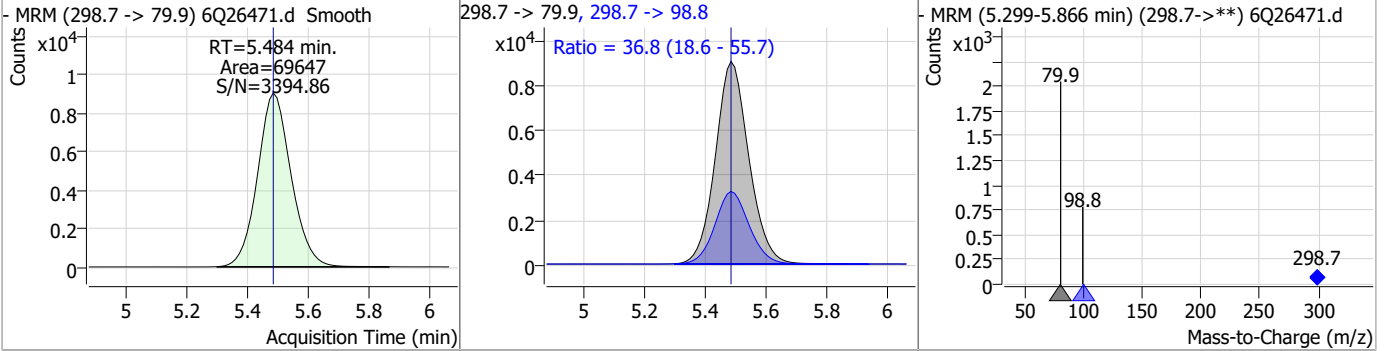
7.6.2

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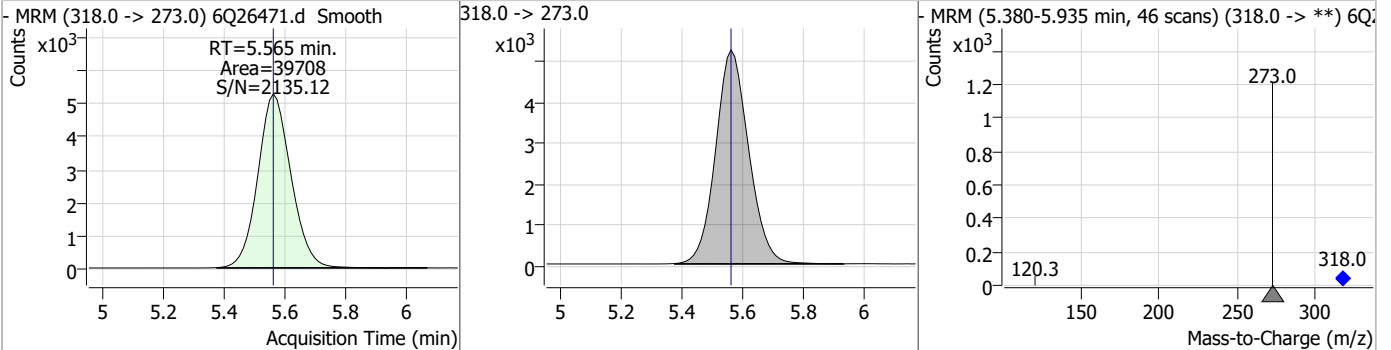


# Perfluorinated Compounds by LC/MS/MS

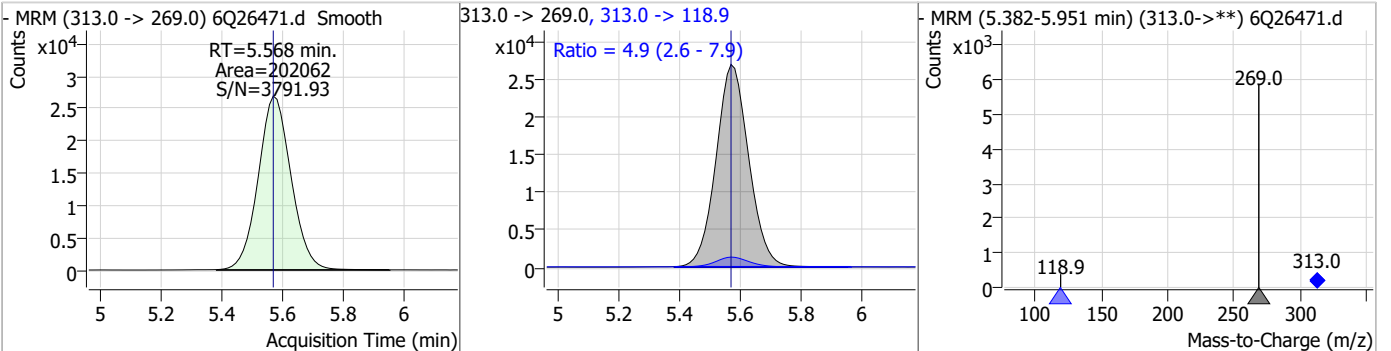
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	12.47	5.48	0.00	69647	298.7 -> 98.8	36.8	18.6	55.7



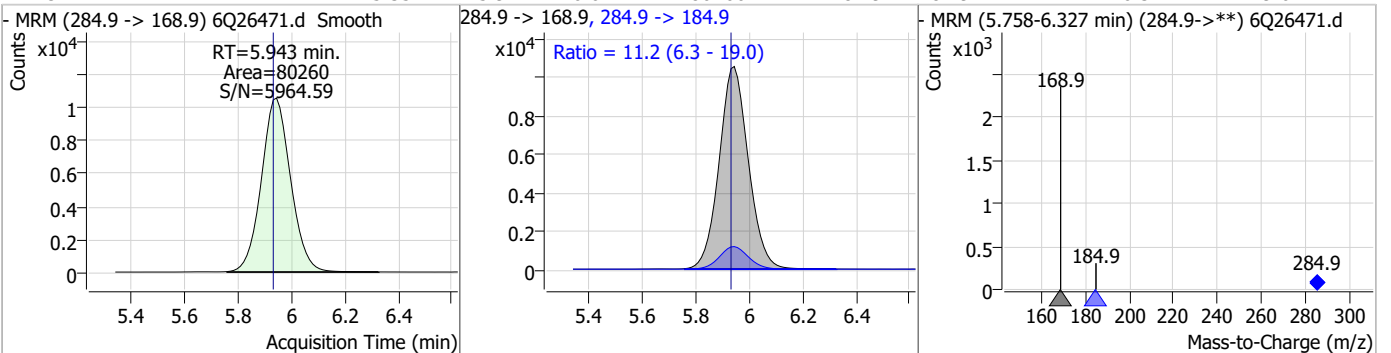
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.63	5.56	0.00	39708				



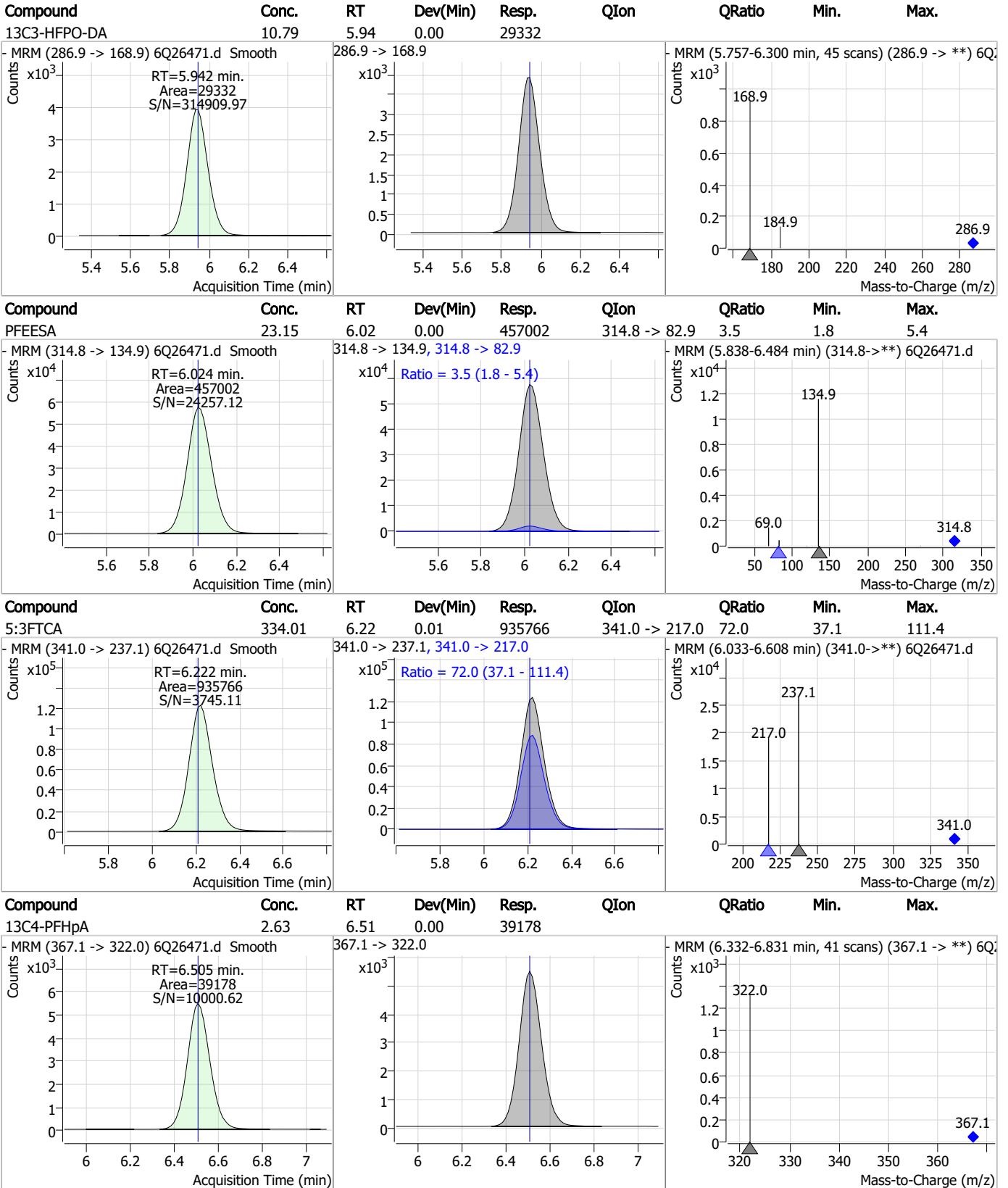
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.27	5.57	0.00	202062	313.0 -> 118.9	4.9	2.6	7.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.35	5.94	0.01	80260	284.9 -> 184.9	11.2	6.3	19.0



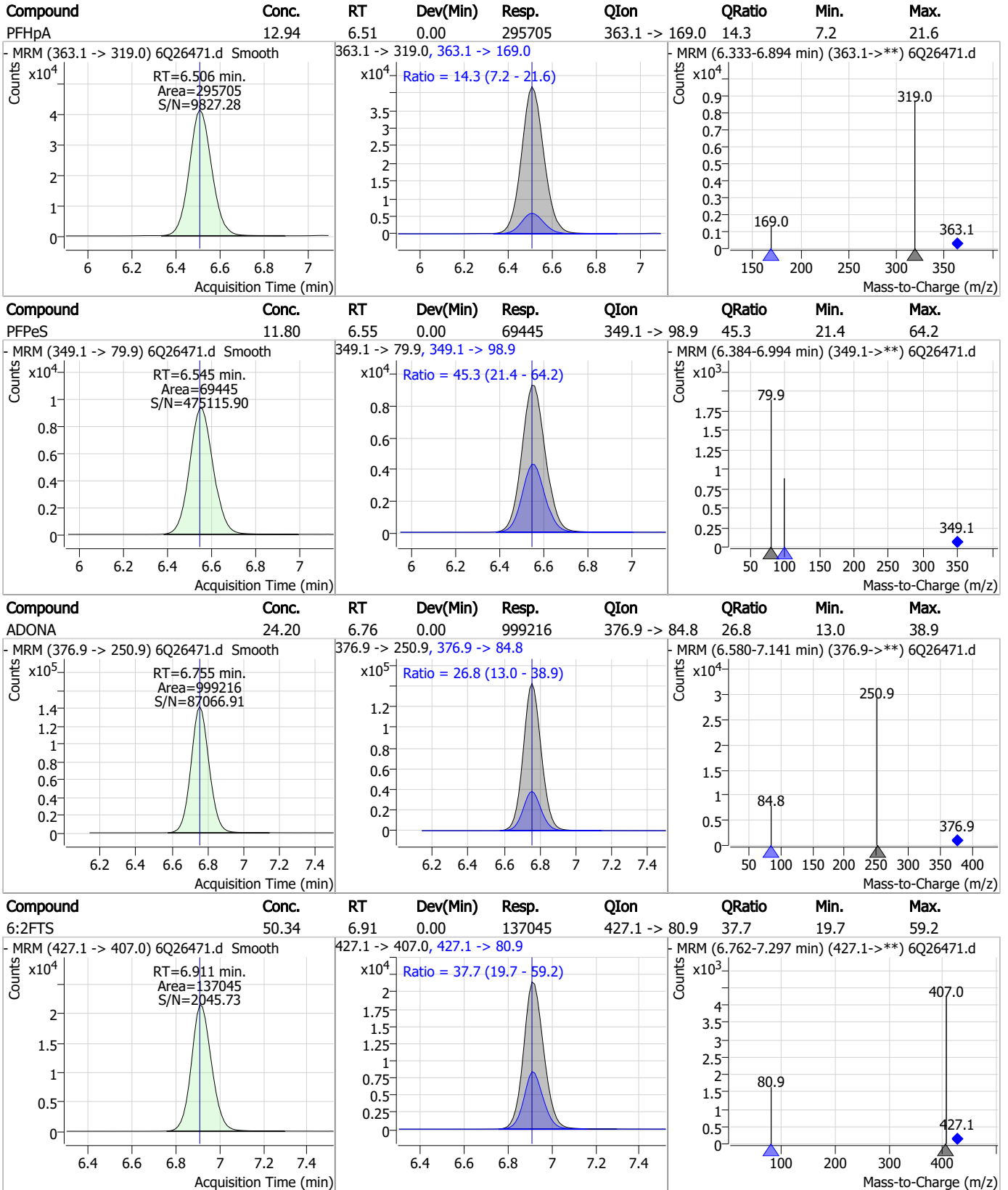
# Perfluorinated Compounds by LC/MS/MS



7.6.2

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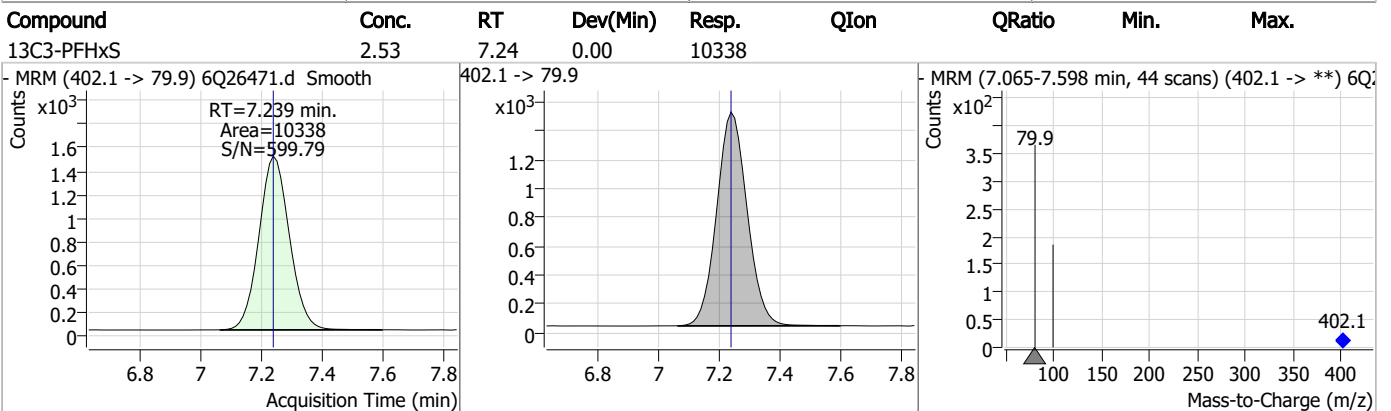
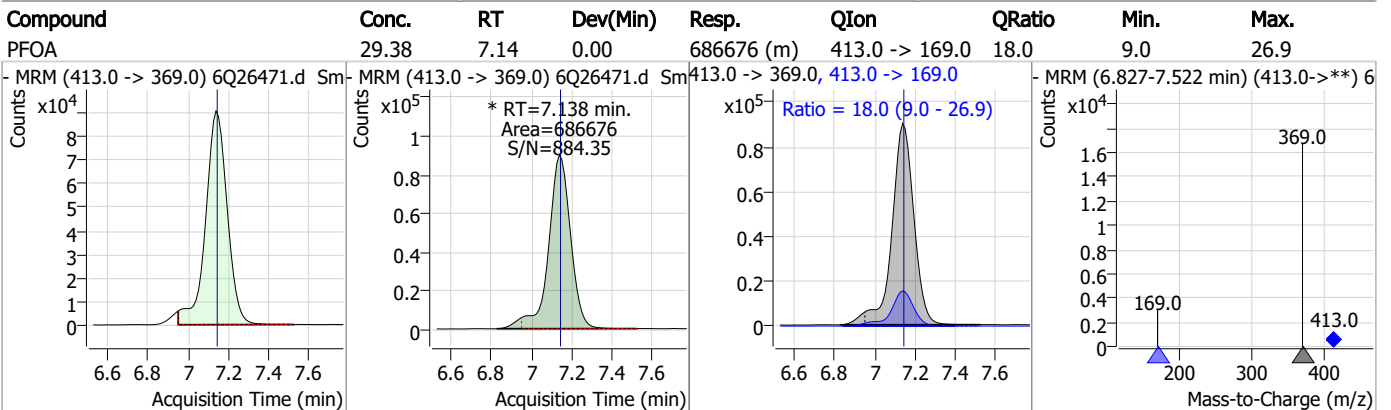
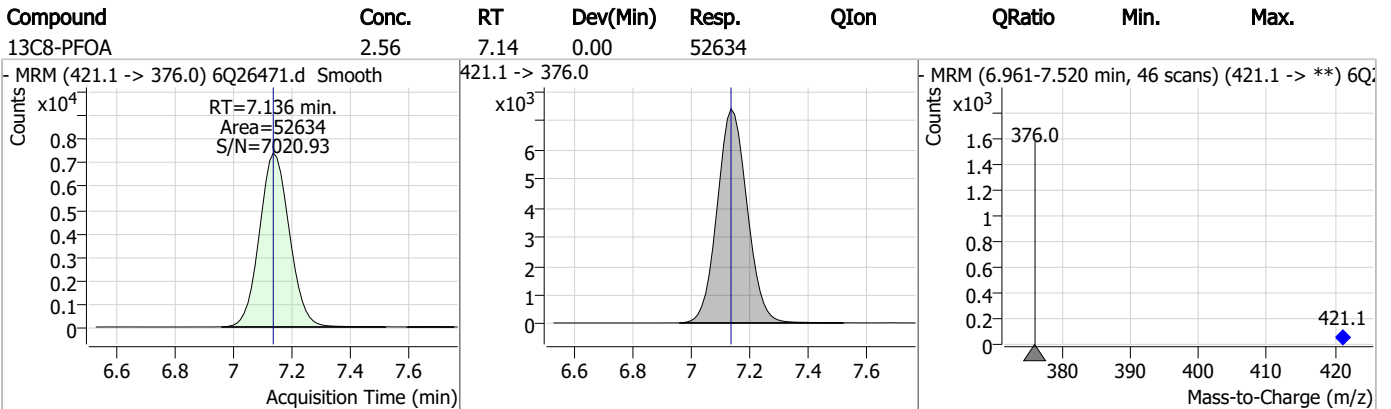
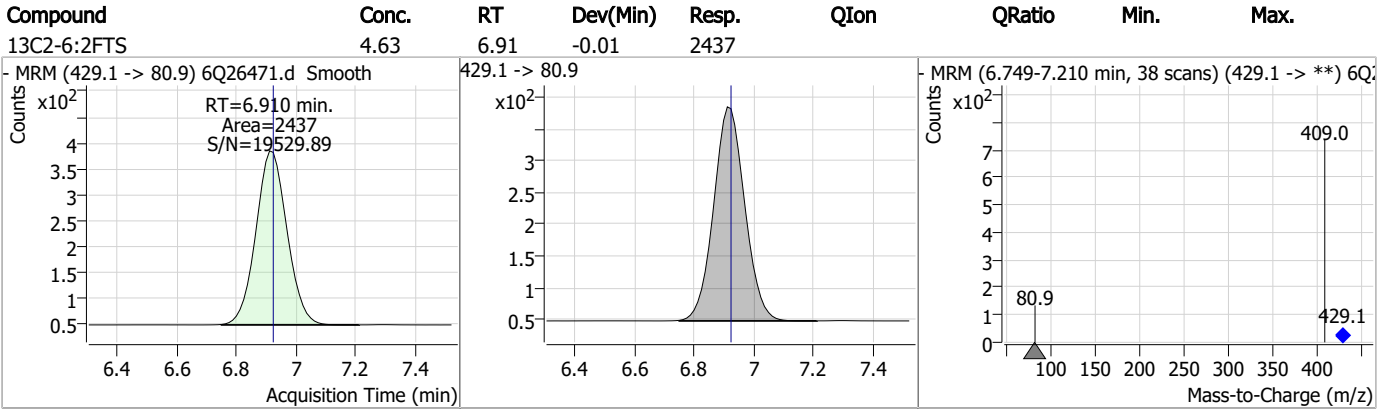
# Perfluorinated Compounds by LC/MS/MS



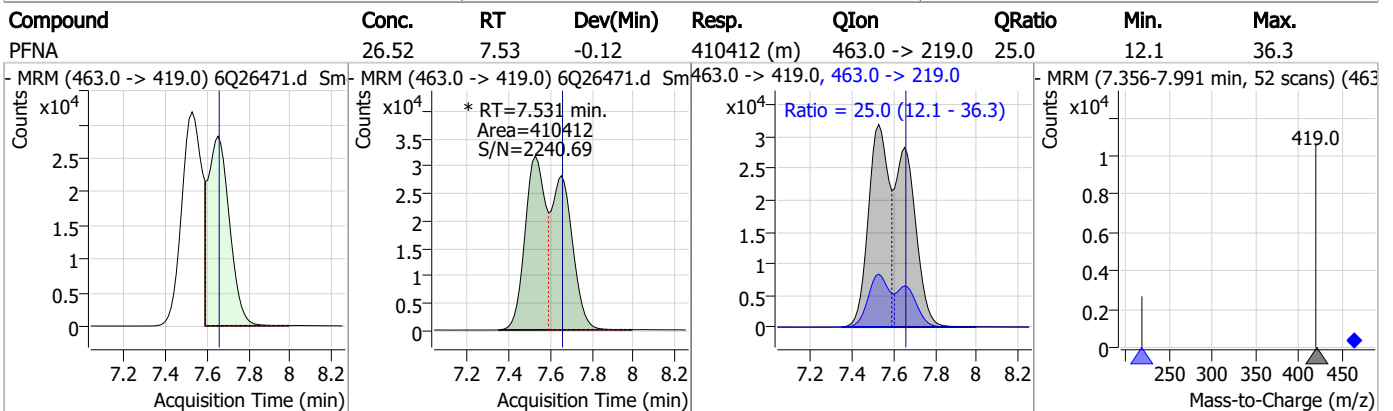
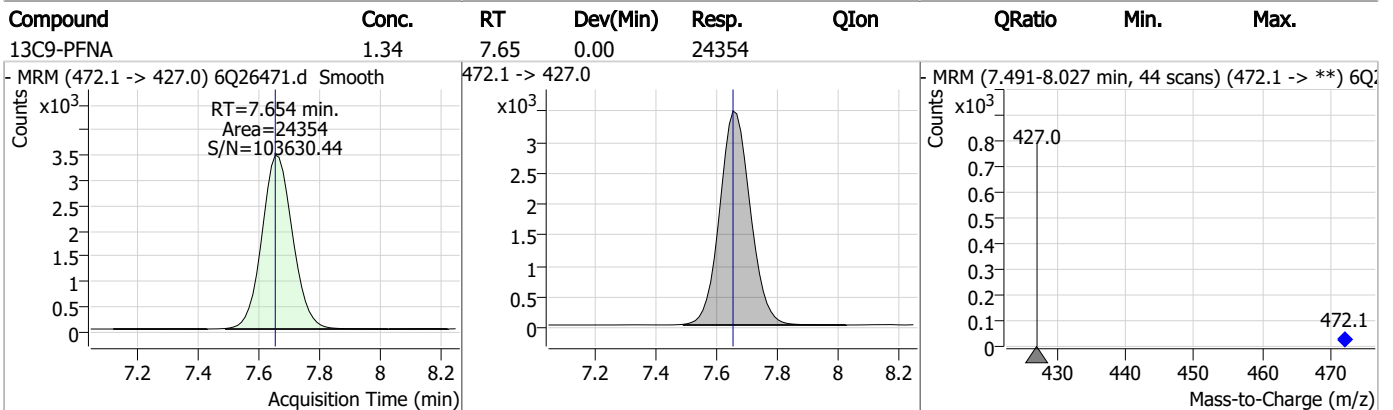
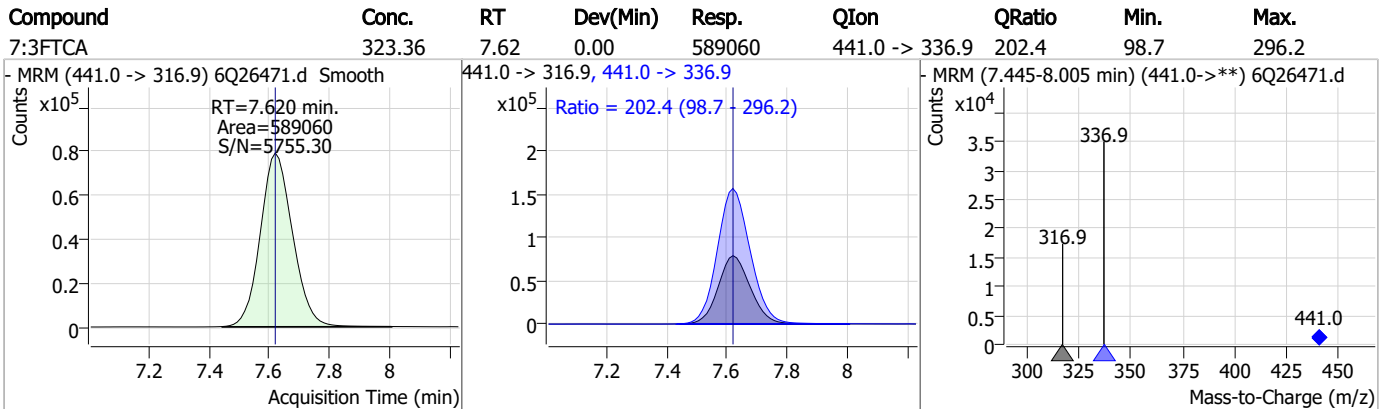
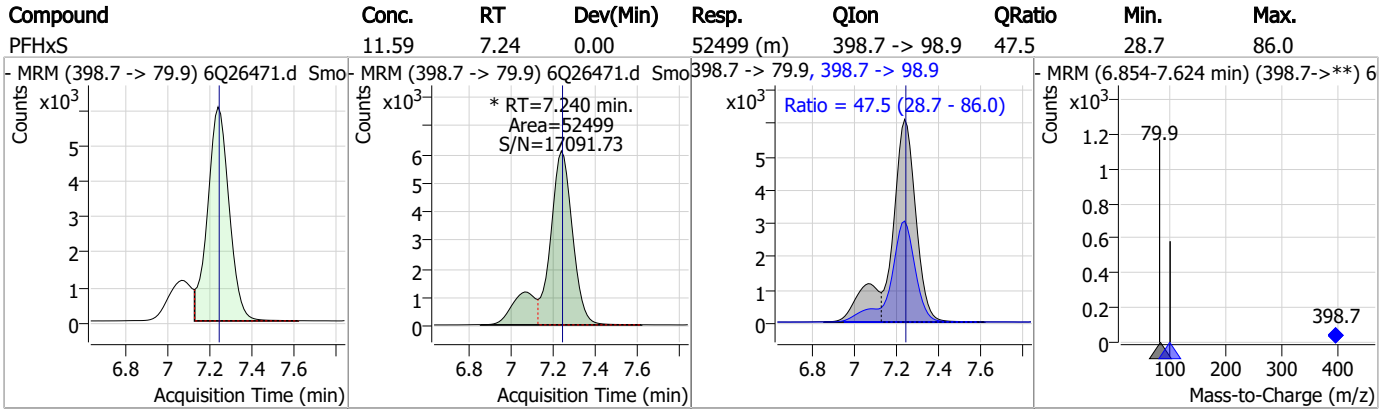
7.6.2

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# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

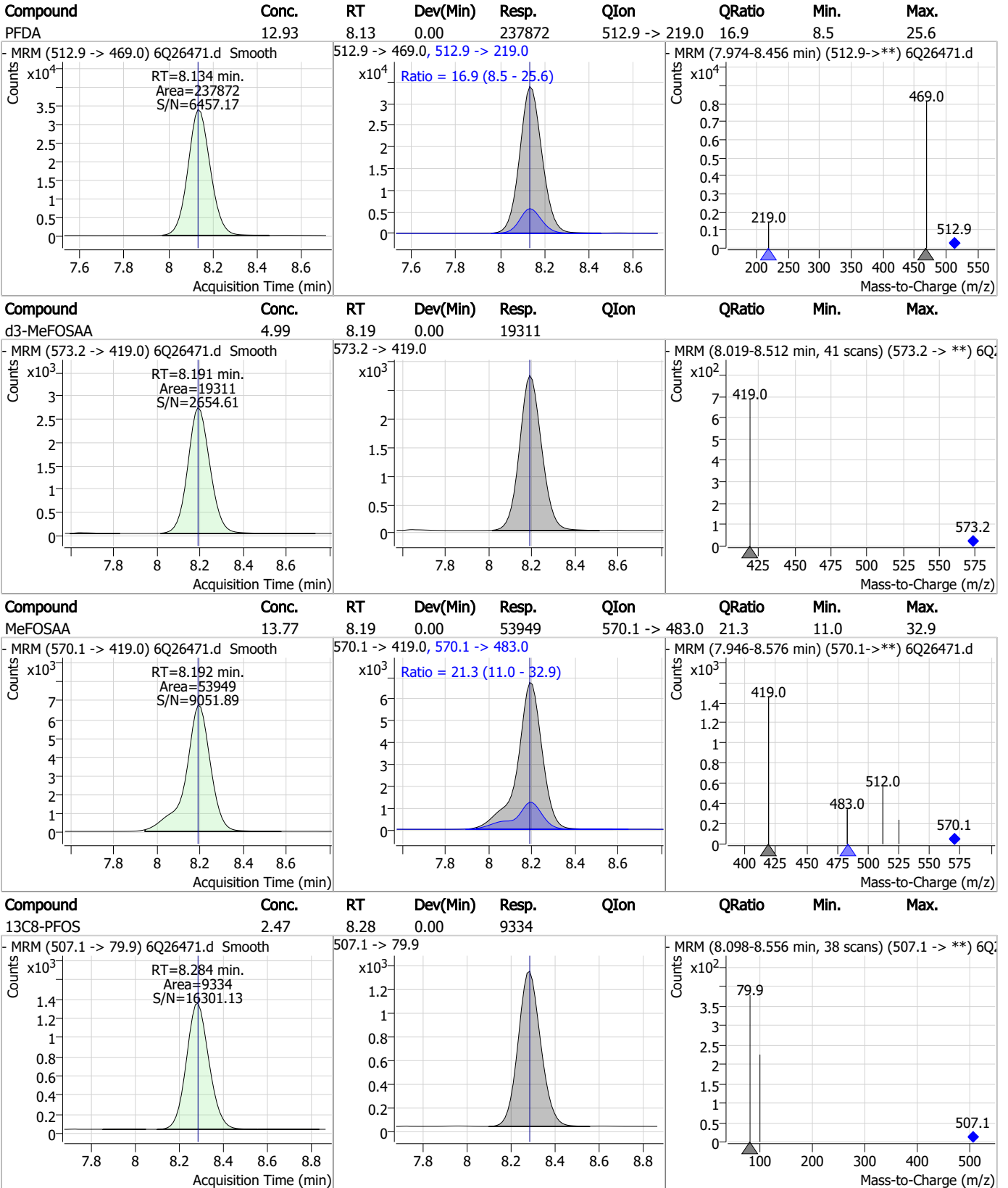
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.77	7.79	0.00	55351	449.0 -> 98.9	47.1	26.1	78.4
13C2-8:2FTS	4.80	7.93	0.01	2624	529.1 -> 80.9			
8:2FTS	47.62	7.94	0.00	96386	527.1 -> 80.8	35.8	16.0	48.1
13C6-PFDA	1.29	8.13	0.00	22400	519.1 -> 474.1			

7.6.2

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# Perfluorinated Compounds by LC/MS/MS

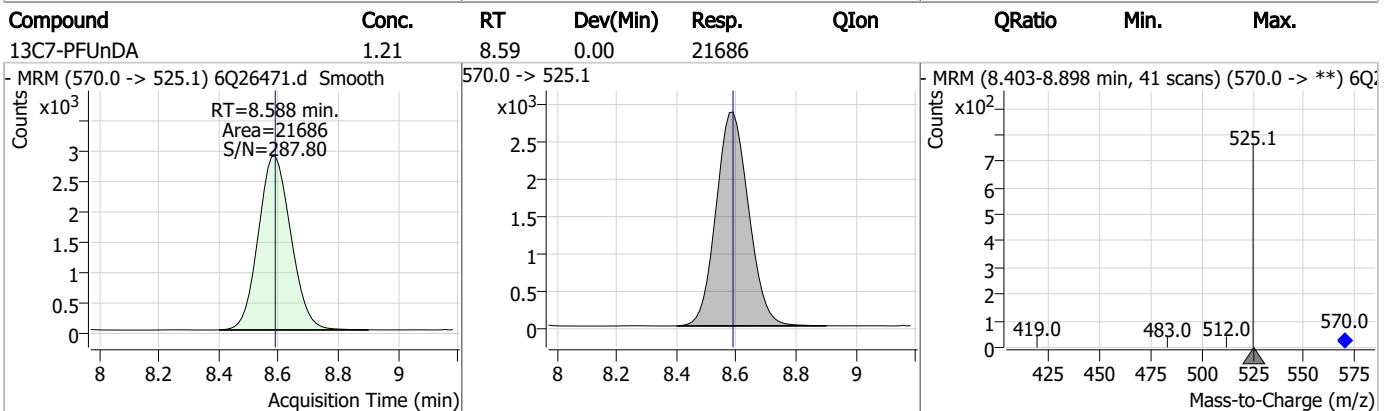
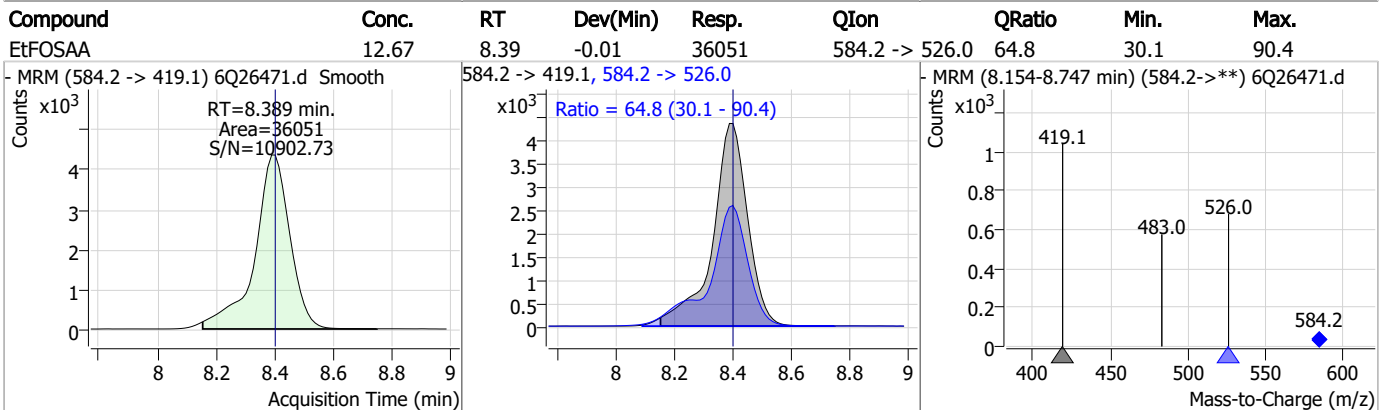
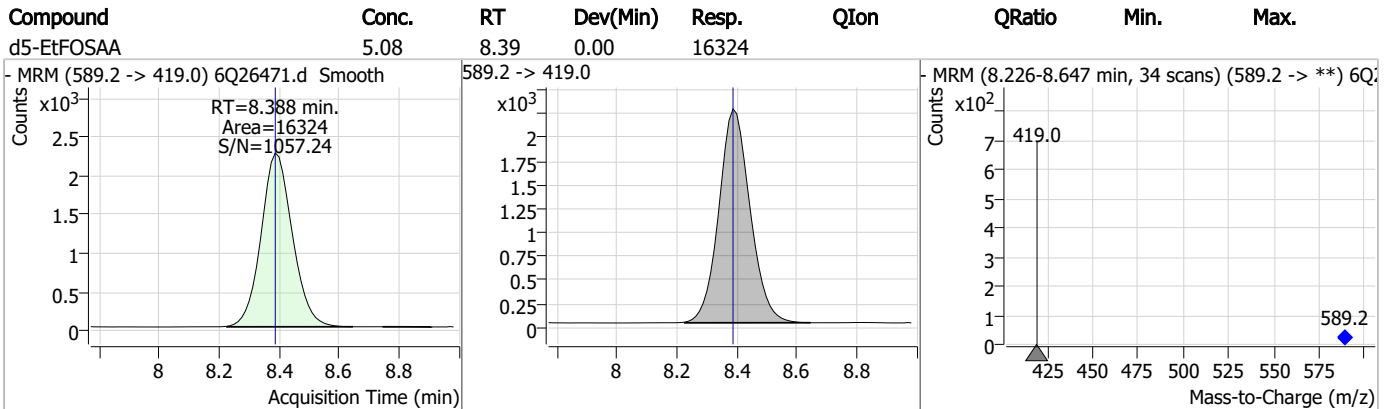
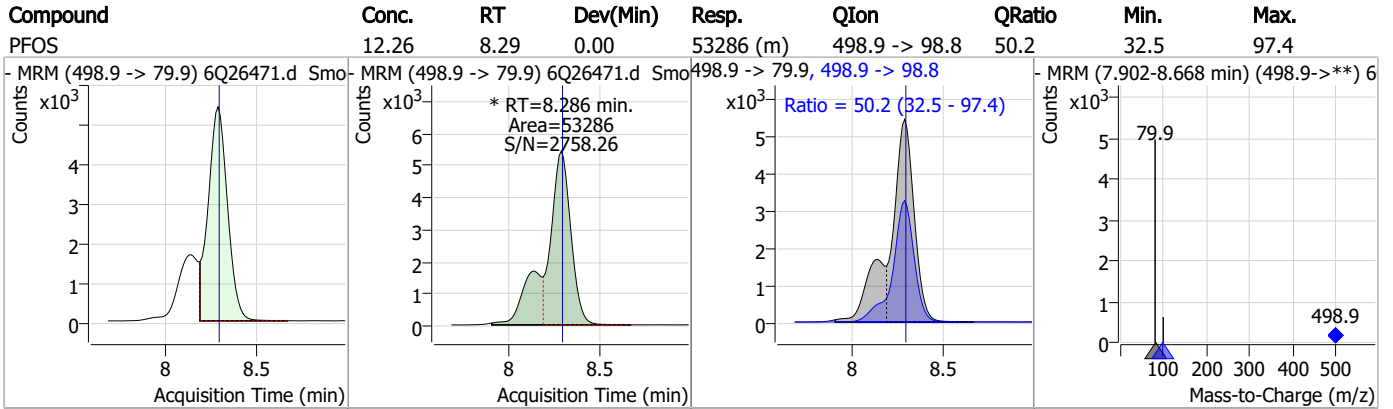


7.6.2

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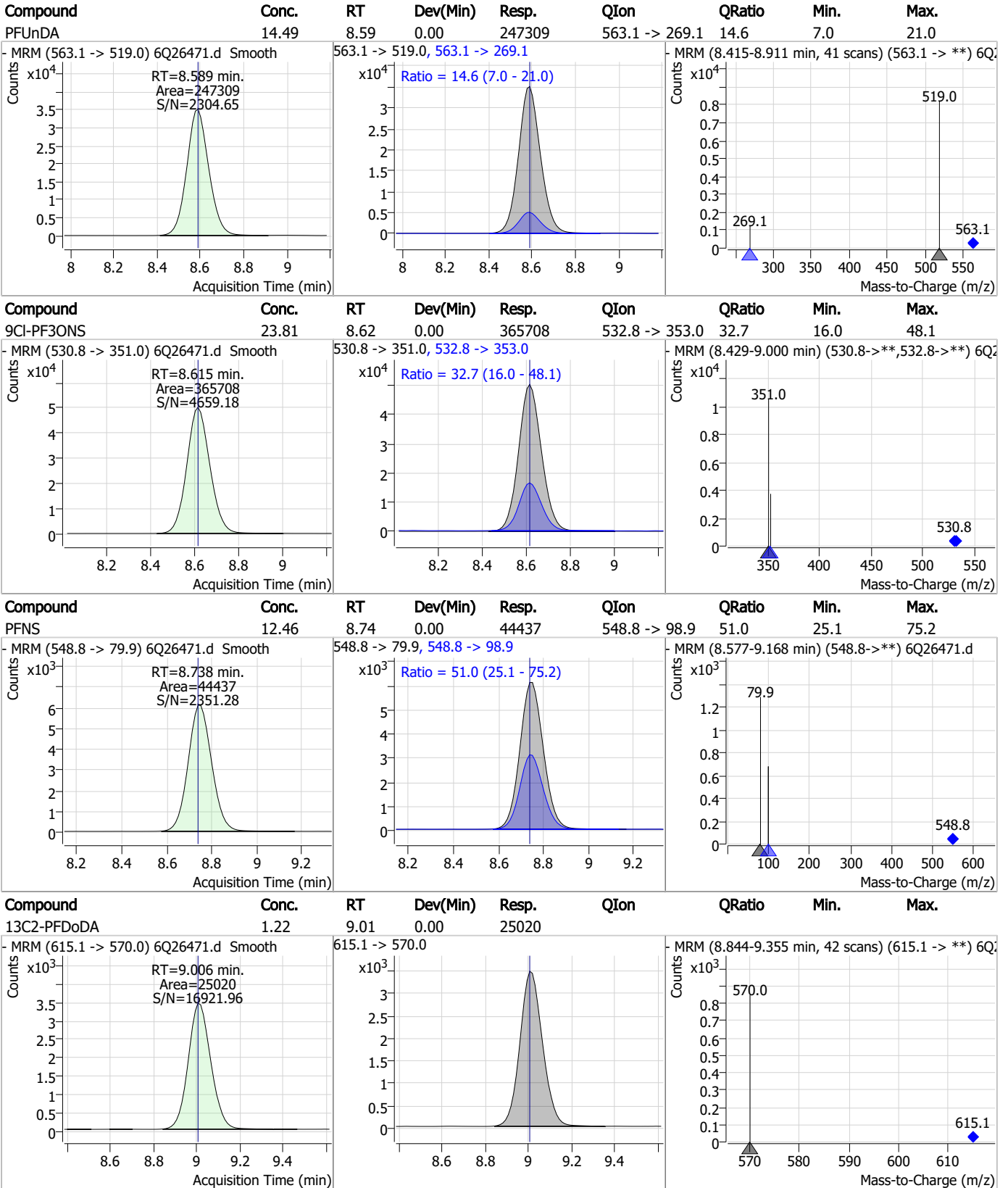


# Perfluorinated Compounds by LC/MS/MS





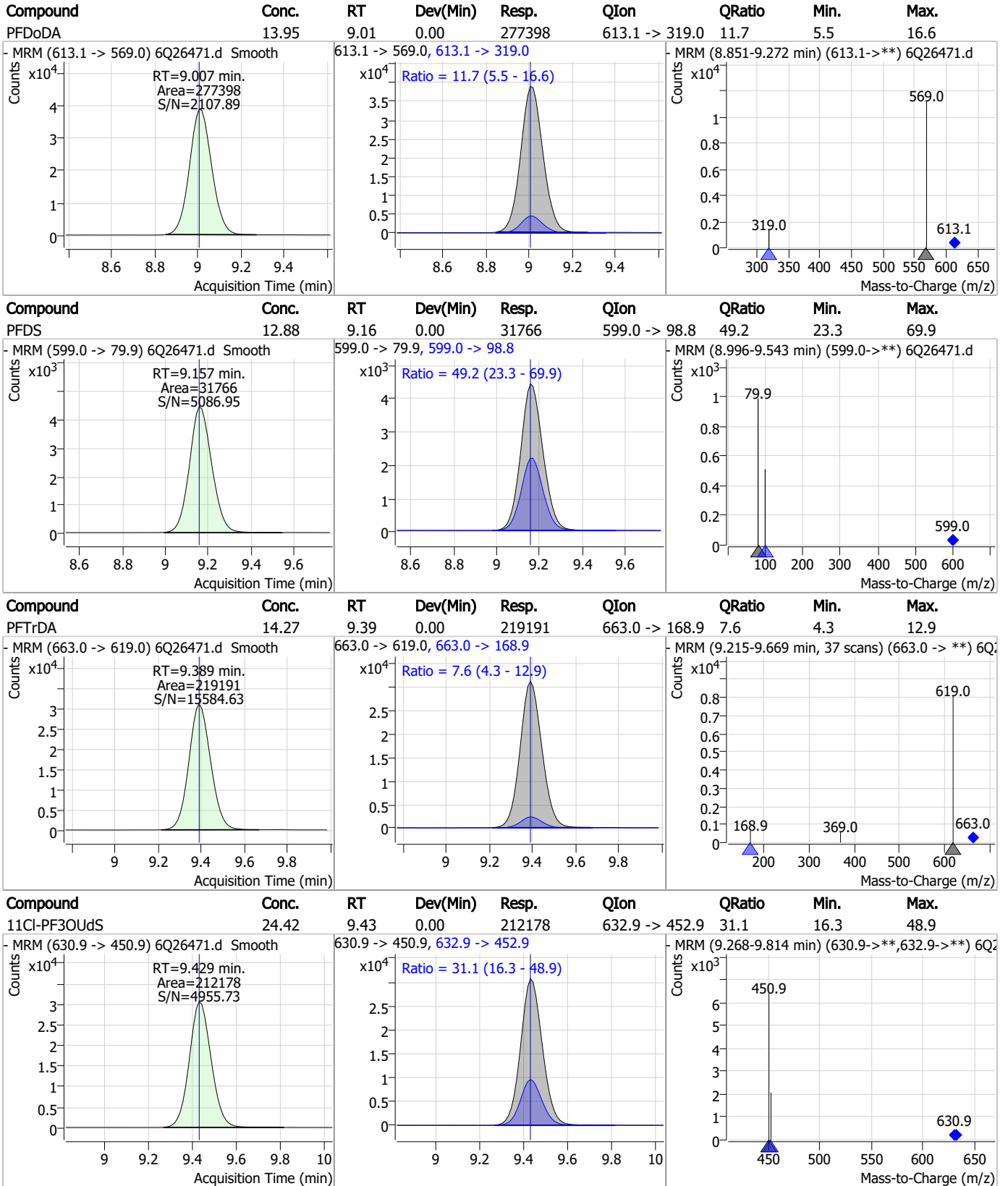
# Perfluorinated Compounds by LC/MS/MS



7.6.2

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# Perfluorinated Compounds by LC/MS/MS

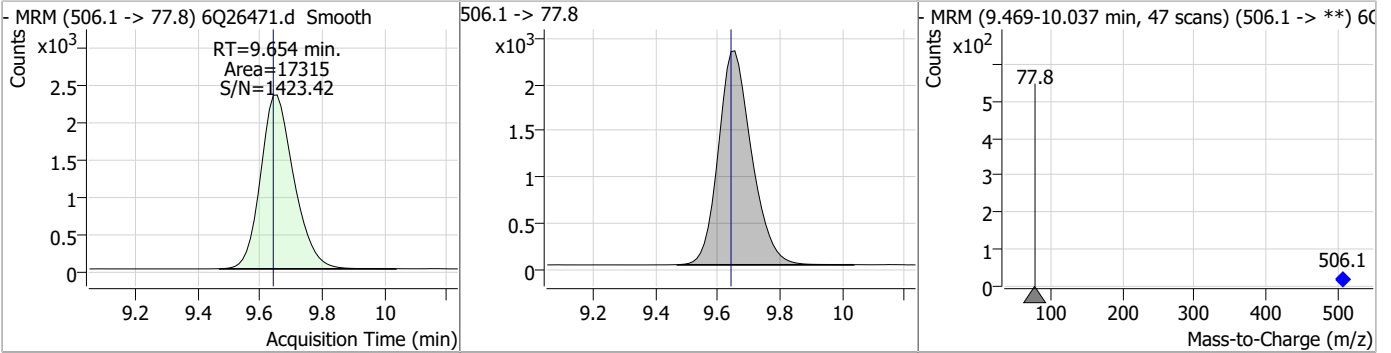


7.6.2

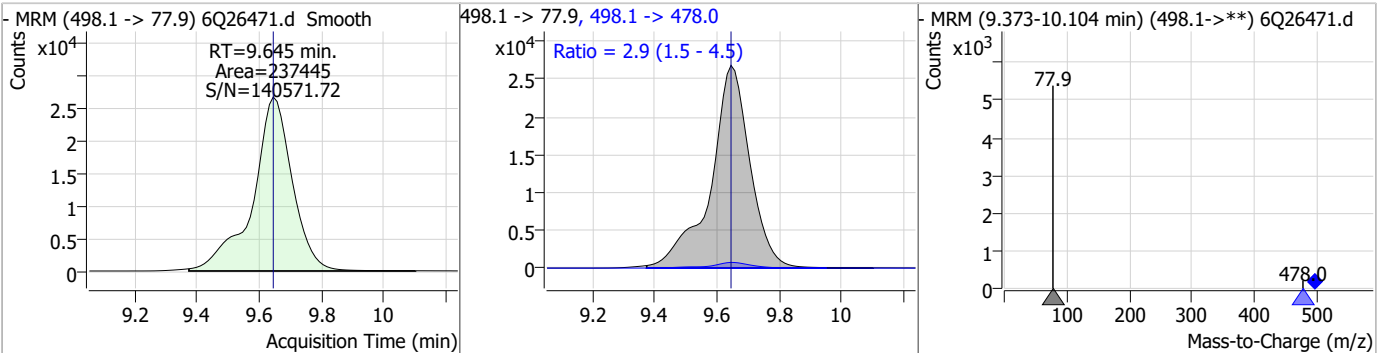
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# Perfluorinated Compounds by LC/MS/MS

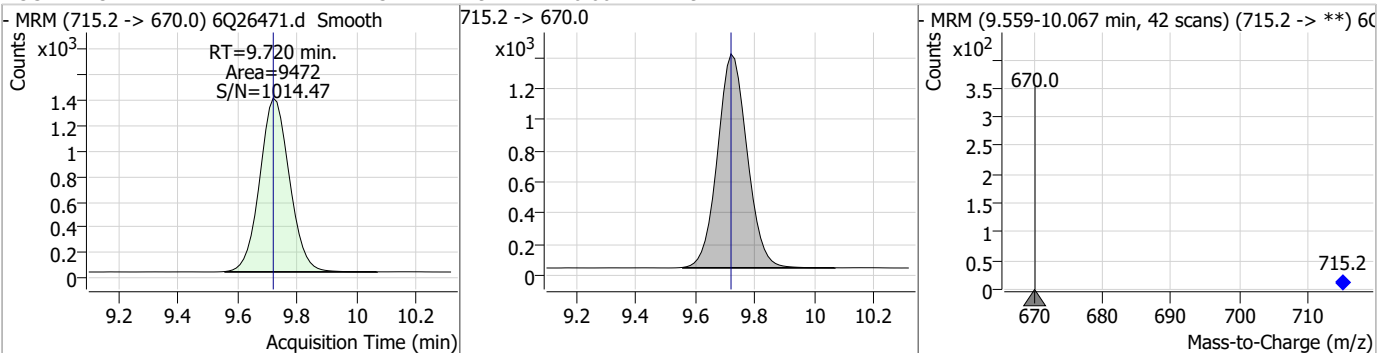
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.45	9.65	0.01	17315				



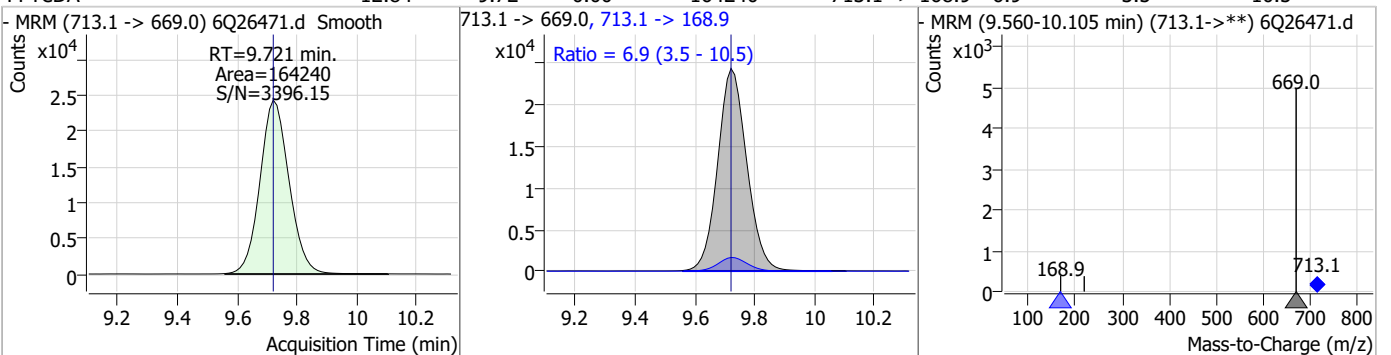
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	33.36	9.64	0.00	237445	498.1 -> 478.0	2.9	1.5	4.5



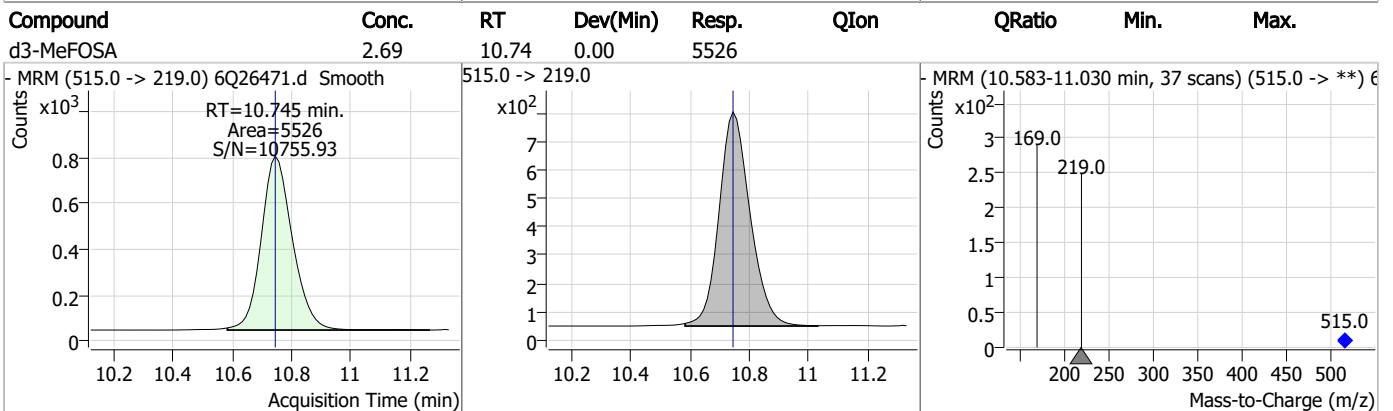
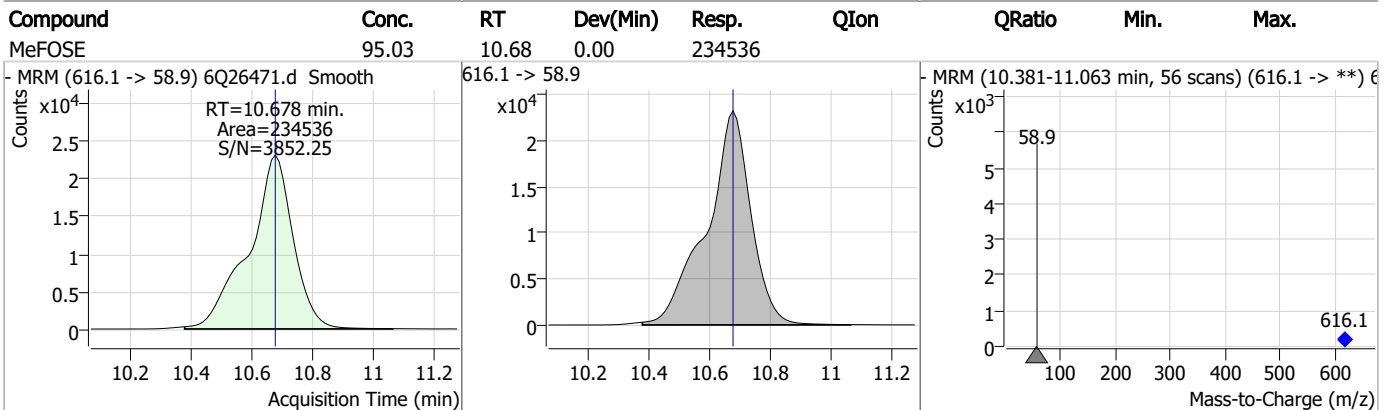
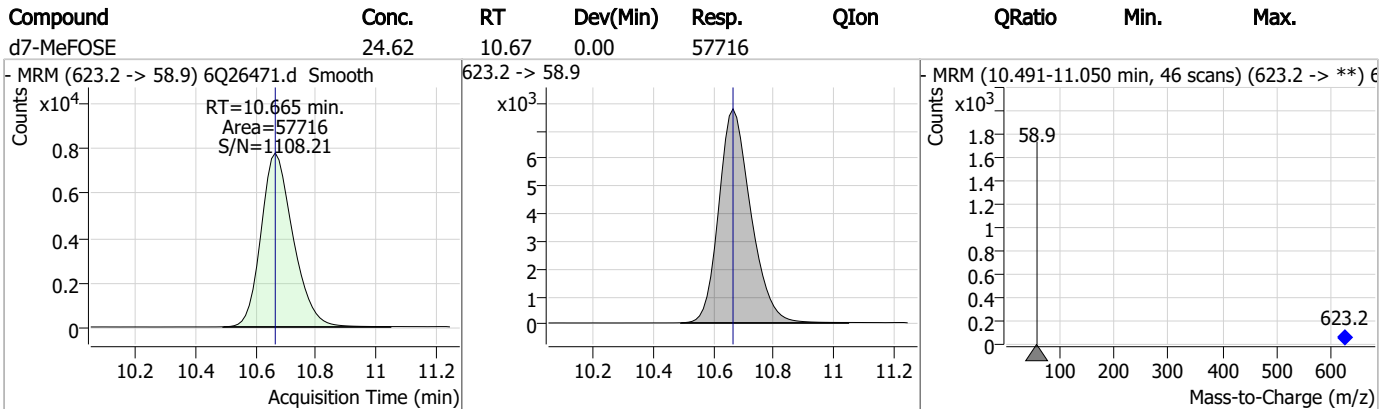
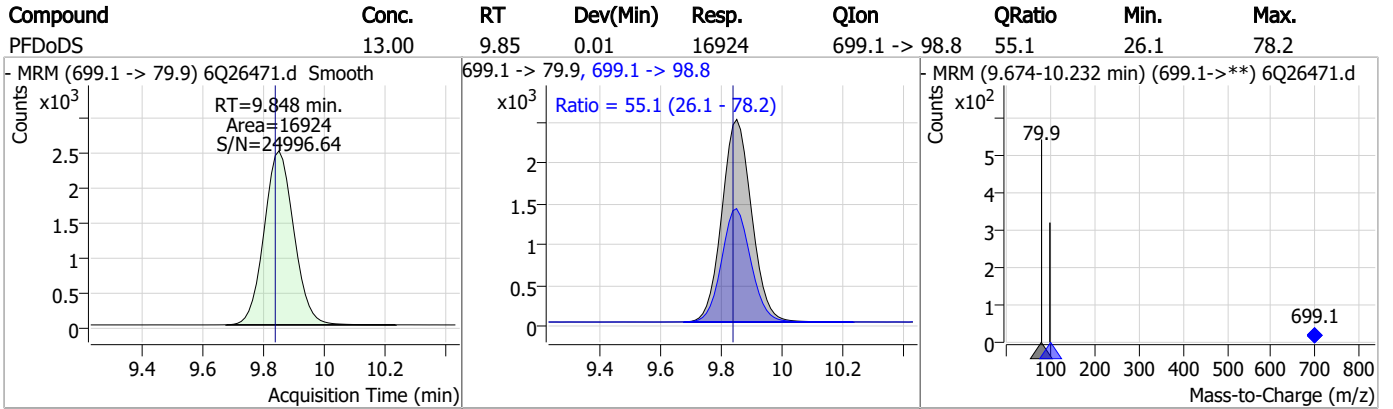
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.31	9.72	0.00	9472				



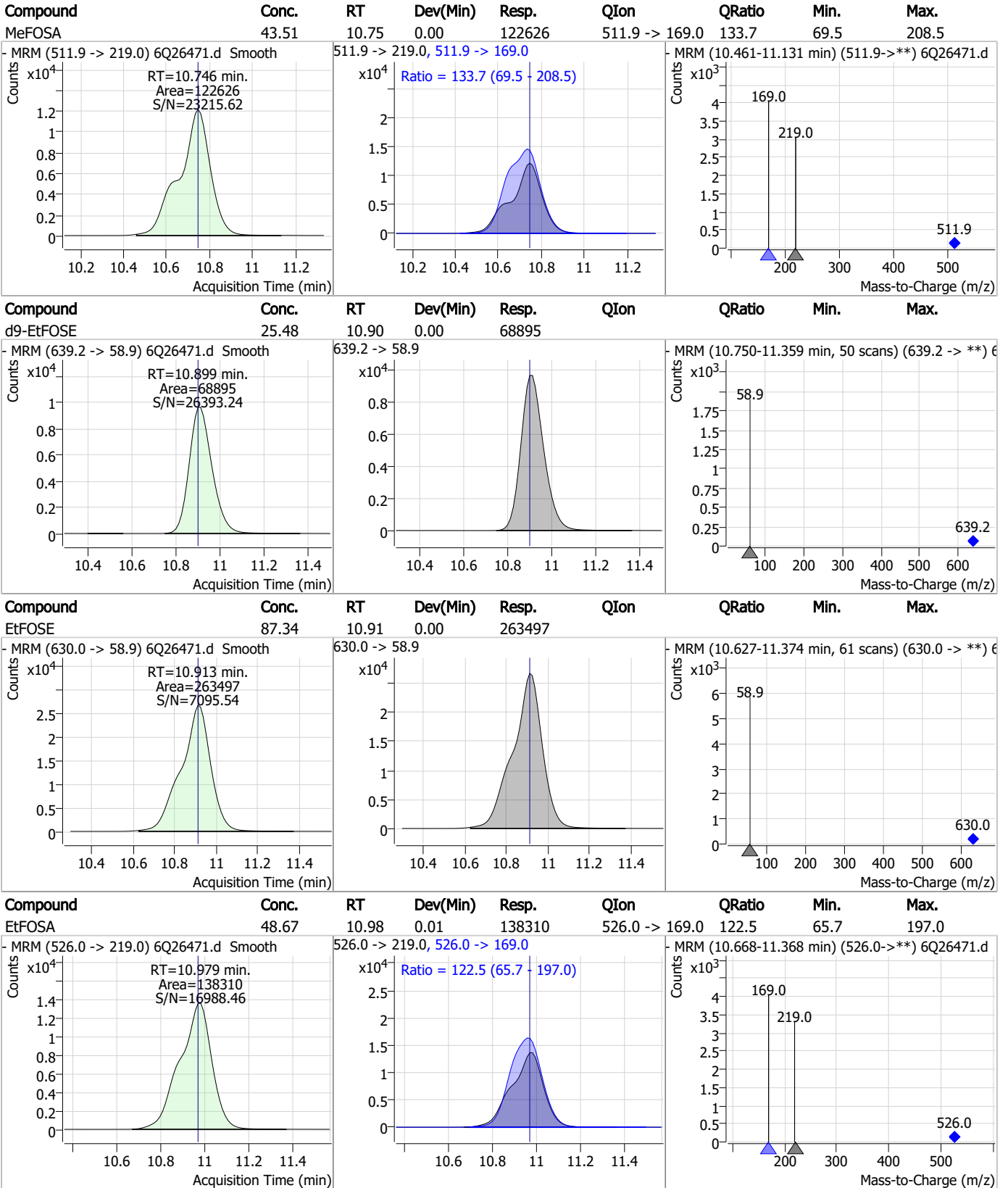
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.84	9.72	0.00	164240	713.1 -> 168.9	6.9	3.5	10.5



# Perfluorinated Compounds by LC/MS/MS



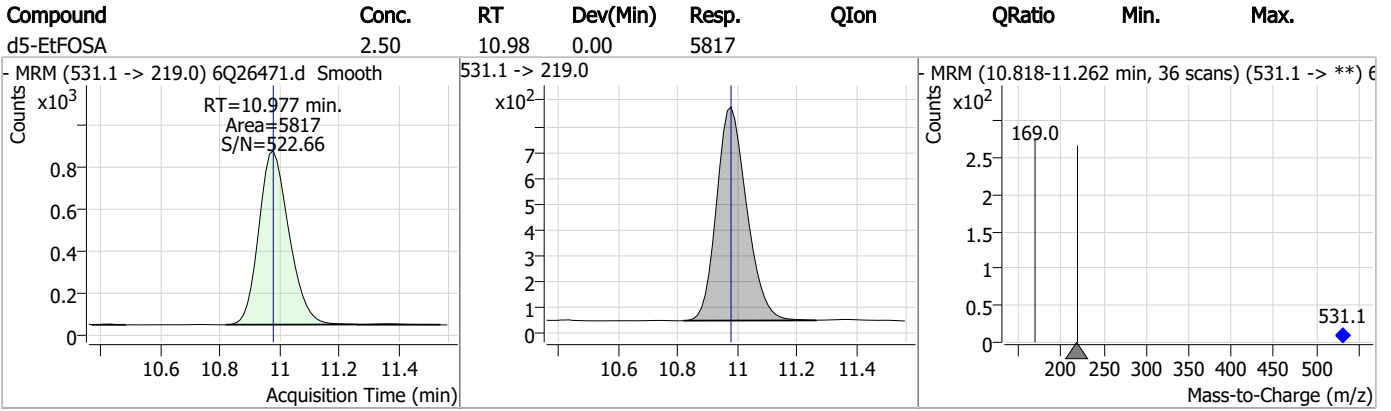
# Perfluorinated Compounds by LC/MS/MS



7.6.2

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# Perfluorinated Compounds by LC/MS/MS



7.6.2

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# Manual Integration Approval Summary

Sample Number: S6Q372-RT                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26471.D                      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 16:57                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.14	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorononanoic acid	375-95-1		7.53	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.6.2.1

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## QQQ Check Tune Report



**Instrument Name** LCMS Q6  
**MS Model** G6495B  
**MS Instrument Serial** SG1752D103  
**Software\_Firmware Version** 10.1.67, FW: A.00.08.112  
**Tune Date & Time** 15 October 2023 11:50:31  
**File Path** D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml  
**Ion Source** AJS ESI  
**Ionization Mode** AJS ESI  
**Tuned Resolution** All  
**Vacuum Pressure** 1.77E+0 [R] (Torr); 2.88E-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



### 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	112.92	-0.07	Pass	0.70	0.71	0.01	Pass	514642
302.00	302.01	0.01	Pass	0.70	0.70	0.00	Pass	1309616
601.98	602.00	0.02	Pass	0.70	0.69	-0.01	Pass	2737763
1033.99	1033.96	-0.03	Pass	0.70	0.77	0.07	Pass	810773
1633.95	1633.94	-0.01	Pass	0.70	0.62	-0.08	Pass	502157
2233.91	2233.81	-0.10	Pass	0.70	0.65	-0.05	Pass	151304

**Analyzer: MS2 Polarity: Negative Width: Unit**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.66	-0.04	Pass	145030
112.99	112.96	-0.03	Pass	0.70	0.76	0.06	Pass	546251
302.00	302.01	0.01	Pass	0.70	0.74	0.04	Pass	1355931
601.98	601.99	0.01	Pass	0.70	0.75	0.05	Pass	2273727
1033.99	1033.98	-0.01	Pass	0.70	0.72	0.02	Pass	792523
1633.95	1633.98	0.03	Pass	0.70	0.69	-0.01	Pass	603607
2233.91	2233.83	-0.08	Pass	0.70	0.70	0.00	Pass	209213

**Analyzer: MS1 Polarity: Negative Width: Wide**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.85	-0.14	Pass	1.20	1.31	0.11	Pass	636314
302.00	301.65	-0.35	Pass	1.20	1.67	0.47	Pass	1972700
601.98	601.64	-0.34	Pass	1.20	1.79	0.59	Pass	4416528
1033.99	1033.71	-0.28	Pass	1.20	1.64	0.44	Pass	2165369
1633.95	1633.72	-0.23	Pass	1.20	1.63	0.43	Pass	1414463
2233.91	2233.52	-0.39	Pass	1.20	1.41	0.21	Pass	547582

**Analyzer: MS2 Polarity: Negative Width: Wide**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.03	0.03	Pass	1.20	1.13	-0.07	Pass	214719
112.99	112.96	-0.03	Pass	1.20	1.22	0.02	Pass	853059
302.00	301.90	-0.10	Pass	1.20	1.31	0.11	Pass	1796570
601.98	602.00	0.02	Pass	1.20	1.35	0.15	Pass	3841601
1033.99	1033.98	-0.01	Pass	1.20	1.33	0.13	Pass	1411302
1633.95	1633.93	-0.02	Pass	1.20	1.35	0.15	Pass	1296843
2233.91	2233.84	-0.07	Pass	1.20	1.15	-0.05	Pass	507327

**Analyzer: MS1 Polarity: Negative Width: Widest**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.75	-0.24	Pass	2.50	2.64	0.14	Pass	748259
302.00	301.71	-0.29	Pass	2.50	2.98	0.48	Pass	2768560
601.98	601.63	-0.35	Pass	2.50	3.06	0.56	Pass	5473529
1033.99	1033.67	-0.32	Pass	2.50	3.01	0.51	Pass	3722656
1633.95	1633.67	-0.28	Pass	2.50	2.63	0.13	Pass	3029742
2233.91	2233.63	-0.28	Pass	2.50	2.42	-0.08	Pass	1418879

**Analyzer: MS2 Polarity: Negative Width: Widest**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.99	-0.01	Pass	2.50	2.48	-0.02	Pass	234536
112.99	112.96	-0.03	Pass	2.50	2.57	0.07	Pass	1116431
302.00	301.88	-0.12	Pass	2.50	2.64	0.14	Pass	2547969
601.98	602.05	0.07	Pass	2.50	2.63	0.13	Pass	4986249
1033.99	1033.97	-0.02	Pass	2.50	2.64	0.14	Pass	2326593
1633.95	1633.94	-0.01	Pass	2.50	2.60	0.10	Pass	2802510
2233.91	2233.84	-0.07	Pass	2.50	2.69	0.19	Pass	1479456

7.7.1  
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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26473.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 5:25:55 PM  
 Sample Name : ic372-1  
 Vial : P1-A2  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	132757	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	42910	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	41552	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	40212	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55799	2.50 µg/L	0.000
M9-PFNA	7.666	472.1 -> 427.0	24142	1.25 µg/L	0.012
M6-PFDA	8.134	519.1 -> 474.1	24751	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	25417	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	26826	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9534	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	18407	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	18123	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10154	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10248	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2218	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2927	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2708	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	20213	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	30059	10.00 µg/L	-0.012
M5-EtFOSAA	8.400	589.2 -> 419.0	16799	5.00 µg/L	0.012
M7-MeFOSE	10.665	623.2 -> 58.9	60620	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	72398	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	5952	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5139	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9134	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	53324	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6433	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	61830	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	22028	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21011	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	41524	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2218	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2927	5.44 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2708	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFDoDA	9.006	615.1 -> 570.0	26826	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9534	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.483	302.1 -> 79.9	18123	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.239	402.1 -> 79.9	10154	2.43 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 = 97.4%		
13C4-PFBA	2.926	216.8 -> 171.9	132757	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.505	367.1 -> 322.0	40212	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C5-PFHxA	5.565	318.0 -> 273.0	41552	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C5-PFPeA	4.346	268.3 -> 223.0	42910	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C6-PFDA	8.134	519.1 -> 474.1	24751	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C7-PFUnDA	8.588	570.0 -> 525.1	25417	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C8-FOSA	9.654	506.1 -> 77.8	18407	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C8-PFOA	7.136	421.1 -> 376.0	55799	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C8-PFOS	8.284	507.1 -> 79.9	10248	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C9-PFNA	7.666	472.1 -> 427.0	24142	1.34 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.3%		
d3-MeFOSAA	8.191	573.2 -> 419.0	20213	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-HFPO-DA	5.930	286.9 -> 168.9	30059	10.26 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
d3-MeFOSA	10.745	515.0 -> 219.0	5139	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
d5-EtFOSAA	8.400	589.2 -> 419.0	16799	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
d7-MeFOSE	10.665	623.2 -> 58.9	60620	24.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
d9-EtFOSE	10.899	639.2 -> 58.9	72398	25.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
d5-EtFOSA	10.977	531.1 -> 219.0	5952	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	3156	0.78 µg/L	98
		327.1 -> 80.9	1161		
6:2FTS	6.911	427.1 -> 407.0	3642	1.11 µg/L	98
		427.1 -> 80.9	1398		
8:2FTS	7.935	527.1 -> 507.0	1800	0.86 µg/L	96
		527.1 -> 80.8	614		
EtFOSAA	8.389	584.2 -> 419.1	585	0.20 µg/L	m 71
		584.2 -> 526.0	483		
FOSA	9.645	498.1 -> 77.9	1674	0.22 µg/L	97
		498.1 -> 478.0	34		
MeFOSAA	8.192	570.1 -> 419.0	753	0.18 µg/L	m 97
		570.1 -> 483.0	156		
PFBA	2.932	212.8 -> 168.9	4162	0.80 µg/L	100
PFBS	5.484	298.7 -> 79.9	1151	0.19 µg/L	93
		298.7 -> 98.8	476		
PFDA	8.134	512.9 -> 469.0	4097	0.20 µg/L	97
		512.9 -> 219.0	650		
PFDODA	9.019	613.1 -> 569.0	4015	0.19 µg/L	92
		613.1 -> 319.0	564		
PFDS	9.157	599.0 -> 79.9	517	0.19 µg/L	97

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	251			
PFHpA	6.506	363.1 -> 319.0	4916	0.21	µg/L	99
		363.1 -> 169.0	698			
PFHpS	7.793	449.0 -> 79.9	910	0.19	µg/L	83
		449.0 -> 98.9	366			
PFHxA	5.568	313.0 -> 269.0	3296	0.21	µg/L	99
		313.0 -> 118.9	166			
PFHxS	7.240	398.7 -> 79.9	927	0.21	µg/L	m 89
		398.7 -> 98.9	455			
PFNA	7.667	463.0 -> 419.0	2948	0.19	µg/L	95
		463.0 -> 219.0	785			
PFNS	8.751	548.8 -> 79.9	795	0.20	µg/L	85
		548.8 -> 98.9	314			
PFOA	7.138	413.0 -> 369.0	5894	0.24	µg/L	88
		413.0 -> 169.0	757			
PFOS	8.286	498.9 -> 79.9	882	0.18	µg/L	78
		498.9 -> 98.8	417			
PFPeA	4.349	263.0 -> 219.0	4187	0.41	µg/L	100
PFPeS	6.558	349.1 -> 79.9	1112	0.19	µg/L	92
		349.1 -> 98.9	417			
PFTeDA	9.721	713.1 -> 669.0	2625	0.20	µg/L	100
		713.1 -> 168.9	187			
PFTrDA	9.389	663.0 -> 619.0	3249	0.20	µg/L	96
		663.0 -> 168.9	329			
PFUnDA	8.589	563.1 -> 519.0	4196	0.21	µg/L	96
		563.1 -> 269.1	658			
11Cl-PF3OUdS	9.429	630.9 -> 450.9	3375	0.38	µg/L	99
		632.9 -> 452.9	1079			
9Cl-PF3ONS	8.615	530.8 -> 351.0	5688	0.36	µg/L	96
		532.8 -> 353.0	1954			
ADONA	6.755	376.9 -> 250.9	16275	0.38	µg/L	99
		376.9 -> 84.8	4161			
HFPO-DA	5.943	284.9 -> 168.9	1420	0.44	µg/L	89
		284.9 -> 184.9	117			
3:3FTCA	3.777	241.0 -> 177.0	729	1.02	µg/L	99
		241.0 -> 117.0	102			
5:3FTCA	6.210	341.0 -> 237.1	15128	5.16	µg/L	98
		341.0 -> 217.0	10978			
7:3FTCA	7.620	441.0 -> 316.9	9278	4.87	µg/L	100
		441.0 -> 336.9	18379			
EtFOSA	10.979	526.0 -> 219.0	1198	0.41	µg/L	99
		526.0 -> 169.0	1592			
EtFOSE	10.913	630.0 -> 58.9	3043	0.96	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	1107	0.42	µg/L	99
		511.9 -> 169.0	1551			
MeFOSE	10.678	616.1 -> 58.9	2682	1.03	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	288	0.20	µg/L	99
		699.1 -> 98.8	148			
NFDHA	5.435	295.0 -> 201.0	743	0.38	µg/L	93
		295.0 -> 84.9	232			
PFMBA	4.775	279.0 -> 85.1	3177	0.40	µg/L	100
PFMPA	3.488	229.0 -> 84.9	2584	0.40	µg/L	100
PFEESA	6.024	314.8 -> 134.9	7412	0.36	µg/L	99
		314.8 -> 82.9	299			

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

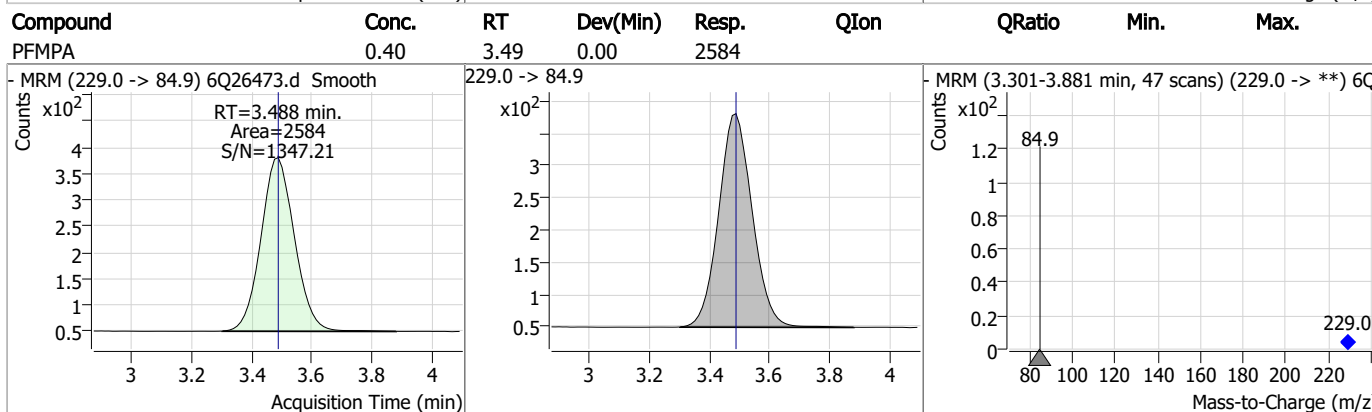
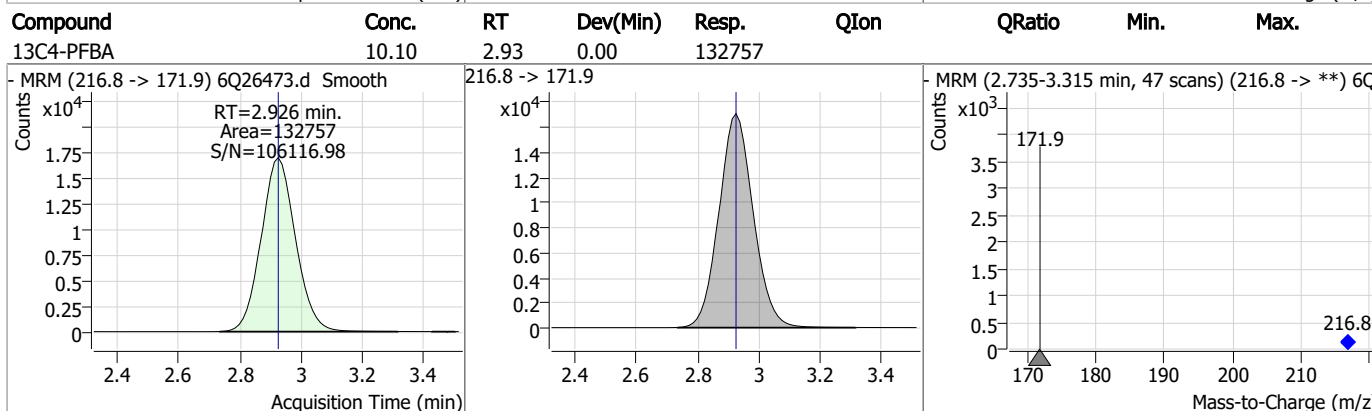
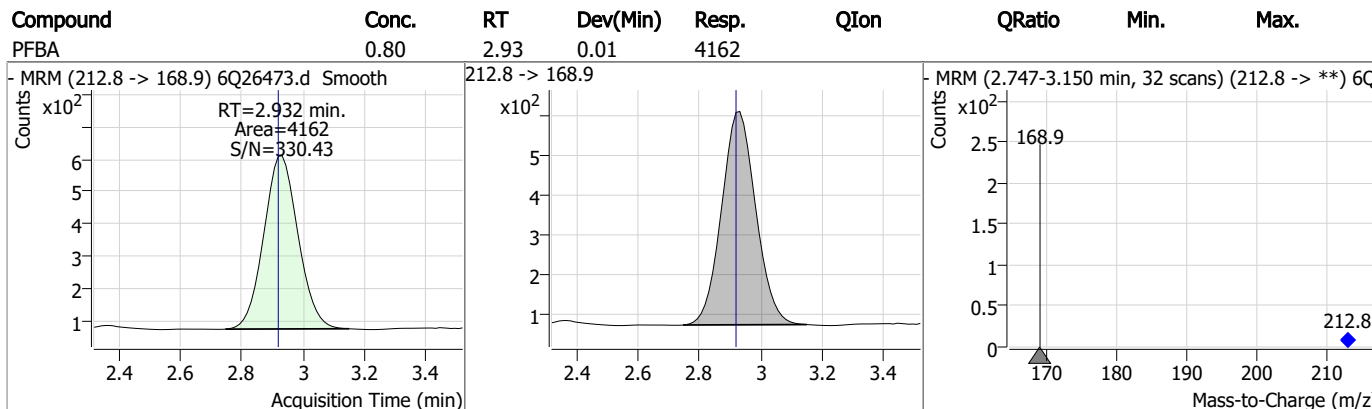
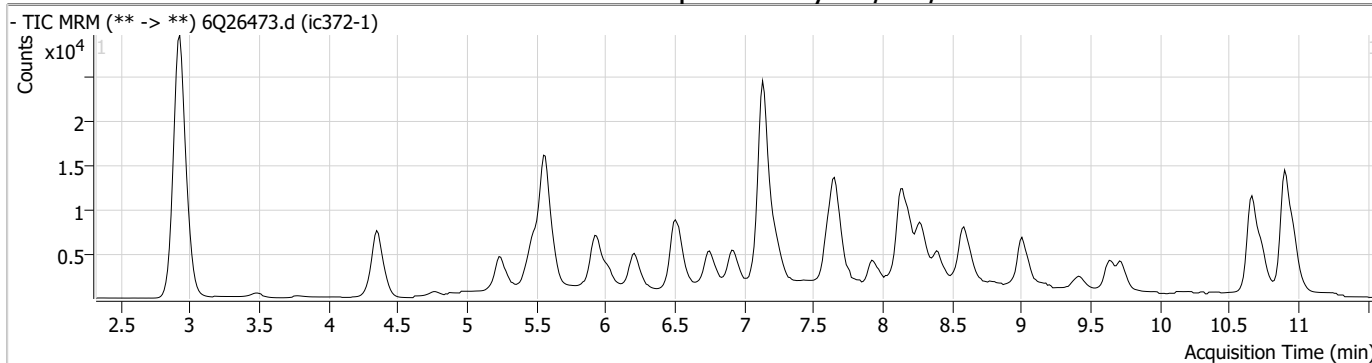
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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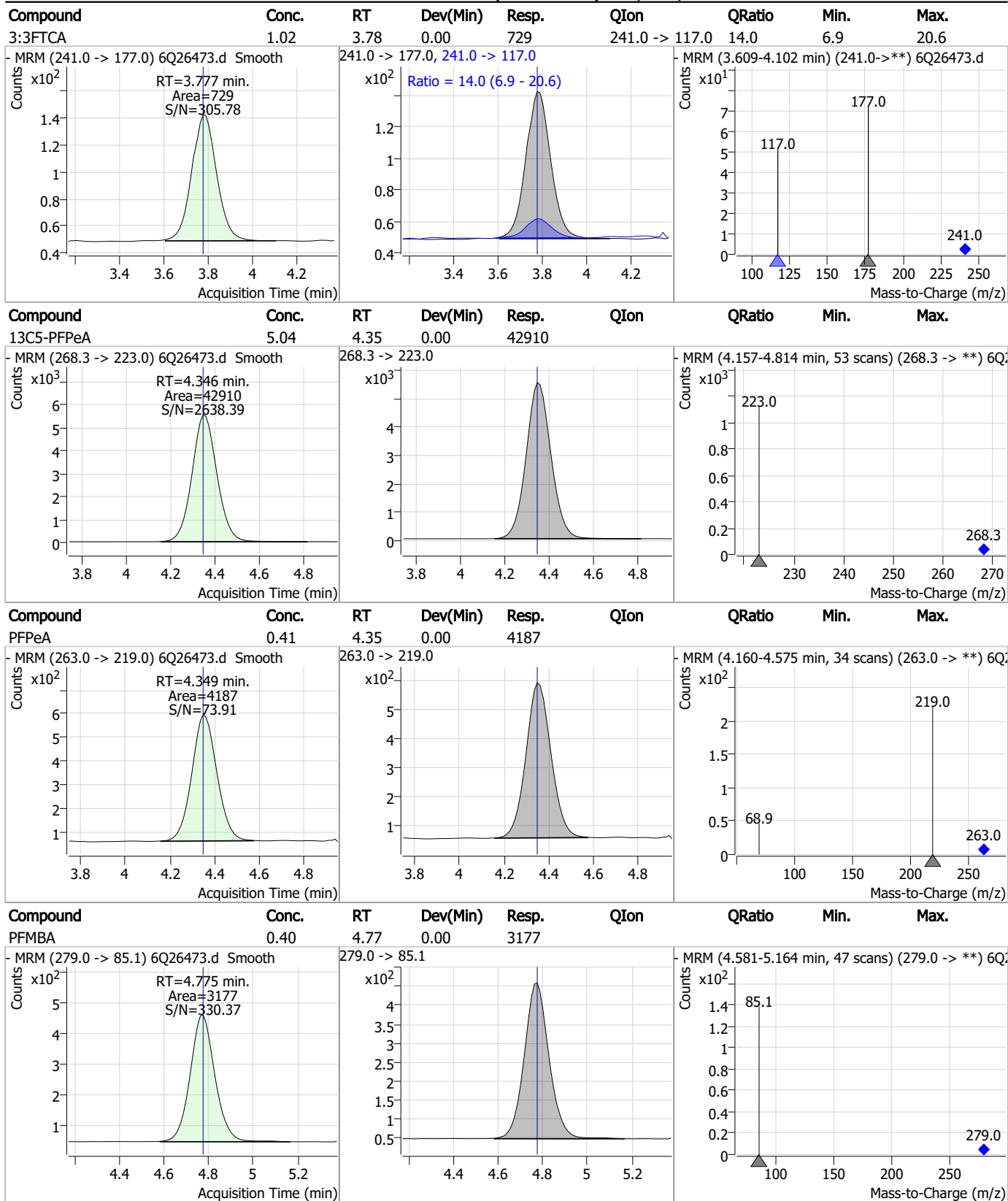
7.7.2  
7



### Perfluorinated Compounds by LC/MS/MS

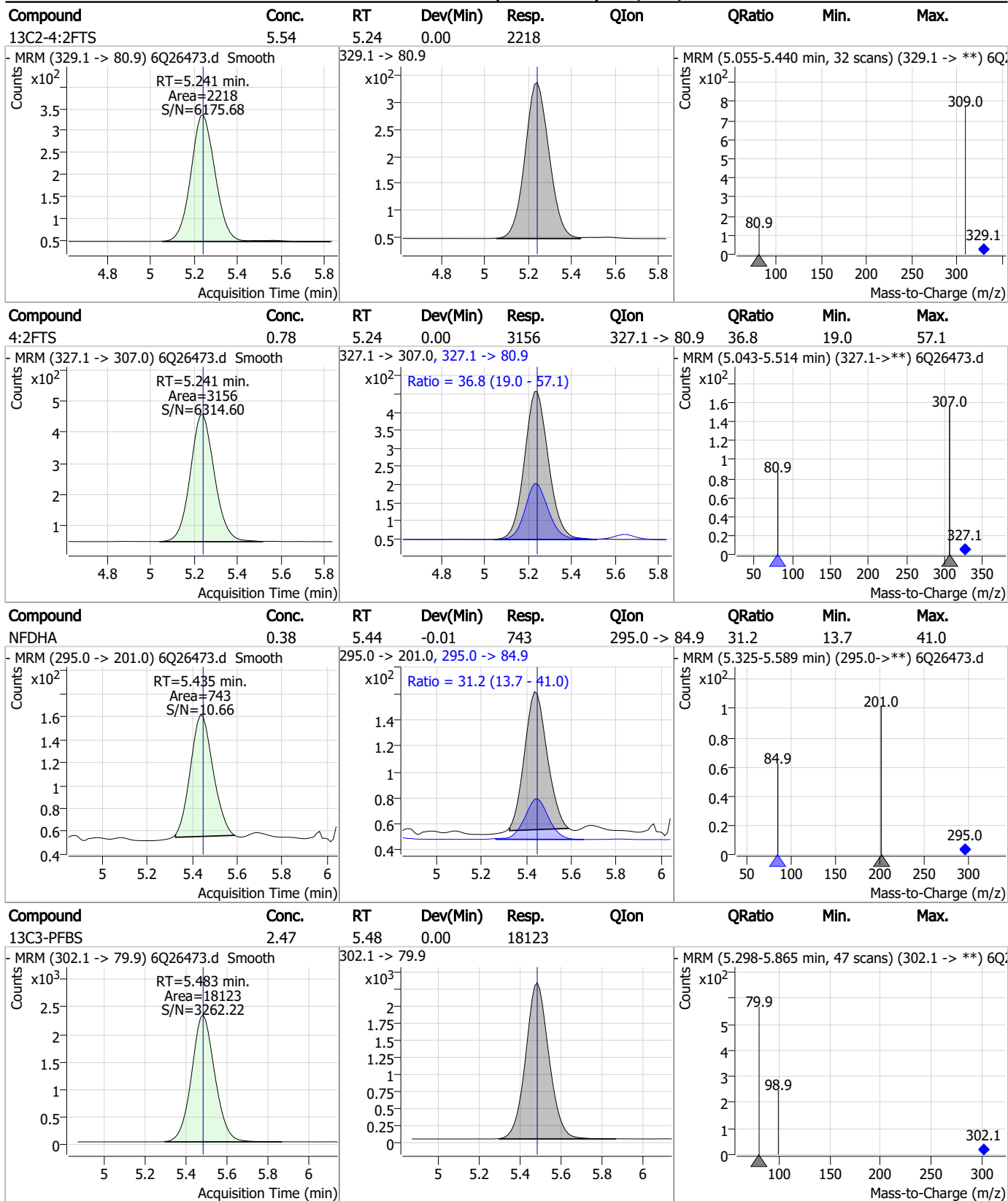


### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7

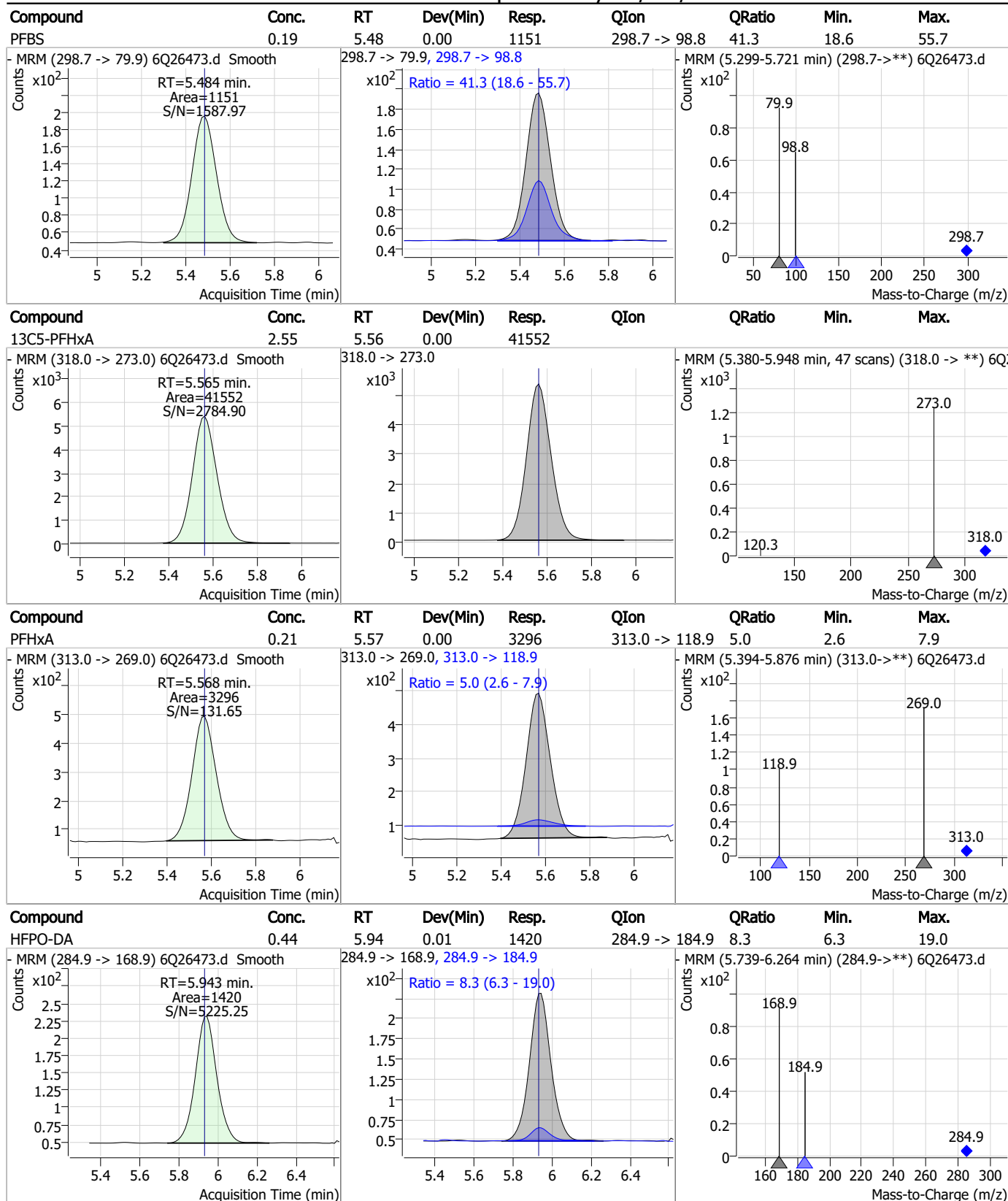
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7

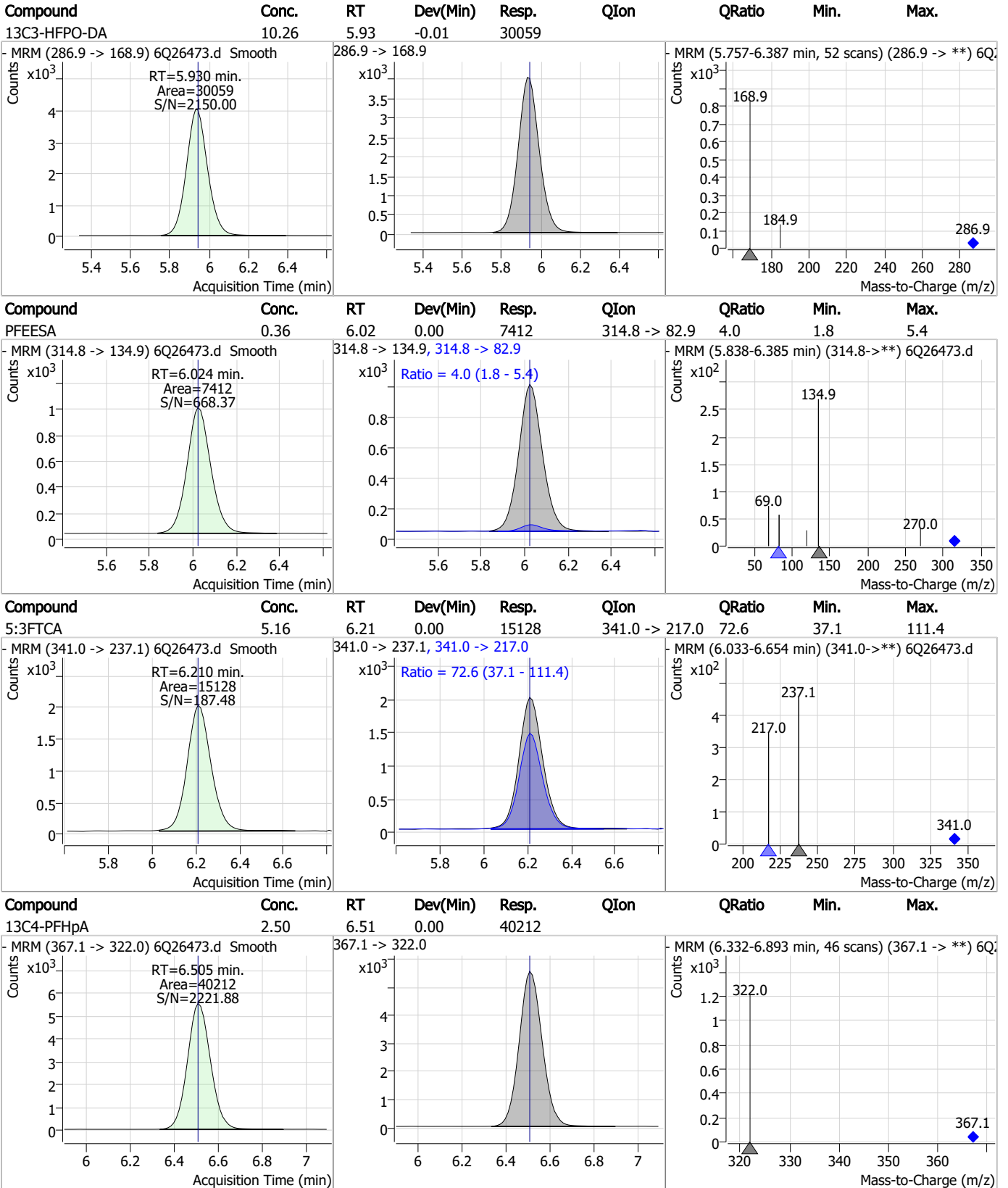


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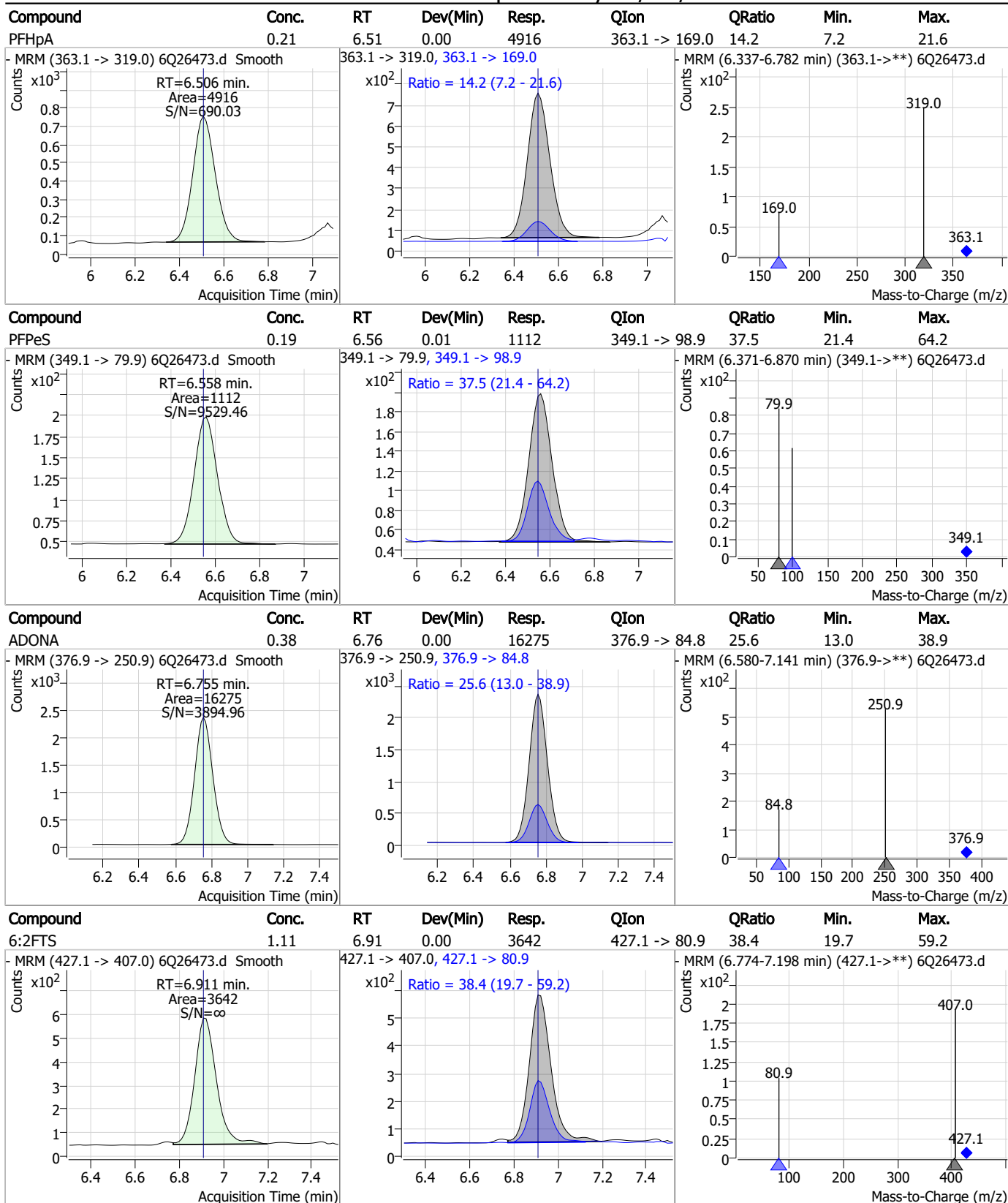


7.7.2  
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### Perfluorinated Compounds by LC/MS/MS

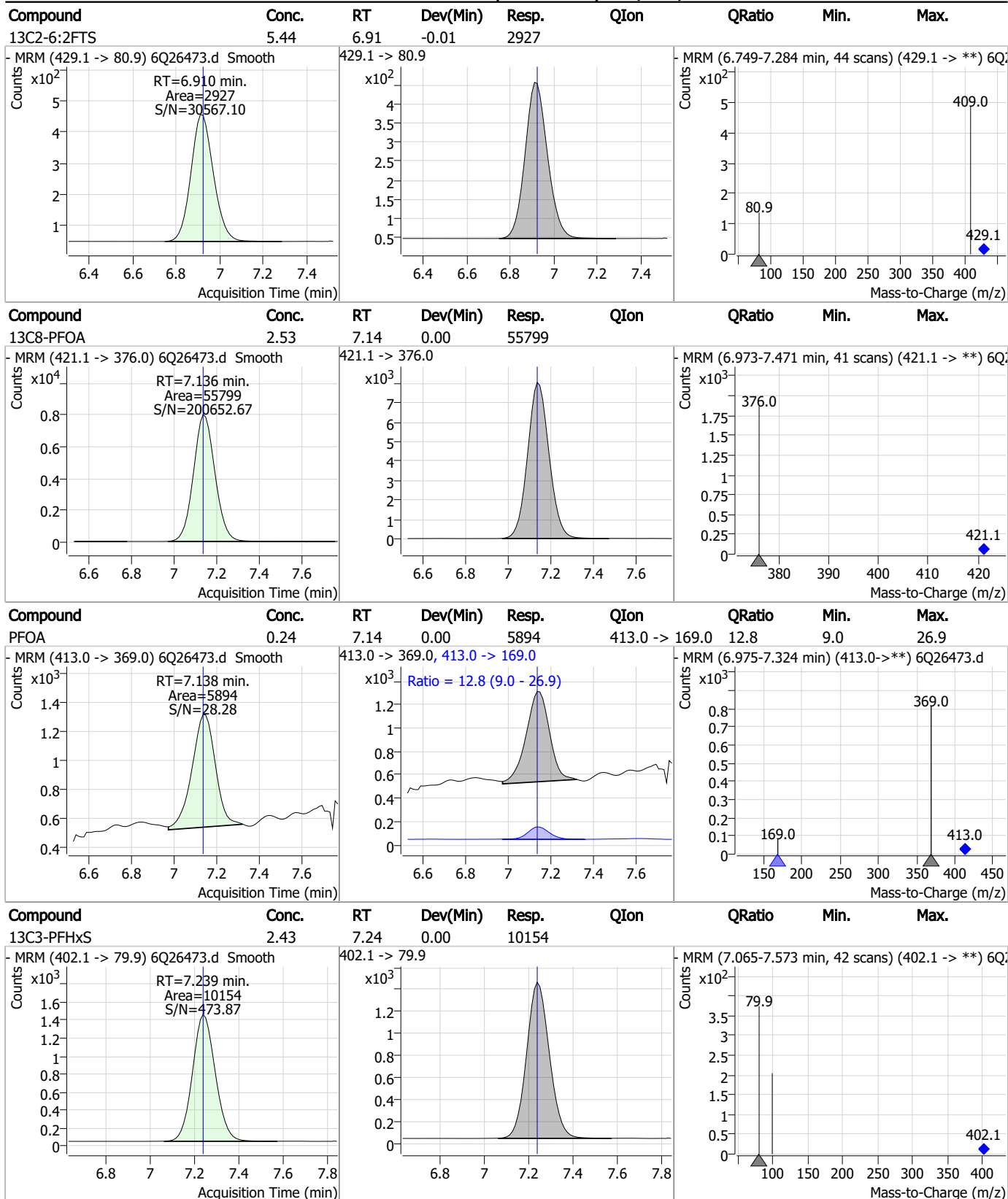


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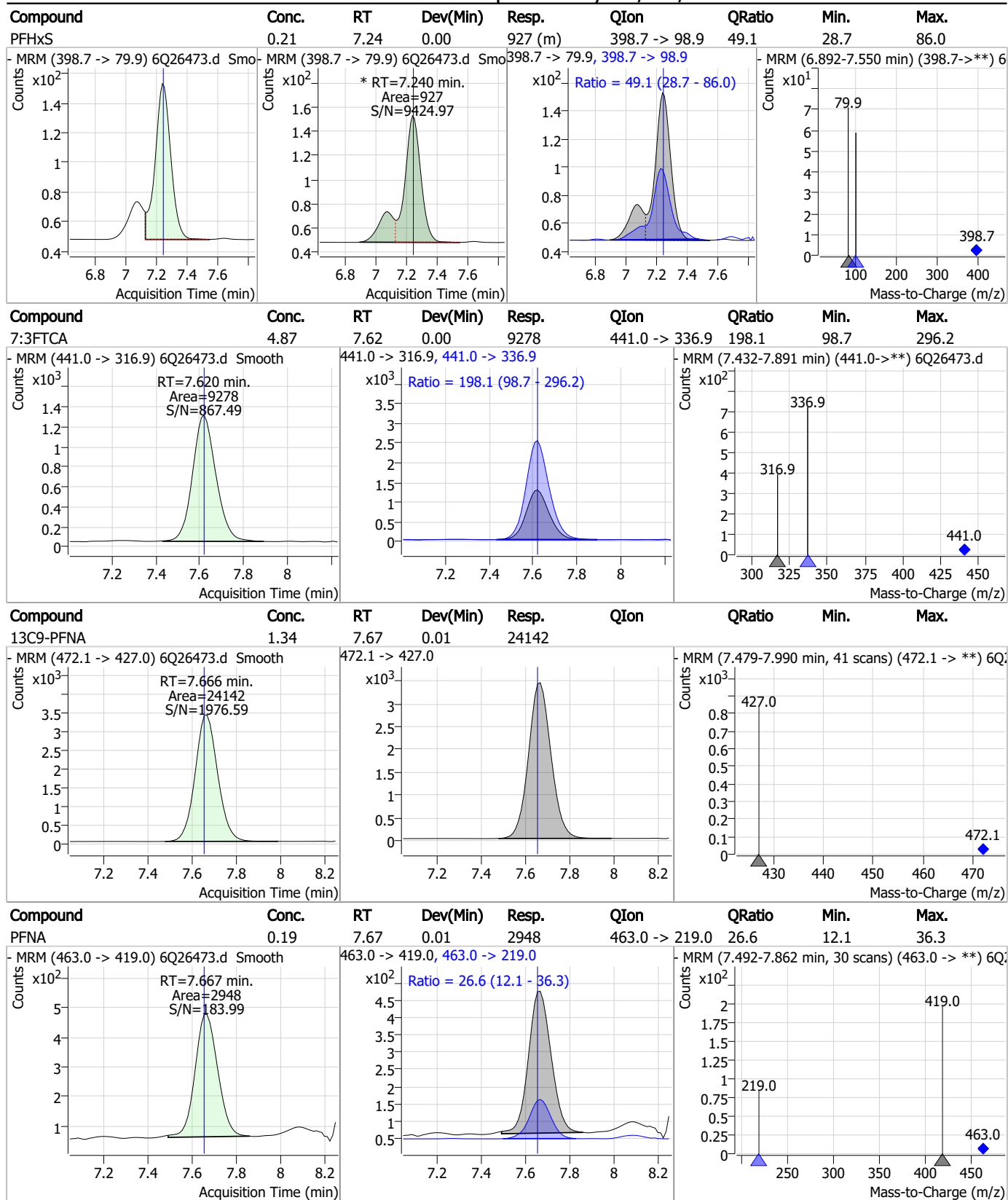
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### Perfluorinated Compounds by LC/MS/MS



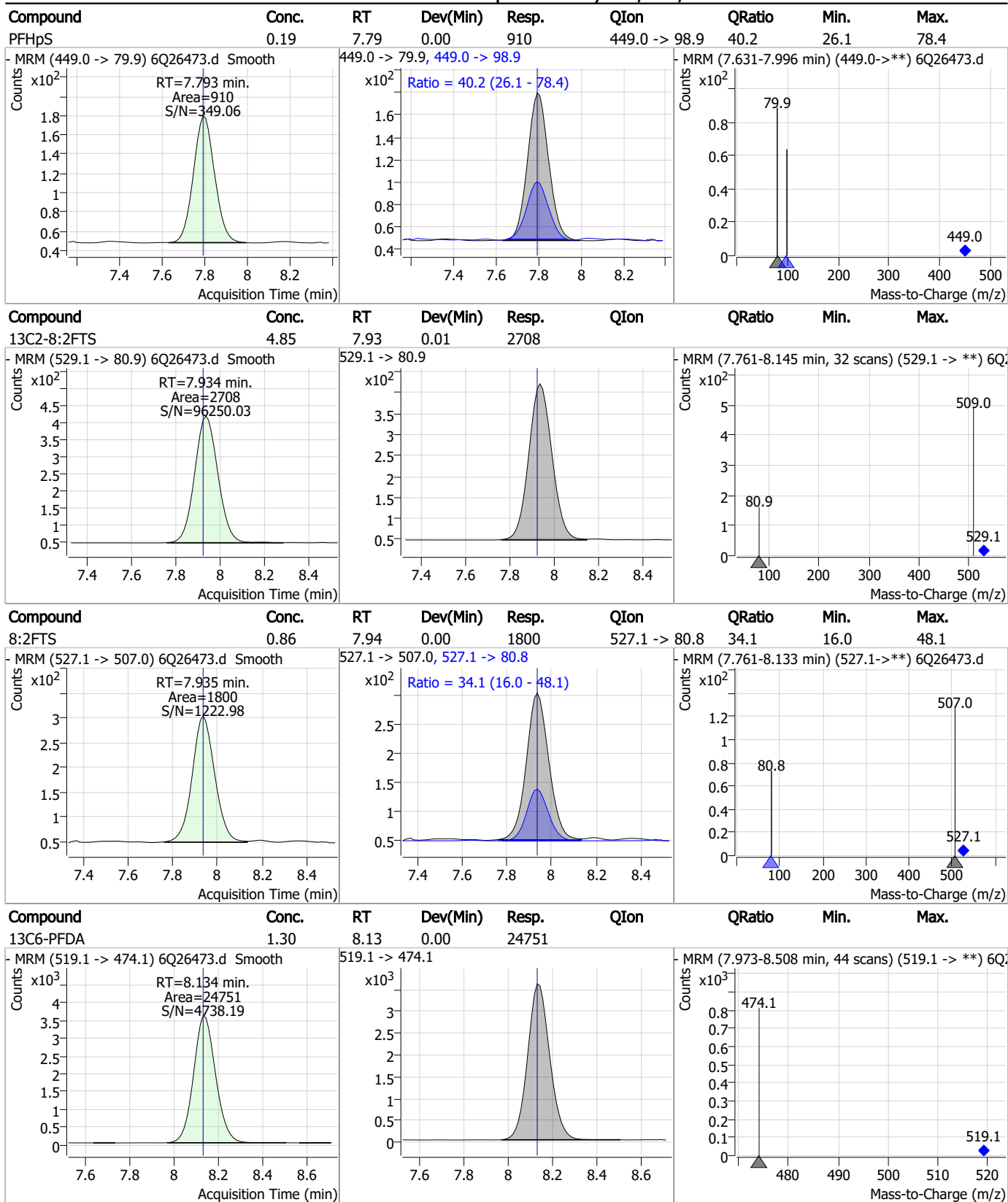
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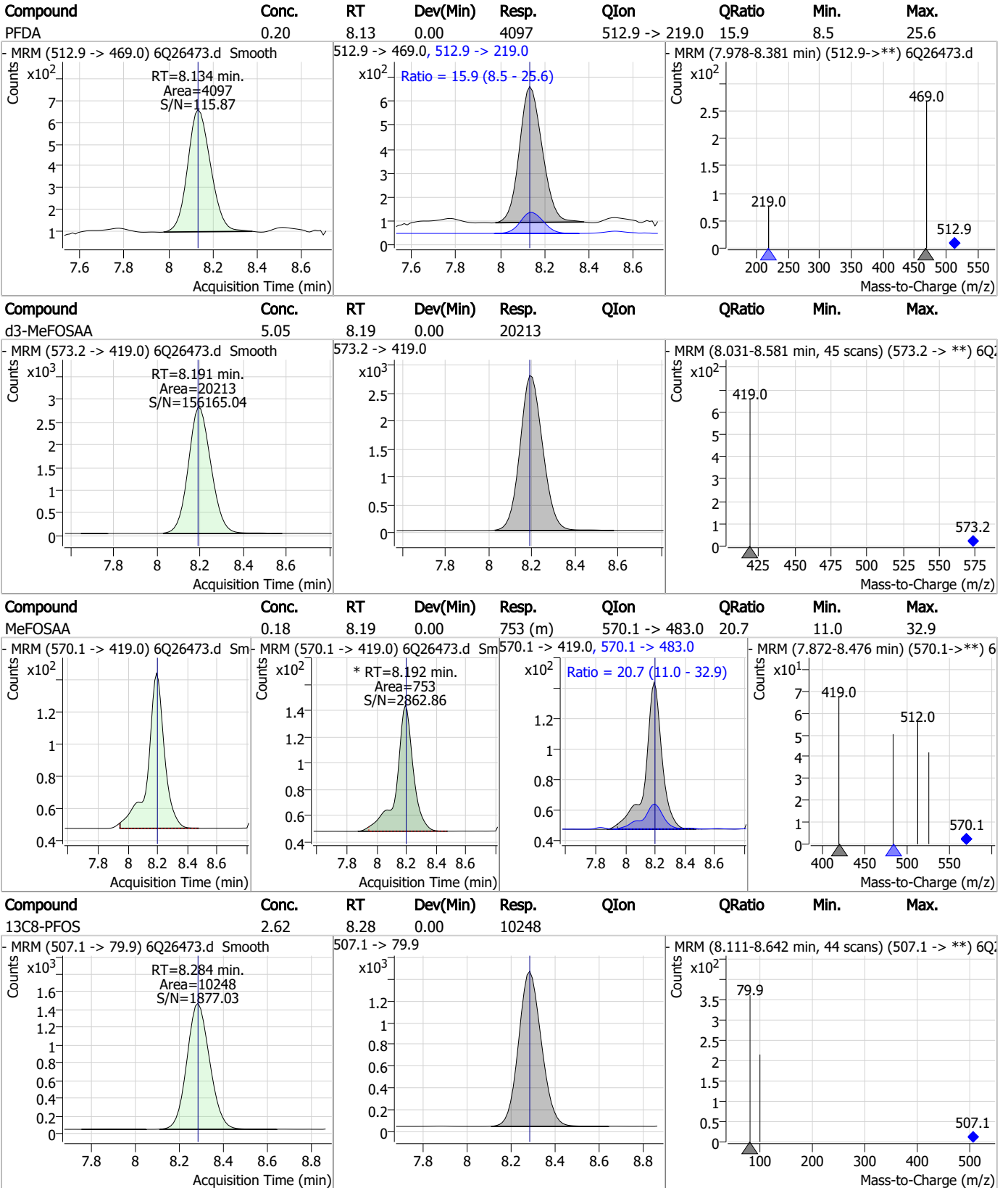
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### Perfluorinated Compounds by LC/MS/MS



7.7.2  
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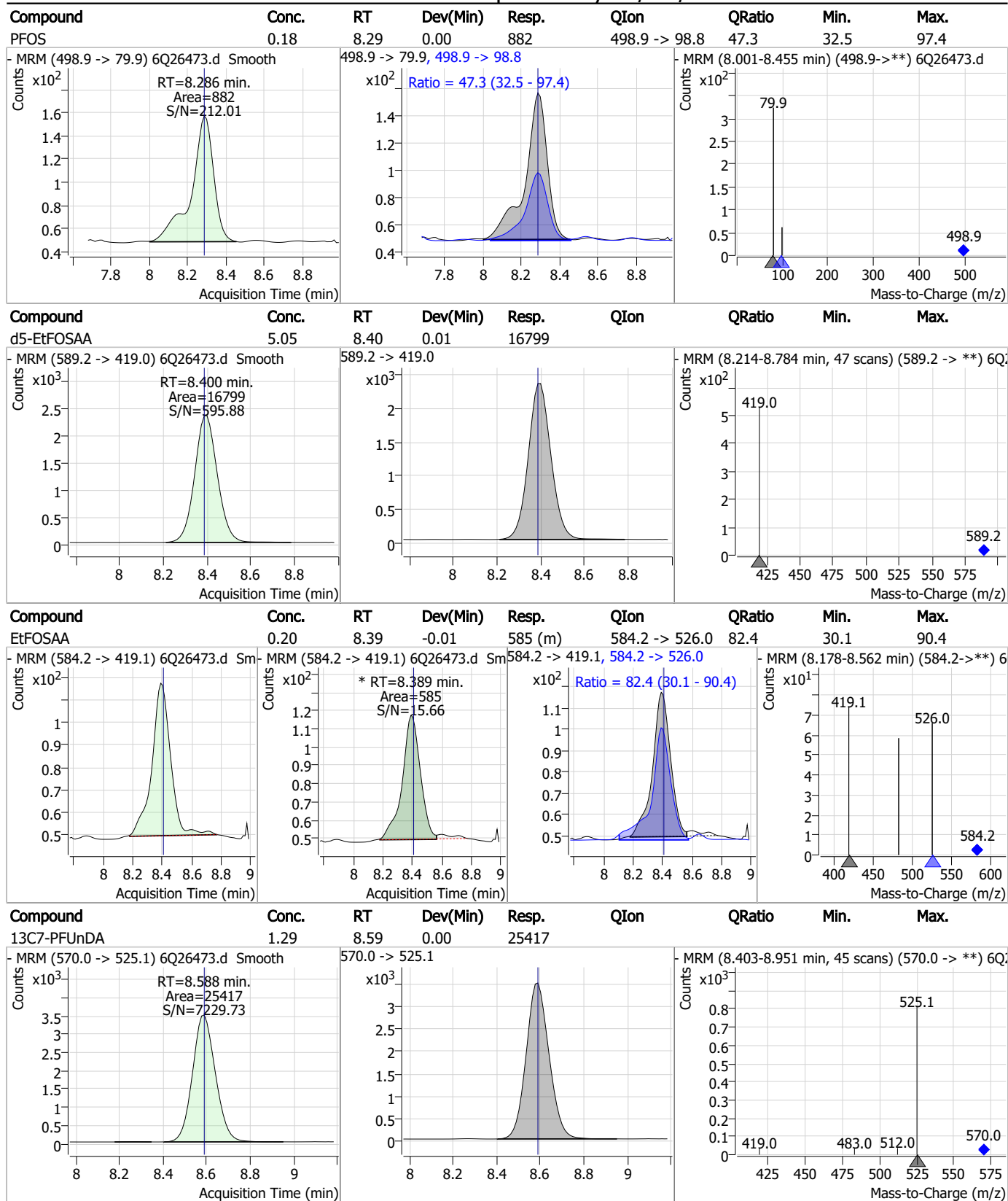
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7.7.2

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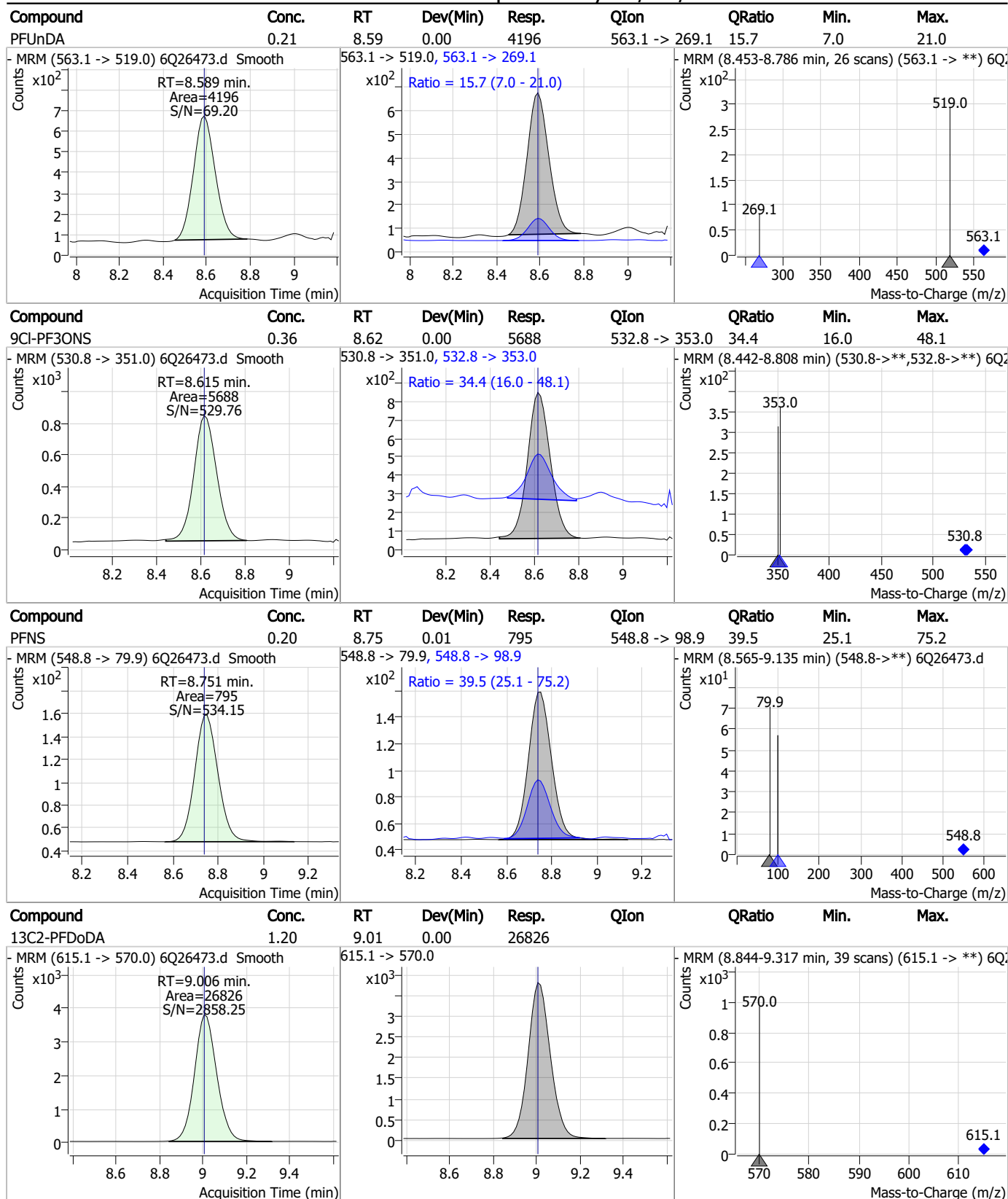
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7.7.2  
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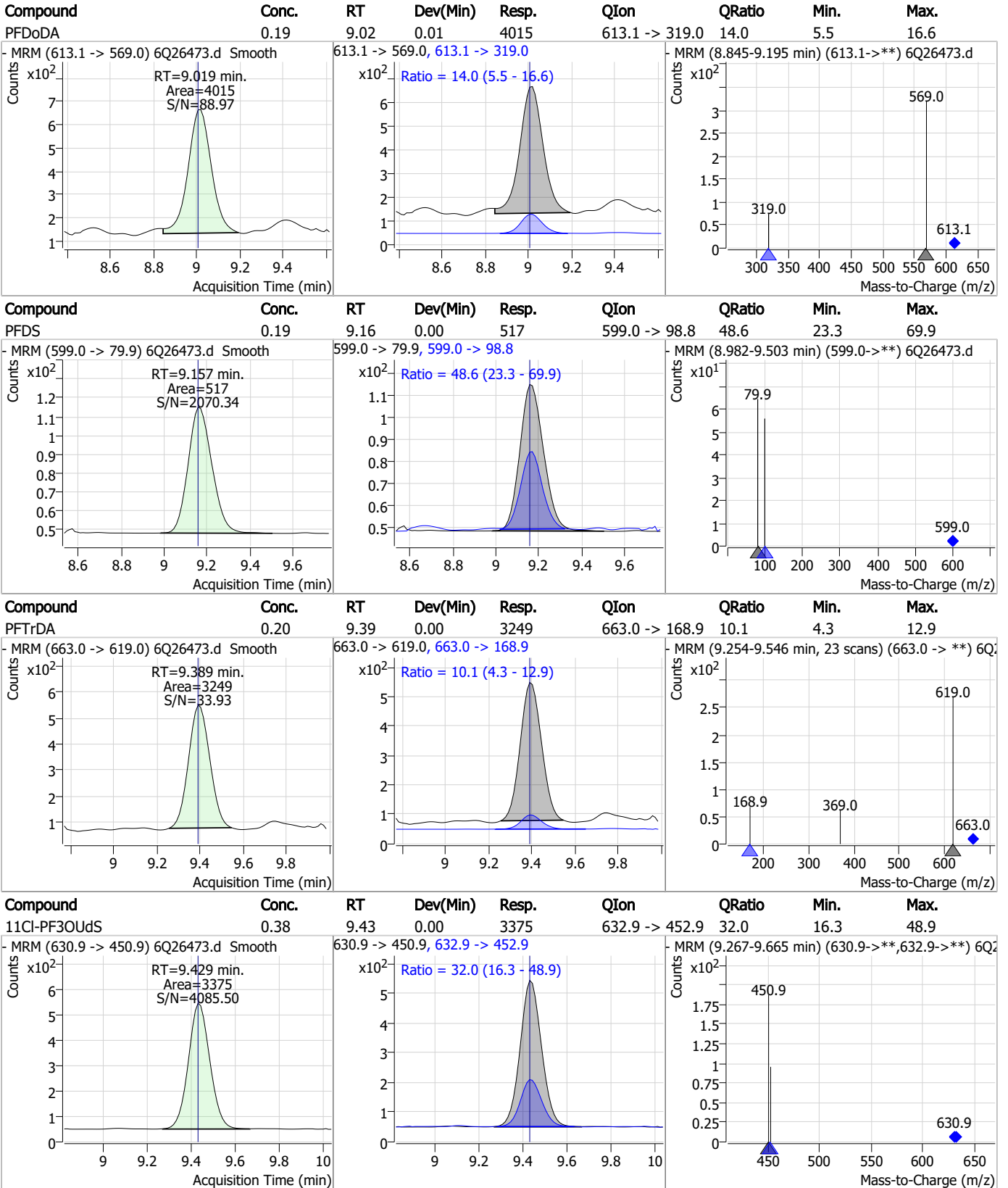


### Perfluorinated Compounds by LC/MS/MS



7.7.2  
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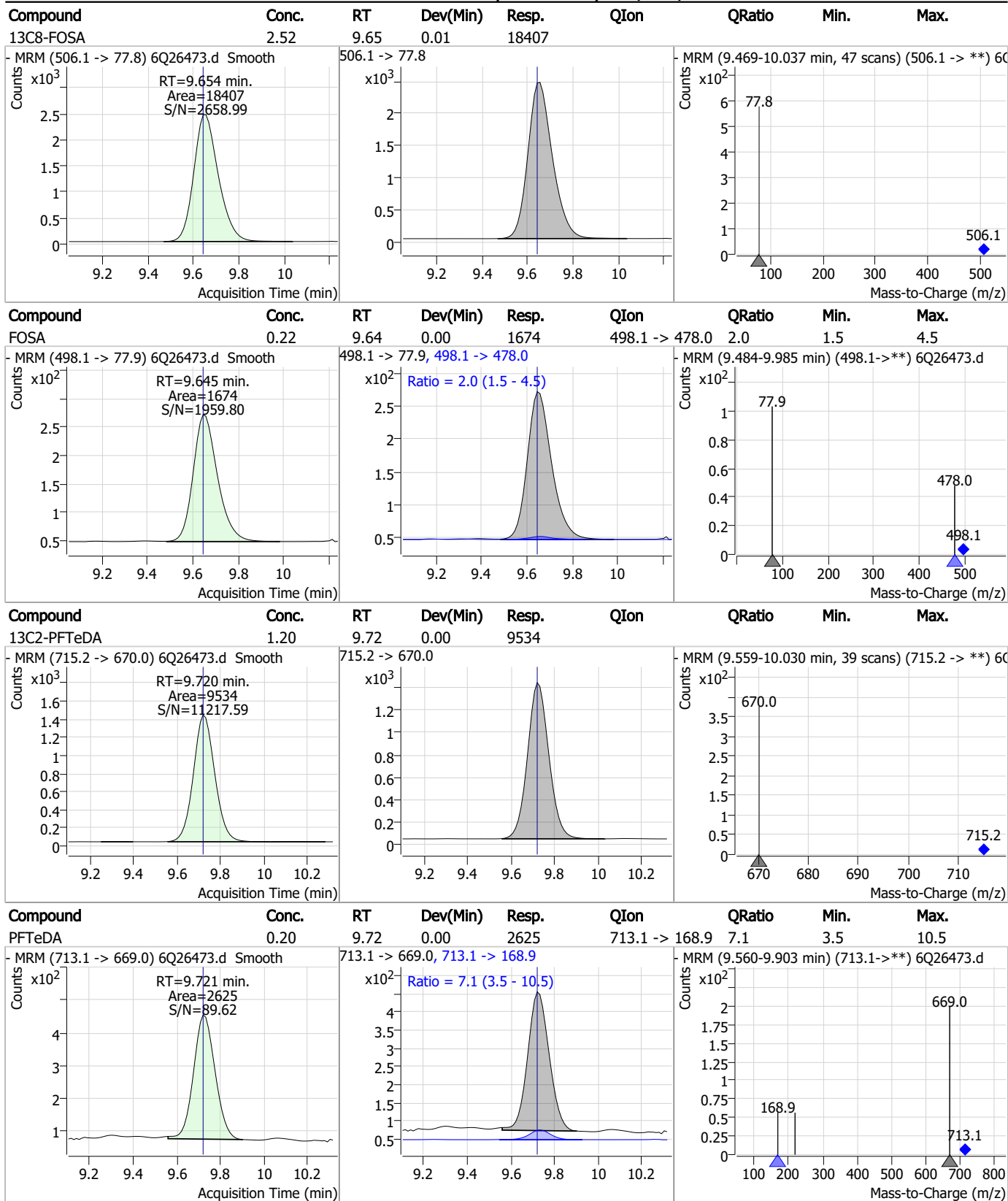
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7.7.2

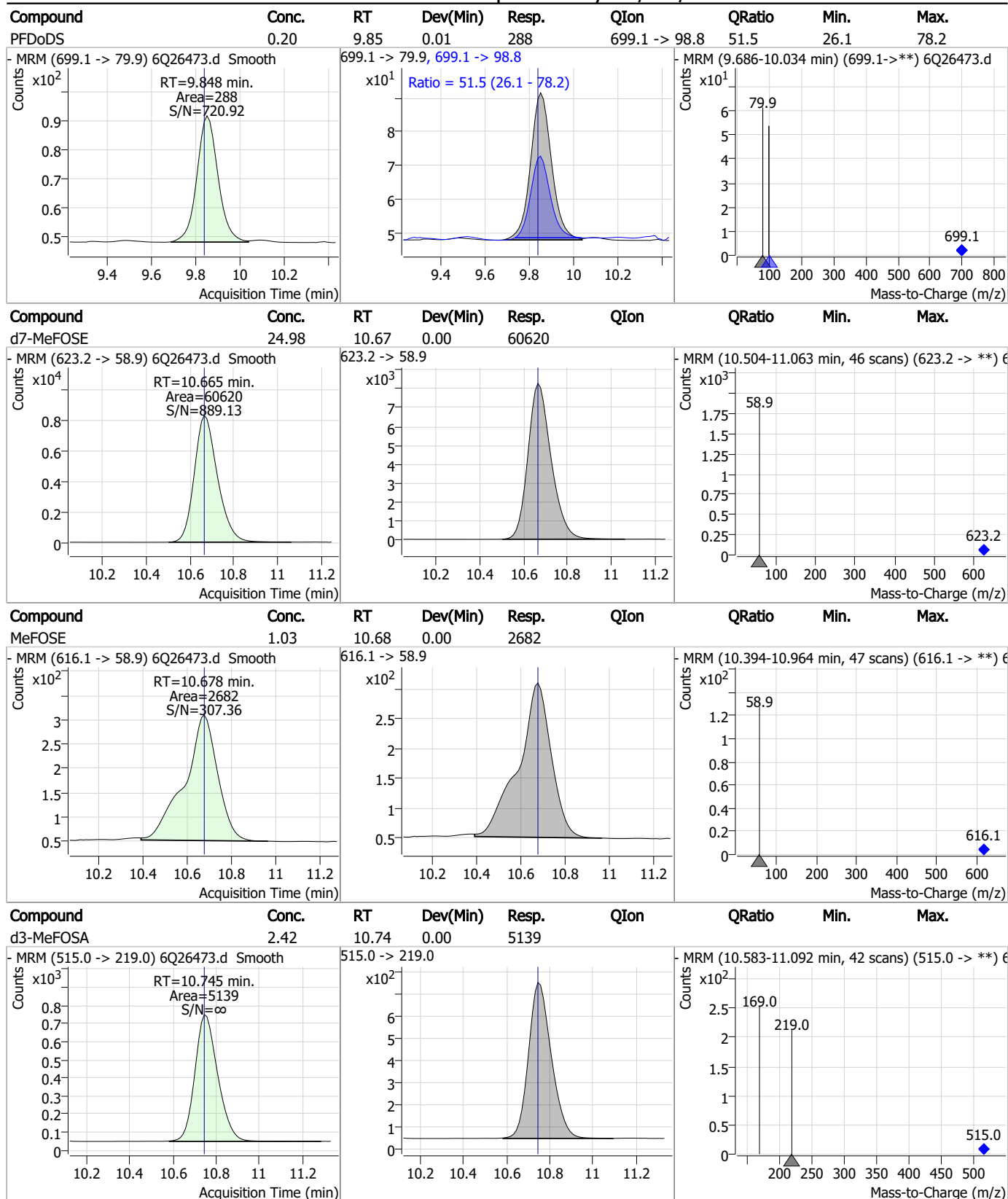
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### Perfluorinated Compounds by LC/MS/MS



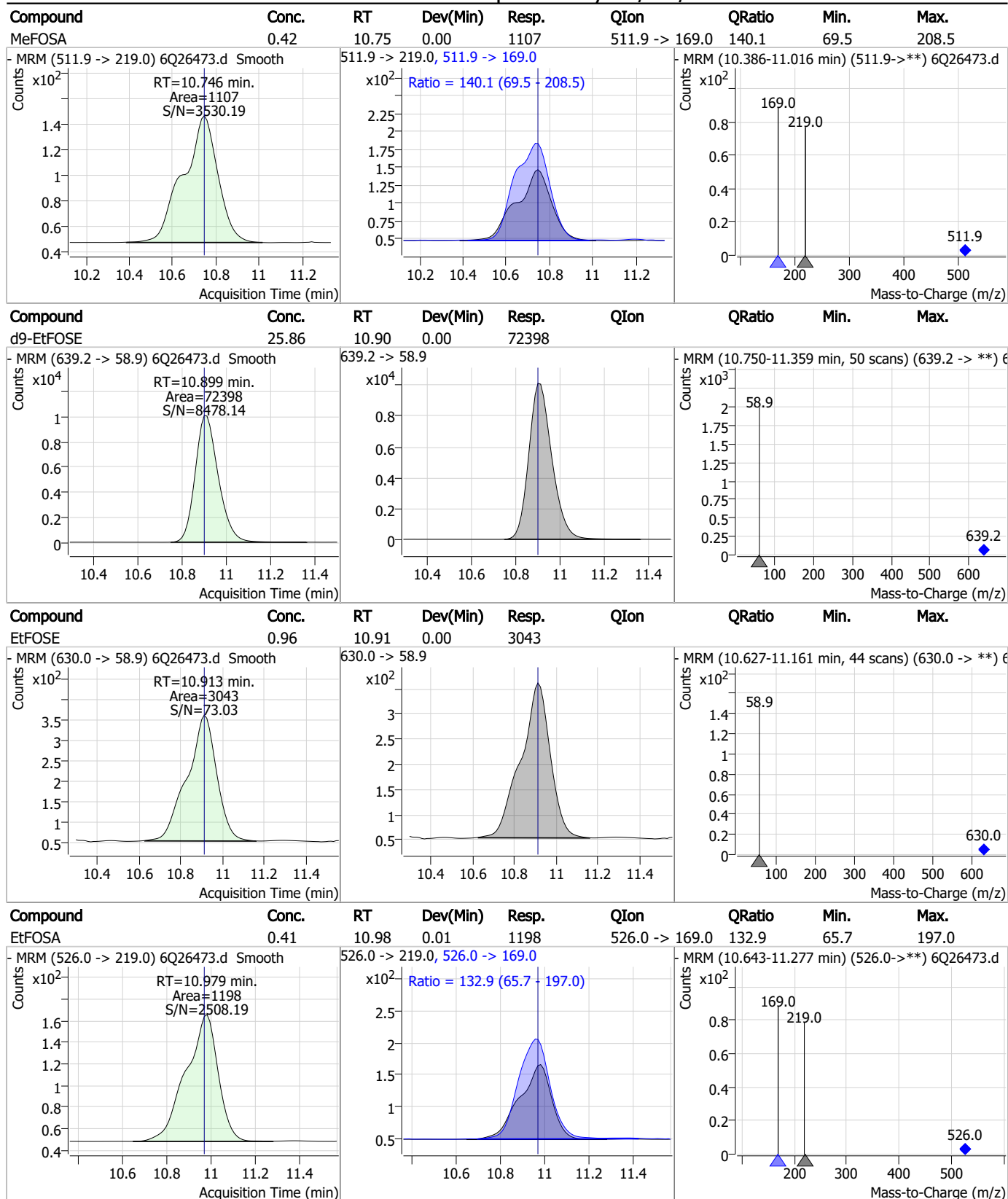
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### Perfluorinated Compounds by LC/MS/MS



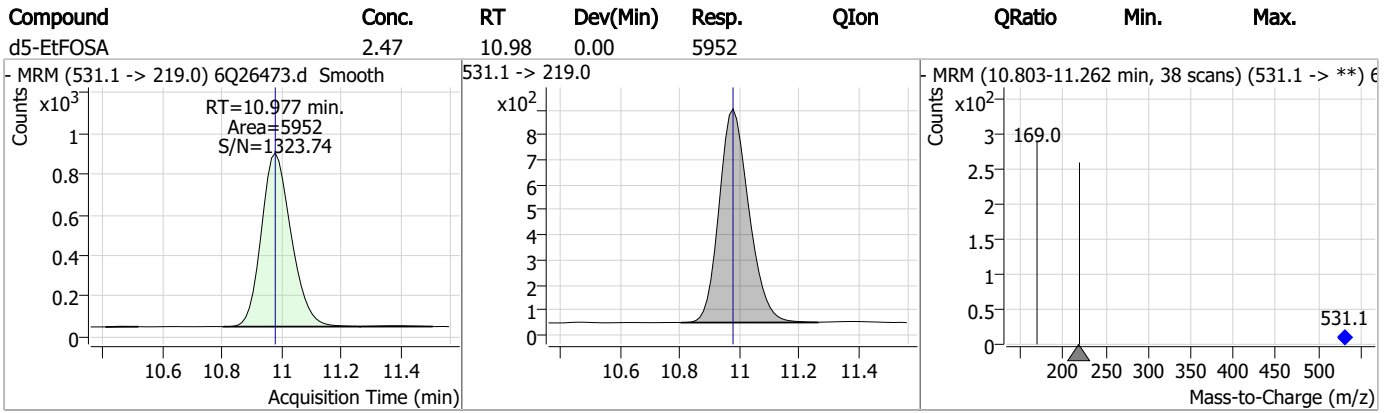
7.7.2  
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### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

# Manual Integration Approval Summary

Sample Number: S6Q372-IC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26473.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 17:25      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.19	Split peak
EtFOSAA	2991-50-6		8.39	Split peak

7.7.2.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26474.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 5:40:14 PM  
 Sample Name : ic372-2  
 Vial : P1-A3  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	134976	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	44366	5.00 µg/L	0.000
M5-PFHxA	5.552	318.0 -> 273.0	42295	2.50 µg/L	-0.012
M4-PFHpA	6.505	367.1 -> 322.0	40002	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55527	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24356	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23978	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	25574	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	28589	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9896	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	19053	2.50 µg/L	0.012
M3-PFBS	5.471	302.1 -> 79.9	19025	2.50 µg/L	-0.012
M3-PFHxS	7.239	402.1 -> 79.9	10843	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10349	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	2222	5.00 µg/L	-0.012
M2-6:2FTS	6.910	429.1 -> 80.9	2884	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2998	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	22159	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	30135	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	16751	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	62733	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	72578	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6491	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5478	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9922	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	55760	5.00 µg/L	-0.012
18O2-PFHxS	7.238	403.0 -> 83.9	6487	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	64078	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20651	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21558	1.25 µg/L	0.000
13C2-PFHxA	5.553	315.1 -> 270.0	41934	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.228	329.1 -> 80.9	2222	5.50 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2884	5.31 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2998	5.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-PFDoDA	9.006	615.1 -> 570.0	28589	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9896	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C3-PFBS	5.471	302.1 -> 79.9	19025	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.239	402.1 -> 79.9	10843	2.58 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 = 103.1%	
13C4-PFBA	2.926	216.8 -> 171.9	134976	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFHpA	6.505	367.1 -> 322.0	40002	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.552	318.0 -> 273.0	42295	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFPeA	4.346	268.3 -> 223.0	44366	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C6-PFDA	8.134	519.1 -> 474.1	23978	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C7-PFUnDA	8.588	570.0 -> 525.1	25574	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-FOSA	9.654	506.1 -> 77.8	19053	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOA	7.136	421.1 -> 376.0	55527	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOS	8.284	507.1 -> 79.9	10349	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C9-PFNA	7.654	472.1 -> 427.0	24356	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSAA	8.191	573.2 -> 419.0	22159	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	30135	10.18 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d3-MeFOSA	10.745	515.0 -> 219.0	5478	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16751	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
d7-MeFOSE	10.665	623.2 -> 58.9	62733	23.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d9-EtFOSE	10.899	639.2 -> 58.9	72578	23.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d5-EtFOSA	10.977	531.1 -> 219.0	6491	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.229	327.1 -> 307.0	6262	1.55 µg/L	98
		327.1 -> 80.9	2316		
6:2FTS	6.911	427.1 -> 407.0	6389	1.98 µg/L	97
		427.1 -> 80.9	2398		
8:2FTS	7.923	527.1 -> 507.0	3706	1.60 µg/L	92
		527.1 -> 80.8	1365		
EtFOSAA	8.401	584.2 -> 419.1	1294	0.44 µg/L	m 87
		584.2 -> 526.0	905		
FOSA	9.645	498.1 -> 77.9	3228	0.41 µg/L	99
		498.1 -> 478.0	109		
MeFOSAA	8.192	570.1 -> 419.0	1866	0.42 µg/L	m 99
		570.1 -> 483.0	401		
PFBA	2.919	212.8 -> 168.9	8616	1.63 µg/L	100
PFBS	5.472	298.7 -> 79.9	2296	0.36 µg/L	89
		298.7 -> 98.8	999		
PFDA	8.134	512.9 -> 469.0	7626	0.39 µg/L	98
		512.9 -> 219.0	1218		
PFDODA	9.007	613.1 -> 569.0	8822	0.39 µg/L	96
		613.1 -> 319.0	1107		
PFDS	9.157	599.0 -> 79.9	1116	0.41 µg/L	98

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	502			
PFHpA	6.506	363.1 -> 319.0	9776	0.42	µg/L	98
		363.1 -> 169.0	1503			
PFHpS	7.793	449.0 -> 79.9	2012	0.42	µg/L	87
		449.0 -> 98.9	867			
PFHxA	5.555	313.0 -> 269.0	6714	0.41	µg/L	99
		313.0 -> 118.9	342			
PFHxS	7.240	398.7 -> 79.9	1740	0.37	µg/L	m 84
		398.7 -> 98.9	791			
PFNA	7.655	463.0 -> 419.0	6392	0.41	µg/L	98
		463.0 -> 219.0	1490			
PFNS	8.751	548.8 -> 79.9	1628	0.41	µg/L	97
		548.8 -> 98.9	777			
PFOA	7.138	413.0 -> 369.0	10259	0.42	µg/L	96
		413.0 -> 169.0	1663			
PFOS	8.286	498.9 -> 79.9	1953	0.41	µg/L	m 84
		498.9 -> 98.8	1022			
PFPeA	4.349	263.0 -> 219.0	8444	0.80	µg/L	100
PFPeS	6.545	349.1 -> 79.9	2317	0.38	µg/L	95
		349.1 -> 98.9	1060			
PFTeDA	9.721	713.1 -> 669.0	5543	0.41	µg/L	100
		713.1 -> 168.9	389			
PFTrDA	9.389	663.0 -> 619.0	6914	0.39	µg/L	98
		663.0 -> 168.9	539			
PFUnDA	8.589	563.1 -> 519.0	7772	0.39	µg/L	97
		563.1 -> 269.1	1194			
11Cl-PF3OUdS	9.429	630.9 -> 450.9	6906	0.77	µg/L	100
		632.9 -> 452.9	2237			
9Cl-PF3ONS	8.615	530.8 -> 351.0	12676	0.80	µg/L	93
		532.8 -> 353.0	3608			
ADONA	6.743	376.9 -> 250.9	33226	0.78	µg/L	97
		376.9 -> 84.8	9068			
HFPO-DA	5.931	284.9 -> 168.9	2432	0.75	µg/L	96
		284.9 -> 184.9	268			
3:3FTCA	3.777	241.0 -> 177.0	1457	2.01	µg/L	98
		241.0 -> 117.0	187			
5:3FTCA	6.210	341.0 -> 237.1	29501	9.89	µg/L	99
		341.0 -> 217.0	22154			
7:3FTCA	7.607	441.0 -> 316.9	19749	10.18	µg/L	93
		441.0 -> 336.9	40990			
EtFOSA	10.979	526.0 -> 219.0	2541	0.80	µg/L	97
		526.0 -> 169.0	3257			
EtFOSE	10.913	630.0 -> 58.9	6630	2.09	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	2341	0.84	µg/L	100
		511.9 -> 169.0	3255			
MeFOSE	10.678	616.1 -> 58.9	5640	2.10	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	507	0.35	µg/L	83
		699.1 -> 98.8	324			
NFDHA	5.435	295.0 -> 201.0	1739	0.86	µg/L	99
		295.0 -> 84.9	487			
PFMBA	4.762	279.0 -> 85.1	6651	0.82	µg/L	100
PFMPA	3.475	229.0 -> 84.9	5284	0.80	µg/L	100
PFEESA	6.024	314.8 -> 134.9	14648	0.70	µg/L	100
		314.8 -> 82.9	544			

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

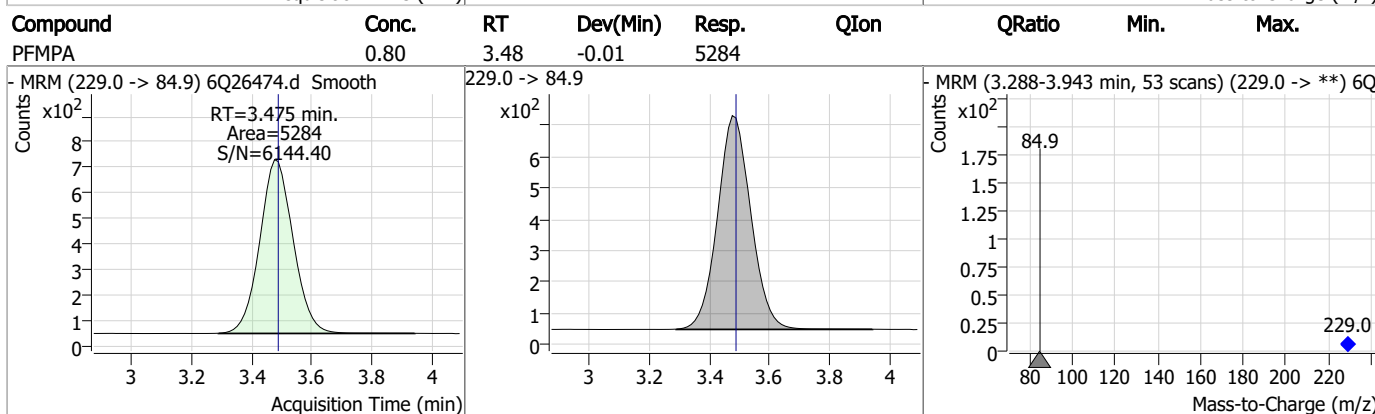
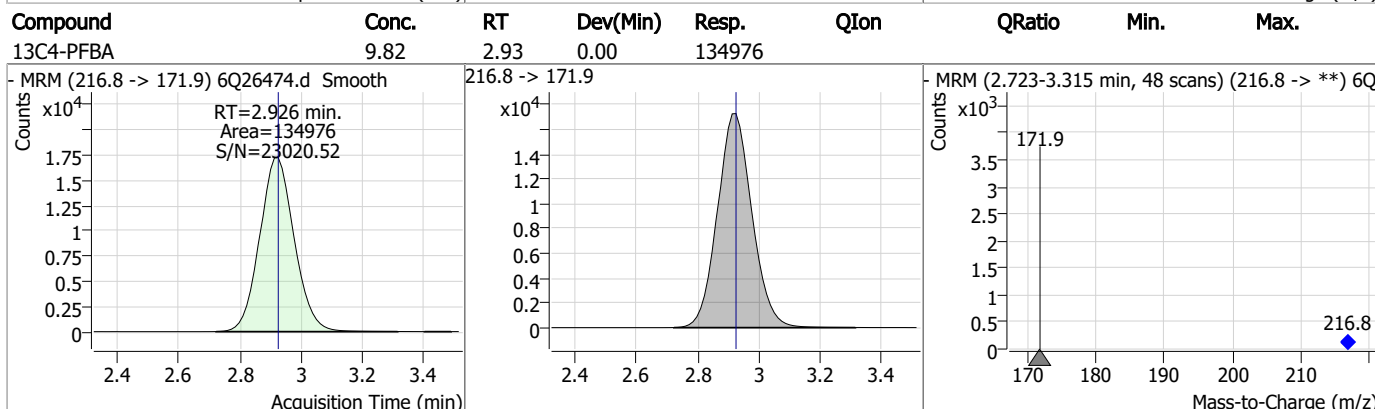
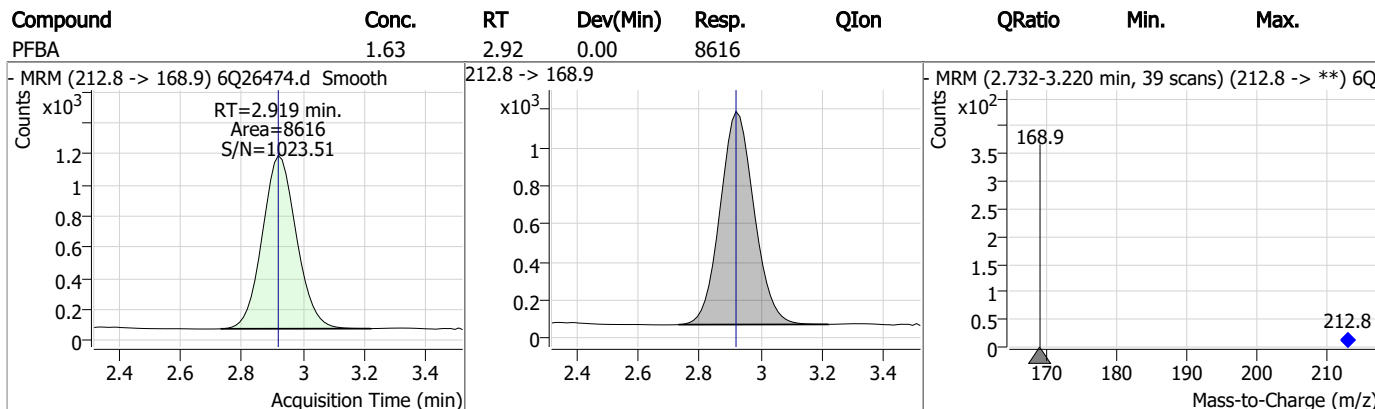
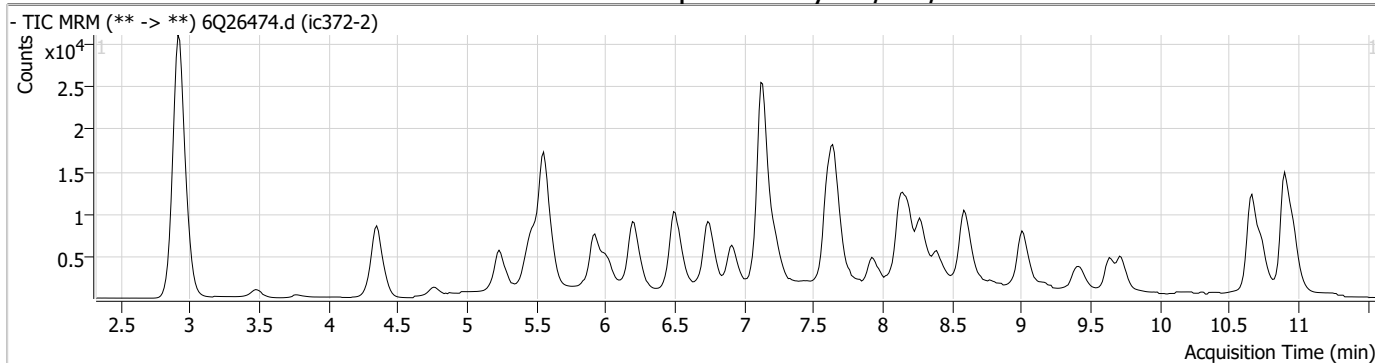
### Perfluorinated Compounds by LC/MS/MS

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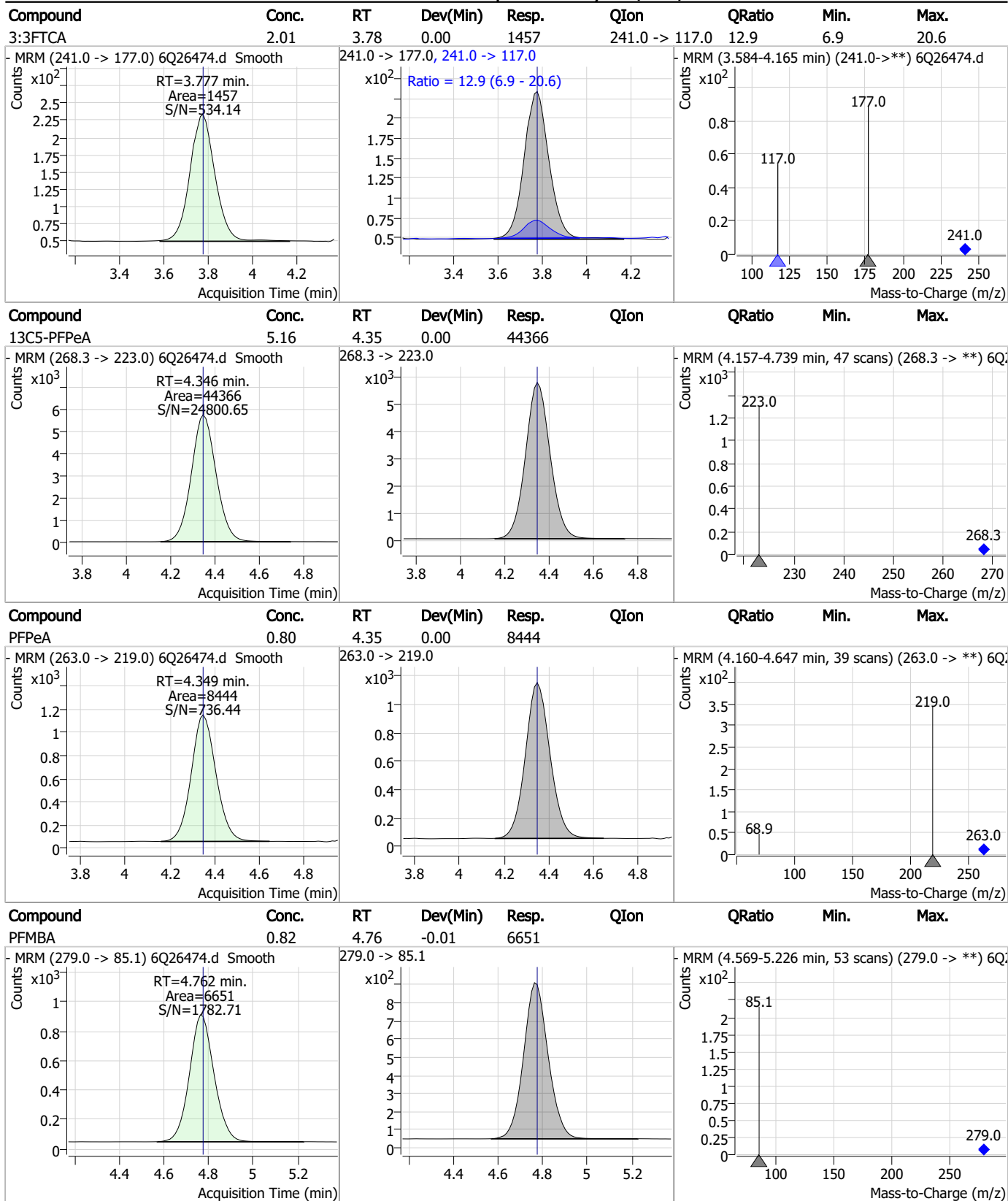
7.7.3

7

### Perfluorinated Compounds by LC/MS/MS

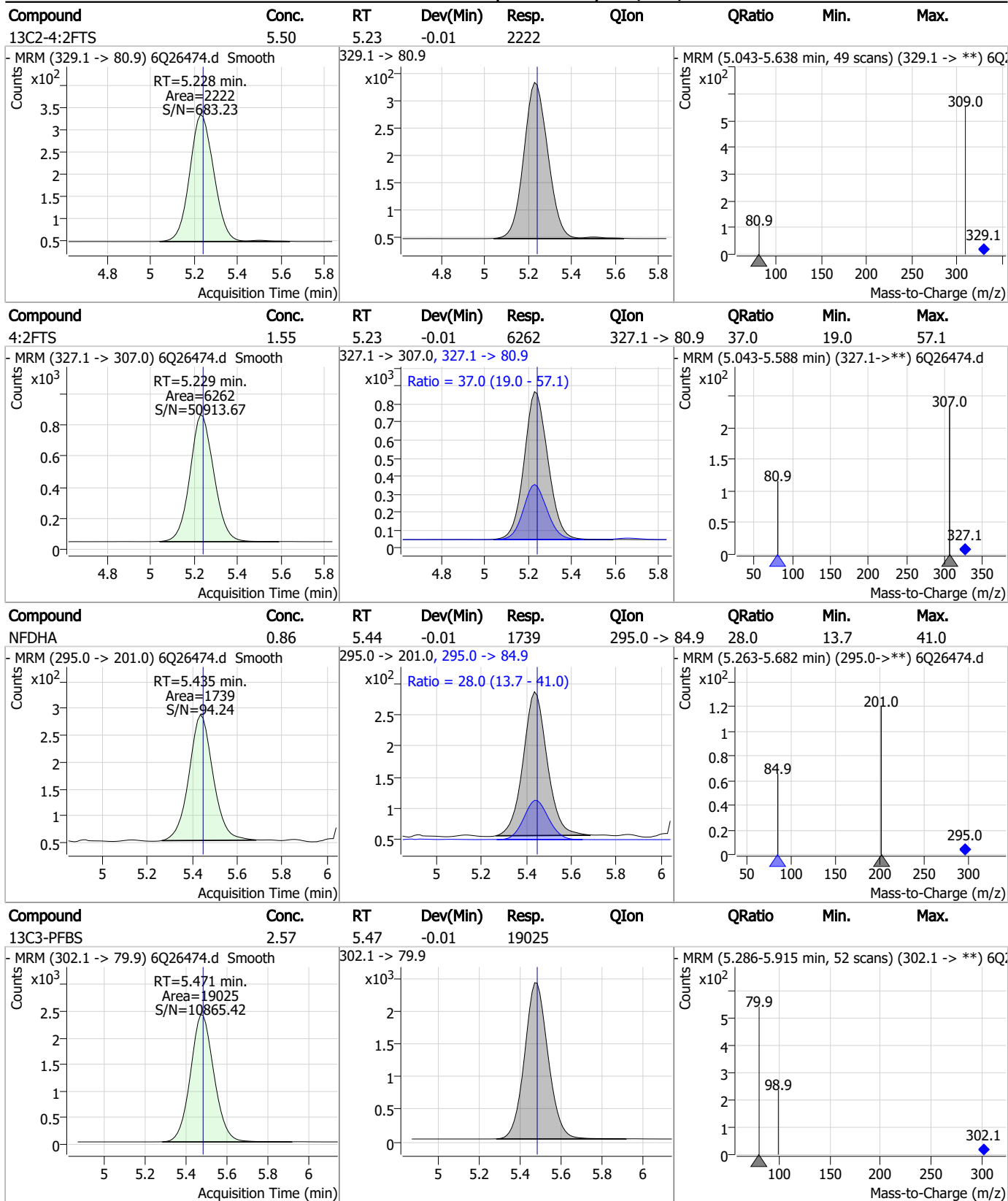


### Perfluorinated Compounds by LC/MS/MS



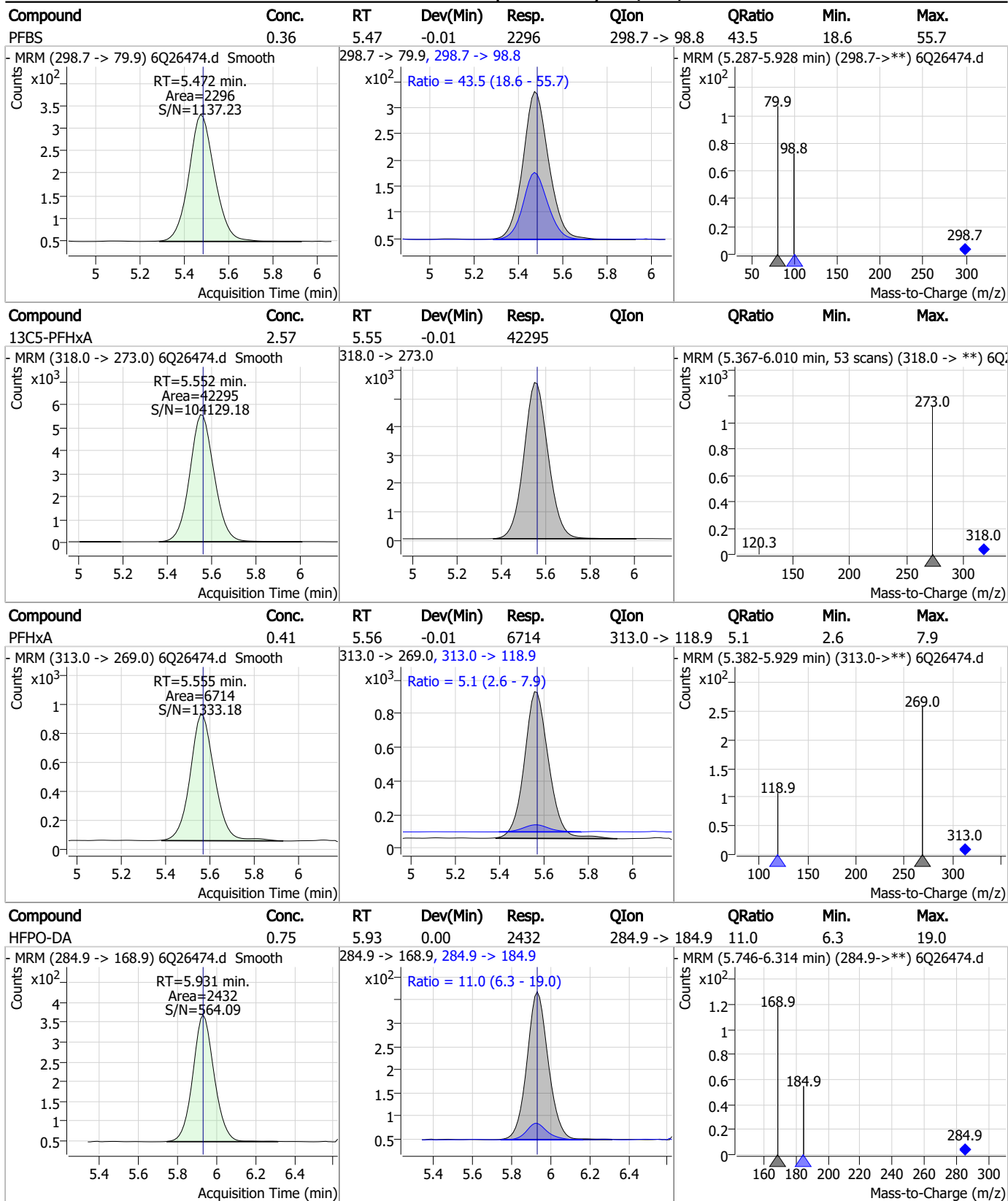
7.7.3  
7

### Perfluorinated Compounds by LC/MS/MS



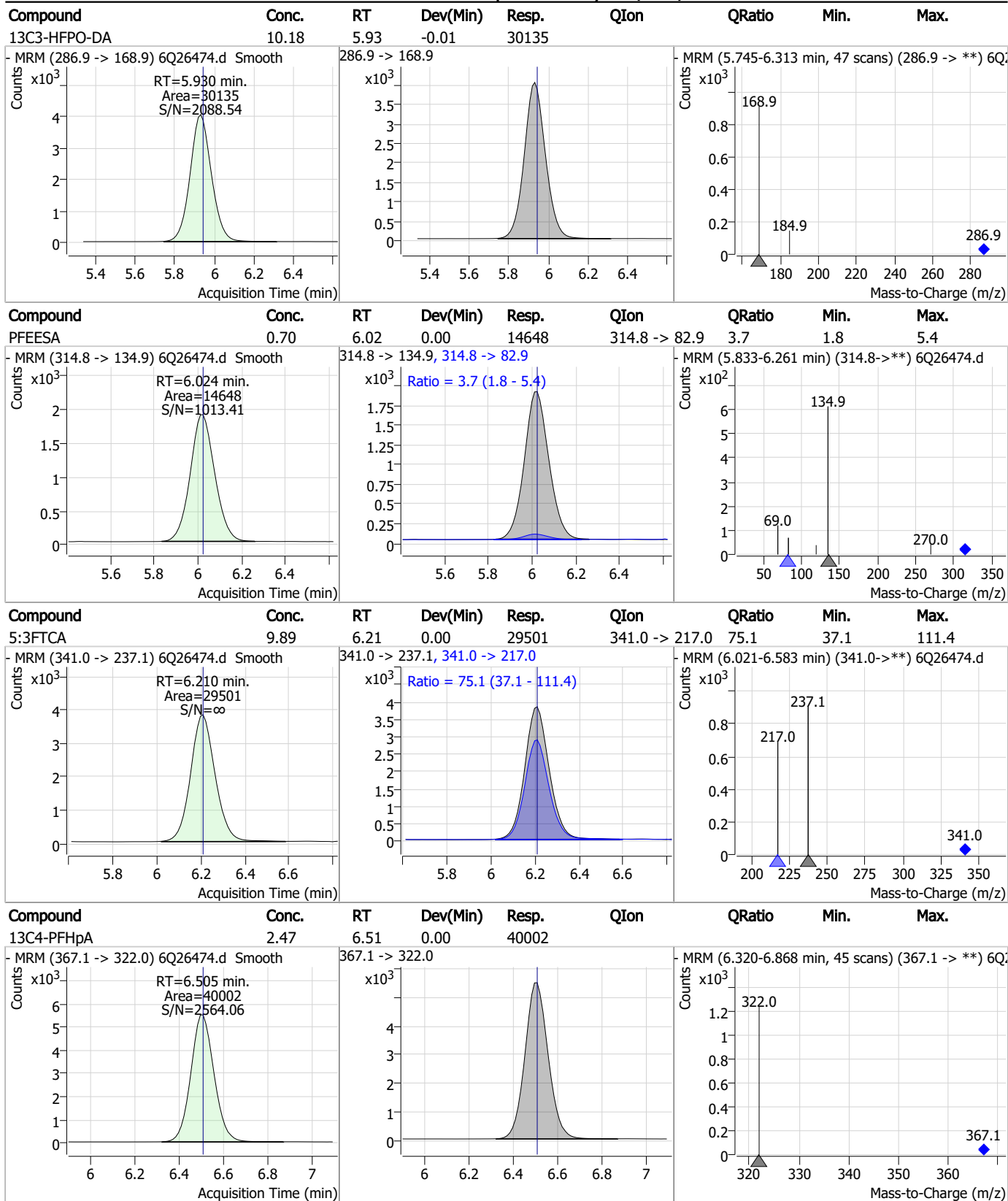
7.7.3  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.3  
7

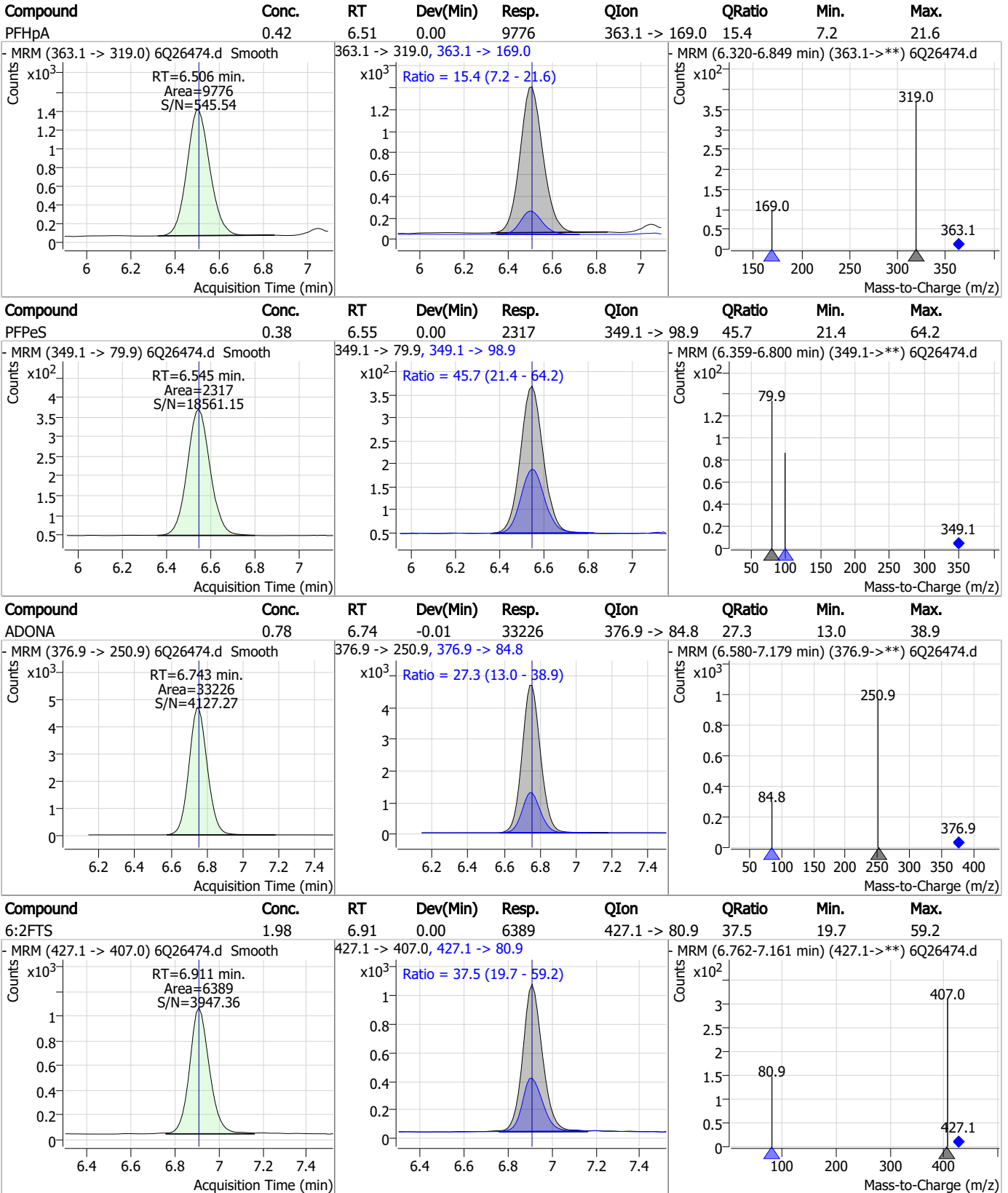
### Perfluorinated Compounds by LC/MS/MS



7.7.3  
7



### Perfluorinated Compounds by LC/MS/MS

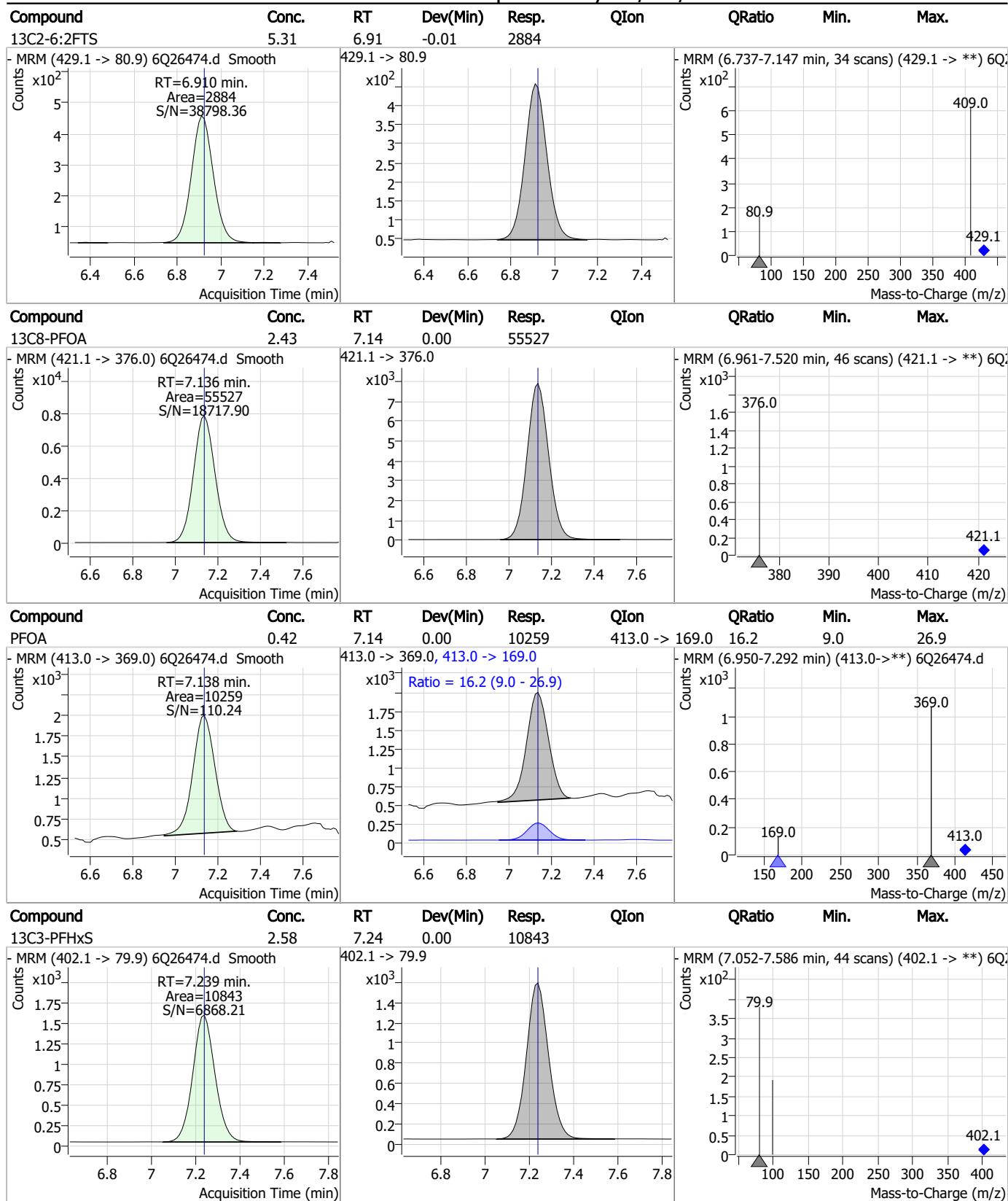


7.7.3

7

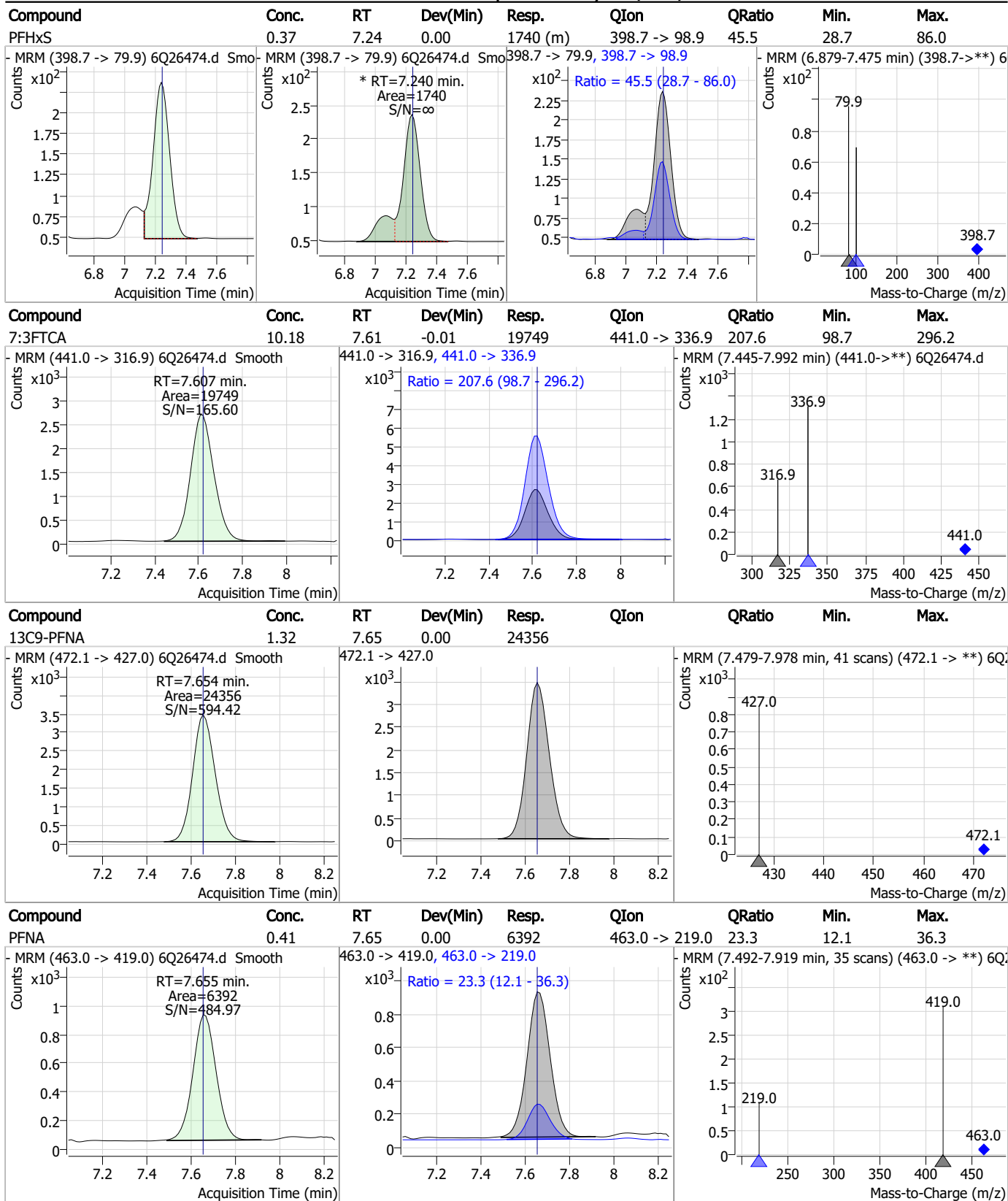


### Perfluorinated Compounds by LC/MS/MS



7.7.3  
7

### Perfluorinated Compounds by LC/MS/MS



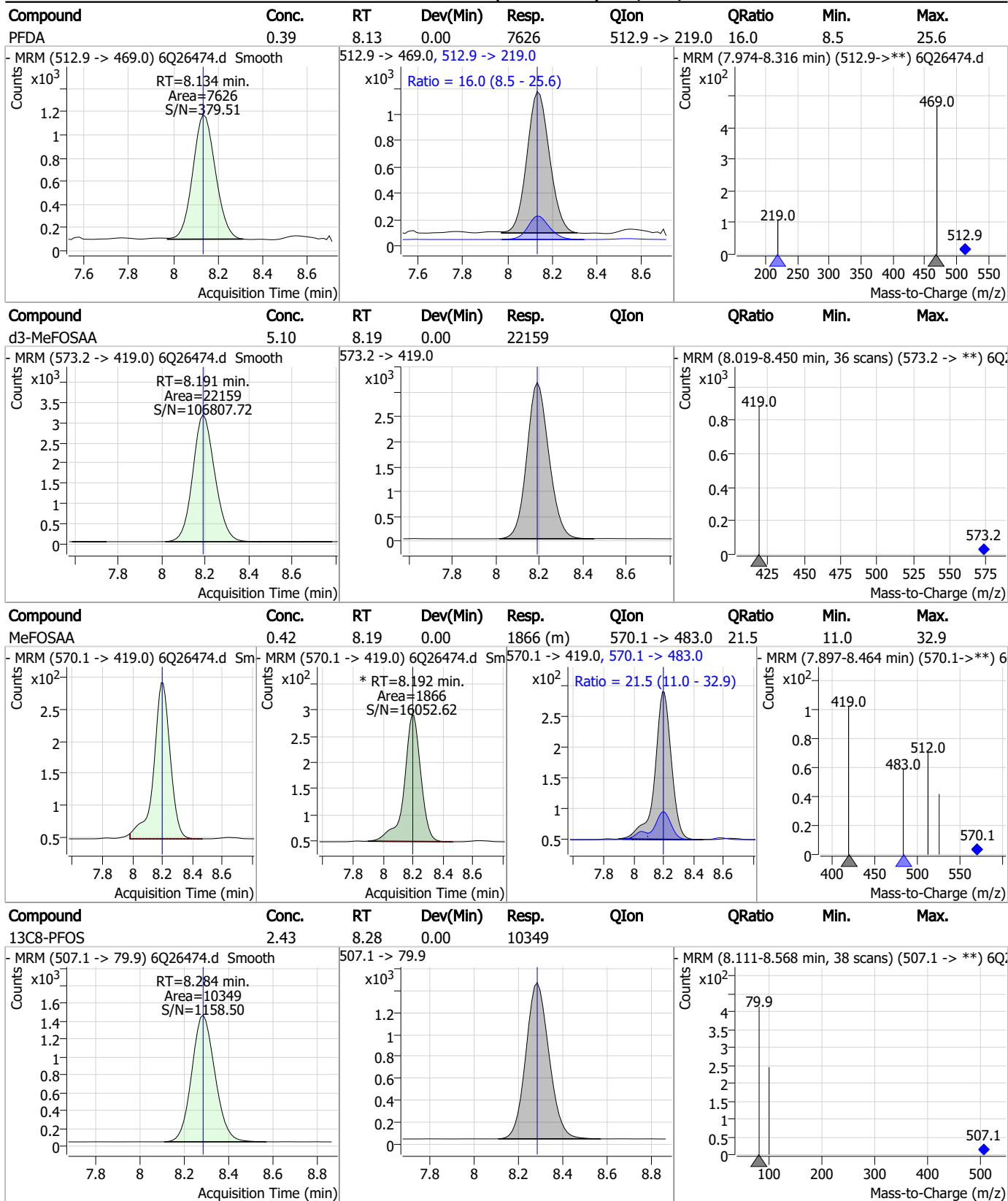
7.7.3  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.42	7.79	0.00	2012	449.0 -> 98.9	43.1	26.1	78.4
13C2-8:2FTS	5.32	7.93	0.01	2998	529.1 -> 80.9			
8:2FTS	1.60	7.92	-0.01	3706	527.1 -> 80.8	36.8	16.0	48.1
13C6-PFDA	1.34	8.13	0.00	23978	519.1 -> 474.1			

7.7.3  
7

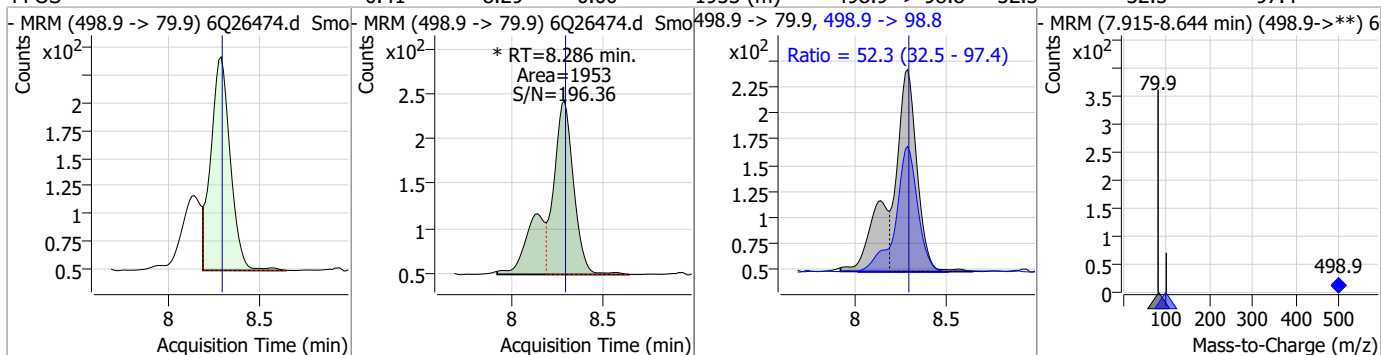
### Perfluorinated Compounds by LC/MS/MS



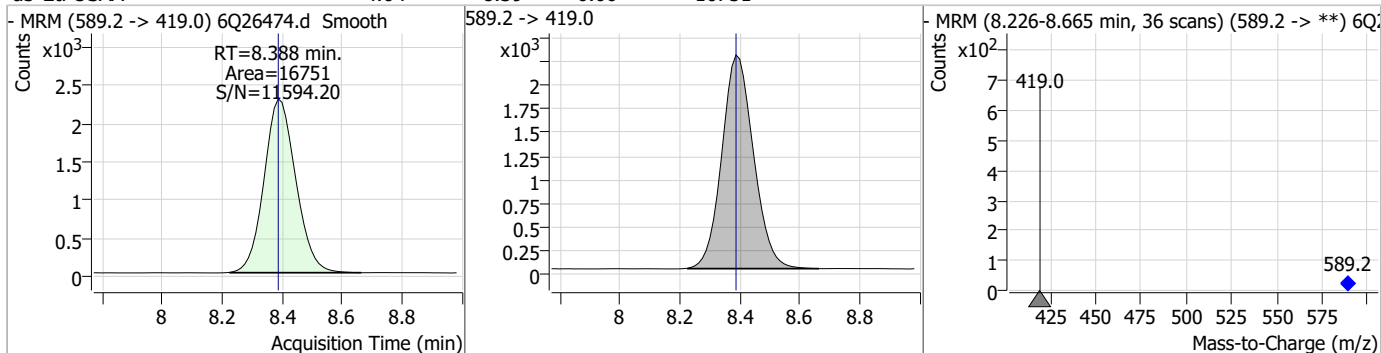
7.7.3  
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### Perfluorinated Compounds by LC/MS/MS

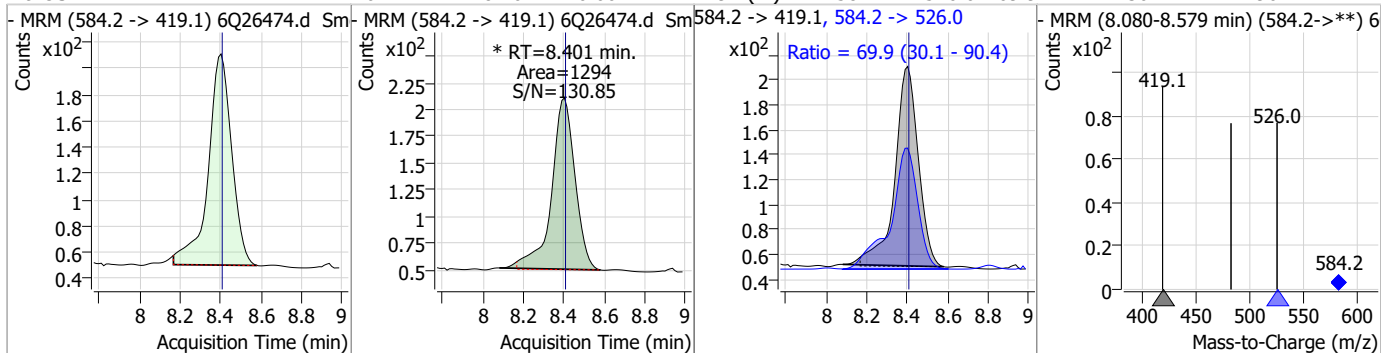
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.41	8.29	0.00	1953 (m)	498.9 -> 98.8	52.3	32.5	97.4



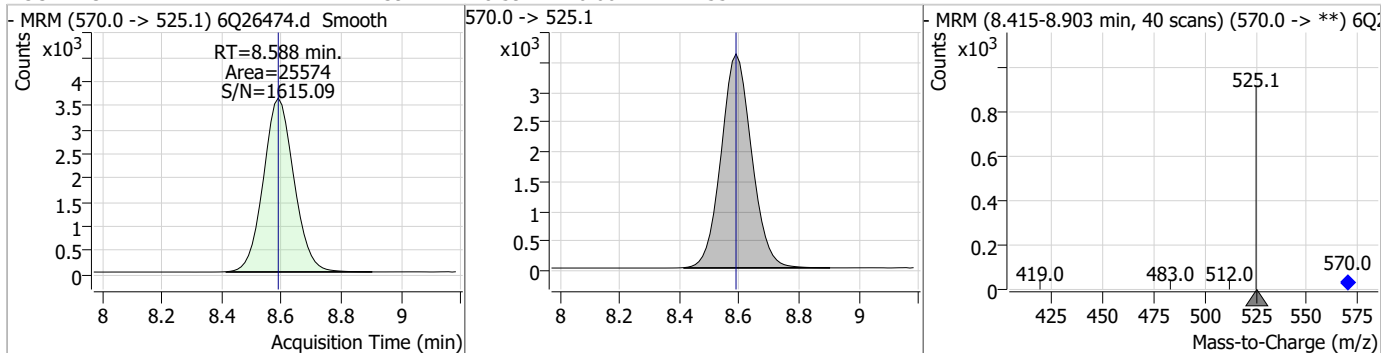
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.64	8.39	0.00	16751				



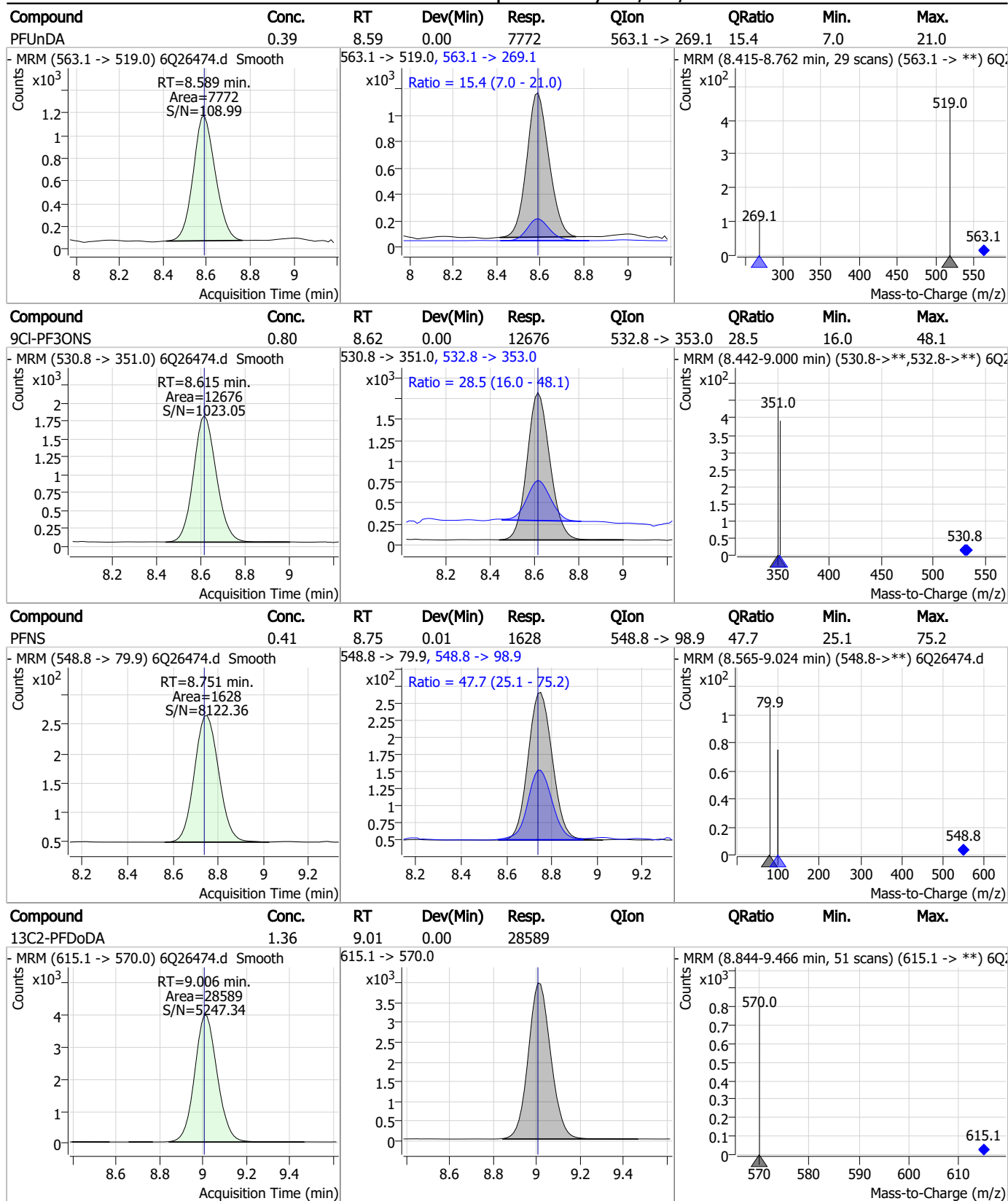
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.44	8.40	0.00	1294 (m)	584.2 -> 526.0	69.9	30.1	90.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.39	8.59	0.00	25574				



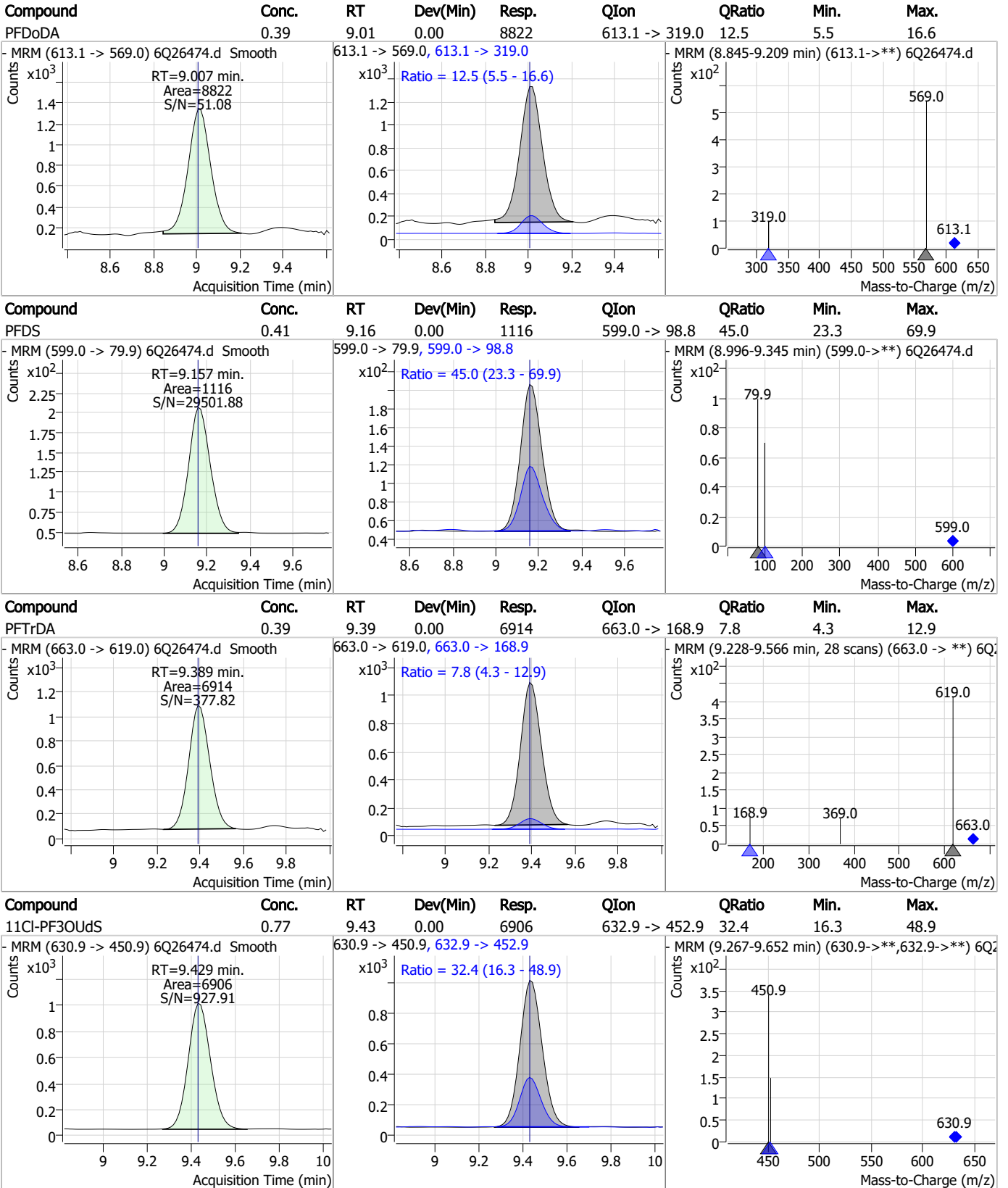
### Perfluorinated Compounds by LC/MS/MS



7.7.3

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### Perfluorinated Compounds by LC/MS/MS



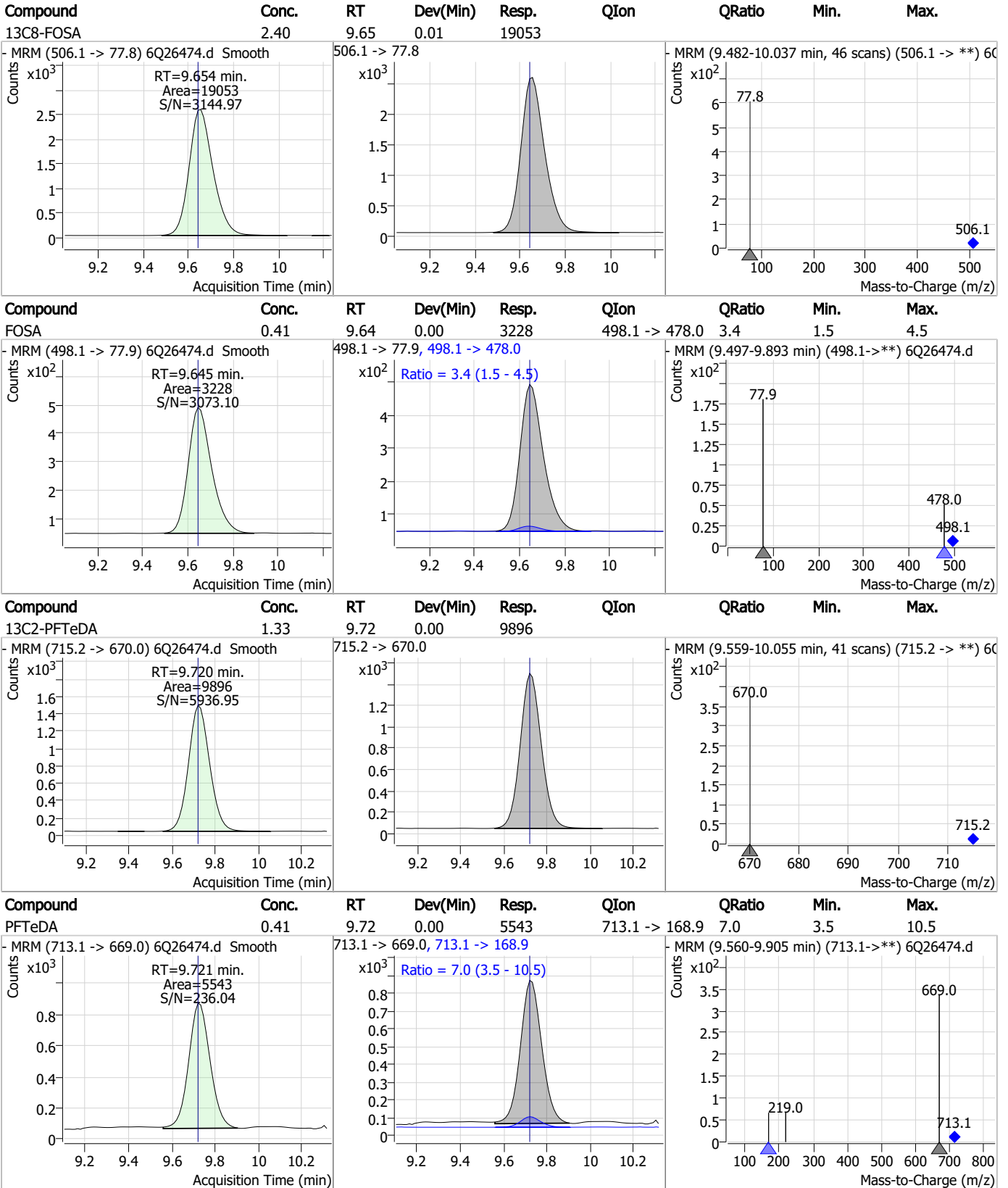
7.7.3

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### Perfluorinated Compounds by LC/MS/MS

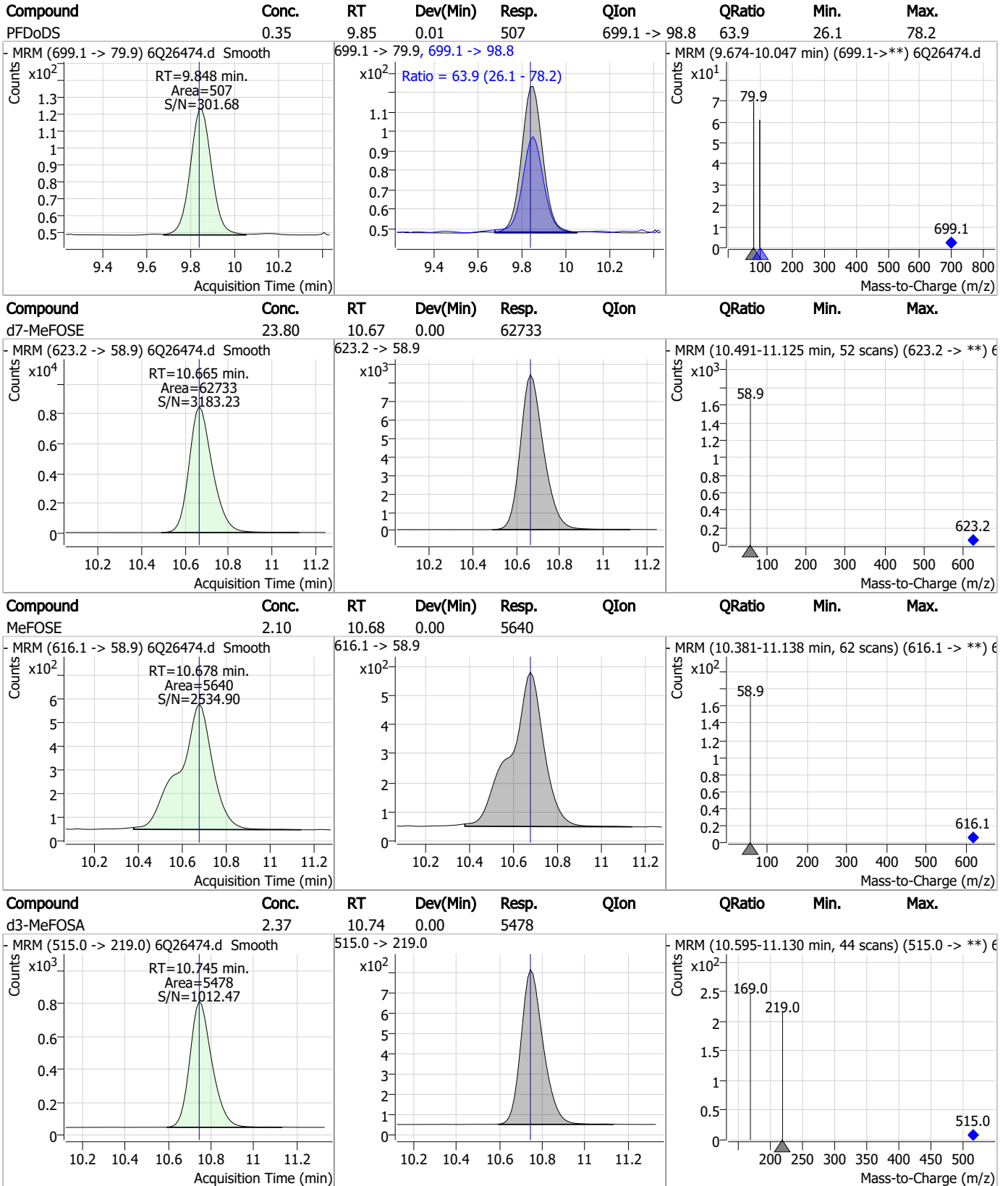


7.7.3

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### Perfluorinated Compounds by LC/MS/MS

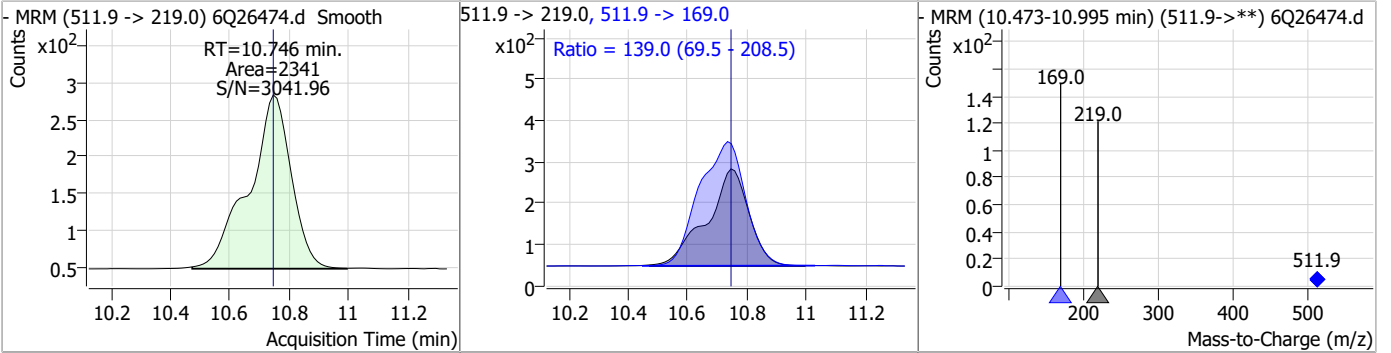


7.7.3

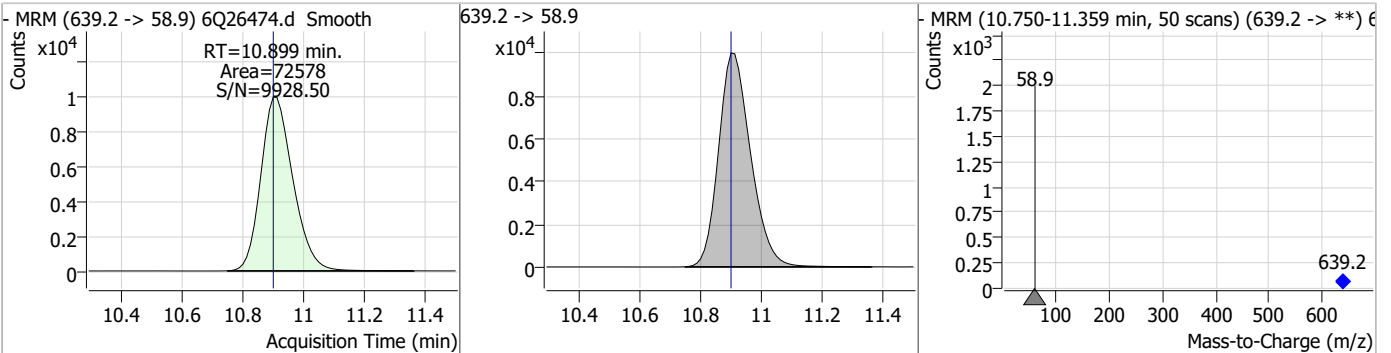
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### Perfluorinated Compounds by LC/MS/MS

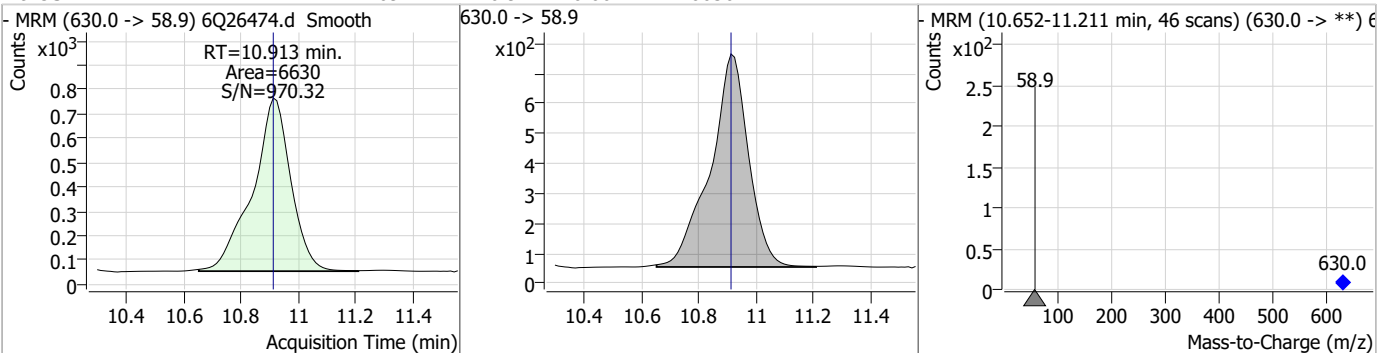
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	0.84	10.75	0.00	2341	511.9 -> 169.0	139.0	69.5	208.5



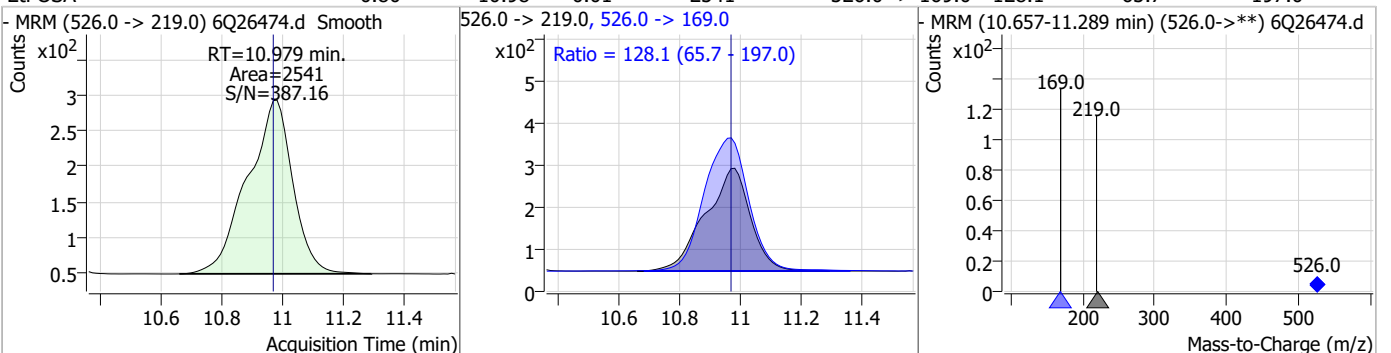
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.87	10.90	0.00	72578				



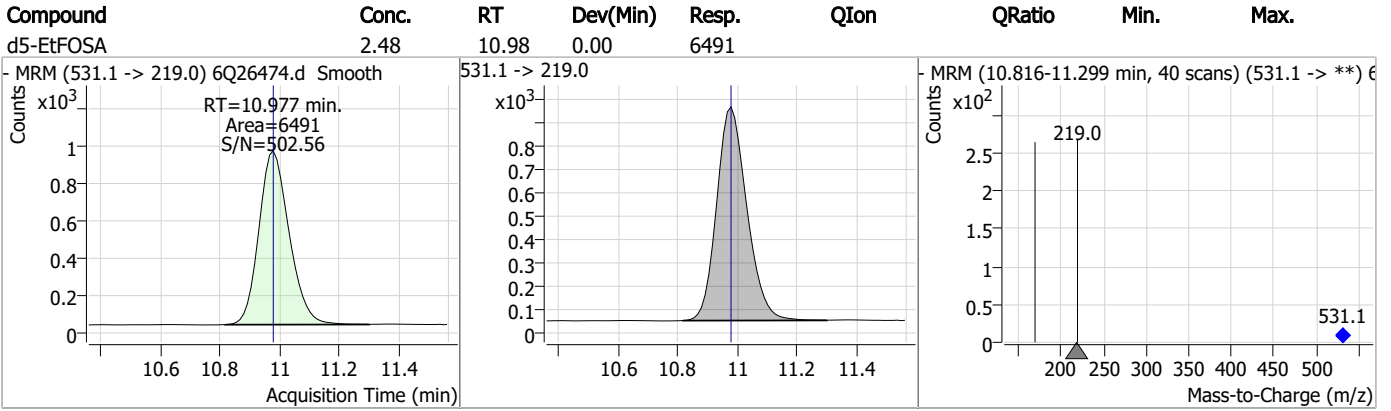
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	2.09	10.91	0.00	6630				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	0.80	10.98	0.01	2541	526.0 -> 169.0	128.1	65.7	197.0



Perfluorinated Compounds by LC/MS/MS



7.7.3

7

# Manual Integration Approval Summary

Sample Number: S6Q372-IC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26474.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 17:40      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.40	Split peak

7.7.3.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26475.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 5:54:33 PM  
 Sample Name : ic372-3  
 Vial : P1-A4  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	135399	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	44080	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	42030	2.50 µg/L	0.000
M4-PFHpA	6.493	367.1 -> 322.0	43100	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	57144	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	23863	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23293	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	24436	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	26629	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9697	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	18787	2.50 µg/L	0.000
M3-PFBS	5.483	302.1 -> 79.9	19139	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10199	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	10452	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2086	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2679	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2813	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	20500	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	28591	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	18589	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	66328	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	76045	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6395	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5185	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9198	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	55454	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6473	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	62211	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	22775	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	23077	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	42552	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2086	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2679	4.95 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2813	5.00 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	9.006	615.1 -> 570.0	26629	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9697	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFBS	5.483	302.1 -> 79.9	19139	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C3-PFHxS	7.239	402.1 -> 79.9	10199	2.43 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 = 97.2%		
13C4-PFBA	2.926	216.8 -> 171.9	135399	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C4-PFHpA	6.493	367.1 -> 322.0	43100	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C5-PFHxA	5.565	318.0 -> 273.0	42030	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C5-PFPeA	4.346	268.3 -> 223.0	44080	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C6-PFDA	8.134	519.1 -> 474.1	23293	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.7%		
13C7-PFUnDA	8.588	570.0 -> 525.1	24436	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C8-FOSA	9.642	506.1 -> 77.8	18787	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C8-PFOA	7.136	421.1 -> 376.0	57144	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C8-PFOS	8.284	507.1 -> 79.9	10452	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C9-PFNA	7.654	472.1 -> 427.0	23863	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
d3-MeFOSAA	8.191	573.2 -> 419.0	20500	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-HFPO-DA	5.930	286.9 -> 168.9	28591	9.52 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.2%		
d3-MeFOSA	10.745	515.0 -> 219.0	5185	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
d5-EtFOSAA	8.388	589.2 -> 419.0	18589	5.55 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
d7-MeFOSE	10.665	623.2 -> 58.9	66328	27.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
d9-EtFOSE	10.899	639.2 -> 58.9	76045	26.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
d5-EtFOSA	10.977	531.1 -> 219.0	6395	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	17734	4.68 µg/L	97
		327.1 -> 80.9	7108		
6:2FTS	6.911	427.1 -> 407.0	15505	5.18 µg/L	98
		427.1 -> 80.9	5960		
8:2FTS	7.935	527.1 -> 507.0	10795	4.97 µg/L	95
		527.1 -> 80.8	3781		
EtFOSAA	8.401	584.2 -> 419.1	3798	1.17 µg/L	92
		584.2 -> 526.0	2510		
FOSA	9.645	498.1 -> 77.9	9333	1.21 µg/L	98
		498.1 -> 478.0	336		
MeFOSAA	8.192	570.1 -> 419.0	5016	1.21 µg/L	97
		570.1 -> 483.0	1183		
PFBA	2.919	212.8 -> 168.9	26141	4.94 µg/L	100
PFBS	5.484	298.7 -> 79.9	6773	1.07 µg/L	97
		298.7 -> 98.8	2630		
PFDA	8.134	512.9 -> 469.0	23489	1.23 µg/L	98
		512.9 -> 219.0	3822		
PFDODA	9.007	613.1 -> 569.0	28433	1.34 µg/L	99
		613.1 -> 319.0	3231		
PFDS	9.157	599.0 -> 79.9	3291	1.19 µg/L	97

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1589			
PFHpA	6.506	363.1 -> 319.0	29181	1.16	µg/L	99
		363.1 -> 169.0	4328			
PFHpS	7.793	449.0 -> 79.9	5777	1.19	µg/L	87
		449.0 -> 98.9	2486			
PFHxA	5.568	313.0 -> 269.0	19082	1.18	µg/L	100
		313.0 -> 118.9	992			
PFHxS	7.240	398.7 -> 79.9	4986	1.12	µg/L	m 96
		398.7 -> 98.9	2711			
PFNA	7.655	463.0 -> 419.0	19713	1.30	µg/L	93
		463.0 -> 219.0	4040			
PFNS	8.738	548.8 -> 79.9	4509	1.13	µg/L	95
		548.8 -> 98.9	2418			
PFOA	7.138	413.0 -> 369.0	30274	1.19	µg/L	98
		413.0 -> 169.0	5142			
PFOS	8.286	498.9 -> 79.9	5309	1.09	µg/L	m 84
		498.9 -> 98.8	2790			
PFPeA	4.349	263.0 -> 219.0	25589	2.44	µg/L	100
PFPeS	6.545	349.1 -> 79.9	6972	1.20	µg/L	91
		349.1 -> 98.9	3380			
PFTeDA	9.721	713.1 -> 669.0	16258	1.24	µg/L	100
		713.1 -> 168.9	1148			
PFTrDA	9.389	663.0 -> 619.0	21192	1.30	µg/L	99
		663.0 -> 168.9	1748			
PFUnDA	8.589	563.1 -> 519.0	23246	1.21	µg/L	97
		563.1 -> 269.1	3526			
11CI-PF3OUdS	9.429	630.9 -> 450.9	20606	2.43	µg/L	100
		632.9 -> 452.9	6719			
9CI-PF3ONS	8.615	530.8 -> 351.0	36714	2.45	µg/L	98
		532.8 -> 353.0	12273			
ADONA	6.755	376.9 -> 250.9	99395	2.47	µg/L	97
		376.9 -> 84.8	27191			
HFPO-DA	5.931	284.9 -> 168.9	8382	2.72	µg/L	97
		284.9 -> 184.9	976			
3:3FTCA	3.777	241.0 -> 177.0	4388	6.03	µg/L	100
		241.0 -> 117.0	605			
5:3FTCA	6.210	341.0 -> 237.1	92840	31.31	µg/L	95
		341.0 -> 217.0	65147			
7:3FTCA	7.607	441.0 -> 316.9	58618	30.40	µg/L	99
		441.0 -> 336.9	115041			
EtFOSA	10.966	526.0 -> 219.0	7765	2.49	µg/L	96
		526.0 -> 169.0	9869			
EtFOSE	10.913	630.0 -> 58.9	19659	5.90	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	6947	2.63	µg/L	98
		511.9 -> 169.0	9450			
MeFOSE	10.678	616.1 -> 58.9	16748	5.90	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	1772	1.22	µg/L	94
		699.1 -> 98.8	850			
NFDHA	5.447	295.0 -> 201.0	4757	2.38	µg/L	95
		295.0 -> 84.9	1425			
PFMBA	4.775	279.0 -> 85.1	20014	2.48	µg/L	100
PFMPA	3.488	229.0 -> 84.9	16242	2.46	µg/L	100
PFEESA	6.024	314.8 -> 134.9	45890	2.20	µg/L	100
		314.8 -> 82.9	1693			

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



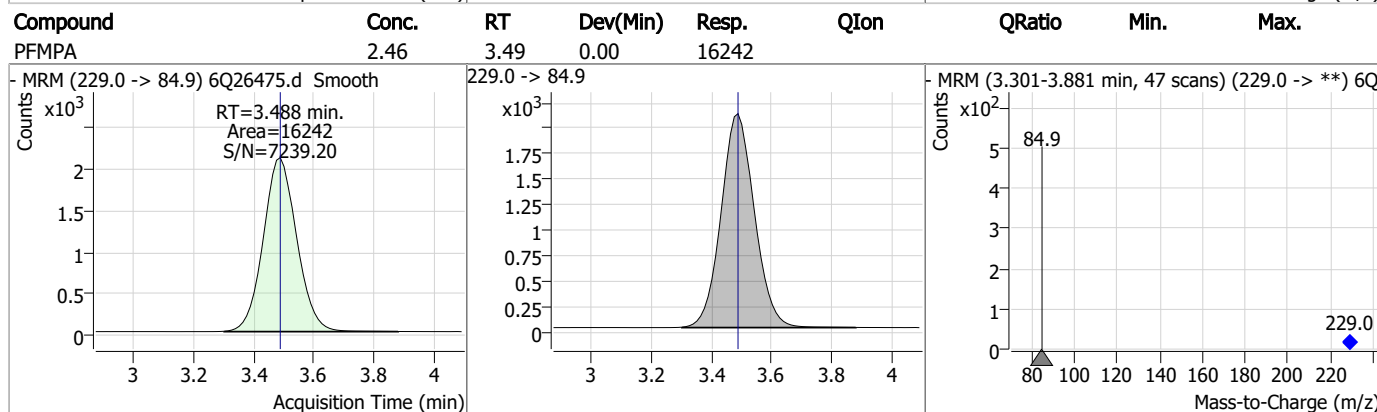
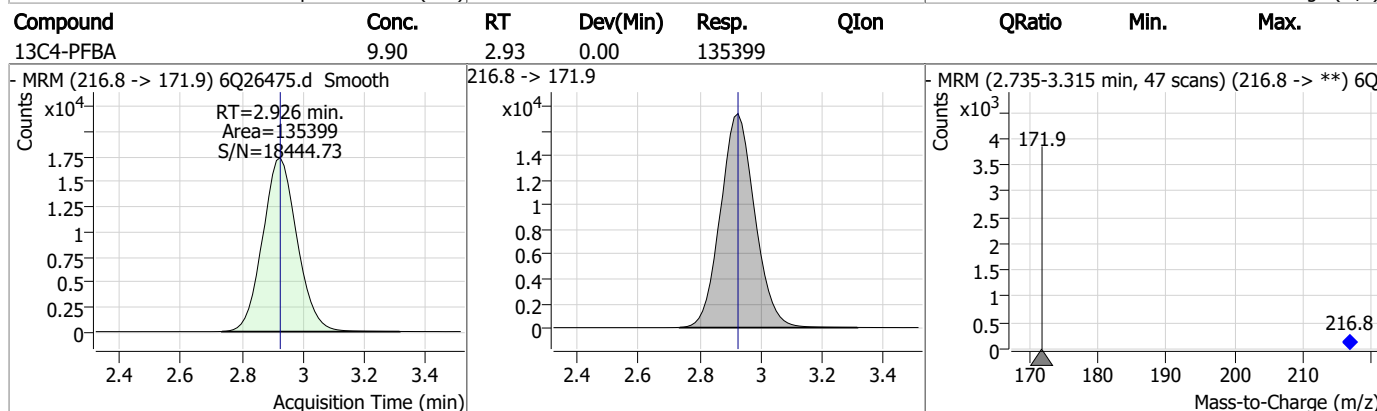
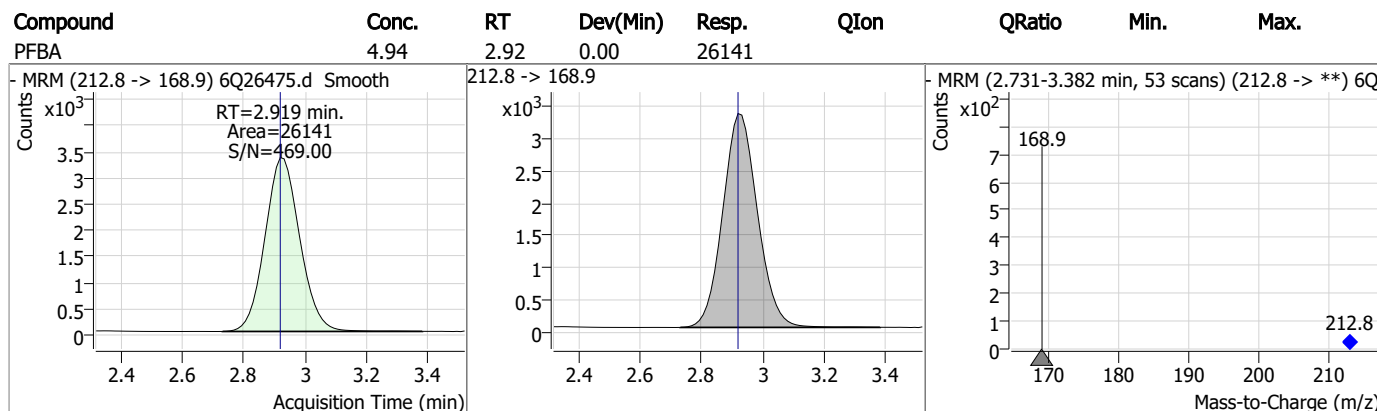
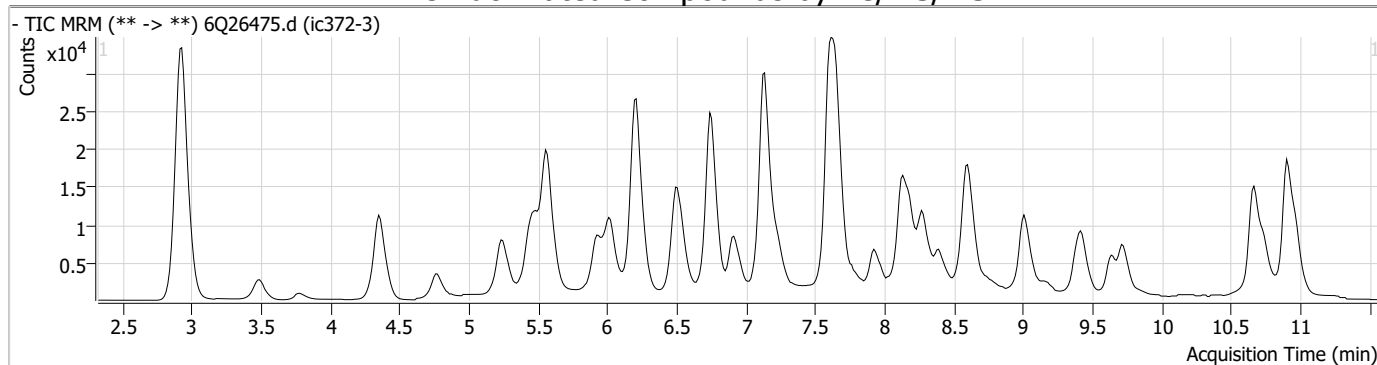
### Perfluorinated Compounds by LC/MS/MS

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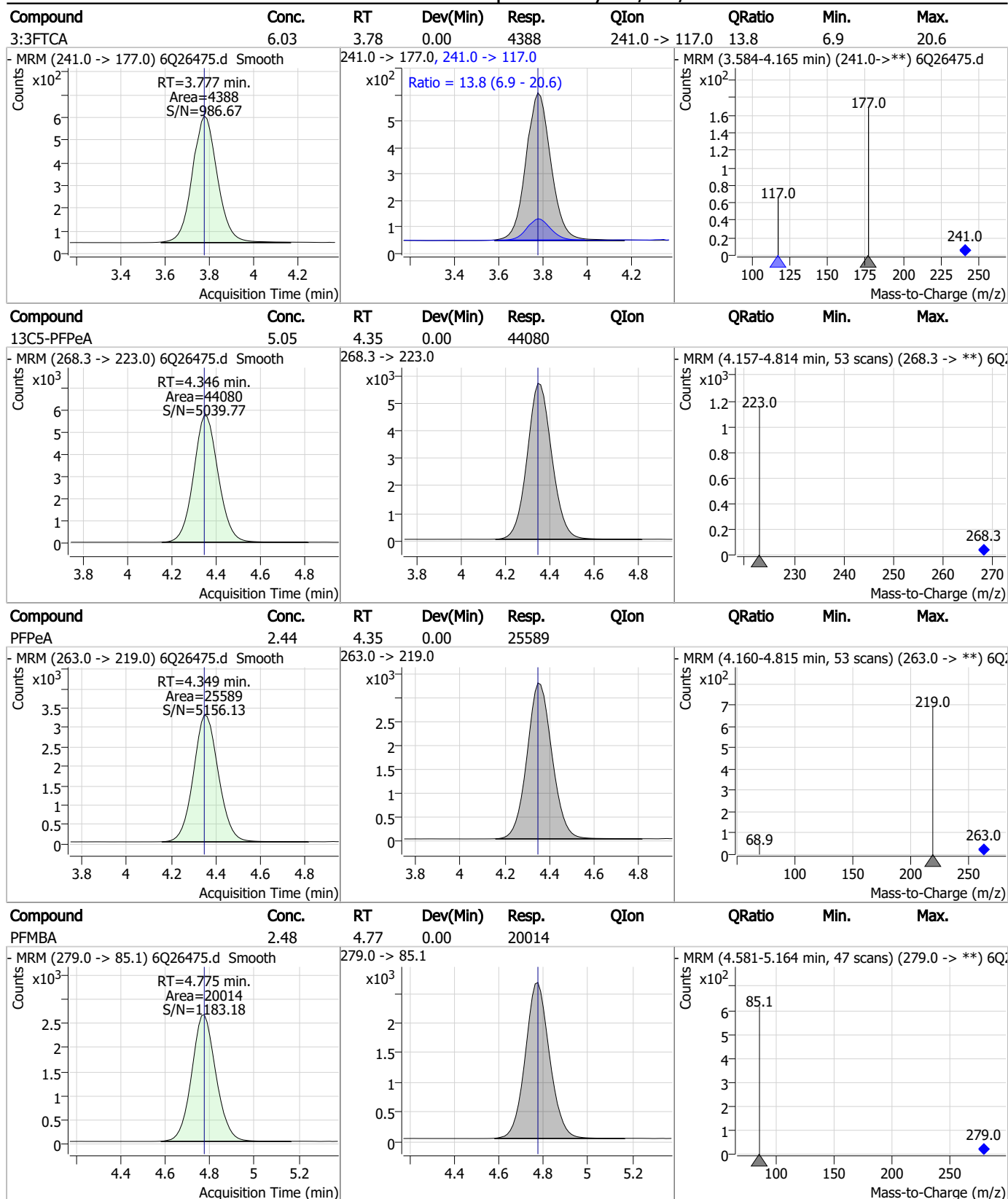
7.7.4

7

### Perfluorinated Compounds by LC/MS/MS

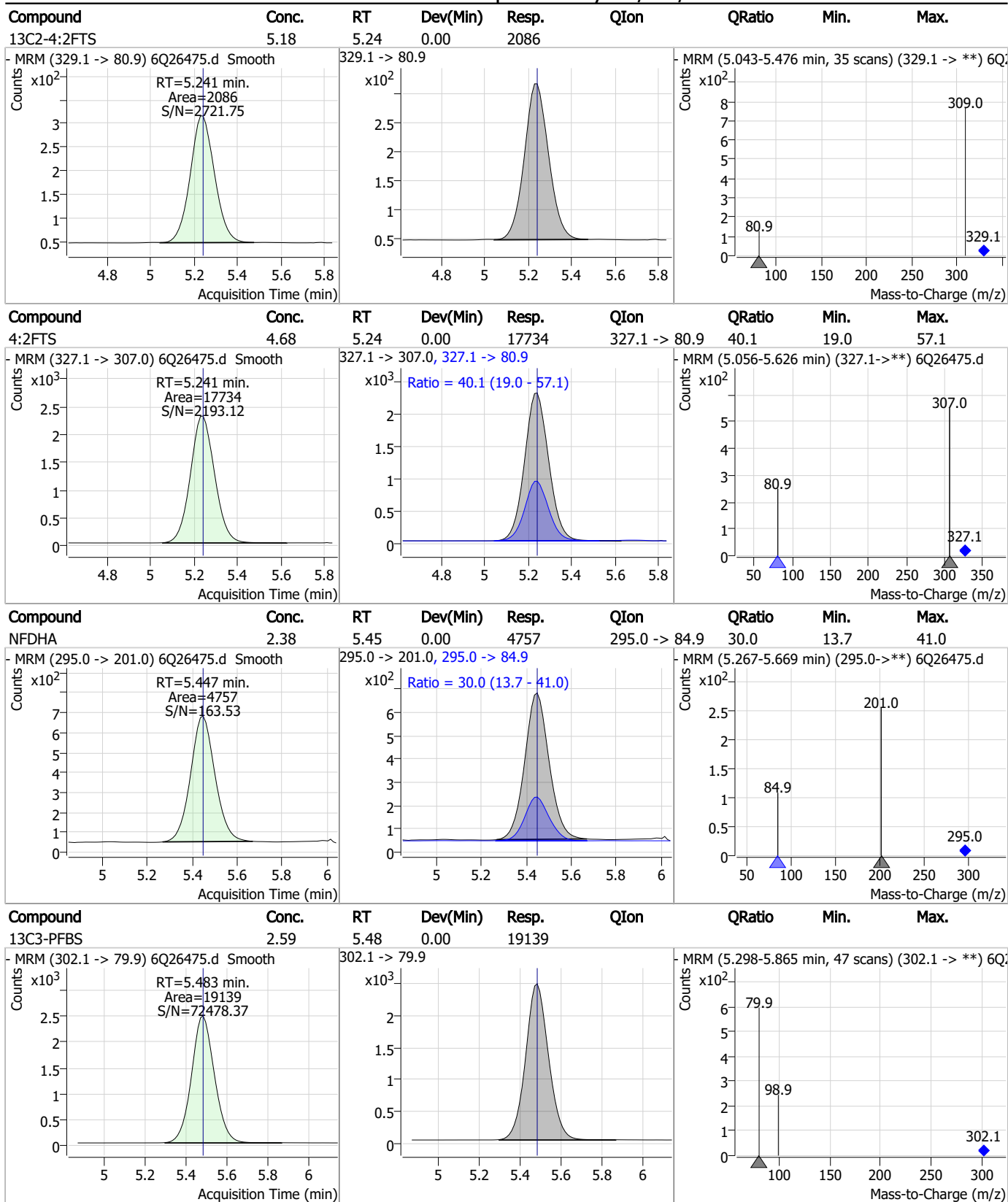


### Perfluorinated Compounds by LC/MS/MS



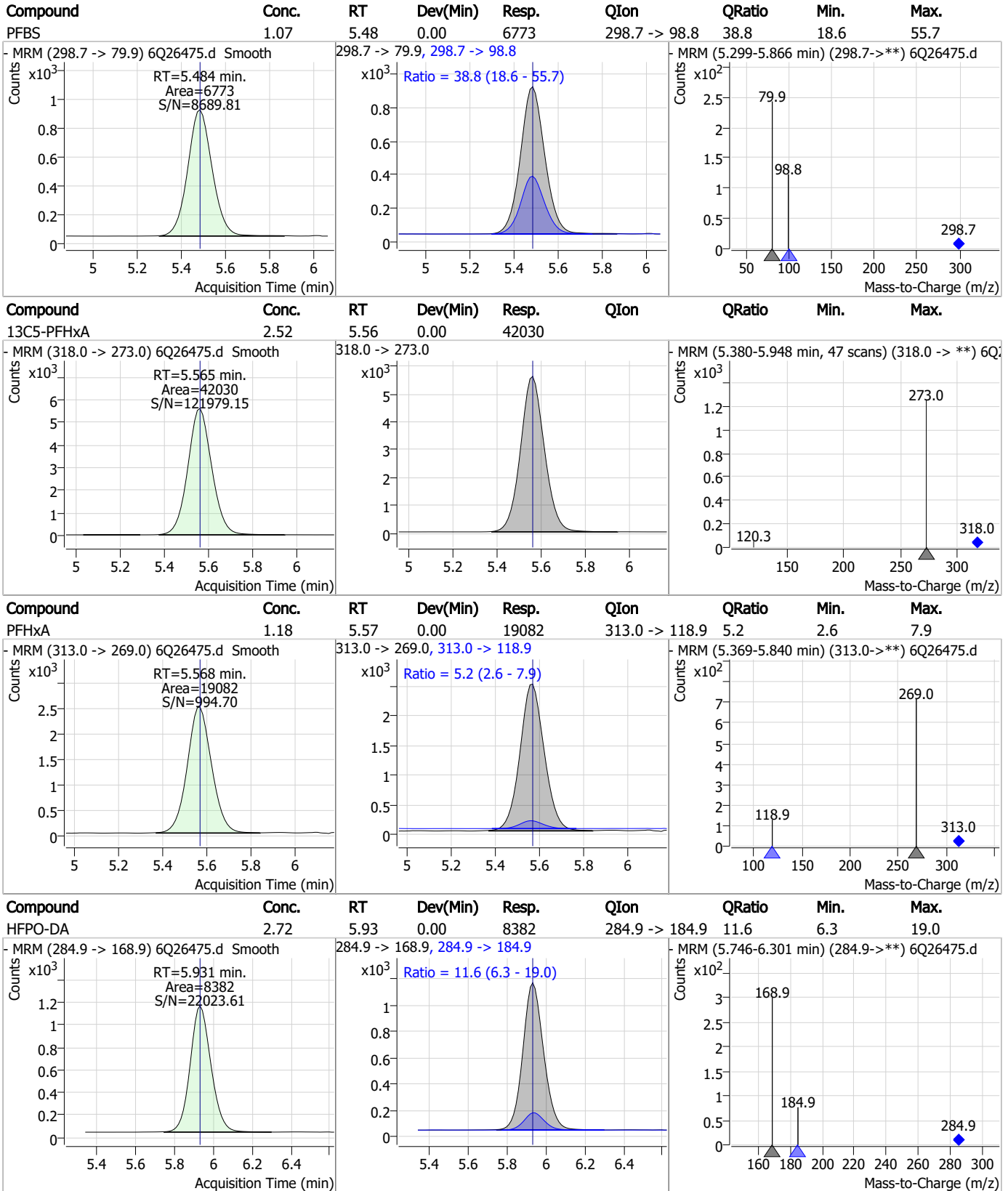
7.7.4  
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

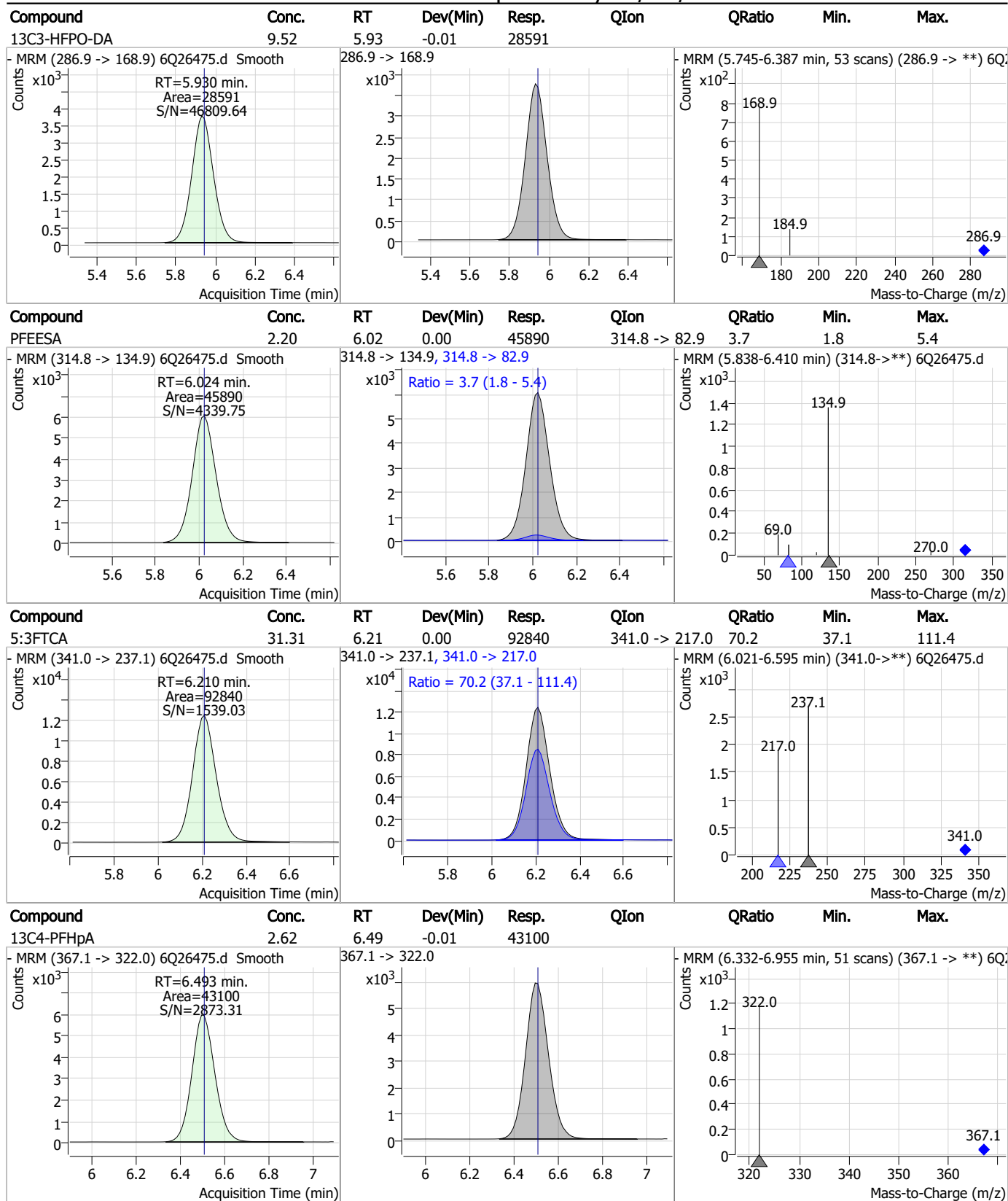
### Perfluorinated Compounds by LC/MS/MS



7.7.4

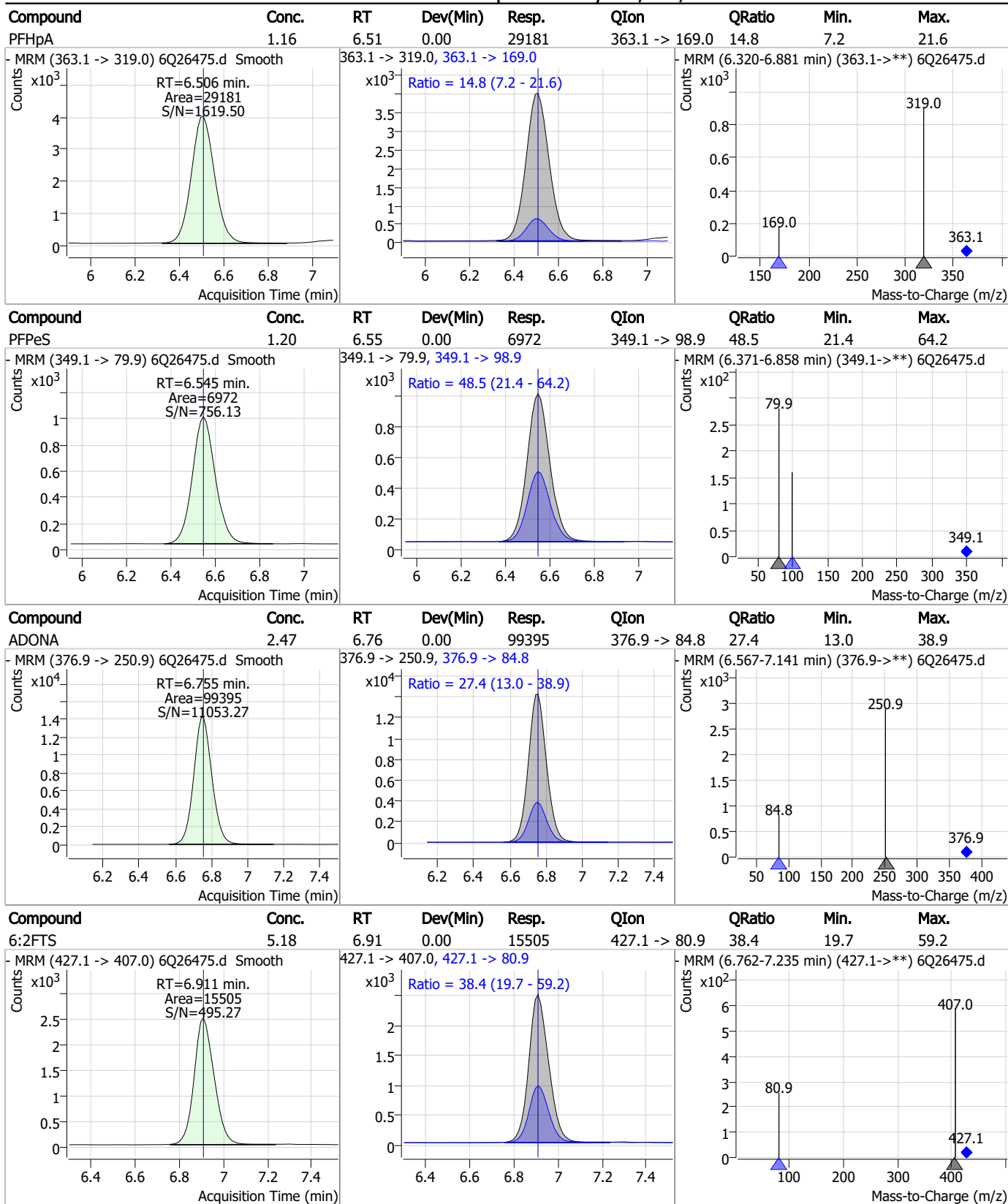
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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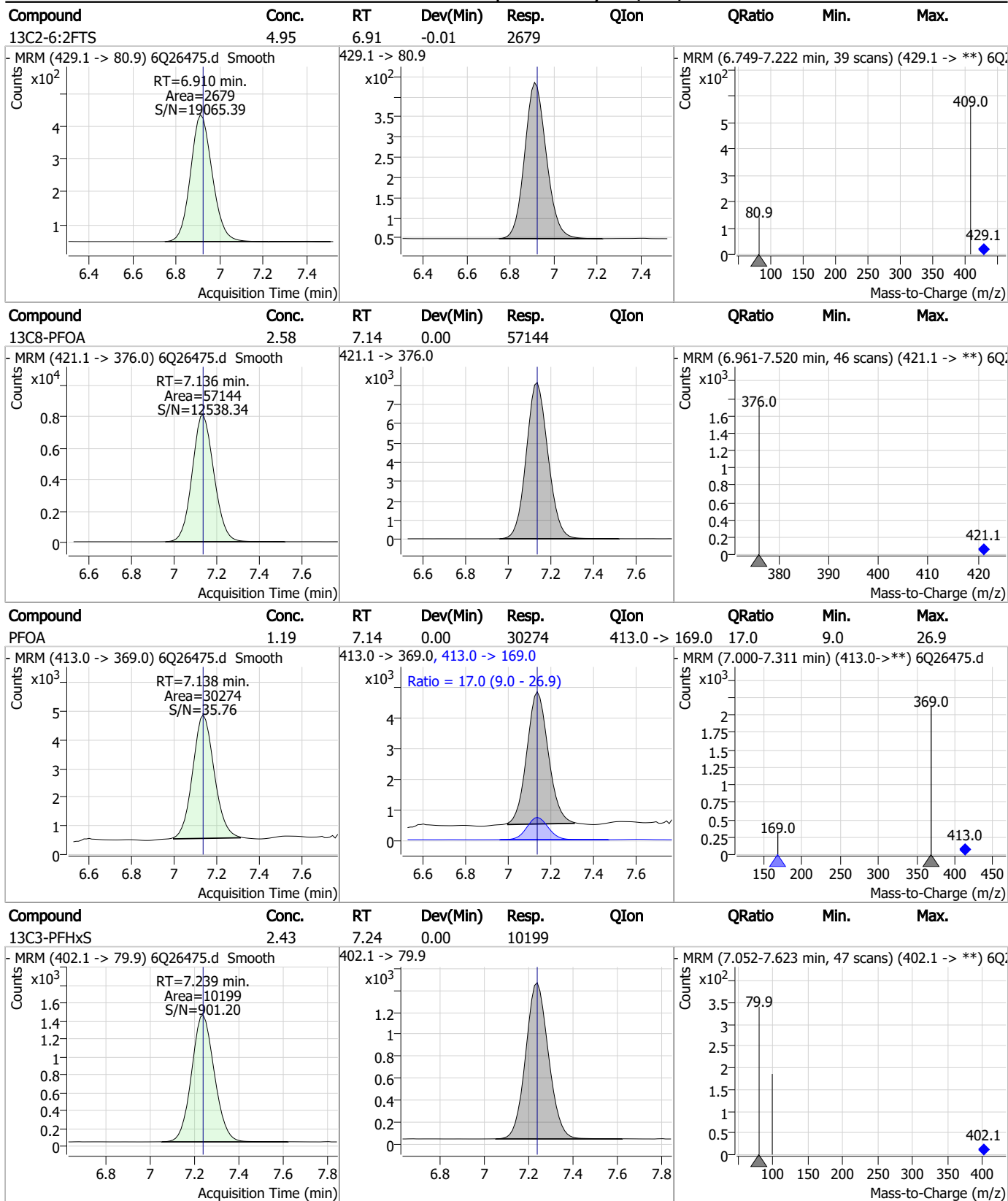
### Perfluorinated Compounds by LC/MS/MS



7.7.4

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### Perfluorinated Compounds by LC/MS/MS

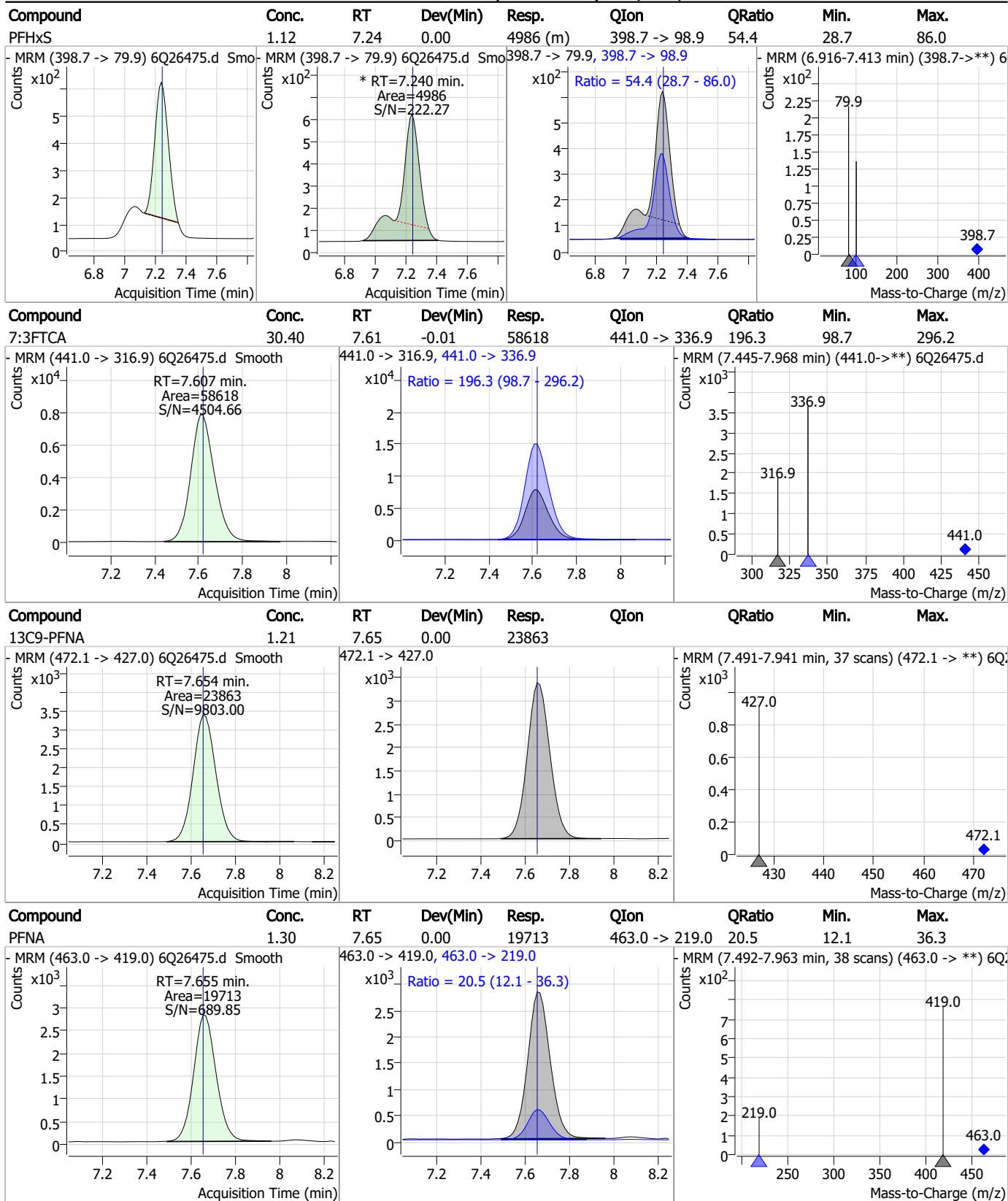


7.7.4  
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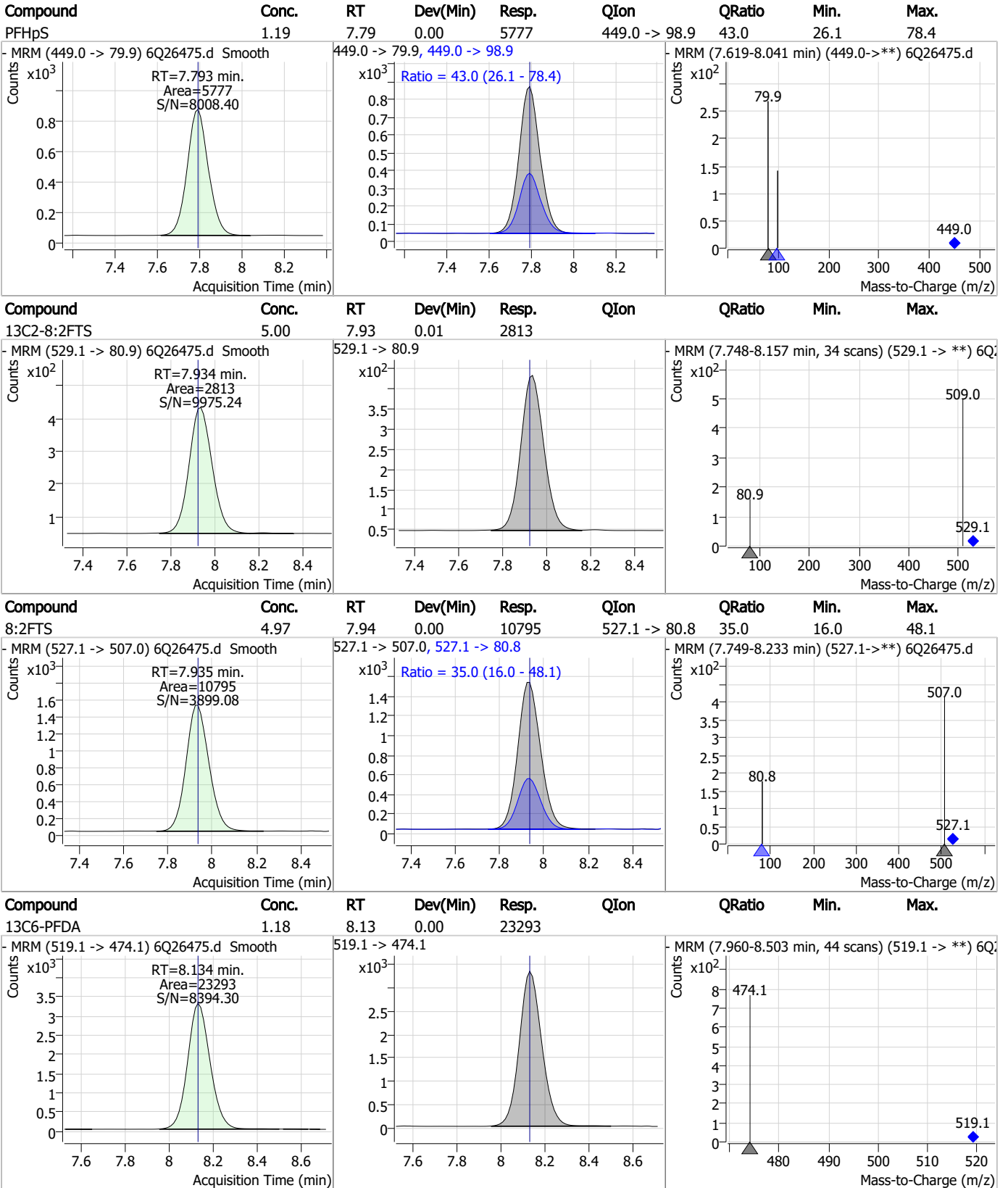


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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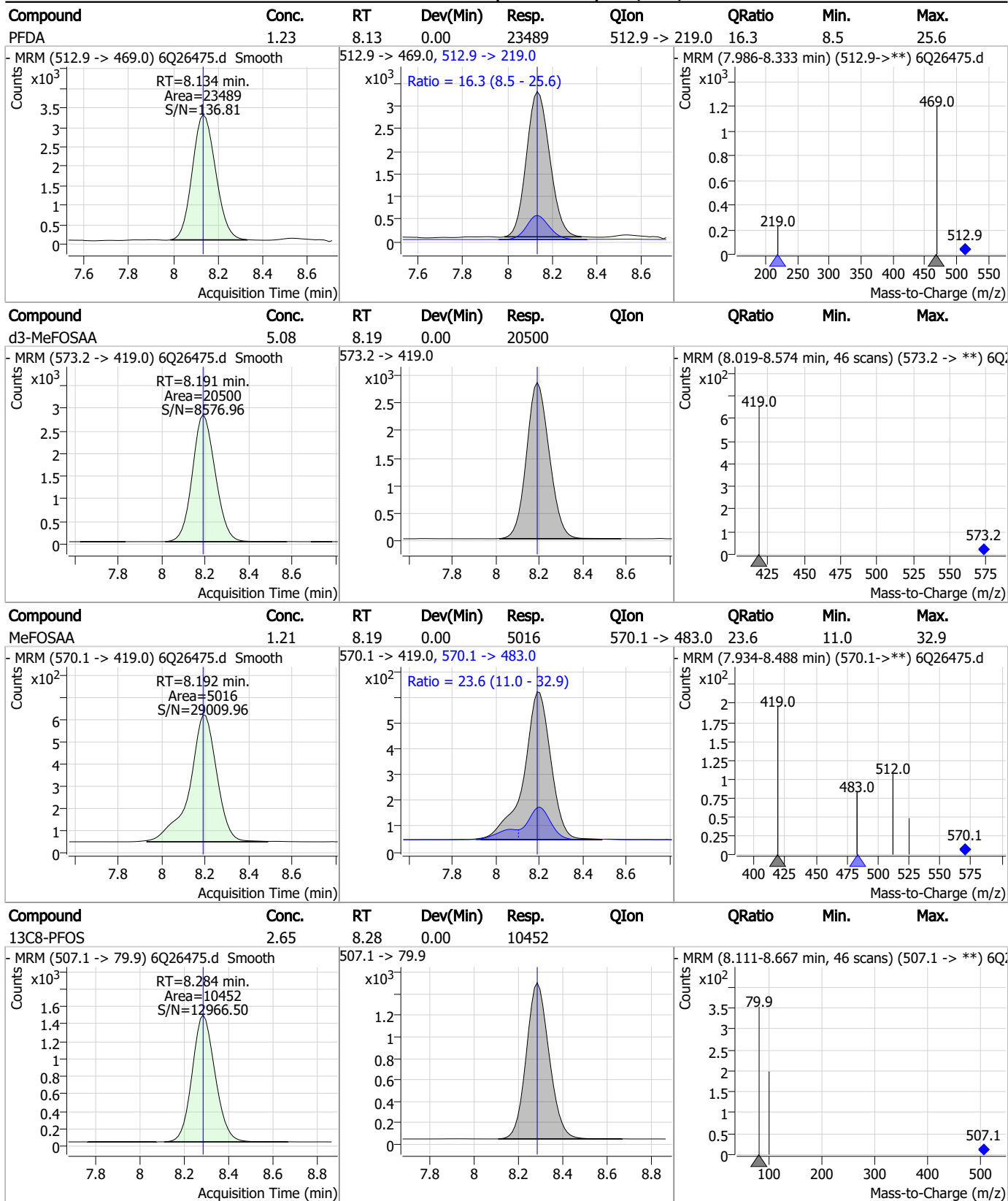
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7.7.4

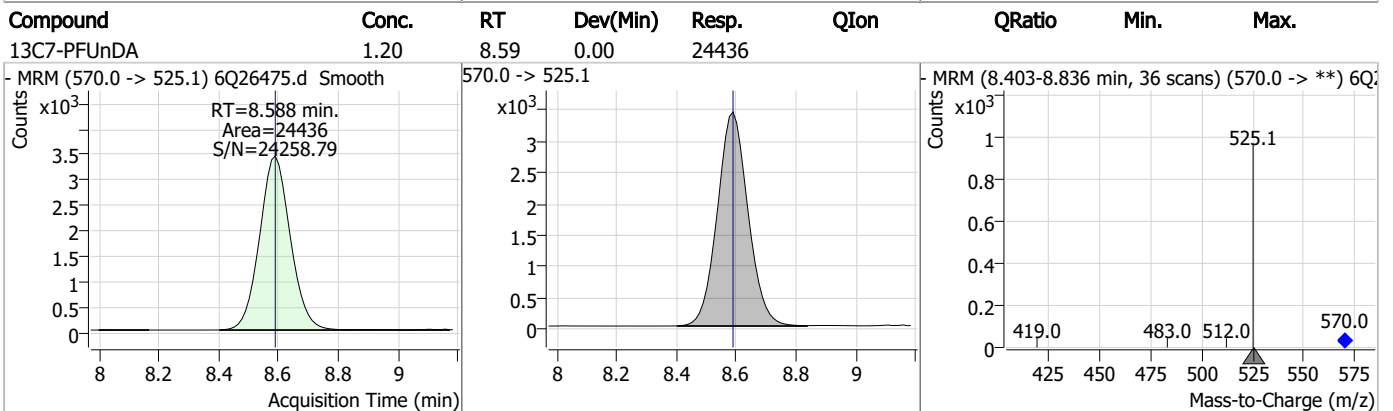
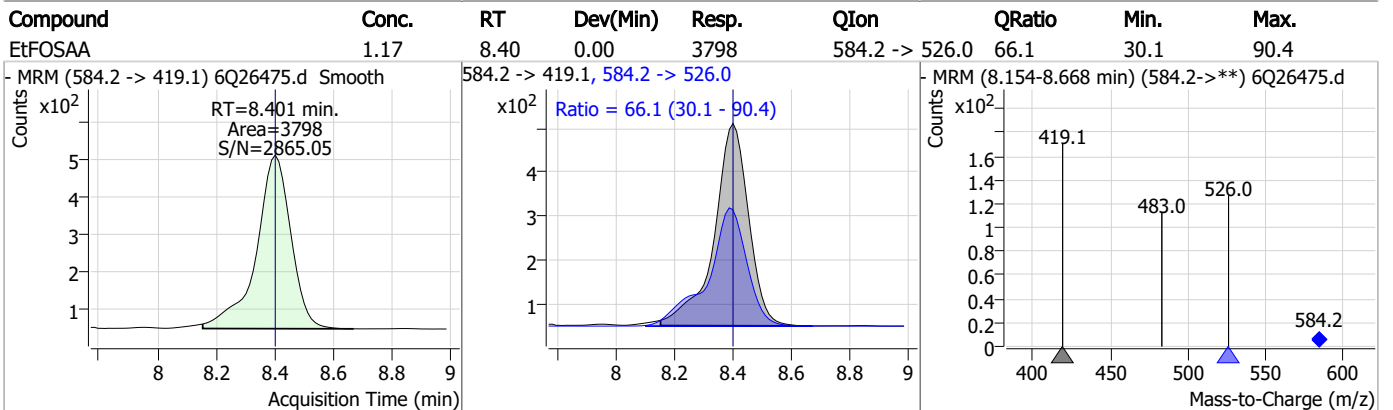
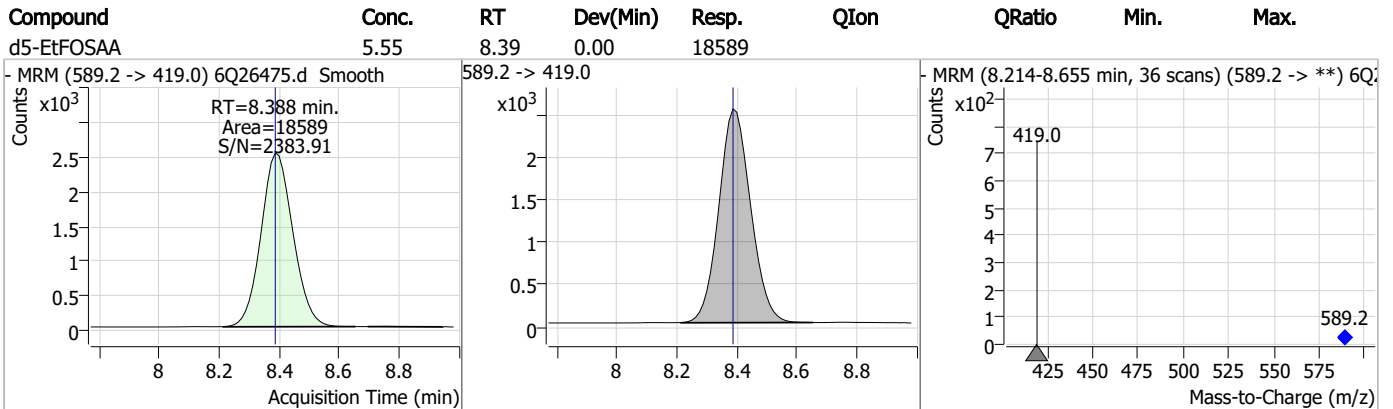
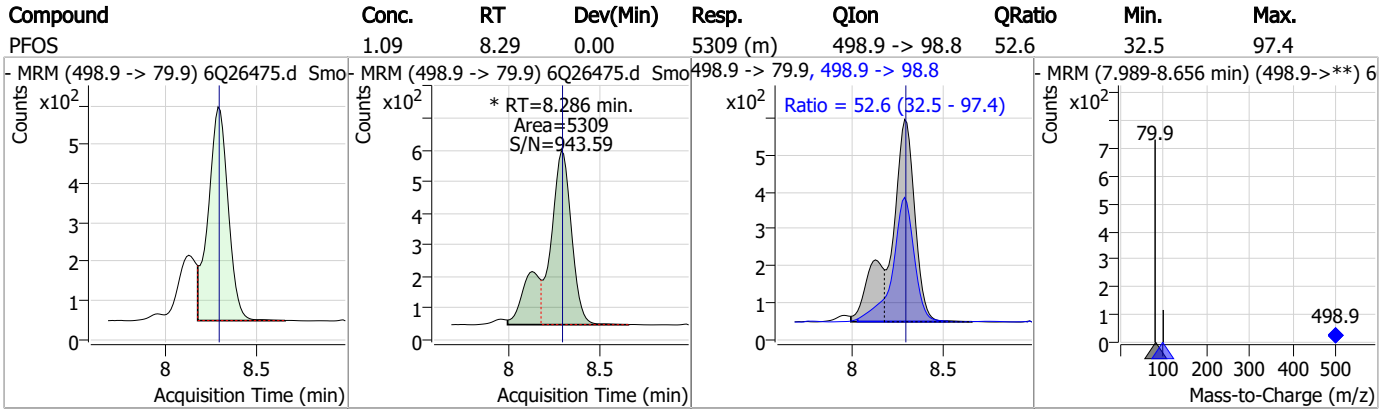
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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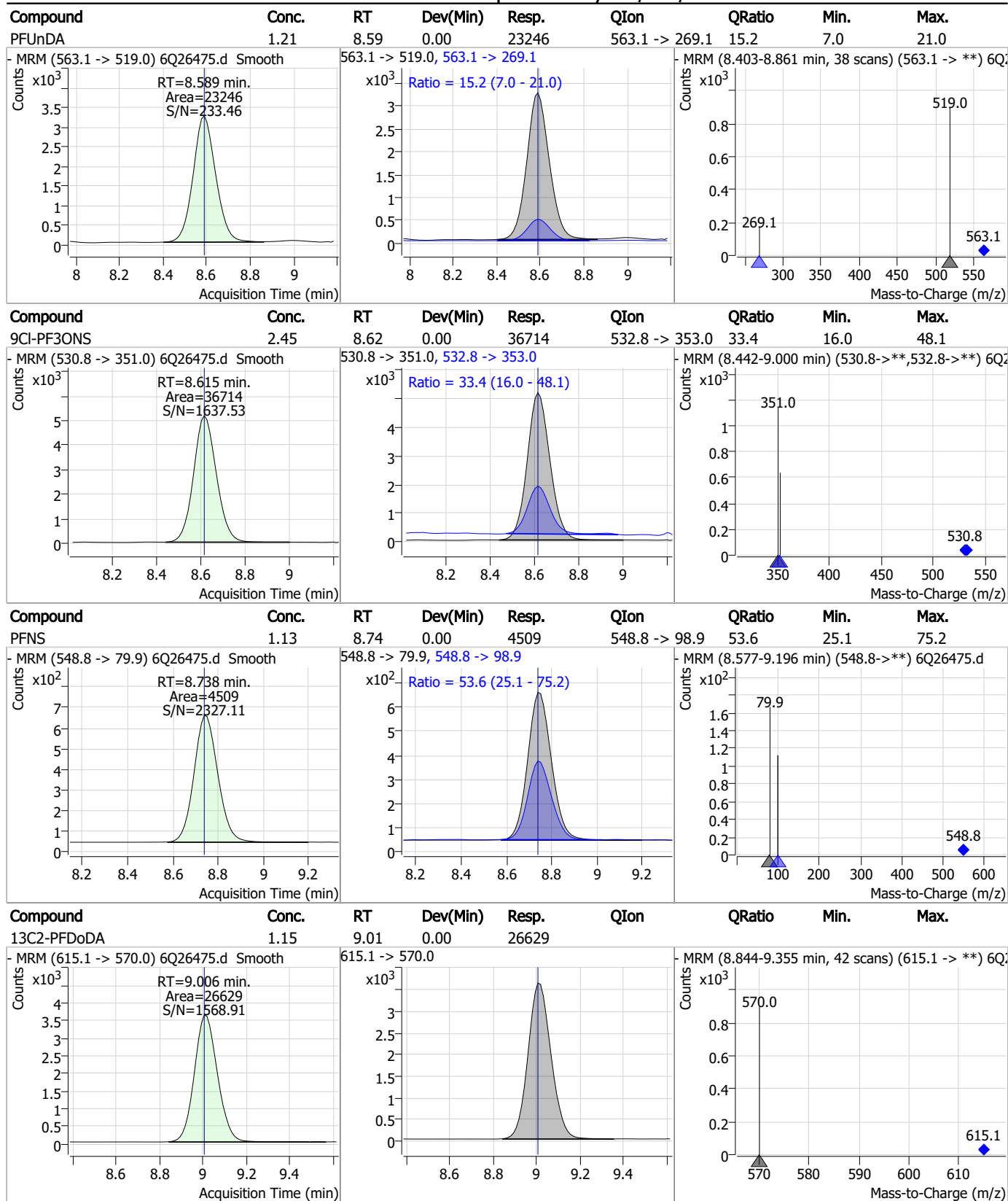
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7.7.4

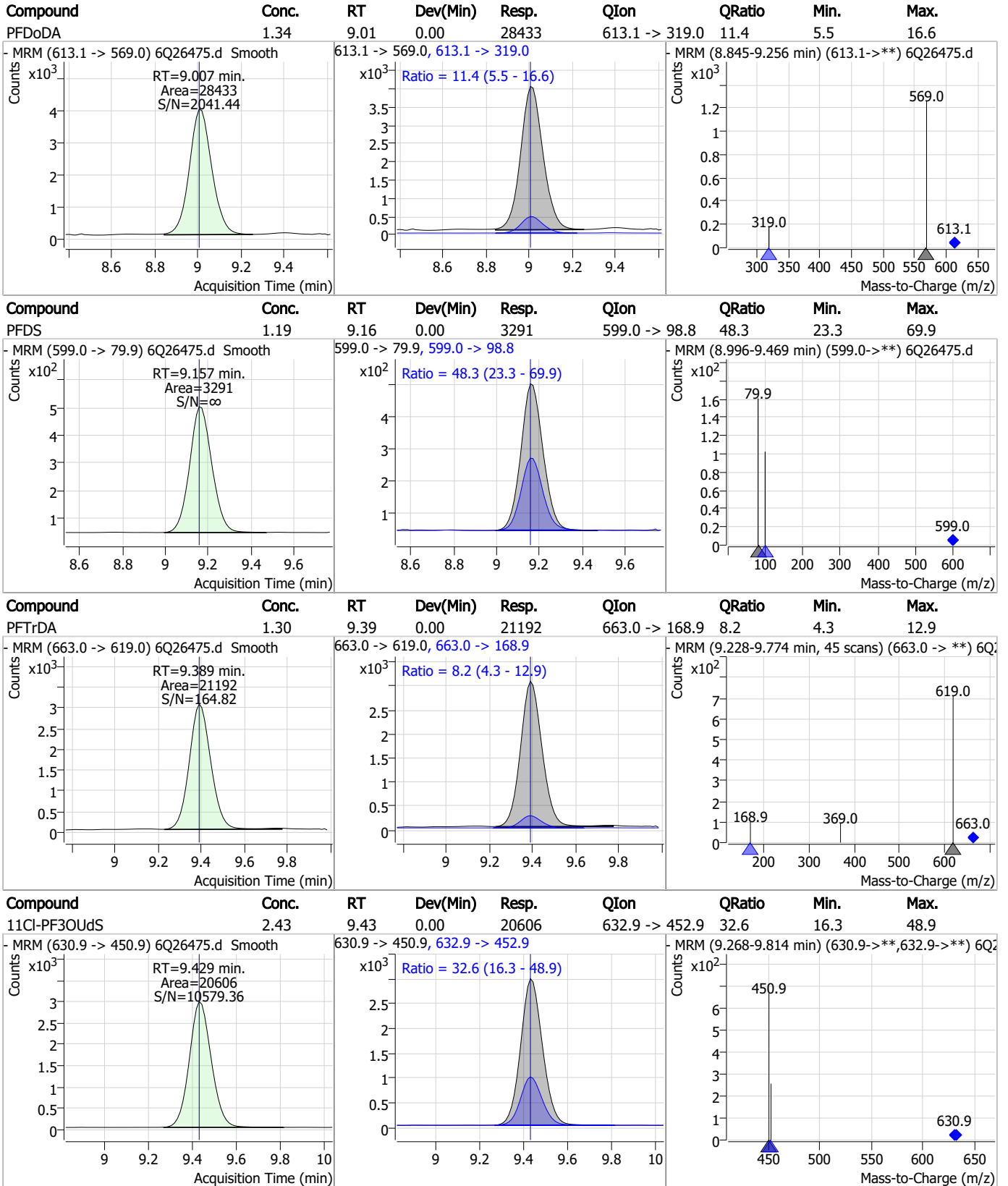
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
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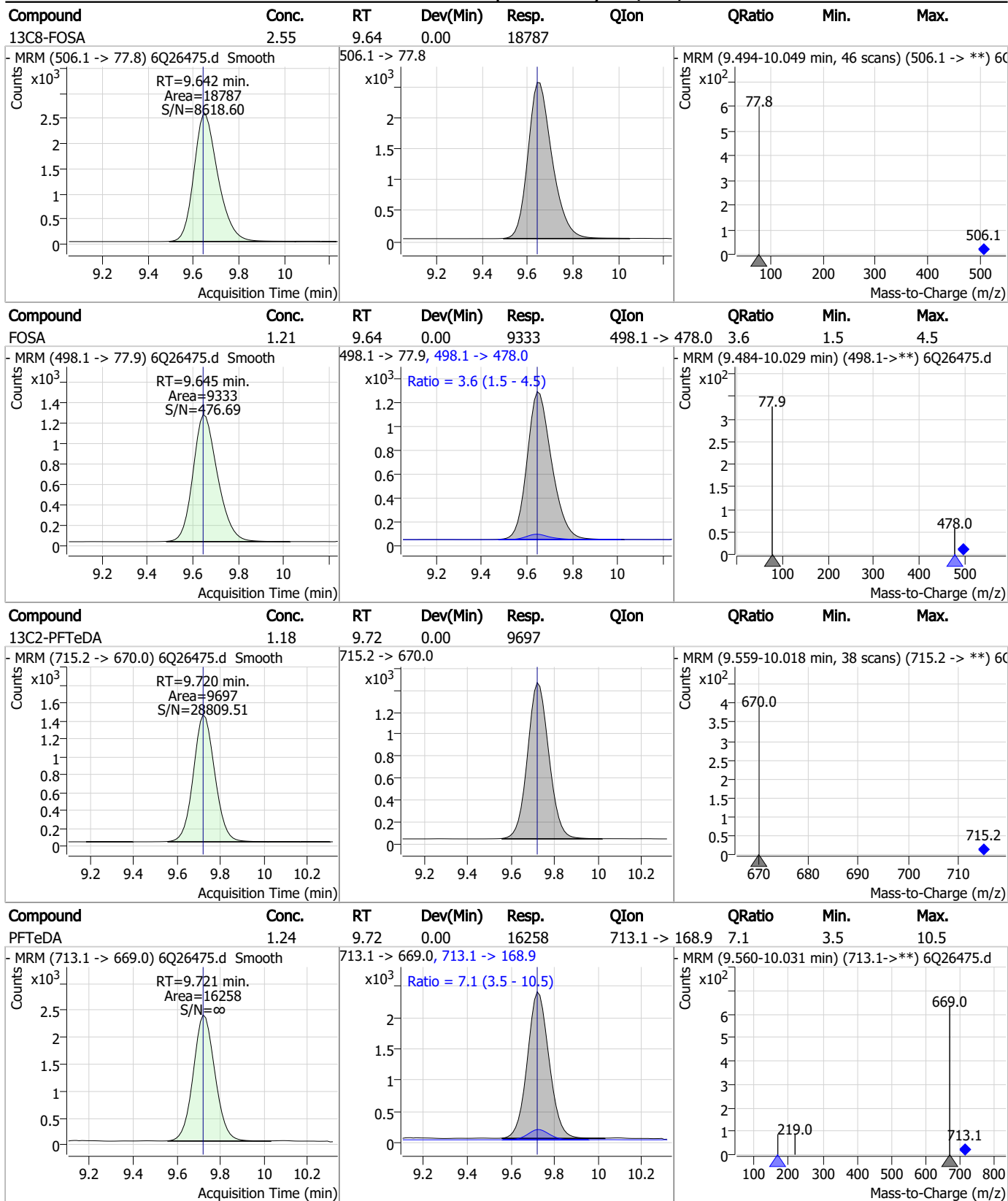
Perfluorinated Compounds by LC/MS/MS



7.7.4

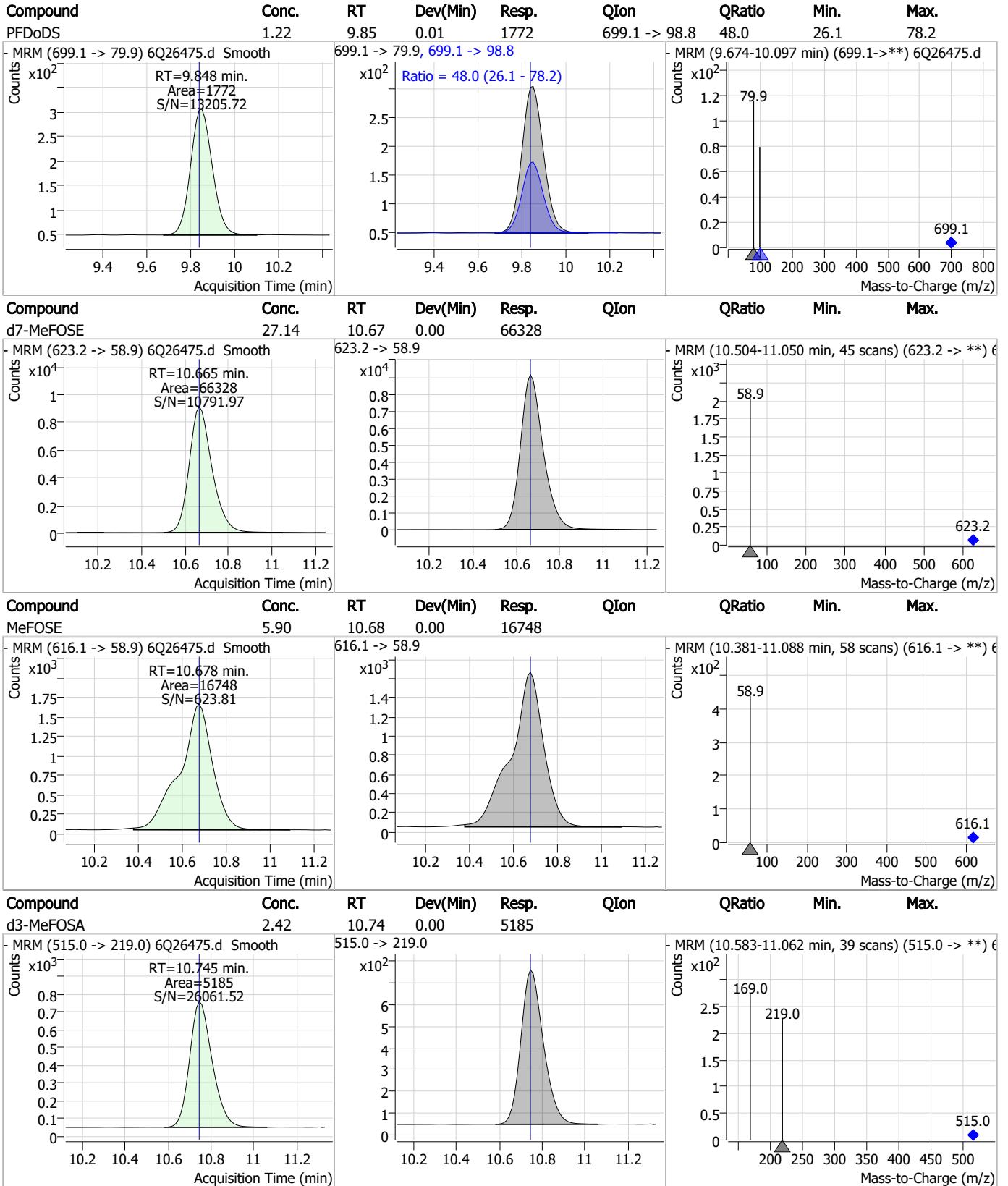
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### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS

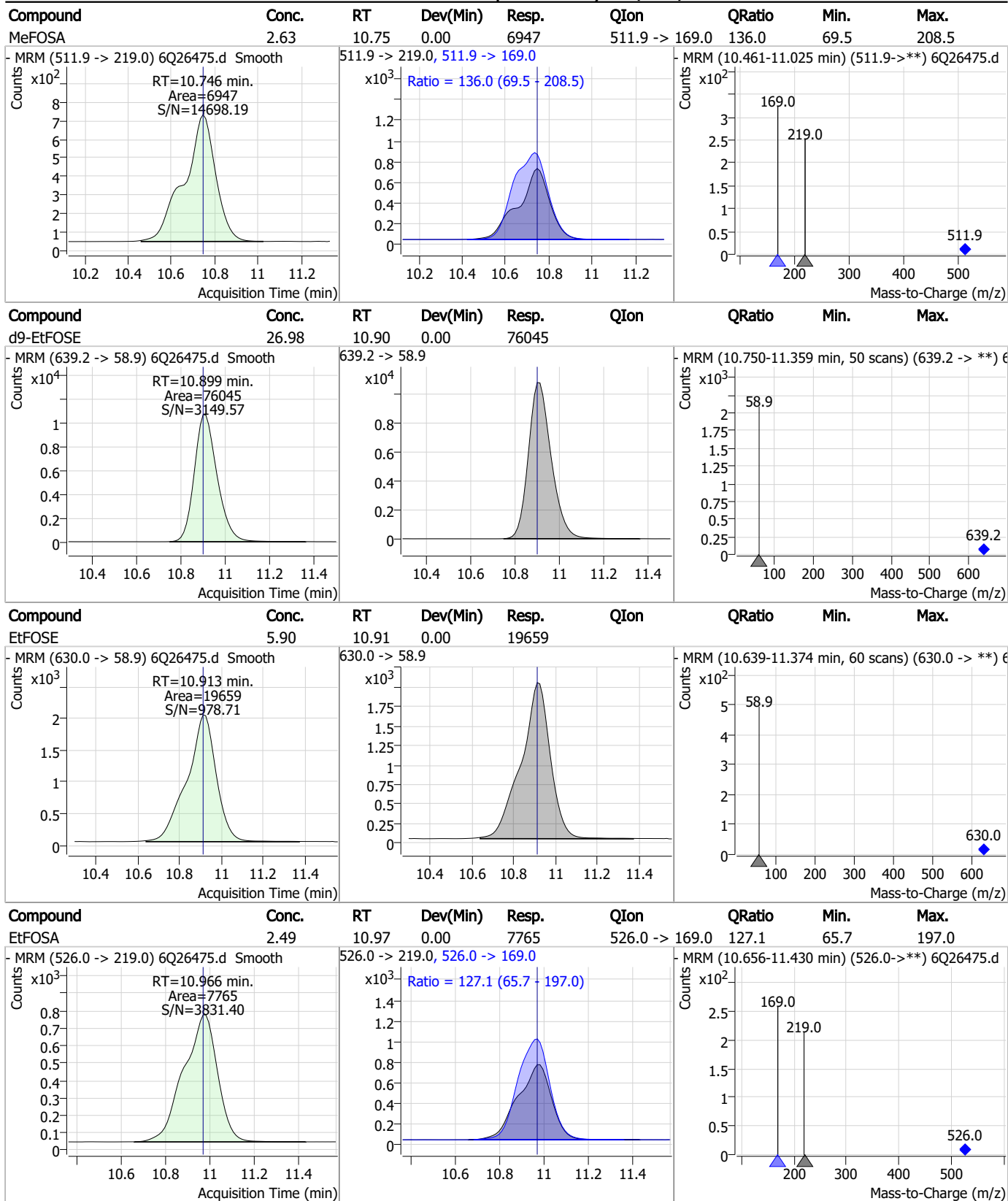


7.7.4

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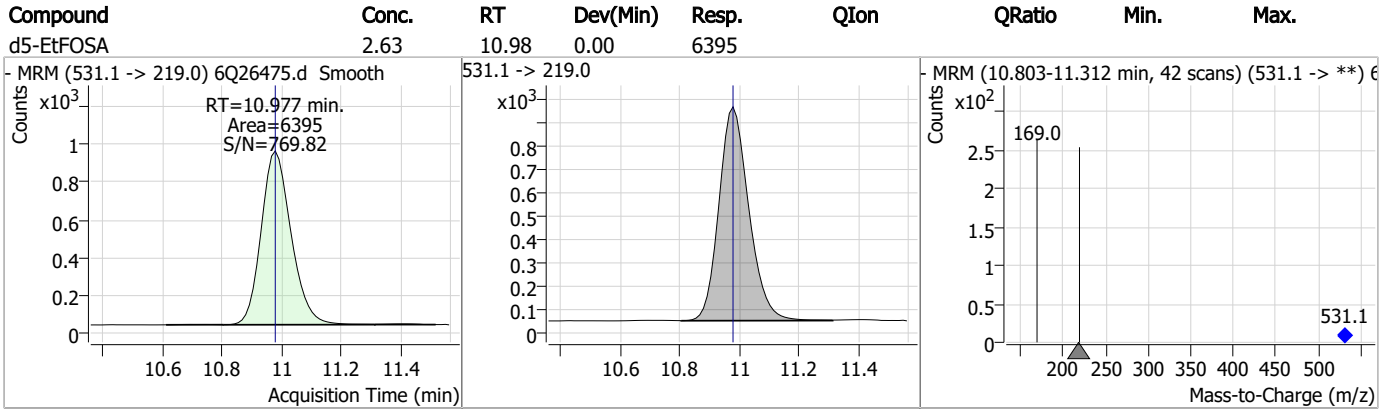


### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

Perfluorinated Compounds by LC/MS/MS



7.7.4

7

# Manual Integration Approval Summary

Sample Number: S6Q372-IC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26475.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 17:54      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.7.4.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26476.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 6:08:52 PM  
 Sample Name : icc372-4  
 Vial : P1-A5  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	132682	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	43409	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	41118	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	40918	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55365	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	23945	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	22419	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	24139	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	27527	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9454	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	18754	2.50 µg/L	0.000
M3-PFBS	5.483	302.1 -> 79.9	19252	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10605	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9968	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2062	5.00 µg/L	0.000
M2-6:2FTS	6.922	429.1 -> 80.9	2686	5.00 µg/L	0.000
M2-8:2FTS	7.922	529.1 -> 80.9	2755	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	21410	5.00 µg/L	0.000
M3-HFPO-DA	5.942	286.9 -> 168.9	29500	10.00 µg/L	0.000
M5-EtFOSAA	8.388	589.2 -> 419.0	16703	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	61818	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	72623	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6133	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5107	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9950	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	53930	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6554	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	60914	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21450	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21952	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	42346	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2062	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-6:2FTS	6.922	429.1 -> 80.9	2686	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2755	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-PFDoDA	9.006	615.1 -> 570.0	27527	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9454	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFBS	5.483	302.1 -> 79.9	19252	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.239	402.1 -> 79.9	10605	2.50 µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFBA	2.926	216.8 -> 171.9	132682	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.505	367.1 -> 322.0	40918	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFHxA	5.565	318.0 -> 273.0	41118	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.346	268.3 -> 223.0	43409	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C6-PFDA	8.134	519.1 -> 474.1	22419	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C7-PFUnDA	8.588	570.0 -> 525.1	24139	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.642	506.1 -> 77.8	18754	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-PFOA	7.136	421.1 -> 376.0	55365	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOS	8.284	507.1 -> 79.9	9968	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C9-PFNA	7.654	472.1 -> 427.0	23945	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
d3-MeFOSAA	8.191	573.2 -> 419.0	21410	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C3-HFPO-DA	5.942	286.9 -> 168.9	29500	9.87 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d3-MeFOSA	10.745	515.0 -> 219.0	5107	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.2%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16703	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d7-MeFOSE	10.665	623.2 -> 58.9	61818	23.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d9-EtFOSE	10.899	639.2 -> 58.9	72623	23.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSA	10.977	531.1 -> 219.0	6133	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	34407	9.18 µg/L	100
		327.1 -> 80.9	13089		
6:2FTS	6.911	427.1 -> 407.0	27820	9.27 µg/L	99
		427.1 -> 80.9	10835		
8:2FTS	7.935	527.1 -> 507.0	22123	10.41 µg/L	100
		527.1 -> 80.8	7096		
EtFOSAA	8.401	584.2 -> 419.1	7349	2.53 µg/L	100
		584.2 -> 526.0	4430		
FOSA	9.645	498.1 -> 77.9	18315	2.38 µg/L	100
		498.1 -> 478.0	555		
MeFOSAA	8.192	570.1 -> 419.0	9721	2.24 µg/L	100
		570.1 -> 483.0	2135		
PFBA	2.919	212.8 -> 168.9	50246	9.68 µg/L	100
PFBS	5.484	298.7 -> 79.9	13072	2.05 µg/L	100
		298.7 -> 98.8	4857		
PFDA	8.134	512.9 -> 469.0	44745	2.43 µg/L	100
		512.9 -> 219.0	7628		
PFDODA	9.007	613.1 -> 569.0	52795	2.41 µg/L	100
		613.1 -> 319.0	5849		
PFDS	9.157	599.0 -> 79.9	6406	2.43 µg/L	100

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2986			
PFHpA	6.506	363.1 -> 319.0	56411	2.36	µg/L	100
		363.1 -> 169.0	8132			
PFHpS	7.793	449.0 -> 79.9	9999	2.16	µg/L	100
		449.0 -> 98.9	5227			
PFHxA	5.568	313.0 -> 269.0	36438	2.31	µg/L	100
		313.0 -> 118.9	1928			
PFHxS	7.240	398.7 -> 79.9	10163	2.19	µg/L	m 88
		398.7 -> 98.9	4890			
PFNA	7.655	463.0 -> 419.0	35495	2.33	µg/L	100
		463.0 -> 219.0	8598			
PFNS	8.738	548.8 -> 79.9	8867	2.33	µg/L	100
		548.8 -> 98.9	4446			
PFOA	7.138	413.0 -> 369.0	56907	2.31	µg/L	100
		413.0 -> 169.0	10219			
PFOS	8.286	498.9 -> 79.9	10098	2.18	µg/L	m 81
		498.9 -> 98.8	5068			
PFPeA	4.349	263.0 -> 219.0	49237	4.77	µg/L	100
PFPeS	6.545	349.1 -> 79.9	14045	2.33	µg/L	100
		349.1 -> 98.9	6011			
PFTeDA	9.721	713.1 -> 669.0	32040	2.51	µg/L	100
		713.1 -> 168.9	2241			
PFTrDA	9.389	663.0 -> 619.0	40000	2.37	µg/L	100
		663.0 -> 168.9	3449			
PFUnDA	8.589	563.1 -> 519.0	45426	2.39	µg/L	100
		563.1 -> 269.1	6372			
11CI-PF3OUdS	9.429	630.9 -> 450.9	39231	4.49	µg/L	100
		632.9 -> 452.9	12779			
9CI-PF3ONS	8.615	530.8 -> 351.0	68758	4.45	µg/L	100
		532.8 -> 353.0	22038			
ADONA	6.755	376.9 -> 250.9	188512	4.54	µg/L	100
		376.9 -> 84.8	48872			
HFPO-DA	5.931	284.9 -> 168.9	14568	4.58	µg/L	100
		284.9 -> 184.9	1845			
3:3FTCA	3.777	241.0 -> 177.0	8268	11.60	µg/L	100
		241.0 -> 117.0	1137			
5:3FTCA	6.210	341.0 -> 237.1	171085	58.97	µg/L	100
		341.0 -> 217.0	127039			
7:3FTCA	7.620	441.0 -> 316.9	116394	61.70	µg/L	100
		441.0 -> 336.9	229837			
EtFOSA	10.966	526.0 -> 219.0	14334	4.78	µg/L	100
		526.0 -> 169.0	18827			
EtFOSE	10.913	630.0 -> 58.9	37503	11.79	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	12968	4.98	µg/L	100
		511.9 -> 169.0	18024			
MeFOSE	10.678	616.1 -> 58.9	31301	11.84	µg/L	100
PFDoDS	9.835	699.1 -> 79.9	3346	2.41	µg/L	100
		699.1 -> 98.8	1744			
NFDHA	5.447	295.0 -> 201.0	9507	4.86	µg/L	100
		295.0 -> 84.9	2599			
PFMBA	4.775	279.0 -> 85.1	37979	4.78	µg/L	100
PFMPA	3.488	229.0 -> 84.9	31097	4.79	µg/L	100
PFEESA	6.024	314.8 -> 134.9	86867	4.25	µg/L	100
		314.8 -> 82.9	3101			

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

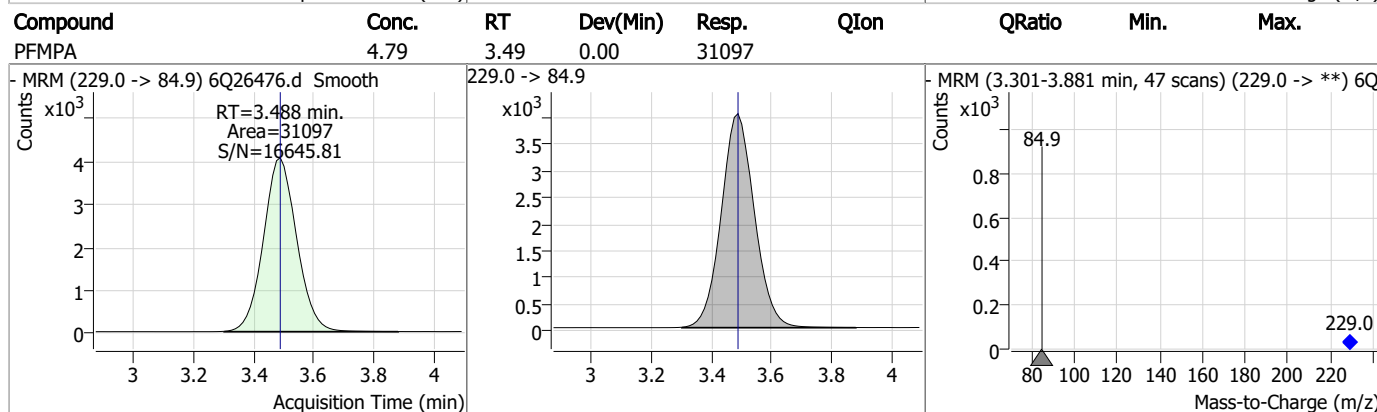
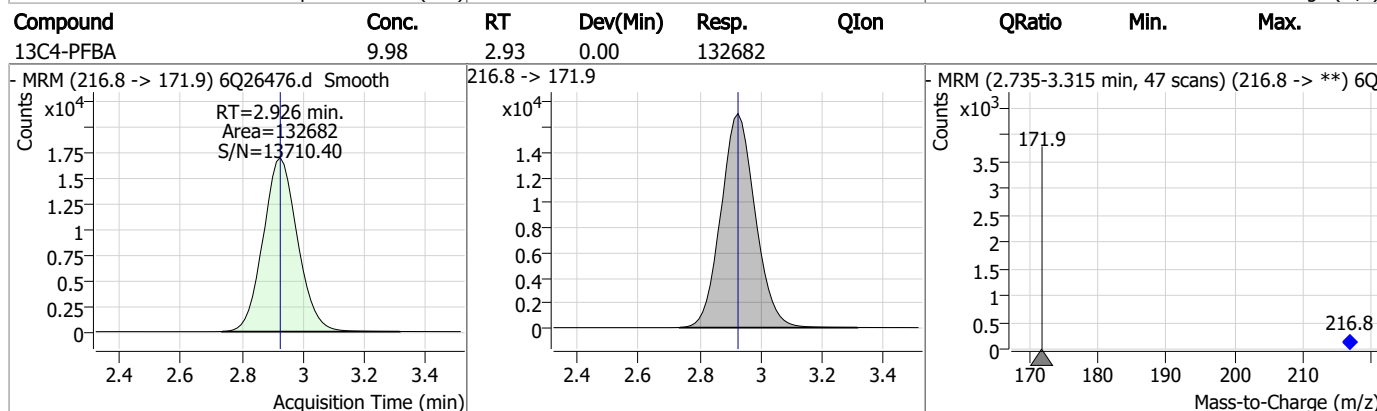
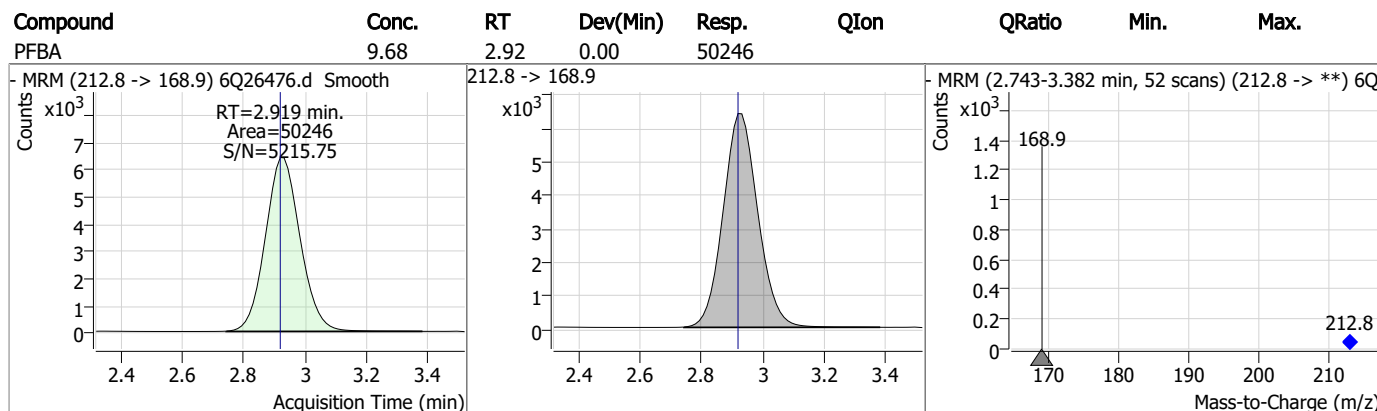
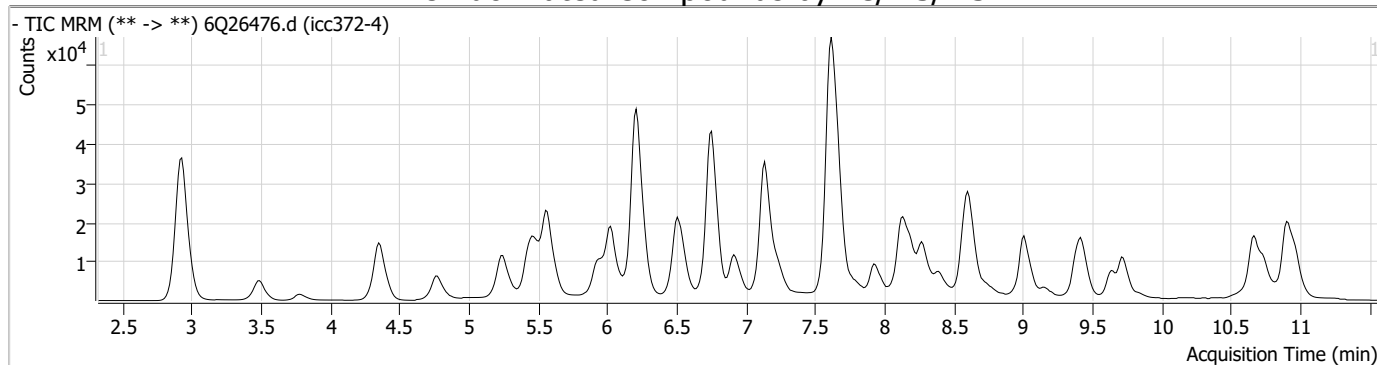
### Perfluorinated Compounds by LC/MS/MS

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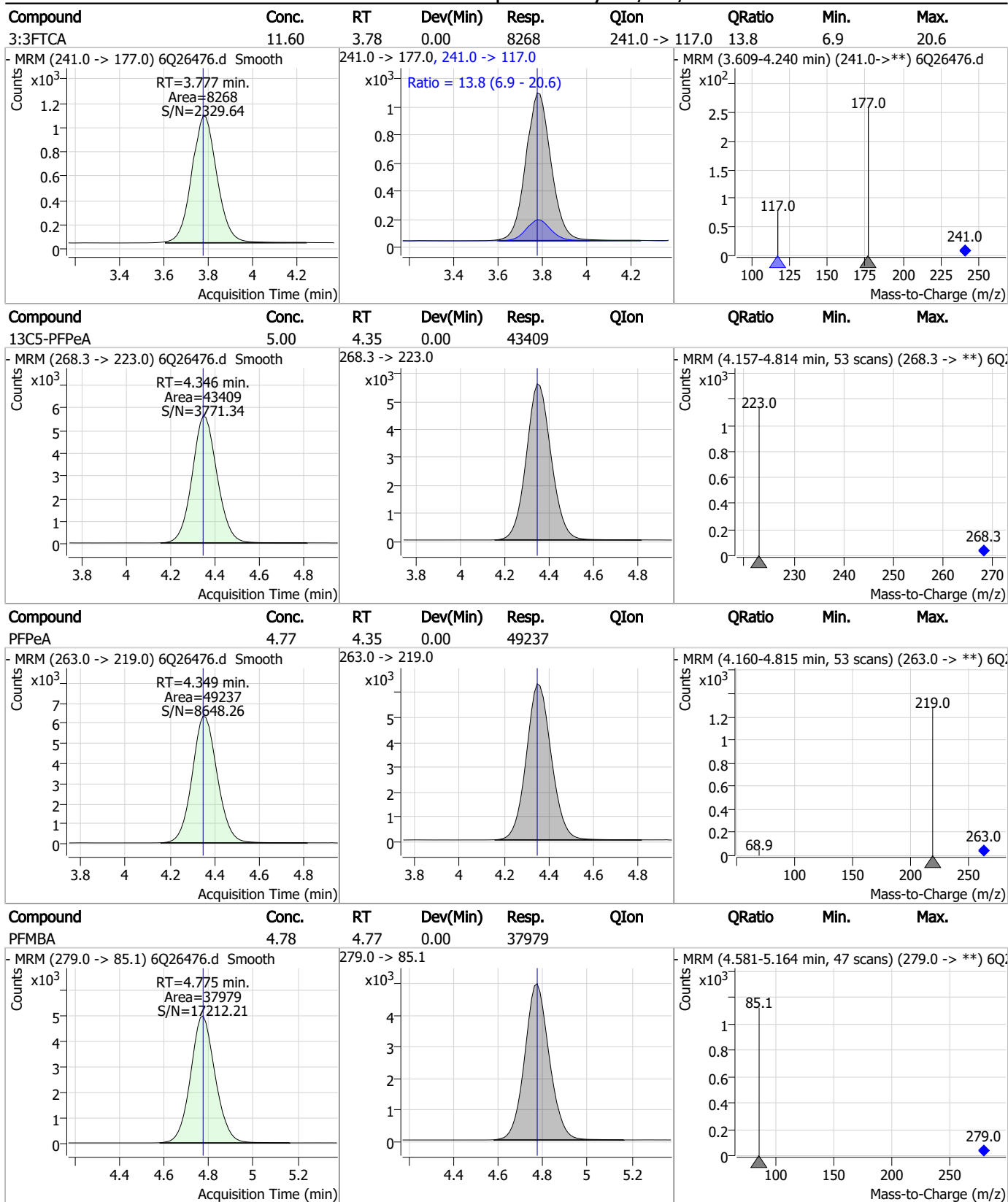


### Perfluorinated Compounds by LC/MS/MS



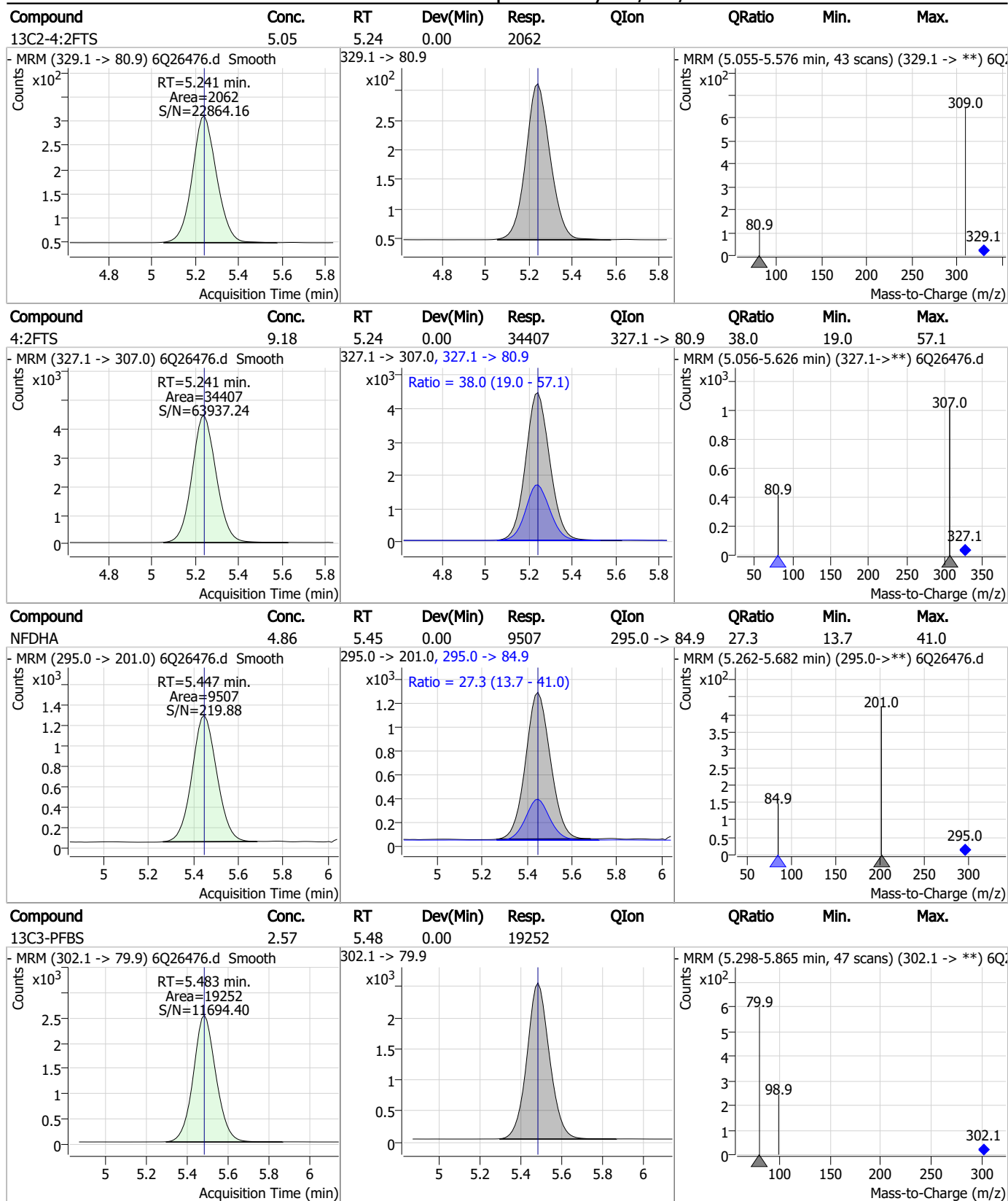


### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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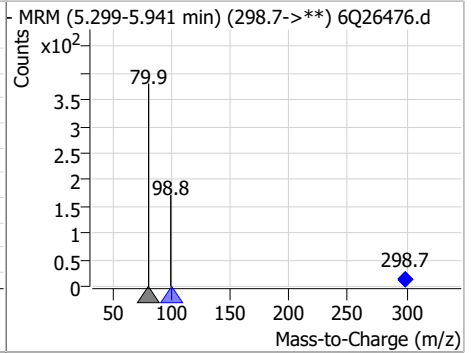
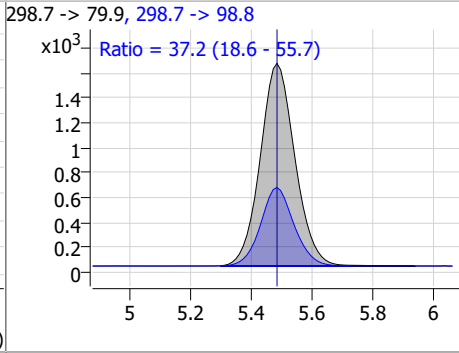
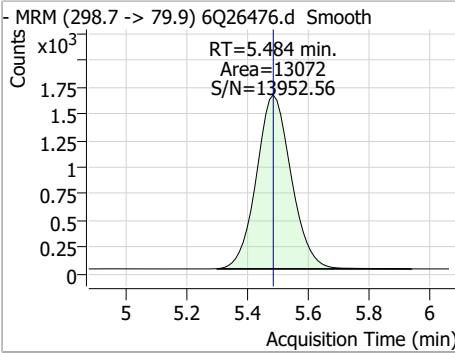
### Perfluorinated Compounds by LC/MS/MS



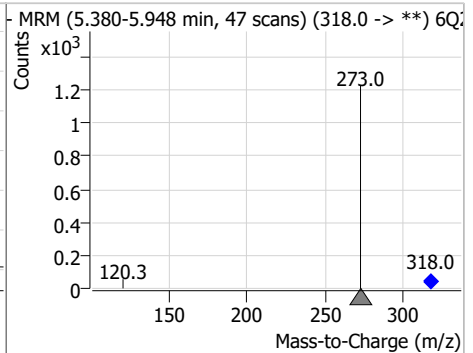
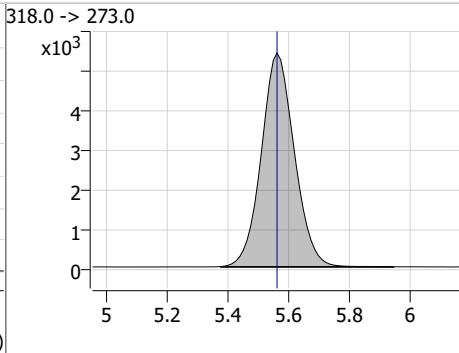
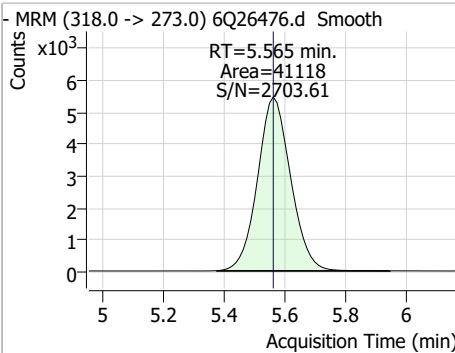
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS

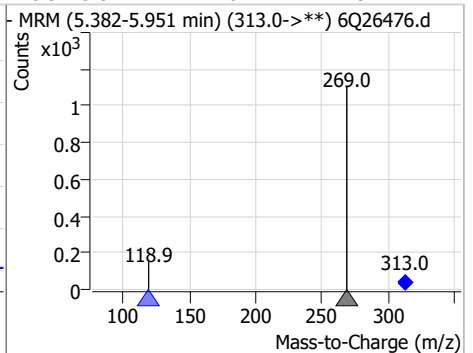
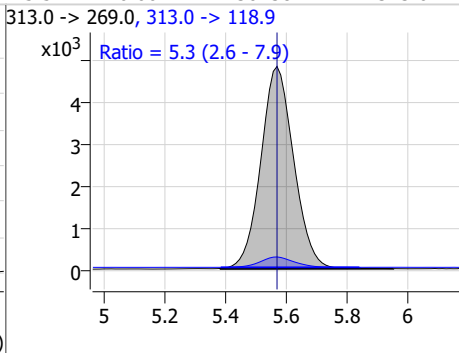
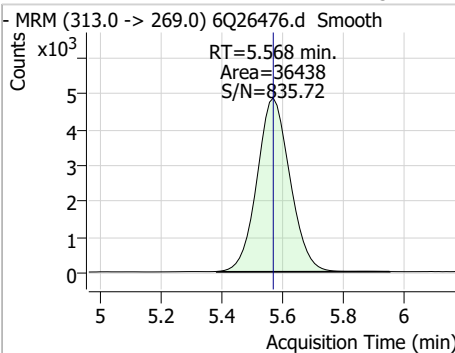
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.05	5.48	0.00	13072	298.7 -> 98.8	37.2	18.6	55.7



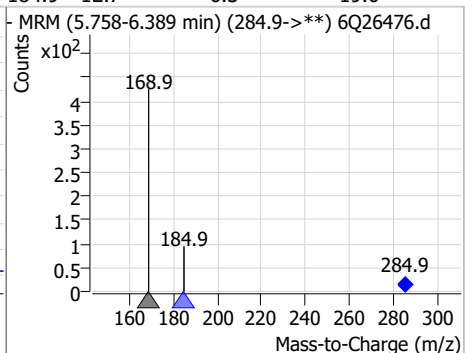
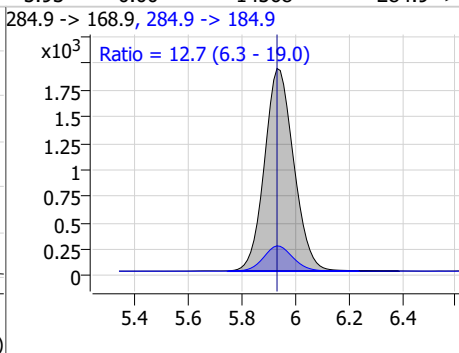
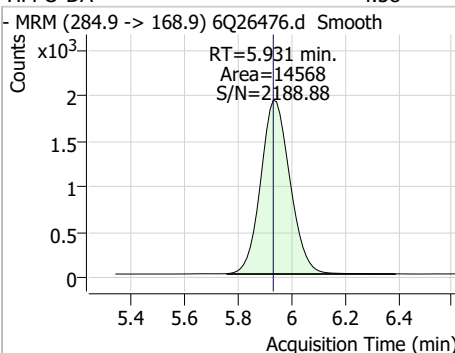
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.56	0.00	41118				



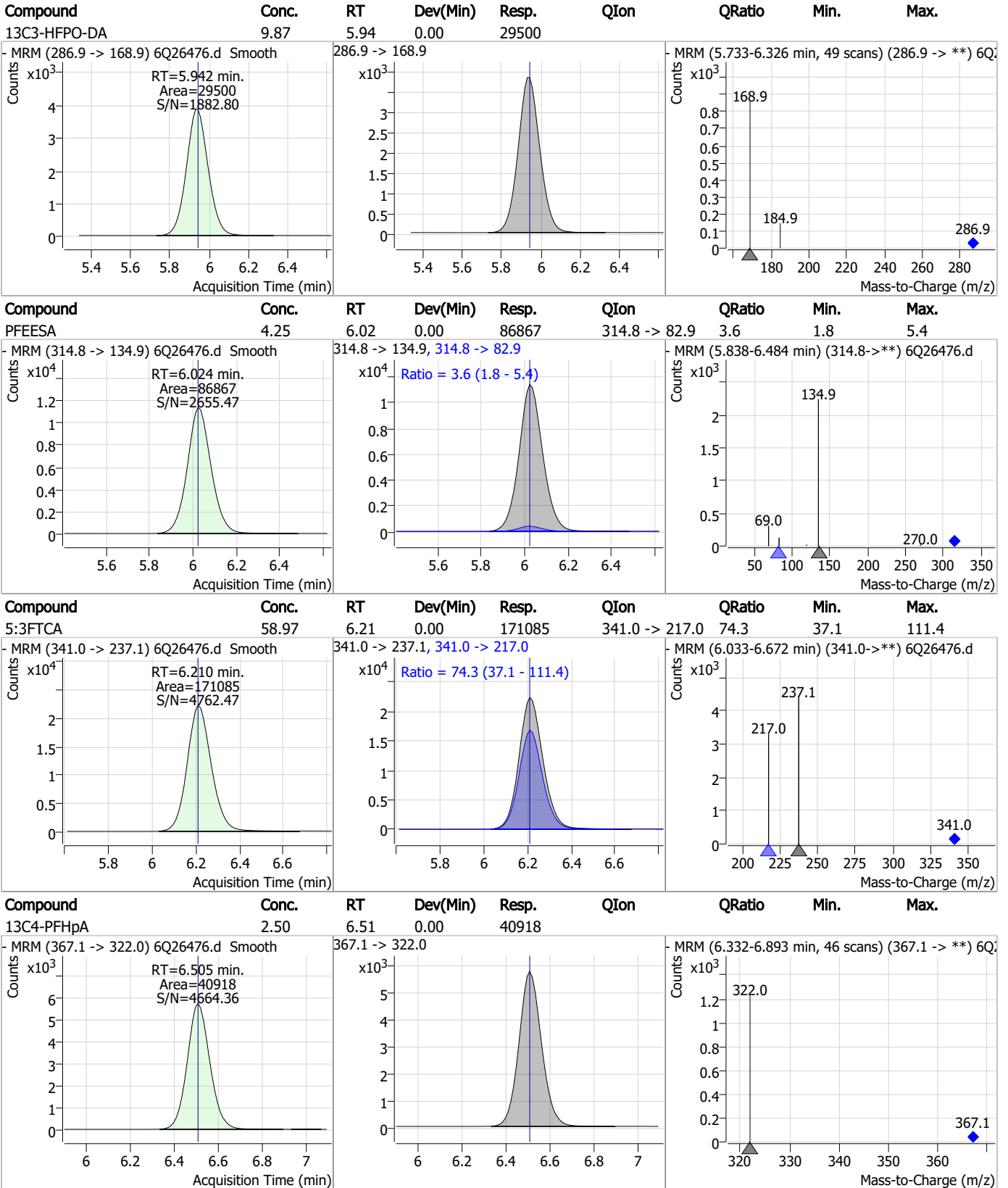
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.31	5.57	0.00	36438	313.0 -> 118.9	5.3	2.6	7.9



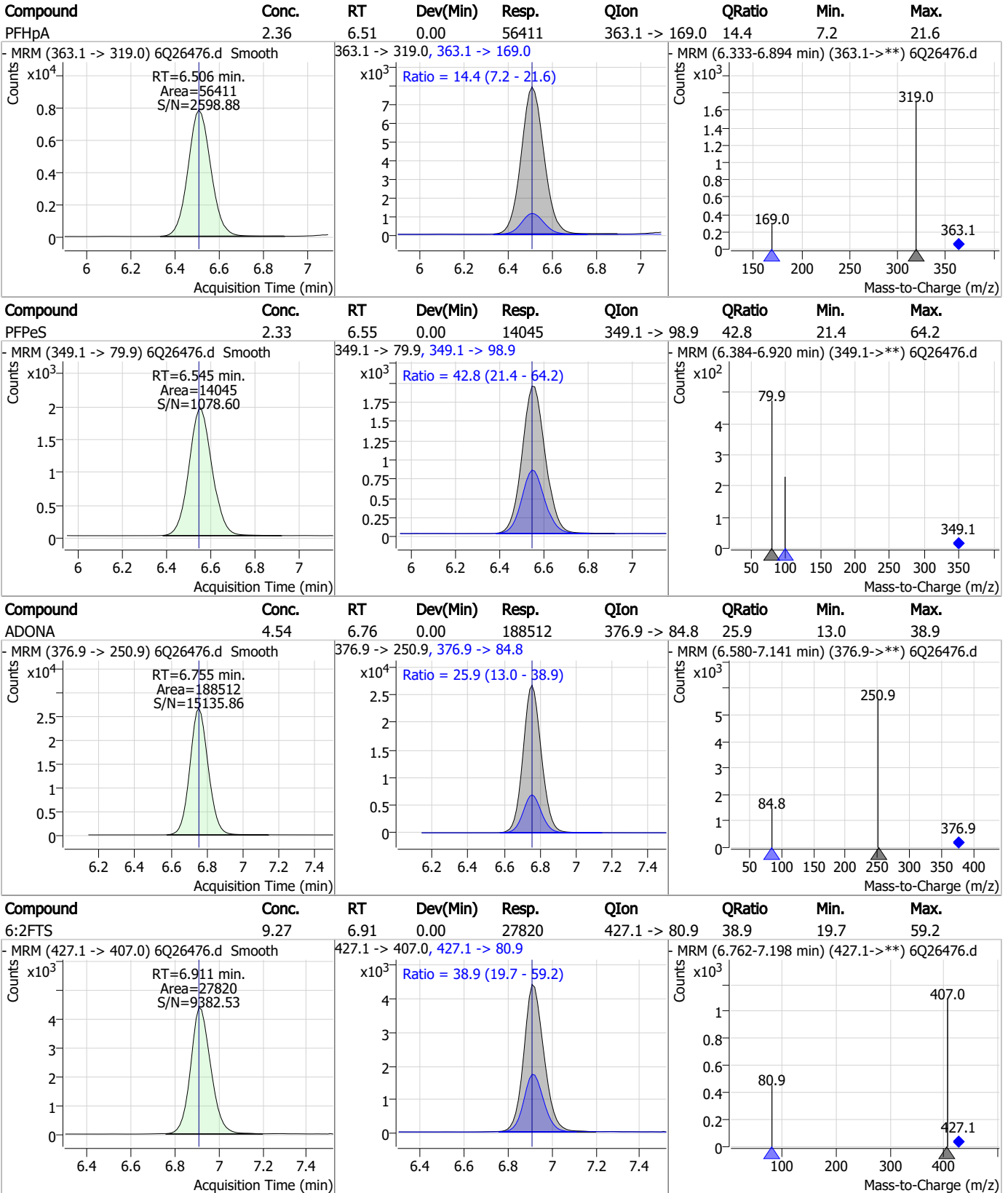
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.58	5.93	0.00	14568	284.9 -> 184.9	12.7	6.3	19.0



### Perfluorinated Compounds by LC/MS/MS



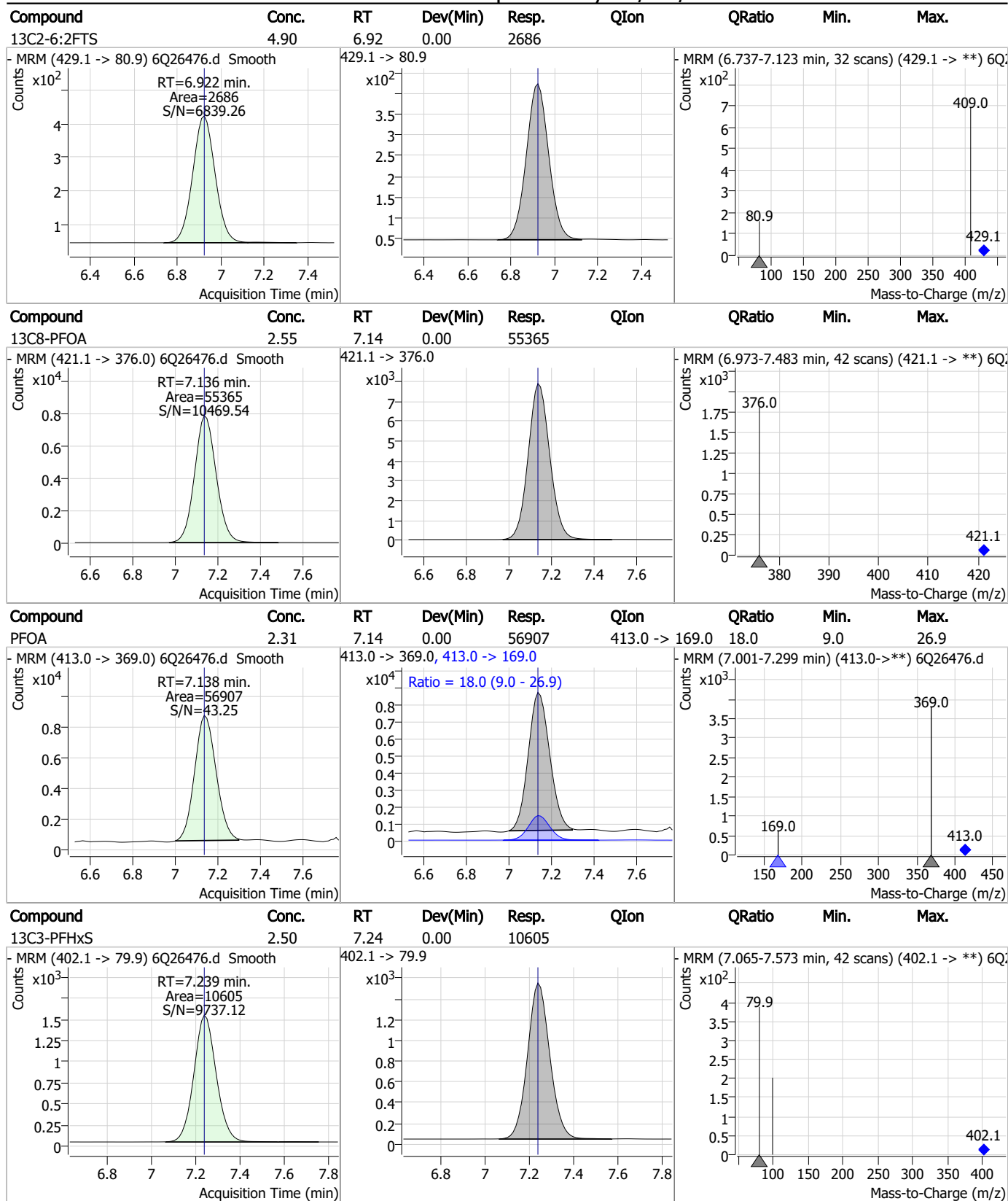
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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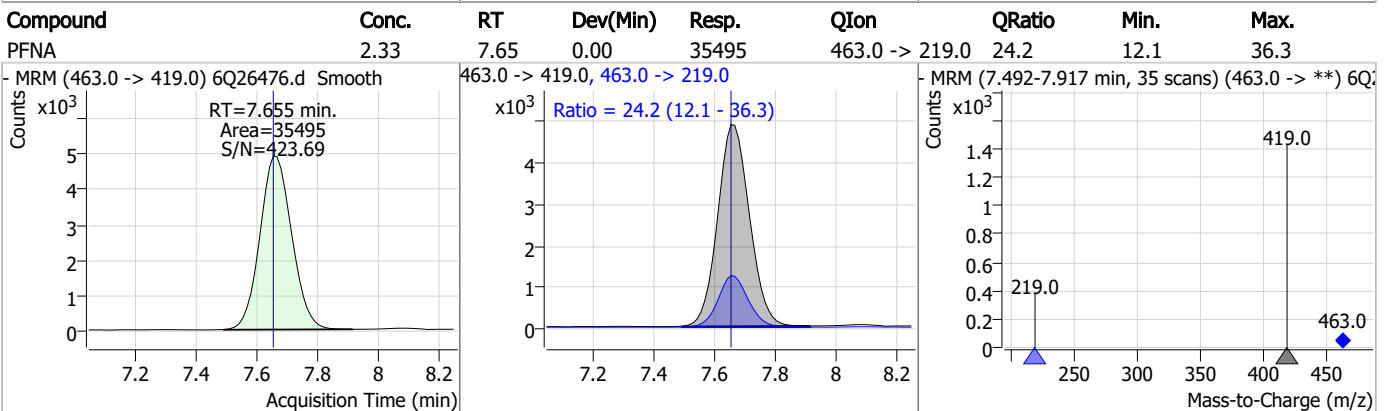
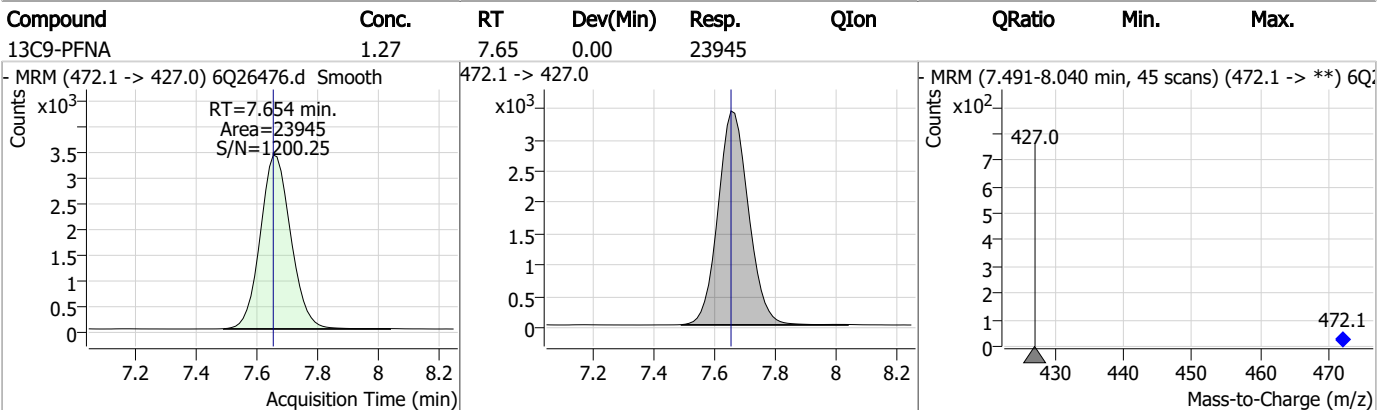
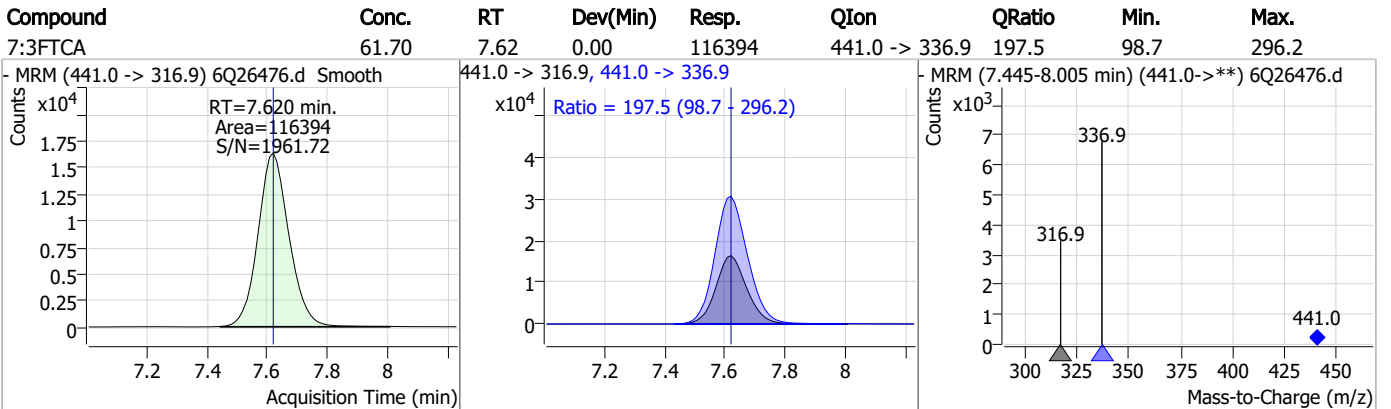
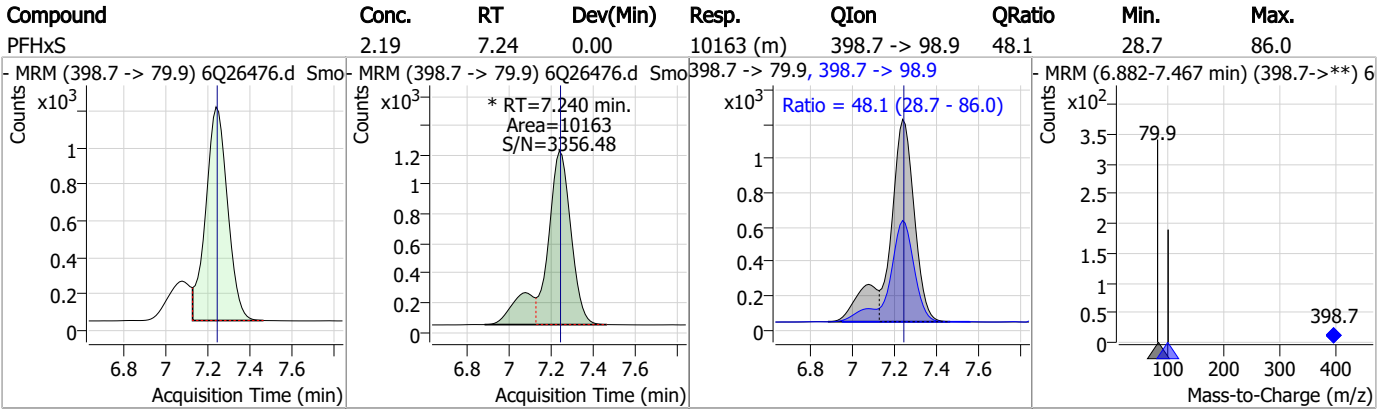
### Perfluorinated Compounds by LC/MS/MS



7.7.5

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### Perfluorinated Compounds by LC/MS/MS

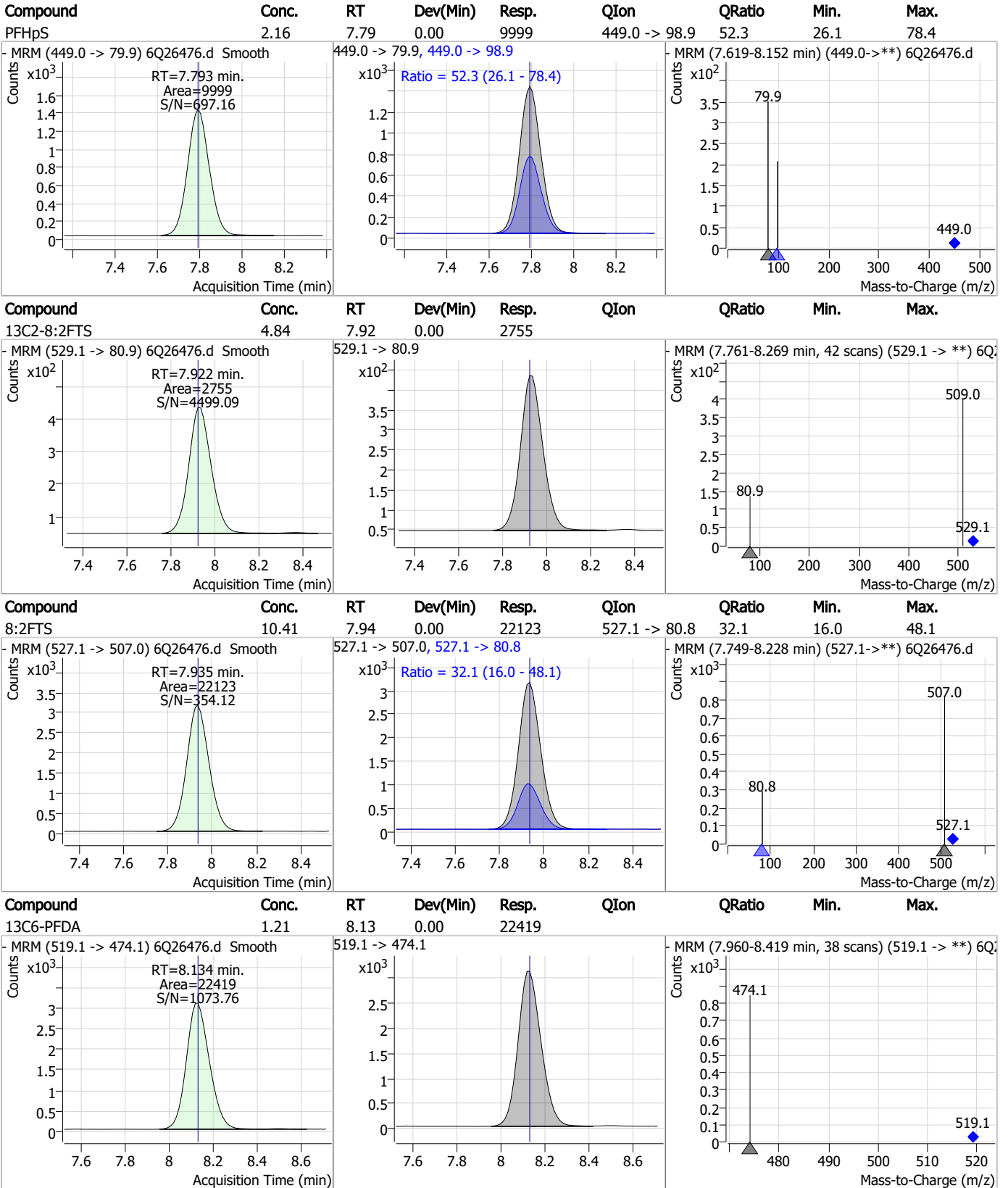


7.7.5

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### Perfluorinated Compounds by LC/MS/MS

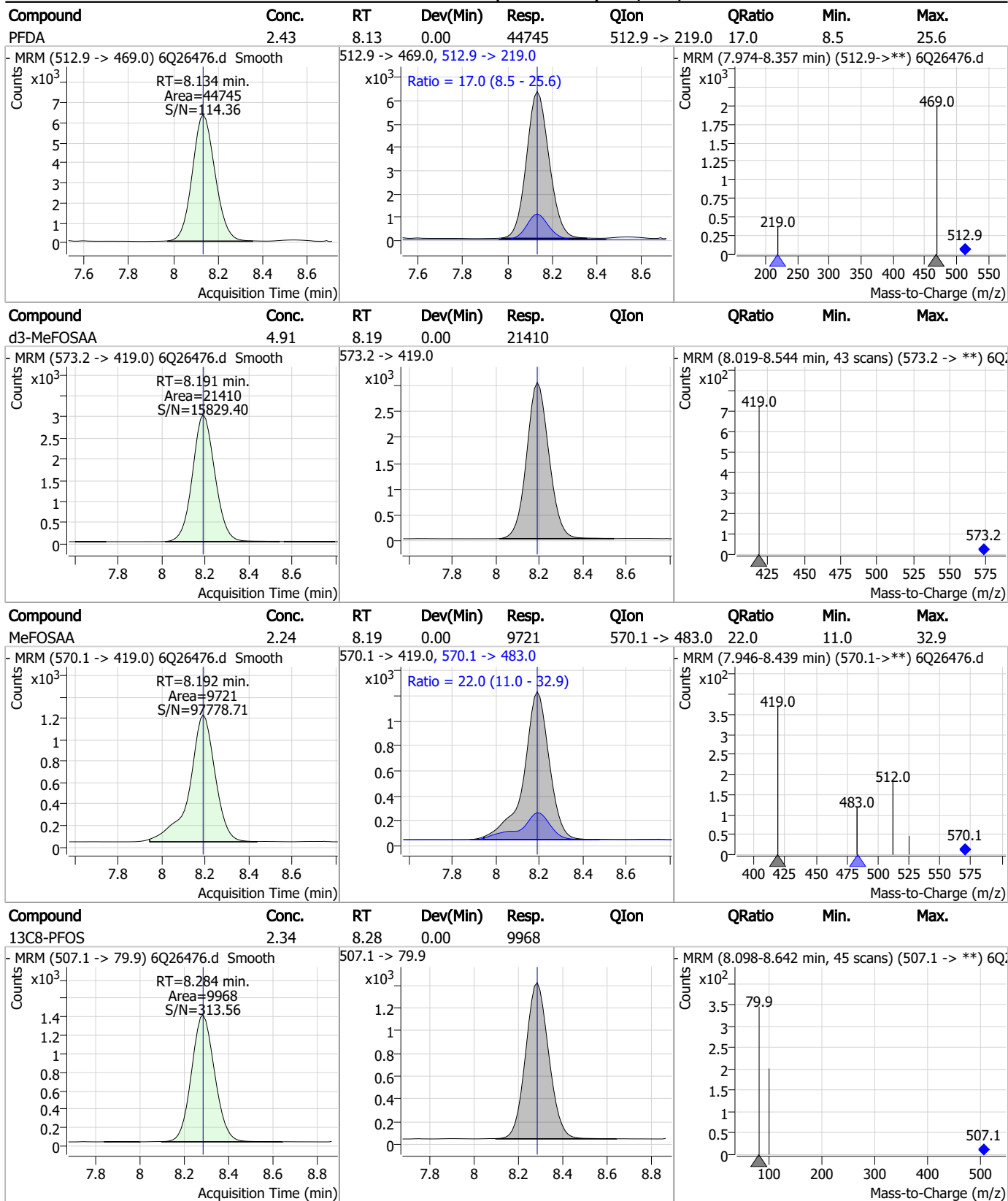


7.7.5

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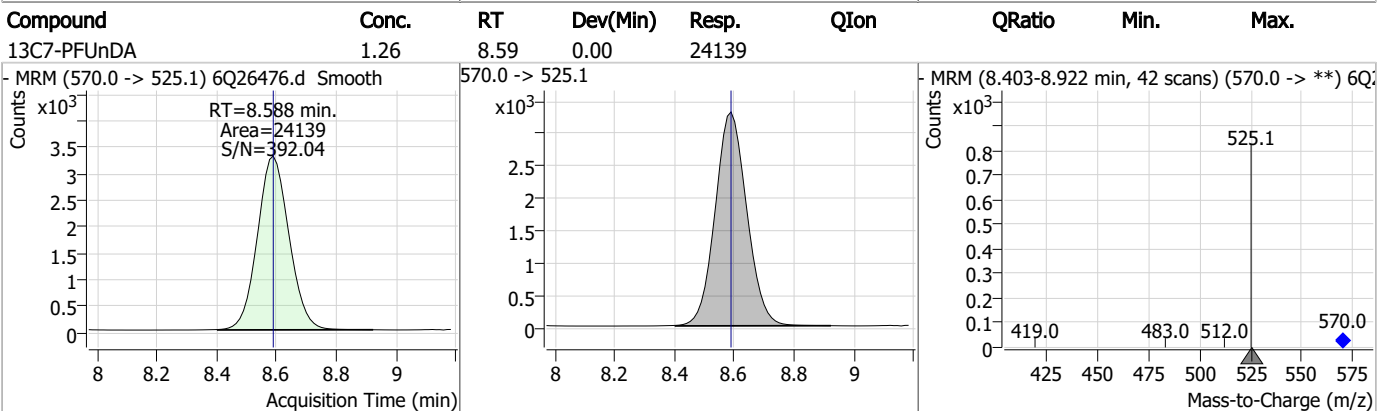
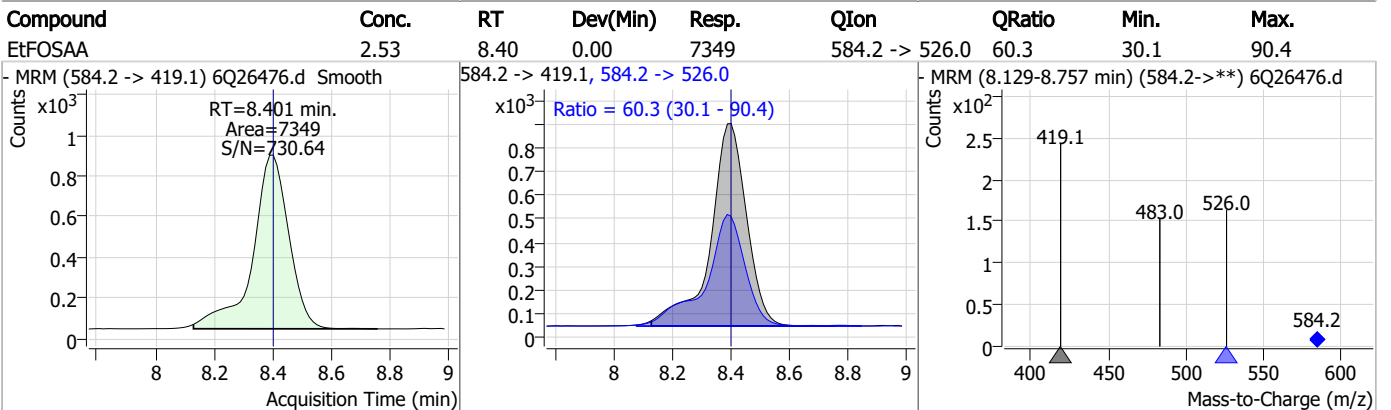
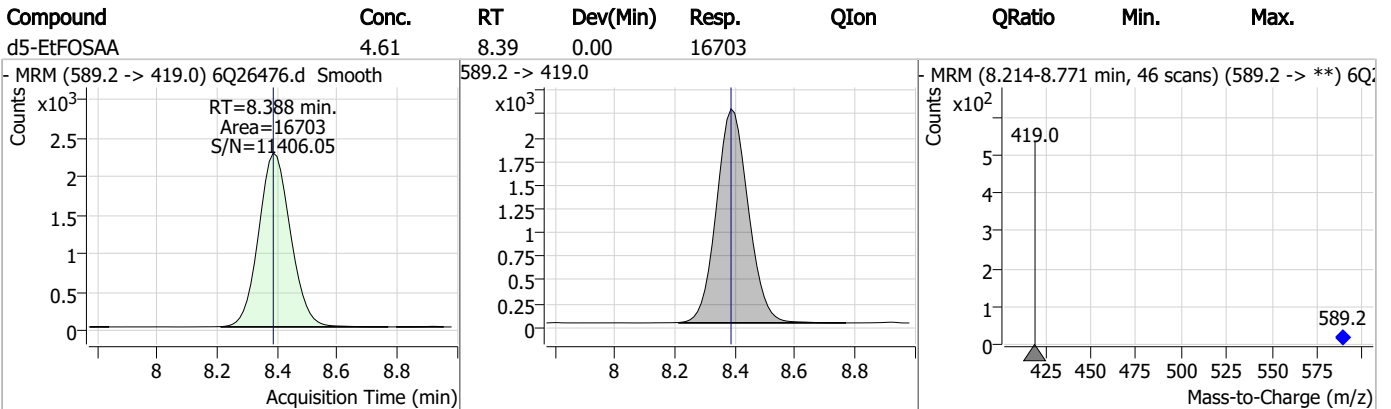
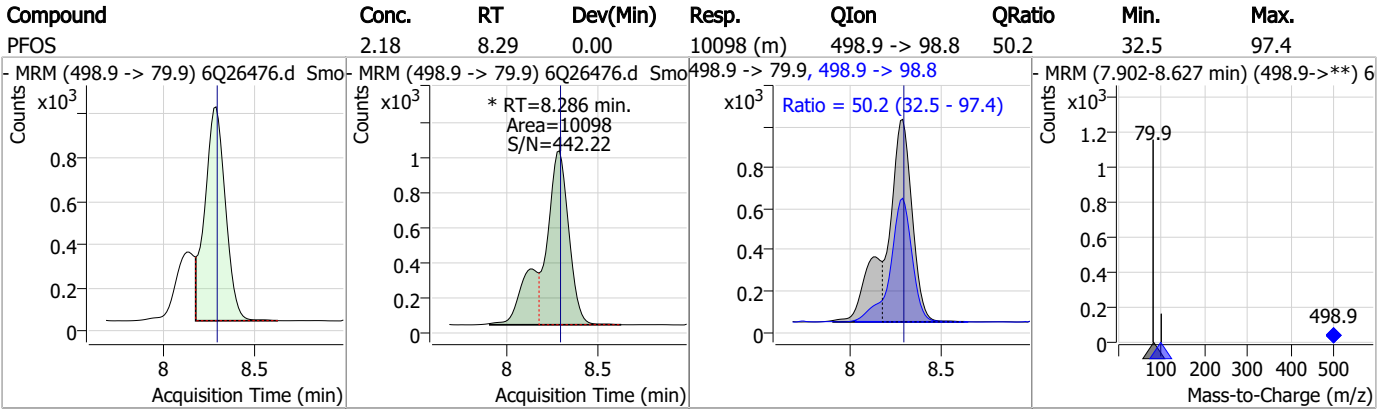


### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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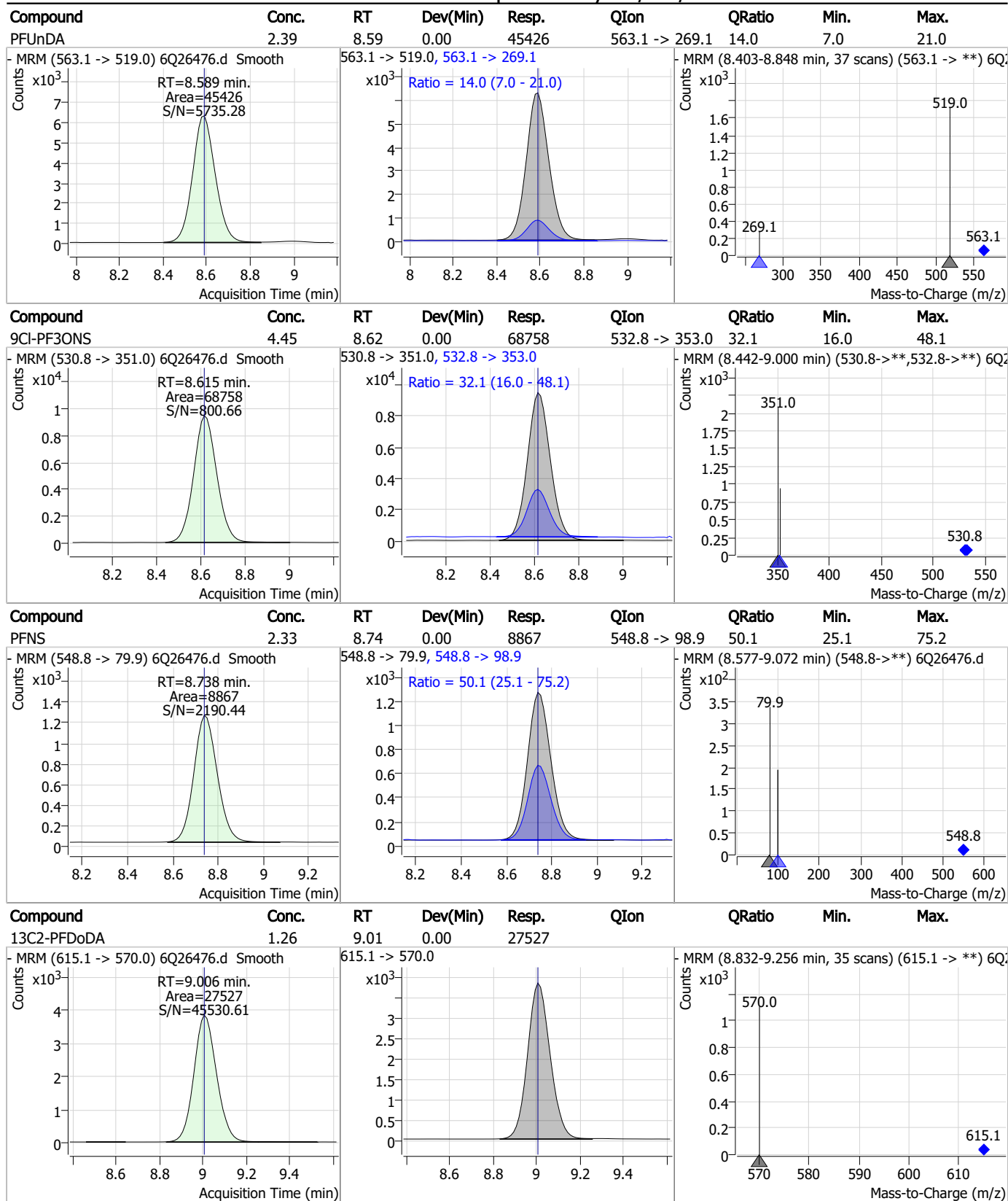
### Perfluorinated Compounds by LC/MS/MS



7.7.5

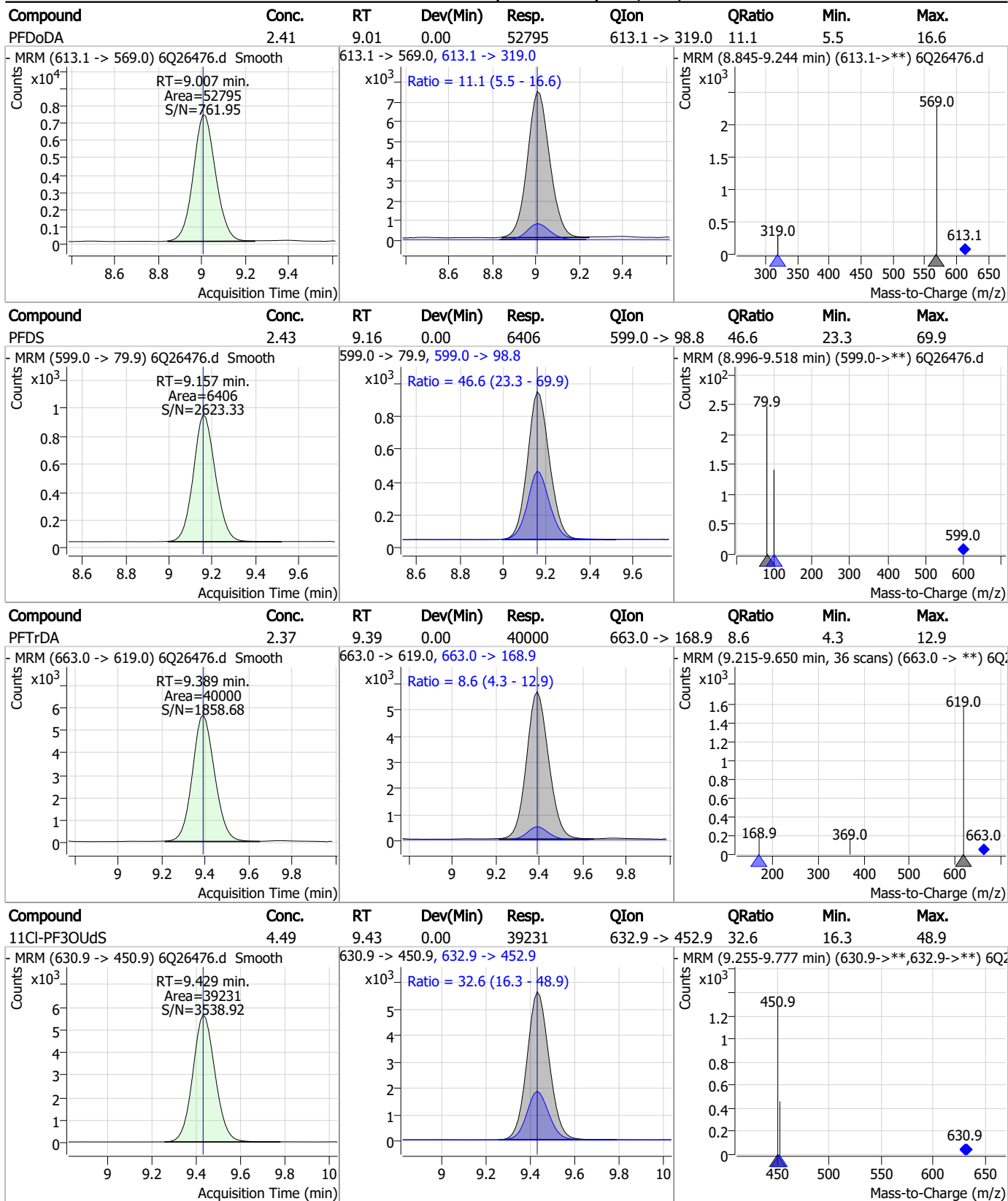
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### Perfluorinated Compounds by LC/MS/MS



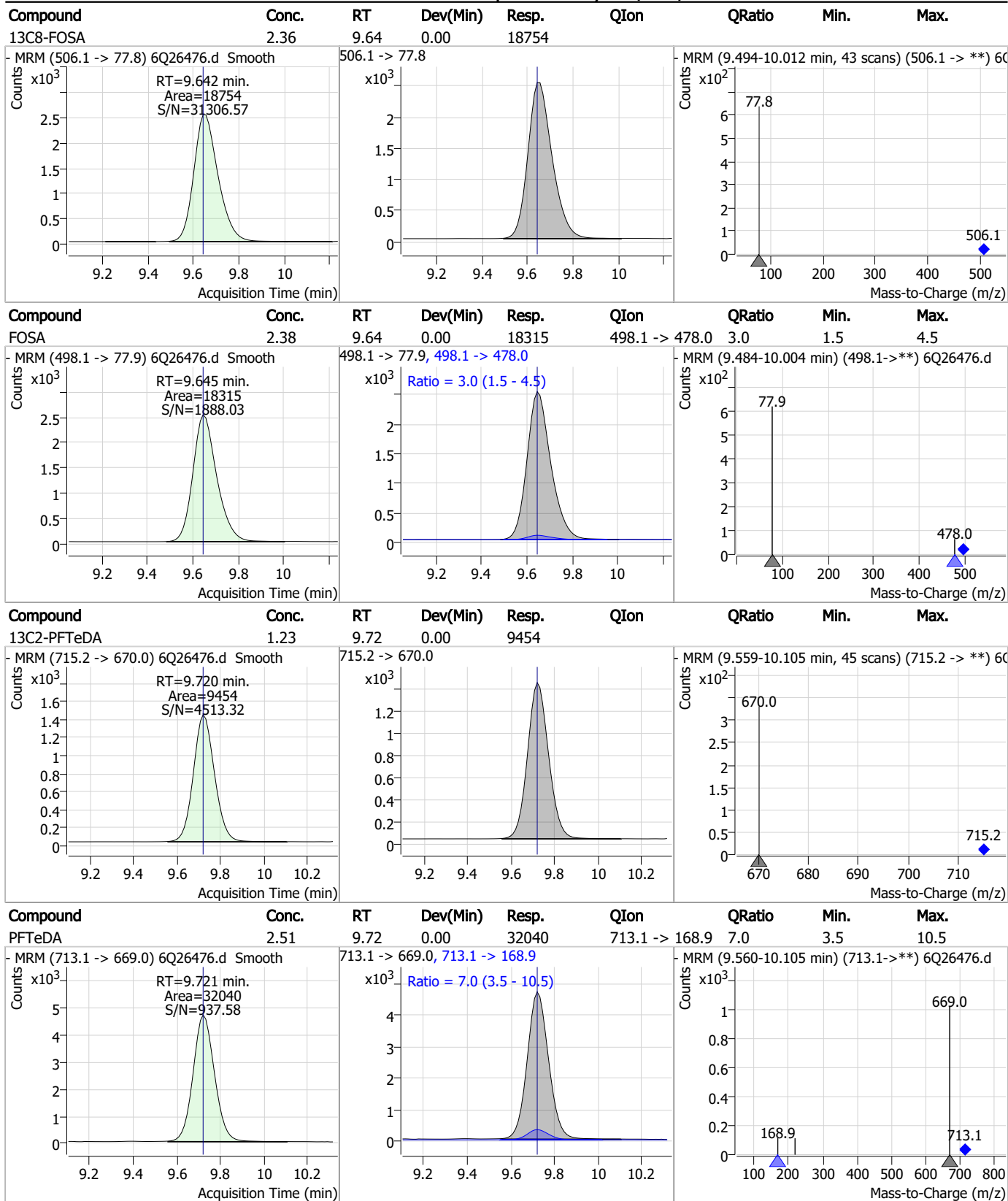
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### Perfluorinated Compounds by LC/MS/MS



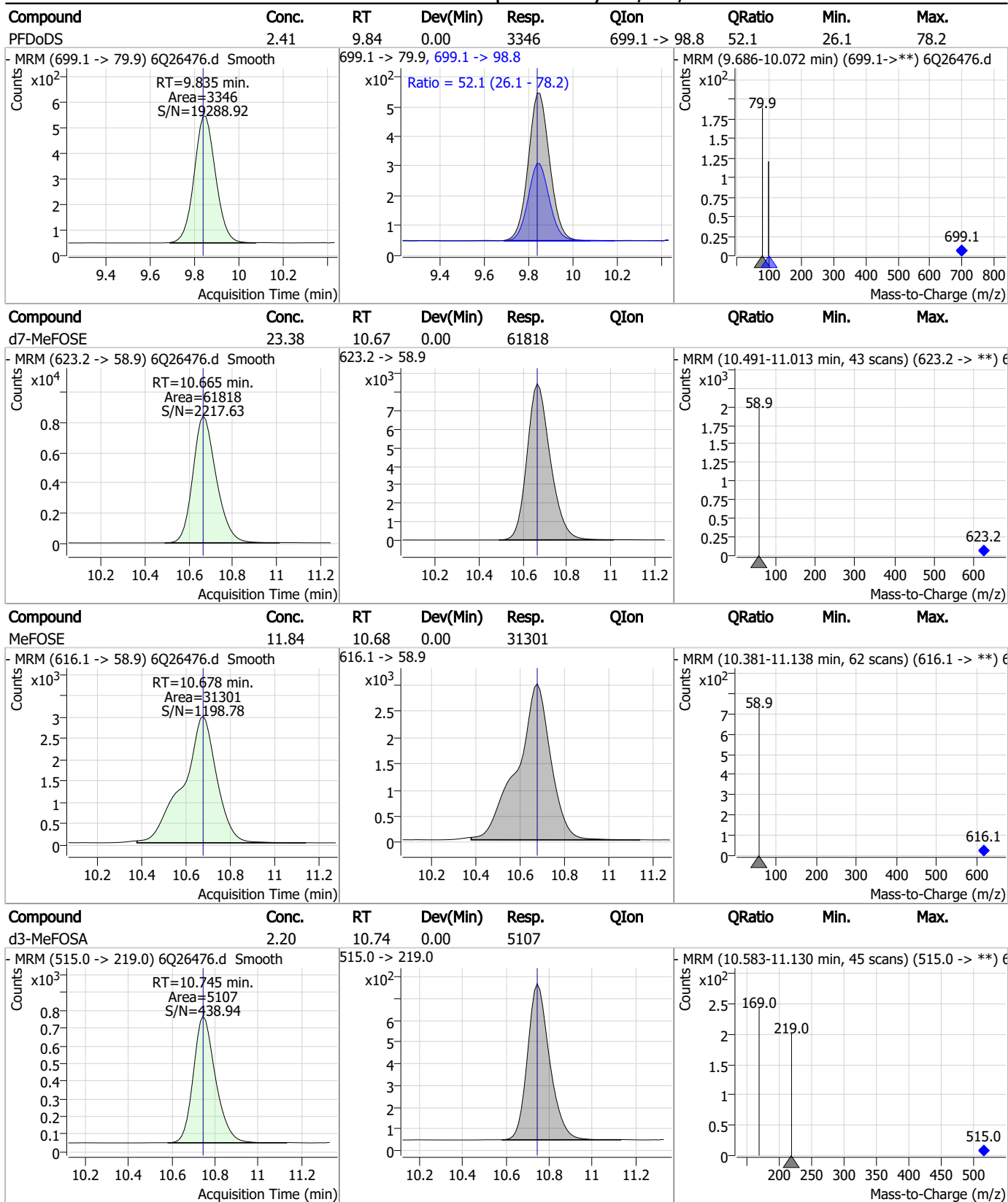
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### Perfluorinated Compounds by LC/MS/MS



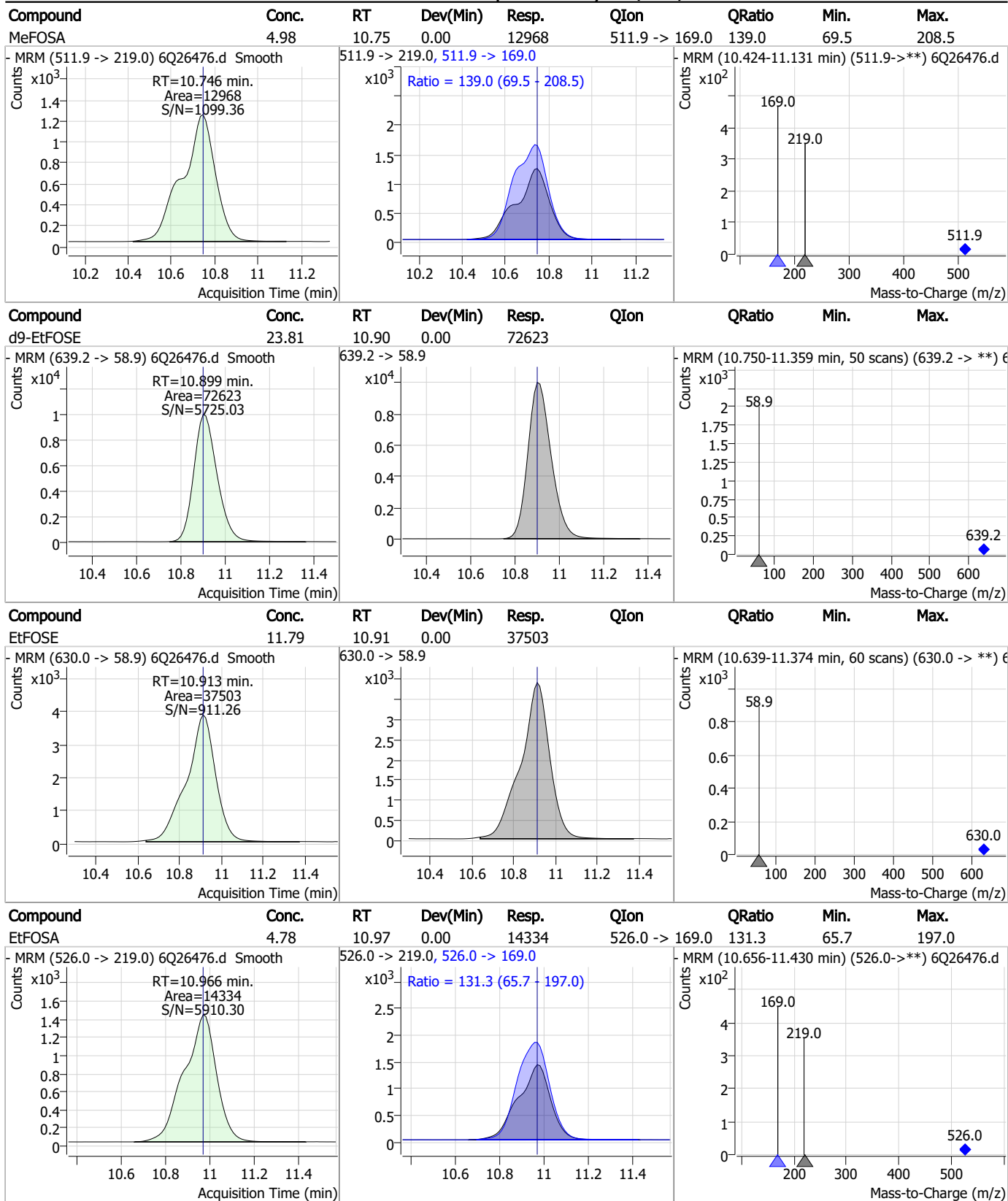
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### Perfluorinated Compounds by LC/MS/MS



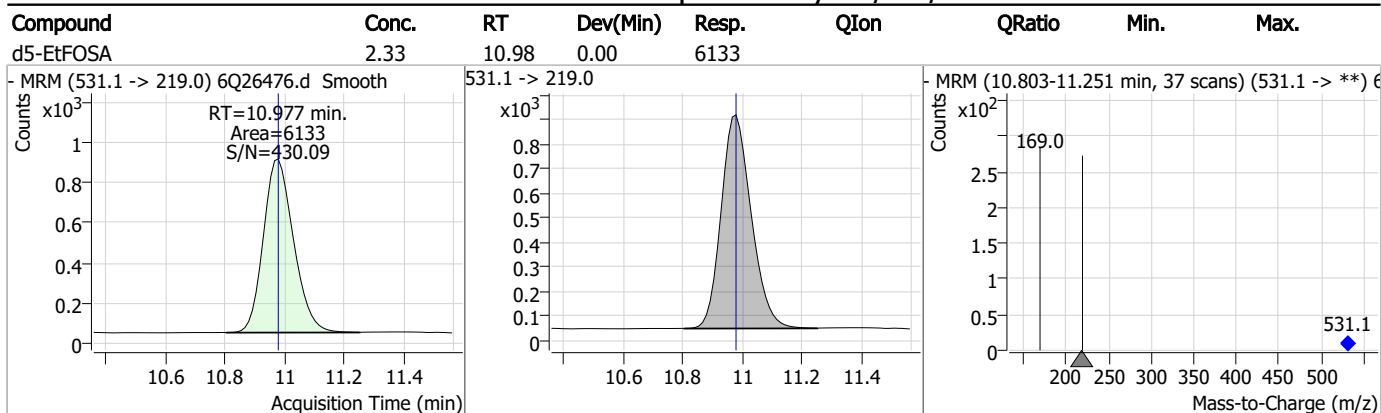
7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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### Perfluorinated Compounds by LC/MS/MS



7.7.5  
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# Manual Integration Approval Summary

Sample Number: S6Q372-ICC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26476.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 18:08      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.7.5.1

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## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26477.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 6:23:11 PM  
 Sample Name : ic372-5  
 Vial : P1-A6  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	135257	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	43409	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	39618	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	42699	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55726	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24220	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23142	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	24187	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	27193	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9762	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	19131	2.50 µg/L	0.012
M3-PFBS	5.483	302.1 -> 79.9	18556	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10781	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9648	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	2070	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2922	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2603	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	21866	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	28606	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	17484	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	62139	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	70863	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6226	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5423	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9576	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	54893	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6537	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	65810	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20007	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	23163	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	42131	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2070	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2922	5.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2603	4.59 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C2-PFDoDA	9.006	615.1 -> 570.0	27193	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9762	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C3-PFBS	5.483	302.1 -> 79.9	18556	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFHxS	7.239	402.1 -> 79.9	10781	2.54 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 = 101.7%	
13C4-PFBA	2.926	216.8 -> 171.9	135257	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.505	367.1 -> 322.0	42699	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C5-PFHxA	5.565	318.0 -> 273.0	39618	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFPeA	4.346	268.3 -> 223.0	43409	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.134	519.1 -> 474.1	23142	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C7-PFUnDA	8.576	570.0 -> 525.1	24187	1.36 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C8-FOSA	9.654	506.1 -> 77.8	19131	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOA	7.136	421.1 -> 376.0	55726	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C8-PFOS	8.284	507.1 -> 79.9	9648	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C9-PFNA	7.654	472.1 -> 427.0	24220	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
d3-MeFOSAA	8.191	573.2 -> 419.0	21866	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	28606	9.62 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.745	515.0 -> 219.0	5423	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
d5-EtFOSAA	8.388	589.2 -> 419.0	17484	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d7-MeFOSE	10.665	623.2 -> 58.9	62139	24.42 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d9-EtFOSE	10.899	639.2 -> 58.9	70863	24.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d5-EtFOSA	10.977	531.1 -> 219.0	6226	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	71183	18.92 µg/L	100
		327.1 -> 80.9	27074		
6:2FTS	6.911	427.1 -> 407.0	55203	16.91 µg/L	97
		427.1 -> 80.9	20746		
8:2FTS	7.923	527.1 -> 507.0	40610	20.22 µg/L	90
		527.1 -> 80.8	15203		
EtFOSAA	8.401	584.2 -> 419.1	13541	4.44 µg/L	82
		584.2 -> 526.0	10015		
FOSA	9.645	498.1 -> 77.9	35870	4.56 µg/L	100
		498.1 -> 478.0	1135		
MeFOSAA	8.192	570.1 -> 419.0	21863	4.93 µg/L	99
		570.1 -> 483.0	4920		
PFBA	2.919	212.8 -> 168.9	103537	19.57 µg/L	100
PFBS	5.484	298.7 -> 79.9	25513	4.16 µg/L	93
		298.7 -> 98.8	10590		
PFDA	8.134	512.9 -> 469.0	96309	5.07 µg/L	98
		512.9 -> 219.0	15574		
PFDoDA	9.007	613.1 -> 569.0	105898	4.90 µg/L	96
		613.1 -> 319.0	13164		
PFDS	9.157	599.0 -> 79.9	12603	4.94 µg/L	96

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6231			
PFHpA	6.506	363.1 -> 319.0	115183	4.63	µg/L	99
		363.1 -> 169.0	16024			
PFHpS	7.793	449.0 -> 79.9	22189	4.95	µg/L	89
		449.0 -> 98.9	9854			
PFHxA	5.555	313.0 -> 269.0	75934	5.00	µg/L	100
		313.0 -> 118.9	3903			
PFHxS	7.240	398.7 -> 79.9	20522	4.34	µg/L	m 86
		398.7 -> 98.9	9611			
PFNA	7.655	463.0 -> 419.0	69715	4.53	µg/L	99
		463.0 -> 219.0	16487			
PFNS	8.738	548.8 -> 79.9	18073	4.90	µg/L	98
		548.8 -> 98.9	8847			
PFOA	7.138	413.0 -> 369.0	115732	4.68	µg/L	99
		413.0 -> 169.0	20235			
PFOS	8.286	498.9 -> 79.9	22019	4.90	µg/L	m 81
		498.9 -> 98.8	10923			
PFPeA	4.349	263.0 -> 219.0	101549	9.83	µg/L	100
PFPeS	6.545	349.1 -> 79.9	28066	4.57	µg/L	99
		349.1 -> 98.9	12225			
PFTeDA	9.721	713.1 -> 669.0	64657	4.90	µg/L	98
		713.1 -> 168.9	4902			
PFTrDA	9.389	663.0 -> 619.0	82991	4.97	µg/L	98
		663.0 -> 168.9	6641			
PFUnDA	8.576	563.1 -> 519.0	91481	4.81	µg/L	96
		563.1 -> 269.1	14362			
11CI-PF3OUdS	9.429	630.9 -> 450.9	85399	10.08	µg/L	99
		632.9 -> 452.9	27294			
9CI-PF3ONS	8.615	530.8 -> 351.0	151160	10.09	µg/L	96
		532.8 -> 353.0	44760			
ADONA	6.755	376.9 -> 250.9	383801	9.53	µg/L	99
		376.9 -> 84.8	102138			
HFPO-DA	5.931	284.9 -> 168.9	31275	10.13	µg/L	97
		284.9 -> 184.9	3623			
3:3FTCA	3.777	241.0 -> 177.0	17270	23.78	µg/L	100
		241.0 -> 117.0	2392			
5:3FTCA	6.210	341.0 -> 237.1	357153	127.77	µg/L	95
		341.0 -> 217.0	250684			
7:3FTCA	7.620	441.0 -> 316.9	233663	128.56	µg/L	100
		441.0 -> 336.9	460117			
EtFOSA	10.966	526.0 -> 219.0	29282	9.63	µg/L	100
		526.0 -> 169.0	38544			
EtFOSE	10.913	630.0 -> 58.9	78271	25.22	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	27344	9.89	µg/L	98
		511.9 -> 169.0	37400			
MeFOSE	10.678	616.1 -> 58.9	64861	24.41	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	6604	4.91	µg/L	98
		699.1 -> 98.8	3532			
NFDHA	5.447	295.0 -> 201.0	18982	10.08	µg/L	97
		295.0 -> 84.9	5452			
PFMBA	4.775	279.0 -> 85.1	77459	9.75	µg/L	100
PFMPA	3.488	229.0 -> 84.9	63537	9.79	µg/L	100
PFEESA	6.024	314.8 -> 134.9	178972	9.09	µg/L	100
		314.8 -> 82.9	6160			

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

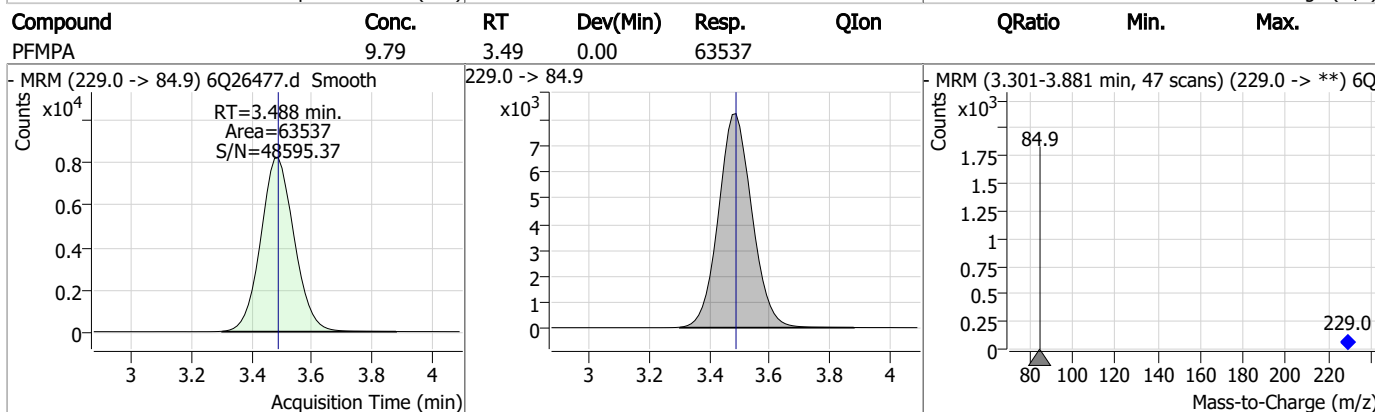
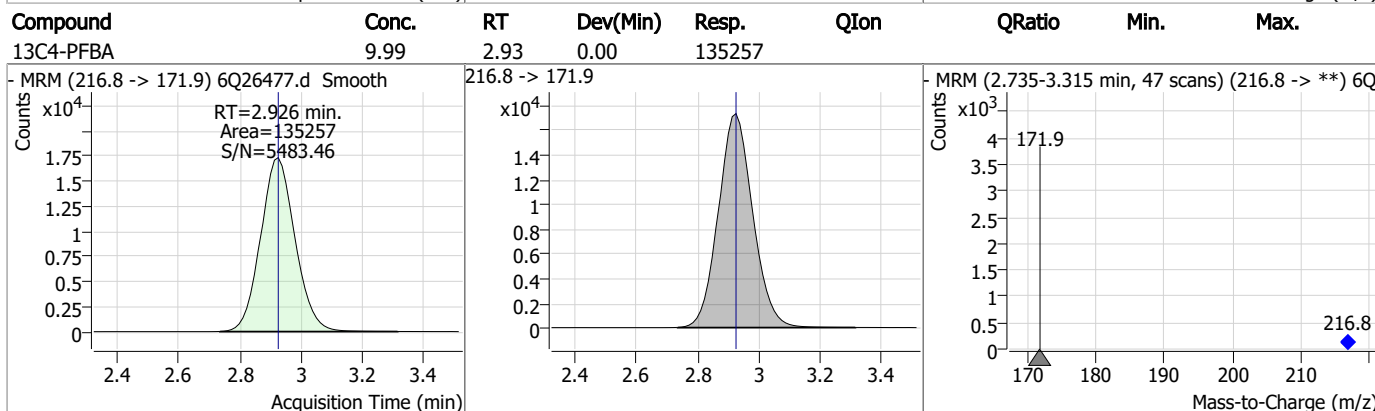
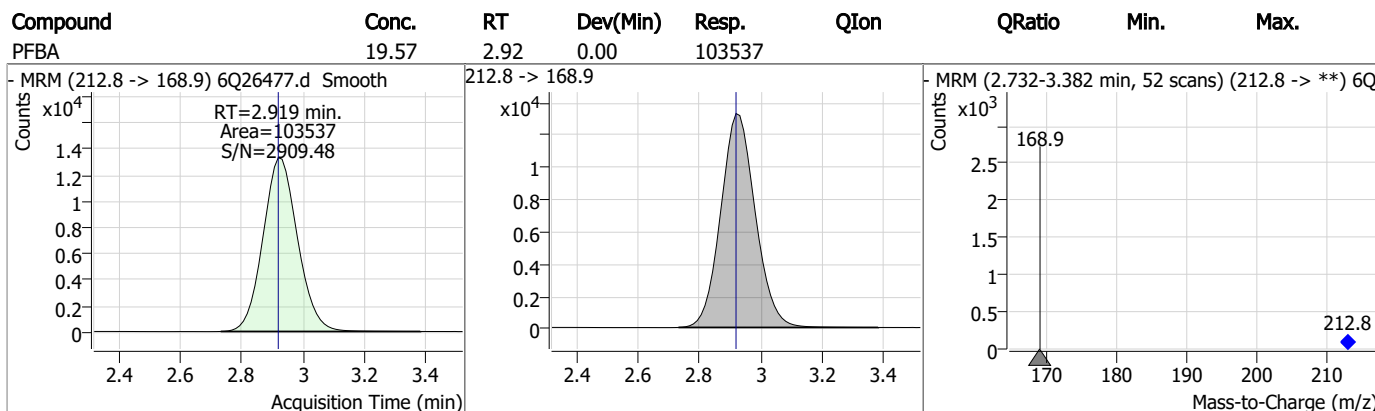
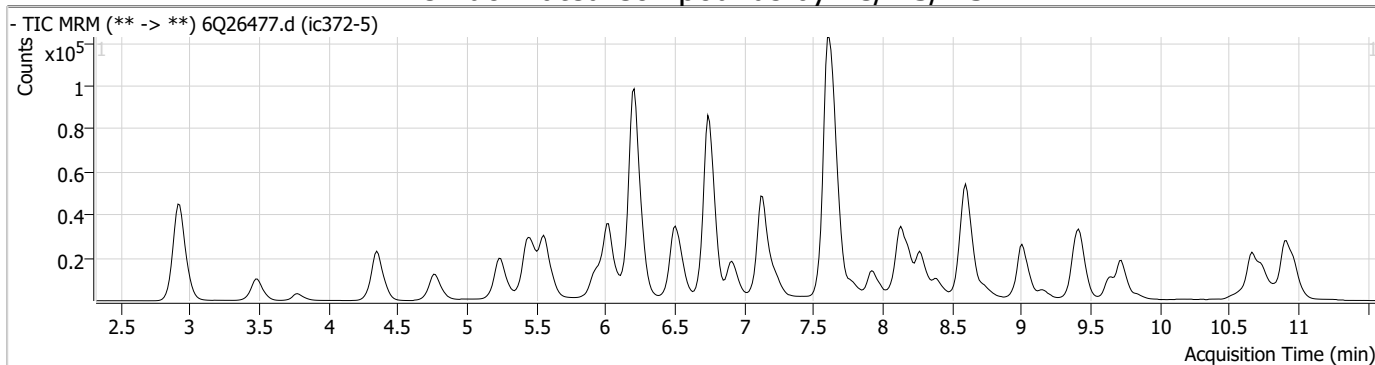
### Perfluorinated Compounds by LC/MS/MS

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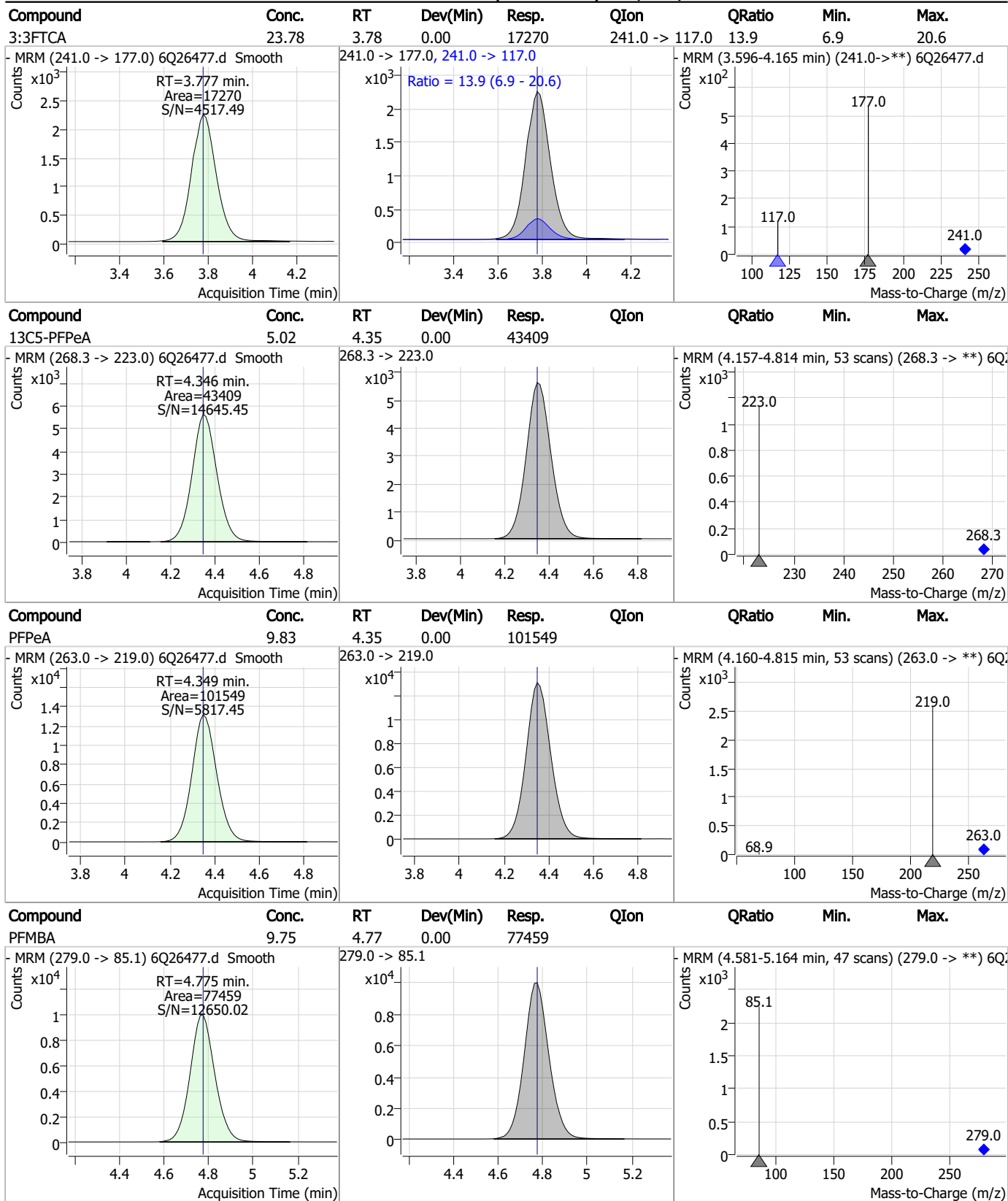
7.7.6

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### Perfluorinated Compounds by LC/MS/MS

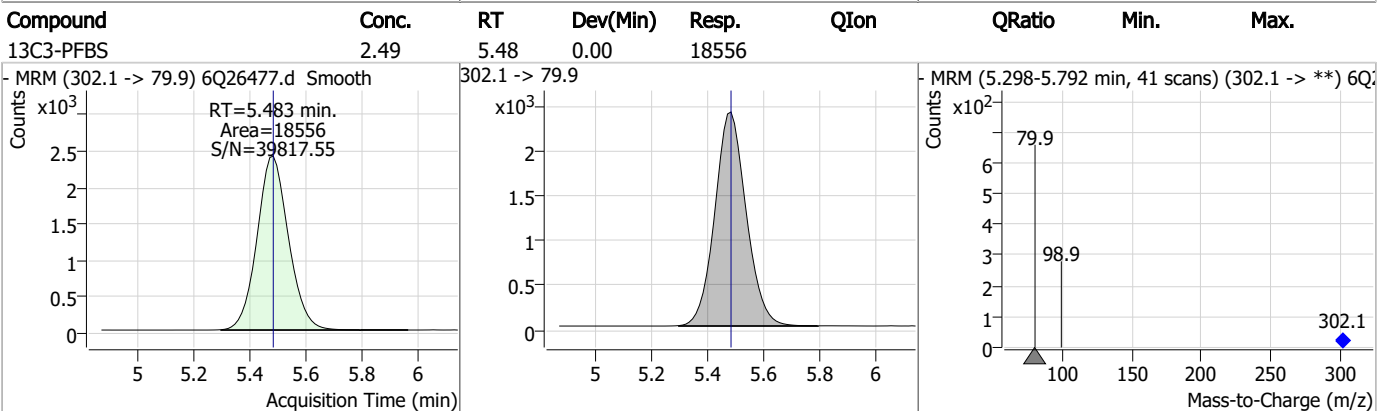
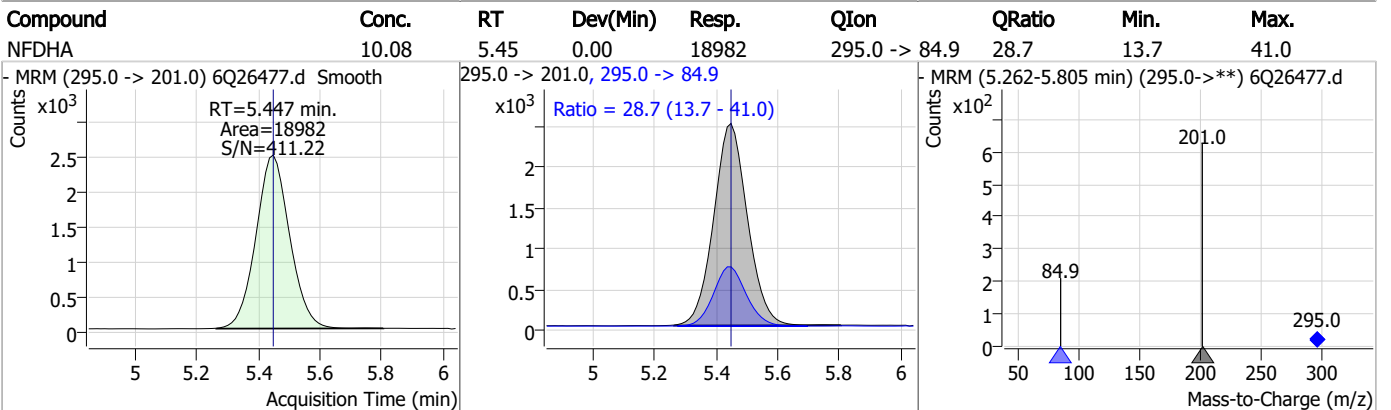
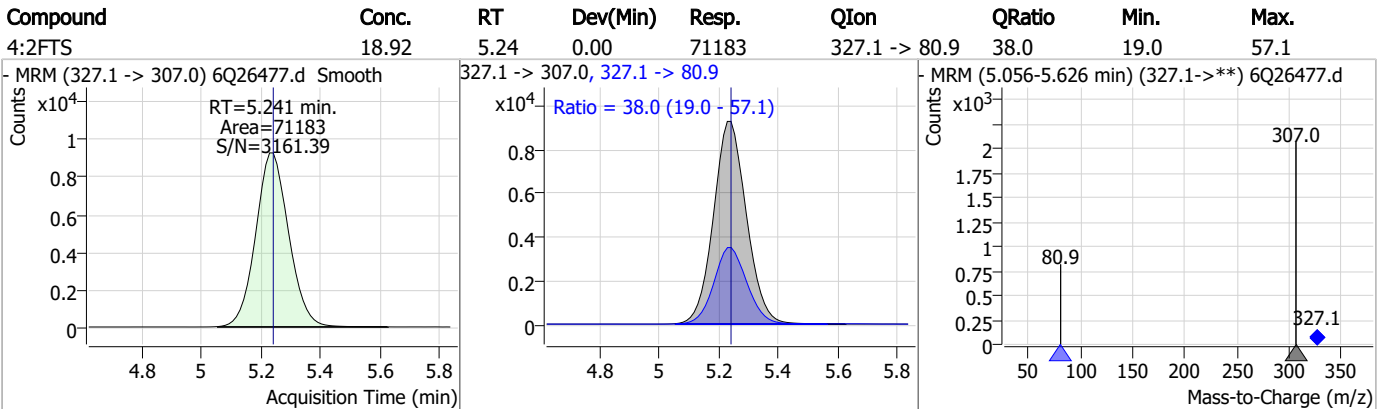
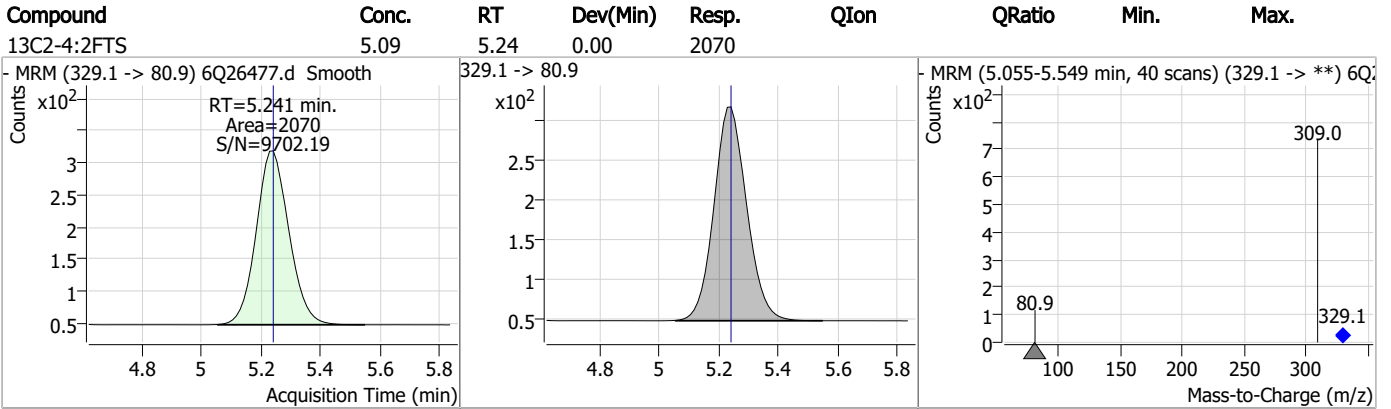


### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS



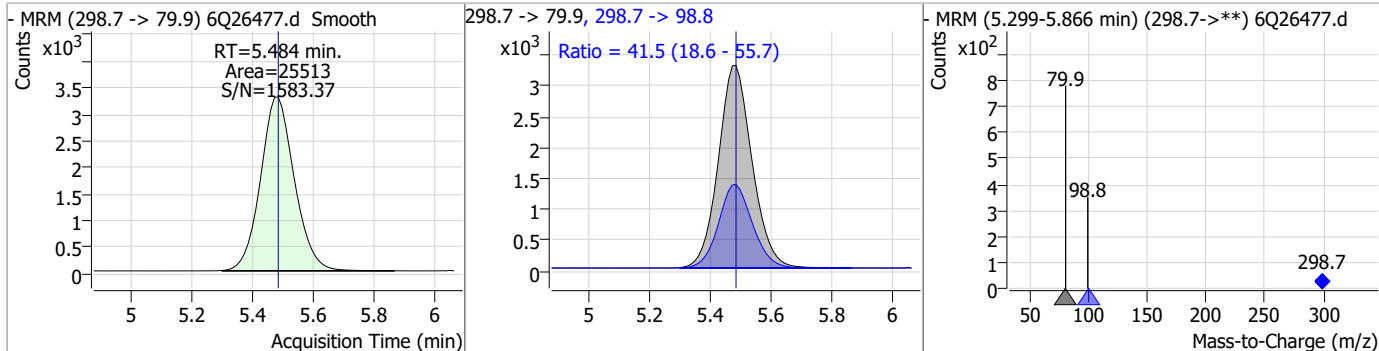
7.7.6

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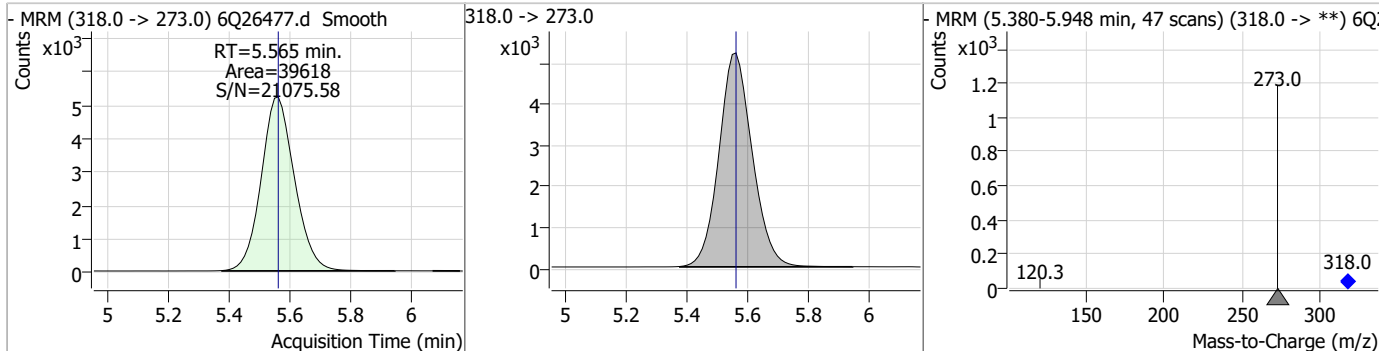


### Perfluorinated Compounds by LC/MS/MS

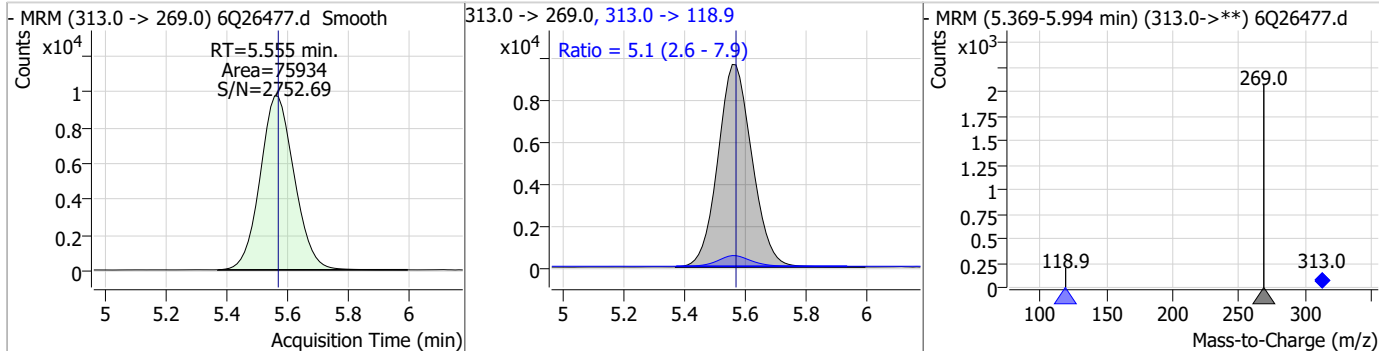
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.16	5.48	0.00	25513	298.7 -> 98.8	41.5	18.6	55.7



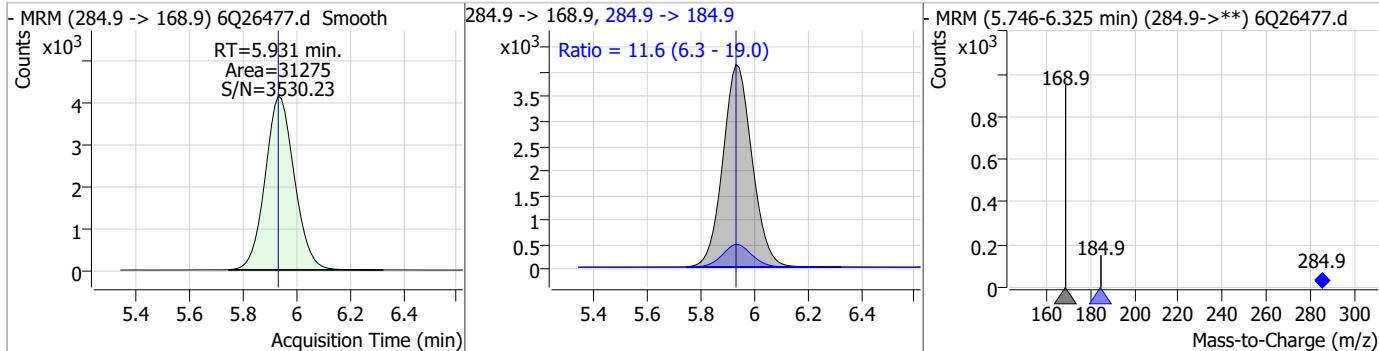
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.56	0.00	39618				



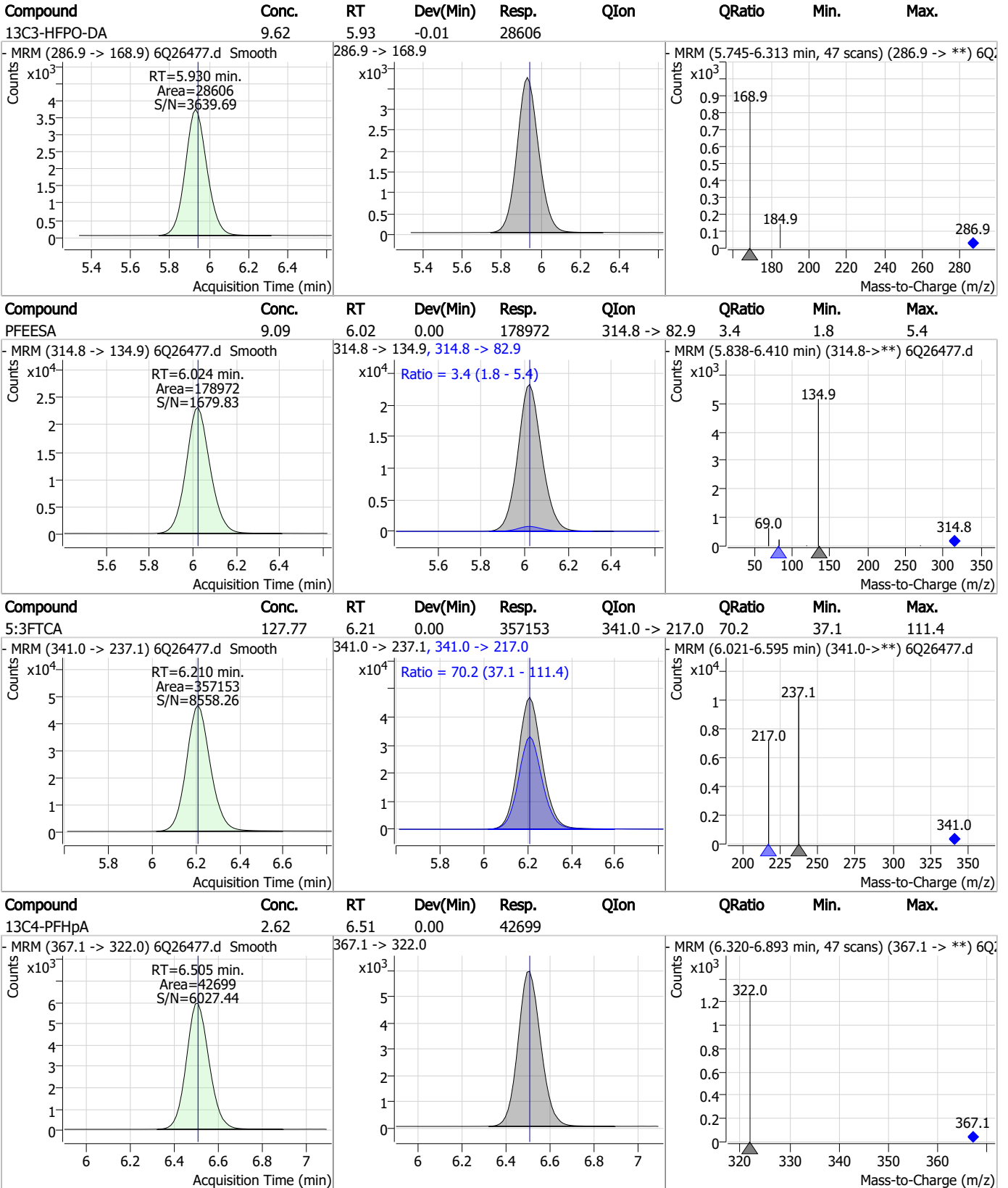
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.00	5.56	-0.01	75934	313.0 -> 118.9	5.1	2.6	7.9



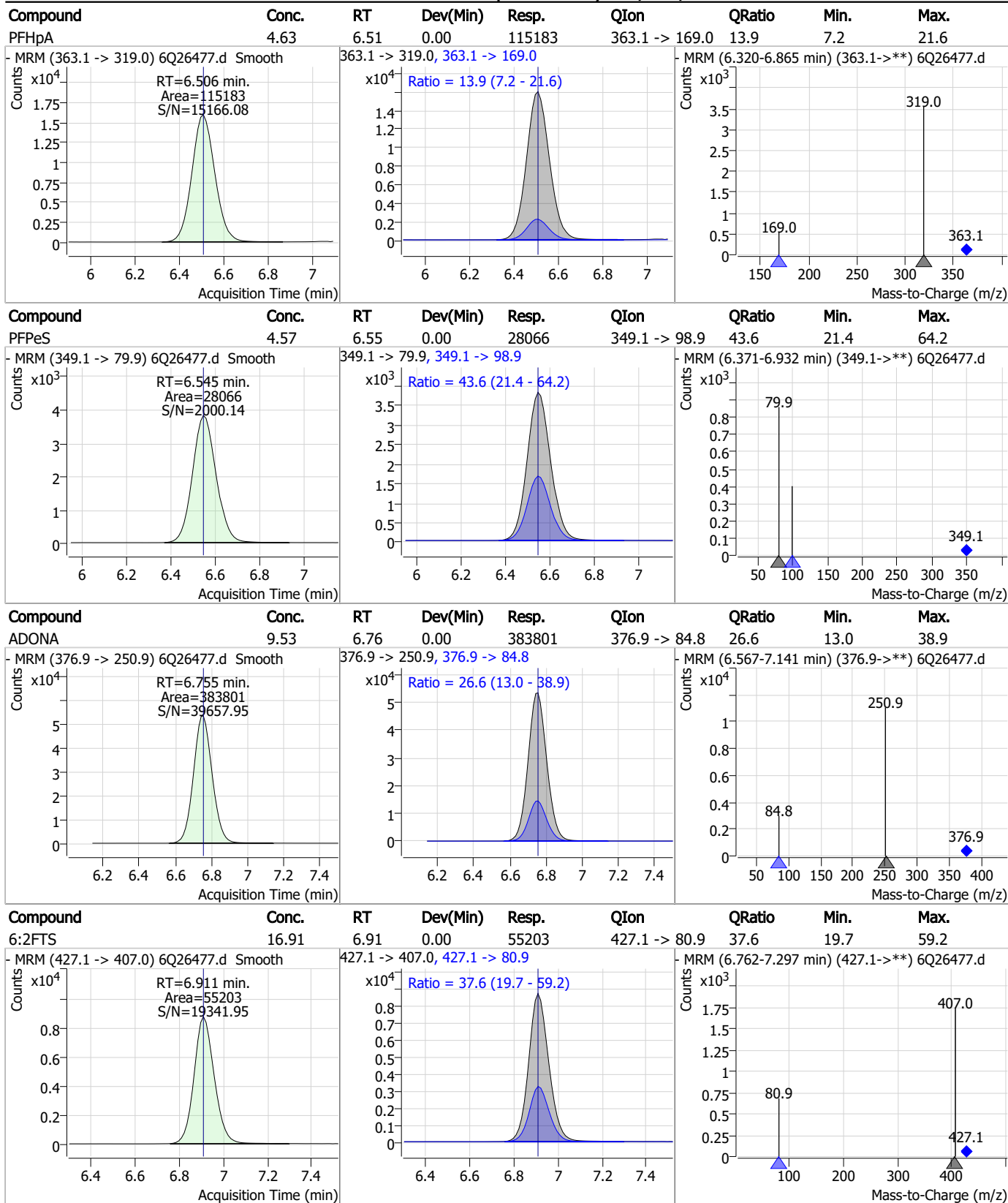
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.13	5.93	0.00	31275	284.9 -> 184.9	11.6	6.3	19.0



### Perfluorinated Compounds by LC/MS/MS

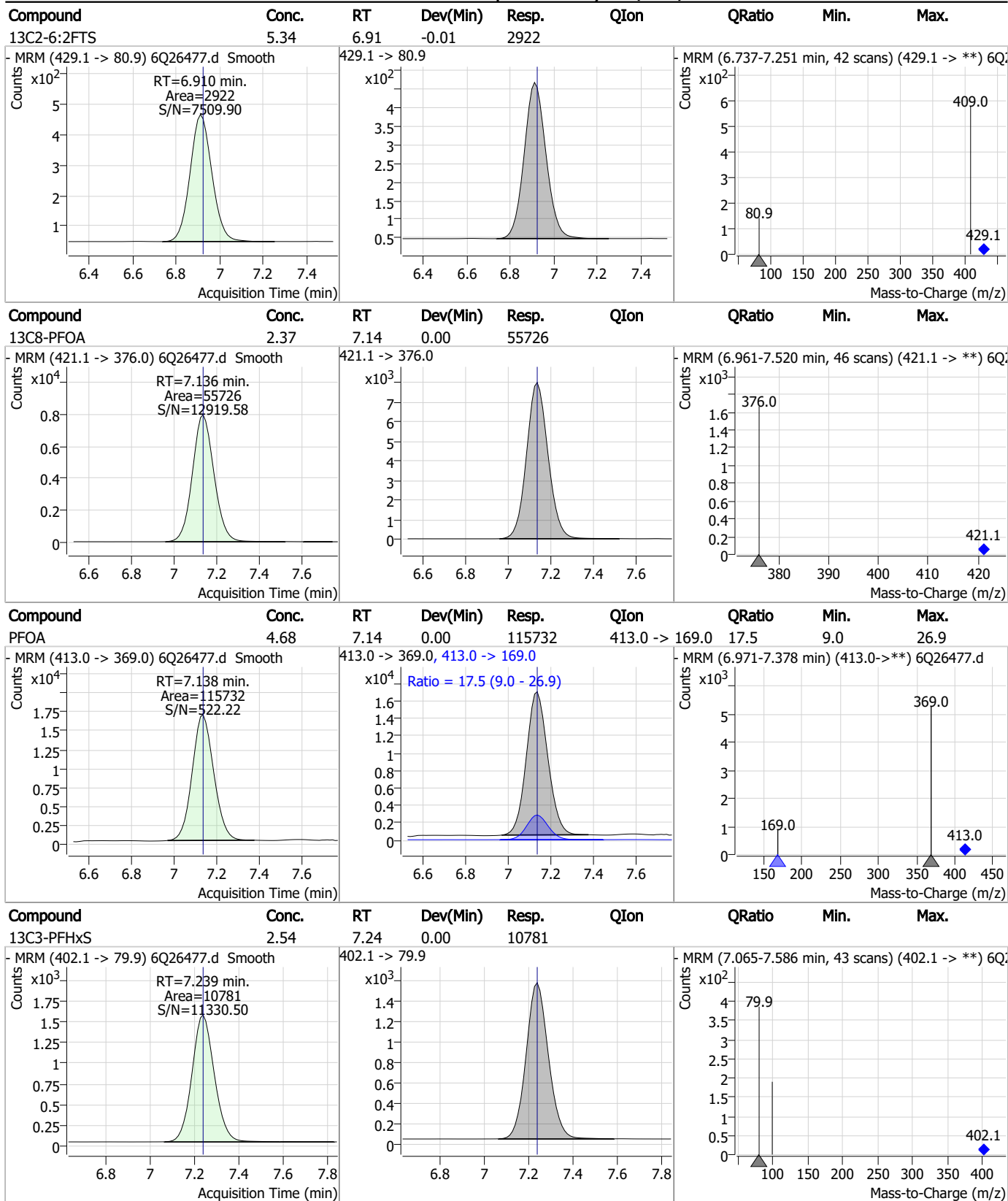


### Perfluorinated Compounds by LC/MS/MS



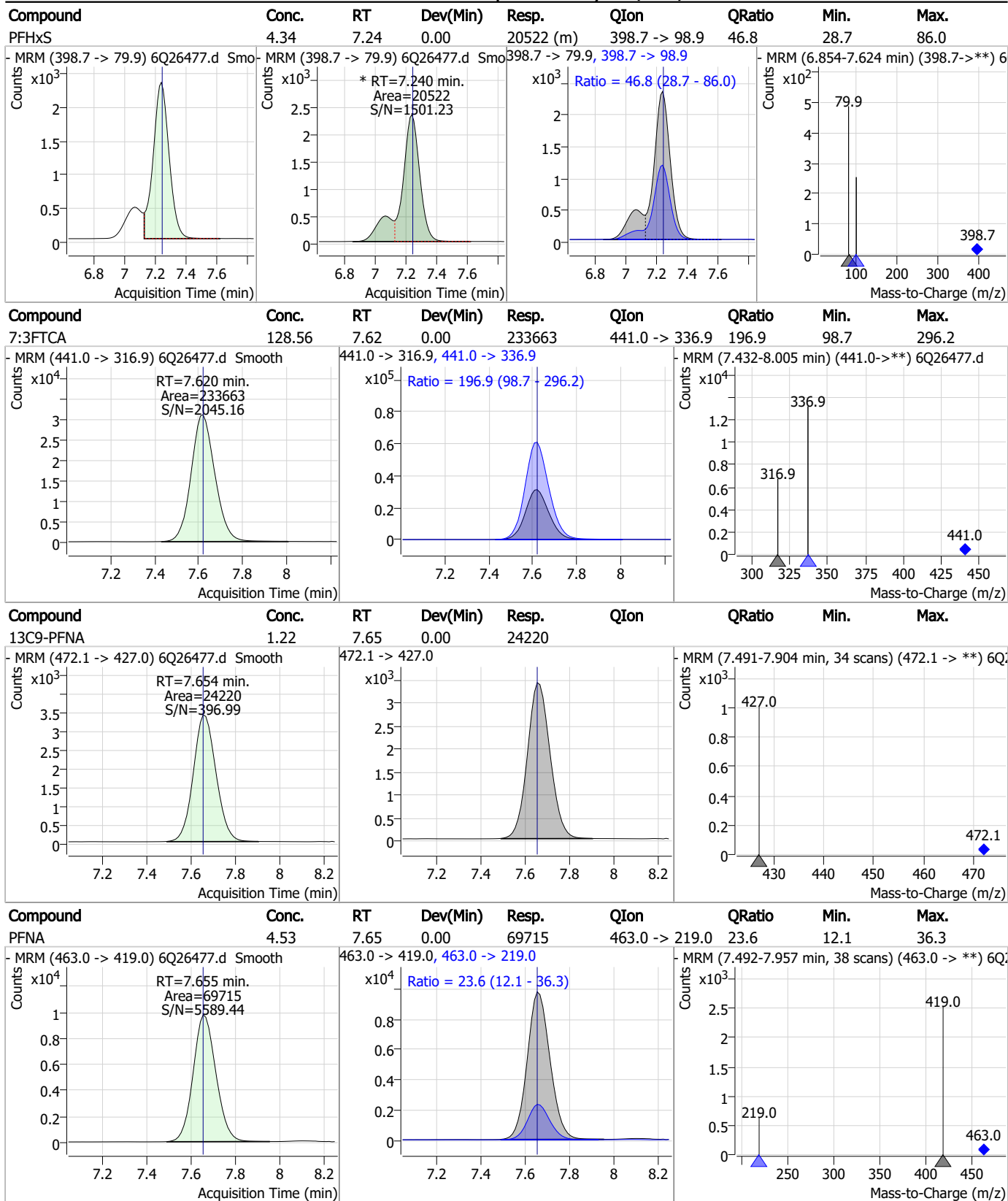
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



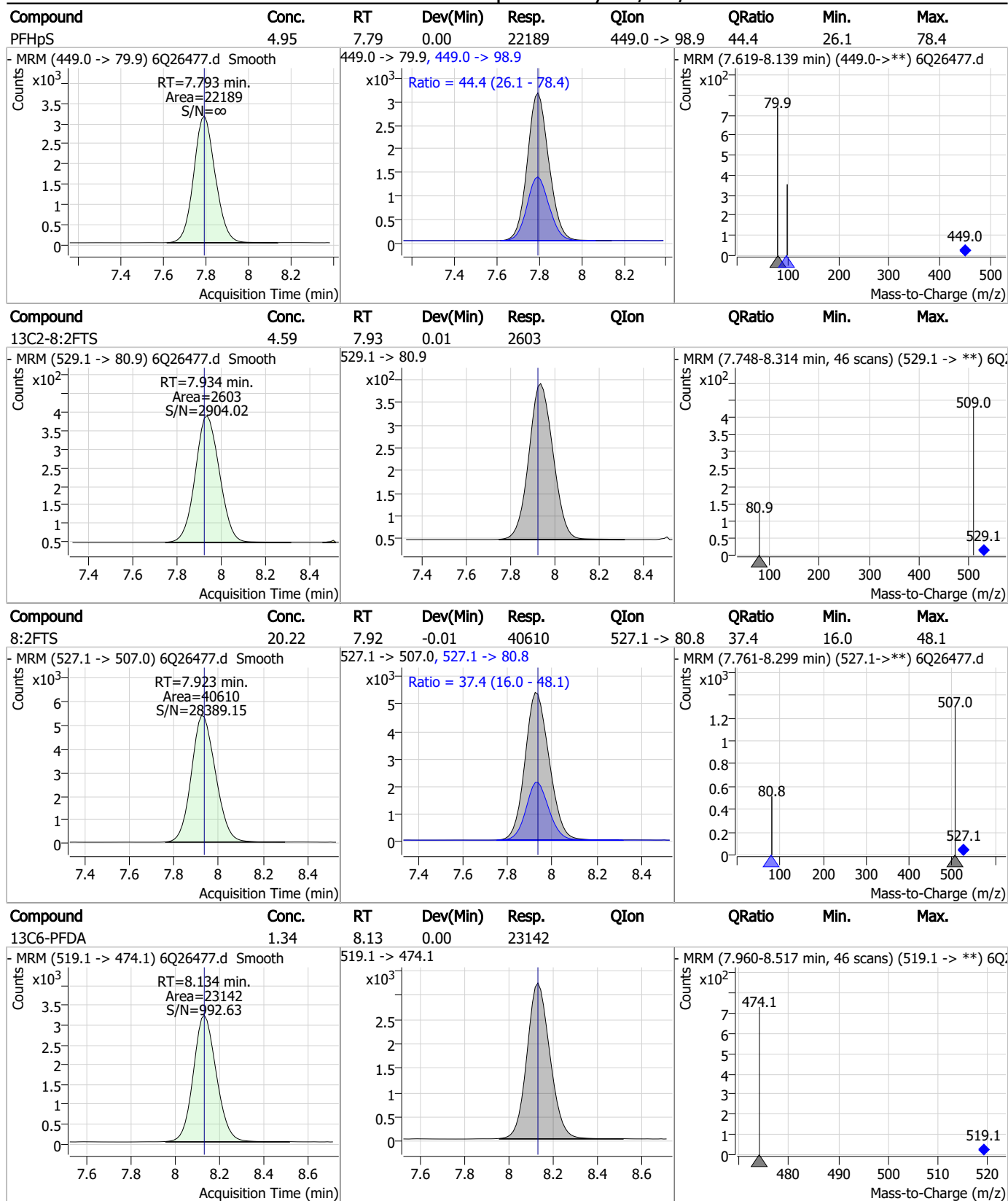
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



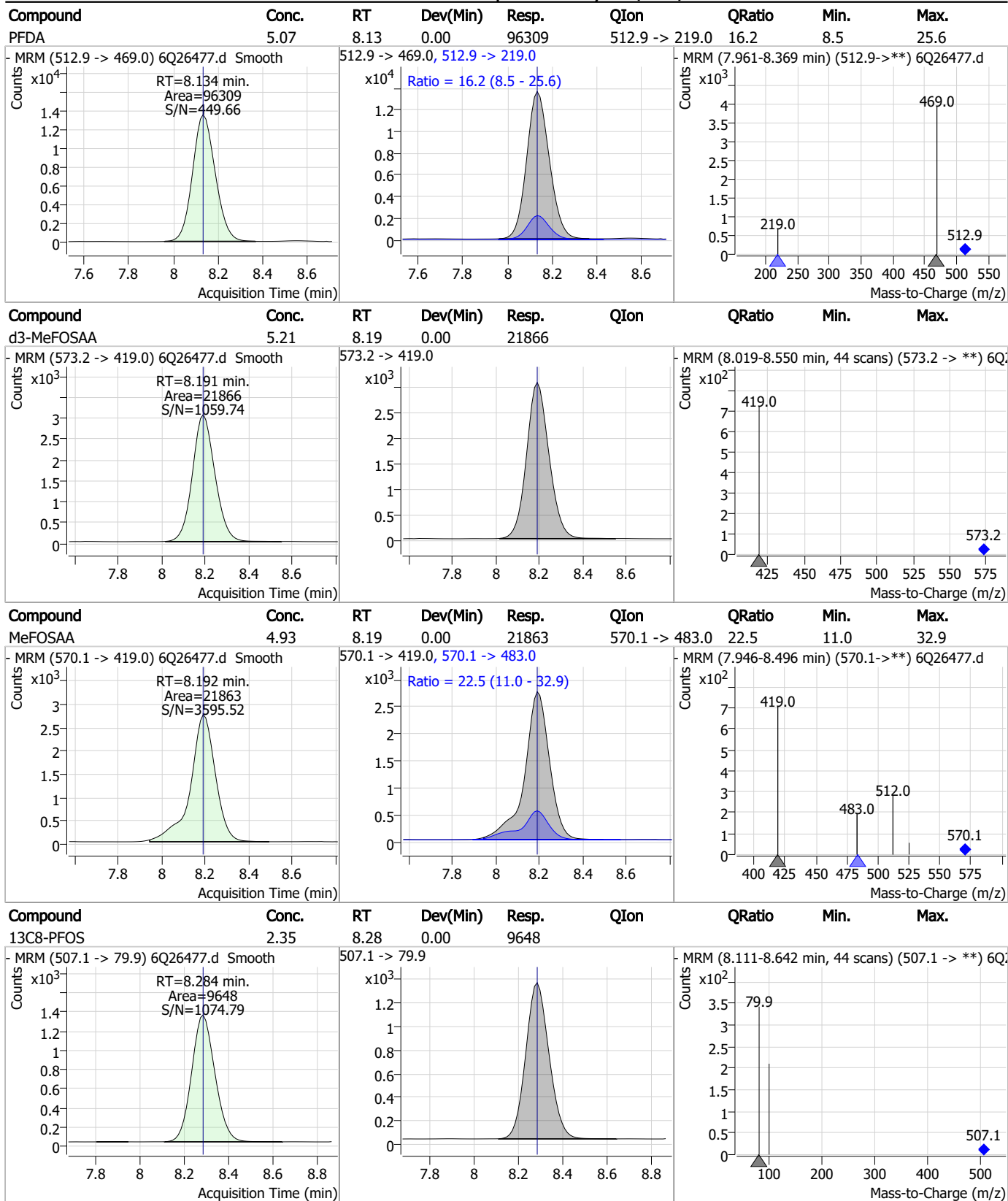
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



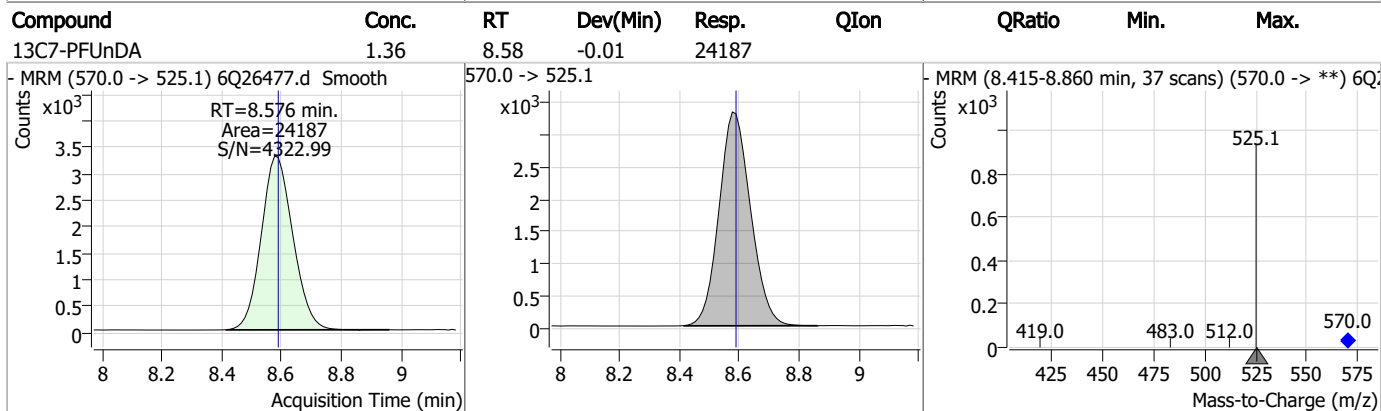
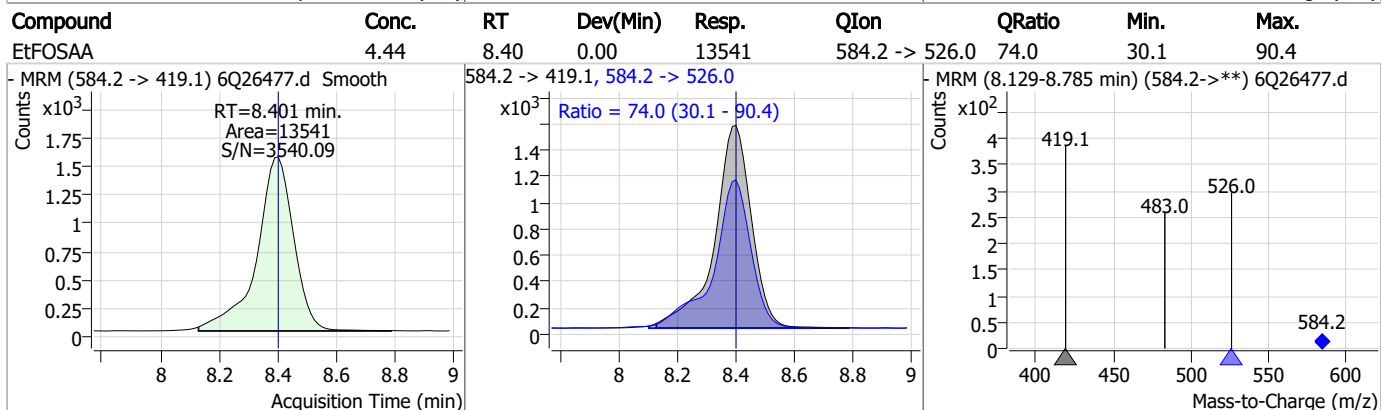
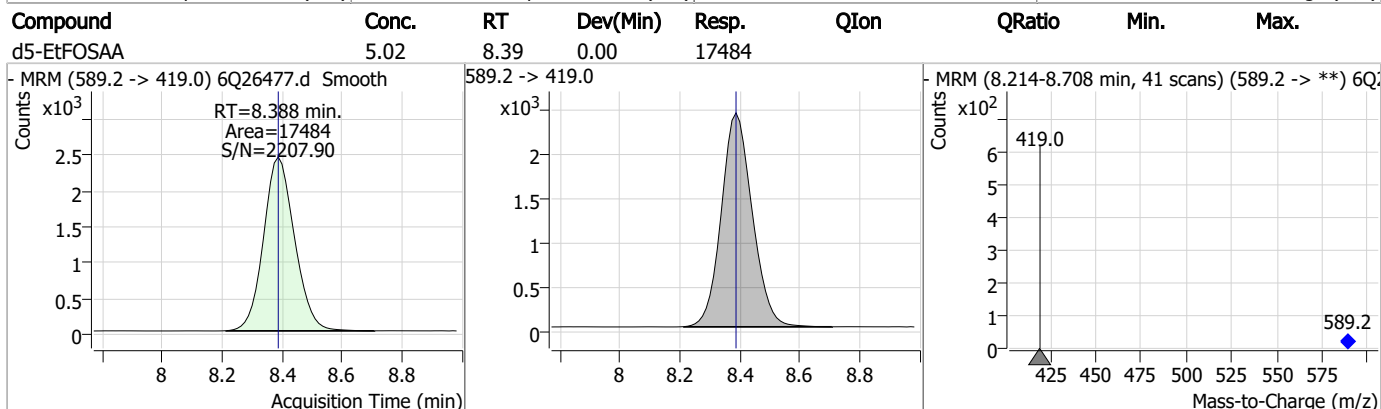
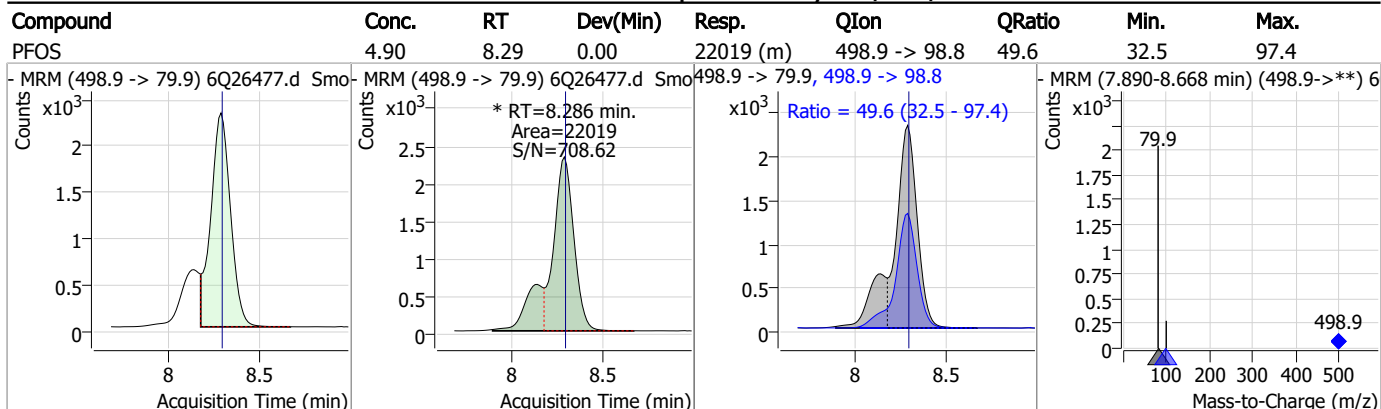
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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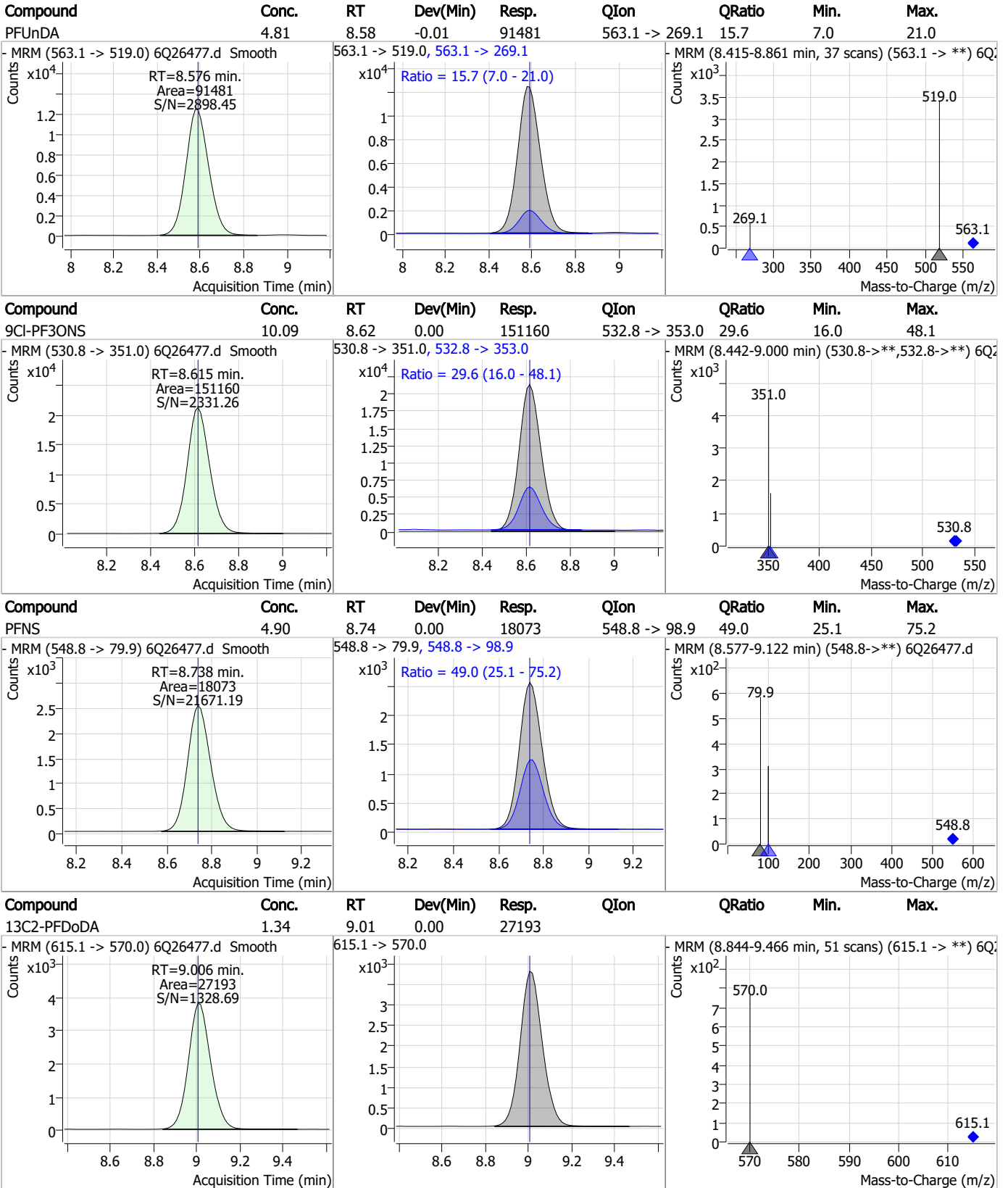
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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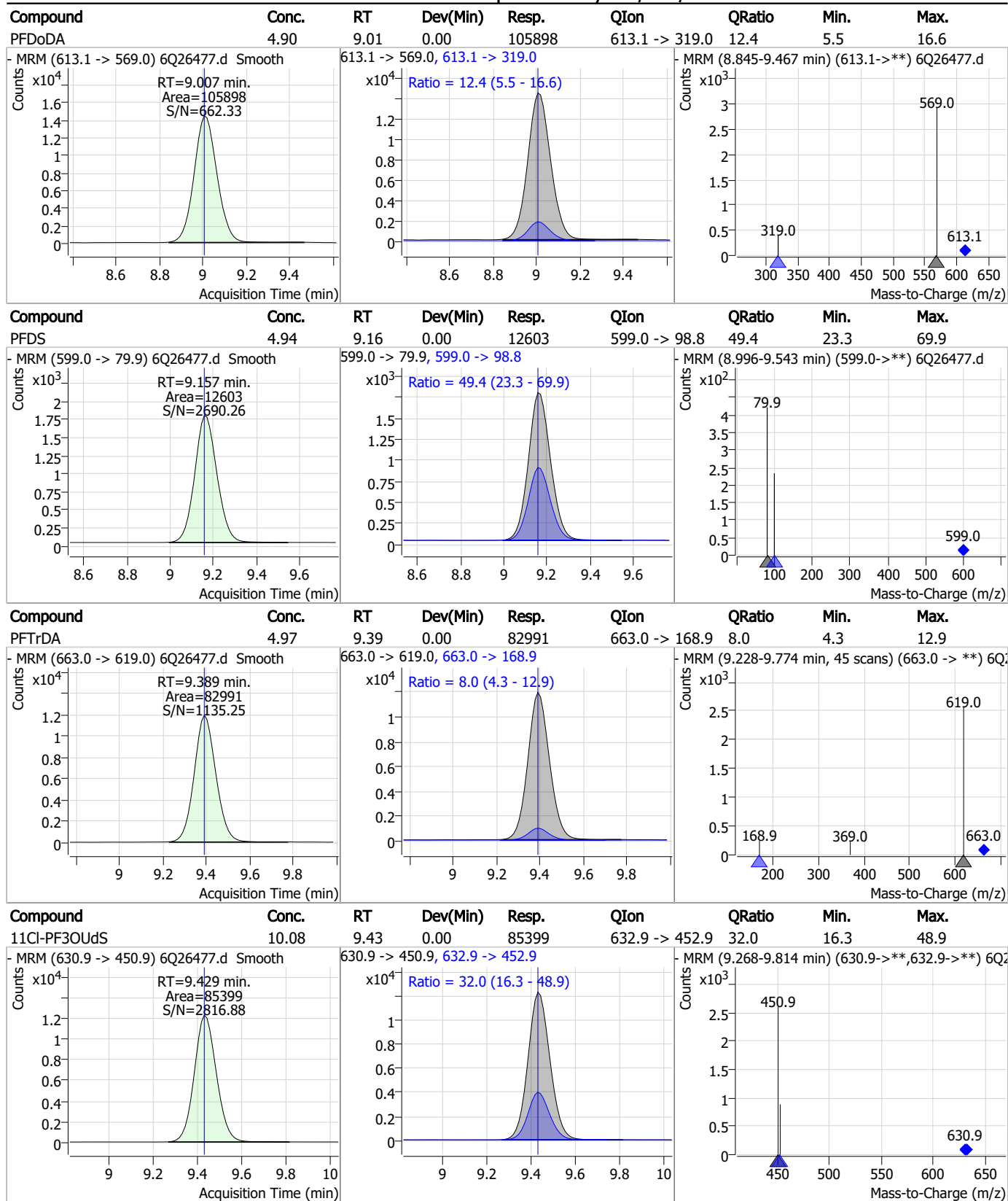
### Perfluorinated Compounds by LC/MS/MS



7.7.6

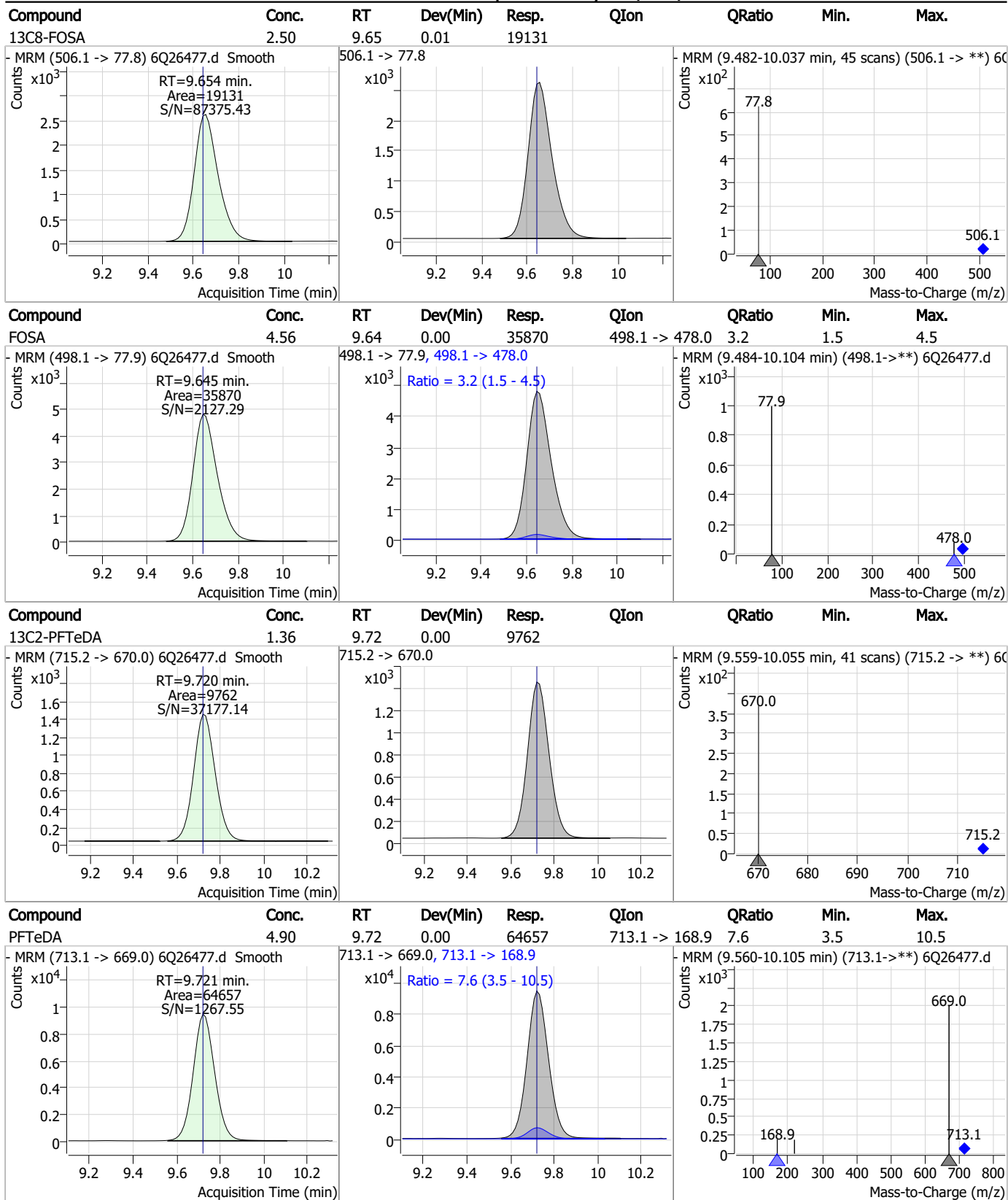
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### Perfluorinated Compounds by LC/MS/MS



7.7.6  
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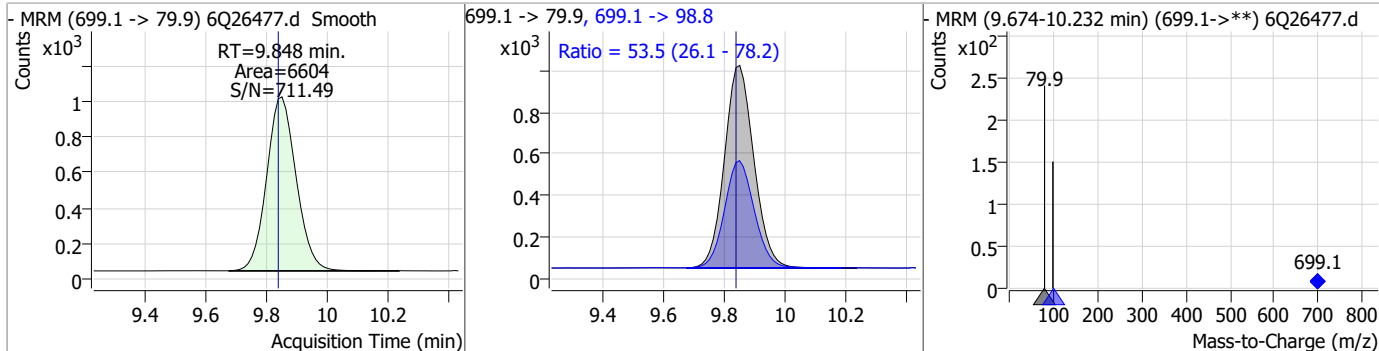
### Perfluorinated Compounds by LC/MS/MS



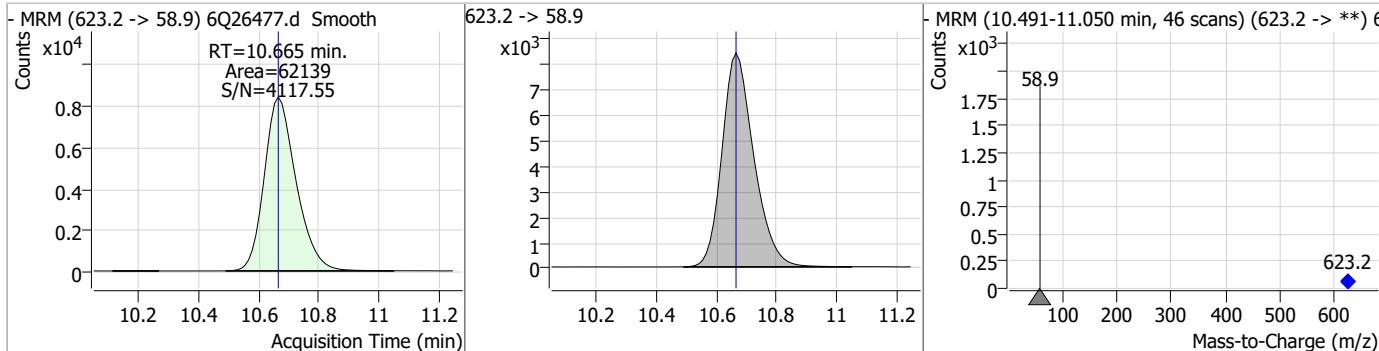
7.7.6  
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### Perfluorinated Compounds by LC/MS/MS

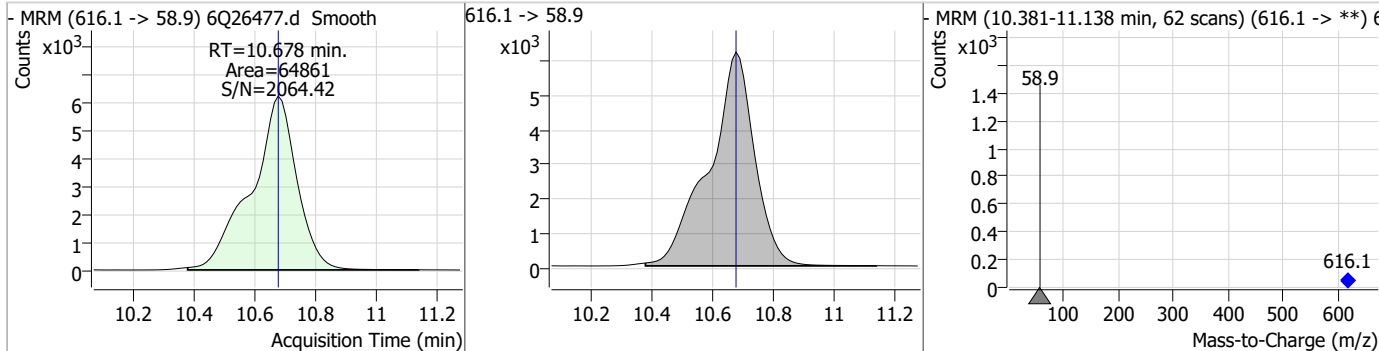
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	4.91	9.85	0.01	6604	699.1 -> 98.8	53.5	26.1	78.2



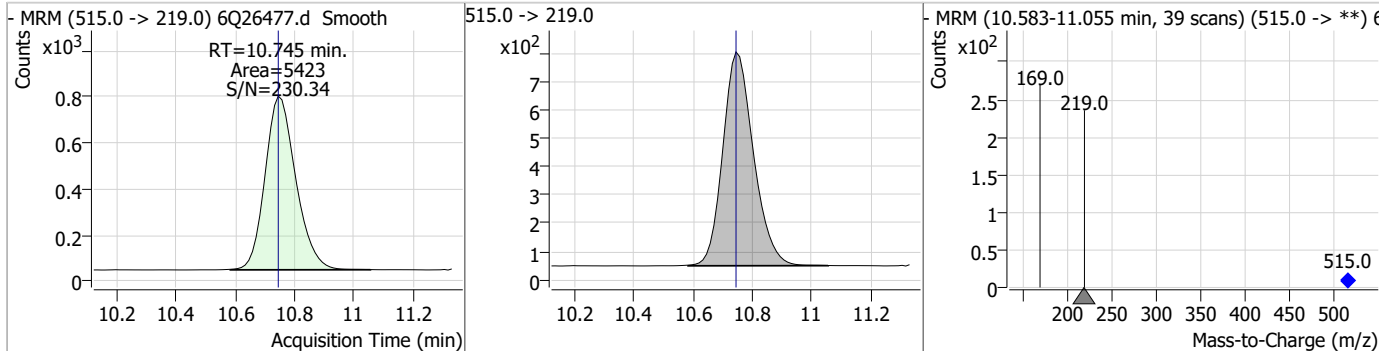
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.42	10.67	0.00	62139				



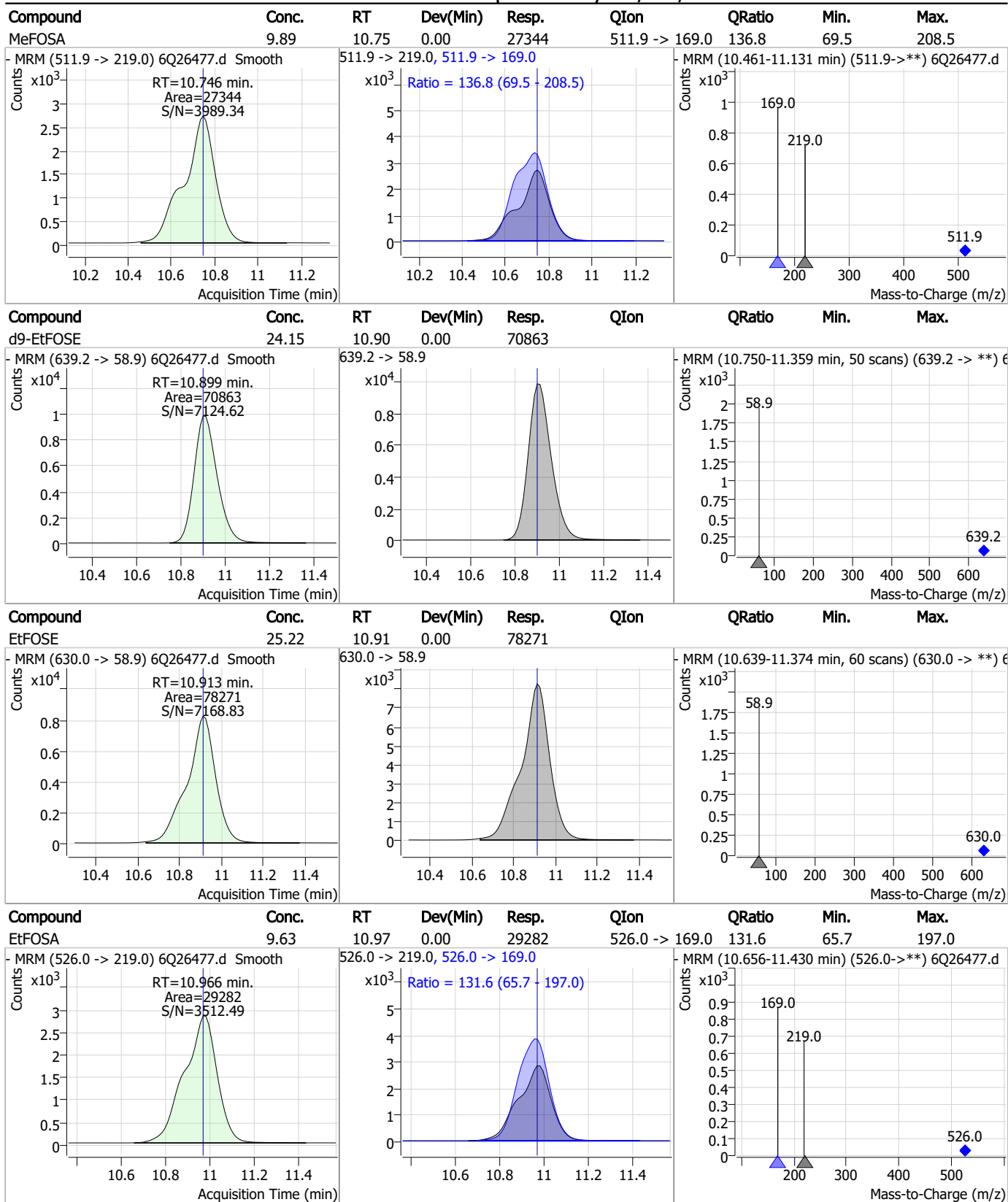
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.41	10.68	0.00	64861				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.74	0.00	5423				



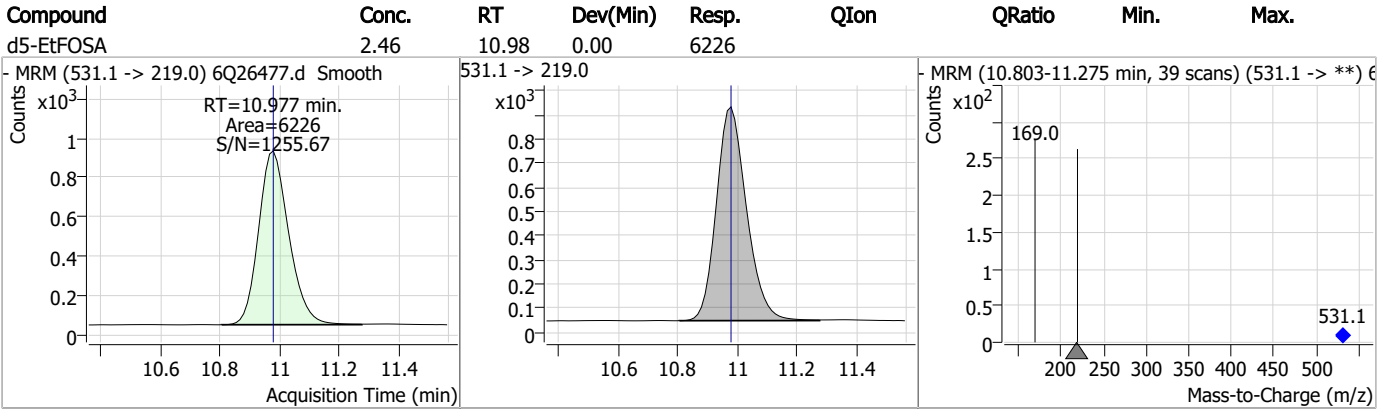
### Perfluorinated Compounds by LC/MS/MS



7.7.6

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Perfluorinated Compounds by LC/MS/MS



7.7.6

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# Manual Integration Approval Summary

Sample Number: S6Q372-IC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26477.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 18:23      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.7.6.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26478.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 6:37:32 PM  
 Sample Name : ic372-6  
 Vial : P1-A7  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	128998	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	41678	5.00 µg/L	0.000
M5-PFHxA	5.552	318.0 -> 273.0	40365	2.50 µg/L	-0.012
M4-PFHpA	6.493	367.1 -> 322.0	38481	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	53152	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	23128	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	22516	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	23630	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	26974	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9560	1.25 µg/L	0.000
M8-FOSA	9.654	506.1 -> 77.8	18170	2.50 µg/L	0.012
M3-PFBS	5.471	302.1 -> 79.9	18065	2.50 µg/L	-0.012
M3-PFHxS	7.239	402.1 -> 79.9	10653	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9746	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	1974	5.00 µg/L	-0.012
M2-6:2FTS	6.910	429.1 -> 80.9	2660	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	2902	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	19692	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	29246	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	15854	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	60284	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	70759	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	5938	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5604	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8959	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	52392	5.00 µg/L	-0.012
18O2-PFHxS	7.238	403.0 -> 83.9	6152	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	61060	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21694	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	20867	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	41491	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.228	329.1 -> 80.9	1974	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2660	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2902	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-PFDoDA	9.006	615.1 -> 570.0	26974	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9560	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFBS	5.471	302.1 -> 79.9	18065	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C3-PFHxS	7.239	402.1 -> 79.9	10653	2.67 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 = 106.8%	
13C4-PFBA	2.926	216.8 -> 171.9	128998	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.493	367.1 -> 322.0	38481	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C5-PFHxA	5.552	318.0 -> 273.0	40365	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.346	268.3 -> 223.0	41678	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C6-PFDA	8.134	519.1 -> 474.1	22516	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C7-PFUnDA	8.576	570.0 -> 525.1	23630	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-FOSA	9.654	506.1 -> 77.8	18170	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-PFOA	7.136	421.1 -> 376.0	53152	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-PFOS	8.284	507.1 -> 79.9	9746	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C9-PFNA	7.654	472.1 -> 427.0	23128	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
d3-MeFOSAA	8.191	573.2 -> 419.0	19692	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	29246	9.99 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d3-MeFOSA	10.745	515.0 -> 219.0	5604	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
d5-EtFOSAA	8.388	589.2 -> 419.0	15854	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d7-MeFOSE	10.665	623.2 -> 58.9	60284	25.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d9-EtFOSE	10.899	639.2 -> 58.9	70759	25.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
d5-EtFOSA	10.977	531.1 -> 219.0	5938	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.229	327.1 -> 307.0	159099	44.36 µg/L	96
		327.1 -> 80.9	64053		
6:2FTS	6.911	427.1 -> 407.0	125246	42.15 µg/L	97
		427.1 -> 80.9	51557		
8:2FTS	7.923	527.1 -> 507.0	94146	42.06 µg/L	91
		527.1 -> 80.8	34961		
EtFOSAA	8.389	584.2 -> 419.1	36277	13.13 µg/L	94
		584.2 -> 526.0	23522		
FOSA	9.645	498.1 -> 77.9	93099	12.47 µg/L	100
		498.1 -> 478.0	2792		
MeFOSAA	8.192	570.1 -> 419.0	53610	13.41 µg/L	98
		570.1 -> 483.0	11156		
PFBA	2.919	212.8 -> 168.9	254769	50.49 µg/L	100
PFBS	5.484	298.7 -> 79.9	67765	11.34 µg/L	98
		298.7 -> 98.8	24397		
PFDA	8.134	512.9 -> 469.0	235528	12.74 µg/L	95
		512.9 -> 219.0	34455		
PFDODA	9.007	613.1 -> 569.0	267222	12.46 µg/L	98
		613.1 -> 319.0	31882		
PFDS	9.157	599.0 -> 79.9	30015	11.66 µg/L	95

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	14923			
PFHpA	6.493	363.1 -> 319.0	289792	12.91	µg/L	99
		363.1 -> 169.0	40977			
PFHpS	7.793	449.0 -> 79.9	52592	11.62	µg/L	92
		449.0 -> 98.9	24690			
PFHxA	5.555	313.0 -> 269.0	195663	12.64	µg/L	98
		313.0 -> 118.9	9361			
PFHxS	7.240	398.7 -> 79.9	50720	10.87	µg/L	m 88
		398.7 -> 98.9	24671			
PFNA	7.655	463.0 -> 419.0	183532	12.49	µg/L	98
		463.0 -> 219.0	42190			
PFNS	8.738	548.8 -> 79.9	43292	11.62	µg/L	95
		548.8 -> 98.9	23163			
PFOA	7.138	413.0 -> 369.0	300778	12.74	µg/L	98
		413.0 -> 169.0	51429			
PFOS	8.274	498.9 -> 79.9	52095	11.48	µg/L	m 83
		498.9 -> 98.8	26963			
PFPeA	4.349	263.0 -> 219.0	251765	25.39	µg/L	100
PFPeS	6.545	349.1 -> 79.9	67127	11.07	µg/L	98
		349.1 -> 98.9	29502			
PFTeDA	9.721	713.1 -> 669.0	159437	12.35	µg/L	99
		713.1 -> 168.9	11516			
PFTrDA	9.389	663.0 -> 619.0	213005	12.87	µg/L	98
		663.0 -> 168.9	16634			
PFUnDA	8.589	563.1 -> 519.0	231818	12.47	µg/L	99
		563.1 -> 269.1	33818			
11Cl-PF3OUdS	9.429	630.9 -> 450.9	202723	23.40	µg/L	98
		632.9 -> 452.9	63821			
9Cl-PF3ONS	8.615	530.8 -> 351.0	345252	22.55	µg/L	98
		532.8 -> 353.0	115314			
ADONA	6.743	376.9 -> 250.9	926596	22.51	µg/L	96
		376.9 -> 84.8	257309			
HFPO-DA	5.931	284.9 -> 168.9	77828	24.66	µg/L	98
		284.9 -> 184.9	9401			
3:3FTCA	3.777	241.0 -> 177.0	42310	61.07	µg/L	100
		241.0 -> 117.0	5842			
5:3FTCA	6.210	341.0 -> 237.1	887382	311.59	µg/L	95
		341.0 -> 217.0	621861			
7:3FTCA	7.607	441.0 -> 316.9	560784	302.83	µg/L	94
		441.0 -> 336.9	1154422			
EtFOSA	10.966	526.0 -> 219.0	74290	25.61	µg/L	95
		526.0 -> 169.0	93140			
EtFOSE	10.913	630.0 -> 58.9	189889	61.28	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	69509	24.32	µg/L	95
		511.9 -> 169.0	92517			
MeFOSE	10.678	616.1 -> 58.9	160543	62.28	µg/L	100
PFDoS	9.848	699.1 -> 79.9	16368	12.04	µg/L	94
		699.1 -> 98.8	9275			
NFDHA	5.435	295.0 -> 201.0	49742	25.93	µg/L	98
		295.0 -> 84.9	13006			
PFMBA	4.762	279.0 -> 85.1	192517	25.24	µg/L	100
PFMPA	3.475	229.0 -> 84.9	157017	25.19	µg/L	100
PFEESA	6.024	314.8 -> 134.9	442652	22.06	µg/L	100
		314.8 -> 82.9	15939			

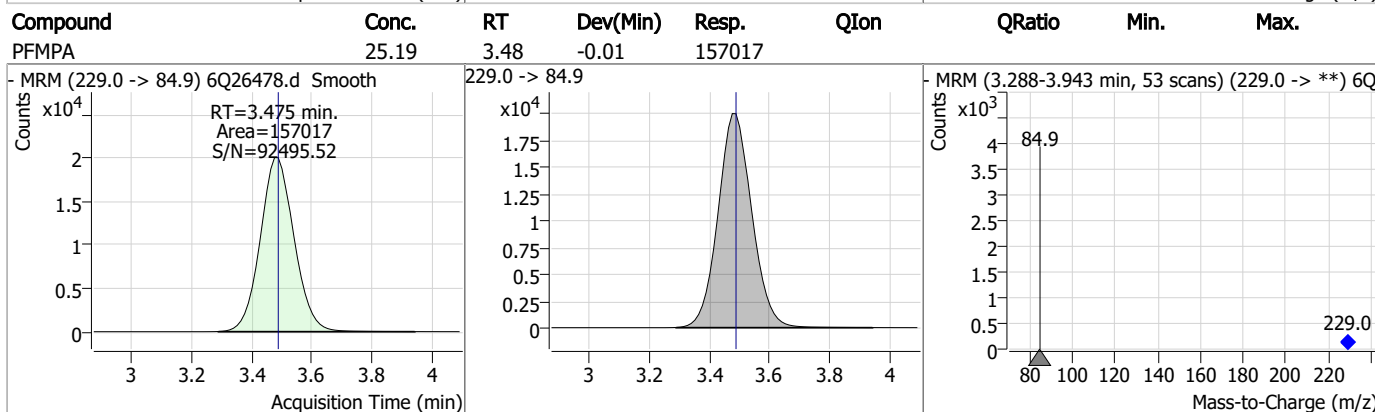
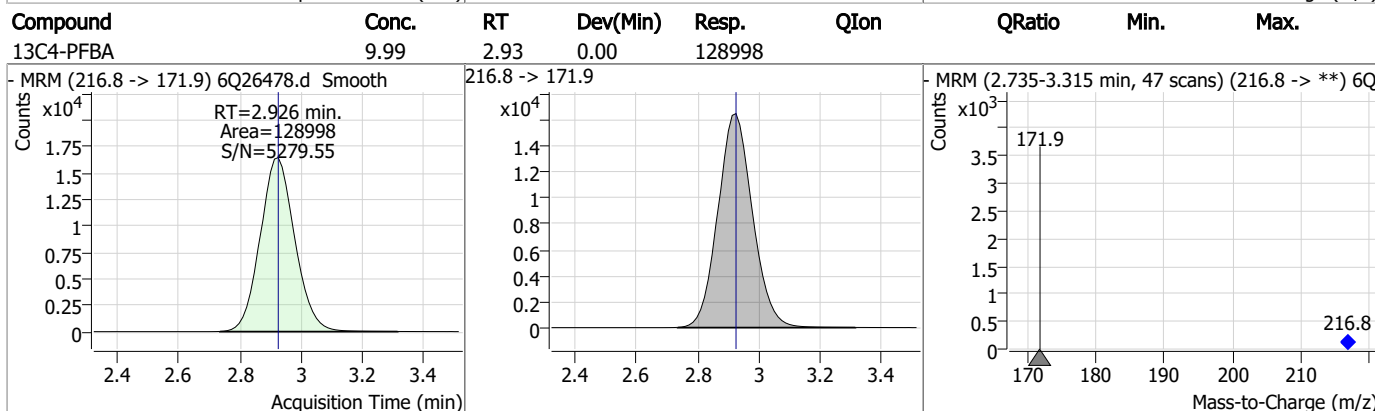
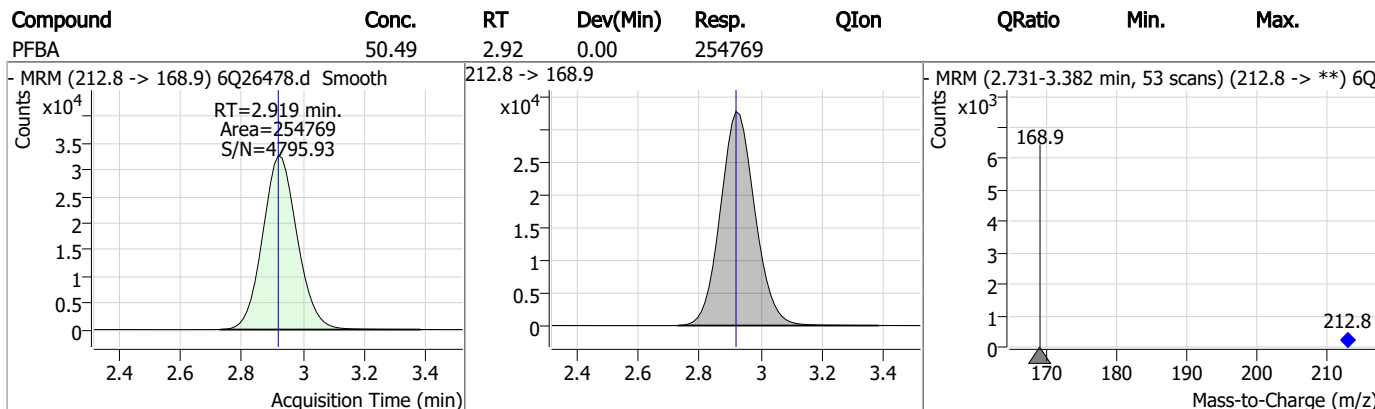
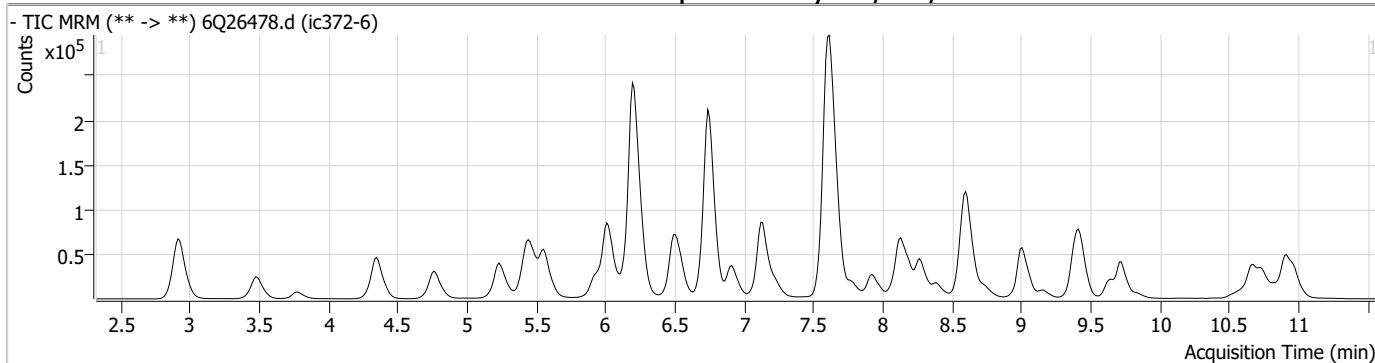
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

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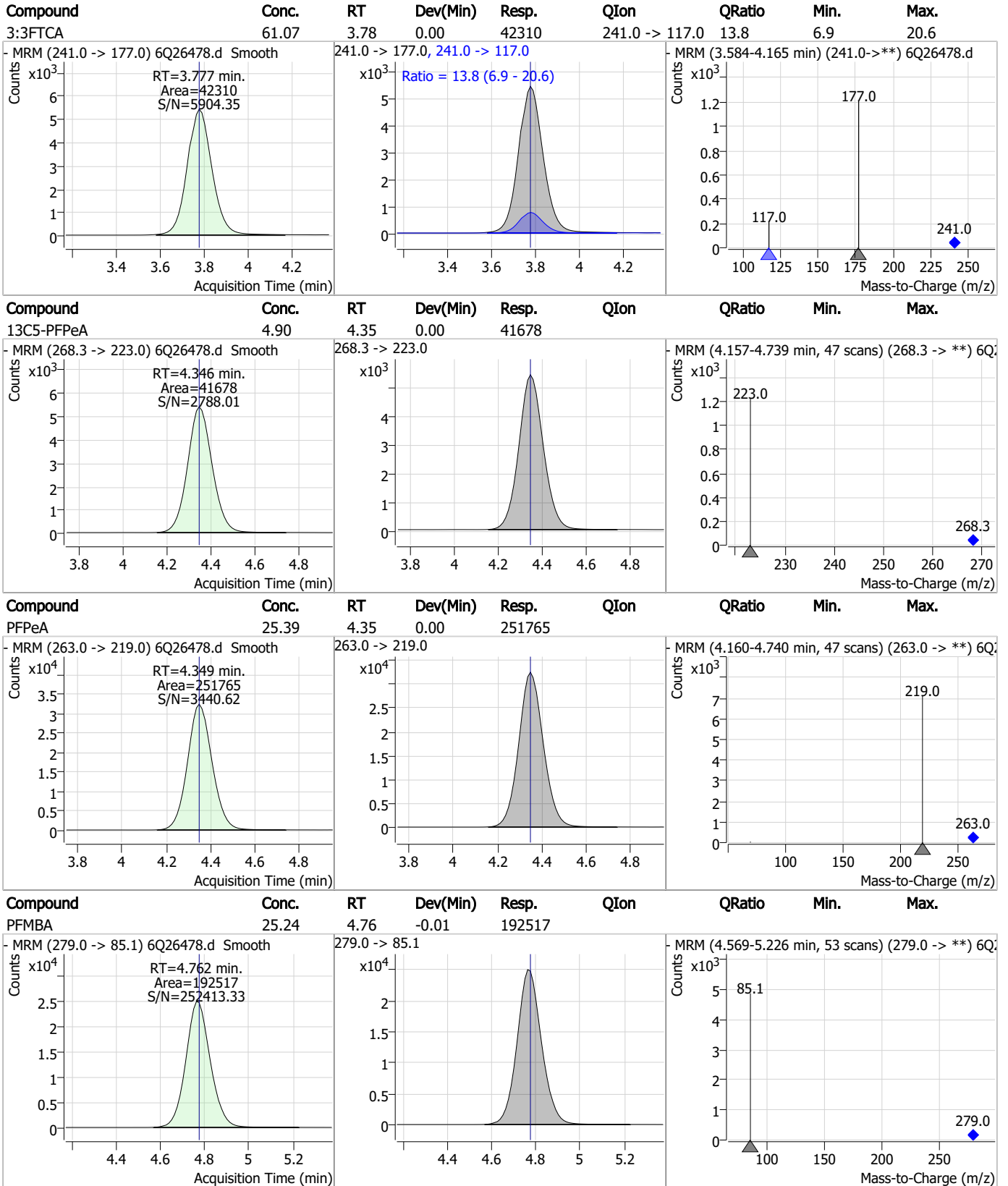
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### Perfluorinated Compounds by LC/MS/MS



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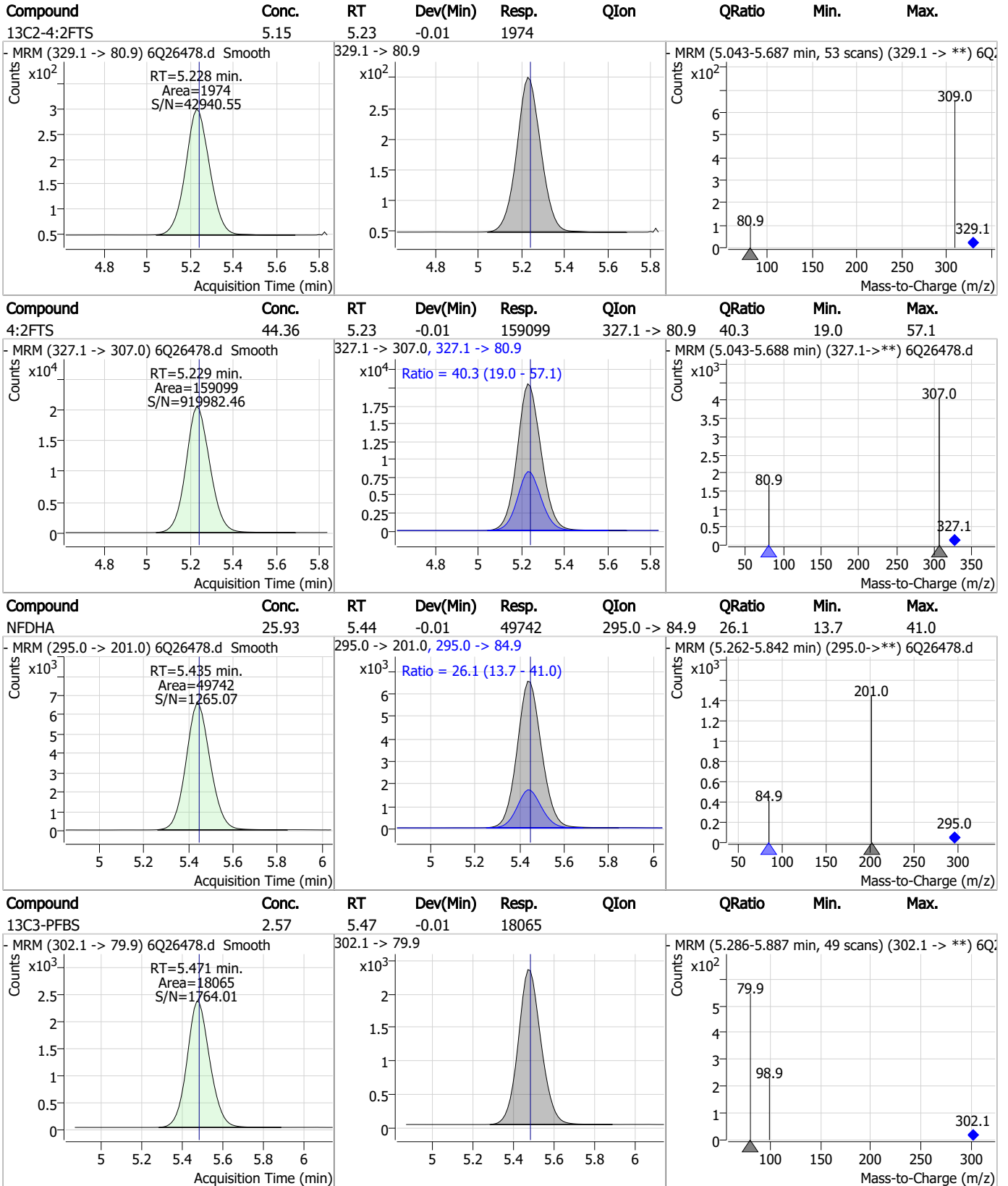
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

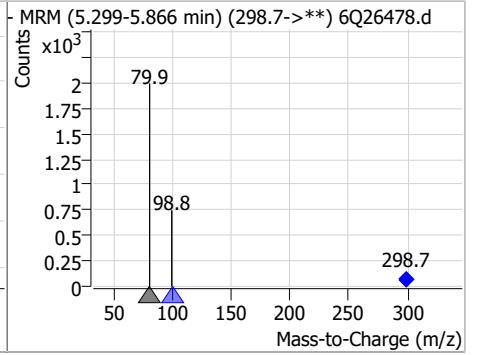
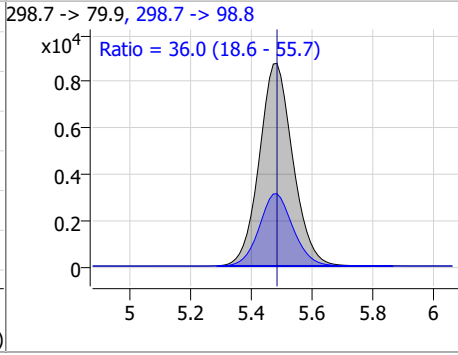
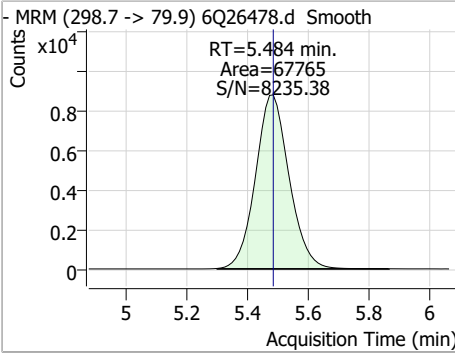


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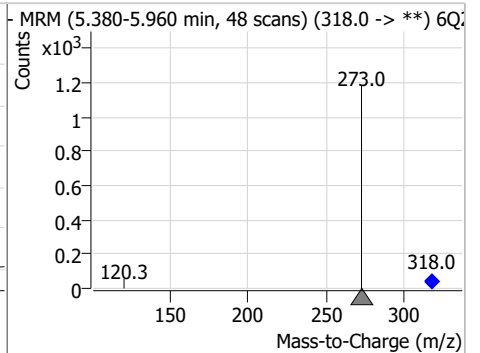
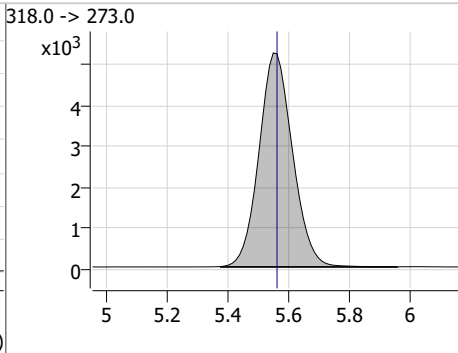
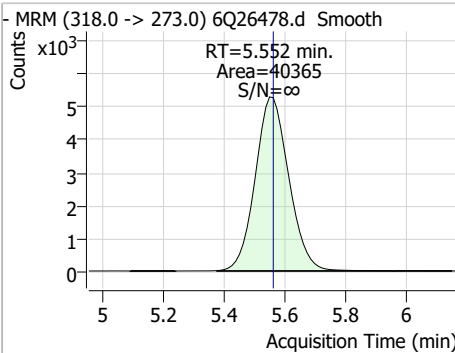
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### Perfluorinated Compounds by LC/MS/MS

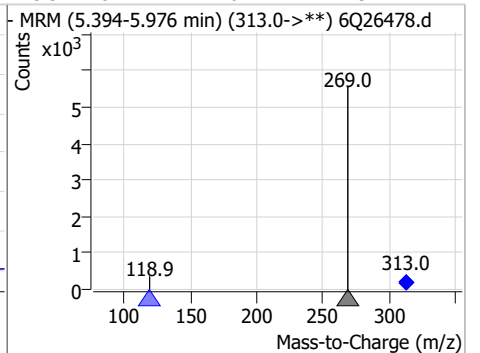
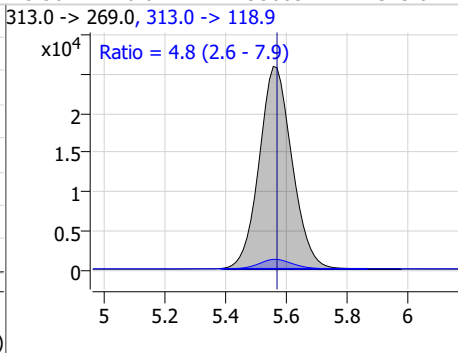
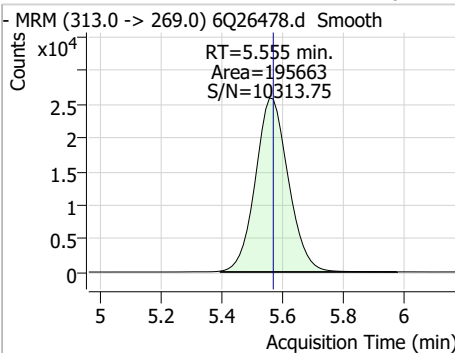
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.34	5.48	0.00	67765	298.7 -> 98.8	36.0	18.6	55.7



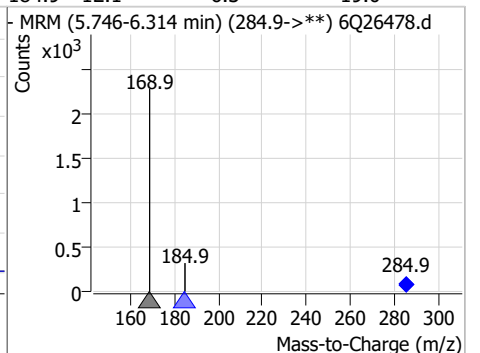
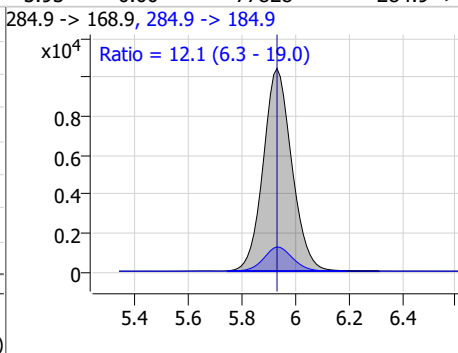
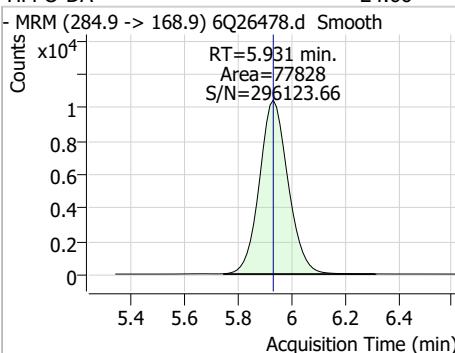
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.55	-0.01	40365	318.0 -> 273.0			



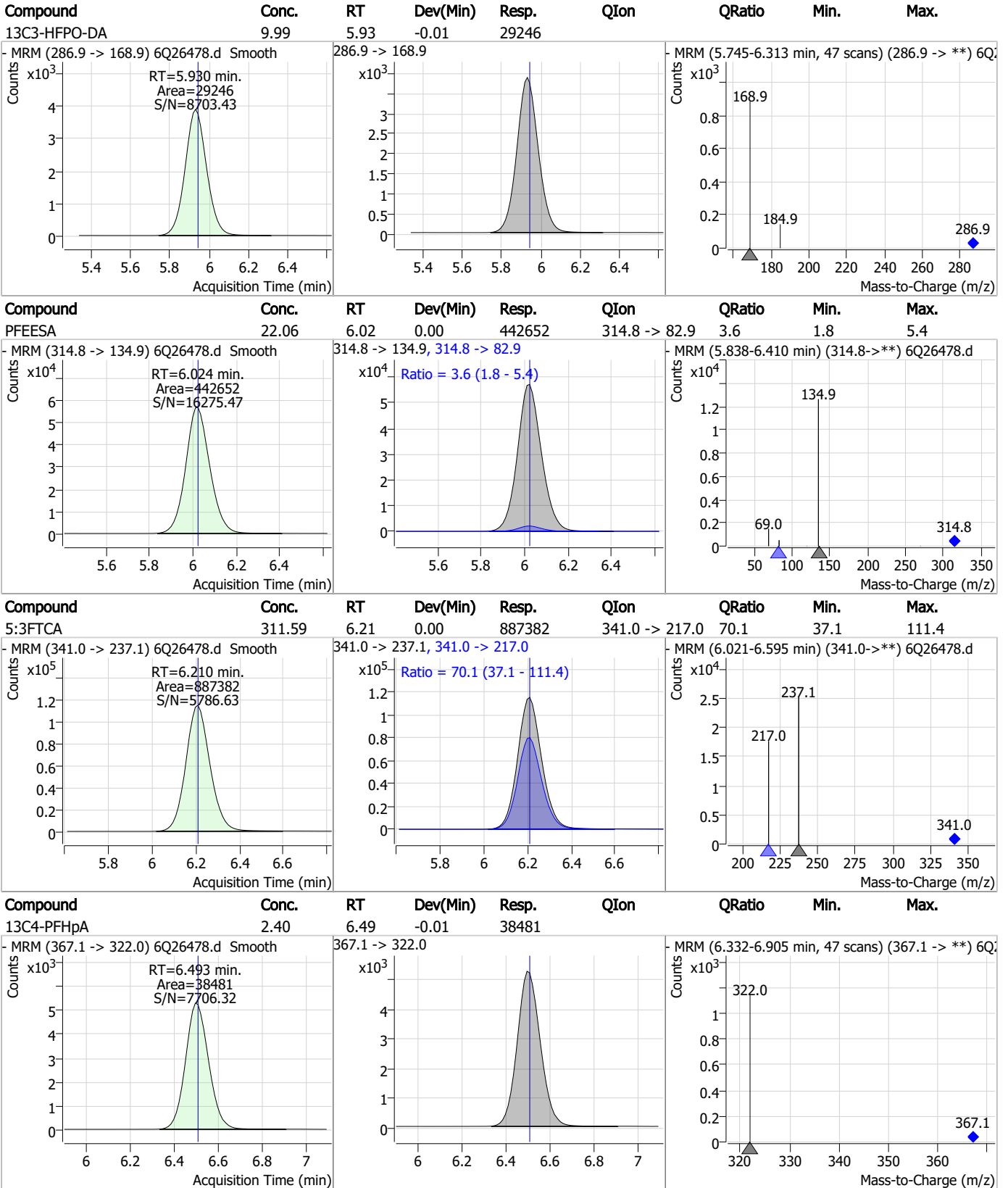
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.64	5.56	-0.01	195663	313.0 -> 118.9	4.8	2.6	7.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	24.66	5.93	0.00	77828	284.9 -> 184.9	12.1	6.3	19.0



### Perfluorinated Compounds by LC/MS/MS

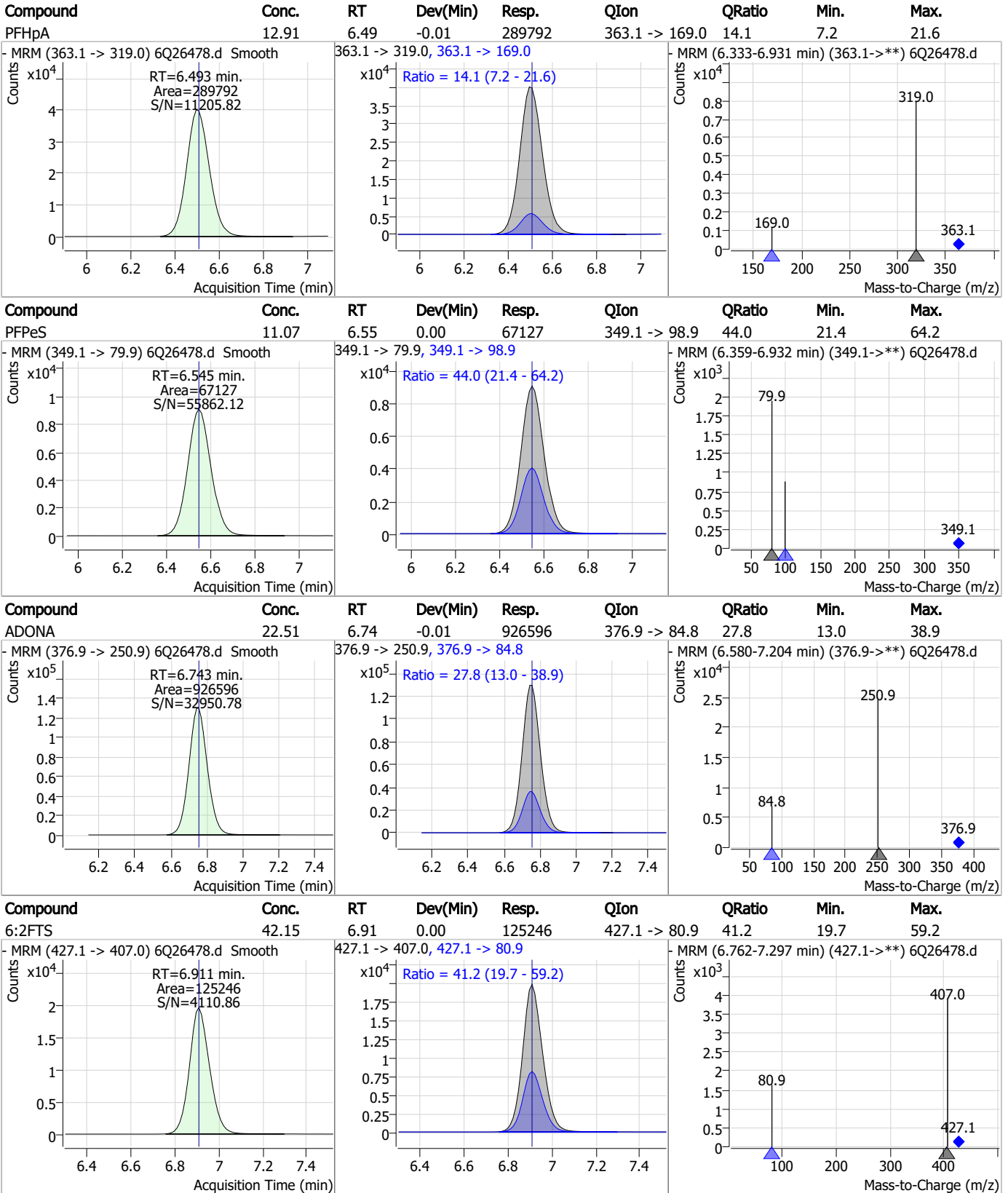


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### Perfluorinated Compounds by LC/MS/MS

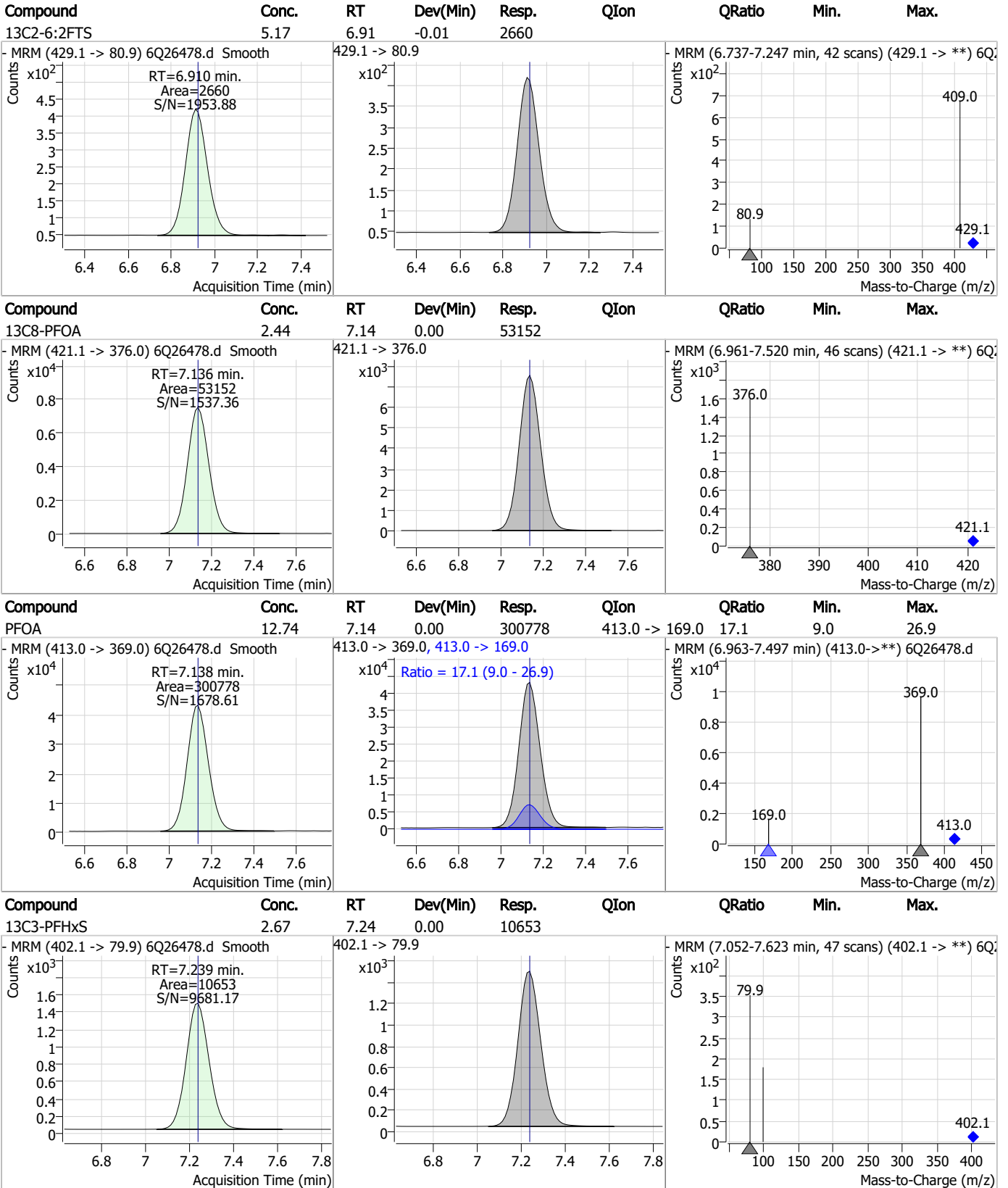


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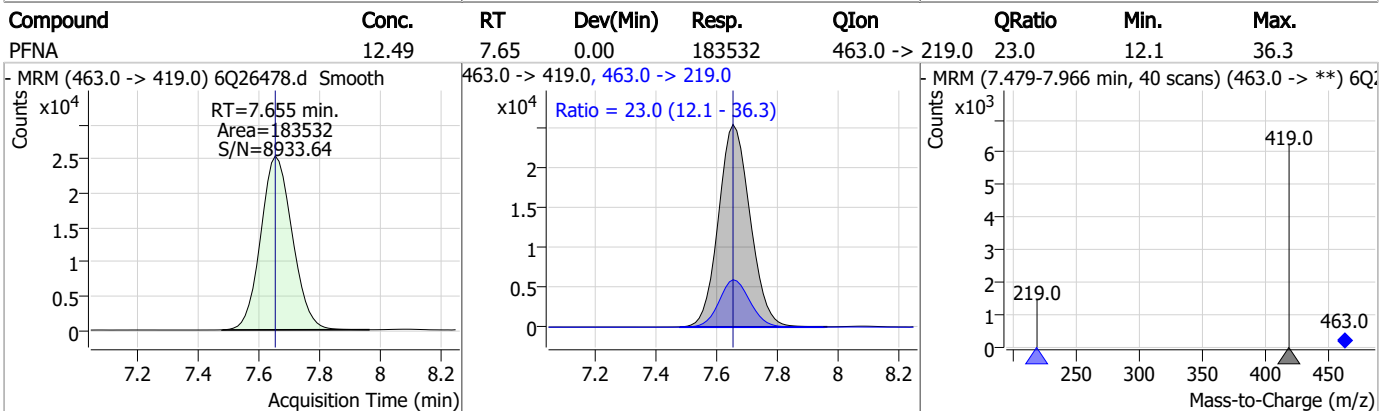
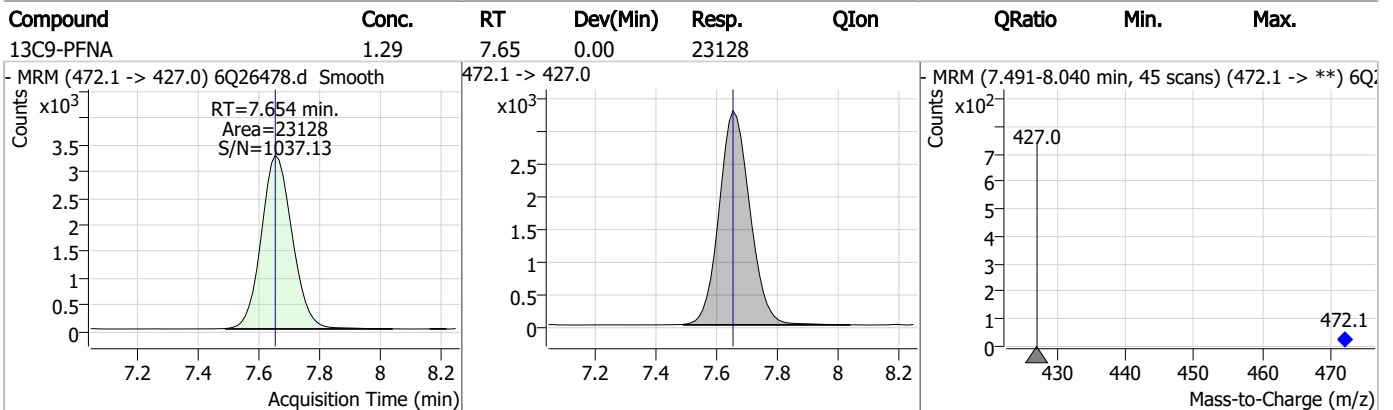
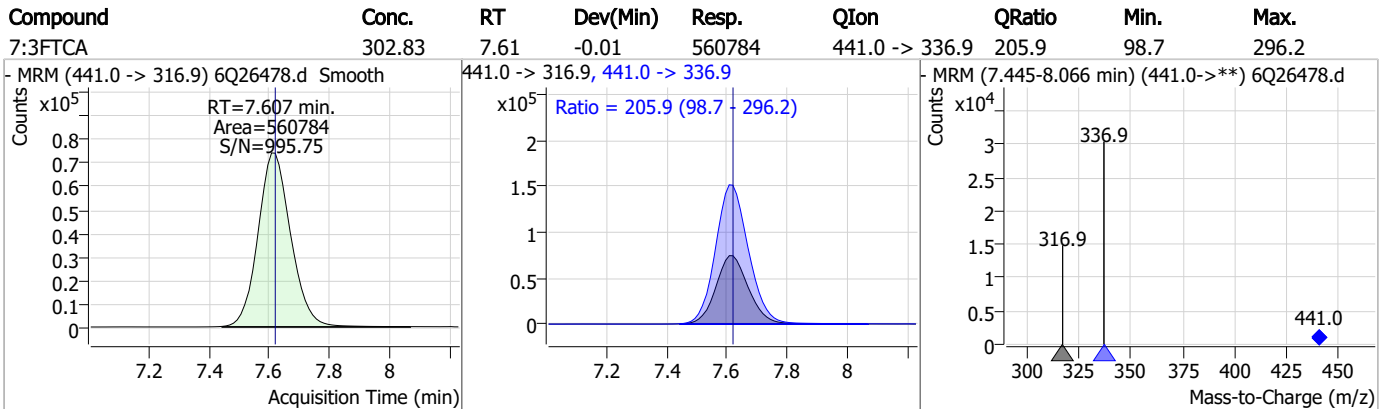
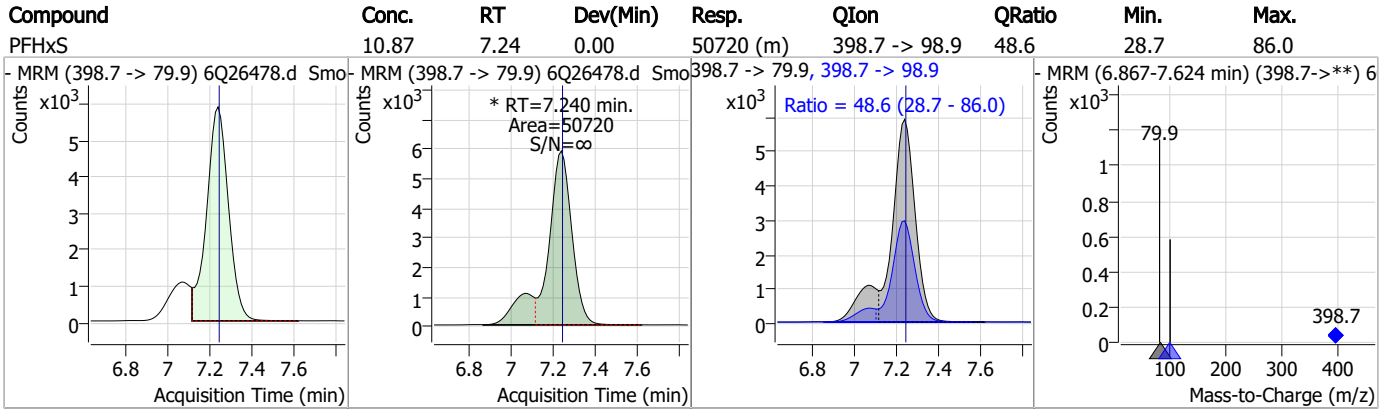
### Perfluorinated Compounds by LC/MS/MS



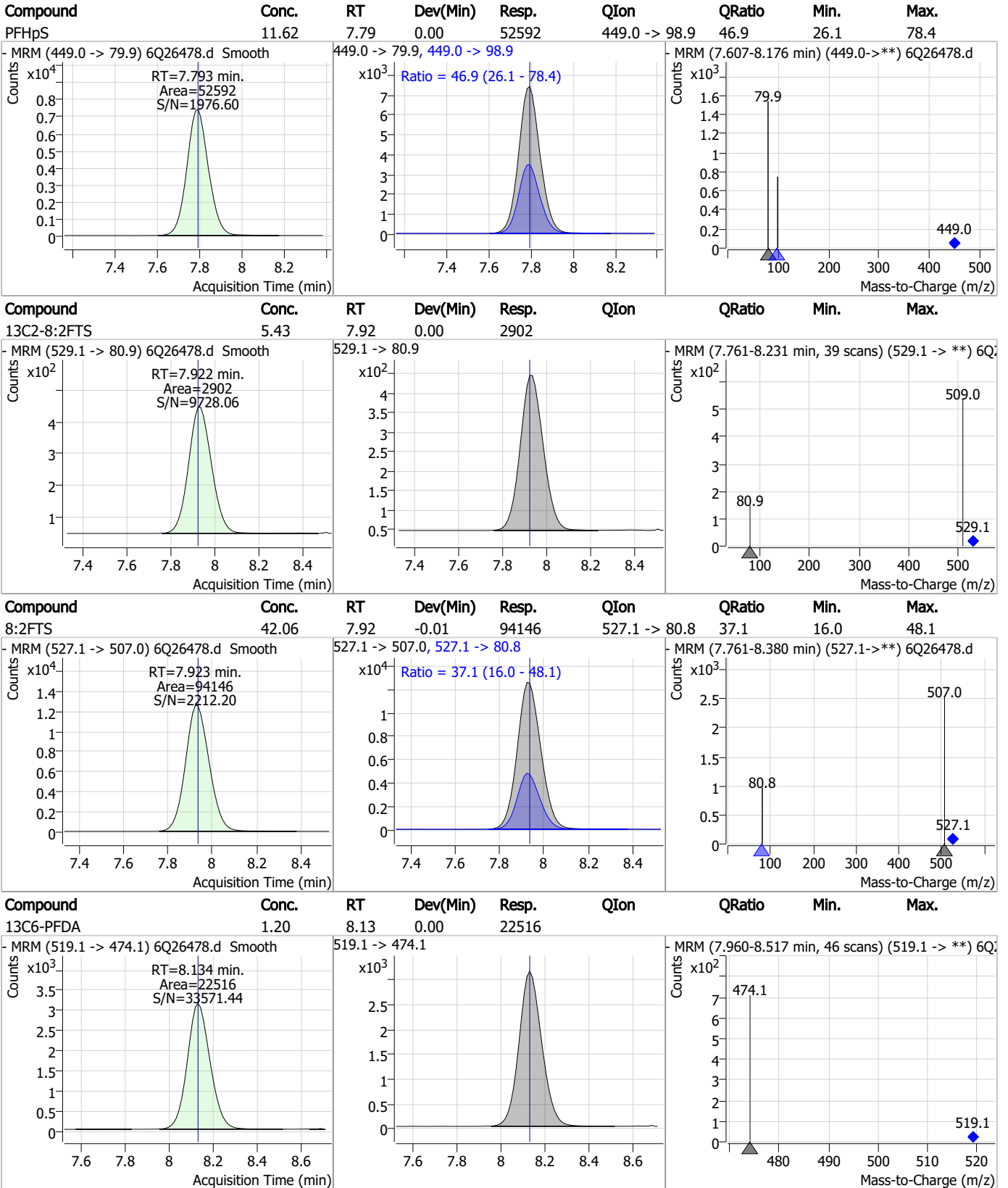
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### Perfluorinated Compounds by LC/MS/MS



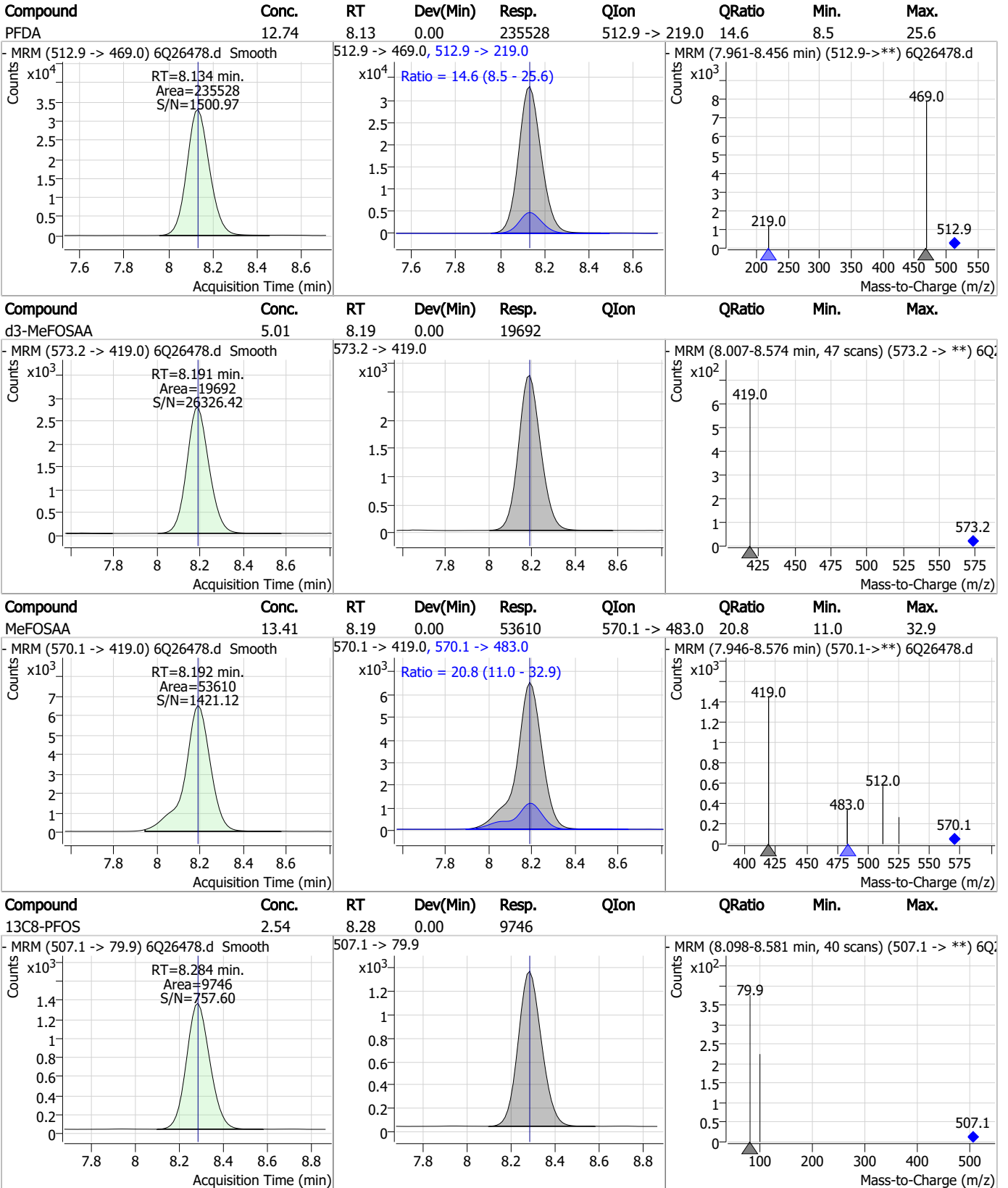
### Perfluorinated Compounds by LC/MS/MS



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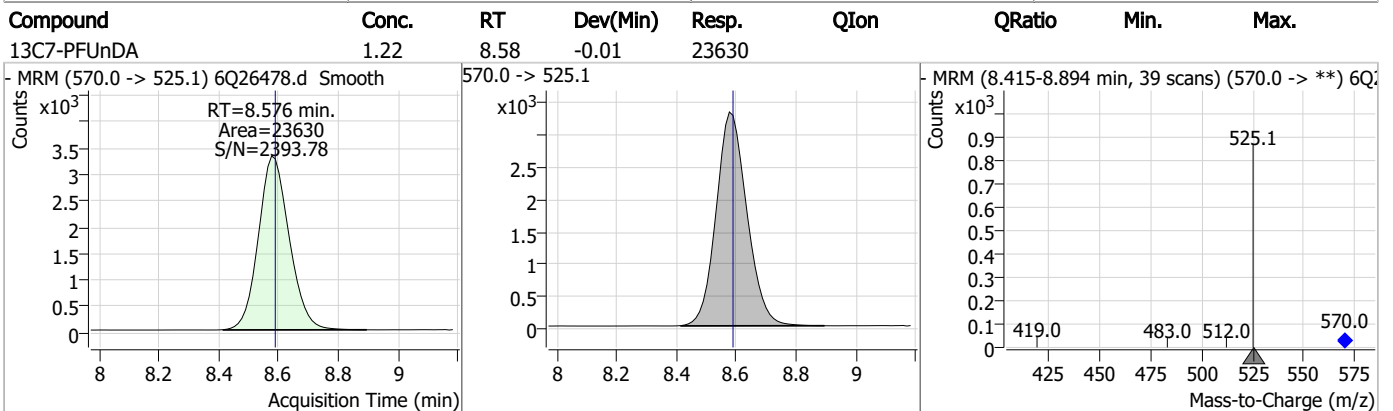
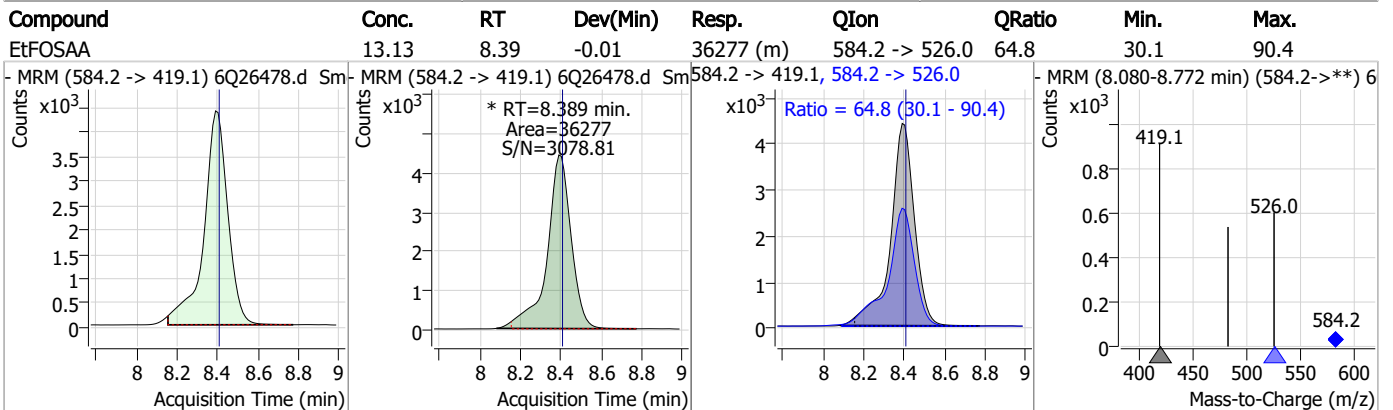
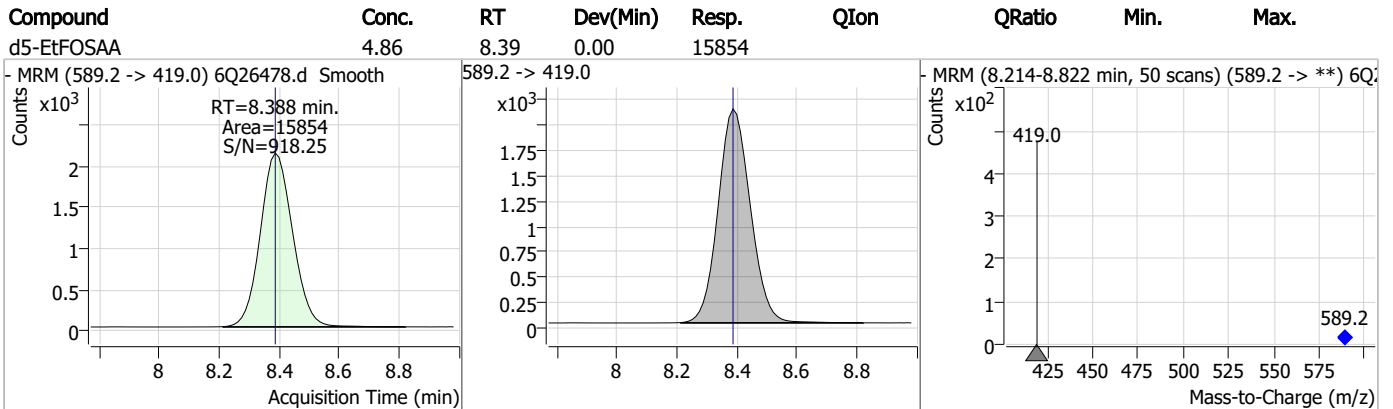
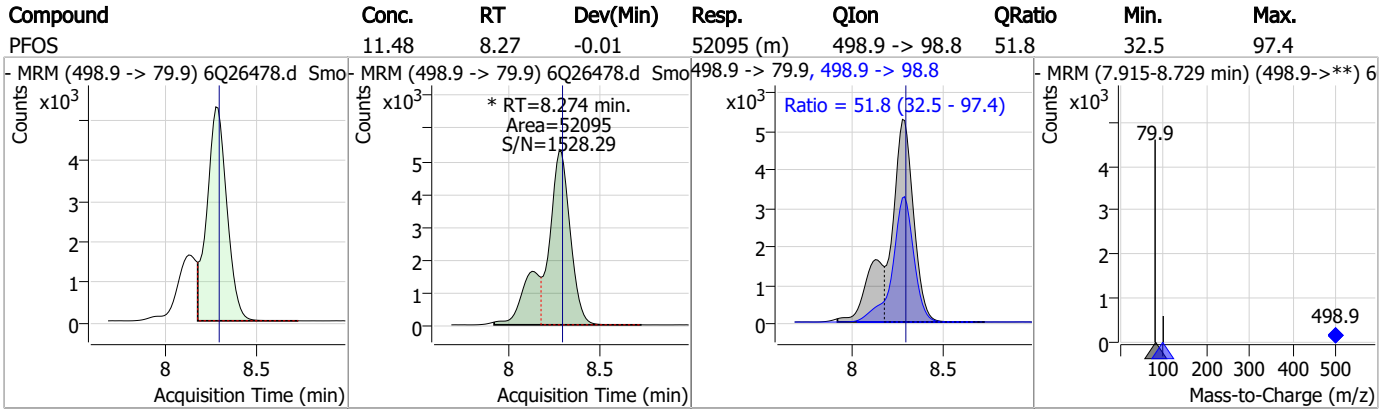
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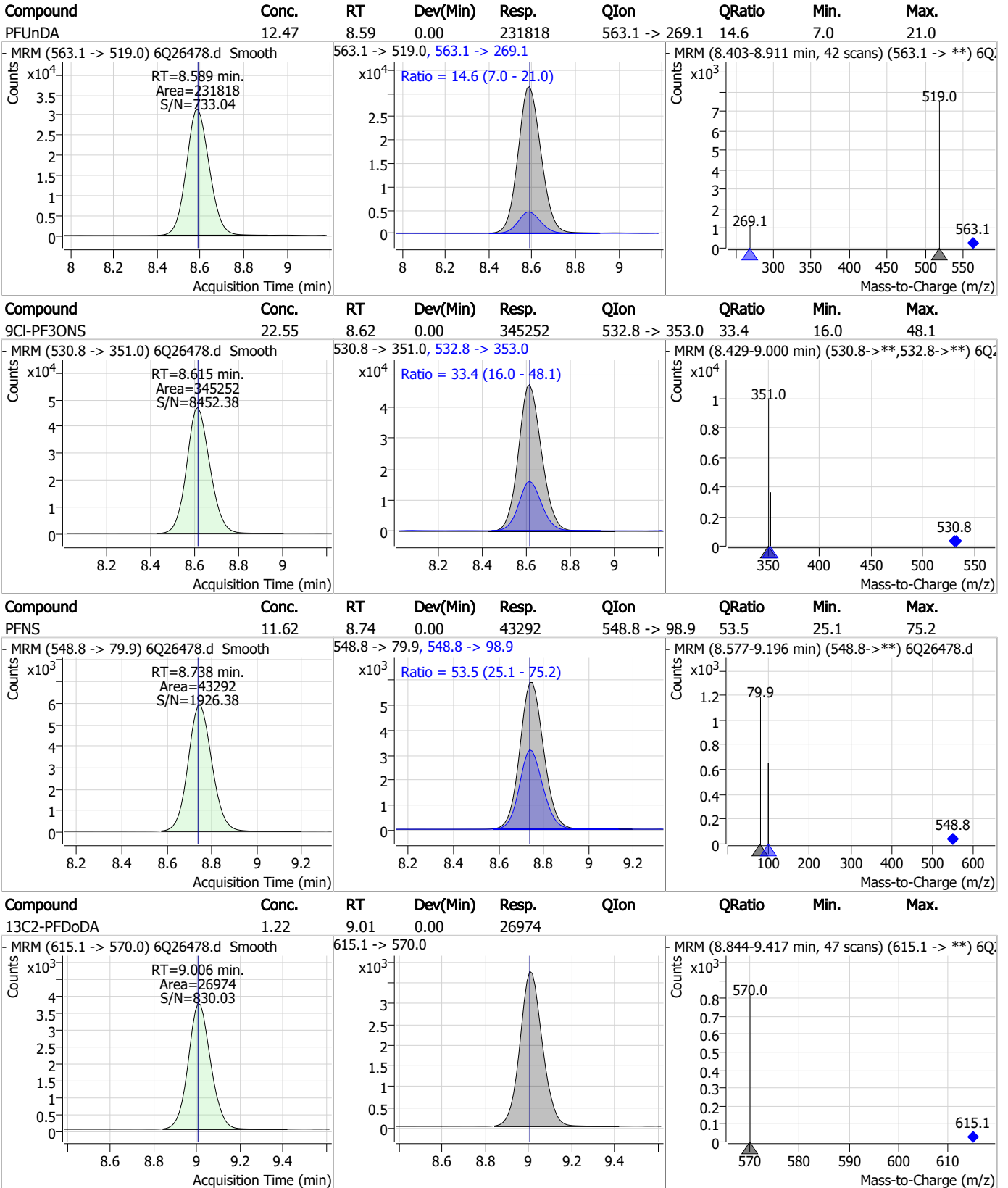
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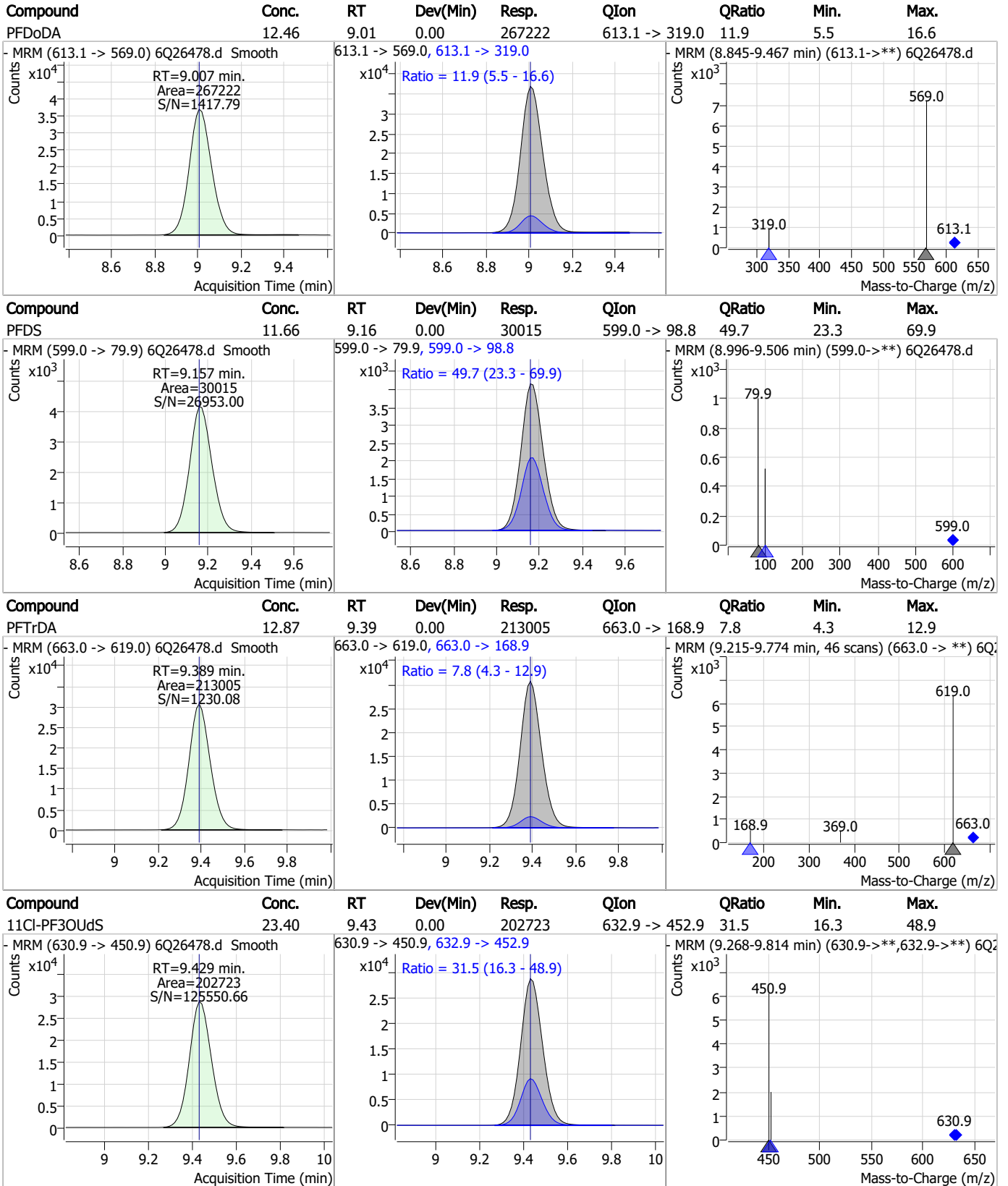
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

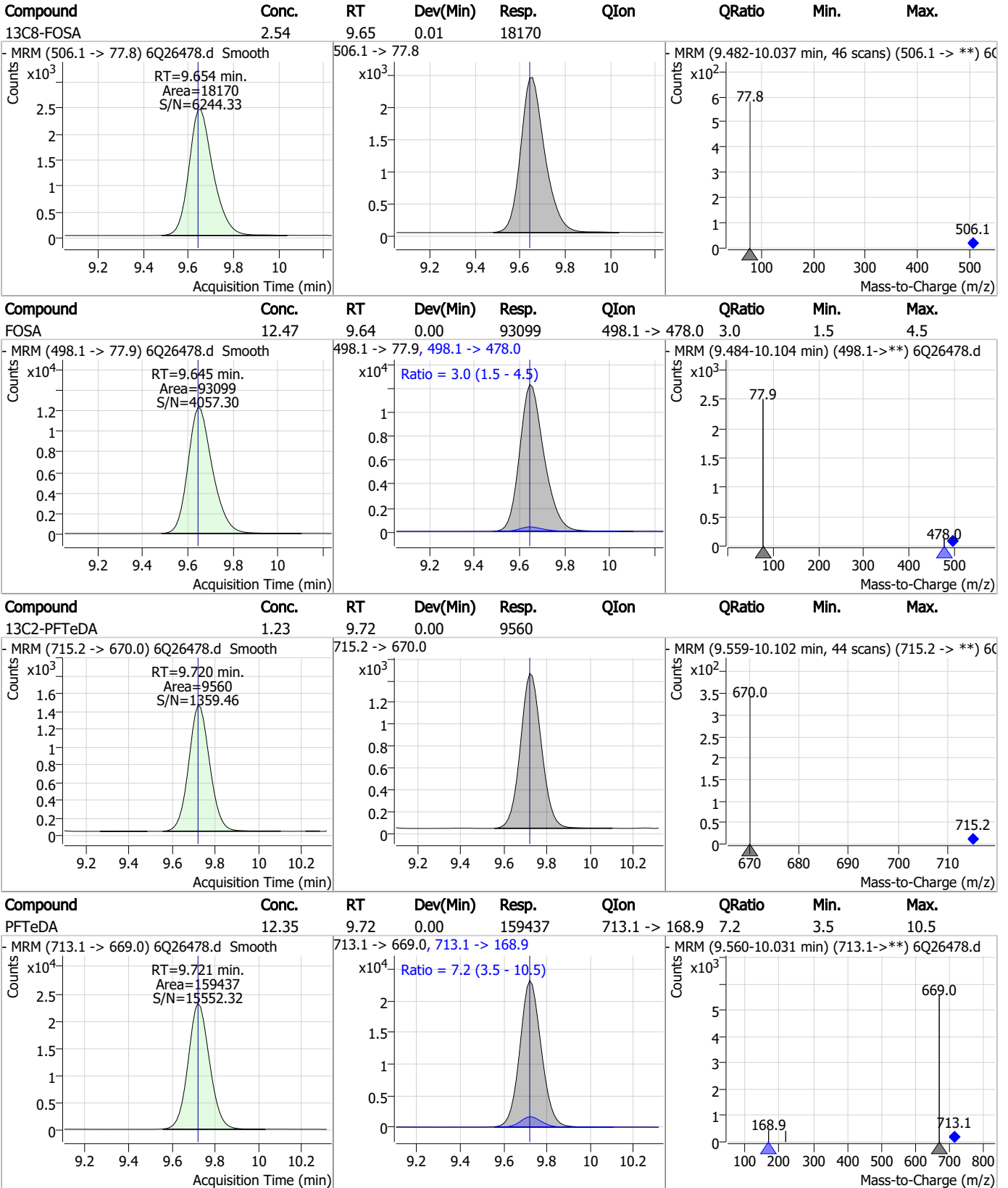


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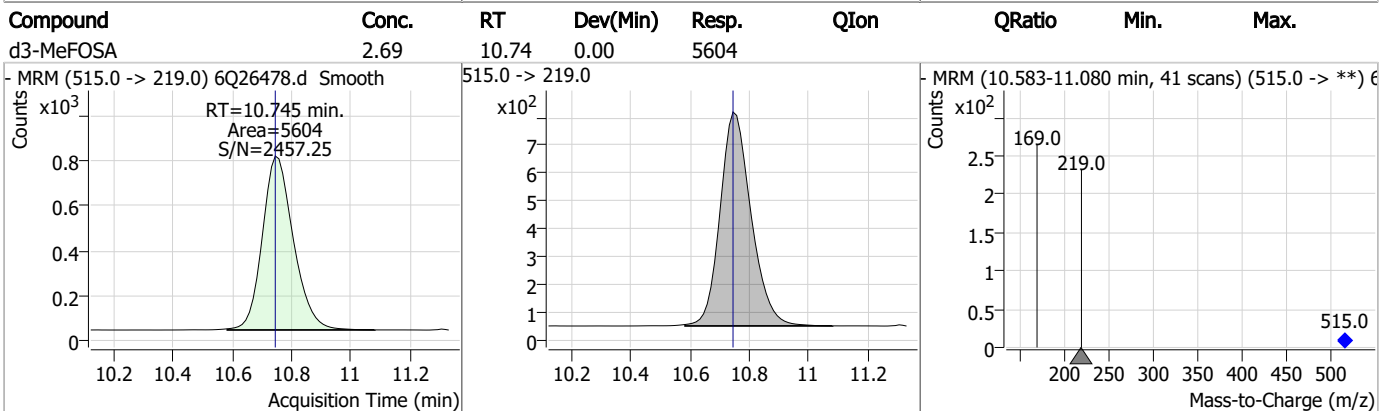
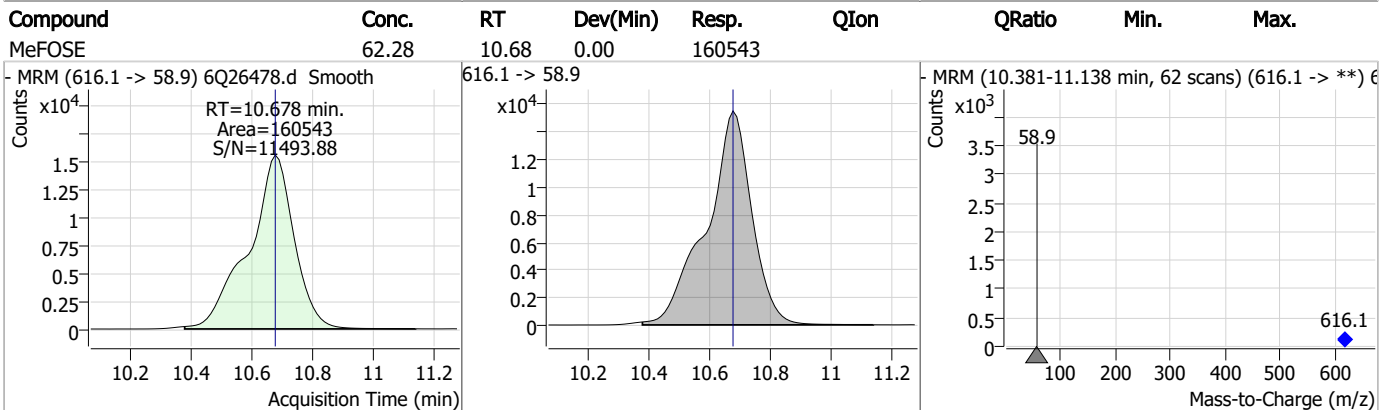
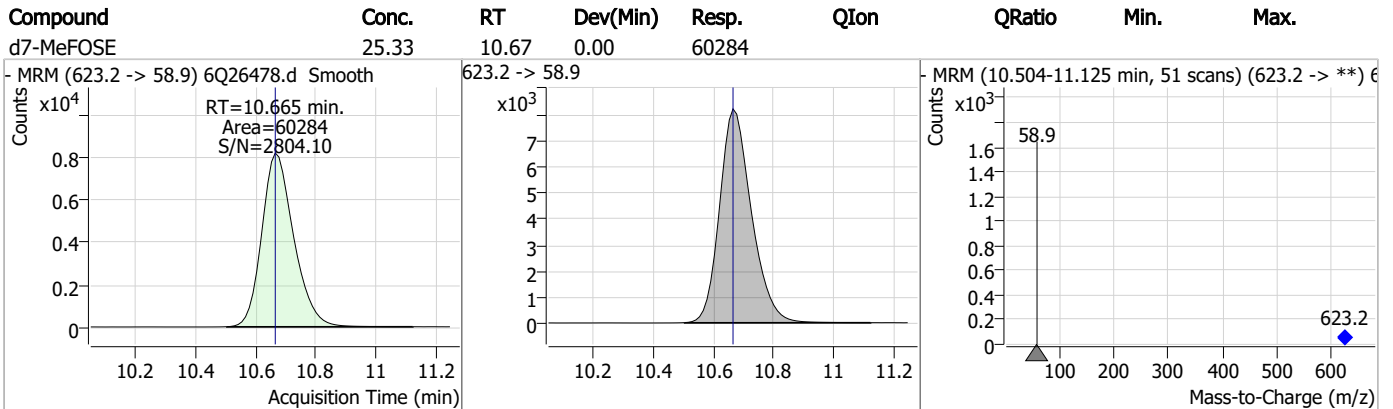
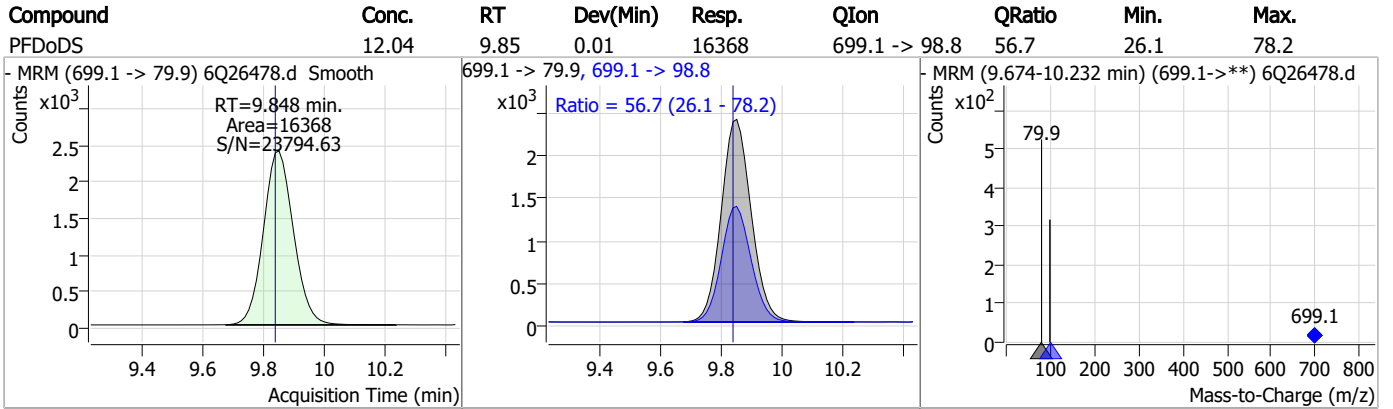
### Perfluorinated Compounds by LC/MS/MS



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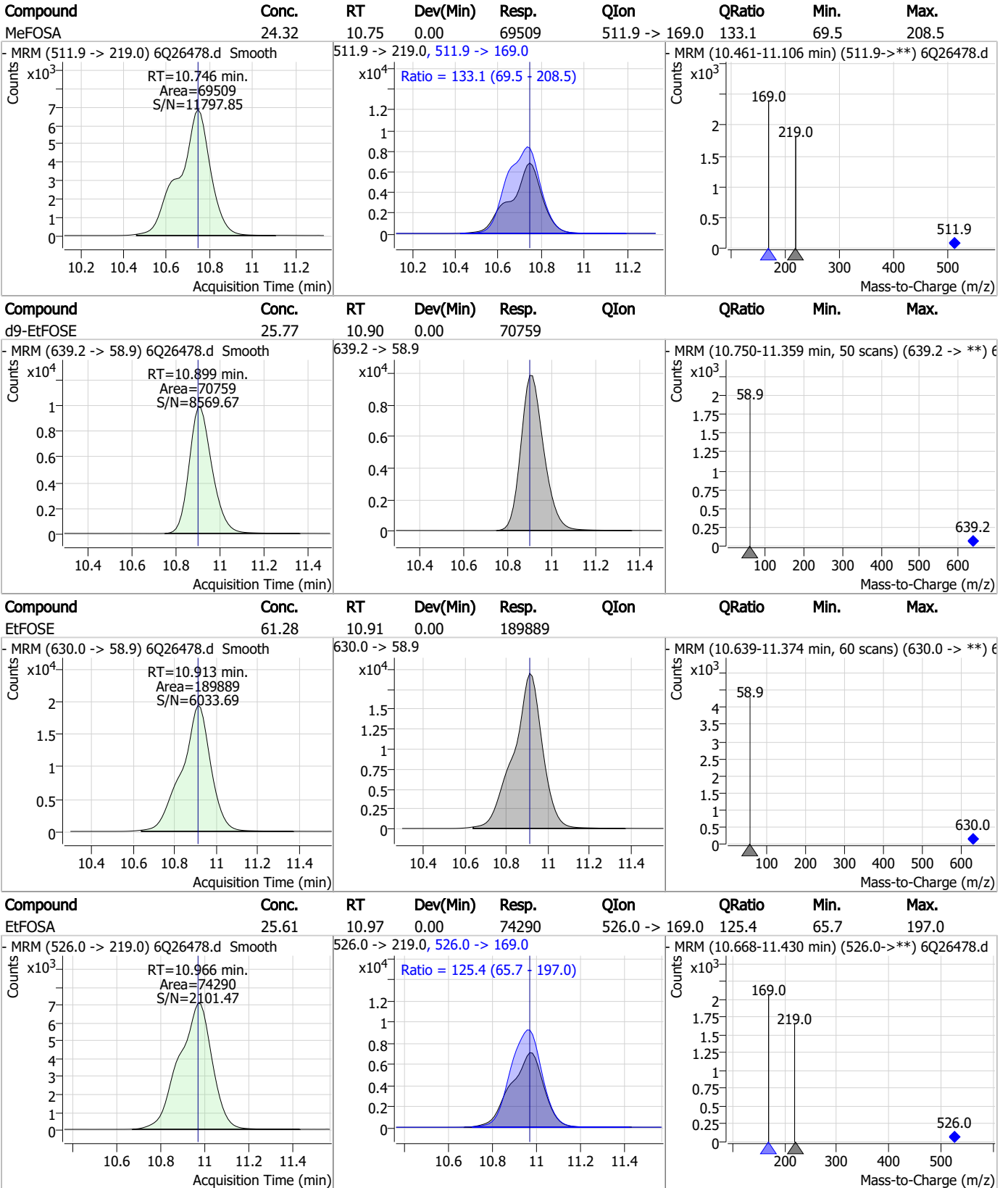
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### Perfluorinated Compounds by LC/MS/MS



7.7.7  
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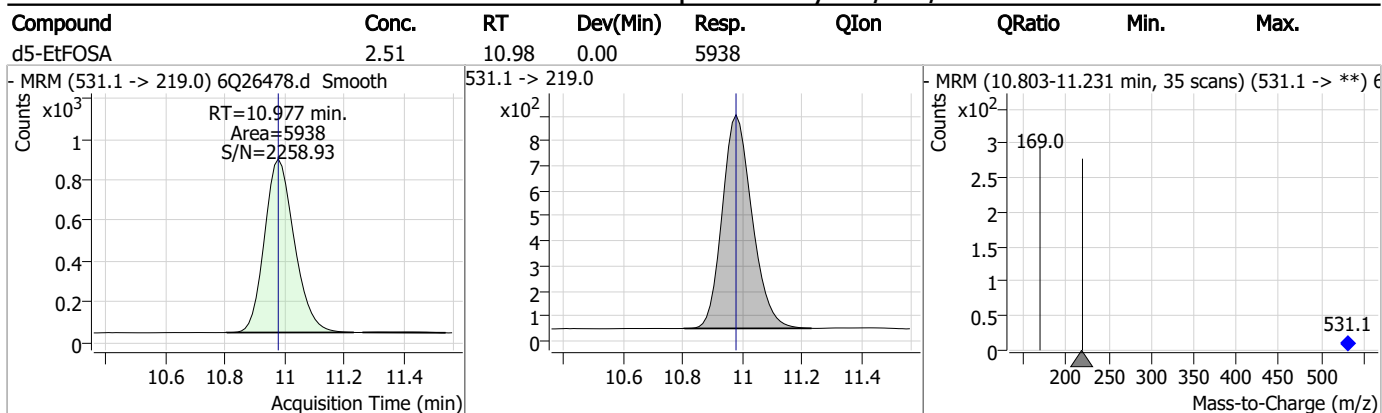
### Perfluorinated Compounds by LC/MS/MS



7.7.7

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### Perfluorinated Compounds by LC/MS/MS



7.7.7  
7

# Manual Integration Approval Summary

Sample Number: S6Q372-IC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26478.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 18:37      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.39	Split peak

7.7.7.1

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Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Natasha Gumtjie  
 10/17/23 16:39

## Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26479.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 6:51:52 PM  
 Sample Name : ic372-7  
 Vial : P1-A8  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	123521	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	40155	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	38335	2.50 µg/L	0.000
M4-PFHpA	6.493	367.1 -> 322.0	37517	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	54530	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	21923	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	21992	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	21421	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	25846	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9209	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	17902	2.50 µg/L	0.000
M3-PFBS	5.483	302.1 -> 79.9	17362	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	9762	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9734	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	1691	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2413	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2577	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	18754	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	27939	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	16432	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	59567	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	64782	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	5851	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5285	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8803	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	49364	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6113	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	58263	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20743	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21221	1.25 µg/L	0.000
13C2-PFHxA	5.553	315.1 -> 270.0	39512	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	1691	4.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.9%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2413	4.72 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2577	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFDoDA	9.006	615.1 -> 570.0	25846	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9209	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFBS	5.483	302.1 -> 79.9	17362	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFHxS	7.239	402.1 -> 79.9	9762	2.46 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 = 98.5%	
13C4-PFBA	2.926	216.8 -> 171.9	123521	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.493	367.1 -> 322.0	37517	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFHxA	5.565	318.0 -> 273.0	38335	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFPeA	4.346	268.3 -> 223.0	40155	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.134	519.1 -> 474.1	21992	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C7-PFUnDA	8.576	570.0 -> 525.1	21421	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C8-FOSA	9.642	506.1 -> 77.8	17902	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOA	7.136	421.1 -> 376.0	54530	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C8-PFOS	8.284	507.1 -> 79.9	9734	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C9-PFNA	7.654	472.1 -> 427.0	21923	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	
d3-MeFOSAA	8.191	573.2 -> 419.0	18754	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	27939	10.02 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSA	10.745	515.0 -> 219.0	5285	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16432	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d7-MeFOSE	10.665	623.2 -> 58.9	59567	25.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.899	639.2 -> 58.9	64782	24.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
d5-EtFOSA	10.977	531.1 -> 219.0	5851	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.229	327.1 -> 307.0	297886	96.94 µg/L	98
		327.1 -> 80.9	116249		
6:2FTS	6.911	427.1 -> 407.0	248943	92.35 µg/L	94
		427.1 -> 80.9	88808		
8:2FTS	7.923	527.1 -> 507.0	193651	97.43 µg/L	98
		527.1 -> 80.8	64436		
EtFOSAA	8.389	584.2 -> 419.1	71412	24.94 µg/L	93
		584.2 -> 526.0	46606		
FOSA	9.645	498.1 -> 77.9	189197	25.71 µg/L	100
		498.1 -> 478.0	5677		
MeFOSAA	8.192	570.1 -> 419.0	103770	27.26 µg/L	99
		570.1 -> 483.0	22409		
PFBA	2.919	212.8 -> 168.9	499063	103.29 µg/L	100
PFBS	5.484	298.7 -> 79.9	129927	22.63 µg/L	100
		298.7 -> 98.8	47947		
PFDA	8.134	512.9 -> 469.0	451146	24.98 µg/L	98
		512.9 -> 219.0	73310		
PFDoDA	9.007	613.1 -> 569.0	543531	26.46 µg/L	99
		613.1 -> 319.0	62424		
PFDS	9.157	599.0 -> 79.9	60440	23.50 µg/L	95

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	30149			
PFHpA	6.506	363.1 -> 319.0	572348	26.16	µg/L	99
		363.1 -> 169.0	80982			
PFHpS	7.793	449.0 -> 79.9	108915	24.09	µg/L	90
		449.0 -> 98.9	49312			
PFHxA	5.555	313.0 -> 269.0	378611	25.75	µg/L	99
		313.0 -> 118.9	18690			
PFHxS	7.240	398.7 -> 79.9	101679	23.77	µg/L	m 86
		398.7 -> 98.9	47658			
PFNA	7.655	463.0 -> 419.0	353381	25.37	µg/L	97
		463.0 -> 219.0	80233			
PFNS	8.738	548.8 -> 79.9	87175	23.43	µg/L	97
		548.8 -> 98.9	45345			
PFOA	7.138	413.0 -> 369.0	591157	24.41	µg/L	99
		413.0 -> 169.0	102547			
PFOS	8.286	498.9 -> 79.9	103565	22.85	µg/L	m 84
		498.9 -> 98.8	53803			
PFPeA	4.349	263.0 -> 219.0	492749	51.58	µg/L	100
PFPeS	6.545	349.1 -> 79.9	133564	24.03	µg/L	95
		349.1 -> 98.9	61166			
PFTeDA	9.721	713.1 -> 669.0	316888	25.48	µg/L	99
		713.1 -> 168.9	22733			
PFTrDA	9.389	663.0 -> 619.0	428324	27.00	µg/L	96
		663.0 -> 168.9	30251			
PFUnDA	8.576	563.1 -> 519.0	449498	26.67	µg/L	99
		563.1 -> 269.1	65279			
11CI-PF3OUdS	9.429	630.9 -> 450.9	409115	49.43	µg/L	99
		632.9 -> 452.9	130012			
9CI-PF3ONS	8.615	530.8 -> 351.0	693963	47.44	µg/L	99
		532.8 -> 353.0	218614			
ADONA	6.755	376.9 -> 250.9	1889416	48.04	µg/L	97
		376.9 -> 84.8	518160			
HFPO-DA	5.931	284.9 -> 168.9	154604	51.27	µg/L	97
		284.9 -> 184.9	17728			
3:3FTCA	3.777	241.0 -> 177.0	86231	129.99	µg/L	100
		241.0 -> 117.0	11793			
5:3FTCA	6.210	341.0 -> 237.1	1717225	634.90	µg/L	98
		341.0 -> 217.0	1247246			
7:3FTCA	7.620	441.0 -> 316.9	1150743	654.33	µg/L	100
		441.0 -> 336.9	2279510			
EtFOSA	10.966	526.0 -> 219.0	146891	51.39	µg/L	98
		526.0 -> 169.0	189185			
EtFOSE	10.913	630.0 -> 58.9	387569	136.62	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	133522	49.54	µg/L	99
		511.9 -> 169.0	187622			
MeFOSE	10.678	616.1 -> 58.9	323216	126.89	µg/L	100
PFDoDS	9.835	699.1 -> 79.9	34225	25.21	µg/L	99
		699.1 -> 98.8	17687			
NFDHA	5.447	295.0 -> 201.0	97216	53.35	µg/L	99
		295.0 -> 84.9	26135			
PFMBA	4.775	279.0 -> 85.1	380397	51.76	µg/L	100
PFMPA	3.488	229.0 -> 84.9	313418	52.18	µg/L	100
PFEESA	6.024	314.8 -> 134.9	897995	47.12	µg/L	100
		314.8 -> 82.9	30855			

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



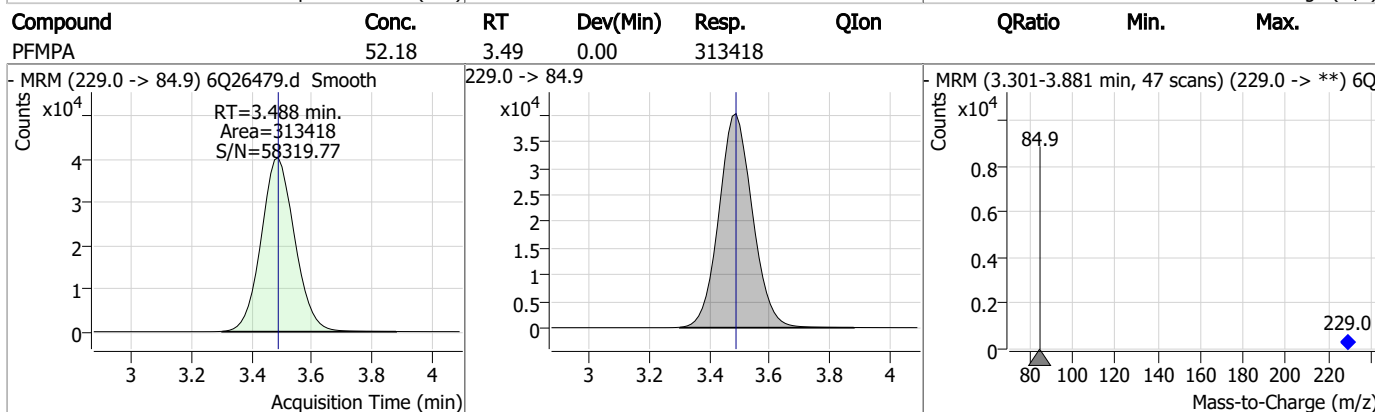
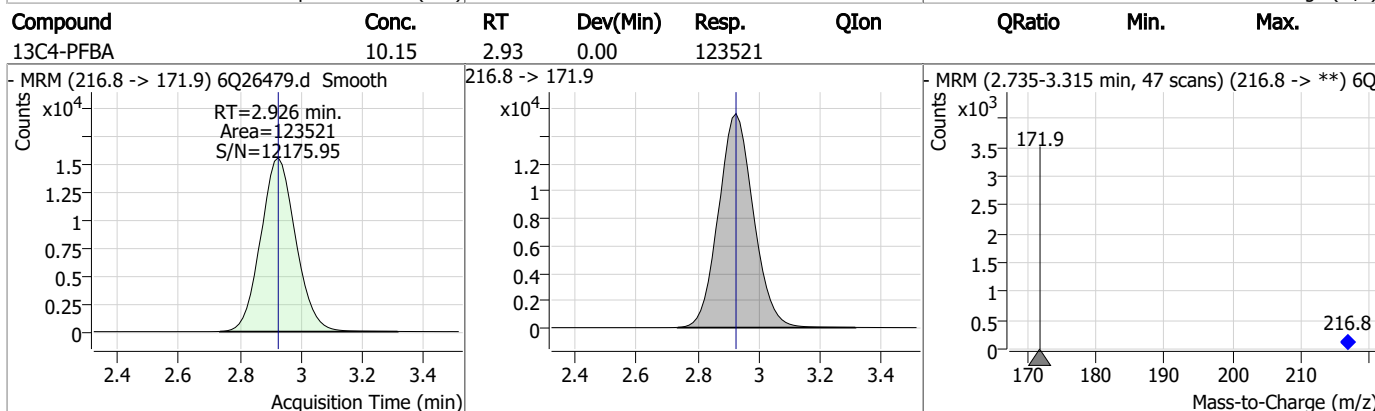
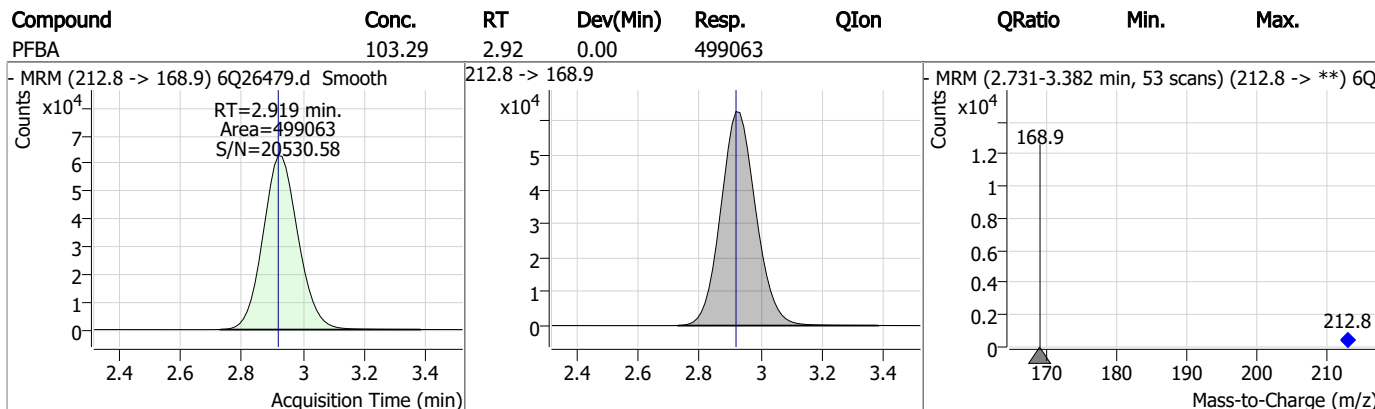
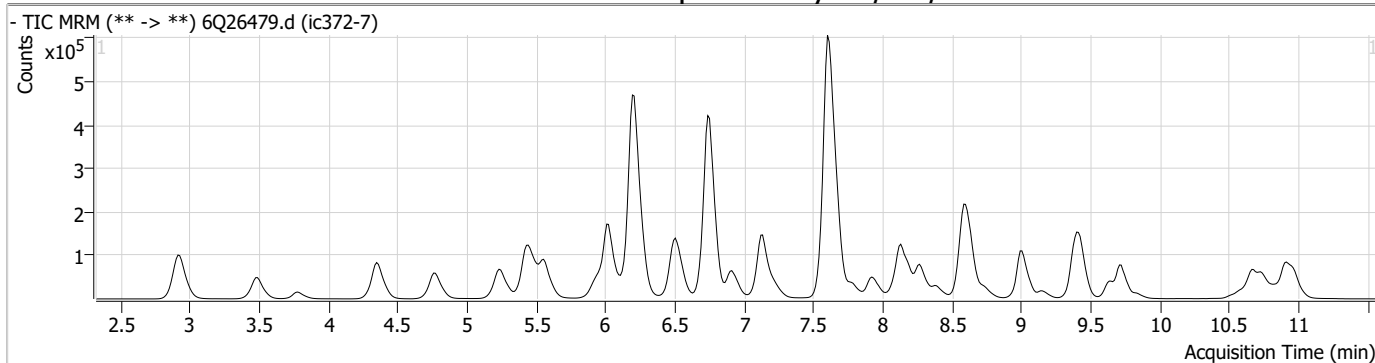
### Perfluorinated Compounds by LC/MS/MS

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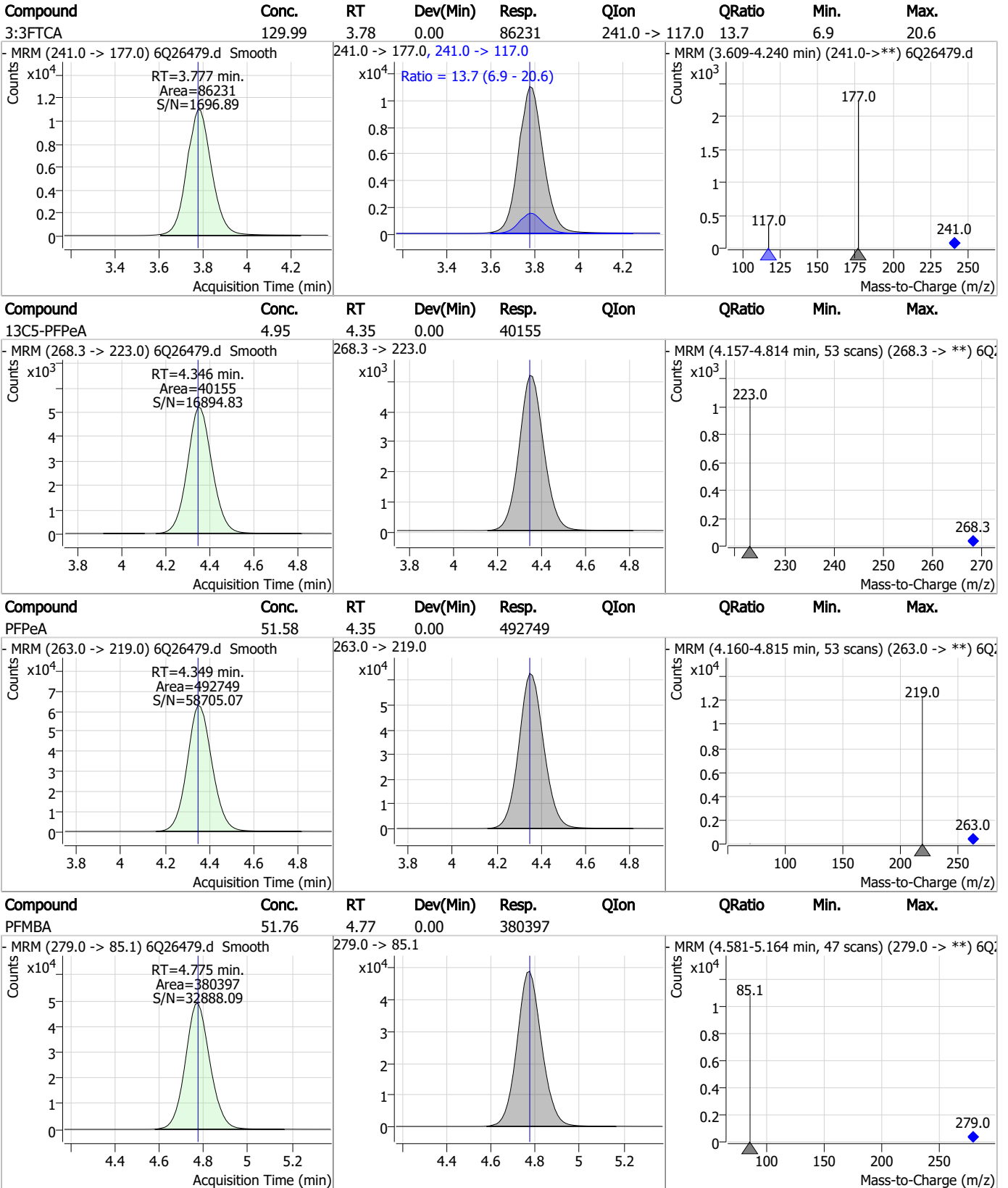
7.7.8  
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### Perfluorinated Compounds by LC/MS/MS



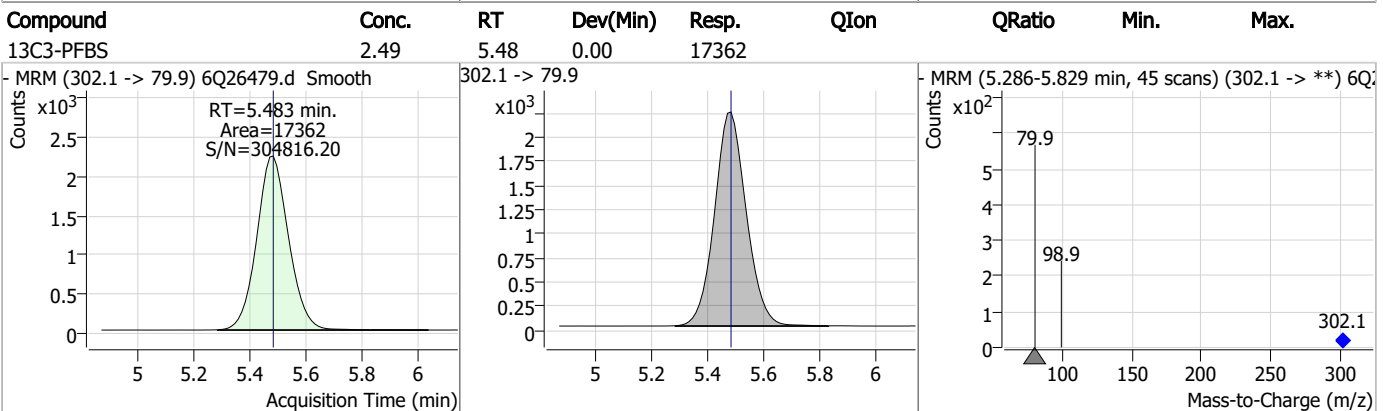
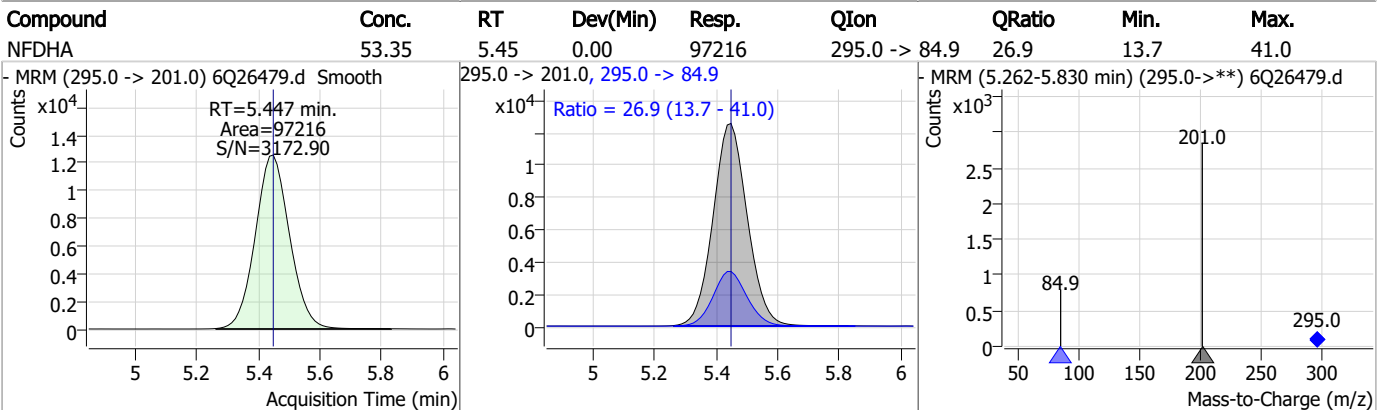
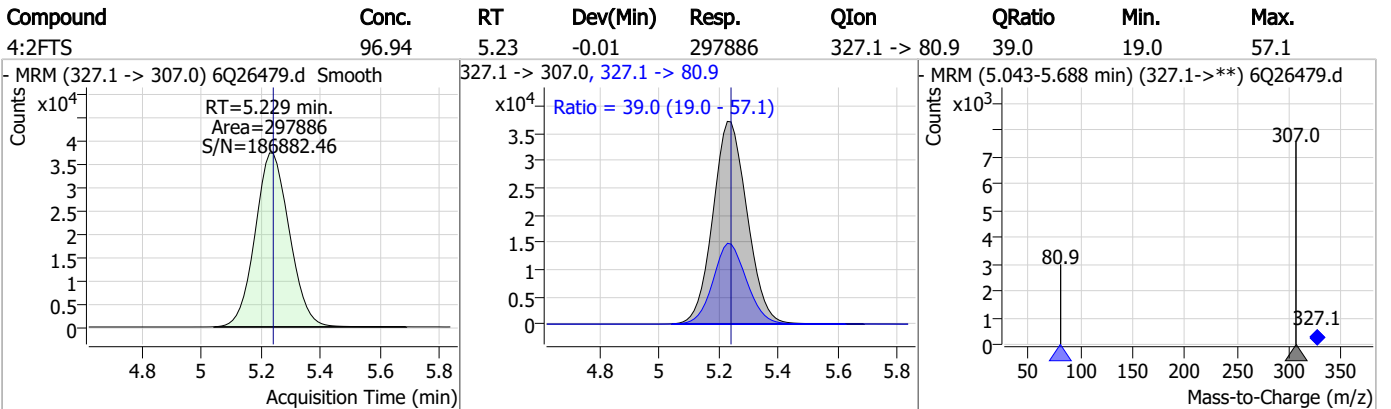
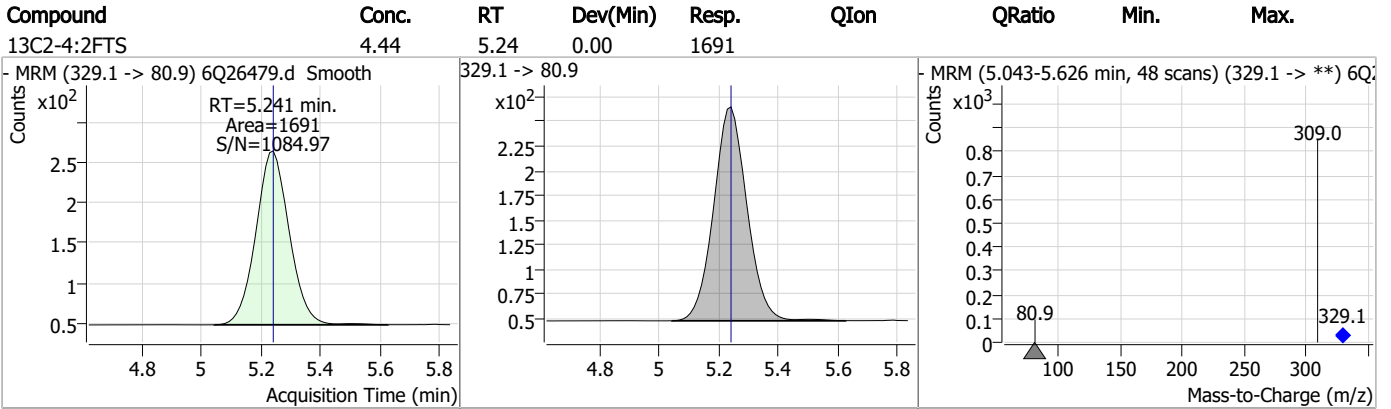
### Perfluorinated Compounds by LC/MS/MS



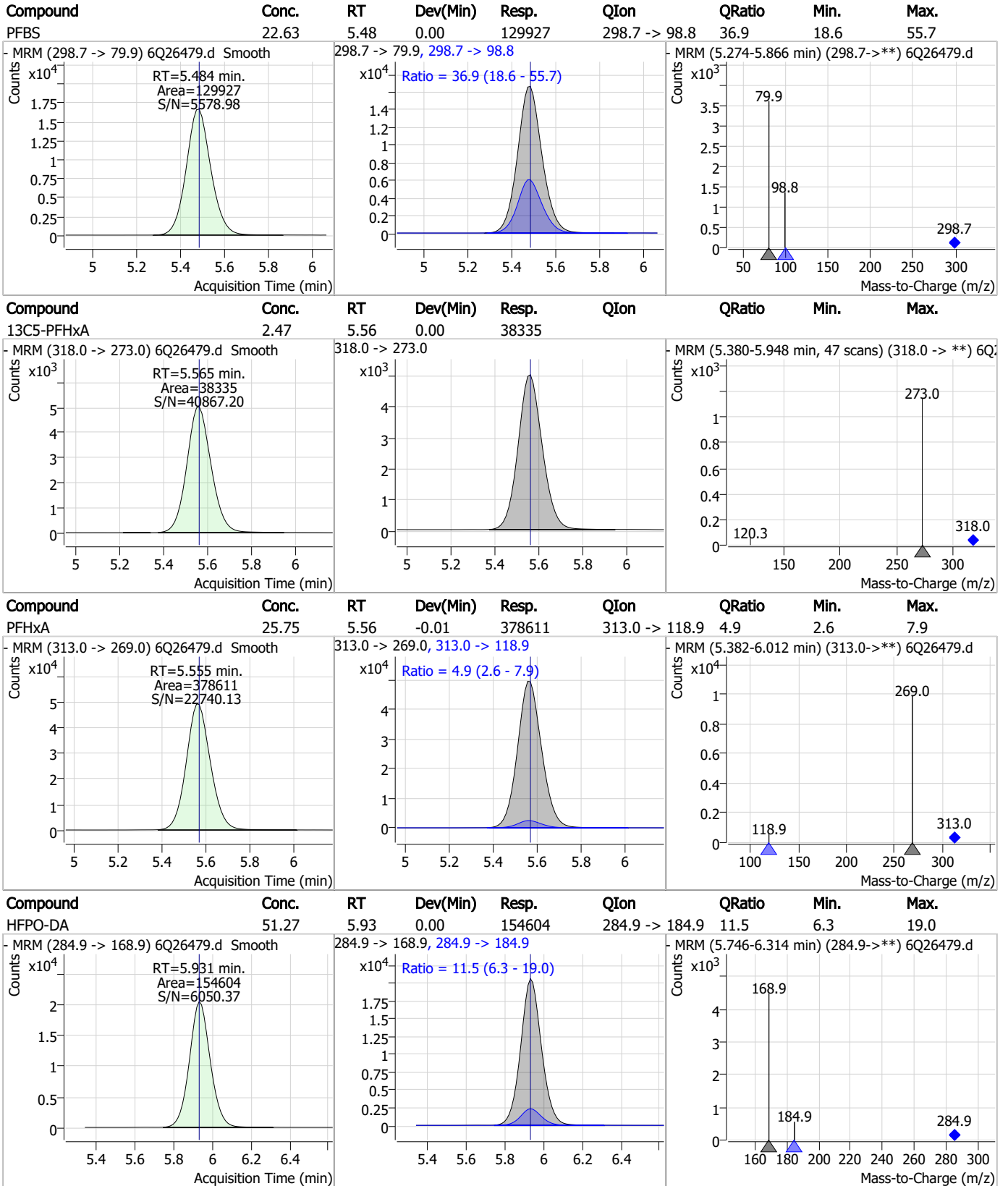
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### Perfluorinated Compounds by LC/MS/MS



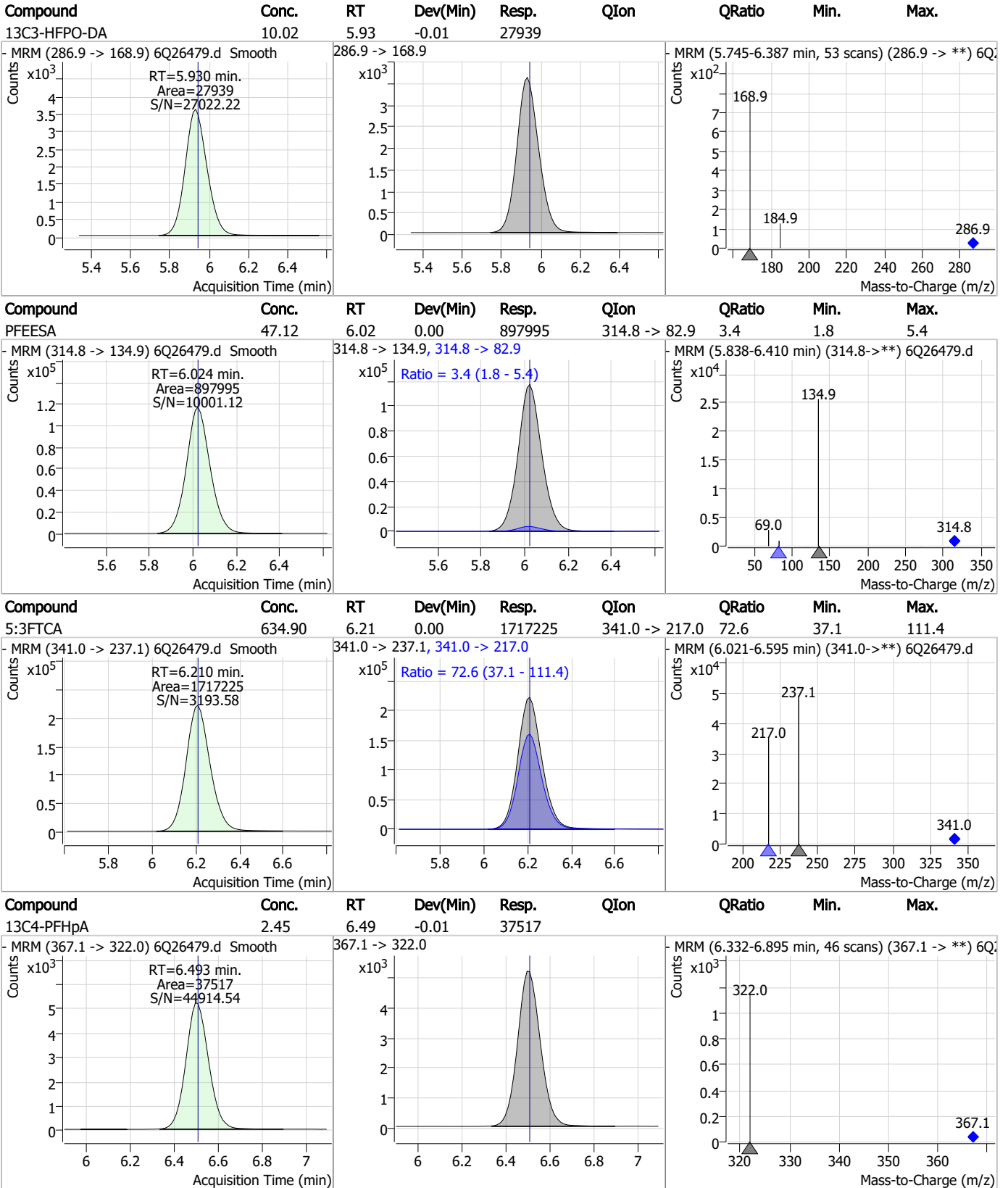
### Perfluorinated Compounds by LC/MS/MS



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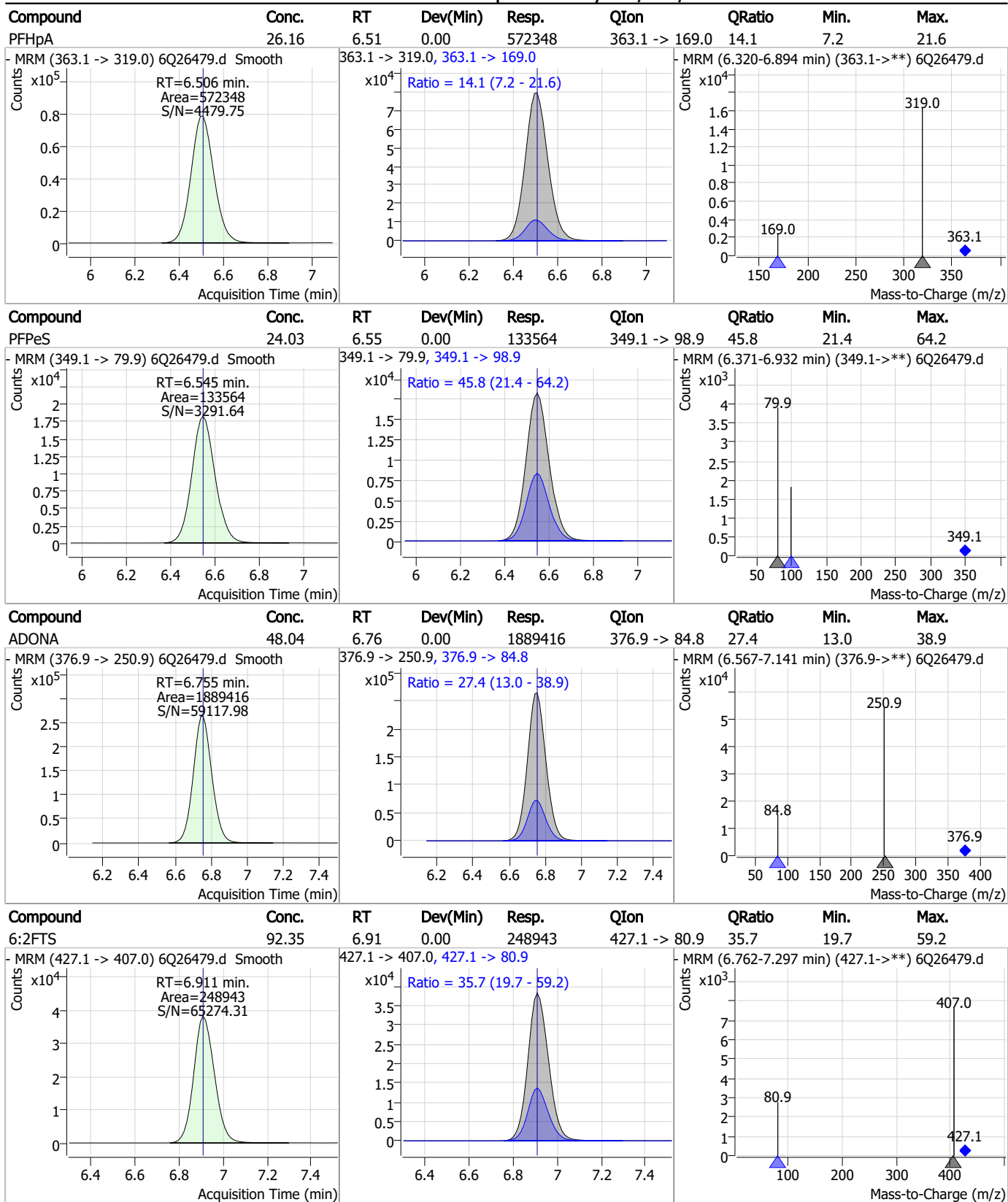
### Perfluorinated Compounds by LC/MS/MS



7.7.8

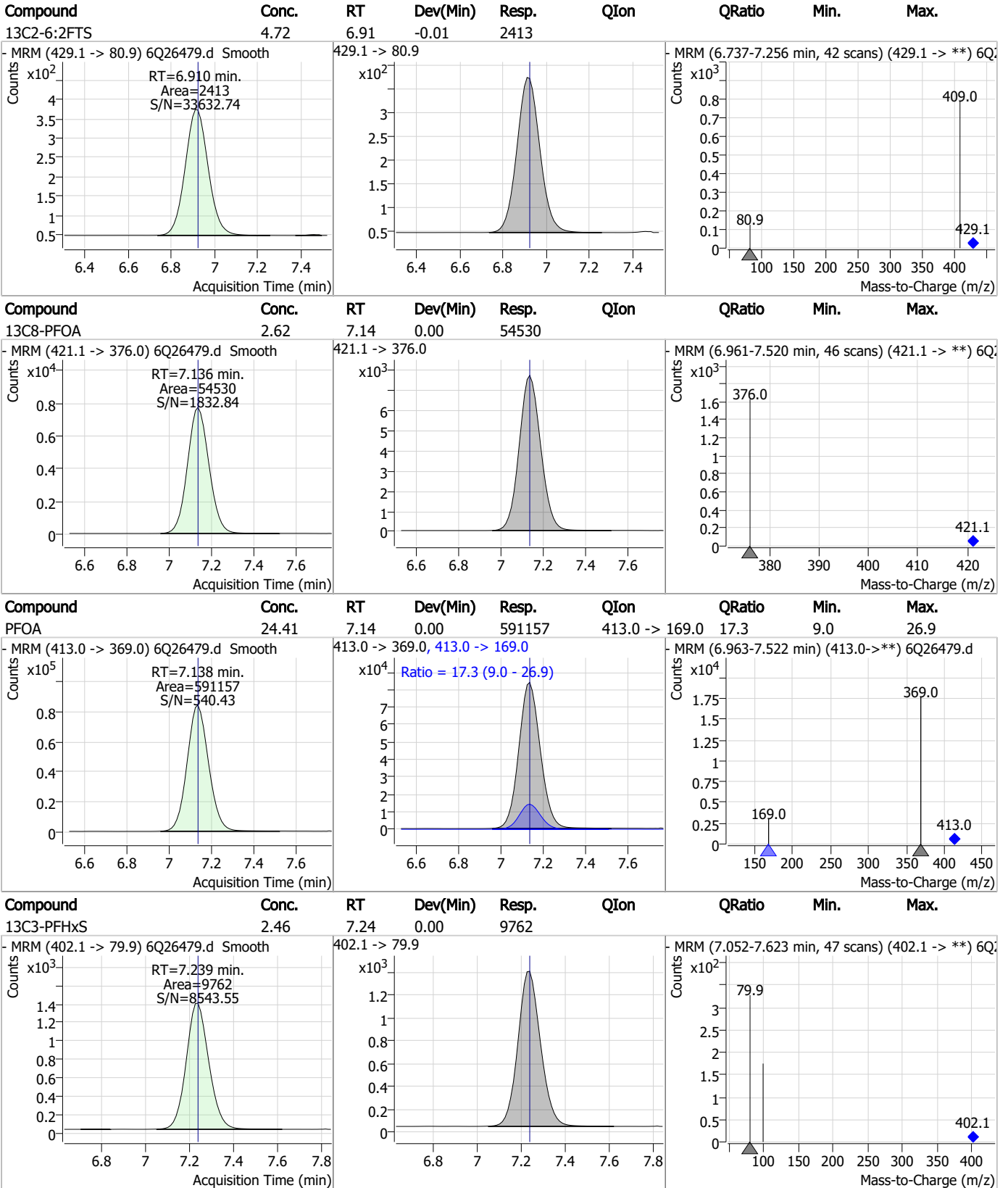
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

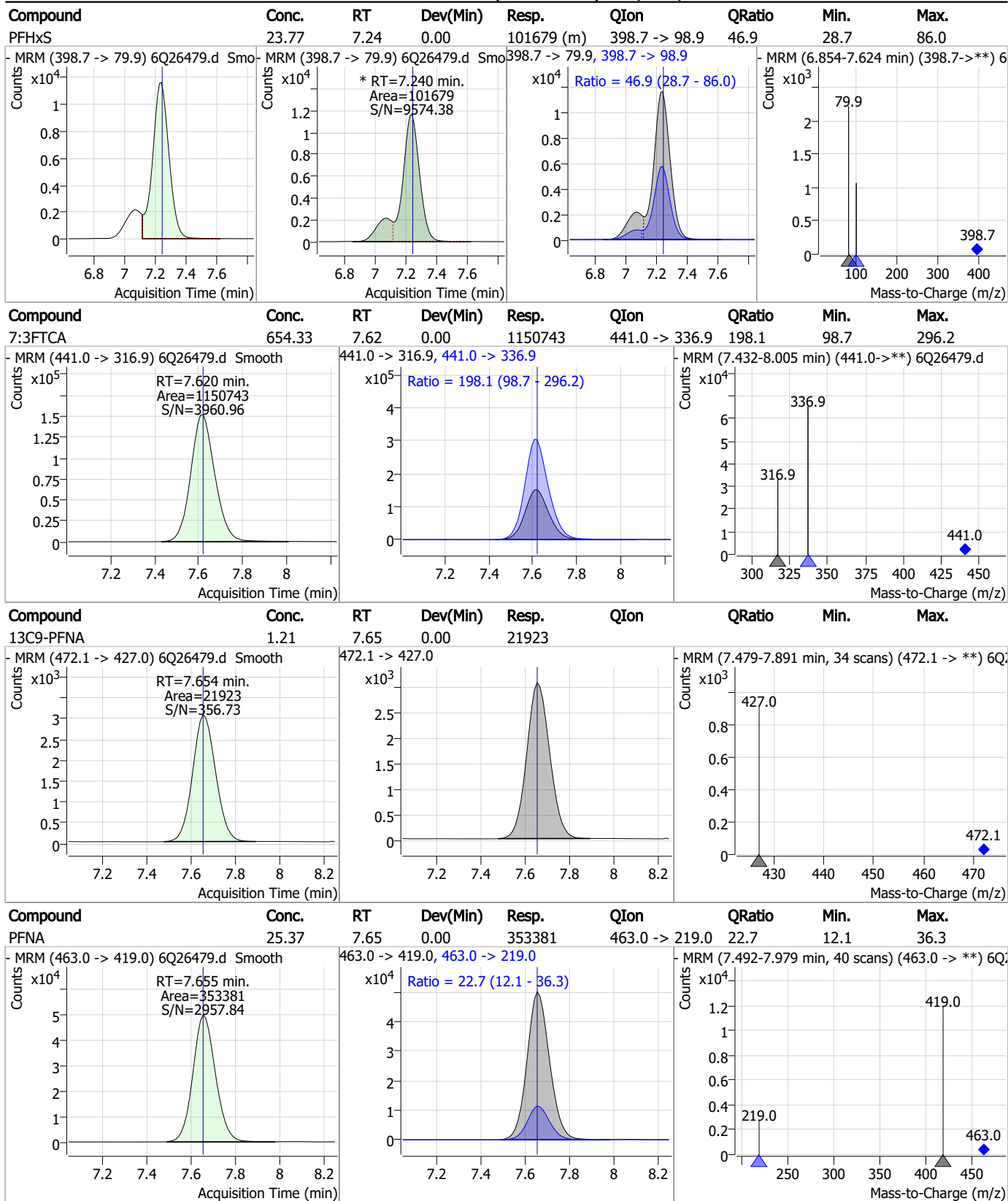


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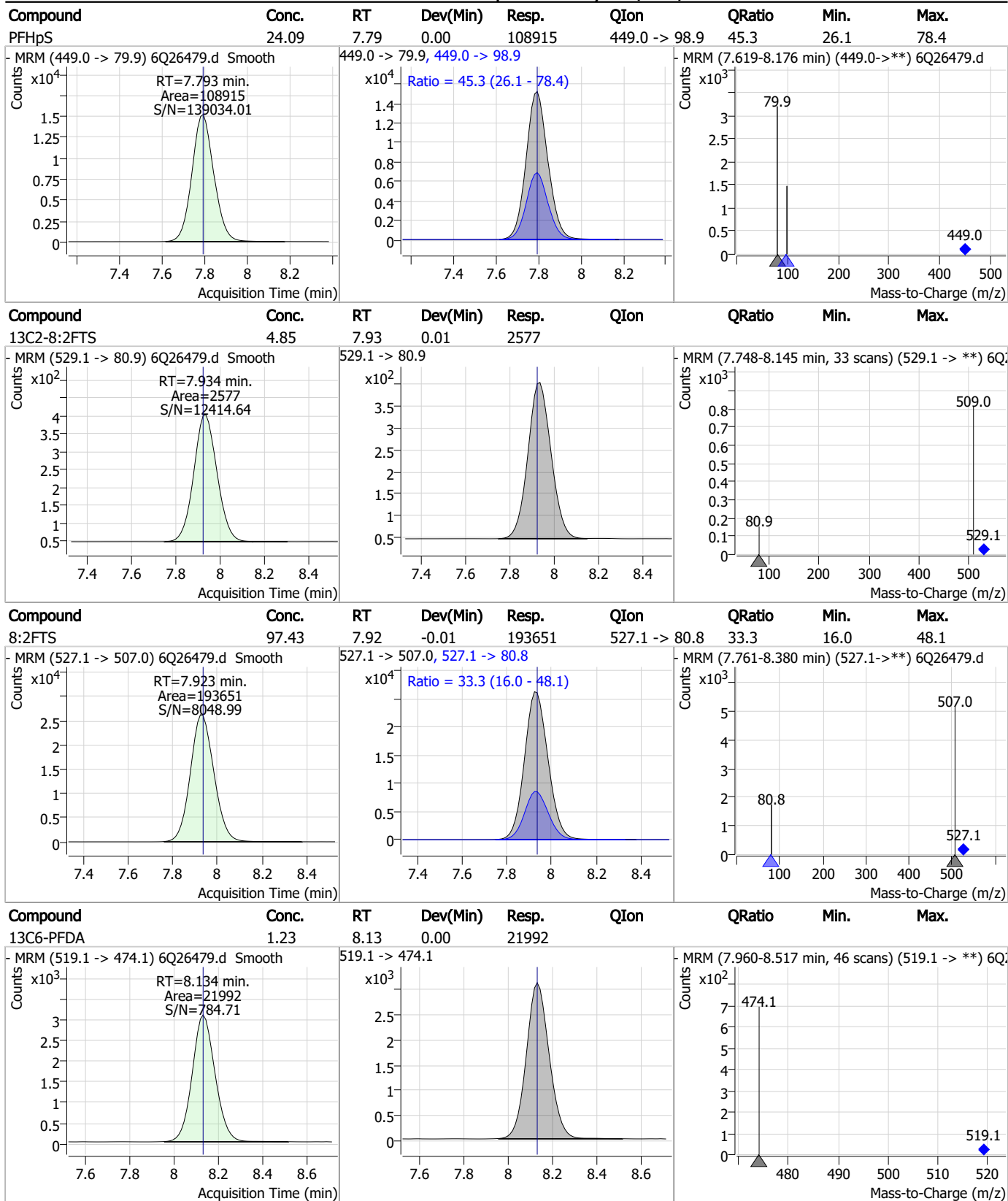


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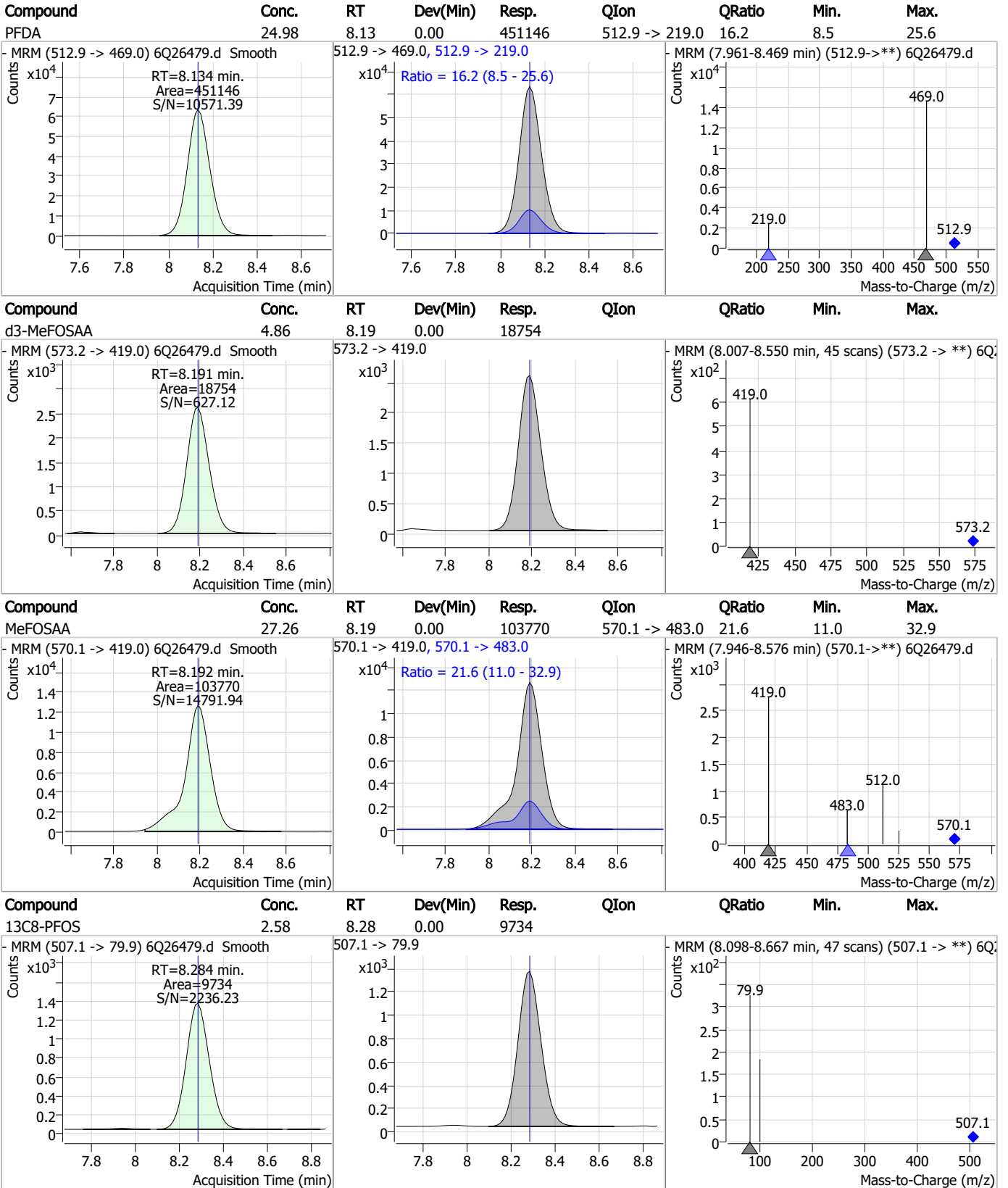
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### Perfluorinated Compounds by LC/MS/MS



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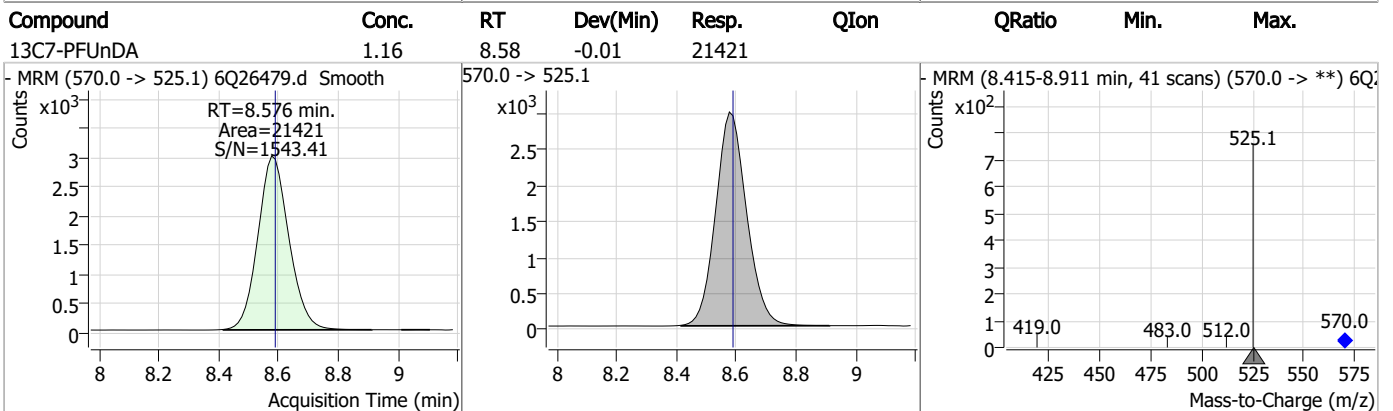
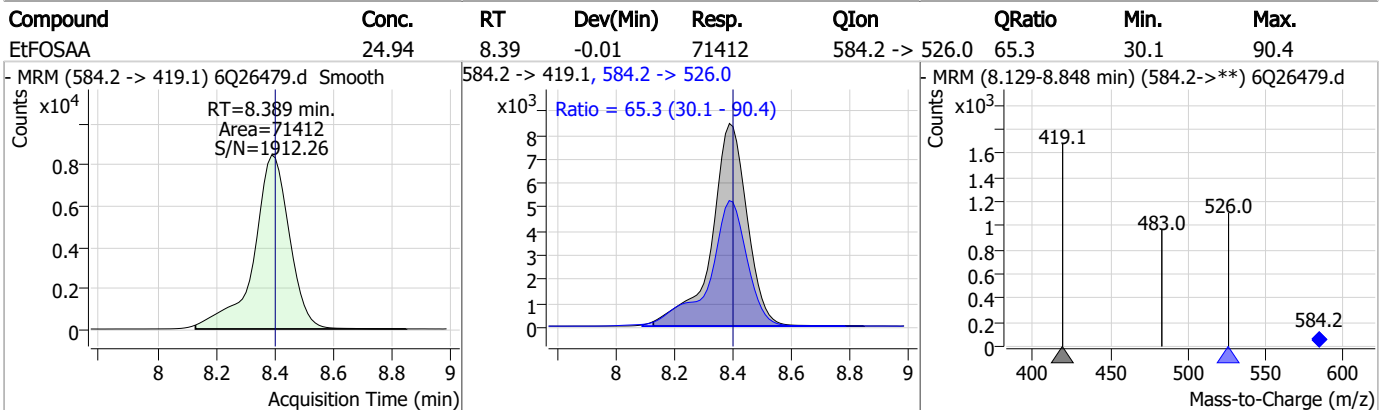
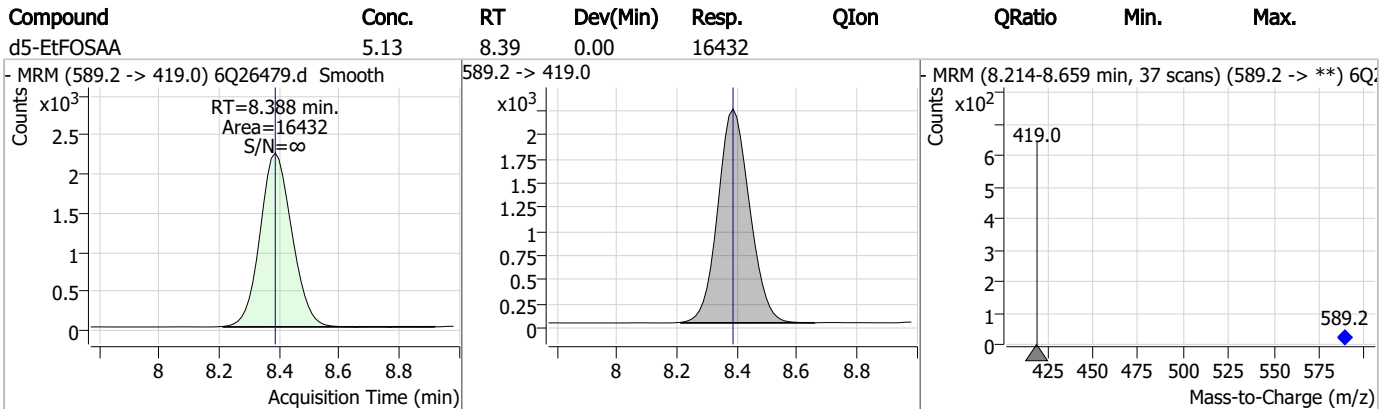
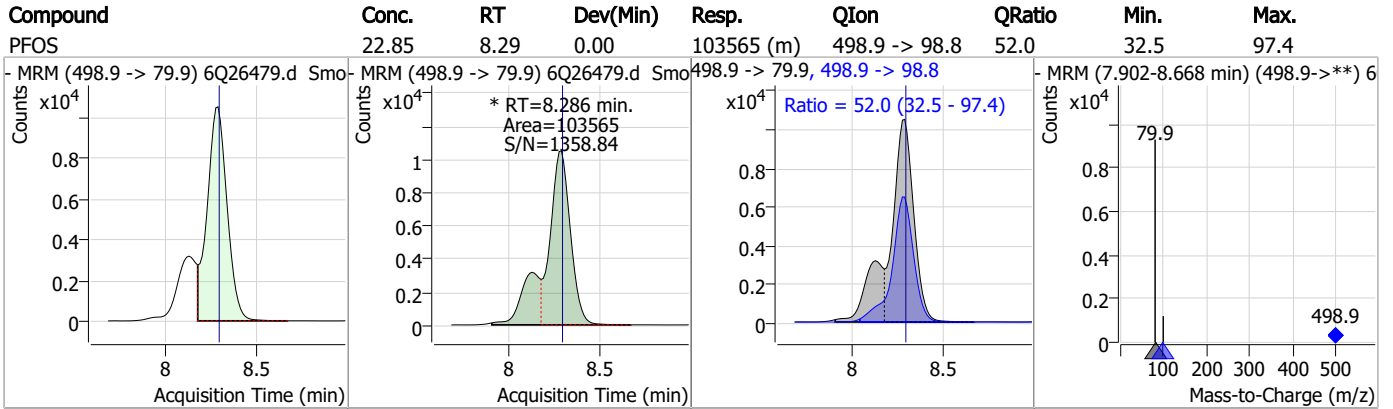
### Perfluorinated Compounds by LC/MS/MS



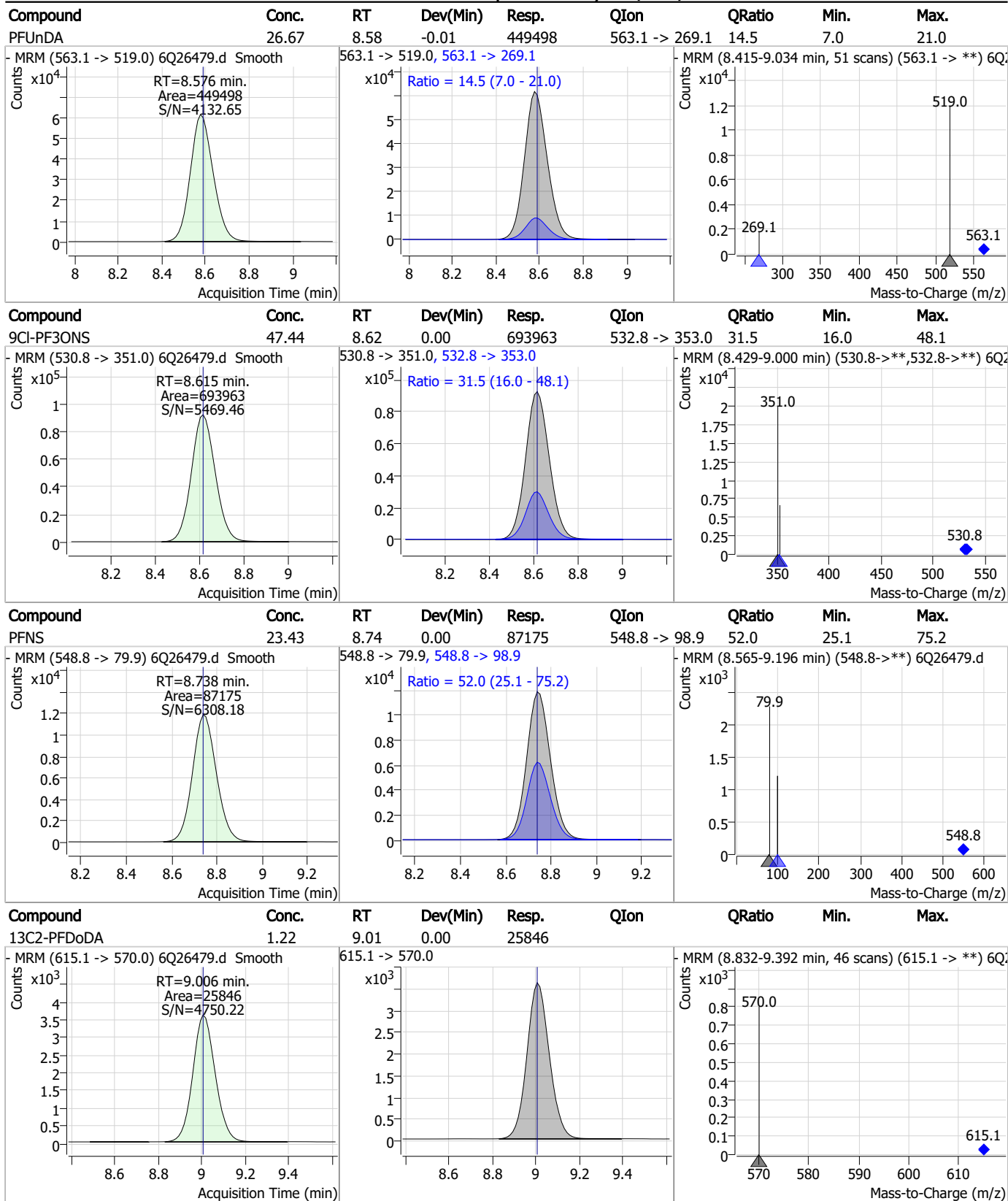
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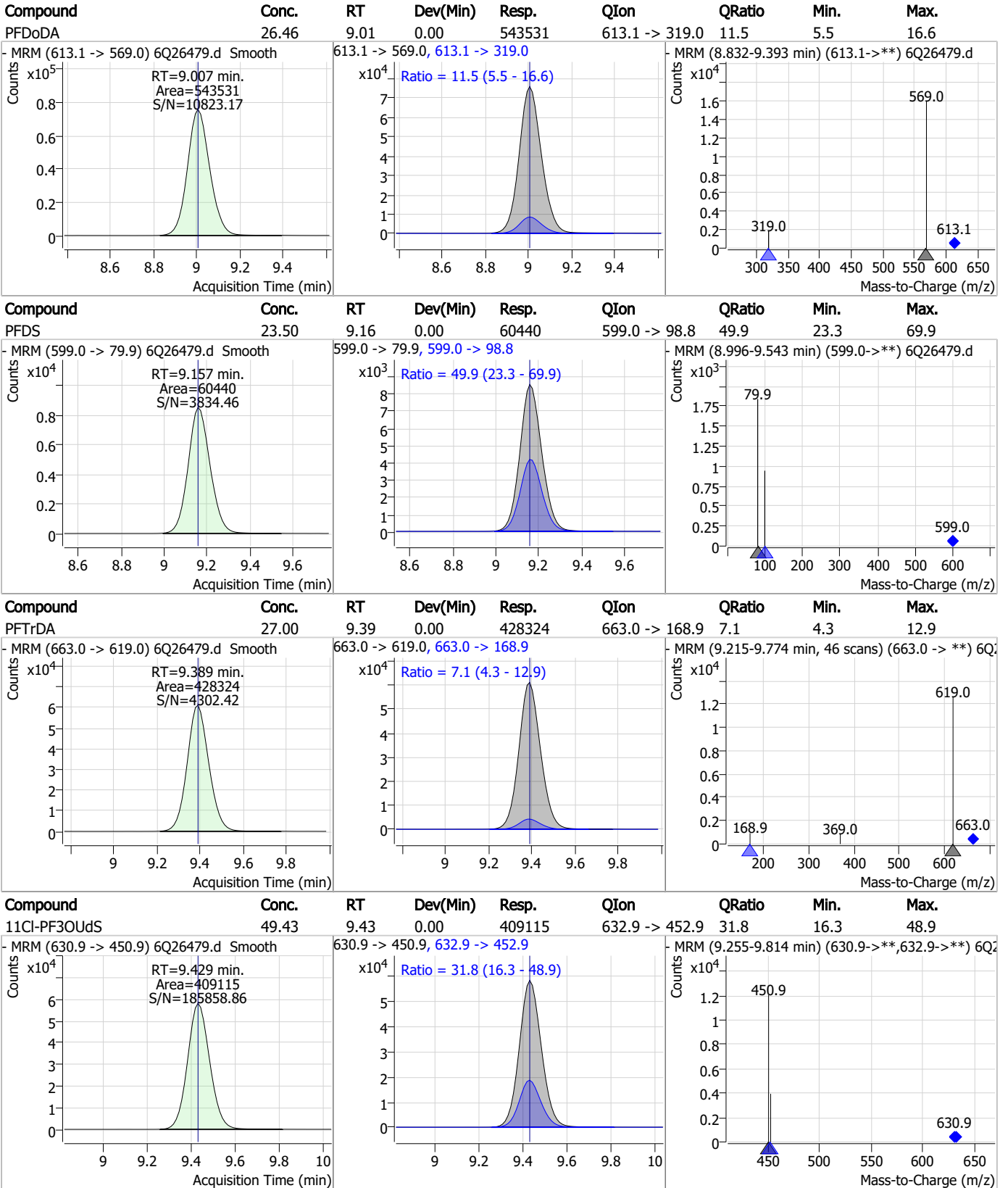


### Perfluorinated Compounds by LC/MS/MS



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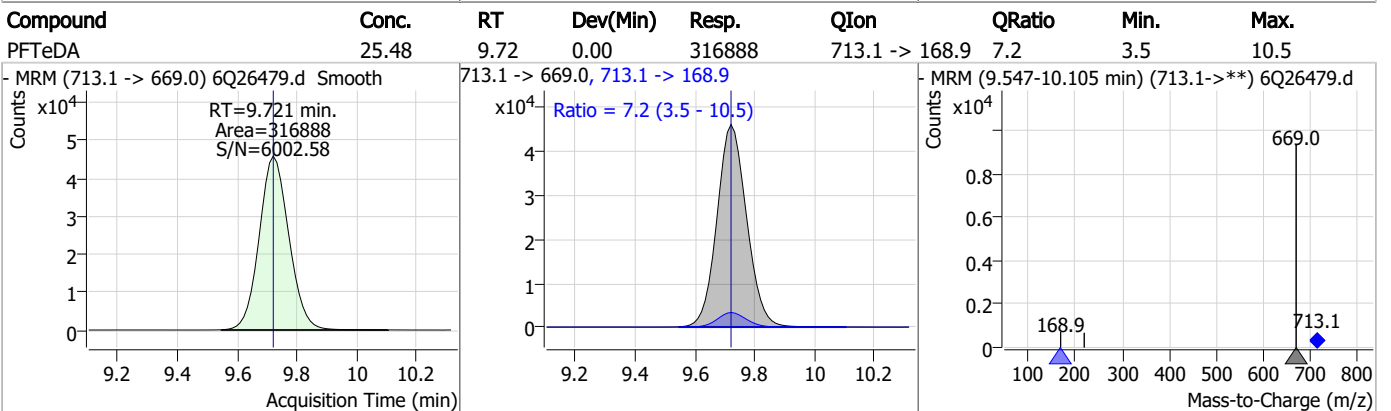
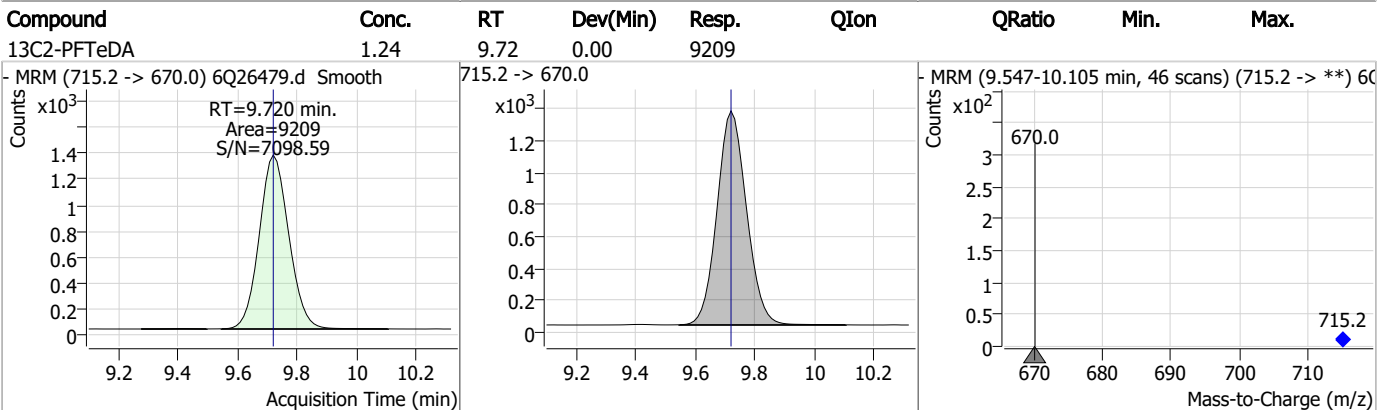
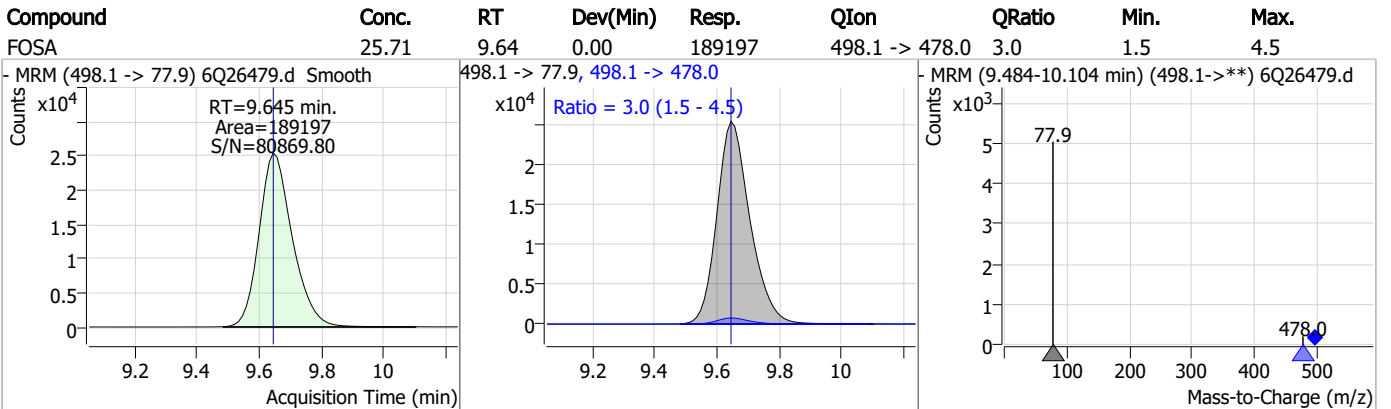
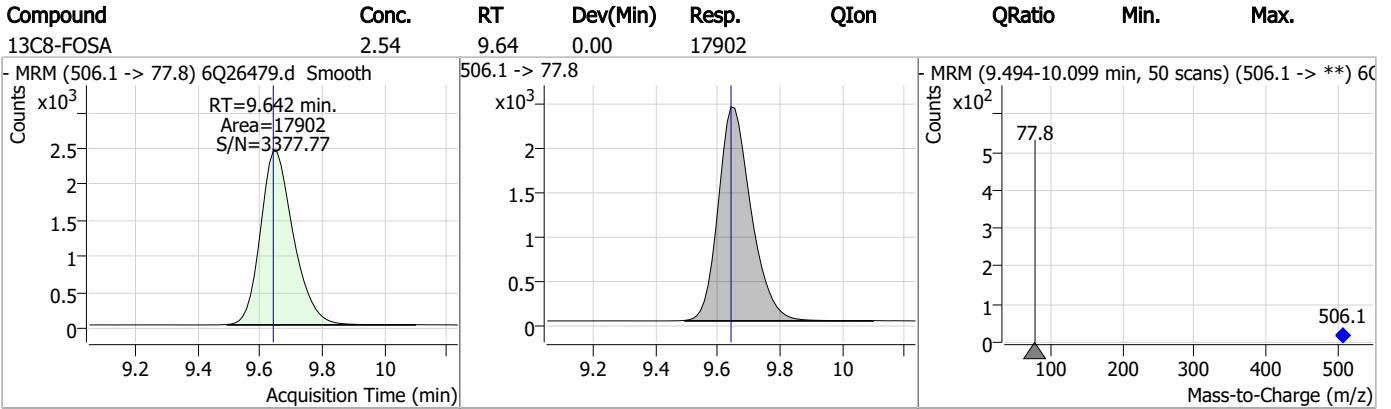
### Perfluorinated Compounds by LC/MS/MS



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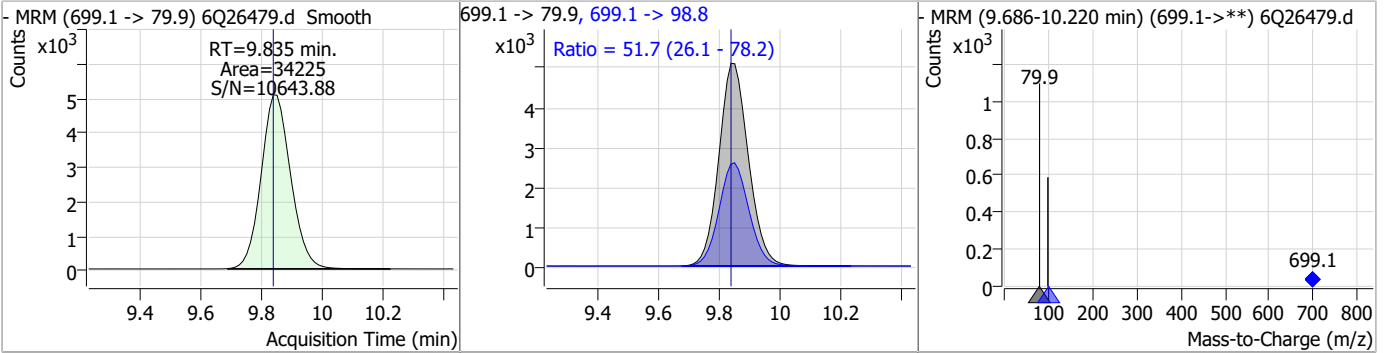
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### Perfluorinated Compounds by LC/MS/MS

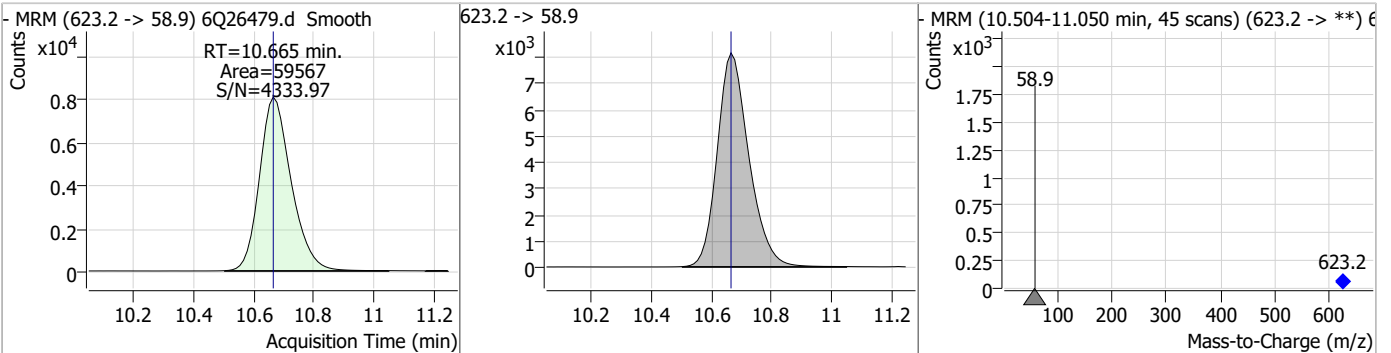


### Perfluorinated Compounds by LC/MS/MS

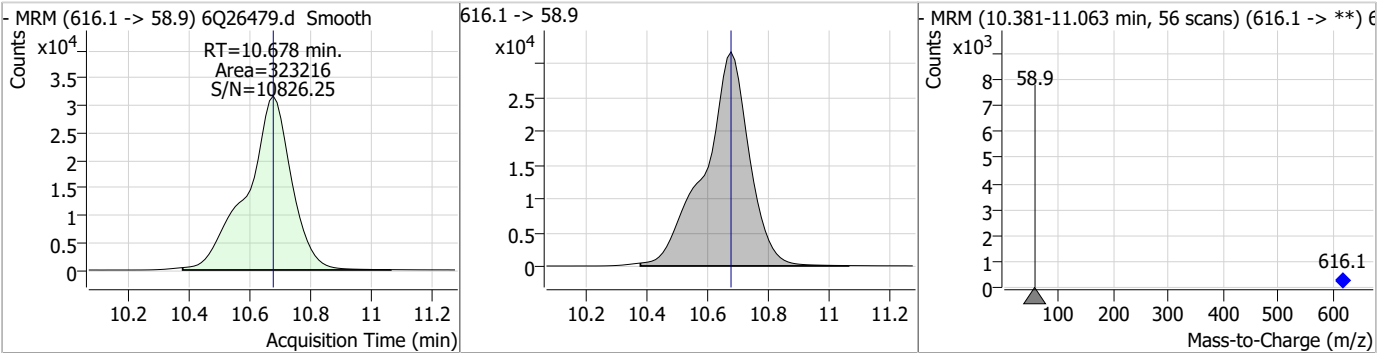
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	25.21	9.84	0.00	34225	699.1 -> 98.8	51.7	26.1	78.2



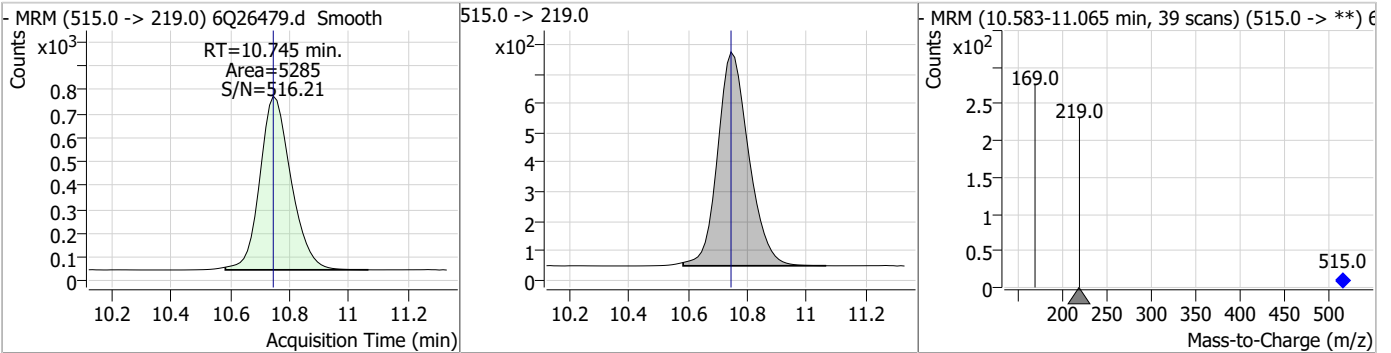
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.47	10.67	0.00	59567				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	126.89	10.68	0.00	323216				



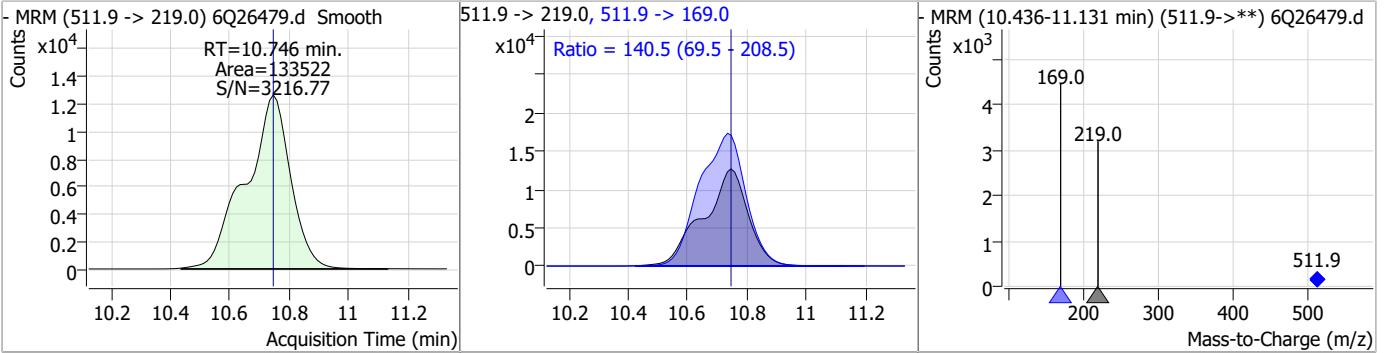
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.58	10.74	0.00	5285				



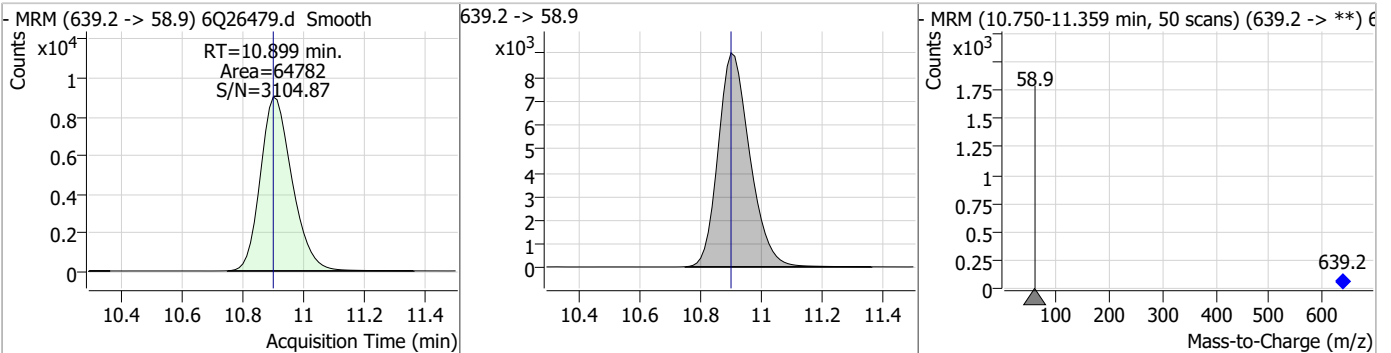


### Perfluorinated Compounds by LC/MS/MS

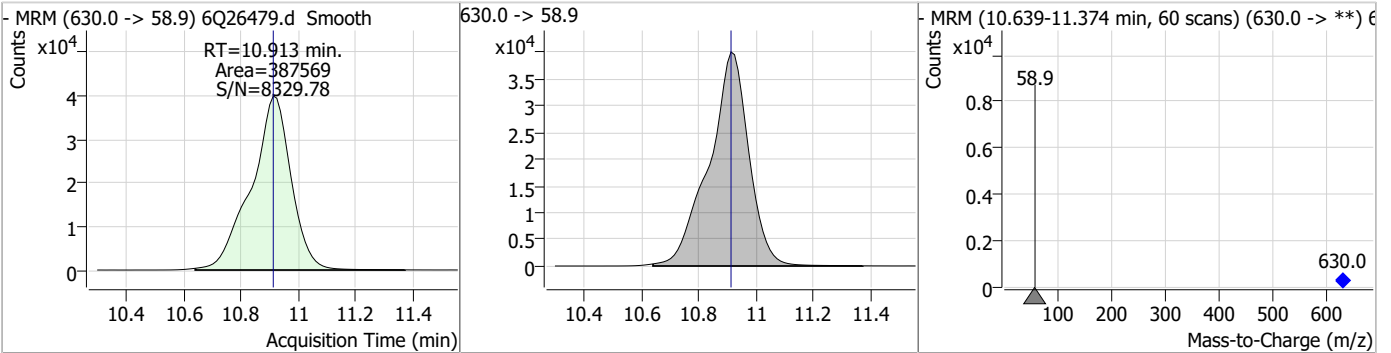
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	49.54	10.75	0.00	133522	511.9 -> 169.0	140.5	69.5	208.5



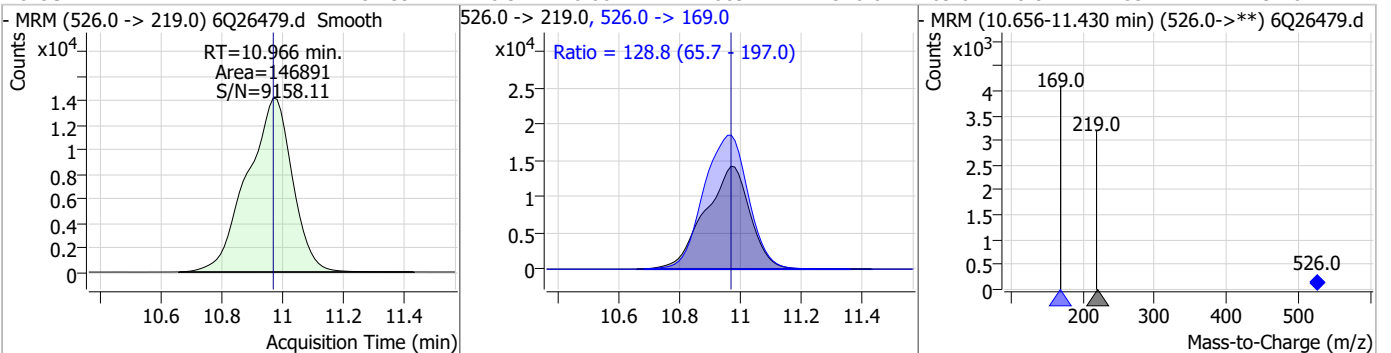
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.01	10.90	0.00	64782				



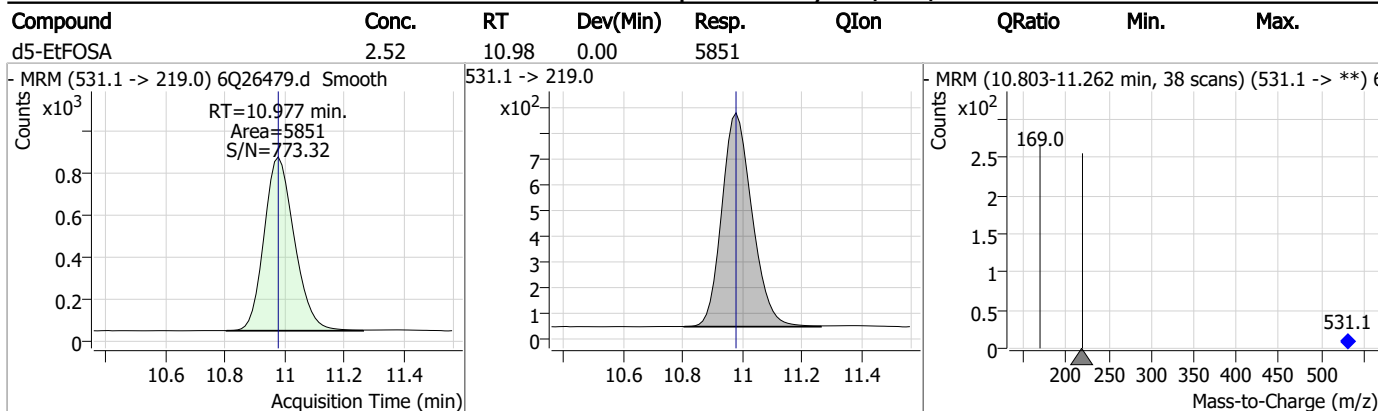
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	136.62	10.91	0.00	387569				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	51.39	10.97	0.00	146891	526.0 -> 169.0	128.8	65.7	197.0



### Perfluorinated Compounds by LC/MS/MS



7.7.8  
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# Manual Integration Approval Summary

Sample Number: S6Q372-IC372                      Method: EPA DRAFT 1633  
Lab FileID: 6Q26479.D                              Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 18:51                      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26480.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 7:06:12 PM  
 Sample Name : ic372-8  
 Vial : P1-A9  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	114182	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	38603	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	38104	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	36370	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	50291	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	19519	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	21119	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	20342	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	26111	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9100	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	17664	2.50 µg/L	0.000
M3-PFBS	5.483	302.1 -> 79.9	15933	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	9525	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9060	2.50 µg/L	0.000
M2-4:2FTS	5.241	329.1 -> 80.9	1554	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2152	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	2736	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	17805	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	28645	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	15870	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	57591	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	66563	25.00 µg/L	0.000
M5-EtFOSA	10.965	531.1 -> 219.0	5835	2.50 µg/L	-0.012
M3-MeFOSA	10.745	515.0 -> 219.0	5726	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8502	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	46006	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6163	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	56875	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	20538	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	20063	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	38534	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	1554	4.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.0%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2152	4.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.5%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2736	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	9.006	615.1 -> 570.0	26111	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9100	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFBS	5.483	302.1 -> 79.9	15933	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C3-PFHxS	7.239	402.1 -> 79.9	9525	2.38 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 = 95.3%	
13C4-PFBA	2.926	216.8 -> 171.9	114182	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.505	367.1 -> 322.0	36370	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFHxA	5.565	318.0 -> 273.0	38104	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.346	268.3 -> 223.0	38603	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C6-PFDA	8.134	519.1 -> 474.1	21119	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C7-PFUnDA	8.576	570.0 -> 525.1	20342	1.11 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.9%	
13C8-FOSA	9.642	506.1 -> 77.8	17664	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-PFOA	7.136	421.1 -> 376.0	50291	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.284	507.1 -> 79.9	9060	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C9-PFNA	7.654	472.1 -> 427.0	19519	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.9%	
d3-MeFOSAA	8.191	573.2 -> 419.0	17805	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	28645	10.53 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d3-MeFOSA	10.745	515.0 -> 219.0	5726	2.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.7%	
d5-EtFOSAA	8.388	589.2 -> 419.0	15870	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d7-MeFOSE	10.665	623.2 -> 58.9	57591	25.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d9-EtFOSE	10.899	639.2 -> 58.9	66563	25.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d5-EtFOSA	10.965	531.1 -> 219.0	5835	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	632304	223.89 µg/L	99
		327.1 -> 80.9	237869		
6:2FTS	6.911	427.1 -> 407.0	502407	208.94 µg/L	98
		427.1 -> 80.9	192596		
8:2FTS	7.923	527.1 -> 507.0	389968	184.79 µg/L	94
		527.1 -> 80.8	138870		
EtFOSAA	8.389	584.2 -> 419.1	173875	62.88 µg/L	93
		584.2 -> 526.0	113695		
FOSA	9.645	498.1 -> 77.9	457176	62.97 µg/L	100
		498.1 -> 478.0	13555		
MeFOSAA	8.192	570.1 -> 419.0	233864	64.72 µg/L	99
		570.1 -> 483.0	53031		
PFBA	2.932	212.8 -> 168.9	1118189	250.37 µg/L	100
PFBS	5.484	298.7 -> 79.9	296395	56.26 µg/L	100
		298.7 -> 98.8	110948		
PFDA	8.134	512.9 -> 469.0	1123178	64.77 µg/L	98
		512.9 -> 219.0	182603		
PFDoDA	9.007	613.1 -> 569.0	1312891	63.26 µg/L	99
		613.1 -> 319.0	149406		
PFDS	9.157	599.0 -> 79.9	143459	59.93 µg/L	95

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	71743			
PFHpA	6.506	363.1 -> 319.0	1360207	64.12	µg/L	98
		363.1 -> 169.0	186086			
PFHpS	7.793	449.0 -> 79.9	242566	57.65	µg/L	95
		449.0 -> 98.9	118665			
PFHxA	5.568	313.0 -> 269.0	930040	63.65	µg/L	98
		313.0 -> 118.9	43133			
PFHxS	7.240	398.7 -> 79.9	234697	56.24	µg/L	m 89
		398.7 -> 98.9	115166			
PFNA	7.655	463.0 -> 419.0	862385	69.54	µg/L	98
		463.0 -> 219.0	201545			
PFNS	8.738	548.8 -> 79.9	210047	60.66	µg/L	98
		548.8 -> 98.9	107567			
PFOA	7.138	413.0 -> 369.0	1339034	59.96	µg/L	99
		413.0 -> 169.0	235996			
PFOS	8.286	498.9 -> 79.9	245788	58.26	µg/L	m 81
		498.9 -> 98.8	122952			
PFPeA	4.349	263.0 -> 219.0	1164188	126.77	µg/L	100
PFPeS	6.545	349.1 -> 79.9	330259	60.90	µg/L	98
		349.1 -> 98.9	137081			
PFTeDA	9.721	713.1 -> 669.0	736316	59.91	µg/L	100
		713.1 -> 168.9	52108			
PFTrDA	9.389	663.0 -> 619.0	941064	58.73	µg/L	98
		663.0 -> 168.9	72613			
PFUnDA	8.576	563.1 -> 519.0	1036054	64.73	µg/L	98
		563.1 -> 269.1	153119			
11CI-PF3OUdS	9.429	630.9 -> 450.9	893022	105.24	µg/L	100
		632.9 -> 452.9	289525			
9CI-PF3ONS	8.615	530.8 -> 351.0	1577709	105.19	µg/L	98
		532.8 -> 353.0	491555			
ADONA	6.755	376.9 -> 250.9	4584625	113.69	µg/L	99
		376.9 -> 84.8	1209810			
HFPO-DA	5.931	284.9 -> 168.9	365162	118.12	µg/L	98
		284.9 -> 184.9	42909			
3:3FTCA	3.789	241.0 -> 177.0	210402	343.12	µg/L	99
		241.0 -> 117.0	28205			
5:3FTCA	6.210	341.0 -> 237.1	4115422	1530.79	µg/L	100
		341.0 -> 217.0	3052987			
7:3FTCA	7.607	441.0 -> 316.9	2690093	1538.88	µg/L	98
		441.0 -> 336.9	5246042			
EtFOSA	10.966	526.0 -> 219.0	356859	125.20	µg/L	96
		526.0 -> 169.0	453542			
EtFOSE	10.913	630.0 -> 58.9	935326	320.87	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	327542	112.16	µg/L	96
		511.9 -> 169.0	470384			
MeFOSE	10.678	616.1 -> 58.9	795929	323.20	µg/L	100
PFDoS	9.835	699.1 -> 79.9	78098	61.80	µg/L	99
		699.1 -> 98.8	41512			
NFDHA	5.447	295.0 -> 201.0	213106	117.66	µg/L	99
		295.0 -> 84.9	59200			
PFMBA	4.775	279.0 -> 85.1	880595	124.63	µg/L	100
PFMPA	3.488	229.0 -> 84.9	739823	128.13	µg/L	100
PFEESA	6.024	314.8 -> 134.9	2108103	111.29	µg/L	99
		314.8 -> 82.9	70430			

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



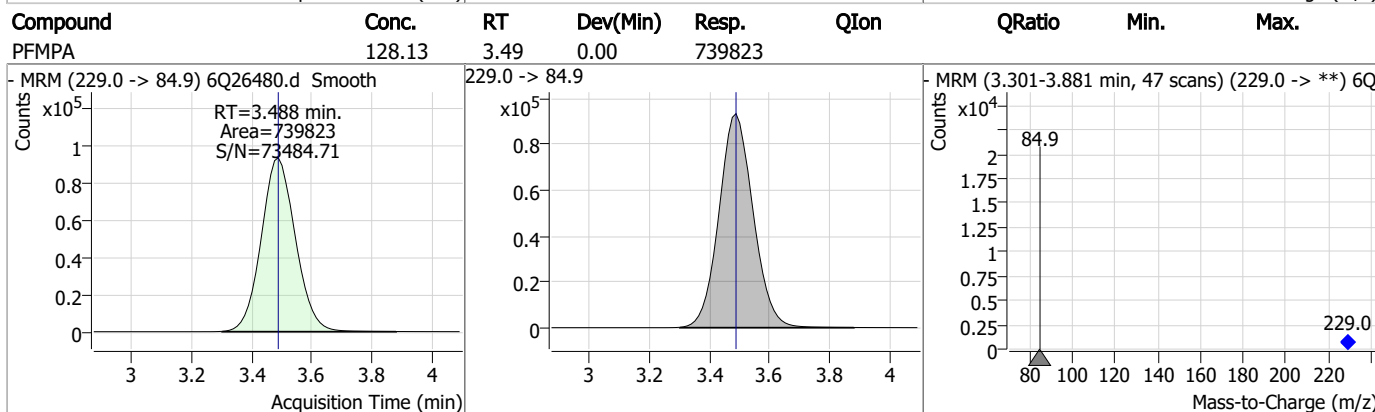
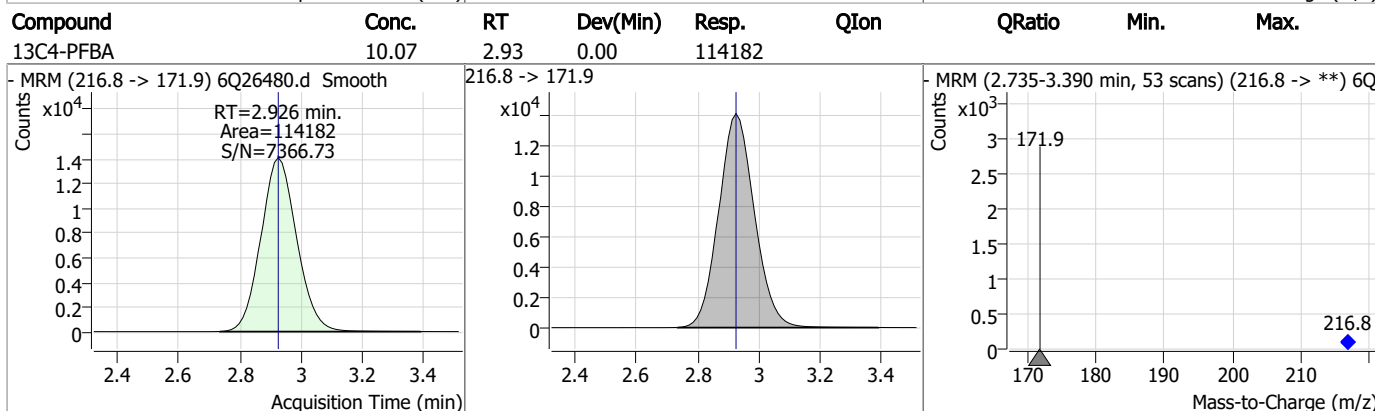
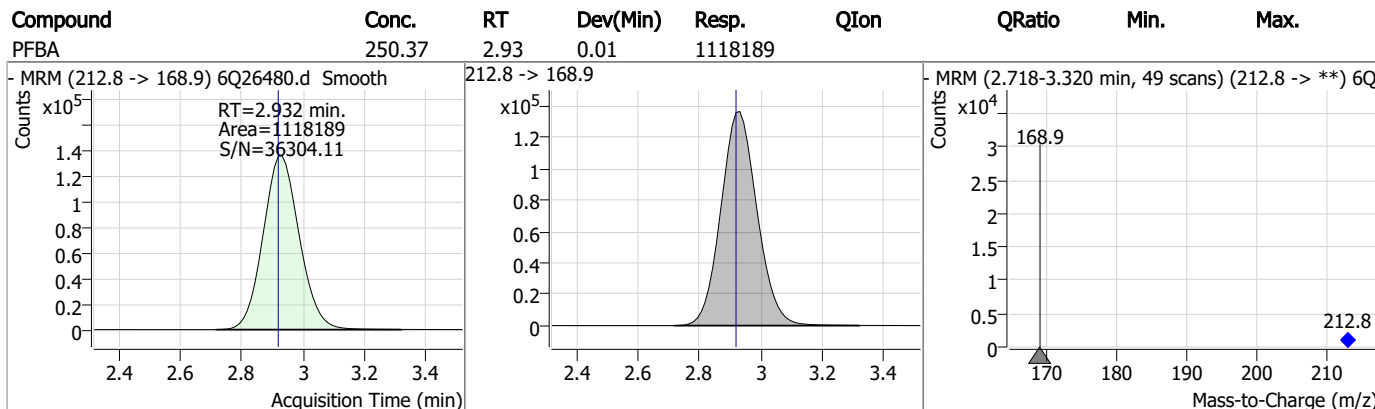
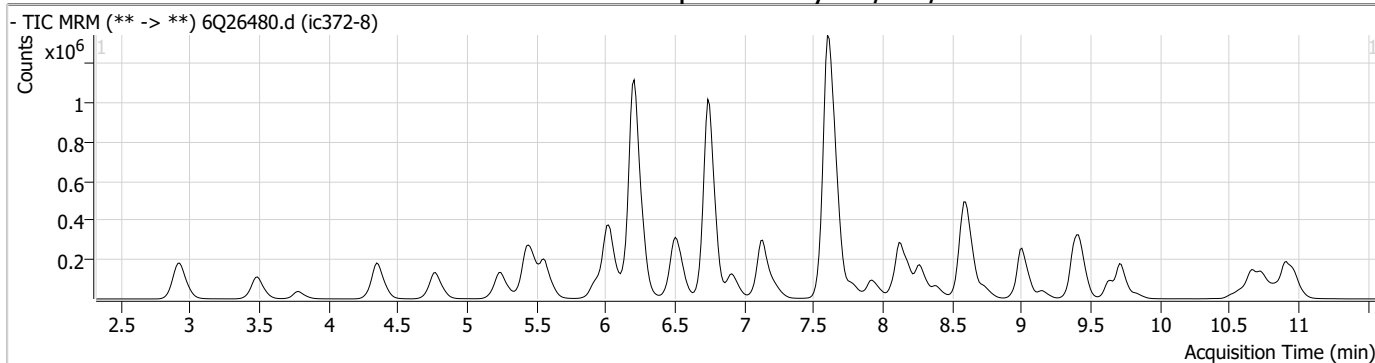
### Perfluorinated Compounds by LC/MS/MS

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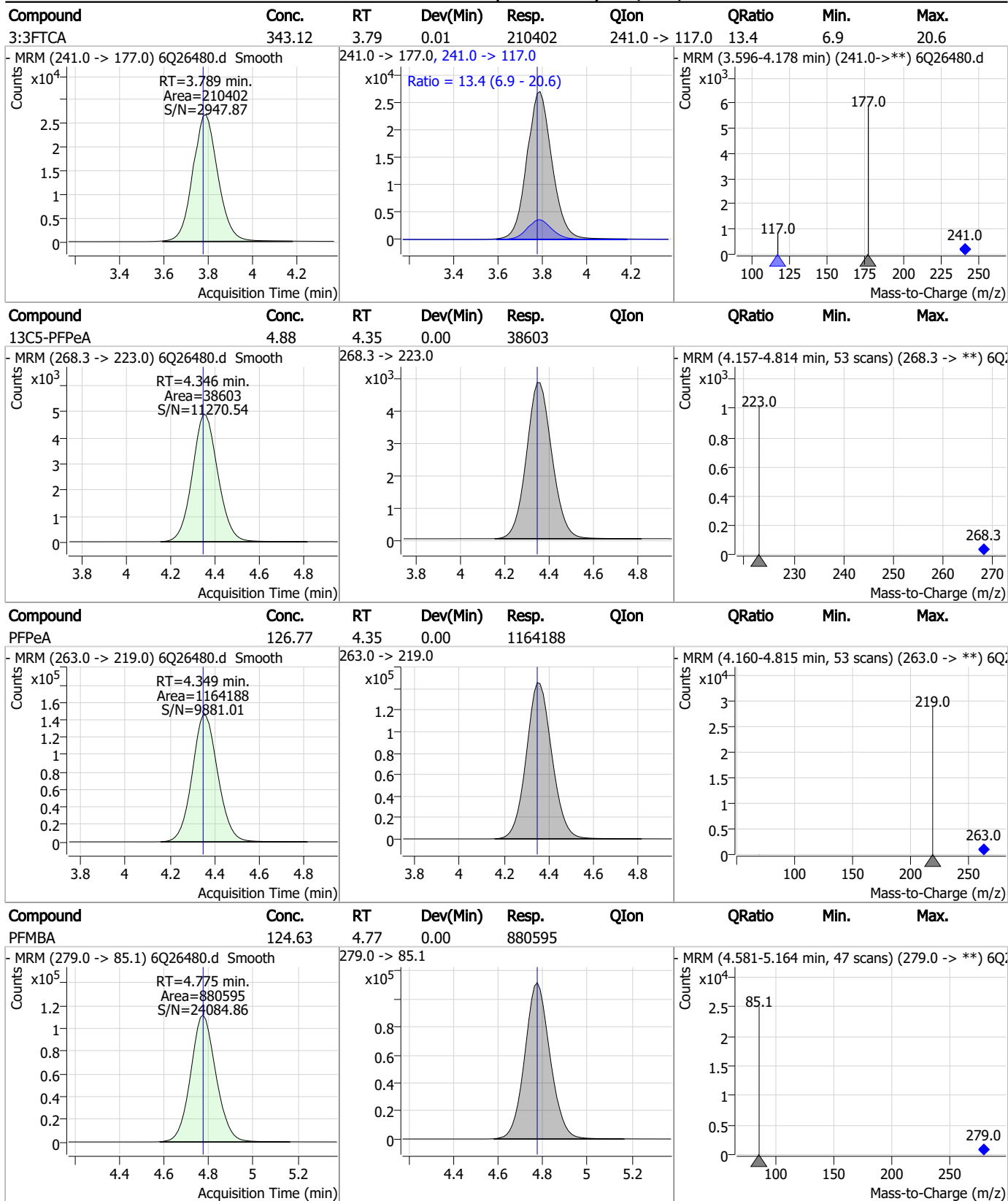
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### Perfluorinated Compounds by LC/MS/MS



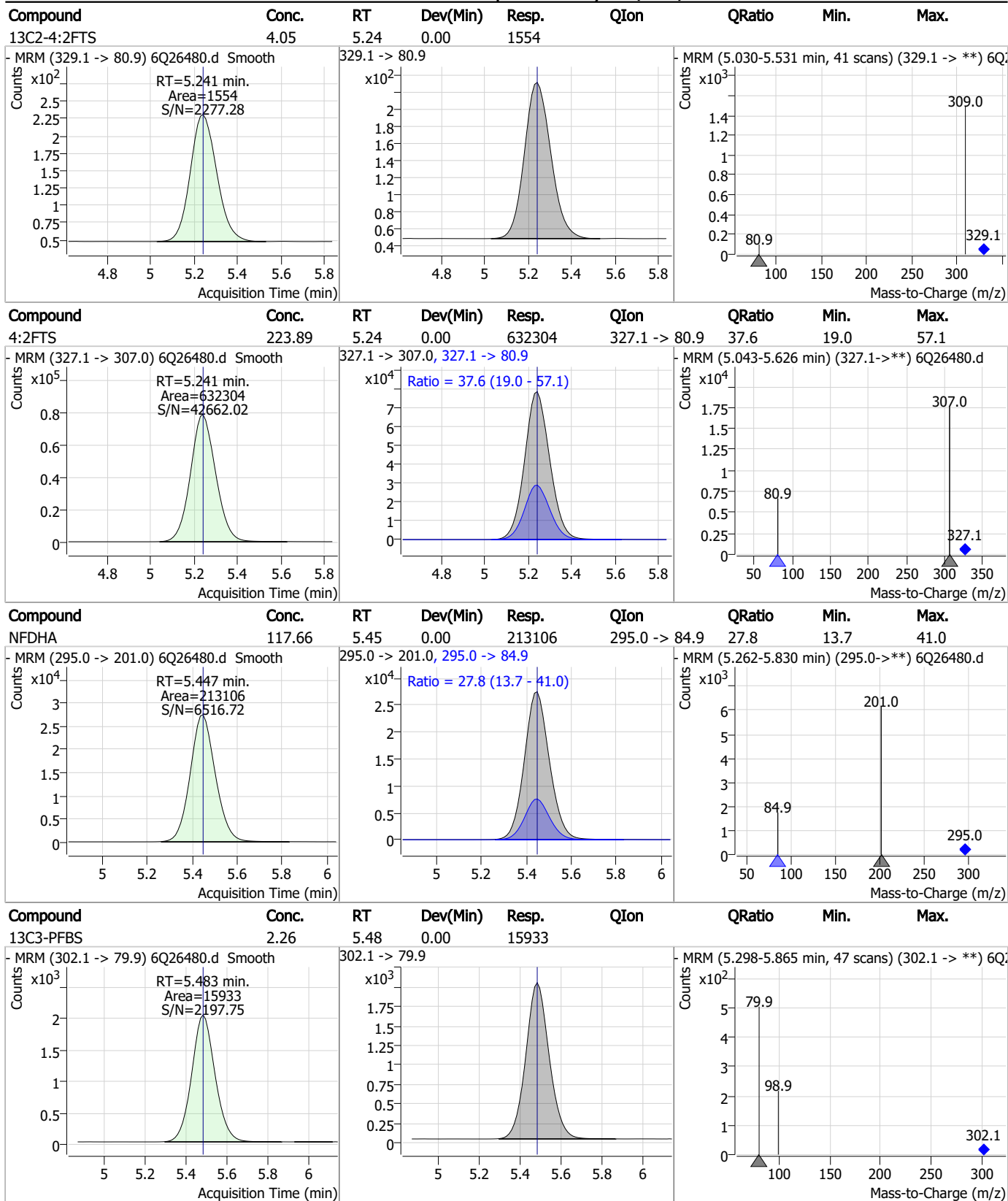


### Perfluorinated Compounds by LC/MS/MS



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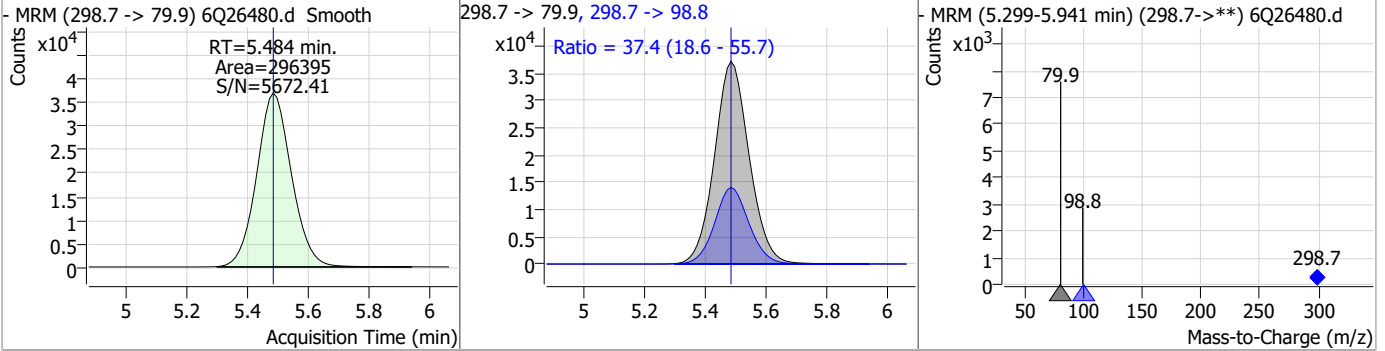
### Perfluorinated Compounds by LC/MS/MS



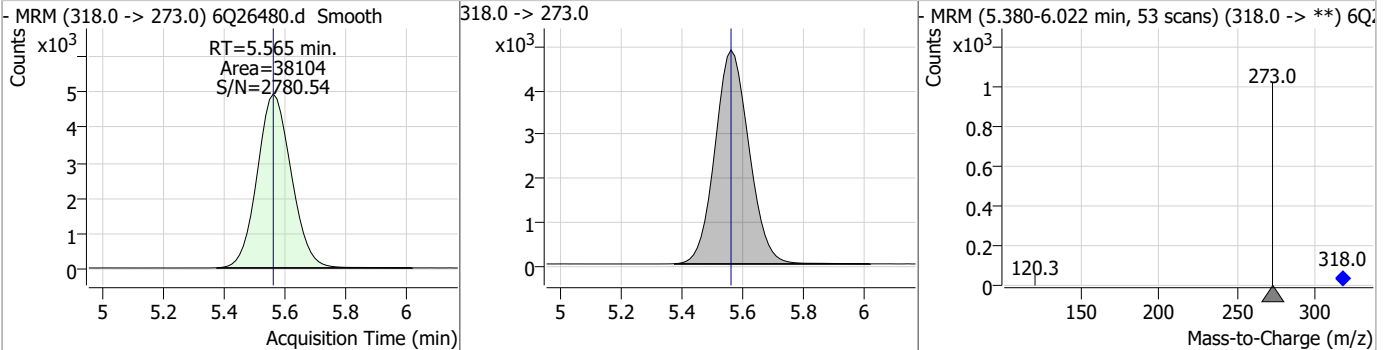
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### Perfluorinated Compounds by LC/MS/MS

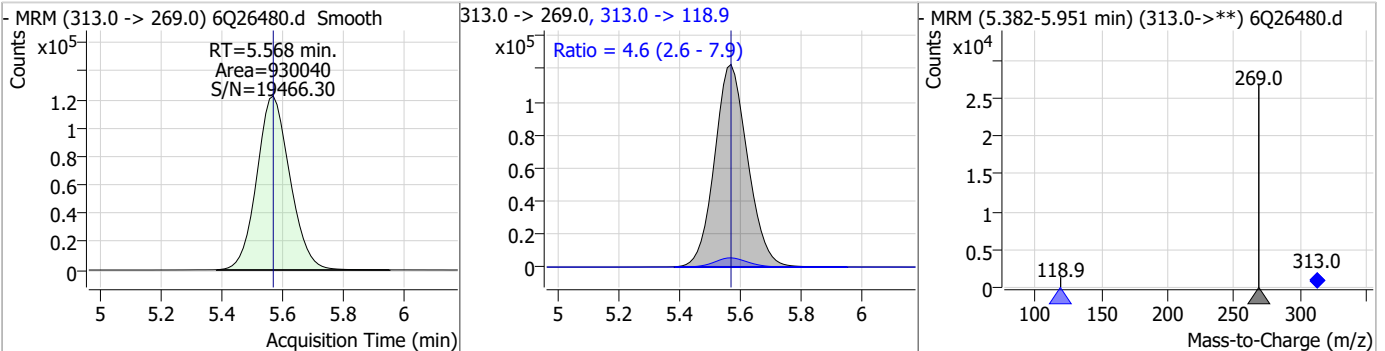
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.26	5.48	0.00	296395	298.7 -> 98.8	37.4	18.6	55.7



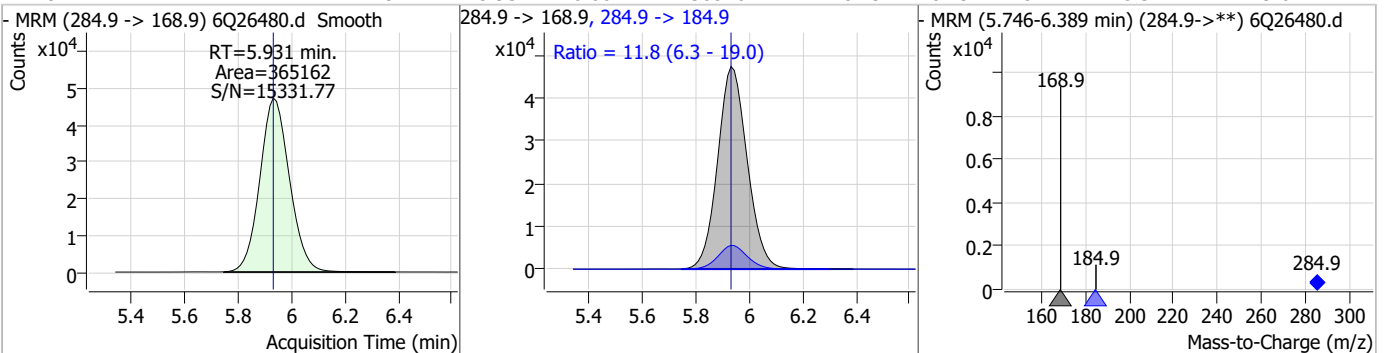
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.56	0.00	38104				



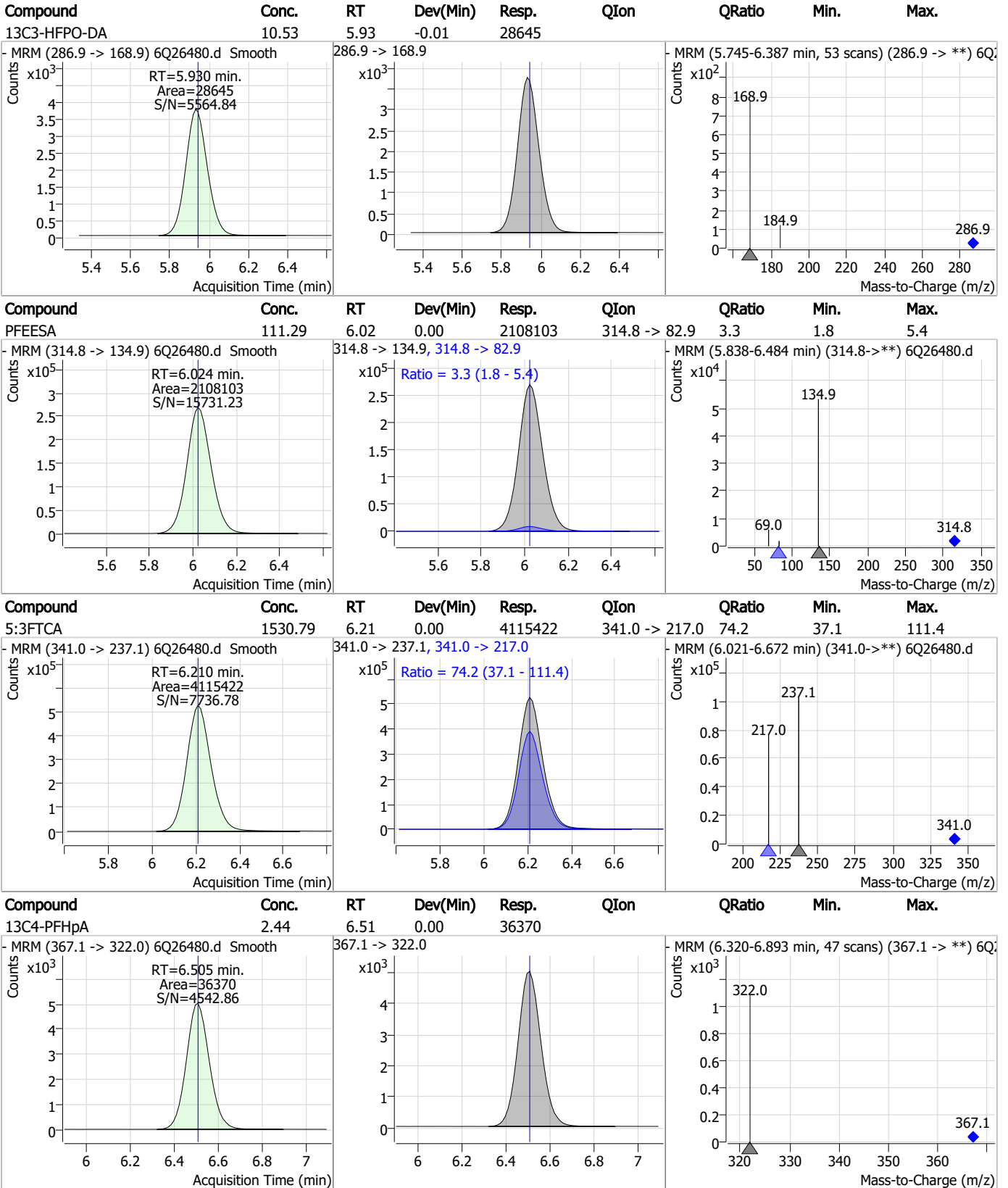
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	63.65	5.57	0.00	930040	313.0 -> 118.9	4.6	2.6	7.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	118.12	5.93	0.00	365162	284.9 -> 184.9	11.8	6.3	19.0



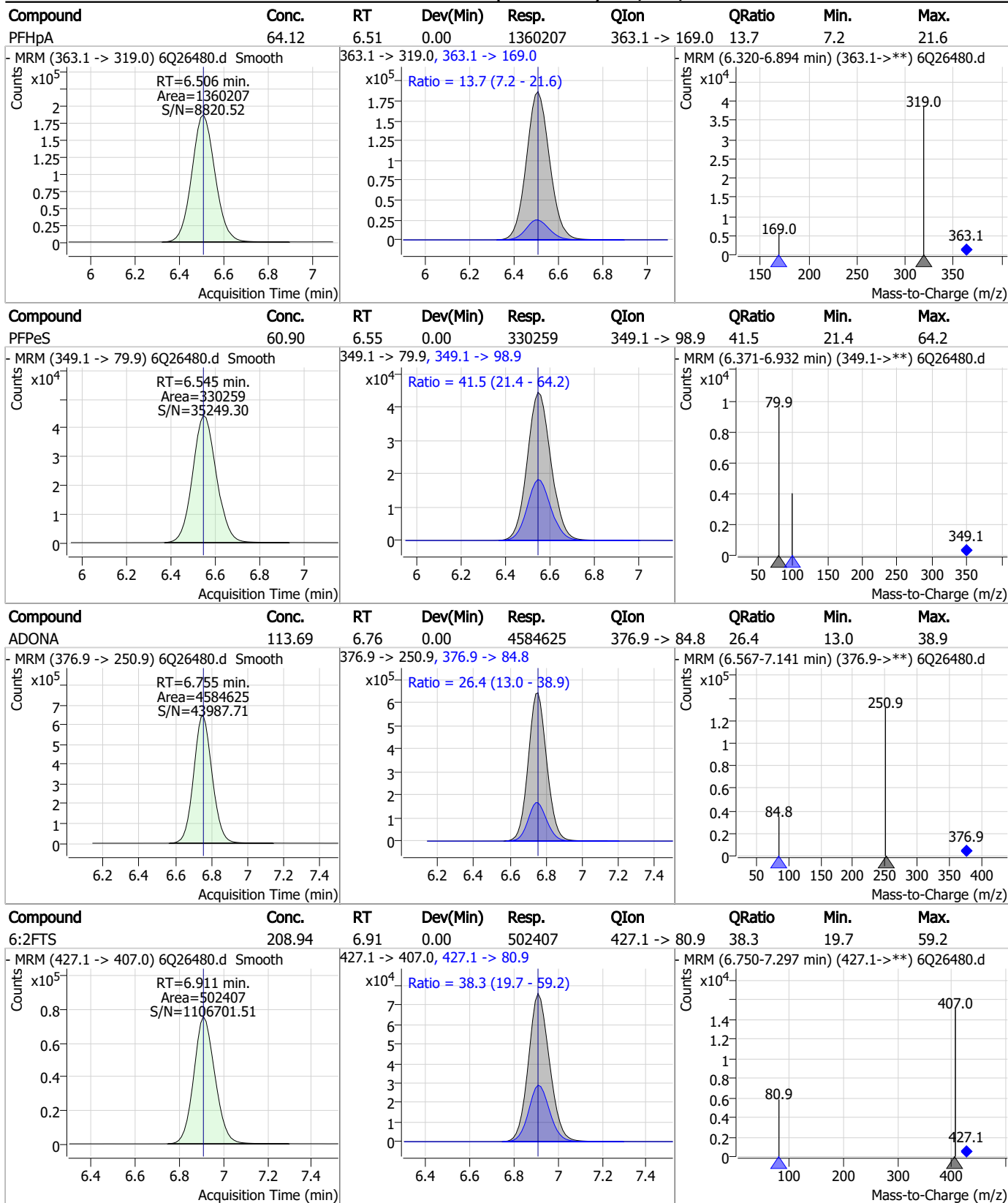
### Perfluorinated Compounds by LC/MS/MS



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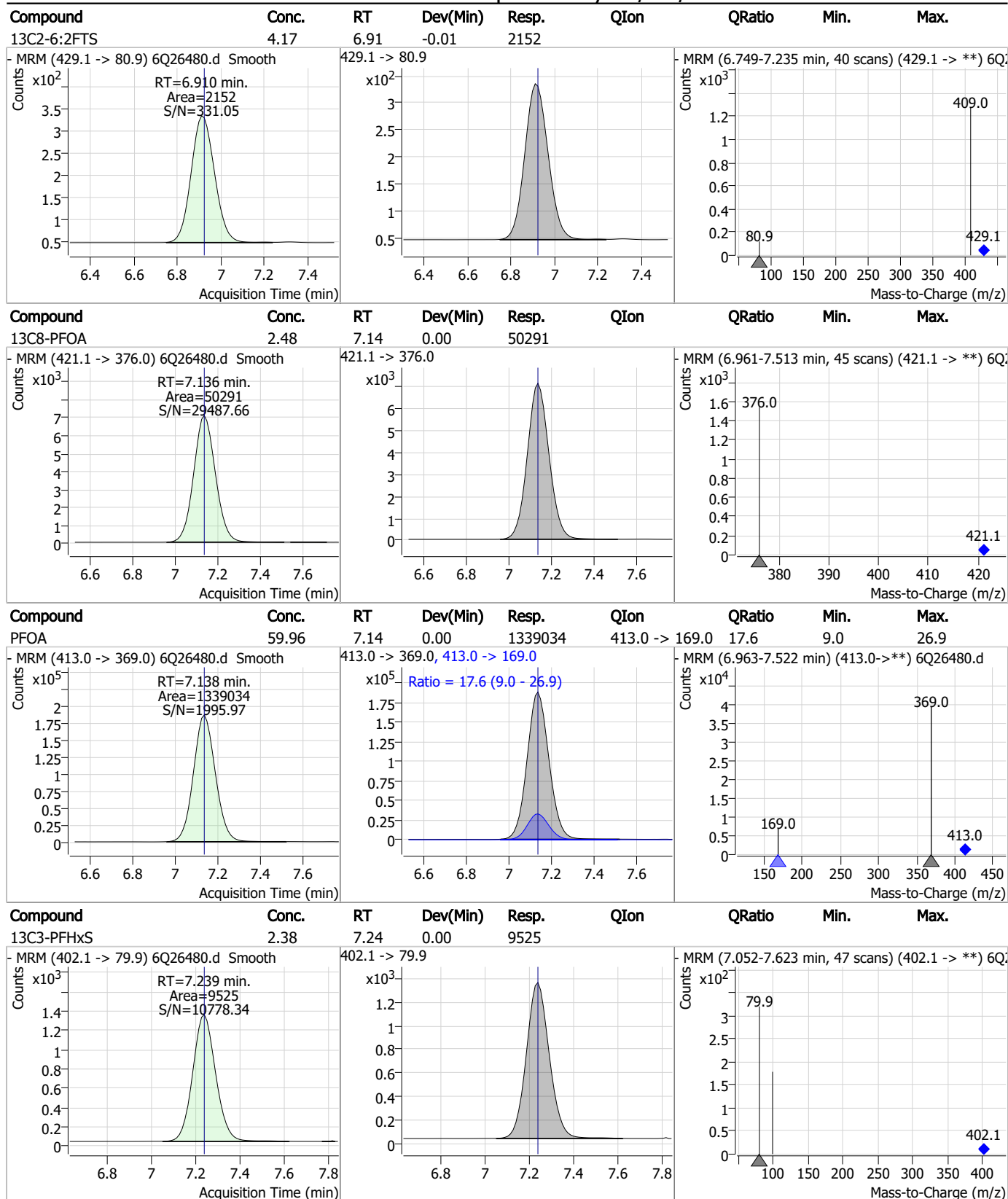
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### Perfluorinated Compounds by LC/MS/MS



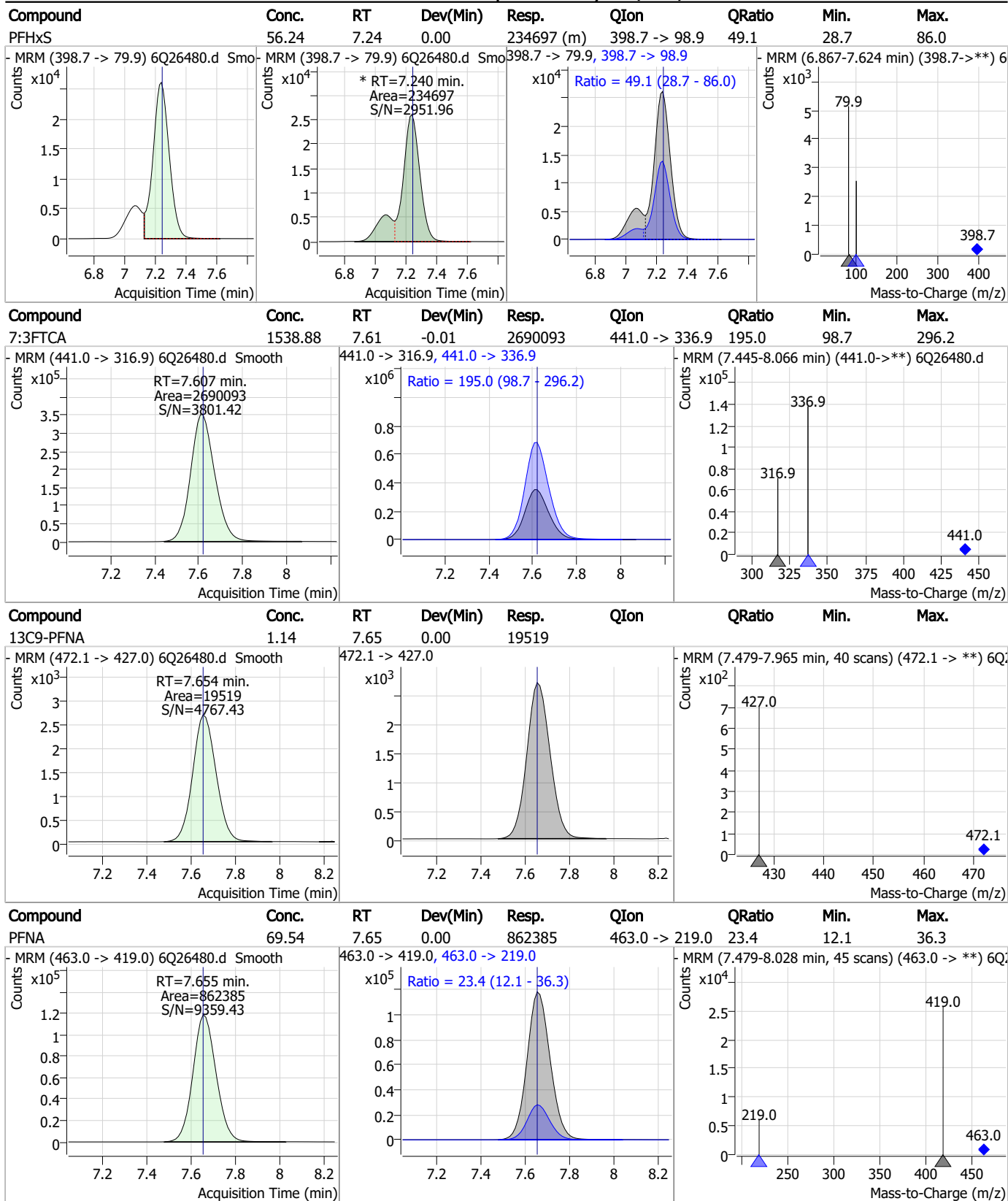
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### Perfluorinated Compounds by LC/MS/MS



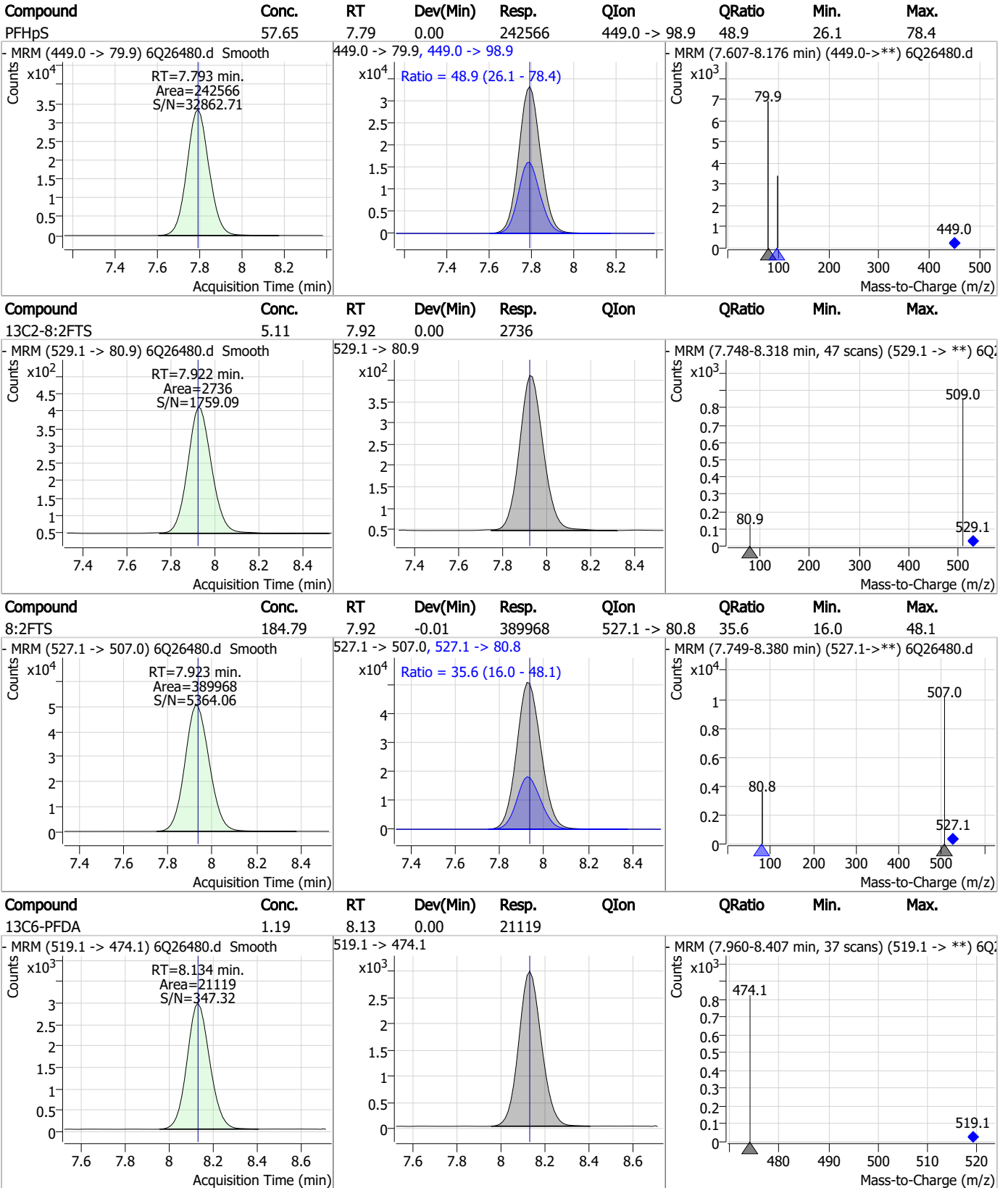
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

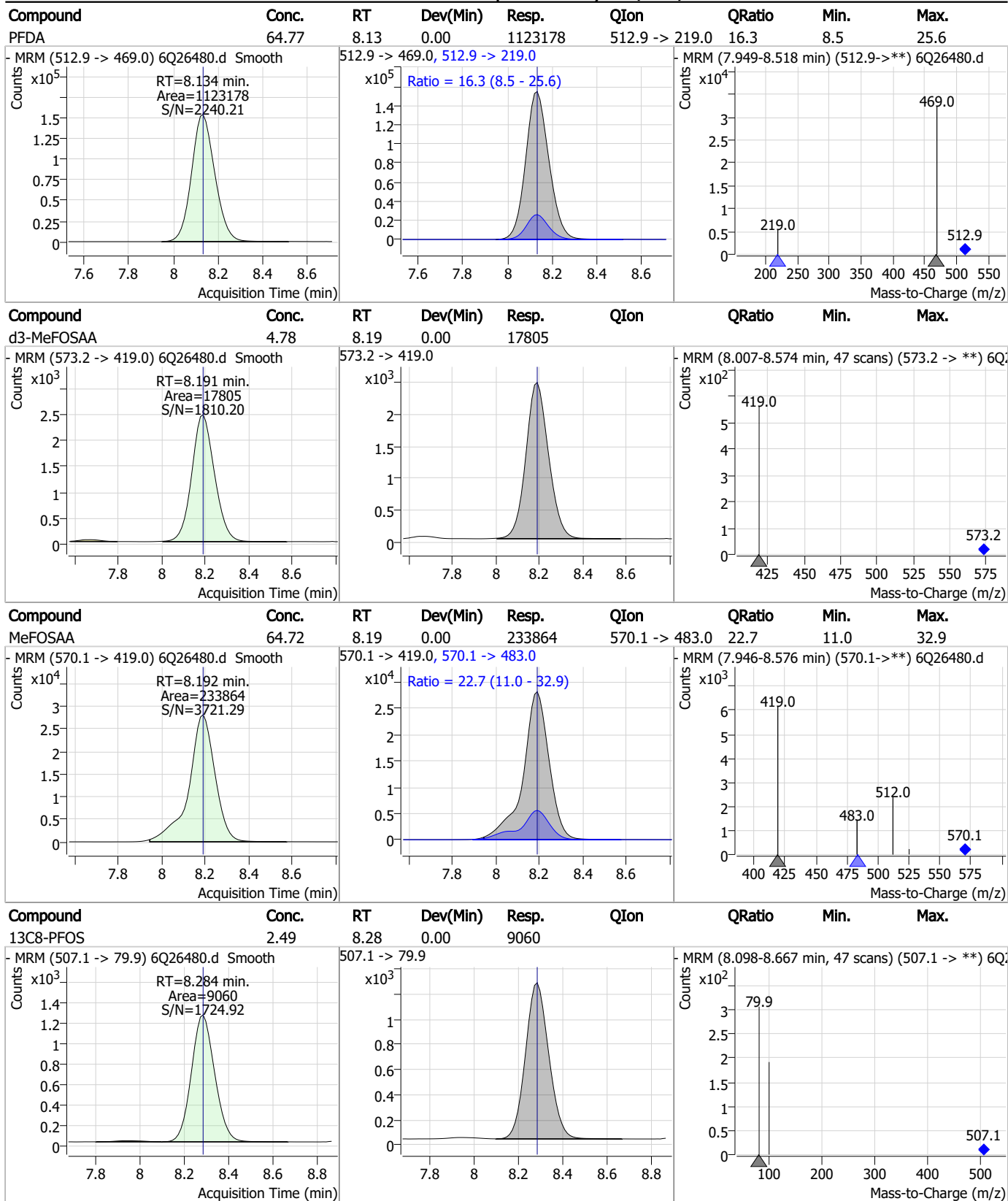


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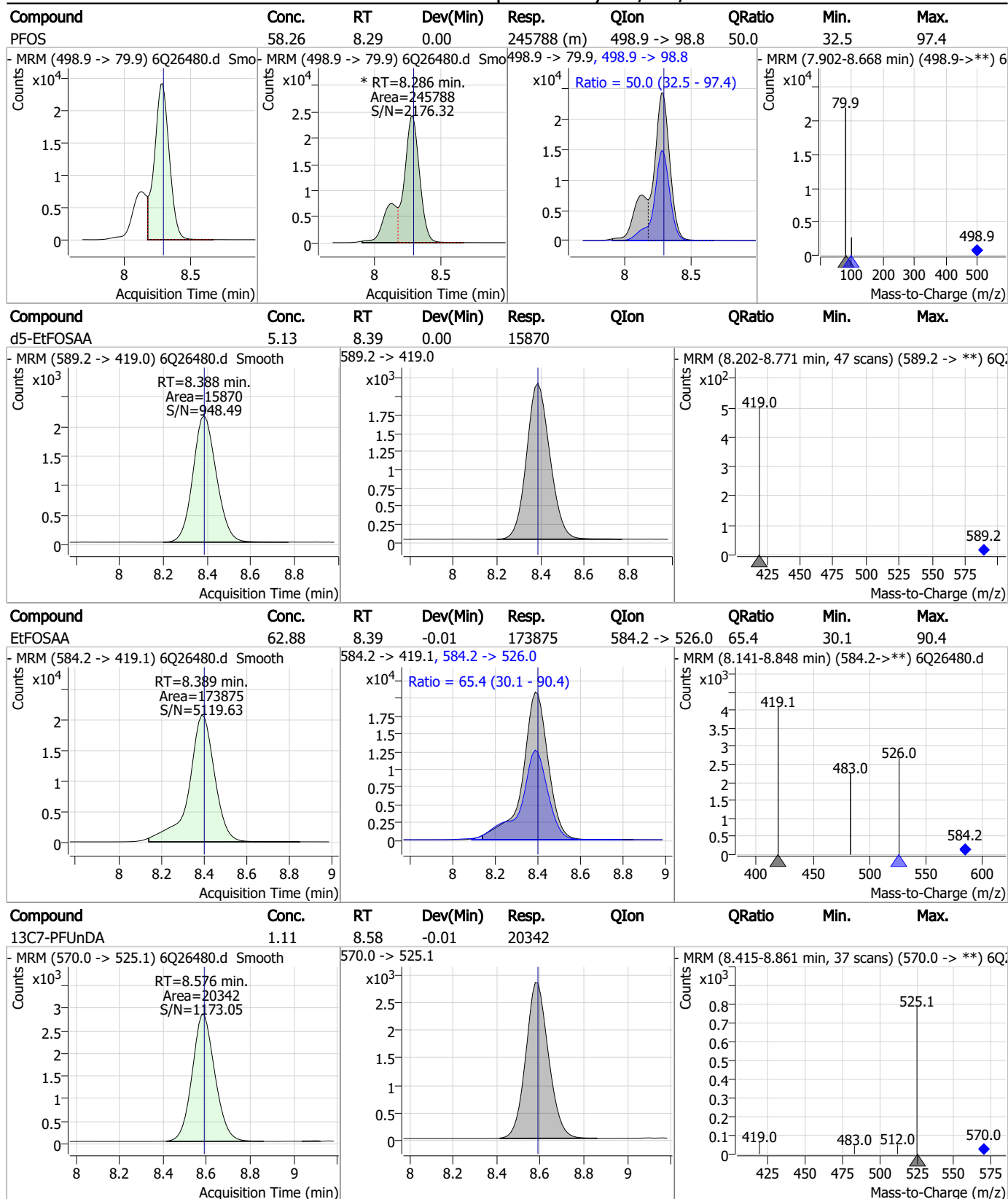


### Perfluorinated Compounds by LC/MS/MS



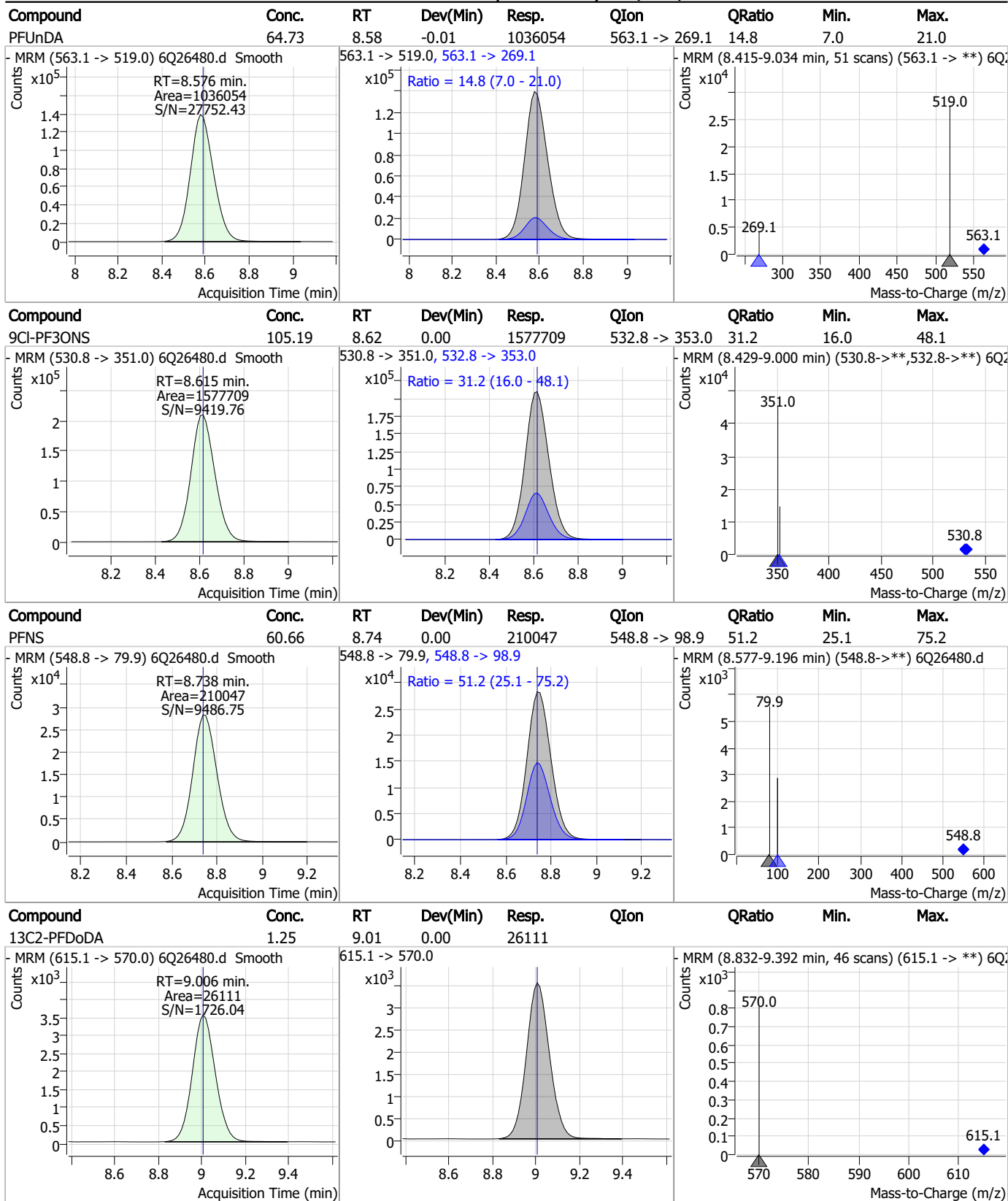
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### Perfluorinated Compounds by LC/MS/MS



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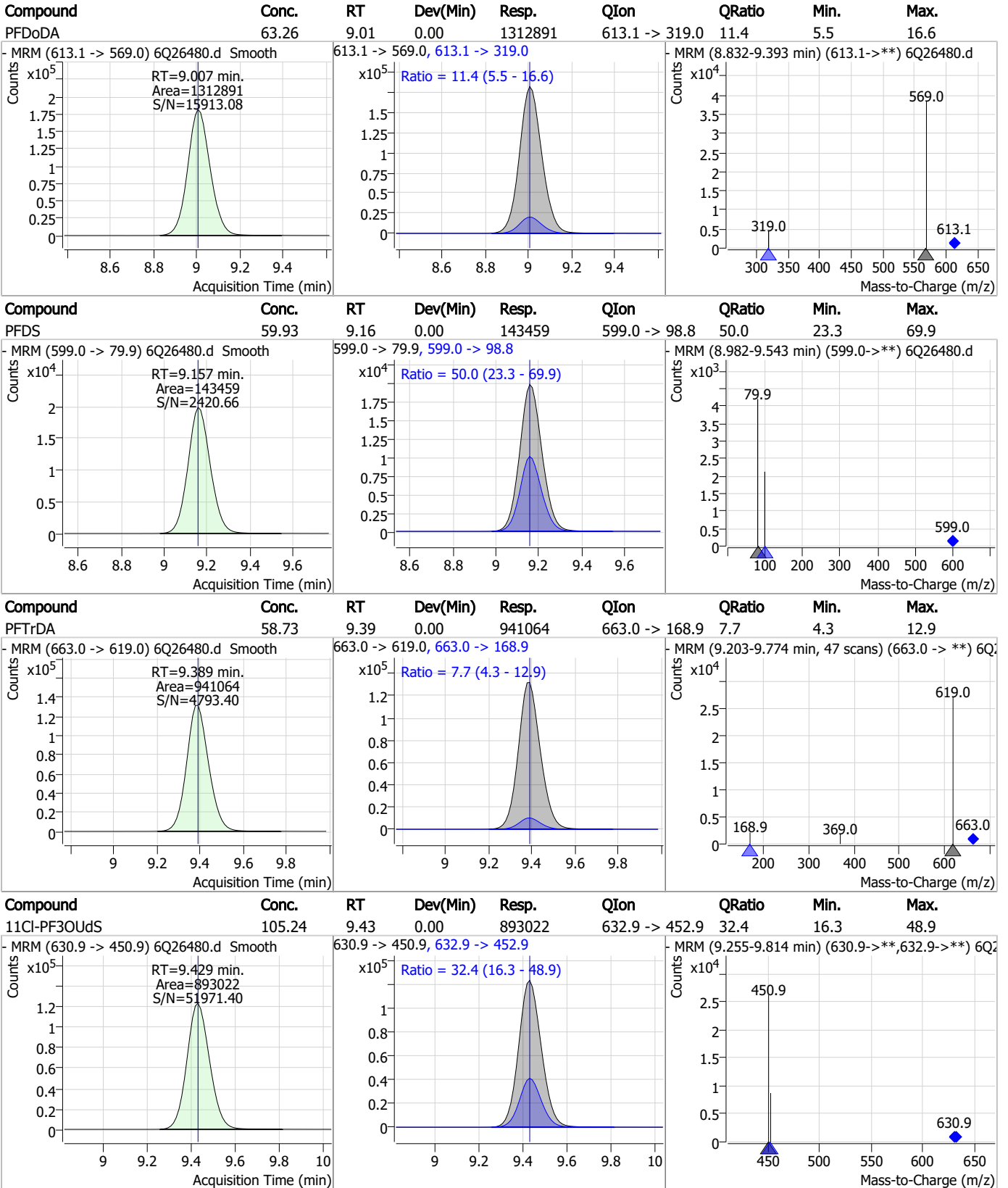
### Perfluorinated Compounds by LC/MS/MS



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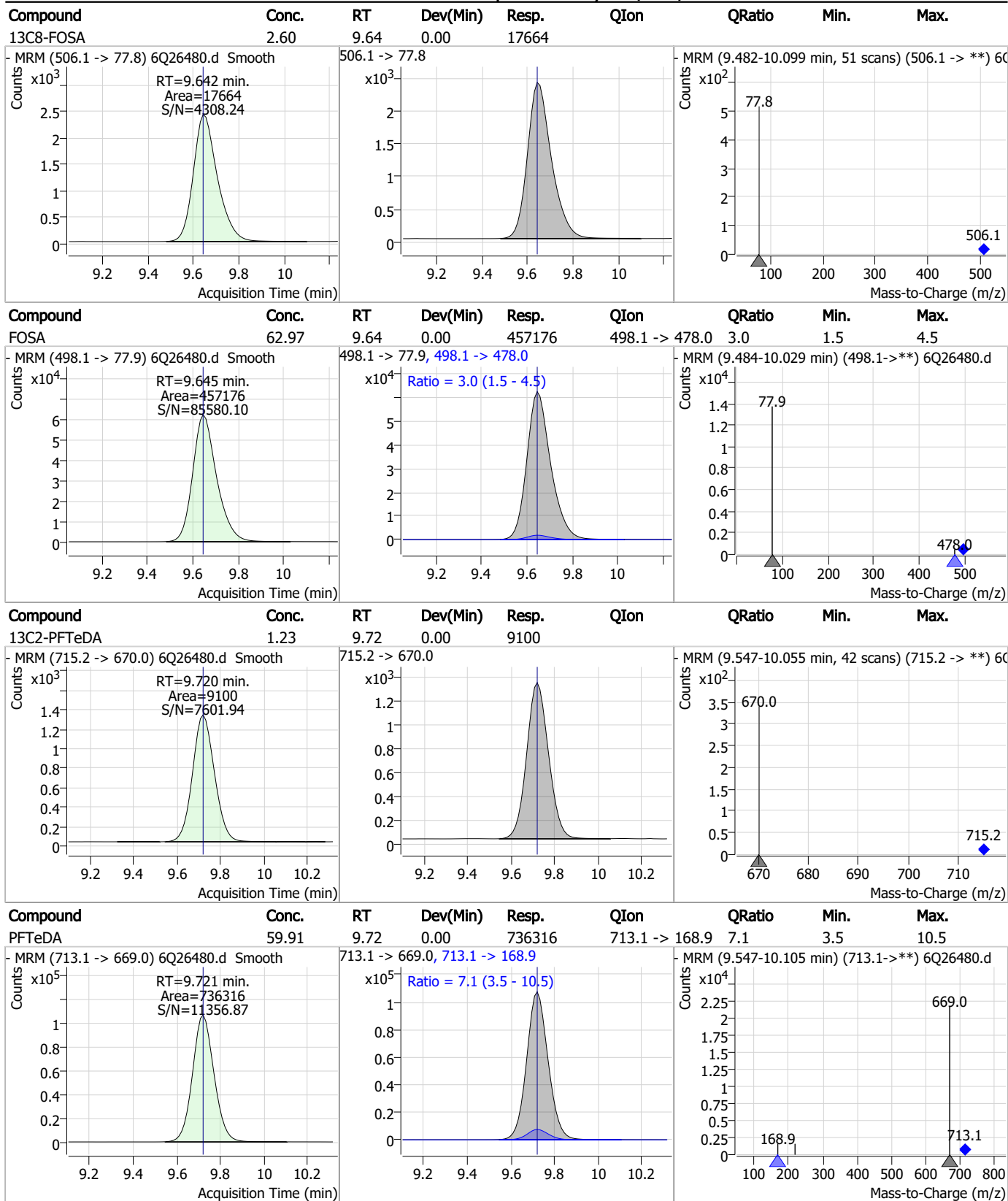


### Perfluorinated Compounds by LC/MS/MS



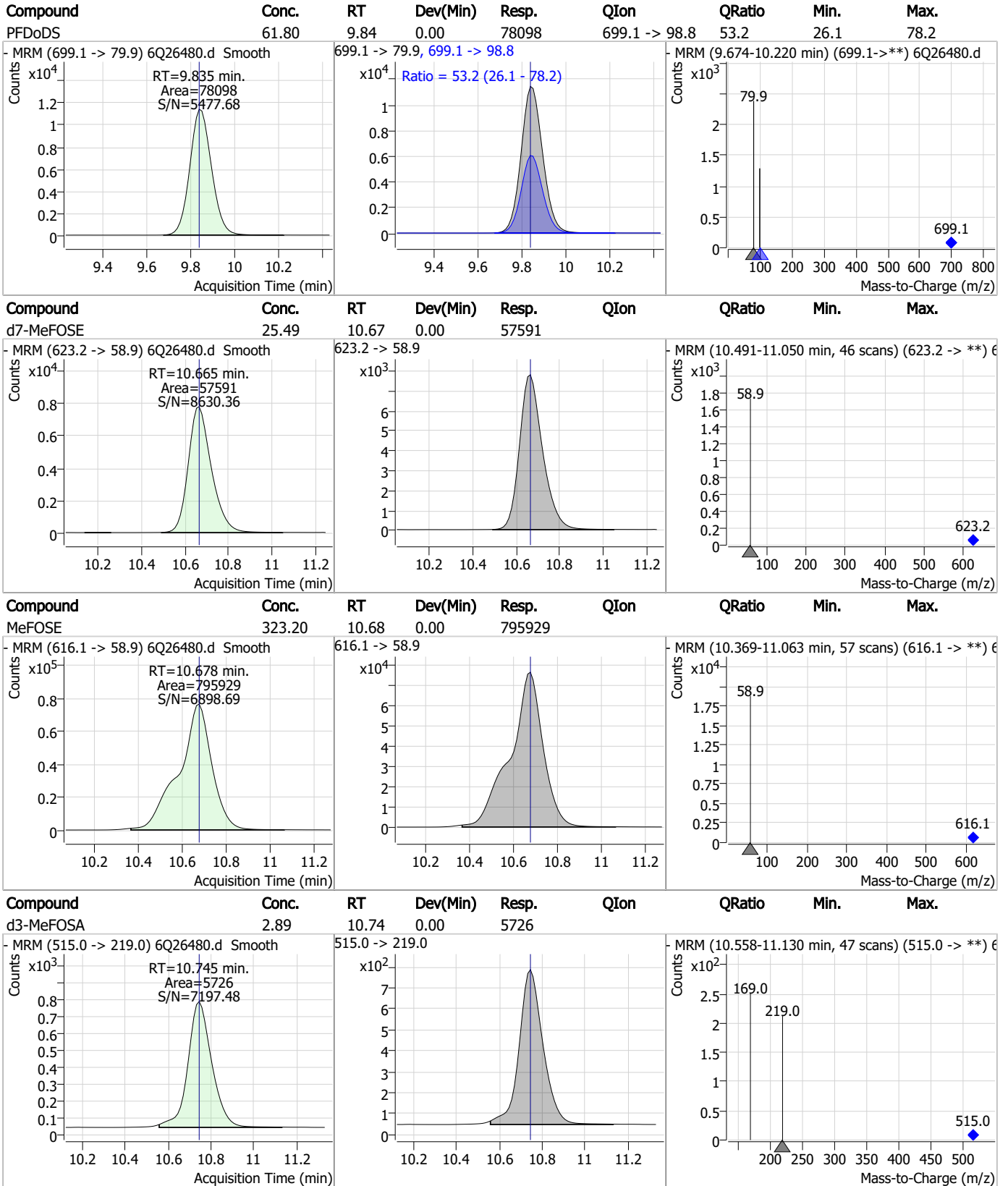
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



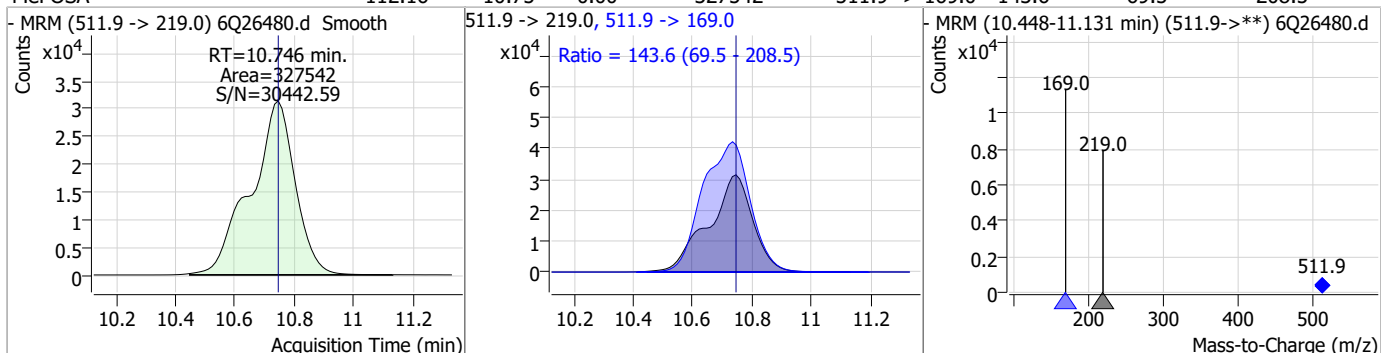
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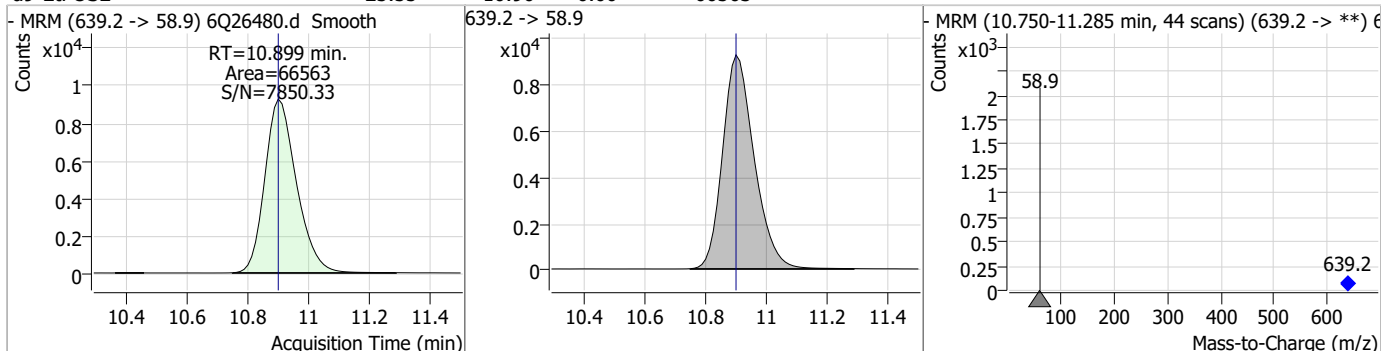


### Perfluorinated Compounds by LC/MS/MS

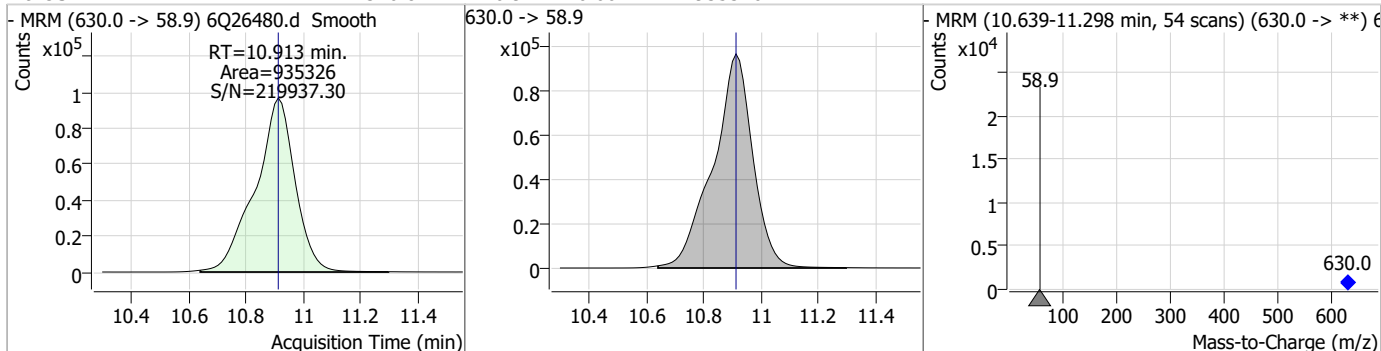
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	112.16	10.75	0.00	327542	511.9 -> 169.0	143.6	69.5	208.5



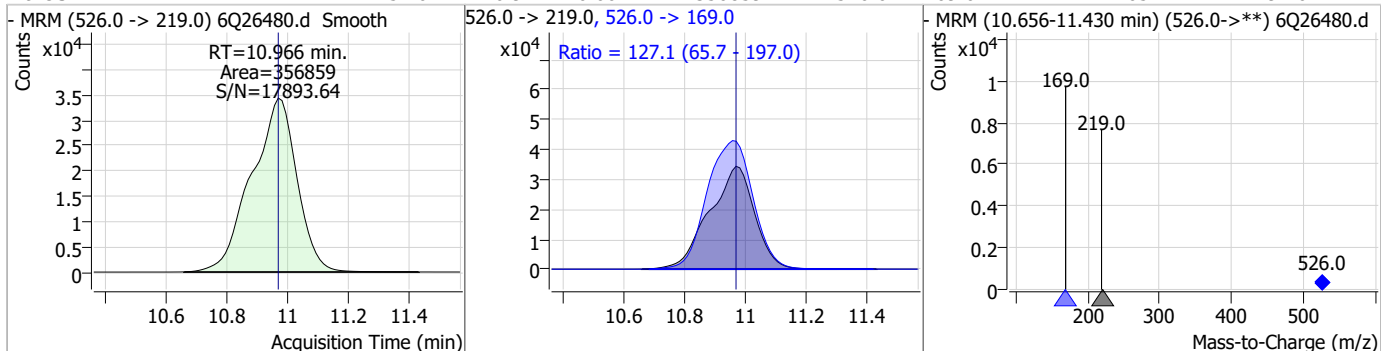
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.55	10.90	0.00	66563				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	320.87	10.91	0.00	935326				

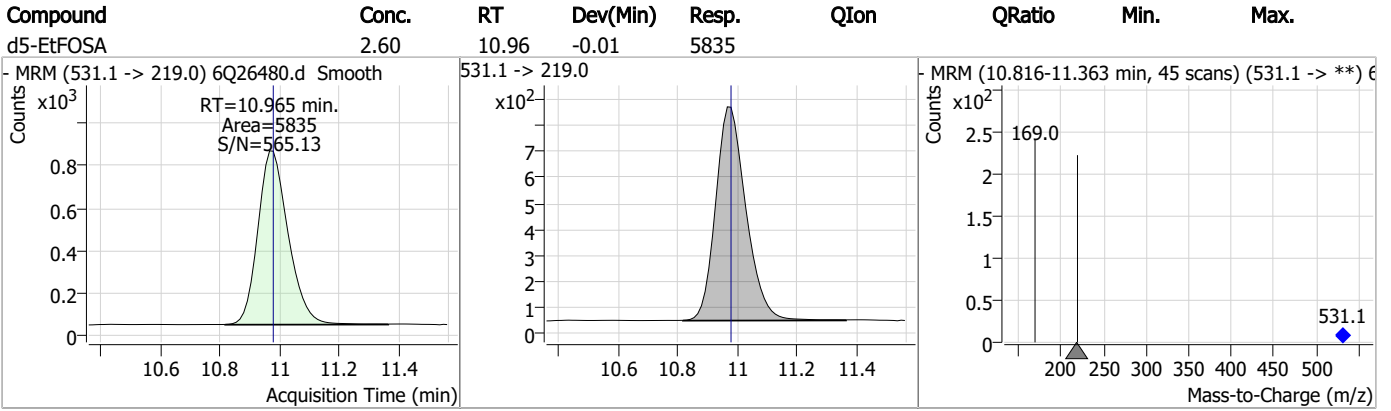


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	125.20	10.97	0.00	356859	526.0 -> 169.0	127.1	65.7	197.0



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: S6Q372-IC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26480.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 19:06      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

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### Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26482.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 7:34:51 PM  
 Sample Name : icv372-4  
 Vial : P1-B1  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	136180	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	44472	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	43004	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	42140	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	56836	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	25314	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23792	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	24894	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	29027	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9553	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	19043	2.50 µg/L	0.000
M3-PFBS	5.483	302.1 -> 79.9	18517	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	11456	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	9903	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	2094	5.00 µg/L	-0.012
M2-6:2FTS	6.910	429.1 -> 80.9	2858	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	3132	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	21334	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	30422	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	17561	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	64878	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	71416	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6058	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5697	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9964	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	55018	5.00 µg/L	-0.012
18O2-PFHxS	7.238	403.0 -> 83.9	6786	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	59798	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21939	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21465	1.25 µg/L	0.000
13C2-PFHxA	5.553	315.1 -> 270.0	40497	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.228	329.1 -> 80.9	2094	4.96 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2858	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-8:2FTS	7.922	529.1 -> 80.9	3132	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFDoDA	9.006	615.1 -> 570.0	29027	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9553	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.483	302.1 -> 79.9	18517	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFHxS	7.239	402.1 -> 79.9	11456	2.60 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 = 104.2%	
13C4-PFBA	2.926	216.8 -> 171.9	136180	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.505	367.1 -> 322.0	42140	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C5-PFHxA	5.565	318.0 -> 273.0	43004	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C5-PFPeA	4.346	268.3 -> 223.0	44472	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C6-PFDA	8.134	519.1 -> 474.1	23792	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C7-PFUnDA	8.576	570.0 -> 525.1	24894	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.642	506.1 -> 77.8	19043	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C8-PFOA	7.136	421.1 -> 376.0	56836	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C8-PFOS	8.284	507.1 -> 79.9	9903	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C9-PFNA	7.654	472.1 -> 427.0	25314	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.2%	
d3-MeFOSAA	8.191	573.2 -> 419.0	21334	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	30422	10.65 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d3-MeFOSA	10.745	515.0 -> 219.0	5697	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSAA	8.388	589.2 -> 419.0	17561	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
d7-MeFOSE	10.665	623.2 -> 58.9	64878	24.51 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d9-EtFOSE	10.899	639.2 -> 58.9	71416	23.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
d5-EtFOSA	10.977	531.1 -> 219.0	6058	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.229	327.1 -> 307.0	35920	9.44 µg/L	99
		327.1 -> 80.9	13417		
6:2FTS	6.911	427.1 -> 407.0	28075	8.79 µg/L	99
		427.1 -> 80.9	11293		
8:2FTS	7.923	527.1 -> 507.0	22980	9.51 µg/L	98
		527.1 -> 80.8	7630		
EtFOSAA	8.389	584.2 -> 419.1	7445	2.43 µg/L	m 93
		584.2 -> 526.0	4887		
FOSA	9.645	498.1 -> 77.9	18593	2.38 µg/L	100
		498.1 -> 478.0	567		
MeFOSAA	8.192	570.1 -> 419.0	10750	2.48 µg/L	93
		570.1 -> 483.0	2713		
PFBA	2.919	212.8 -> 168.9	51870	9.74 µg/L	100
PFBS	5.472	298.7 -> 79.9	13223	2.16 µg/L	96
		298.7 -> 98.8	5212		
PFDA	8.134	512.9 -> 469.0	47353	2.42 µg/L	97
		512.9 -> 219.0	7389		
PFDODA	9.007	613.1 -> 569.0	55901	2.42 µg/L	99
		613.1 -> 319.0	6509		
PFDS	9.157	599.0 -> 79.9	6559	2.51 µg/L	98

7.7.10  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8	3155	2.34	µg/L	100
		363.1 -> 319.0	57519			
PFHpS	7.793	363.1 -> 169.0	8184	2.37	µg/L	97
		449.0 -> 79.9	10884			
PFHxA	5.555	449.0 -> 98.9	5445	2.38	µg/L	98
		313.0 -> 269.0	39246			
PFHxS	7.240	313.0 -> 118.9	1823	2.14	µg/L	m
		398.7 -> 79.9	10729			
PFNA	7.655	398.7 -> 98.9	5013	2.33	µg/L	97
		463.0 -> 419.0	37404			
PFNS	8.738	463.0 -> 219.0	8576	2.44	µg/L	94
		548.8 -> 79.9	9227			
PFOA	7.138	548.8 -> 98.9	5013	2.46	µg/L	97
		413.0 -> 369.0	62203			
PFOS	8.286	413.0 -> 169.0	10285	2.38	µg/L	m
		498.9 -> 79.9	10987			
PFPeA	4.349	498.9 -> 98.8	5152	4.84	µg/L	100
		263.0 -> 219.0	51198			
PFPeS	6.545	349.1 -> 79.9	14028	2.15	µg/L	97
		349.1 -> 98.9	6294			
PFTeDA	9.721	713.1 -> 669.0	32823	2.54	µg/L	100
		713.1 -> 168.9	2342			
PFTrDA	9.389	663.0 -> 619.0	40682	2.28	µg/L	100
		663.0 -> 168.9	3538			
PFUnDA	8.589	563.1 -> 519.0	49282	2.52	µg/L	98
		563.1 -> 269.1	7316			
11CI-PF3OUdS	9.429	630.9 -> 450.9	44211	4.91	µg/L	95
		632.9 -> 452.9	13092			
9CI-PF3ONS	8.615	530.8 -> 351.0	74381	4.67	µg/L	97
		532.8 -> 353.0	22697			
ADONA	6.743	376.9 -> 250.9	202932	4.74	µg/L	100
		376.9 -> 84.8	52163			
HFPO-DA	5.931	284.9 -> 168.9	15814	4.82	µg/L	100
		284.9 -> 184.9	2007			
3:3FTCA	3.777	241.0 -> 177.0	8585	11.74	µg/L	100
		241.0 -> 117.0	1198			
5:3FTCA	6.210	341.0 -> 237.1	182886	60.28	µg/L	96
		341.0 -> 217.0	129860			
7:3FTCA	7.607	441.0 -> 316.9	115791	58.69	µg/L	98
		441.0 -> 336.9	232460			
EtFOSA	10.966	526.0 -> 219.0	15112	5.11	µg/L	94
		526.0 -> 169.0	18857			
EtFOSE	10.913	630.0 -> 58.9	38249	12.23	µg/L	100
		511.9 -> 219.0	13330			
MeFOSA	10.746	511.9 -> 169.0	19064	4.59	µg/L	97
		616.1 -> 58.9	32234			
MeFOSE	10.678	699.1 -> 79.9	3316	11.62	µg/L	100
		699.1 -> 98.8	1976			
PFDoDS	9.835	295.0 -> 201.0	9861	2.40	µg/L	89
		295.0 -> 84.9	2549			
NFDHA	5.447	279.0 -> 85.1	39210	4.82	µg/L	97
		229.0 -> 84.9	31768			
PFMBA	4.762	314.8 -> 134.9	88409	4.78	µg/L	100
		314.8 -> 82.9	3264			
PFMPA	3.488			4.14	µg/L	100
PFEESA	6.024					

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



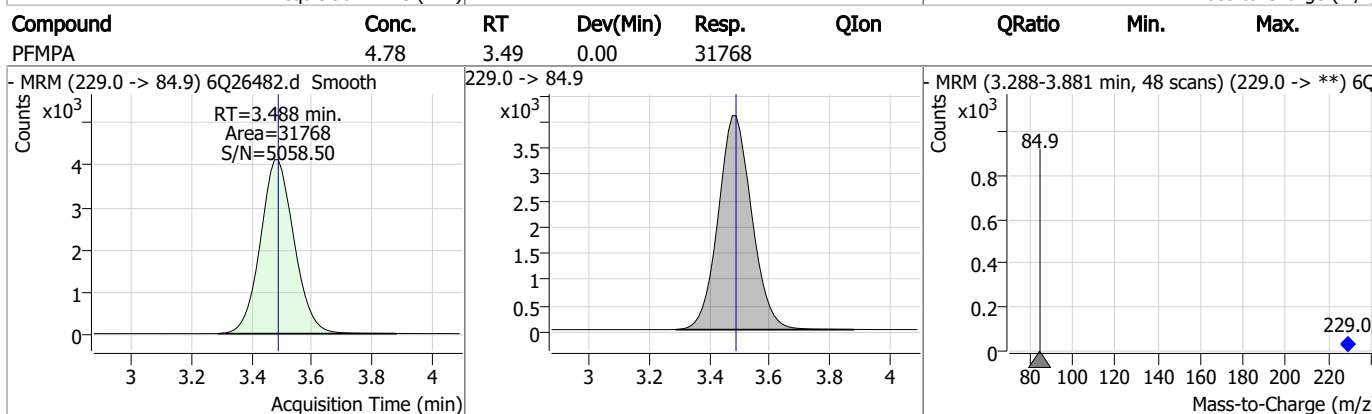
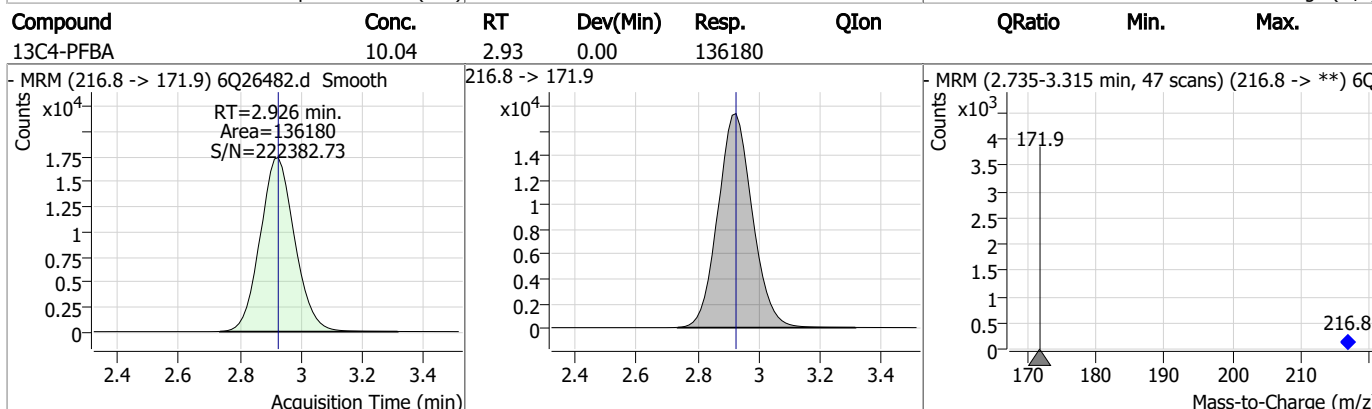
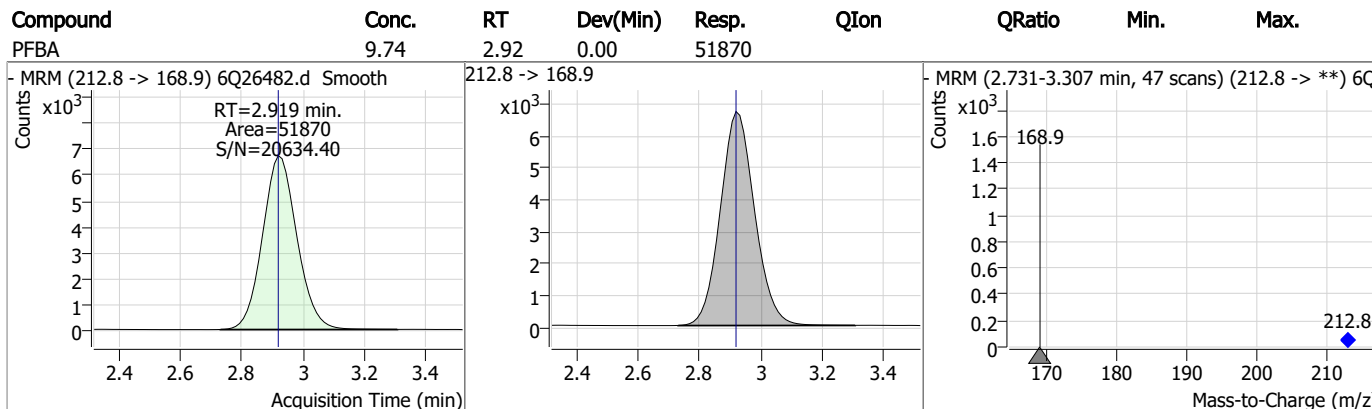
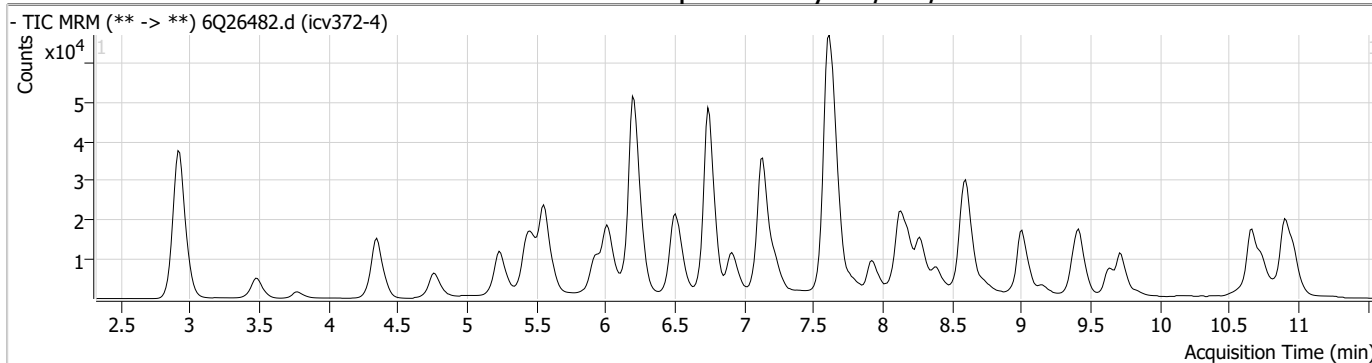
### Perfluorinated Compounds by LC/MS/MS

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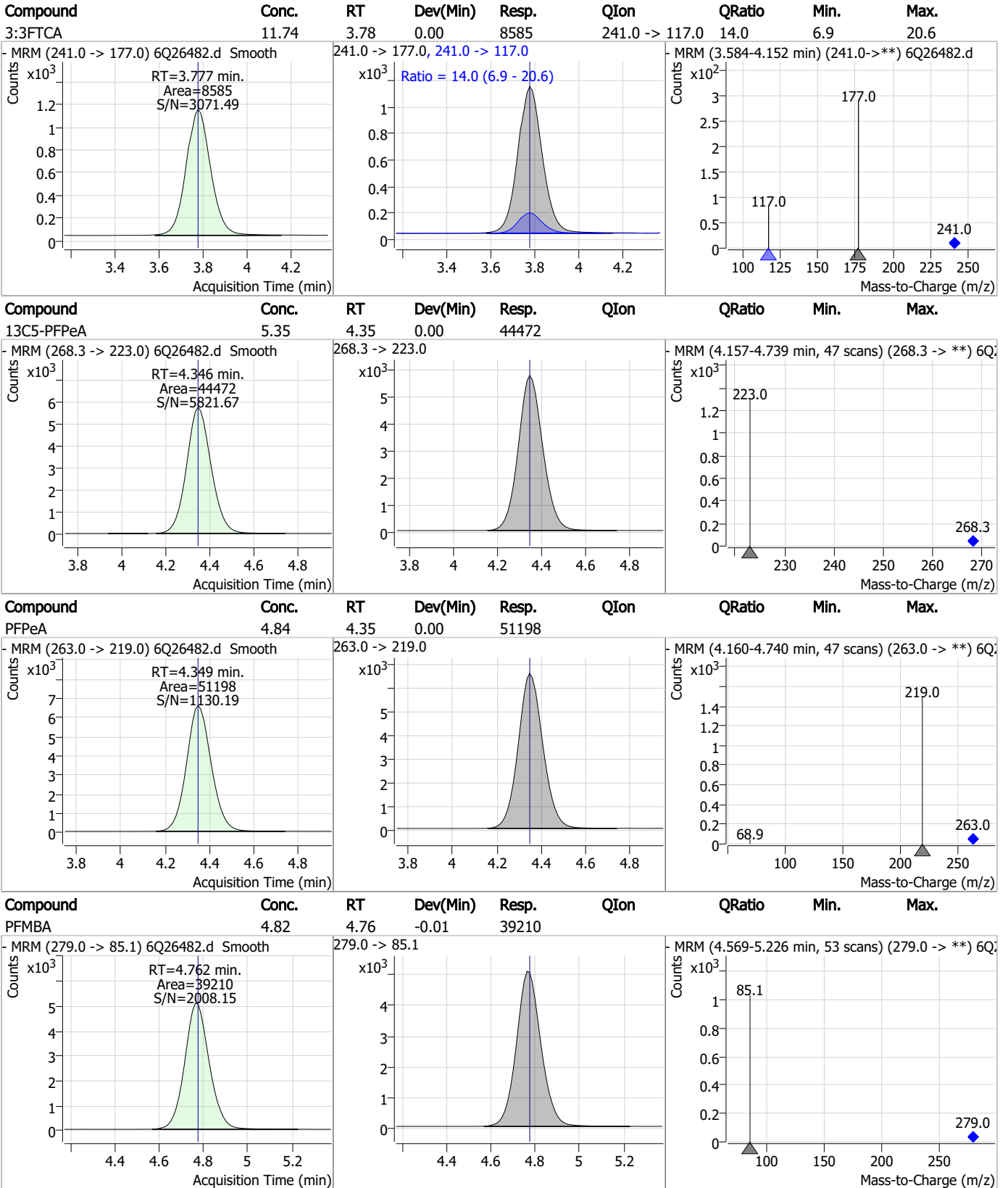
7.7.10

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### Perfluorinated Compounds by LC/MS/MS

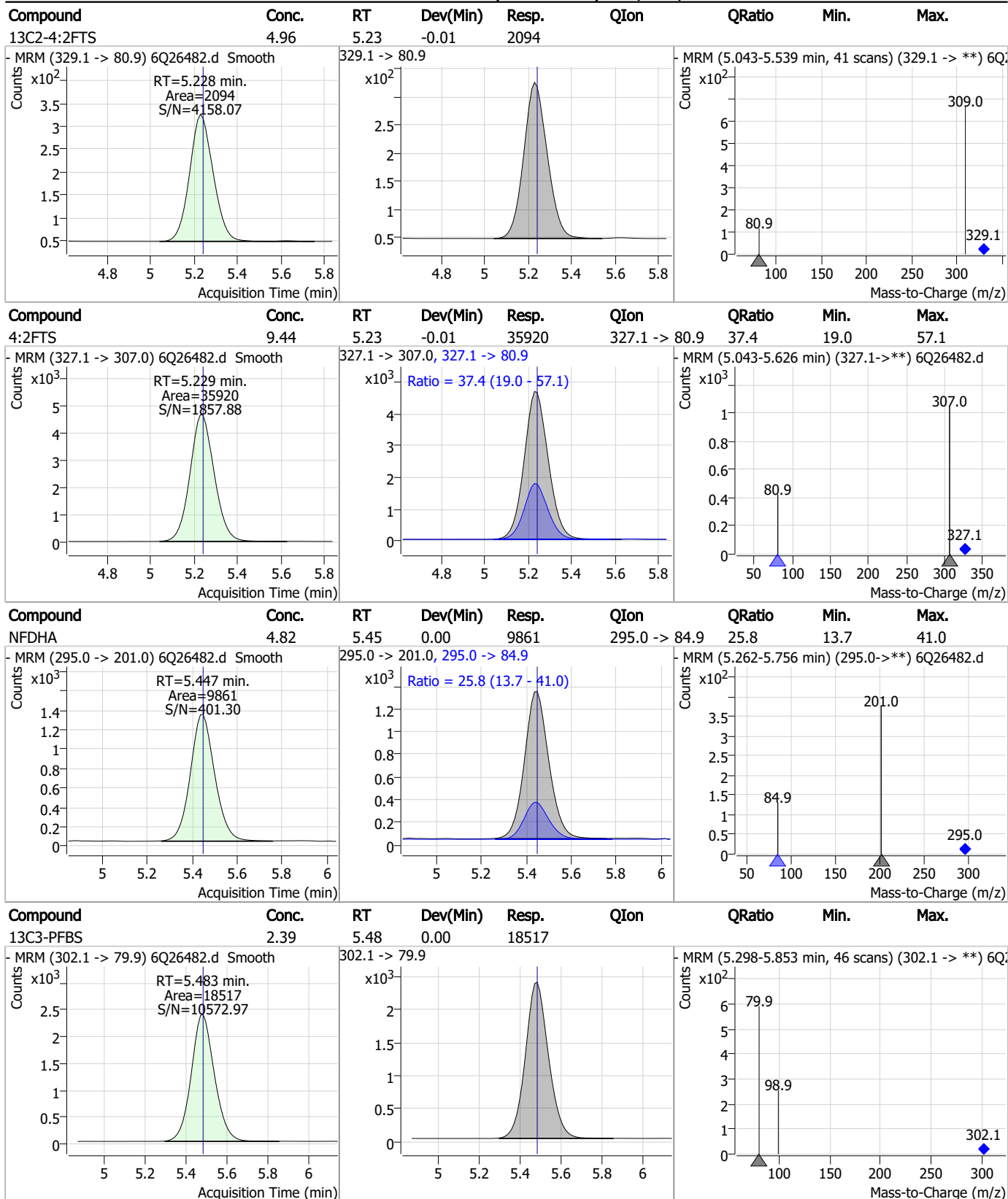


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

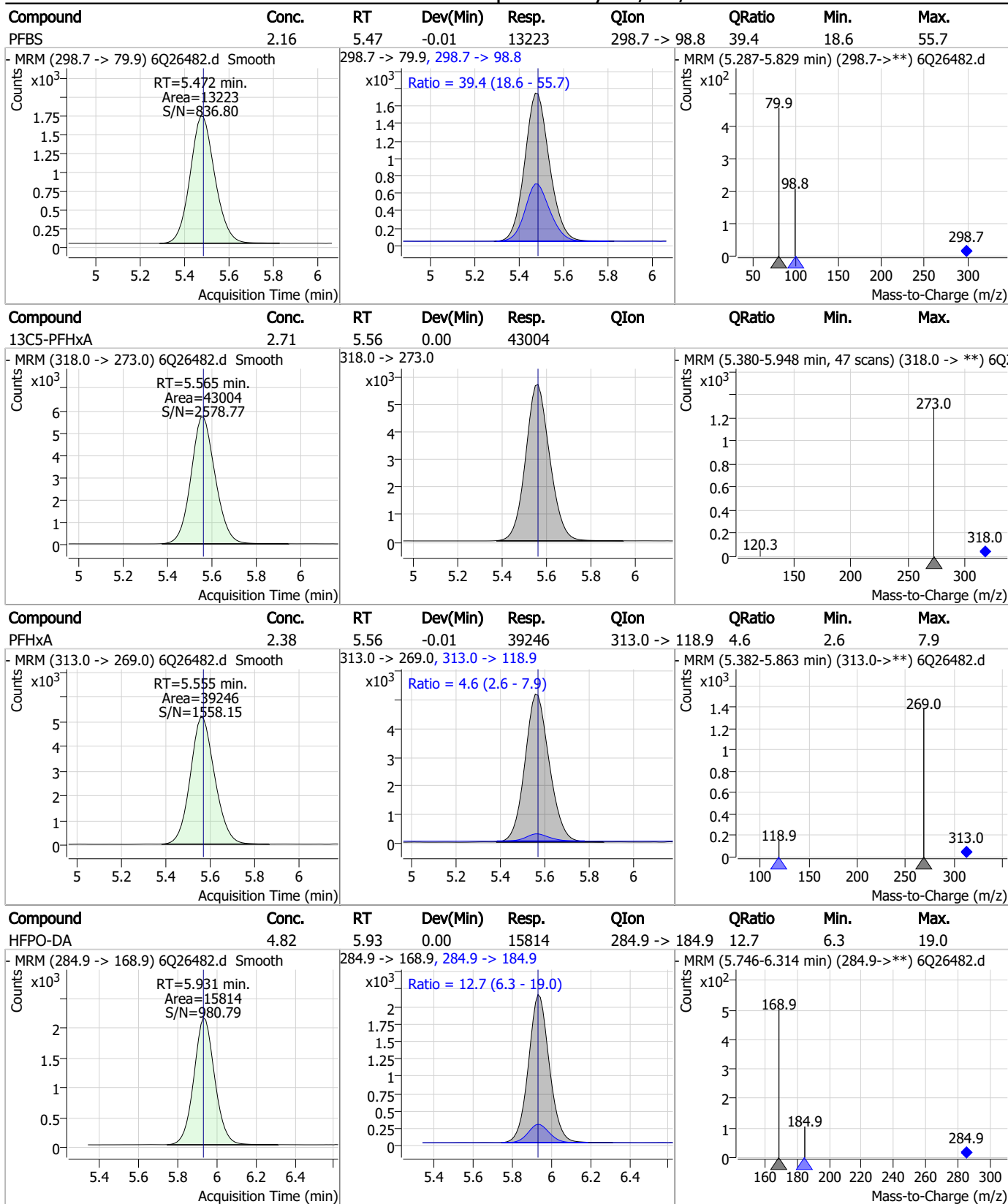
### Perfluorinated Compounds by LC/MS/MS



7.7.10  
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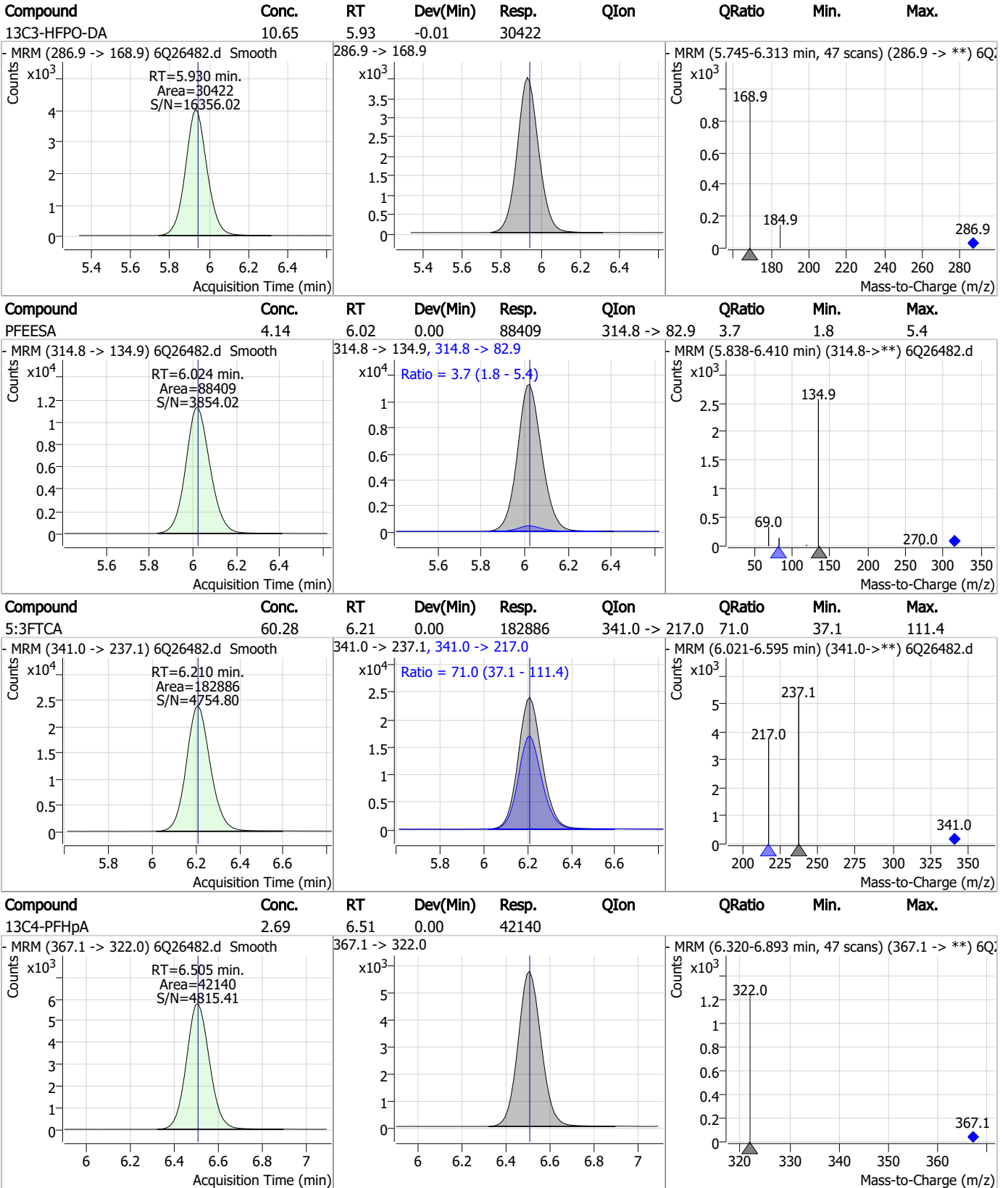


### Perfluorinated Compounds by LC/MS/MS



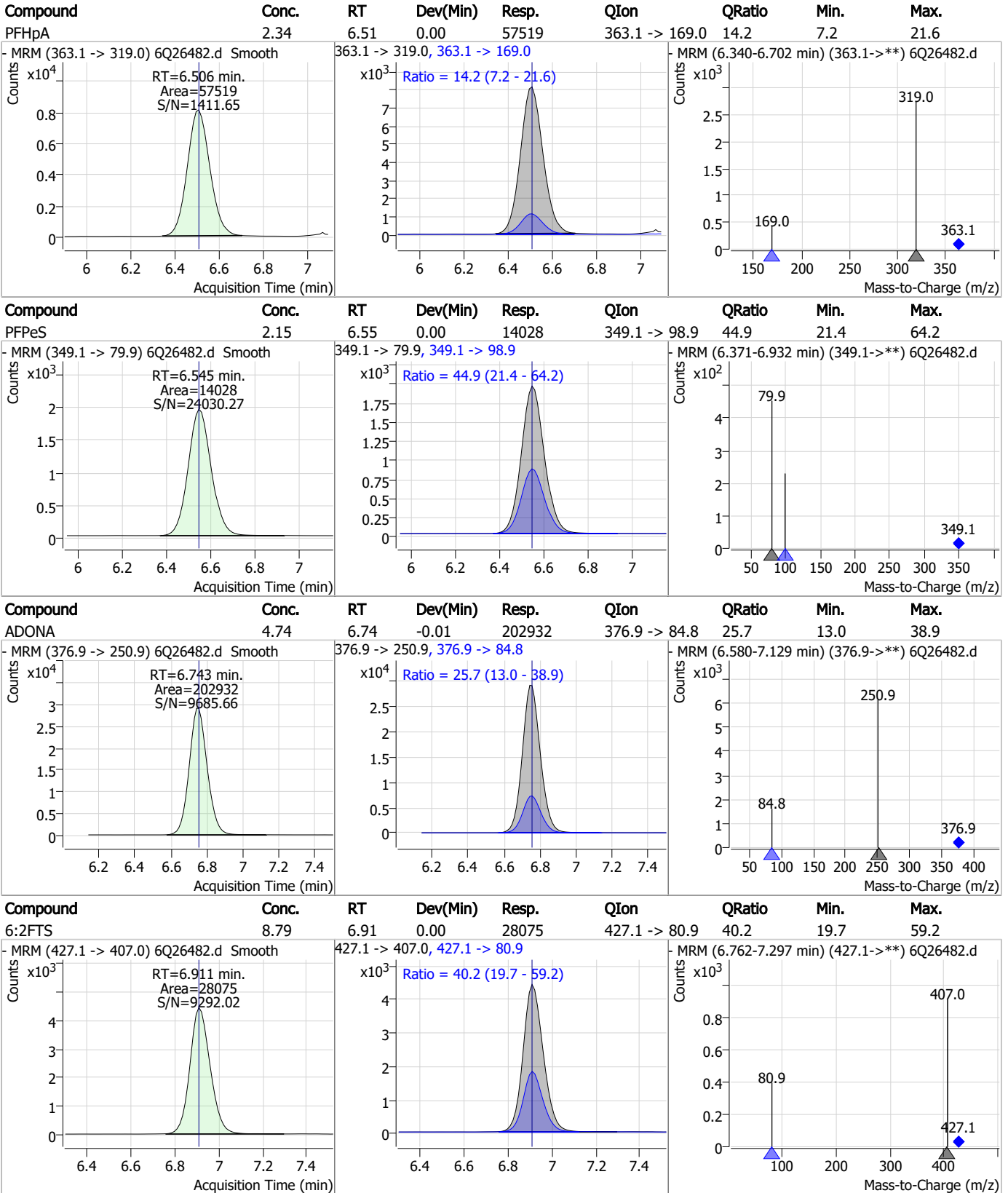
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### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

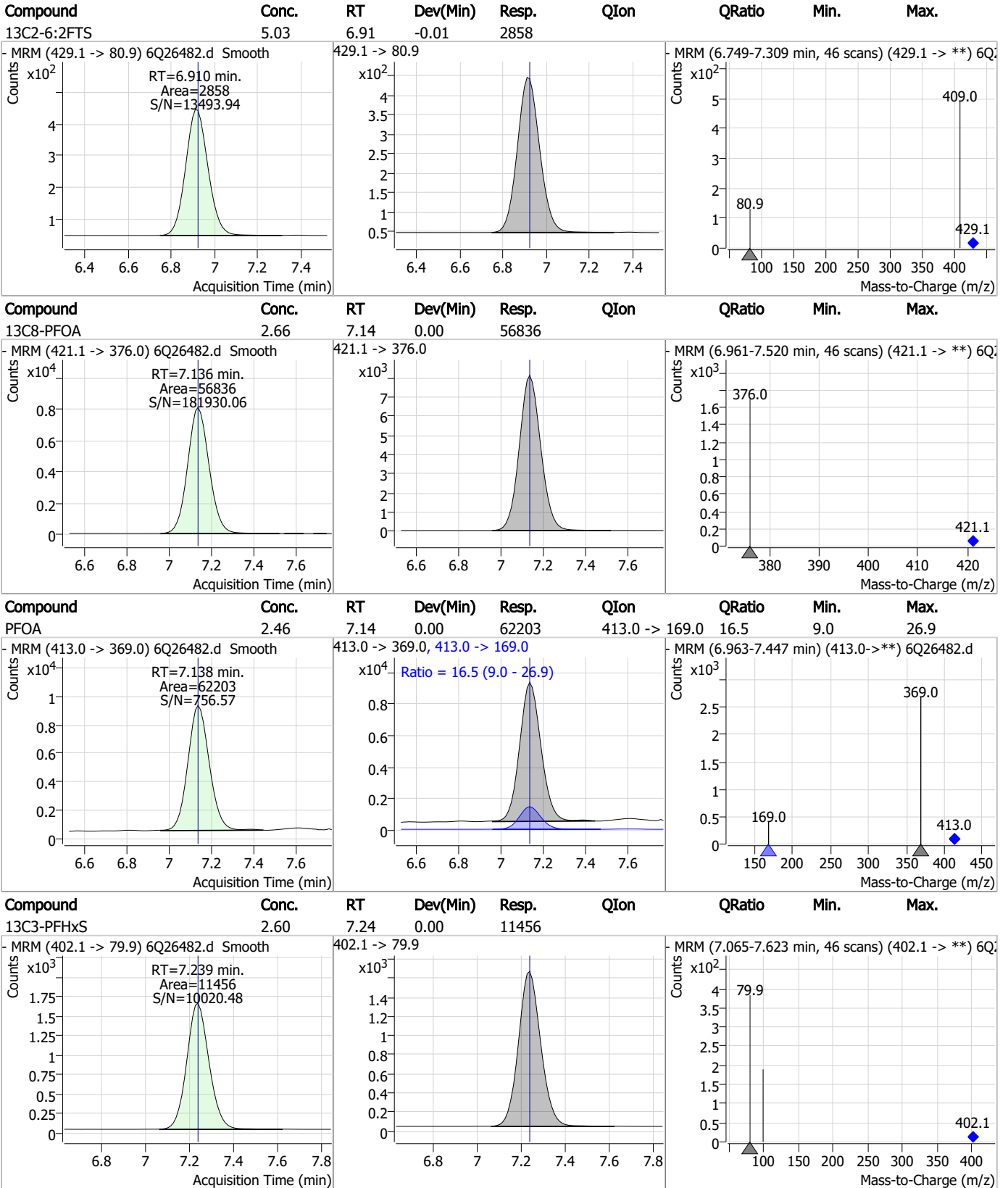
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7



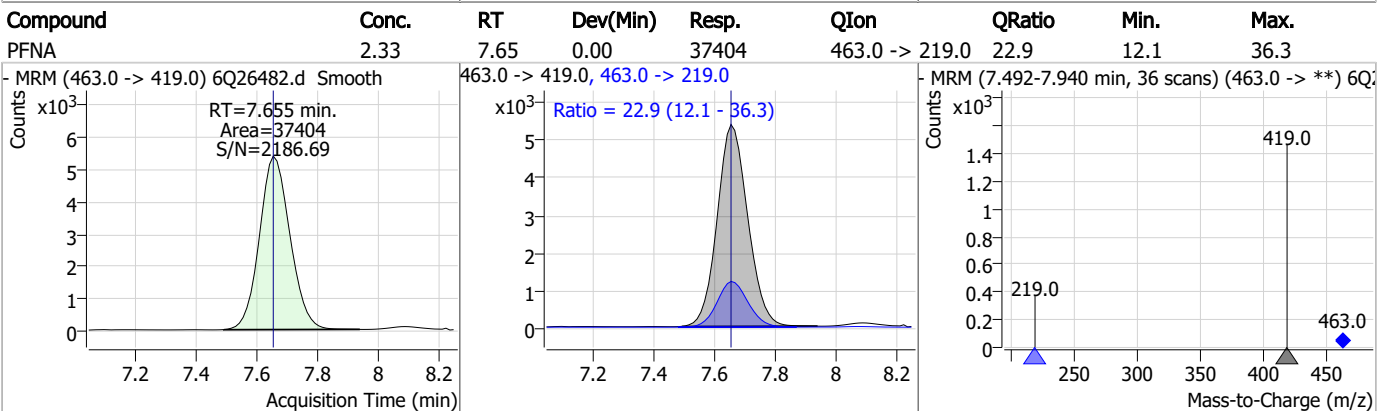
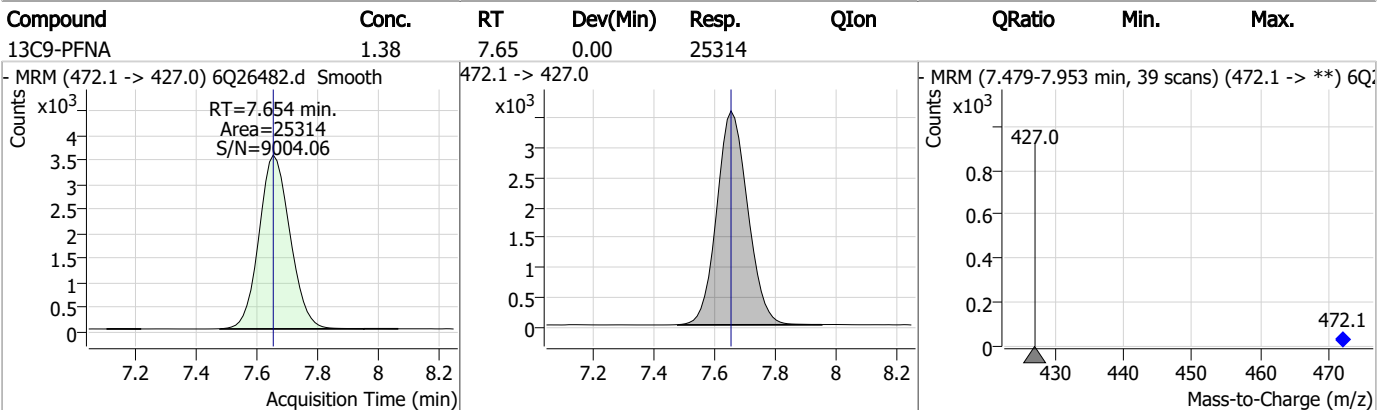
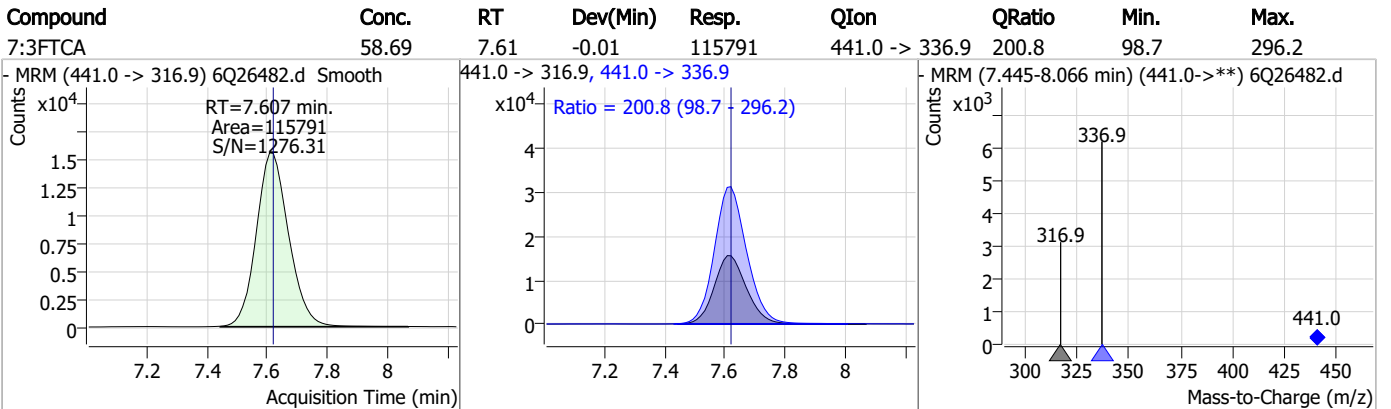
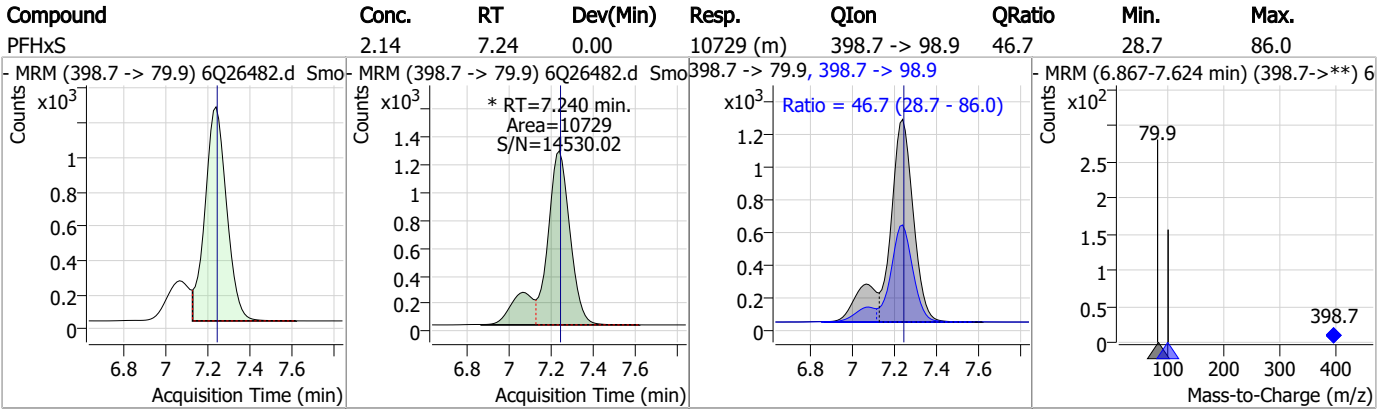
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7



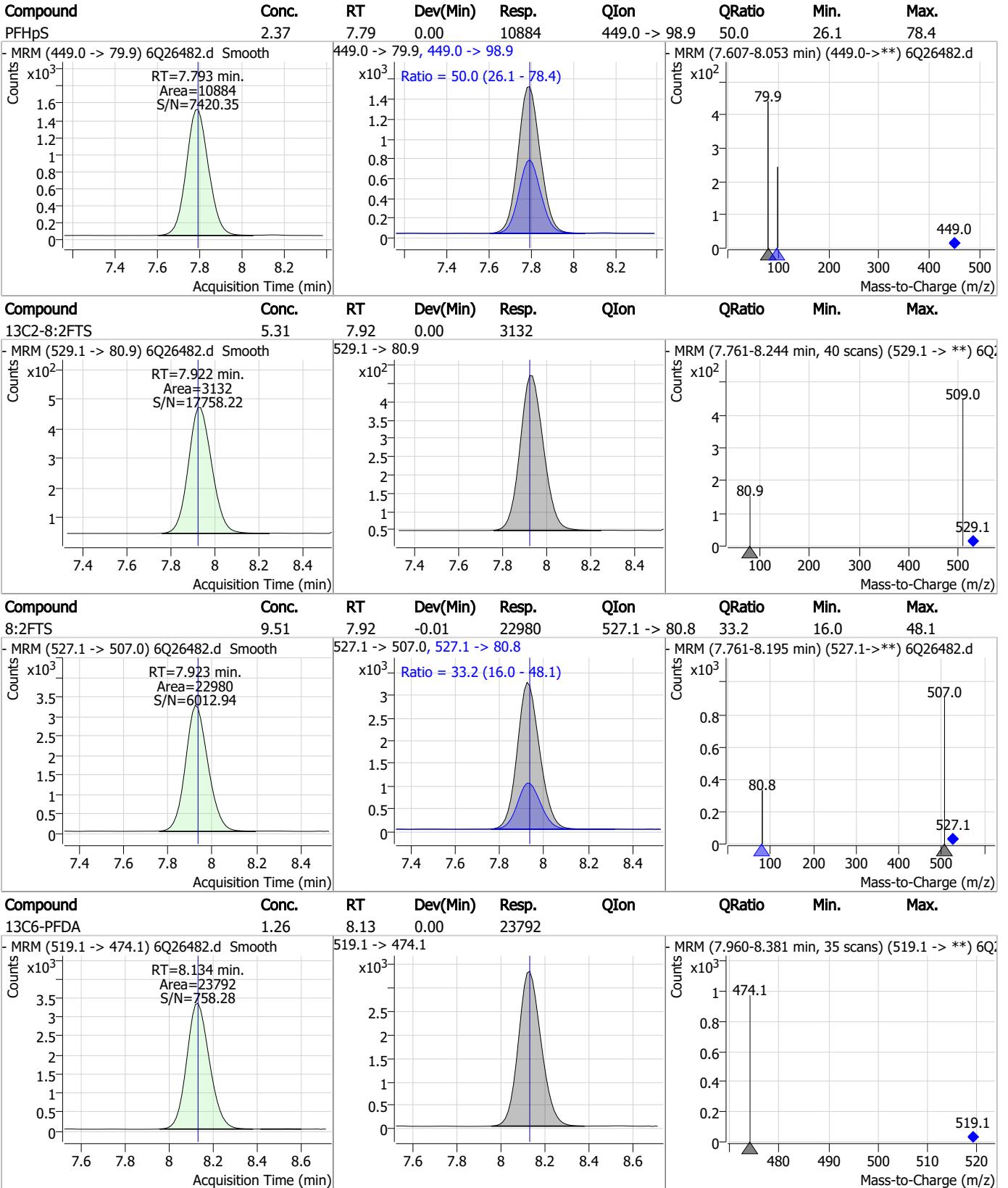
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7.7.10 7



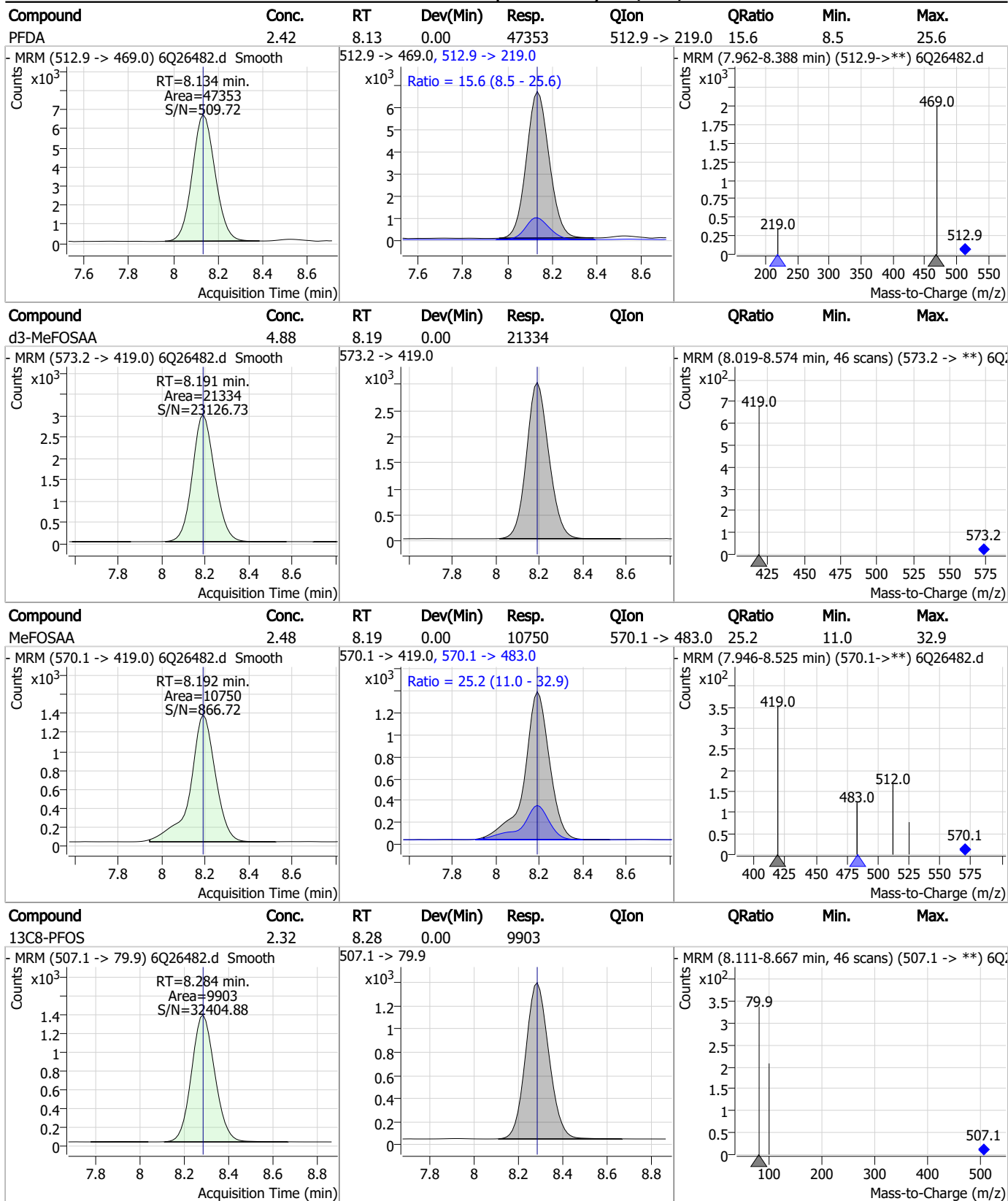
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7



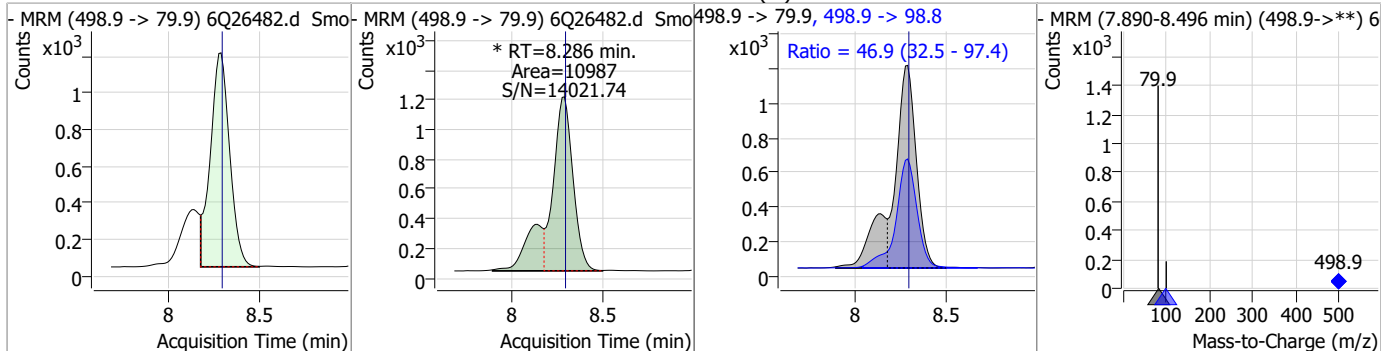
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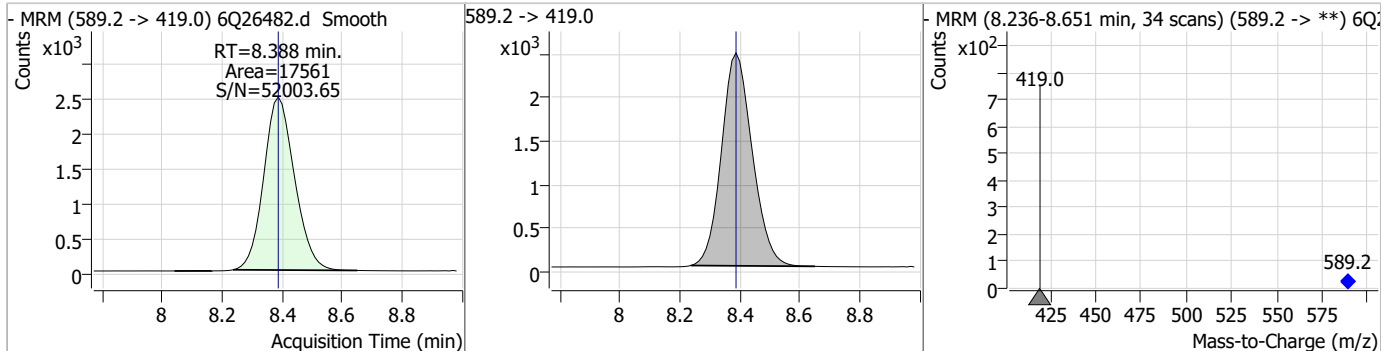
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### Perfluorinated Compounds by LC/MS/MS

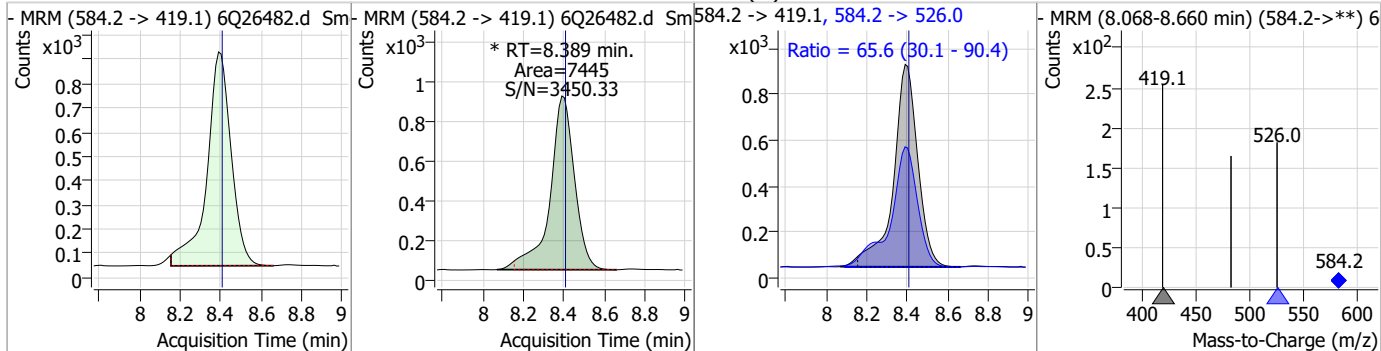
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.38	8.29	0.00	10987 (m)	498.9 -> 98.8	46.9	32.5	97.4



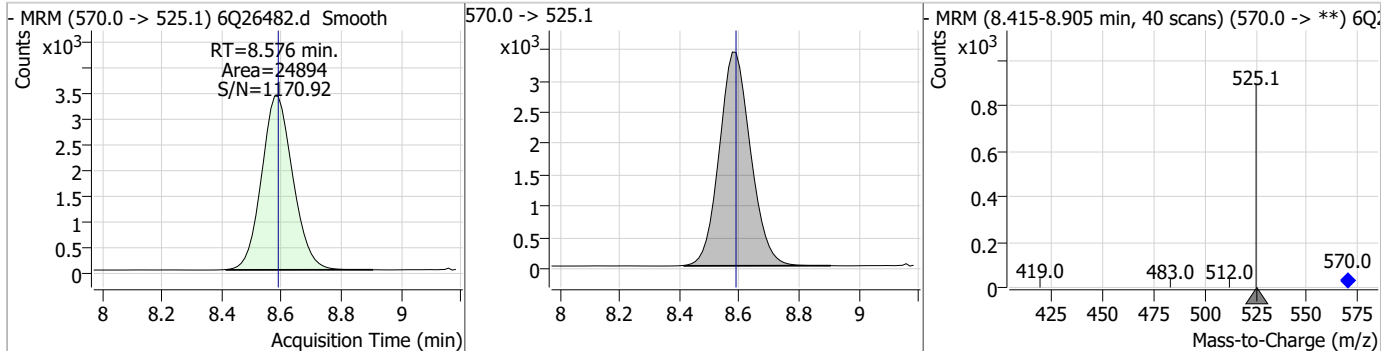
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.84	8.39	0.00	17561				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.43	8.39	-0.01	7445 (m)	584.2 -> 526.0	65.6	30.1	90.4

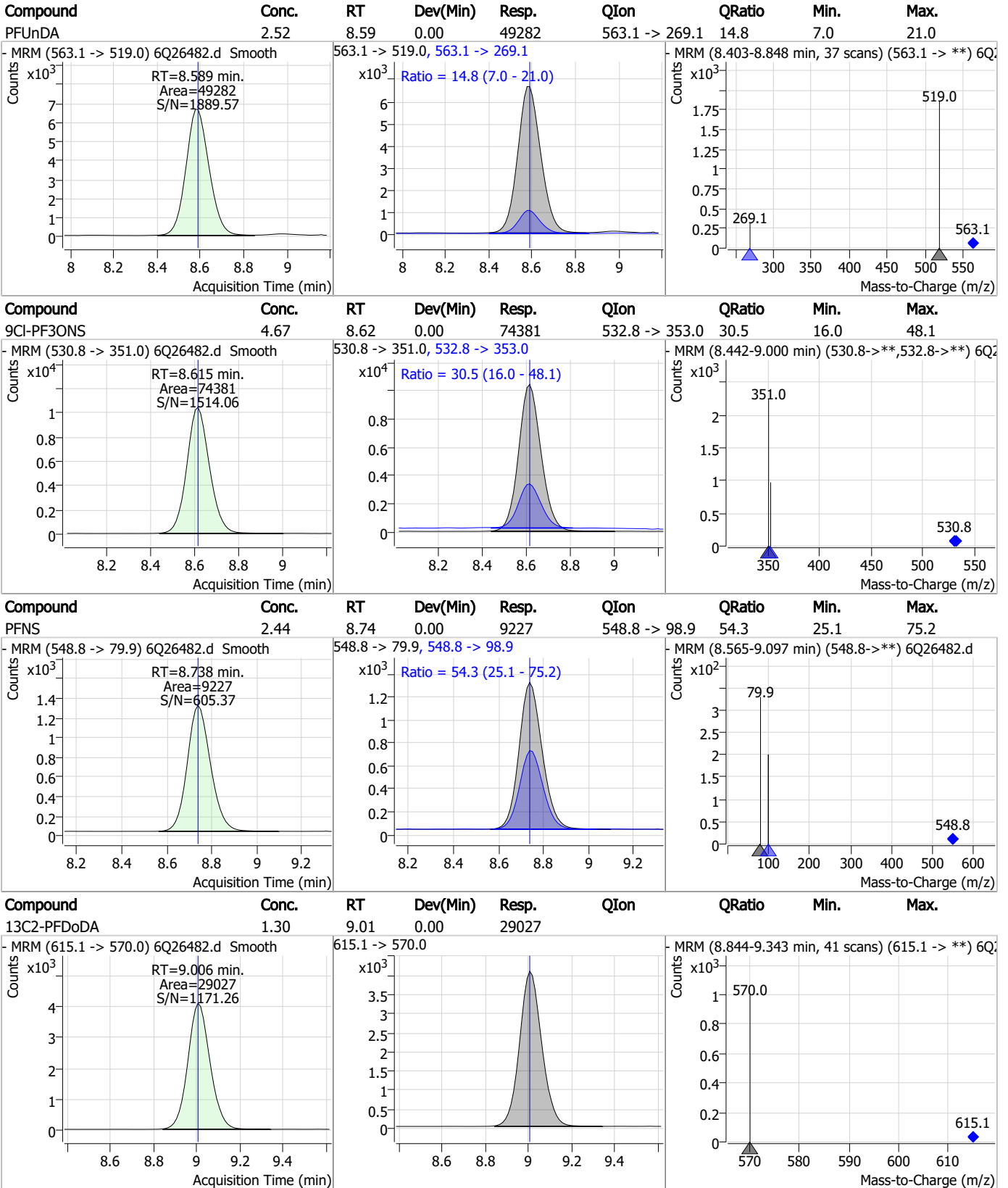


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.58	-0.01	24894				





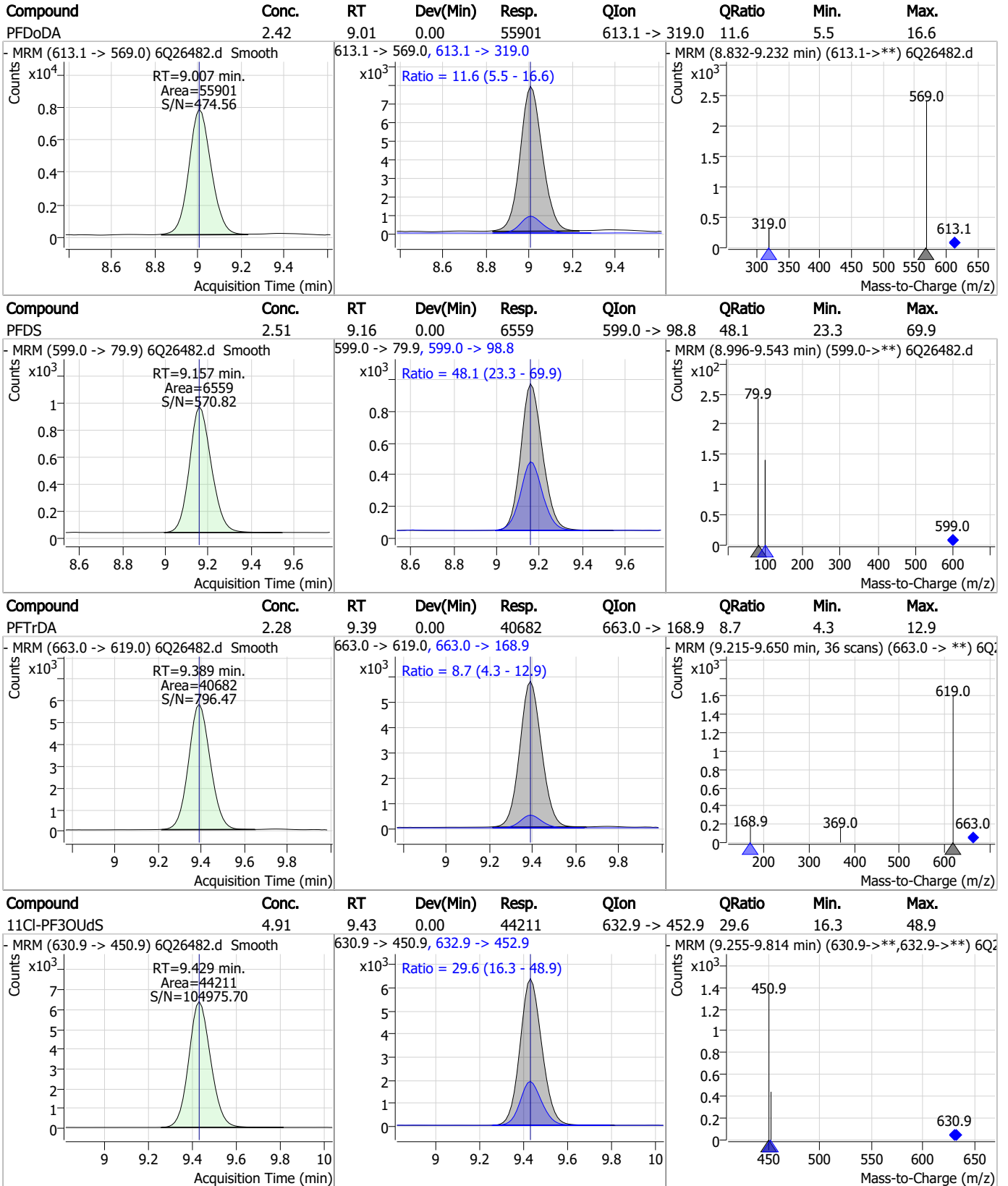
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

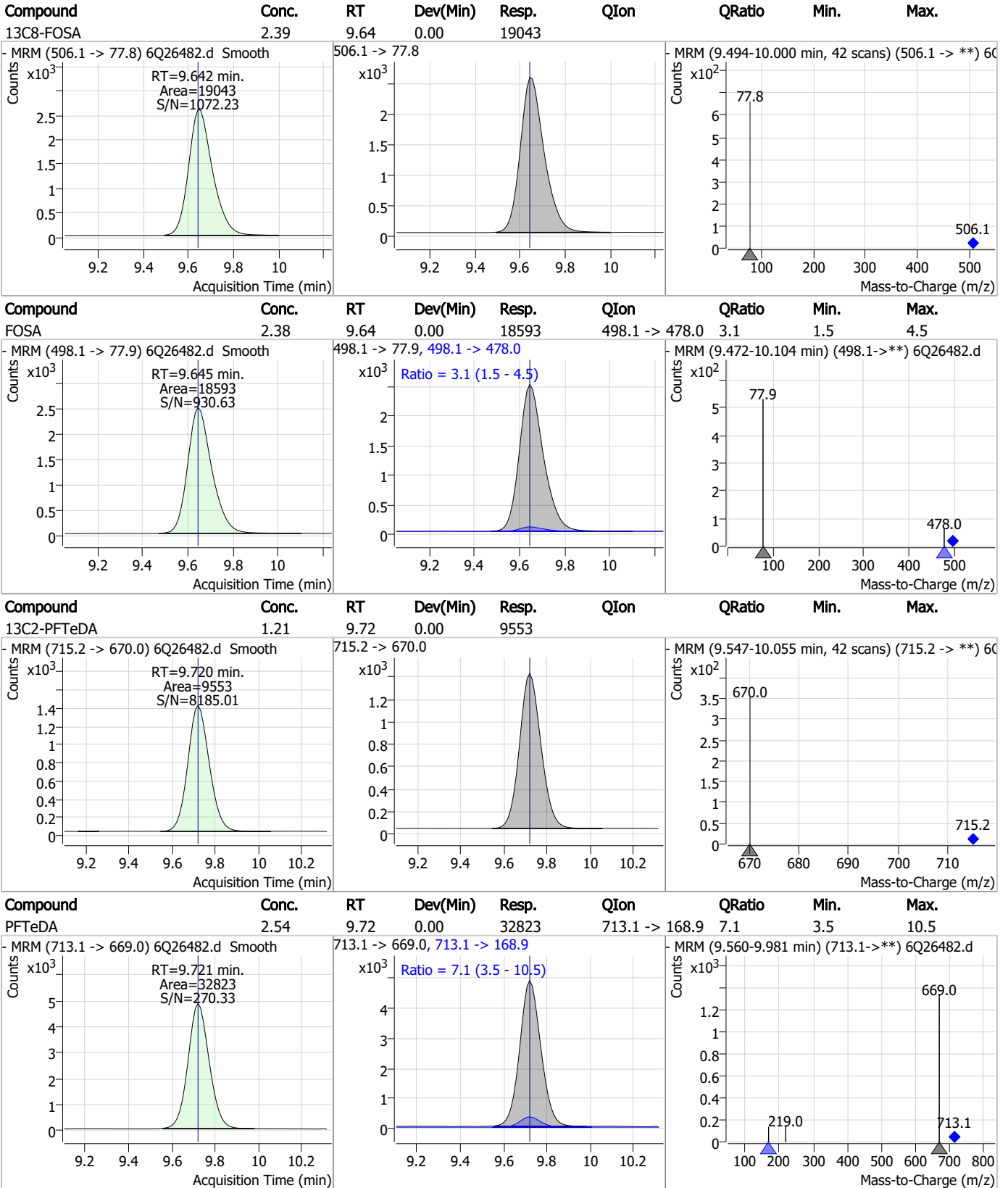


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

### Perfluorinated Compounds by LC/MS/MS

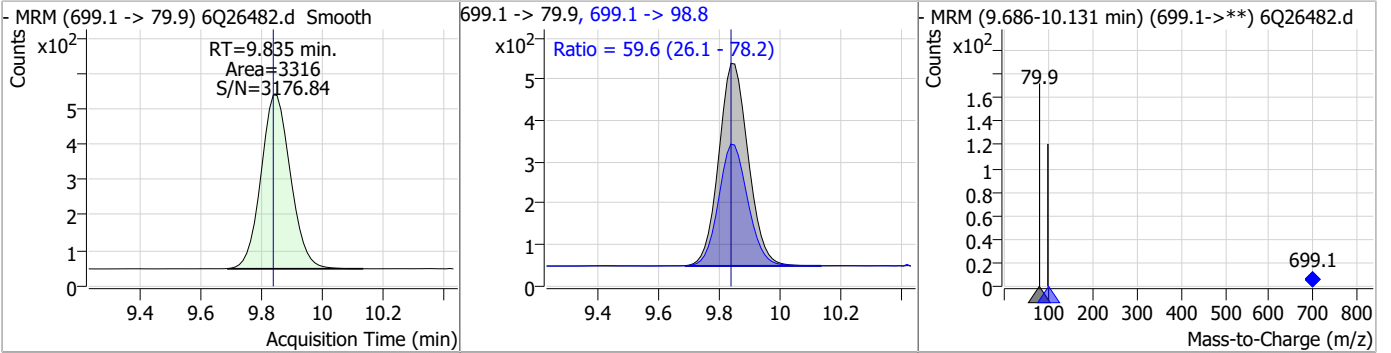


7.7.10 7

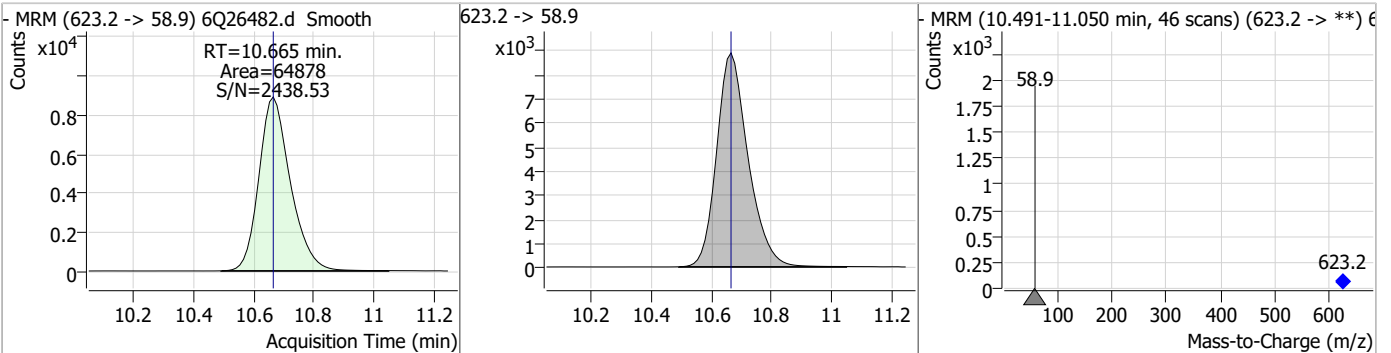


### Perfluorinated Compounds by LC/MS/MS

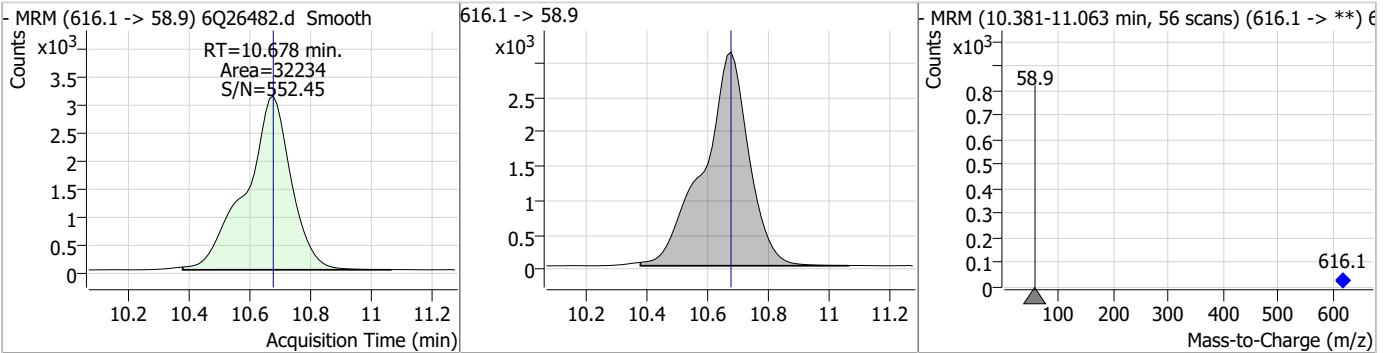
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.40	9.84	0.00	3316	699.1 -> 98.8	59.6	26.1	78.2



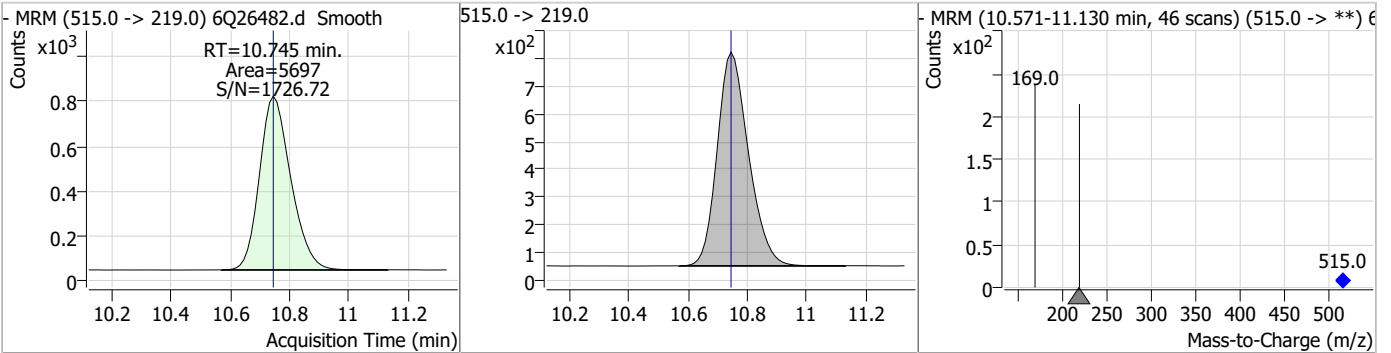
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.51	10.67	0.00	64878				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.62	10.68	0.00	32234				

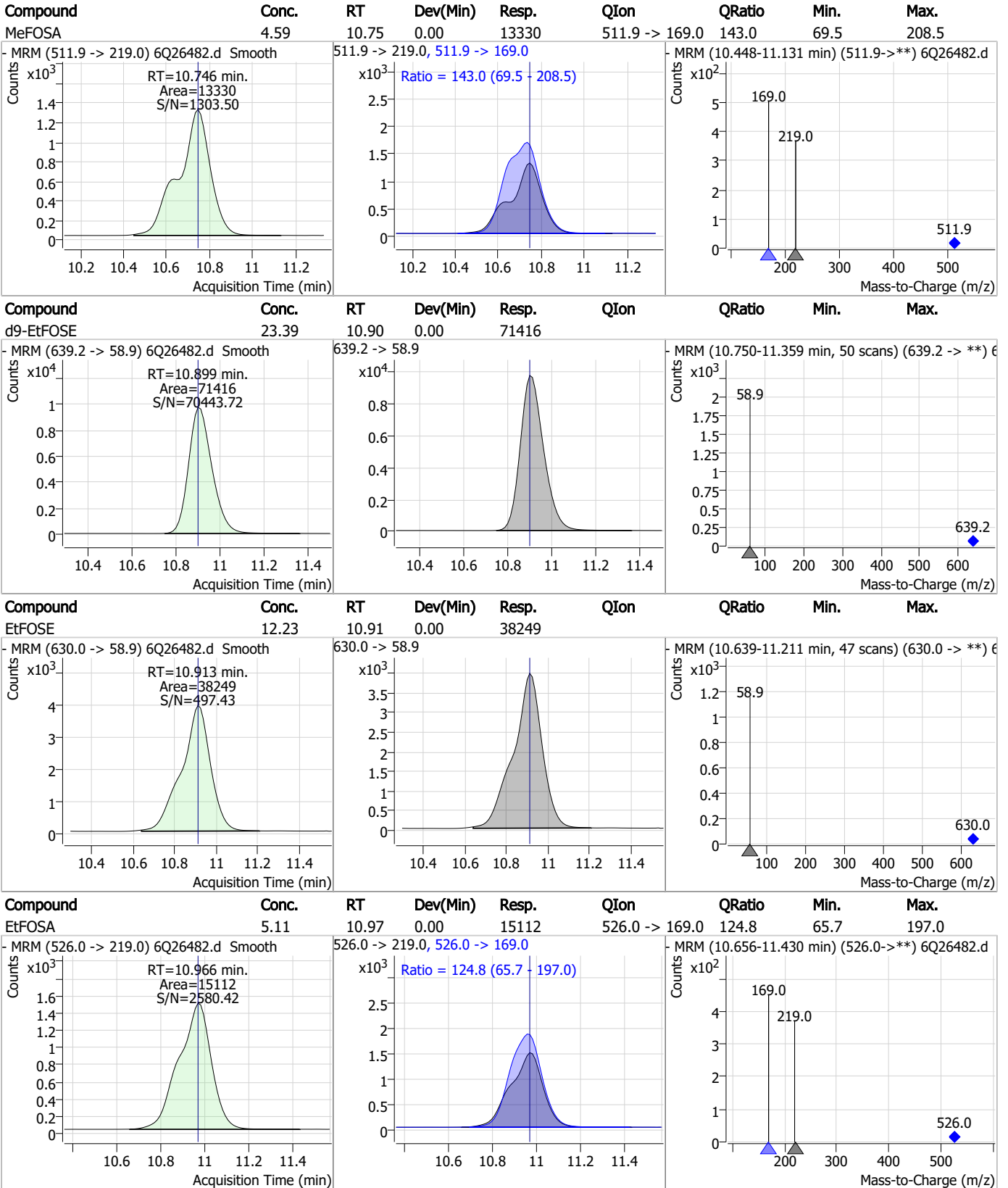


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.74	0.00	5697				



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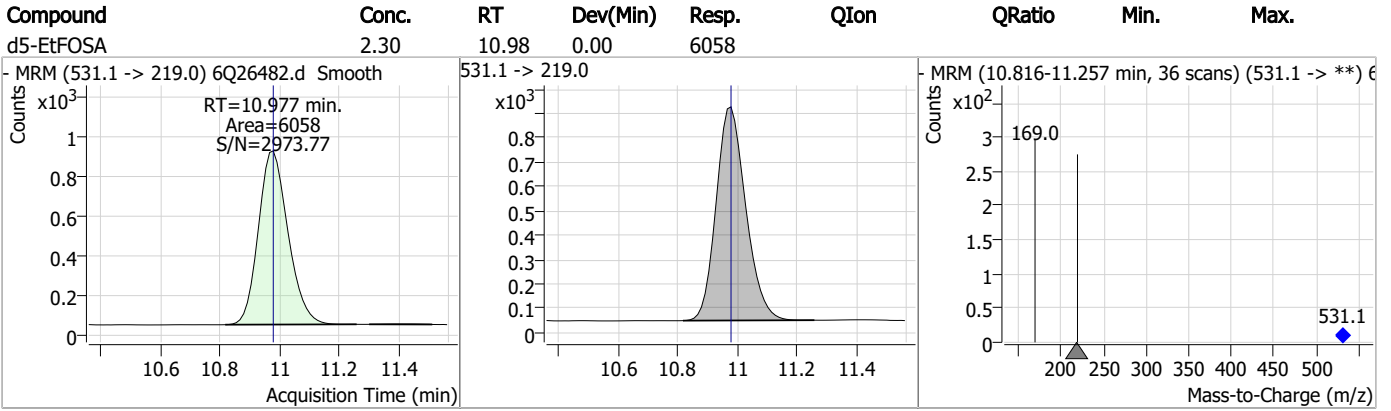
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Perfluorinated Compounds by LC/MS/MS



7.7.10  
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# Manual Integration Approval Summary

Sample Number: S6Q372-ICV372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26482.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 19:34      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.39	Split peak

7.7.10.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26483.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 7:49:13 PM  
 Sample Name : icv372-20  
 Vial : P1-B2  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	134148	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	42523	5.00 µg/L	0.000
M5-PFHxA	5.552	318.0 -> 273.0	41116	2.50 µg/L	-0.012
M4-PFHpA	6.493	367.1 -> 322.0	41665	2.50 µg/L	-0.012
M8-PFOA	7.136	421.1 -> 376.0	55493	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	22621	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	22692	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	23180	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	28608	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9704	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	18898	2.50 µg/L	0.000
M3-PFBS	5.483	302.1 -> 79.9	18369	2.50 µg/L	0.000
M3-PFHxS	7.227	402.1 -> 79.9	9946	2.50 µg/L	-0.012
M8-PFOS	8.284	507.1 -> 79.9	10267	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	1994	5.00 µg/L	-0.012
M2-6:2FTS	6.910	429.1 -> 80.9	2695	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	2933	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	19758	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	28204	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	17122	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	60887	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	71447	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	5834	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5384	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	8834	2.50 µg/L	0.000
13C3-PFBA	2.929	216.0 -> 172.0	54266	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6454	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	55381	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21820	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21079	1.25 µg/L	0.000
13C2-PFHxA	5.553	315.1 -> 270.0	40509	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.228	329.1 -> 80.9	1994	4.96 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2695	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2933	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-PFDoDA	9.006	615.1 -> 570.0	28608	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9704	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFBS	5.483	302.1 -> 79.9	18369	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C3-PFHxS	7.227	402.1 -> 79.9	9946	2.38 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 = 95.1%	
13C4-PFBA	2.926	216.8 -> 171.9	134148	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.493	367.1 -> 322.0	41665	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C5-PFHxA	5.552	318.0 -> 273.0	41116	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFPeA	4.346	268.3 -> 223.0	42523	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C6-PFDA	8.134	519.1 -> 474.1	22692	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C7-PFUnDA	8.576	570.0 -> 525.1	23180	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-FOSA	9.642	506.1 -> 77.8	18898	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C8-PFOA	7.136	421.1 -> 376.0	55493	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C8-PFOS	8.284	507.1 -> 79.9	10267	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C9-PFNA	7.654	472.1 -> 427.0	22621	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	8.191	573.2 -> 419.0	19758	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	28204	9.87 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d3-MeFOSA	10.745	515.0 -> 219.0	5384	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
d5-EtFOSAA	8.388	589.2 -> 419.0	17122	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d7-MeFOSE	10.665	623.2 -> 58.9	60887	25.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d9-EtFOSE	10.899	639.2 -> 58.9	71447	26.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d5-EtFOSA	10.977	531.1 -> 219.0	5834	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.229	327.1 -> 307.0	73692	20.34 µg/L	98
		327.1 -> 80.9	28890		
6:2FTS	6.911	427.1 -> 407.0	60978	20.25 µg/L	93
		427.1 -> 80.9	21429		
8:2FTS	7.923	527.1 -> 507.0	40080	17.72 µg/L	92
		527.1 -> 80.8	14606		
EtFOSAA	8.389	584.2 -> 419.1	54732	18.35 µg/L	88
		584.2 -> 526.0	38065		
FOSA	9.645	498.1 -> 77.9	136890	17.62 µg/L	99
		498.1 -> 478.0	4434		
MeFOSAA	8.192	570.1 -> 419.0	83220	20.75 µg/L	96
		570.1 -> 483.0	16836		
PFBA	2.919	212.8 -> 168.9	97803	18.64 µg/L	100
PFBS	5.472	298.7 -> 79.9	115091	18.95 µg/L	97
		298.7 -> 98.8	40711		
PFDA	8.134	512.9 -> 469.0	384877	20.66 µg/L	95
		512.9 -> 219.0	57253		
PFDoDA	9.007	613.1 -> 569.0	363889	16.00 µg/L	98
		613.1 -> 319.0	42542		
PFDS	9.157	599.0 -> 79.9	51245	18.89 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	24229			
PFHpA	6.506	363.1 -> 319.0	441303	18.16	µg/L	99
		363.1 -> 169.0	62446			
PFHpS	7.781	449.0 -> 79.9	82683	17.34	µg/L	94
		449.0 -> 98.9	39934			
PFHxA	5.555	313.0 -> 269.0	306661	19.45	µg/L	99
		313.0 -> 118.9	15522			
PFHxS	7.240	398.7 -> 79.9	91193	20.93	µg/L	m 84
		398.7 -> 98.9	41365			
PFNA	7.655	463.0 -> 419.0	312010	21.71	µg/L	97
		463.0 -> 219.0	70803			
PFNS	8.738	548.8 -> 79.9	68691	17.50	µg/L	95
		548.8 -> 98.9	36773			
PFOA	7.138	413.0 -> 369.0	443895	18.01	µg/L	99
		413.0 -> 169.0	78525			
PFOS	8.286	498.9 -> 79.9	83795	17.53	µg/L	m 76
		498.9 -> 98.8	38354			
PFPeA	4.349	263.0 -> 219.0	193852	19.16	µg/L	100
PFPeS	6.545	349.1 -> 79.9	117783	20.80	µg/L	95
		349.1 -> 98.9	54218			
PFTeDA	9.721	713.1 -> 669.0	261697	19.97	µg/L	99
		713.1 -> 168.9	19646			
PFTrDA	9.389	663.0 -> 619.0	308410	17.57	µg/L	98
		663.0 -> 168.9	24046			
PFUnDA	8.576	563.1 -> 519.0	328924	18.03	µg/L	96
		563.1 -> 269.1	50858			
11Cl-PF3OUdS	9.429	630.9 -> 450.9	166669	19.95	µg/L	99
		632.9 -> 452.9	53127			
9Cl-PF3ONS	8.615	530.8 -> 351.0	282978	19.16	µg/L	100
		532.8 -> 353.0	91625			
ADONA	6.743	376.9 -> 250.9	807136	20.33	µg/L	100
		376.9 -> 84.8	208767			
HFPO-DA	5.931	284.9 -> 168.9	60221	19.78	µg/L	98
		284.9 -> 184.9	7193			
3:3FTCA	3.777	241.0 -> 177.0	13018	18.07	µg/L	99
		241.0 -> 117.0	1828			
5:3FTCA	6.210	341.0 -> 237.1	57140	19.70	µg/L	98
		341.0 -> 217.0	43228			
7:3FTCA	7.607	441.0 -> 316.9	33312	17.66	µg/L	90
		441.0 -> 336.9	70851			
EtFOSA	10.979	526.0 -> 219.0	52318	18.36	µg/L	78
		526.0 -> 169.0	54902			
EtFOSE	10.925	630.0 -> 58.9	297081	94.95	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	49475	18.02	µg/L	72
		511.9 -> 169.0	52102			
MeFOSE	10.678	616.1 -> 58.9	255216	98.02	µg/L	100
PFDoDS	9.835	699.1 -> 79.9	24845	17.35	µg/L	98
		699.1 -> 98.8	13285			
NFDHA	5.435	295.0 -> 201.0	36936	18.90	µg/L	98
		295.0 -> 84.9	10417			
PFMBA	4.762	279.0 -> 85.1	145930	18.75	µg/L	100
PFMPA	3.488	229.0 -> 84.9	120043	18.87	µg/L	100
PFEESA	6.024	314.8 -> 134.9	340219	16.64	µg/L	100
		314.8 -> 82.9	11991			

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



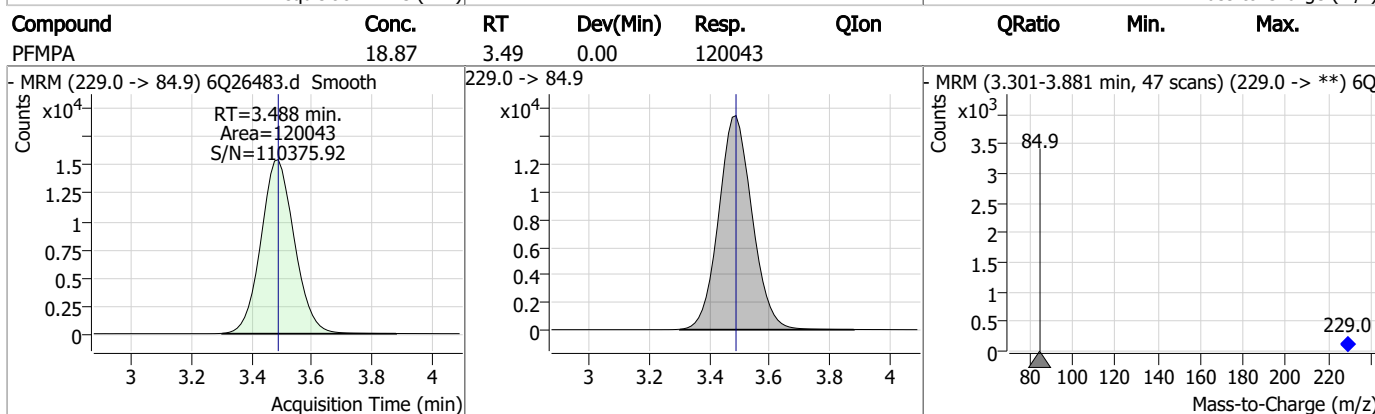
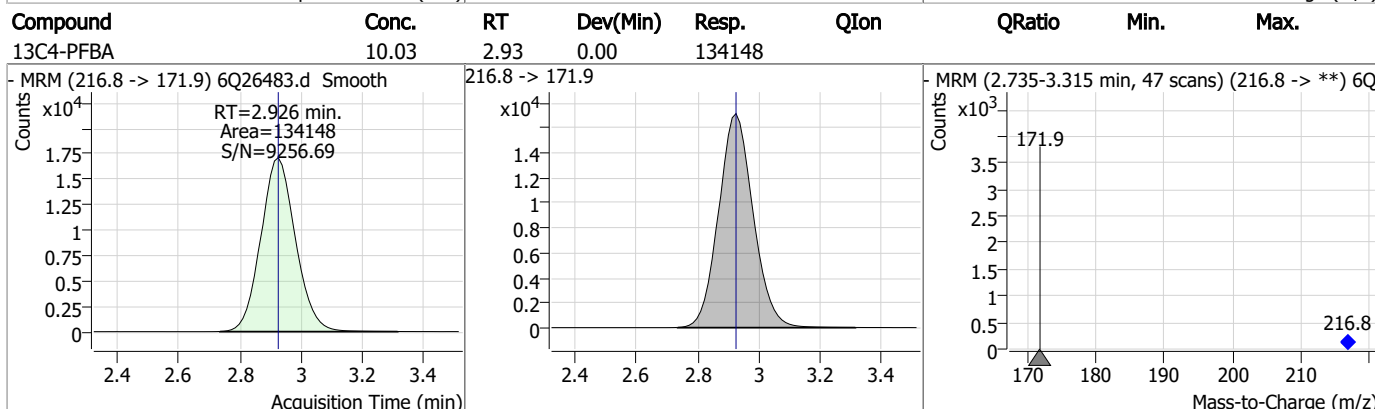
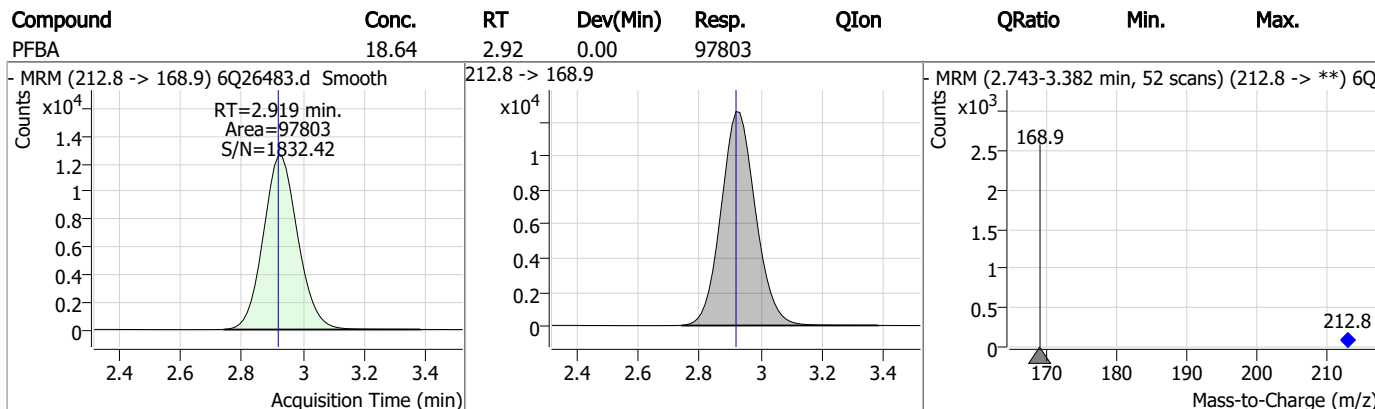
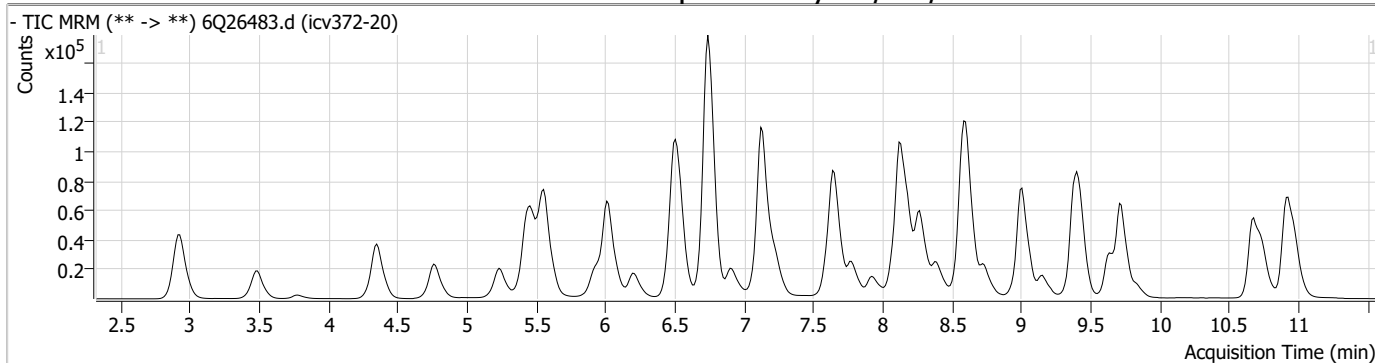
### Perfluorinated Compounds by LC/MS/MS

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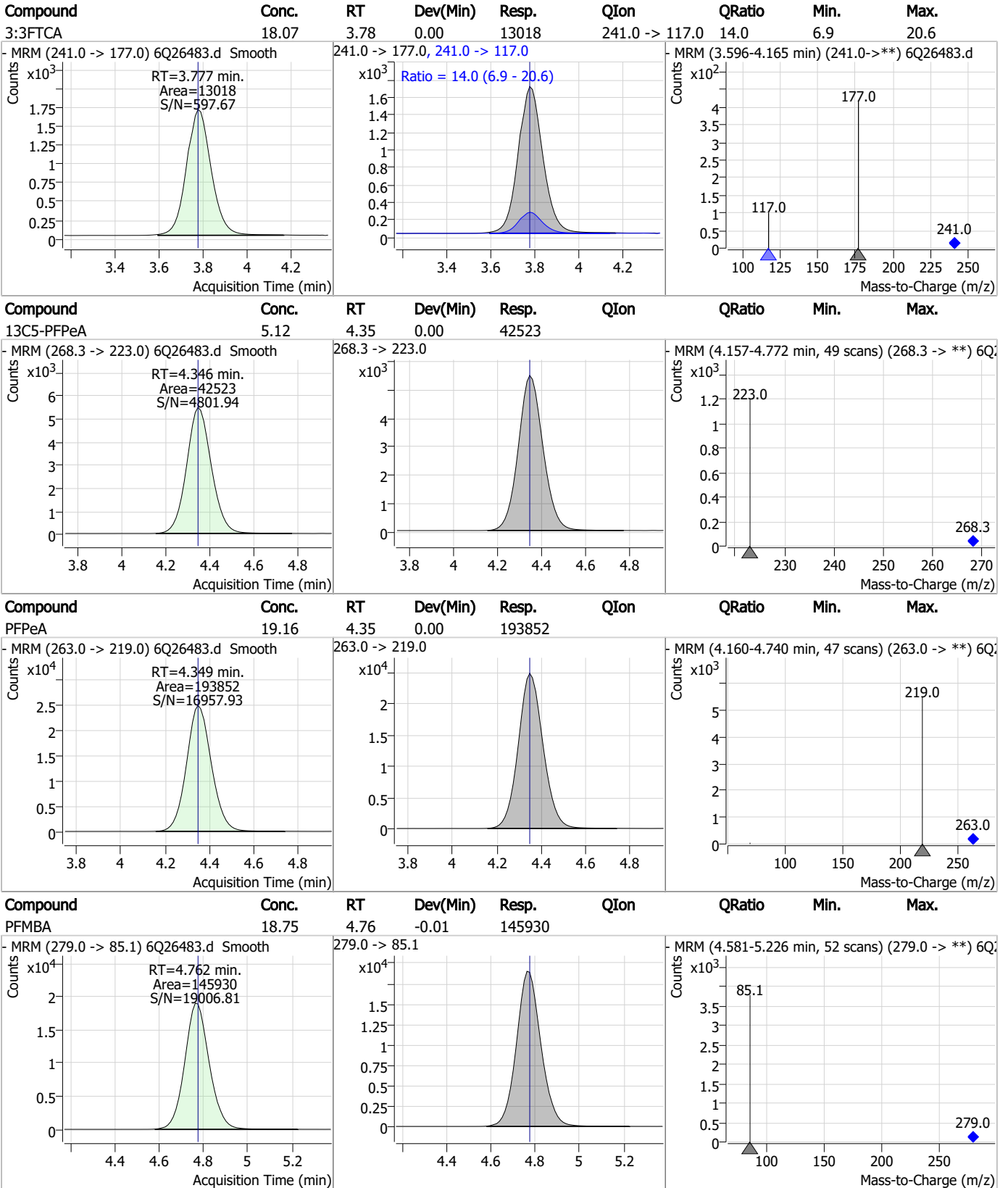
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### Perfluorinated Compounds by LC/MS/MS



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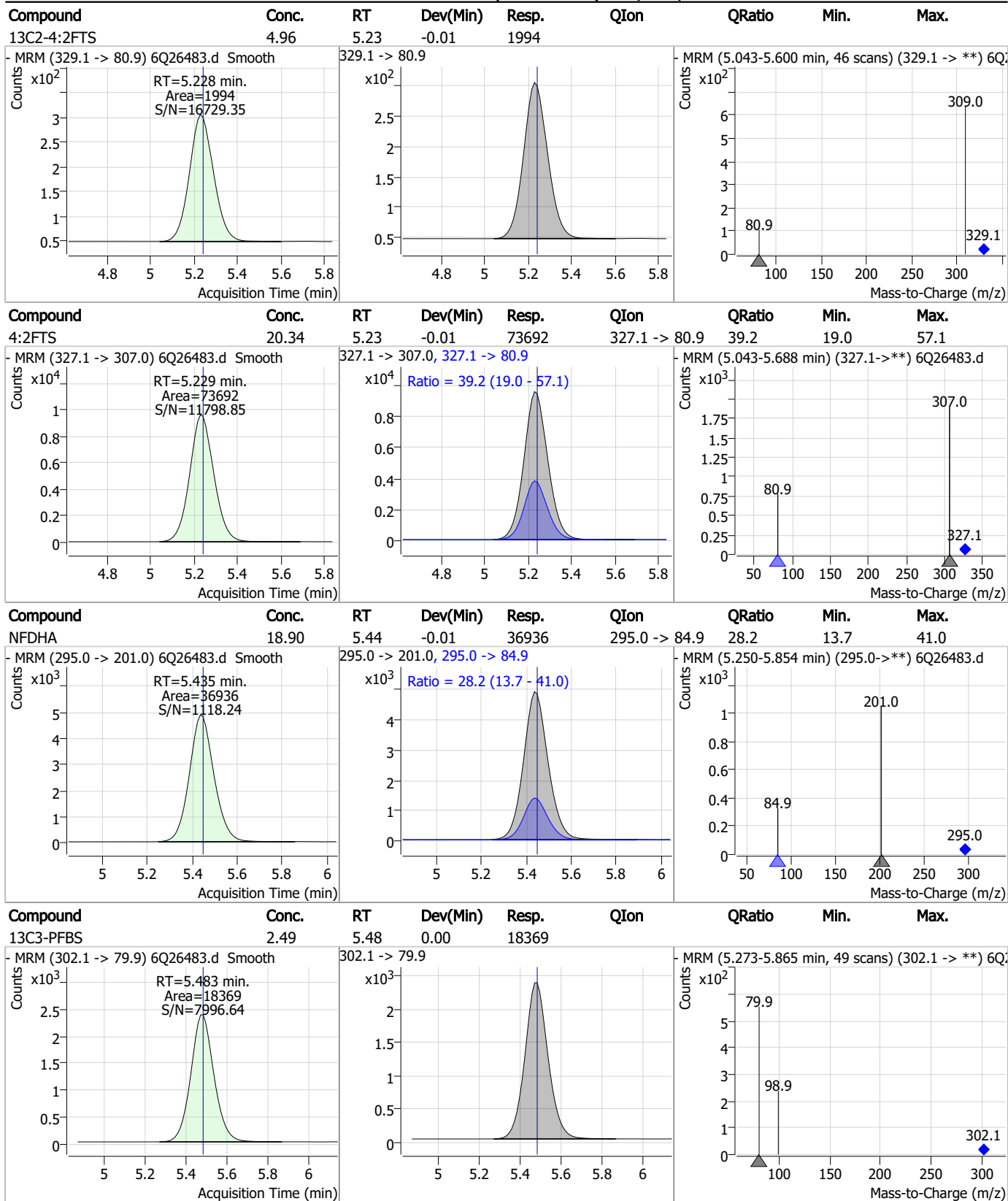
### Perfluorinated Compounds by LC/MS/MS



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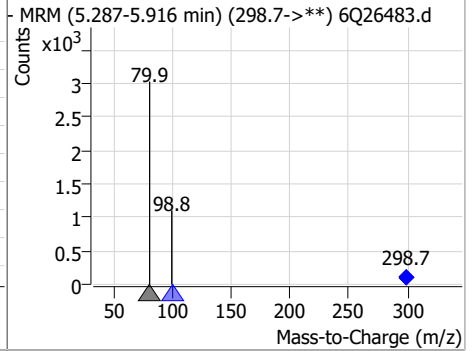
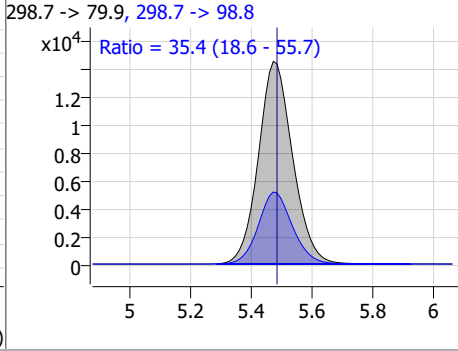
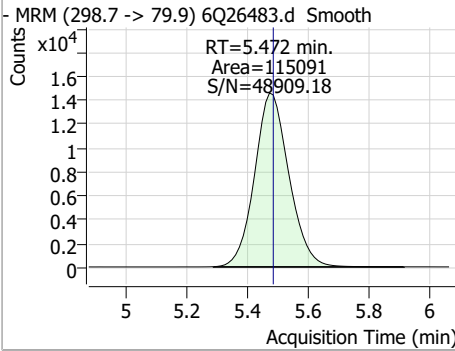
### Perfluorinated Compounds by LC/MS/MS



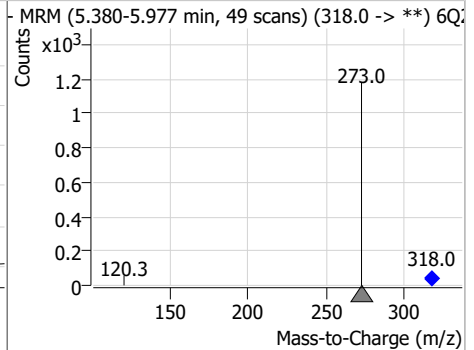
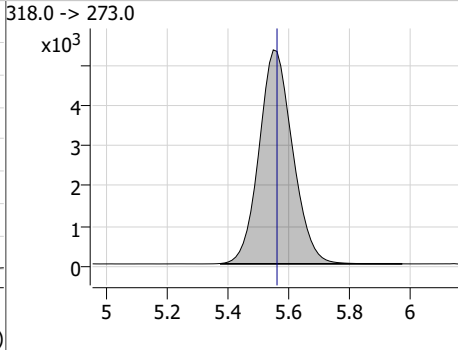
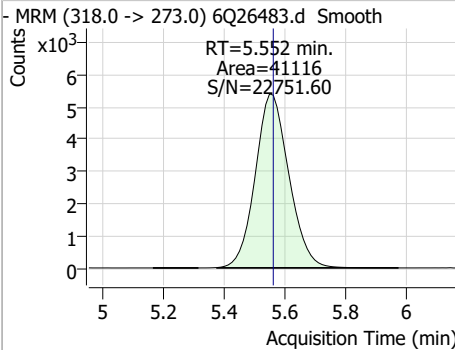
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### Perfluorinated Compounds by LC/MS/MS

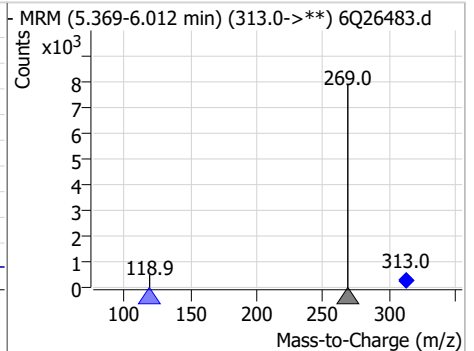
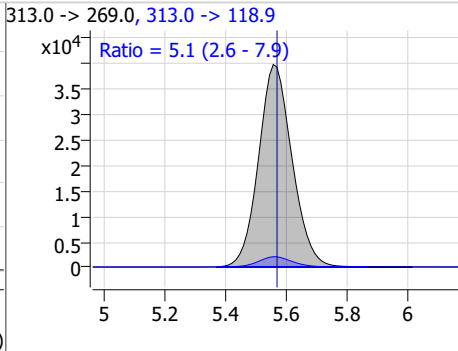
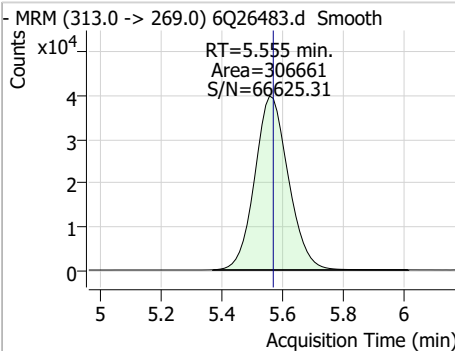
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.95	5.47	-0.01	115091	298.7 -> 98.8	35.4	18.6	55.7



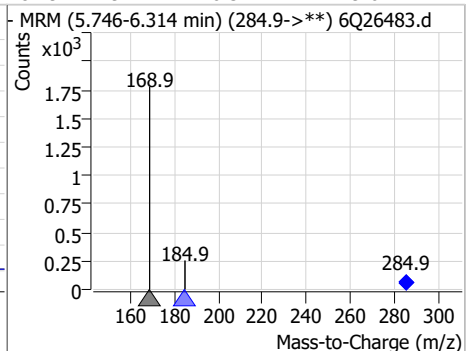
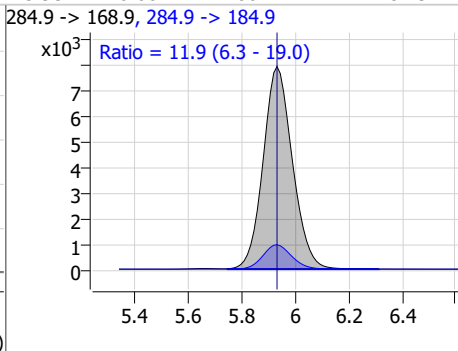
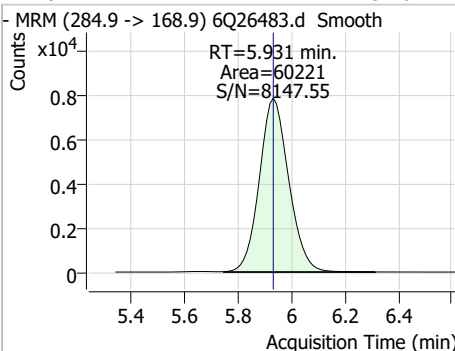
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.55	-0.01	41116				



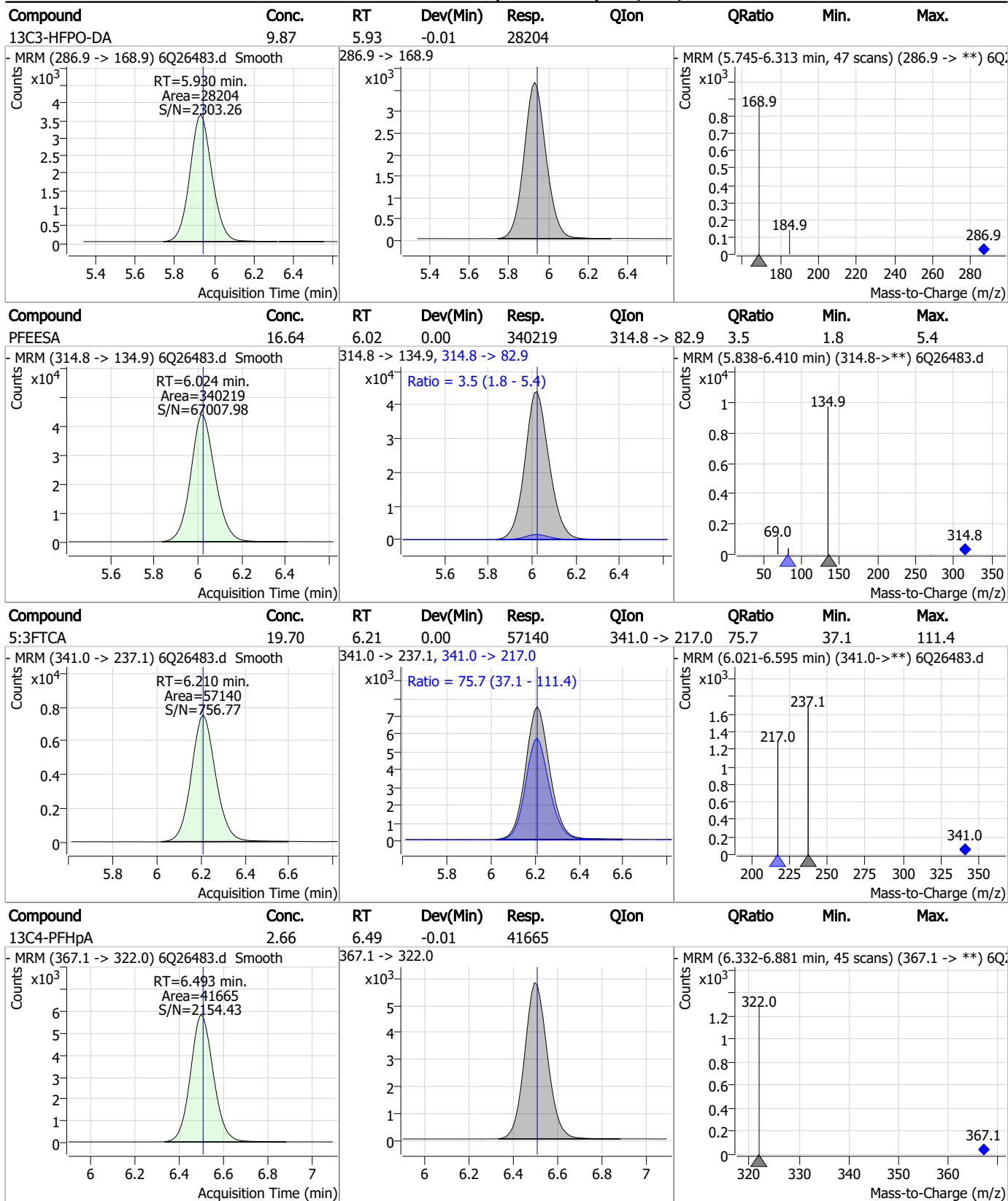
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.45	5.56	-0.01	306661	313.0 -> 118.9	5.1	2.6	7.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.78	5.93	0.00	60221	284.9 -> 184.9	11.9	6.3	19.0



### Perfluorinated Compounds by LC/MS/MS

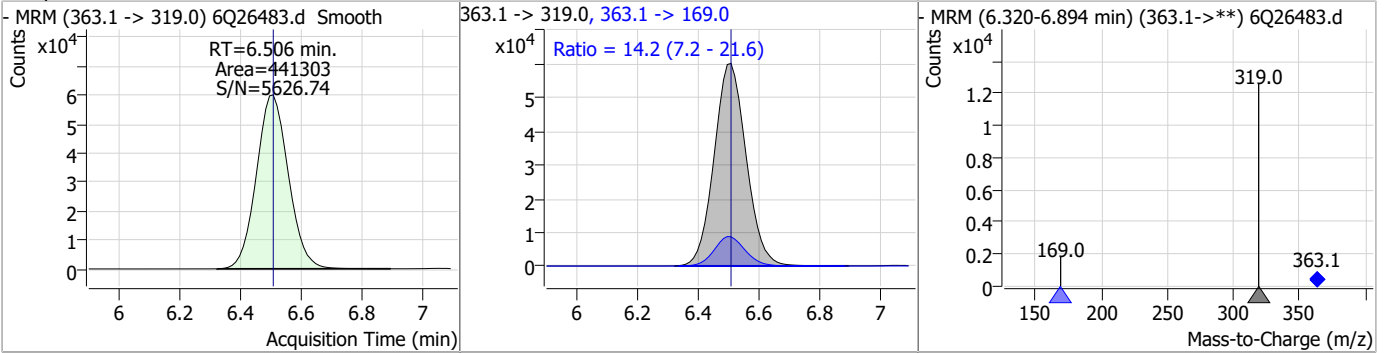


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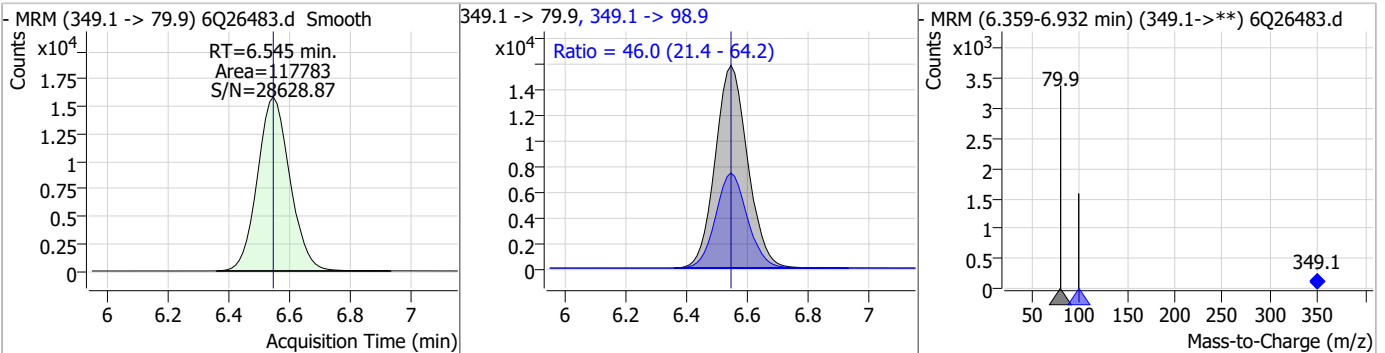


### Perfluorinated Compounds by LC/MS/MS

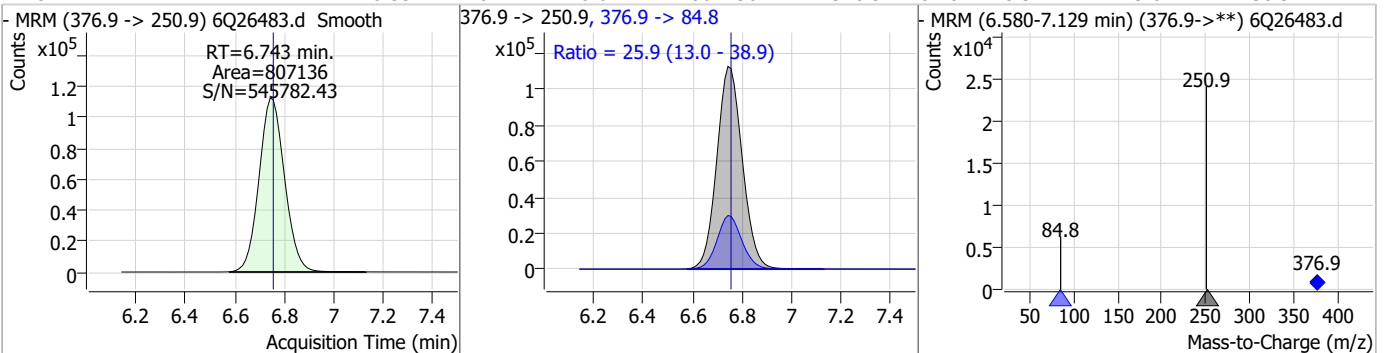
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.16	6.51	0.00	441303	363.1 -> 169.0	14.2	7.2	21.6



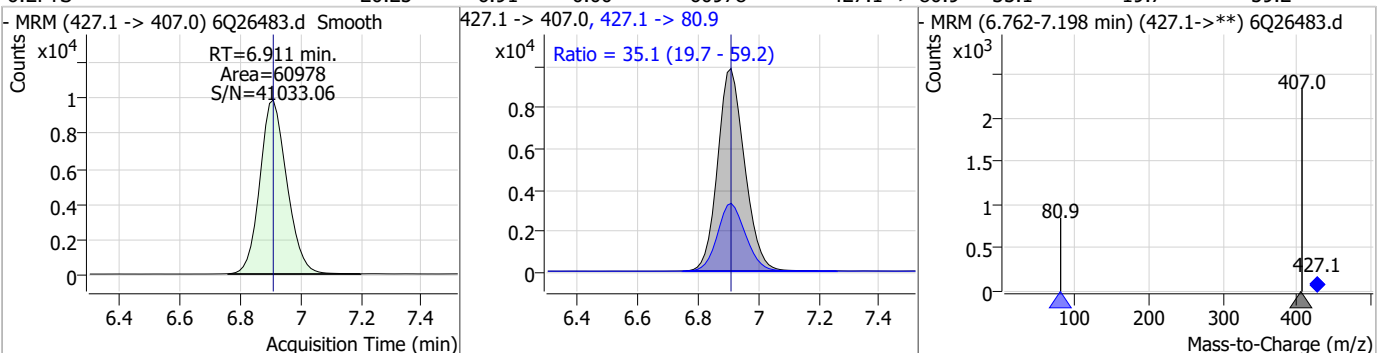
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.80	6.55	0.00	117783	349.1 -> 98.9	46.0	21.4	64.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.33	6.74	-0.01	807136	376.9 -> 84.8	25.9	13.0	38.9

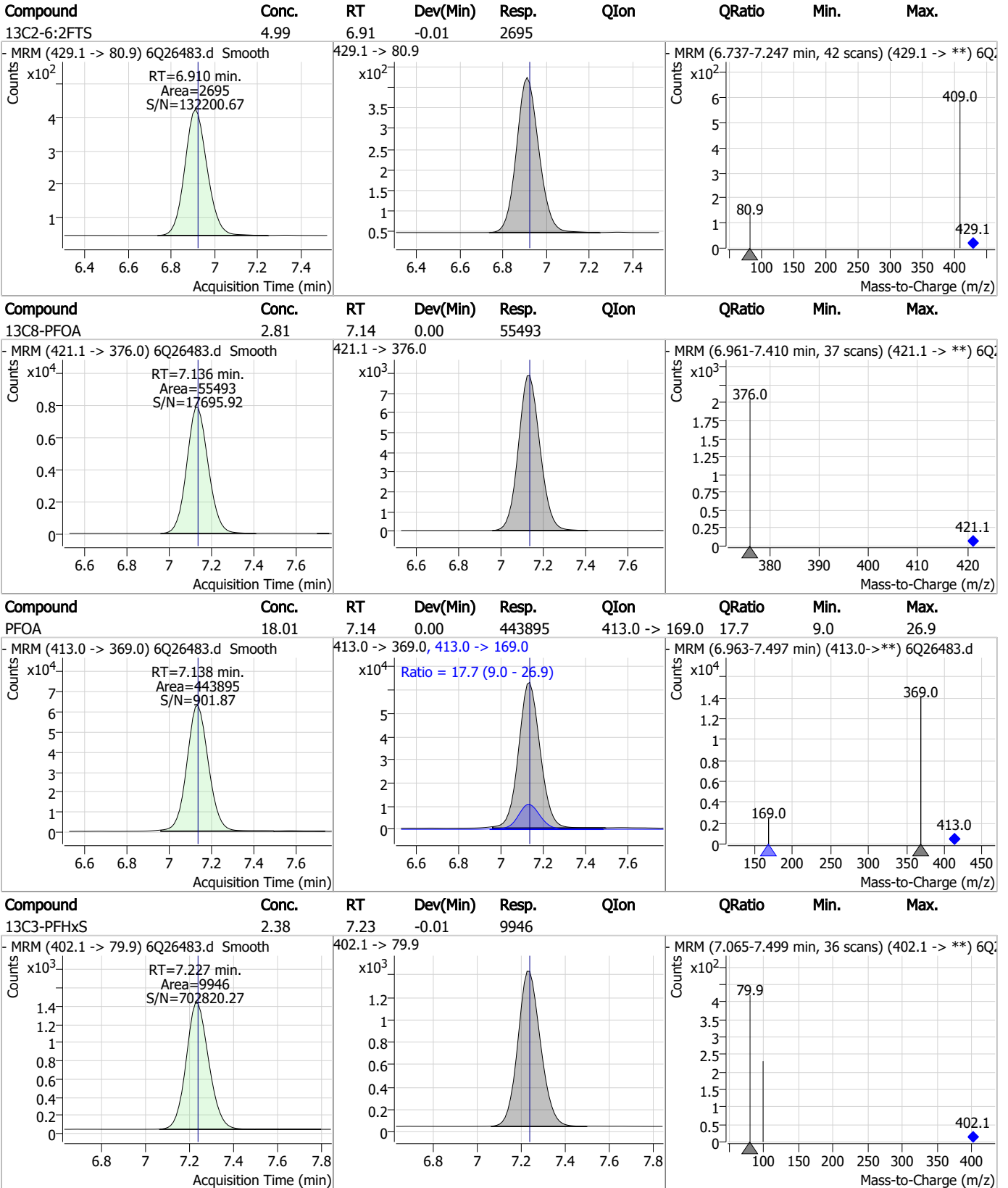


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.25	6.91	0.00	60978	427.1 -> 80.9	35.1	19.7	59.2



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### Perfluorinated Compounds by LC/MS/MS

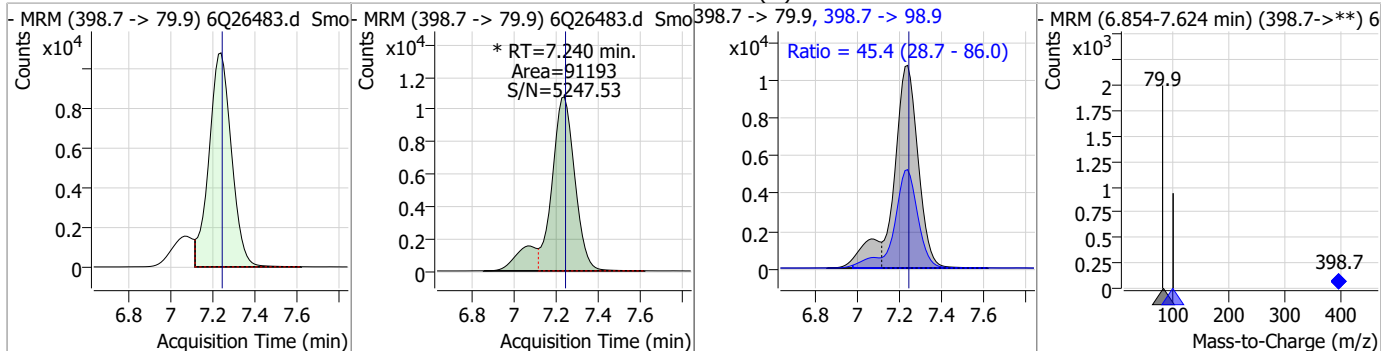


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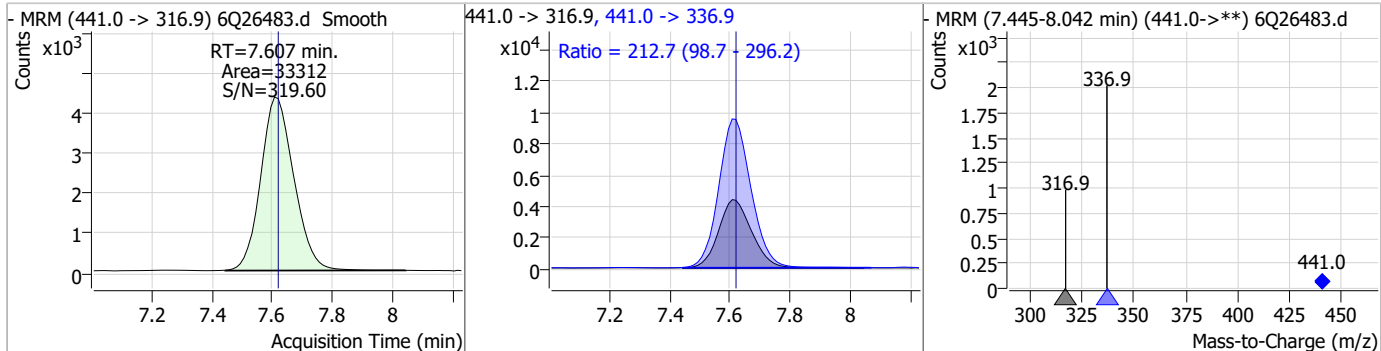
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### Perfluorinated Compounds by LC/MS/MS

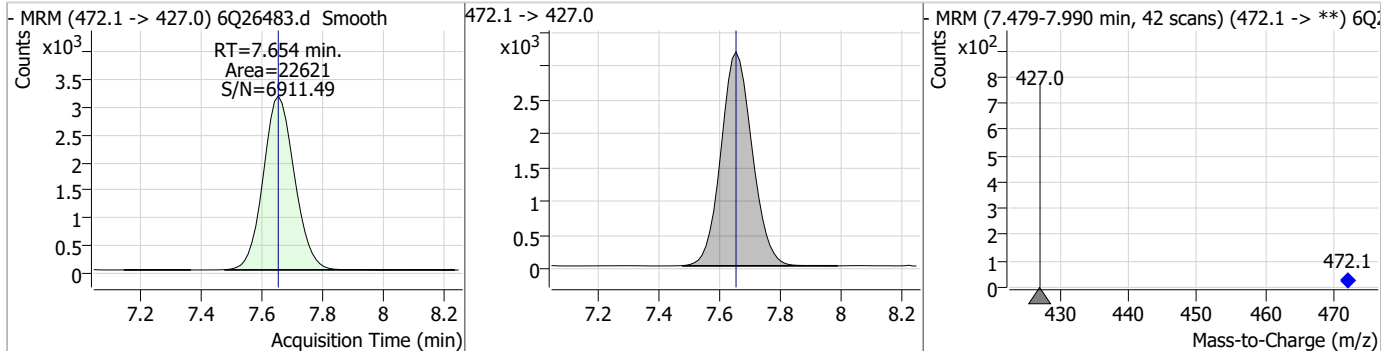
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.93	7.24	0.00	91193 (m)	398.7 -> 98.9	45.4	28.7	86.0



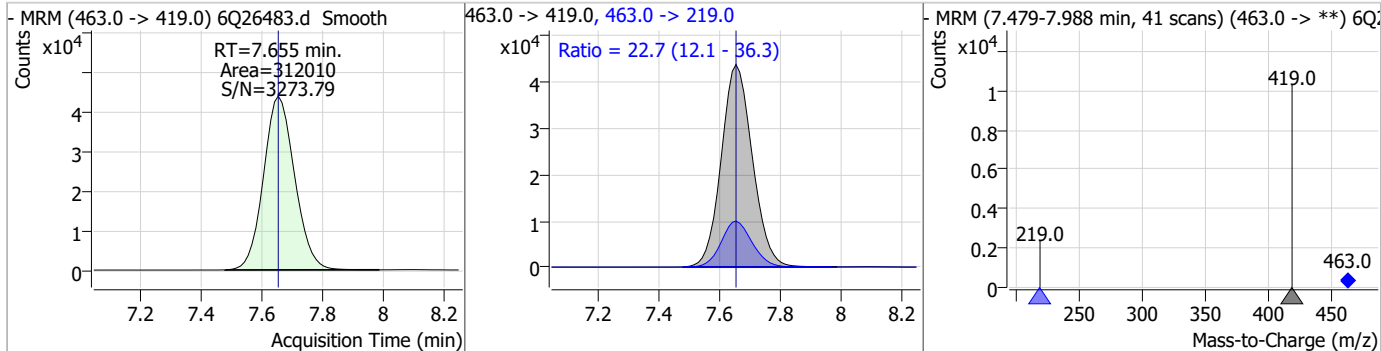
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	17.66	7.61	-0.01	33312	441.0 -> 336.9	212.7	98.7	296.2



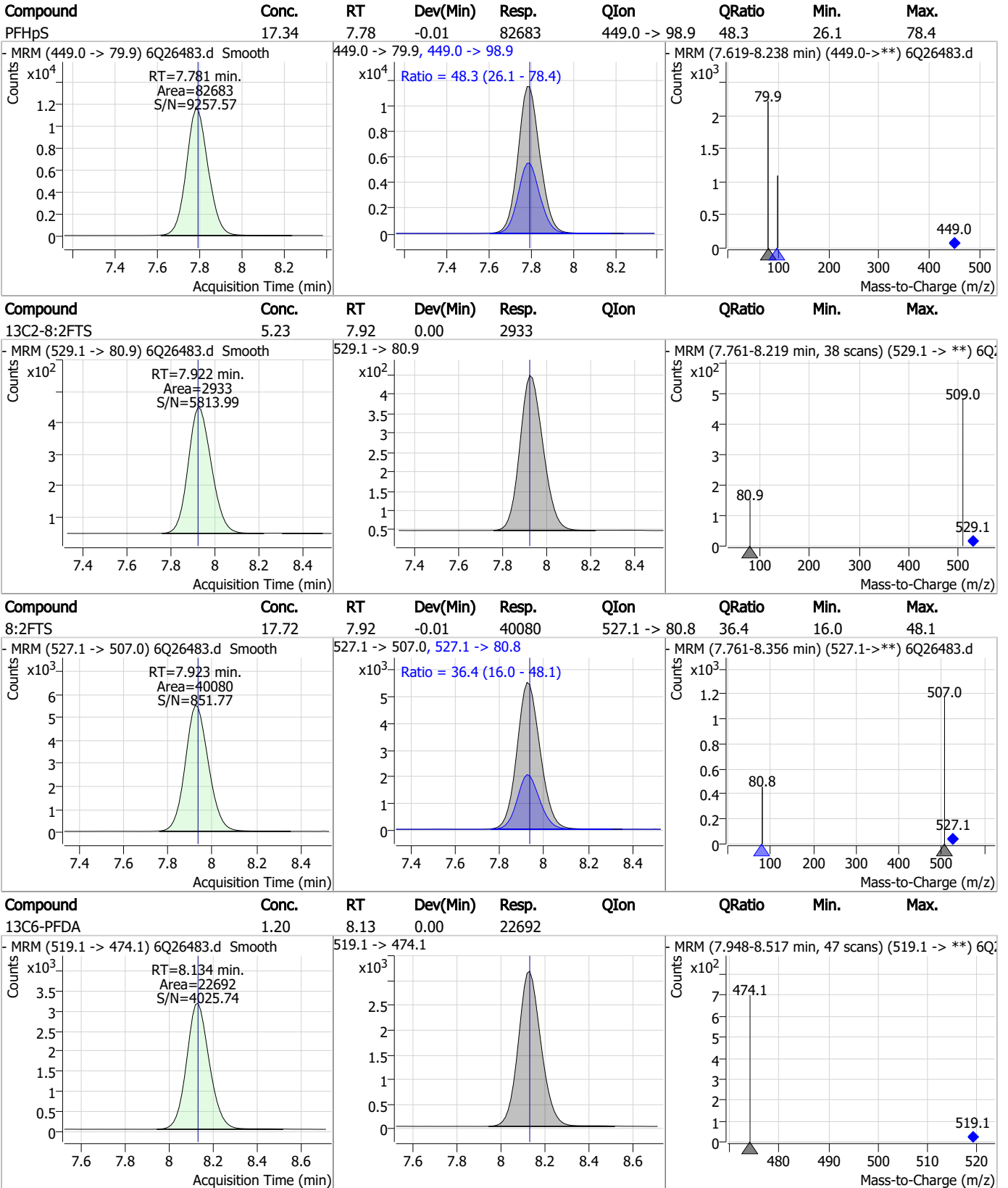
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.65	0.00	22621	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.71	7.65	0.00	312010	463.0 -> 219.0	22.7	12.1	36.3



### Perfluorinated Compounds by LC/MS/MS

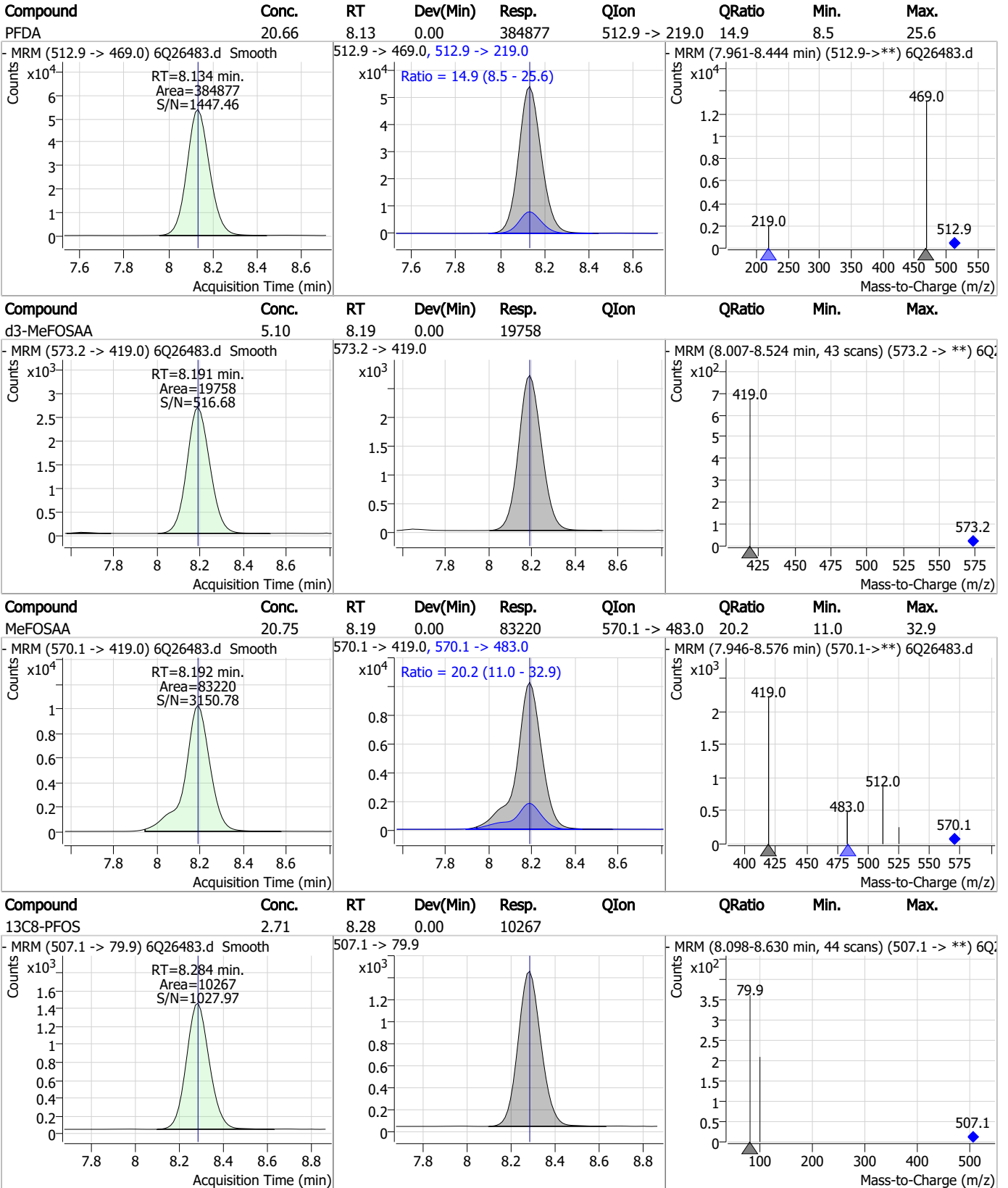


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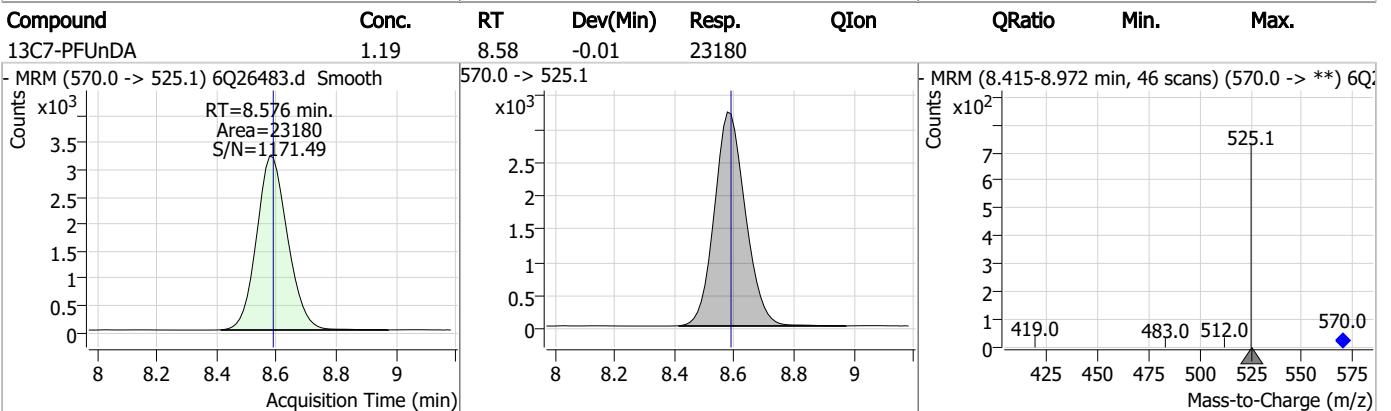
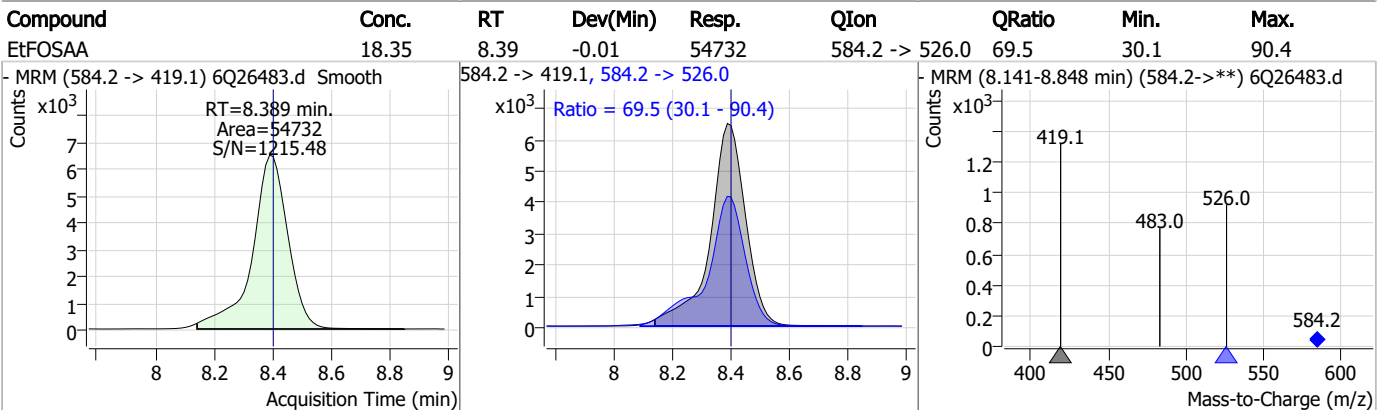
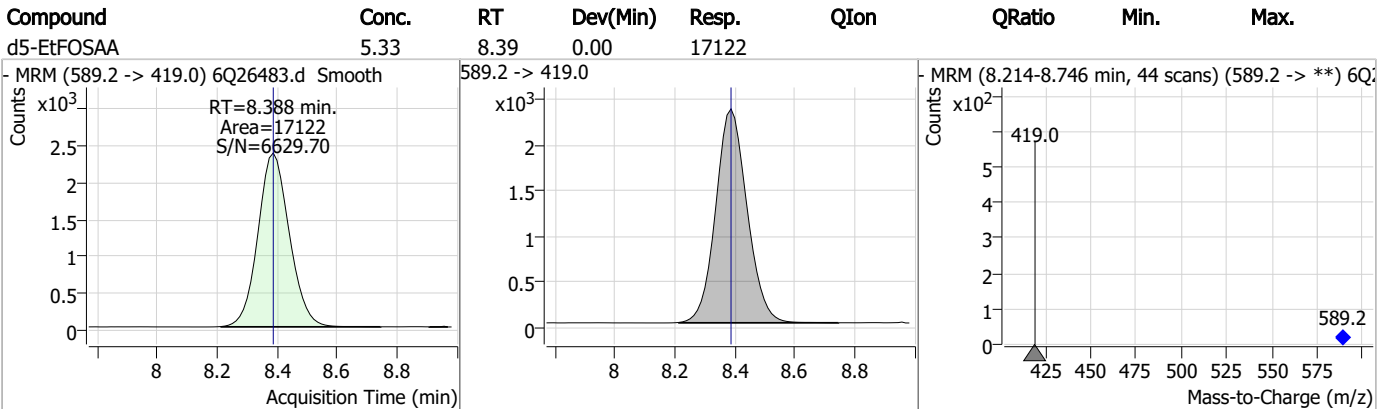
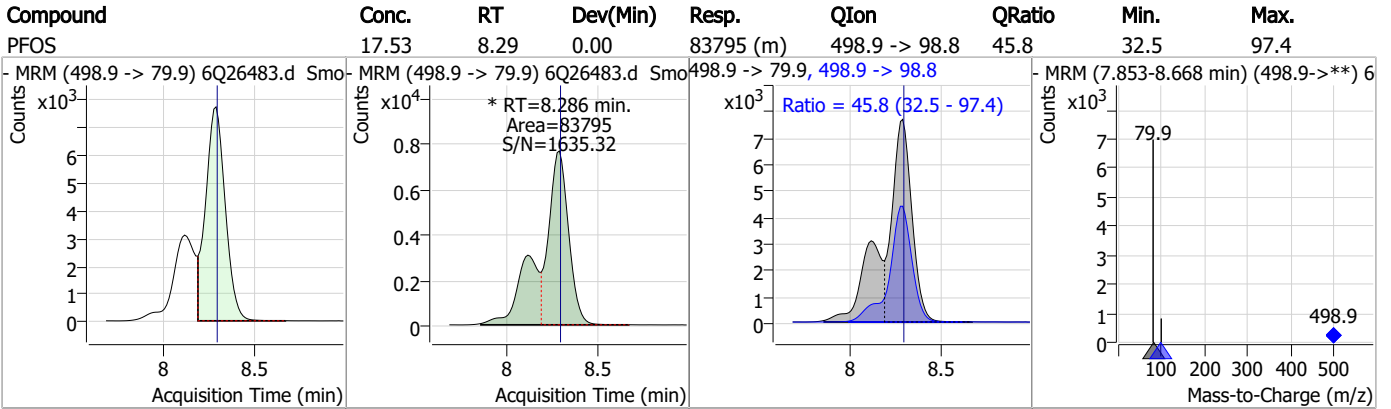
### Perfluorinated Compounds by LC/MS/MS



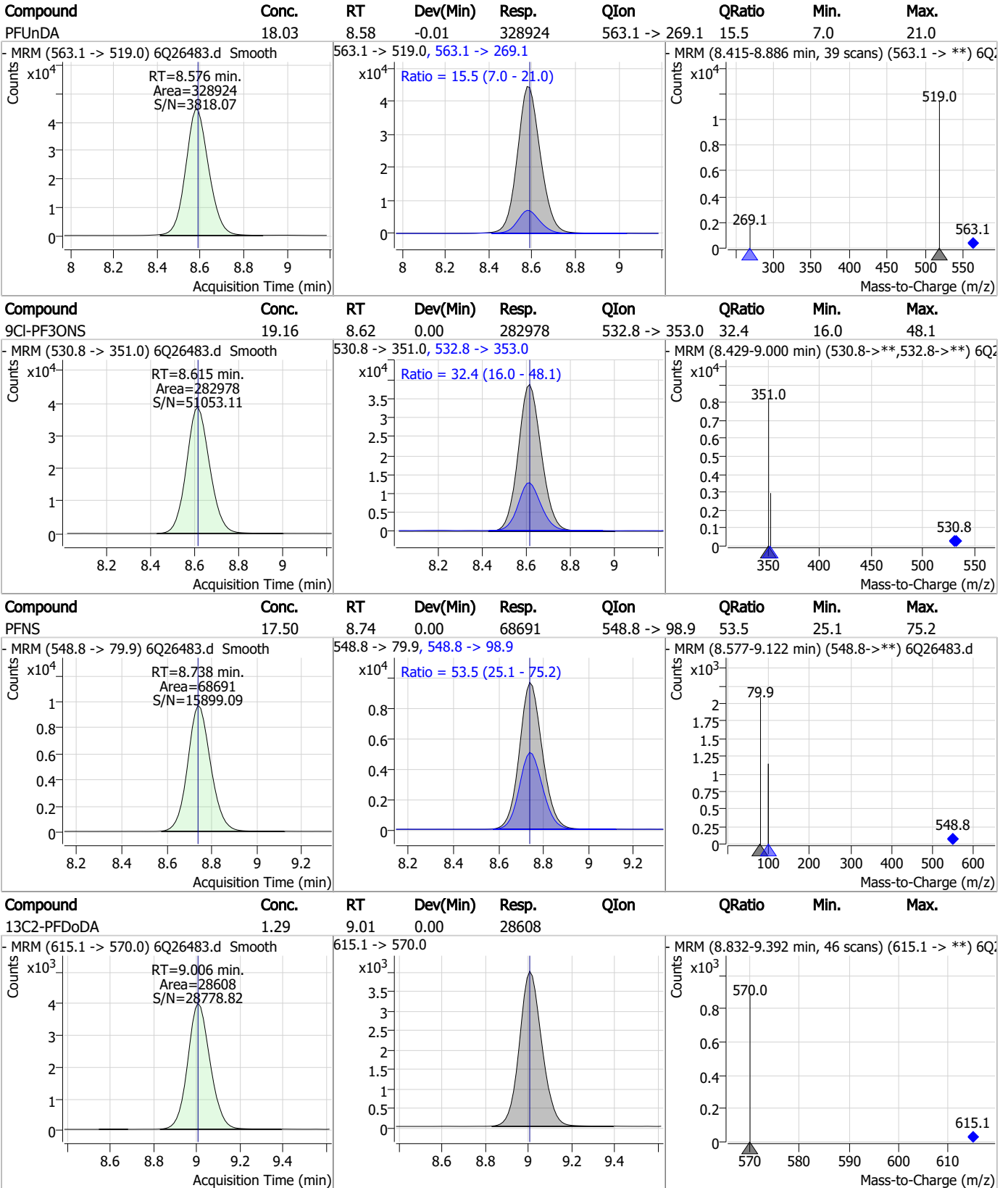
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### Perfluorinated Compounds by LC/MS/MS



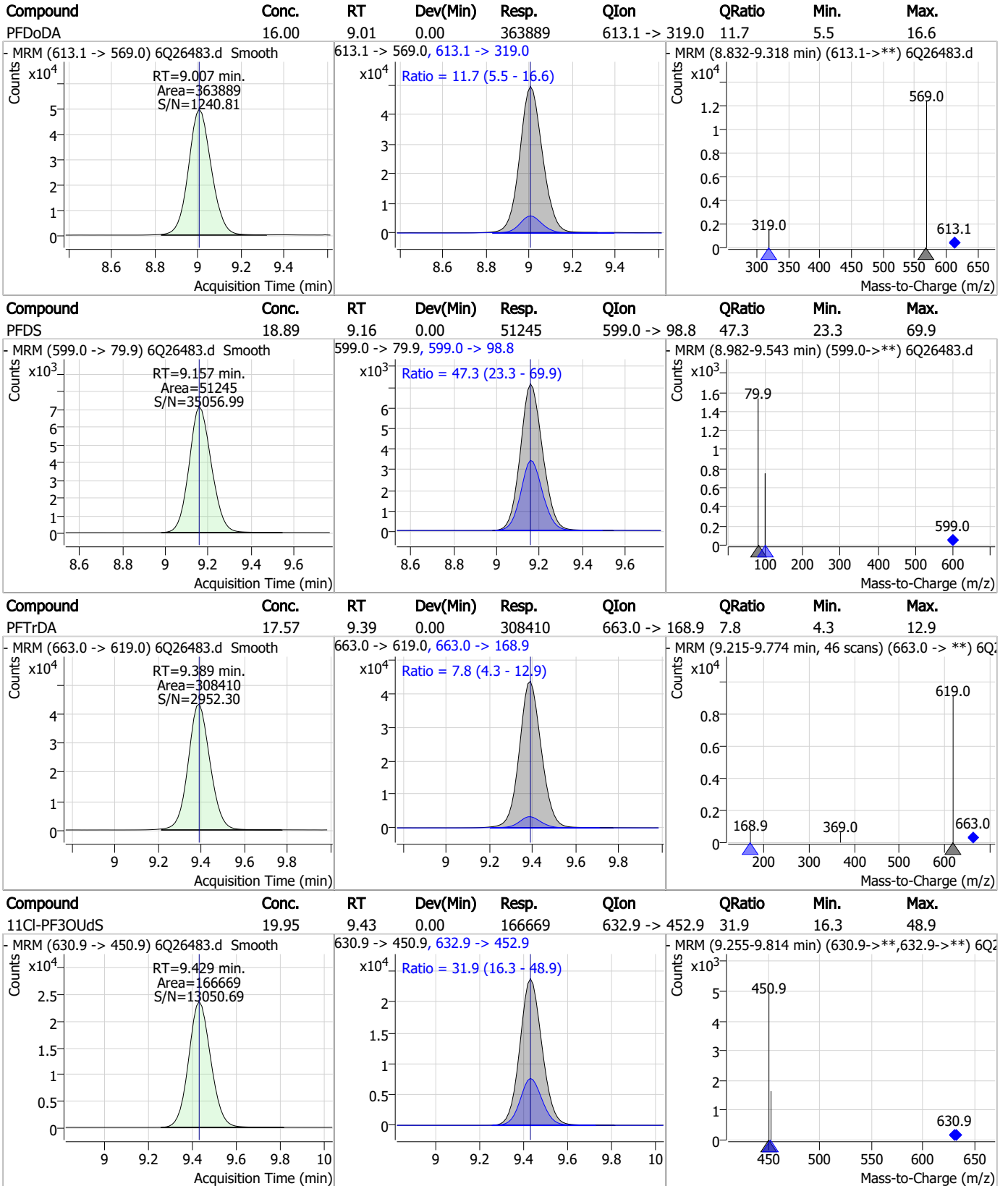
### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



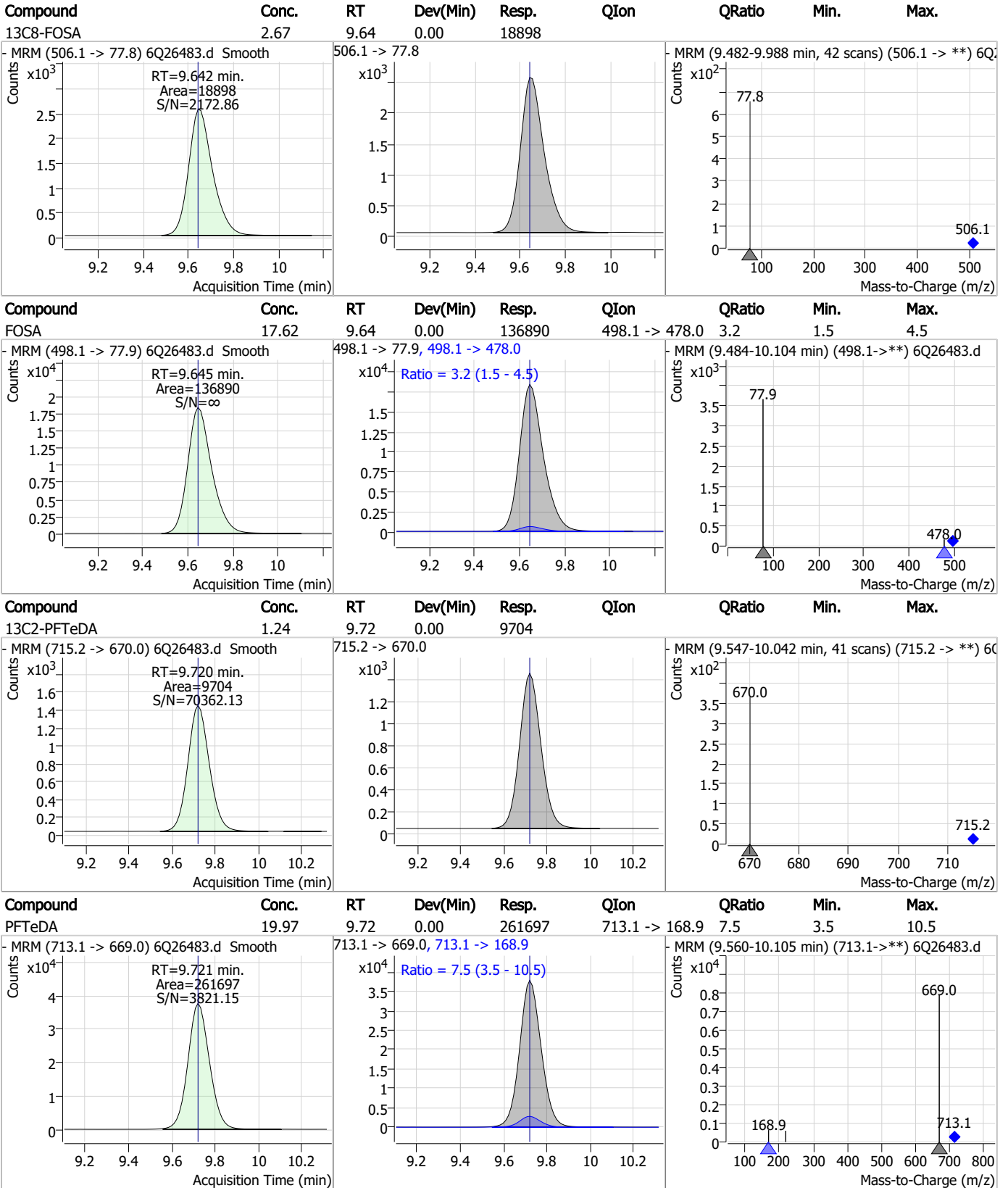
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### Perfluorinated Compounds by LC/MS/MS

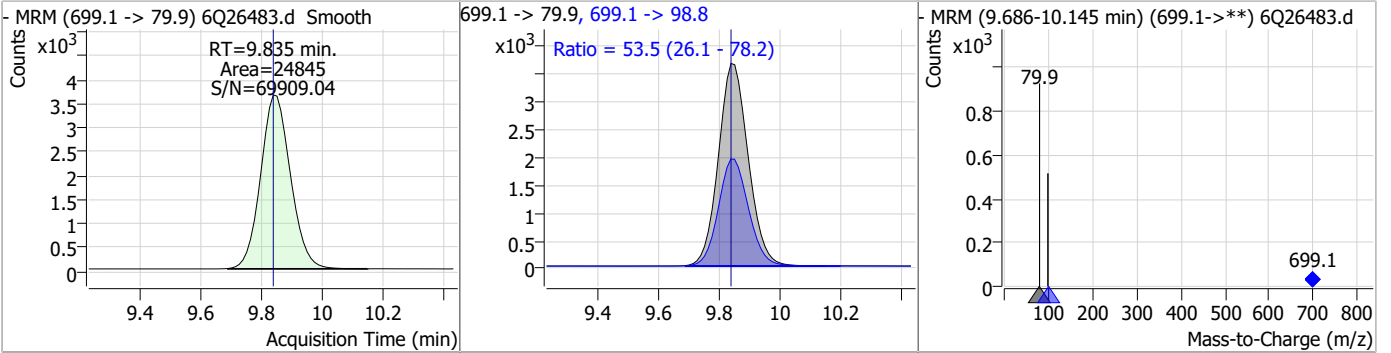


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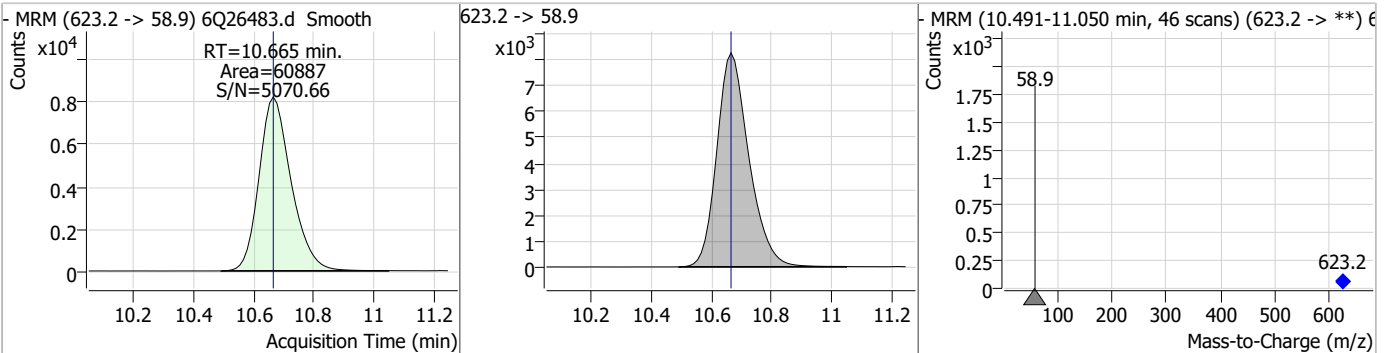


### Perfluorinated Compounds by LC/MS/MS

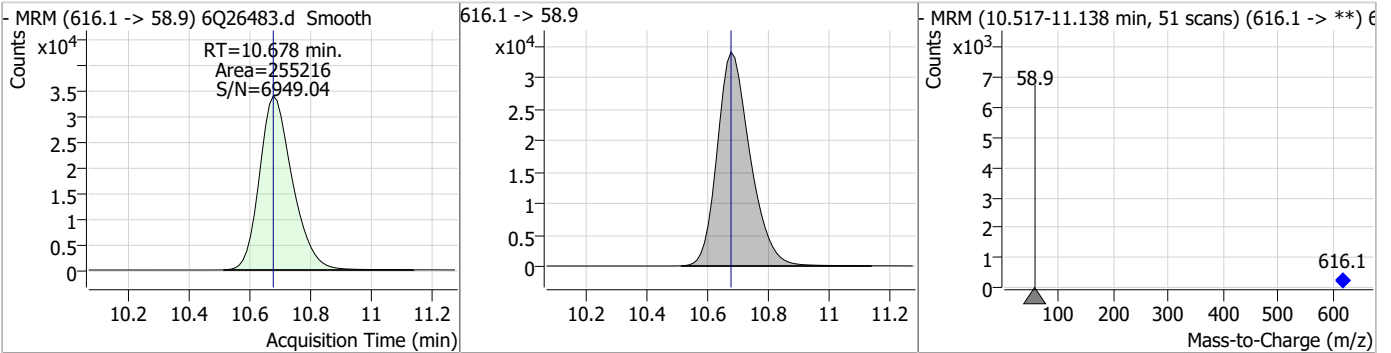
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	17.35	9.84	0.00	24845	699.1 -> 98.8	53.5	26.1	78.2



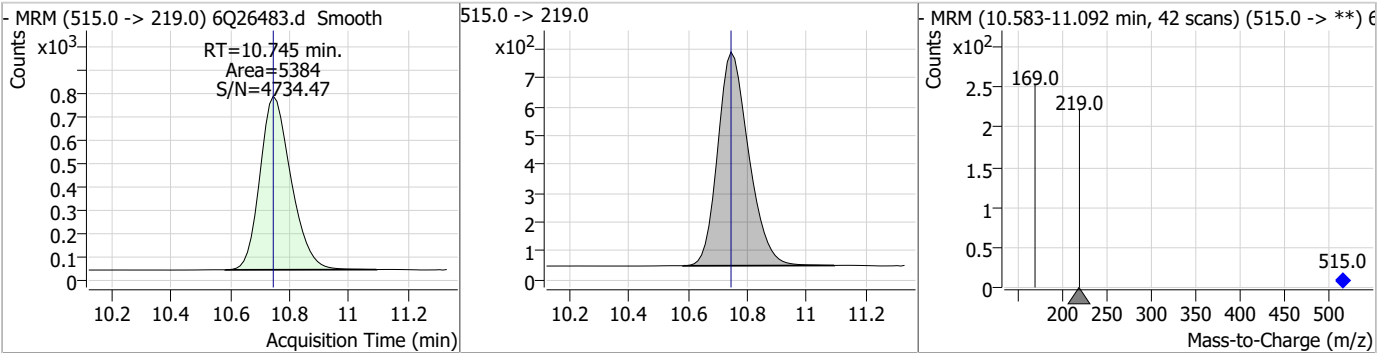
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.94	10.67	0.00	60887				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	98.02	10.68	0.00	255216				

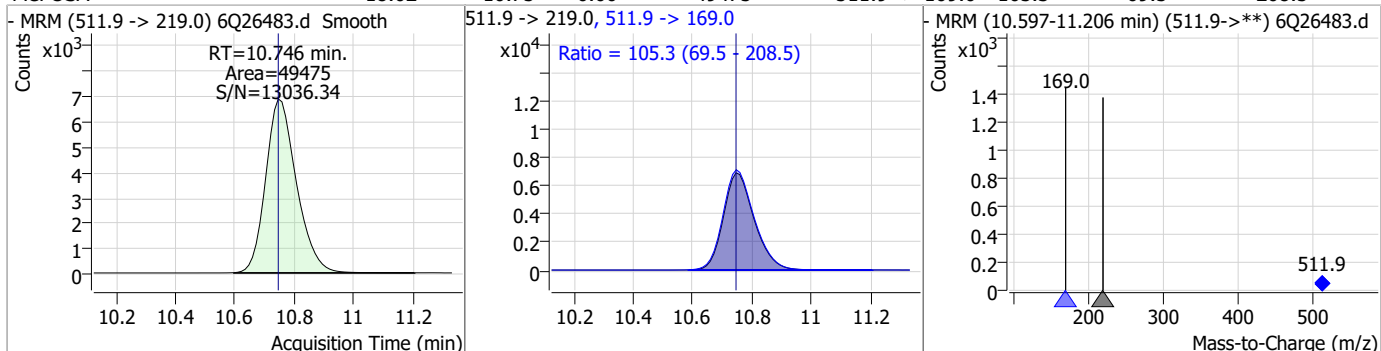


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.62	10.74	0.00	5384				

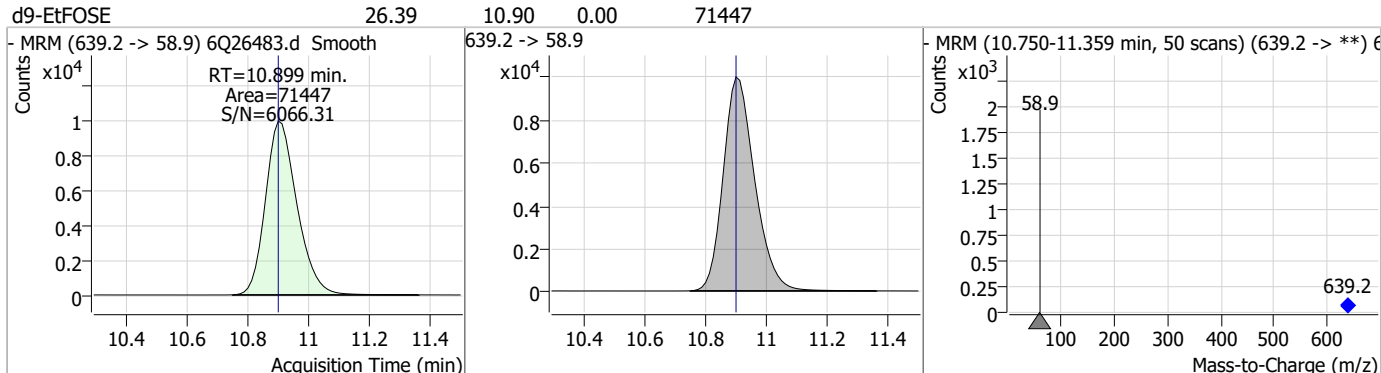


### Perfluorinated Compounds by LC/MS/MS

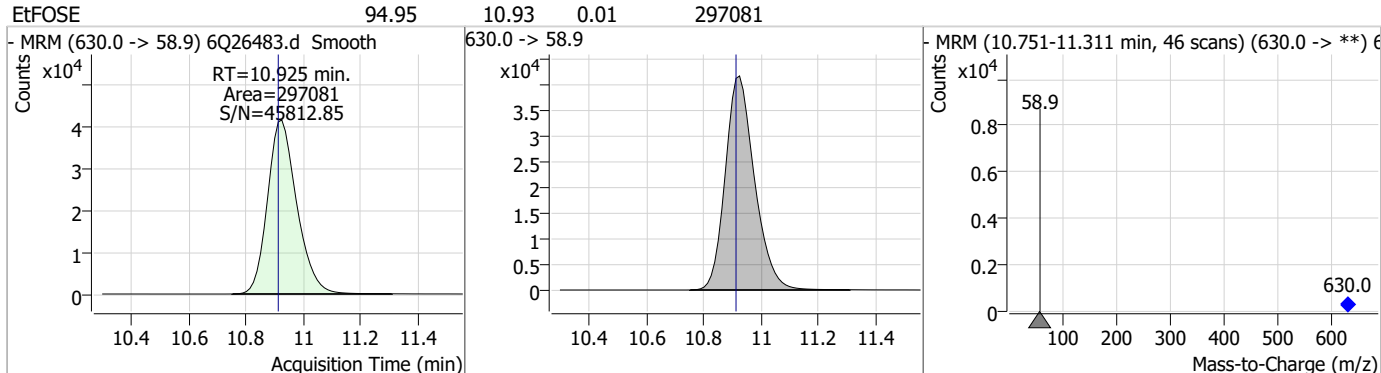
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	18.02	10.75	0.00	49475	511.9 -> 169.0	105.3	69.5	208.5



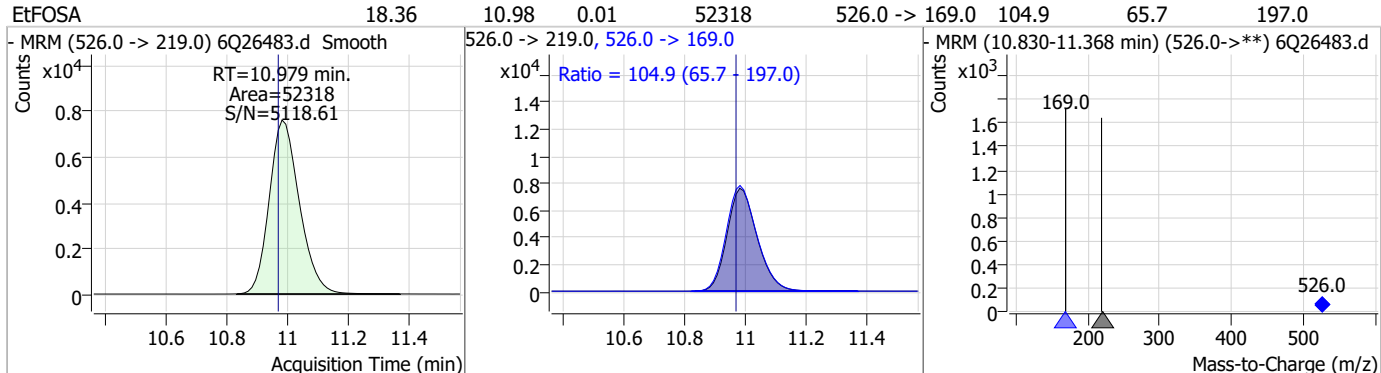
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.39	10.90	0.00	71447				



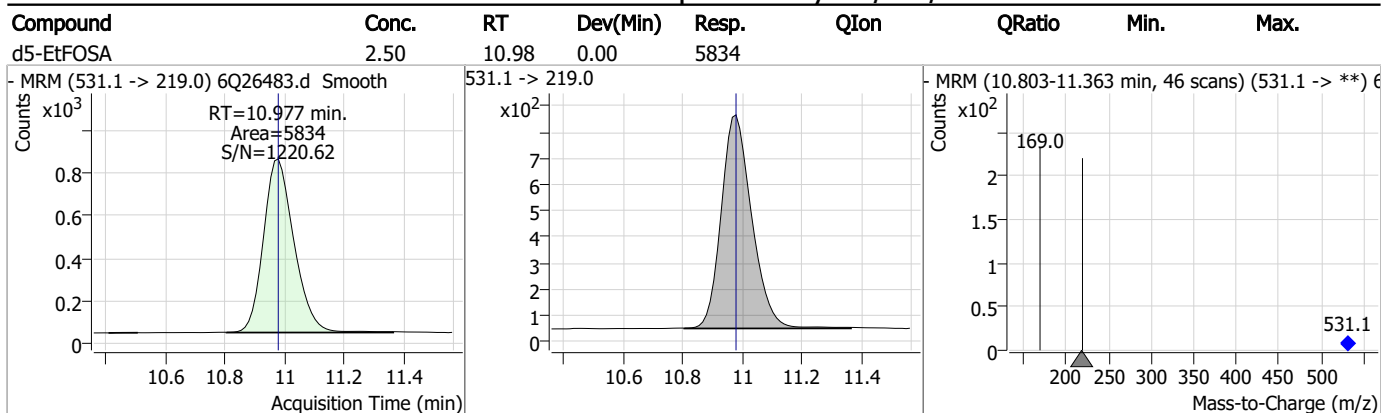
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	94.95	10.93	0.01	297081				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	18.36	10.98	0.01	52318	526.0 -> 169.0	104.9	65.7	197.0



### Perfluorinated Compounds by LC/MS/MS



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# Manual Integration Approval Summary

Sample Number: S6Q372-ICV372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26483.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 19:49      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak

7.7.11.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26484.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 8:03:32 PM  
 Sample Name : cc372-4  
 Vial : P1-A5  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	134533	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	43246	5.00 µg/L	0.000
M5-PFHxA	5.552	318.0 -> 273.0	42681	2.50 µg/L	-0.012
M4-PFHpA	6.493	367.1 -> 322.0	43186	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	55862	2.50 µg/L	-0.012
M9-PFNA	7.654	472.1 -> 427.0	23973	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	24261	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	25794	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	27149	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9096	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	18641	2.50 µg/L	0.000
M3-PFBS	5.471	302.1 -> 79.9	18088	2.50 µg/L	-0.012
M3-PFHxS	7.227	402.1 -> 79.9	10325	2.50 µg/L	-0.012
M8-PFOS	8.284	507.1 -> 79.9	10311	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	2240	5.00 µg/L	-0.012
M2-6:2FTS	6.910	429.1 -> 80.9	2683	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	2854	5.00 µg/L	0.000
M3-MeFOSAA	8.178	573.2 -> 419.0	20513	5.00 µg/L	-0.012
M3-HFPO-DA	5.930	286.9 -> 168.9	29707	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	18113	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	61750	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	72627	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6095	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5168	2.50 µg/L	0.000
13C4-PFOS	8.273	502.8 -> 79.9	9592	2.50 µg/L	-0.012
13C3-PFBA	2.916	216.0 -> 172.0	53895	5.00 µg/L	-0.012
18O2-PFHxS	7.238	403.0 -> 83.9	6639	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	63877	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21574	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21303	1.25 µg/L	0.000
13C2-PFHxA	5.553	315.1 -> 270.0	40709	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.228	329.1 -> 80.9	2240	5.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2683	4.83 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2854	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-PFDoDA	9.006	615.1 -> 570.0	27149	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9096	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C3-PFBS	5.471	302.1 -> 79.9	18088	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C3-PFHxS	7.227	402.1 -> 79.9	10325	2.40 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 = 95.9%	
13C4-PFBA	2.926	216.8 -> 171.9	134533	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.493	367.1 -> 322.0	43186	2.74 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C5-PFHxA	5.552	318.0 -> 273.0	42681	2.67 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C5-PFPeA	4.346	268.3 -> 223.0	43246	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C6-PFDA	8.134	519.1 -> 474.1	24261	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	8.576	570.0 -> 525.1	25794	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C8-FOSA	9.642	506.1 -> 77.8	18641	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOA	7.124	421.1 -> 376.0	55862	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-PFOS	8.284	507.1 -> 79.9	10311	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C9-PFNA	7.654	472.1 -> 427.0	23973	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.1%	
d3-MeFOSAA	8.178	573.2 -> 419.0	20513	4.88 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	29707	10.34 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	10.745	515.0 -> 219.0	5168	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
d5-EtFOSAA	8.388	589.2 -> 419.0	18113	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d7-MeFOSE	10.665	623.2 -> 58.9	61750	24.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
d9-EtFOSE	10.899	639.2 -> 58.9	72627	24.71 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d5-EtFOSA	10.977	531.1 -> 219.0	6095	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.229	327.1 -> 307.0	33901	8.33 µg/L	98
		327.1 -> 80.9	13250		
6:2FTS	6.911	427.1 -> 407.0	27800	9.27 µg/L	97
		427.1 -> 80.9	10377		
8:2FTS	7.923	527.1 -> 507.0	20385	9.26 µg/L	88
		527.1 -> 80.8	7931		
EtFOSAA	8.389	584.2 -> 419.1	7081	2.24 µg/L	95
		584.2 -> 526.0	4548		
FOSA	9.645	498.1 -> 77.9	18559	2.42 µg/L	100
		498.1 -> 478.0	562		
MeFOSAA	8.192	570.1 -> 419.0	10194	2.45 µg/L	94
		570.1 -> 483.0	2516		
PFBA	2.919	212.8 -> 168.9	50674	9.63 µg/L	100
PFBS	5.472	298.7 -> 79.9	13739	2.30 µg/L	100
		298.7 -> 98.8	5128		
PFDA	8.134	512.9 -> 469.0	47672	2.39 µg/L	96
		512.9 -> 219.0	7323		
PFDODA	9.007	613.1 -> 569.0	54126	2.51 µg/L	99
		613.1 -> 319.0	6289		
PFDS	9.157	599.0 -> 79.9	6198	2.27 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8	3153	2.18	µg/L	97
		363.1 -> 319.0	54986			
PFHpS	7.781	363.1 -> 169.0	8588	2.21	µg/L	93
		449.0 -> 79.9	10602			
PFHxA	5.555	449.0 -> 98.9	5034	2.36	µg/L	98
		313.0 -> 269.0	38584			
PFHxS	7.240	313.0 -> 118.9	1849	2.32	µg/L	m
		398.7 -> 79.9	10503			
PFNA	7.655	398.7 -> 98.9	5007	2.35	µg/L	96
		463.0 -> 419.0	35757			
PFNS	8.738	463.0 -> 219.0	8026	2.26	µg/L	97
		548.8 -> 79.9	8905			
PFOA	7.138	548.8 -> 98.9	4676	2.33	µg/L	99
		413.0 -> 369.0	57700			
PFOS	8.274	413.0 -> 169.0	10596	2.14	µg/L	m
		498.9 -> 79.9	10265			
PFPeA	4.349	498.9 -> 98.8	5015	4.86	µg/L	100
		263.0 -> 219.0	50026			
PFPeS	6.545	349.1 -> 79.9	14371	2.44	µg/L	99
		349.1 -> 98.9	6055			
PFTeDA	9.721	713.1 -> 669.0	31822	2.59	µg/L	98
		713.1 -> 168.9	2476			
PFTrDA	9.389	663.0 -> 619.0	41865	2.51	µg/L	99
		663.0 -> 168.9	3391			
PFUnDA	8.576	563.1 -> 519.0	46602	2.30	µg/L	96
		563.1 -> 269.1	7353			
11CI-PF3OUdS	9.429	630.9 -> 450.9	39955	4.54	µg/L	100
		632.9 -> 452.9	13036			
9CI-PF3ONS	8.615	530.8 -> 351.0	71654	4.61	µg/L	98
		532.8 -> 353.0	22316			
ADONA	6.743	376.9 -> 250.9	188727	4.51	µg/L	96
		376.9 -> 84.8	52959			
HFPO-DA	5.931	284.9 -> 168.9	15125	4.72	µg/L	96
		284.9 -> 184.9	1684			
3:3FTCA	3.777	241.0 -> 177.0	8345	11.55	µg/L	99
		241.0 -> 117.0	1117			
5:3FTCA	6.210	341.0 -> 237.1	176417	58.58	µg/L	97
		341.0 -> 217.0	126808			
7:3FTCA	7.607	441.0 -> 316.9	115474	58.97	µg/L	99
		441.0 -> 336.9	229379			
EtFOSA	10.966	526.0 -> 219.0	14728	4.95	µg/L	96
		526.0 -> 169.0	18662			
EtFOSE	10.913	630.0 -> 58.9	36424	11.45	µg/L	100
		511.9 -> 219.0	13766			
MeFOSA	10.746	511.9 -> 169.0	18172	5.22	µg/L	94
		616.1 -> 58.9	32680			
MeFOSE	10.678	699.1 -> 79.9	3397	12.38	µg/L	100
		699.1 -> 98.8	1762			
PFDoDS	9.835	295.0 -> 201.0	9551	2.36	µg/L	100
		295.0 -> 84.9	2540			
NFDHA	5.435	279.0 -> 85.1	38002	4.71	µg/L	99
		229.0 -> 84.9	31140			
PFMBA	4.775	314.8 -> 134.9	85285	4.80	µg/L	100
		314.8 -> 82.9	3336			
PFMPA	3.488			4.81	µg/L	100
PFEESA	6.024			4.02	µg/L	99

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





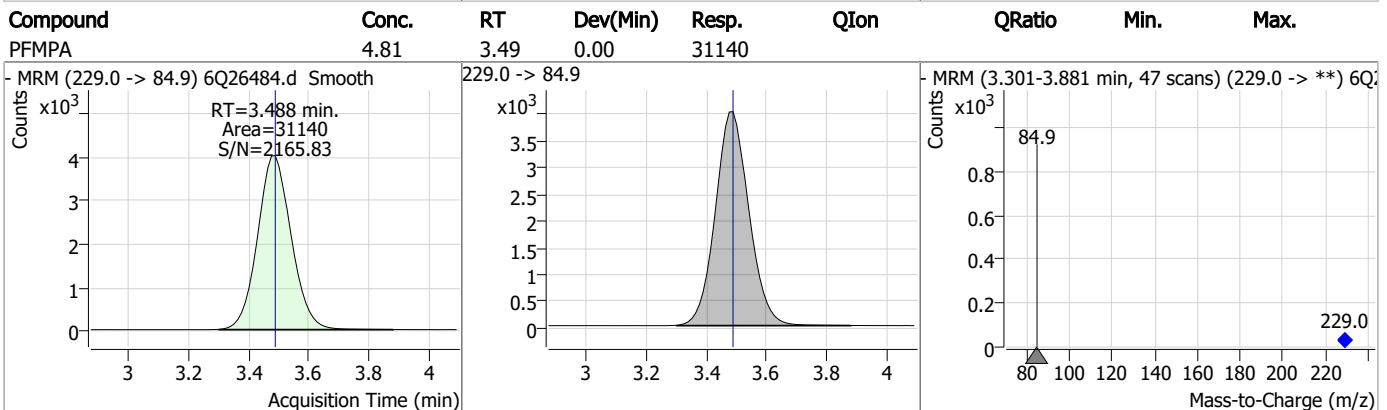
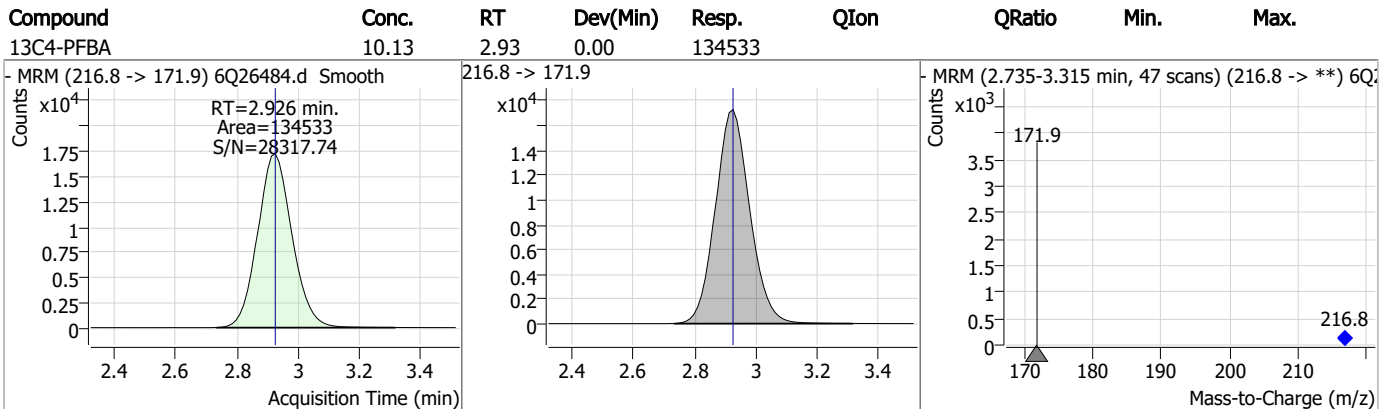
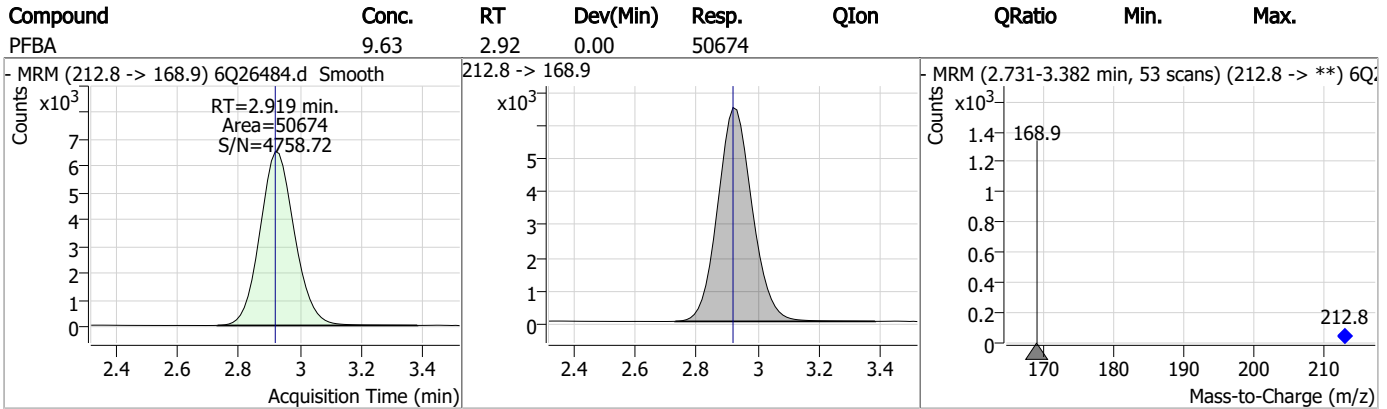
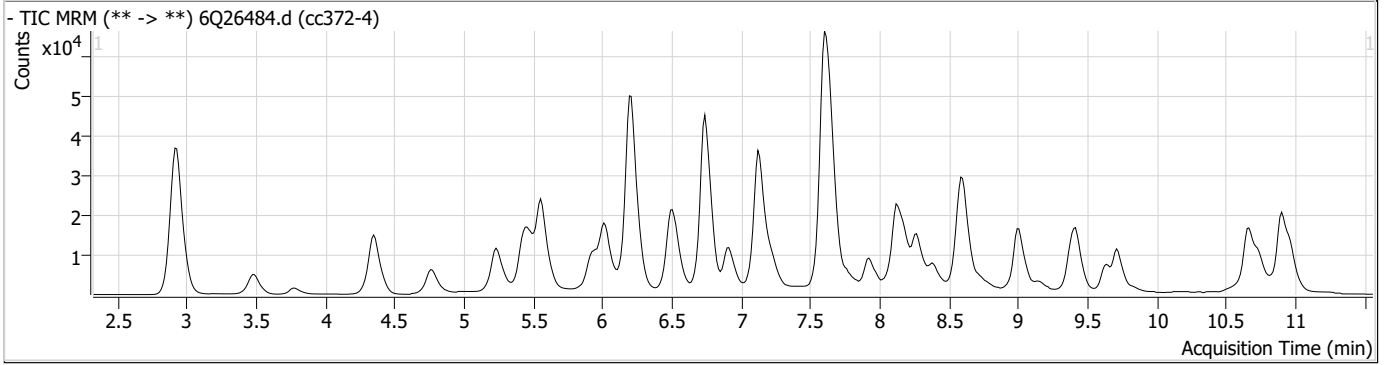
### Perfluorinated Compounds by LC/MS/MS

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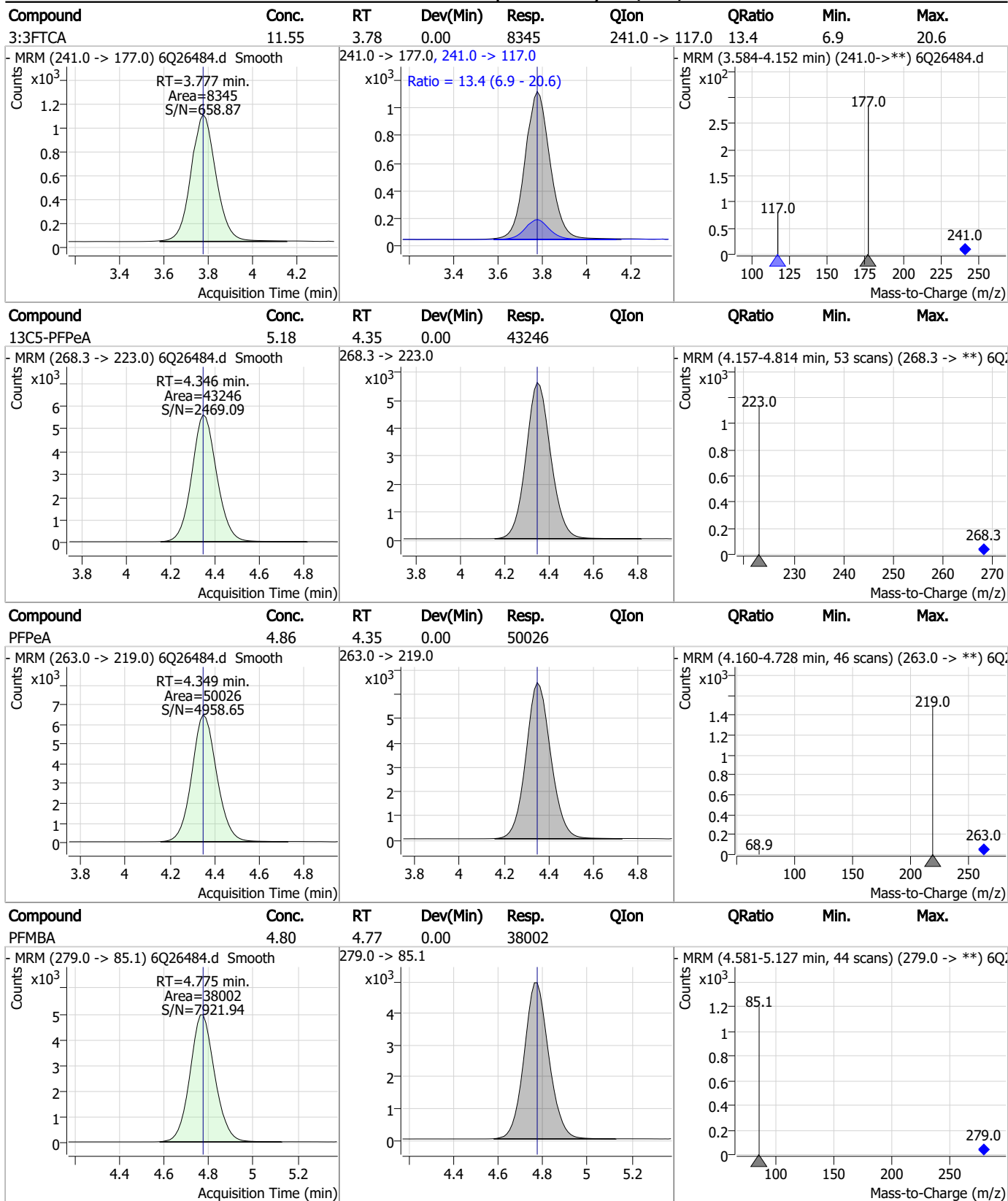
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS



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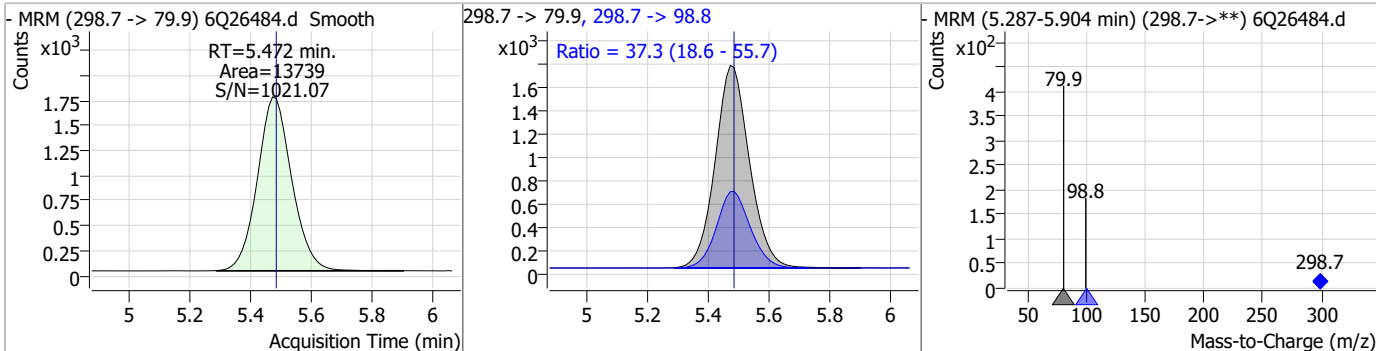
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.42	5.23	-0.01	2240				
4:2FTS	8.33	5.23	-0.01	33901	327.1 -> 80.9	39.1	19.0	57.1
NFDHA	4.71	5.44	-0.01	9551	295.0 -> 84.9	26.6	13.7	41.0
13C3-PFBS	2.39	5.47	-0.01	18088				

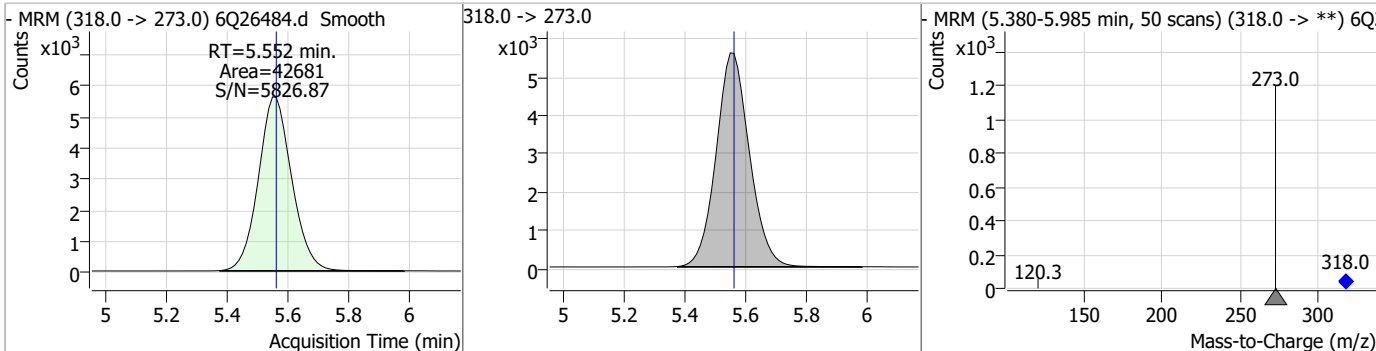
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS

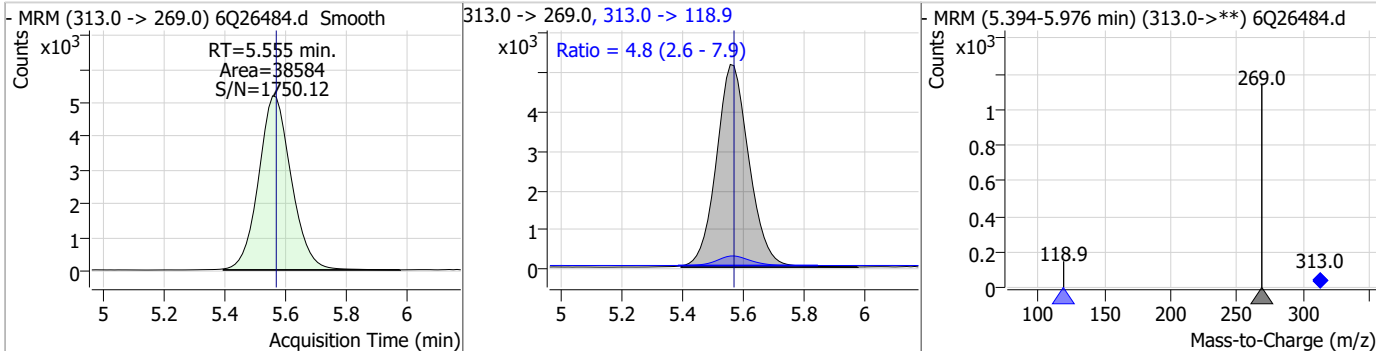
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.30	5.47	-0.01	13739	298.7 -> 98.8	37.3	18.6	55.7



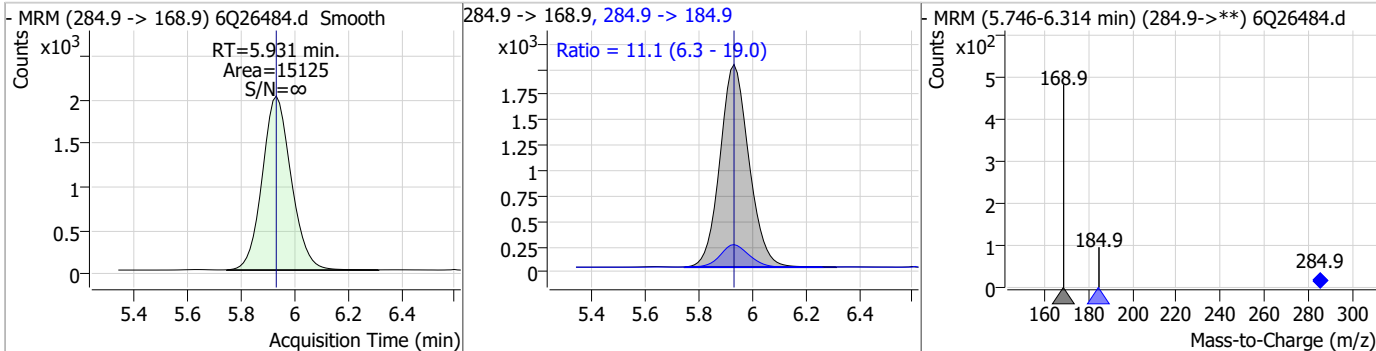
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.67	5.55	-0.01	42681				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.56	-0.01	38584	313.0 -> 118.9	4.8	2.6	7.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.72	5.93	0.00	15125	284.9 -> 184.9	11.1	6.3	19.0



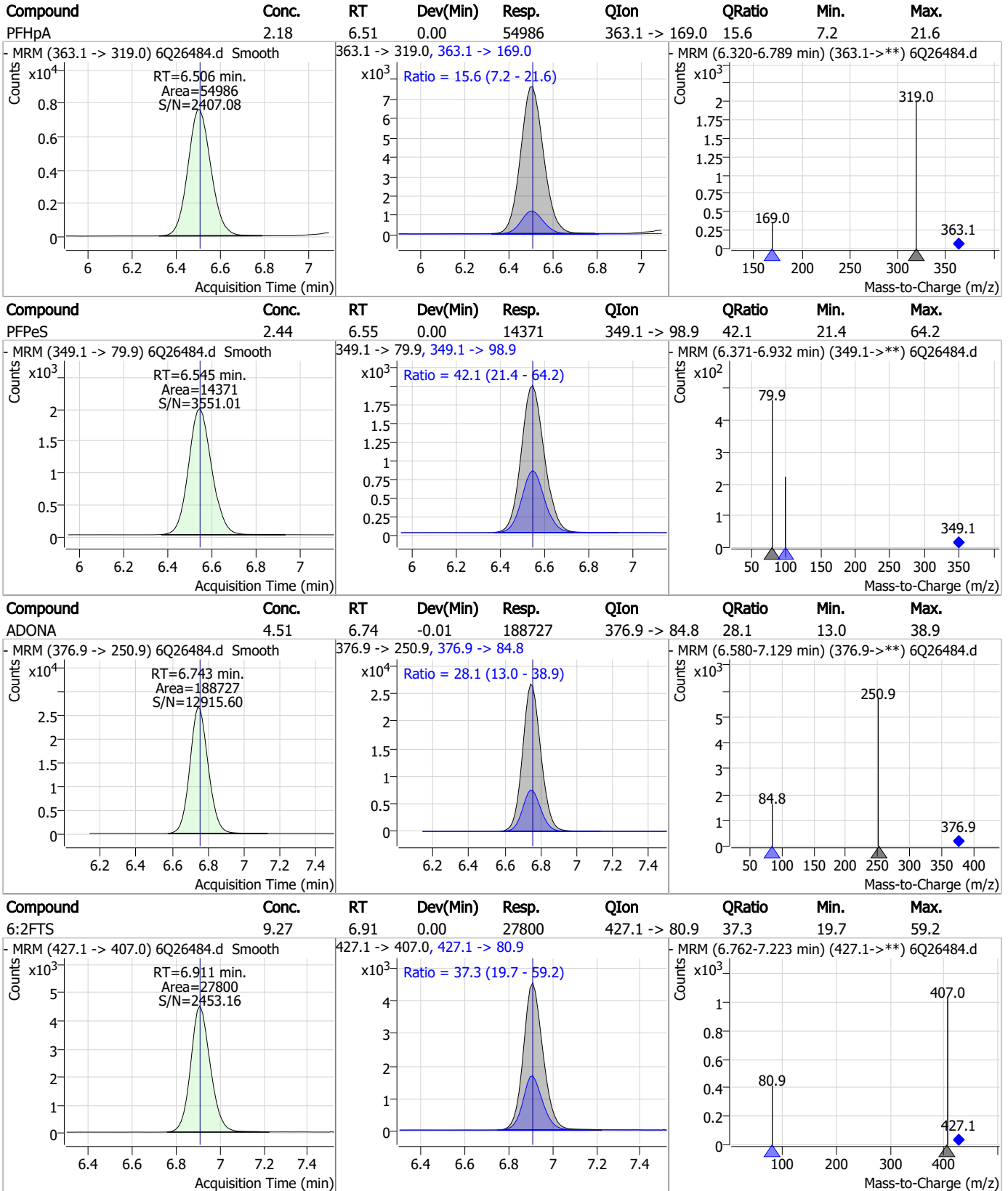
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.34	5.93	-0.01	29707				
PFEESA	4.02	6.02	0.00	85285	314.8 -> 82.9	3.9	1.8	5.4
5:3FTCA	58.58	6.21	0.00	176417	341.0 -> 217.0	71.9	37.1	111.4
13C4-PFHpA	2.74	6.49	-0.01	43186				

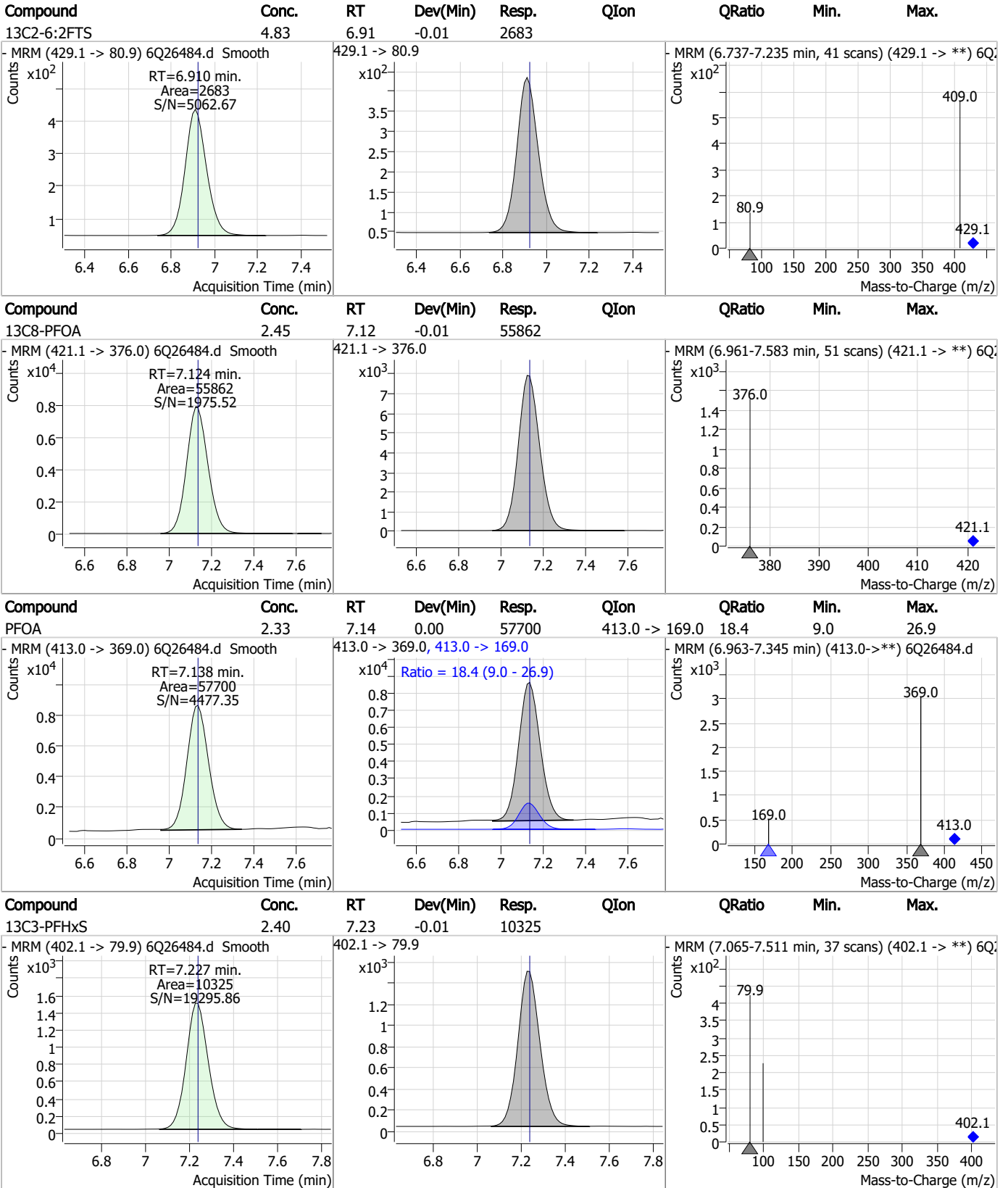
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS



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### Perfluorinated Compounds by LC/MS/MS

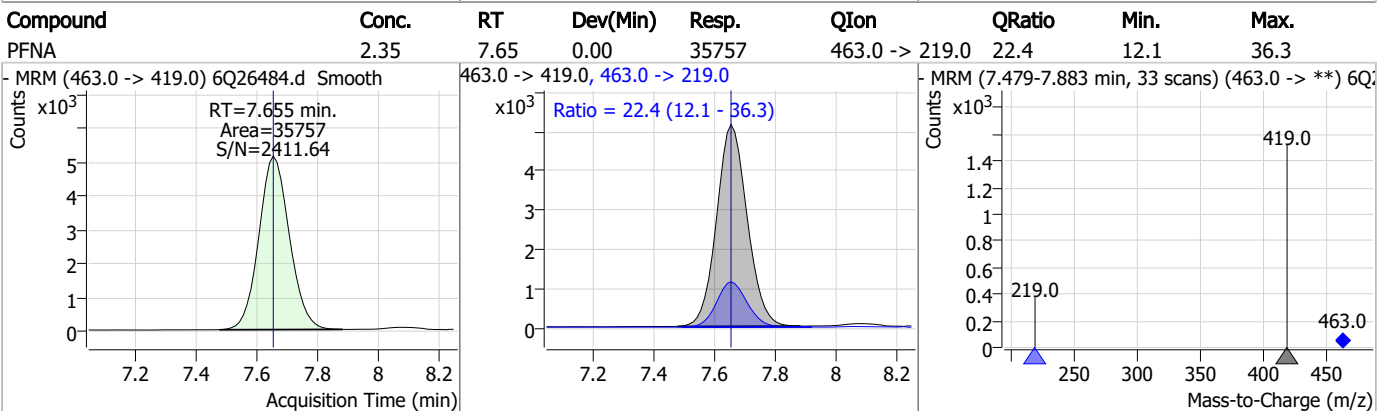
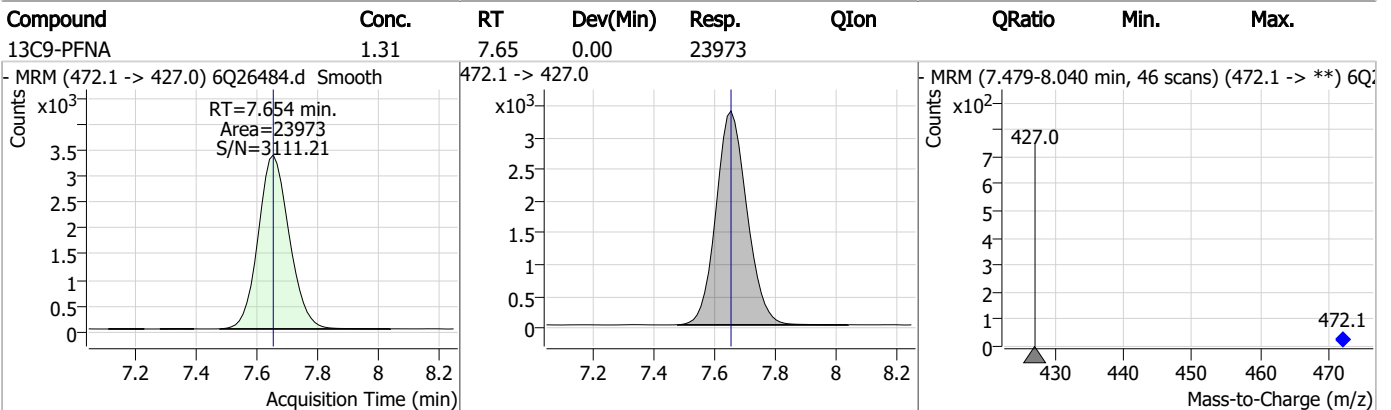
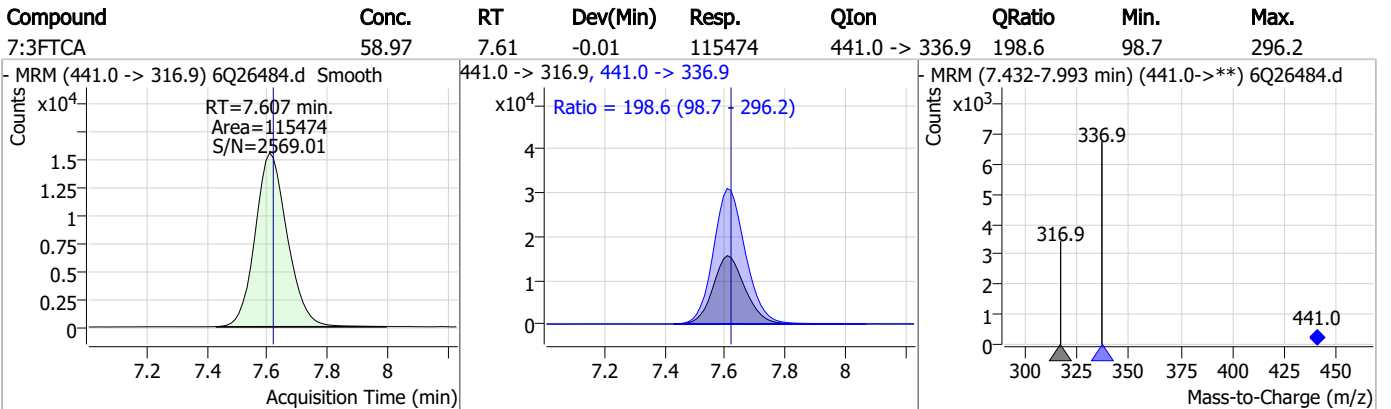
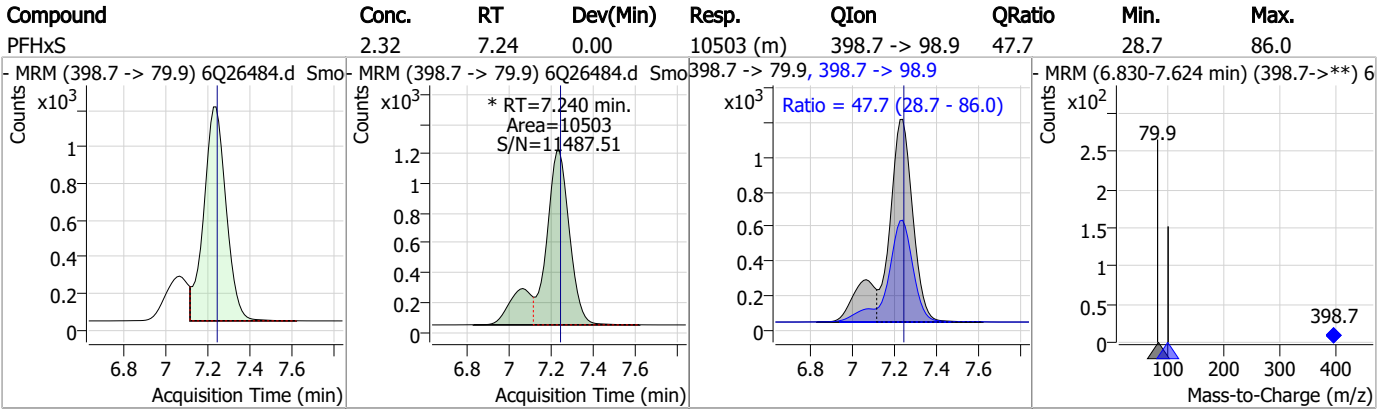


7.7.12



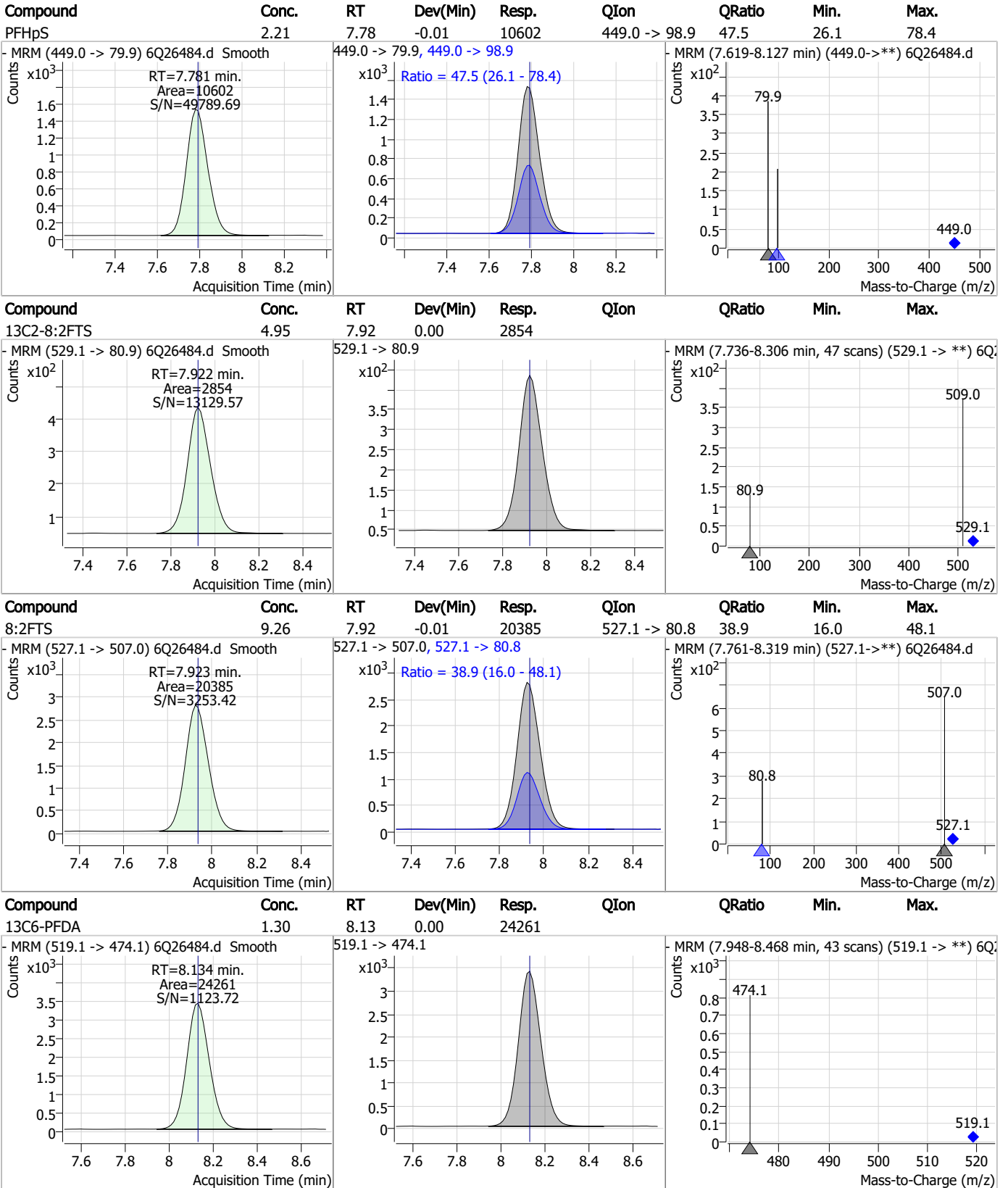


### Perfluorinated Compounds by LC/MS/MS



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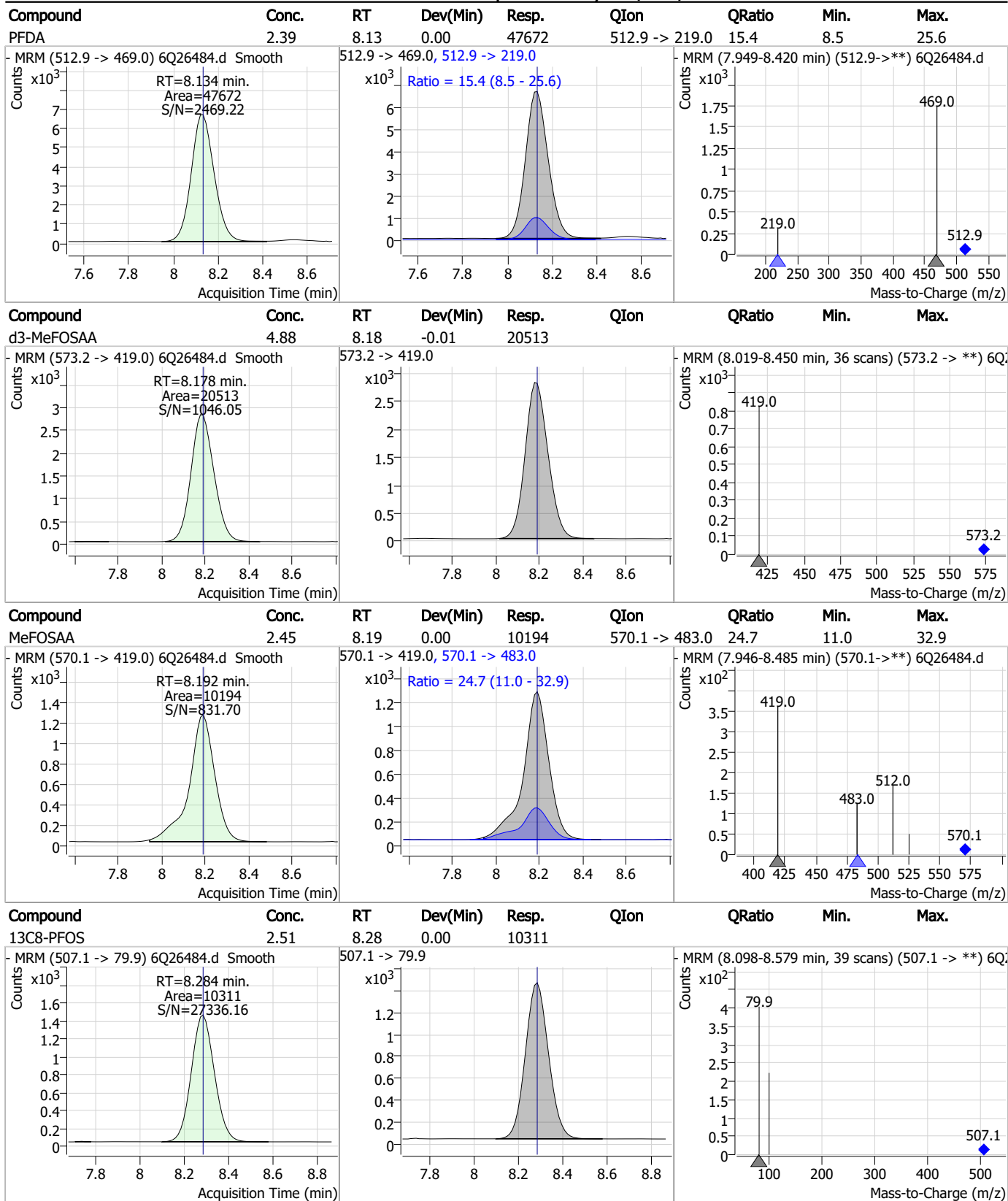
### Perfluorinated Compounds by LC/MS/MS



7.7.12



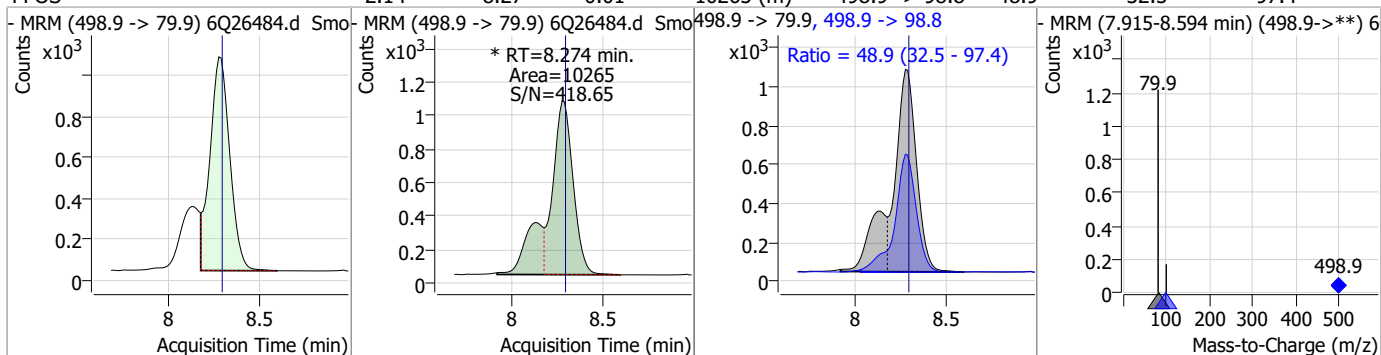
### Perfluorinated Compounds by LC/MS/MS



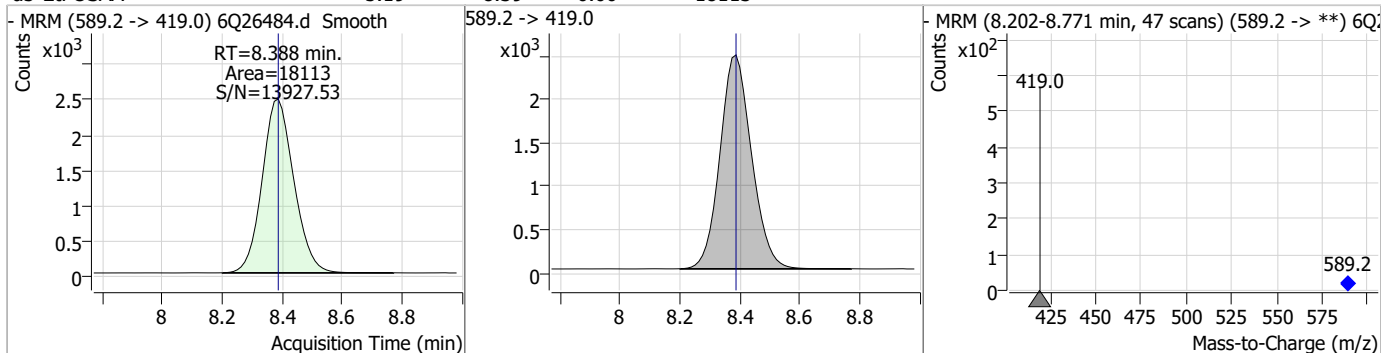
7.7.12  
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### Perfluorinated Compounds by LC/MS/MS

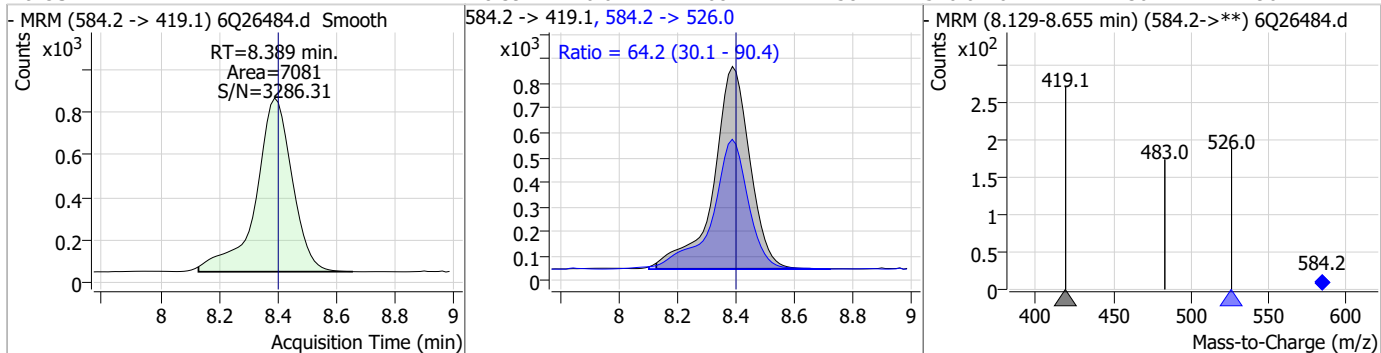
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.14	8.27	-0.01	10265 (m)	498.9 -> 98.8	48.9	32.5	97.4



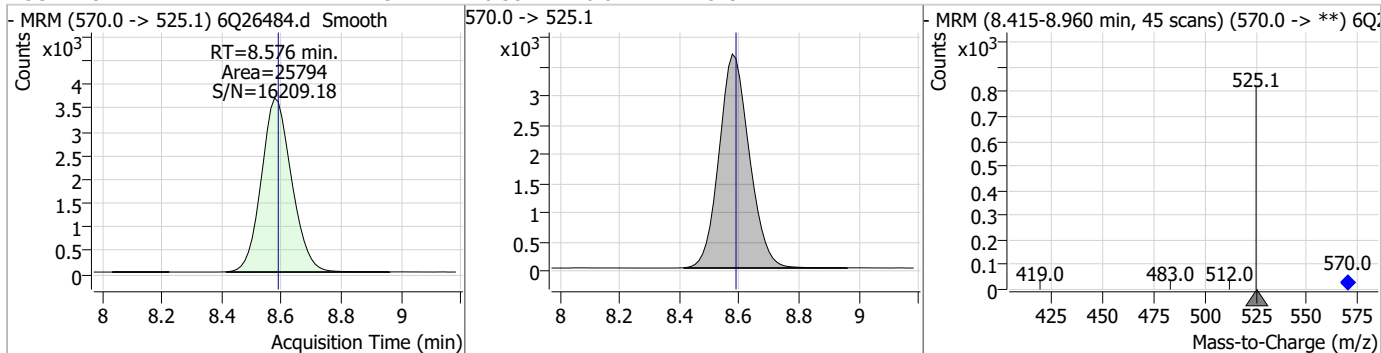
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.19	8.39	0.00	18113				



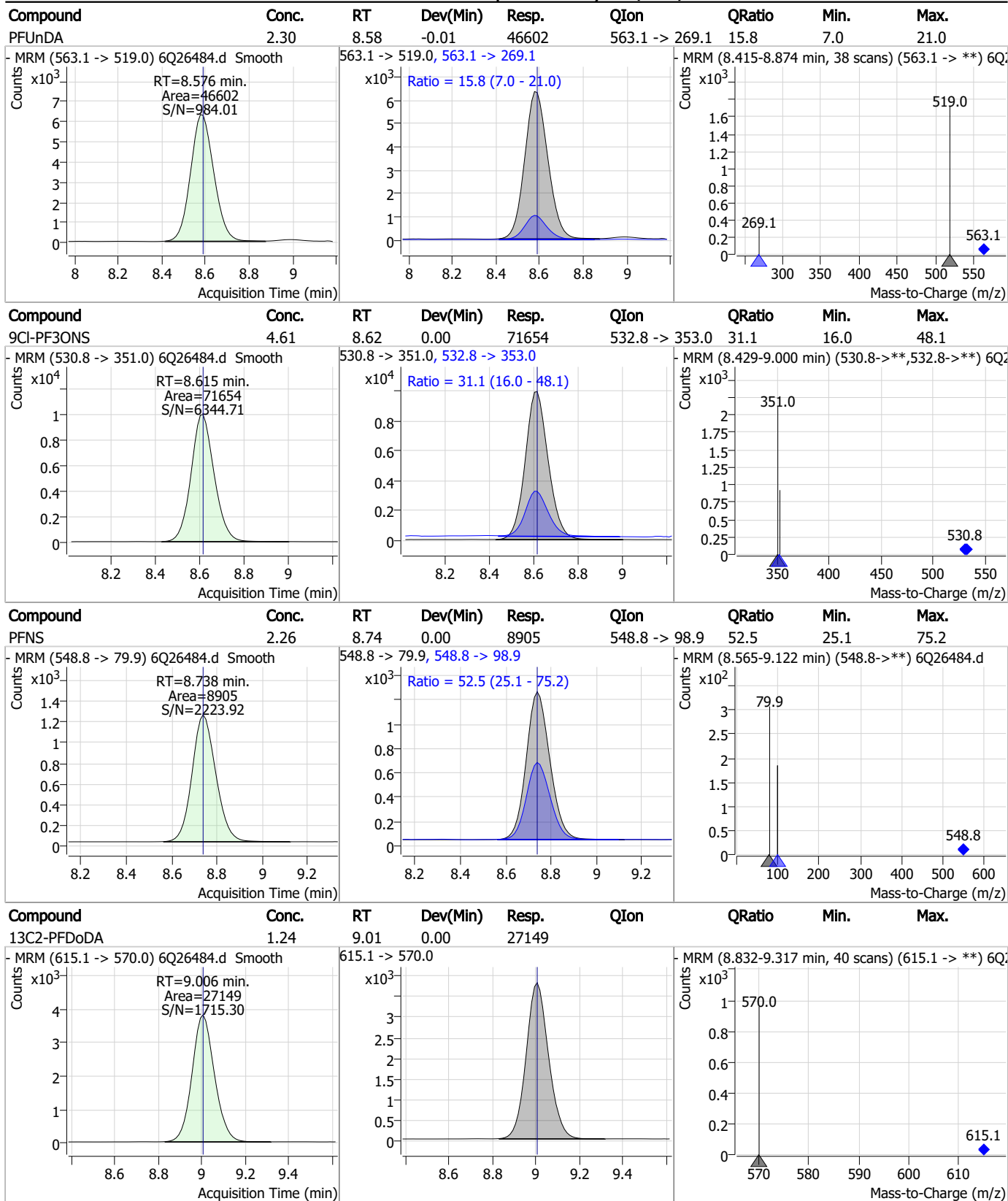
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.24	8.39	-0.01	7081	584.2 -> 526.0	64.2	30.1	90.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.34	8.58	-0.01	25794				

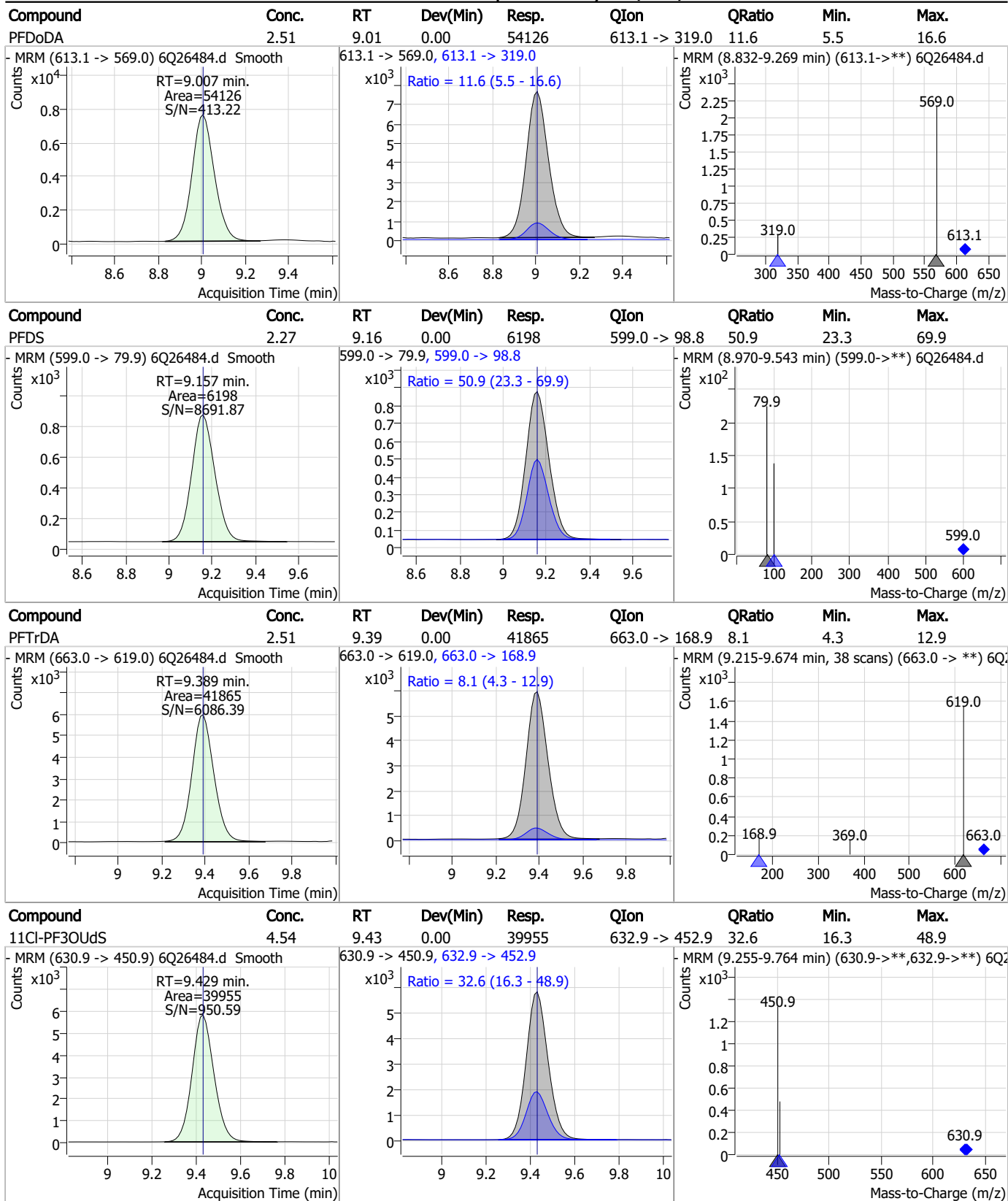


### Perfluorinated Compounds by LC/MS/MS



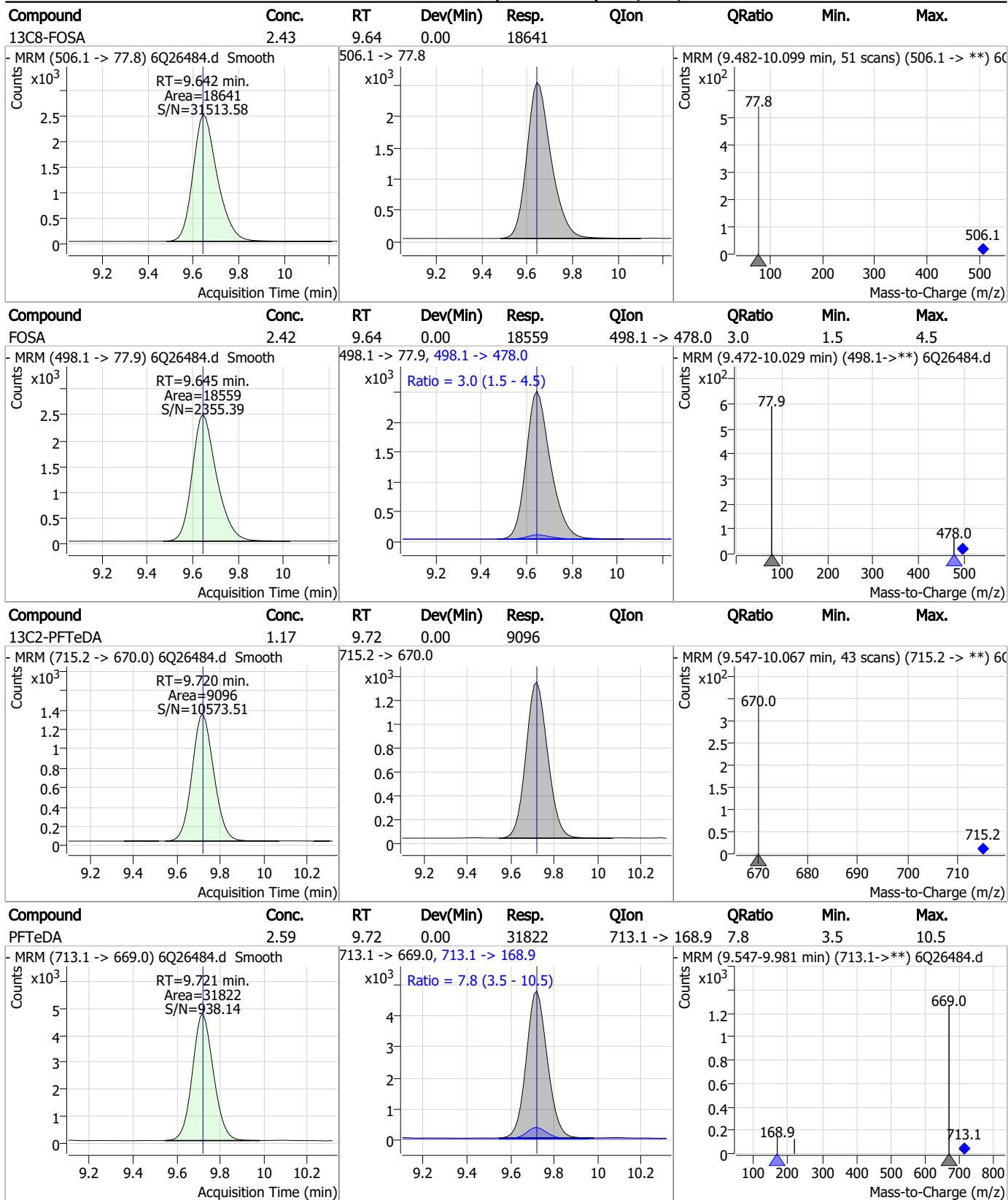
7.7.12

### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7

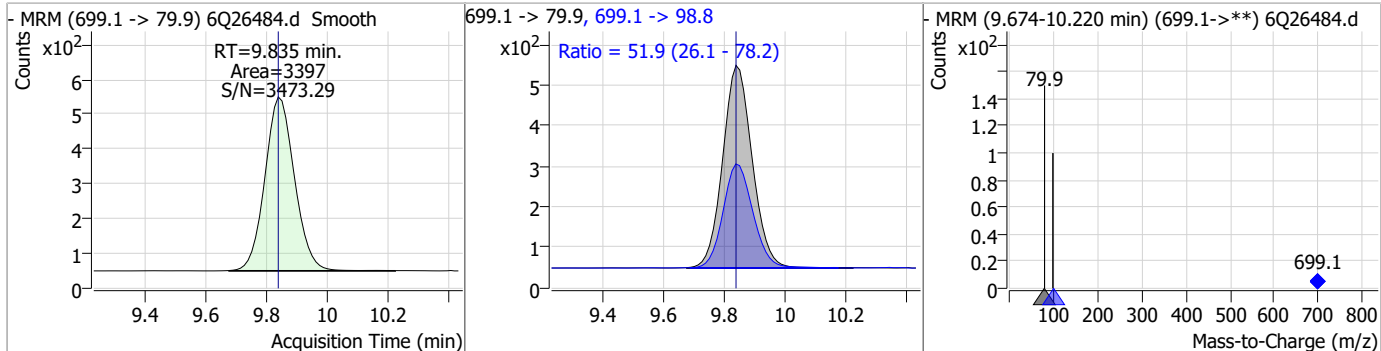
### Perfluorinated Compounds by LC/MS/MS



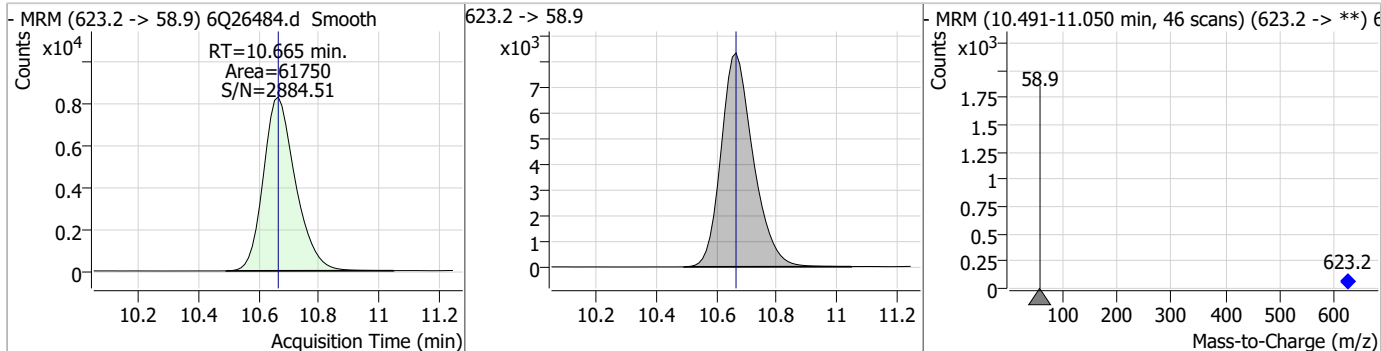
7.7.12  
7

### Perfluorinated Compounds by LC/MS/MS

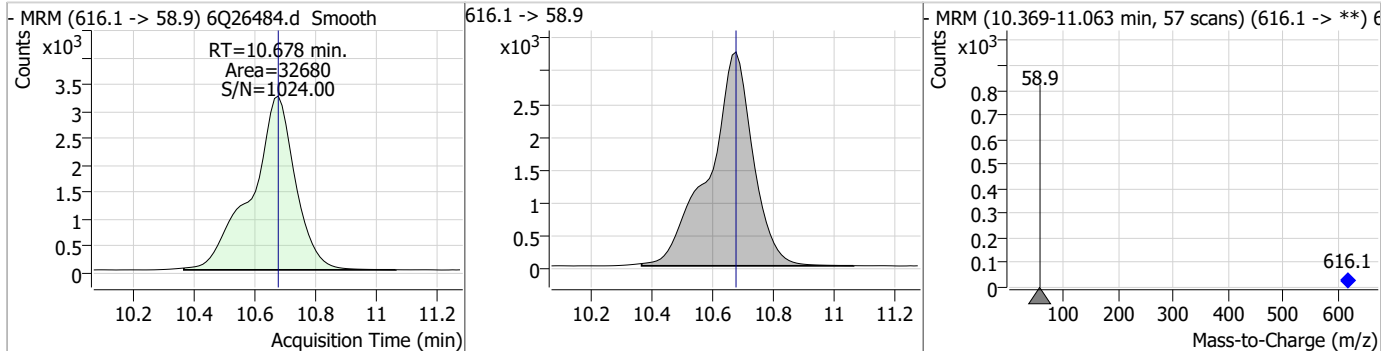
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.36	9.84	0.00	3397	699.1 -> 98.8	51.9	26.1	78.2



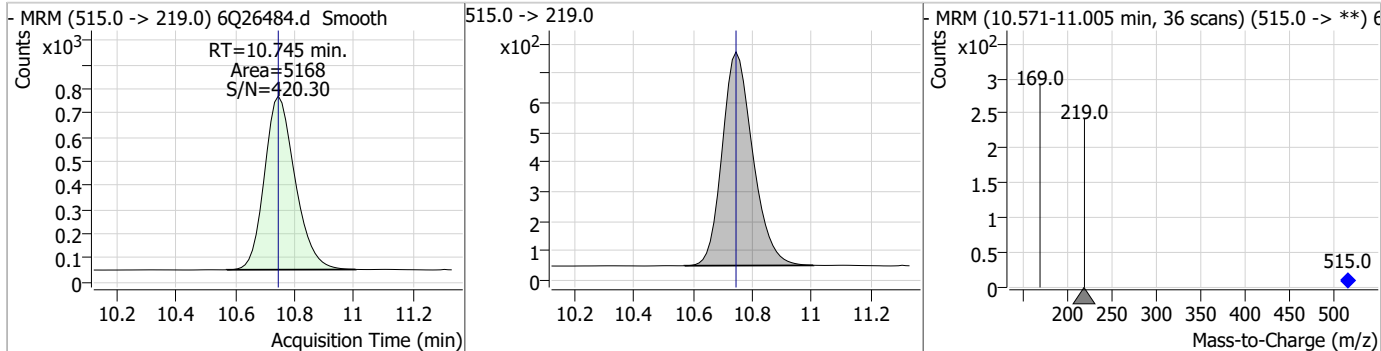
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.23	10.67	0.00	61750				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.38	10.68	0.00	32680				



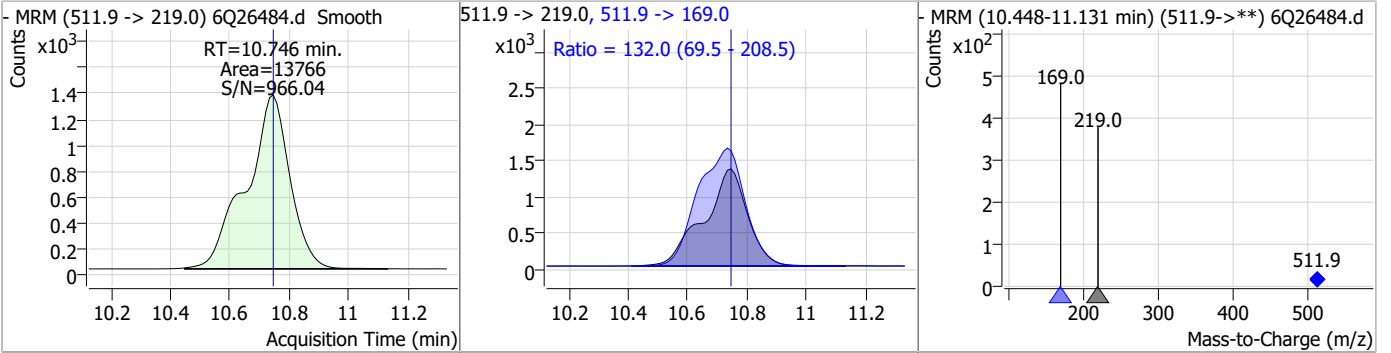
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.74	0.00	5168				



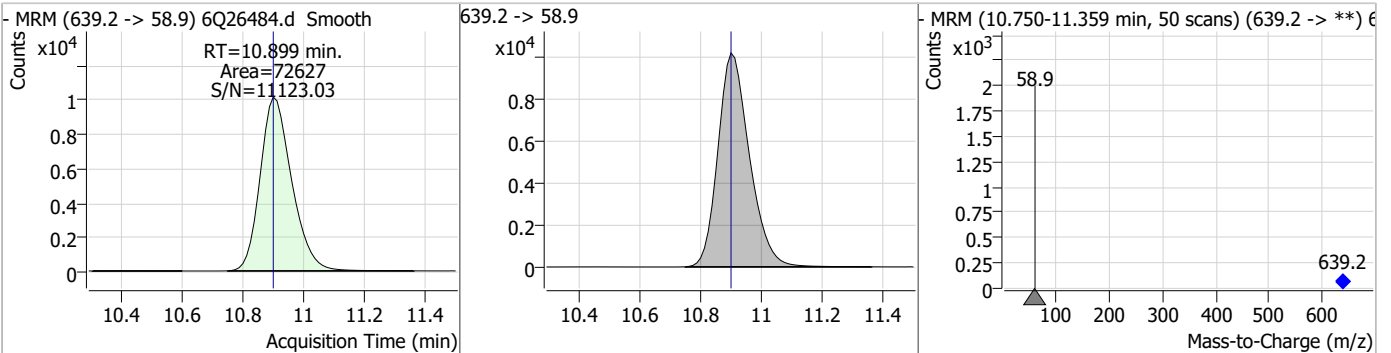


### Perfluorinated Compounds by LC/MS/MS

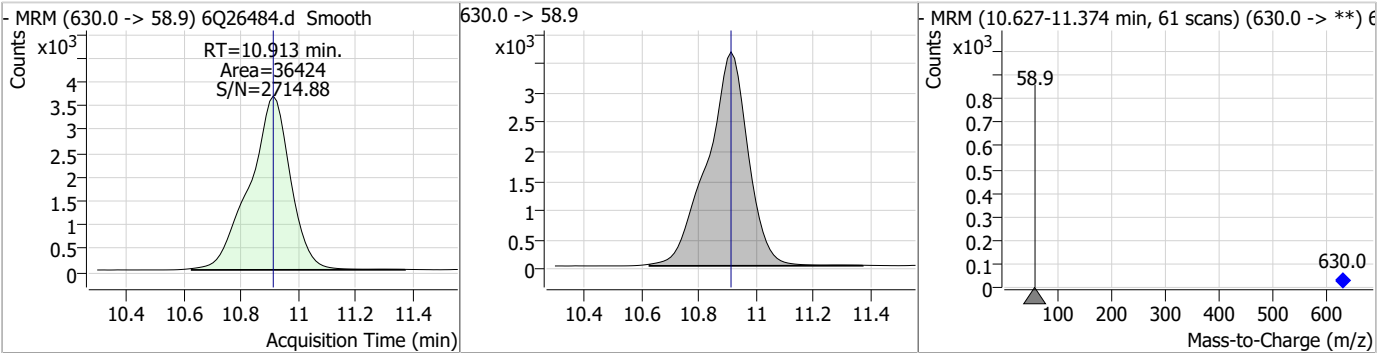
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.22	10.75	0.00	13766	511.9 -> 169.0	132.0	69.5	208.5



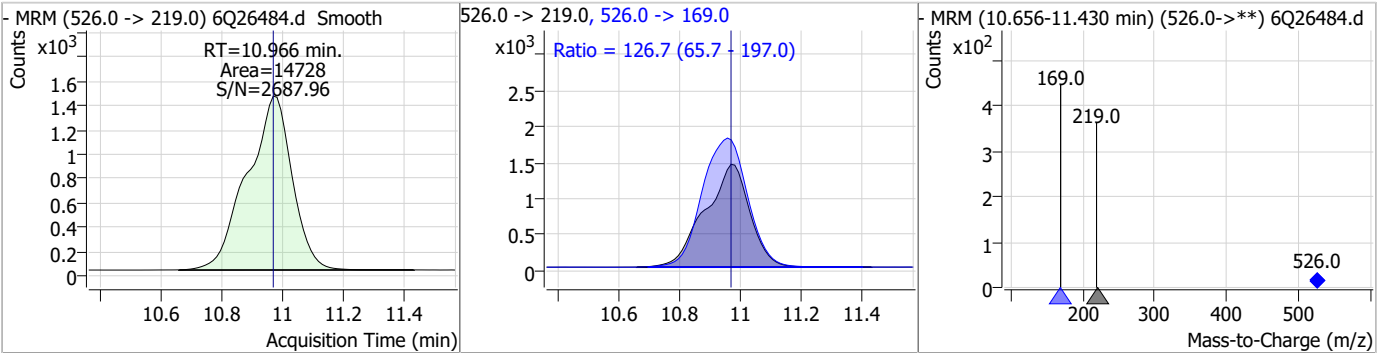
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.71	10.90	0.00	72627				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.45	10.91	0.00	36424				

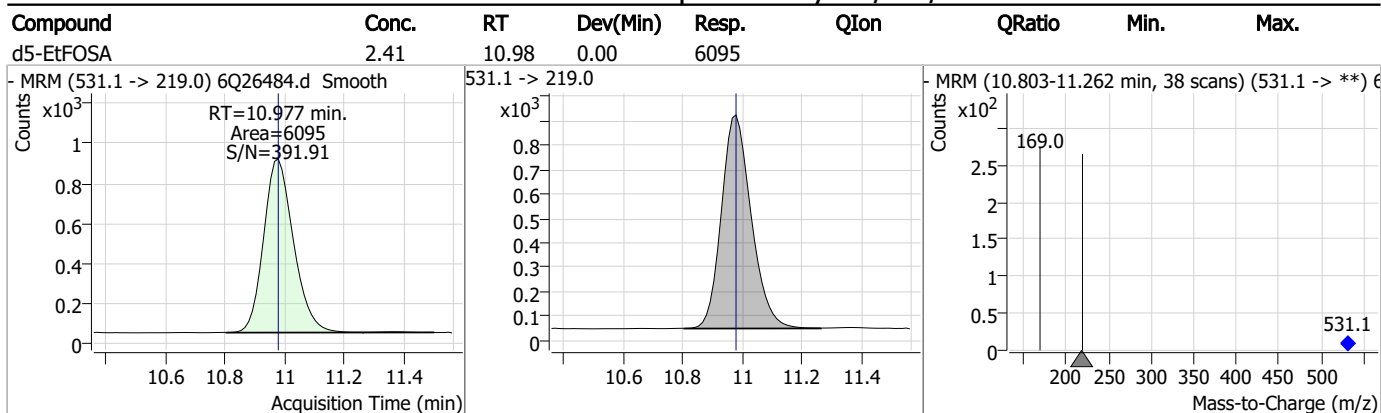


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.95	10.97	0.00	14728	526.0 -> 169.0	126.7	65.7	197.0



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### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7



# Manual Integration Approval Summary

Sample Number: S6Q372-CC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26484.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 20:03      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak

7.7.12.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26485.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 8:17:51 PM  
 Sample Name : cc372-1.0LL  
 Vial : P1-A2  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	132784	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	43014	5.00 µg/L	0.000
M5-PFHxA	5.552	318.0 -> 273.0	40778	2.50 µg/L	-0.012
M4-PFHpA	6.505	367.1 -> 322.0	42735	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	55277	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24074	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	22881	1.25 µg/L	0.000
M7-PFUnDA	8.576	570.0 -> 525.1	26215	1.25 µg/L	-0.012
M2-PFDoDA	9.006	615.1 -> 570.0	26896	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	9528	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	18702	2.50 µg/L	0.000
M3-PFBS	5.471	302.1 -> 79.9	18006	2.50 µg/L	-0.012
M3-PFHxS	7.239	402.1 -> 79.9	10201	2.50 µg/L	0.000
M8-PFOS	8.272	507.1 -> 79.9	10153	2.50 µg/L	-0.012
M2-4:2FTS	5.241	329.1 -> 80.9	2225	5.00 µg/L	0.000
M2-6:2FTS	6.910	429.1 -> 80.9	2828	5.00 µg/L	-0.012
M2-8:2FTS	7.922	529.1 -> 80.9	2951	5.00 µg/L	0.000
M3-MeFOSAA	8.191	573.2 -> 419.0	20692	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	30223	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	16695	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	63086	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	72051	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6253	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5222	2.50 µg/L	0.000
13C4-PFOS	8.273	502.8 -> 79.9	9942	2.50 µg/L	-0.012
13C3-PFBA	2.929	216.0 -> 172.0	53889	5.00 µg/L	0.000
18O2-PFHxS	7.238	403.0 -> 83.9	6454	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	60444	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21717	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	21082	1.25 µg/L	0.000
13C2-PFHxA	5.565	315.1 -> 270.0	40104	2.50 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.241	329.1 -> 80.9	2225	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C2-6:2FTS	6.910	429.1 -> 80.9	2828	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-8:2FTS	7.922	529.1 -> 80.9	2951	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFDoDA	9.006	615.1 -> 570.0	26896	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C2-PFTeDA	9.720	715.2 -> 670.0	9528	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.471	302.1 -> 79.9	18006	2.44 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFHxS	7.239	402.1 -> 79.9	10201	2.44 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 = 97.5%	
13C4-PFBA	2.926	216.8 -> 171.9	132784	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.505	367.1 -> 322.0	42735	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C5-PFHxA	5.552	318.0 -> 273.0	40778	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C5-PFPeA	4.346	268.3 -> 223.0	43014	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C6-PFDA	8.134	519.1 -> 474.1	22881	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C7-PFUnDA	8.576	570.0 -> 525.1	26215	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C8-FOSA	9.642	506.1 -> 77.8	18702	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C8-PFOA	7.136	421.1 -> 376.0	55277	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-PFOS	8.272	507.1 -> 79.9	10153	2.38 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C9-PFNA	7.654	472.1 -> 427.0	24074	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.7%	
d3-MeFOSAA	8.191	573.2 -> 419.0	20692	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	30223	10.68 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSA	10.745	515.0 -> 219.0	5222	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.2%	
d5-EtFOSAA	8.388	589.2 -> 419.0	16695	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d7-MeFOSE	10.665	623.2 -> 58.9	63086	23.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
d9-EtFOSE	10.899	639.2 -> 58.9	72051	23.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
d5-EtFOSA	10.977	531.1 -> 219.0	6253	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.241	327.1 -> 307.0	2837	0.70 µg/L	98
		327.1 -> 80.9	1111		
6:2FTS	6.911	427.1 -> 407.0	3016	0.95 µg/L	96
		427.1 -> 80.9	1258		
8:2FTS	7.923	527.1 -> 507.0	1710	0.75 µg/L	84
		527.1 -> 80.8	699		
EtFOSAA	8.389	584.2 -> 419.1	609	0.21 µg/L	90
		584.2 -> 526.0	412		
FOSA	9.645	498.1 -> 77.9	1548	0.20 µg/L	98
		498.1 -> 478.0	57		
MeFOSAA	8.192	570.1 -> 419.0	857	0.20 µg/L	95
		570.1 -> 483.0	169		
PFBA	2.919	212.8 -> 168.9	4154	0.80 µg/L	100
PFBS	5.484	298.7 -> 79.9	1168	0.20 µg/L	94
		298.7 -> 98.8	475		
PFDA	8.134	512.9 -> 469.0	4145	0.22 µg/L	94
		512.9 -> 219.0	597		
PFDODA	9.007	613.1 -> 569.0	4837	0.23 µg/L	97
		613.1 -> 319.0	490		
PFDS	9.157	599.0 -> 79.9	474	0.18 µg/L	82

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	276			
PFHpA	6.506	363.1 -> 319.0	4658	0.19	µg/L	96
		363.1 -> 169.0	739			
PFHpS	7.781	449.0 -> 79.9	894	0.19	µg/L	87
		449.0 -> 98.9	389			
PFHxA	5.568	313.0 -> 269.0	3109	0.20	µg/L	96
		313.0 -> 118.9	203			
PFHxS	7.228	398.7 -> 79.9	935	0.21	µg/L	m 82
		398.7 -> 98.9	413			
PFNA	7.655	463.0 -> 419.0	3216	0.21	µg/L	99
		463.0 -> 219.0	764			
PFNS	8.738	548.8 -> 79.9	691	0.18	µg/L	98
		548.8 -> 98.9	336			
PFOA	7.138	413.0 -> 369.0	4809	0.20	µg/L	97
		413.0 -> 169.0	933			
PFOS	8.286	498.9 -> 79.9	849	0.18	µg/L	m 83
		498.9 -> 98.8	439			
PFPeA	4.349	263.0 -> 219.0	4198	0.41	µg/L	100
PFPeS	6.545	349.1 -> 79.9	1154	0.20	µg/L	96
		349.1 -> 98.9	526			
PFTeDA	9.721	713.1 -> 669.0	2662	0.21	µg/L	100
		713.1 -> 168.9	188			
PFTrDA	9.389	663.0 -> 619.0	3507	0.21	µg/L	96
		663.0 -> 168.9	249			
PFUnDA	8.576	563.1 -> 519.0	3927	0.19	µg/L	97
		563.1 -> 269.1	604			
11CI-PF3OUdS	9.429	630.9 -> 450.9	3389	0.38	µg/L	93
		632.9 -> 452.9	966			
9CI-PF3ONS	8.615	530.8 -> 351.0	6018	0.38	µg/L	87
		532.8 -> 353.0	1484			
ADONA	6.755	376.9 -> 250.9	15814	0.37	µg/L	100
		376.9 -> 84.8	4056			
HFPO-DA	5.931	284.9 -> 168.9	1193	0.37	µg/L	89
		284.9 -> 184.9	205			
3:3FTCA	3.777	241.0 -> 177.0	673	0.94	µg/L	94
		241.0 -> 117.0	78			
5:3FTCA	6.210	341.0 -> 237.1	14503	5.04	µg/L	100
		341.0 -> 217.0	10821			
7:3FTCA	7.607	441.0 -> 316.9	8737	4.67	µg/L	89
		441.0 -> 336.9	18687			
EtFOSA	10.966	526.0 -> 219.0	1123	0.37	µg/L	93
		526.0 -> 169.0	1570			
EtFOSE	10.913	630.0 -> 58.9	2983	0.95	µg/L	100
MeFOSA	10.746	511.9 -> 219.0	1109	0.42	µg/L	99
		511.9 -> 169.0	1521			
MeFOSE	10.678	616.1 -> 58.9	2566	0.95	µg/L	100
PFDoDS	9.848	699.1 -> 79.9	294	0.21	µg/L	87
		699.1 -> 98.8	181			
NFDHA	5.435	295.0 -> 201.0	844	0.44	µg/L	93
		295.0 -> 84.9	202			
PFMBA	4.762	279.0 -> 85.1	3098	0.39	µg/L	100
PFMPA	3.475	229.0 -> 84.9	2577	0.40	µg/L	100
PFEESA	6.024	314.8 -> 134.9	6929	0.34	µg/L	100
		314.8 -> 82.9	255			

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



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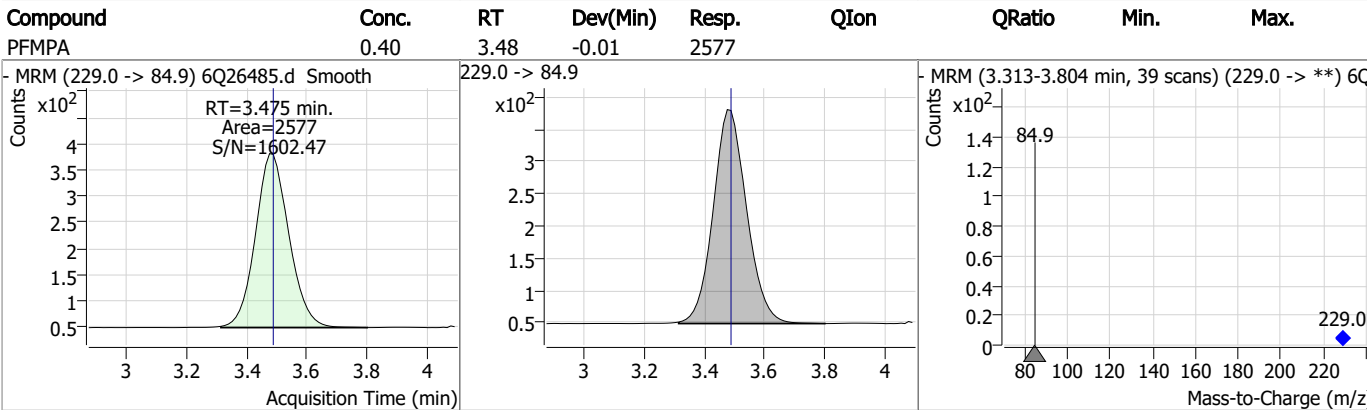
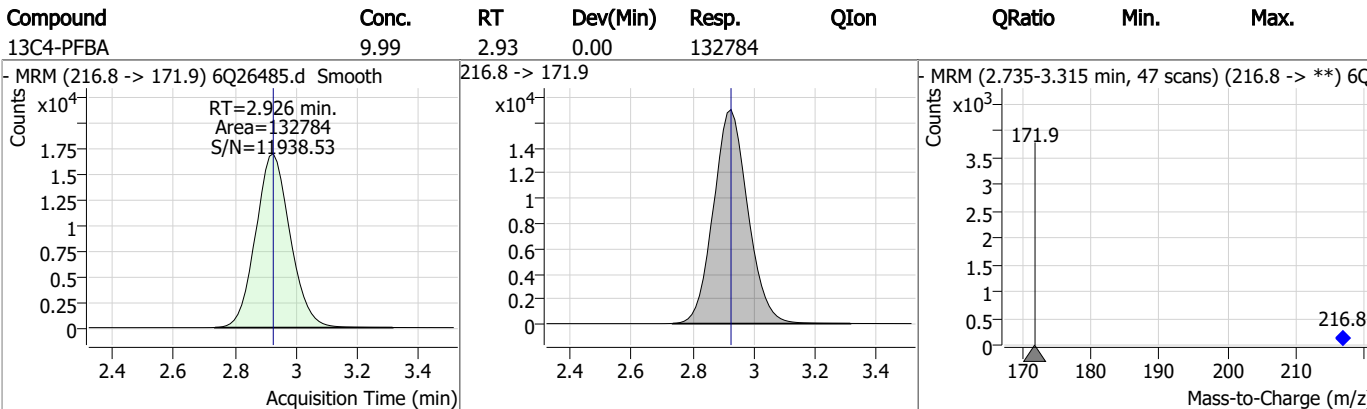
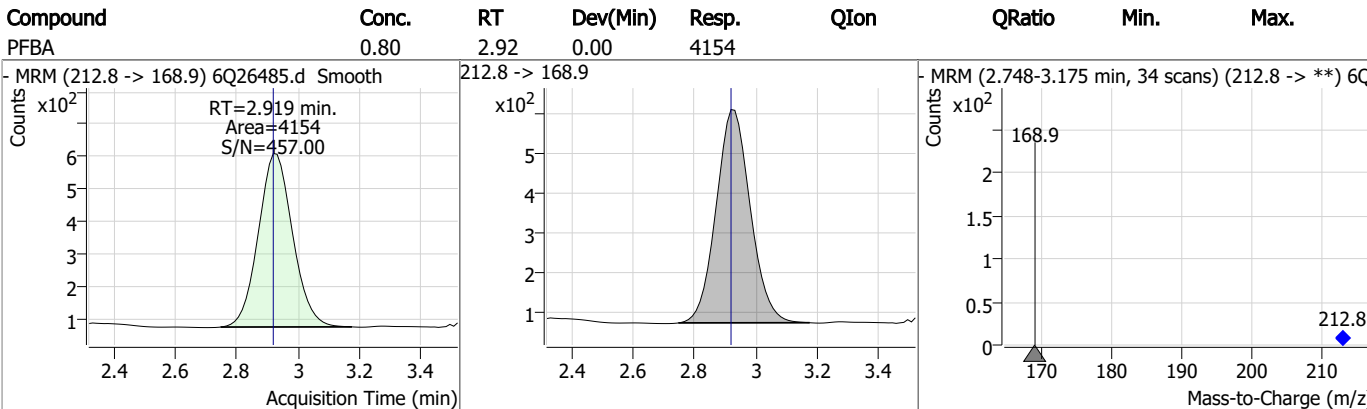
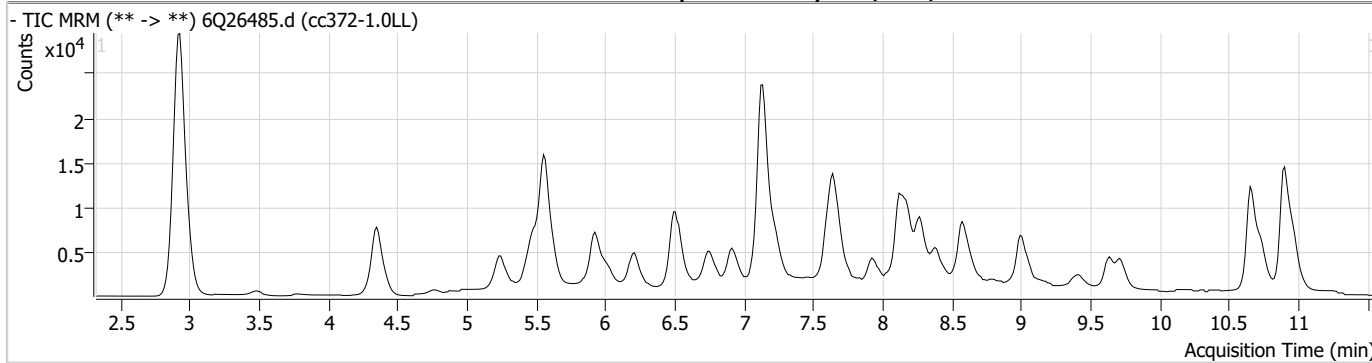
### Perfluorinated Compounds by LC/MS/MS

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

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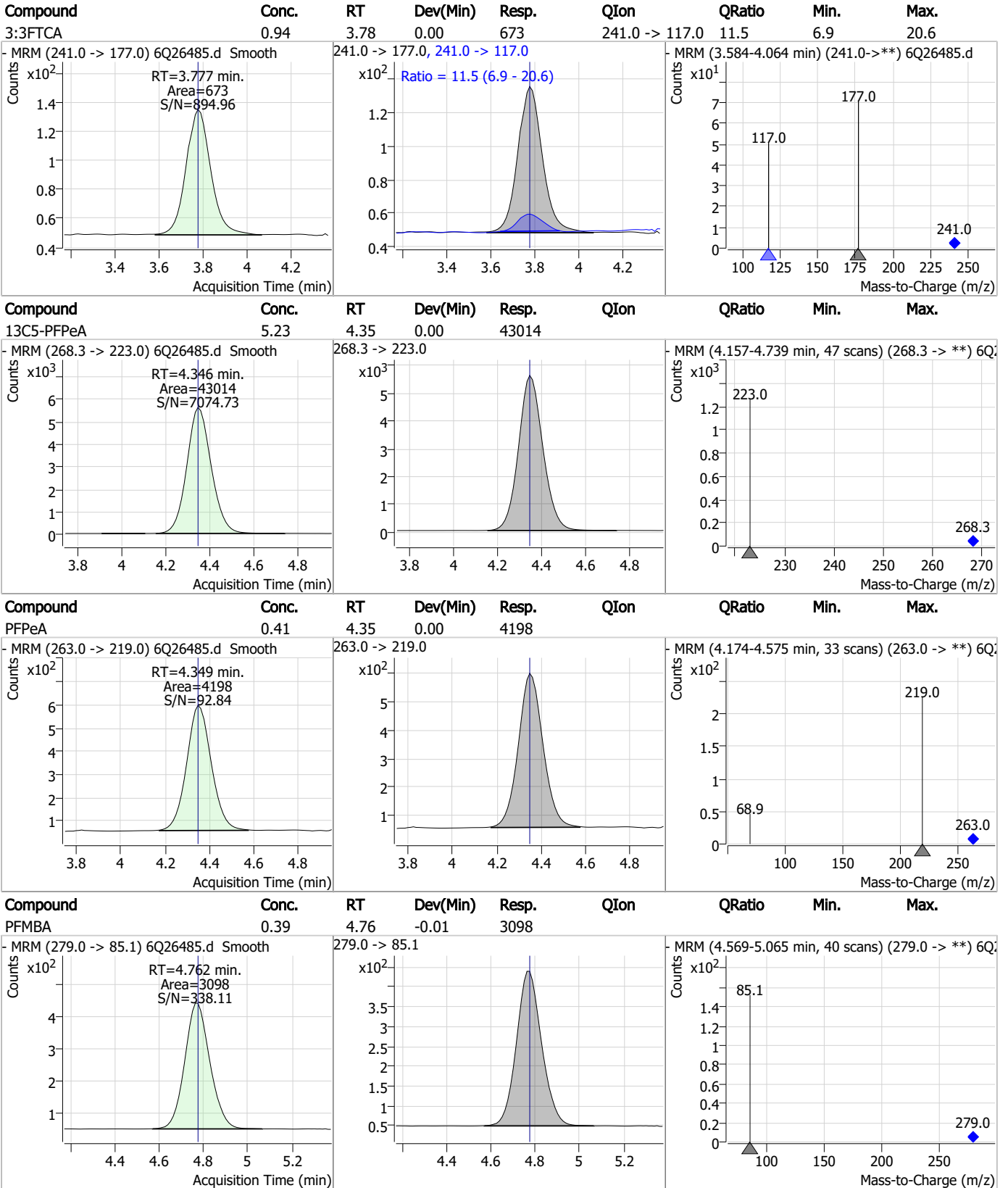
### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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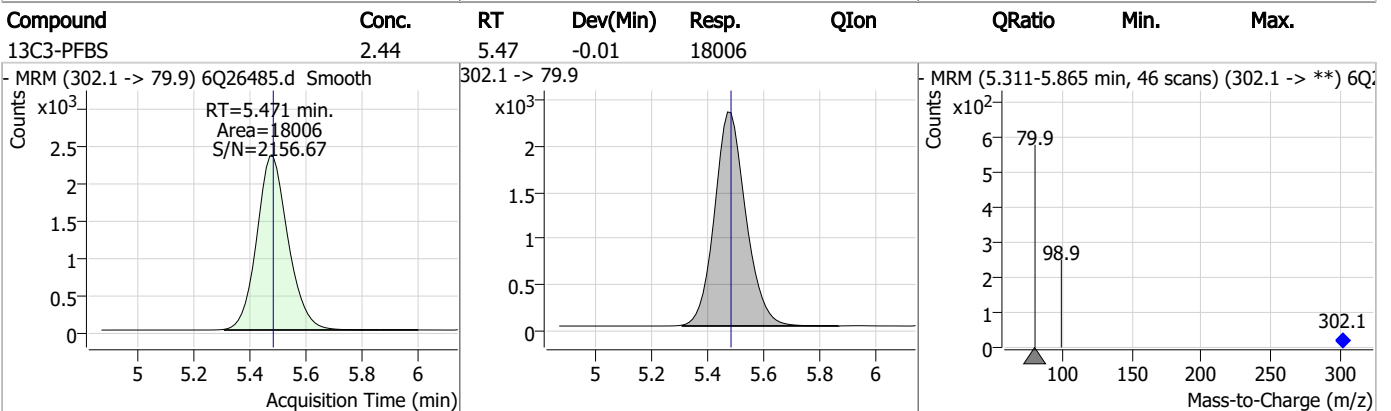
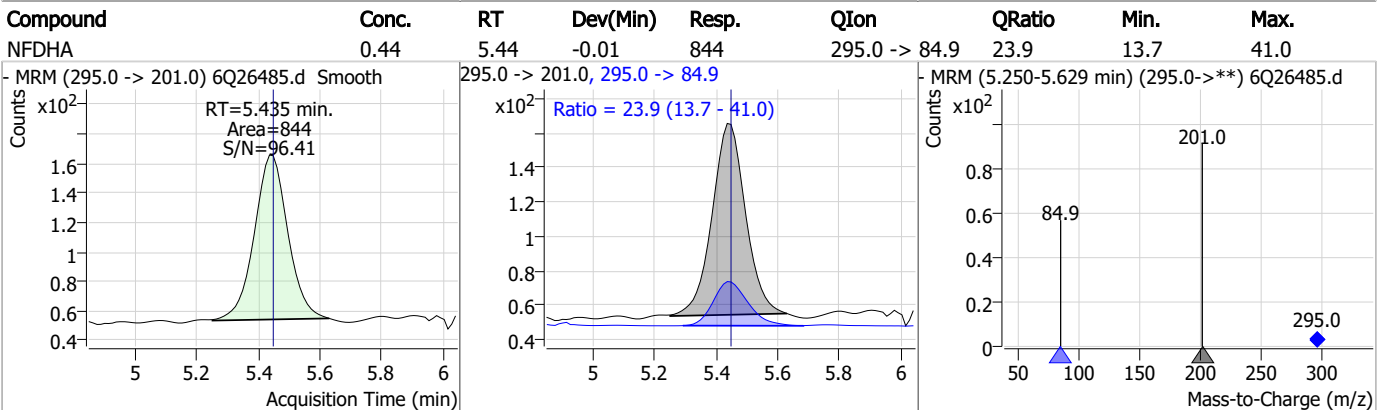
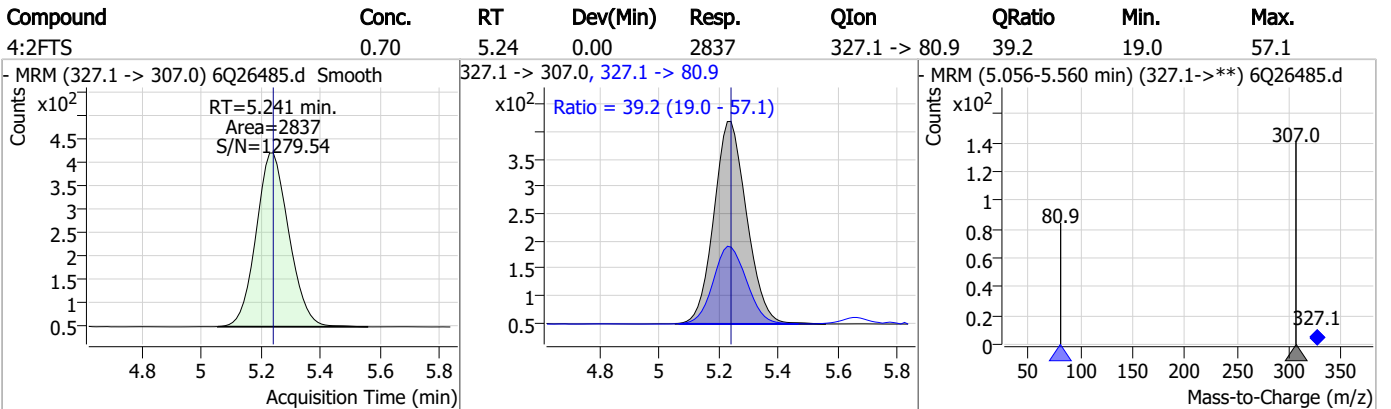
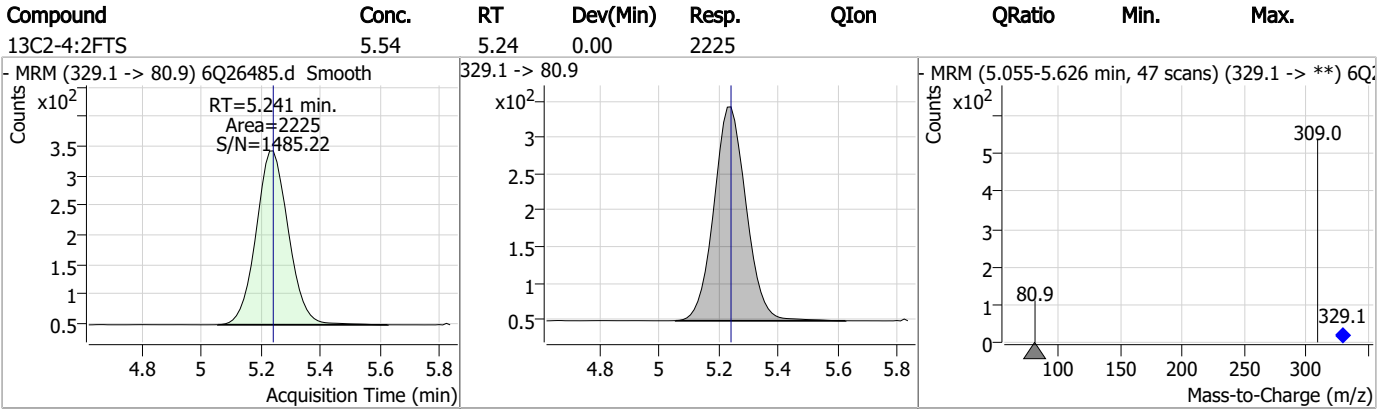
### Perfluorinated Compounds by LC/MS/MS



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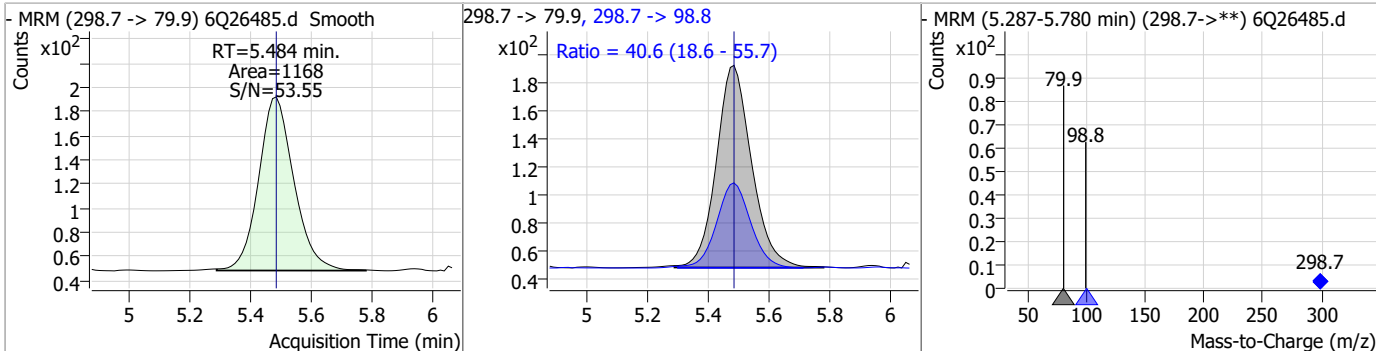
### Perfluorinated Compounds by LC/MS/MS



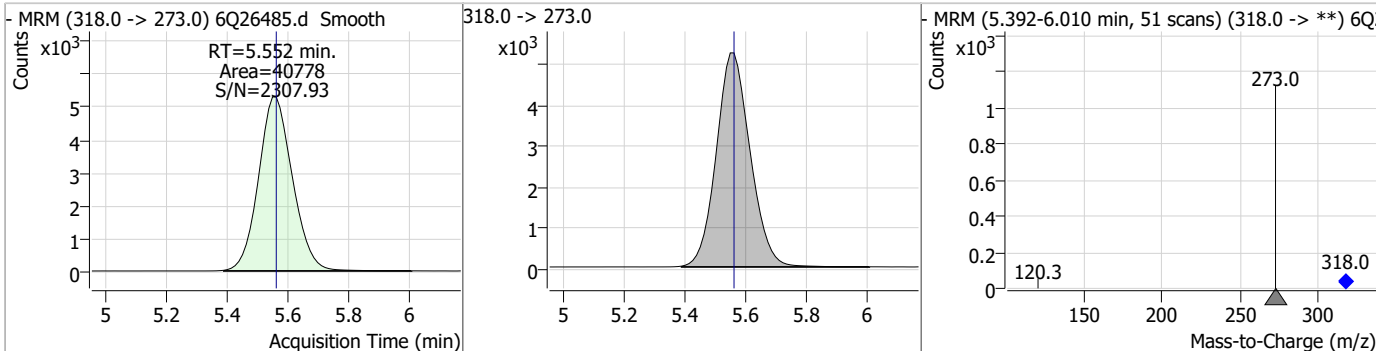
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

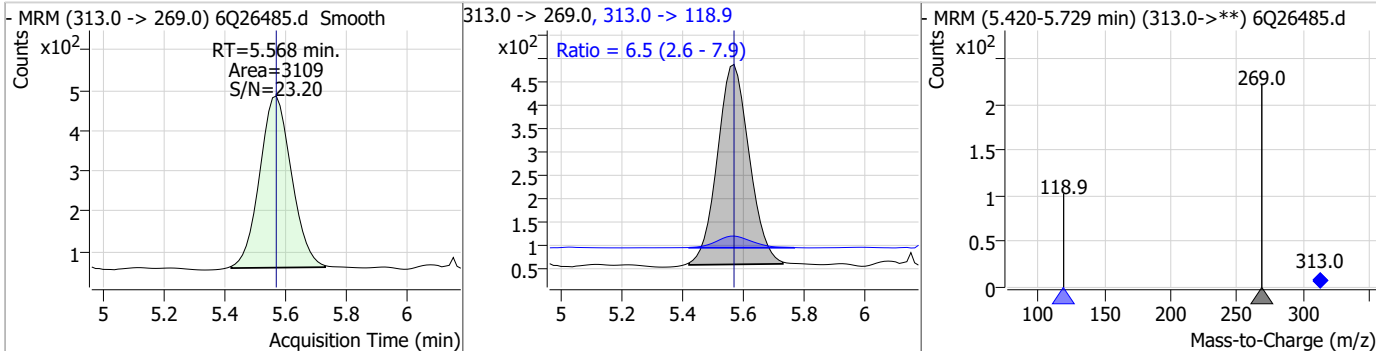
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.20	5.48	0.00	1168	298.7 -> 98.8	40.6	18.6	55.7



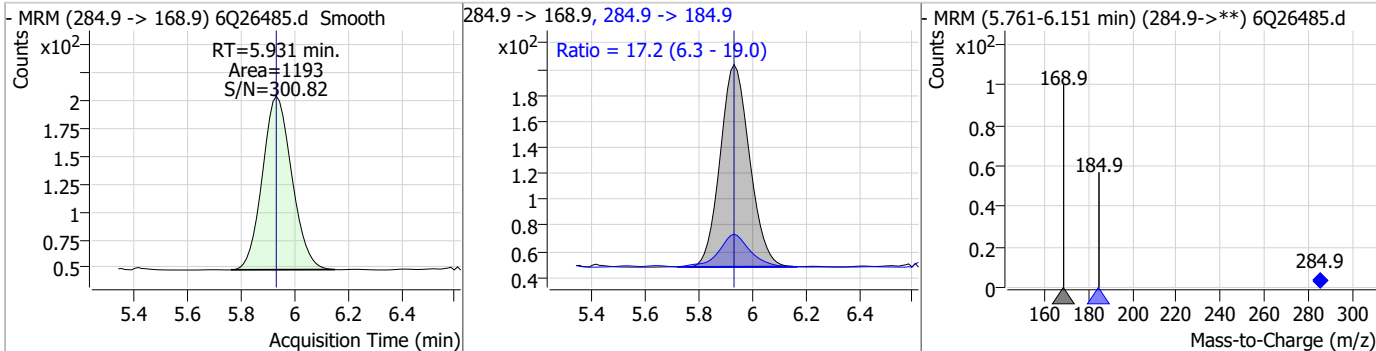
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.55	-0.01	40778				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.57	0.00	3109	313.0 -> 118.9	6.5	2.6	7.9

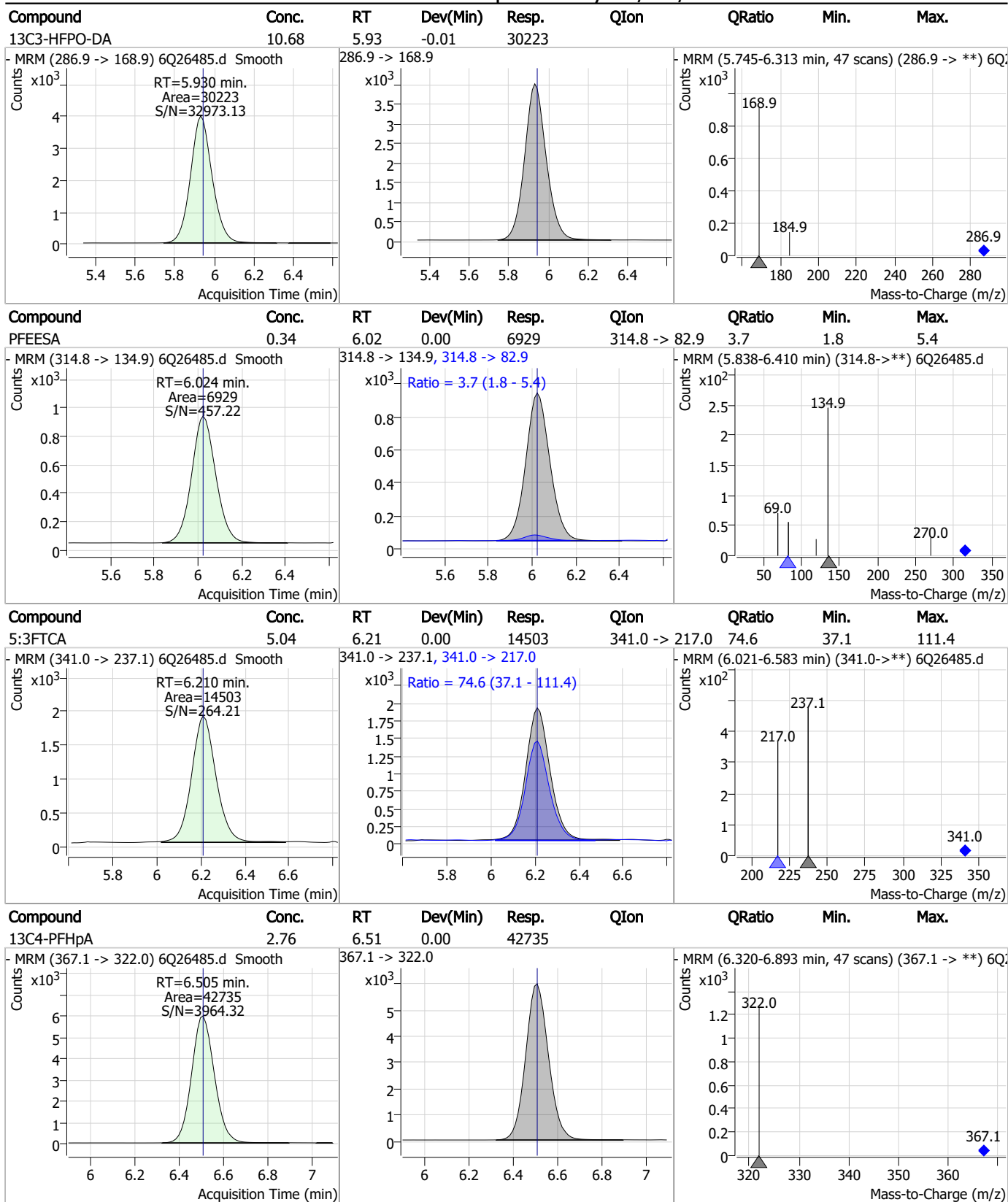


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.37	5.93	0.00	1193	284.9 -> 184.9	17.2	6.3	19.0



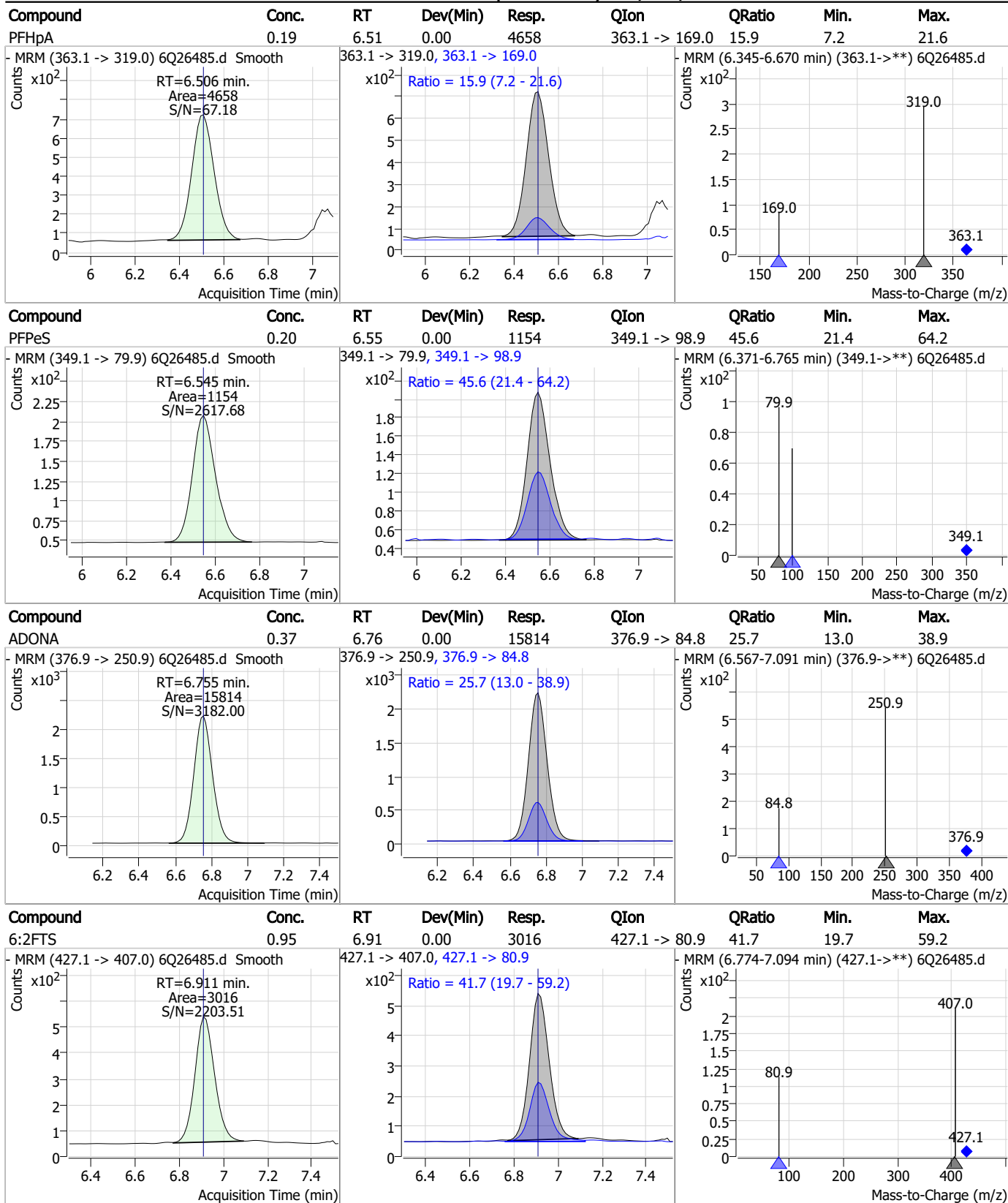
7.7.13  
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### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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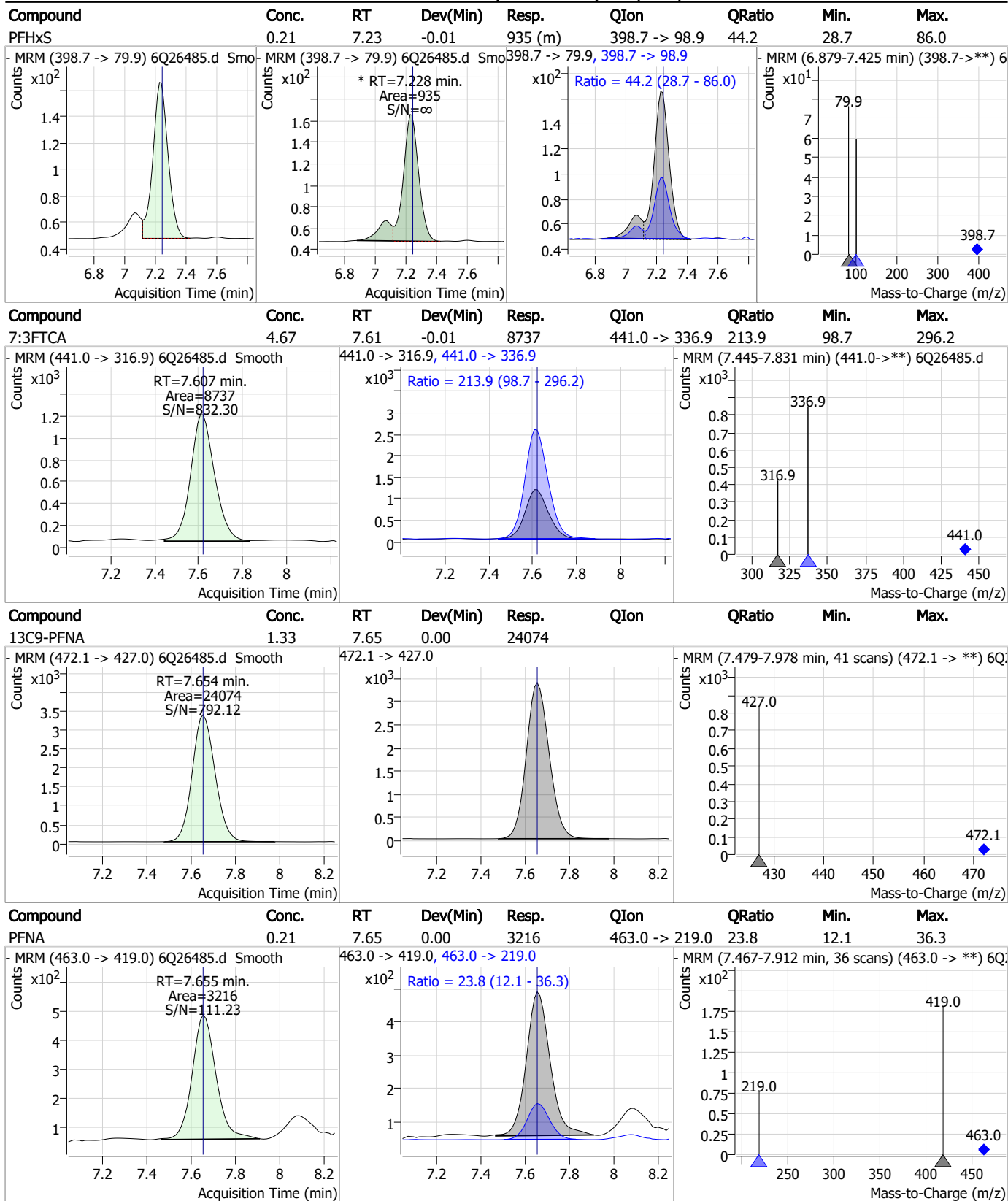
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.24	6.91	-0.01	2828				
13C8-PFOA	2.56	7.14	0.00	55277				
PFOA	0.20	7.14	0.00	4809	413.0 -> 169.0	19.4	9.0	26.9
13C3-PFHxS	2.44	7.24	0.00	10201				

7.7.13

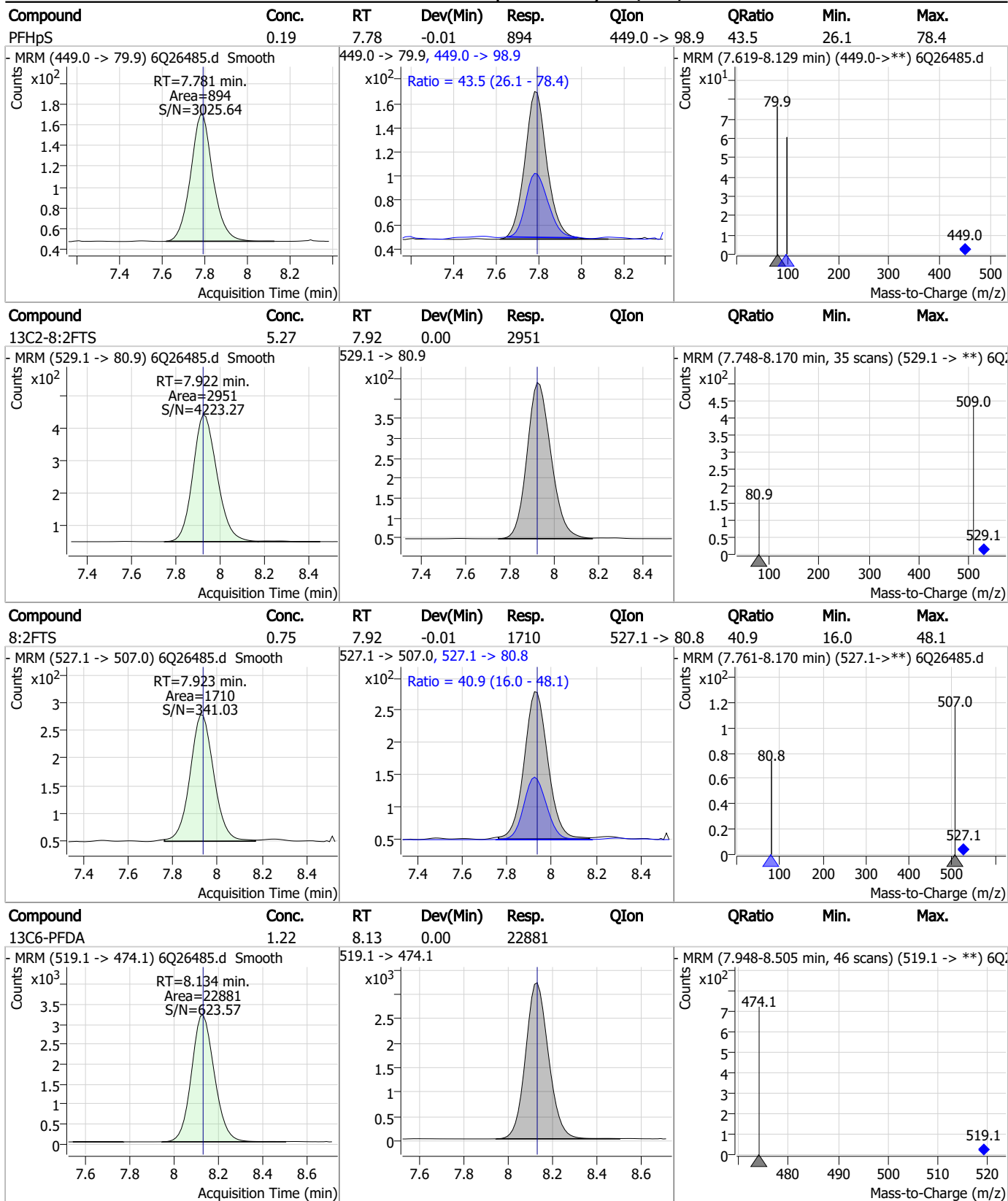
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### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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### Perfluorinated Compounds by LC/MS/MS

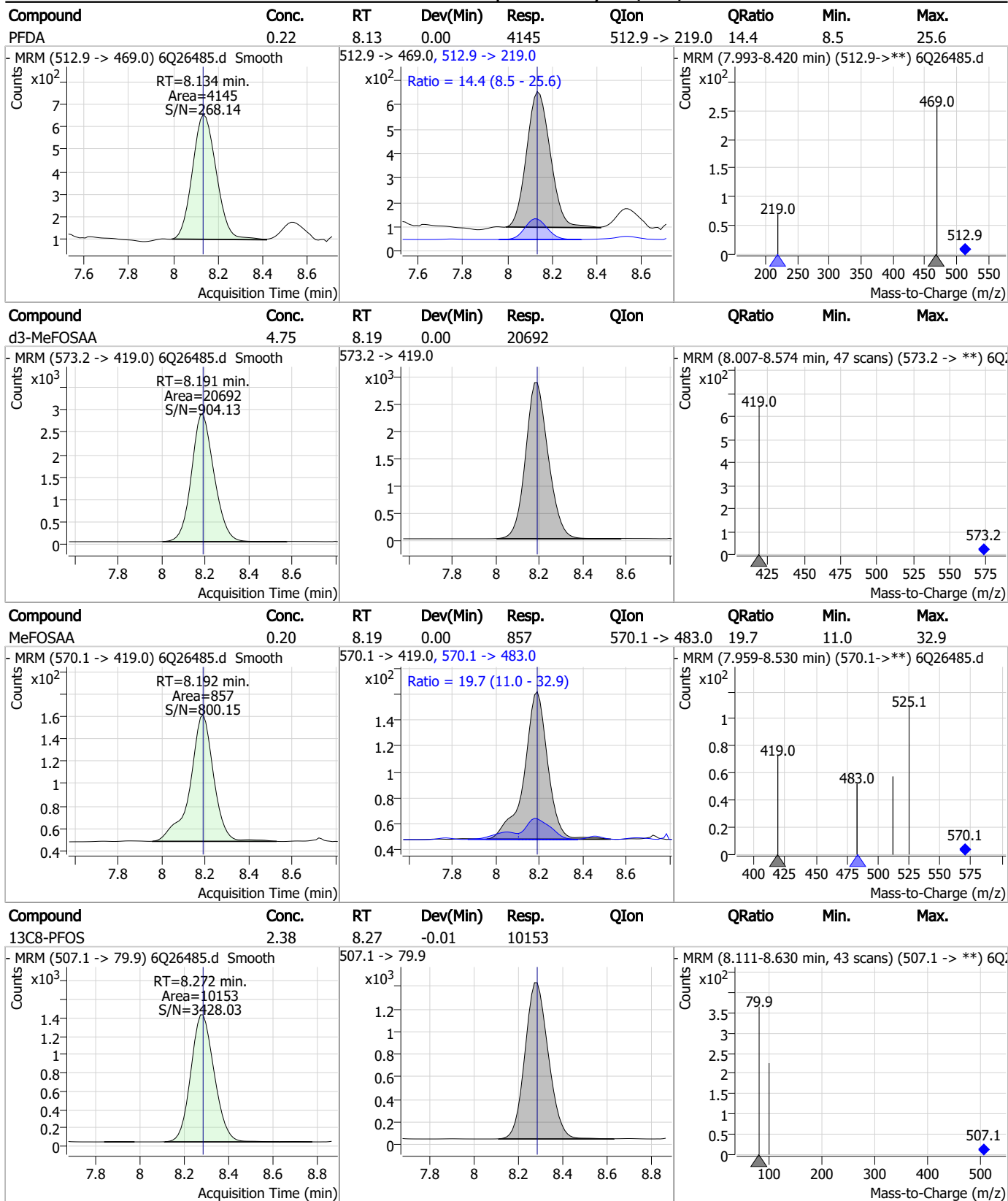


7.7.13

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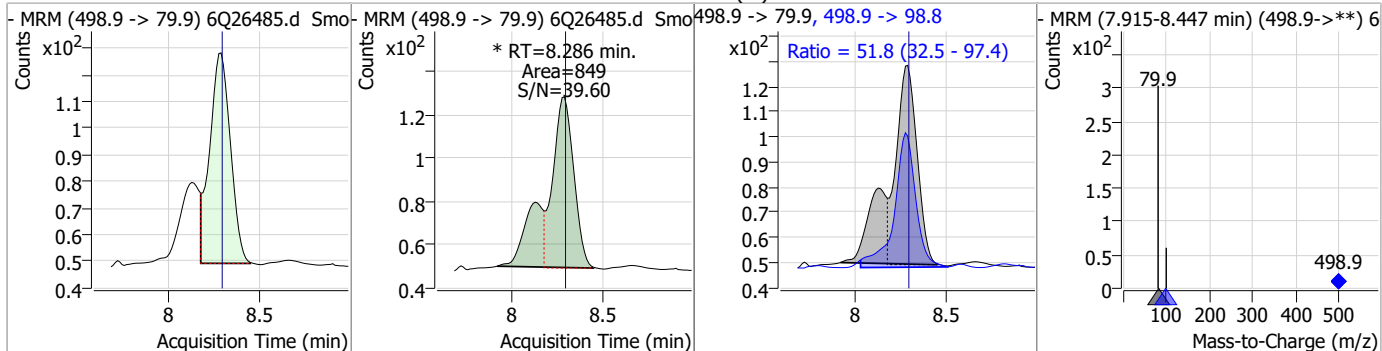
### Perfluorinated Compounds by LC/MS/MS



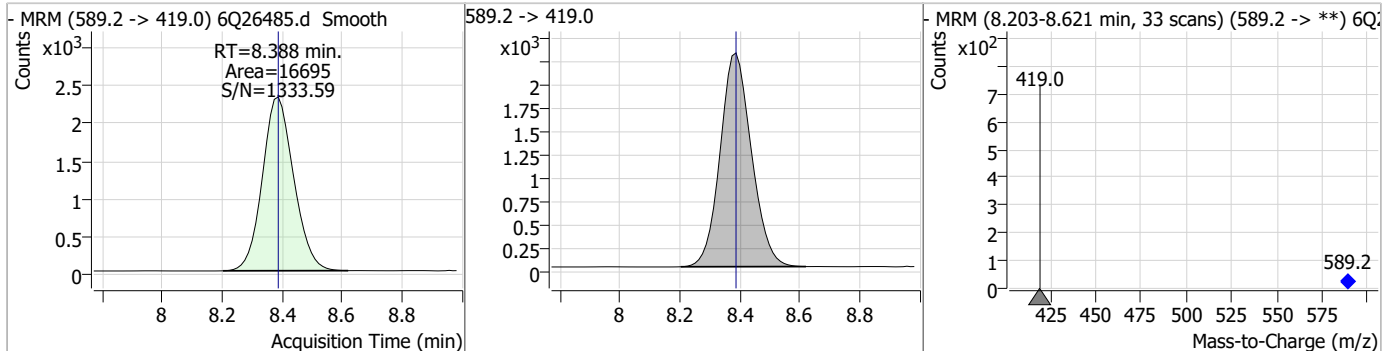
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### Perfluorinated Compounds by LC/MS/MS

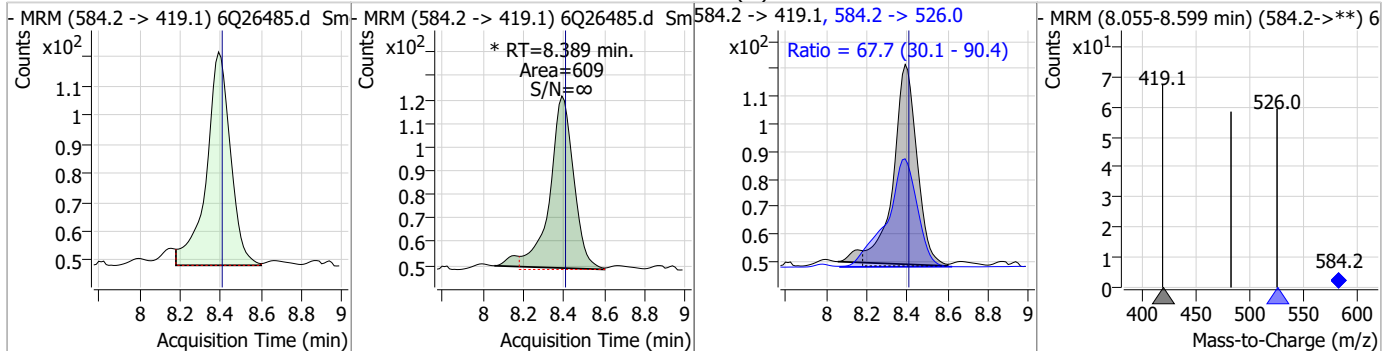
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.18	8.29	0.00	849 (m)	498.9 -> 98.8	51.8	32.5	97.4



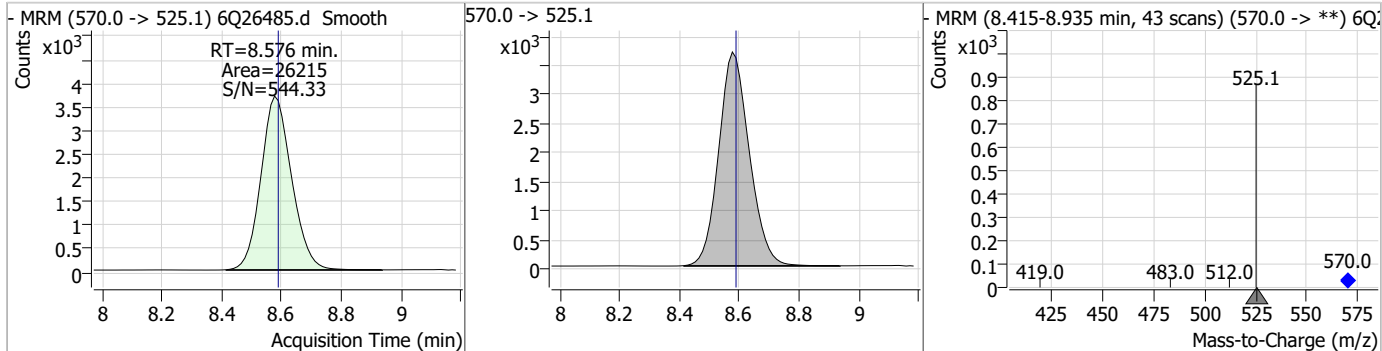
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.61	8.39	0.00	16695				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.21	8.39	-0.01	609 (m)	584.2 -> 526.0	67.7	30.1	90.4

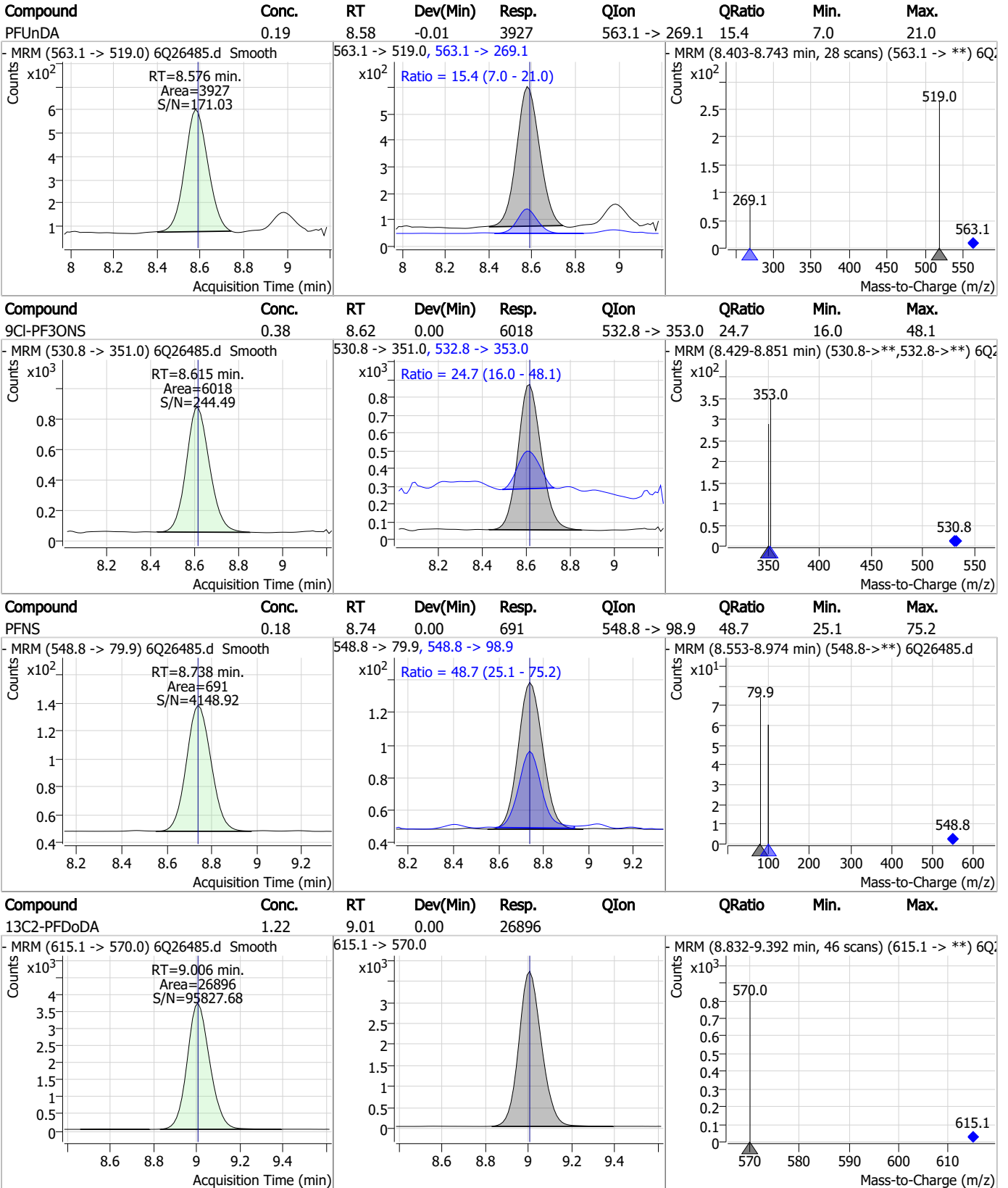


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.35	8.58	-0.01	26215				



7.7.13  
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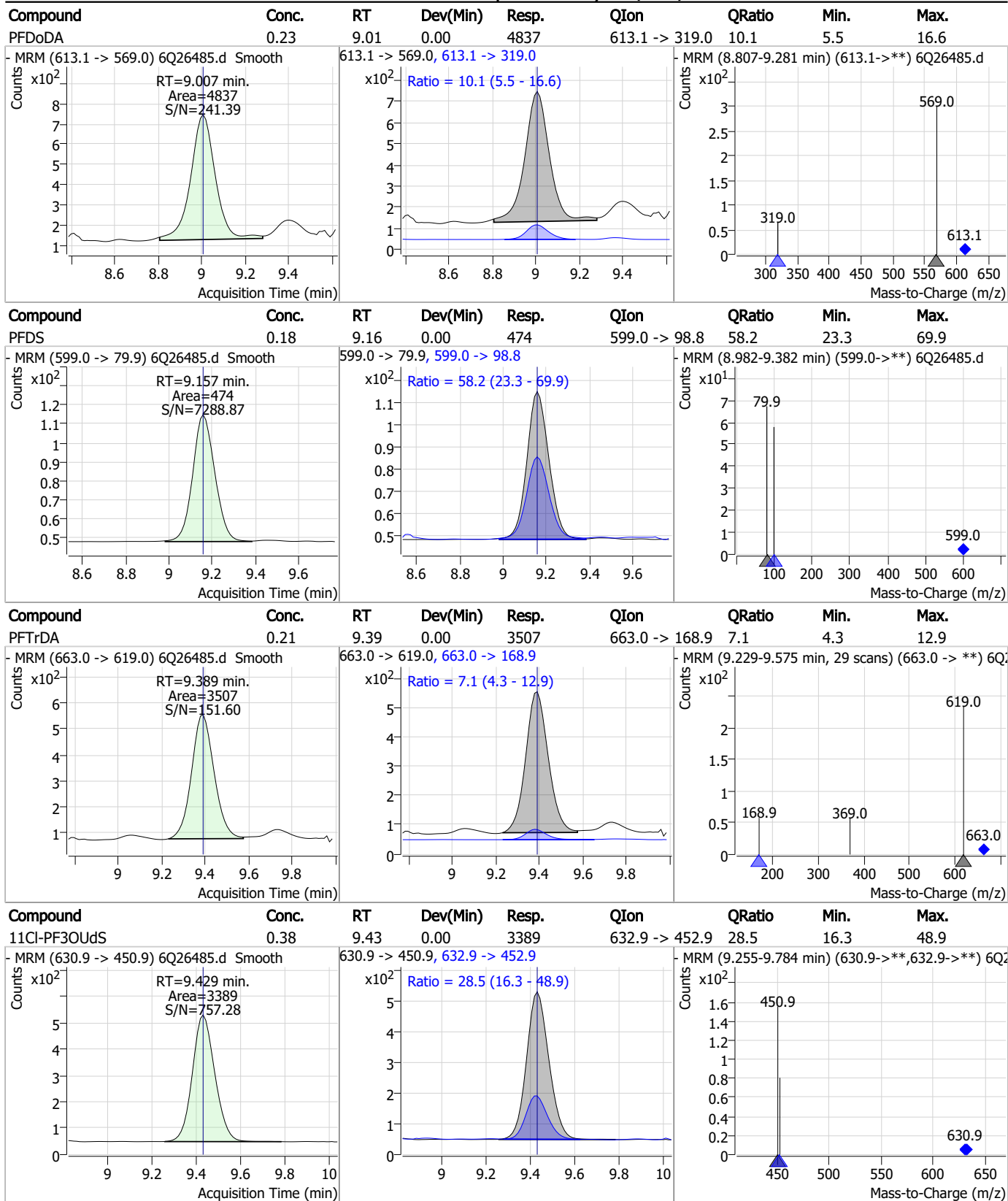
### Perfluorinated Compounds by LC/MS/MS



7.7.13 7

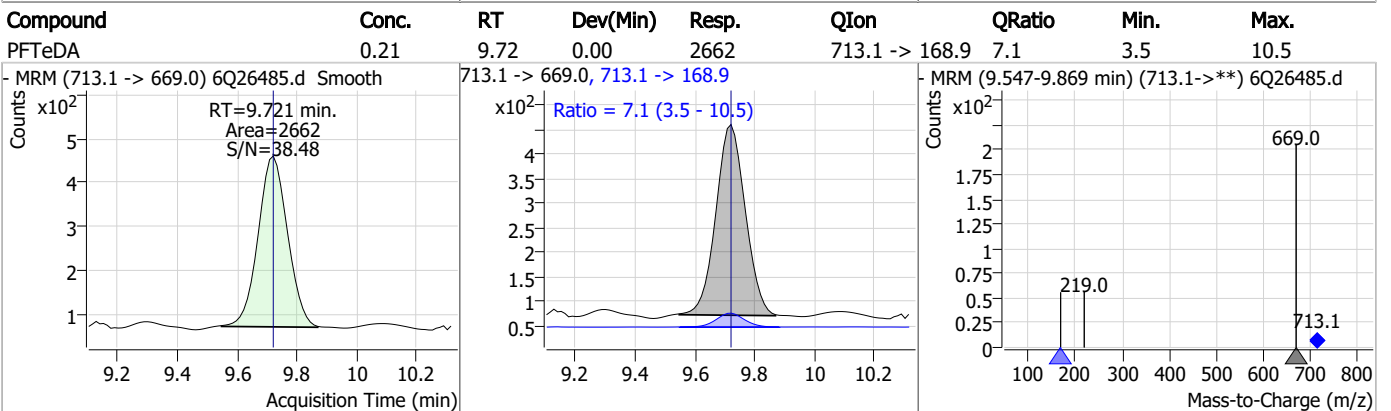
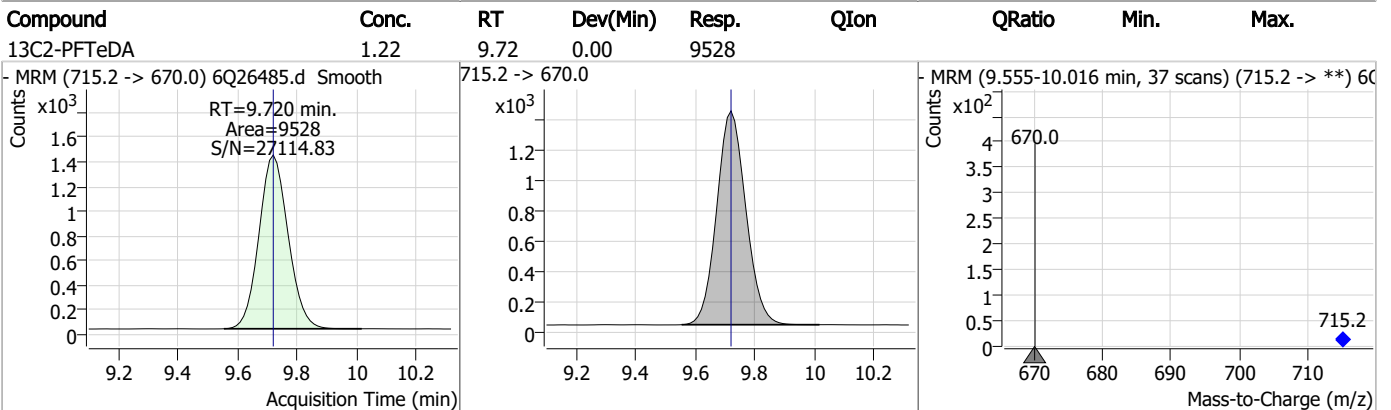
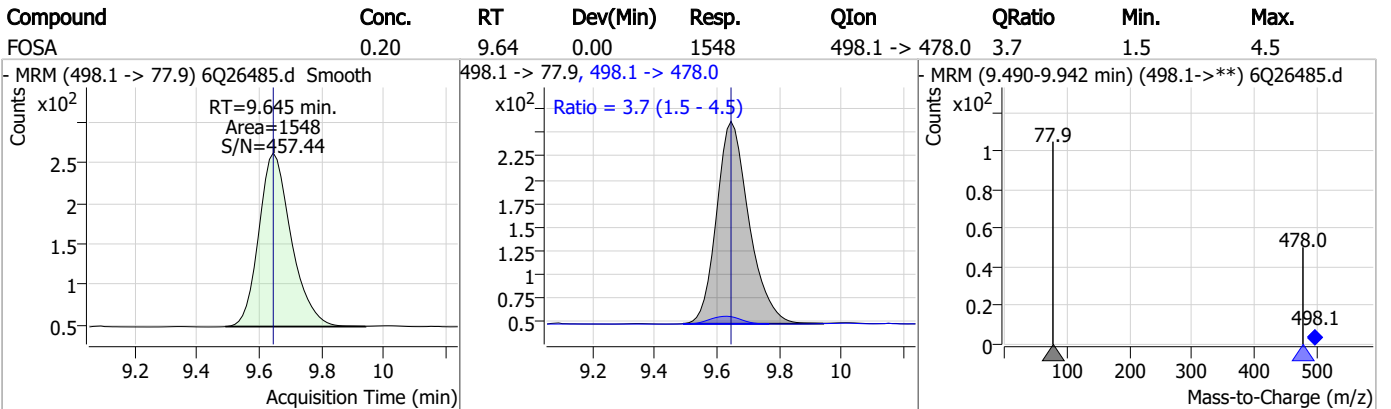
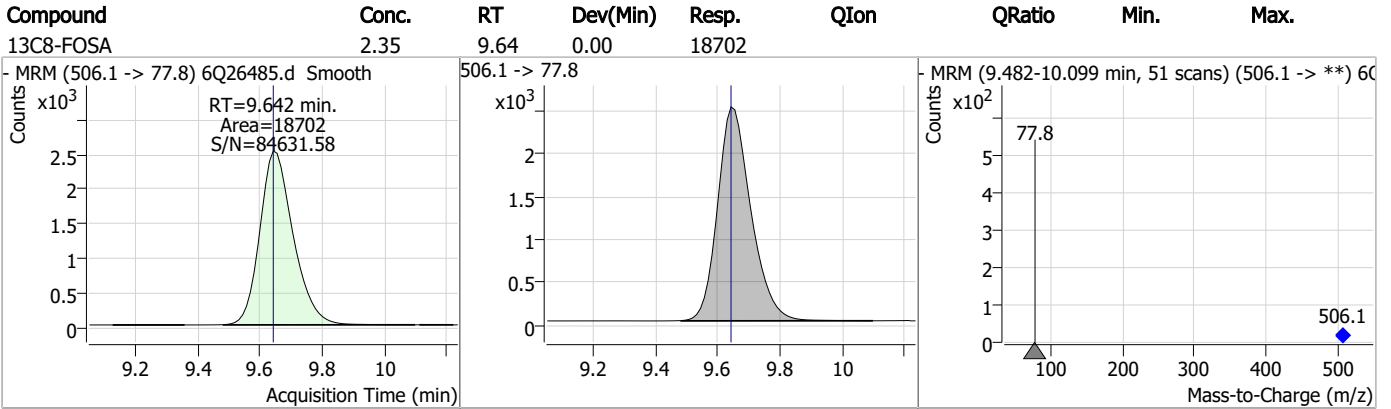


### Perfluorinated Compounds by LC/MS/MS



7.7.13  
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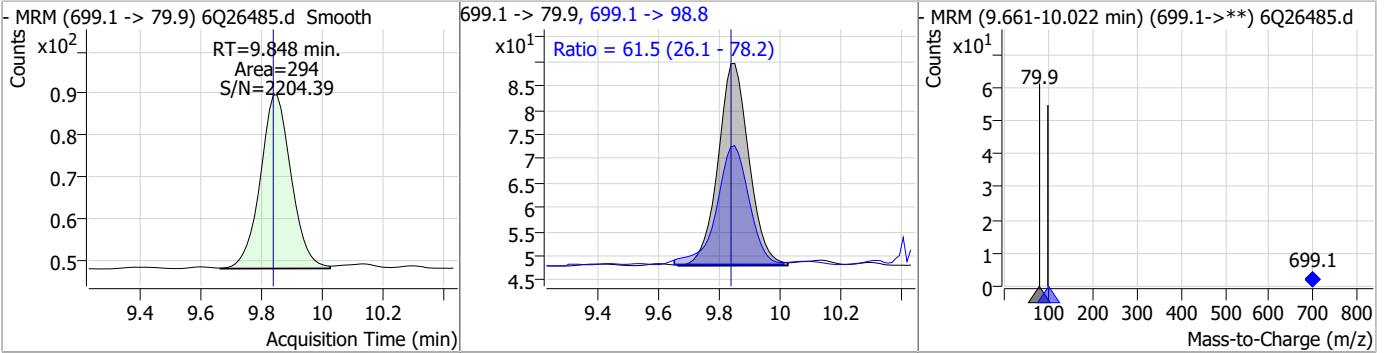
### Perfluorinated Compounds by LC/MS/MS



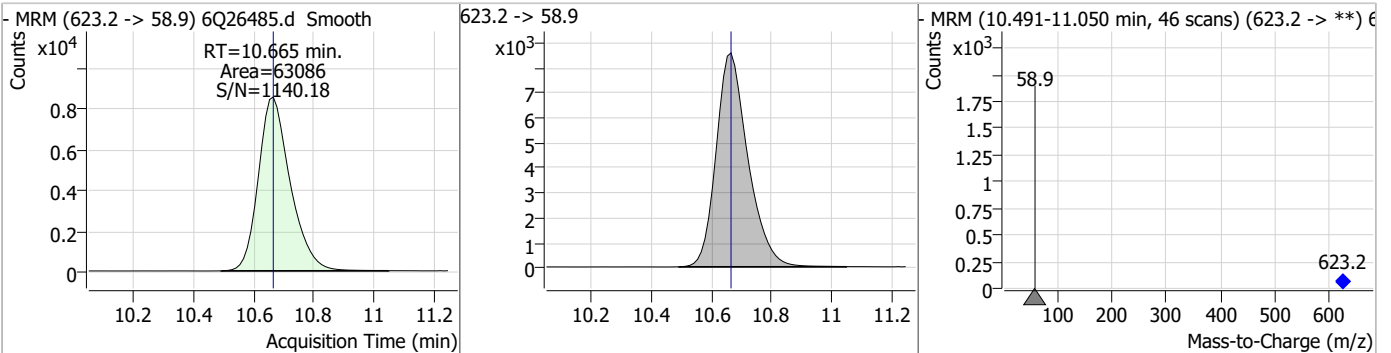
7.7.13 7

### Perfluorinated Compounds by LC/MS/MS

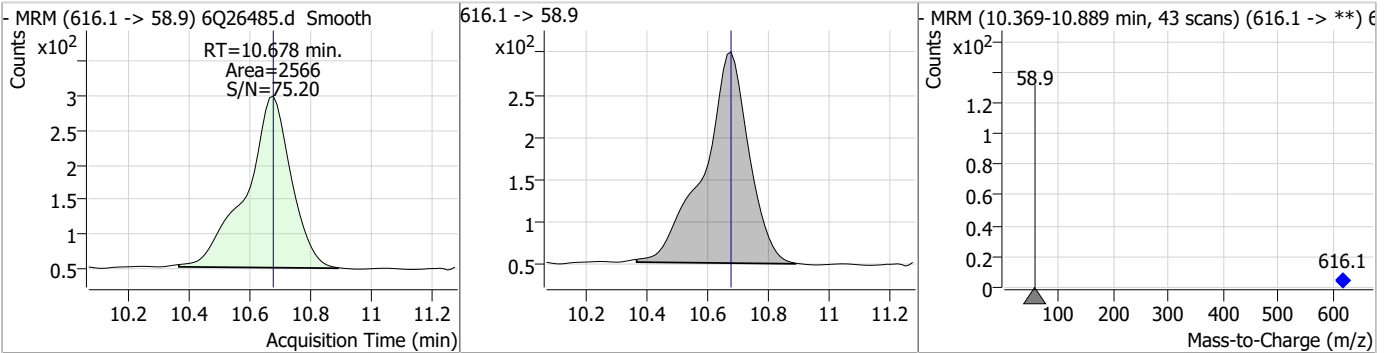
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DS	0.21	9.85	0.01	294	699.1 -> 98.8	61.5	26.1	78.2



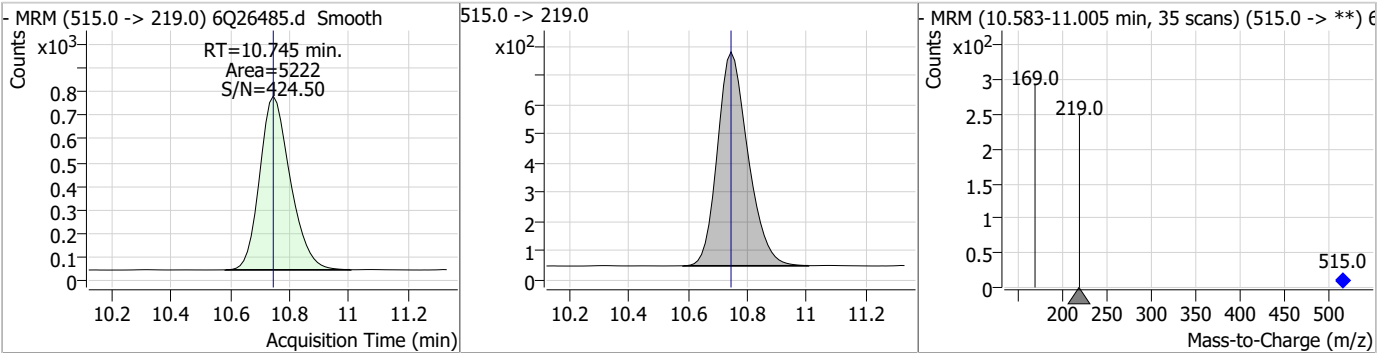
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.88	10.67	0.00	63086				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.95	10.68	0.00	2566				

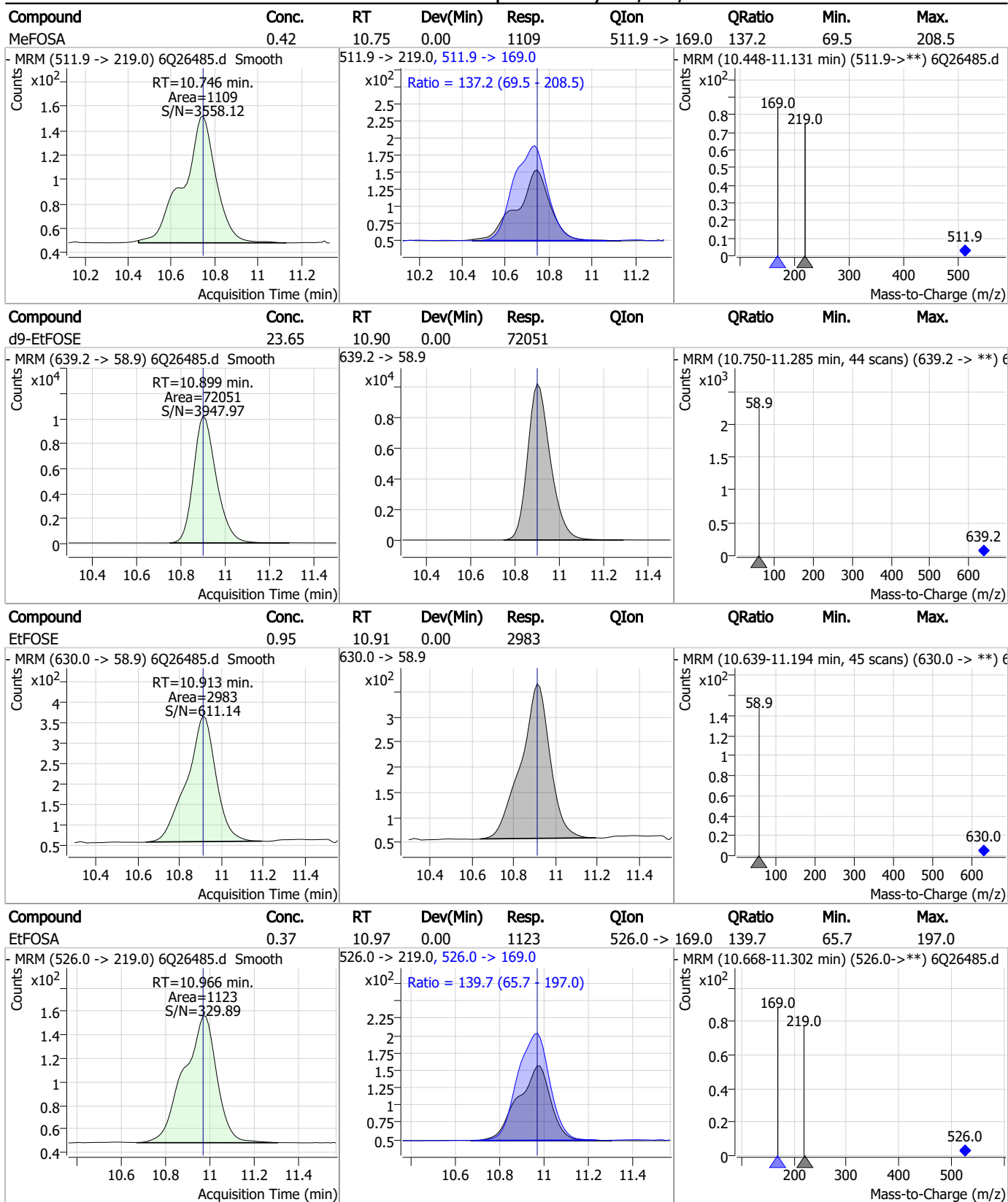


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.26	10.74	0.00	5222				



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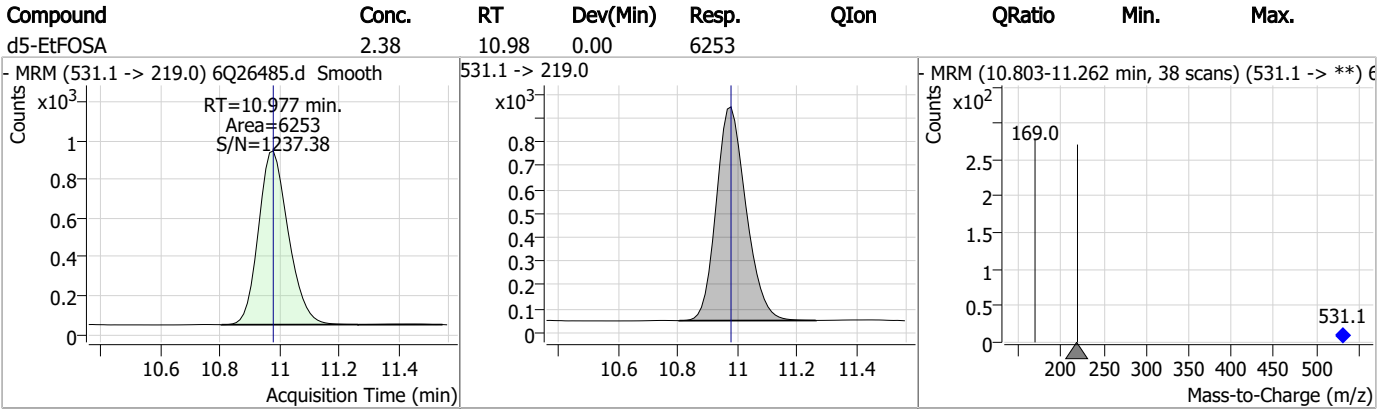
### Perfluorinated Compounds by LC/MS/MS



7.7.13

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Perfluorinated Compounds by LC/MS/MS



7.7.13  
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# Manual Integration Approval Summary

Sample Number: S6Q372-CC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26485.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 20:17      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.39	Split peak

7.7.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q26496.d  
 Operator : marthav  
 Acq. Method : 1633full.m  
 Acq. Date-Time : 10/16/2023 10:55:26 PM  
 Sample Name : cc372-4  
 Vial : P1-A5  
 DA Method File : 1633\_101623\_S6Q372.quantmethod.xml  
 Batch Name : s6q372.batch.bin  
 Sample Information : OP99081,S6Q372,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
M4-PFBA	2.926	216.8 -> 171.9	135441	10.00 µg/L	0.000
M5-PFPeA	4.346	268.3 -> 223.0	43890	5.00 µg/L	0.000
M5-PFHxA	5.565	318.0 -> 273.0	41195	2.50 µg/L	0.000
M4-PFHpA	6.505	367.1 -> 322.0	42844	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	58606	2.50 µg/L	0.000
M9-PFNA	7.654	472.1 -> 427.0	24756	1.25 µg/L	0.000
M6-PFDA	8.134	519.1 -> 474.1	23653	1.25 µg/L	0.000
M7-PFUnDA	8.588	570.0 -> 525.1	25020	1.25 µg/L	0.000
M2-PFDoDA	9.006	615.1 -> 570.0	28245	1.25 µg/L	0.000
M2-PFTeDA	9.720	715.2 -> 670.0	10146	1.25 µg/L	0.000
M8-FOSA	9.642	506.1 -> 77.8	18844	2.50 µg/L	0.000
M3-PFBS	5.483	302.1 -> 79.9	18947	2.50 µg/L	0.000
M3-PFHxS	7.239	402.1 -> 79.9	10149	2.50 µg/L	0.000
M8-PFOS	8.284	507.1 -> 79.9	11055	2.50 µg/L	0.000
M2-4:2FTS	5.228	329.1 -> 80.9	2150	5.00 µg/L	-0.012
M2-6:2FTS	6.910	429.1 -> 80.9	3086	5.00 µg/L	-0.012
M2-8:2FTS	7.934	529.1 -> 80.9	2810	5.00 µg/L	0.012
M3-MeFOSAA	8.191	573.2 -> 419.0	21104	5.00 µg/L	0.000
M3-HFPO-DA	5.930	286.9 -> 168.9	30282	10.00 µg/L	-0.012
M5-EtFOSAA	8.388	589.2 -> 419.0	17501	5.00 µg/L	0.000
M7-MeFOSE	10.665	623.2 -> 58.9	61588	25.00 µg/L	0.000
M9-EtFOSE	10.899	639.2 -> 58.9	73489	25.00 µg/L	0.000
M5-EtFOSA	10.977	531.1 -> 219.0	6387	2.50 µg/L	0.000
M3-MeFOSA	10.745	515.0 -> 219.0	5384	2.50 µg/L	0.000
13C4-PFOS	8.285	502.8 -> 79.9	9305	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	55222	5.00 µg/L	-0.012
18O2-PFHxS	7.238	403.0 -> 83.9	6654	2.50 µg/L	0.000
13C4-PFOA	7.137	417.1 -> 372.0	62354	2.50 µg/L	0.000
13C2-PFDA	8.134	515.1 -> 470.1	21877	1.25 µg/L	0.000
13C5-PFNA	7.654	468.0 -> 423.0	22636	1.25 µg/L	0.000
13C2-PFHxA	5.553	315.1 -> 270.0	42274	2.50 µg/L	-0.012
<b>System Monitoring Compounds</b>					
13C2-4:2FTS	5.228	329.1 -> 80.9	2150	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-6:2FTS	6.910	429.1 -> 80.9	3086	5.54 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-8:2FTS	7.934	529.1 -> 80.9	2810	4.86 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFDoDA	9.006	615.1 -> 570.0	28245	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFTeDA	9.720	715.2 -> 670.0	10146	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C3-PFBS	5.483	302.1 -> 79.9	18947	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C3-PFHxS	7.239	402.1 -> 79.9	10149	2.35 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 = 94.1%	
13C4-PFBA	2.926	216.8 -> 171.9	135441	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.505	367.1 -> 322.0	42844	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C5-PFHxA	5.565	318.0 -> 273.0	41195	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFPeA	4.346	268.3 -> 223.0	43890	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C6-PFDA	8.134	519.1 -> 474.1	23653	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C7-PFUnDA	8.588	570.0 -> 525.1	25020	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-FOSA	9.642	506.1 -> 77.8	18844	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOA	7.136	421.1 -> 376.0	58606	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-PFOS	8.284	507.1 -> 79.9	11055	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C9-PFNA	7.654	472.1 -> 427.0	24756	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSAA	8.191	573.2 -> 419.0	21104	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C3-HFPO-DA	5.930	286.9 -> 168.9	30282	10.15 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSA	10.745	515.0 -> 219.0	5384	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSAA	8.388	589.2 -> 419.0	17501	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d7-MeFOSE	10.665	623.2 -> 58.9	61588	24.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d9-EtFOSE	10.899	639.2 -> 58.9	73489	25.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
d5-EtFOSA	10.977	531.1 -> 219.0	6387	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	5.229	327.1 -> 307.0	35364	9.05 µg/L	99
		327.1 -> 80.9	13313		
6:2FTS	6.911	427.1 -> 407.0	28409	8.24 µg/L	99
		427.1 -> 80.9	10933		
8:2FTS	7.935	527.1 -> 507.0	21077	9.72 µg/L	91
		527.1 -> 80.8	7777		
EtFOSAA	8.401	584.2 -> 419.1	7230	2.37 µg/L	m 93
		584.2 -> 526.0	4733		
FOSA	9.645	498.1 -> 77.9	19056	2.46 µg/L	99
		498.1 -> 478.0	531		
MeFOSAA	8.192	570.1 -> 419.0	10052	2.35 µg/L	95
		570.1 -> 483.0	2472		
PFBA	2.919	212.8 -> 168.9	51202	9.66 µg/L	100
PFBS	5.472	298.7 -> 79.9	14172	2.26 µg/L	97
		298.7 -> 98.8	4980		
PFDA	8.134	512.9 -> 469.0	44340	2.28 µg/L	99
		512.9 -> 219.0	7325		
PFDoDA	9.007	613.1 -> 569.0	54552	2.43 µg/L	100
		613.1 -> 319.0	6119		
PFDS	9.157	599.0 -> 79.9	6620	2.27 µg/L	97

7.7.14  
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.506	599.0 -> 98.8	2962	2.25	µg/L	99
		363.1 -> 319.0	56231			
PFHpS	7.793	363.1 -> 169.0	8267	2.12	µg/L	91
		449.0 -> 79.9	10910			
PFHxA	5.568	449.0 -> 98.9	5019	2.52	µg/L	99
		313.0 -> 269.0	39818			
PFHxS	7.240	313.0 -> 118.9	1972	2.33	µg/L	m
		398.7 -> 79.9	10346			
PFNA	7.655	398.7 -> 98.9	5172	2.26	µg/L	99
		463.0 -> 419.0	35601			
PFNS	8.751	463.0 -> 219.0	8416	2.10	µg/L	93
		548.8 -> 79.9	8874			
PFOA	7.138	548.8 -> 98.9	4876	2.46	µg/L	94
		413.0 -> 369.0	64059			
PFOS	8.286	413.0 -> 169.0	9864	2.10	µg/L	m
		498.9 -> 79.9	10834			
PFPeA	4.349	498.9 -> 98.8	5420	4.80	µg/L	100
		263.0 -> 219.0	50118			
PFPeS	6.545	349.1 -> 79.9	14181	2.45	µg/L	98
		349.1 -> 98.9	6248			
PFTeDA	9.721	713.1 -> 669.0	31181	2.28	µg/L	98
		713.1 -> 168.9	2380			
PFTrDA	9.389	663.0 -> 619.0	41253	2.38	µg/L	99
		663.0 -> 168.9	3374			
PFUnDA	8.589	563.1 -> 519.0	47551	2.42	µg/L	97
		563.1 -> 269.1	7321			
11CI-PF3OUdS	9.429	630.9 -> 450.9	42499	4.74	µg/L	96
		632.9 -> 452.9	12979			
9CI-PF3ONS	8.615	530.8 -> 351.0	71498	4.51	µg/L	96
		532.8 -> 353.0	24612			
ADONA	6.755	376.9 -> 250.9	185908	4.36	µg/L	93
		376.9 -> 84.8	54964			
HFPO-DA	5.931	284.9 -> 168.9	15441	4.72	µg/L	98
		284.9 -> 184.9	1855			
3:3FTCA	3.777	241.0 -> 177.0	8494	11.68	µg/L	99
		241.0 -> 117.0	1137			
5:3FTCA	6.210	341.0 -> 237.1	177287	61.00	µg/L	98
		341.0 -> 217.0	128522			
7:3FTCA	7.620	441.0 -> 316.9	114346	60.50	µg/L	96
		441.0 -> 336.9	218887			
EtFOSA	10.966	526.0 -> 219.0	14755	4.73	µg/L	95
		526.0 -> 169.0	18442			
EtFOSE	10.913	630.0 -> 58.9	37943	11.79	µg/L	100
		511.9 -> 219.0	13563			
MeFOSA	10.746	511.9 -> 169.0	18412	4.94	µg/L	97
		616.1 -> 58.9	32118			
MeFOSE	10.678	699.1 -> 79.9	3358	12.20	µg/L	100
		699.1 -> 98.8	1815			
PFDoDS	9.848	295.0 -> 201.0	9430	2.18	µg/L	97
		295.0 -> 84.9	2615			
NFDHA	5.447	279.0 -> 85.1	38212	4.82	µg/L	99
		229.0 -> 84.9	31695			
PFMBA	4.762	279.0 -> 85.1	38212	4.76	µg/L	100
PFMPA	3.475	229.0 -> 84.9	31695	4.83	µg/L	100
PFEESA	6.024	314.8 -> 134.9	92545	4.52	µg/L	99
		314.8 -> 82.9	3106			

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

7.7.14  
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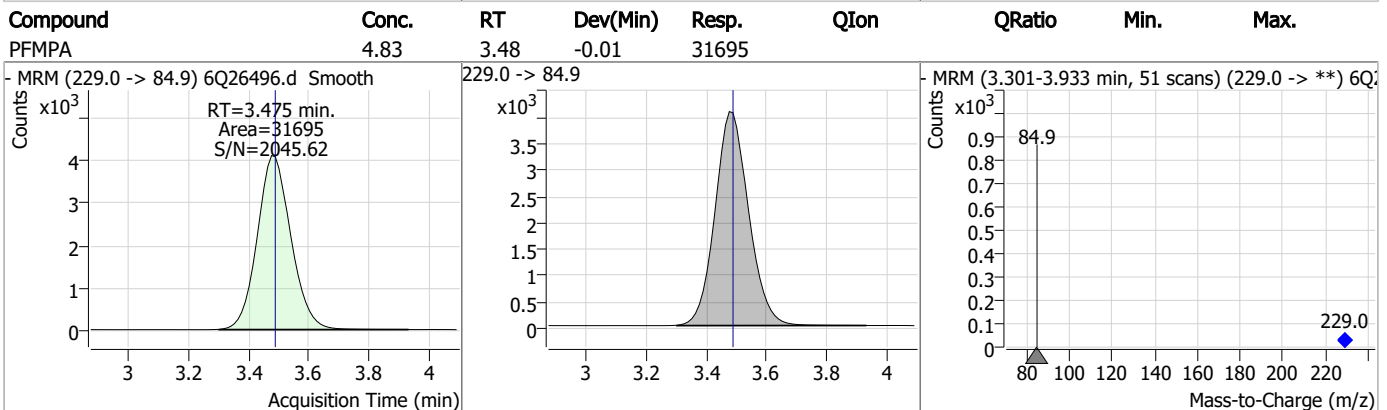
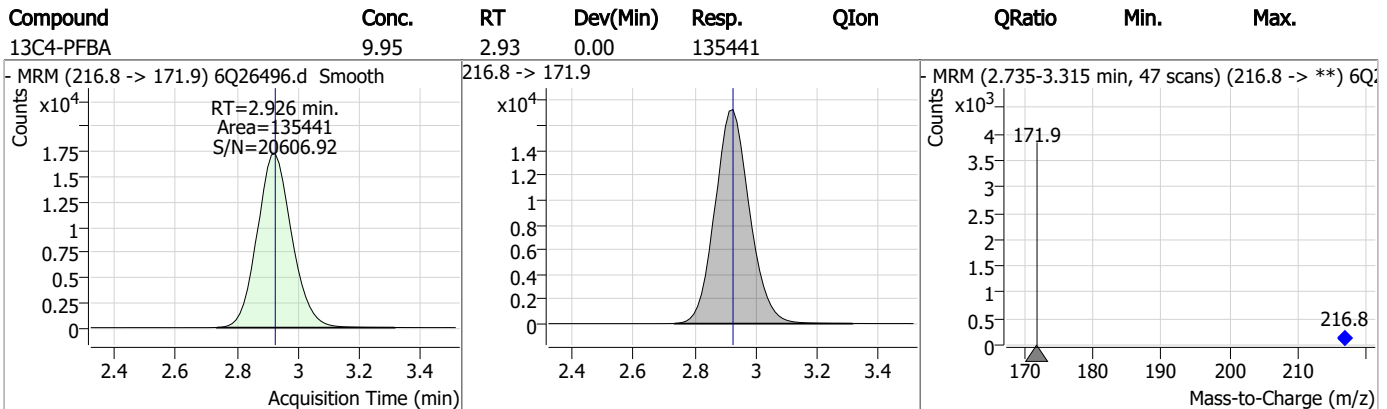
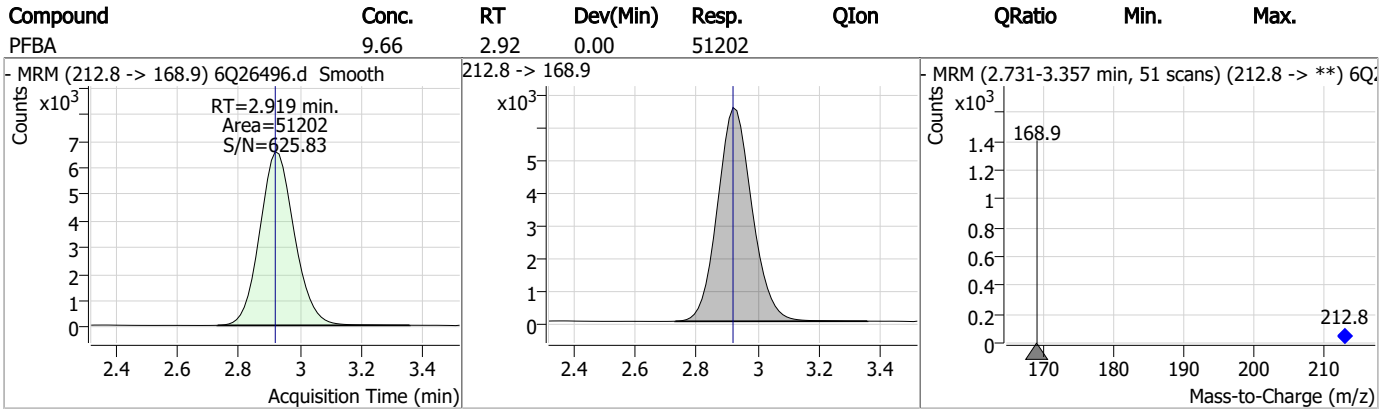
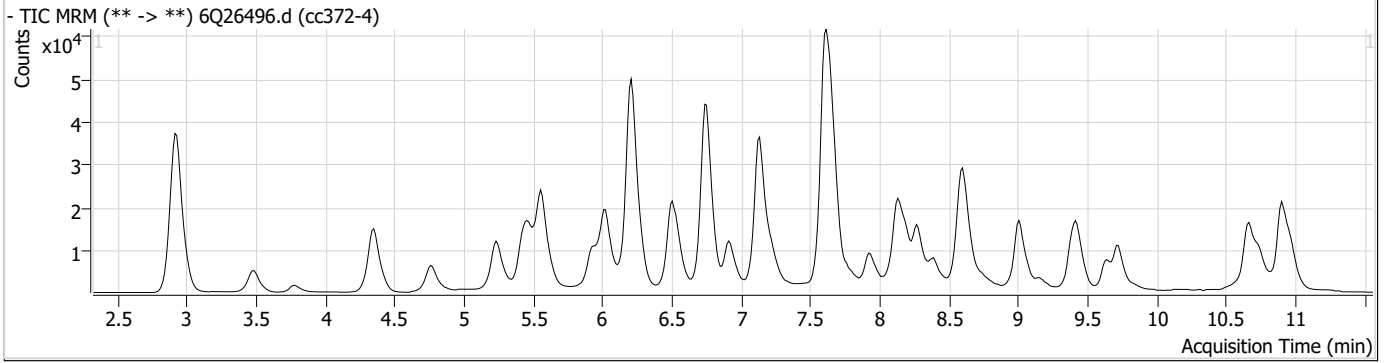
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.14

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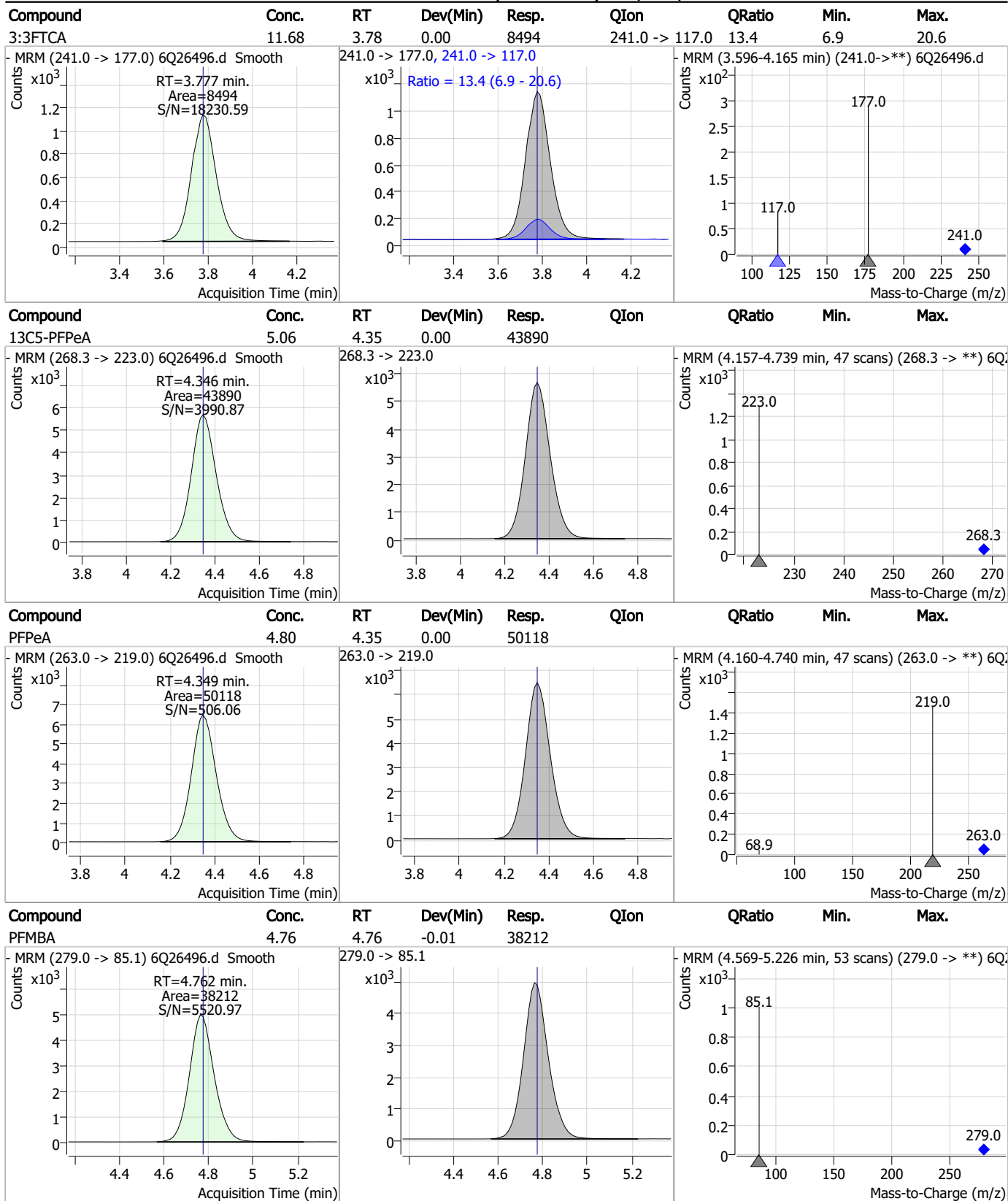
### Perfluorinated Compounds by LC/MS/MS



7.7.14

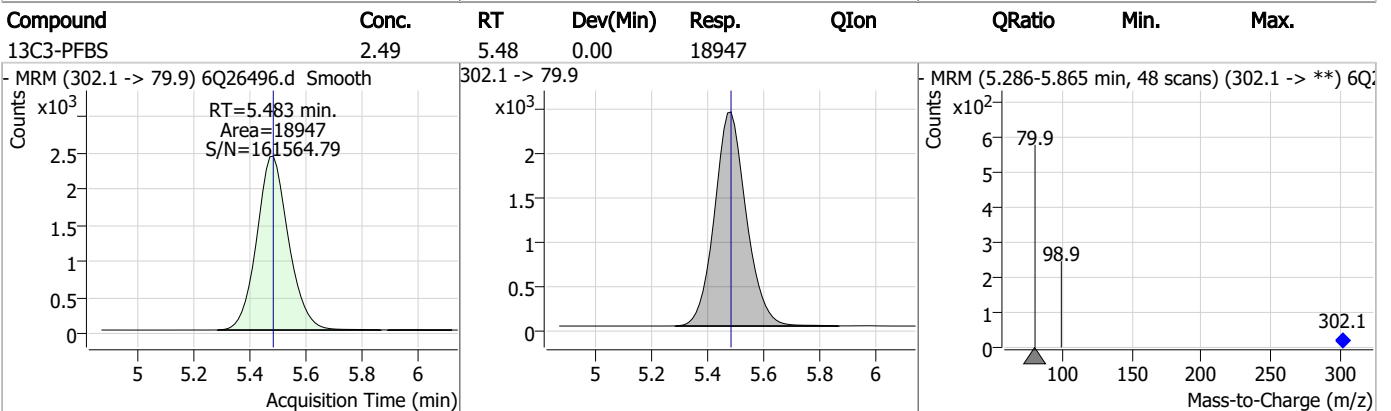
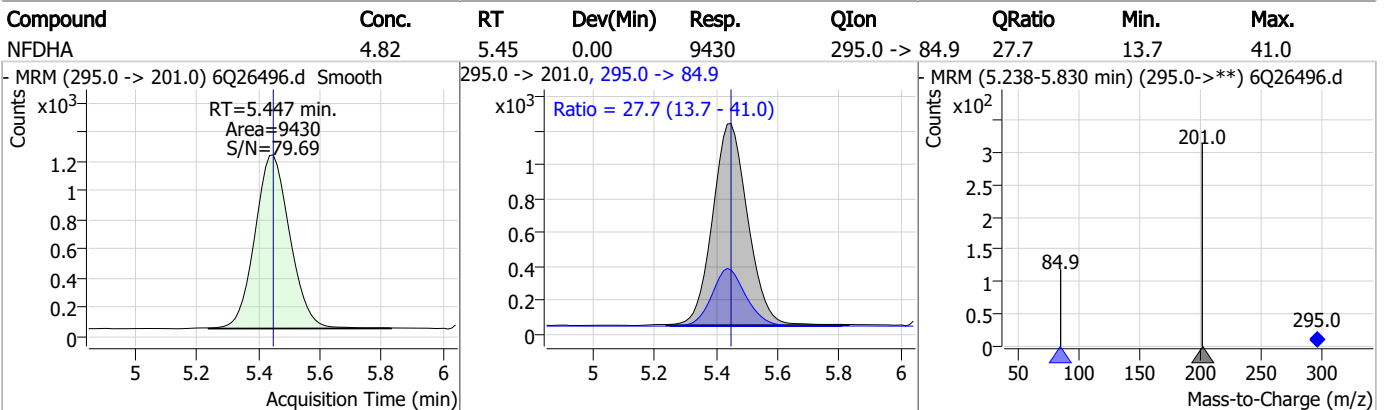
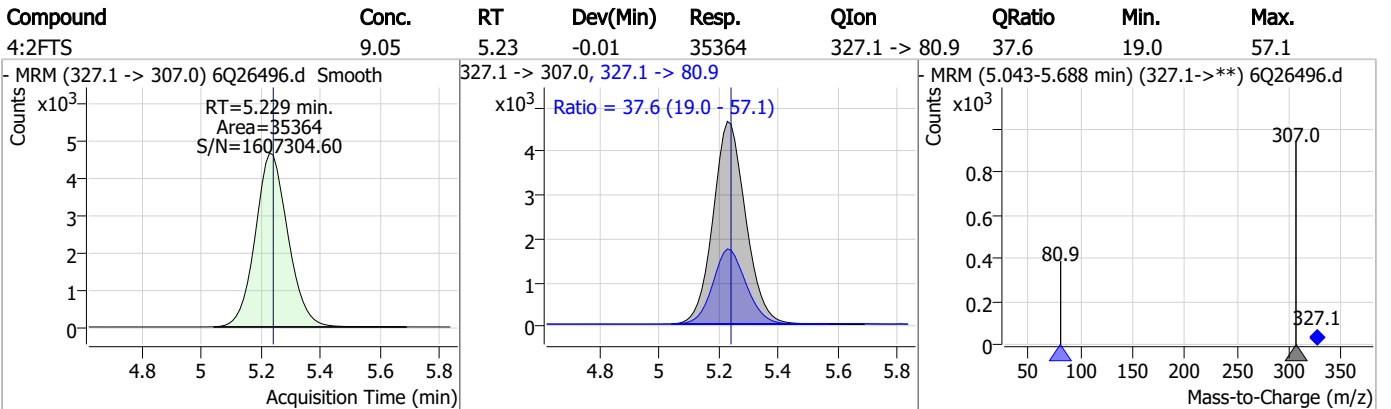
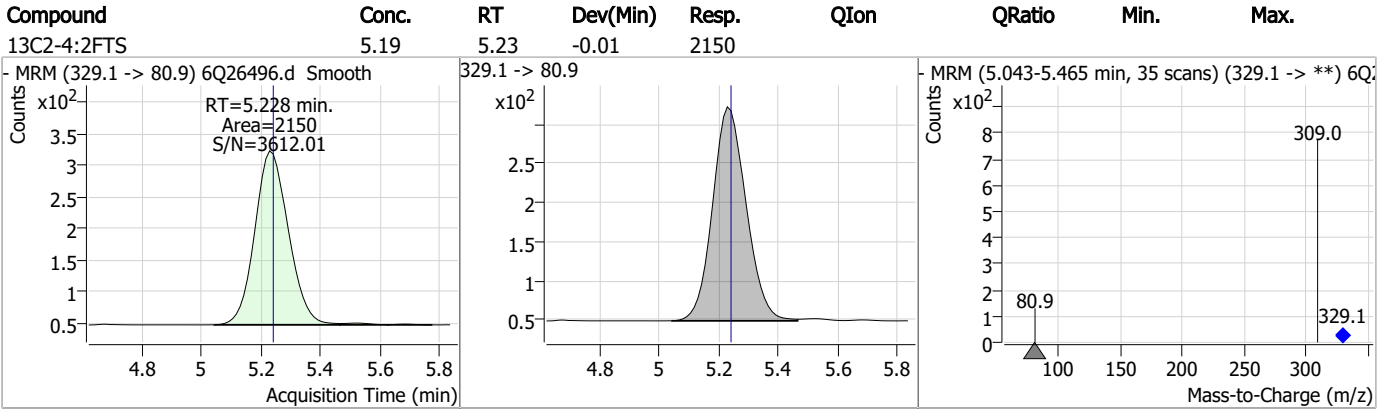
7

### Perfluorinated Compounds by LC/MS/MS



7.7.14

### Perfluorinated Compounds by LC/MS/MS

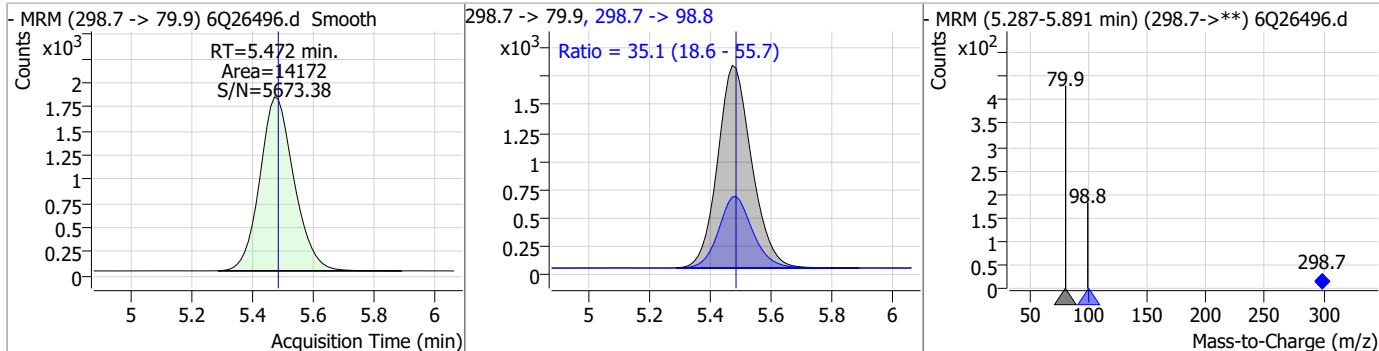


7.7.14  
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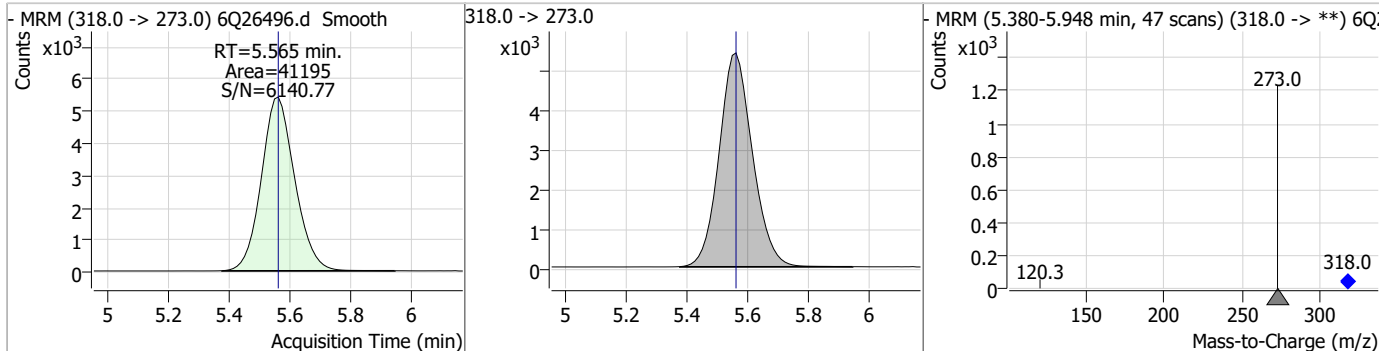


### Perfluorinated Compounds by LC/MS/MS

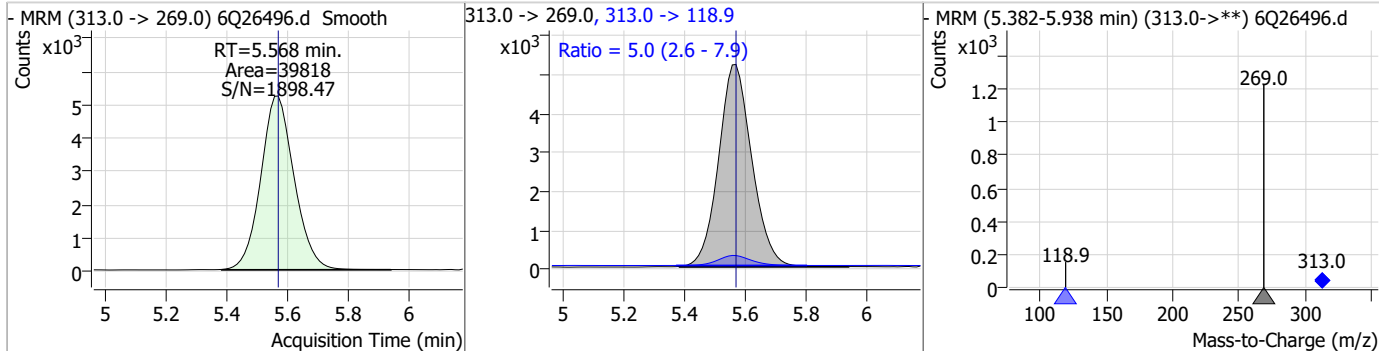
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.26	5.47	-0.01	14172	298.7 -> 98.8	35.1	18.6	55.7



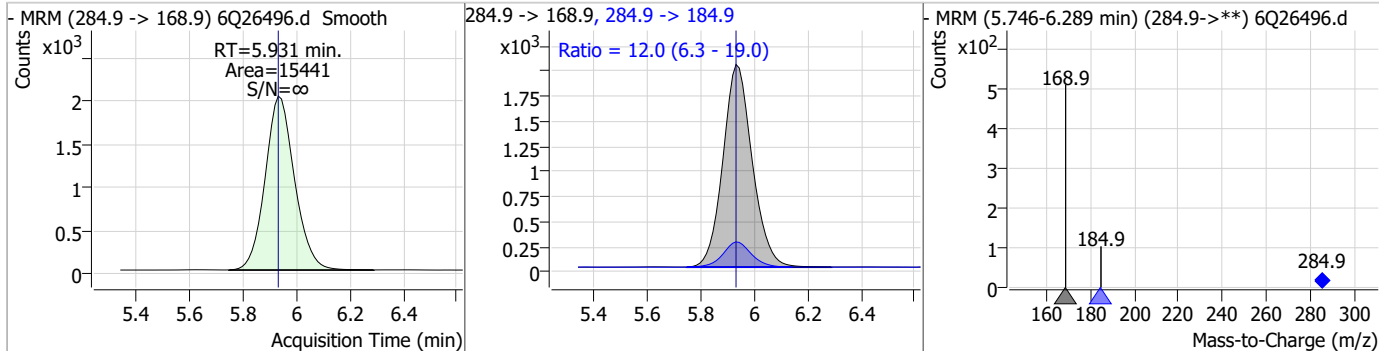
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.56	0.00	41195				



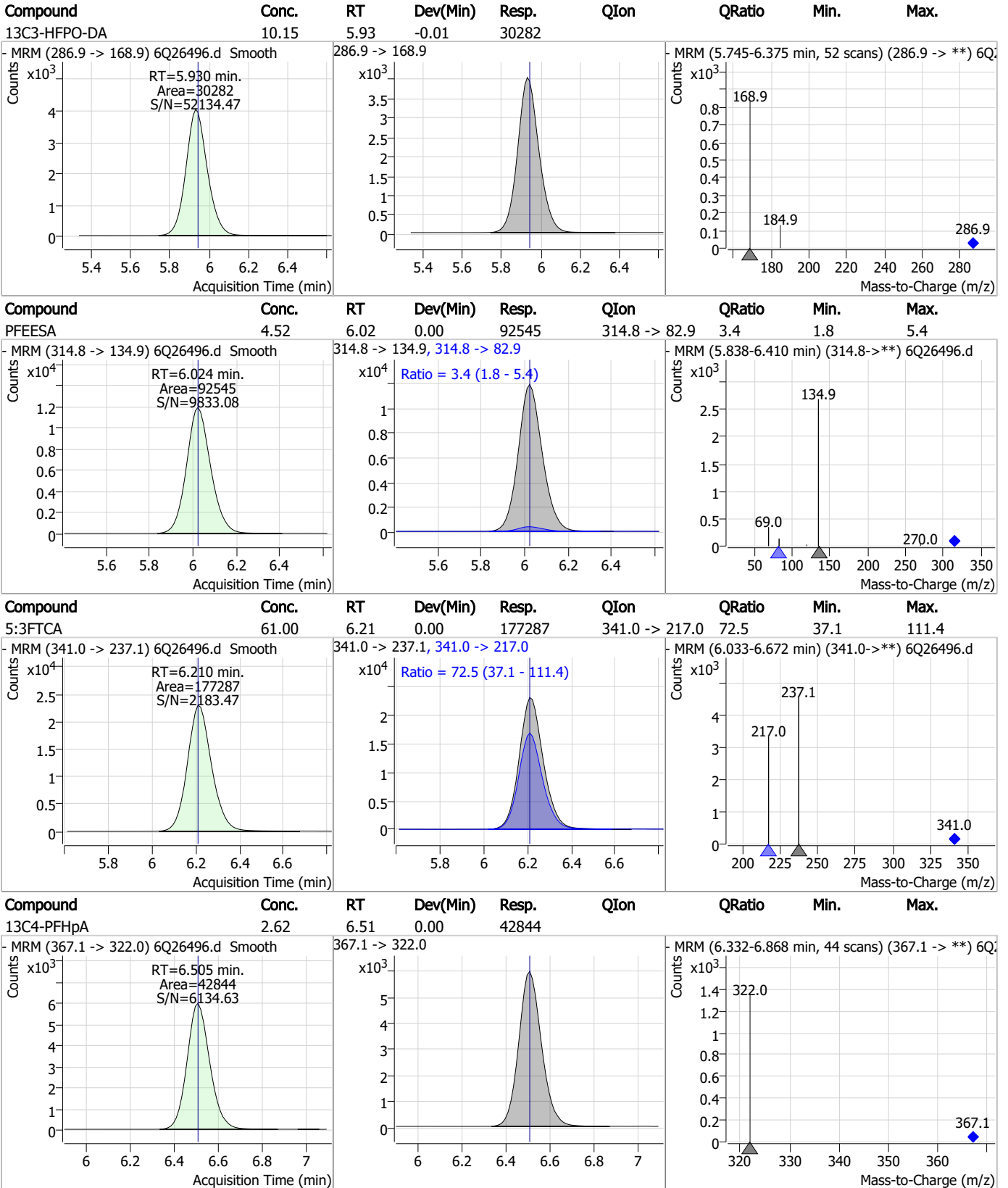
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.52	5.57	0.00	39818	313.0 -> 118.9	5.0	2.6	7.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.72	5.93	0.00	15441	284.9 -> 184.9	12.0	6.3	19.0



### Perfluorinated Compounds by LC/MS/MS

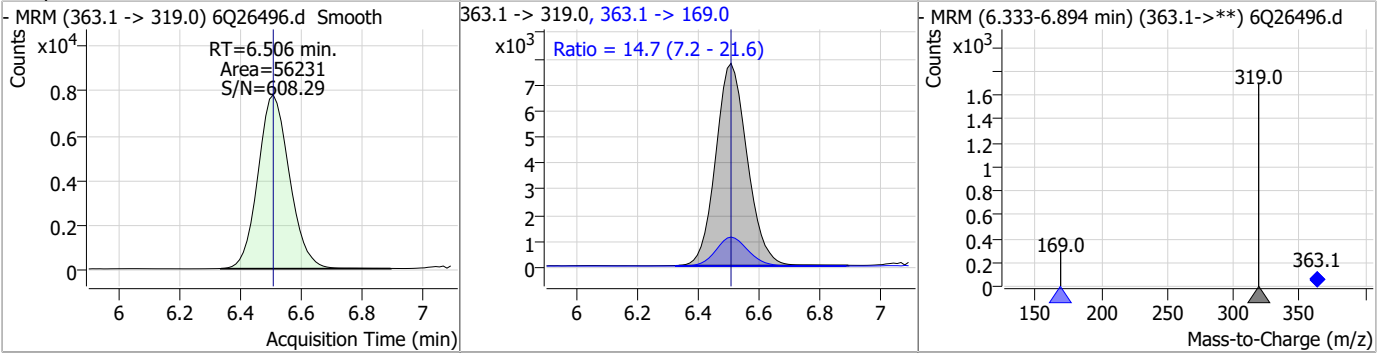


7.7.14

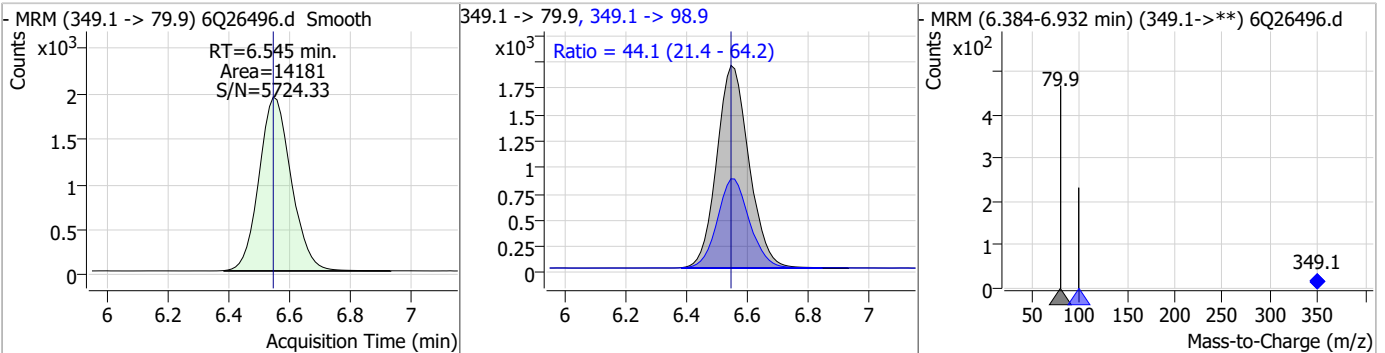


### Perfluorinated Compounds by LC/MS/MS

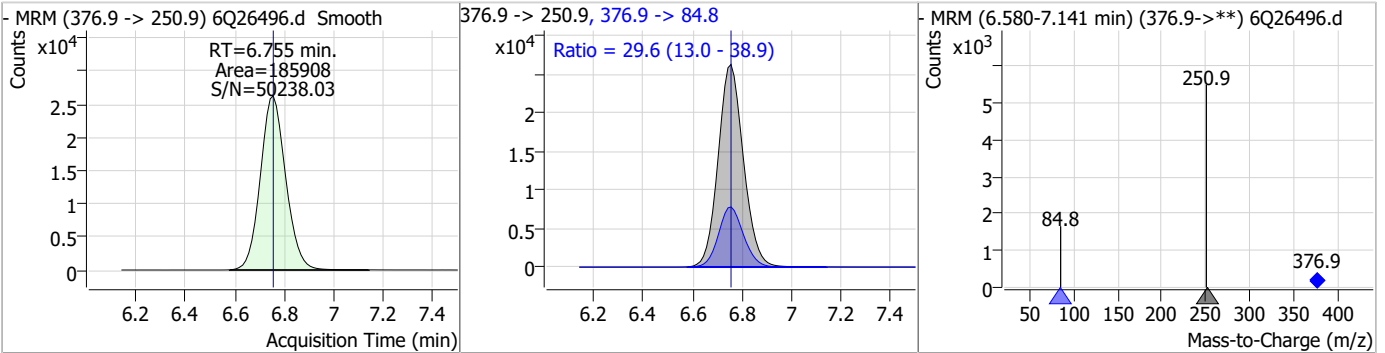
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.25	6.51	0.00	56231	363.1 -> 169.0	14.7	7.2	21.6



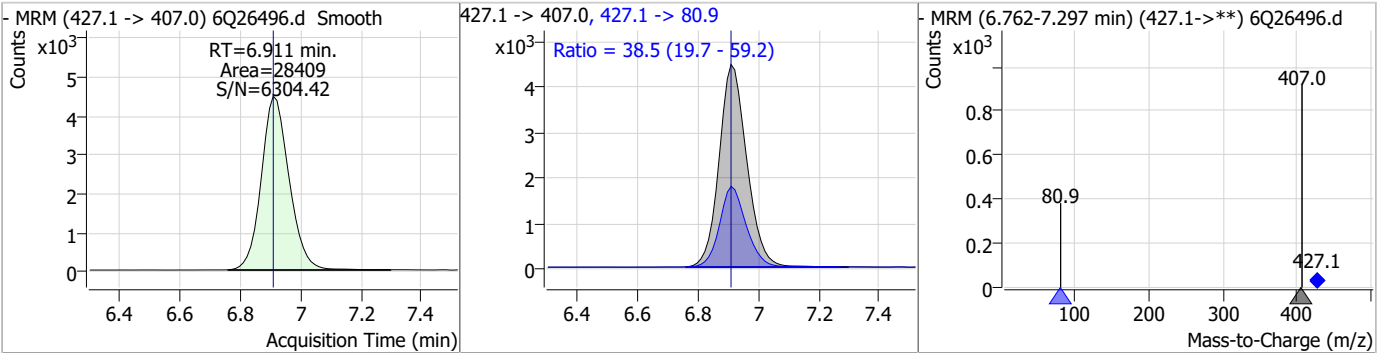
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.45	6.55	0.00	14181	349.1 -> 98.9	44.1	21.4	64.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.36	6.76	0.00	185908	376.9 -> 84.8	29.6	13.0	38.9

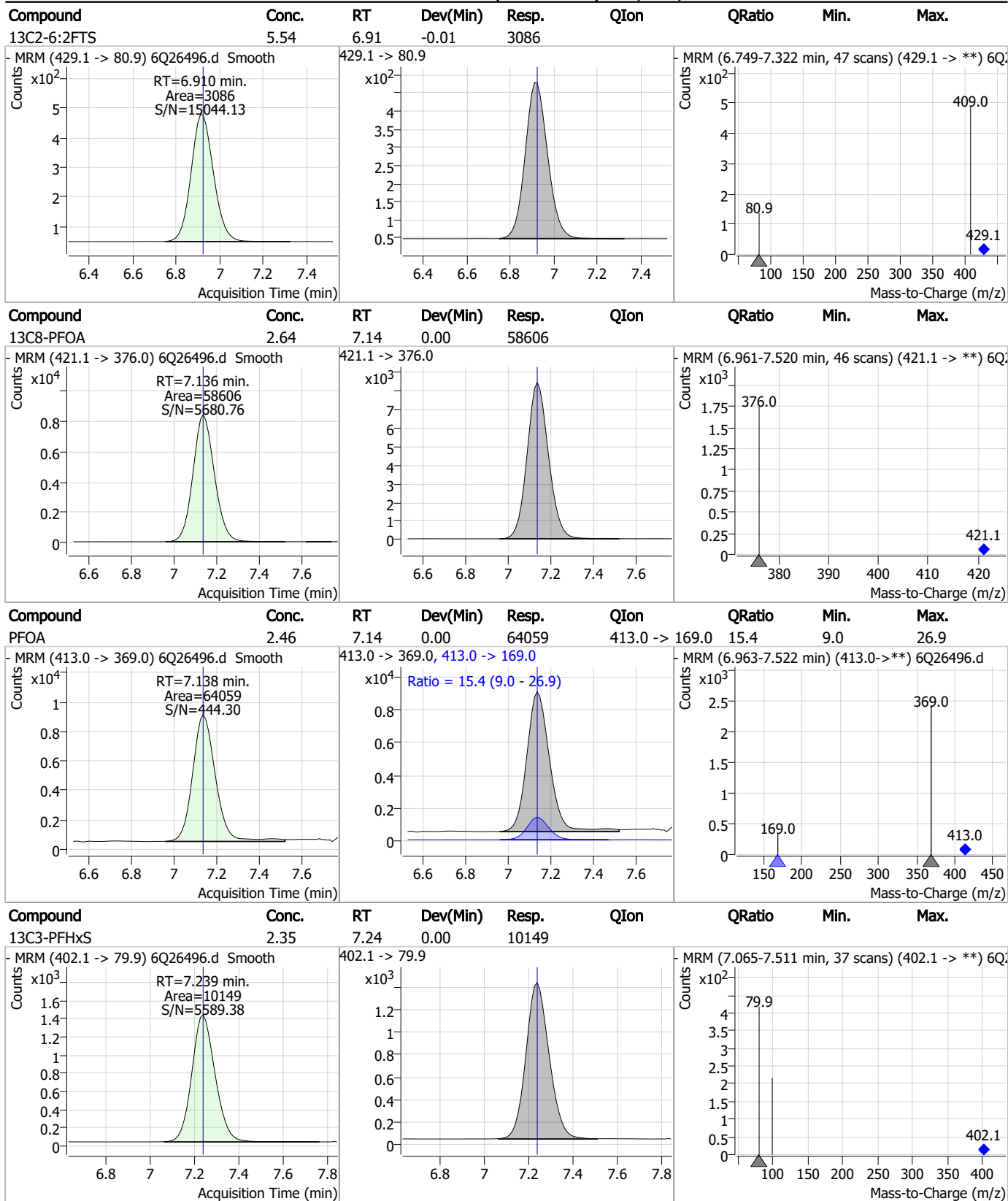


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	8.24	6.91	0.00	28409	427.1 -> 80.9	38.5	19.7	59.2



7.7.14  
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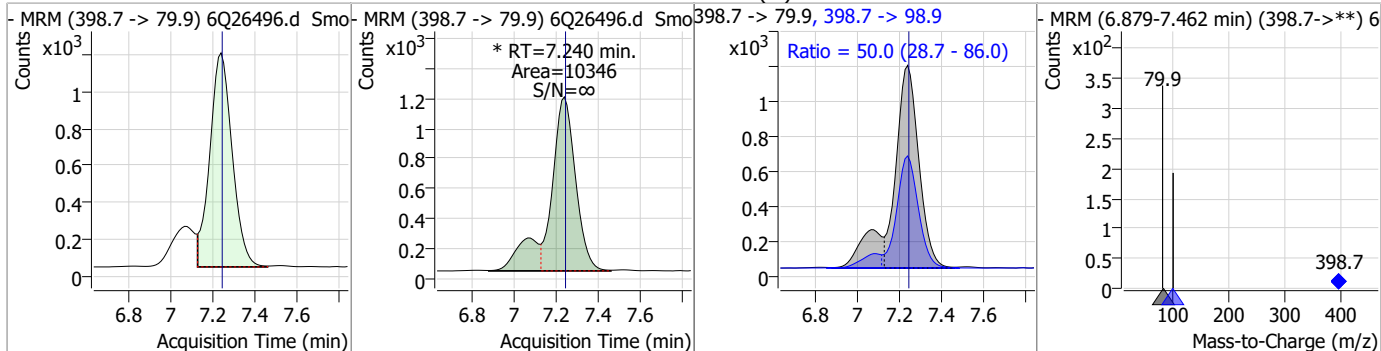
### Perfluorinated Compounds by LC/MS/MS



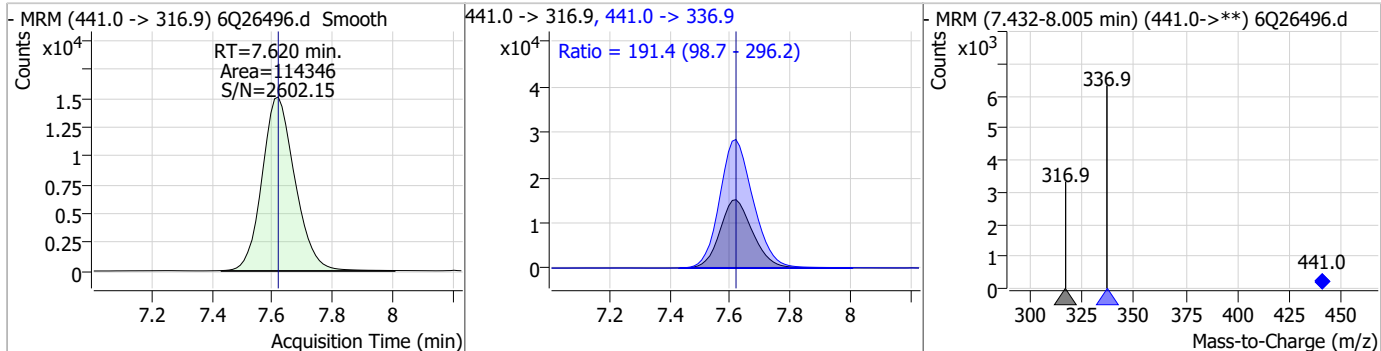
7.7.14

### Perfluorinated Compounds by LC/MS/MS

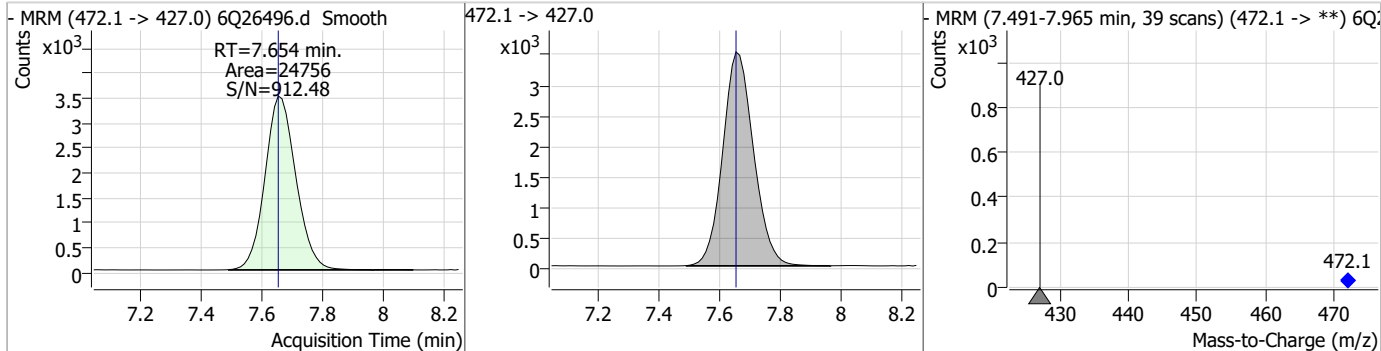
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.33	7.24	0.00	10346 (m)	398.7 -> 98.9	50.0	28.7	86.0



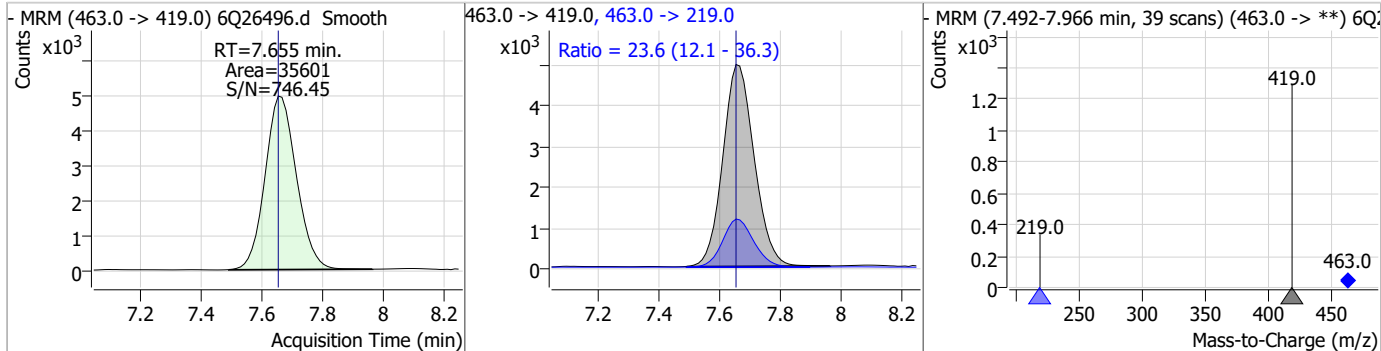
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	60.50	7.62	0.00	114346	441.0 -> 336.9	191.4	98.7	296.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.28	7.65	0.00	24756				

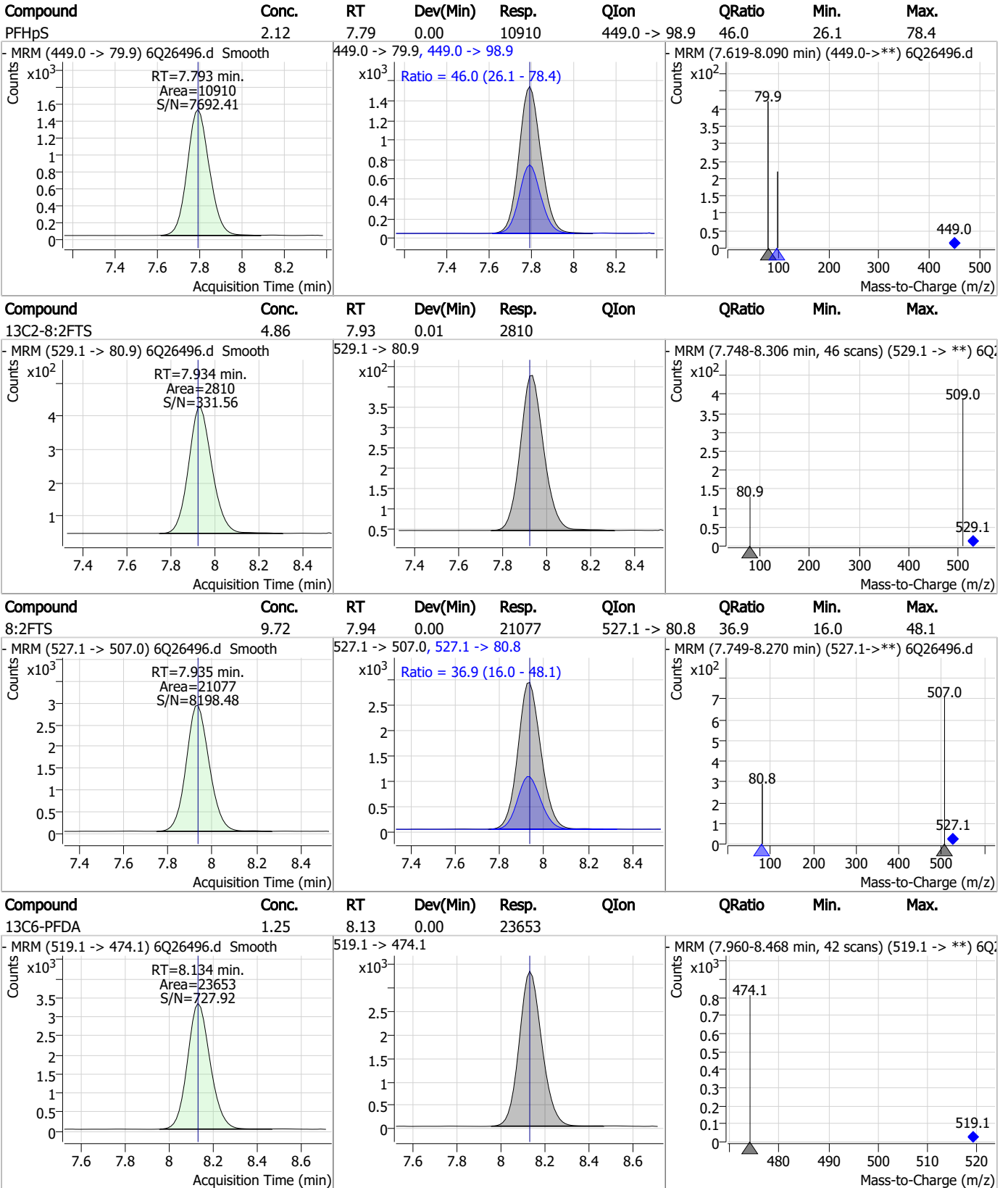


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.26	7.65	0.00	35601	463.0 -> 219.0	23.6	12.1	36.3



7.7.14  
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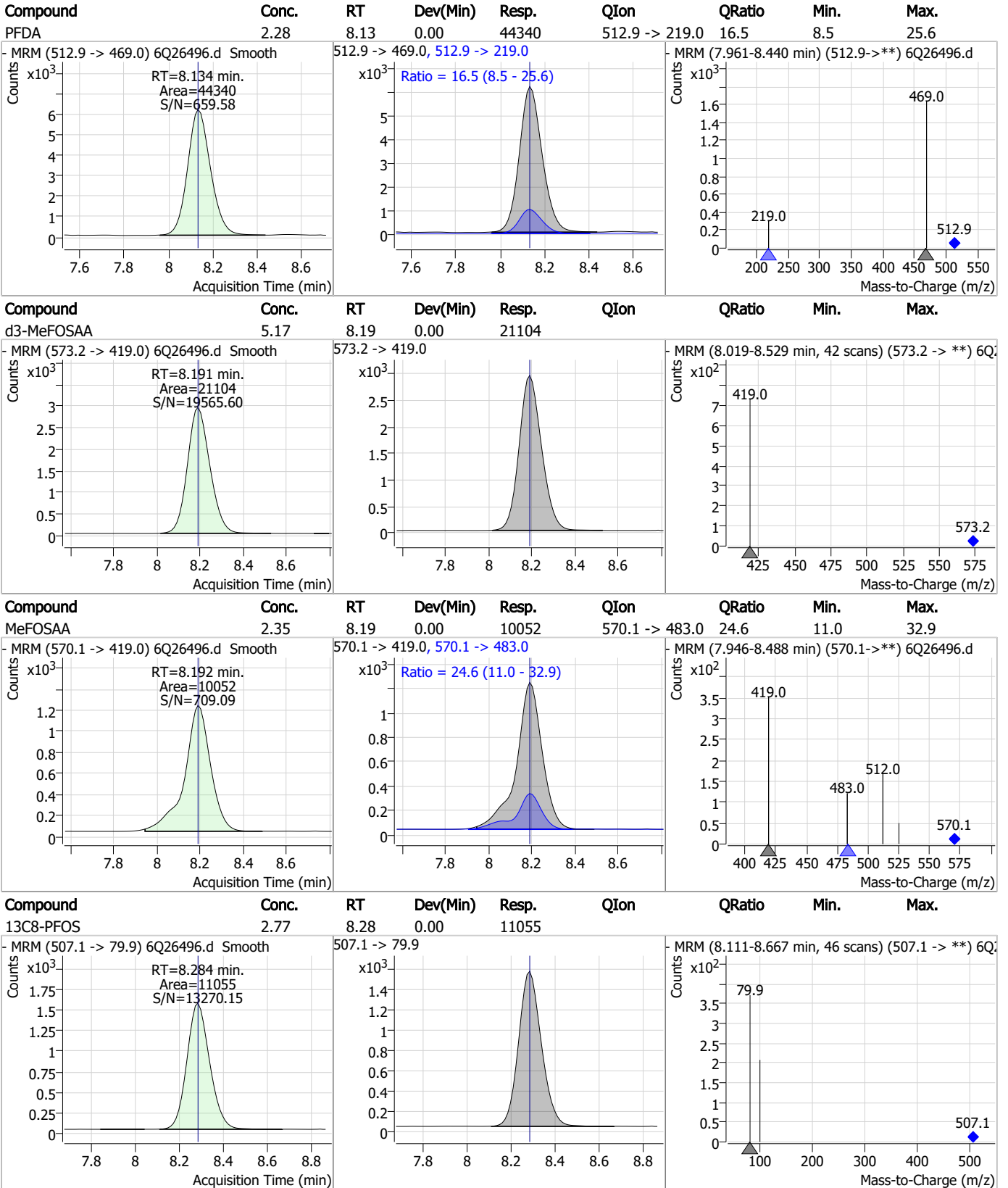
### Perfluorinated Compounds by LC/MS/MS



7.7.14



### Perfluorinated Compounds by LC/MS/MS

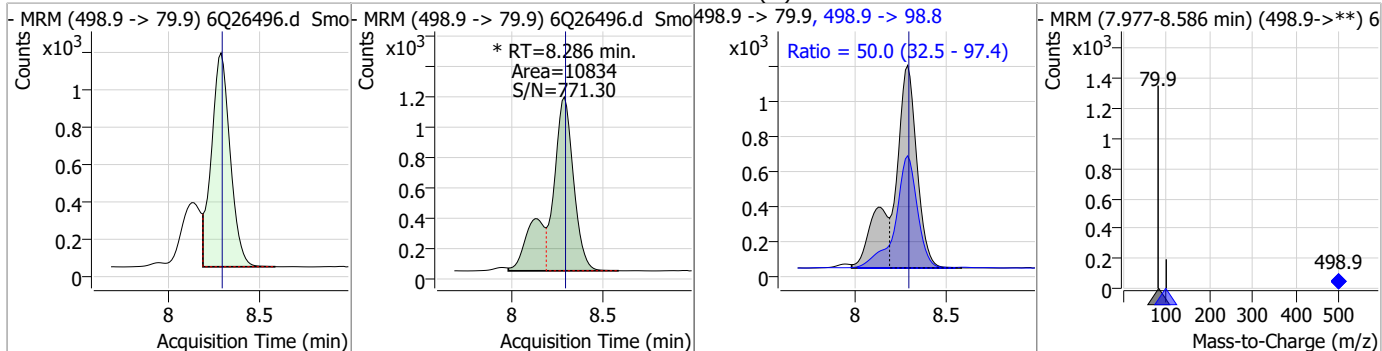


7.7.14

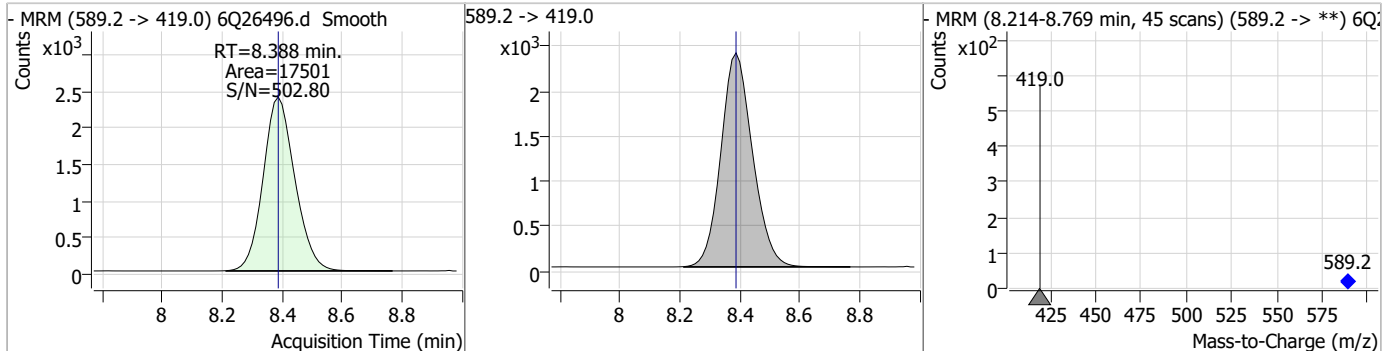


### Perfluorinated Compounds by LC/MS/MS

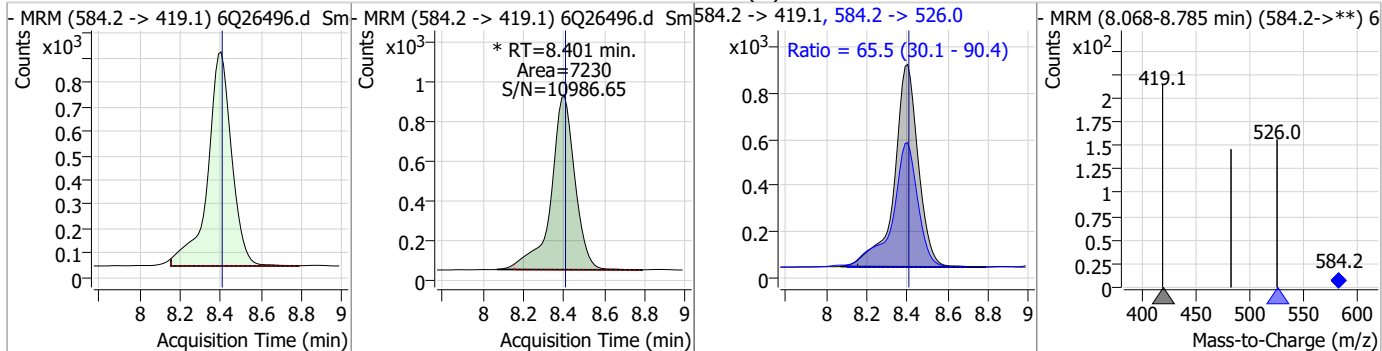
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.10	8.29	0.00	10834 (m)	498.9 -> 98.8	50.0	32.5	97.4



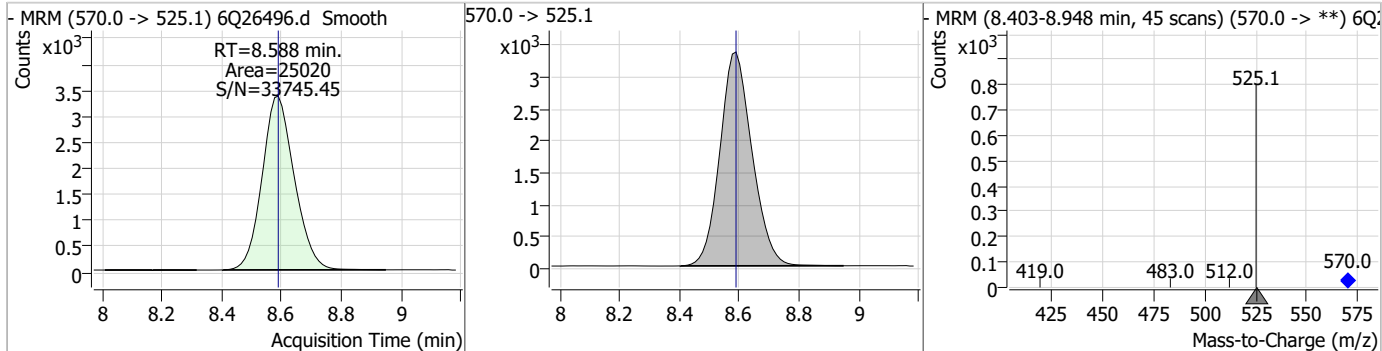
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.17	8.39	0.00	17501				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.37	8.40	0.00	7230 (m)	584.2 -> 526.0	65.5	30.1	90.4



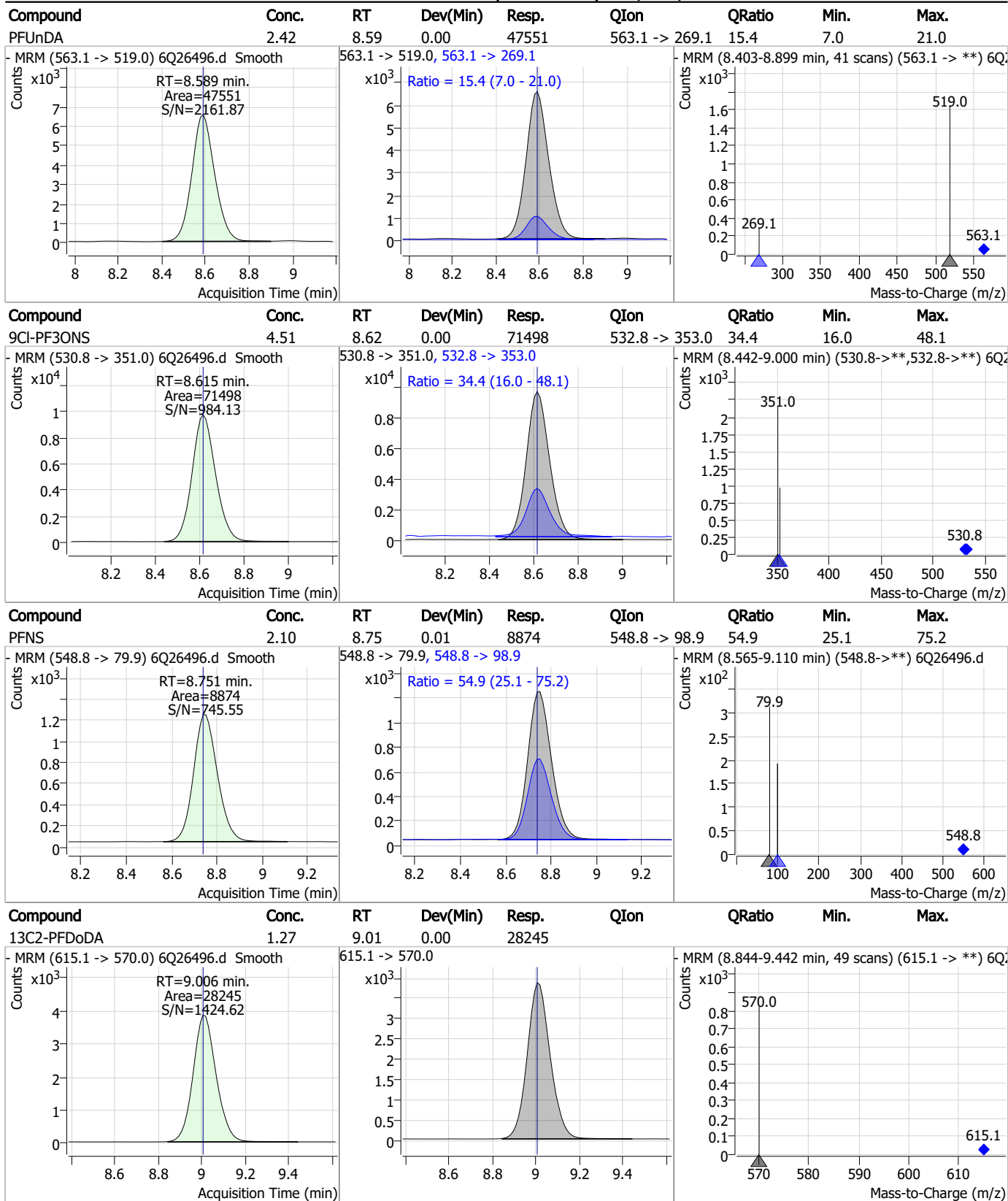
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.59	0.00	25020				



7.7.14  
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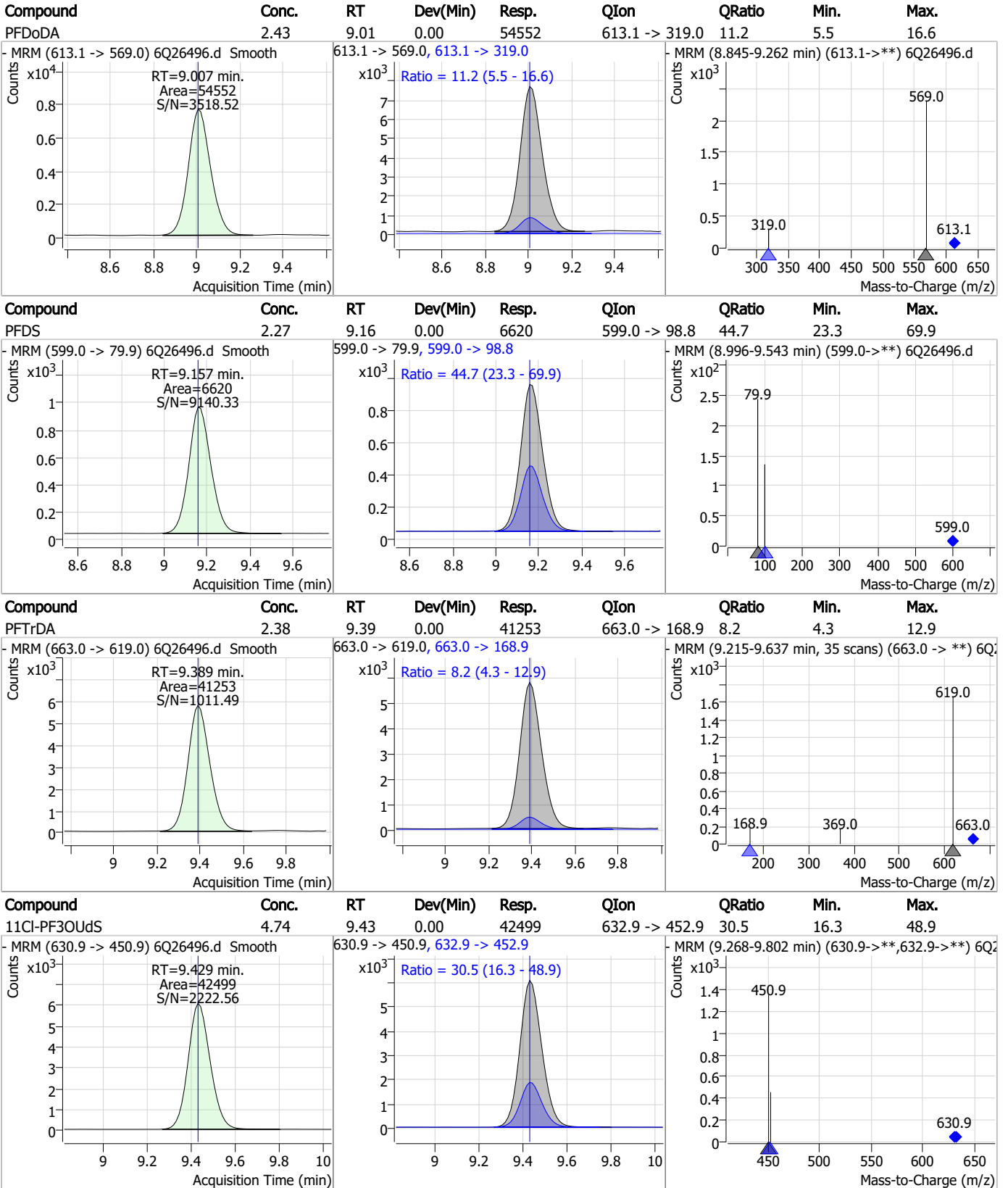


### Perfluorinated Compounds by LC/MS/MS



7.7.14  
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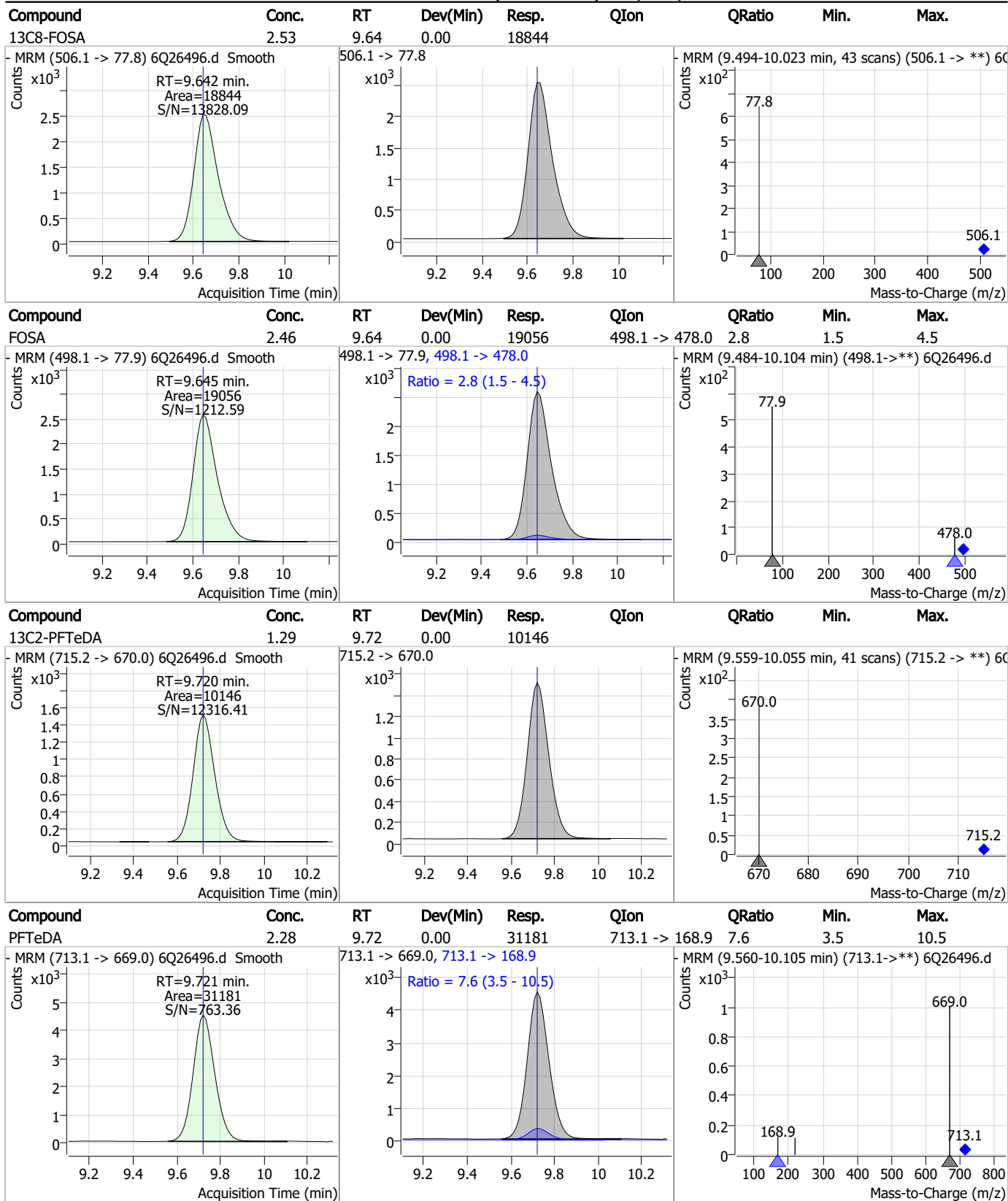
### Perfluorinated Compounds by LC/MS/MS



7.7.14



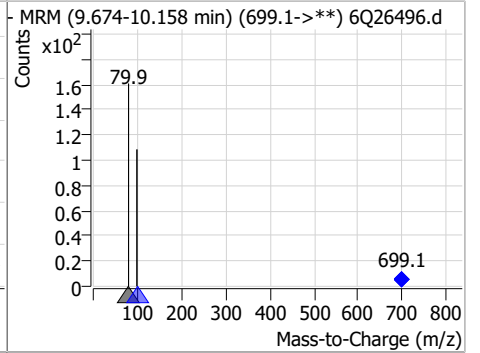
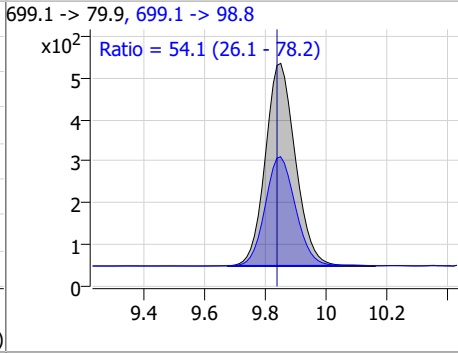
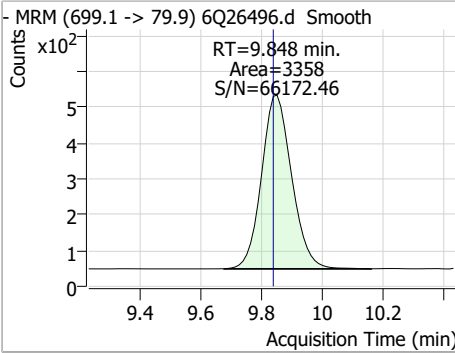
### Perfluorinated Compounds by LC/MS/MS



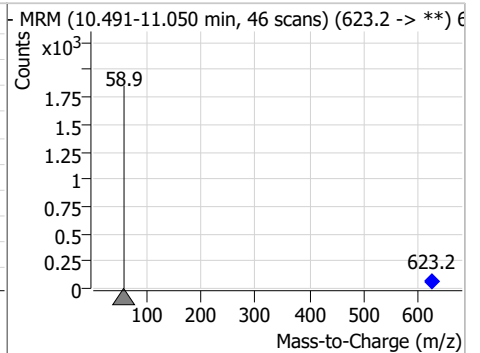
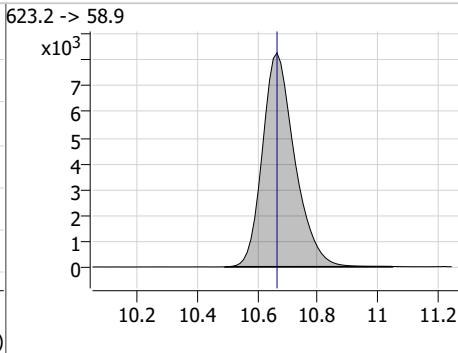
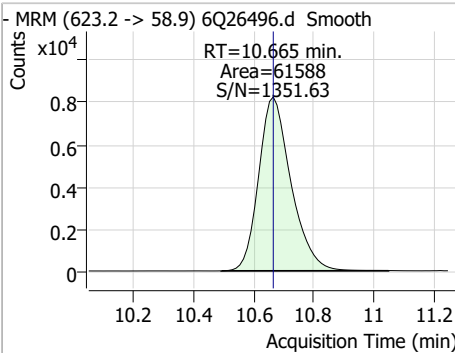
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS

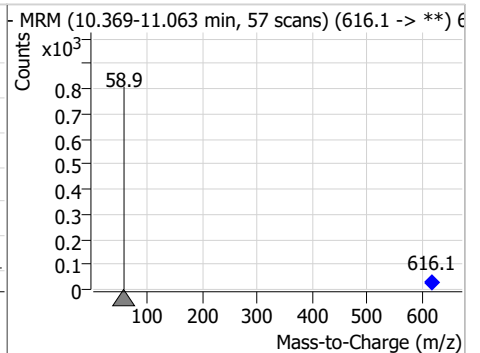
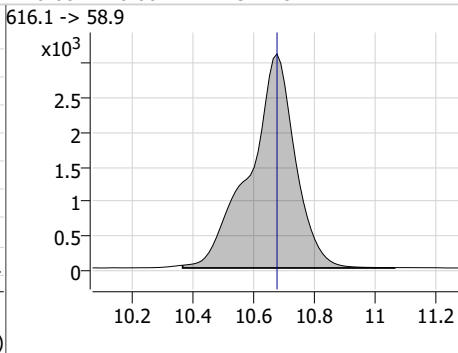
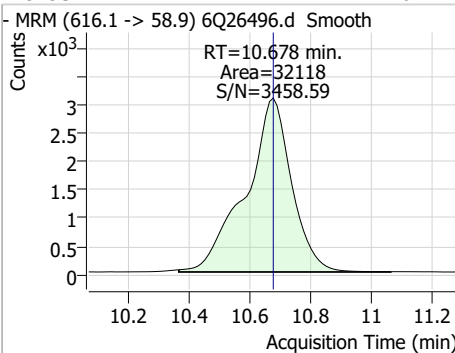
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.18	9.85	0.01	3358	699.1 -> 98.8	54.1	26.1	78.2



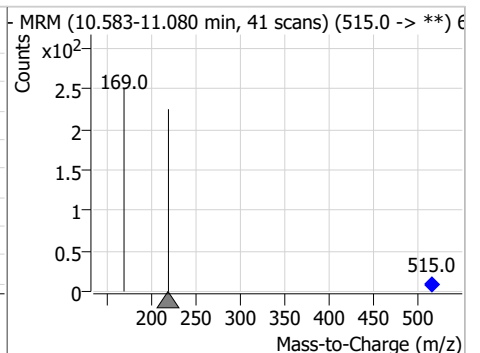
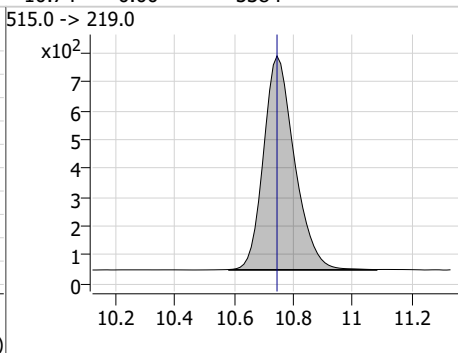
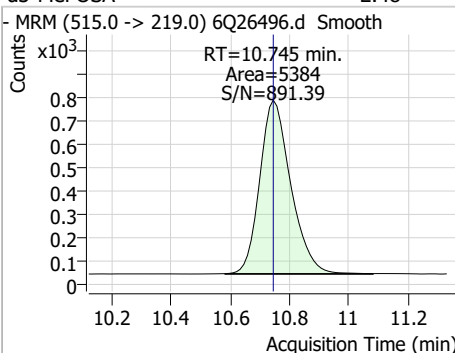
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.91	10.67	0.00	61588				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.20	10.68	0.00	32118				

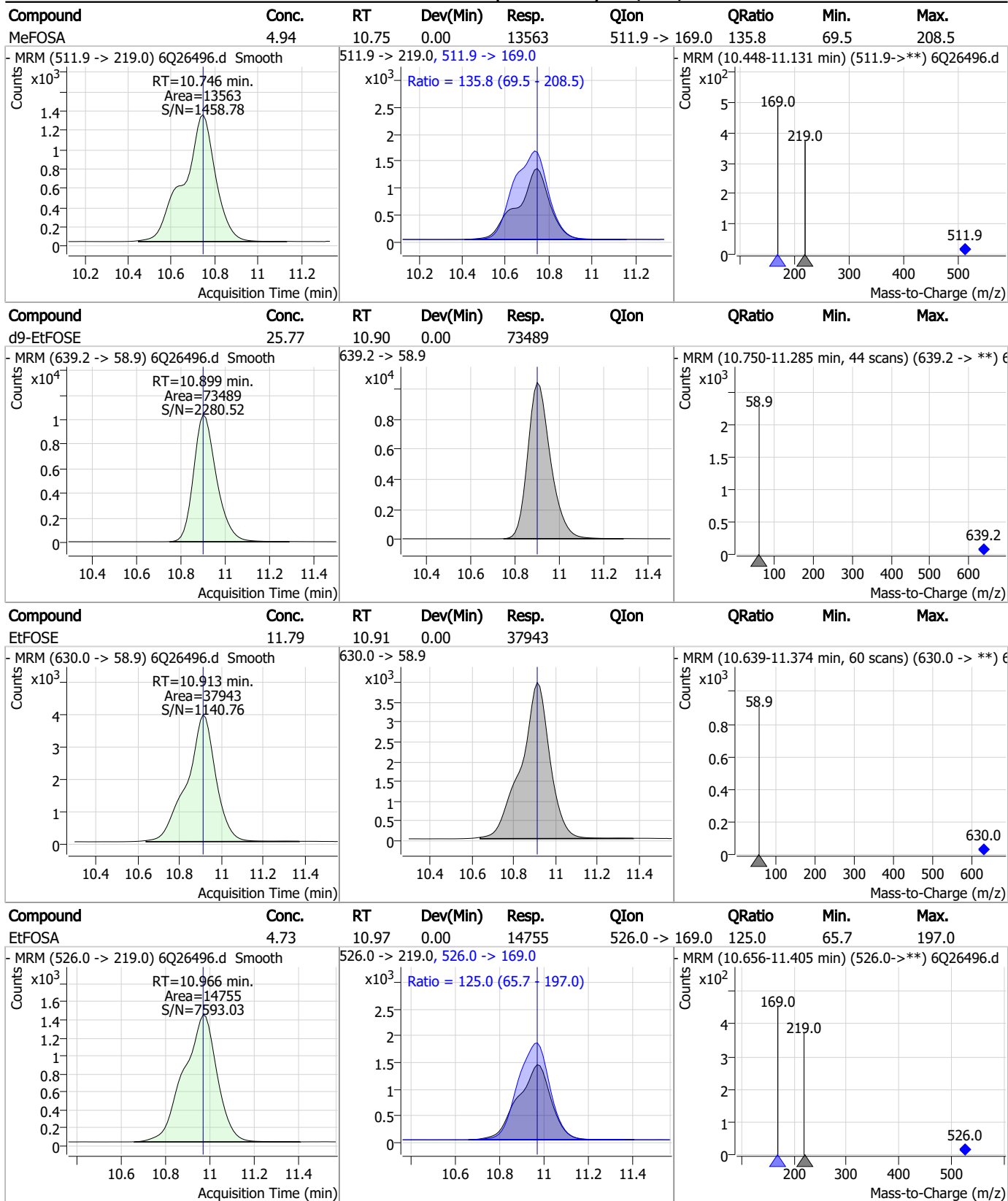


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.48	10.74	0.00	5384				



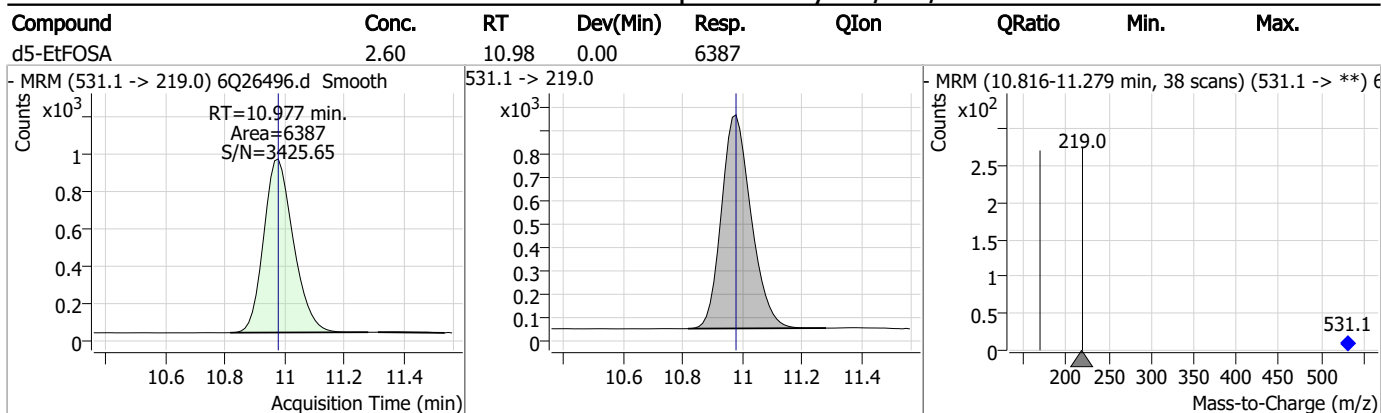
7.7.14  
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### Perfluorinated Compounds by LC/MS/MS



7.7.14

### Perfluorinated Compounds by LC/MS/MS



7.7.14

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# Manual Integration Approval Summary

Sample Number: S6Q372-CC372      Method: EPA DRAFT 1633  
Lab FileID: 6Q26496.D      Analyst approved: 10/17/23 13:17 Martha Valls  
Injection Time: 10/16/23 22:55      Supervisor approved: 10/17/23 16:39 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.29	Split peak
EtFOSAA	2991-50-6		8.40	Split peak

7.7.14.1

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SGS ORLANDO

DATE:	10/16/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_101623_S6Q372
CAL DATE:	10/16/23
ANALYST:	M. Valls
RUN BATCH:	S6Q372

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER: 232305, W5%, Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2204-E
ICV STD LOT #:	LCMS 2204E/2199
ISTD/ID STD LOT #:	12087/12030

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q26448.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	6:2 Contamination
2	6Q26449.d	P1-F9	rt CHECK	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	RT check
3	6Q26450.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	To clean lines
4	6Q26451.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
5	6Q26452.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
6	6Q26453.d	P1-A1	iccb	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
7	6Q26454.d	P2-F1	Test op99513-mb	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	Verification only
8	6Q26455.d	P3-A3	Test op99514-mb	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	Verification only
9	6Q26456.d	P1-A1	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	Cleaning
10	6Q26457.d	P1-A1	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
11	6Q26458.d	P1-A1	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
12	6Q26459.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
13	6Q26460.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
14	6Q26461.d	P1-A1	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
15	6Q26462.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
16	6Q26463.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
17	6Q26464.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
18	6Q26465.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
19	6Q26466.d	P1-B9	CCB	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
20	6Q26467.d	P1-B8	Isopropil	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
21	6Q26468.d	P1-B8	Isopropil	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	↓
22	6Q26469.d	P1-A1	Test Blank	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	ND
23	6Q26470.d	P1-B3	RT TDCA	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	✓
24	6Q26471.d	P1-B4	RT BR-LN	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	✓
25	6Q26472.d	P1-A1	ic372-0	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	✓
26	6Q26473.d	P1-A2	ic372-1	1633full.m	Calibration	1.6/500	OP99081,S6Q372:500,,,5.0,1,water	✓ 6:2 dropped from first point
27	6Q26474.d	P1-A3	ic372-2	1633full.m	Calibration	3.2/500	OP99081,S6Q372:500,,,5.0,1,water	✓
28	6Q26475.d	P1-A4	ic372-3	1633full.m	Calibration	10/500	OP99081,S6Q372:500,,,5.0,1,water	✓
29	6Q26476.d	P1-A5	ic372-4	1633full.m	Calibration	20/500	OP99081,S6Q372:500,,,5.0,1,water	✓
30	6Q26477.d	P1-A6	ic372-5	1633full.m	Calibration	40/500	OP99081,S6Q372:500,,,5.0,1,water	✓
31	6Q26478.d	P1-A7	ic372-6	1633full.m	Calibration	100/500	OP99081,S6Q372:500,,,5.0,1,water	✓
32	6Q26479.d	P1-A8	ic372-7	1633full.m	Calibration	200/500	OP99081,S6Q372:500,,,5.0,1,water	✓
33	6Q26480.d	P1-A9	ic372-8	1633full.m	Calibration	1x	OP99081,S6Q372:500,,,5.0,1,water	✓
34	6Q26481.d	P1-A1	IBLK	1633full.m	Sample		OP99081,S6Q372:500,,,5.0,1,water	✓
35	6Q26482.d	P1-B1	icv372-4	1633full.m	QC	20/500	OP99081,S6Q372:500,,,5.0,1,water	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q26483.d	P1-B2	icv372-20	1633full.m	QC	100/500	OP99081.S6Q372.500,,,5.0,1,water	✓
37	6Q26484.d	P1-A5	cc372-4	1633full.m	QC	20/500	OP99081.S6Q372.500,,,5.0,1,water	✓
38	6Q26485.d	P1-A2	cc372-1.0LL	1633full.m	QC	1.6/500	OP99081.S6Q372.500,,,5.0,1,water	✓
39	6Q26486.d	P4-A1	OP99514-BS	1633full.m	Sample		OP99514.S6Q372.500,,,5.0,1,water	✓
40	6Q26487.d	P4-A2	OP99514-LLBS:3	1633full.m	Sample		OP99514.S6Q372.500,,,5.0,1,water	✓
41	6Q26488.d	P4-A3	OP99514-MB	1633full.m	Sample		OP99514.S6Q372.500,,,5.0,1,water	✓
42	6Q26489.d	P4-A4	FC10326-1	1633full.m	Sample		OP99514.S6Q372.500,,,5.0,1,water	✓
43	6Q26490.d	P4-A5	OP99514-MS	1633full.m	Sample		OP99514.S6Q372.540,,,5.0,1,water	✓
44	6Q26491.d	P4-A6	FC10326-2	1633full.m	Sample		OP99514.S6Q372.530,,,5.0,1,water	✓
45	6Q26492.d	P4-A7	FC10326-3	1633full.m	Sample		OP99514.S6Q372.500,,,5.0,1,water	✓
46	6Q26493.d	P4-A8	FC10326-4	1633full.m	Sample		OP99514.S6Q372.550,,,5.0,1,water	✓
47	6Q26494.d	P4-A9	OP99514-DJP	1633full.m	Sample		OP99514.S6Q372.560,,,5.0,1,water	✓
48	6Q26495.d	P4-B1	FC10326-5	1633full.m	Sample		OP99514.S6Q372.500,,,5.0,1,water	✓
49	6Q26496.d	P1-A5	cc372-4	1633full.m	QC	20/500	OP99081.S6Q372.500,,,5.0,1,water	Pass
50	6Q26497.d	P1-A1	iccb	1633full.m	Sample		OP99081.S6Q372.500,,,5.0,1,water	ND
51	6Q26498.d	P4-B2	OP99513-BS	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
52	6Q26499.d	P4-B3	OP99513-LLBS:3	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
53	6Q26500.d	P4-B4	OP99513-MB	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
54	6Q26501.d	P4-B5	FC9505-37	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
55	6Q26502.d	P4-B6	FC9505-38	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
56	6Q26503.d	P4-B7	FC9505-39	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
57	6Q26504.d	P4-B8	FC9505-40	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
58	6Q26505.d	P4-B9	FC9804-12	1633full.m	Sample		OP99513.S6Q372.480,,,5.0,1,water	✓
59	6Q26506.d	P4-C1	FC9810-5	1633full.m	Sample		OP99513.S6Q372.510,,,5.0,1,water	cf
60	6Q26507.d	P4-C2	FC9810-6	1633full.m	Sample		OP99513.S6Q372.540,,,5.0,1,water	cf
61	6Q26508.d	P1-A5	cc372-4	1633full.m	QC	20/500	OP99081.S6Q372.500,,,5.0,1,water	Pass
62	6Q26509.d	P1-A1	iccb	1633full.m	Sample		OP99081.S6Q372.500,,,5.0,1,water	ND
63	6Q26510.d	P4-C3	FC9810-7	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
64	6Q26511.d	P4-C4	FC9810-11	1633full.m	Sample		OP99513.S6Q372.540,,,5.0,1,water	✓
65	6Q26512.d	P4-C5	FC9810-12	1633full.m	Sample		OP99513.S6Q372.500,,,5.0,1,water	✓
66	6Q26513.d	P4-C6	FC9830-2	1633full.m	Sample		OP99513.S6Q372.530,,,5.0,1,water	Redo lower volume; matrix
67	6Q26514.d	P4-C7	FC9830-2	1633full.m	Sample	50/500	OP99345.S6Q372.495,,,5.0,10,water	Redo lower volume; matrix
68	6Q26515.d	P4-C8	FC9904-2	1633full.m	Sample		OP99347.S6Q372.485,,,5.0,1,water	✓
69	6Q26516.d	P4-C9	FC9904-2	1633full.m	Sample	100/500	OP99347.S6Q372.485,,,5.0,5,water	Reported 1x
70	6Q26517.d	P4-D1	FC9836-7	1633full.m	Sample	250/500	OP99330.S6Q372.4.96,,,5.0,2,soil	✓
71	6Q26518.d	P4-D2	FC9874-1	1633full.m	Sample		OP99330.S6Q372.4.97,,,5.0,1,soil	✓
72	6Q26519.d	P4-D3	FC9874-6	1633full.m	Sample	250/500	OP99330.S6Q372.4.95,,,5.0,2,soil	✓
73	6Q26520.d	P1-A5	cc372-4	1633full.m	QC	20/500	OP99081.S6Q372.500,,,5.0,1,water	Pass
74	6Q26521.d	P1-A1	iccb	1633full.m	Sample		OP99081.S6Q372.500,,,5.0,1,water	ND
75	6Q26522.d	P4-D4	FC9874-7	1633full.m	Sample		OP99330.S6Q372.4.99,,,5.0,1,soil	nr2x pfos E
76	6Q26523.d	P4-D5	DA58969-1	1633full.m	Sample	100/500	OP99424.S6Q372.5.05,,,5.0,5,soil	✓
77	6Q26524.d	P4-D6	FC10134-6	1633full.m	Sample	100/500	OP99424.S6Q372.4.99,,,5.0,5,soil	✓
78	6Q26525.d	P4-D7	FC10134-7	1633full.m	Sample		OP99424.S6Q372.5.03,,,5.0,1,soil	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q26526.d	P4-D8	OP99369-BS	1633full.m	Sample	OP99369,S6Q372,500,,,5.0,1,water	✓
80	6Q26527.d	P4-D9	OP99369-LLBS:3	1633full.m	Sample	OP99369,S6Q372,500,,,5.0,1,water	✓
81	6Q26528.d	P4-E1	OP99369-MB	1633full.m	Sample	OP99369,S6Q372,500,,,5.0,1,water	✓
82	6Q26529.d	P4-E2	FC9933-1	1633full.m	Sample	OP99369,S6Q372,530,,,5.0,1,water	✓
83	6Q26530.d	P4-E3	FC9933-2	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
84	6Q26531.d	P4-E4	FC9933-3	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
85	6Q26532.d	P1-A5	cc372-4	1633full.m	QC	OP99081,S6Q372,500,,,5.0,1,water	Pass
86	6Q26533.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	ND
87	6Q26534.d	P4-E5	FC9933-4	1633full.m	Sample	OP99369,S6Q372,500,,,5.0,1,water	✓
88	6Q26535.d	P4-E6	FC9933-5	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
89	6Q26536.d	P4-E7	FC9933-6	1633full.m	Sample	OP99369,S6Q372,535,,,5.0,1,water	✓
90	6Q26537.d	P4-E8	FC9933-7	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
91	6Q26538.d	P4-E9	OP99369-MS	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
92	6Q26539.d	P4-F1	OP99369-MSD	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
93	6Q26540.d	P4-F2	FC9933-8	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
94	6Q26541.d	P4-F3	FC9933-9	1633full.m	Sample	OP99369,S6Q372,530,,,5.0,1,water	✓
95	6Q26542.d	P4-F4	FC9933-10	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
96	6Q26543.d	P4-F5	FC9933-11	1633full.m	Sample	OP99369,S6Q372,545,,,5.0,1,water	✓
97	6Q26544.d	P1-A5	cc372-4	1633full.m	QC	OP99081,S6Q372,500,,,5.0,1,water	Pass
98	6Q26545.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	ND
99	6Q26546.d	P3-F1	OP99491-BS	1633full.m	Sample	OP99491,S6Q372,60,,,5.0,1,water	✓
100	6Q26547.d	P3-F2	OP99491-LLBS:2	1633full.m	Sample	OP99491,S6Q372,60,,,5.0,1,water	✓
101	6Q26548.d	P3-F3	OP99491-MB	1633full.m	Sample	OP99491,S6Q372,60,,,5.0,1,water	✓
102	6Q26549.d	P3-F4	FC10181-2	1633full.m	Sample	OP99491,S6Q372,60,,,5.0,10,water	✓
103	6Q26550.d	P3-F5	FC10181-3	1633full.m	Sample	OP99491,S6Q372,60,,,5.0,10,water	✓
104	6Q26551.d	P3-F6	FC10181-4	1633full.m	Sample	OP99491,S6Q372,60,,,5.0,10,water	✓
105	6Q26552.d	P3-F7	FC10181-1	1633full.m	Sample	OP99491,S6Q372,60,,,5.0,10,water	not use
106	6Q26553.d	P1-A5	Ecc372-4	1633full.m	QC	OP99081,S6Q372,500,,,5.0,1,water	6:2 fail high
107	6Q26554.d	P1-A1	iccb	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	6:2 carry over
108	6Q26555.d	P1-B8	ipa	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	To clean injector lines
109	6Q26556.d	P1-B8	ipa	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	↓
110	6Q26557.d	P1-B8	ipa	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	↓
111	6Q26558.d	P1-B8	ipa	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	↓
112	6Q26559.d	P1-B8	ipa	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	↓
113	6Q26560.d	P1-B9	BLANK	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	↓
114	6Q26561.d	P1-B9	BLANK	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	↓
115	6Q26562.d	P1-B9	BLANK	1633full.m	Sample	OP99081,S6Q372,500,,,5.0,1,water	↓
116	6Q26563.d	P1-B9	BLANK	1633full.m	Sample	OP99081,S6Q372,500,,,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 2202A-F	1033 Cal. std. (spike)	LCMS 2198	Br-LN Et-ME	SGS Labs	MA	4/4/24	2 ppm	250 uL	4 mL	312.5 ppb	1033 mix (2688 uL)	10/8/23	4/4/24	NW
		11989	PFAC	Wellington	4/19/28	10/1/24	1-4 ppm			62.5				
		12013A	MxH			10/8/24				125				
		11990	PFAC		3/24/20	10/8/24	2 ppm			125 ppb				
		12014A	Mx F			10/8/24				125 ppb				
		12014B	Mx F		7/27/28	10/1/24	2 ppm			125 ppb				
		11970	PFAC			10/8/24				312				
		11991	Mx G		3/28/28	10/8/24	4-20 ppm	312 uL		1160 ppb				
		12010B	PFAC			10/1/24				50 ppm	95% MeOH			
		12035	Mx J		05/09/24	10/8/24	50.0 ppm	400 uL	4.0 mL	50 ppm	51. H <sub>2</sub> O	10/11/23	04/11/24	JR
LCMS 2203	List 40 surr Add-on Isotope	11523/11463	d7-N-McFOSE	Wellington Labs	05/27/27	05/09/24								
		11537/11827	d9-N-EtFOSE		01/27/27	06/01/24								
		11834	M2-PFHxDA		11/23/26	06/01/24		80 uL		1.0 ppm				
		11335	D-N-EtFOSA		03/17/27	06/01/24								
LCMS 2204A-E	1033 Cal. std. (spike)	LCMS 2198	Br-LN Et-ME	SGS Labs	MA	4/4/24	2 ppm	250 uL	4 mL	312.5 ppb	1033 mix (2688 uL)	10/15/23	4/4/24	NW
		12013A	PFAC	Wellington	4-19-28	10/8/24	1-4 ppm			62.5				
		12013B	MxH			10/15/24				125				
		12014G	PFAC		3-24-26	10/15/24	2 ppm			125 ppb				
		12033	Mx F		7/27/28	10/15/24	2 ppm			125 ppb				
		11991	PFAC			10/8/24				312				
		12015A	Mx G		3/28/28	10/15/24	4-20 ppm	312 uL		1160 ppb				
		12067	PFAC			10/15/24				512				
		12091	Mx J							1160 ppb				

\* See 11/10/2024

not 10/15/23

\* 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 2194	PFC 1D Std	12006	PFA-Dos (250amp)	Absolute	04/24/28	09/19/24	1.0 ppm	400 mL	4.0 mL	100 ppb	95/N 007 09 5:14.0	03/28/23	03/13/24	JR
		11432	N-Me PFA-M	Wellington Labs	02/28/27	03/13/24	50 ppm	8 mL						
		11793	PBSA-1		02/01/28	08/08/24								
		11792	FHSA-1		12/01/27	09/08/24								
		11332	PFCHS		03/28/27	04/08/24								
						N/A								
LCMS 2197AD	1033 CAL std. (copie)	LCMS 2191	Br-LN BT-ME	SGS Labo	N/A	12/28/23	2ppm	250uL	4mL	125 212.5ppb	1033 (250uL)	10/1/23	12/28/23	MV
		11968	PFAC MXH	Wellington	4/9/28	9/24/24	1-4 ppm	250uL		0.25 125 250ppb				
		11990	PFAC MXF		3-24-26	9/12/24	2ppm	250uL		125ppb				
		11948B	PFAC MXG		12/1/27	9/24/24	2ppm	250uL		125ppb				
		11970	PFAC MXJ		12/1/27	10/1/24	4-20 ppm	250uL		312 1100ppb				
		12010A	PFAC MXJ		3/28/28	9/24/24	4-20 ppm	250uL						
		12010B	PFAC MXJ			10/1/24								
LCMS 2198	1033OR-LN Me/ETFOSE/Me/ETFOSE	11797	br-N MeFOA	Wellington	8/23/27	10/9/24	50ppm	200uL	5mL	2ppm	1033 mix (5000 mL)	10/4/23	4/4/24	MV
		11798	br-N ETFOA		10/7/27	10/4/24		200uL		2ppm				
		12070A	br-N MeFOSE		10/7/27	10/4/24		500uL		5ppm				
		12071A	br-N ETFOSE		10/7/27	10/4/24		500uL		5ppm				

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

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Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2156	L15740 ADD ON #2	11513	FBSA-1	Wellington	11/10/26	4/18/24	50 ppm	800ul	4.0ml	1ppm	95% methanol 5% H2O	8/7/23	2/7/24	MW
		11514	FHXSA1		12/29/26	4/18/24					(3700)			
		11140B	I-PFAS		7/12/26	5/9/24								
LCMS 2157	1033 RT BR-LN	11496	br-Fosa	Wellington	10/7/27	12/28/23	50 ppm	10NL 5ml	5ml	100ppb	1033 mix (4930)	8/7/23	12/28/23	MW
		11497	br-N meFosa		8/23/27			10NL						
		11498	br-N ETFOA		10/7/27									
		11494	br-N meFose		10/7/27									
		11495	br-N ETFOE		10/7/27									
		11502	T-PTOA		01/27/27									
		11527	IPPTNA		01/10/27									
LCMS 2158 AE	1033 Cul std. Spike	LCMS 2159 21409	Br-LN ET-me PFAC MXH	SGS LABO	N/A	12/28/23	2ppm 5ppm	250ul	4ml	125 312.5ppb	1033 mix 2.088ul	8/7/23	12/28/23	MW
		11930	PFAC MXH	Wellington	4/19/28	7/31/24 8/7/24	1-4 ppm			62.5 125 250ppb				
		11931A	PFAC MXF		3/27/26	7-31-24 8-7-24	2ppm			125ppb				
		11907	PFAC MXG		12/1/27	7-31-24 8-7-24	2ppm			125ppb				
		11933A	PFAC MXJ		3-28-28	7-31-24 8-7-24	4-20 ppm	312ul		312 1160ppb				
		11933B				MA Continue next page 8/7/23								

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	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 2192A	1033 Cal std. (spike)	PFAC	Sgs Labs	n/a	12/28/23	2ppm	250uL	4 mL	125	1633	9/29/23	12/28/23	MW
		PFAC	Washington	4/19/28	9/24/23	1-4 ppm	250uL		62.5	1633			
		PFAC		3-25-26	9/15/24	2 ppm	250uL		125ppb				
		PFAC		12-1-27	9/15/24	2 ppm	250uL		125ppb				
		PFAC		3-28-28	9/24/24	4-20 ppm	312 uL		312				
LCMS 2193	FOSE Std	FOSE	Washington Labs	05/15/27	09/25/24	50ppm	200 mL	2.0 mL	5ppb	95% MeOH 5% H <sub>2</sub> O	09/25/23	03/25/24	JR
		FOSE		05/15/27	09/25/24								
LCMS 2194	Full List 40 Spike (cal std)	FOA-Dep (25 Comp)	Absolute	03/13/28	09/11/24	1.0 ppm	400 mL	4.0 mL	100 ppb	95% MeOH 5% H <sub>2</sub> O	09/25/23	10/18/23	JR
		40 List Add-mth1	Sgs Std	-	10/18/23								
		40 List Add-mth2		-	02/07/24								
		FOSE Std.		-	03/25/24	5.0 ppm			500 ppb				
LCMS 2195	PFC Spike	FOA-Dep (25 Comp)	Absolute	04/26/28	09/19/24	1.0 ppm	2 mL	5.0 mL	400 ppb	95% MeOH 5% H <sub>2</sub> O	09/28/23	03/13/24	JR
		N-Me FOSA-M	Washington Labs	02/28/27	03/19/24	50ppm	40 mL						
		FBSA-1		02/01/28	08/08/24								
		FH-SA-1		12/01/27	08/08/24								
		PFECHS		03/28/27	04/18/24								

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

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



11797  
rec'd: 05/15/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSA

#### N-Methylperfluorooctanesulfonamide Isomeric Mix

**PRODUCT CODE:** br-NMeFOSA  
**LOT NUMBER:** brNMeFOSA0822  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**SOLVENT(S):** Methanol  
**DATE PREPARED:** (mm/dd/yyyy) 08/18/2022  
**LAST TESTED:** (mm/dd/yyyy) 08/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/23/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

#### **DESCRIPTION:**

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

#### **DOCUMENTATION/ DATA ATTACHED:**

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS Data (SIR)  
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

#### **ADDITIONAL INFORMATION:**

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

brNMeFOSA0822 (1 of 6)  
rev1

7.9.1  
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117a8  
rec'd: 05/15/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSA

**N-Ethylperfluorooctanesulfonamide  
Isomeric Mix**

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSA
<b><u>LOT NUMBER:</u></b>	brNEtFOSA0922
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	08/23/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	10/07/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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

brNEtFOSA0922 (1 of 6)  
rev1

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11991  
rec'd: 08/31/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture

**PRODUCT CODE:** PFAC-MXG  
**LOT NUMBER:** PFACMXG0723  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 07/27/2023  
**LAST TESTED:** (mm/dd/yyyy) 07/27/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 07/27/2028  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

### DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Revision#: 9, Revised 2020-12-23

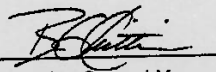
PFACMXG0723 (1 of 5)  
rev0

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

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 08/11/2023  
(mm/dd/yyyy)

12013 A-B  
rec'd: 09/11/23

# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

Native PFAS  
Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXH
<b><u>LOT NUMBER:</u></b>	PFACMXH0423
<b><u>SOLVENT(S):</u></b>	Methanol/Isopropanol (2%)/Water (<1%)
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	04/06/2023
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	04/19/2023
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	04/19/2028
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>5</sub>, C<sub>7</sub>, C<sub>9</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>6</sub> and C<sub>8</sub> 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. The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

PFACMXH0423 (1 of 11)  
rev1

7.9.1  
7


⊗ 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		23
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		24
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-butanefulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ‡	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate §	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

\* 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: 05/11/2023  
(mm/dd/yyyy)

12014A-B  
rec'd: 09/11/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

Native Replacement PFAS  
Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0323  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 03/23/2023  
**LAST TESTED:** (mm/dd/yyyy) 03/24/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 03/24/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### **DESCRIPTION:**

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxananoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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  
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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Revision#:9, Revised 2020-12-23

PFACMXF0323 (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-dioxananoate <sup>-</sup>	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: 03/29/2023  
(mm/dd/yyyy)



12015A-B  
rec'd: 09/11/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic  
Acids and Sulfonate Solution/Mixture

**PRODUCT CODE:** PFAC-MXG  
**LOT NUMBER:** PFACMXG0723  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 07/27/2023  
**LAST TESTED:** (mm/dd/yyyy) 07/27/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 07/27/2028  
**RECOMMENDED STORAGE:** 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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PFACMXG0723 (1 of 5)  
rev0

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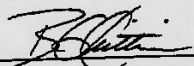
Table A:

**PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

\* Concentrations have been rounded to three significant figures.

Certified By:

  
B.G. Chittim, General Manager

Date: 08/11/2023

(mm/dd/yyyy)

12067 rec'd: 09/28/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXJ
<b><u>LOT NUMBER:</u></b>	PFACMXJ0323
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	03/27/2023
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	03/28/2023
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	03/28/2028
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

### 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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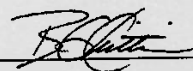
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7.9.1  
7

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: 04/12/2023  
(mm/dd/yyyy)

7.9.1  
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12070 A-B  
rec'd: 10/02/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol  
Isomeric Mix

<b>PRODUCT CODE:</b>	br-NMeFOSE
<b>LOT NUMBER:</b>	brNMeFOSE0922
<b>CONCENTRATION:</b>	50.0 ± 2.5 µg/mL
<b>SOLVENT(S):</b>	Methanol
<b>DATE PREPARED:</b> (mm/dd/yyyy)	09/02/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	10/07/2027
<b>RECOMMENDED STORAGE:</b>	Store ampoule in a cool, dark place

#### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

#### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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brNMeFOSE0922 (1 of 7)  
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12071A-B  
rec'd 10/02/22



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol  
Isomeric Mix

<b>PRODUCT CODE:</b>	br-NEtFOSE
<b>LOT NUMBER:</b>	brNEtFOSE1022
<b>CONCENTRATION:</b>	50.0 ± 2.5 µg/mL
<b>SOLVENT(S):</b>	Methanol
<b>DATE PREPARED:</b> (mm/dd/yyyy)	09/12/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	10/07/2027
<b>RECOMMENDED STORAGE:</b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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7

12091  
rec'd: 10/11/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXJ
<b><u>LOT NUMBER:</u></b>	PFACMXJ0323
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	03/27/2023
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	03/28/2023
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	03/28/2028
<b><u>RECOMMENDED STORAGE:</u></b>	Refrigerate ampoule

### 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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Revision#: 9, Revised 2020-12-23

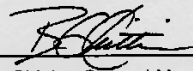
PFACMXJ0323 (1 of 5)  
rev0

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7



**Table 1: 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: 04/12/2023  
(mm/dd/yyyy)



12033  
rec'd: 09/18/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

**PRODUCT CODE:** PFAC-MXF  
**LOT NUMBER:** PFACMXF0323  
**SOLVENT(S):** Methanol / Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 03/23/2023  
**LAST TESTED:** (mm/dd/yyyy) 03/24/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 03/24/2026  
**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 hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- 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.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

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PFACMXF0323 (1 of 5)  
rev0

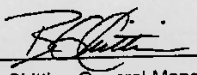
7.9.1  
7

**Table A:** PFAC-MXF; 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	
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-chloroicosafuoro-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: 03/29/2023  
(mm/dd/yyyy)



**Certified Reference Material CRM**



**CERTIFIED WEIGHT REPORT**

Part Number: 64029  
Lot Number: 062623  
Description: PFDA-DOD  
3 components  
Purity: (P)  
Preparator: J.D.  
Expiration Date: 06/26  
Recommended Storage: (NIST) Test Date: 06/26

Formulated By: Prakash Chakraborty  
Reviewed By: Pedro L. Restas

Substrate(s): Methanol (1 mL) (NIST)  
2-Propanol (2 mL)

Lot: 040729 (96%)  
39500 (2%)

Volume(s) shown below were combined and diluted to (mL):  
Note: All assigned values are mean concentrations.

Component	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Final Conc. (g/L)	Initial Conc. (g/L)	Final Uncertainty (g/L)	Solvent Safety Info. On Attached PG	OSHA PEL (TWA)	LOD
1. Perfluoro-n-butanoic acid (PFBA)	95242	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-29-4	N/A	N/A
2. Perfluoro-pentanoic acid (PFPA)	95243	011723	0.02	2.00	0.017	50.3	1.00	0.02	2782-95-3	N/A	N/A
3. Perfluoro-hexanoic acid (PFHA)	91197	071023	0.02	2.00	0.017	50.2	1.00	0.02	3072-84-4	N/A	N/A
4. Perfluoro-heptanoic acid (PFHPA)	91198	110622	0.02	2.00	0.017	50.1	1.00	0.02	3745-64-3	N/A	N/A
5. Perfluoro-octanoic acid (PFOPA)	95202	09522	0.02	2.00	0.017	50.2	1.00	0.02	282-87-1 (L)	N/A	Insect Repellent
6. Perfluoro-nonoic acid (PFNA)	95203	110622	0.02	2.00	0.017	50.1	1.00	0.02	3745-65-1	N/A	Central Sterilizing
7. Perfluoro-decanoic acid (PFDA)	91195	110622	0.02	2.00	0.017	50.0	1.00	0.02	2069-64-9	N/A	N/A
8. Perfluoro-undecanoic acid (PFUA)	95205	092423	0.02	2.00	0.017	50.2	1.00	0.02	2782-94-8	N/A	N/A
9. Perfluoro-dodecanoic acid (PFDDA)	91196	052423	0.02	2.00	0.017	50.1	1.00	0.02	2782-94-8	N/A	N/A
10. Perfluoro-tridecanoic acid (PFDDA)	95204	110622	0.02	2.00	0.017	50.1	1.00	0.02	2782-94-8	N/A	N/A
11. Perfluoro-tetradecanoic acid (PFDDA)	95203	030223	0.02	2.00	0.017	50.0	1.00	0.02	2782-94-8	N/A	N/A
12. Perfluoro-1-iodo-2,2,2-trifluoroethane (PFIDA)	3677	PFDA1221	0.02	2.00	0.017	50.0	1.00	0.02	7543-91-8	N/A	N/A
13. Methylperfluorooctanoate (PFMOA)	4162	PERFOA0429	0.02	2.00	0.017	50.0	1.00	0.02	2553-31-9 (L)	N/A	N/A
14. Methylperfluorodecanoate (PFMDA)	4163	PERFOA1029	0.02	2.00	0.017	50.0	1.00	0.02	2911-59-4 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	91194	060522	0.02	2.00	0.017	50.2	1.00	0.02	2782-94-8	N/A	N/A
16. Perfluoropentanesulfonic acid (PFPS)	95244	091522	0.02	2.00	0.017	50.1	1.00	0.02	2782-94-8	N/A	N/A
17. Perfluorohexanesulfonic acid (PFHPS)	91198	060923	0.02	2.00	0.017	50.0	1.00	0.02	355-64-1 (L)	N/A	N/A
18. Perfluoroheptanesulfonic acid (PFHPS)	3672	LFPHS0622	0.02	2.00	0.017	49.8	1.00	0.02	375-64-1 (L)	N/A	N/A
19. Heptafluoroisobutanesulfonic acid (PFOSI)	95201	050923	0.02	2.00	0.017	50.1	1.00	0.02	1782-26-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LFPS1122	0.02	2.00	0.017	48.0	1.00	0.02	1889-26-1 (L)	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPDS1122	0.02	2.00	0.017	48.2	1.00	0.02	3771-71-2	N/A	N/A
22. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (4:2 FTB)	65271	060522	0.02	2.00	0.017	50.2	1.00	0.02	2782-94-8	N/A	N/A
23. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTB)	65272	051023	0.02	2.00	0.017	50.2	1.00	0.02	3019-34-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTB)	3682	PF12S023	0.02	2.00	0.017	49.3	1.00	0.02	1333-13-8	N/A	N/A
25. 2-Hydroxyperfluoro-2,2,3,3-tetrafluoropropyl sulfonic acid (PFPO-SA)	95206	050223	0.02	2.00	0.017	49.2	1.00	0.02	2782-94-8	N/A	N/A
26. 1-Chloro-2,2,2-trifluoroethyl sulfonic acid (1:1D-PFO-S)	4165	PERFOA0529	0.02	2.00	0.017	47.1	1.00	0.02	2782-94-8	N/A	N/A
27. 9-Chloro-2,2,2-trifluoro-nonyl sulfonic acid (9C-PTFOS)	4164	PERFOA0529	0.02	2.00	0.017	48.8	1.00	0.02	2782-94-8	N/A	N/A
28. Dodecafluoro-3H,4,β-dioxanone sulfonic acid (ADONA)	4163	PERFOA0129	0.02	2.00	0.017	47.1	1.00	0.02	918005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	95202	060522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	Local Anesthetic
Perfluorodecanoic acid (branched isomer)*	95202	060522	0.02	2.00	0.004	0.5	0.01	0.001	335-67-1 (L)	N/A	Local Anesthetic
Perfluorooctanoic acid (linear)*	91196	030923	0.02	2.00	0.017	44.0	0.98	0.02	355-64-4 (L)	N/A	N/A
Perfluorodecanoic acid (branched isomer)*	91196	030923	0.02	2.00	0.017	0.0	0.12	0.0020	355-64-4 (L)	N/A	N/A
Heptafluorooctanesulfonic acid (linear)*	95201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1782-26-1 (L)	N/A	N/A
Heptafluorodecanesulfonic acid (branched isomer)*	95201	030923	0.02	2.00	0.017	7.5	0.15	0.003	1782-26-1 (L)	N/A	N/A
Heptafluorooctanesulfonic acid (branched isomer)*	95201	030923	0.02	2.00	0.017	4.0	0.08	0.002	1782-26-1 (L)	N/A	N/A
Heptafluorodecanesulfonic acid (branched isomer)*	95201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1782-26-1 (L)	N/A	N/A
M-Methylperfluoro-1-octanethiourethane sulfonic acid (linear)*	4162	PERFOA0429	0.02	2.00	0.017	38.0	0.72	0.04	2553-31-9 (L)	N/A	N/A
M-Methylperfluoro-1-decanethiourethane sulfonic acid (linear)*	4162	PERFOA0429	0.02	2.00	0.017	38.5	0.13	0.011	2553-31-9 (L)	N/A	N/A
M-Methylperfluoro-1-dodecanethiourethane sulfonic acid (linear)*	4162	PERFOA0429	0.02	2.00	0.017	5.0	0.10	0.005	2553-31-9 (L)	N/A	N/A
M-Methylperfluoro-1-tetradecanethiourethane sulfonic acid (linear)*	4162	PERFOA0429	0.02	2.00	0.017	2.5	0.05	0.0009	2553-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanethiourethane sulfonic acid (linear)*	4163	PERFOA1029	0.02	2.00	0.017	36.5	0.73	0.04	2961-59-5 (L)	N/A	N/A
N-Ethylperfluoro-1-decanethiourethane sulfonic acid (linear)*	4163	PERFOA1029	0.02	2.00	0.017	7.7	0.15	0.009	2961-59-5 (L)	N/A	N/A
N-Ethylperfluoro-1-dodecanethiourethane sulfonic acid (linear)*	4163	PERFOA1029	0.02	2.00	0.017	5.3	0.11	0.005	2961-59-5 (L)	N/A	N/A
N-Ethylperfluoro-1-tetradecanethiourethane sulfonic acid (linear)*	4163	PERFOA1029	0.02	2.00	0.017	0.4	0.007	0.0006	2961-59-5 (L)	N/A	N/A

\*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

\*Qualitative standard (Sect. 3.13) is available for PFDA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFDA, or equivalent). This PFDA standard must be purchased and used to identify the retention times of the branched PFDA isomers. The linear PFDA standard must be used for quantitation (Sect. 12.2) until a quantitative PFDA standard containing the branched and linear isomers becomes commercially available.

\*The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise noted.  
 \*Standard deviations are given in parentheses. Values in parentheses are relative standard deviations (RSD) in %.  
 \*All standards, after opening amples, should be stored with caps tight and under nitrogen atmosphere in laboratory conditions.  
 \*Certification is based on the use of a gravimetric method for the linear component and a gravimetric method for the branched component.  
 \*Lot # includes Year 1997, U.S. Government Printing Office, Washington, DC, 1994.

12006  
Rec'd: 09/07/23

10765 A-13



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

3,6-OPFHpA

*rec'd  
WPH  
8/20/21*

**LOT NUMBER:**

36OPFHpA0320

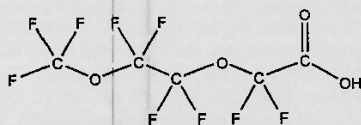
**COMPOUND:**

Perfluoro-3,6-dioxaheptanoic acid

**STRUCTURE:**

**CAS #:**

151772-58-6



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>9</sub>O<sub>4</sub>

**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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

10837

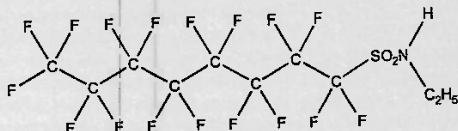
**LOT NUMBER:** NEtFOSA0821M

**COMPOUND:**

N-ethylperfluoro-1-octanesulfonamide

**STRUCTURE:**

**CAS #:** 4151-50-2



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>9</sub>F<sub>17</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

527.20

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

08/12/2021

**EXPIRY DATE:** (mm/dd/yyyy)

08/12/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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


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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

  
B.G. Chittim, General Manager

**Date:** 08/16/2021

(mm/dd/yyyy)

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10



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

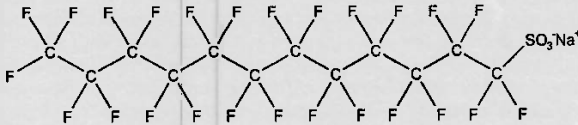
10840

**PRODUCT CODE:** L-PFDoS  
**COMPOUND:** Sodium perfluoro-1-dodecanesulfonate

**LOT NUMBER:** LPFDoS0721

**STRUCTURE:**

**CAS #:** 1260224-54-1



**MOLECULAR FORMULA:** C<sub>12</sub>F<sub>25</sub>SO<sub>3</sub>Na  
**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).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager  
**Date:** 07/16/2021  
(mm/dd/yyyy)

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

LPFDoS0721 (1 of 4)  
rev0

7.9.1

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# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NS 01/18/23

**PRODUCT CODE:**

PFODA

**LOT NUMBER:**

PFODA0821

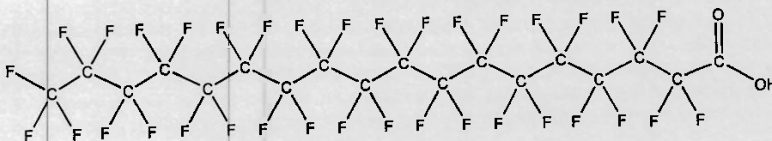
**COMPOUND:**

Perfluoro-n-octadecanoic acid

**CAS #:**

16517-11-6

**STRUCTURE:**



**MOLECULAR FORMULA:**

C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

914.14

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

09/03/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/03/2026

**RECOMMENDED STORAGE:**

Store ampoule at ambient temperature in a dark place

### DOCUMENTATION/ DATA ATTACHED:

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

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

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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7.9.1  
7



# WELLINGTON LABORATORIES

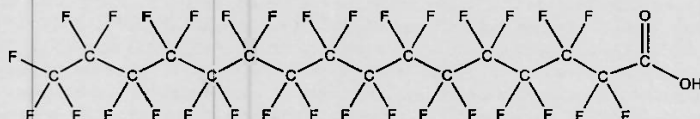
## CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 \* NG 01/18/23

**PRODUCT CODE:** PFHxDA **LOT NUMBER:** PFHxDA0421

**COMPOUND:** Perfluoro-n-hexadecanoic acid

**STRUCTURE:** **CAS #:** 67905-19-5



**MOLECULAR FORMULA:** C<sub>16</sub>HF<sub>31</sub>O<sub>2</sub> **MOLECULAR WEIGHT:** 814.13  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
 Water (<1%)

**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 05/07/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 05/07/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

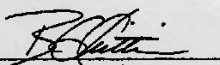
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

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

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

PFHxDA0421 (1 of 4)  
 rev0

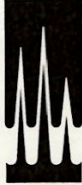
7.9.1

7



1116 A.B NW

1116B on the back NW



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:**

FHpPA1020

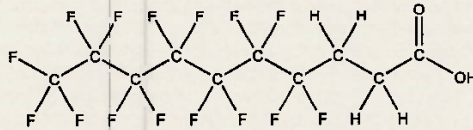
**COMPOUND:**

3-Perfluoroheptyl propanoic acid

**STRUCTURE:**

**CAS #:**

812-70-4



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>5</sub>F<sub>15</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

442.12

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/12/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/12/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

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

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

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

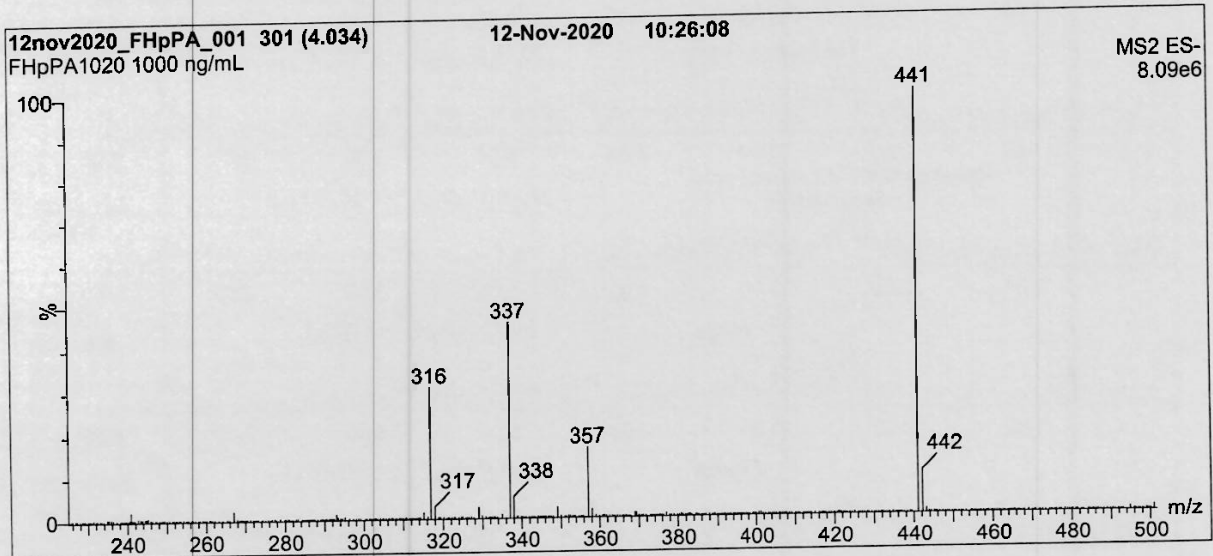
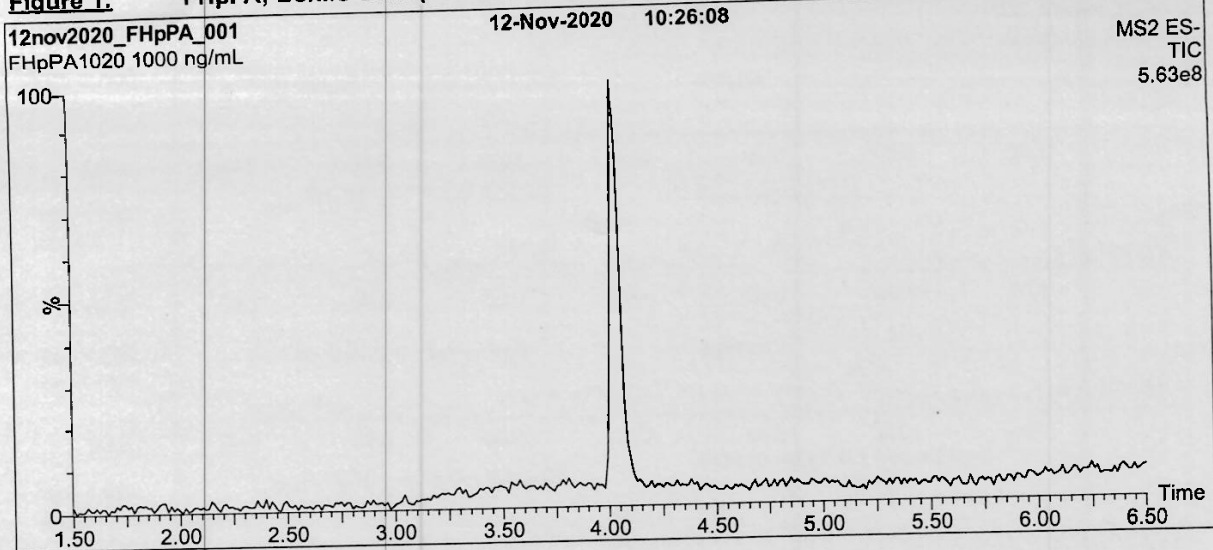
**Date:** 11/27/2020

(mm/dd/yyyy)

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

FHpPA1020 (1 of 4)  
rev0

**Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)****Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc 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  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 0.50  
Cone Voltage (V) = 28.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000

FPPrPA(3:3FTCA) 1116 B



**WELLINGTON**  
LABORATORIES

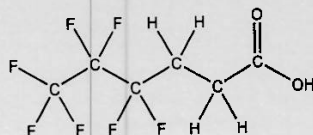
**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:** FPPrPA  
**COMPOUND:** 3-Perfluoropropyl propanoic acid

**LOT NUMBER:** FPPrPA0122

**STRUCTURE:**

**CAS #:** 356-02-5



**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>5</sub>F<sub>7</sub>O<sub>2</sub>  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 02/03/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 02/03/2027  
**RECOMMENDED STORAGE:** Refrigerate ampoule

**MOLECULAR WEIGHT:** 242.09  
**SOLVENT(S):** Methanol

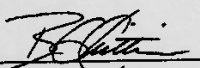
**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid (C<sub>6</sub>H<sub>3</sub>F<sub>7</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>F NMR.

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**Certified By:**   
B.G. Chittim, General Manager

**Date:** 02/04/2022  
(mm/dd/yyyy)

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11140



# WELLINGTON LABORATORIES

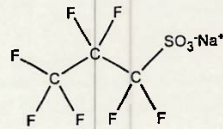
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** L-PFPrS  
**COMPOUND:** Sodium perfluoro-1-propanesulfonate

**LOT NUMBER:** LPFPrS0721

**STRUCTURE:**

**CAS #:** Not available



**MOLECULAR FORMULA:** C<sub>3</sub>F<sub>7</sub>SO<sub>3</sub>Na  
**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)

**MOLECULAR WEIGHT:** 272.07  
**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

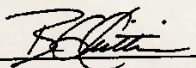
**DOCUMENTATION/ DATA ATTACHED:**

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

LPFPrS0721 (1 of 4)  
rev0

7.9.1

7

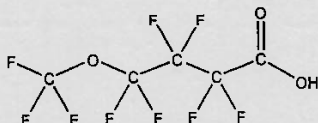
11465



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF5OHxA **LOT NUMBER:** PF5OHxA0722  
**COMPOUND:** Perfluoro-5-oxahexanoic acid  
**SYNONYM:** Perfluoro-4-methoxybutanoic acid (PFMBA)  
**STRUCTURE:** **CAS #:** 863090-89-5



**MOLECULAR FORMULA:** C<sub>6</sub>H<sub>9</sub>F<sub>9</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 280.05  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
 Water (<1%)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/02/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/02/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

### DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By:

B.G. Chittim, General Manager

Date: 08/26/2022  
 (mm/dd/yyyy)

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1513 rec'd 11/14/22



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

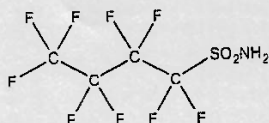
7.9.1  
7

**PRODUCT CODE:** FBSA-I  
**COMPOUND:** Perfluoro-1-butanefulfonamide

**LOT NUMBER:** FBSA11211

**STRUCTURE:**

**CAS #:** 30334-69-1



**MOLECULAR FORMULA:** C<sub>4</sub>H<sub>2</sub>F<sub>9</sub>NO<sub>2</sub>S  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 11/10/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 11/10/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

**MOLECULAR WEIGHT:** 299.11  
**SOLVENT(S):** Isopropanol

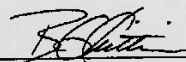
**DOCUMENTATION/ DATA ATTACHED:**

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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B.G. Chittim, General Manager

Date: 11/10/2021  
(mm/dd/yyyy)

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11514 rec'd 11/14/22

# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-1

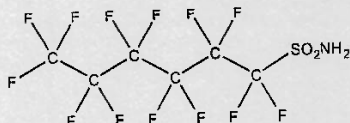
**LOT NUMBER:** FHxSA1221I

**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**CAS #:** 41997-13-1

**STRUCTURE:**



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>13</sub>NO<sub>2</sub>S

**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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FHxSA1221I (1 of 4)

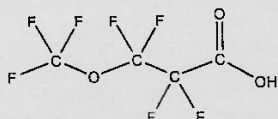
11648 Rec. 02/13/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF4OPeA **LOT NUMBER:** PF4OPeA0722  
**COMPOUND:** Perfluoro-4-oxapentanoic acid  
**SYNONYM:** Perfluoro-3-methoxypropanoic acid (PFMPA) **CAS #:** 377-73-1  
**STRUCTURE:**



**MOLECULAR FORMULA:** C<sub>4</sub>HF<sub>7</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 230.04  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/02/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/02/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

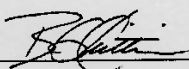
### DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By:   
B.G. Chittim, General Manager Date: 08/15/2022  
(mm/dd/yyyy)

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11649 Rec. 02/13/23

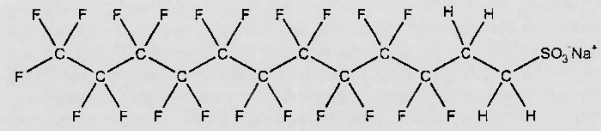


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** 10:2FTS      **LOT NUMBER:** 102FTS1122  
**COMPOUND:** Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

**STRUCTURE:**      **CAS #:** 108026-35-3



**MOLECULAR FORMULA:** C<sub>12</sub>H<sub>4</sub>F<sub>21</sub>SO<sub>3</sub>Na      **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) 12/01/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 12/01/2027  
**RECOMMENDED STORAGE:** Refrigerate ampoule

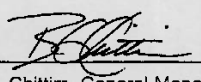
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

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Certified By:  Date: 12/09/2022  
 B.G. Chittim, General Manager (mm/dd/yyyy)

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

102FTS1122 (1 of 4)  
 rev0

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11762 rec'd: 04/20/23

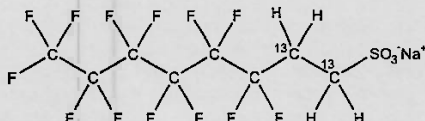


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** M2-6:2FTS **LOT NUMBER:** M262FTS1122  
**COMPOUND:** Sodium 1H,1H,2H,2H-perfluoro-(1,2-<sup>13</sup>C<sub>2</sub>)octanesulfonate

**STRUCTURE:** **CAS #:** 2708218-89-5



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>6</sub>H<sub>4</sub>F<sub>13</sub>SO<sub>3</sub>Na **MOLECULAR WEIGHT:** 452.13  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
47.6 ± 2.4 µg/mL (M2-6:2FTS acid)  
47.5 ± 2.4 µg/mL (M2-6:2FTS anion)  
**CHEMICAL PURITY:** >98% **ISOTOPIC PURITY:** ≥99% <sup>13</sup>C  
**LAST TESTED:** (mm/dd/yyyy) 11/24/2022 (1,2-<sup>13</sup>C<sub>2</sub>)  
**EXPIRY DATE:** (mm/dd/yyyy) 11/24/2027  
**RECOMMENDED STORAGE:** Refrigerate ampoule

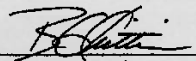
**DOCUMENTATION/ DATA ATTACHED:**

- 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.
- The native 6:2FTS contains 4.22% of <sup>34</sup>S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

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**Certified By:**  **Date:** 12/13/2022  
B.G. Chittim, General Manager (mm/dd/yyyy)

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

M262FTS1122 (1 of 4)  
rev0

7.9.1  
7

11794  
rec'd: 05/15/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PFECHS

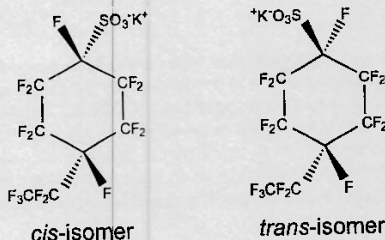
**LOT NUMBER:** PFECHS0223

**COMPOUND:**

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**STRUCTURE:**

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



**MOLECULAR FORMULA:**

C<sub>9</sub>F<sub>15</sub>SO<sub>3</sub>K

**MOLECULAR WEIGHT:** 500.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL (K salt)  
46.2 ± 2.3 µg/mL (PFECHS acid)  
46.1 ± 2.3 µg/mL (PFECHS anion)

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

03/14/2023

**EXPIRY DATE:** (mm/dd/yyyy)

03/14/2028

**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*, by <sup>19</sup>F NMR).

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Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023  
(mm/dd/yyyy)

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11994  
rec'd: 08/13/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPePA (5:3)

**LOT NUMBER:**

FPePA0722

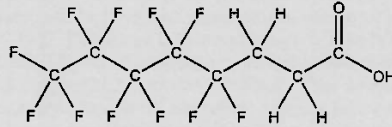
**COMPOUND:**

3-Perfluoropentyl propanoic acid

**STRUCTURE:**

**CAS #:**

914637-49-3



**MOLECULAR FORMULA:**

$C_8H_5F_{11}O_2$

**MOLECULAR WEIGHT:**

342.11

**CONCENTRATION:**

$50.0 \pm 2.5 \mu\text{g/mL}$

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

08/02/2022

**EXPIRY DATE:** (mm/dd/yyyy)

08/02/2027

**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.
- Contains <0.5% of the unsaturated 5:3 telomer acid ( $C_8H_3F_{11}O_2$ ) as an impurity determined by <sup>1</sup>H NMR.

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**Certified By:**

B.G. Chittim, General Manager

**Date:** 08/10/2022

(mm/dd/yyyy)

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12087 A-J  
rec'd: 10/11/23

# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-ES

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

**PRODUCT CODE:** MPFAC-HIF-ES  
**LOT NUMBER:** MPFACHIFES0623  
**SOLVENT(S):** Methanol/Isopropanol (1%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 06/19/2023  
**LAST TESTED:** (mm/dd/yyyy) 06/20/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 06/20/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>12</sub>, C<sub>14</sub>), three mass-labelled (<sup>13</sup>C) perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>6</sub>, and C<sub>8</sub>), three mass-labelled (one <sup>13</sup>C and two <sup>2</sup>H) perfluoro-1-octanesulfonamides, three mass-labelled (<sup>13</sup>C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoethanols, and mass-labelled (<sup>13</sup>C) hexafluoropropylene oxide dimer acid (<sup>13</sup>C<sub>5</sub>-GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual <sup>13</sup>C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual <sup>2</sup>H-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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**Tab. : 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-( <sup>13</sup> C <sub>4</sub> )butanoic acid	MPFBA	2000		1
Perfluoro-n-( <sup>13</sup> C <sub>5</sub> )pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- <sup>13</sup> C <sub>6</sub> )hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )heptanoic acid	M4PFHpA	500		7
Perfluoro-n-( <sup>13</sup> C <sub>8</sub> )octanoic acid	M8PFOA	500		10
Perfluoro-n-( <sup>13</sup> C <sub>9</sub> )nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> )decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- <sup>13</sup> C <sub>7</sub> )undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide	M8FOSA	500		16
N-Methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
N-Methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-Ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		17
2-(N-Methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>4</sub> -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>4</sub> -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)( <sup>13</sup> C <sub>3</sub> )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- <sup>13</sup> C <sub>3</sub> )butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- <sup>13</sup> C <sub>3</sub> )hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )decanesulfonate	M2-8:2FTS	1000	960	13

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 06/22/2023  
(mm/dd/yyyy)



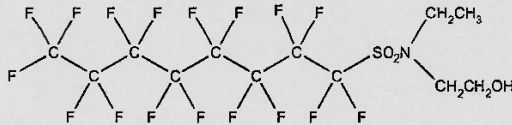
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

n, 09/27/2

**PRODUCT CODE:** N-EtFOSE-M **LOT NUMBER:** NEtFOSE0622M  
**COMPOUND:** 2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:** **CAS #:** 1691-99-2



11409

**MOLECULAR FORMULA:** C<sub>12</sub>H<sub>16</sub>F<sub>17</sub>NO<sub>3</sub>S **MOLECULAR WEIGHT:** 571.25  
**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:** 07/13/2022  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

NEtFOSE0622M (1 of 5)  
rev0

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# WELLINGTON LABORATORIES

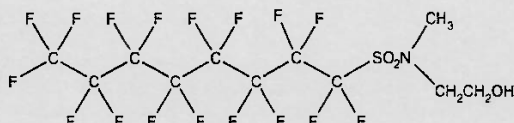
## CERTIFICATE OF ANALYSIS DOCUMENTATION

12 = 9/2/22

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7

**PRODUCT CODE:** N-MeFOSE-M **LOT NUMBER:** NMeFOSE0522M  
**COMPOUND:** 2-(N-methylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:** **CAS #:** 24448-09-7



11410

**MOLECULAR FORMULA:** C<sub>11</sub>H<sub>8</sub>F<sub>17</sub>NO<sub>3</sub>S **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 **Date:** 06/14/2022  
B.G. Chittim, General Manager (mm/dd/yyyy)

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

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

NMeFOSE0522M (1 of 5)  
rev0

12030 A-5  
rec'd: 09/18/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-IS

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

**PRODUCT CODE:** MPFAC-HIF-IS  
**LOT NUMBER:** MPFACHIFIS0723  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 07/05/2023  
**LAST TESTED:** (mm/dd/yyyy) 07/05/2023  
**EXPIRY DATE:** (mm/dd/yyyy) 07/05/2028  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

#### **DESCRIPTION:**

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>, C<sub>6</sub>, C<sub>8</sub>-C<sub>10</sub>) and two mass-labelled (<sup>18</sup>O and <sup>13</sup>C) perfluoroalkanesulfonates (C<sub>8</sub> and C<sub>9</sub>). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per <sup>13</sup>C or >94% per <sup>18</sup>O.

#### **DOCUMENTATION/ DATA ATTACHED:**

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### **ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
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Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

MPFACHIFIS0723 (1 of 5)  
rev0

7.9.1  
7

**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- <sup>13</sup> C <sub>3</sub> )butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- <sup>13</sup> C <sub>5</sub> )nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )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( <sup>18</sup> O <sub>2</sub> )sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanesulfonate	MPFOS	500	479	6

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 07/07/2023  
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 10/13/23 09:50  
(mm/dd/yy 24:00)  
 Started

Method: EPA 1633 Draft (OSM) List 40

Date/Time: 10/15/23 15:10  
(mm/dd/yy 24:00)  
 Finished

Balance ID: \_\_\_\_\_

Batch#: OP99514

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 99514 MB	/	500	7	N/A	25		5	AG	I-5
OP 99514 BS	/	500	7			200			↓
OP 99514 LLBS	/	500	7			60			I-5
FC10326-1	2	550	7						
	2	530							
	3	500							
	4	550							
	5	500	7	N/A	25		5	AG	
<div style="border: 1px solid black; padding: 10px; transform: rotate(-15deg); display: inline-block;">                     GH 10/13/23                 </div>									
OPFC10326-1MS	3	540	7	N/A	25	200	5	AG	
OP MSD									
OPFC10326-4DUP	3	560	7	N/A	25		5	AG	

Comments:

EIS (SURR) ID: 12031 I-5 Conc: 250-5000 ng/ml Exp. Date: 10/08/24 Inj. By: GH Ver. By: HG  
 SPIKE 1 ID: LCMS 2202B Conc: VARIED Exp. Date: 04/04/24 Inj. By: GH Ver. By: HG  
 EIS (SURR) ID: 12062 H-5 Conc: 250-5000 ng/ml Exp. Date: 10/01/24 Inj. By: GH Ver. By: HG  
 SPIKE 2 ID: 12062 H-5 Conc: 250-5000 ng/ml Exp. Date: 10/01/24 Inj. By: GH Ver. By: HG  
 NIS (ISTD) ID: 12030 D-E Conc: 250-1000 ng/ml Exp. Date: 10/10/24 Inj. By: rw Ver. By: rw

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

Methanol Lot # 232031 1% NH4OH MeOH PF 656 SPE Lot # 6752463-01  
 Water Lot# OP99443 DIH20 0.3M Formic Acid PF 652 Syringe filter Lot # \_\_\_\_\_  
 Acetic Acid# 194003 3% NH4OH Sol \_\_\_\_\_ pH paper Lot# 205423  
 0.1M Formic PF 657 5% Formic Acid \_\_\_\_\_ Carbon Lot# 99687

Relinquished By: Gabriella Jankot  
 Accepted By: MW

Date: 10/13/23  
 Date: 10/15/23

7.10.1  
7