

AR226-1776-9

Analytical Report

Air Sampling Fluorochemical Report

DuPont Washington Works – Air Sampling Program Round 10

Exygen Research Report No. L0001667

Testing Laboratory

Exygen Research
3058 Research Drive
State College, PA 16801

Requester

Michael D Aucoin
URS Corporation
Barley Mill Plaza
Building 27 Room 1260
Lancaster Pike and Rt 141
Wilmington, DE 19805

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2004 MAY 29 AM 9:00

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY EXYGEN RESEARCH

Summary

Seven solid media samples were received by Centre Analytical Laboratories, Inc. (dba Exygen Research) (Exygen) from DuPont Corporation. The media represent samples of air collected on OVS tubes. Please see Table 1 for a completed listing of samples received and field air volumes collected. Results are not reported for sample WWK-A-AMS2-E10 because of sampler malfunction.

The samples were analyzed for Perfluorooctanoic Acid (C8 Acid) using liquid chromatography / mass spectrometry (LCMS). The method employed is entitled "Method of Analysis for the Determination of Perfluorooctanoic Acid (PFOA) in OVS Airtubes by LCMS" (James Miller, Exygen Research, February 17, 2003).

The OVS tubes were separated into three fractions for specific fluorochemical analysis. Fraction A consisted of the filter, backing material and plastic ring. Fraction B contained the first bed of XAD resin and the PUF backing. Fraction C contained the second bed of XAD resin and PUF backing. Fractions A and B were extracted with 1 mL of methanol. Fraction C was not analyzed but saved for possible future analysis. Perfluorodecanoic Acid (C10 Acid) was added as a surrogate spike to each fraction prior to extraction.

Instrument operating conditions can be found at the beginning of each analytical run. Raw instrument data is given in Appendix A. Chain-of-custody information can be found in Appendix B.

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Results Summary

Request #	Air Volume Sampled (L)	C8 Acid (mg/m3)
WWK-A-AMS1-E10 A	1447	< 0.00007
WWK-A-AMS1-E10 B	1447	< 0.00007
WWK-A-AMS1-E10 C	1447	NA
WWK-A-AMS1-E10 (Total)		< 0.00014
WWK-A-AMS3-E10 A	1413	0.0004
WWK-A-AMS3-E10 B	1413	< 0.00007
WWK-A-AMS3-E10 C	1413	NA
WWK-A-AMS3-E10 (Total)		0.0004
WWK-A-AMS4-E10 A	1410	< 0.00007
WWK-A-AMS4-E10 B	1410	< 0.00007
WWK-A-AMS4-E10 C	1410	NA
WWK-A-AMS4-E10 (Total)		< 0.00014
WWK-A-AMS5-E10 A	1451	0.0003
WWK-A-AMS5-E10 B	1451	< 0.00007
WWK-A-AMS5-E10 C	1451	NA
WWK-A-AMS5-E10 (Total)		0.0003
WWK-A-AMS6-E10 A	1456	< 0.00007
WWK-A-AMS6-E10 B	1456	< 0.00007
WWK-A-AMS6-E10 C	1456	NA
WWK-A-AMS6-E10 (Total)		< 0.00014

NA – Not Analyzed. B fraction was below the quantitation limit, therefore the backup fraction does not require analysis.

1. “<” is defined as not detected at or above the reported level.
2. Sample results have not been corrected for blank results or control spike recoveries.
3. Please note the following descriptions of the OVS sample tube fractions:

Fraction	Fraction Description
A	Frit Extract
B	1st set beads extract
C	2nd set beads extract (not analyzed)

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QC Data

LCS

Please note: One control sample was spiked with each perfluorooctanoic acid to give a final concentration of 500 ppb. Air was pulled through the tube at a rate of 1-liter per minute for one hour (60 liters of air). The fractions were separated and analyzed. The acceptable range for control recovery is 75-125%.

Request #	C8 Acid (amount spiked - ppb)	C8 Acid (amount recovered - ppb)	C8 Acid (percent recovery)
Control 1	500	619	124

Blanks

Request #	Vol. Of Air (L)	C8 Acid (ug/fraction)
WWK-A-AMSFBLK-E10 A	0	0.74
WWK-A-AMSFBLK-E10 B	0	< 0.10

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Surrogates

A surrogate spike (C10 Acid) was added to all OVS tubes to give a final concentration of 500 ppb in the extract. Surrogate spike recoveries are given in the following table. There are no set criteria for surrogate spike recoveries. Advisory ranges are 75-125%.

Sample #	Amount Spiked (ppb)	Amount Recovered (ppb)	Percent Recovery (%)
WWK-A-AMSFBLK-E10 A	500	569	114
WWK-A-AMSFBLK-E10 B	500	554	111
WWK-A-AMS1-E10 A	500	540	108
WWK-A-AMS1-E10 B	500	594	119
WWK-A-AMS3-E10 A	500	526	105
WWK-A-AMS3-E10 B	500	594	119
WWK-A-AMS4-E10 A	500	517	103
WWK-A-AMS4-E10 B	500	335	67*
WWK-A-AMS5-E10 A	500	520	104
WWK-A-AMS5-E10 B	500	491	98
WWK-A-AMS6-E10 A	500	527	105
WWK-A-AMS6-E10 B	500	391	78
Control Spike A	500	522	104
Control Spike B	500	337	67*

* Surrogate recovery outside of advisory range.

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Calculations

Request #	Vol. Of Air (L)	C8 Acid (raw-ppb)	C8 Acid (ug/fraction)	C8 Acid (mg/m3)
WWK-A-AMSFBLK-E10 A	0	738	0.74	
WWK-A-AMSFBLK-E10 B	0	12	< 0.10	
WWK-A-AMS1-E10 A	1447	< 10	< 0.10	< 0.00007
WWK-A-AMS1-E10 B	1447	< 10	< 0.10	< 0.00007
WWK-A-AMS3-E10 A	1413	615	0.62	0.0004
WWK-A-AMS3-E10 B	1413	< 10	< 0.10	< 0.00007
WWK-A-AMS4-E10 A	1410	< 10	< 0.10	< 0.00007
WWK-A-AMS4-E10 B	1410	< 10	< 0.10	< 0.00007
WWK-A-AMS5-E10 A	1451	396	0.40	0.0003
WWK-A-AMS5-E10 B	1451	< 10	< 0.10	< 0.00007
WWK-A-AMS6-E10 A	1456	< 10	< 0.10	< 0.00007
WWK-A-AMS6-E10 B	1456	< 10	< 0.10	< 0.00007
Control Spike A	0	619	0.62	
Control Spike B	0	< 10	< 0.10	

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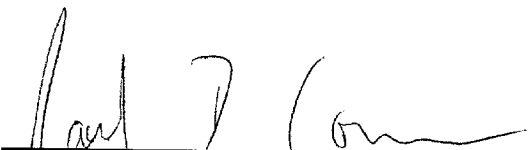
Example Calculation

For sample WWK-A-AMS5-E10 A C8 Acid,

$$= [396 \text{ ng/ml of C8 Acid} \times (1 \text{ mL}) \times (1 \text{ ug} / 1000 \text{ ng}) \times (1 \text{ mg} / 1000 \text{ ug})] / [(1451 \text{ L}) \times (1 \text{ m}^3 / 1000 \text{ L})]$$

$$= 0.0003 \text{ mg} / \text{m}^3$$

Signatures


Paul Connolly, LCMS Team Leader

2/27/04
Date


John M. Flaherty, Vice President

3/6/04
Date

Other Lab Members Contributing to Data

James Miller

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ANALYTICAL DATA REVIEW SHEET

LC/MS

James R. Miller
Analyst

James R. Miller 2/26/04
Signature/Date

John M Flaherty
Reviewed by

John M Flaherty 2/27/04
Signature/Date

0008

000459

LC/MS SYSTEM AND OPERATING CONDITIONS

Client: Dupont

EXYGEN STUDY: L0001667

Instrument: Hewlett-Packard 1100 LC/MSD (LC/MS 3)
API-ES Interface - Negative SIM mode
Nitrogen: 10 L/min at 300°C
Fragmentor: Variable; Vcap: 3500V

Computer: Hewlett-Packard Kayak workstation

Software: Microsoft Windows NT 4.0
Agilent ChemStation Version A.08.03

HPLC Equipment: HP G1379A Solvent Degasser
HP G1311A Quaternary Pump
HP G1313A Autosampler
HP G1316A Column Thermostat
HP G1946A MSD

HPLC Column: Thermo Hypersil-Keystone Betasil C18, 30 x 2.0 mm x 3µm
Column Temp.: 35° C
Mobile Phase (A): 2mM Ammonium acetate in OmniSolv Water
Mobile Phase (B): HPLC grade Methanol

<u>Time</u>	<u>% A</u>	<u>% B</u>
0.0	70	30
6.0	10	90
10.0	10	90
10.0	STOP	STOP

Post Time = 4 min.

Total run time = 14 min.

Flow Rate: 0.3 mL/min
Injected Volume: 5 µL

0009

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000460

Ions monitored:

Analyte	Ion (m/z)
C8 Acid (PFOA)	369
C10 Surrogate	469

Extraction Date: January 21, 2004

Analyst:

James R. Miller *JRM* 1/21/04
Exygen Research
3058 Research Drive, State College, PA 16801
Phone: (814) 272-1039, FAX: (814) 231-1580

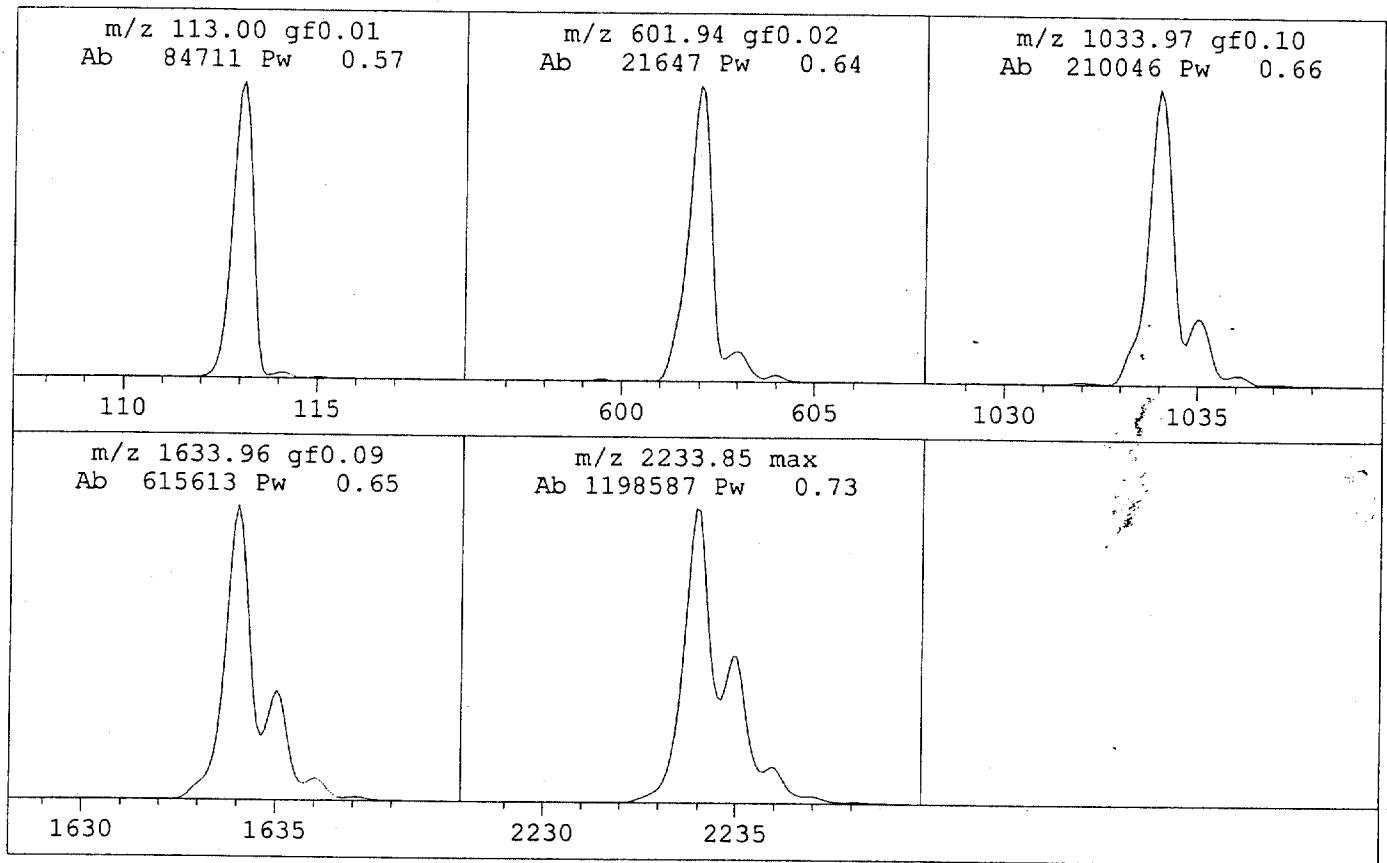
0010

Page 2 of 2

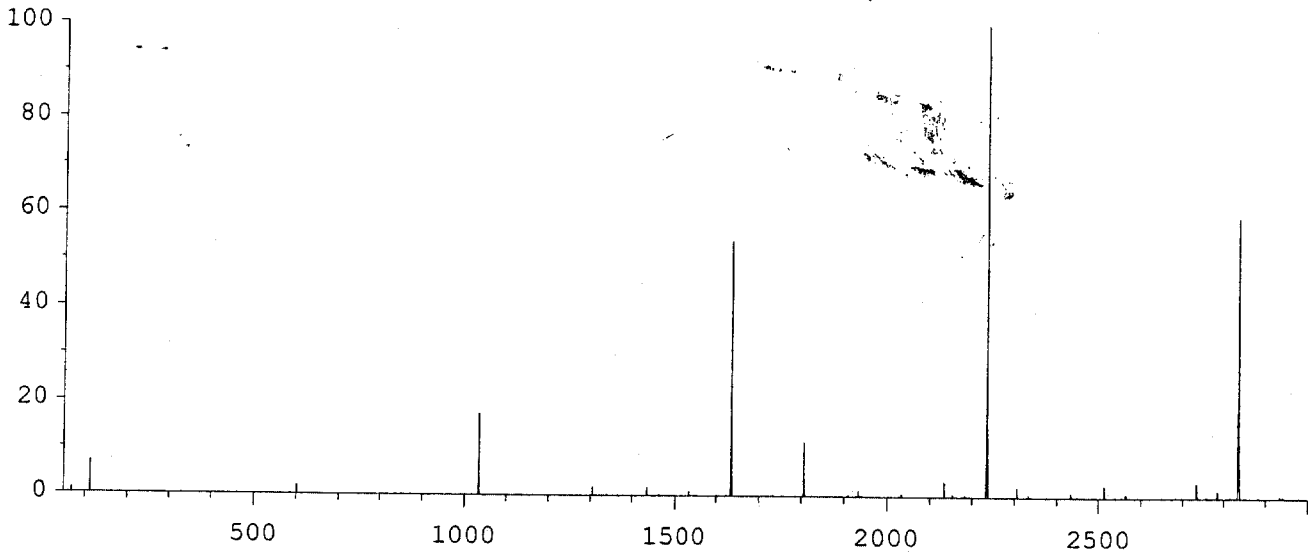
000461

Instrument : LCMS3
Wed Jan 07 09:11:11 2004

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C:\HPCHEM\1\1946TUNE\ATUNES.TUN



Scan: 50.00 - 3000.00 Samples: 8 Thresh: 0 Step: 0.10
29501 peaks Base: 2233.85 Abundance: 1132032 F Raw,Gauss 0.3



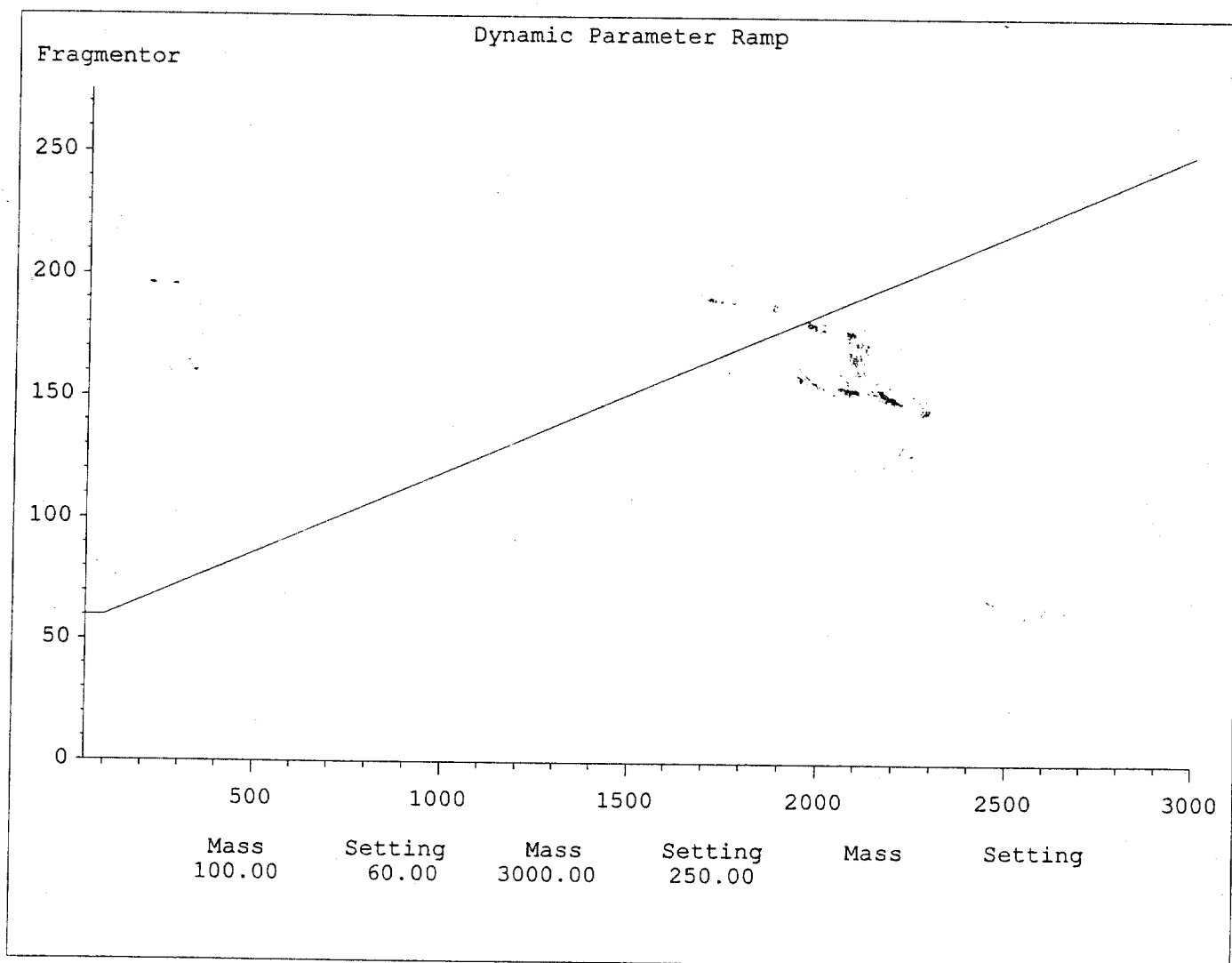
m/z	gf	Abund	Rel Abund	Iso m/z	Iso Abund	Iso Ratio
112.99		80352	100.00	113.98	1768	2.20
602.00		21400	26.63	602.99	3222	15.06
1034.05		197568	245.88	1034.95	43112	21.82
1633.95		610624	759.94	1634.95	217216	35.57
2233.85		1132032	1408.84	2234.85	550720	48.65

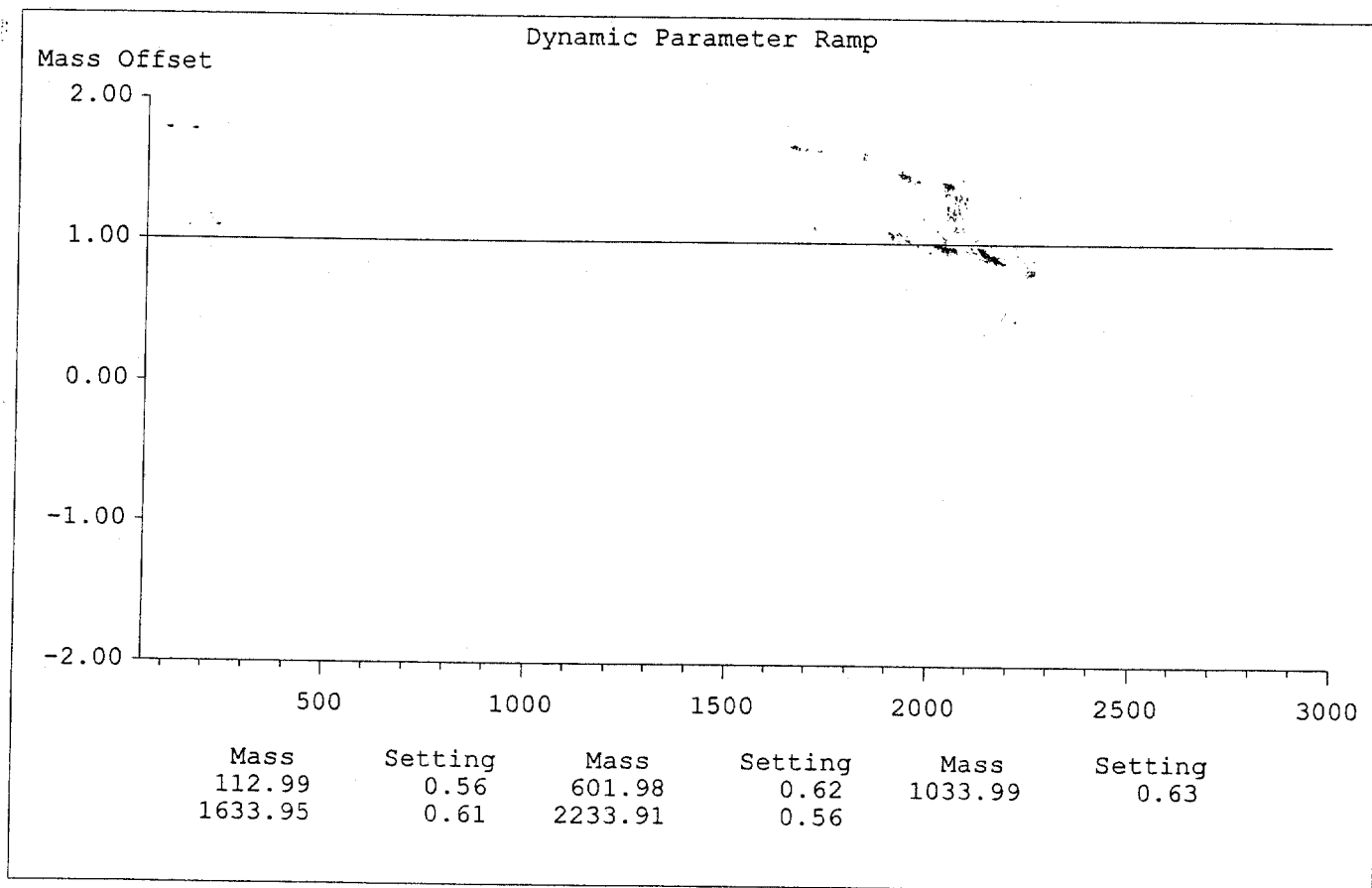
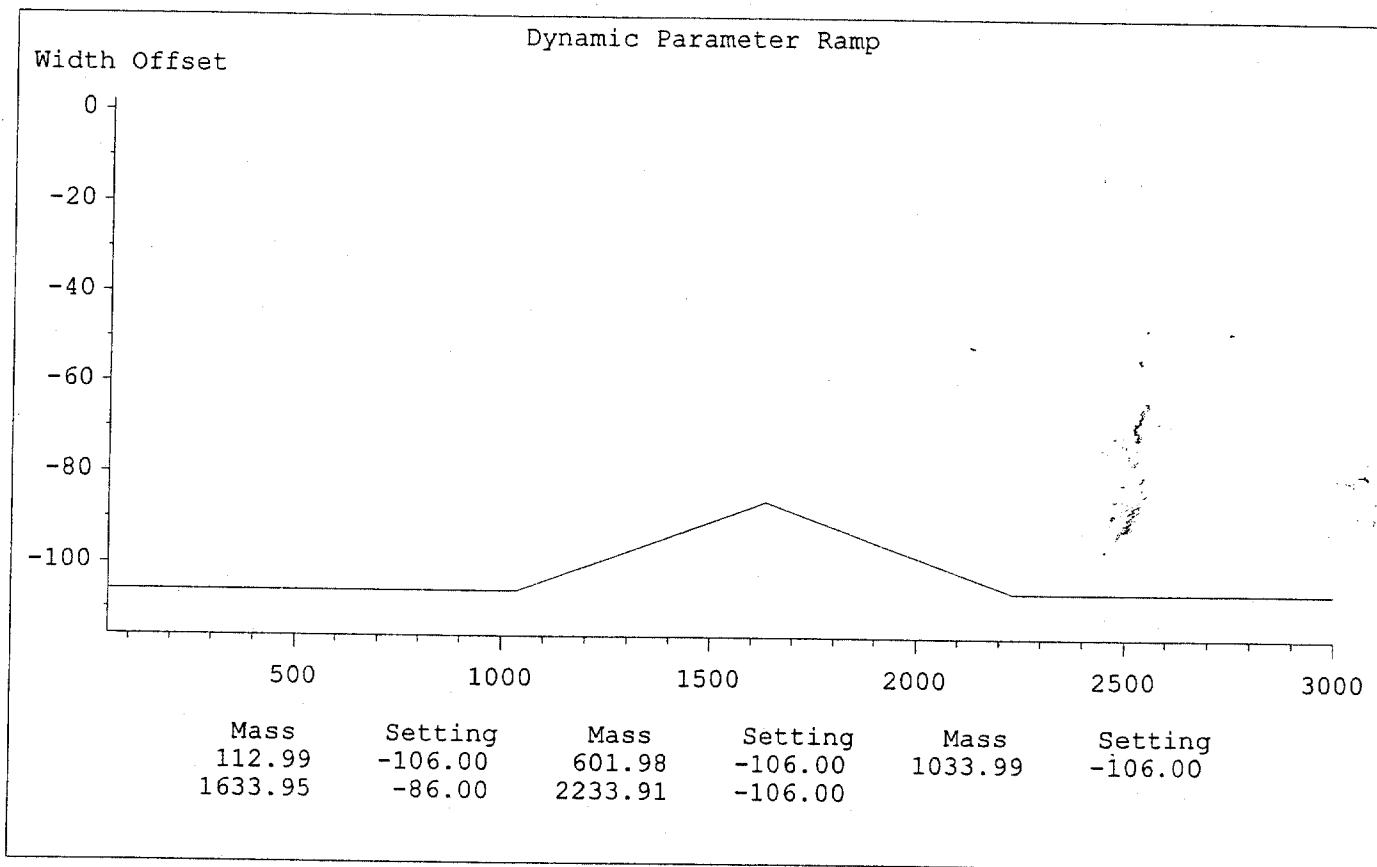
0011

000462

Mode: API-ES Polarity: NEG

Fragment	VAR	WidthGain	-128
Skim2	6.0	WidthOffs	VAR
Lens1	-4.0	MassGain	-36.30
Lens2	18	MassOffs	VAR
Iris	272		
		Energy	5.0
		OpolPeak	300
		OpolKnee	316
Gain	3.0	QuadDC	0.00
EMV	2358	Samples	8
VCap	4000	Averages	1
		StepSize	0.10
Status:			
CapCur	55	DryingGas	6.0
ChamCur	0.82	Gas Temp	300
Quad Temp	99	Neb Pres	20





Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
====	=====	=====	=====	====	=====	=====	=====
1	Vial 1	STD 50 ppb	FC8-10	1	Sample		
2	Vial 1	STD 50 ppb	FC8-10	1	Calib		
3	Vial 2	STD 100 ppb	FC8-10	1	Calib		
4	Vial 3	STD 250 ppb	FC8-10	1	Calib		
5	Vial 4	STD 500 ppb	FC8-10	1	Calib		
6	Vial 5	STD 750 ppb	FC8-10	1	Calib		
7	Vial 6	STD 1000 ppb	FC8-10	1	Calib		
8	Vial 7	STD 1500 ppb	FC8-10	1	Calib		
9	Vial 92	solvent blank	FC8-10	1	Sample		
10	Vial 11	L1667-22	FC8-10	1	Sample		
11	Vial 12	L1667-23	FC8-10	1	Sample		
12	Vial 13	L1667-1	FC8-10	1	Sample		
13	Vial 14	L1667-2	FC8-10	1	Sample		
14	Vial 15	L1667-4	FC8-10	1	Sample		
15	Vial 16	L1667-5	FC8-10	1	Sample		
16	Vial 17	L1667-7	FC8-10	1	Sample		
17	Vial 18	L1667-8	FC8-10	1	Sample		
18	Vial 19	L1667-10	FC8-10	1	Sample		
19	Vial 20	L1667-11	FC8-10	1	Sample		
20	Vial 4	STD 500 ppb	FC8-10	1	Sample		
21	Vial 92	solvent blank	FC8-10	1	Sample		
22	Vial 21	L1667-13	FC8-10	1	Sample		
23	Vial 22	L1667-14	FC8-10	1	Sample		
24	Vial 23	L1667-16	FC8-10	1	Sample		
25	Vial 24	L1667-17	FC8-10	1	Sample		
26	Vial 25	L1667-19	FC8-10	1	Sample		
27	Vial 26	L1667-20	FC8-10	1	Sample		
28	Vial 4	STD 500 ppb	FC8-10	1	Sample		
29	Vial 92	solvent blank	FC8-10	1	Sample		
30	Vial 1	STD 50 ppb	FC8-10	1	Calib		
31	Vial 2	STD 100 ppb	FC8-10	1	Calib		
32	Vial 3	STD 250 ppb	FC8-10	1	Calib		
33	Vial 4	STD 500 ppb	FC8-10	1	Calib		
34	Vial 5	STD 750 ppb	FC8-10	1	Calib		
35	Vial 6	STD 1000 ppb	FC8-10	1	Calib		
36	Vial 7	STD 1500 ppb	FC8-10	1	Calib		

Calibration Part:

Line	Location	SampleName	Method	CalLev	Update RF	Update RT	Interval
====	=====	=====	=====	=====	=====	=====	=====
2	Vial 1	STD 50 ppb	FC8-10	1	Replace	Average	-2
3	Vial 2	STD 100 ppb	FC8-10	2	Replace	Average	-2
4	Vial 3	STD 250 ppb	FC8-10	3	Replace	Average	-2
5	Vial 4	STD 500 ppb	FC8-10	4	Replace	Average	-2
6	Vial 5	STD 750 ppb	FC8-10	5	Replace	Average	-2
7	Vial 6	STD 1000 ppb	FC8-10	6	Replace	Average	-2
8	Vial 7	STD 1500 ppb	FC8-10	7	Replace	Average	-2
30	Vial 1	STD 50 ppb	FC8-10	1	Average	Average	-2
31	Vial 2	STD 100 ppb	FC8-10	2	Average	Average	-2
32	Vial 3	STD 250 ppb	FC8-10	3	Average	Average	-2
33	Vial 4	STD 500 ppb	FC8-10	4	Average	Average	-2
34	Vial 5	STD 750 ppb	FC8-10	5	Average	Average	-2
35	Vial 6	STD 1000 ppb	FC8-10	6	Average	Average	-2
36	Vial 7	STD 1500 ppb	FC8-10	7	Average	Average	-2

=====
Calibration Table
=====

Calib. Data Modified : Thursday, February 26, 2004 8:41:06 AM

Calculate : External Standard
Based on : Peak AreaRel. Reference Window : 5.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 5.000 %
Abs. Non-ref. Window : 0.000 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaksCurve Type : Linear
Origin : Ignored
Weight : EqualRecalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :

Printout of recalibrations within a sequence:

Calibration Table after Recalibration

Normal Report after Recalibration

If the sequence is done with bracketing:

Results of first cycle (ending previous bracket)

Signal 1: MSD1 369, EIC=368.7:369.7

Signal 2: MSD1 469, EIC=468.7:469.7

RetTime	Lvl	Amount	Area	Amt/Area	Ref Grp	Name
[min]	Sig	[ppb]				
7.256	1	1	50.00000	2.92183e4	1.71126e-3	1 C8 Acid
		2	100.00000	5.68997e4	1.75748e-3	
		3	250.00000	1.53989e5	1.62349e-3	
		4	500.00000	2.86689e5	1.74405e-3	
		5	750.00000	4.10786e5	1.82577e-3	
		6	1000.00000	5.27241e5	1.89666e-3	
		7	1500.00000	7.52648e5	1.99296e-3	
8.132	2	1	50.00000	7.91142e4	6.31998e-4	1 C10 Surrogate
		2	100.00000	1.53861e5	6.49935e-4	
		3	250.00000	3.99620e5	6.25594e-4	
		4	500.00000	7.28651e5	6.86199e-4	
		5	750.00000	1.02750e6	7.29926e-4	
		6	1000.00000	1.30010e6	7.69169e-4	
		7	1500.00000	1.80579e6	8.30660e-4	

More compound-specific settings:

Compound: C8 Acid

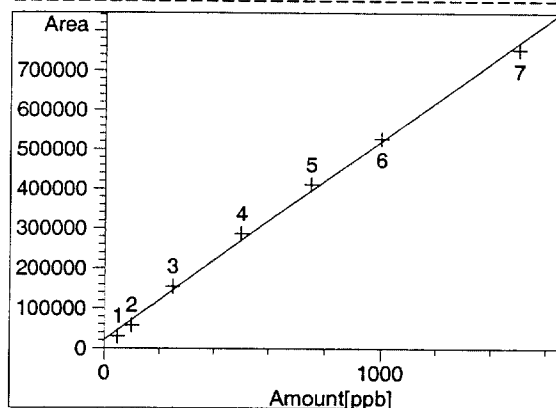
Time Window : From 7.083 min To 8.084 min

Compound: C10 Surrogate

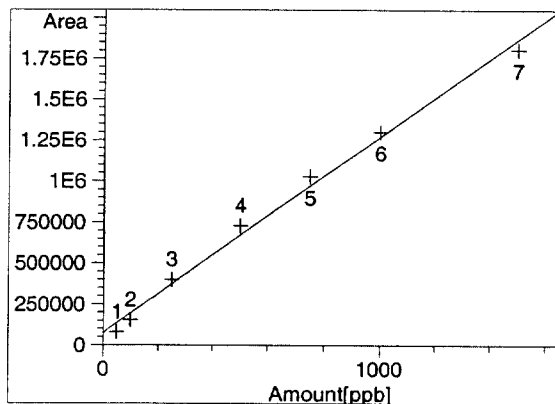
Time Window : From 7.936 min To 8.741 min

=====
Peak Sum Table
=====***No Entries in table***
=====

Calibration Curves



C8 Acid at exp. RT: 7.256
 MSD1 369, EIC=368.7:369.7
 Correlation: 0.99836
 Residual Std. Dev.: 16624.39920
 Formula: $y = mx + b$
 m: 500.04793
 b: 20324.66171
 x: Amount [ppb]
 y: Area



C10 Surrogate at exp. RT: 8.132
 MSD1 469, EIC=468.7:469.7
 Correlation: 0.99659
 Residual Std. Dev.: 57325.18366
 Formula: $y = mx + b$
 m: 1195.75543
 b: 76037.28359
 x: Amount [ppb]
 y: Area

Sample Name:STD 50 ppb
Sample Info:Warm Up Injection

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12075253\A932864\FC000001.D

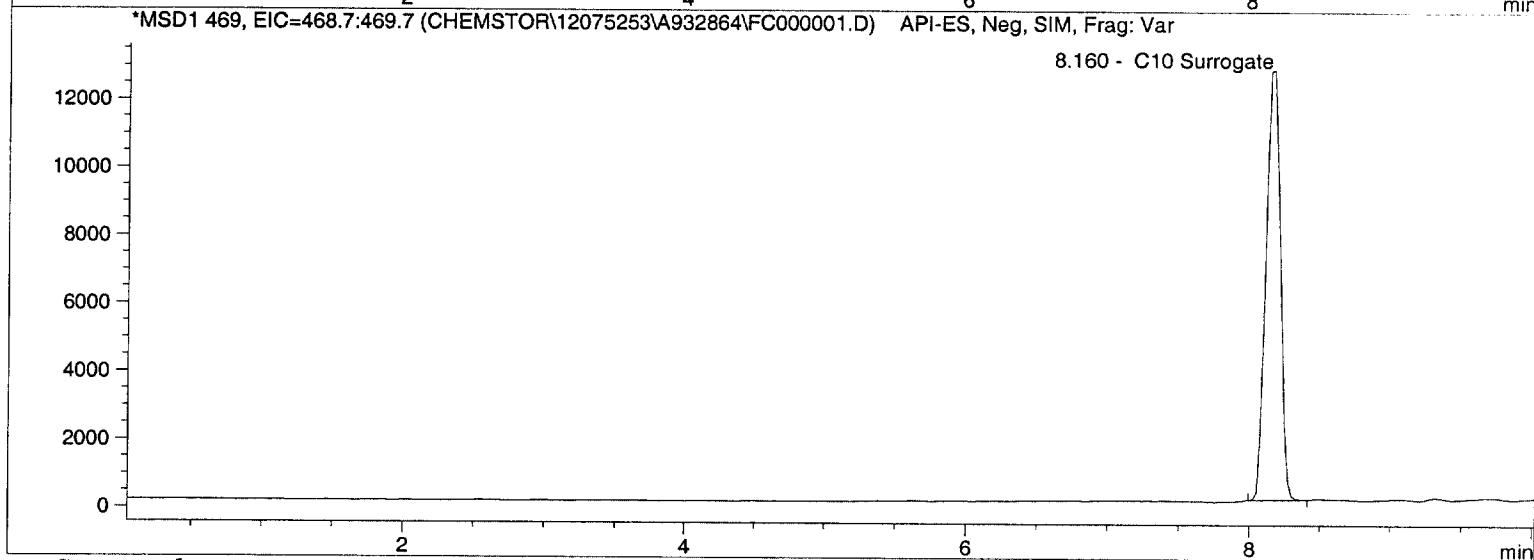
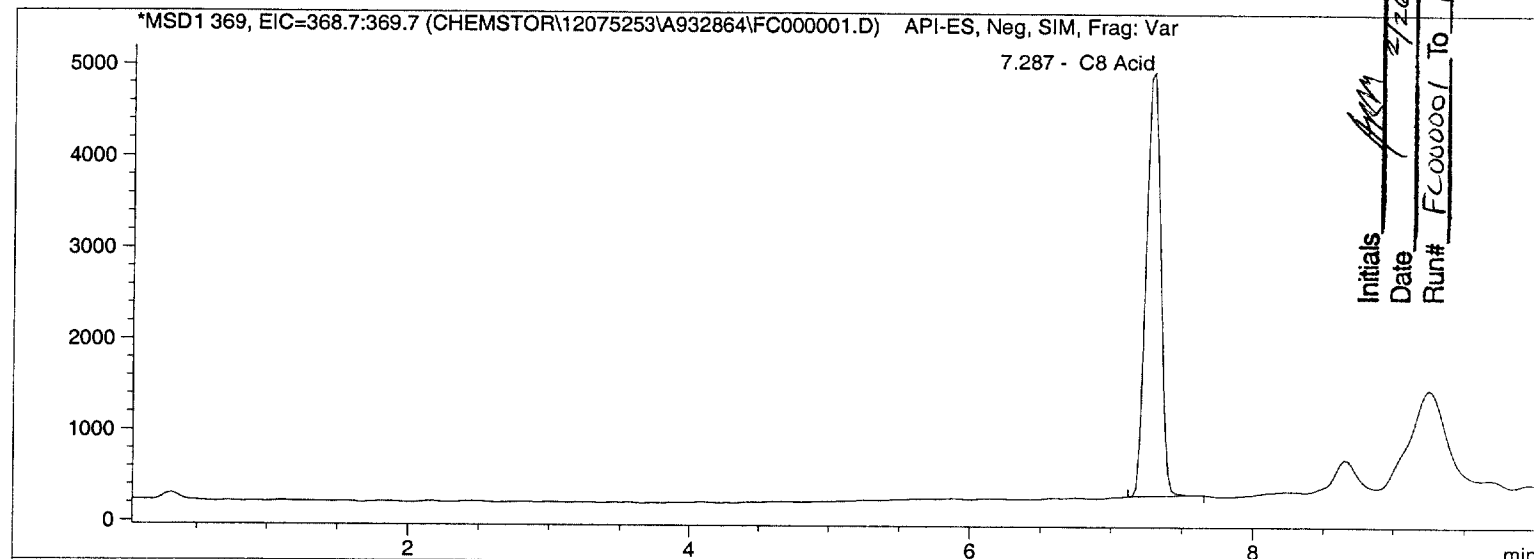
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Injection Date	: 1/21/04	5:14:24 PM	Seq Line	:	1
Acq Operator	: jmillier		Vial No.	:	1
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

Initials *jm*
Date 2/26/04
Run# FC000001 To FC000036



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	33510.20	26.37	7.287	MSD1 369, EIC=368.7:369.7
C10 Surrogate	90304.16	11.93	8.160	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0018

Sample Name:STD 50 ppb

Sample Info:

1

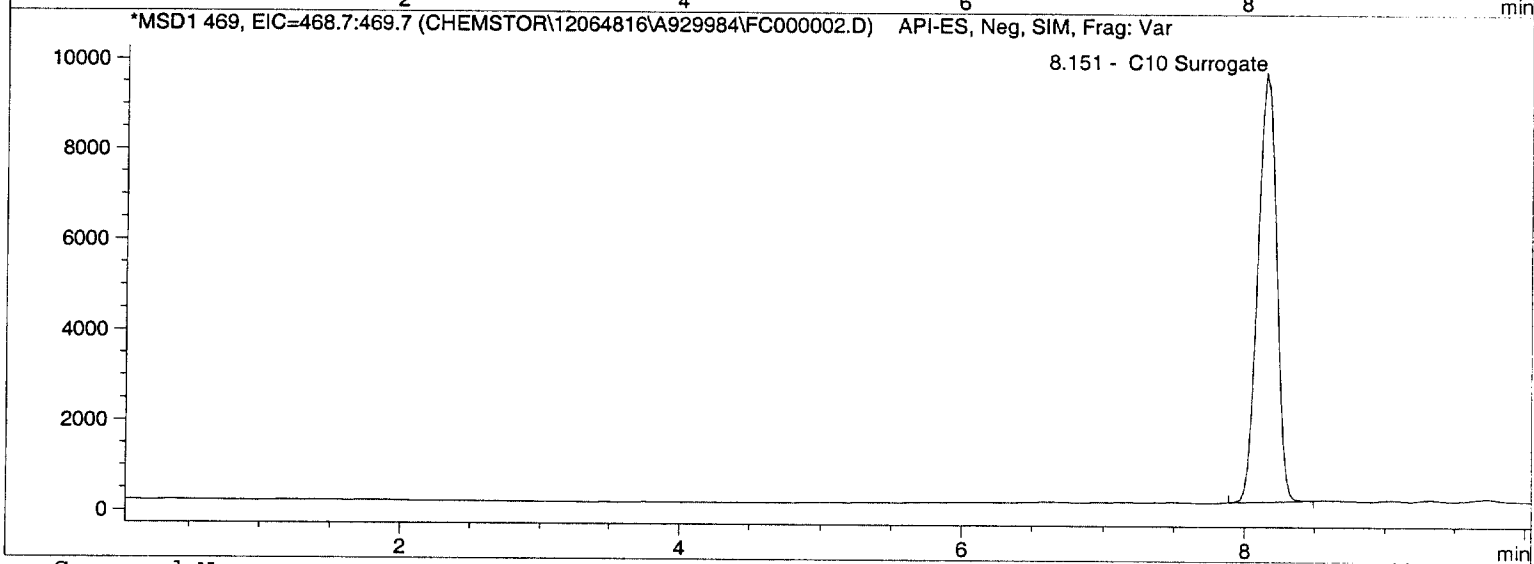
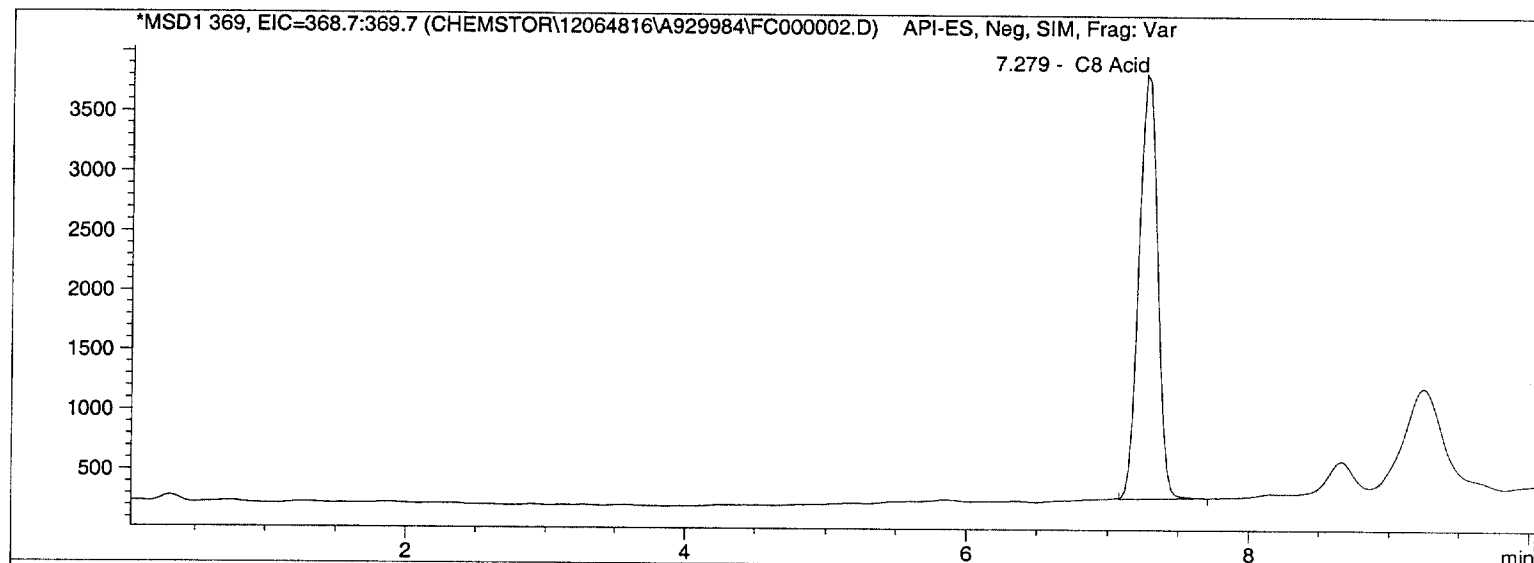
Data file :C:\HPCHEM\1\DATA\Chemstor\12064816\A929984\FC000002.D

=====

Injection Date	: 1/21/04	5:29:55 PM	Seq Line	:	2
Acq Operator	: jmillier		Vial No.	:	1
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	32905.32	25.16	7.279	MSD1 369, EIC=368.7:369.7
C10 Surrogate	86693.89	8.91	8.151	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0019

Sample Name:STD 100 ppb

Sample Info:

1

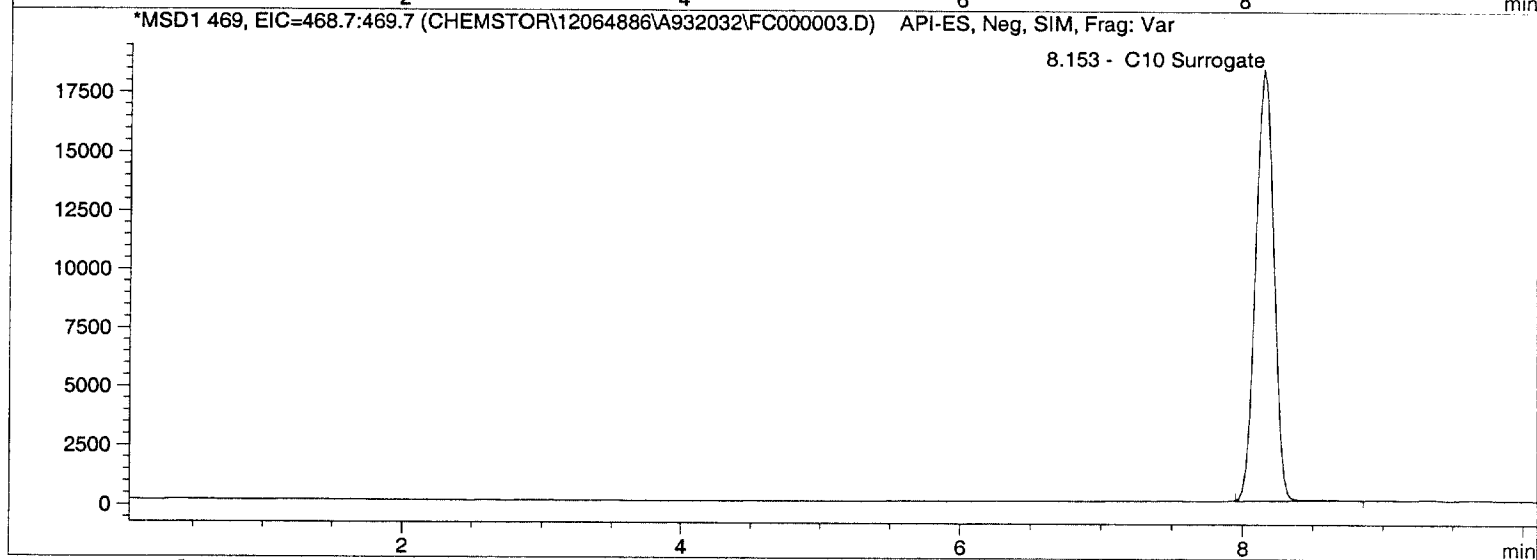
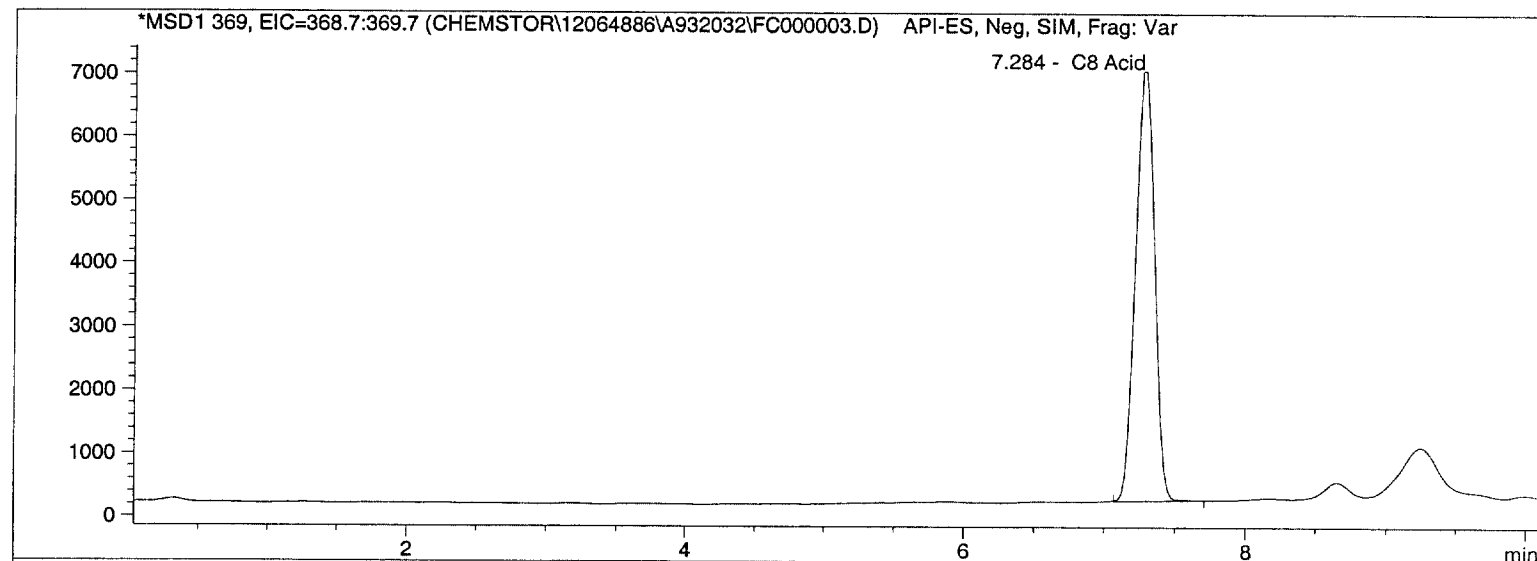
Data file :C:\HPCHEM\1\DATA\Chemstor\12064886\A932032\FC000003.D

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Injection Date	: 1/21/04	5:45:28 PM	Seq Line	:	3
Acq Operator	: jmilller		Vial No.	:	2
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	63015.27	85.37	7.284	MSD1 369, EIC=368.7:369.7
C10 Surrogate	167683.17	76.64	8.153	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0020

Sample Name:STD 250 ppb

Sample Info:

1

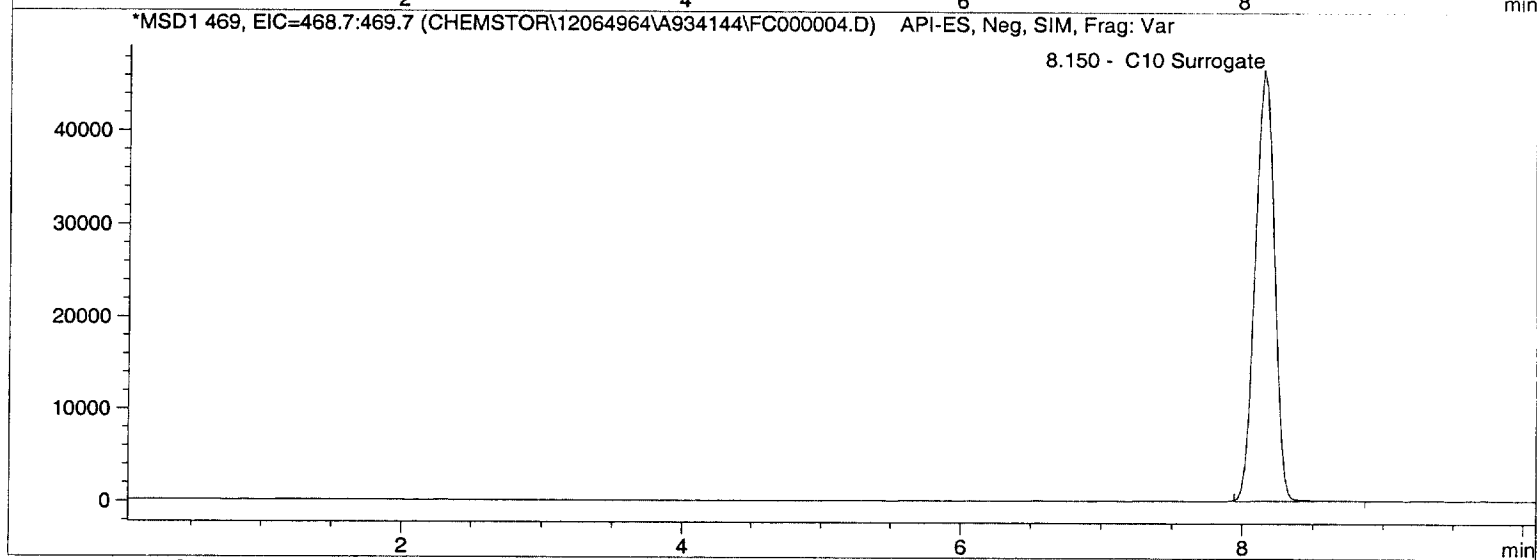
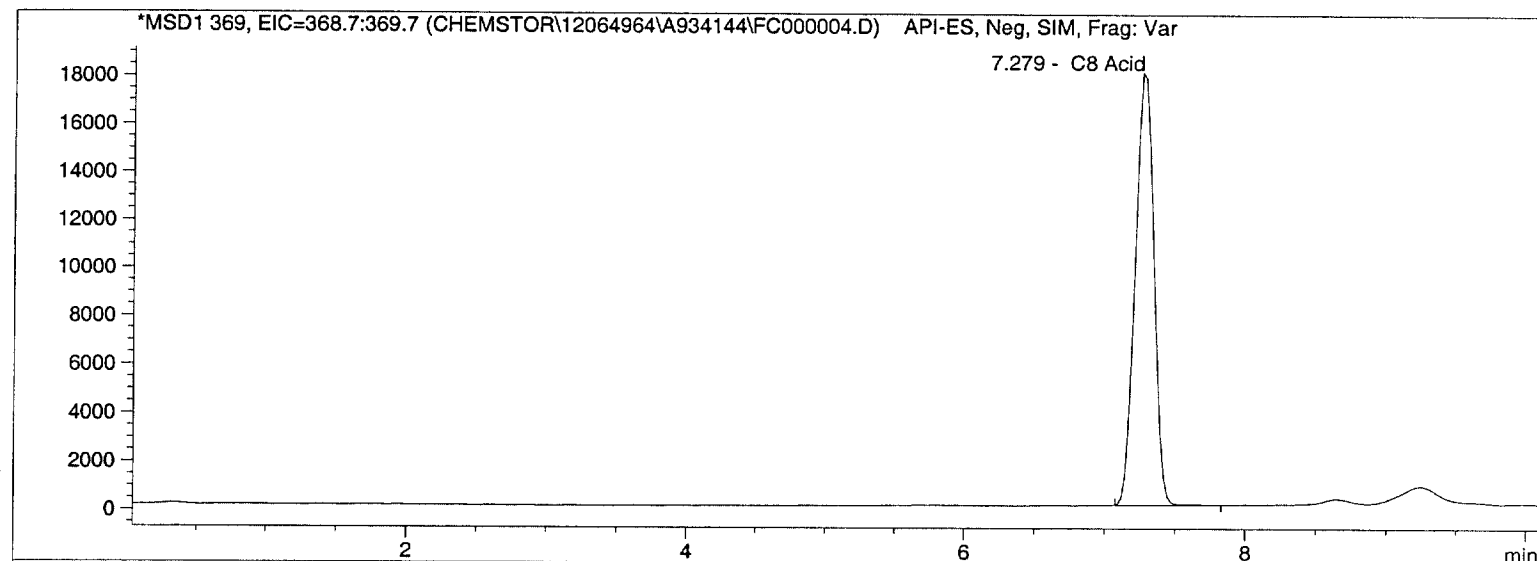
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Injection Date	: 1/21/04	6:00:59 PM	Seq Line	:	4
Acq Operator	: jmillier		Vial No.	:	3
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	165912.75	291.15	7.279	MSD1 369, EIC=368.7:369.7
C10 Surrogate	427822.09	294.19	8.150	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0021

Sample Name:STD 500 ppb

Sample Info:

1

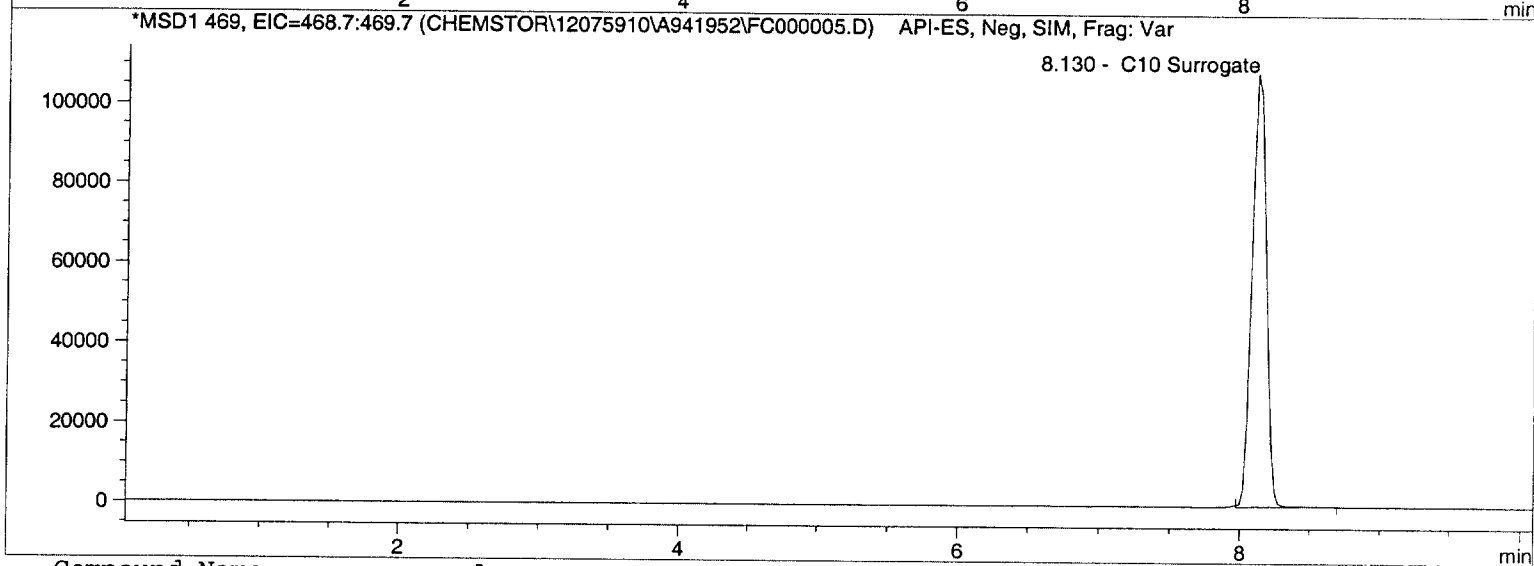
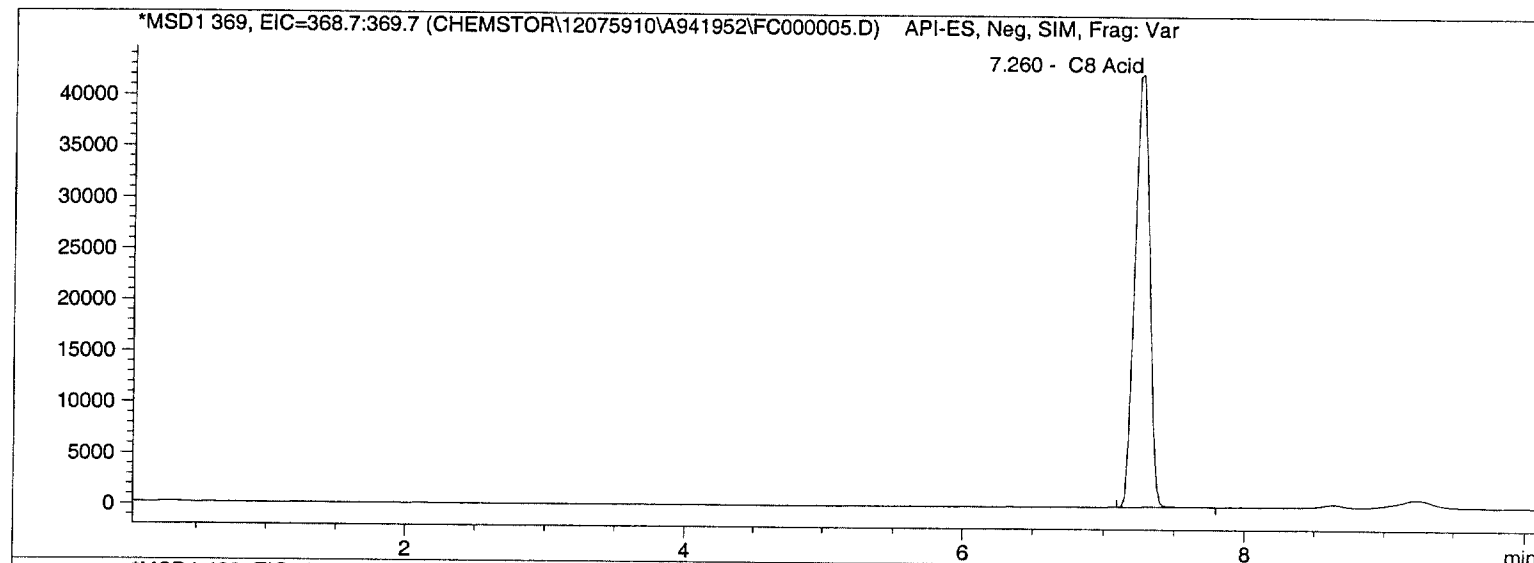
Data file :C:\HPCHEM\1\DATA\Chemstor\12075910\A941952\FC000005.D

=====

Injection Date	: 1/21/04	6:16:32 PM	Seq Line	:	5
Acq Operator	: jmillar		Vial No.	:	4
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	305549.25	570.39	7.260	MSD1 369, EIC=368.7:369.7
C10 Surrogate	770445.06	580.73	8.130	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0022

Sample Name:STD 750 ppb

Sample Info:

1

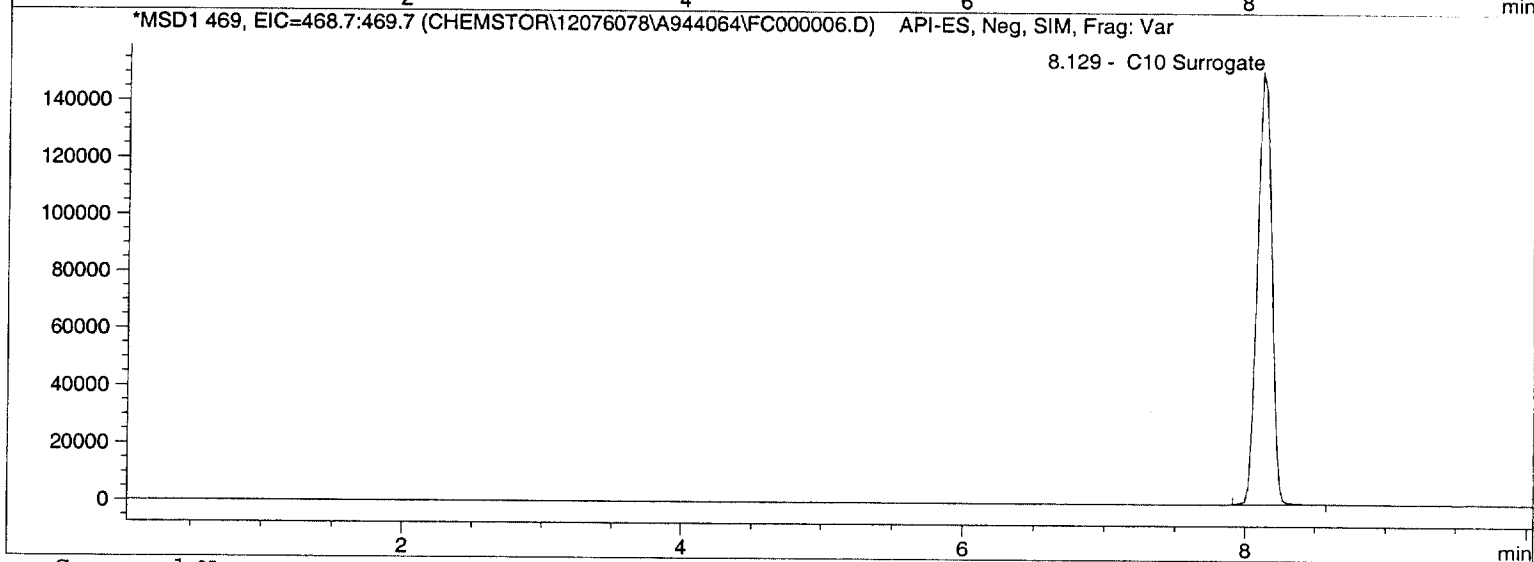
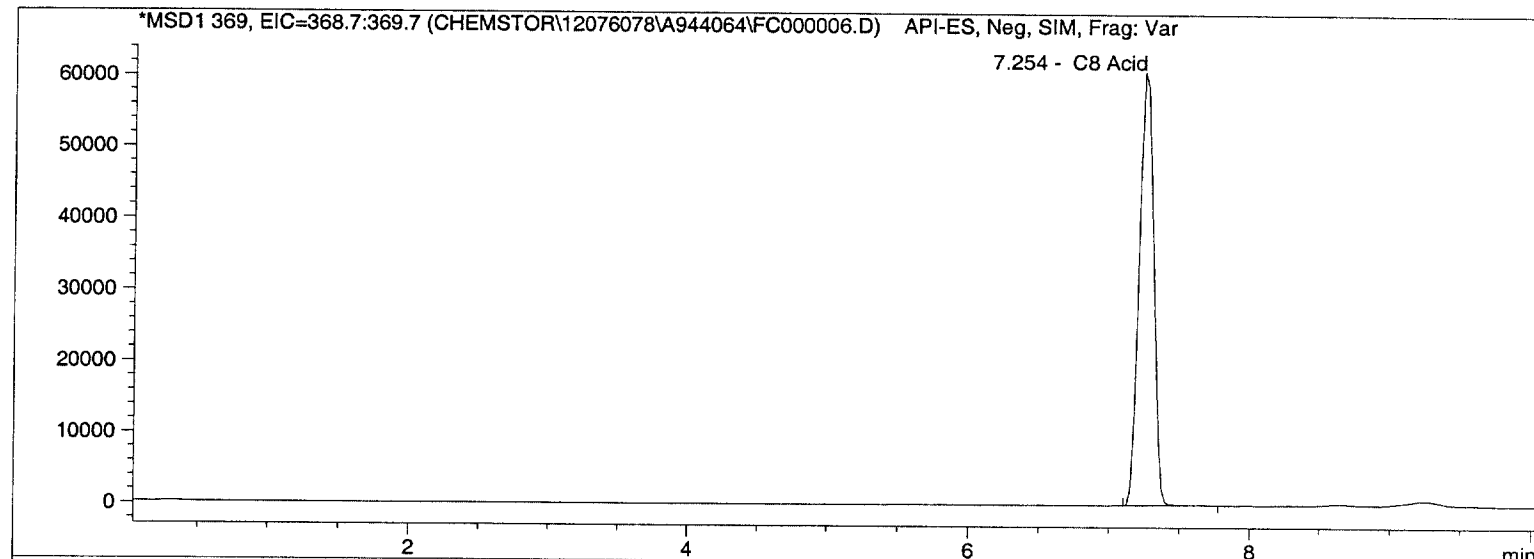
Data file :C:\HPCHEM\1\DATA\Chemstor\12076078\A944064\FC000006.D

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Injection Date	: 1/21/04	6:32:07 PM	Seq Line	:	6
Acq Operator	: jmilller		Vial No.	:	5
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	434924.00	829.12	7.254	MSD1 369, EIC=368.7:369.7
C10 Surrogate	1085061.12	843.84	8.129	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0023

Sample Name:STD 1000 ppb

Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12076271\A946176\FC000007.D

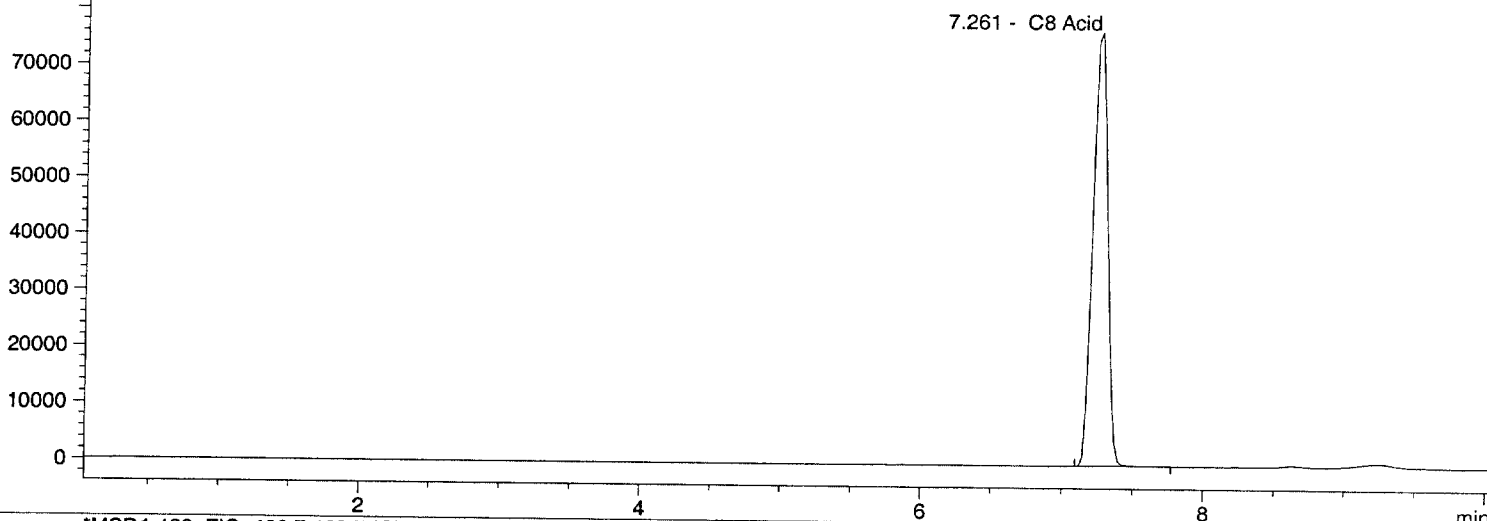
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Injection Date	: 1/21/04	6:47:42 PM	Seq Line	:	7
Acq Operator	: jmillier		Vial No.	:	6
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

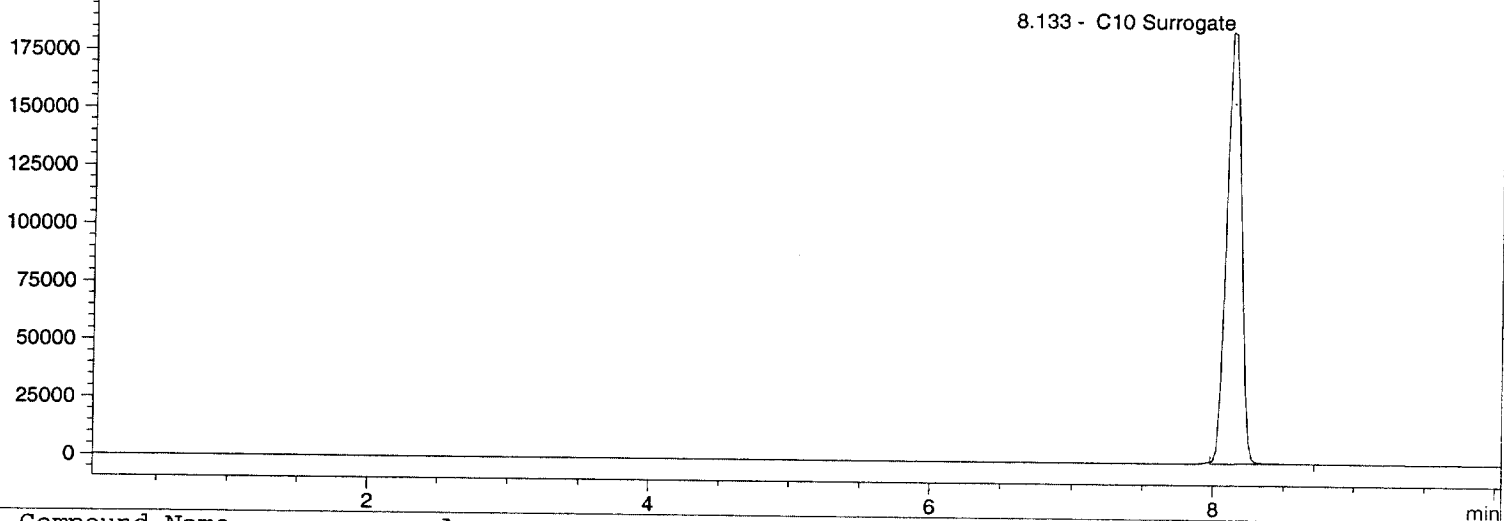
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12076271\A946176\FC000007.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12076271\A946176\FC000007.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	555513.00	1070.27	7.261	MSD1 369, EIC=368.7:369.7
C10 Surrogate	1359380.87	1073.25	8.133	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0024

Sample Name:STD 1500 ppb

Sample Info:

1

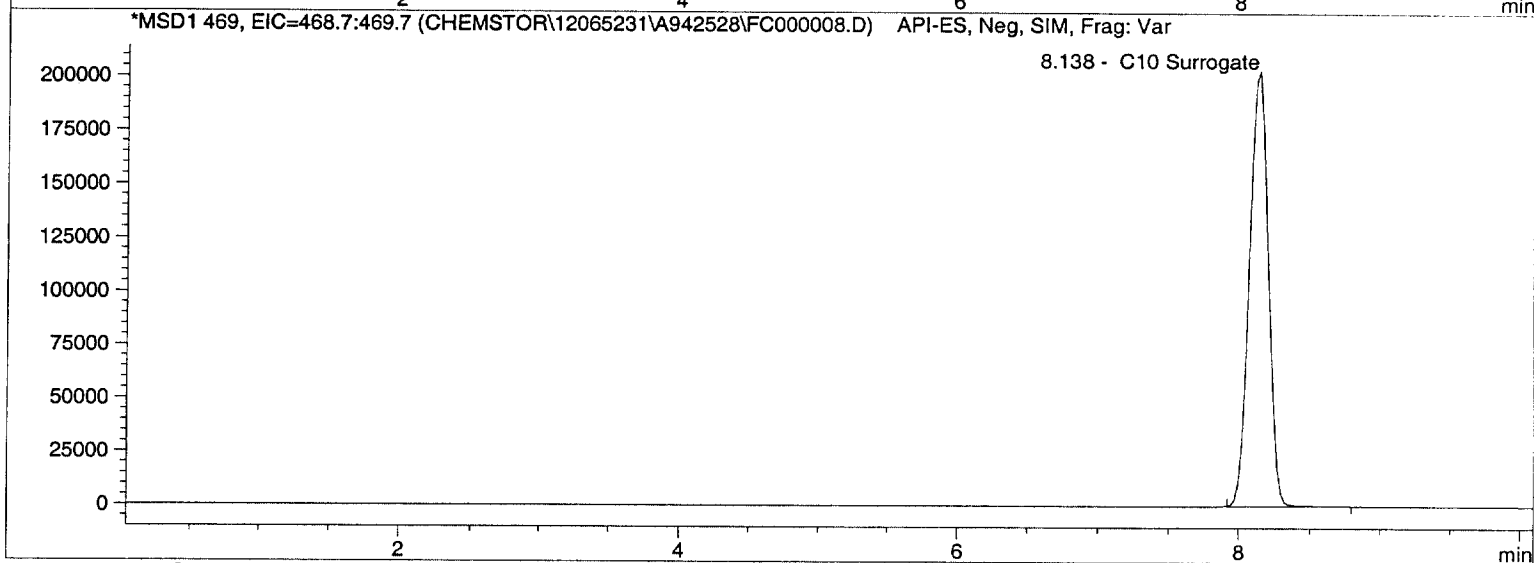
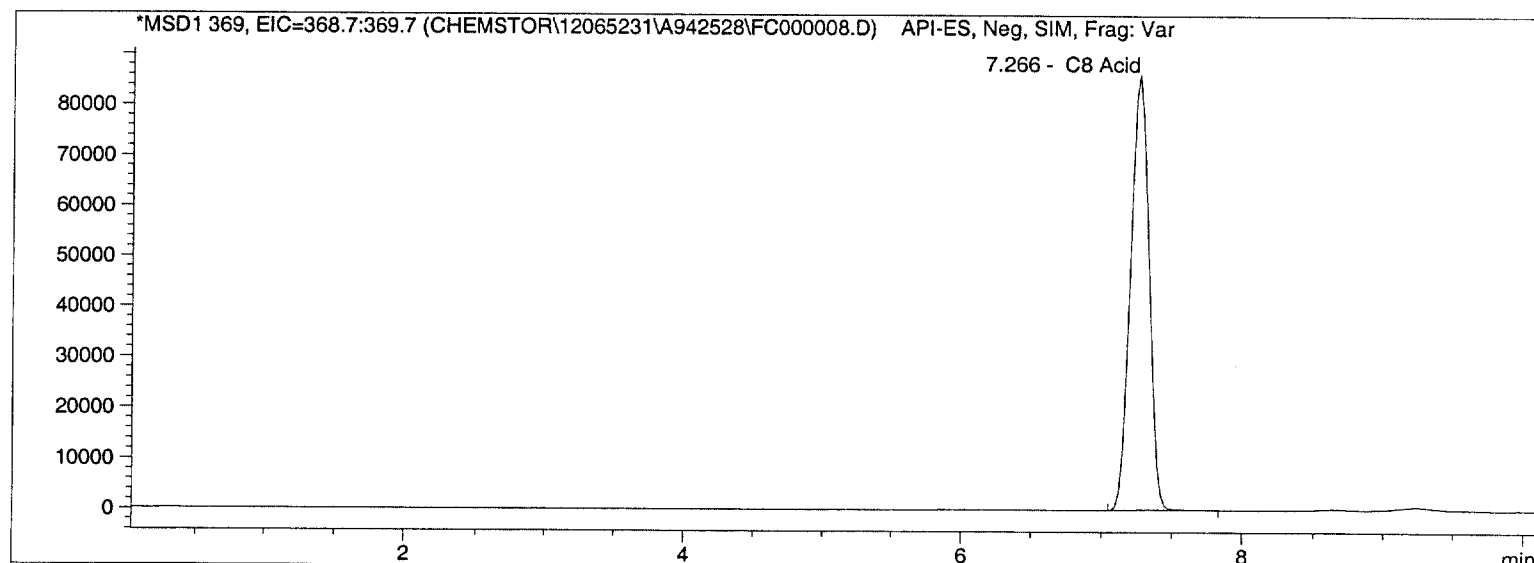
Data file :C:\HPCHEM\1\DATA\Chemstor\12065231\A942528\FC000008.D

=====

Injection Date	: 1/21/04	7:03:18 PM	Seq Line	:	8
Acq Operator	: jmillar		Vial No.	:	7
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	791063.56	1541.33	7.266	MSD1 369, EIC=368.7:369.7
C10 Surrogate	1880773.88	1509.29	8.138	MSD1 469, EIC=468.7:469.7

*** End of Report ***

U025

Sample Name:solvent blank

Sample Info:

1

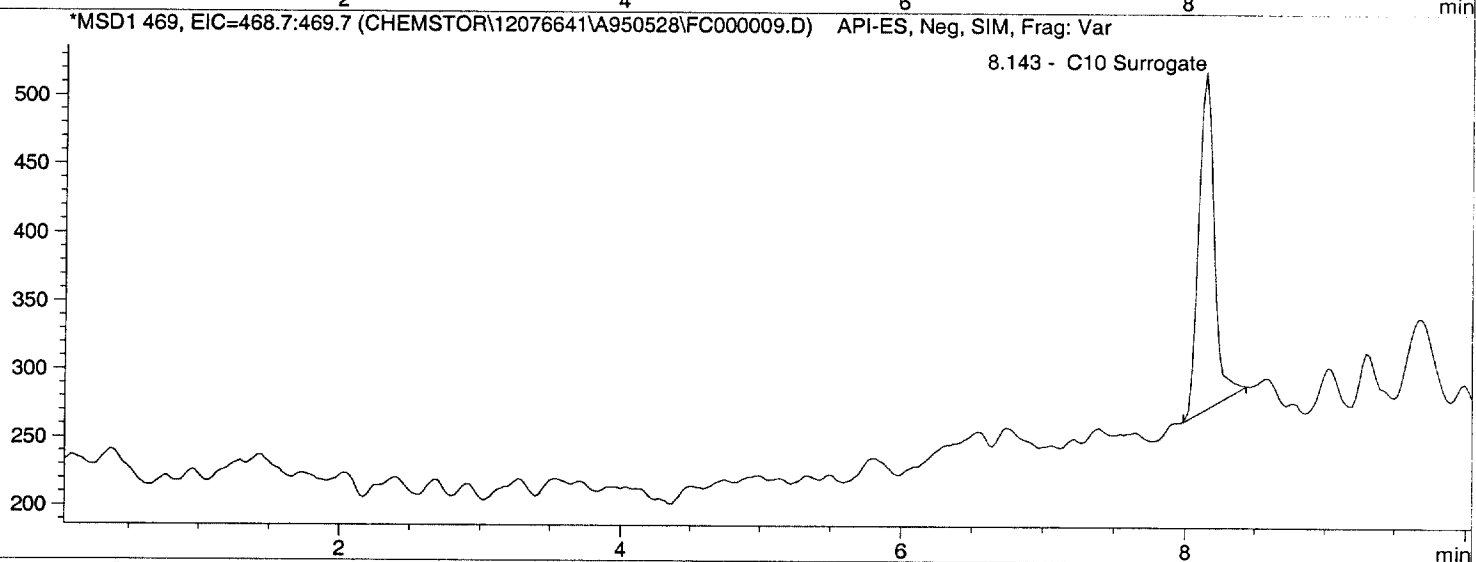
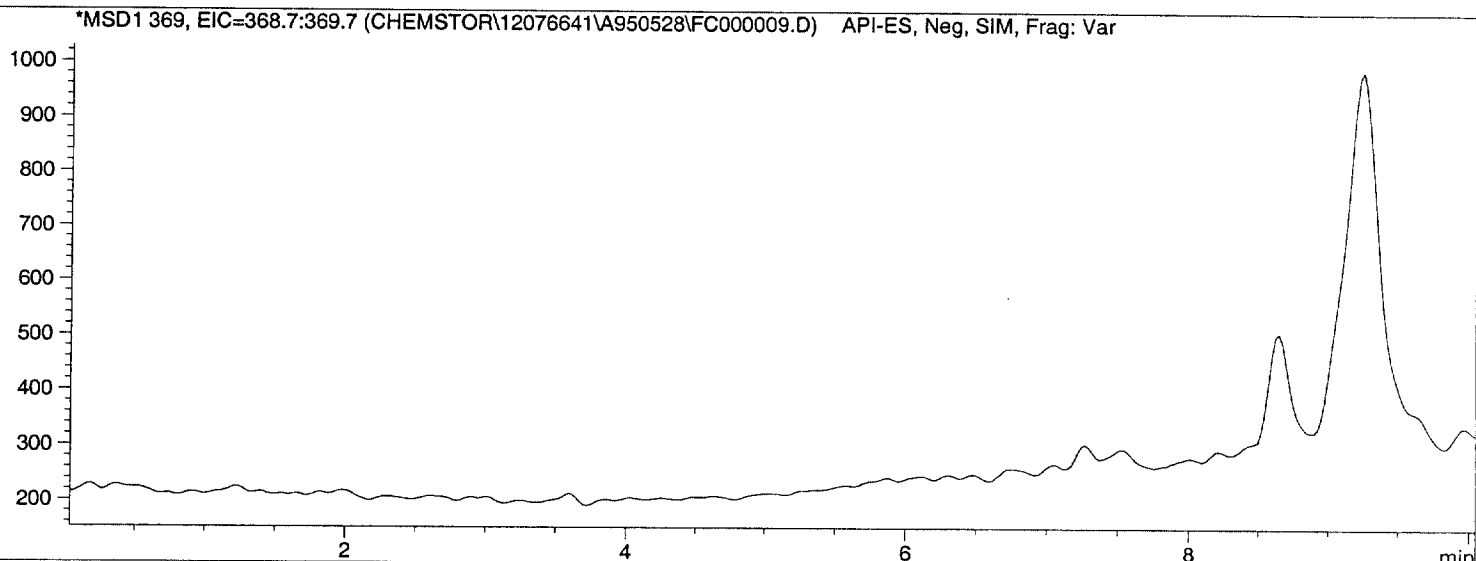
Data file :C:\HPCHEM\1\DATA\Chemstor\12076641\A950528\FC000009.D

=====

Injection Date	: 1/21/04	7:18:47 PM	Seq Line	:	9
Acq Operator	: jmliller		Vial No.	:	92
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	0.00	0.00	0.000	MSD1 369, EIC=368.7:369.7
C10 Surrogate	1913.89	0.00	8.143	MSD1 469, EIC=468.7:469.7

*** End of Report ***

U026

Sample Name:L1667-22

Sample Info:

1

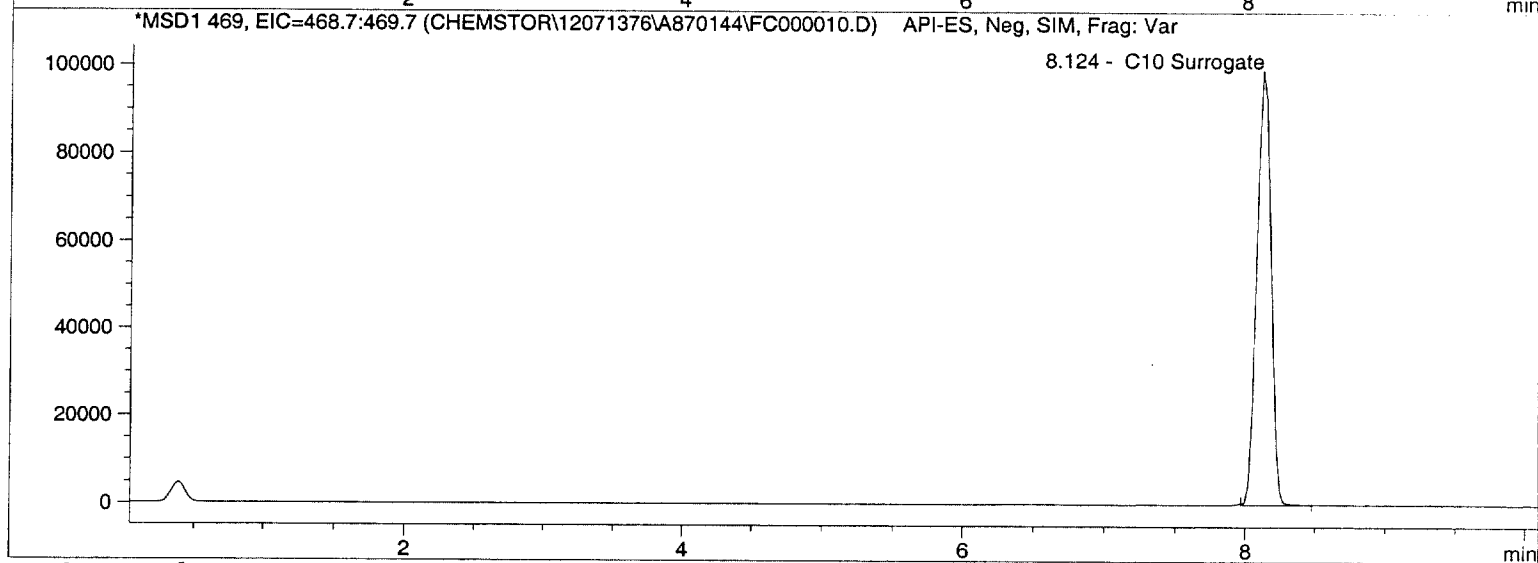
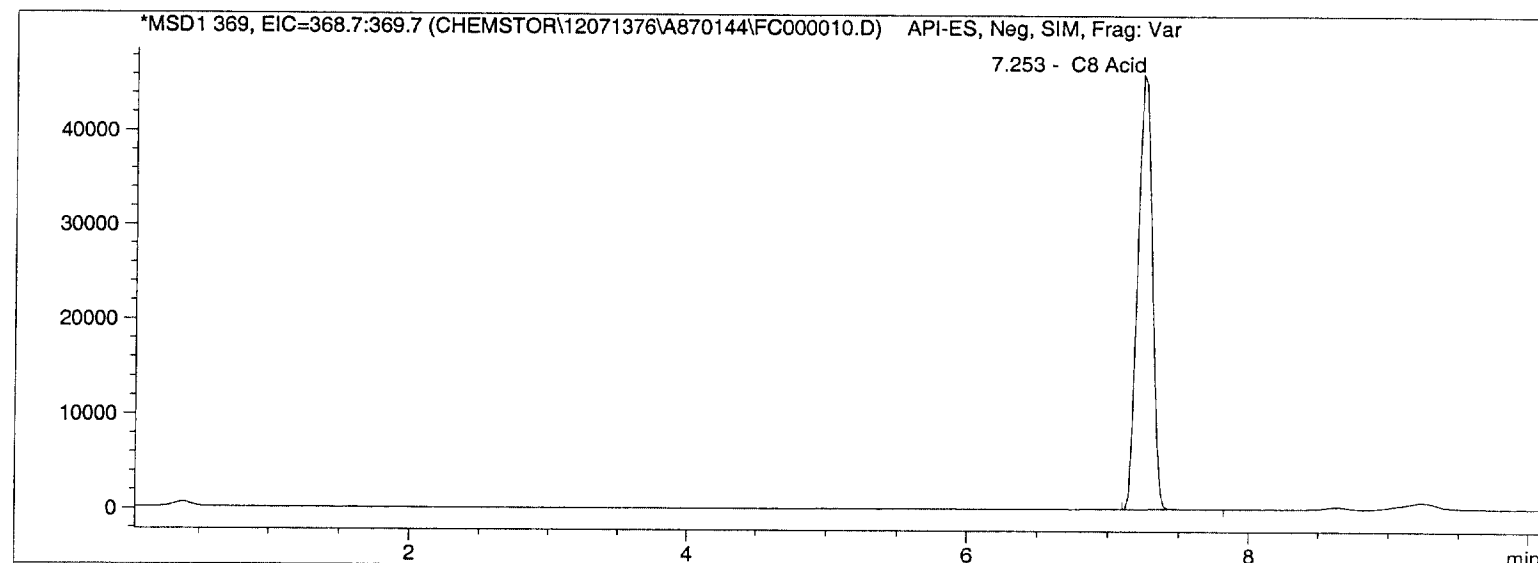
Data file :C:\HPCHEM\1\DATA\Chemstor\12071376\A870144\FC000010.D

=====

Injection Date	: 1/21/04	7:34:21 PM	Seq Line	:	10
Acq Operator	: jmillier		Vial No.	:	11
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	329980.06	619.25	7.253	MSD1 369, EIC=368.7:369.7
C10 Surrogate	699878.50	521.71	8.124	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0027

Sample Info:

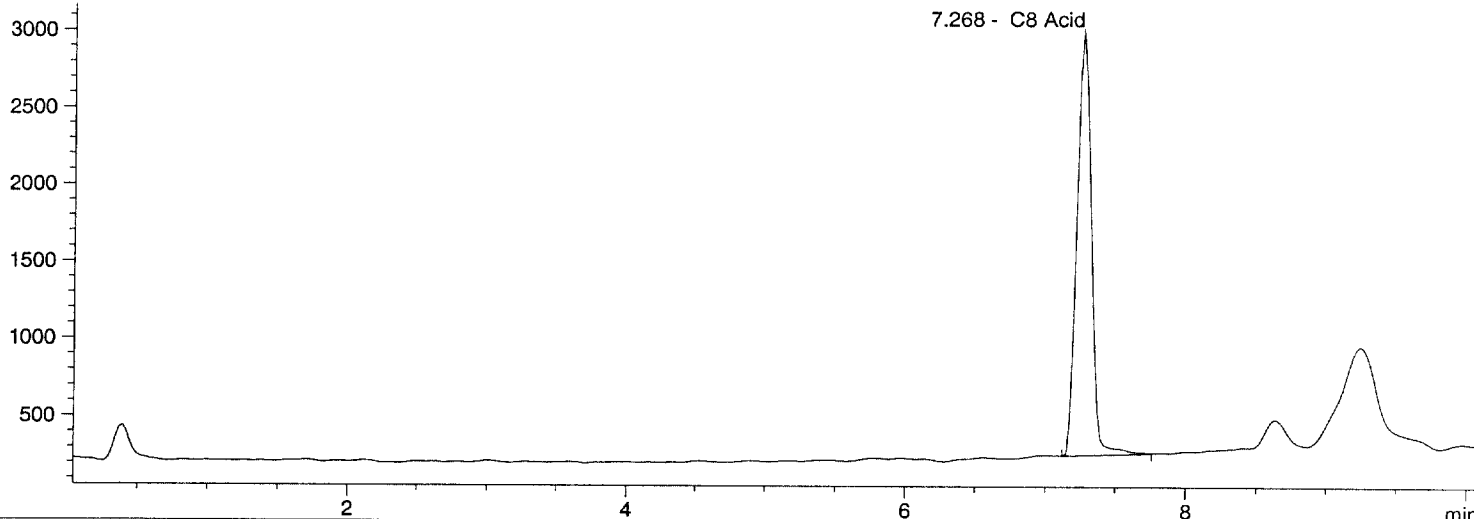
Data file :C:\HPCHEM\1\DATA\Chemstor\12071465\A872512\FC000011.D

```
=====
Injection Date   : 1/21/04           7:49:54 PM   Seq Line   :           11
Acq Operator    : jmilller           Vial No.    :           12
Instrument      : PC00414            Inj. No.    :           1
Dilution       : 1                  Inj. Vol.   :           5 µl
=====
```

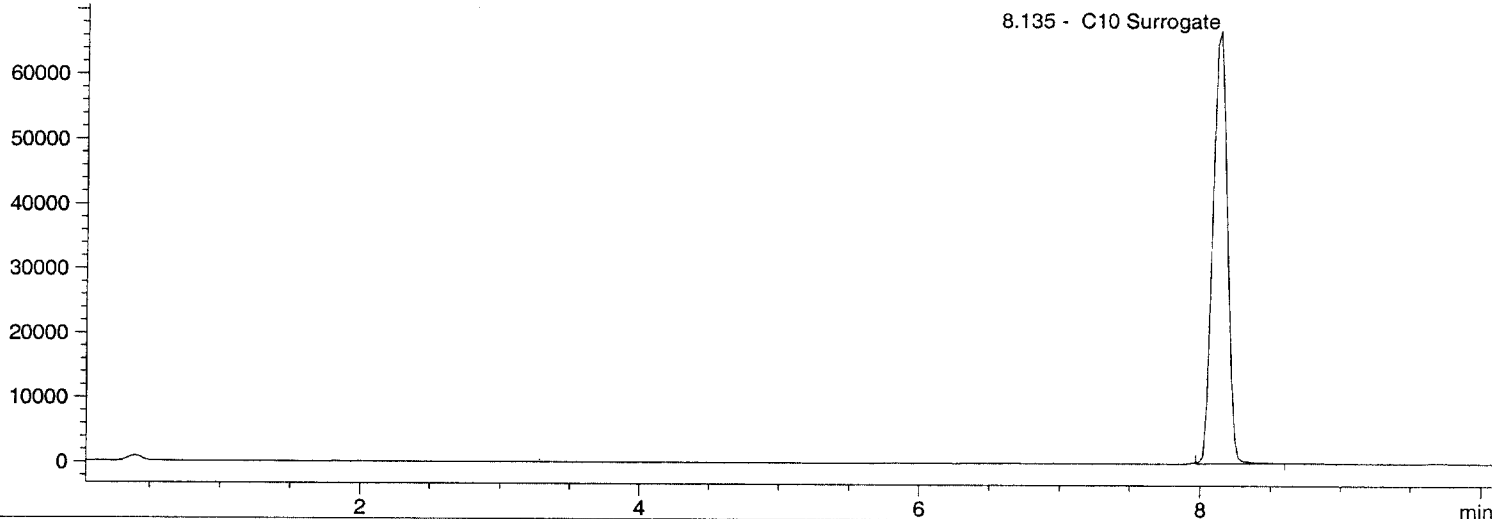
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Acq. Method     : FC8-10.M
Analysis Method  : C:\HPCHEM\1\METHODS\012104.M
Last Changed    : 2/26/04           08:41:06 am
```

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12071465\A872512\FC000011.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12071465\A872512\FC000011.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	20182.10	0.00	7.268	MSD1 369, EIC=368.7:369.7
C10 Surrogate	479345.44	337.28	8.135	MSD1 469, EIC=468.7:469.7

*** End of Report ***

J028

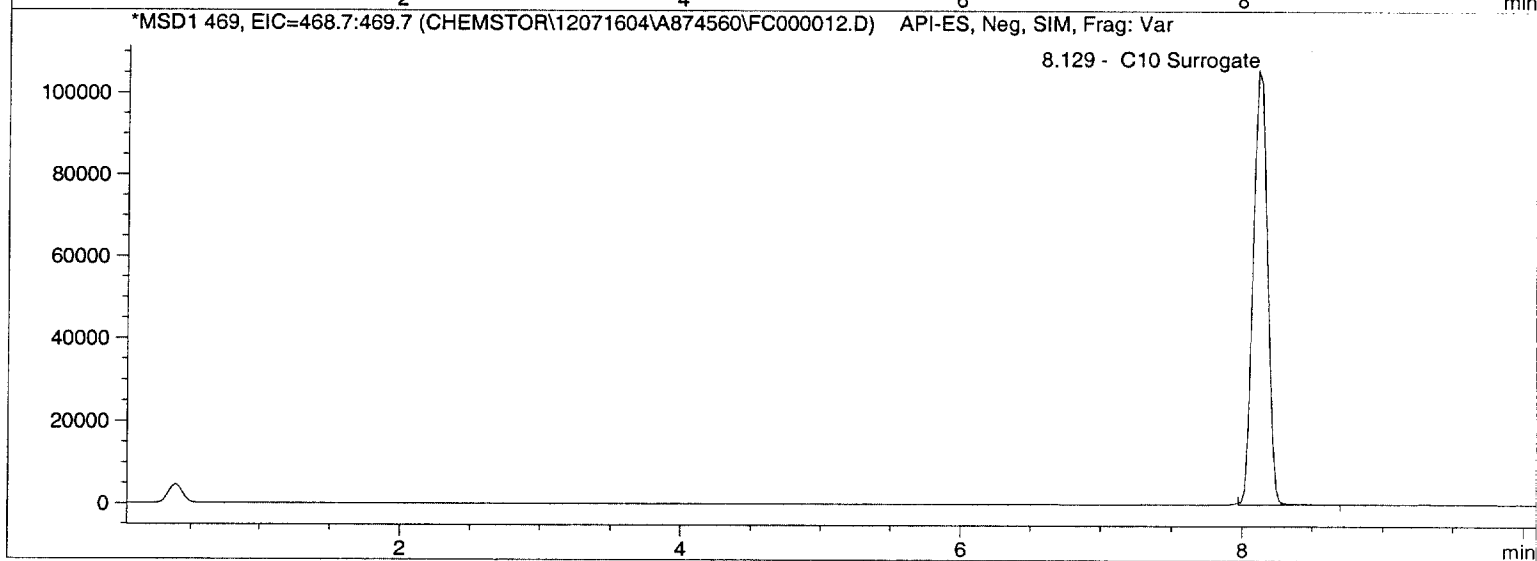
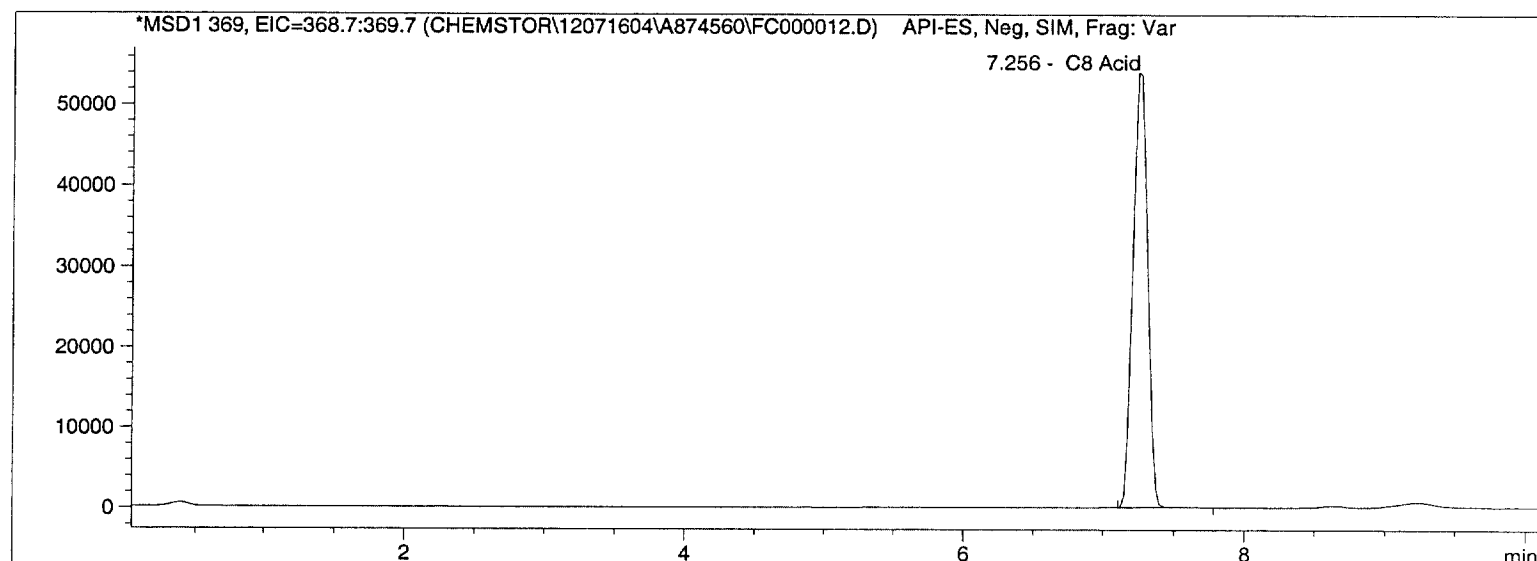
Sample Info:

Data file :C:\HPCHEM\1\DATA\Chemstor\12071604\A874560\FC000012.D

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=====
Injection Date   : 1/21/04           8:05:33 PM   Seq Line   :           12
Acq Operator    : jmillier           Vial No.    :           13
Instrument      : PC00414            Inj. No.    :           1
Dilution       : 1                  Inj. Vol.   :           5 µl
=====
```

```
Acq. Method     : FC8-10.M
Analysis Method  : C:\HPCHEM\1\METHODS\012104.M
Last Changed    : 2/26/04           08:41:06 am
```

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	389183.53	737.65	7.256	MSD1 369, EIC=368.7:369.7
C10 Surrogate	756620.25	569.17	8.129	MSD1 469, EIC=468.7:469.7

*** End of Report ***

Sample Name:L1667-2

Sample Info:

1

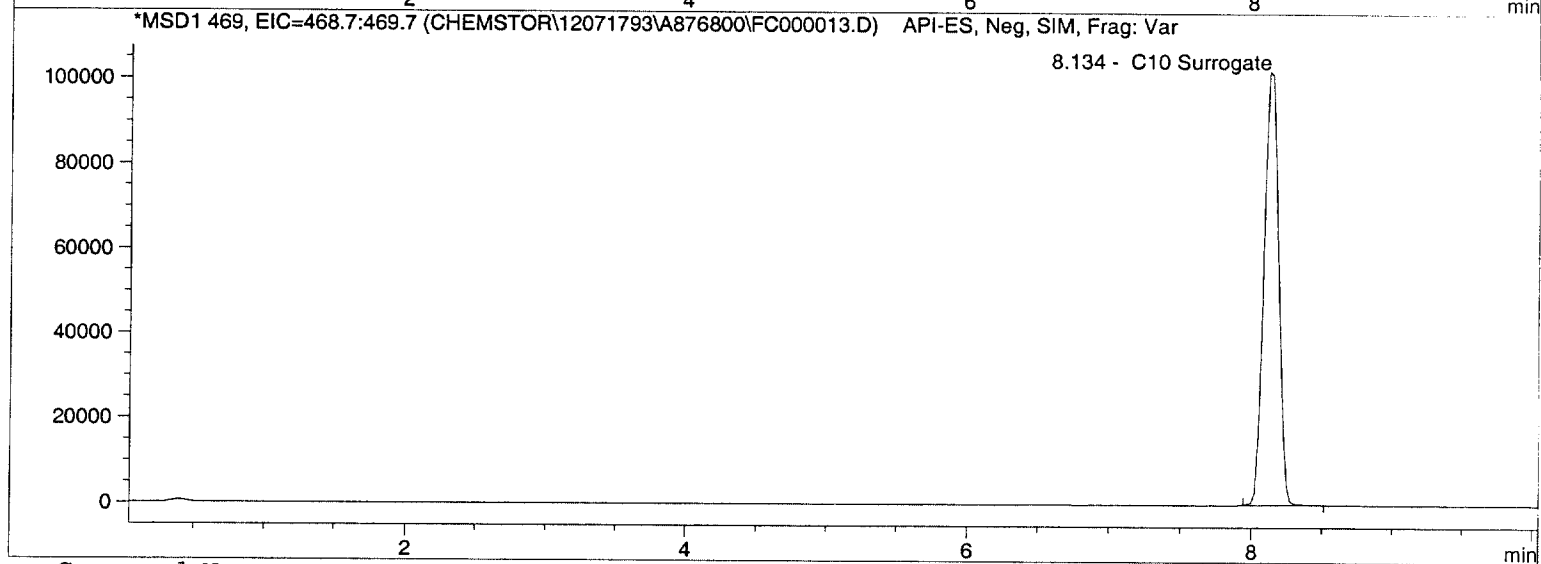
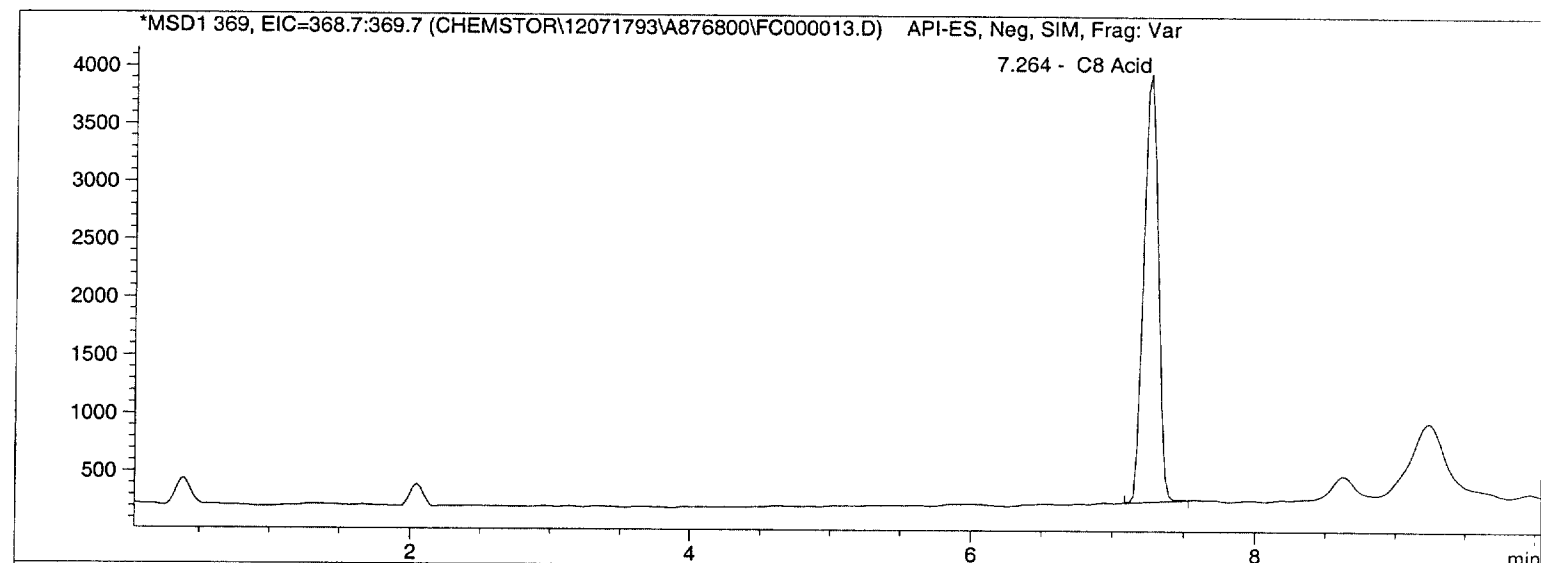
Data file :C:\HPCHEM\1\DATA\Chemstor\12071793\A876800\FC000013.D

=====

Injection Date	: 1/21/04	8:21:10 PM	Seq Line	:	13
Acq Operator	: jmillier		Vial No.	:	14
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	26401.54	12.15	7.264	MSD1 369, EIC=368.7:369.7
C10 Surrogate	738775.06	554.24	8.134	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0030

Sample Name:L1667-4

Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12072032\A878976\FC000014.D

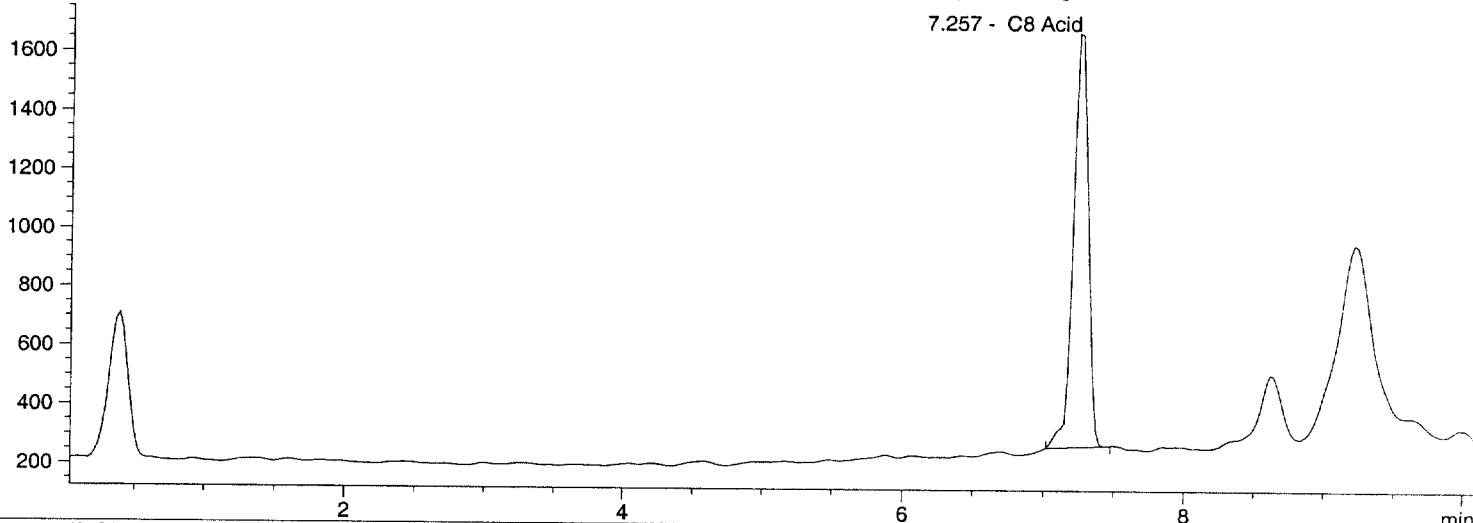
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Injection Date	: 1/21/04	8:36:47 PM	Seq Line	:	14
Acq Operator	: jmillier		Vial No.	:	15
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

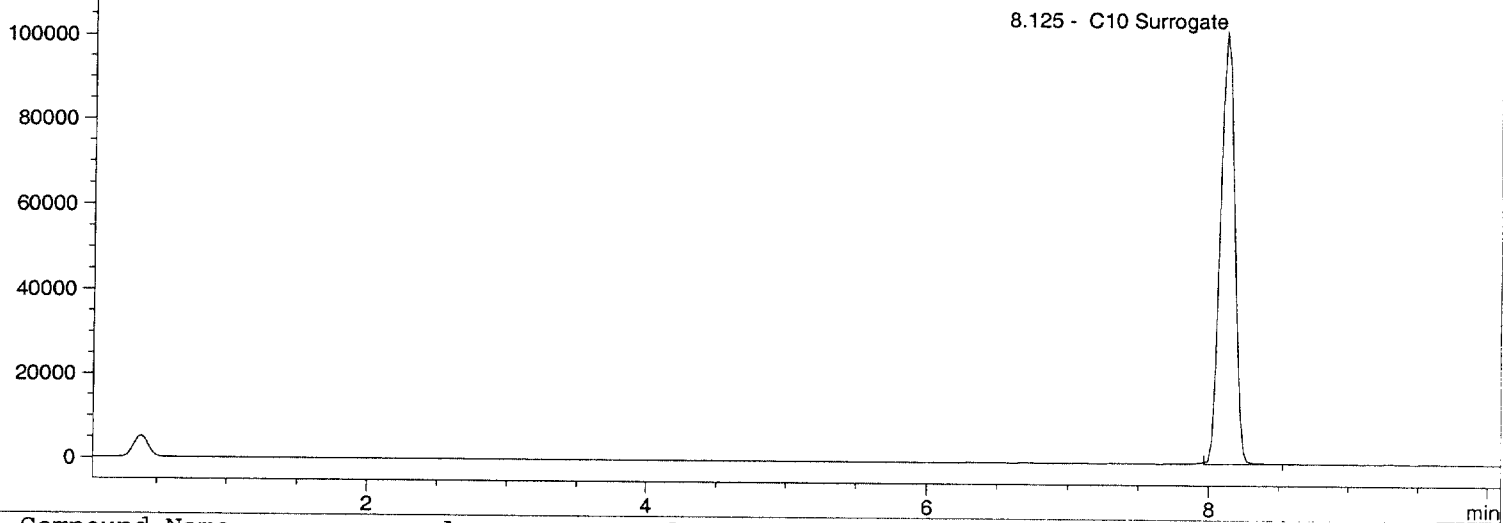
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12072032\A878976\FC000014.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12072032\A878976\FC000014.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	10446.42	0.00	7.257	MSD1 369, EIC=368.7:369.7
C10 Surrogate	722185.81	540.37	8.125	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0031

Sample Name:L1667-5

Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12072196\A881216\FC000015.D

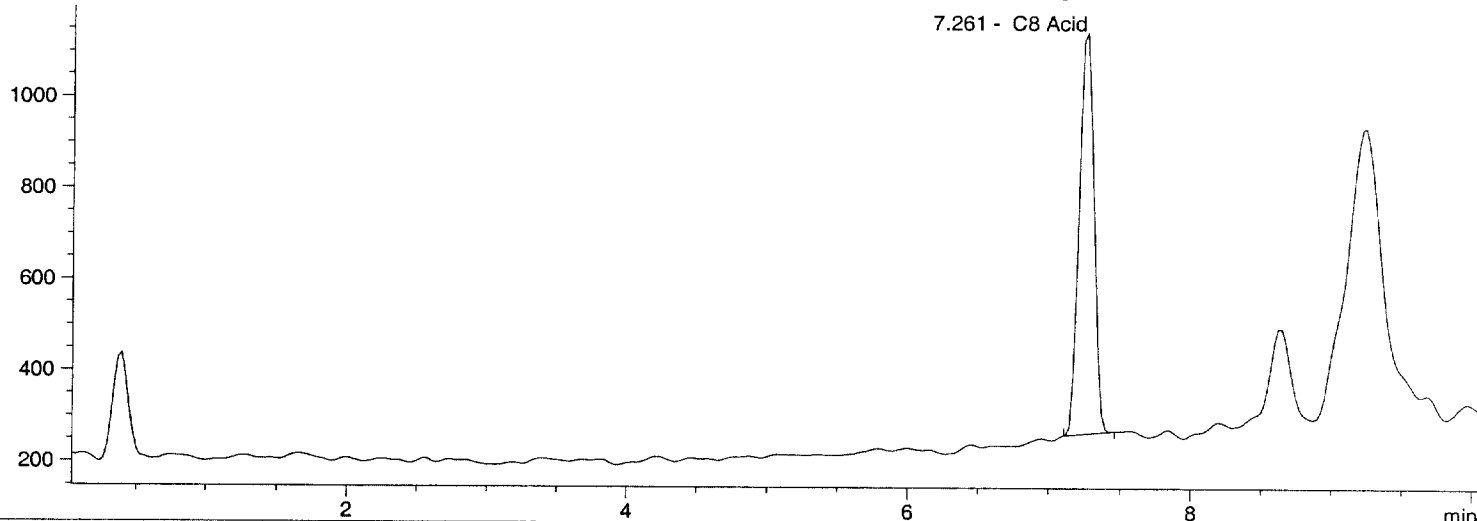
=====

Injection Date	: 1/21/04	8:52:22 PM	Seq Line	:	15
Acq Operator	: jmillier		Vial No.	:	16
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

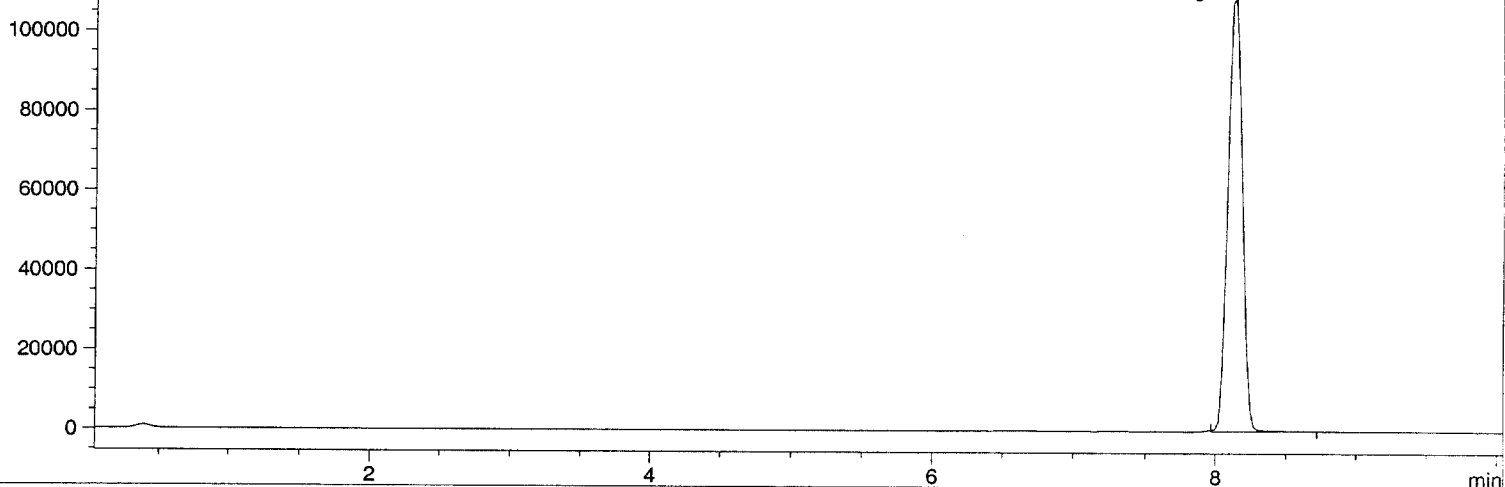
LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12072196\A881216\FC000015.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12072196\A881216\FC000015.D) API-ES, Neg, SIM, Frag: Var

8.135 - C10 Surrogate



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	6282.29	0.00	7.261	MSD1 369, EIC=368.7:369.7
C10 Surrogate	786418.44	594.09	8.135	MSD1 469, EIC=468.7:469.7

*** End of Report ***

U032

Sample Info:

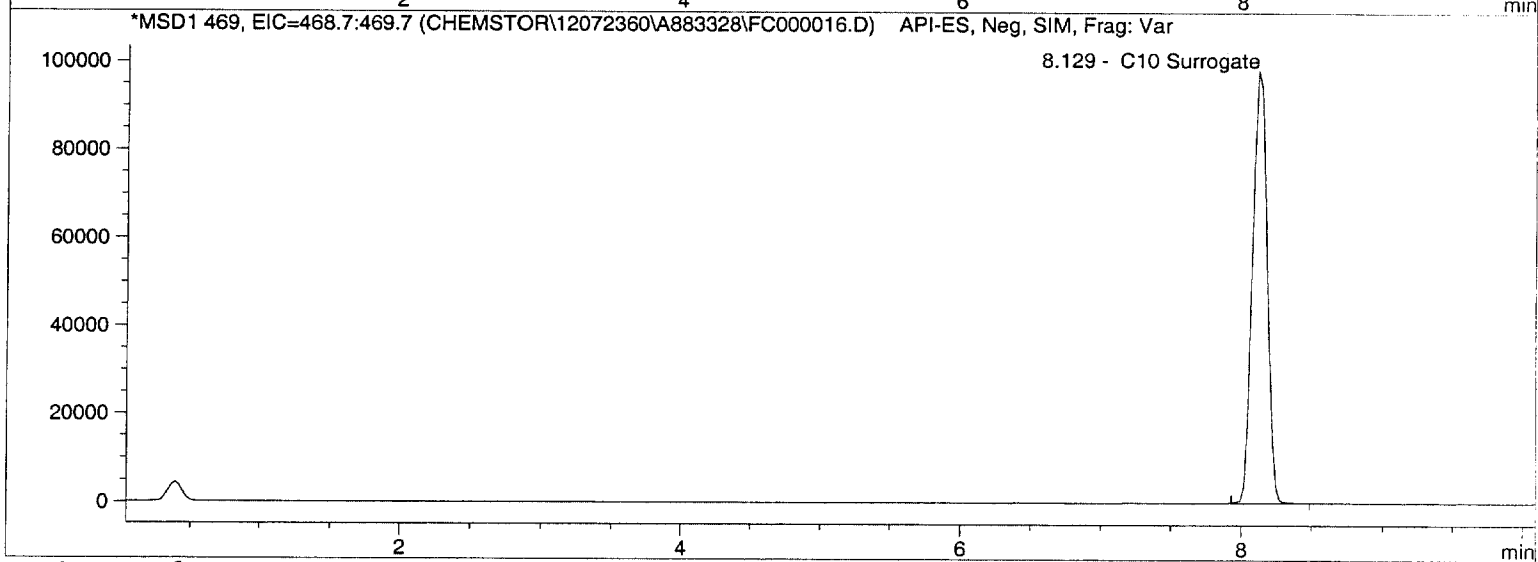
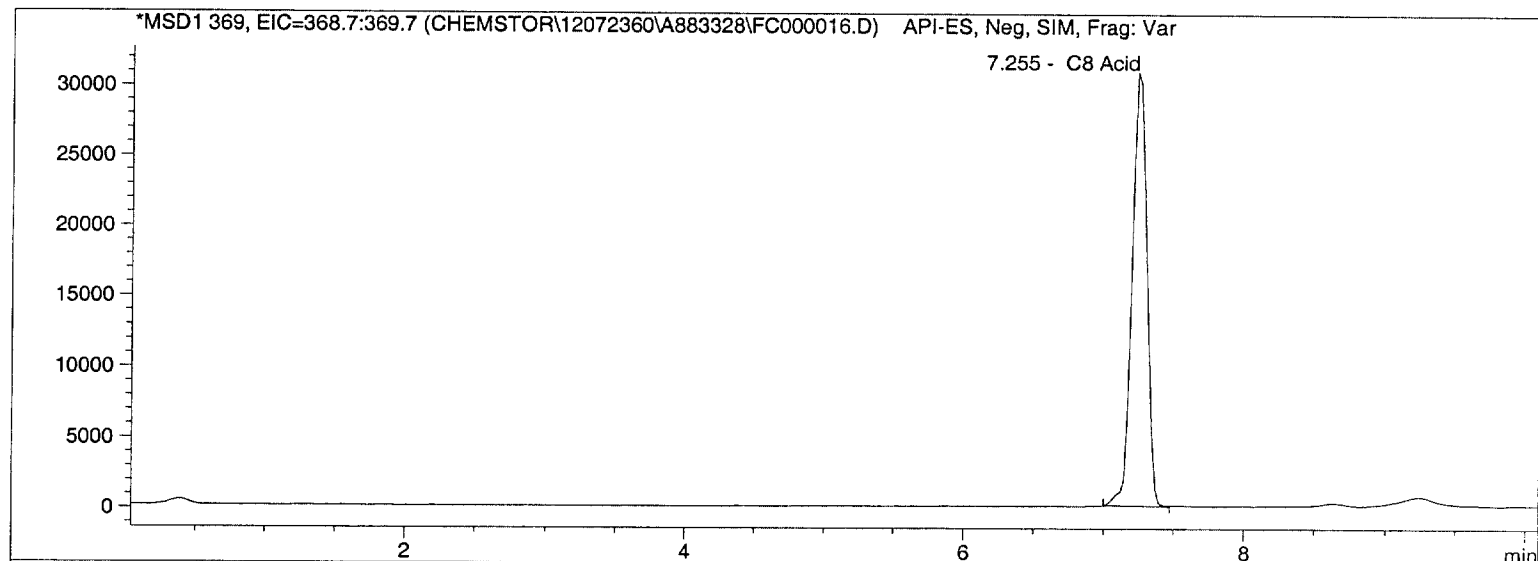
Data file :C:\HPCHEM\1\DATA\Chemstor\12072360\A883328\FC000016.D

=====

Injection Date	: 1/21/04	9:08:00 PM	Seq Line	:	16
Acq Operator	: jmillier		Vial No.	:	17
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	227296.11	413.90	7.255	MSD1 369, EIC=368.7:369.7
C10 Surrogate	701757.56	523.28	8.129	MSD1 469, EIC=468.7:469.7

*** End of Report ***

U033

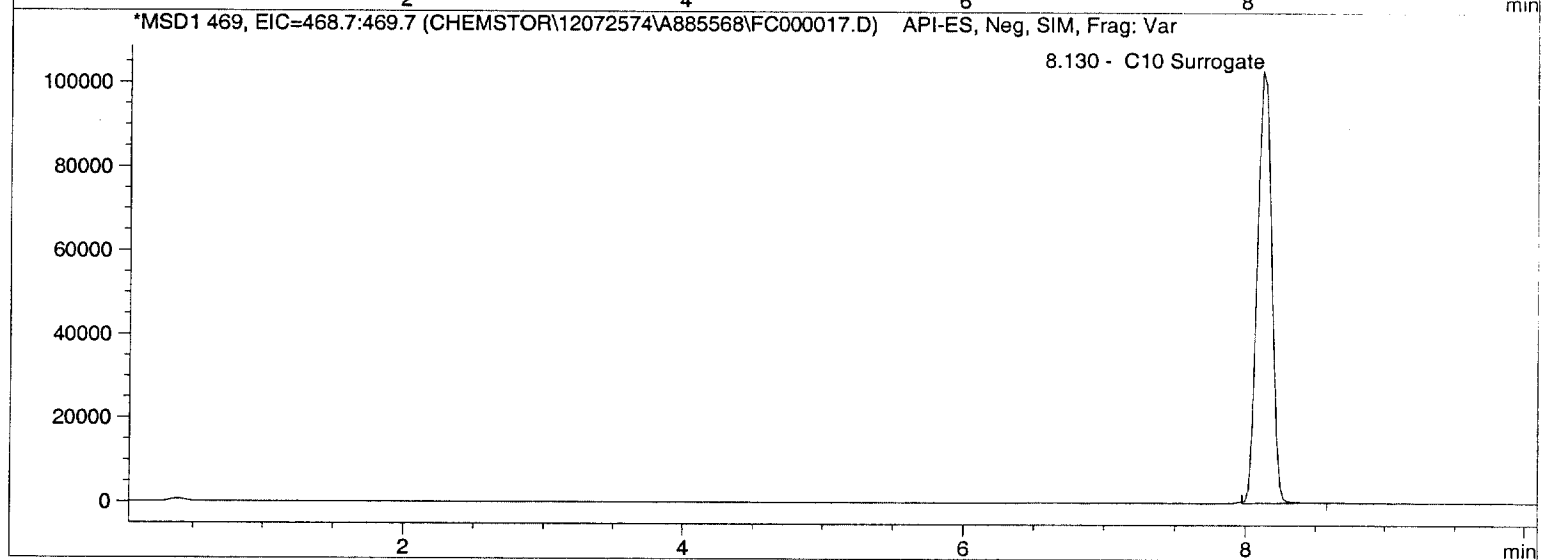
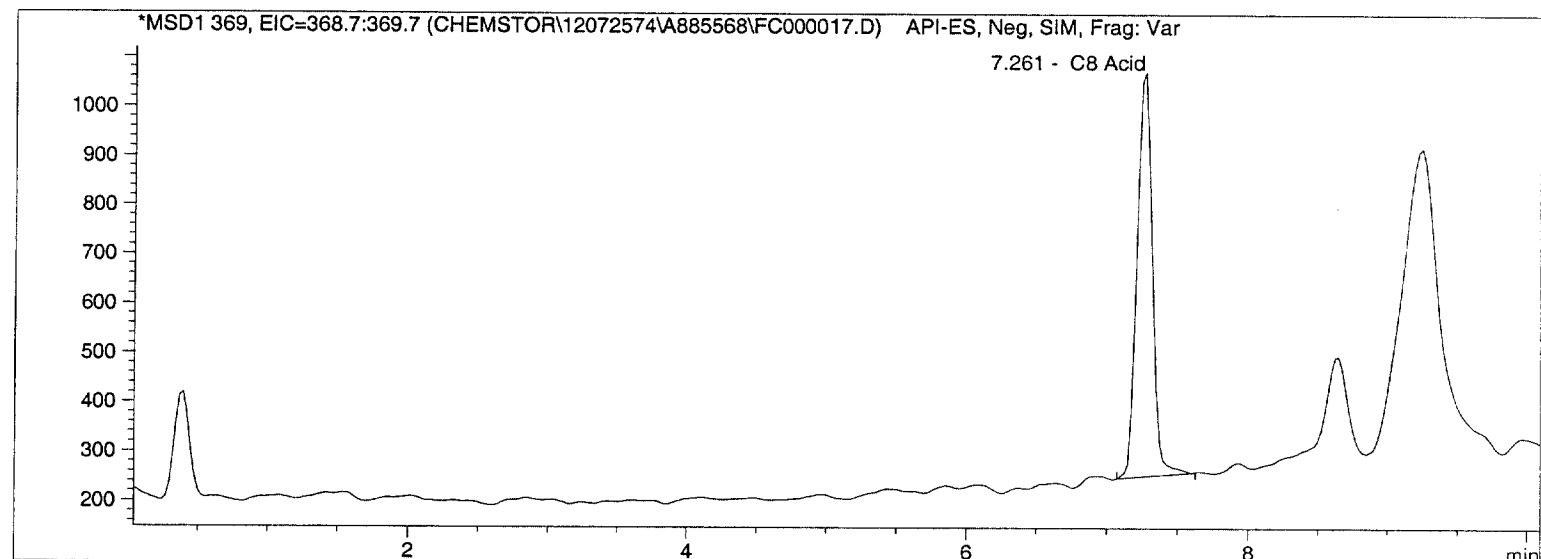
Data file :C:\HPCHEM\1\DATA\Chemstor\12072574\A885568\FC000017.D

=====

Injection Date	: 1/21/04	9:23:36 PM	Seq Line	:	17
Acq Operator	: jmilller		Vial No.	:	18
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	6194.65	0.00	7.261	MSD1 369, EIC=368.7:369.7
C10 Surrogate	736877.69	552.66	8.130	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0034

Sample Name:L1667-10

Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12072788\A887744\FC000018.D

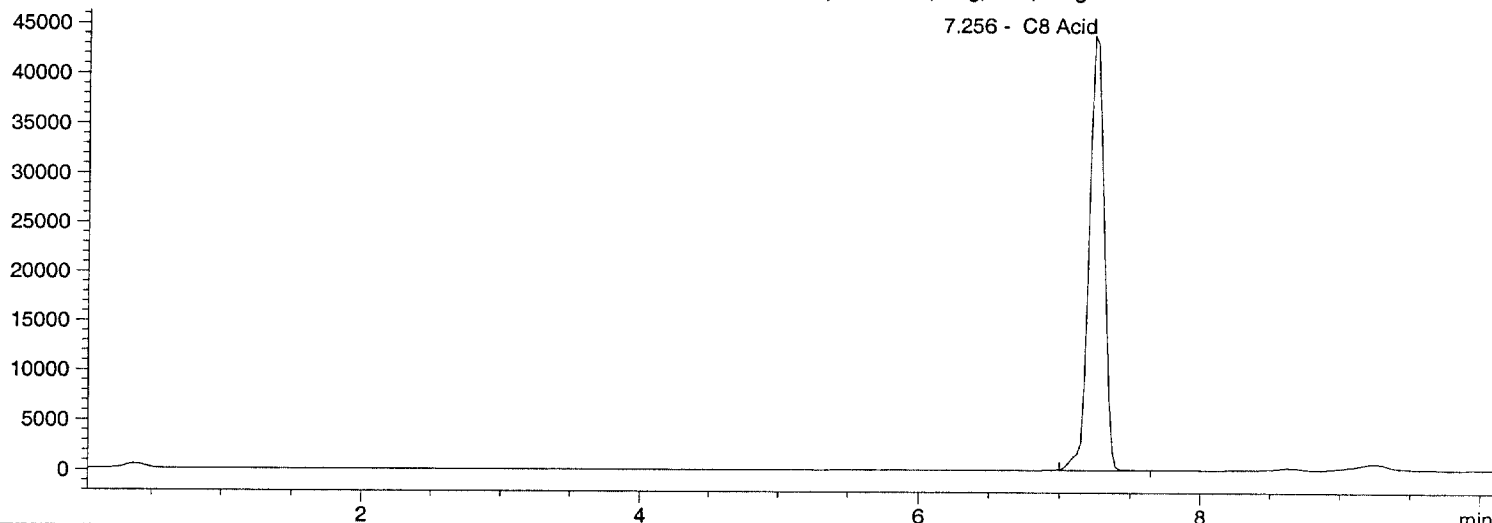
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Injection Date	: 1/21/04	9:39:16 PM	Seq Line	:	18
Acq Operator	: jmliller		Vial No.	:	19
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

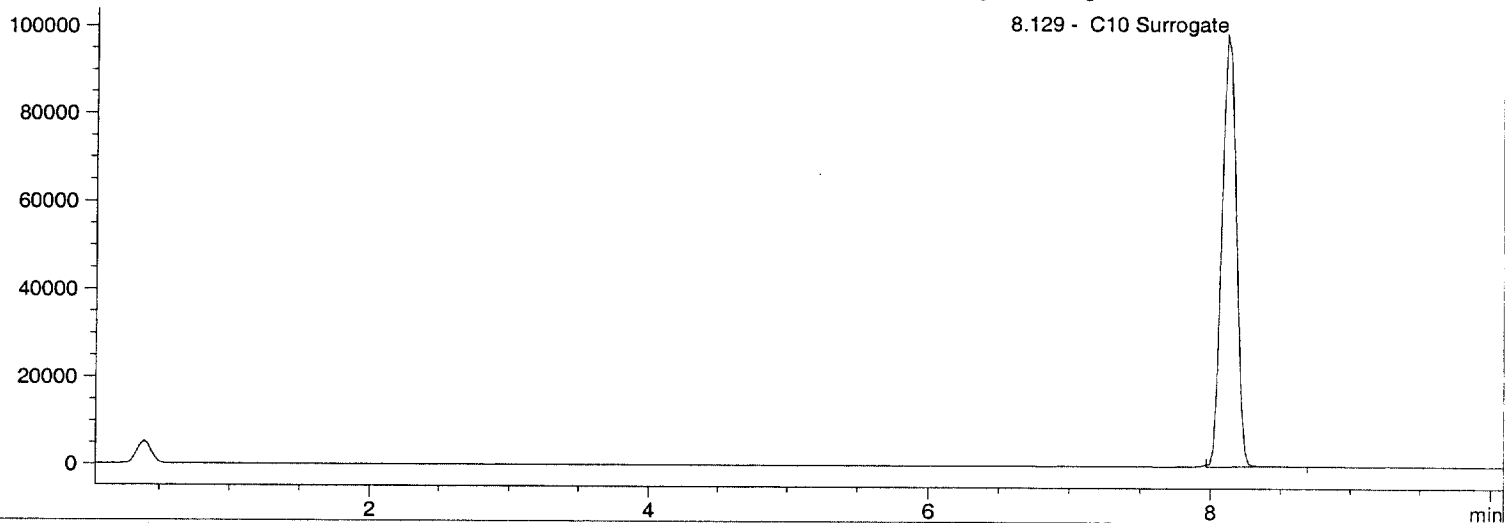
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12072788\A887744\FC000018.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12072788\A887744\FC000018.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	327738.19	614.77	7.256	MSD1 369, EIC=368.7:369.7
C10 Surrogate	705300.25	526.25	8.129	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0035

Sample Name:L1667-11

Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12072994\A889792\FC000019.D

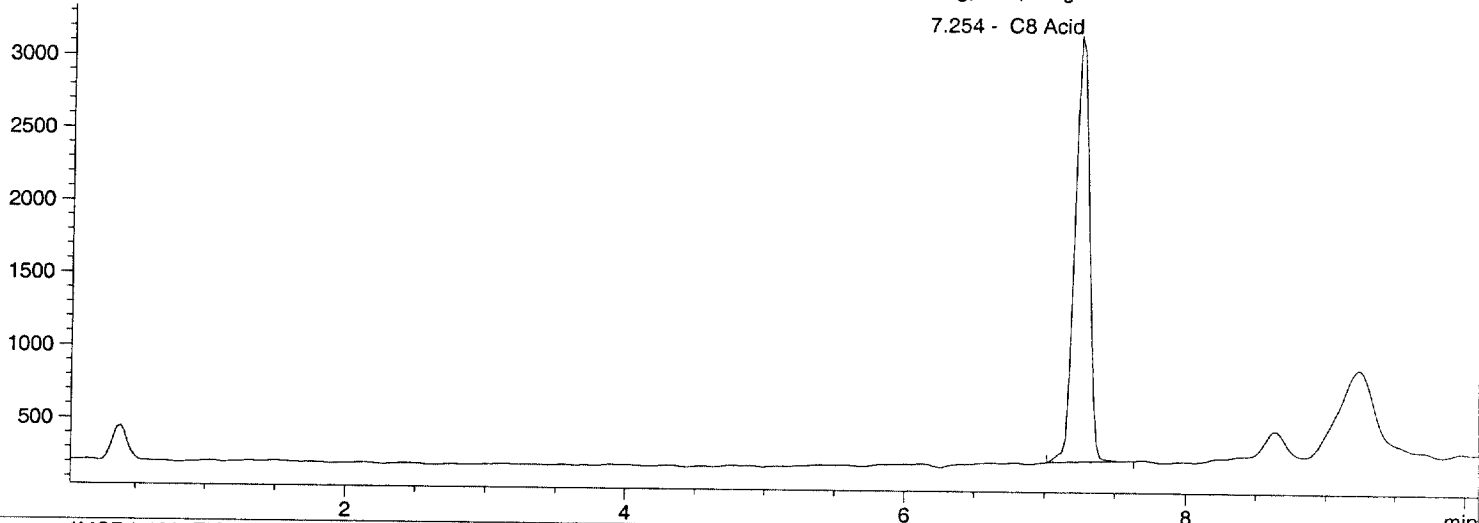
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Injection Date	: 1/21/04	9:54:53 PM	Seq Line	:	19
Acq Operator	: jmillier		Vial No.	:	20
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

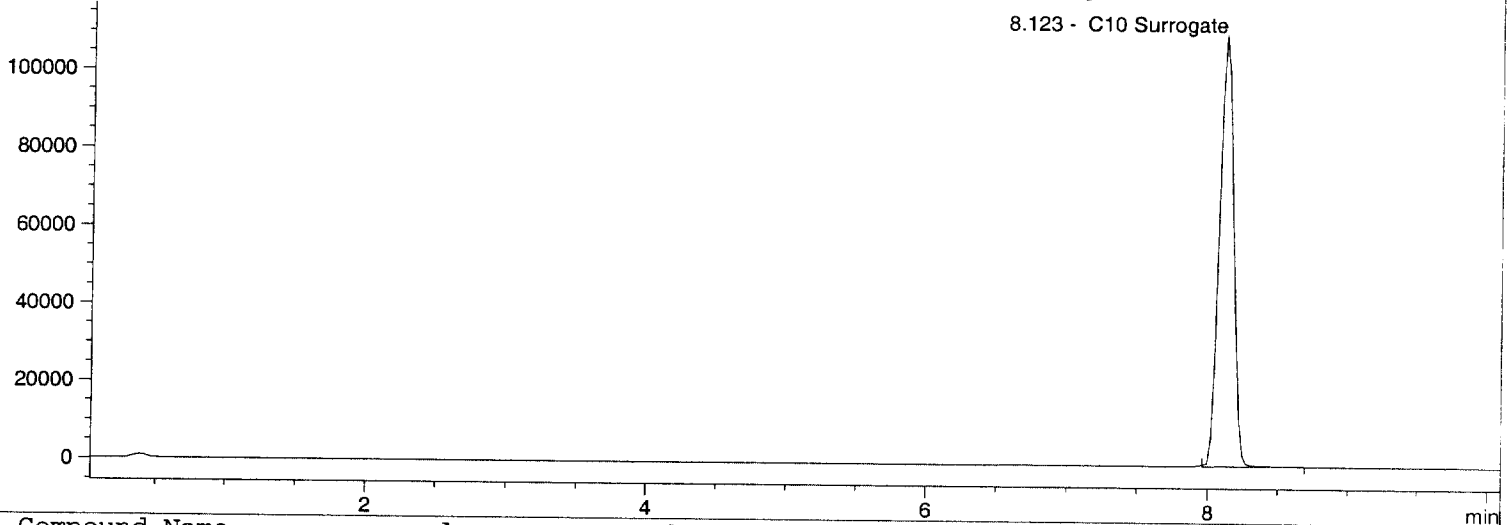
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12072994\A889792\FC000019.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12072994\A889792\FC000019.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	21331.48	2.01	7.254	MSD1 369, EIC=368.7:369.7
C10 Surrogate	785976.25	593.72	8.123	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0036

Sample Name:STD 500 ppb

Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12073158\A891968\FC000020.D

=====

Injection Date	: 1/21/04	10:10:29 PM	Seq Line	:	20
Acq Operator	: jmillier		Vial No.	:	4
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

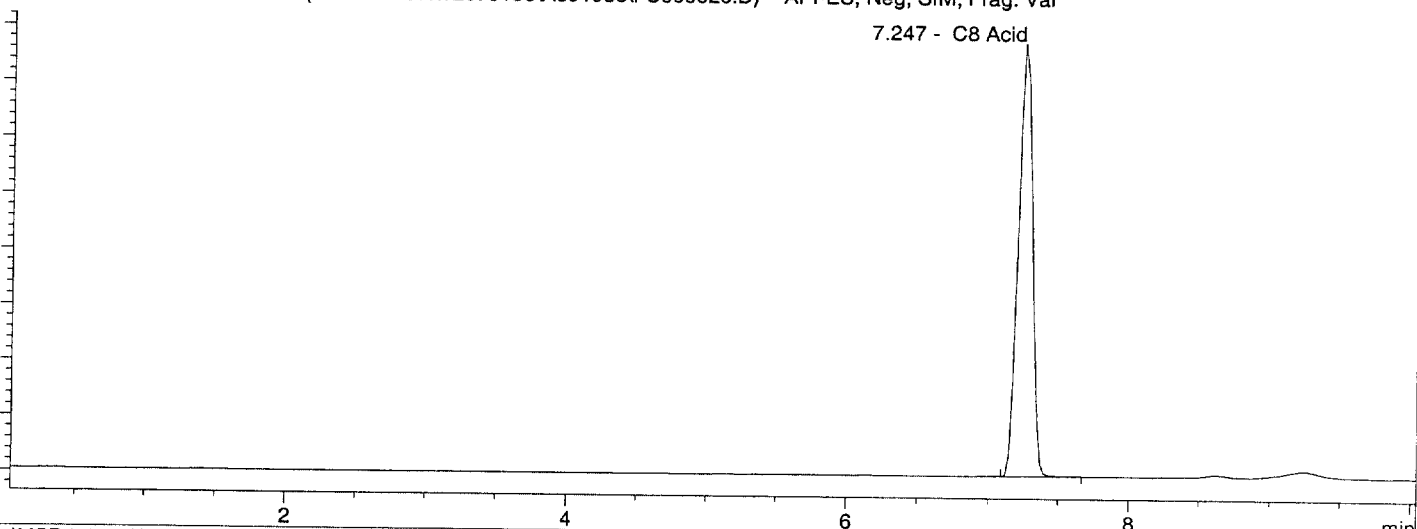
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12073158\A891968\FC000020.D) API-ES, Neg, SIM, Frag: Var

7.247 - C8 Acid

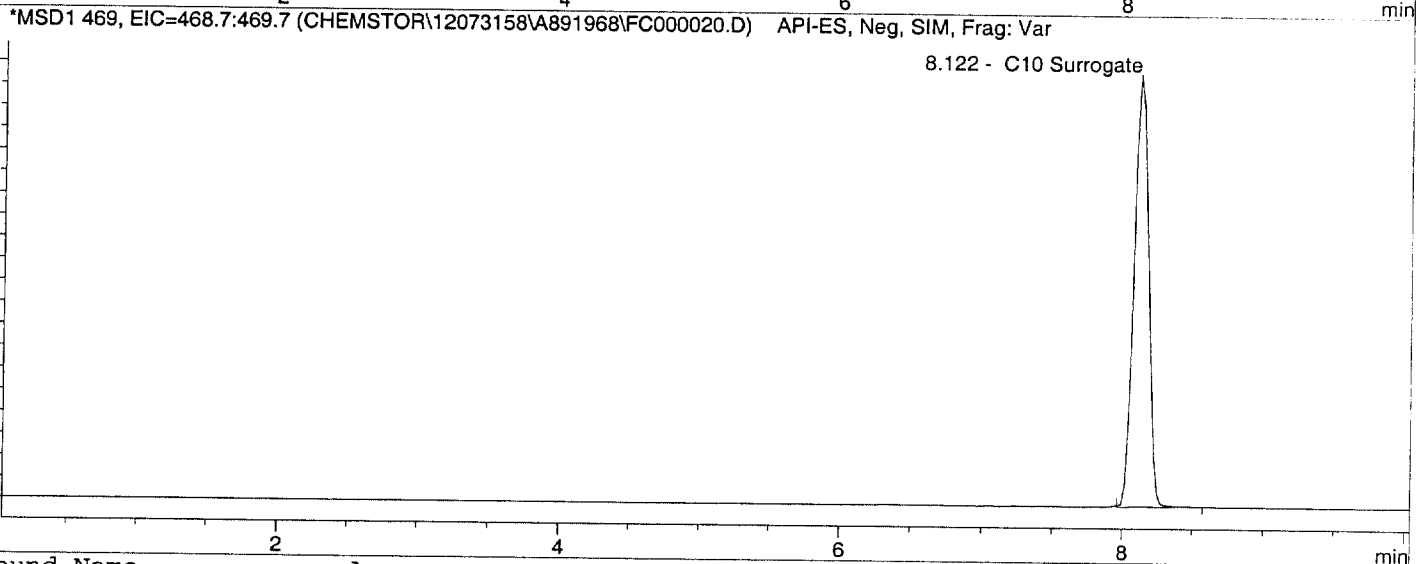
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5000
0



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12073158\A891968\FC000020.D) API-ES, Neg, SIM, Frag: Var

8.122 - C10 Surrogate

100000
80000
60000
40000
20000
0



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	274769.03	508.84	7.247	MSD1 369, EIC=368.7:369.7
C10 Surrogate	700867.37	522.54	8.122	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0037

Sample Name:solvent blank
Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12073419\A894144\FC000021.D

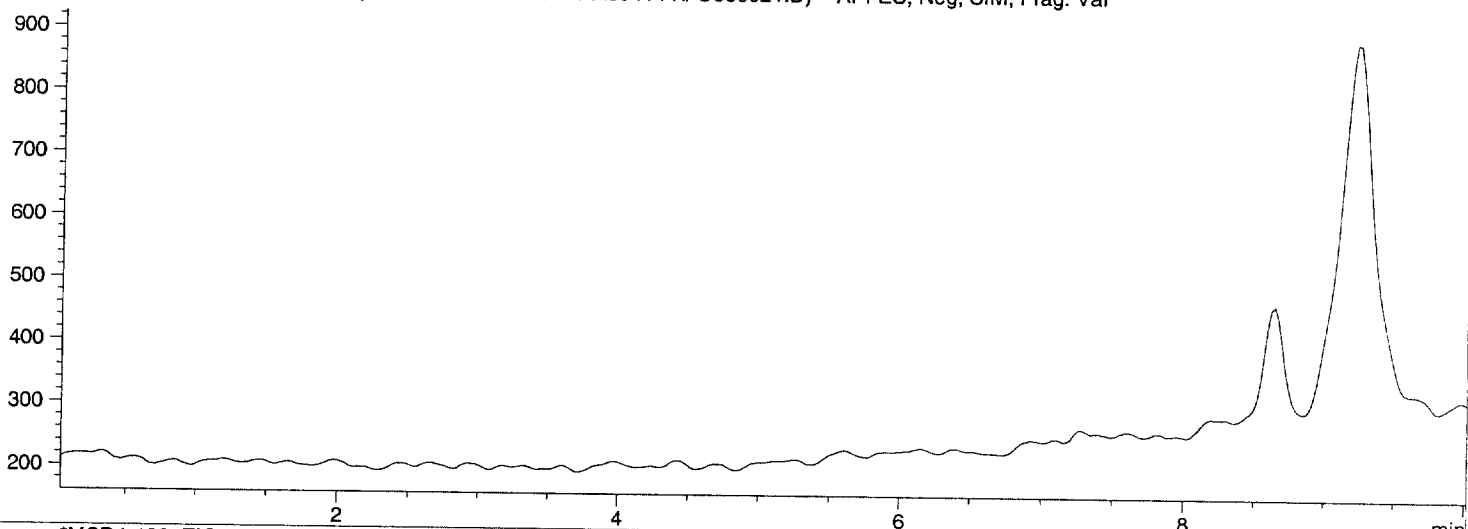
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Injection Date	: 1/21/04	10:25:58 PM	Seq Line	:	21
Acq Operator	: jmillier		Vial No.	:	92
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

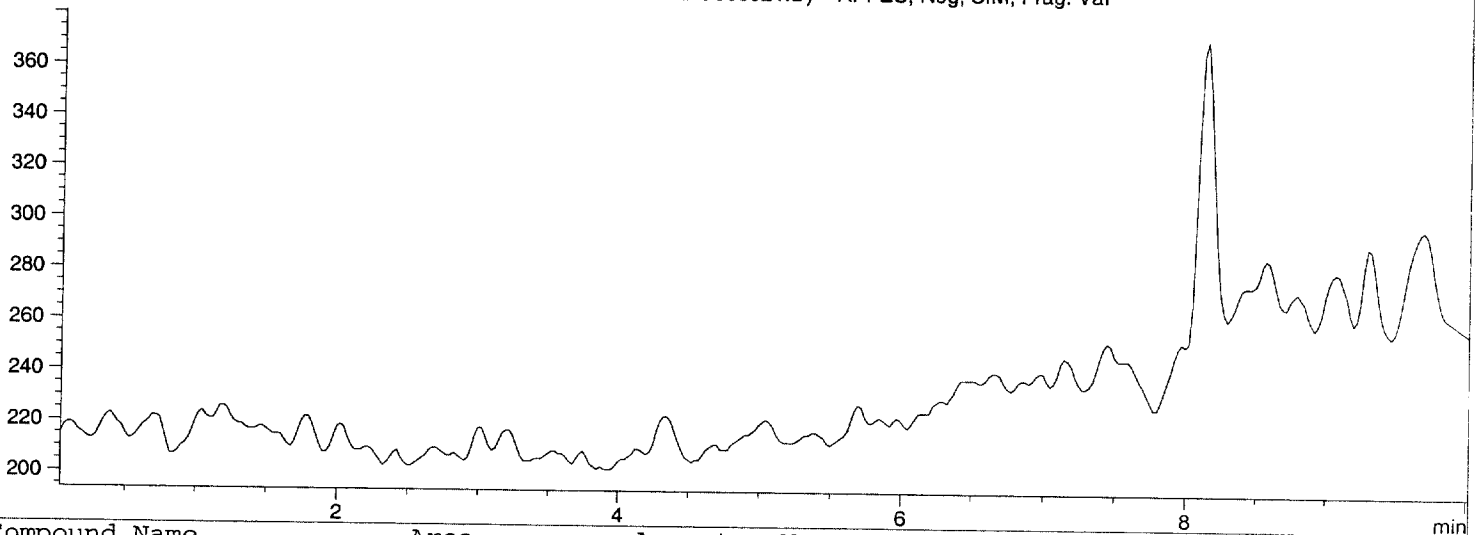
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12073419\A894144\FC000021.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12073419\A894144\FC000021.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	0.00	0.00	0.000	MSD1 369, EIC=368.7:369.7
C10 Surrogate	0.00	0.00	0.000	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0038

Sample Name:L1667-13

Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12073506\A896256\FC000022.D

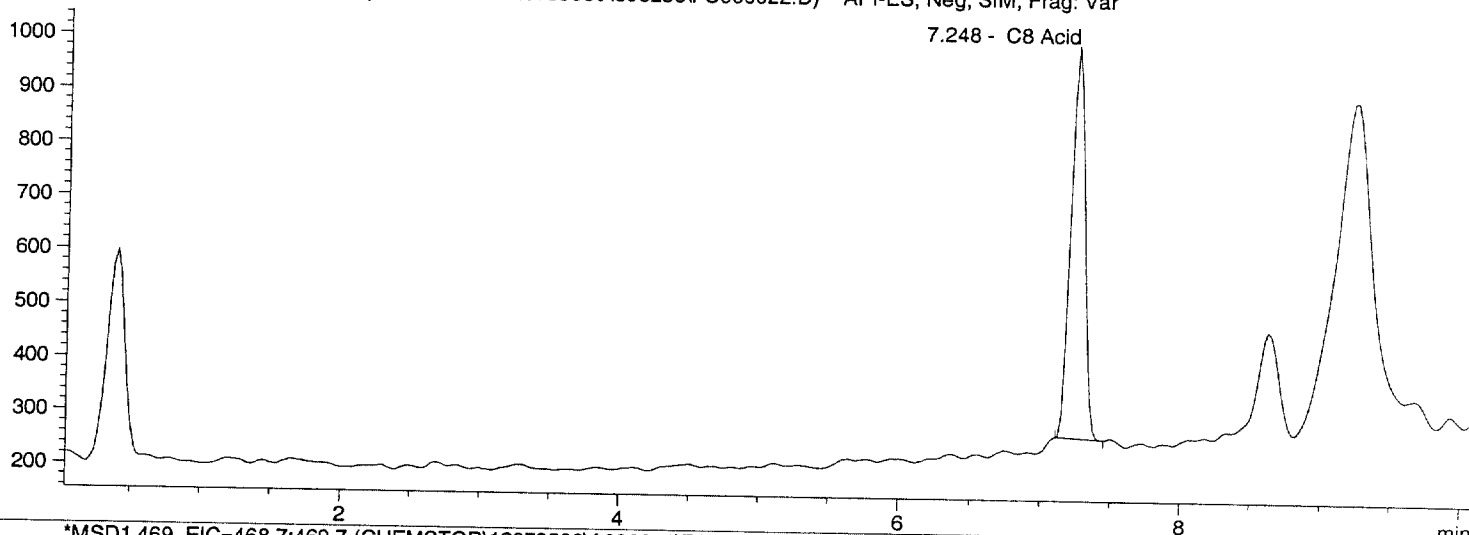
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Injection Date	: 1/21/04	10:41:30 PM	Seq Line	:	22
Acq Operator	: jmliller		Vial No.	:	21
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

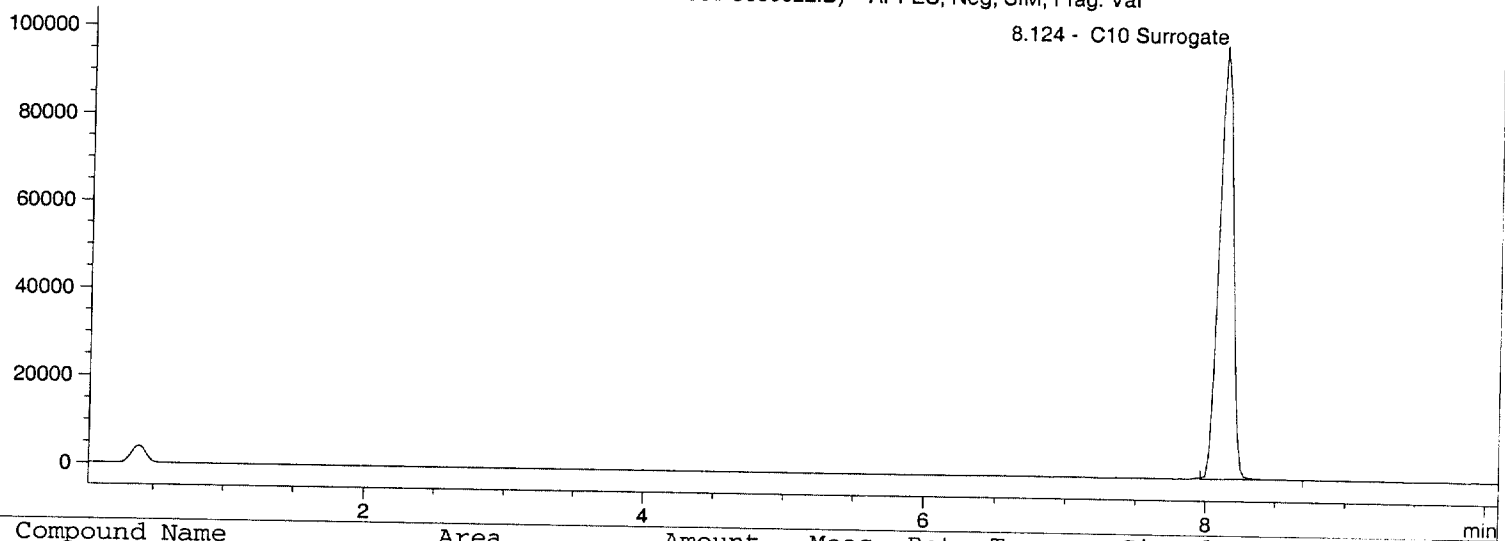
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12073506\A896256\FC000022.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12073506\A896256\FC000022.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	5073.57	0.00	7.248	MSD1 369, EIC=368.7:369.7
C10 Surrogate	694407.75	517.14	8.124	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0039

Sample Info:

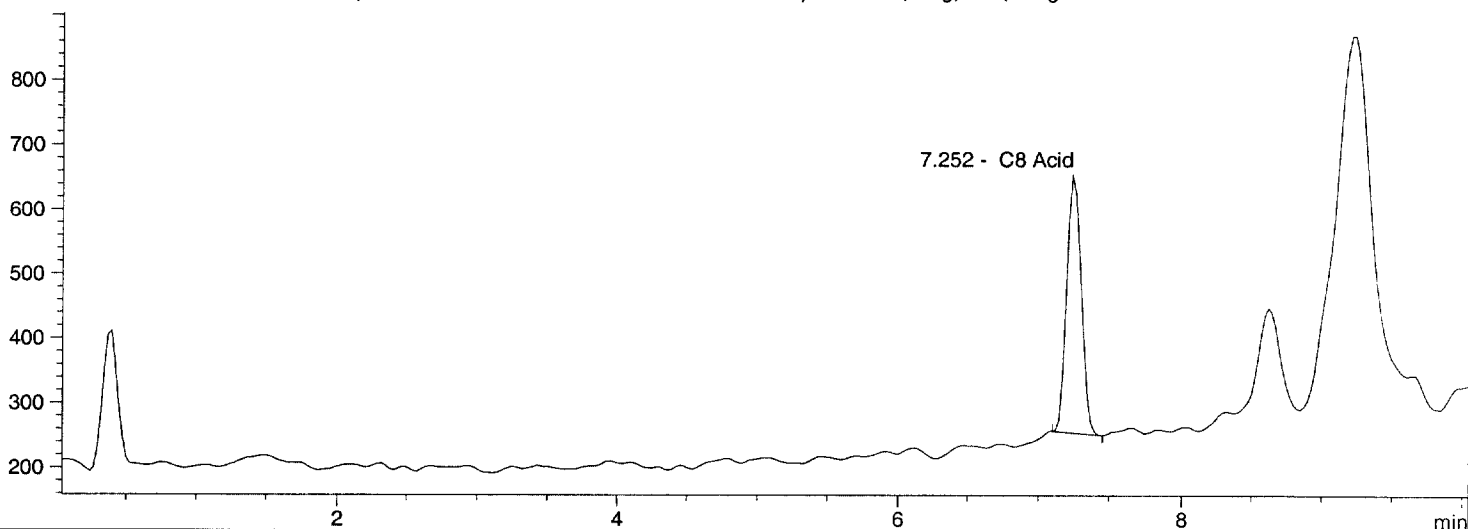
Data file :C:\HPCHEM\1\DATA\Chemstor\12073595\A898368\FC000023.D

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=====
Injection Date   : 1/21/04      10:57:00 PM   Seq Line   :      23
Acq Operator    : jmillers          Vial No.    :      22
Instrument      : PC00414          Inj. No.    :       1
Dilution       : 1                Inj. Vol.   :      5 µl
=====
```

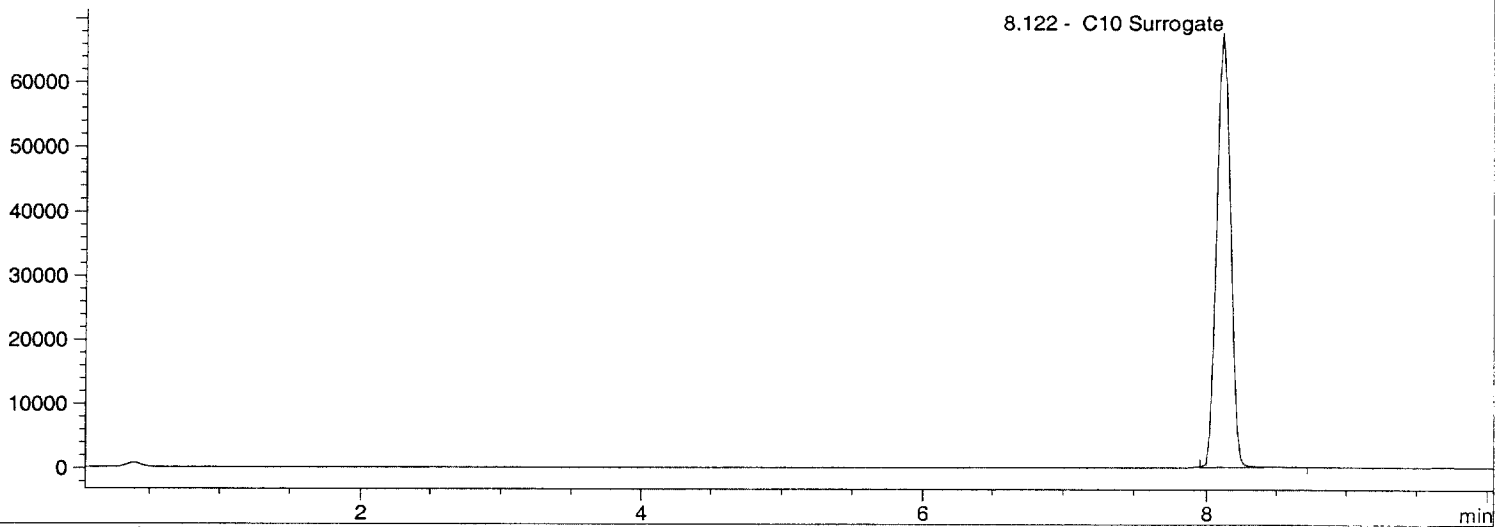
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Acq. Method     : FC8-10.M
Analysis Method  : C:\HPCHEM\1\METHODS\012104.M
Last Changed    : 2/26/04      08:41:06 am
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LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12073595\A898368\FC000023.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12073595\A898368\FC000023.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	2827.02	0.00	7.252	MSD1 369, EIC=368.7:369.7
C10 Surrogate	477008.69	335.33	8.122	MSD1 469, EIC=468.7:469.7

*** End of Report ***

U040

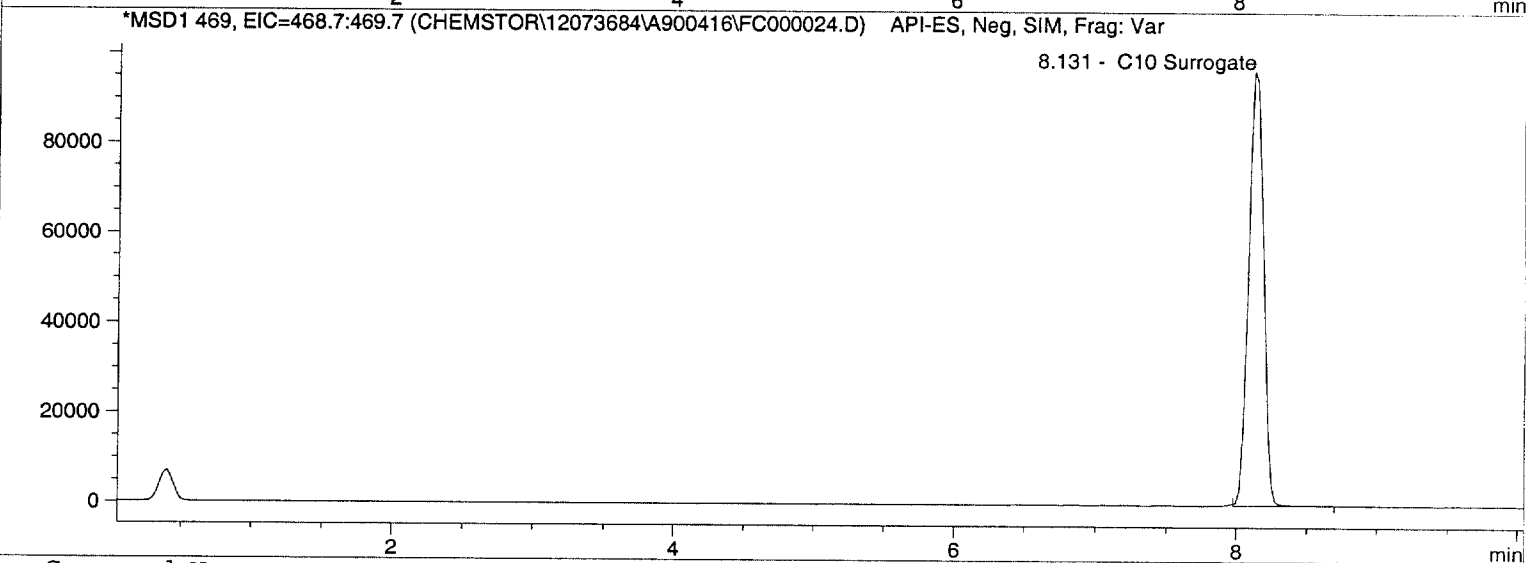
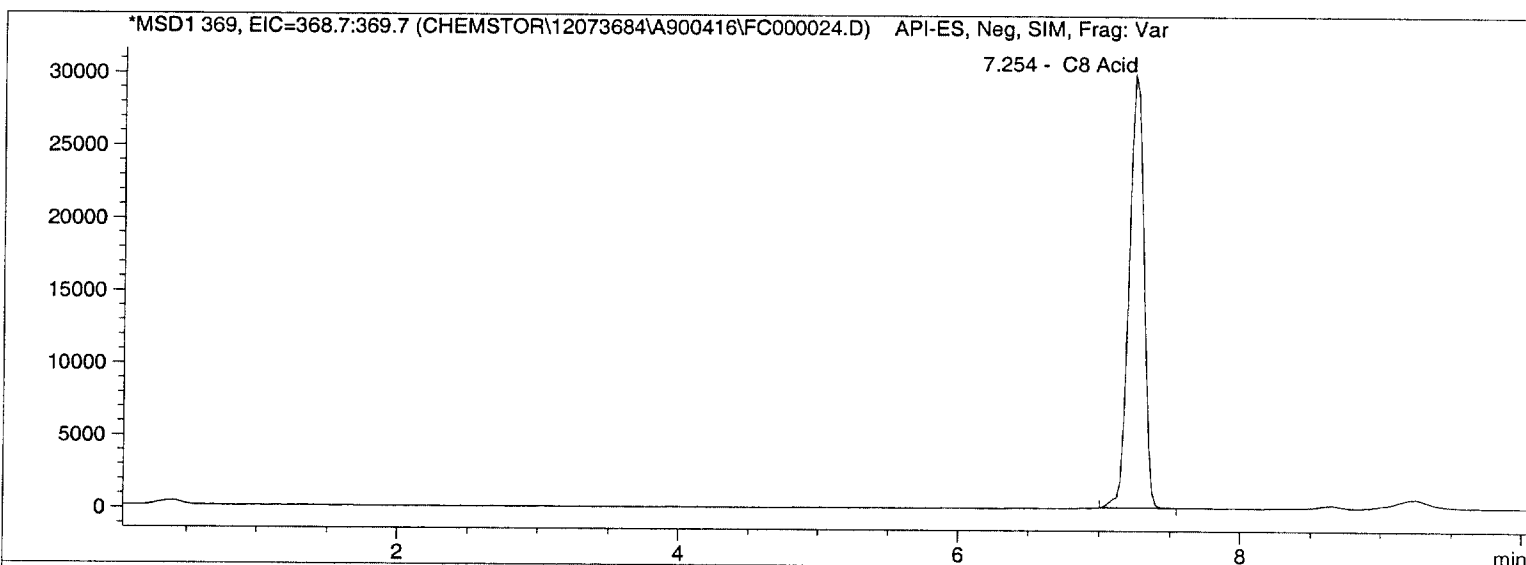
Sample Info:

Data file :C:\HPCHEM\1\DATA\Chemstor\12073684\A900416\FC000024.D

```
=====
Injection Date   : 1/21/04           11:12:32 PM   Seq Line   :           24
Acq Operator    : jmillier           Vial No.    :           23
Instrument      : PC00414           Inj. No.    :           1
Dilution       : 1                 Inj. Vol.   :           5 µl
=====
```

```
Acq. Method     : FC8-10.M
Analysis Method  : C:\HPCHEM\1\METHODS\012104.M
Last Changed    : 2/26/04           08:41:06 am
```

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	218205.28	395.72	7.254	MSD1 369, EIC=368.7:369.7
C10 Surrogate	697914.50	520.07	8.131	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0041

Sample Name: L1667-17
Sample Info:

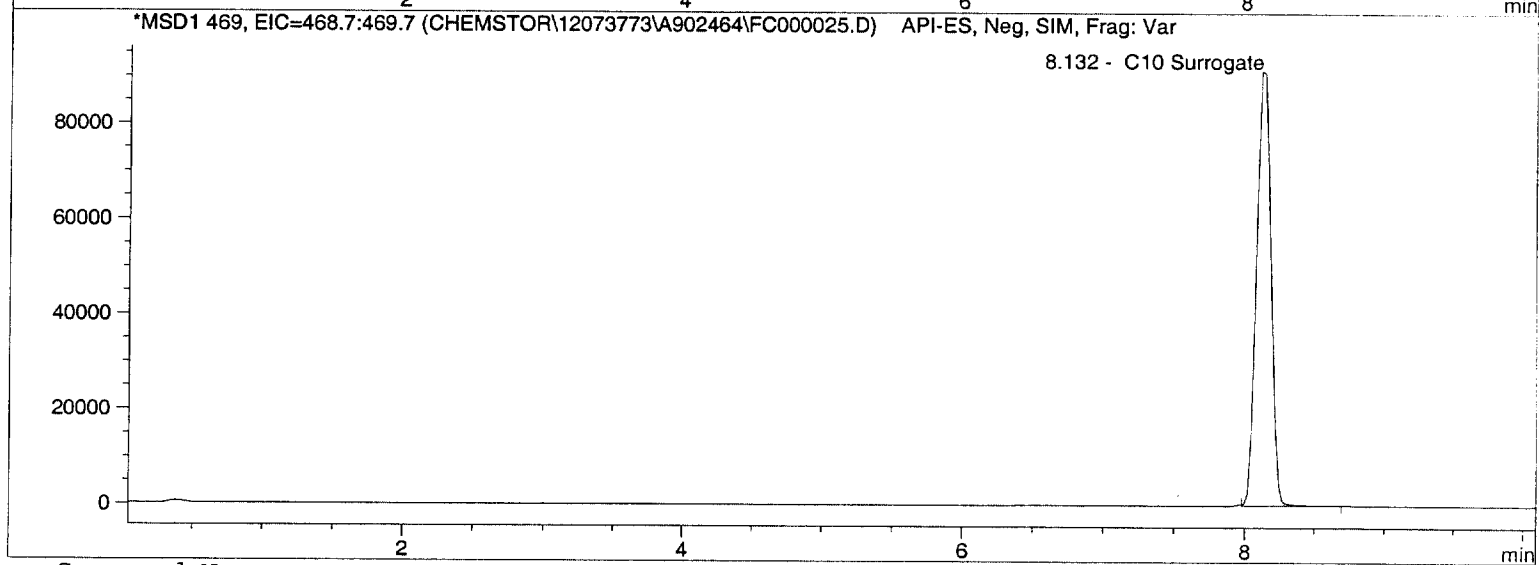
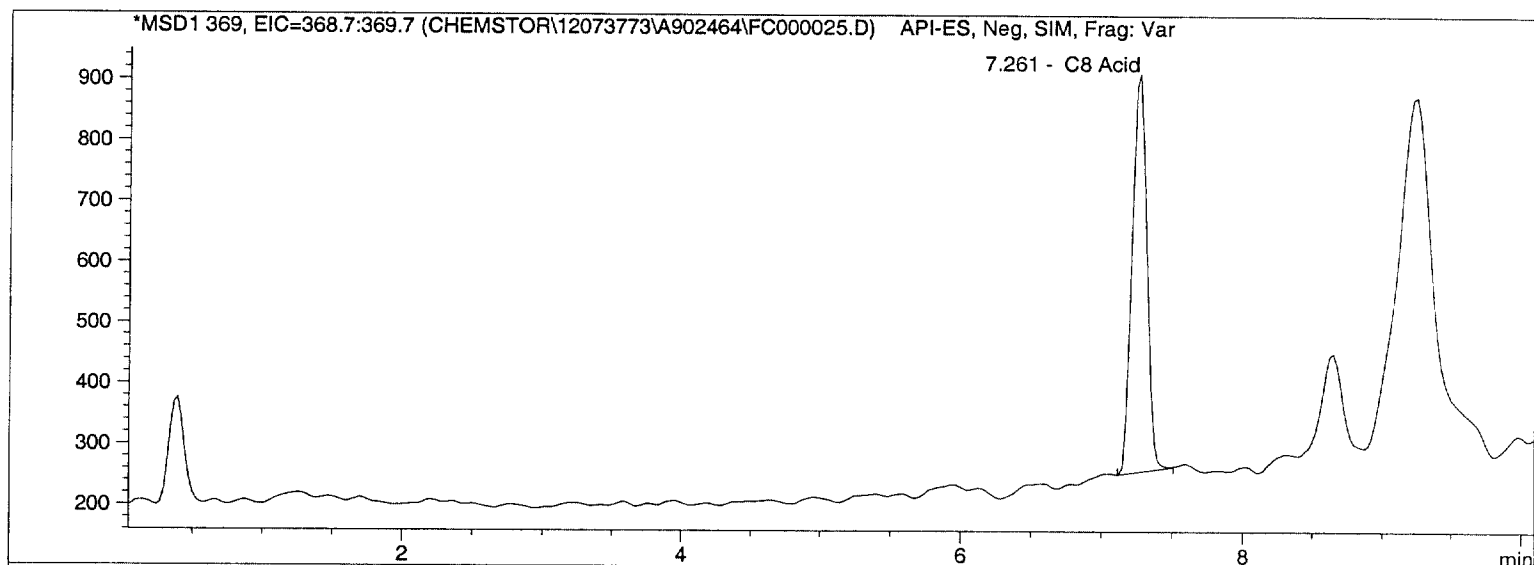
1

Data file : C:\HPCHEM\1\DATA\Chemstor\12073773\A902464\FC000025.D

Injection Date : 1/21/04 11:28:09 PM Seq Line : 25
Acq Operator : jmillers Vial No. : 24
Instrument : PC00414 Inj. No. : 1
Dilution : 1 Inj. Vol. : 5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	4721.38	0.00	7.261	MSD1 369, EIC=368.7:369.7
C10 Surrogate	663417.75	491.22	8.132	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0042

Sample Info:

Data file :C:\HPCHEM\1\DATA\Chemstor\12073862\A904640\FC000026.D

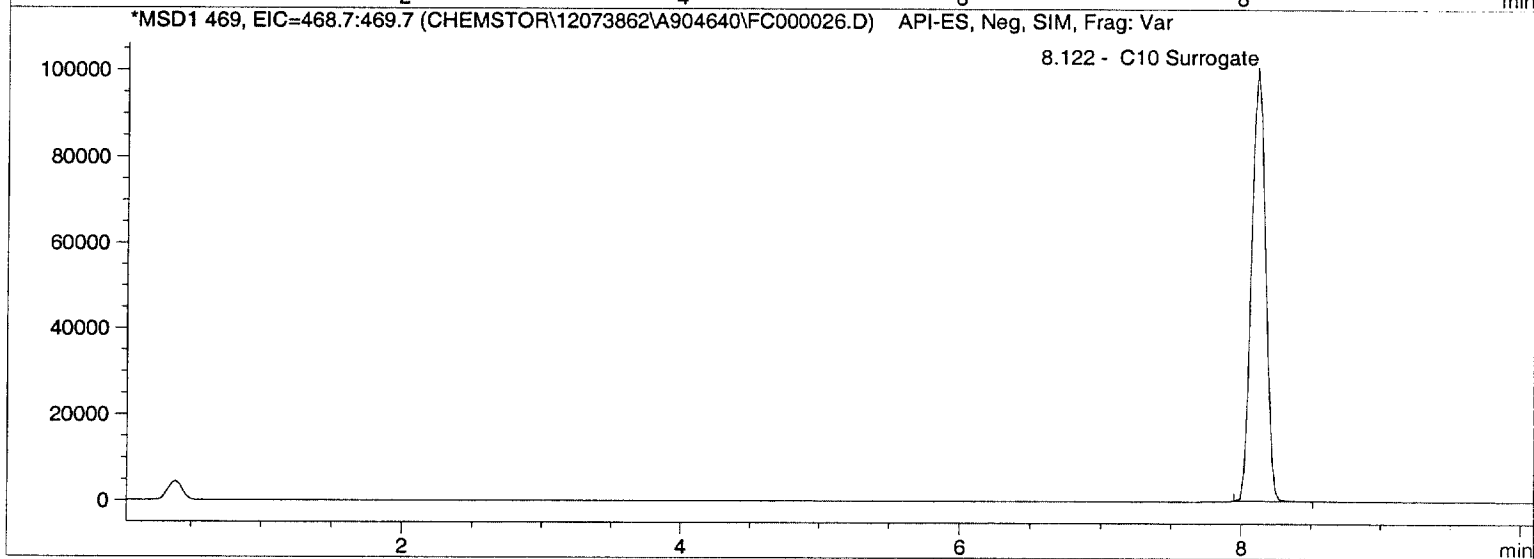
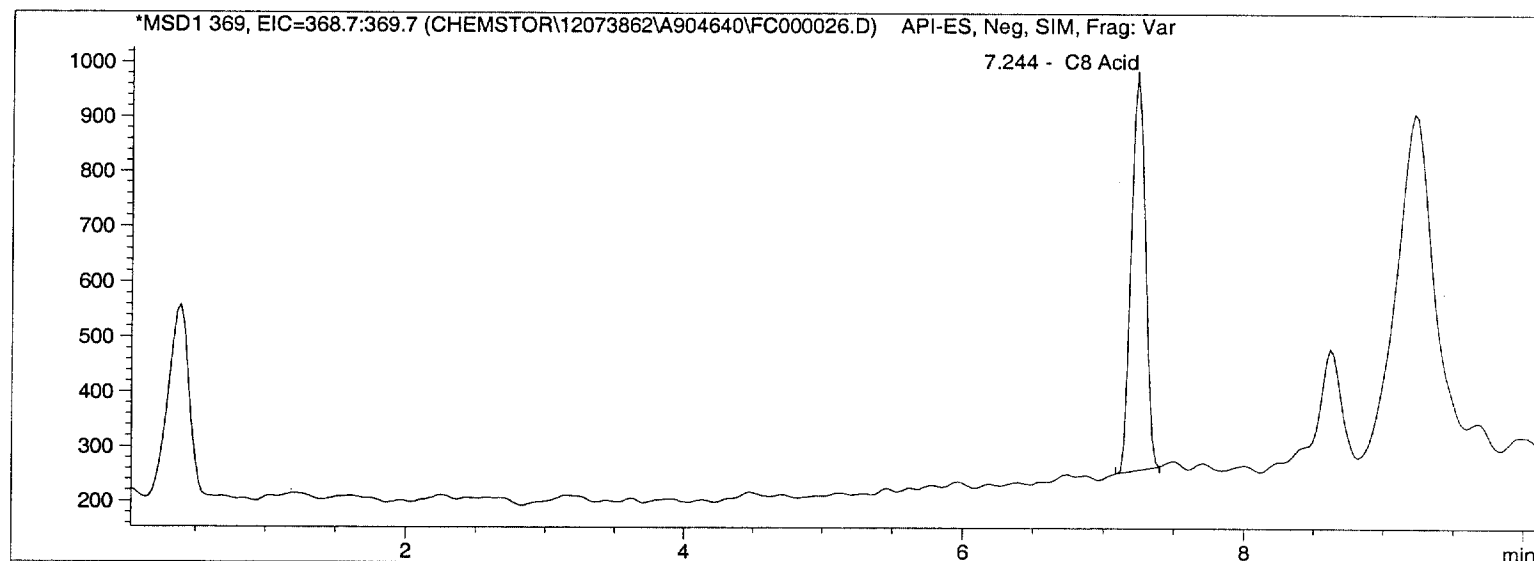
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=====
Injection Date   : 1/21/04      11:43:44 PM   Seq Line   :      26
Acq Operator    : jmillers          Vial No.    :      25
Instrument       : PC00414          Inj. No.    :       1
Dilution        : 1                Inj. Vol.   :      5 µl
=====
```

Acq. Method : FC8-10.M

Analysis Method : C:\HPCHEM\1\METHODS\012104.M

Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	5033.35	0.00	7.244	MSD1 369, EIC=368.7:369.7
C10 Surrogate	706496.94	527.25	8.122	MSD1 469, EIC=468.7:469.7

*** End of Report ***

J043

Sample Info:

Data file :C:\HPCHEM\1\DATA\Chemstor\12073951\A907520\FC000027.D

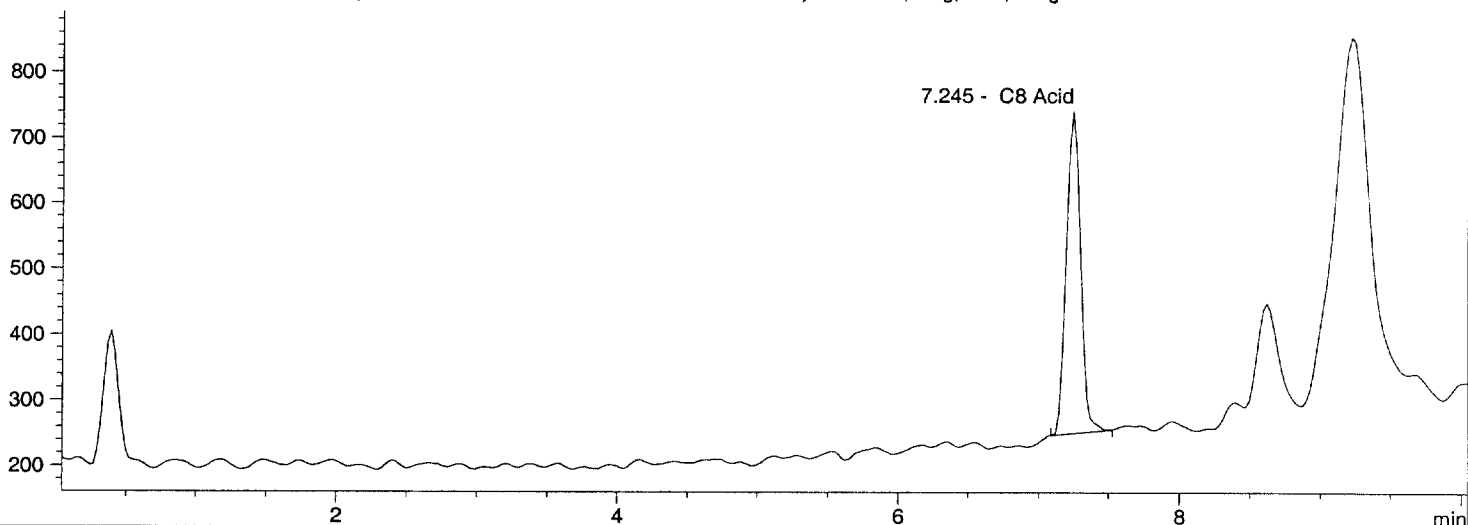
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Injection Date	: 1/21/04	11:59:20 PM	Seq Line	:	27
Acq Operator	: jmilller		Vial No.	:	26
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

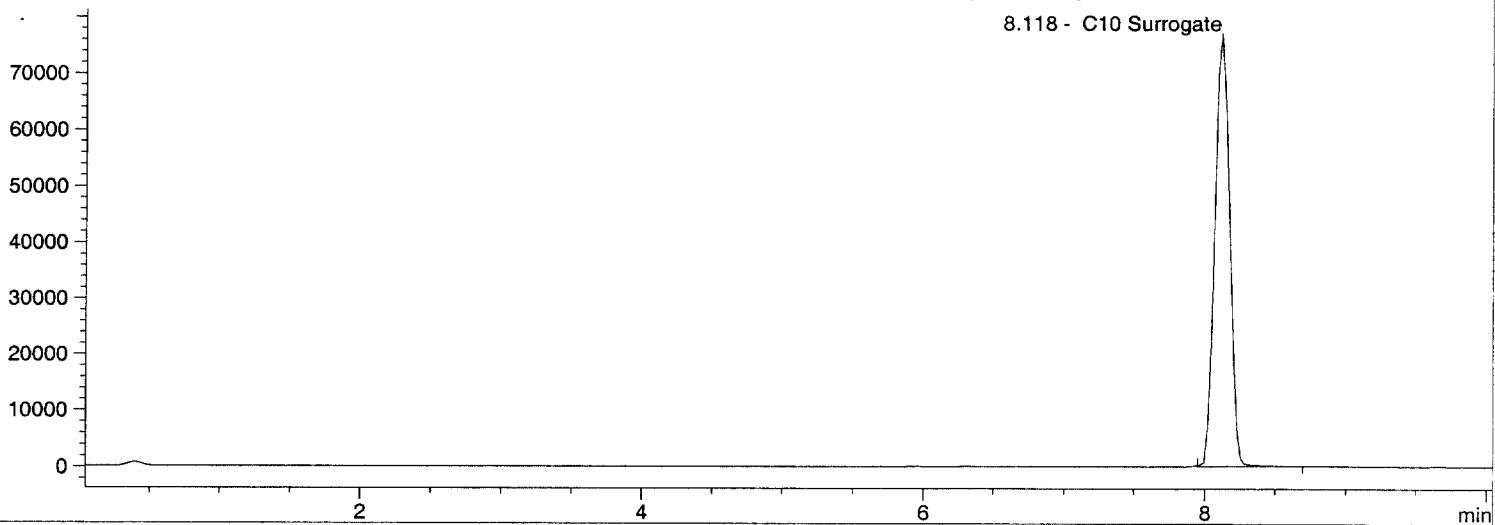
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12073951\A907520\FC000027.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12073951\A907520\FC000027.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	3515.82	0.00	7.245	MSD1 369, EIC=368.7:369.7
C10 Surrogate	543472.75	390.91	8.118	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0044

Sample Name:STD 500 ppb
Sample Info:

1

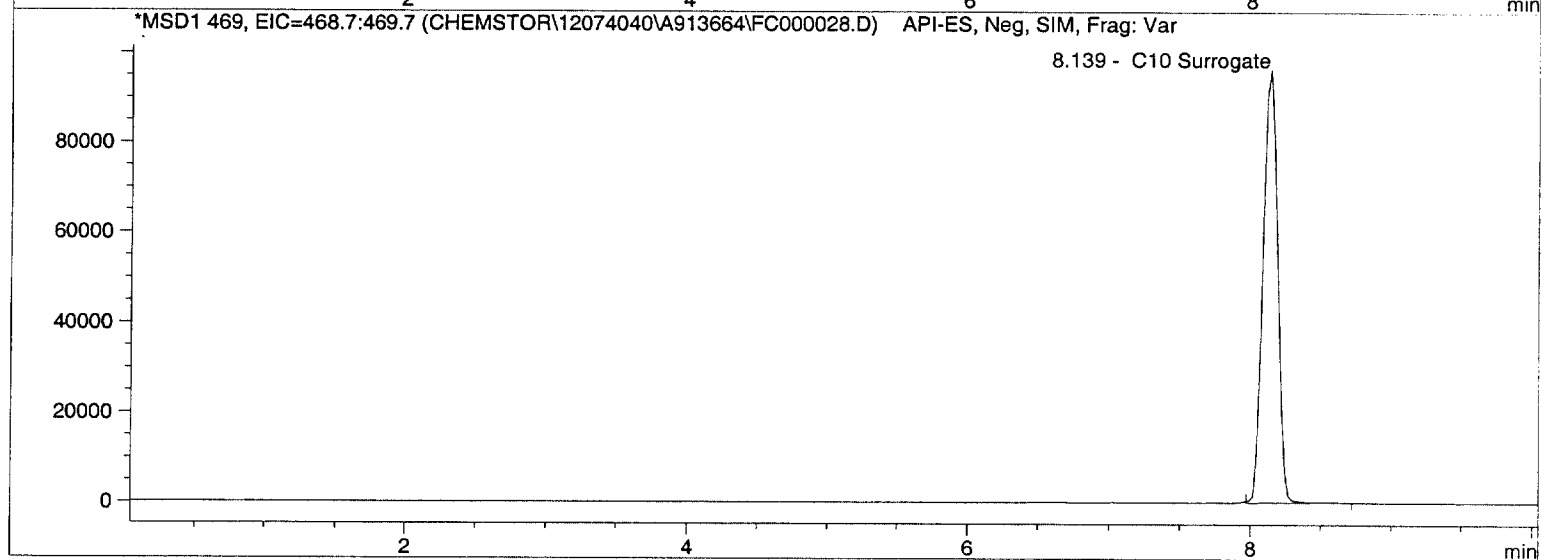
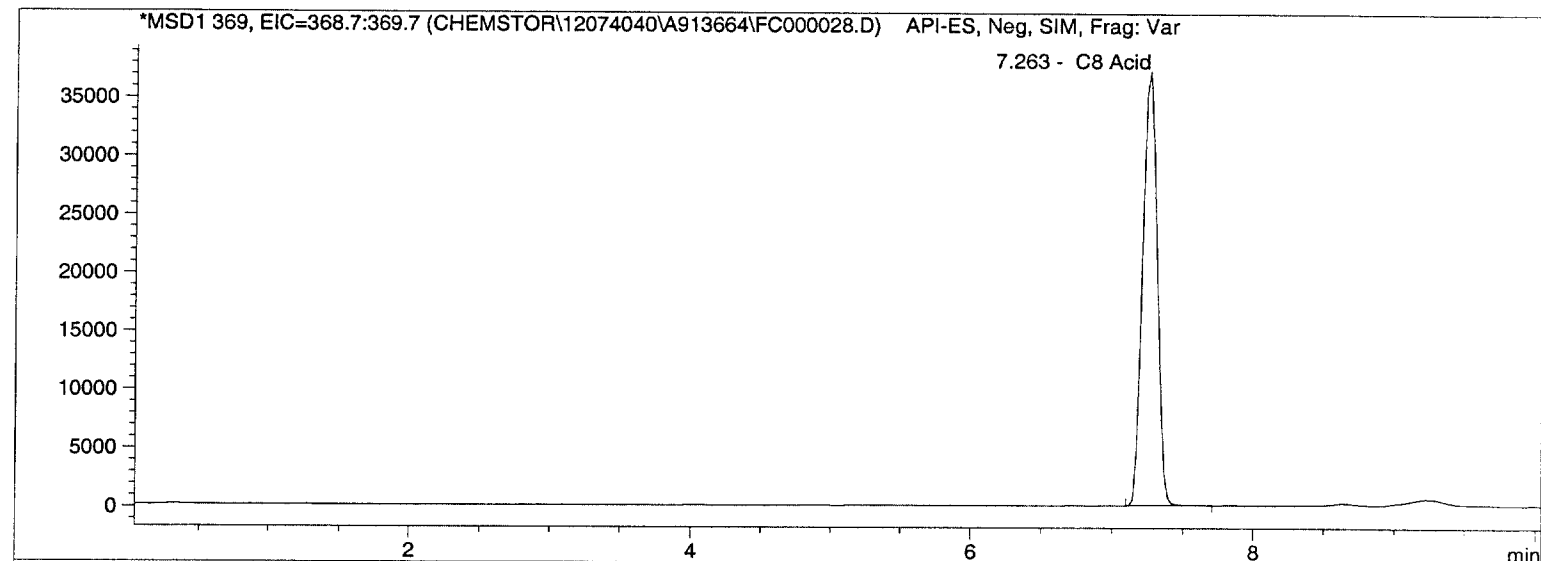
Data file :C:\HPCHEM\1\DATA\Chemstor\12074040\A913664\FC000028.D

=====

Injection Date	: 1/22/04	12:14:56 AM	Seq Line	:	28
Acq Operator	: jmillier		Vial No.	:	4
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	266125.50	491.55	7.263	MSD1 369, EIC=368.7:369.7
C10 Surrogate	686449.06	510.48	8.139	MSD1 469, EIC=468.7:469.7

*** End of Report ***

Sample Name:solvent blank
Sample Info:

1

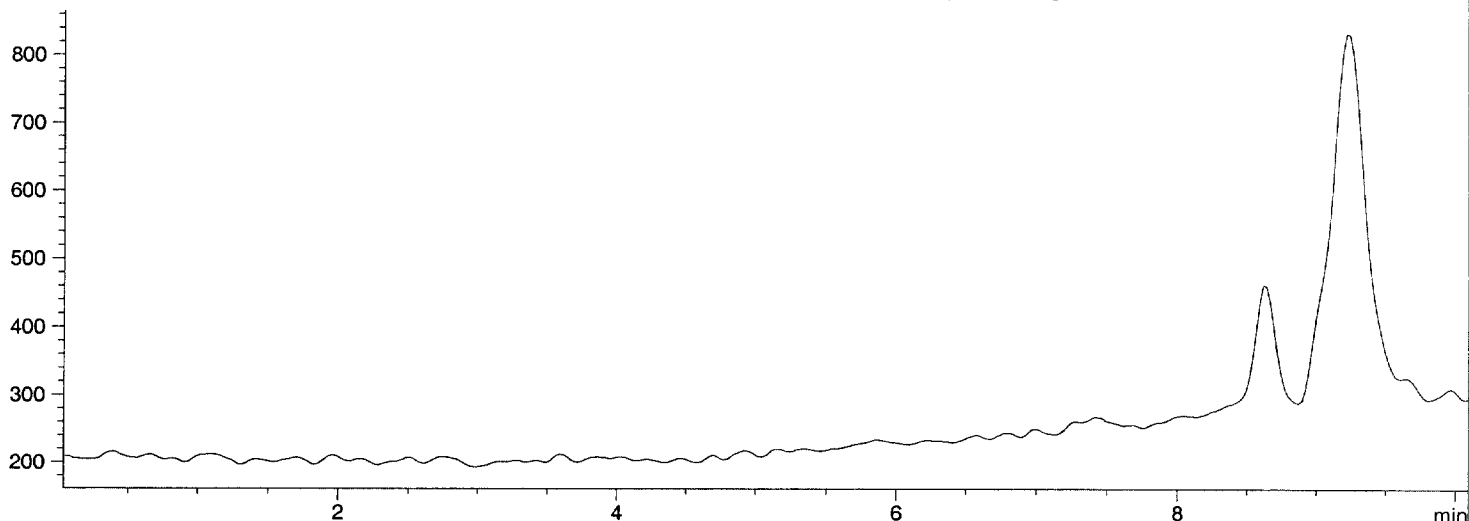
Data file :C:\HPCHEM\1\DATA\Chemstor\12074178\A917504\FC000029.D

Injection Date : 1/22/04 12:30:24 AM Seq Line : 29
Acq Operator : jmillers Vial No. : 92
Instrument : PC00414 Inj. No. : 1
Dilution : 1 Inj. Vol. : 5 µl

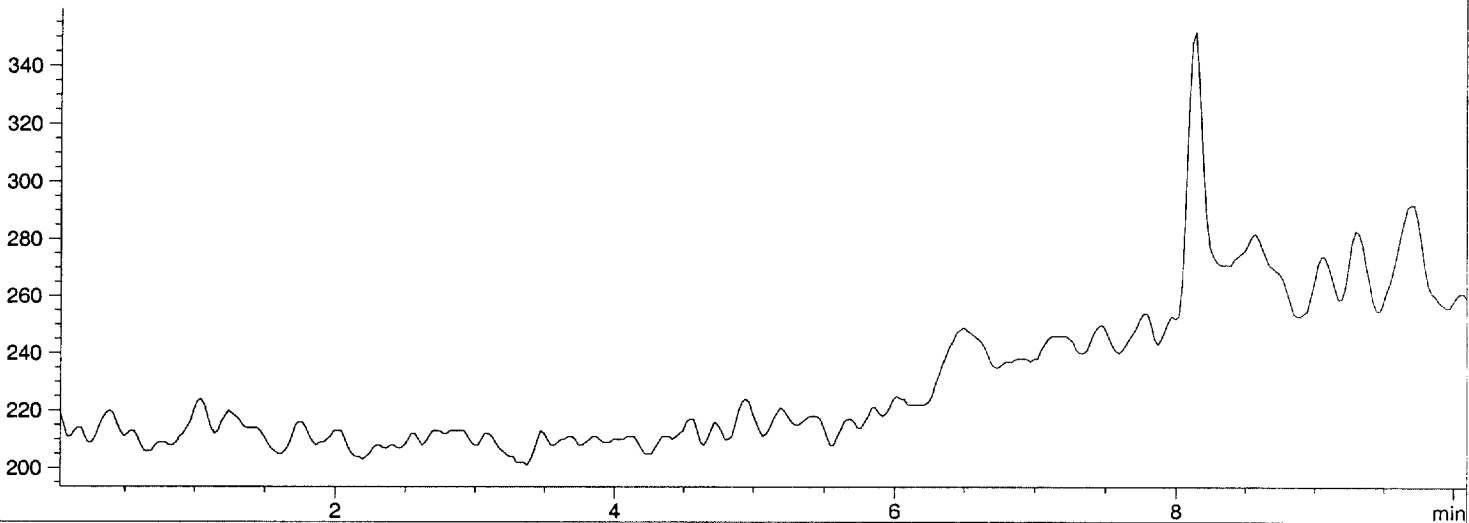
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12074178\A917504\FC000029.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12074178\A917504\FC000029.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	0.00	0.00	0.000	MSD1 369, EIC=368.7:369.7
C10 Surrogate	0.00	0.00	0.000	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0046

Sample Name:STD 50 ppb
Sample Info:

1

Data file :C:\HPCHEM\1\DATA\Chemstor\12066508\A989120\FC000030.D

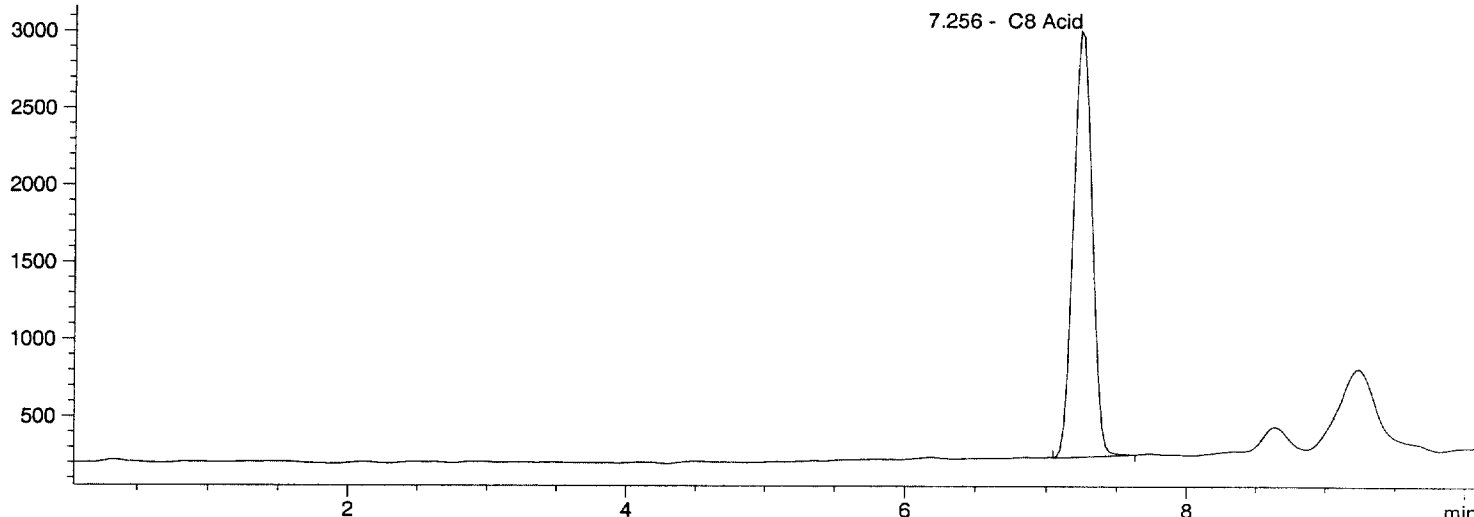
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Injection Date	: 1/22/04	12:45:54 AM	Seq Line	:	30
Acq Operator	: jmillier		Vial No.	:	1
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

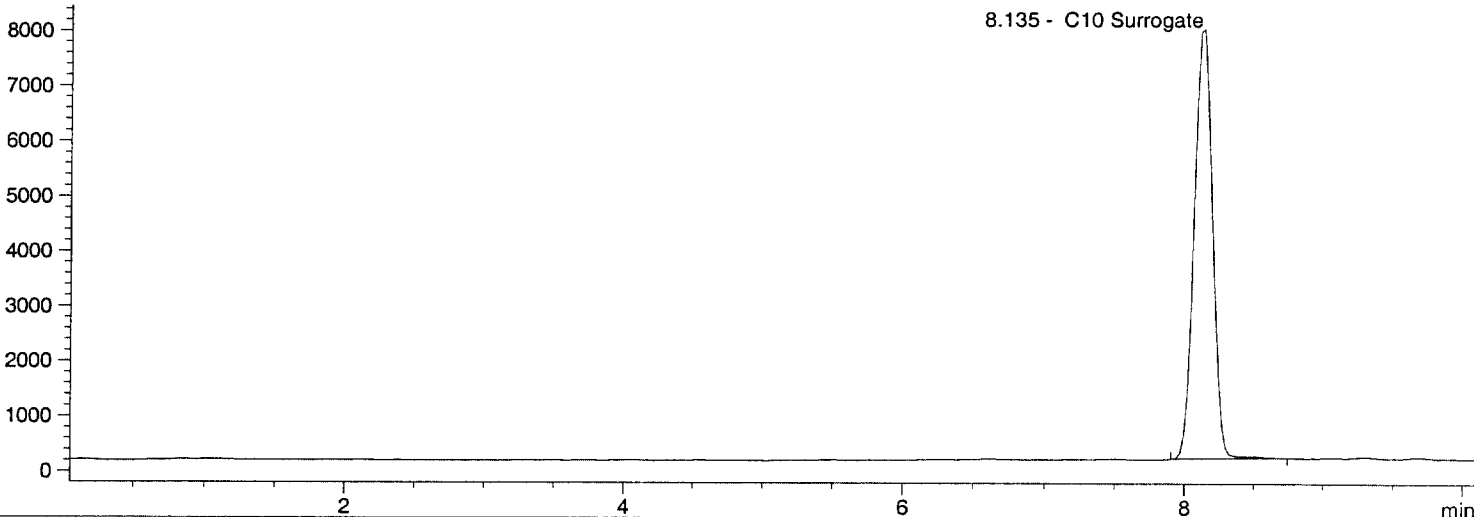
Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12066508\A989120\FC000030.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12066508\A989120\FC000030.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	25612.23	10.57	7.256	MSD1 369, EIC=368.7:369.7
C10 Surrogate	72586.63	0.00	8.135	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0047

Sample Name:STD 100 ppb
Sample Info:

1

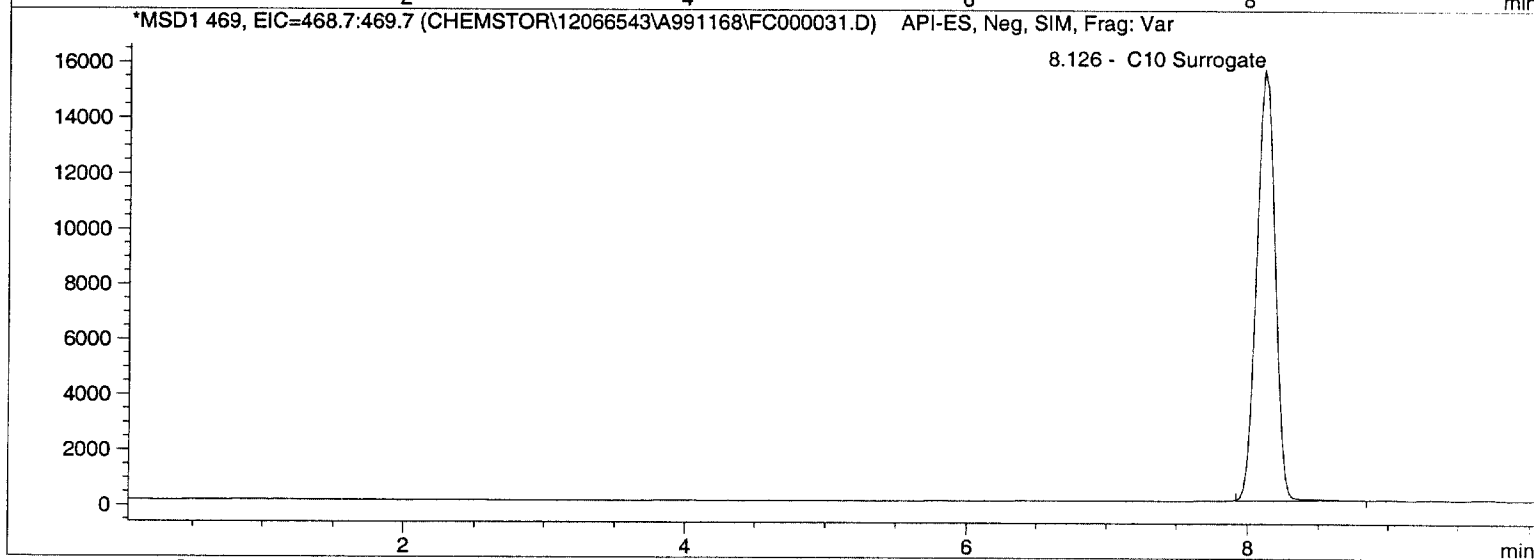
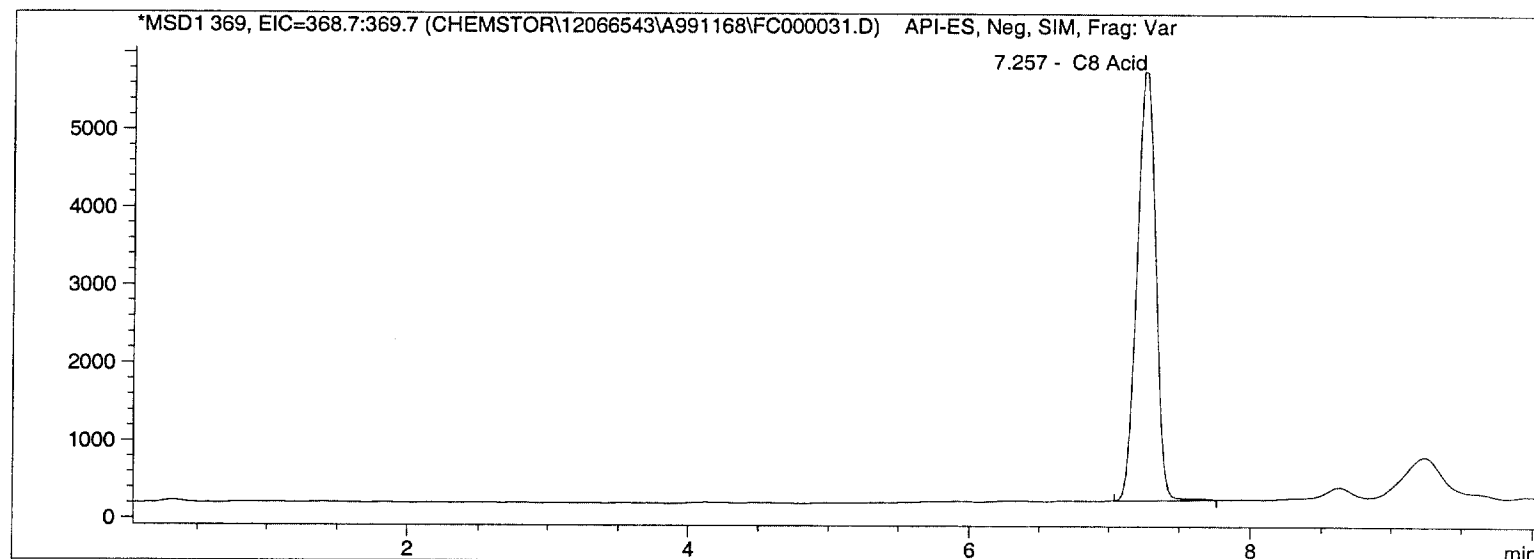
Data file :C:\HPCHEM\1\DATA\Chemstor\12066543\A991168\FC000031.D

=====

Injection Date	: 1/22/04	1:01:27 AM	Seq Line	:	31
Acq Operator	: jmillier		Vial No.	:	2
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	51526.66	62.40	7.257	MSD1 369, EIC=368.7:369.7
C10 Surrogate	142940.17	55.95	8.126	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0048

Sample Name:STD 250 ppb
Sample Info:

1

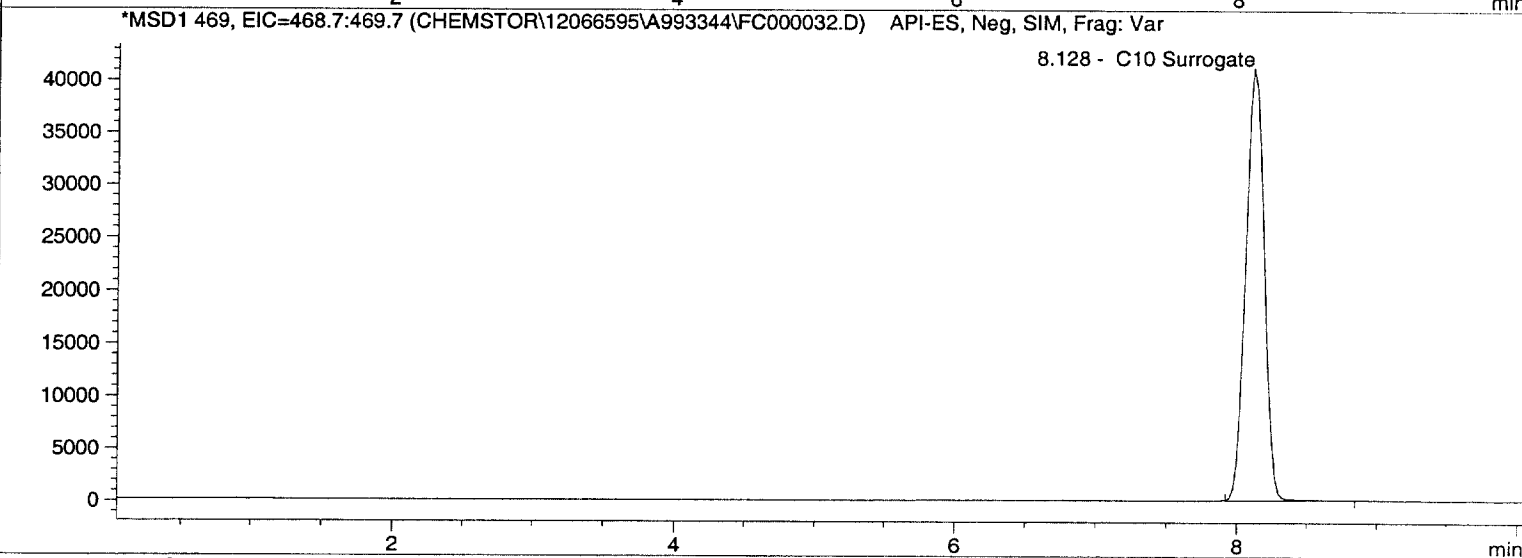
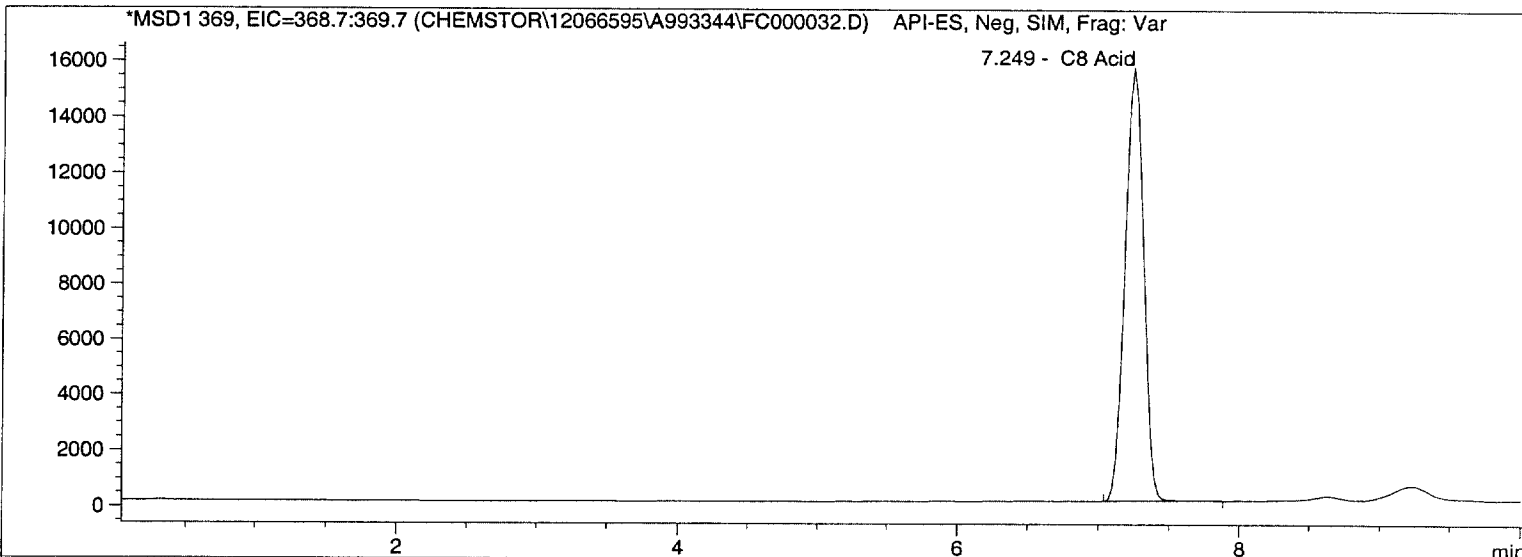
Data file :C:\HPCHEM\1\DATA\Chemstor\12066595\A993344\FC000032.D

=====

Injection Date	: 1/22/04	1:17:00 AM	Seq Line	:	32
Acq Operator	: jmillier		Vial No.	:	3
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	142331.38	243.99	7.249	MSD1 369, EIC=368.7:369.7
C10 Surrogate	377106.56	251.78	8.128	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0049

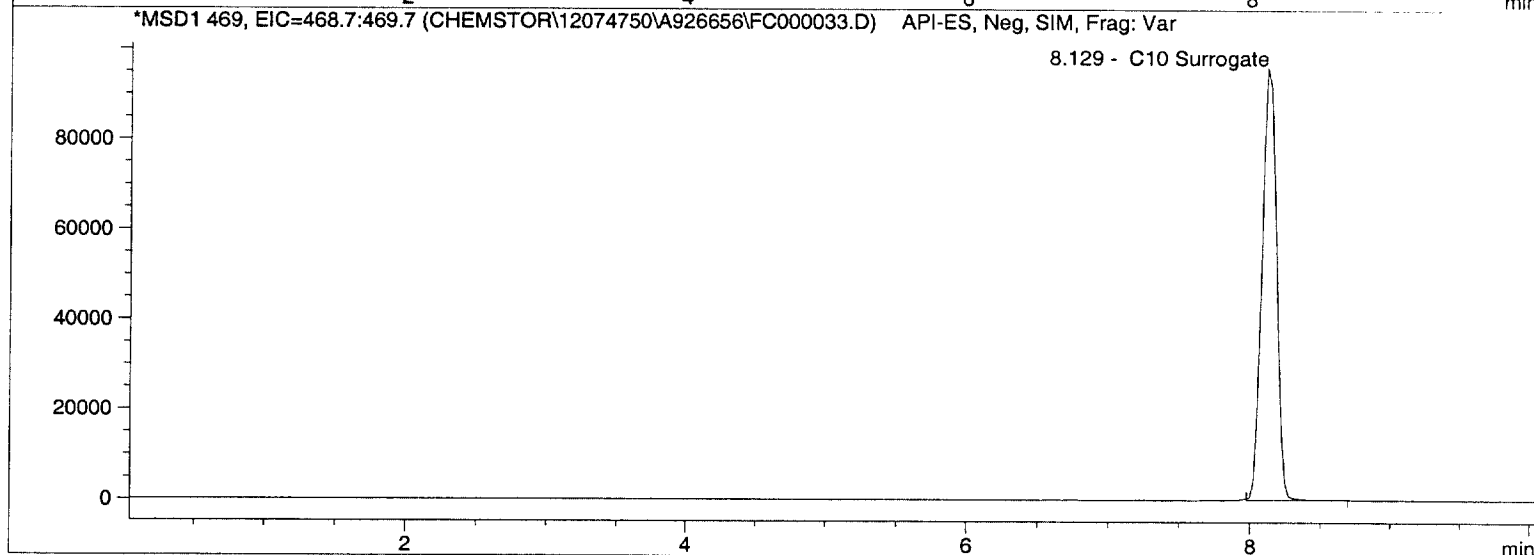
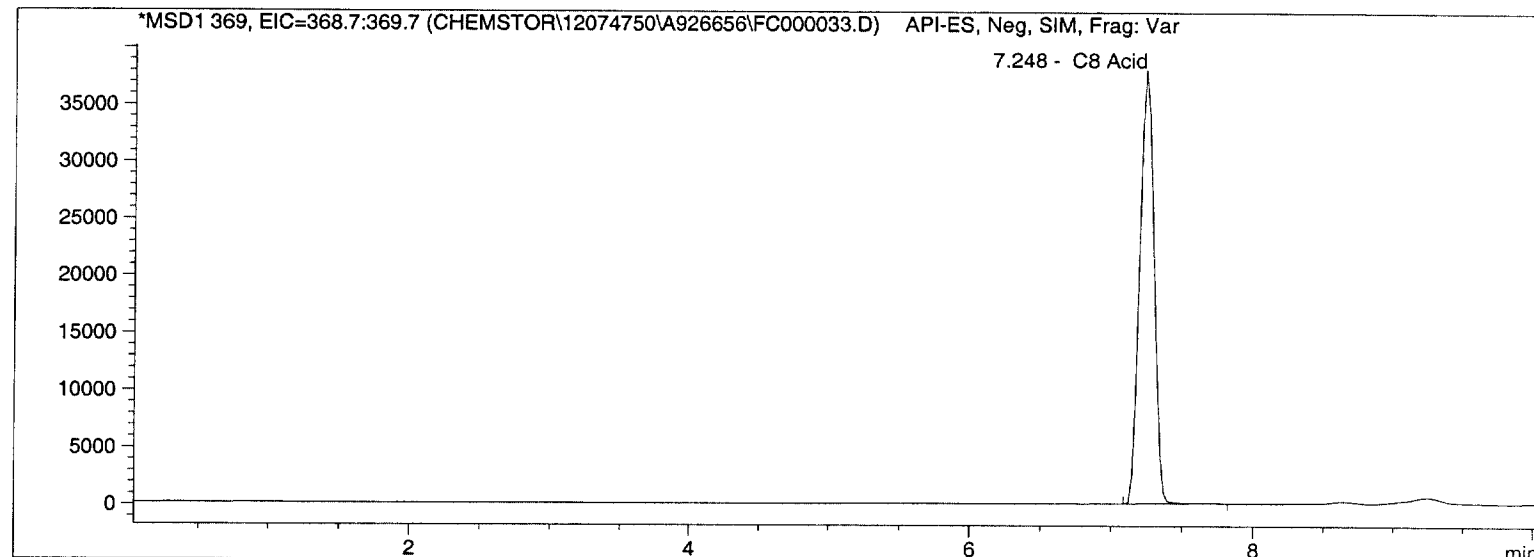
Sample Info:

Data file :C:\HPCHEM\1\DATA\Chemstor\12074750\A926656\FC000033.D

```
=====
Injection Date   : 1/22/04           1:32:35 AM   Seq Line   :           33
Acq Operator    : jmillers            Vial No.    :           4
Instrument       : PC00414            Inj. No.    :           1
Dilution        : 1                  Inj. Vol.   :           5 µl
=====
```

```
Acq. Method     : FC8-10.M
Analysis Method  : C:\HPCHEM\1\METHODS\012104.M
Last Changed    : 2/26/04           08:41:06 am
```

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	267827.81	494.96	7.248	MSD1 369, EIC=368.7:369.7
C10 Surrogate	686857.69	510.82	8.129	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0050

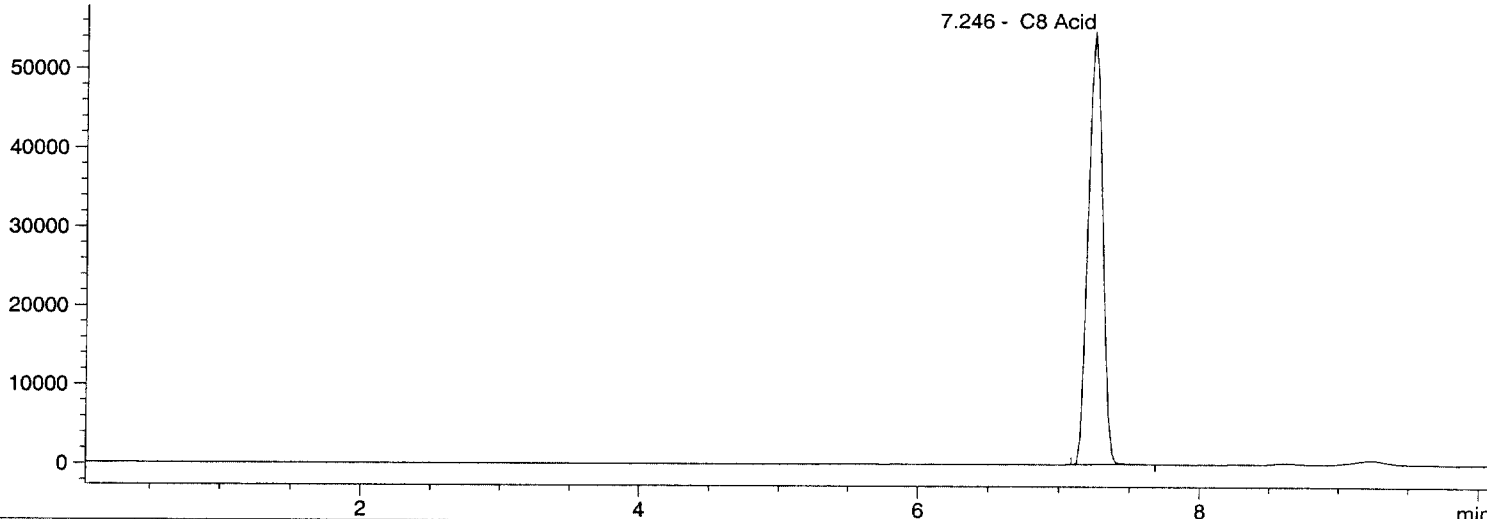
Data file :C:\HPCHEM\1\DATA\Chemstor\12074917\A928704\FC000034.D

```
=====
Injection Date   : 1/22/04           1:48:10 AM   Seq Line   :           34
Acq Operator    : jmillar            Vial No.    :           5
Instrument      : PC00414             Inj. No.    :           1
Dilution       : 1                  Inj. Vol.   :           5 µl
=====
```

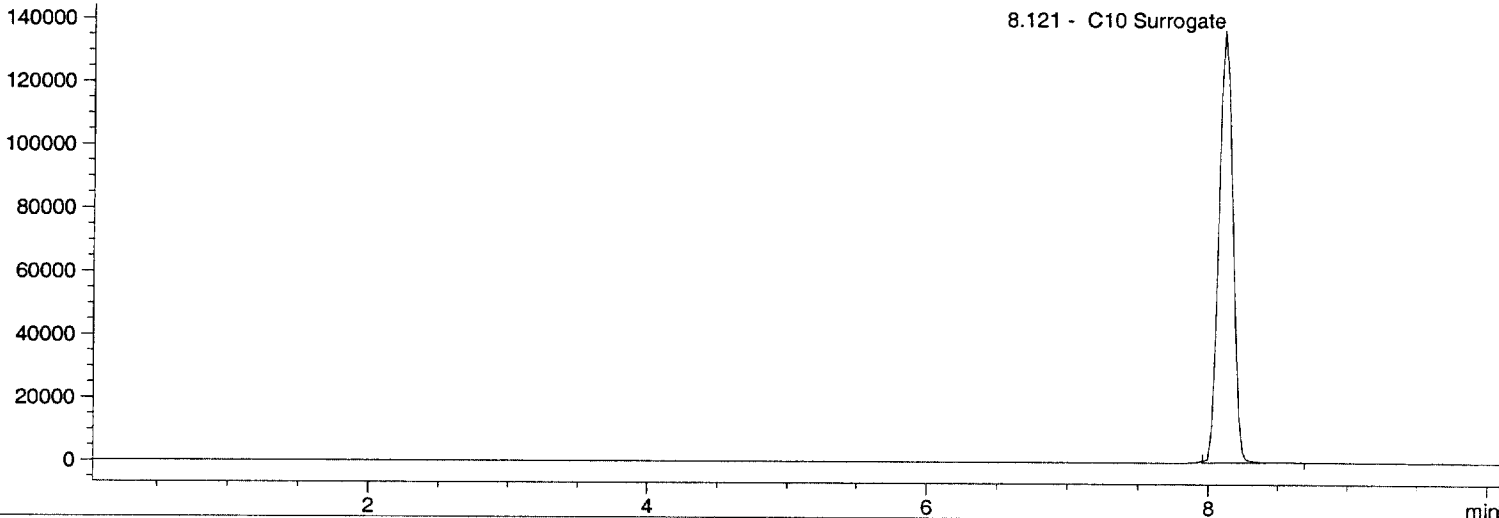
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Acq. Method     : FC8-10.M
Analysis Method  : C:\HPCHEM\1\METHODS\012104.M
Last Changed    : 2/26/04           08:41:06 am
```

LC/MS analysis of perfluorooctanoic acid.

*MSD1 369, EIC=368.7:369.7 (CHEMSTOR\12074917\A928704\FC000034.D) API-ES, Neg, SIM, Frag: Var



*MSD1 469, EIC=468.7:469.7 (CHEMSTOR\12074917\A928704\FC000034.D) API-ES, Neg, SIM, Frag: Var



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	386648.75	732.58	7.246	MSD1 369, EIC=368.7:369.7
C10 Surrogate	971416.81	748.80	8.121	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0051

Sample Name:STD 1000 ppb

Sample Info:

1

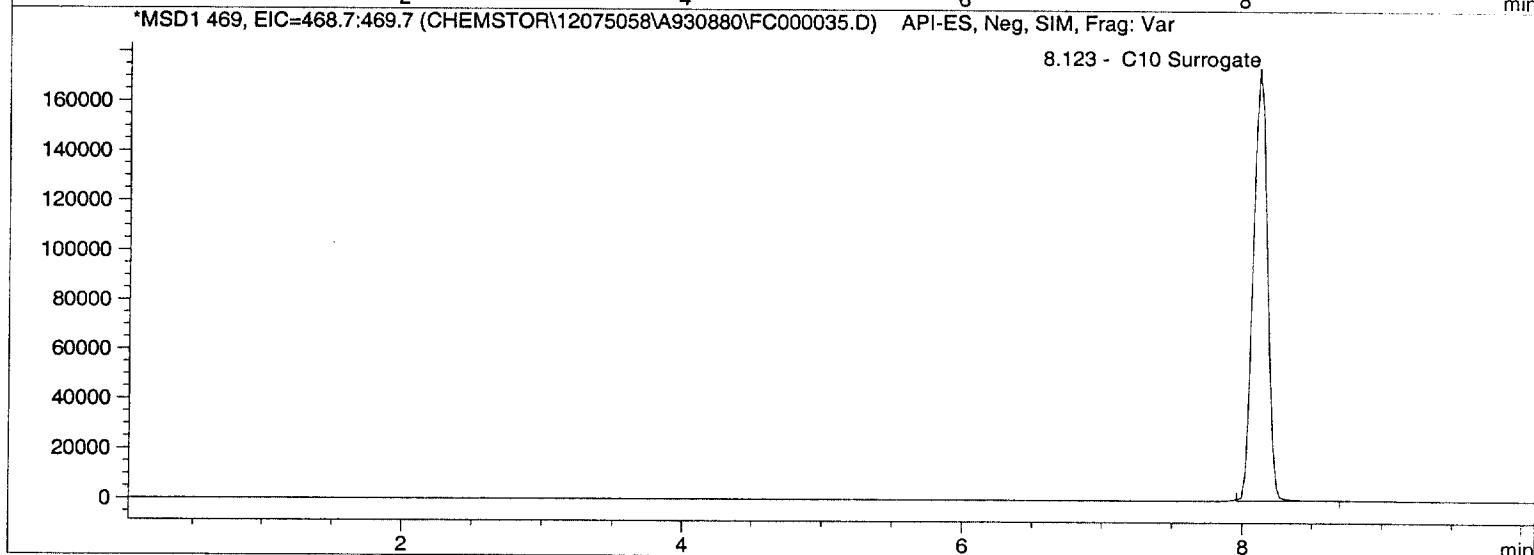
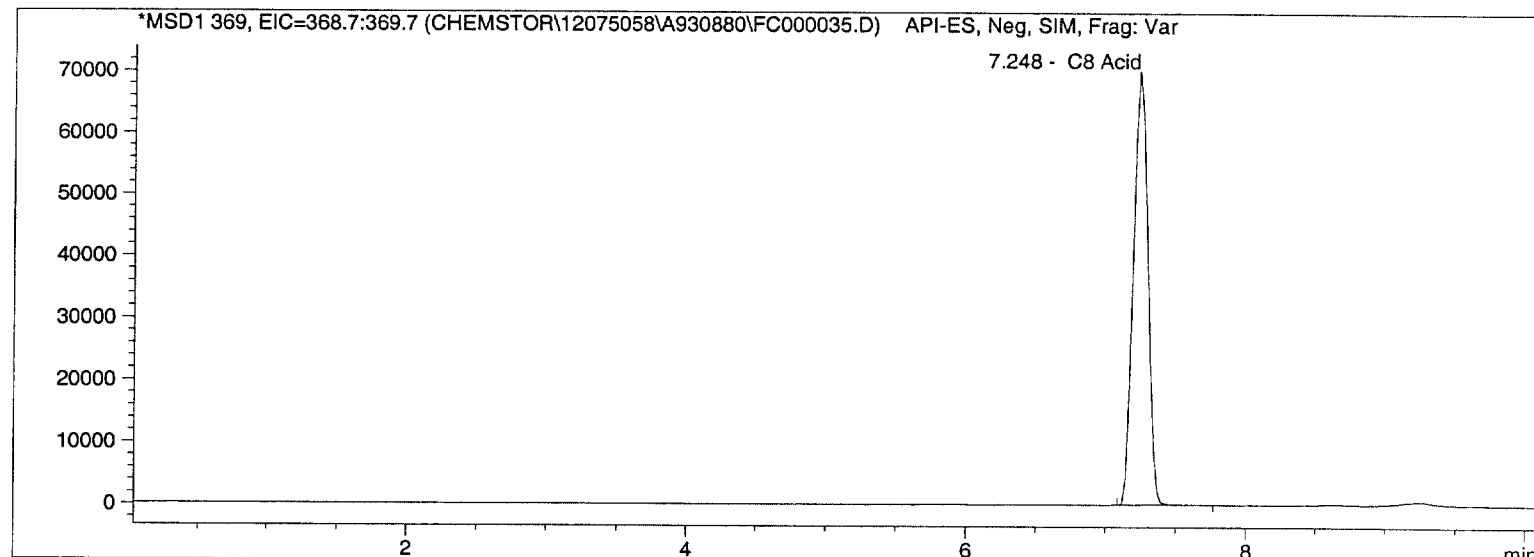
Data file :C:\HPCHEM\1\DATA\Chemstor\12075058\A930880\FC000035.D

=====

Injection Date	: 1/22/04	2:03:44 AM	Seq Line	:	35
Acq Operator	: jmillier		Vial No.	:	6
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	498969.72	957.20	7.248	MSD1 369, EIC=368.7:369.7
C10 Surrogate	1240826.87	974.10	8.123	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0052

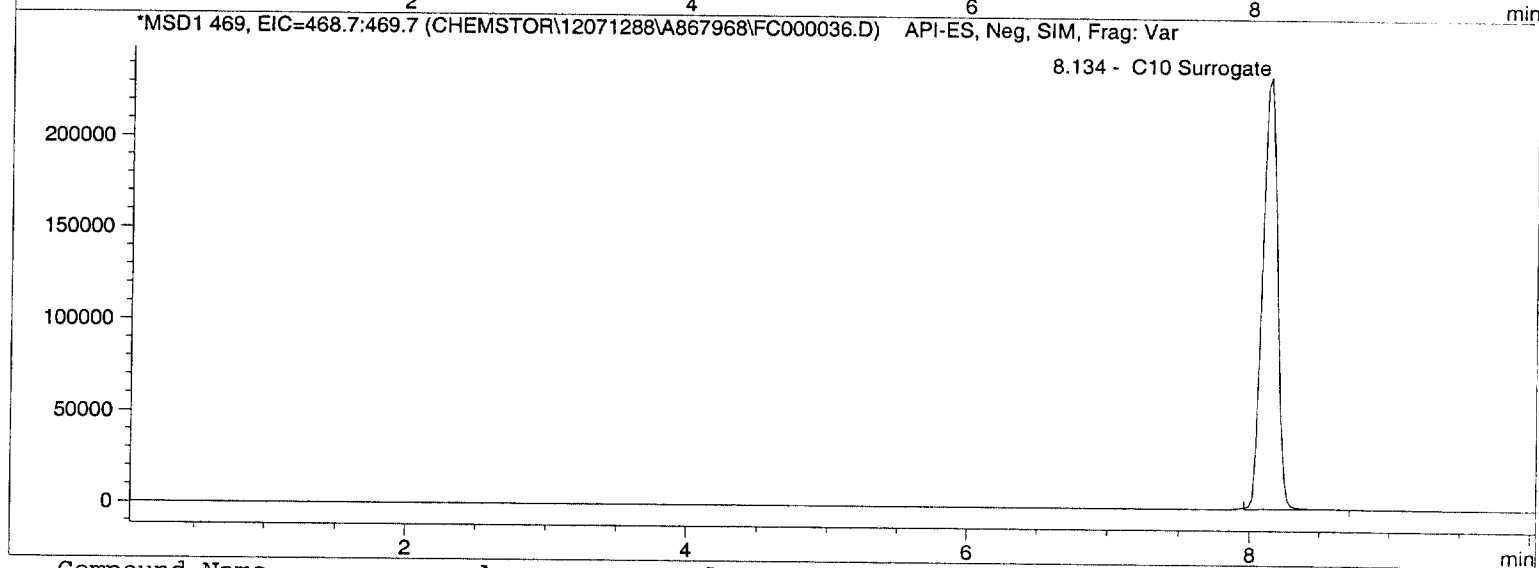
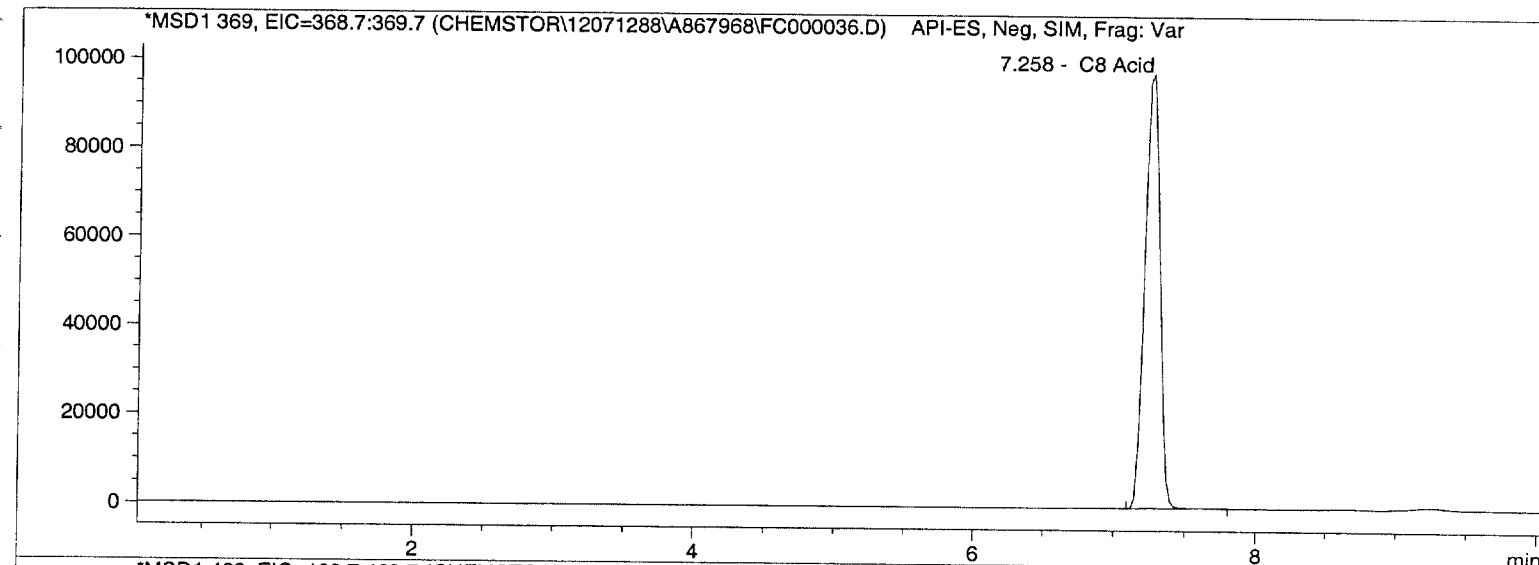
Data file :C:\HPCHEM\1\DATA\Chemstor\12071288\A867968\FC000036.D

=====

Injection Date	: 1/22/04	2:19:21 AM	Seq Line	:	36
Acq Operator	: jmillar		Vial No.	:	7
Instrument	: PC00414		Inj. No.	:	1
Dilution	: 1		Inj. Vol.	:	5 µl

Acq. Method : FC8-10.M
Analysis Method : C:\HPCHEM\1\METHODS\012104.M
Last Changed : 2/26/04 08:41:06 am

LC/MS analysis of perfluorooctanoic acid.



Compound Name	Area	Amount	Meas. Ret. T	Signal Desc.
C8 Acid	714769.62	1388.76	7.258	MSD1 369, EIC=368.7:369.7
C10 Surrogate	1732664.00	1385.42	8.134	MSD1 469, EIC=468.7:469.7

*** End of Report ***

0053

Login

Login Group: L0001567

Login #:	1777	Conform COC Sample:	True
Project:	P0000419	Conform COC:	True
Project Storage:		Conform Sample:	True
Company Name:	DuPont de Nemours & Co, Inc.	Conform Request:	True
Submitted By:	Michael D. Aucoin		
Login Type:	Immediate Receipt of Samples		
Started:	T		
Date Start:	01/19/2004		
Due Date:	02/02/2004		
Received Date:	01/17/2004		
Received By:	AMMERMAN, MARK		
Spread Sample:			
Label:			
Project Title/Type:	Analysis of PFOA in OVS Tubes / ROUTINE		
Exygen SD/PI:	MILLER, JAMES		
Login Notes:			
Conform Notes:			

Packages / Containers

Package	Carton	Mail Date / Condition	Shipper / ID	Temp. Control/Temp.	Direction / Handled By
PK0002255		1/17/2004 12:00:20PM Package & Contents Uncompromised	FEDEX 8363912984560200	None 23.3	RECEIVED AMMERMAN, MARK

Container #	Gross Weight	pH	Container Type	Preservative	Mfg. Lot	Mfg. ID
C0026135	6.3 g		Other	NONE		
C0026136	6.3 g		Other	NONE		
C0026137	6.3 g		Other	NONE		
C0026138	6.1 g		Other	NONE		
C0026139	6.1 g		Other	NONE		
C0026140	6.1 g		Other	NONE		
C0026141	6.2 g		Other	NONE		
C0026142	6.2 g		Other	NONE		
C0026143	6.2 g		Other	NONE		
C0026144	6.2 g		Other	NONE		
C0026145	6.2 g		Other	NONE		
C0026146	6.2 g		Other	NONE		
C0026147	6.3 g		Other	NONE		
C0026148	6.3 g		Other	NONE		
C0026149	6.3 g		Other	NONE		
C0026150	6.2 g		Other	NONE		
C0026151	6.2 g		Other	NONE		
C0026152	6.2 g		Other	NONE		
C0026153	6.2 g		Other	NONE		
C0026154	6.2 g		Other	NONE		
C0026155	6.2 g		Other	NONE		
C0026156	6.3 g		Other	NONE		
C0026157	6.3 g		Other	NONE		
C0026158	6.3 g		Other	NONE		

ICOC

Miscellaneous Item Key	Description
None	

0054



Samples

<u>Sample ID</u>	<u>Matrix</u>	<u>Fraction</u>	<u>Sample</u>	<u>Date Sampled</u>	<u>Date Received</u>	<u>Date Due</u>
L0001667-0001	GAS	OVS Tubes	WWK-A-AMSFBLK-E10 A	01/15/2004	01/17/2004	02/02/2004
L0001667-0002	GAS	OVS Tubes	WWK-A-AMSFBLK-E10 B	01/15/2004	01/17/2004	02/02/2004
L0001667-0003	GAS	OVS Tubes	WWK-A-AMSFBLK-E10 C	01/15/2004	01/17/2004	02/02/2004
L0001667-0004	GAS	OVS Tubes	WWK-A-AMS1-E10 A	01/15/2004	01/17/2004	02/02/2004
L0001667-0005	GAS	OVS Tubes	WWK-A-AMS1-E10 B	01/15/2004	01/17/2004	02/02/2004
L0001667-0006	GAS	OVS Tubes	WWK-A-AMS1-E10 C	01/15/2004	01/17/2004	02/02/2004
L0001667-0007	GAS	OVS Tubes	WWK-A-AMS2-E10 A	01/15/2004	01/17/2004	02/02/2004
L0001667-0008	GAS	OVS Tubes	WWK-A-AMS2-E10 B	01/15/2004	01/17/2004	02/02/2004
L0001667-0009	GAS	OVS Tubes	WWK-A-AMS2-E10 C	01/15/2004	01/17/2004	02/02/2004
L0001667-0010	GAS	OVS Tubes	WWK-A-AMS3-E10 A	01/15/2004	01/17/2004	02/02/2004
L0001667-0011	GAS	OVS Tubes	WWK-A-AMS3-E10 B	01/15/2004	01/17/2004	02/02/2004
L0001667-0012	GAS	OVS Tubes	WWK-A-AMS3-E10 C	01/15/2004	01/17/2004	02/02/2004
L0001667-0013	GAS	OVS Tubes	WWK-A-AMS4-E10 A	01/15/2004	01/17/2004	02/02/2004
L0001667-0014	GAS	OVS Tubes	WWK-A-AMS4-E10 B	01/15/2004	01/17/2004	02/02/2004
L0001667-0015	GAS	OVS Tubes	WWK-A-AMS4-E10 C	01/15/2004	01/17/2004	02/02/2004
L0001667-0016	GAS	OVS Tubes	WWK-A-AMS5-E10 A	01/15/2004	01/17/2004	02/02/2004
L0001667-0017	GAS	OVS Tubes	WWK-A-AMS5-E10 B	01/15/2004	01/17/2004	02/02/2004
L0001667-0018	GAS	OVS Tubes	WWK-A-AMS5-E10 C	01/15/2004	01/17/2004	02/02/2004
L0001667-0019	GAS	OVS Tubes	WWK-A-AMS6-E10 A	01/15/2004	01/17/2004	02/02/2004
L0001667-0020	GAS	OVS Tubes	WWK-A-AMS6-E10 B	01/15/2004	01/17/2004	02/02/2004
L0001667-0021	GAS	OVS Tubes	WWK-A-AMS6-E10 C	01/15/2004	01/17/2004	02/02/2004
L0001667-0022	GAS	OVS Tubes	Control 1 A		01/17/2004	02/02/2004
L0001667-0023	GAS	OVS Tubes	Control 1 B		01/17/2004	02/02/2004
L0001667-0024	GAS	OVS Tubes	Control 1 C		01/17/2004	02/02/2004

U055



Bottles

L0001667-0001

Container
C0026135 / Other / NONE

Method

L0001667-0002

Container
C0026136 / Other / NONE

Method

L0001667-0003

Container
C0026137 / Other / NONE

Method

L0001667-0004

Container
C0026138 / Other / NONE

Method

L0001667-0005

Container
C0026139 / Other / NONE

Method

L0001667-0006

Container
C0026140 / Other / NONE

Method

L0001667-0007

Container
C0026141 / Other / NONE

Method

L0001667-0008

Container
C0026142 / Other / NONE

Method

L0001667-0009

Container
C0026143 / Other / NONE

Method

L0001667-0010

Container
C0026144 / Other / NONE

Method

L0001667-0011

Container
C0026145 / Other / NONE

Method

L0001667-0012

Container
C0026146 / Other / NONE

Method

U056



Login

L0001667-0013

Container
C0026147 / Other / NONE

Method

L0001667-0014

Container
C0026148 / Other / NONE

Method

L0001667-0015

Container
C0026149 / Other / NONE

Method

L0001667-0016

Container
C0026150 / Other / NONE

Method

L0001667-0017

Container
C0026151 / Other / NONE

Method

L0001667-0018

Container
C0026152 / Other / NONE

Method

L0001667-0019

Container
C0026153 / Other / NONE

Method

L0001667-0020

Container
C0026154 / Other / NONE

Method

L0001667-0021

Container
C0026155 / Other / NONE

Method

L0001667-0022

Container
C0026156 / Other / NONE

Method

L0001667-0023

Container
C0026157 / Other / NONE

Method

L0001667-0024

Container
C0026158 / Other / NONE

Method

0057



**DuPont Washington Works
Air Sampling Program**

Sampler(s): AC, SO,
RK

FedEx Airbill #: 836391298456

Event Number **Event 10**

Pump #	Station #	Oxygen ID	Calibration (pre)	Date	Start Time	Date	Stop Time	Calibration (post)	Total Minutes	Total Volume
669842	AMS-1	WWK-A-AMS1-E10	1.022	14-Jan	0620	15-Jan	0615	0.995	1462	1447 liters
669908	AMS-2	WWK-A-AMS2-E10	0.997	14-Jan	0630	15-Jan	0622	1.003	blank display	
669901	AMS-3	WWK-A-AMS3-E10	1.001	14-Jan	0629	15-Jan	0623	0.9703	1473	1413 liters
669890	AMS-4	WWK-A-AMS4-E10	1.014	14-Jan	0635	15-Jan	0630	0.951	1479	1410 liters
669796	AMS-5	WWK-A-AMS5-E10	1.006	14-Jan	0645	15-Jan	0635	1.023	1481	1451 liters
669865	AMS-6	WWK-A-AMS6-E10	1.009	14-Jan	0652	15-Jan	0645	1.023	1483	1456 liters
Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	
0	0	5	300	10	600	15	900	20	1200	
1	60	6	360	11	660	16	960	21	1260	
2	120	7	420	12	720	17	1020	22	1320	
3	180	8	480	13	780	18	1080	23	1380	
4	240	9	540	14	840	19	1140	24	1440	

Field Blank: ☐ yes ☒ WWK-K-AMSFBLK-E10
yes or no

Weather:
14-Jan Cold, 36 F, snow flurries, breezy
15-Jan Cold, about 27 F, snow flurries, windy

SAFER operational: ☐ yes ☒
yes or no

Comments: Total minutes column is the reading from the monitor counter.
Pump 2 had a blank display and was not running at sample collection time, due to the GFCl freezing. Replaced the GFCl before next test.

2/9/2004

Page 2 of 2

airdataevent10

Another Calculation
1474.427
#VALUE!
1451.86245
1453.1175
1502.4745
1506.728

0059

000510

PROJECT INFORMATION

Client (name & address):

ADDN

Dr Post Washington works

Project Manager (Name & E-mail Address):

Milk Amino

Project Name:

Project Name: Air Sampling Program

P.O. #:

Quotation #:

Phone: (302) 892-1498

Fax:

Sampler: S. Ooo / R. Kendall

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

SAMPLE ANALYSIS

SAMPLE ANALYSIS				
ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab
				Composite
				Number of Containers
		Specify Matrix	Comments	
	WUK-A-AMSFBLY-E10	11/5/04	0610	X
	WUK-A-AMS1-E10		0615	X
	WUK-A-AMS2-E10		0622	X
	WUK-A-AMS3-E10		0623	X
	WUK-A-AMS4-E10		0630	X
	WUK-A-AMS5-E10		0635	X
	WUK-A-AMS6-E10		0645	X
	Control			

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
S. DOD	11/16/08	1130
J. Koudal	01/16/08	1140
	(Lm)	

Cooler ID # *Nocca*Cooler Temp. (°C) *Ad*

Received by	Date	Time
S. J. J. J.	11/3/07	0630
J. J. J. J.	01/16/04	1130
J. J. J. J.	01/17/04	1200

LAB USE ONLY

OTHER INFORMATION

Event 10

PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☐ Other

**DuPont Washington Works
Air Sampling Program**

Sampler(s): AC, SO,
RK

FedEx Airbill #: 836391298456

Event Number

Event 10

Pump #	Station #	Oxygen ID	Calibration (pre)	Date	Start Time	Date	Stop Time	Calibration (post)	Total Minutes	Total Volume
669842	AMS-1	WWK-A-AMS1-E10	1.022	14-Jan	0620	15-Jan	0615	0.995	1462	
669908	AMS-2	WWK-A-AMS2-E10	0.997	14-Jan	0630	15-Jan	0622	1.003	blank display	
669901	AMS-3	WWK-A-AMS3-E10	1.001	14-Jan	0629	15-Jan	0623	0.9703	1473	
669890	AMS-4	WWK-A-AMS4-E10	1.014	14-Jan	0635	15-Jan	0630	0.951	1479	
669796	AMS-5	WWK-A-AMS5-E10	1.006	14-Jan	0645	15-Jan	0635	1.023	1481	
669865	AMS-6	WWK-A-AMS6-E10	1.009	14-Jan	0652	15-Jan	0645	1.023	1483	

Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes
0	0	5	300	10	600	15	900	20	1200
1	60	6	360	11	660	16	960	21	1260
2	120	7	420	12	720	17	1020	22	1320
3	180	8	480	13	780	18	1080	23	1380
4	240	9	540	14	840	19	1140	24	1440

Field Blank: ☐ yes ☒ no **WWK-K-AMSFBLK-E10**

Weather:
14-Jan Cold, 36 F, snow flurries, breezy
15-Jan Cold, about 27 F, snow flurries, windy

SAFER operational: ☐ yes ☒ no

Comments: Total minutes column is the reading from the monitor counter.

Pump 2 had a blank display and was not running at sample collection time.

1/15/2004

Sample "Condition Upon Receipt" Form

Protocol # 0000419

Exygen Study # 0001667

Date & Time Received 01/17/04 1200

Condition of Samples ambient

Temporary Storage Location 0000273

Initials & Date -MHA 01/17/04

Waybill # 83439129 8950

Comments: waiting for study number. MHA 01/17/04

May 24, 2002/3

FedEx USA Airbill

Express

FedEx Tracking Number

836391298456

1 From

Date

01/28/03

Sender's Name

Steve Ops

Company

Durant + ORC

Phone

304 813-4471

Address

2813 South Durant Rd.

City

Wichita

State

WV

ZIP

26181

Dept./Room/Suite/Room

2 Your Internal Billing Reference

18183937.0003

3 To

Recipient's Name

Simple Receiving

Company

Exhelen Laboratories

Phone

814 831-8022

Address

3114 Research Drive

To "HOLD" at FedEx location, print FedEx address.

Address

We cannot deliver to P.O. boxes or P.O. ZIP codes.

City

St Albans

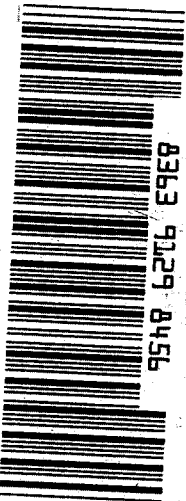
State

PA

ZIP

16801

Dept./Room/Suite/Room



8363 9129 8456

4a Express Package Service

☒ FedEx Priority Overnight

Next business morning

☐ FedEx Standard Overnight

Next business afternoon

☐ FedEx 2Day

Second business day

☐ FedEx Express Saver

Third business day

4b Express Freight Service

☐ FedEx 1Day Freight*

Next business morning

☐ FedEx 2Day Freight

Second business day

☐ FedEx 3Day Freight

Third business day

*Call for Confirmation.

5 Packaging

☐ FedEx Envelope*

Next business day

☐ FedEx Pak*

Next business day

☒ Other

6 Special Handling

☒ Saturday Delivery

Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes.

☐ HOLD Weekday at FedEx location

Not available for FedEx First Overnight and FedEx 2Day to select locations.

☐ HOLD Saturday at FedEx location

Not available for FedEx Priority Overnight and FedEx 2Day to select locations.

☒ Does this shipment contain dangerous goods?

One box must be checked.

☐ Yes, per attached Shipper's Declaration not required.

☐ Yes, Shipper's Declaration required.

☐ Dry Ice

Dry Ice, UN 1845

☒ Payment Bill to:

Sender

☐ Recipient

☐ Third Party

☐ Credit Card

☐ Cash/Check

☒ Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

7 Payment

Enter FedEx Acct. No. or Credit Card No. below.

Acct. No. in Section 7a

☐ Credit Card

☐ Cash/Check

☐ Signature Required

Signature required for all shipments.

8 Release Signature

Sign to authorize delivery without obtaining signature.

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

9 Total Packages

Total Weight

2

Total Declared Value*

\$.00

Total Charges

Credit Card Auth.

10 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

11 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

12 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

13 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

14 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

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☐ Signature Required

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15 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

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16 Release Signature

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17 Release Signature

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☐ Signature Required

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☐ Signature Required

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18 Release Signature

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☐ Signature Required

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19 Release Signature

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20 Release Signature

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☐ Signature Required

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21 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.

22 Release Signature

Sign to authorize delivery without obtaining signature.

☐ Signature Required

Signature required for all shipments.

☐ Signature Required

Signature required for all shipments.