

Atmospheric Analysis & Consulting, Inc.

CLIENT : SWAPE
PROJECT NAME : Bridgeton Sanitary Landfill Quality Assessment
AAC PROJECT NO. : 130850
REPORT DATE : 07/11/2013

On July 10, 2013, Atmospheric Analysis & Consulting, Inc. received four (4) Six-Liter Summa Canisters for Total Reduced Sulfur analysis by ASTM D-5504. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Return Pressure (mmHgA)
U-1 W6 Canister	130850-64203	571.2
U-2 V Canister	130850-64204	458.6
D-1 W2 Canister	130850-64205	615.0
D-2 K Canister	130850-64206	537.2


ASTM D-5504 Analysis - Up to a 1 mL aliquot of sample is injected into the GC/SCD for analysis following ASTM D-5504 as specified in the SOW.

Sample U-1 W6 Canister was found to contain a peak at the known retention time for COS/SO₂. Given the fact that this is an ambient air sample in which COS should not be present the results were reported as SO₂.

No problems were encountered during receiving, preparation, and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-5504.

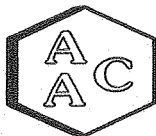
I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.


Marcus Hueppe
Laboratory Director

This report consists of 33 pages.





SAMPLE RECEIPT / LOG-IN REPORT

AAC Project 130850

Received By: J. Zachman

<u>Sample Receipt Date</u>	<u>Project Desc</u>	<u>Clients ID</u>	<u>Matrix</u>	<u>Sampling Date/Time</u>	<u>Sampled By</u>	<u>Sample #</u>	<u>Analysis Requested</u>
7/10/2013 1215	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	U-1 W6 Canister	Summa Canister	7/5/2013	Client	64203	TO15 ASTM D5504
7/10/2013 1215	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	U-2 V Canister	Summa Canister	7/5/2013	Client	64204	TO15 ASTM D5504
7/10/2013 1215	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	D-1 W2 Canister	Summa Canister	7/5/2013	Client	64205	TO15 ASTM D5504
7/10/2013 1215	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	D-2 K Canister	Summa Canister	7/5/2013	Client	64206	TO15 ASTM D5504

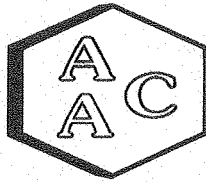
TURN AROUND TIME: Normal (10days)

Lab Due Date: 7/17/2013

Total Samples: 4

REMARKS:

Client returned 4 x Summa canisters + 4 x Flows. "Standard TAT for all analyses. If possible deliver report within 2 weeks. Provide Level IV QC package for all analyses."



CANISTER PRESSURE LOG

Client: Soil Water Air Protection Ent Project No.: 130850
Date: 7/10/2013

Canister #	Sample #	Initial Pressure	Final Pressure
668	64203	571.2	1027.9
800	64204	458.6	1022.8
812	64205	615.0	1020.8
671	64206	537.2	1016.2

AACT 1308520

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE
 Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
 Project Manager: PAUL ROSENFELD, PH.D.
 Address: 1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401
 Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT
 Date: **July 5th, 2013**
 Page 1 of 1

Requested Turnaround Time: Standard turn-around for all analyses. If possible deliver report within 2 weeks.
 QC Requirements: Provide Level IV QC Package for all Analyses.
 Relinquished By: **John Blank** Date: **July 5th, 2013** Time: 12 Noon Received By: _____ Date: _____ Time: _____
 Relinquished By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 Relinquished By: _____ Date: _____ Time: _____ Received By: _____ Date: **7/10/13** Time: **1215**

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	Flow #
64203	U-1 W6	Canister	July 5th	4 Hr	668
64204	U-2 V	Canister	July 5th	4 Hr	800
64205	D-1 W2	Canister	July 5th	4 Hr	812
64206	D-2 K	Canister	July 5th	4 Hr	671
					715
					694
					709
					698

TEST / ANALYSIS	64203	64204	64205	64206
VOCS - EPA TO-15	X	X	X	X
Reduced Sulfur Compounds - ASTM D5504	X	X	X	X
Carbonyls - EPA TO-11A				
Carboxylic Acids - Tube GC-MS				
HCL - NIOSH 7903				
Ammonia - OSHA ID-188				
SO2 - OSHA ID-200				
HCN - NIOSH 6010				
Amines - NIOSH 2010M				
Fixed Gases - EPA 3C				
PAHs/Dioxins EPA TO-13A/9A				
Mercury - NIOSH 6009				
Odor Evaluation				

- FedEx

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **U-1 W6 Canister #668 Flow Control #715**

AAC Batch ID: 130850 AAC Sample ID: 61203

SAMPLING INFORMATION

Start Date/Time: **July 5th, 2013 / 9:05** Stop Date/Time: **July 5th, 2013 / 13:05**

Start Temp/Pressure*: **23C / 30.09 psi** Stop Temp/Pressure*: **29C / 30.08psi**

Initial Can Pressure**: **-30** Final Can Pressure**: **- 6**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____

John Blank
Sampler Name (Print)



July 5th 2013

Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: # **668**

Flow Controller Serial No: # **715**

Initial Pressure: 6.0

Certified Flow Rate: 18.0

Return Pressure: 571.2

Certified By/Date: JJ 7/1/13

Final Pressure: 1027.9

Flow Rate upon Return: 21.3

Date Shipped From Lab: 7/1/13

Shipped By: JJ

Date Returned to Lab: 7/10/13

Received By: JJ

Flow Controller Certification File ID: 1502/06271305

Canister Certification File ID: 1503/06271306

Certification Type: SIM SCAN NJLL PAMS Other


Chemist Signature/Date


Lab Manager Signature/Date

*Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.*

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **U-2 Verizon** **Canister # 800** **Flow Control # 694**

AAC Batch ID: 130850 AAC Sample ID: 64204

SAMPLING INFORMATION

Start Date/Time: **July 5th, 2013 / 9:20** Stop Date/Time: **July 5th, 2013 / 13:20**


Start Temp/Pressure*: **23C / 30.09 psi** Stop Temp/Pressure*: **29C / 30.08psi**

Initial Can Pressure***: **-30** Final Can Pressure***: **- 12**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____

John Blank
Sampler Name (Print)


Sampler Signature/Date

July 5th 2013

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: **# 800**

Flow Controller Serial No: **# 694**

Initial Pressure: 6.0

Certified Flow Rate: 18.0

Return Pressure: 458.6

Certified By/Date: JJ 7/1/13

Final Pressure: 1022.8

Flow Rate upon Return: 17.7

Date Shipped From Lab: 7/1/13

Shipped By: JJ

Date Returned to Lab: 7/10/13

Received By: JJ

Flow Controller Certification File ID: 1502/06271305

Canister Certification File ID: 1105/062322

Certification Type: SIM SCAN NJLL PAMS Other


Chemist Signature/Date

MW 7/1/13
Lab Manager Signature/Date

**Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.**

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **D-1 W2 Canister # 812 Flow Control # 709**

AAC Batch ID: 130850 AAC Sample ID: 64205

SAMPLING INFORMATION

Start Date/Time: **July 5th, 2013 / 8:45** Stop Date/Time: **July 5th, 2013 / 12:45**


Start Temp/Pressure*: **23C / 30.09 psi** Stop Temp/Pressure*: **29C / 30.08psi**

Initial Can Pressure**: **-28.5** Final Can Pressure**: **- 4**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____

John Blank
Sampler Name (Print)


Sampler Signature/Date

July 5th 2013

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: **# 812**

Flow Controller Serial No: **# 709**

Initial Pressure: 7.7

Certified Flow Rate: 18.0

Return Pressure: 615.0

Certified By/Date: JJ 7/1/13

Final Pressure: 1020.8

Flow Rate upon Return: 21.8

Date Shipped From Lab: 7/1/13

Shipped By: JJ

Date Returned to Lab: 7/10/13

Received By: JJ

Flow Controller Certification File ID: 1452/06271305

Canister Certification File ID: 1403/06271306

Certification Type: SIM SCAN NJLL PAMS Other


Chemist Signature/Date


Lab Manager Signature/Date

*Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.*

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **D-2 K Canister # 671 Flow Control # 698**

AAC Batch ID: 130850 AAC Sample ID: 64206

SAMPLING INFORMATION

Start Date/Time: **July 5th, 2013 / 8:55** Stop Date/Time: **July 5th, 2013 / 12:55**


Start Temp/Pressure*: **23C / 30.09 psi** Stop Temp/Pressure*: **29C / 30.08psi**

Initial Can Pressure**: **-29.5** Final Can Pressure**: **- 8**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____

John Blank
Sampler Name (Print)


Sampler Signature/Date

July 5th 2013

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: # 671

Flow Controller Serial No: # 698

Initial Pressure: 6.0

Certified Flow Rate: 18.0

Return Pressure: 537.2

Certified By/Date: JJ 7/1/13

Final Pressure: 1016.2

Flow Rate upon Return: 21.3

Date Shipped From Lab: 7/1/13

Shipped By: JJ

Date Returned to Lab: 7/10/13

Received By: JJ

Flow Controller Certification File ID: MS02106271305

Canister Certification File ID: MS03106271307

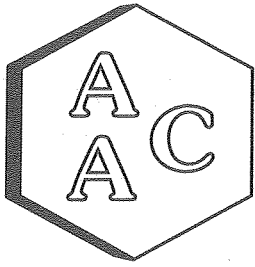
Certification Type: SIM SCAN NJLL PAMS Other


Chemist Signature/Date


Lab Manager Signature/Date

*Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.
All remaining sections will be completed upon return by the laboratory. Page 8*

Results



Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : SWAPE
PROJECT NO. : 130850
MATRIX : AIR
UNITS : ppbV

SAMPLING DATE : 07/05/2013
RECEIVING DATE : 07/10/2013
ANALYSIS DATE : 07/11/2013
REPORT DATE : 07/11/2013

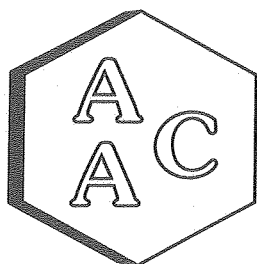
Sulfur Compounds by ASTM D-5504

Client ID	U-1 W6 Canister	U-2 V Canister	D-1 W2 Canister	D-2 K Canister
AAC ID	130850-64203	130850-64204	130850-64205	130850-64206
Canister Dil. Fac.	1.80	2.23	1.66	1.89
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 18.0	< 22.3	< 16.6	< 18.9
Carbonyl Sulfide	< 18.0	< 22.3	< 16.6	< 18.9
Sulfur Dioxide	41.1	< 22.3	< 16.6	< 18.9
Methyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
Ethyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
Dimethyl Sulfide	< 18.0	< 22.3	< 16.6	< 18.9
Carbon Disulfide	< 9.0	< 11.2	< 8.3	< 9.5
Isopropyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
tert-Butyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
n-Propyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
Methylethylsulfide	< 18.0	< 22.3	< 16.6	< 18.9
sec-Butyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
Thiophene	< 18.0	< 22.3	< 16.6	< 18.9
iso-Butyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
Diethyl Sulfide	< 18.0	< 22.3	< 16.6	< 18.9
n-Butyl Mercaptan	< 18.0	< 22.3	< 16.6	< 18.9
Dimethyl Disulfide	< 9.0	< 11.2	< 8.3	< 9.5
2-Methylthiophene	< 18.0	< 22.3	< 16.6	< 18.9
3-Methylthiophene	< 18.0	< 22.3	< 16.6	< 18.9
Tetrahydrothiophene	< 18.0	< 22.3	< 16.6	< 18.9
Bromothiophene	< 18.0	< 22.3	< 16.6	< 18.9
Thiophenol	< 18.0	< 22.3	< 16.6	< 18.9
Diethyl disulfide	< 9.0	< 11.2	< 8.3	< 9.5
Total Unidentified Sulfur	< 18.0	< 22.3	< 16.6	< 18.9

All unidentified sulfur compound's concentrations expressed in terms of μS
Sample Quantitation Limit (SQL) is equal to the Quantitation Limit x Canister Dil. Fac. x Analysis Dil. Fac.


Marcus Hueppe
Laboratory Director





Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : SWAPE
PROJECT NO. : 130850
MATRIX : AIR
UNITS : ug/m³

SAMPLING DATE : 07/05/2013
RECEIVING DATE : 07/10/2013
ANALYSIS DATE : 07/11/2013
REPORT DATE : 07/11/2013

Sulfur Compounds by ASTM D-5504

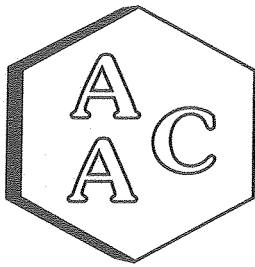
Client ID	U-1 W6 Canister	U-2 V Canister	D-1 W2 Canister	D-2 K Canister
AAC ID	130850-64203	130850-64204	130850-64205	130850-64206
Canister Dil. Fac.	1.80	2.23	1.66	1.89
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 25.1	< 31.1	< 23.1	< 26.4
Carbonyl Sulfide	< 44.2	< 54.8	< 40.8	< 46.5
Sulfur Dioxide	108	< 58.4	< 43.5	< 49.6
Methyl Mercaptan	< 35.4	< 43.9	< 32.7	< 37.2
Ethyl Mercaptan	< 45.7	< 56.7	< 42.2	< 48.1
Dimethyl Sulfide	< 45.7	< 56.7	< 42.2	< 48.1
Carbon Disulfide	< 28.0	< 34.7	< 25.8	< 29.5
Isopropyl Mercaptan	< 56.1	< 69.5	< 51.7	< 58.9
tert-Butyl Mercaptan	< 66.4	< 82.3	< 61.2	< 69.8
n-Propyl Mercaptan	< 56.1	< 69.5	< 51.7	< 58.9
Methylethylsulfide	< 56.1	< 69.5	< 51.7	< 58.9
sec-Butyl Mercaptan	< 66.4	< 82.3	< 61.2	< 69.8
Thiophene	< 61.9	< 76.8	< 57.1	< 65.1
iso-Butyl Mercaptan	< 66.4	< 82.3	< 61.2	< 69.8
Diethyl Sulfide	< 66.4	< 82.3	< 61.2	< 69.8
n-Butyl Mercaptan	< 66.4	< 82.3	< 61.2	< 69.8
Dimethyl Disulfide	< 34.7	< 43.0	< 32.0	< 36.4
2-Methylthiophene	< 72.2	< 89.5	< 66.6	< 75.9
3-Methylthiophene	< 72.2	< 89.5	< 66.6	< 75.9
Tetrahydrothiophene	< 64.9	< 80.4	< 59.9	< 68.2
Bromothiophene	< 120	< 149	< 111	< 126
Thiophenol	< 81.1	< 101	< 74.8	< 85.2
Diethyl disulfide	< 45.0	< 55.8	< 41.5	< 47.3
Total Unidentified Sulfur	< 25.1	< 31.1	< 23.1	< 26.4

All unidentified sulfur compound's concentrations expressed in terms of μS
Sample Quantitation Limit (SQL) is equal to the Quantitation Limit x Canister Dil. Fac. x Analysis Dil. Fac.


Marcus Hueppe
Laboratory Director



QA/QC Summary



Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report ASTM D-5504

Date Analyzed: 07/11/13
Analyst: DH

Instrument ID: SCD#10
Calb. Date: 5/14/2013

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	16316	484	96.8	NA
Duplicate	16488	489	97.8	1.0
Triplicate	16659	494	98.8	2.1

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate

Sample ID 130850-64206 x2

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0.0	250.0	244.9	243.7	98.0	97.5	0.5

Duplicate Analysis

Sample ID 130850-64206

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	0.0	0.0	0.0	0.0

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	500	503.4	100.7

* Must be 95-105%

** Must be 90-110%

*** Must be < 10%

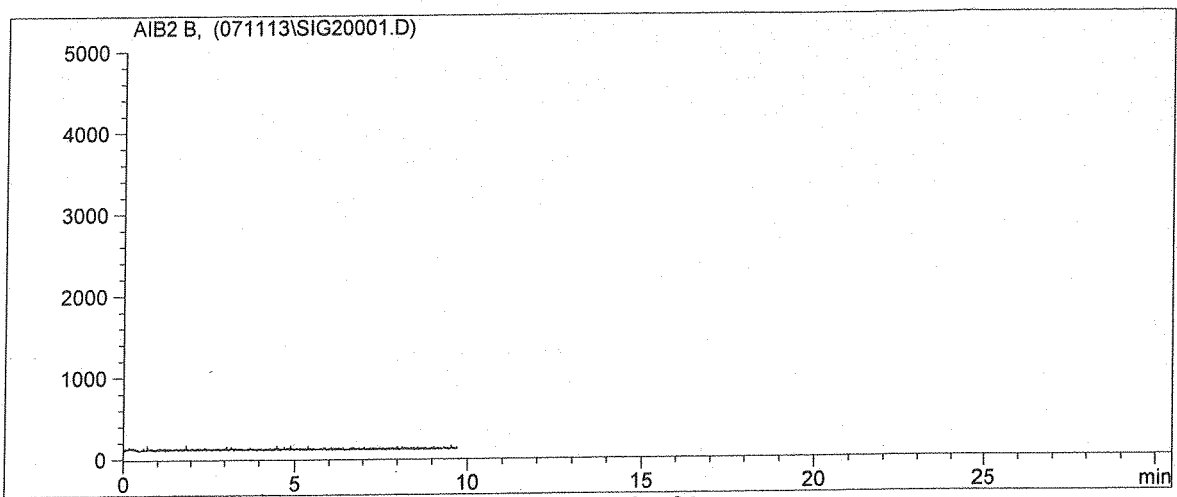
**** must be < 5% RPD from Initial result.

Marcus Hueppe
Laboratory Director



Raw Data

Injection Date : 7/11/2013 6:17:23 AM Seq. Line : 1
 Sample Name : System Blank Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



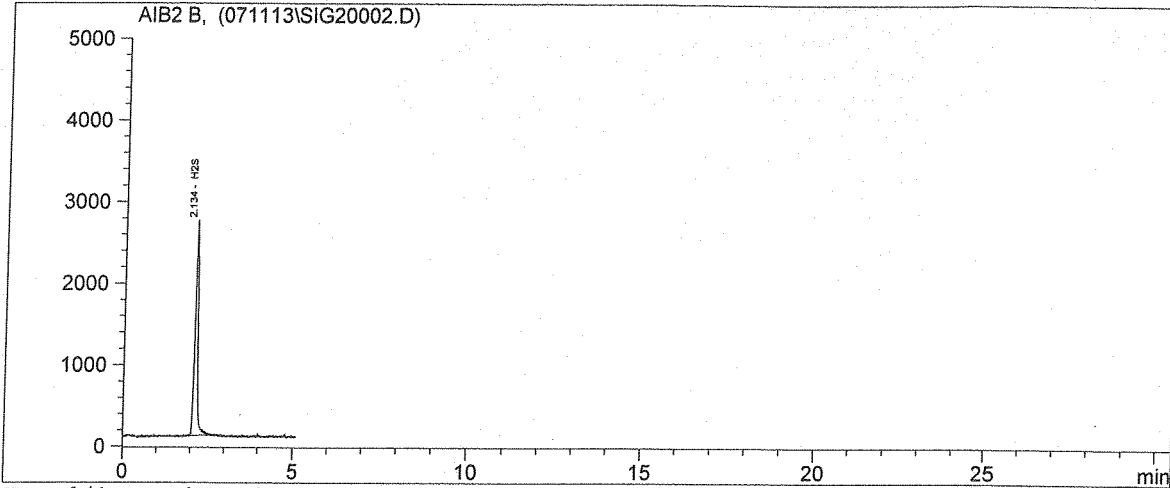
Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		0.000	

*** End of Report ***

DH
7/11/13

Injection Date : 7/11/2013 6:36:15 AM Seq. Line : 2
 Sample Name : CCV 500ppbV SS0677 ->Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

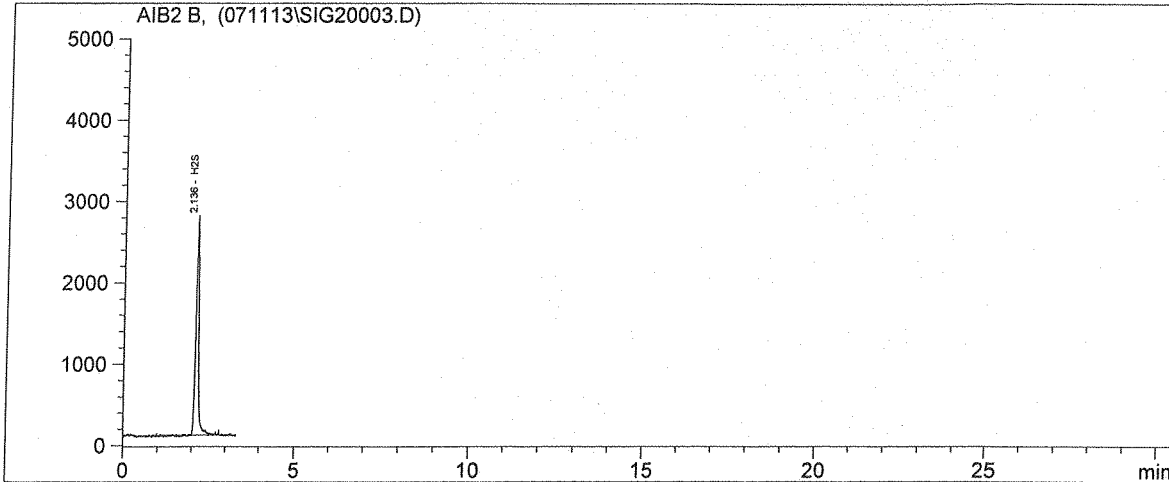
Ret Time [min]	Area	Amount [ppbV]	Name
2.134	16316	483.922	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

Totals: 483.922

*** End of Report ***

Handwritten signature
7/11/13

Injection Date : 7/11/2013 6:42:15 AM Seq. Line : 3
 Sample Name : CCV 500ppbV dp SS0677 ->Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

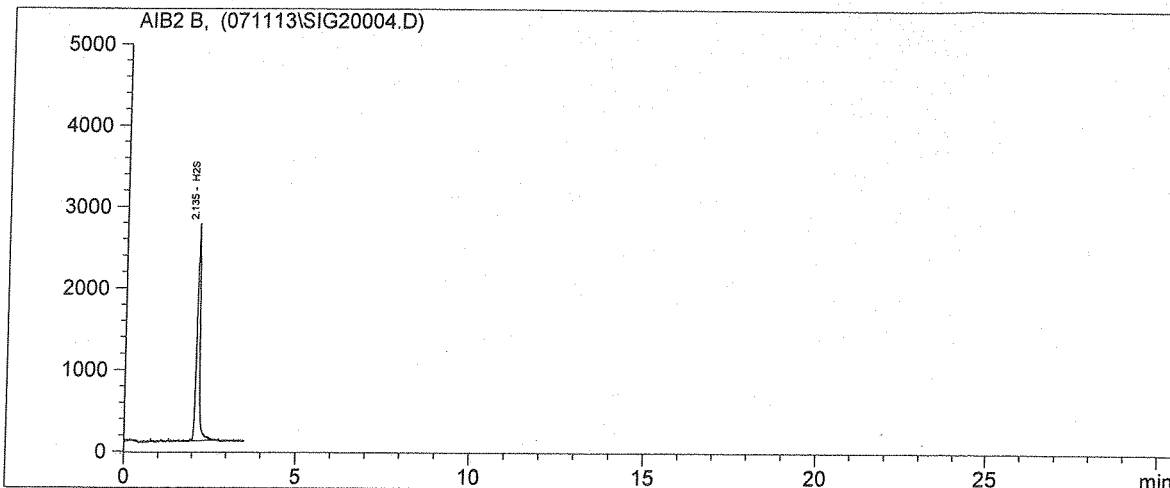
Ret Time [min]	Area	Amount [ppbV]	Name
2.136	16488	489.009	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

Totals: 489.009

*** End of Report ***

Handwritten signature and date: 7/11/13

Injection Date : 7/11/2013 6:46:09 AM Seq. Line : 4
 Sample Name : CCV 500ppbV tp SS0677 ->Inj. Vol. :Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

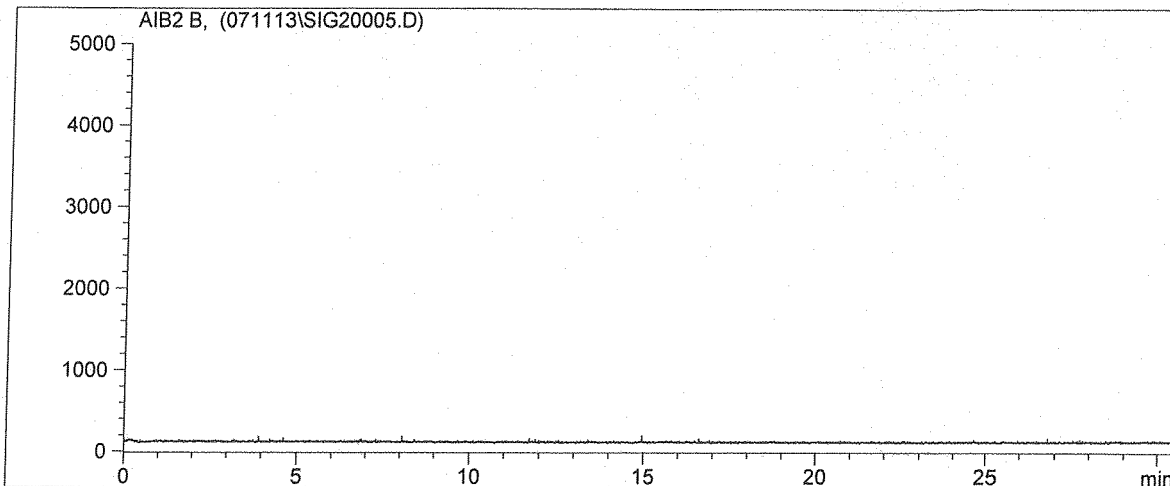
Ret Time [min]	Area	Amount [ppbV]	Name
2.135	16659	494.084	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

Totals: 494.084

*** End of Report ***

Handwritten signature and date:
 7/11/13

Injection Date : 7/11/2013 6:50:46 AM Seq. Line : 5
 Sample Name : Method Blank Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

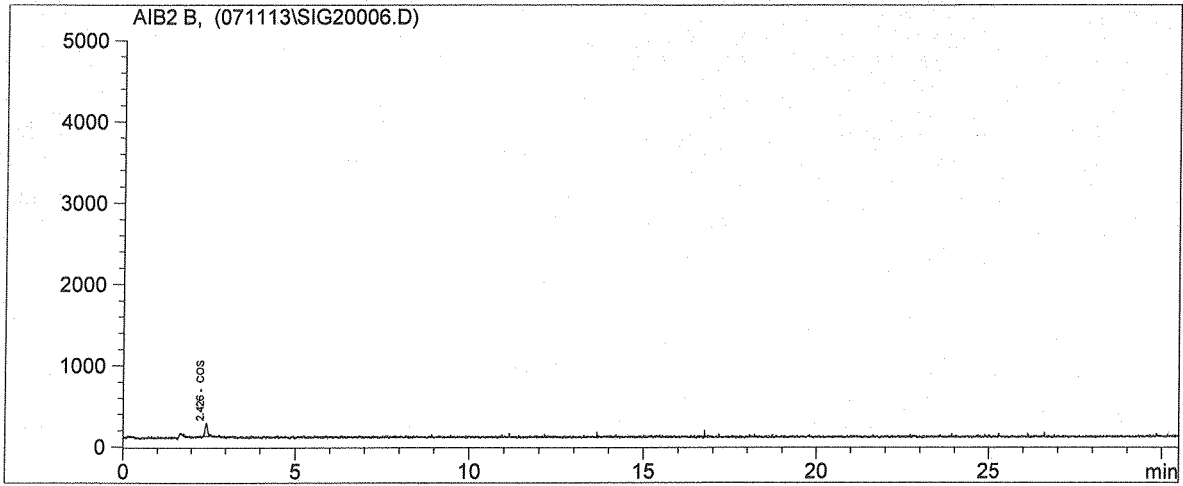
Totals: 0.000

*** End of Report ***

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 Customized Report: D5504

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Injection Date : 7/11/2013 7:29:30 AM           Seq. Line : 6
Sample Name    : 130850-64203 x1               Inj. Vol.  : Manually
Multiplier    : 1.00
Dilution      : 1.00
Acq Operator   : DH
Acq. Instrument : GC/SCD #10
Acq. Method    : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M
  
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Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
2.426	760	22.555	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

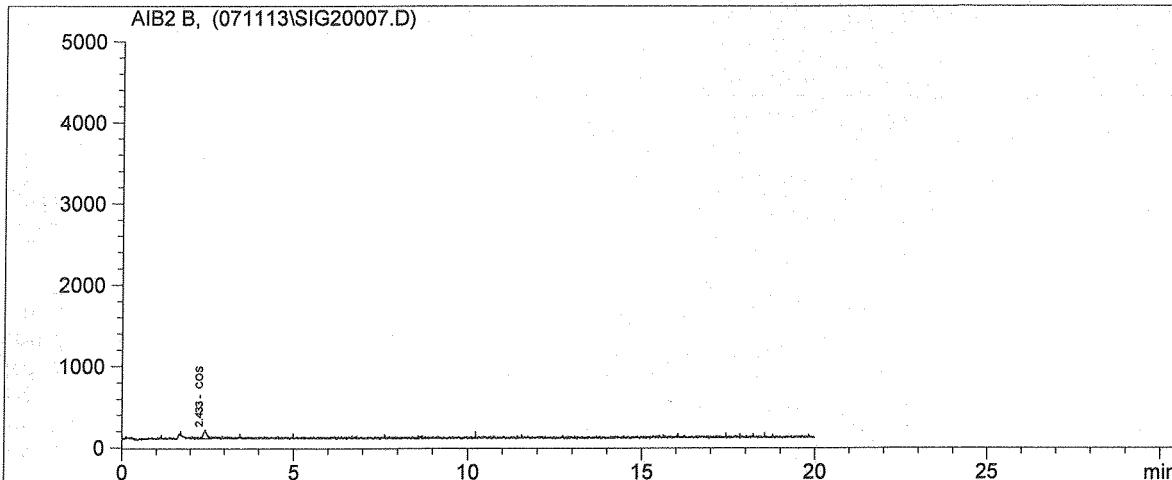
Totals: 22.555

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 *** End of Report ***

DA 7/11/13

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Customized Report: D5504

Injection Date : 7/11/2013 8:04:37 AM Seq. Line : 7
Sample Name : 130850-64203 x1 dp ->Inj. Vol. : Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
2.433	779	23.092	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

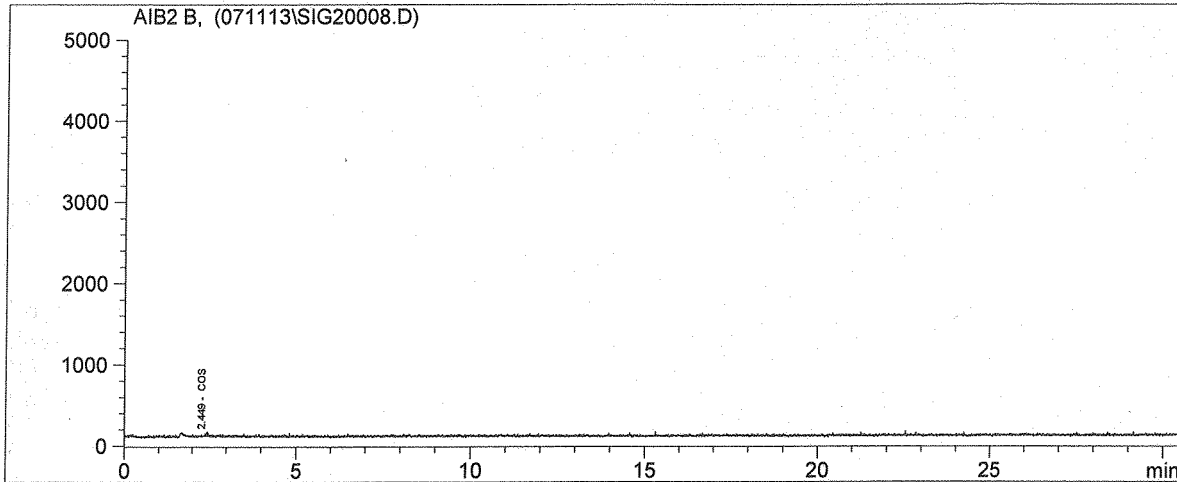
Totals: 23.092

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*** End of Report ***

DH 7/11/13

Customized Report: D5504

Injection Date : 7/11/2013 8:27:13 AM Seq. Line : 8
Sample Name : 130850-64204 x1 Inj. Vol. : Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
2.449	191	5.669	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

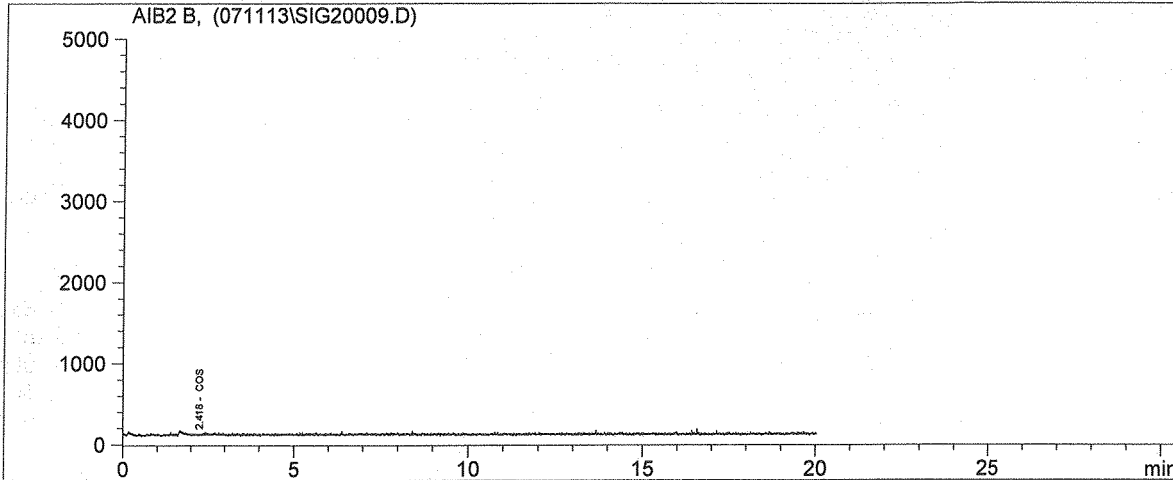
Totals: 5.669

*** End of Report ***

Page 22

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 Customized Report: D5504

Injection Date : 7/11/2013 9:02:19 AM Seq. Line : 9
 Sample Name : 130850-64204 x1 dp ->Inj. Vol. :Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
2.418	165	4.905	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

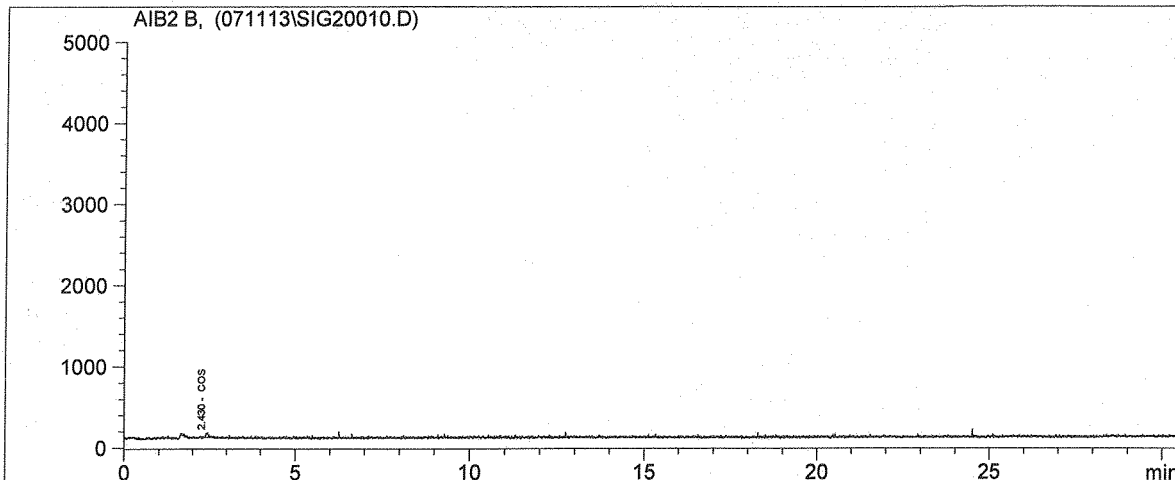
Totals: 4.905

*** End of Report ***

7/11/13

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Customized Report: D5504

Injection Date : 7/11/2013 9:25:09 AM
Sample Name : 130850-64205 x1
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\051413.M



Uncalibrated Peaks : using compound H2S

Table with 4 columns: Ret Time [min], Area, Amount [ppbV], Name. Lists various compounds like H2S, COS, Methyl Mercaptan, etc. with their corresponding values.

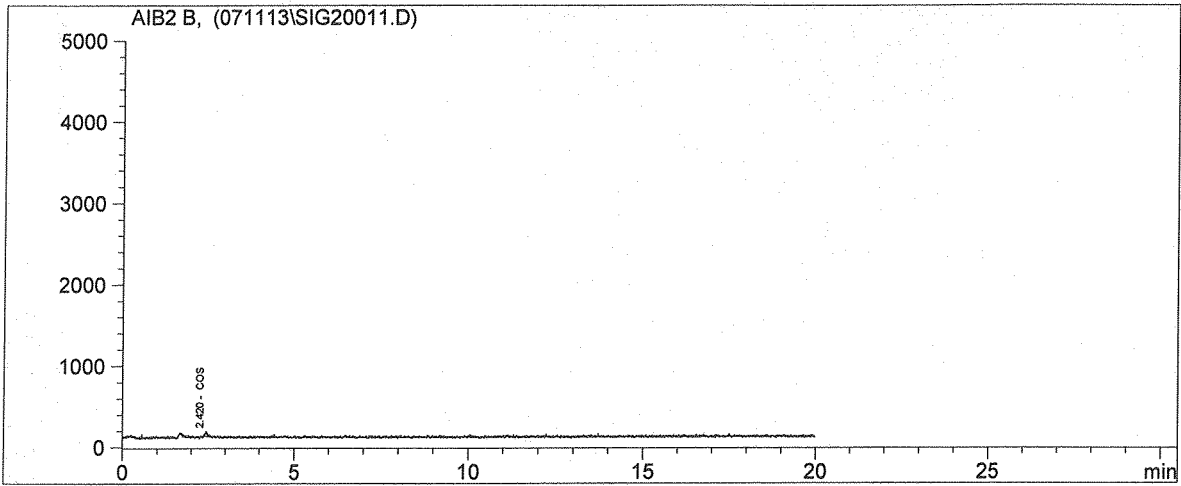
Totals: 7.270

*** End of Report ***

Handwritten signature and date: 7/11/13

Customized Report: D5504

Injection Date : 7/11/2013 10:00:10 AM Seq. Line : 11
Sample Name : 130850-64205 x1 dp ->Inj. Vol. : Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
2.420	267	7.932	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

Totals: 7.932

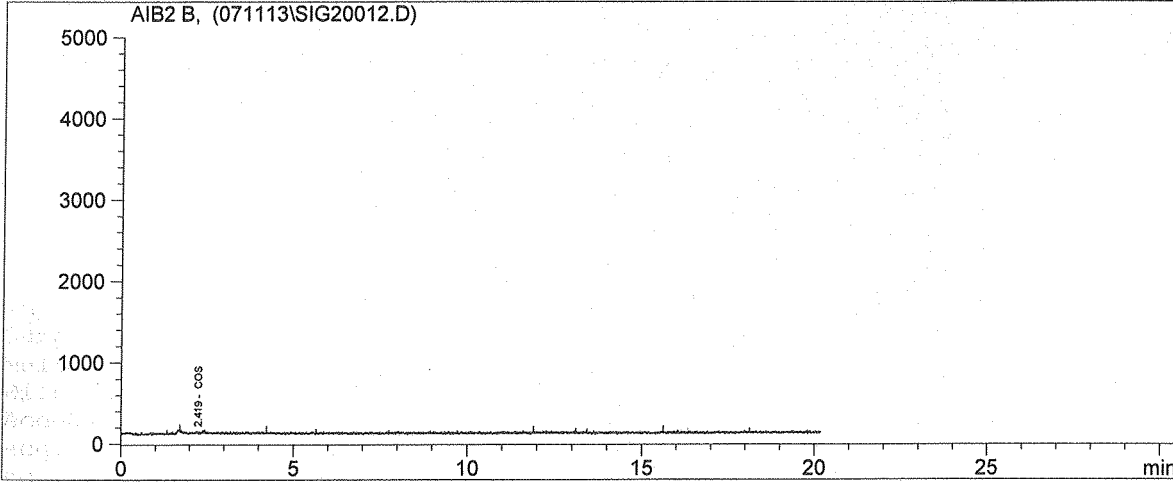
*** End of Report ***

DA 7/11/13

Customized Report: D5504

Injection Date : 7/11/2013 10:23:00 AM
Sample Name : 130850-64206 x1
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M

Seq. Line : 12
Inj. Vol. : Manually



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
2.419	140	4.148	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

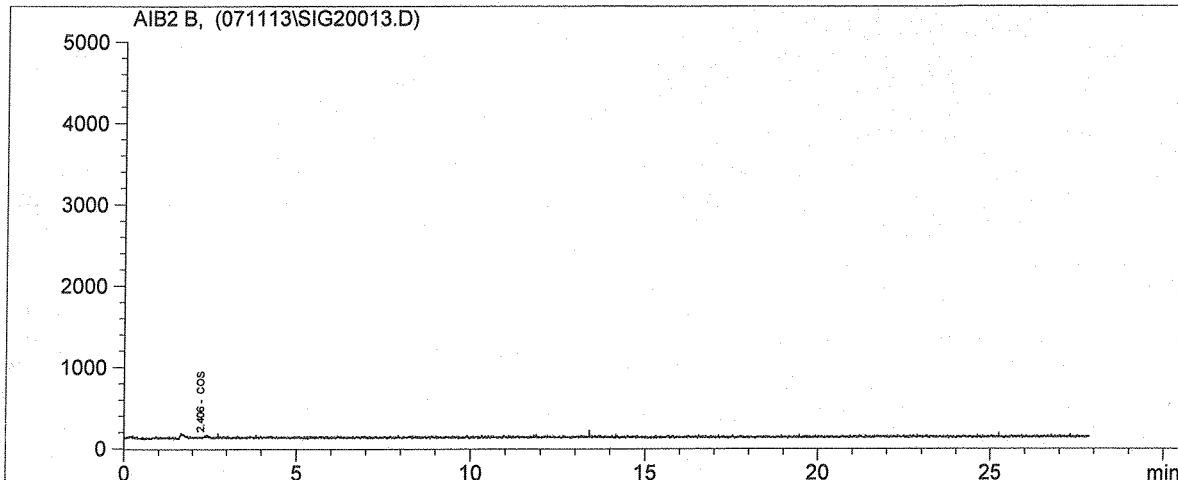
Totals: 4.148

*** End of Report ***

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Customized Report: D5504

Injection Date : 7/11/2013 10:46:22 AM Seq. Line : 13
 Sample Name : 130850-64206 x1 dp ->Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
2.406	140	4.146	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

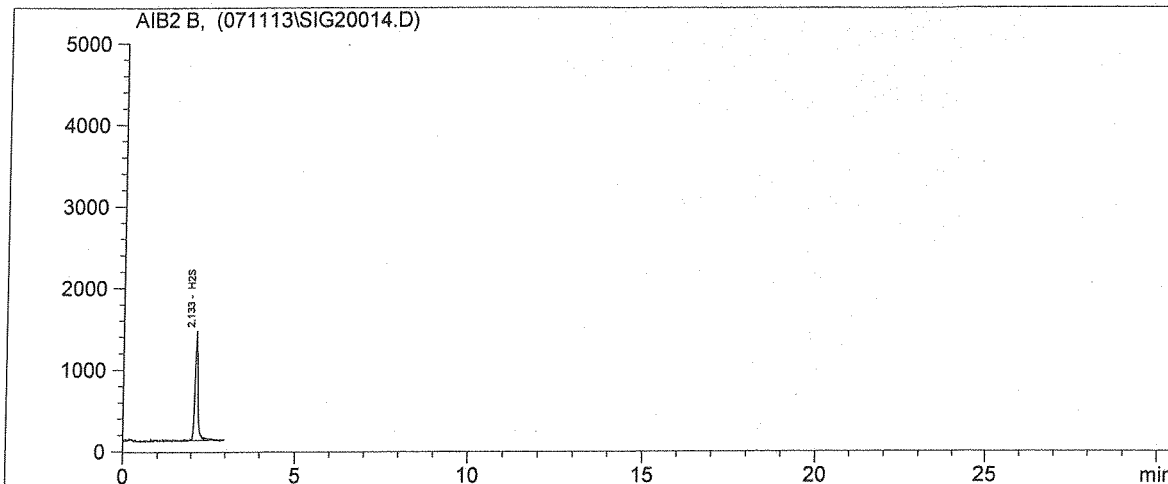
Totals: 4.146

*** End of Report ***

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NAH 7/11/13

Injection Date : 7/11/2013 11:18:42 AM Seq. Line : 14
 Sample Name : MS 64206 SS0677 ->Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
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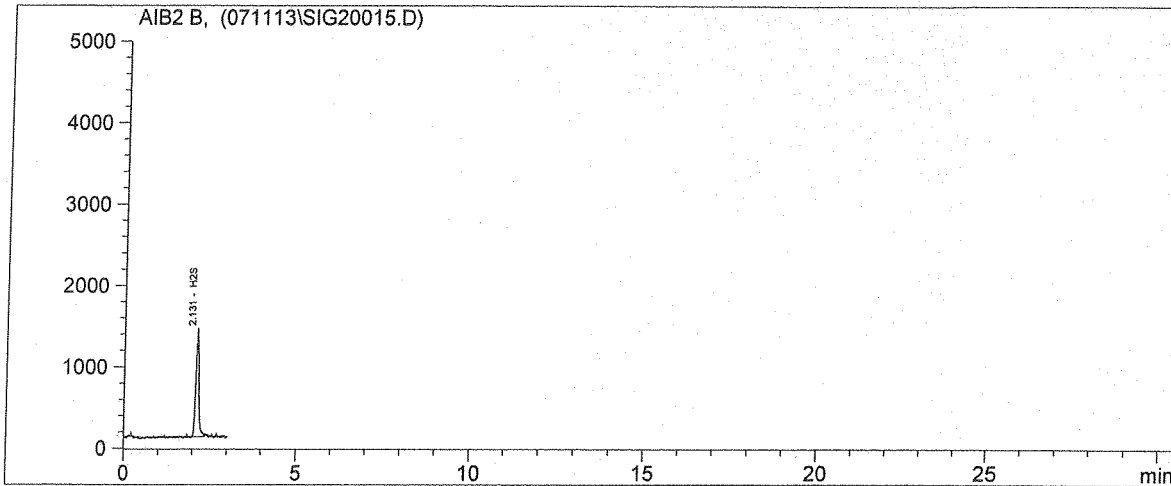
2.133	8259	244.935	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

Totals: 244.935

*** End of Report ***

[Handwritten signature]
7/11/13

Injection Date : 7/11/2013 11:22:20 AM Seq. Line : 15
 Sample Name : MSD 64206 SS0677 ->Inj. Vol. :Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.131	8215	243.656	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

Totals: 243.656

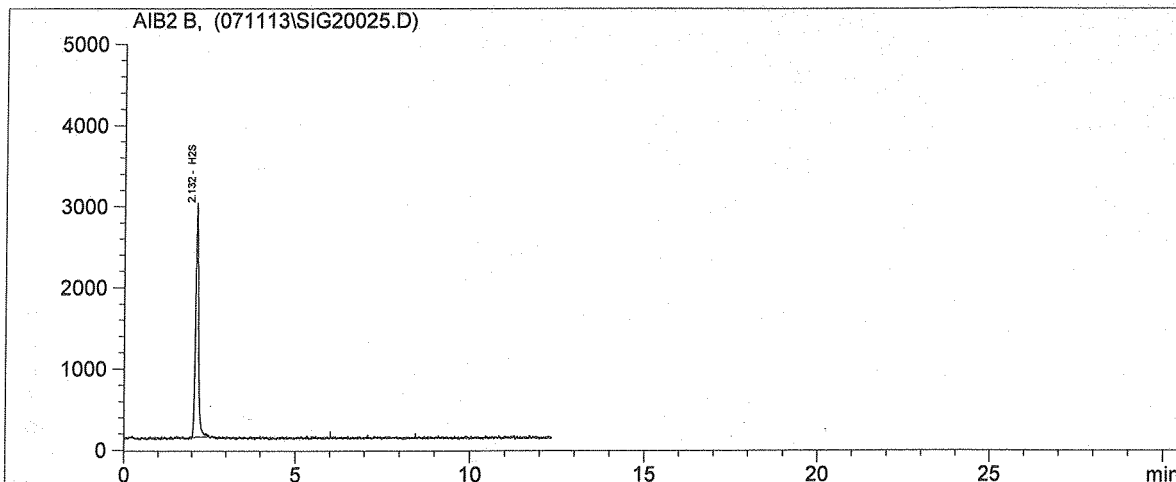
*** End of Report ***

Handwritten signature and date: 7/11/13

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Customized Report: D5504

Injection Date : 7/11/2013 4:41:34 PM Seq. Line : 25
Sample Name : CCV 500ppbV SS0677 ->Inj. Vol. : Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.132	16972	503.353	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide

Totals: 503.353

*** End of Report ***

DL
7/11/13

Calibration Summary

Analysis Date: 5/14/2013

Analyst: DH/MH

Units: ppbv

SCAQMD 307.91 / ASTM D-5504 INITIAL CALIBRATION SUMMARY

CALIBRATION CURVE RAW DATA:

Standard Concentration (ppbv)	Retention time (min)	Response (Area)	RPD from initial result (< 5%)	Std Deviation	Standard Concentration	Mean Response (Area)	Calculated Concentration (From Mean)	Mean % Recovery (+/- 5 %)
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
25.0	2.096	836	0.0					
25.0	2.094	855	2.2	12	25.0	842	25.0	99.9
25.0	2.093	834	0.2					
100.0	2.091	3222						
100.0	2.090	3374	4.6	82	100.0	3316	98.4	98.4
100.0	2.091	3353	4.0					
500.0	2.091	17233						
500.0	2.090	17453	1.3	272	500.0	17486	518.6	103.7
500.0	2.089	17773	3.1					
2500.0	2.087	85533						
2500.0	2.088	83551	2.3	1182	2500.0	84170	2496.3	99.9
2500.0	2.087	83425	2.5					
Avg. Ret		2.091						

Calibration Verification Check Standards:

Check Standard Concentration: 500 ppbv

	Resp. (area)	Result (ppbv)	% Rec *	% RPD
Initial	17273	512.3	102.5	NA
Duplicate	17117	507.7	101.5	0.9
Triplicate	17378	515.4	103.1	0.6

* All CV's must have +/- 5 % Recovery and < 5% RPD from Initial result.

Linear Slope: X = Y/
R2 value: 0.9999 Must be > 0.990

Laboratory Director (signature/date)
 5/14/13

SCAQMD 307.91/ASTM D-5504 INITIAL CALIBRATION SUMMARY

Area (mean) vs. Conc. (theor)

$y = 33.7172x$
 $R^2 = 0.9999$

