

## Atmospheric Analysis & Consulting, Inc.

CLIENT : SWAPE  
PROJECT NAME : Bridgeton Sanitary Landfill Quality Assessment  
AAC PROJECT NO. : 131029  
REPORT DATE : 08/07/2013

On August 5, 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 W1 Canister	131029-65222	644.4
U-2 W7 Canister	131029-65223	571.1
D-1 H Canister	131029-65224	606.4
D-2 H Canister	131029-65225	459.7

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.

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.

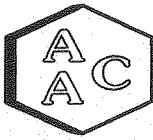
I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

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

  
Marcus Hueppe  
Laboratory Director

This report consists of 34 pages.





### SAMPLE RECEIPT / LOG-IN REPORT

AAC Project 131029

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>
8/5/2013 1045	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	U-1 W1 Canister	Summa Canister	7/31/2013	Client	65222	TO15 ASTM D5504
8/5/2013 1045	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	U-2 W7 Canister	Summa Canister	7/31/2013	Client	65223	TO15 ASTM D5504
8/5/2013 1045	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	D-1 H Canister	Summa Canister	7/31/2013	Client	65224	TO15 ASTM D5504
8/5/2013 1045	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	D-2 H Canister	Summa Canister	7/31/2013	Client	65225	TO15 ASTM D5504

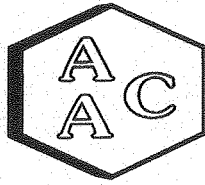
**TURN AROUND TIME:** Normal (10days)

Lab Due Date: 8/12/2013

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.: 131029  
Date: 8/5/2013

Canister #	Sample #	Initial Pressure	Final Pressure
777	65222	644.4	1016.0
780	65223	571.1	1028.6
802	65224	606.4	1021.8
729	65225	459.7	1022.3

AA 151029

**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

Date:  
July 31 2013

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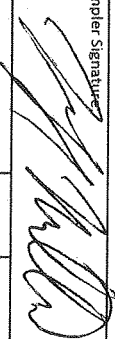
Project Manager:  
PAUL ROSENFELD, PH.D.

**REQUESTED TESTS / ANALYSES**

Address:  
1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401

Project Name and location:  
BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT

Sampled By:  
Jeff Miller

Sampler Signature:  


LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	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	Flow #
05222	U1 W1	Canister	7/31/13	4 HR	X	X												Canister # 000 777
05223	U2 W7	Canister	7/31/13	4 HR	X	X												Canister # 000 780
05224	D-1 H1	Canister	7/31/13	4 HR	X	X												Canister # 000 802
05225	D-2 H1	Canister	7/31/13	4 HR	X	X												Canister # 000 729

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:  Date: 7/31/13 Time: 3:30 PM

Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received By:  Date: 8/5/13 Time: 1045

# 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 / W- 1 Canister

AAC Batch ID: 131029 AAC Sample ID: 65222

### SAMPLING INFORMATION

Start Date/Time: July 31st, 9:22

Stop Date/Time: July 31st, 13:07

Start Temp/Pressure\*: 22 C 30.05 psi

Stop Temp/Pressure\*: 25 C 30.05 psi

Initial Can Pressure\*\*: -28

Final Can Pressure\*\*: -3

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

Comments: \_\_\_\_\_

Jeff Miller

*John Blank* 7/31/13  
John Blank

~~John Blank~~

Sampler Name (Print)

Sampler Signature/Date

~~July 5<sup>th</sup>, 2013~~

### LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: 000777

Flow Controller Serial No.: 000709

Initial Pressure: 4.9

Certified Flow Rate: 18.0

Return Pressure: 644.4

Certified By/Date: JB 7/16/13

Final Pressure: 10/6.0

Flow Rate upon Return: 25.1 ml/min

Date Shipped From Lab: 7/16/13

Shipped By: JB

Date Returned to Lab: 8/5/13

Received By: WJF

Flow Controller Certification File ID: 4503/07113260

Canister Certification File ID: 4503/0711316

Certification Type: SIM \_\_\_\_\_ SCAN  NJLL \_\_\_\_\_ PAMS \_\_\_\_\_ Other \_\_\_\_\_

*John Miller* 8/6/13  
Chemist Signature/Date

*John Miller* 8/6/13  
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.: **U/ 2 / W-7 Canister**

AAC Batch ID: **131029** AAC Sample ID: **65223**

### SAMPLING INFORMATION

Start Date/Time: ~~May~~ **July 31, 10:17**

Stop Date/Time: ~~May~~ **July 31, 14:17**

Start Temp/Pressure\*: **22 C 30.05 psi**

Stop Temp/Pressure\*: **25 C 30.05 psi**

Initial Can Pressure\*\*: **- 31**

Final Can Pressure\*\*: **- 9**

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

Comments: \_\_\_\_\_

*Jeff Miller*

**John Blank**

Sampler Name (Print)

*John Blank*

Sampler Signature/Date

July 5<sup>th</sup>, 2013

*J Miller* 7/31/13

### LABORATORY INFORMATION

Canister Size: **6 - Liter**

Sampling Period: **4 - Hour**

Canister Serial No.: **000780**

Flow Controller Serial No.: **000698**

Initial Pressure: **4.9**

Certified Flow Rate: **18.0**

Return Pressure: **571.1**

Certified By/Date: *J* 7/16/13

Final Pressure: **1028.6**

Flow Rate upon Return: **21.1 ml/min**

Date Shipped From Lab: **7/16/13**

Shipped By: *J*

Date Returned to Lab: **8/5/13**

Received By: *W J*

Flow Controller Certification File ID: **11503/0711326**

Canister Certification File ID: **11503/0711318**

Certification Type: SIM  SCAN  NJLL  PAMS  Other

*John Blank*  
Chemist Signature/Date

*W J*  
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 V / H Canister**

AAC Batch ID: 131029 AAC Sample ID: 65224

### SAMPLING INFORMATION

Start Date/Time: ~~May~~ July 31 9:47 AM Stop Date/Time: ~~May~~ July 31 13:47

Start Temp/Pressure\*: 22 C 30.05psi Stop Temp/Pressure\*: 25 C 30.05psi

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

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

Comments: \_\_\_\_\_

*Jeff Miller*

*John Blank*

**John Blank**  
Sampler Name (Print)

Sampler Signature/Date

July 5<sup>th</sup>, 2013

### LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: 000802

Flow Controller Serial No.: 000715

Initial Pressure: 4.9

Certified Flow Rate: 18.0

Return Pressure: 606.4

Certified By/Date: JJ 7/16/13

Final Pressure: 1021.8

Flow Rate upon Return: 22.2 ml/min

Date Shipped From Lab: \_\_\_\_\_

Shipped By: \_\_\_\_\_

Date Returned to Lab: 8/5/13

Received By: WJF

Flow Controller Certification File ID: M63/07111326

Canister Certification File ID: M63/07121312

Certification Type: SIM  SCAN  NJLL  PAMS  Other

*James Paul Postle*  
Chemist Signature/Date

*WJF 8/6/13*  
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 2 / H Canister**

AAC Batch ID: 131029 AAC Sample ID: 65225

### SAMPLING INFORMATION

Start Date/Time: ~~July 31~~ July 31<sup>st</sup>, 10:52 Stop Date/Time: ~~July 31~~ July 31, 14:52

Start Temp/Pressure\*: 22 C 30.05psi Stop Temp/Pressure\*: 25 C 30.9 psi

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

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

Comments: \_\_\_\_\_

*Jeff Miller*

*John Blank*

**John Blank**

Sampler Name (Print)

July 5<sup>th</sup>, 2013

Sampler Signature/Date

*Jeff Miller* 7/31/13

### LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: 000729

Flow Controller Serial No.: 000694

Initial Pressure: 4.9

Certified Flow Rate: 18.0

Return Pressure: 459.7

Certified By/Date: JZ 7/16/13

Final Pressure: 1022.3

Flow Rate upon Return: 17.0 m/min

Date Shipped From Lab: 7/16/13

Shipped By: JZ

Date Returned to Lab: 8/5/13

Received By: WJF

Flow Controller Certification File ID: MS03/0711326

Canister Certification File ID: MS03/07121316

Certification Type: SIM \_\_\_\_\_ SCAN  NJLL \_\_\_\_\_ PAMS \_\_\_\_\_ Other \_\_\_\_\_

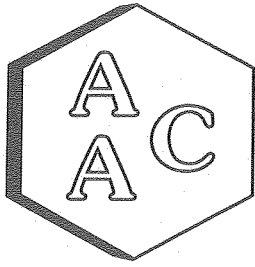
*John Blank*  
Chemist Signature/Date

*John Blank*  
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.



# Results



# Atmospheric Analysis & Consulting, Inc.

## LABORATORY ANALYSIS REPORT

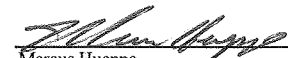
CLIENT : SWAPE  
 PROJECT NO. : 131029  
 MATRIX : AIR  
 UNITS : ppbV

SAMPLING DATE : 07/31/2013  
 RECEIVING DATE : 08/05/2013  
 ANALYSIS DATE : 08/06/2013  
 REPORT DATE : 08/07/2013

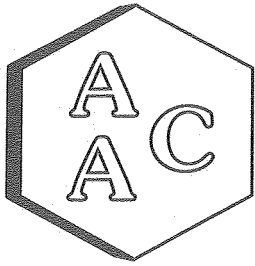
### Sulfur Compounds by ASTM D-5504

Client ID	U-1 W1 Canister	U-2 W7 Canister	D-1 H Canister	D-2 H Canister
AAC ID	131029-65222	131029-65223	131029-65224	131029-65225
Canister Dil. Fac.	1.58	1.80	1.69	2.22
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 15.8	< 18.0	< 16.9	< 22.2
Carbonyl Sulfide	< 15.8	< 18.0	< 16.9	< 22.2
Sulfur Dioxide	< 15.8	< 18.0	< 16.9	< 22.2
Methyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
Ethyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
Dimethyl Sulfide	< 15.8	< 18.0	< 16.9	< 22.2
Carbon Disulfide	< 7.9	< 9.0	< 8.4	< 11.1
Isopropyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
tert-Butyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
n-Propyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
Methylethylsulfide	< 15.8	< 18.0	< 16.9	< 22.2
sec-Butyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
Thiophene	< 15.8	< 18.0	< 16.9	< 22.2
iso-Butyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
Diethyl Sulfide	< 15.8	< 18.0	< 16.9	< 22.2
n-Butyl Mercaptan	< 15.8	< 18.0	< 16.9	< 22.2
Dimethyl Disulfide	< 7.9	< 9.0	< 8.4	< 11.1
2-Methylthiophene	< 15.8	< 18.0	< 16.9	< 22.2
3-Methylthiophene	< 15.8	< 18.0	< 16.9	< 22.2
Tetrahydrothiophene	< 15.8	< 18.0	< 16.9	< 22.2
Bromothiophene	< 15.8	< 18.0	< 16.9	< 22.2
Thiophenol	< 15.8	< 18.0	< 16.9	< 22.2
Diethyl disulfide	< 7.9	< 9.0	< 8.4	< 11.1
Total Unidentified Sulfur	< 15.8	< 18.0	< 16.9	< 22.2

All unidentified sulfur compound's concentrations expressed in terms of  $\mu\text{S}$   
 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. : 131029  
 MATRIX : AIR  
 UNITS : ug/m<sup>3</sup>

SAMPLING DATE : 07/31/2013  
 RECEIVING DATE : 08/05/2013  
 ANALYSIS DATE : 08/06/2013  
 REPORT DATE : 08/07/2013

### Sulfur Compounds by ASTM D-5504

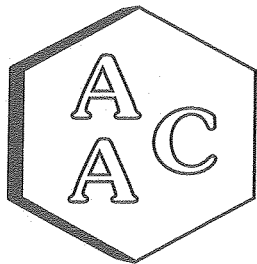
Client ID	U-1 W1 Canister	U-2 W7 Canister	D-1 H Canister	D-2 H Canister
AAC ID	131029-65222	131029-65223	131029-65224	131029-65225
Canister Dil. Fac.	1.58	1.80	1.69	2.22
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 22.0	< 25.1	< 23.5	< 31.0
Carbonyl Sulfide	< 38.7	< 44.3	< 41.4	< 54.6
Sulfur Dioxide	< 41.3	< 47.2	< 44.2	< 58.3
Methyl Mercaptan	< 31.0	< 35.4	< 33.2	< 43.8
Ethyl Mercaptan	< 40.1	< 45.8	< 42.8	< 56.5
Dimethyl Sulfide	< 40.1	< 45.8	< 42.8	< 56.5
Carbon Disulfide	< 24.5	< 28.0	< 26.2	< 34.6
Isopropyl Mercaptan	< 49.1	< 56.1	< 52.5	< 69.3
tert-Butyl Mercaptan	< 58.2	< 66.4	< 62.2	< 82.0
n-Propyl Mercaptan	< 49.1	< 56.1	< 52.5	< 69.3
Methylethylsulfide	< 49.1	< 56.1	< 52.5	< 69.3
sec-Butyl Mercaptan	< 58.2	< 66.4	< 62.2	< 82.0
Thiophene	< 54.3	< 62.0	< 58.0	< 76.5
iso-Butyl Mercaptan	< 58.2	< 66.4	< 62.2	< 82.0
Diethyl Sulfide	< 58.2	< 66.4	< 62.2	< 82.0
n-Butyl Mercaptan	< 58.2	< 66.4	< 62.2	< 82.0
Dimethyl Disulfide	< 30.4	< 34.7	< 32.5	< 42.8
2-Methylthiophene	< 63.3	< 72.3	< 67.6	< 89.3
3-Methylthiophene	< 63.3	< 72.3	< 67.6	< 89.3
Tetrahydrothiophene	< 56.9	< 64.9	< 60.8	< 80.2
Bromothiophene	< 105	< 120	< 112	< 148
Thiophenol	< 71.1	< 81.2	< 75.9	< 100
Diethyl disulfide	< 39.4	< 45.0	< 42.1	< 55.6
Total Unidentified Sulfur	< 22.0	< 25.1	< 23.5	< 31.0

All unidentified sulfur compound's concentrations expressed in terms of  $\mu\text{S}$   
 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: 08/06/13  
Analyst: DH

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

### Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	16406	487	97.3	NA
Duplicate	17157	509	101.8	4.5
Triplicate	16939	502	100.5	3.2

### Method Blank

Analyte	Result
H2S	ND

### Matrix Spike & Duplicate

Sample ID 131029-65222

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0.0	250.0	254.9	254.1	101.9	101.6	0.3

### Duplicate Analysis

Sample ID 131029-65222

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	493.1	98.6

\* Must be 95-105%

\*\* Must be 90-110%

\*\*\* Must be < 10%

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

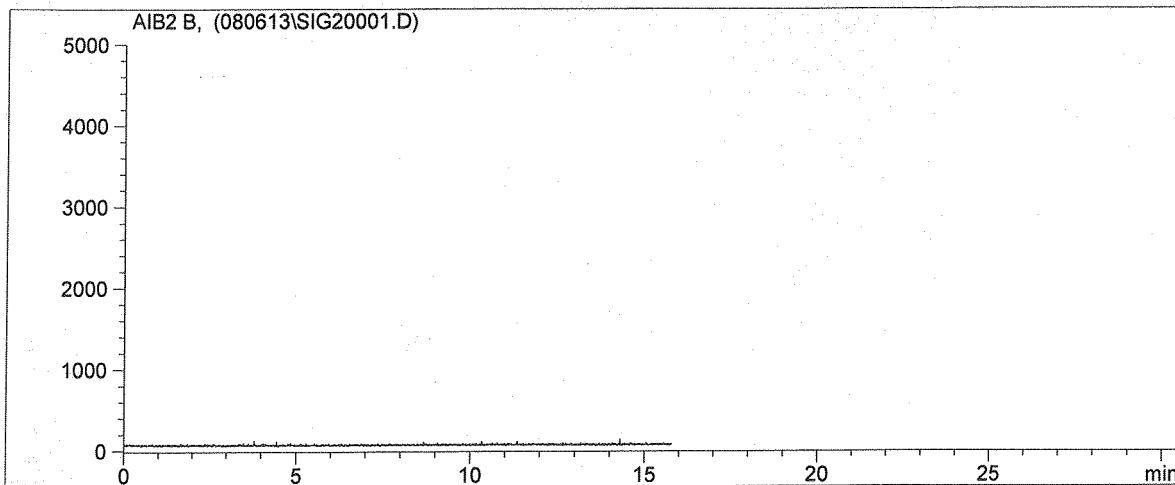
Marcus Hueppe  
Laboratory Director



# Raw Data

=====  
Customized Report: D5504

Injection Date : 8/6/2013 6:02:35 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

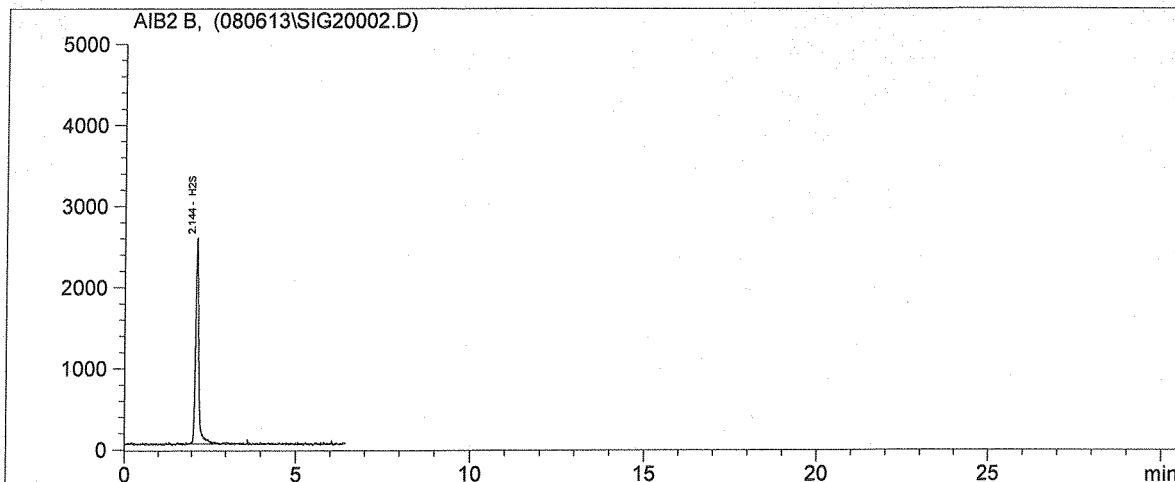
Totals: 0.000

\*\*\* End of Report \*\*\*

=====

Customized Report: D5504

Injection Date : 8/6/2013 6:19:31 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
2.144	16594	492.161	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

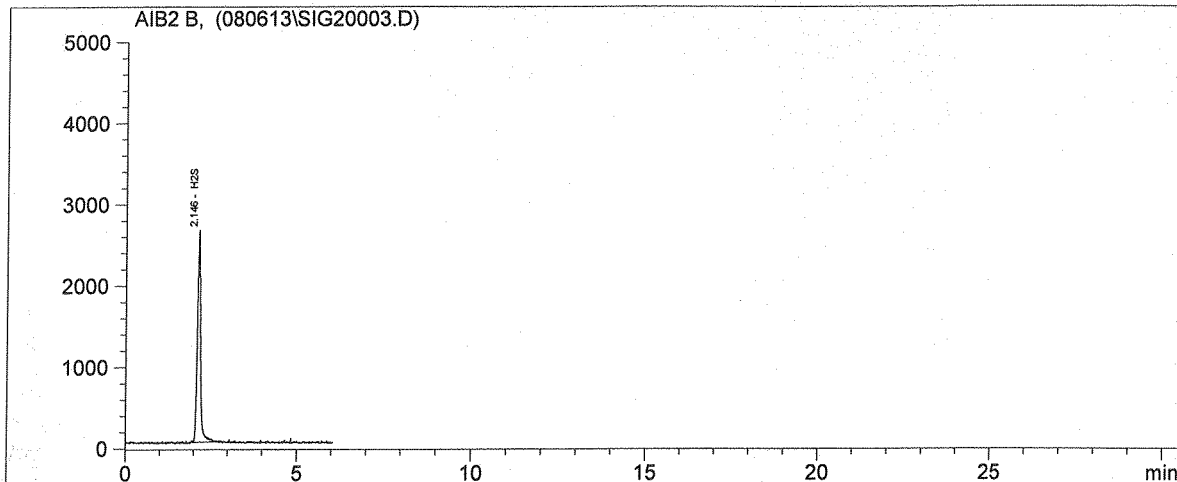
Totals:      492.161

\*\*\* End of Report \*\*\*



Customized Report: D5504

Injection Date : 8/6/2013 6:26:38 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
2.146	17157	508.864	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

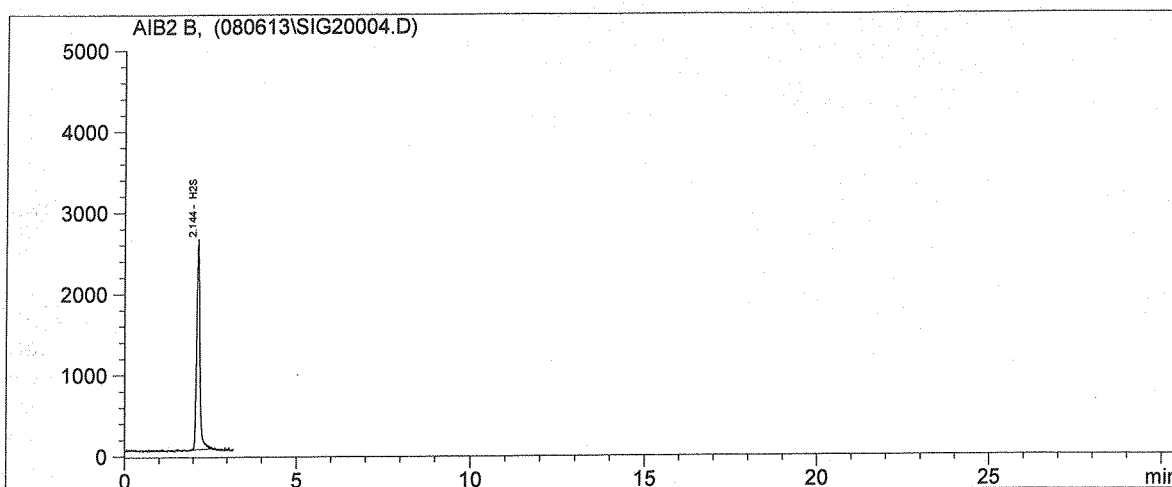
Totals: 508.864

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8/6/13

Customized Report: D5504

Injection Date : 8/6/2013 6:33:15 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
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Ret Time [min]	Area	Amount [ppbV]	Name
2.144	16939	502.398	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

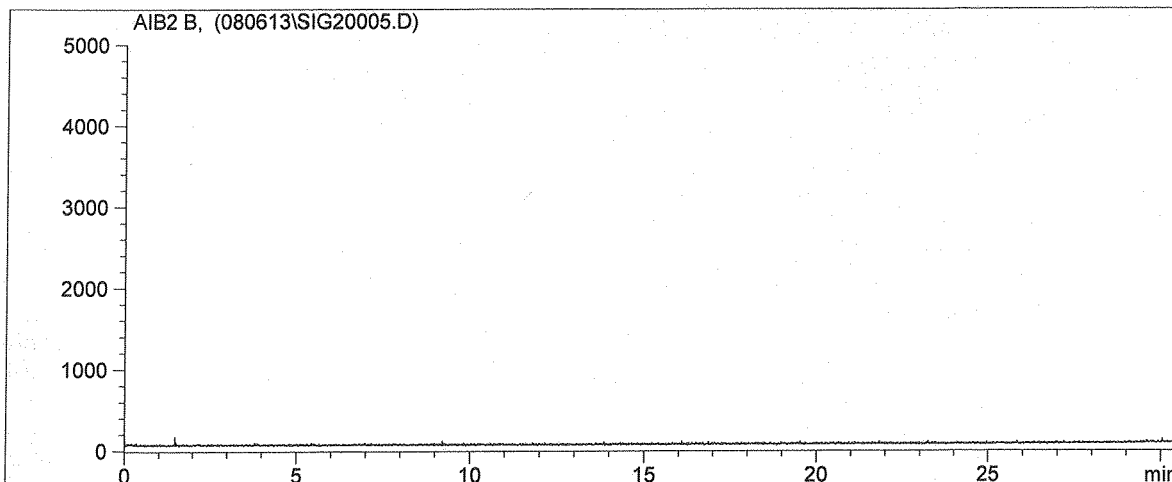
Totals: 502.398

\*\*\* End of Report \*\*\*

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8/6/13

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Customized Report: D5504

Injection Date : 8/6/2013 6:38:08 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

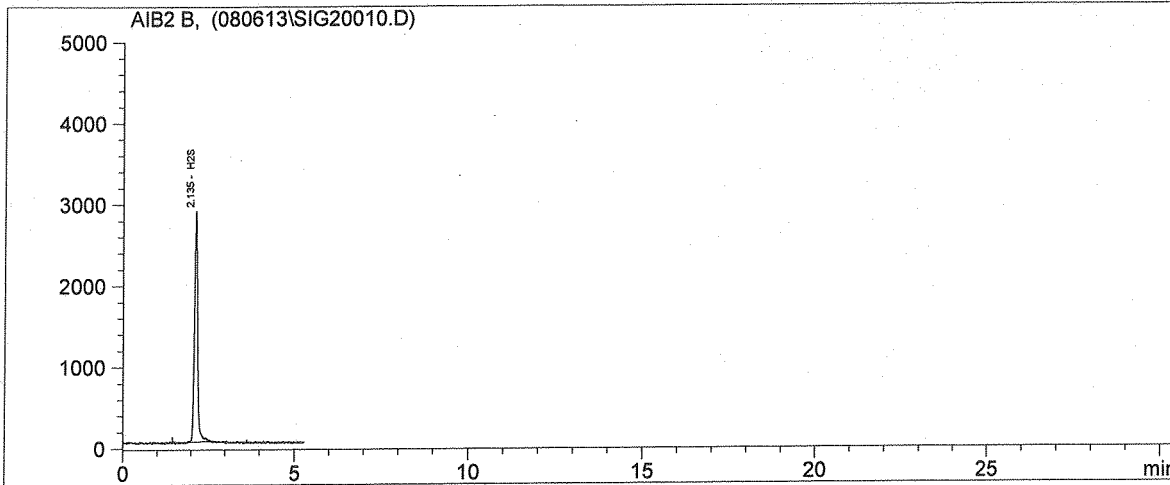
Totals: 0.000

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8/6/13

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 Customized Report: D5504

Injection Date : 8/6/2013 9:30:49 AM                      Seq. Line : 10  
 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

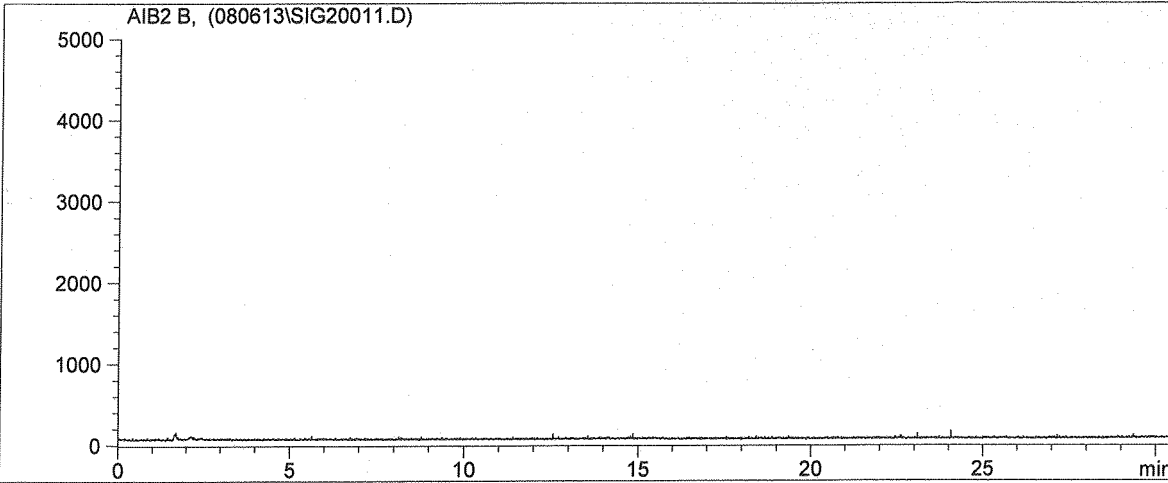
Ret Time [min]	Area	Amount [ppbV]	Name
2.135	18108	537.052	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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:                                              537.052

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 \*\*\* End of Report \*\*\*

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 Customized Report: D5504

Injection Date : 8/6/2013 9:38:06 AM                      Seq. Line : 11  
 Sample Name : 131029-65222                                  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

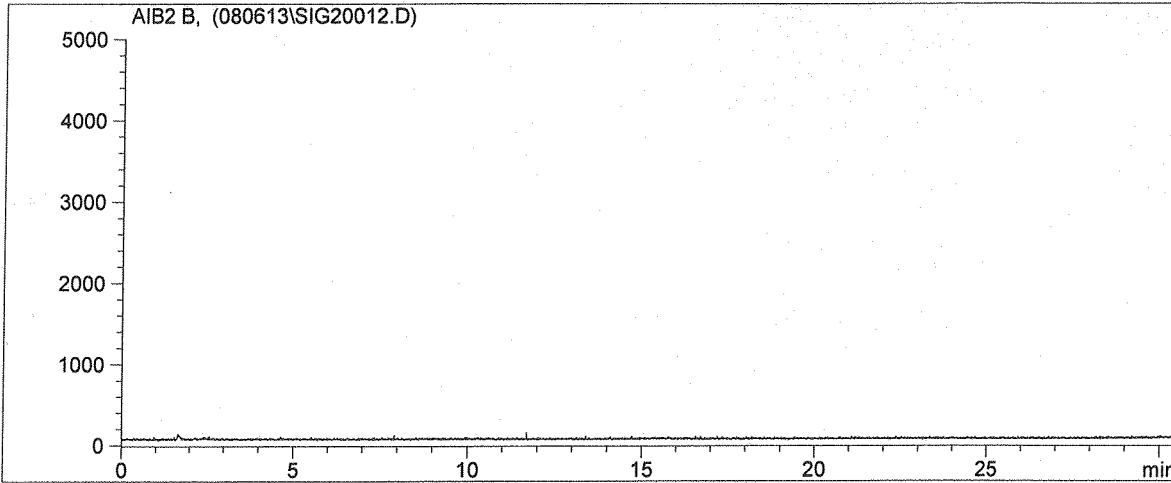
Totals: 0.000

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 \*\*\* End of Report \*\*\*

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 8/6/13

Customized Report: D5504

Injection Date : 8/6/2013 10:19:27 AM      Seq. Line : 12  
Sample Name : 131029-65222 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
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

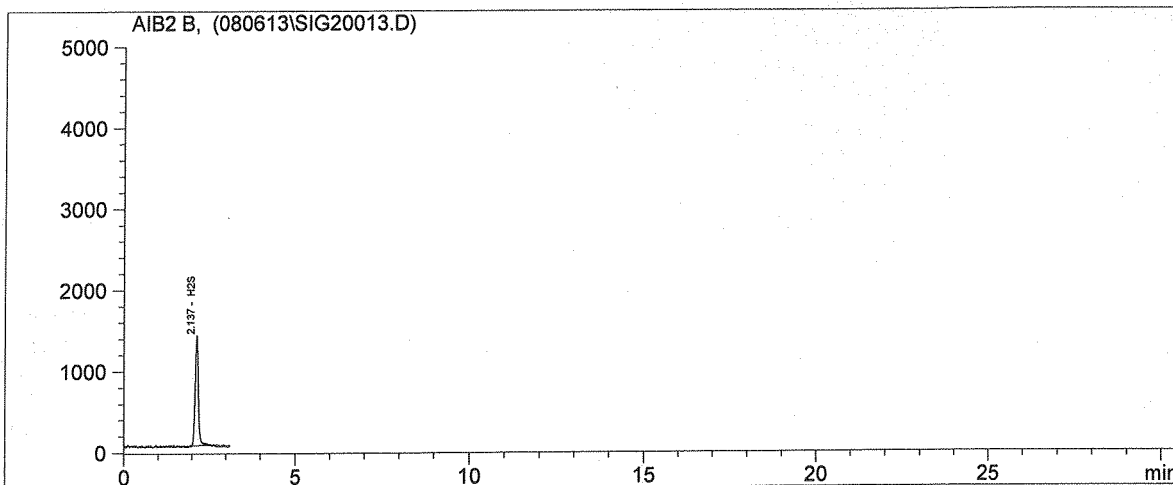
Totals: 0.000

\*\*\* End of Report \*\*\*

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8/6/13

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 Customized Report: D5504

Injection Date : 8/6/2013 11:21:08 AM                   Seq. Line : 13  
 Sample Name : MS 65222                                  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

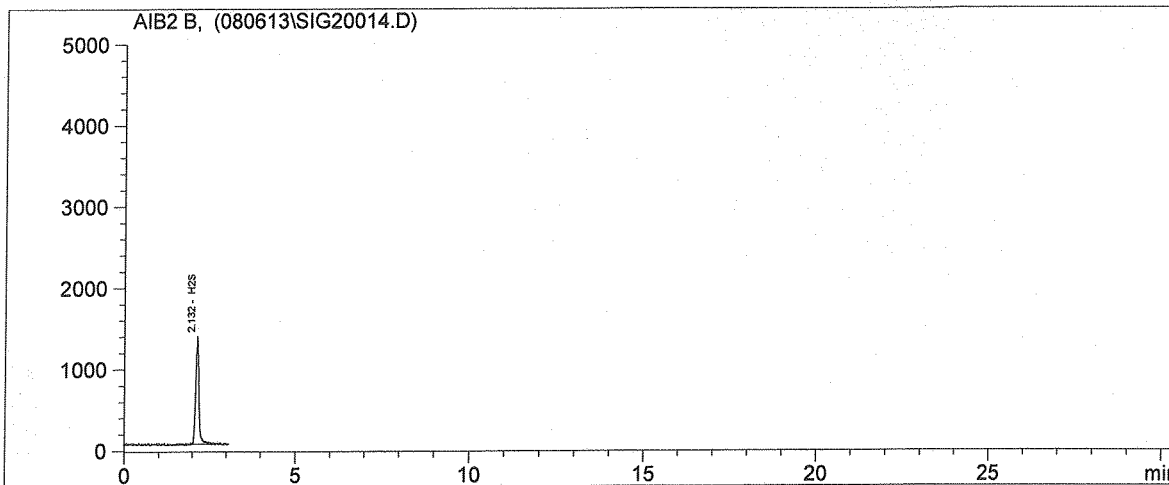
Ret Time [min]	Area	Amount [ppbV]	Name
2.137	8593	254.856	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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: 254.856

\*\*\* End of Report \*\*\*

## Customized Report: D5504

Injection Date : 8/6/2013 11:24:51 AM      Seq. Line : 14  
 Sample Name : MSD 65222      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	8568	254.100	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: 254.100

\*\*\* End of Report \*\*\*

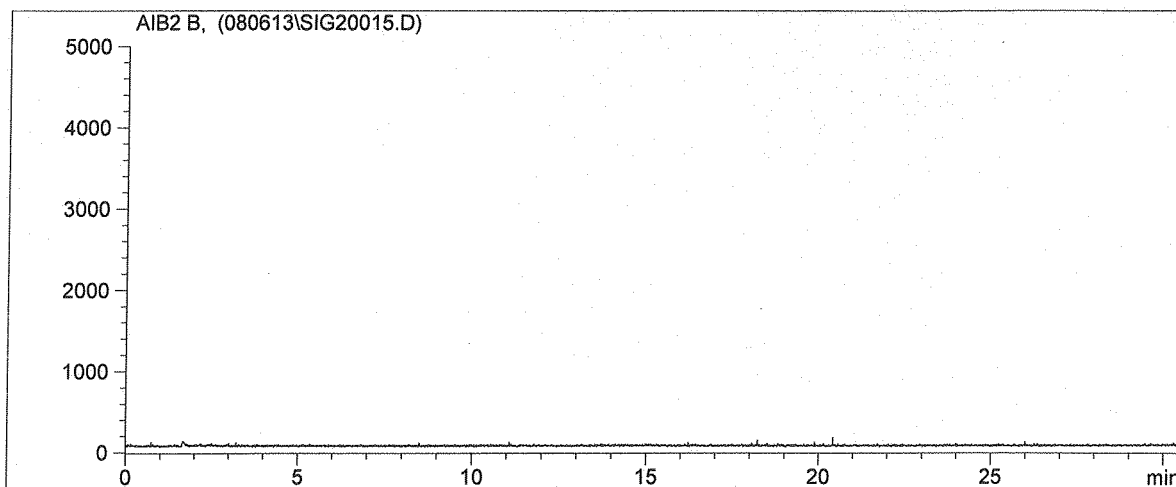
Page 24

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 8/6/13



Customized Report: D5504

Injection Date : 8/6/2013 11:28:39 AM      Seq. Line : 15  
 Sample Name : 131029-65223      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

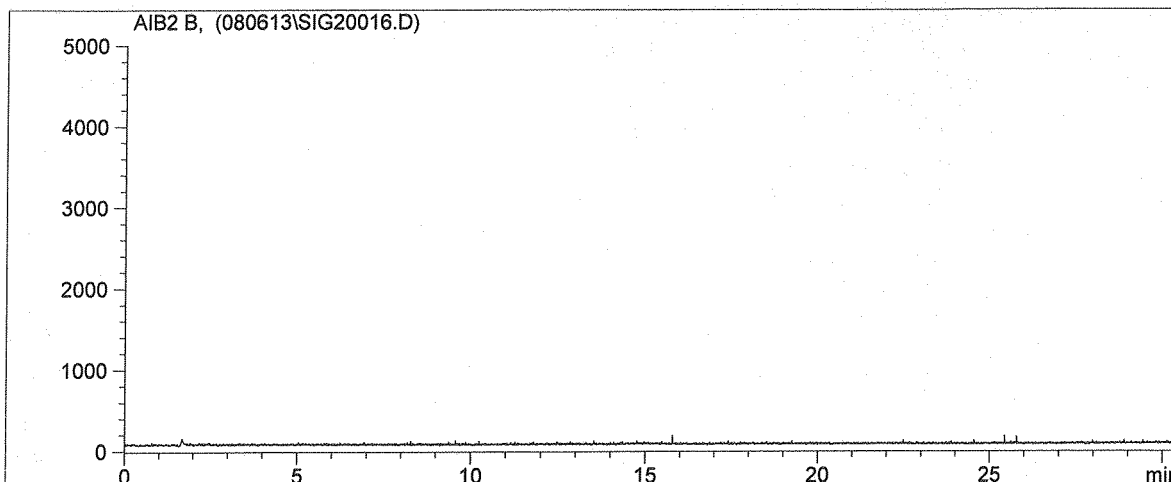
Totals: 0.000

\*\*\* End of Report \*\*\*

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8/6/13

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 Customized Report: D5504

Injection Date : 8/6/2013 12:10:11 PM                      Seq. Line : 16  
 Sample Name : 131029-65223 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
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

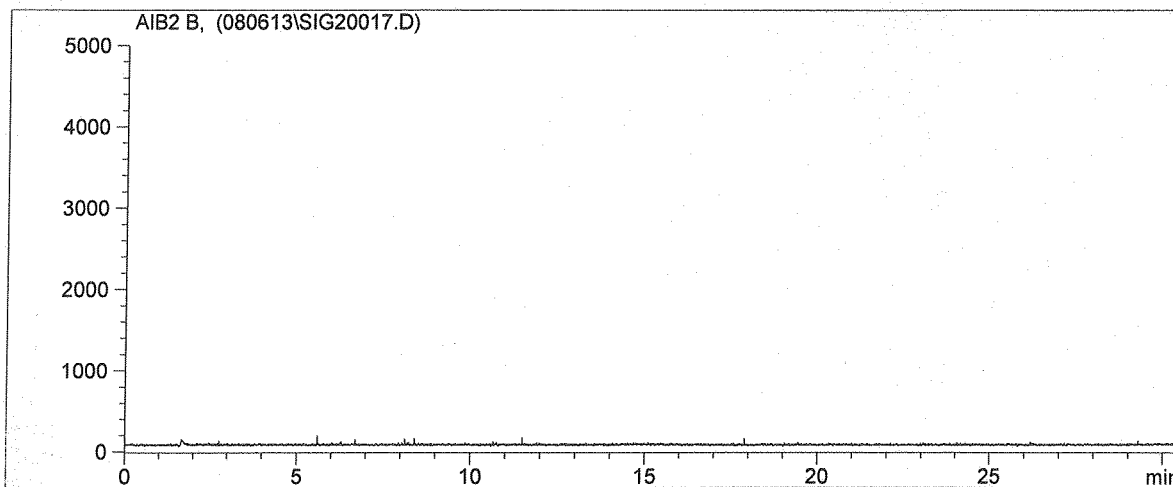
Totals: 0.000

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 \*\*\* End of Report \*\*\*

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Customized Report: D5504

Injection Date : 8/6/2013 12:49:18 PM      Seq. Line : 17  
 Sample Name : 131029-65224      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

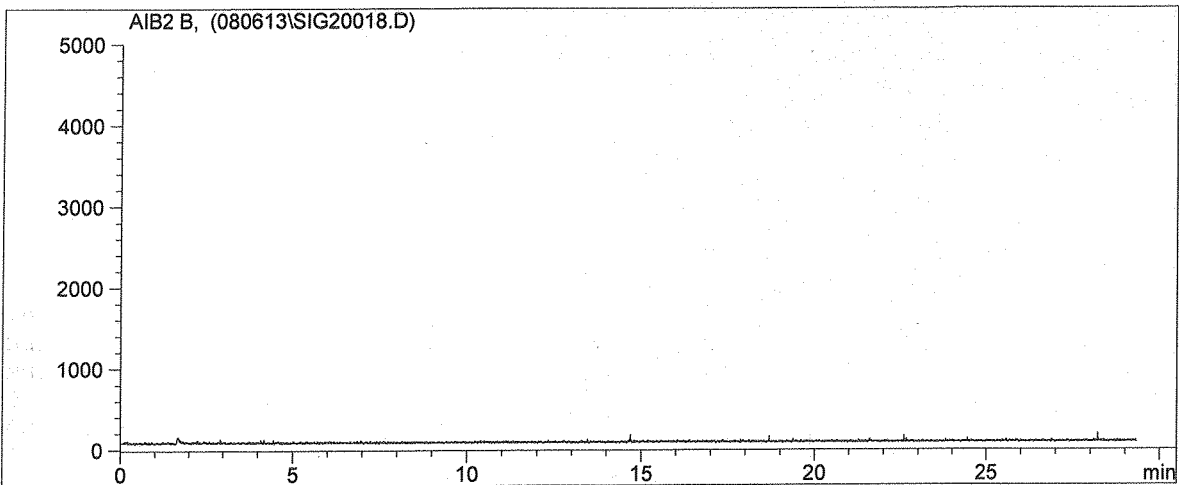
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*MW*  
8/6/13

Customized Report: D5504

Injection Date : 8/6/2013 1:27:45 PM                      Seq. Line : 18  
Sample Name : 131029-65224                      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
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

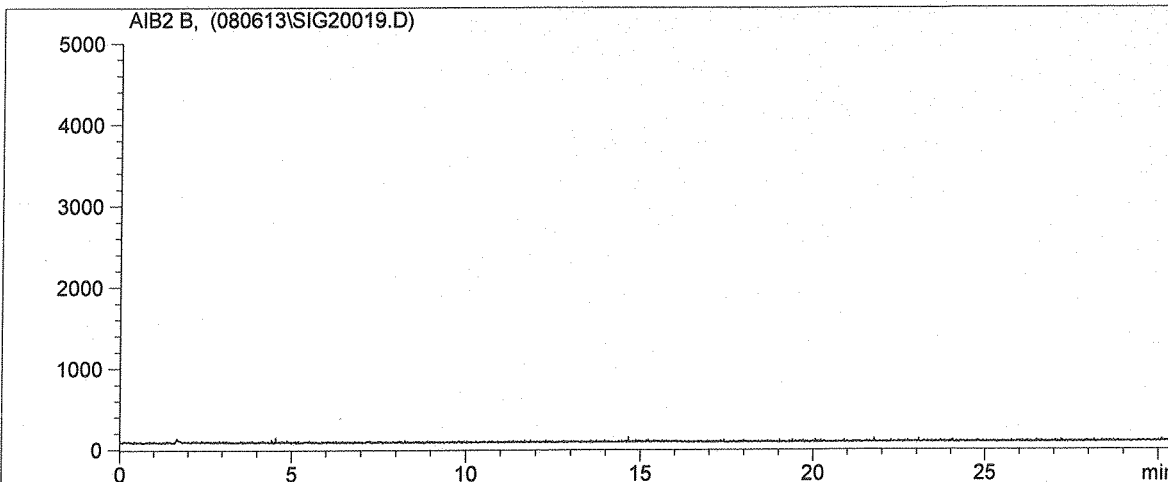
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\*\*\* End of Report \*\*\*

*NM*  
*8/6/13*

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Customized Report: D5504

Injection Date : 8/6/2013 2:09:36 PM                                           Seq. Line : 19  
Sample Name    : 131029-65225                                                  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

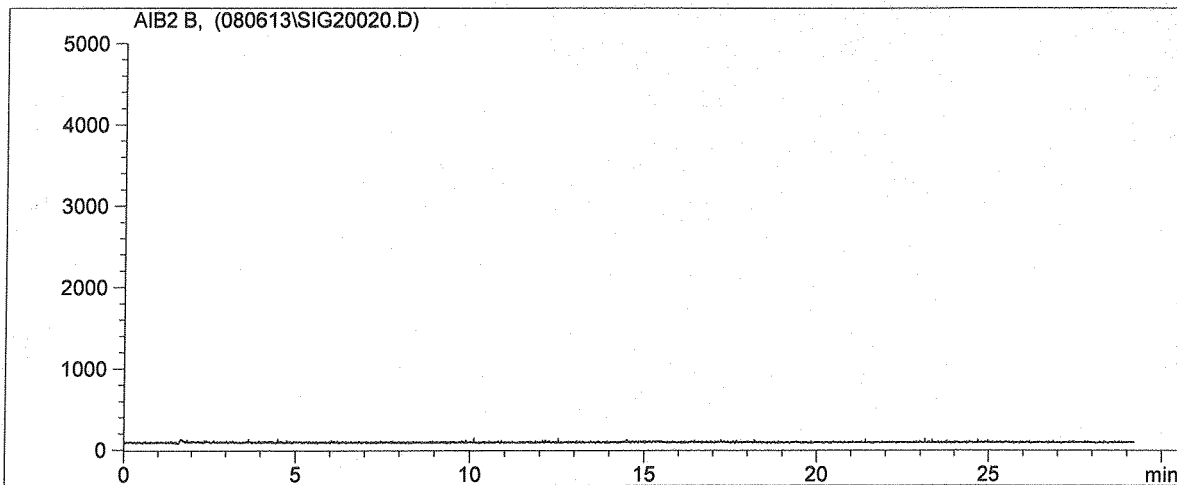
Totals: 0.000

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\*\*\* End of Report \*\*\*

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*8/6/13*

## Customized Report: D5504

Injection Date : 8/6/2013 2:54:54 PM                      Seq. Line : 20  
 Sample Name : 131029-65225                      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
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

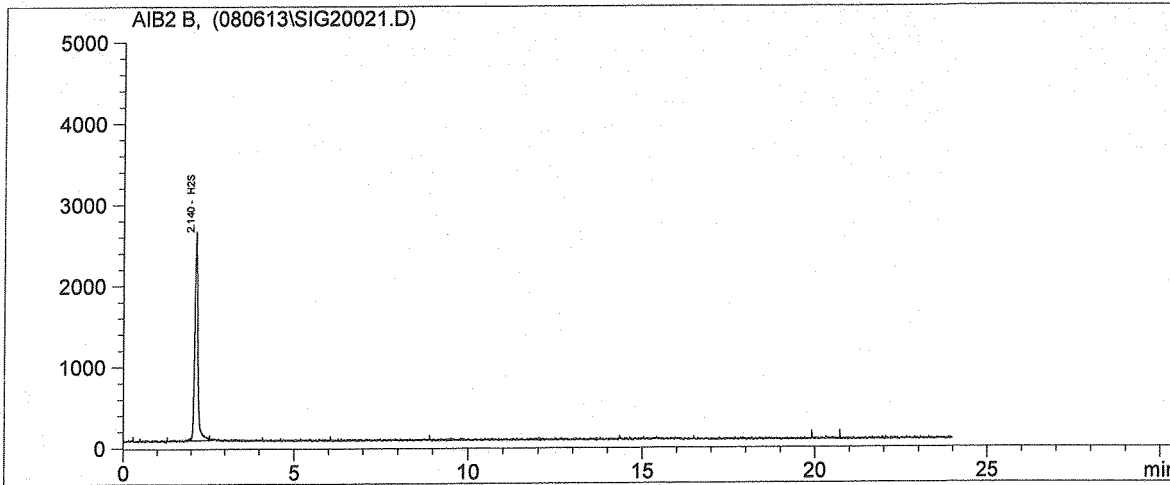
Totals: 0.000

\*\*\* End of Report \*\*\*

*MD*  
8/6/13

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Customized Report: D5504  
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Injection Date : 8/6/2013 3:27:57 PM          Seq. Line : 21  
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
2.140	16625	493.068	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:                                          493.068

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\*\*\* End of Report \*\*\*

# 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	0.00	0	0.0	0	0.0	0	0.0	0.0
0.0	0.00	0	0.0					
25.0	2.096	836						
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

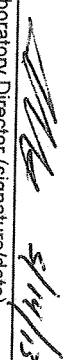
**Calibration Verification Check Standards:**

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

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

SCAQMD 307.91/ASTM D-5504 INITIAL CALIBRATION SUMMARY

Area (mean) vs. Conc. (theor)

$Y = 33.7172X$   
 $R^2 = 0.9999$

