

Atmospheric Analysis & Consulting, Inc.

CLIENT : SWAPE
PROJECT NAME : Bridgeton Sanitary Landfill Quality Assessment
AAC PROJECT NO. : 131119
REPORT DATE : 08/21/2013

On August 21, 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 K Canister	131119-65684	704.5
U-2 W2 Canister	131119-65685	691.3
D-1 W6E Canister	131119-65686	722.5
D-2 W6W Canister	131119-65687	713.2

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.

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.

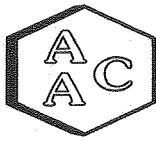
I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

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


Marcus Hueppe
Laboratory Director

This report consists of 36 pages.





SAMPLE RECEIPT / LOG-IN REPORT

AAC Project 131119

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>
8/21/2013 1145	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	U-1 K Canister	Summa Canister	8/14/2013	Client	65684	TO15 ASTM D5504
8/21/2013 1145	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	U-2 W2 Canister	Summa Canister	8/14/2013	Client	65685	TO15 ASTM D5504
8/21/2013 1145	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	D-1 W6E Canister	Summa Canister	8/14/2013	Client	65686	TO15 ASTM D5504
8/21/2013 1145	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assessment	D-2 W6W Canister	Summa Canister	8/14/2013	Client	65687	TO15 ASTM D5504

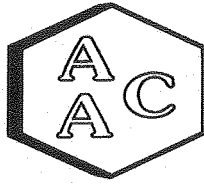
TURN AROUND TIME: Normal (10days)

Lab Due Date: 8/28/2013

Total Samples: 4

REMARKS:

Client returned 4 x Summa canisters + 4 x Flows. Sample 65687 was identified to be D-2 and canister 000741, not D-1 and canister 000744 that is documented on the COC and field data sheets. "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.: 131119
Date: 8/21/2013

Canister #	Sample #	Initial Pressure	Final Pressure
577	65684	704.5	1014.1
700	65685	691.3	1020.7
730	65686	722.5	1018.8
741	65687	713.2	1018.9

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

AAC# 131119

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE
 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
 Sampled By: John Blank
 Sampler Signature: *John Blank*

Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
 Date: August 14th
 Page 1 of 1

LAB ID		SAMPLE ID NUMBER	Type	Date	Time	REQUESTED TESTS / ANALYSES													
65284	U-1 K	Canister		August 14th	261 min	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	Canister # 577
65285	U-2 W2	Canister		August 14th	290 min	X	X												Canister # 700
65286	D-1 W6E	Canister		August 14th	280 min	X	X												Canister # 730
65287	D-1 W6W	Canister		August 14th	313 min	X	X												Canister # 744

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: August 14th
 Time: 12 Noon
 Received By: *John Zachman*
 Date: 8/21/15
 Time: 1:45

Relinquished By: *John Blank*
 Date:
 Time:
 Received By:
 Date:
 Time:

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 K** Canister #**577** Flow Control #**711**

AAC Batch ID: 131119 AAC Sample ID: 165684

SAMPLING INFORMATION

Start Date/Time: **Aug 14th, 2013 - 16:54 AM** Stop Date/Time: **Aug 14th, 2013 - 21:15 PM**

Start Temp/Pressure*: **24 C / 30.17 inHg** Stop Temp/Pressure*: **18 C / 30.16 inHg**

Initial Can Pressure**: **- 30 inHg** Final Can Pressure**: **- 5 inHg**

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

Comments: _____



John Blank
Sampler Name (Print)

August 14th, 2013
Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: **261 Minutes**

Canister Serial No.: **577**

Flow Controller Serial No: **711**

Initial Pressure: 3.6

Certified Flow Rate: 18.0

Return Pressure: 704.5

Certified By/Date: JJ 8/6/13

Final Pressure: 1014.1

Flow Rate upon Return: 14.3

Date Shipped From Lab: 8/6/13

Shipped By: JJ

Date Returned to Lab: 8/21/13

Received By: JJ

Flow Controller Certification File ID: 14903/07171310

Canister Certification File ID: 14903/08051305

Certification Type: SIM SCAN NJLL PAMS Other

 08/21/13
Chemist Signature/Date

MW 8/22/13
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 W2**

Canister # **700**

Flow Control # **803**

AAC Batch ID: 131119

AAC Sample ID: 65685

SAMPLING INFORMATION

Start Date/Time: **Aug 14th, 2013 - 17:55 AM**

Stop Date/Time: **Aug 14th, 2013 - 22:45 PM**

Start Temp/Pressure*: **24 C / 30.17 inHg**

Stop Temp/Pressure*: **18 C / 30.16 inHg**

Initial Can Pressure**: **- 30 inHg**

Final Can Pressure**: **- 5 inHg**

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

Comments: _____

John Blank

Sampler Name (Print)

August 14th, 2013

Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: **290 Minutes**

Canister Serial No: **700**

Flow Controller Serial No: **803**

Initial Pressure: 3.8

Certified Flow Rate: 18.0

Return Pressure: 691.3

Certified By/Date: JJ 8/6/13

Final Pressure: 1020.7

Flow Rate upon Return: 19.6

Date Shipped From Lab: 8/6/13

Shipped By: JJ

Date Returned to Lab: 8/21/13

Received By: JJ

Flow Controller Certification File ID: M502/07311318

Canister Certification File ID: M503/08051305

Certification Type: SIM _____ SCAN NJLL _____ PAMS _____ Other _____

Quinn R. Paul 8/21/13
Chemist Signature/Date

MW 8/22/13
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 W6E**

Canister # **730**

Flow Control # **813**

AAC Batch ID: 131119

AAC Sample ID: 65686

SAMPLING INFORMATION

Start Date/Time: **Aug 14th, 2013 - 17:20 AM**

Stop Date/Time: **Aug 14th, 2013 - 22:00 PM**

Start Temp/Pressure*: **24 C / 30.17 inHg**

Stop Temp/Pressure*: **18 C / 30.16 inHg**

Initial Can Pressure**: **- 30 inHg**

Final Can Pressure**: **- 3 inHg**

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

Comments: _____


John Blank

Sampler Name (Print)

August 14th, 2013

Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 280 Minutes

Canister Serial No.: **730**

Flow Controller Serial No: **813**

Initial Pressure: 3.6

Certified Flow Rate: 18.0

Return Pressure: 722.5

Certified By/Date: JA 8/6/13

Final Pressure: 1018.8

Flow Rate upon Return: 30.3

Date Shipped From Lab: 8/6/13

Shipped By: JA

Date Returned to Lab: 8/21/13

Received By: JA

Flow Controller Certification File ID: 11502/07311318

Canister Certification File ID: 11503/08051305

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 W6W**

Canister # **744**

Flow Control # **718**

AAC Batch ID: 131119

AAC Sample ID: 65687

SAMPLING INFORMATION

Start Date/Time: **Aug 14th, 2013 - 17:30 AM**

Stop Date/Time: **Aug 14th, 2013 - 22:43 PM**

Start Temp/Pressure*: **24 C / 30.17 inHg**

Stop Temp/Pressure*: **18 C / 30.16 inHg**

Initial Can Pressure**: **- 30 inHg**

Final Can Pressure**: **- 3 inHg**

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

Comments: _____


John Blank

Sampler Name (Print)

August 14th, 2013

Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: **313 Minutes**

Canister Serial No.: ~~744~~ 741

Flow Controller Serial No: **718**

Initial Pressure: 3.6

Certified Flow Rate: 18.0

Return Pressure: 713.2

Certified By/Date: JP 8/6/13

Final Pressure: 1018.9

Flow Rate upon Return: 18.7

Date Shipped From Lab: 8/6/13

Shipped By: JP

Date Returned to Lab: 8/21/13

Received By: JP

Flow Controller Certification File ID: 1402607311318

Canister Certification File ID: 14030805305

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.



American Environmental Laboratories

ISO 9001:2000 Certification #A1836US

MDNR **Bridgeton Landfill**
Chain of Custody Weekly Sampling Event

Date: August 14th

Air Sampler calibrated for 1 Liter per Minute Flow Rate
Flow Rate calibrated with BIOS - Defender 510M - S/N 131756
SUMMA Canister with a 4 hour flow valve

Temperature	
Start	24 C
Stop	18 C

Barometric Pressure	
Start	30.17 inHg
Stop	30.16 inHg

Sample Point ID U-1 K	
Canister Serial #	577
Flow Control #	711
Sample Pump #	67992
Sample Tube	226-20
Sample Tube #	44400600652

Start		Stop		Total Time
Canister Time	16:54		21:15	261 min
Vacuum	-30 inHg		-5 inHg	
Flow Rate	1.01 L/M		0.9958 L/M	1.0029 Average L/M
Tube Time	16:54		20:54	240 min
Total Liters Sampled / Tube				240.696

Sample Point ID U-2 W2	
Canister Serial #	700
Flow Control #	803
Sample Pump #	67385
Sample Tube	226-20
Sample Tube #	44400600649

Start		Stop		Total Time
Time	17:55		22:45	290 min
Vacuum	-30 inHg		-5 inHg	
Flow Rate	1.028 L/M		0.962 L/M	0.995 Average L/M
Tube Time	17:55		21:55	240 min
Total Liters Sampled / Tube				238.8

Sample Point ID D-1 W6E	
Canister Serial #	730
Flow Control #	813
Sample Pump #	71526
Sample Tube	226-20
Sample Tube #	44400600651

Start		Stop		Total Time
Time	17:20		22:00	280 min
Vacuum	-30 inHg		-3 inHg	
Flow Rate	1.129 L/M		1.072 L/M	1.1005 Average L/M
Time	17:20		21:25	245 min
Total Liters Sampled / Tube				269.62

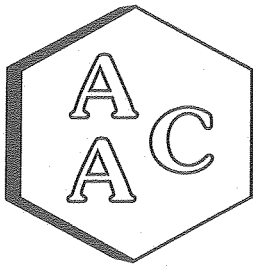
Sample Point ID D-2 W6W	
Canister Serial #	744
Flow Control #	718
Sample Pump #	59912
Sample Tube	226-20
Sample Tube #	44400600648

Start		Stop		Total Time
Time	17:30		22:43	313 min
Vacuum	-30 inHg		-3 inHg	
Flow Rate	1.082 L/M		0.962 L/M	1.022 Average L/M
Time	17:30		21:30	240 min
Total Liters Sampled / Tube				245.28

Possible Sample Point ID W1 - W2 - W3 - W4 - W5 - W6 - W7

Prepared by: *[Signature]*

Results



Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT


CLIENT : SWAPE
PROJECT NO. : 131119
MATRIX : AIR
UNITS : ppbV

SAMPLING DATE : 08/14/2013
RECEIVING DATE : 08/21/2013
ANALYSIS DATE : 08/21/2013
REPORT DATE : 08/21/2013

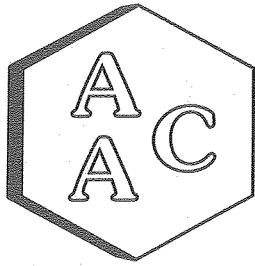
Sulfur Compounds by ASTM D-5504

Client ID	U-1 W2 Canister	U-2 Virbac Canister	D-1 W8 Canister	D-2 W6 Canister
AAC ID	131082-65502	131082-65503	131082-65504	131082-65505
Canister Dil. Fac.	1.44	1.48	1.41	1.43
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 14.4	< 14.8	< 14.1	< 14.3
Carbonyl Sulfide	< 14.4	< 14.8	< 14.1	< 14.3
Sulfur Dioxide	< 14.4	< 14.8	< 14.1	< 14.3
Methyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
Ethyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
Dimethyl Sulfide	< 14.4	< 14.8	< 14.1	< 14.3
Carbon Disulfide	< 7.2	< 7.4	< 7.1	< 7.1
Isopropyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
tert-Butyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
n-Propyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
Methylethylsulfide	< 14.4	< 14.8	< 14.1	< 14.3
sec-Butyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
Thiophene	< 14.4	< 14.8	< 14.1	< 14.3
iso-Butyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
Diethyl Sulfide	< 14.4	< 14.8	< 14.1	< 14.3
n-Butyl Mercaptan	< 14.4	< 14.8	< 14.1	< 14.3
Dimethyl Disulfide	< 7.2	< 7.4	< 7.1	< 7.1
2-Methylthiophene	< 14.4	< 14.8	< 14.1	< 14.3
3-Methylthiophene	< 14.4	< 14.8	< 14.1	< 14.3
Tetrahydrothiophene	< 14.4	< 14.8	< 14.1	< 14.3
Bromothiophene	< 14.4	< 14.8	< 14.1	< 14.3
Thiophenol	< 14.4	< 14.8	< 14.1	< 14.3
Diethyl disulfide	< 7.2	< 7.4	< 7.1	< 7.1
Total Unidentified Sulfur	< 14.4	< 14.8	< 14.1	< 14.3

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. : 131119
 MATRIX : AIR
 UNITS : ug/m³

SAMPLING DATE : 08/14/2013
 RECEIVING DATE : 08/21/2013
 ANALYSIS DATE : 08/21/2013
 REPORT DATE : 08/21/2013

Sulfur Compounds by ASTM D-5504

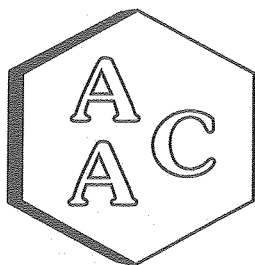
Client ID	U-1 W2 Canister	U-2 Virbac Canister	D-1 W8 Canister	D-2 W6 Canister
AAC ID	131082-65502	131082-65503	131082-65504	131082-65505
Canister Dil. Fac.	1.44	1.48	1.41	1.43
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 20.1	< 20.6	< 19.7	< 19.9
Carbonyl Sulfide	< 35.4	< 36.3	< 34.6	< 35.1
Sulfur Dioxide	< 37.7	< 38.7	< 36.9	< 37.4
Methyl Mercaptan	< 28.3	< 29.1	< 27.7	< 28.1
Ethyl Mercaptan	< 36.6	< 37.5	< 35.8	< 36.3
Dimethyl Sulfide	< 36.6	< 37.5	< 35.8	< 36.3
Carbon Disulfide	< 22.4	< 23.0	< 22.0	< 22.2
Isopropyl Mercaptan	< 44.8	< 46.0	< 43.9	< 44.5
tert-Butyl Mercaptan	< 53.1	< 54.5	< 52.0	< 52.7
n-Propyl Mercaptan	< 44.8	< 46.0	< 43.9	< 44.5
Methylethylsulfide	< 44.8	< 46.0	< 43.9	< 44.5
sec-Butyl Mercaptan	< 53.1	< 54.5	< 52.0	< 52.7
Thiophene	< 49.5	< 50.8	< 48.5	< 49.2
iso-Butyl Mercaptan	< 53.1	< 54.5	< 52.0	< 52.7
Diethyl Sulfide	< 53.1	< 54.5	< 52.0	< 52.7
n-Butyl Mercaptan	< 53.1	< 54.5	< 52.0	< 52.7
Dimethyl Disulfide	< 27.7	< 28.4	< 27.2	< 27.5
2-Methylthiophene	< 57.8	< 59.3	< 56.6	< 57.4
3-Methylthiophene	< 57.8	< 59.3	< 56.6	< 57.4
Tetrahydrothiophene	< 51.9	< 53.2	< 50.9	< 51.5
Bromothiophene	< 96.0	< 98.5	< 94.0	< 95.3
Thiophenol	< 64.9	< 66.5	< 63.5	< 64.4
Diethyl disulfide	< 36.0	< 36.9	< 35.2	< 35.7
Total Unidentified Sulfur	< 20.1	< 20.6	< 19.7	< 19.9

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



QA/QC Summary



Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report ASTM D-5504

Date Analyzed: 08/21/13
Analyst: DH

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

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	16418	487	97.4	NA
Duplicate	16352	485	97.0	0.4
Triplicate	16615	493	98.6	1.2

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate

Sample ID 131097-65561 x10

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0.0	250.0	252.9	260.3	101.1	104.1	2.9

Duplicate Analysis

Sample ID 131097-65661

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	502.0	100.4

* Must be 95-105%

** Must be 90-110%

*** Must be < 10%

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



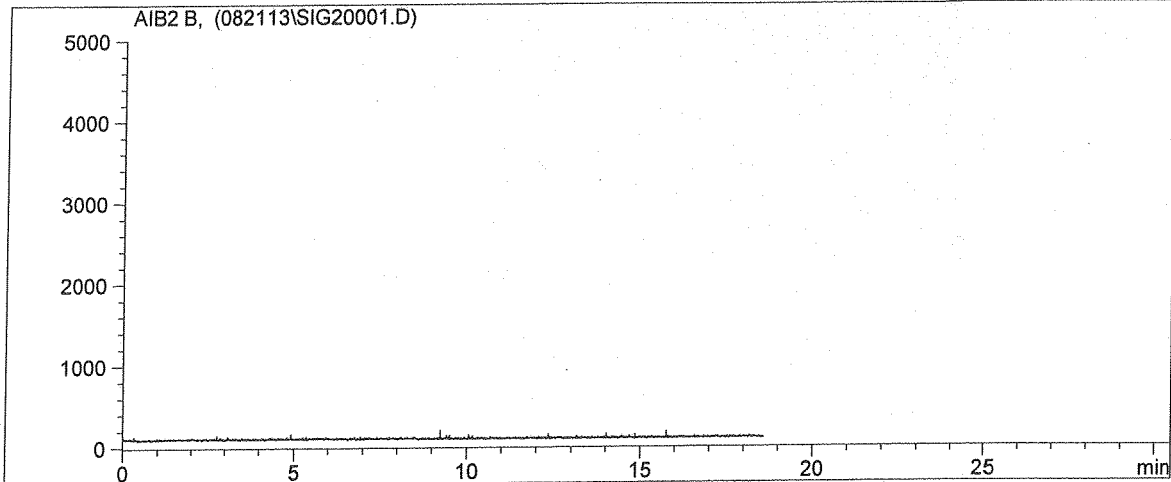
 Marcus Hueppe
 Laboratory Director



Raw Data

Customized Report: D5504

Injection Date : 8/21/2013 6:08:08 AM
 Sample Name : System Blank
 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 : 1
 Inj. Vol. : Manually



Uncalibrated Peaks : using compound H2S

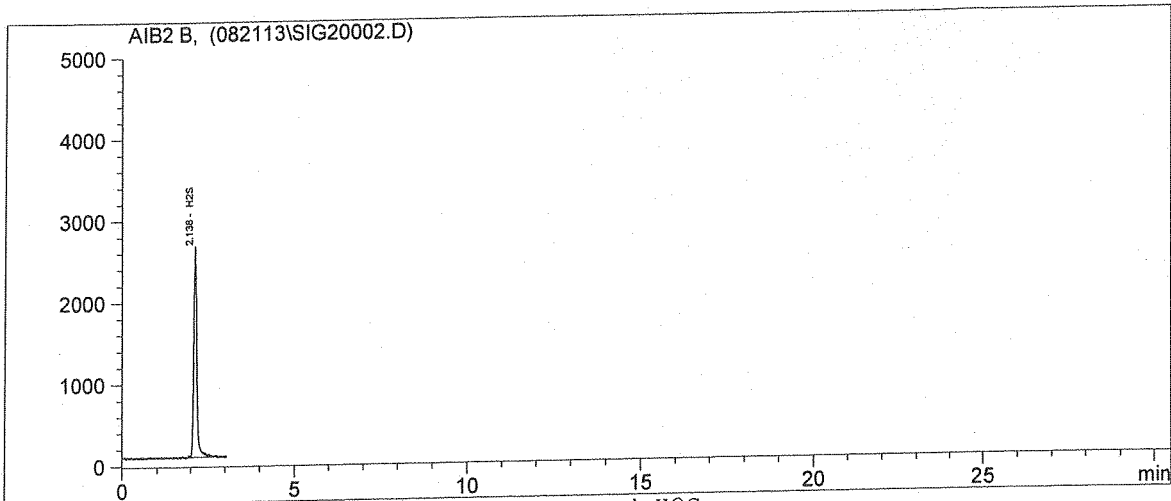
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 8/21/2013 6:40:03 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

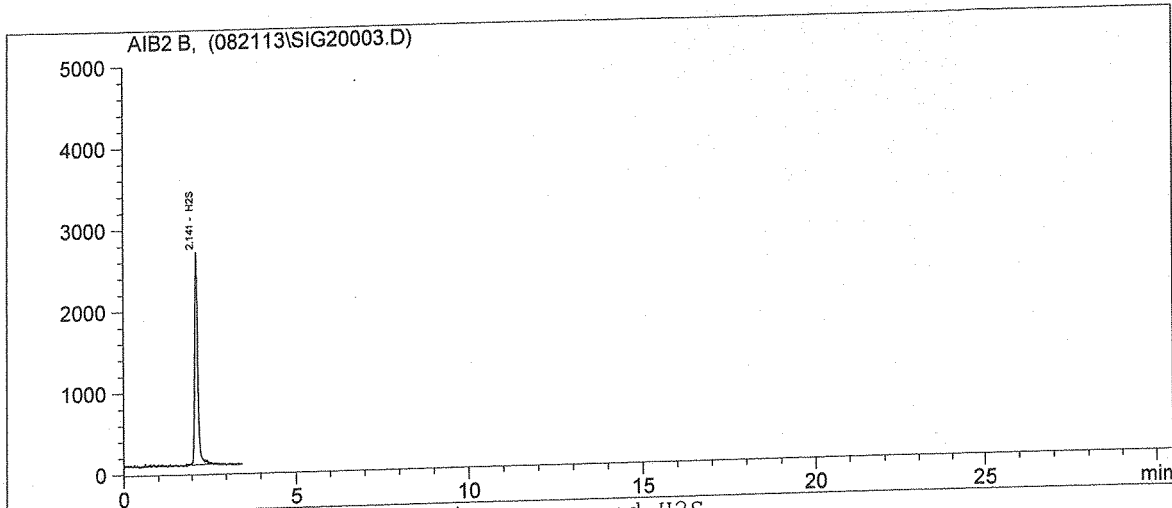
Ret Time [min]	Area	Amount [ppbV]	Name
2.138	16418	486.922	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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: 486.922

*** End of Report ***

Handwritten signature and date: 8/21/13

Injection Date : 8/21/2013 6:43:54 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

Table with 4 columns: Ret Time [min], Area, Amount [ppbV], Name. The first row shows a peak at 2.141 min with area 16352 and amount 484.969, identified as H2S. All other listed compounds have 0.000 values.

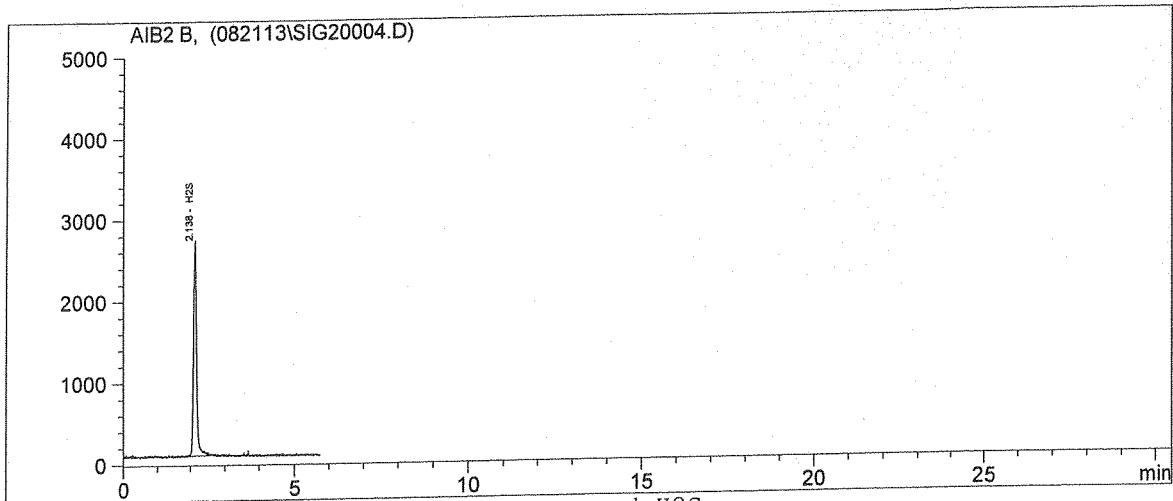
Totals: 484.969

*** End of Report ***

Handwritten signature/initials and date 8/21/13

Customized Report: D5504

Injection Date : 8/21/2013 6:48:23 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

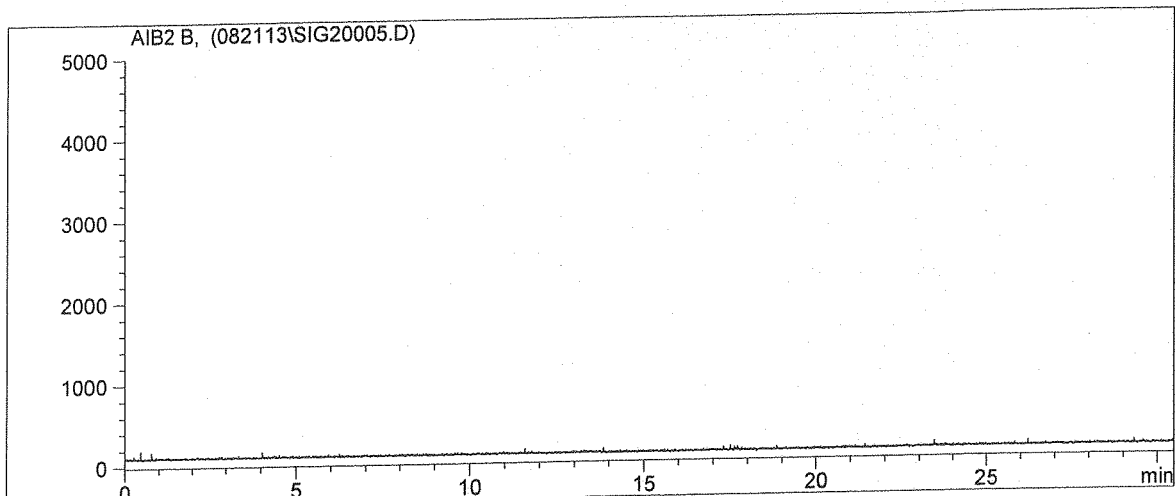
Ret Time [min]	Area	Amount [ppbV]	Name
2.138	16615	492.785	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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: 492.785

*** End of Report ***

Customized Report: D5504

```
Injection Date   : 8/21/2013 6:54:37 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

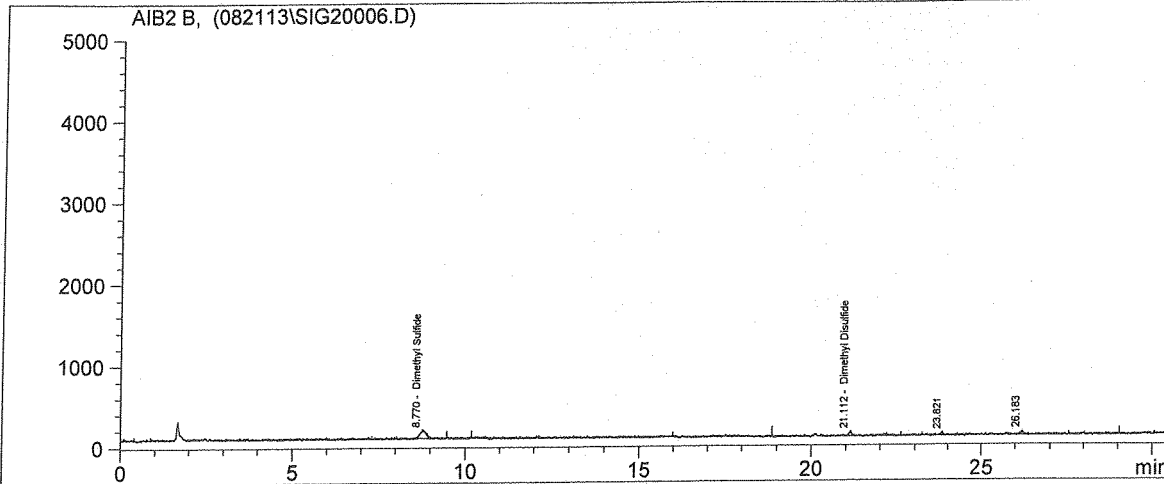
Totals: 0.000

*** End of Report ***

Customized Report: D5504

Injection Date : 8/21/2013 7:29:58 AM
Sample Name : 131097-65561 x5
Multiplier : 1.00
Dilution : 5.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M

Seq. Line : 6
Inj. Vol. : Manually



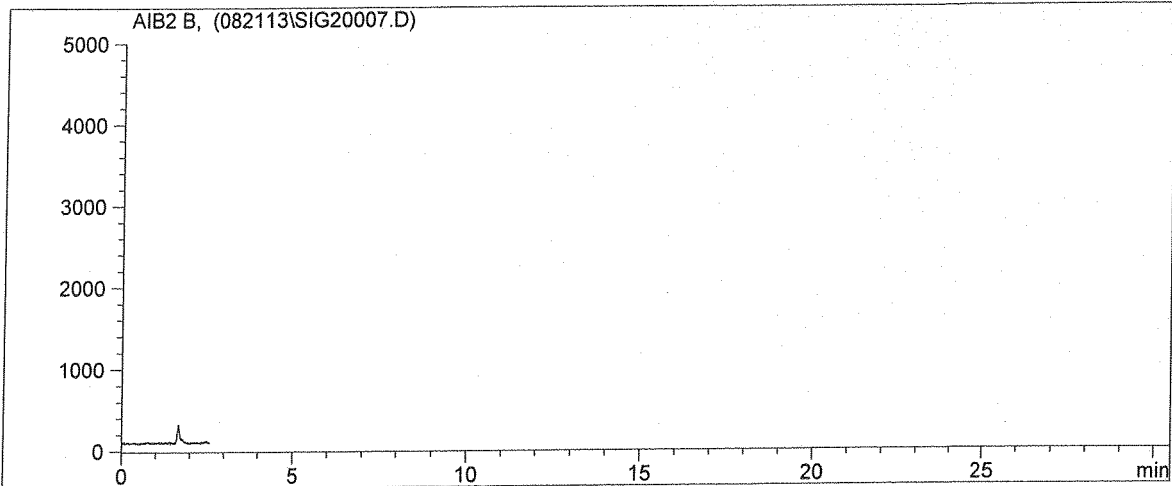
Uncalibrated Peaks : using compound H2S

Table with 4 columns: Ret Time [min], Area, Amount [ppbV], Name. Lists various sulfur compounds and their detected amounts.

Totals: 296.760

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 Customized Report: D5504

Injection Date	: 8/21/2013 8:05:05 AM	Seq. Line	: 7
Sample Name	: 131097-65561 x5 dp	->Inj. Vol.	: Manually
Multiplier	: 1.00		
Dilution	: 5.00		
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

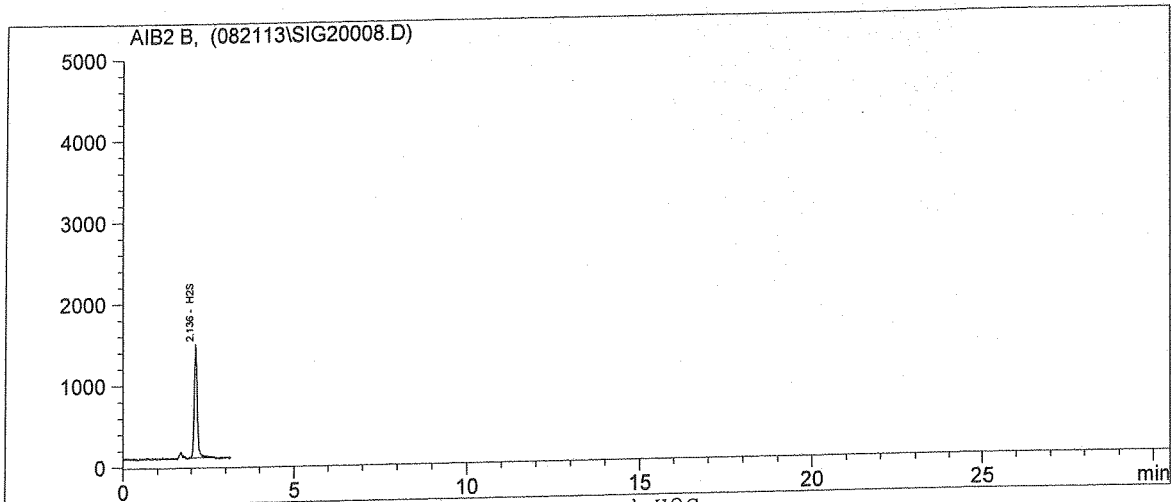
Totals: 0.000

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 *** End of Report ***

DH 8/21/13 Page 22

Customized Report: D5504

Injection Date : 8/21/2013 8:08:16 AM Seq. Line : 8
 Sample Name : MS 65561 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

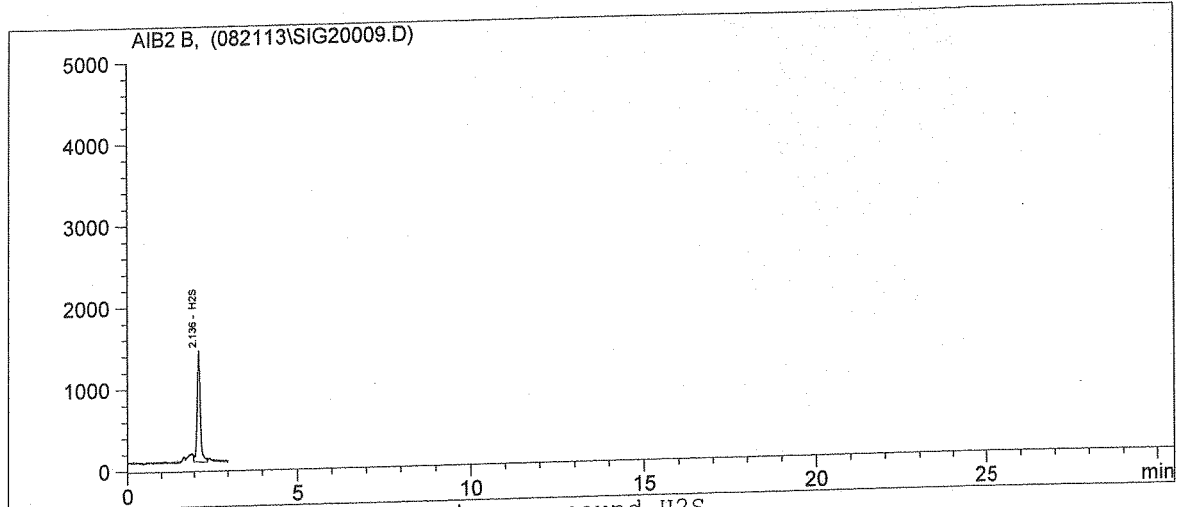
Ret Time [min]	Area	Amount [ppbV]	Name
2.136	8525	252.851	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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: 252.851

*** End of Report ***

Data file : C:\HPCHEM\1\DATA\082113\SIG20009.D
 Customized Report: D5504
 Injection Date : 8/21/2013 8:12:00 AM
 Sample Name : MSD 65561 SS0677
 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 : 9
 ->Inj. Vol. : Manually



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.136	8775	260.259	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

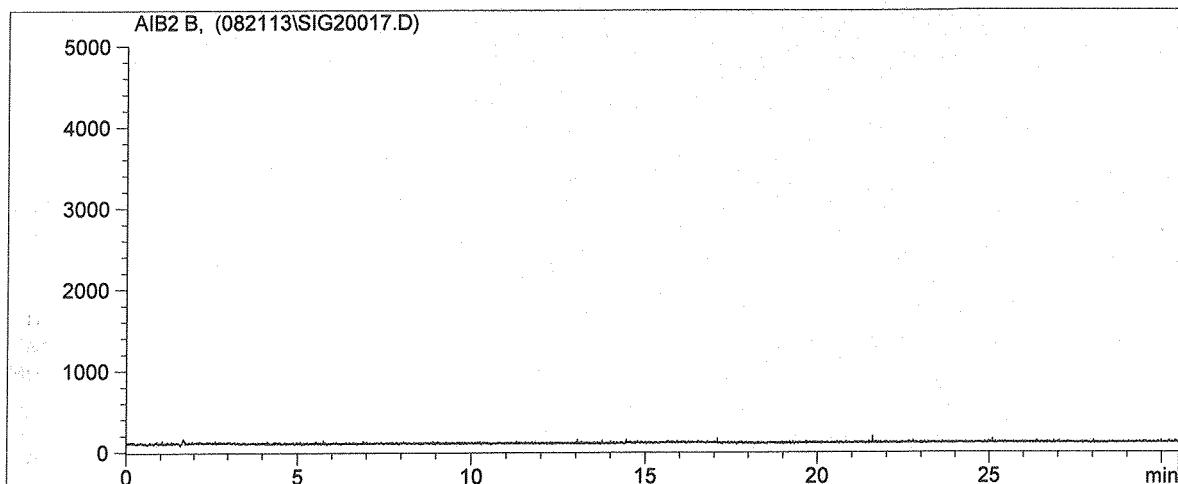
Totals: 260.259

*** End of Report ***

21 8/21/13

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Customized Report: D5504

Injection Date : 8/21/2013 12:26:20 PM Seq. Line : 17
 Sample Name : 131119-65684 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\DO51413.M



Uncalibrated Peaks : using compound H2S

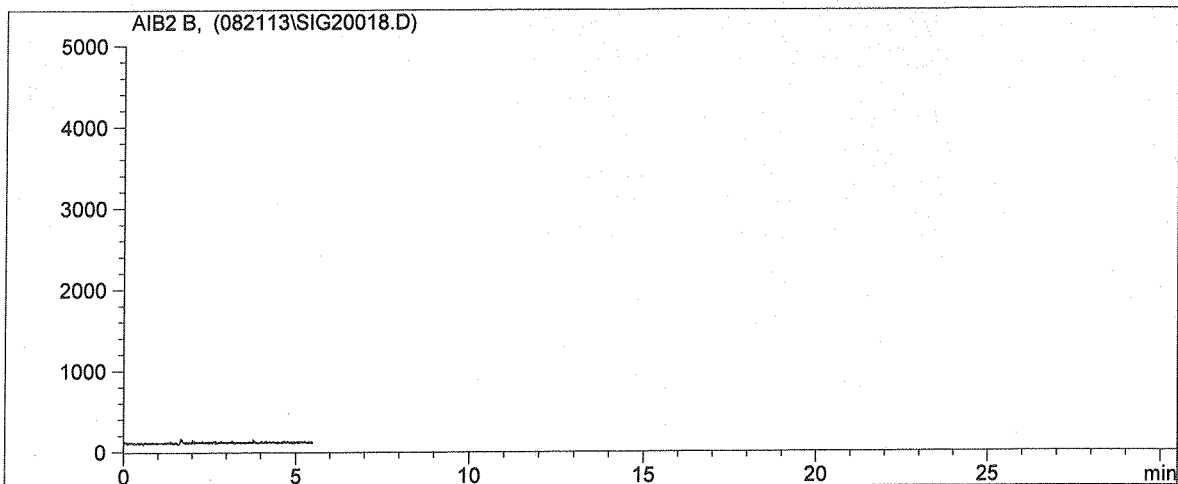
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 8/21/2013 1:01:14 PM Seq. Line : 18
 Sample Name : 131119-65684 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

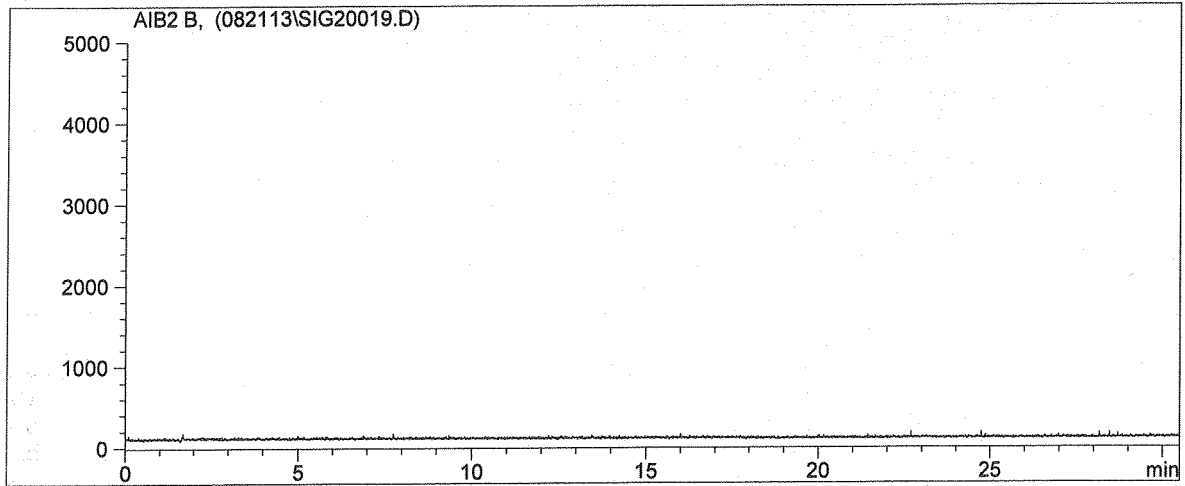
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 8/21/2013 1:07:31 PM Seq. Line : 19
 Sample Name : 131119-65685 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

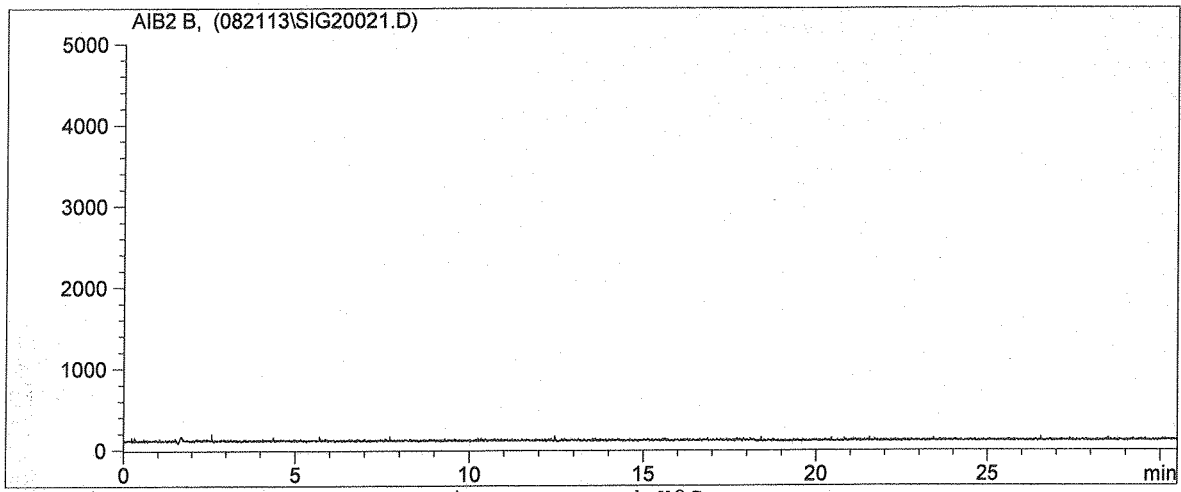
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan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

Customized Report: D5504

Injection Date : 8/21/2013 1:49:14 PM Seq. Line : 21
Sample Name : 131119-65686 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



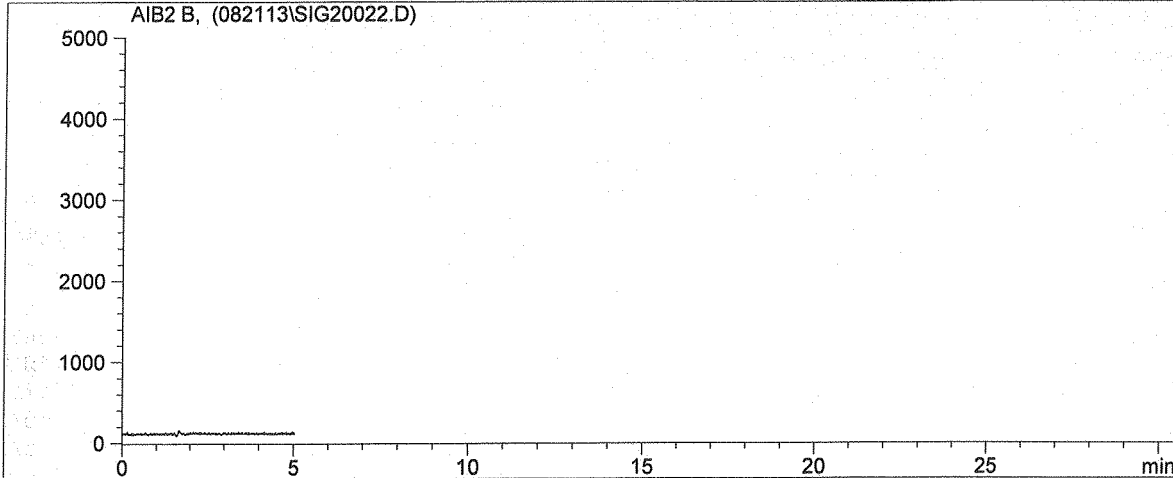
Uncalibrated Peaks : using compound H2S

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 : 8/21/2013 2:23:42 PM Seq. Line : 22
Sample Name : 131119-65686 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

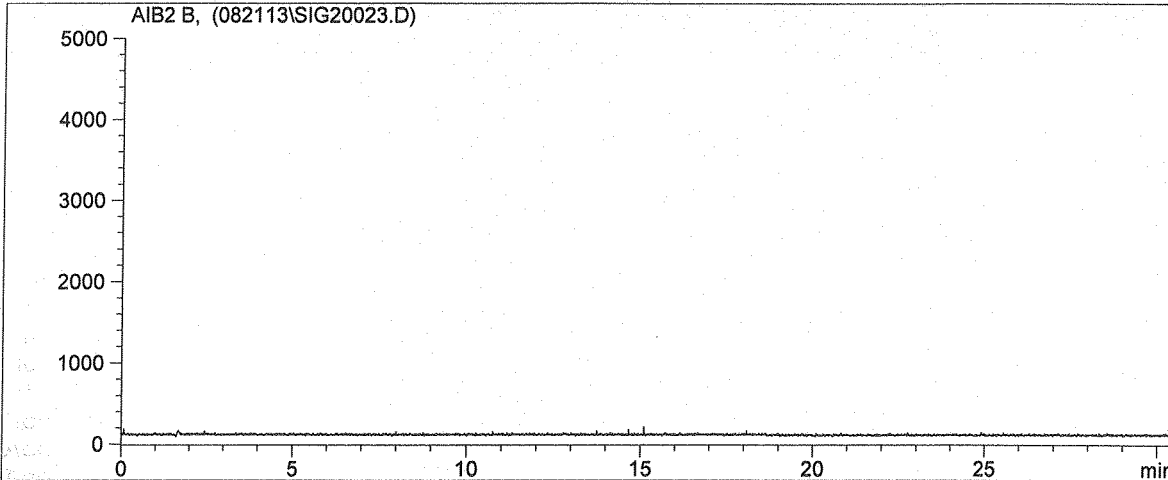
Totals: 0.000

*** End of Report ***

Customized Report: D5504

Injection Date : 8/21/2013 2:29:39 PM
Sample Name : 131119-65687
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 : 23
Inj. Vol. : Manually



Uncalibrated Peaks : using compound H2S

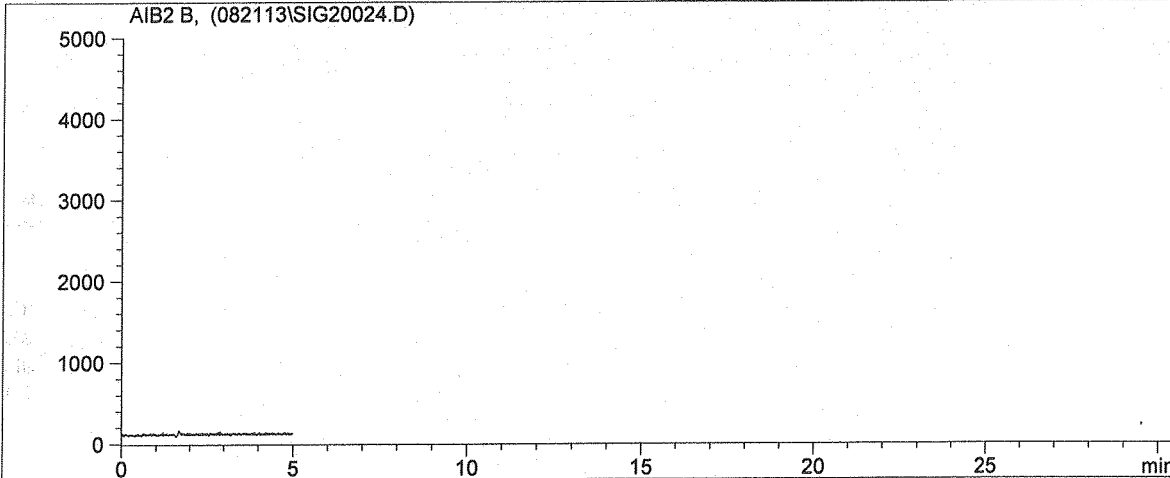
Table with 4 columns: Ret Time [min], Area, Amount [ppbV], Name. Lists various sulfur compounds like H2S, COS, Methyl Mercaptan, etc. with zero values for area and amount.

Totals: 0.000

*** End of Report ***

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 Customized Report: D5504

Injection Date : 8/21/2013 3:04:06 PM Seq. Line : 24
 Sample Name : 131119-65687 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

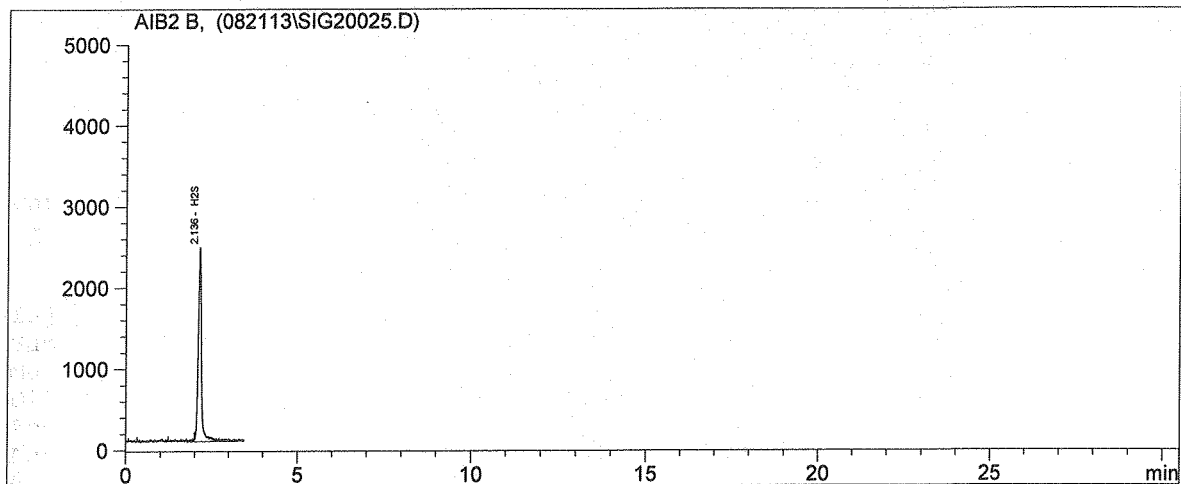
Totals: 0.000

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 *** End of Report ***

Handwritten signature: DA821/13

Customized Report: D5504

Injection Date : 8/21/2013 3:10:08 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
2.136	15982	474.000	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: 474.000

*** 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	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	2.2	12	25.0	842	25.0	99.9
25.0	2.094	855	2.2	12	25.0	842	25.0	99.9
25.0	2.093	834	0.2	12	25.0	842	25.0	99.9
100.0	2.091	3222	4.6	82	100.0	3316	98.4	98.4
100.0	2.090	3374	4.0	82	100.0	3316	98.4	98.4
100.0	2.091	3353	4.0	82	100.0	3316	98.4	98.4
500.0	2.091	17233	1.3	272	500.0	17486	518.6	103.7
500.0	2.090	17453	1.3	272	500.0	17486	518.6	103.7
500.0	2.089	17773	3.1	272	500.0	17486	518.6	103.7
2500.0	2.087	85533	2.3	1182	2500.0	84170	2496.3	99.9
2500.0	2.088	83551	2.3	1182	2500.0	84170	2496.3	99.9
2500.0	2.087	83425	2.5	1182	2500.0	84170	2496.3	99.9

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/

33.7172

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)

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

