

Atmospheric Analysis & Consulting, Inc.

CLIENT : SWAPE
PROJECT NAME : Bridgeton Sanitary Landfill Quality Assessment
AAC PROJECT NO. : 130668
REPORT DATE : 06/05/2013

On June 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 W6E Canister	130668-63330	369.2
UP-2 W5 Canister	130668-63331	462.0
D-1 W9 Canister	130668-63332	646.9
D-2 W2N Canister	130668-63333	660.7

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.

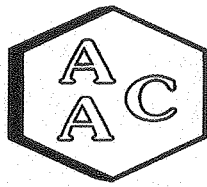
I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

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


Marcus Hueppe
Laboratory Director

This report consists of 46 pages.





CANISTER PRESSURE LOG

Client: Soil Water Air Protection Ent Project No.: 130668
Date: 6/5/2013

Canister #	Sample #	Initial Pressure	Final Pressure
702	63330	369.2	1029.6
740	63331	462.0	1015.9
812	63332	646.9	1015.3
799	63333	660.7	1022.0

AAC# 130668

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: May 30TH, 2013		Page 1 of 1								
Project Manager: PAUL ROSENFELD, PH.D.				REQUESTED TESTS / ANALYSES								Special Instructions / Conditions of Receipt						
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: <i>John Blank</i>																
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
63330	U-1 W6E	Canister	May 30th	4 Hr	X	X												Canister # 702
63331	U-2 W5	Canister	May 30th	4 Hr	X	X												Canister # 740
63332	D-1 W9	Canister	May 30th	4 Hr	X	X												Canister # 812
63333	D-2 W2N	Canister	May 30th	4 Hr	X	X												Canister # 799
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: <i>John Blank</i>		John Blank		Date: May 30TH, 2013		Time: 12 Noon		Received By:		Date:		Time:						
Relinquished By:		Date:		Time:		Received By:		Date:		Time:								
Relinquished By:		Date:		Time:		Received By: <i>[Signature]</i>		Date: 6/5/13		Time: 1145								

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/D-1 WGE** Canister # **702**

AAC Batch ID: **130668** AAC Sample ID: **63330**

SAMPLING INFORMATION

Start Date/Time: May ³⁰~~25~~th/ **7:30** Stop Date/Time: May ³⁰~~25~~th/ **11:30**


Start Temp/Pressure*: **23 C 29.88 psi** Stop Temp/Pressure*: **26 C 29.88 psi**

Initial Can Pressure**: **- 31** Final Can Pressure**: **- 11**

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

Comments: _____

John Blank
Sampler Name (Print)


Sampler Signature/Date

May 25th, 2013

LABORATORY INFORMATION

Canister Size: **6 - Liter**

Sampling Period: **4 - Hour**

Canister Serial No.: **#702**

Flow Controller Serial No.: **717**

Initial Pressure: **4.2**

Certified Flow Rate: **18.0**

Return Pressure: **369.2**

Certified By/Date: **JJ 5/20/2013**

Final Pressure: **1029.6**

Flow Rate upon Return: **16.3**

Date Shipped From Lab: **5/14/2013**

Shipped By: **JJ**

Date Returned to Lab: **6/5/2013**

Received By: **JJ**

Flow Controller Certification File ID: **M503/05201310**

Canister Certification File ID: **M503/05151320**

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


Chemist Signature/Date


Lab Manager Signature/Date

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

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

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

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

Sample Name and/or ID No.: U/P-2 W5 Canister # 740

AAC Batch ID: 130668 AAC Sample ID: 63331


SAMPLING INFORMATION

Start Date/Time: May ~~25th~~^{30th} / 7:45 Stop Date/Time: May ~~25th~~^{30th} / 11:45
Start Temp/Pressure*: 23 C 29.98 psi Stop Temp/Pressure*: 26 C 29.98 psi 26°C
Initial Can Pressure**: - 29.5 Final Can Pressure**: - 12

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

Comments: _____

John Blank
Sampler Name (Print)


Sampler Signature/Date

May 25th, 2013

LABORATORY INFORMATION

Canister Size: 6 - Liter Sampling Period: 4 - Hour
Canister Serial No.: 740 Flow Controller Serial No.: 710
Initial Pressure: 4.3 Certified Flow Rate: 18.2
Return Pressure: 462.0 Certified By/Date: JJ 5/20/2013
Final Pressure: 1015.9 Flow Rate upon Return: 17.5
Date Shipped From Lab: 5/16/2013 Shipped By: JJ
Date Returned to Lab: 6/5/2013 Received By: JJ
Flow Controller Certification File ID: MS03/05201310
Canister Certification File ID: MS03/05151319
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.: **W/D-1 W9** Canister # **812**

AAC Batch ID: **130668** AAC Sample ID: _____

SAMPLING INFORMATION

Start Date/Time: May ³⁰~~25~~th/ **9:25** Stop Date/Time: May ³⁰~~25~~th/ **13:25**


Start Temp/Pressure*: **25 C 29.88 psi** Stop Temp/Pressure*: **27 C 29.98 psi**

Initial Can Pressure**: **- 2.9** Final Can Pressure**: **- 4**

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

Comments: _____

John Blank
Sampler Name (Print)


Sampler Signature/Date

May 25th, 2013

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 4 - Hour

Canister Serial No.: # 812

Flow Controller Serial No: # 807

Initial Pressure: 4.3

Certified Flow Rate: 18.0

Return Pressure: 646.9

Certified By/Date: JS 5/16/2013

Final Pressure: 1015.3

Flow Rate upon Return: 22.4

Date Shipped From Lab: 5/16/2013

Shipped By: JS

Date Returned to Lab: 6/5/2013

Received By: JS

Flow Controller Certification File ID: 14603/05141322

Canister Certification File ID: 14603/05161304

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.: **WD-2 WZN** Canister # **799**

AAC Batch ID: **130668** AAC Sample ID: **63333**

SAMPLING INFORMATION

Start Date/Time: **May 25th/ 9:15**

Stop Date/Time: **May 25th/ 13:15**

Start Temp/Pressure*: **23°C 29.88 psi**

Stop Temp/Pressure*: **27°C 29.98 psi**

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

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

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

Comments: _____

John Blank
Sampler Name (Print)



May 25th, 2013

Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: **6 - Liter**

Sampling Period: **4 - Hour**

Canister Serial No.: **799**

Flow Controller Serial No: **806**

Initial Pressure: **4.2**

Certified Flow Rate: **18.0**

Return Pressure: **660.7**

Certified By/Date: **JJ 5/16/2013**

Final Pressure: **1022.0**

Flow Rate upon Return: **22.2**

Date Shipped From Lab: **5/16/2013**

Shipped By: **JJ**

Date Returned to Lab: **6/5/2013**

Received By: **JJ**

Flow Controller Certification File ID: **14503/05141322**

Canister Certification File ID: **14503/05151327**

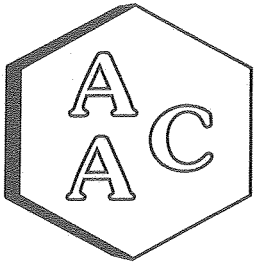
Certification Type: SIM SCAN NJLL PAMS Other


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.

Results



Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : SWAPE
PROJECT NO. : 130668
MATRIX : AIR
UNITS : ppbV

SAMPLING DATE : 05/30/2013
RECEIVING DATE : 06/05/2013
ANALYSIS DATE : 06/05/2013
REPORT DATE : 06/05/2013

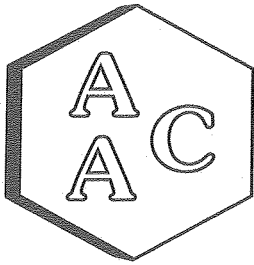
Sulfur Compounds by ASTM D-5504

Client ID	U-1 W6E Canister	UP-2 W5 Canister	D-1 W9 Canister	D-2 W2N Canister
AAC ID	130668-63330	130668-63331	130668-63332	130668-63333
Canister Dil. Fac.	2.79	2.20	1.57	1.55
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 27.9	< 22.0	< 15.7	< 15.5
Carbonyl Sulfide	< 27.9	< 22.0	< 15.7	< 15.5
Sulfur Dioxide	< 27.9	< 22.0	< 15.7	< 15.5
Methyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
Ethyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
Dimethyl Sulfide	< 27.9	< 22.0	< 15.7	< 15.5
Carbon Disulfide	< 13.9	< 11.0	< 7.8	< 7.7
Isopropyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
tert-Butyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
n-Propyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
Methylethylsulfide	< 27.9	< 22.0	< 15.7	< 15.5
sec-Butyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
Thiophene	< 27.9	< 22.0	< 15.7	< 15.5
iso-Butyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
Diethyl Sulfide	< 27.9	< 22.0	< 15.7	< 15.5
n-Butyl Mercaptan	< 27.9	< 22.0	< 15.7	< 15.5
Dimethyl Disulfide	< 13.9	< 11.0	< 7.8	< 7.7
2-Methylthiophene	< 27.9	< 22.0	< 15.7	< 15.5
3-Methylthiophene	< 27.9	< 22.0	< 15.7	< 15.5
Tetrahydrothiophene	< 27.9	< 22.0	< 15.7	< 15.5
Bromothiophene	< 27.9	< 22.0	< 15.7	< 15.5
Thiophenol	< 27.9	< 22.0	< 15.7	< 15.5
Diethyl disulfide	< 13.9	< 11.0	< 7.8	< 7.7
Total Unidentified Sulfur	< 27.9	< 22.0	< 15.7	< 15.5

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. : 130668
MATRIX : AIR
UNITS : ug/m³

SAMPLING DATE : 05/30/2013
RECEIVING DATE : 06/05/2013
ANALYSIS DATE : 06/05/2013
REPORT DATE : 06/05/2013

Sulfur Compounds by ASTM D-5504

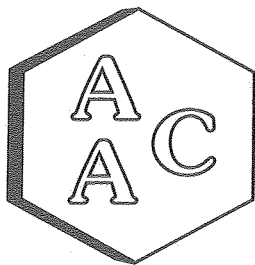
Client ID	U-1 W6E Canister	UP-2 W5 Canister	D-1 W9 Canister	D-2 W2N Canister
AAC ID	130668-63330	130668-63331	130668-63332	130668-63333
Canister Dil. Fac.	2.79	2.20	1.57	1.55
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 38.9	< 30.7	< 21.9	< 21.6
Carbonyl Sulfide	< 68.5	< 54.0	< 38.6	< 38.0
Sulfur Dioxide	< 73.1	< 57.6	< 41.1	< 40.5
Methyl Mercaptan	< 54.9	< 43.3	< 30.9	< 30.4
Ethyl Mercaptan	< 70.9	< 55.9	< 39.9	< 39.3
Dimethyl Sulfide	< 70.9	< 55.9	< 39.9	< 39.3
Carbon Disulfide	< 43.4	< 34.2	< 24.4	< 24.1
Isopropyl Mercaptan	< 86.9	< 68.5	< 48.9	< 48.2
tert-Butyl Mercaptan	< 103	< 81.1	< 57.9	< 57.1
n-Propyl Mercaptan	< 86.9	< 68.5	< 48.9	< 48.2
Methylethylsulfide	< 86.9	< 68.5	< 48.9	< 48.2
sec-Butyl Mercaptan	< 103	< 81.1	< 57.9	< 57.1
Thiophene	< 96.0	< 75.7	< 54.0	< 53.2
iso-Butyl Mercaptan	< 103	< 81.1	< 57.9	< 57.1
Diethyl Sulfide	< 103	< 81.1	< 57.9	< 57.1
n-Butyl Mercaptan	< 103	< 81.1	< 57.9	< 57.1
Dimethyl Disulfide	< 53.7	< 42.4	< 30.2	< 29.8
2-Methylthiophene	< 112	< 88.3	< 63.0	< 62.1
3-Methylthiophene	< 112	< 88.3	< 63.0	< 62.1
Tetrahydrothiophene	< 101	< 79.3	< 56.6	< 55.8
Bromothiophene	< 186	< 147	< 105	< 103
Thiophenol	< 126	< 99.1	< 70.7	< 69.7
Diethyl disulfide	< 69.7	< 55.0	< 39.2	< 38.7
Total Unidentified Sulfur	< 38.9	< 30.7	< 21.9	< 21.6

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: 06/05/13
Analyst: DH

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

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	16553	491	98.2	NA
Duplicate	16765	497	99.4	1.3
Triplicate	16544	491	98.1	0.1

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate

Sample ID 130665-63327 x200

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	195	250	447	445	100.4	100.0	0.4

Duplicate Analysis

Sample ID 130665-63327

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	39093	38824	38959	0.7

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	500	469.9	94.0

* Must be 95-105%

** Must be 90-110%

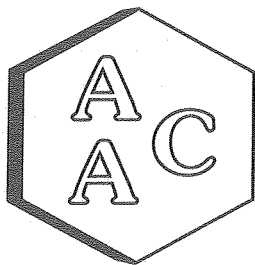
*** Must be < 10%

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



Marcus Hueppe
Laboratory Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report ASTM D-5504

Date Analyzed: 06/06/13
Analyst: DH

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

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	16577	492	98.3	NA
Duplicate	16750	497	99.4	1.0
Triplicate	16892	501	100.2	1.9

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate

Sample ID 130670-63335

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0	250	237	229	95.0	91.4	3.8

Duplicate Analysis

Sample ID 130670-63335

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	0	0	0	0.0

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	500	523.5	104.7

* Must be 95-105%

** Must be 90-110%

*** Must be < 10%

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

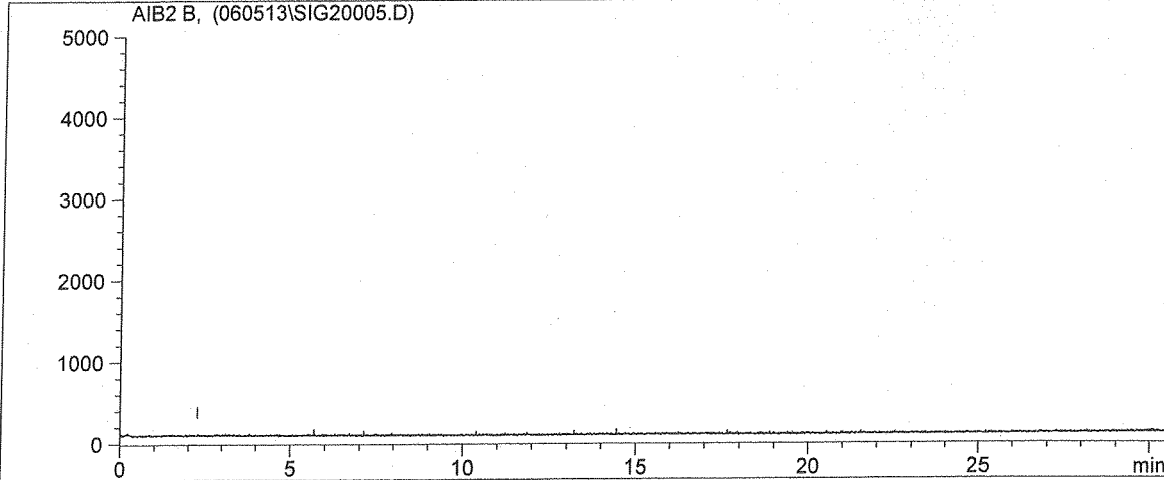


 Marcus Hueppe
 Laboratory Director



Raw Data

Injection Date : 6/5/2013 6:39:13 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

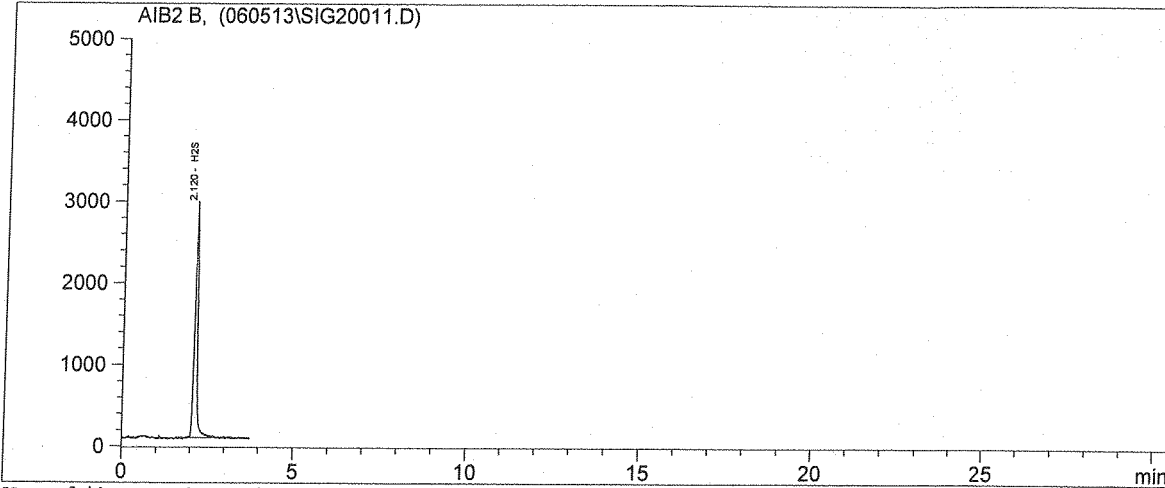
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan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

Handwritten signature
6/5/13

Injection Date : 6/5/2013 10:35:29 AM Seq. Line : 11
 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
2.120	17350	514.565	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

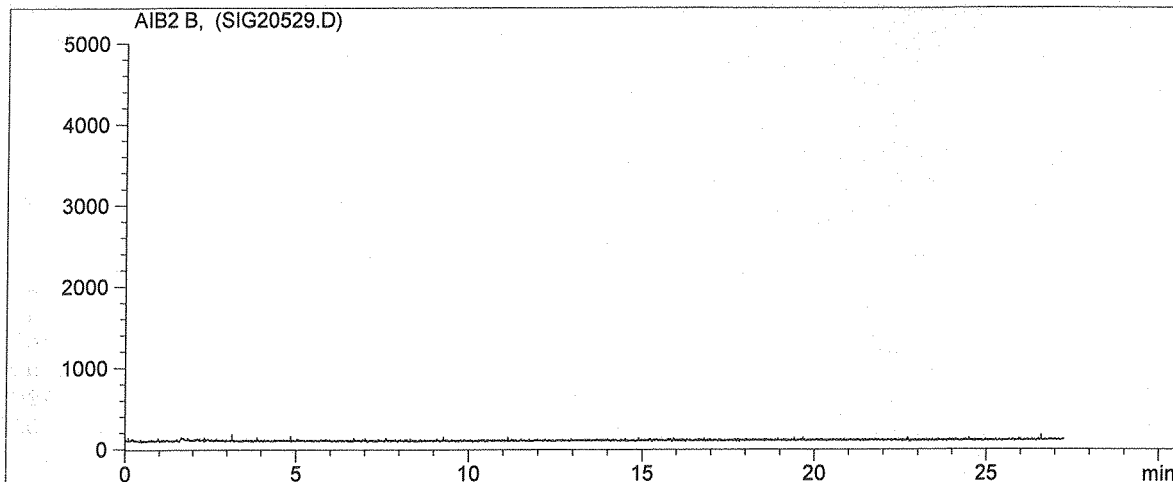
Totals: 514.565

*** End of Report ***

LA 6/5/13

Customized Report: D5504

Injection Date : 6/5/2013 1:41:04 PM Seq. Line : 0
 Sample Name : ~~GCV 50 ppbv~~ 130660 - 65331 *1 Inj. Vol. : Manually
 Multiplier : 1.00 *mul* *6/5/13*
 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

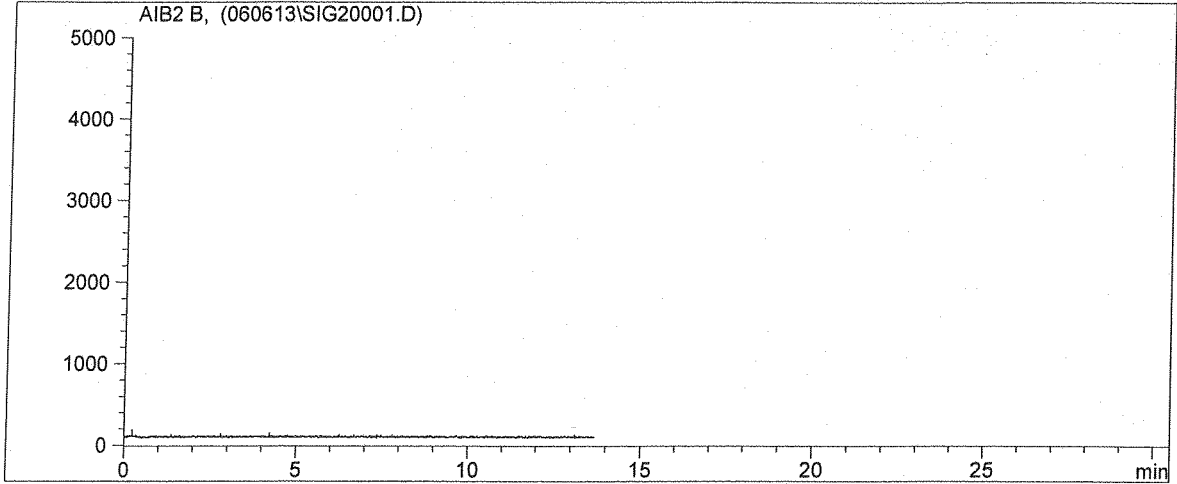
*** End of Report ***

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6/5/13

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 Customized Report: D5504

Injection Date : 6/6/2013 5:56:07 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

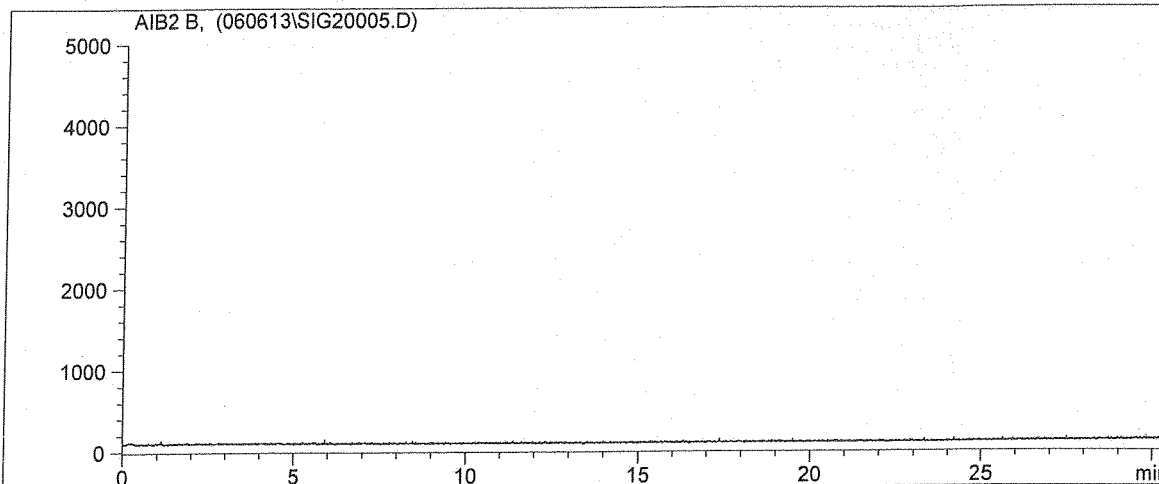
Totals: 0.000

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 *** End of Report ***

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 6/6/13

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 Customized Report: D5504

Injection Date : 6/6/2013 6:40:41 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

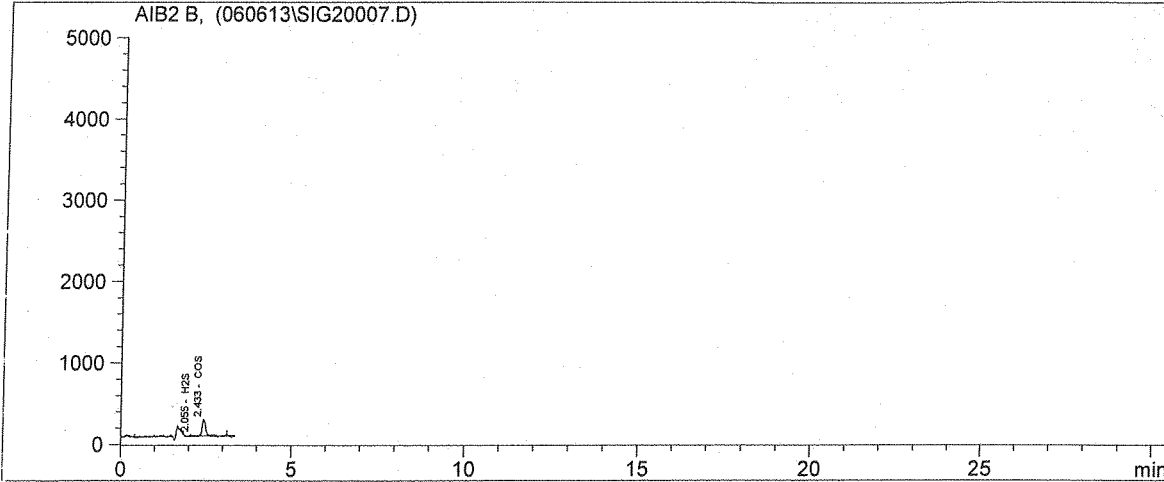
Totals: 0.000

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 *** End of Report ***

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 6/6/13

Customized Report: D5504

Injection Date : 6/6/2013 8:05:19 AM Seq. Line : 7
Sample Name : 130670-63335 x1 dp ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.055	70	2.067	H2S <i>< LOG NR</i>
2.433	1366	40.525	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

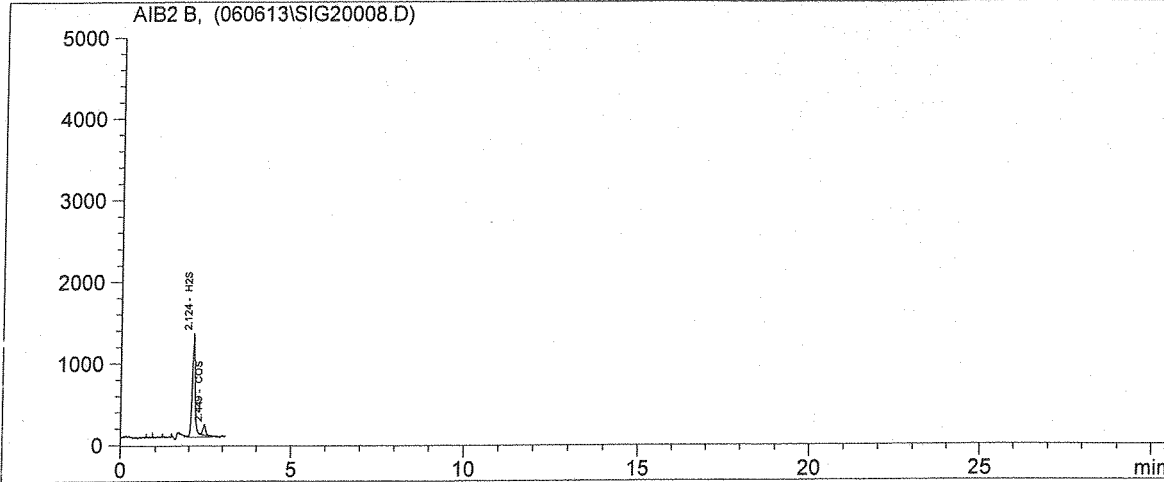
Totals: 42.592

*** End of Report ***

M
6/6/13

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 Customized Report: D5504

Injection Date : 6/6/2013 8:21:40 AM Seq. Line : 8
 Sample Name : MS 63335 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
2.124	8006	237.436	H2S
2.449	684	20.298	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

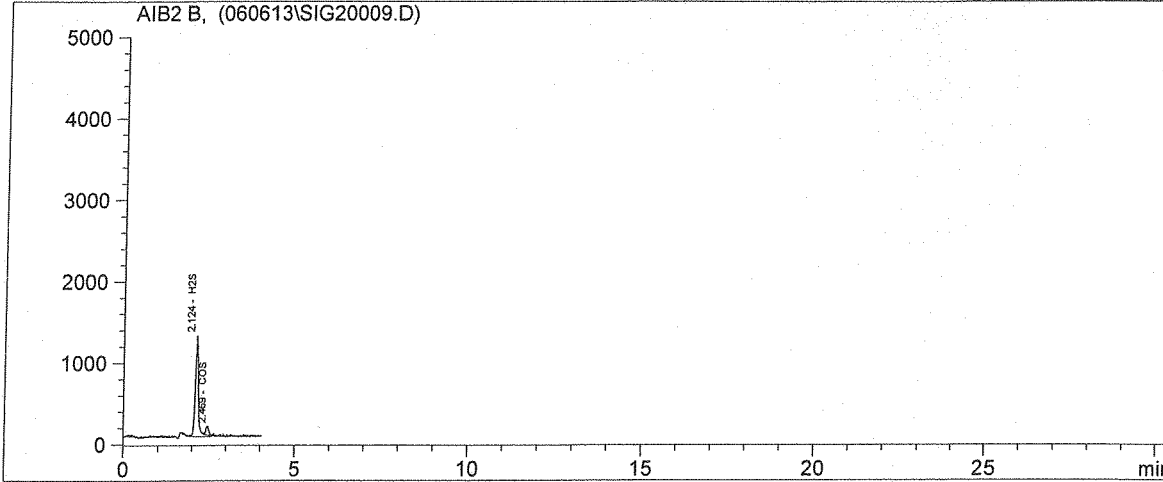
Totals: 257.734

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 *** End of Report ***

MH
 6/6/13

Customized Report: D5504

Injection Date : 6/6/2013 8:35:54 AM Seq. Line : 9
Sample Name : MSD 63335 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. Lists various compounds like H2S, COS, Methyl Mercaptan, etc. with their respective values.

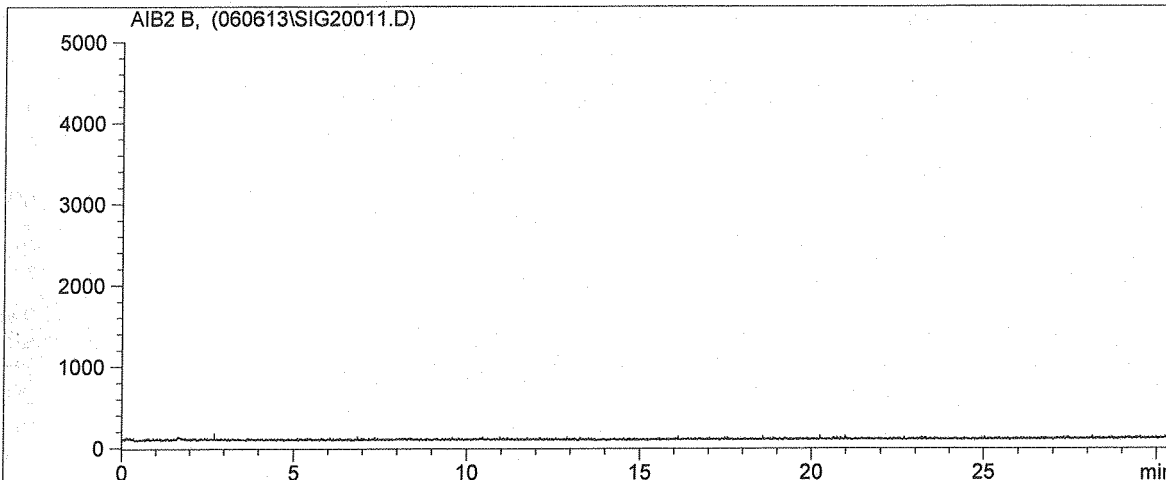
Totals: 248.378

*** End of Report ***

Handwritten signature and date 6/6/13

Customized Report: D5504

Injection Date : 6/6/2013 8:55:11 AM
Sample Name : 130668-63330 x1
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

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

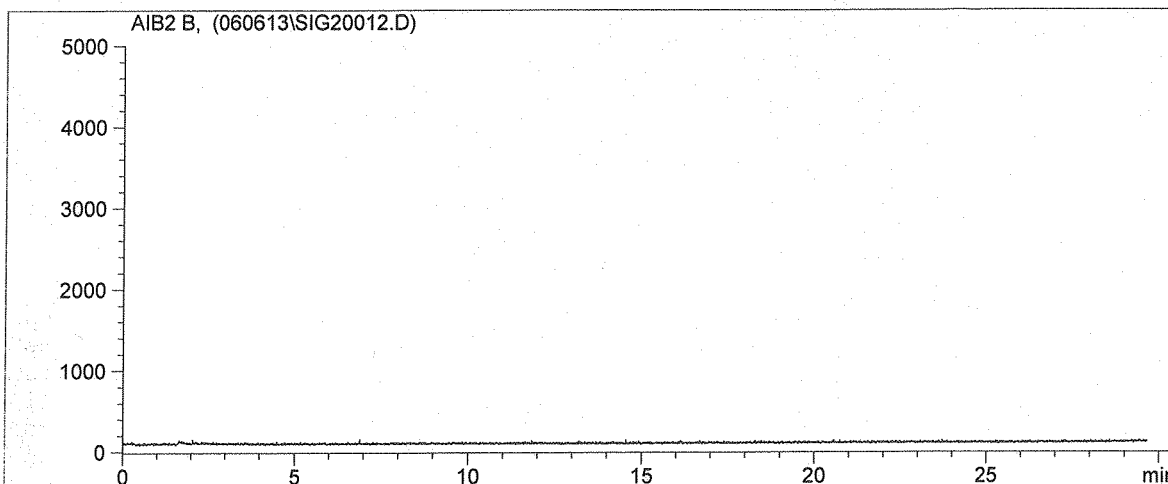
Totals: 0.000

*** End of Report ***

Handwritten signature and date: 6/6/13

Customized Report: D5504

Injection Date : 6/6/2013 9:31:24 AM Seq. Line : 12
Sample Name : 130668-63331 x1 Inj. Vol. : Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
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

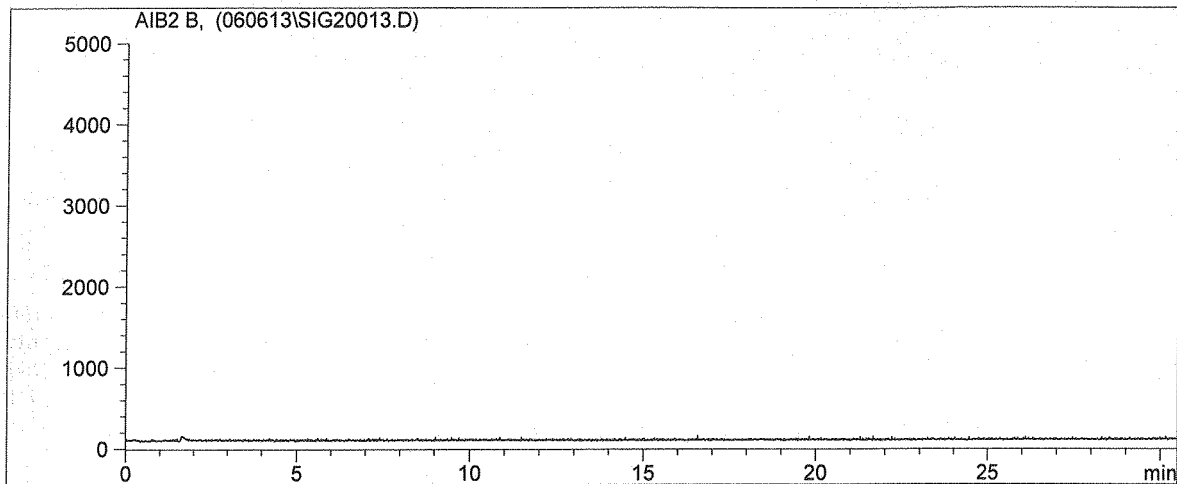
*** End of Report ***

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MW
6/6/13

Customized Report: D5504

Injection Date : 6/6/2013 10:04:42 AM Seq. Line : 13
Sample Name : 130668-63332 x1 Inj. Vol. : Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
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

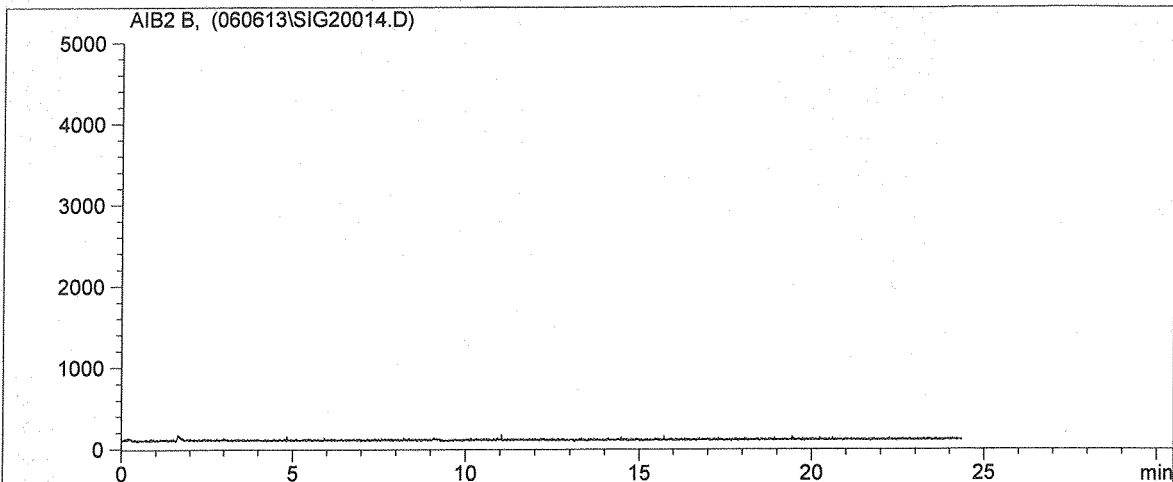
*** End of Report ***

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Me
6/6/13

Customized Report: D5504

Injection Date : 6/6/2013 10:42:57 AM Seq. Line : 14
 Sample Name : 130668-63333 x1 Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\D051413.M



Uncalibrated Peaks : using compound H2S

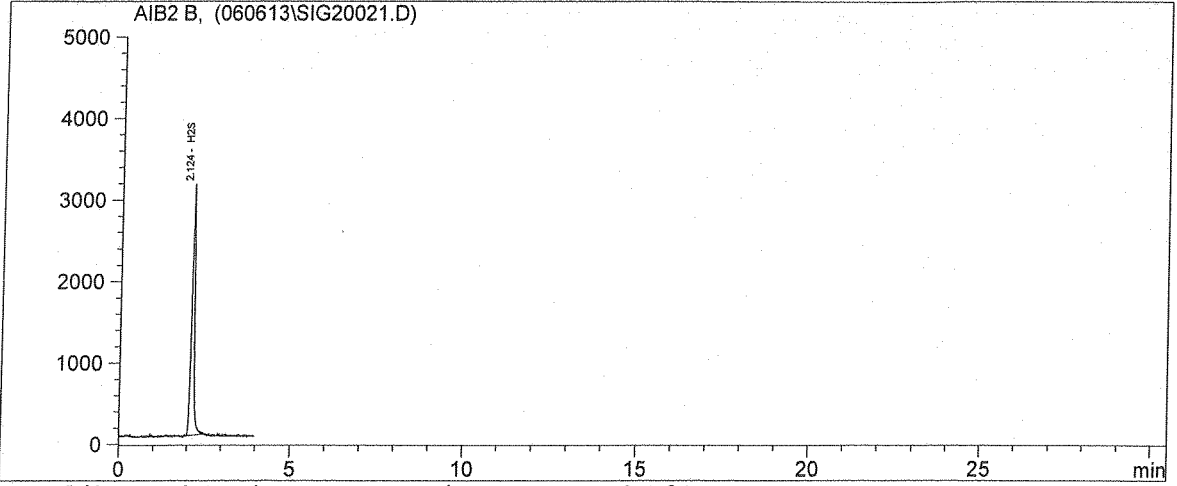
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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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6/6/13

Injection Date : 6/6/2013 2:09:05 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

Table with 4 columns: Ret Time [min], Area [ppbV], Amount, Name. The first row shows a peak at 2.124 min with an area of 17650 and amount of 523.462, identified as H2S. All other listed compounds have zero values.

Totals: 523.462

*** End of Report ***

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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/ 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)

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

