

## Atmospheric Analysis & Consulting, Inc.

CLIENT : SWAPE  
PROJECT NAME : Bridgeton Sanitary Landfill Air Quality Assessment  
AAC PROJECT NO. : 130650  
REPORT DATE : 06/04/13

On May 30, 2013, Atmospheric Analysis & Consulting, Inc. received six (6) Six-Liter Summa Canisters for Fixed Gases analysis by EPA 3C and 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)
BZ-1-Canister	130650-63200	593.4
BZ-2-Canister	130650-63209	485.6
U-1-Canister	130650-63218	618.8
U-2-Canister	130650-63227	602.7
D-1-Canister	130650-63236	526.9
D-2-Canister	130650-63245	487.2


EPA 3C Analysis - An aliquot of the gaseous sample is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW.

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-EPA 3C and ASTM D-5504.

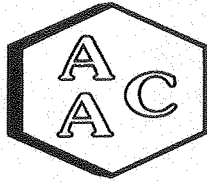
I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

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

  
Marcus Hueppe  
Laboratory Director

This report consists of 75 pages.





### CANISTER PRESSURE LOG

Client: Soil Water Air Protection Ent      Project No.: 130650  
Date: 5/31/2013

Canister #	Sample #	Initial Pressure	Final Pressure
575	63200	593.4	1032.5
576	63209	485.6	1017.2
777	63218	618.8	1019.4
716	63227	602.7	1030.6
695	63236	526.9	1023.3
653	63245	487.2	1024.5

130050  
AC# 130067

**CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM**

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE  
 Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011

Project Manager: PAUL ROSENFELD, PH.D.  
 Address: 1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401

Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT

Requested Tests / Analyses:  
 VOCs - EPA TO-15  
 Reduced Sulfur Compounds - ASTM D5504  
 Aldehydes - 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

Special Instructions / Conditions of Receipt

Date: 5/29/13 Page 1 of 1

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCs - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Aldehydes - 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
63200	BZ-1-Causker	CAN	5/29/13	12:09	X									X			
63201	-DNPH	TUBE		11:57			X										
63202	-AEMS			12:08			X										
63203	-HCL			11:59				X									
63204	-AMMONIA			12:02						X							
63205	-SO2			12:05							X						
63206	-HCN			12:01								X					
63207	-AMINES			12:04									X				
63208	-MERCURY			12:07												X	

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: Bob Hesse	Date: 5/29/13	Time: 18:30	Received By: [Signature]	Date: 5/29/13	Time: 14:15
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

SOIL / WATER / AIR PROTECTION ENTERPRISE

APC # 130650

**CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM**

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE  
 Project Manager: PAUL ROSENFELD, PH.D.  
 Address: 1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401  
 Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011  
 Date: 5/29/13 Page 1 of 1

Requested Tests / Analyses:  
 VOCs - EPA TO-15  
 Reduced Sulfur Compounds - ASTM D5504  
 Aldehydes - 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

Special Instructions / Conditions of Receipt

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCs - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Aldehydes - 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
63209	BZ-2-CANISTER	Can	5/29/13	16:23	X									X			
63210	-DUPH	TUBE		16:16			X										
63211	-ACIDS			16:19			X										
63212	-HCL			16:19				X									
63213	-AMMONIA			16:21					X								
63214	-SO2			16:22						X							
63215	-HEN			16:17							X						
63216	-AMINES			16:18								X					
63217	-MERCURY			16:21									X				

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>Kob Hesse</i>	Date: 5/29/13	Time: 18:30	Received By: <i>[Signature]</i>	Date: 5/30/13	Time: 14:15
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

SOIL / WATER / AIR PROTECTION ENTERPRISE

AAE# 130650

**CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM**

Bridgeton Sanitary Landfill Air Quality Assessment

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  
 Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011

Requested Tests / Analyses  
 Date: 5/29/13 Page 1 of 1

Requested Turnaround Time: Standard turn-around for all analyses. If possible deliver report within 2 weeks.  
 QC Requirements: Provide Level IV QC Package for all Analyses.  
 Special Instructions / Conditions of Receipt

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Aldehydes - 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
63218	U-1 - Lowister	Can	5/29/13	12:46	X	X								X			
63219	- DURF	Tube		12:42		X											
63220	- ACIDS			12:47			X										
63221	- HEL			12:49			X										
63222	- AMMONIA			12:50				X									
63223	- SO2			12:46				X									
63224	- HCN			12:51					X								
63225	- AMINES			12:45						X							
63226	- MERCURY			12:48								X					

Relinquished By: *[Signature]* Date: 5/29/13 Time: 18:30  
 Received By: *[Signature]* Date: 5/30/13 Time: 14:15

SOIL / WATER / AIR PROTECTION ENTERPRISE  
 SAMPLES RECEIVED @ 7.0 'e

Page # 130650

**CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM**

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE  
 Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011

Project Manager: PAUL ROSENFELD, PH.D.  
 Address: 1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401

Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT

Sampled By: Paul Rosenfeld  
 Sample Signature: Paul Rosenfeld

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Aldehydes - 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
63227	0-2-CHRISPER	GM	5/21/13	16:46	X	X								X			
63228	- DIRT	TBC		16:43			X										
63229	- ACIDS			16:41			X										
63230	- HCL			16:40			X										
63231	- AMMONIA			16:44				X									
63232	- SO2			16:45				X									
63233	- HCN			16:42				X									
63234	- AMINES			16:42						X							
63235	- MERCURY			16:39								X					

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>Kob Hesse</i>	Date: 5/21/13	Time: 18:30	Received By: <i>[Signature]</i>	Date: 5/21/13	Time: 17:15
Relinquished By: <i>[Signature]</i>	Date:	Time:	Received By: <i>[Signature]</i>	Date:	Time:
Relinquished By: <i>[Signature]</i>	Date:	Time:	Received By: <i>[Signature]</i>	Date:	Time:

Special Instructions / Conditions of Receipt

Date: 5/21/13 Page 1 of 1

AAE # 130650

**CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM**

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name:

SOIL / WATER AIR PROTECTION ENTERPRISE

Telephone No. / Fax No.:  
(310) 434-0110 / (310) 434-0011

Project Manager:

PAUL ROSENFELD, PH.D.

Address:

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

Project Name and Location:

BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT

Sampled By:

Paul Rosenfeld

Sample Signature:

Paul Rosenfeld

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Aldehydes - 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
63234	D-1 - CANISTER	CAN	5/29/13	13:28	X	X								X			
63237	- DNPH	TUBE		13:24			X										
63238	- ACIDS			13:26			X										
63239	- HEL			13:23			X										
63240	- AMMONIA			13:18				X									
63241	- SO2			13:20					X								
63242	- HCN			13:22					X								
63243	- AMINES			13:25						X							
63244	- MERCURY		5/29	13:21											X		

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:	Time:	Received By:	Date:	Time:
Paul Rosenfeld	5/29/13	18:30	WJF	5/29/13	14:15
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Paul Rosenfeld					
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Special Instructions / Conditions of Receipt

Date: 5/29/13 Page 1 of 1

SOIL / WATER / AIR PROTECTION ENTERPRISE

AAE# 130650

**CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM**

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Client Name:

SOIL / WATER AIR PROTECTION ENTERPRISE

Telephone No. / Fax No.:  
(310) 434-0110 / (310) 434-0011

Project Manager:

PAUL ROSENFELD, PH.D.

Address:

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

Project Name and Location:

BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT

Sampled By:

Paul Rosenfeld

Sample Signature:

Paul Rosenfeld

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Aldehydes - 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
63245	D-2 - CANISTER	Can	5/29/13	17:20	X									X			
63246	- DNPH	TUBE		17:20		X											
63247	- ACID			17:21			X										
63248	- HEL			17:24			X										
63249	- AMMONIA			17:25				X									
63250	- SO2			17:22					X								
63251	- HCN			17:26						X							
63252	- AMINES			17:29							X						
63253	- MERCURY	Y		17:23								X					

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:	Time:	Received By:	Date:	Time:
Kob Hesse	5/29/13	18:30			
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Special Instructions / Conditions of Receipt

Date: 5/29/13 Page 1 of 1

SOIL / WATER / AIR PROTECTION ENTERPRISE



AAE # 130650

**CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM**

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name:

SOIL / WATER AIR PROTECTION ENTERPRISE

Telephone No. / Fax No.:  
(310) 434-0110 / (310) 434-0011

Project Manager:  
PAUL ROSENFELD, PH.D.

Address:

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

Project Name and Location:

BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT

Sampled By:

Paul Rosenfeld

Sampler Signature

**REQUESTED TESTS / ANALYSES**

<input type="checkbox"/>	VOCS - EPA TO-15
<input type="checkbox"/>	Reduced Sulfur Compounds - ASTM D5504
<input checked="" type="checkbox"/>	Aldehydes - EPA TO-11A
<input checked="" type="checkbox"/>	Carboxylic Acids - Tube GC-MS
<input checked="" type="checkbox"/>	HCL - NIOSH 7903
<input checked="" type="checkbox"/>	Ammonia - OSHA ID-188
<input checked="" type="checkbox"/>	SO2 - OSHA ID-200
<input checked="" type="checkbox"/>	HCN - NIOSH 6010
<input checked="" type="checkbox"/>	Amines - NIOSH 2010M
<input type="checkbox"/>	Fixed Gases - EPA 3C
<input type="checkbox"/>	PAHs / Dioxins EPA TO-13A / 9A
<input type="checkbox"/>	Mercury - NIOSH 6009
<input type="checkbox"/>	Odor Evaluation

Special Instructions / Conditions of Receipt

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	Requested	Received
63254	TRIP BLANK - DIRT		5/29/12	15:00		
63255	-ACIDS					
63256	-HCL					
63257	-AMMONIA					
63258	-SO2					
63259	-HCN					
63260	-AMINES					
63261	-MERCURY					

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:	Time:	Received By:	Date:	Time:
Rob Hesse	5/29/12	18:30	[Signature]	5/30/12	14:15
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

SOIL / WATER / AIR PROTECTION ENTERPRISE

# Atmospheric Analysis and Consulting Inc.

## Canister Sampling Field Data Sheet

**GENERAL INFORMATION**

Project Name and/or ID No.: SWAPE Project: 601 Bridgeton Landfill  
 Site Address and/or ID No.: Bridgeton Sanitary Landfill, Bridgeton, Missouri  
 Sample Name and/or ID No.: BZ-2-CANISTER  
 AAC Batch ID: 130650 AAC Sample ID: 63209

**SAMPLING INFORMATION**

Start Date/Time: 5/29/13 12:09 Stop Date/Time: 5/29/13 16:22  
 Start Temp/Pressure\*: 30.00 / 29.90 Stop Temp/Pressure\*: 30.00°C / 29.85  
 Initial Can Pressure\*\*: -29 Final Can Pressure\*\*: -9

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

Comments: THIS CANISTER FLOW CONTROLLER MARKED "D-2" BY JOHN BLANK

TEMP/PRESSURE DATA FROM AMBIENT INTL-  
ROB HESSE [Signature] 5/29/13  
 Sampler Name (Print) Sampler Signature/Date

**LABORATORY INFORMATION**

Canister Size: 6-Liter Sampling Period: 4-Hour  
 Canister Serial No.: 576 Flow Controller Serial No.: 694  
 Initial Pressure: 4.2 Certified Flow Rate: 18.0  
 Return Pressure: 485.6 Certified By/Date: [Signature] 5/20/2013  
 Final Pressure: 107.2 Flow Rate upon Return: 18.8

Date Shipped From Lab: 5/16/2013 Shipped By: [Signature]  
 Date Returned to Lab: 5/31/2013 Received By: [Signature]  
 Flow Controller Certification File ID: MS03/05201310  
 Canister Certification File ID: MS03/05151318  
 Certification Type: SIM  SCAN  NJLL  PAMS  Other

[Signature] 06/03/13 [Signature] 6/5/13  
 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.: SWAPE Project: 601 Bridgeton Landfill  
 Site Address and/or ID No.: Bridgeton Sanitary Landfill, Bridgeton, Missouri  
 Sample Name and/or ID No.: U-1-CANISTER  
 AAC Batch ID: 130650 AAC Sample ID: 63218

**SAMPLING INFORMATION**

Start Date/Time: 5/29/13 8:10 Stop Date/Time: 5/29/13 12:46  
 Start Temp/Pressure\*: 25°C | 29.96 Stop Temp/Pressure\*: 30.6°C | 29.90  
 Initial Can Pressure\*\*: -78 Final Can Pressure\*\*: -4

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

Comments: TEMP/PRESSURE DATA FROM LAMBERTS INTL.

Rok Hesse [Signature] 5/29/13  
 Sampler Name (Print) Sampler Signature/Date

**LABORATORY INFORMATION**

Canister Size: 6-Liter Sampling Period: 4-Hour  
 Canister Serial No.: 777 Flow Controller Serial No.: 803  
 Initial Pressure: 4.7 Certified Flow Rate: 18.0  
 Return Pressure: 618.8 Certified By/Date: [Signature] 5/23/2013  
 Final Pressure: 1019.4 Flow Rate upon Return: 19.0

Date Shipped From Lab: 5/20/2013 Shipped By: [Signature]  
 Date Returned to Lab: 5/31/2013 Received By: [Signature]  
 Flow Controller Certification File ID: M503/05781305  
 Canister Certification File ID: M503/04051314  
 Certification Type: SIM  SCAN  NILL  PAMS  Other

[Signature] 06/03/13 [Signature]  
 Chemist Signature/Date Lab Manager Signature/Date

**Sampler is required to fill out all highlighted sections during sampling.  
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# Atmospheric Analysis and Consulting Inc.

## Canister Sampling Field Data Sheet

**GENERAL INFORMATION**

Project Name and/or ID No.: SWAPE Project: 601 Bridgeton Landfill  
 Site Address and/or ID No.: Bridgeton Sanitary Landfill, Bridgeton, Missouri  
 Sample Name and/or ID No.: U-2-Canister  
 AAC Batch ID: 130650 AAC Sample ID: 63227

**SAMPLING INFORMATION**

Start Date/Time: 5/29/13 12:57 Stop Date/Time: 5/29/13 16:14  
 Start Temp/Pressure\*: 30.6°C/29.70 Stop Temp/Pressure\*: 30.0°C/29.86  
 Initial Can Pressure\*\*: -30 Final Can Pressure\*\*: -6.6

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

Comments: Temp/pressure DATA FROM LAMBERT INTL.

ROB HESSE  
 Sampler Name (Print)

[Signature] 5/29/13  
 Sampler Signature/Date

**LABORATORY INFORMATION**

Canister Size: 6-Liter Sampling Period: 4-Hour  
 Canister Serial No.: 716 Flow Controller Serial No.: 709  
 Initial Pressure: 4.6 Certified Flow Rate: 18.0  
 Return Pressure: 602.7 Certified By/Date: JJ 5/23/2013  
 Final Pressure: 1030.6 Flow Rate upon Return: 24.0

Date Shipped From Lab: 5/20/2013 Shipped By: JJ

Date Returned to Lab: 5/31/2013 Received By: JJ

Flow Controller Certification File ID: 1103/0523305

Canister Certification File ID: 1103/0510139

Certification Type: SIM  SCAN  NJLL  PAMS  Other

[Signature] 06/03/13  
 Chemist Signature/Date

[Signature] 6/5/13  
 Lab Manager Signature/Date

**Sampler is required to fill out all highlighted sections during sampling.  
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# Atmospheric Analysis and Consulting Inc.

## Canister Sampling Field Data Sheet

**GENERAL INFORMATION**

Project Name and/or ID No.: SWAPE Project: 601 Bridgeton Landfill  
 Site Address and/or ID No.: Bridgeton Sanitary Landfill, Bridgeton, Missouri  
 Sample Name and/or ID No.: D-1-Canister  
 AAC Batch ID: 130650 AAC Sample ID: 63236

**SAMPLING INFORMATION**

Start Date/Time: 5/29/13 8:43 Stop Date/Time: 5/29/13 13:28  
 Start Temp/Pressure\*: 25.0C / 29.96 Stop Temp/Pressure\*: 30.6C / 29.90  
 Initial Can Pressure\*\*: -29.5 Final Can Pressure\*\*: -10

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

Comments: Temp / Pressure Data from LAMBER INTL.

Rob Hesse  
 Sampler Name (Print)

[Signature] 5/29/13  
 Sampler Signature/Date

**LABORATORY INFORMATION**

Canister Size: 6-Liter Sampling Period: 4-Hour  
 Canister Serial No.: 695 Flow Controller Serial No.: 805  
 Initial Pressure: 4.6 Certified Flow Rate: 18.0  
 Return Pressure: 526.9 Certified By/Date: [Signature] 5/23/2013  
 Final Pressure: 1023.3 Flow Rate upon Return: 20.0

Date Shipped From Lab: 5/20/2013 Shipped By: [Signature]

Date Returned to Lab: 5/31/2013 Received By: [Signature]

Flow Controller Certification File ID: 11503/0523305

Canister Certification File ID: 11503/05151326

Certification Type: SIM  SCAN  NJLL  PAMS  Other

[Signature]  
 Chemist Signature/Date

[Signature]  
 Lab Manager Signature/Date

**Sampler is required to fill out all highlighted sections during sampling.  
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# Atmospheric Analysis and Consulting Inc.

## Canister Sampling Field Data Sheet

### GENERAL INFORMATION

Project Name and/or ID No.: SWAPE Project: 601 Bridgeton Landfill  
 Site Address and/or ID No.: Bridgeton Sanitary Landfill, Bridgeton, Missouri  
 Sample Name and/or ID No.: D-7-Canister  
 AAC Batch ID: 130650 AAC Sample ID: 63245

### SAMPLING INFORMATION

Start Date/Time: 5/29/13 13:45 Stop Date/Time: 5/29/13 17:20  
 Start Temp/Pressure\*: 30.6°C/29.90 Stop Temp/Pressure\*: 30.0°C/29.86  
 Initial Can Pressure\*\*: -28.5 Final Can Pressure\*\*: -10

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

Comments: THIS CANISTER / FLOW CONTROLLER MARKED "D-1"  
BY JOHN BLANK  
TEMP / PRESSURE DATA FROM LAMBERT INTL.  
ROB HESSE [Signature] 5/29/13  
 Sampler Name (Print) Sampler Signature/Date

### LABORATORY INFORMATION

Canister Size: 6-Liter Sampling Period: 4-Hour  
 Canister Serial No.: 653 Flow Controller Serial No.: 715  
 Initial Pressure: 4.3 Certified Flow Rate: 18.0  
 Return Pressure: 487.2 Certified By/Date: [Signature] 5/20/2013  
 Final Pressure: 1024.5 Flow Rate upon Return: 18.4

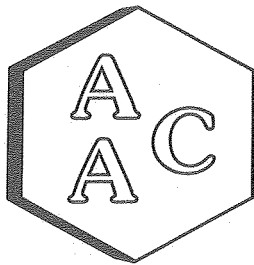
Date Shipped From Lab: 5/16/2013 Shipped By: [Signature]  
 Date Returned to Lab: 5/31/2013 Received By: [Signature]  
 Flow Controller Certification File ID: M03/0520310  
 Canister Certification File ID: M03/0515321  
 Certification Type: SIM  SCAN  NJLL  PAMS  Other

[Signature] 6/6/13  
 Chemist Signature/Date

[Signature] 6/5/13  
 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.*

# Results



# Atmospheric Analysis & Consulting, Inc.

## Laboratory Analysis Report

CLIENT : SWAPE  
PROJECT NO. : 130650  
MATRIX : AIR

SAMPLING DATE : 05/29/2013  
RECEIVING DATE : 05/30/2013  
ANALYSIS DATE : 06/03/2013  
REPORT DATE : 06/04/2013

### EPA 3C

Client ID	BZ-1-Canister	BZ-2-Canister	U-1-Canister
AAC ID	130650-63200	130650-63209	130650-63218
Can Dilution Factor	1.74	2.09	1.65
Analyte	Result	Result	Result
H <sub>2</sub>	< 1.7 %	< 2.1 %	< 1.6 %
O <sub>2</sub>	21.0 %	20.9 %	20.9 %
N <sub>2</sub>	79.0 %	79.1 %	79.1 %
CO	< 0.2 %	< 0.2 %	< 0.2 %
CO <sub>2</sub>	< 0.2 %	< 0.2 %	< 0.2 %
CH <sub>4</sub>	< 0.2 %	< 0.2 %	< 0.2 %

Client ID	U-2-Canister	D-1-Canister	D-2-Canister
AAC ID	130650-63227	130650-63236	130650-63245
Can Dilution Factor	1.71	1.94	2.10
Analyte	Result	Result	Result
H <sub>2</sub>	< 1.7 %	< 1.9 %	< 2.1 %
O <sub>2</sub>	20.8 %	20.9 %	20.9 %
N <sub>2</sub>	79.2 %	79.1 %	79.1 %
CO	< 0.2 %	< 0.2 %	< 0.2 %
CO <sub>2</sub>	< 0.2 %	< 0.2 %	< 0.2 %
CH <sub>4</sub>	< 0.2 %	< 0.2 %	< 0.2 %

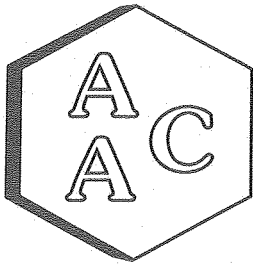
All fixed gases have been normalized to 100% on a dry weight basis

Sample Reporting Limit (SRL) is equal to Reporting Limit x Analysis Dil. Fac x Canister Dil. Fac

  
\_\_\_\_\_  
Marcus Hueppe  
Laboratory Director







# Atmospheric Analysis & Consulting, Inc.

## LABORATORY ANALYSIS REPORT

CLIENT : SWAPE  
PROJECT NO. : 130650  
MATRIX : AIR  
UNITS : ppbV

SAMPLING DATE : 05/29/2013  
RECEIVING DATE : 05/30/2013  
ANALYSIS DATE : 06/03/2013  
REPORT DATE : 06/04/2013

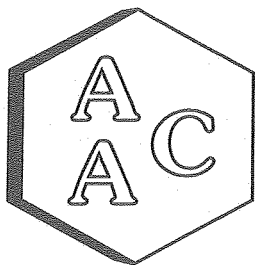
### Sulfur Compounds by ASTM D-5504

Client ID	BZ-1-Canister	BZ-2-Canister	U-1-Canister
AAC ID	130650-63200	130650-63209	130650-63218
Canister Dil. Fac.	1.74	2.09	1.65
Analyte	Result	Result	Result
Hydrogen Sulfide	< 17.4	< 20.9	< 16.5
Carbonyl Sulfide	< 17.4	< 20.9	< 16.5
Sulfur Dioxide	< 17.4	< 20.9	< 16.5
Methyl Mercaptan	< 17.4	< 20.9	< 16.5
Ethyl Mercaptan	< 17.4	< 20.9	< 16.5
Dimethyl Sulfide	< 17.4	< 20.9	< 16.5
Carbon Disulfide	< 8.7	< 10.5	< 8.2
Isopropyl Mercaptan	< 17.4	< 20.9	< 16.5
tert-Butyl Mercaptan	< 17.4	< 20.9	< 16.5
n-Propyl Mercaptan	< 17.4	< 20.9	< 16.5
Methylethylsulfide	< 17.4	< 20.9	< 16.5
sec-Butyl Mercaptan	< 17.4	< 20.9	< 16.5
Thiophene	< 17.4	< 20.9	< 16.5
iso-Butyl Mercaptan	< 17.4	< 20.9	< 16.5
Diethyl Sulfide	< 17.4	< 20.9	< 16.5
n-Butyl Mercaptan	< 17.4	< 20.9	< 16.5
Dimethyl Disulfide	< 8.7	< 10.5	< 8.2
2-Methylthiophene	< 17.4	< 20.9	< 16.5
3-Methylthiophene	< 17.4	< 20.9	< 16.5
Tetrahydrothiophene	< 17.4	< 20.9	< 16.5
Bromothiophene	< 17.4	< 20.9	< 16.5
Thiophenol	< 17.4	< 20.9	< 16.5
Diethyl disulfide	< 8.7	< 10.5	< 8.2
Total Unidentified Sulfur	< 17.4	< 20.9	< 16.5

All unidentified sulfur compound's concentrations expressed in terms of  $\mu\text{S}$   
Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

  
Marcus Hueppe  
Laboratory Director





# Atmospheric Analysis & Consulting, Inc.

## LABORATORY ANALYSIS REPORT

CLIENT : SWAPE  
PROJECT NO. : 130650  
MATRIX : AIR  
UNITS :  $\mu\text{g}/\text{m}^3$

SAMPLING DATE : 05/29/2013  
RECEIVING DATE : 05/30/2013  
ANALYSIS DATE : 06/03/2013  
REPORT DATE : 06/04/2013

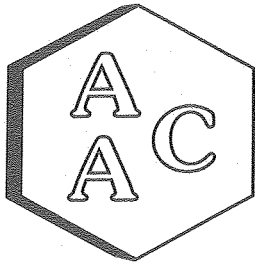
### Sulfur Compounds by ASTM D-5504

Client ID	BZ-1-Canister	BZ-2-Canister	U-1-Canister
AAC ID	130650-63200	130650-63209	130650-63218
Canister Dil. Fac.	1.74	2.09	1.65
Analyte	Result	Result	Result
Hydrogen Sulfide	< 24.3	< 29.2	< 23.0
Carbonyl Sulfide	< 42.7	< 51.5	< 40.5
Sulfur Dioxide	< 45.6	< 54.9	< 43.2
Methyl Mercaptan	< 34.2	< 41.2	< 32.4
Ethyl Mercaptan	< 44.2	< 53.2	< 41.9
Dimethyl Sulfide	< 44.2	< 53.2	< 41.9
Carbon Disulfide	< 27.1	< 32.6	< 25.7
Isopropyl Mercaptan	< 54.2	< 65.3	< 51.3
tert-Butyl Mercaptan	< 64.2	< 77.3	< 60.8
n-Propyl Mercaptan	< 54.2	< 65.3	< 51.3
Methylethylsulfide	< 54.2	< 65.2	< 51.3
sec-Butyl Mercaptan	< 64.2	< 77.3	< 60.8
Thiophene	< 59.9	< 72.1	< 56.7
iso-Butyl Mercaptan	< 64.2	< 77.3	< 60.8
Diethyl Sulfide	< 64.2	< 77.3	< 60.8
n-Butyl Mercaptan	< 64.2	< 77.3	< 60.8
Dimethyl Disulfide	< 33.5	< 40.3	< 31.7
2-Methylthiophene	< 69.9	< 84.1	< 66.1
3-Methylthiophene	< 69.9	< 84.1	< 66.1
Tetrahydrothiophene	< 62.7	< 75.5	< 59.4
Bromothiophene	< 116.0	< 139.7	< 109.8
Thiophenol	< 78.4	< 94.4	< 74.2
Diethyl disulfide	< 43.5	< 52.4	< 41.2
Total Unidentified Sulfur	< 24.3	< 29.2	< 23.0

All unidentified sulfur compound's concentrations expressed in terms of  $\mu\text{S}$   
Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

  
\_\_\_\_\_  
Marcus Hueppe  
Laboratory Director





# Atmospheric Analysis & Consulting, Inc.

## LABORATORY ANALYSIS REPORT

CLIENT : SWAPE  
PROJECT NO. : 130650  
MATRIX : AIR  
UNITS : ppbV

SAMPLING DATE : 05/29/2013  
RECEIVING DATE : 05/30/2013  
ANALYSIS DATE : 06/03/2013  
REPORT DATE : 06/04/2013

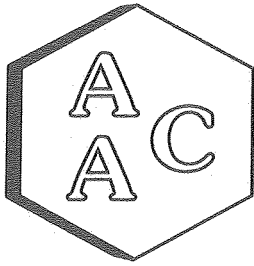
### Sulfur Compounds by ASTM D-5504

Client ID	U-2-Canister	D-1-Canister	D-2-Canister
AAC ID	130650-63227	130650-63236	130650-63245
Canister Dil. Fac.	1.71	1.94	2.10
Analyte	Result	Result	Result
Hydrogen Sulfide	< 17.1	< 19.4	< 21.0
Carbonyl Sulfide	< 17.1	< 19.4	< 21.0
Sulfur Dioxide	< 17.1	< 19.4	< 21.0
Methyl Mercaptan	< 17.1	< 19.4	< 21.0
Ethyl Mercaptan	< 17.1	< 19.4	< 21.0
Dimethyl Sulfide	< 17.1	< 19.4	< 21.0
Carbon Disulfide	< 8.5	< 9.7	< 10.5
Isopropyl Mercaptan	< 17.1	< 19.4	< 21.0
tert-Butyl Mercaptan	< 17.1	< 19.4	< 21.0
n-Propyl Mercaptan	< 17.1	< 19.4	< 21.0
Methylethylsulfide	< 17.1	< 19.4	< 21.0
sec-Butyl Mercaptan	< 17.1	< 19.4	< 21.0
Thiophene	< 17.1	< 19.4	< 21.0
iso-Butyl Mercaptan	< 17.1	< 19.4	< 21.0
Diethyl Sulfide	< 17.1	< 19.4	< 21.0
n-Butyl Mercaptan	< 17.1	< 19.4	< 21.0
Dimethyl Disulfide	< 8.5	< 9.7	< 10.5
2-Methylthiophene	< 17.1	< 19.4	< 21.0
3-Methylthiophene	< 17.1	< 19.4	< 21.0
Tetrahydrothiophene	< 17.1	< 19.4	< 21.0
Bromothiophene	< 17.1	< 19.4	< 21.0
Thiophenol	< 17.1	< 19.4	< 21.0
Diethyl disulfide	< 8.5	< 9.7	< 10.5
Total Unidentified Sulfur	< 17.1	< 19.4	< 21.0

All unidentified sulfur compound's concentrations expressed in terms of  $\mu\text{S}$   
Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

  
\_\_\_\_\_  
Marcus Hueppe  
Laboratory Director





# Atmospheric Analysis & Consulting, Inc.

## LABORATORY ANALYSIS REPORT

CLIENT : SWAPE  
 PROJECT NO. : 130650  
 MATRIX : AIR  
 UNITS :  $\mu\text{g}/\text{m}^3$

SAMPLING DATE : 05/29/2013  
 RECEIVING DATE : 05/30/2013  
 ANALYSIS DATE : 06/03/2013  
 REPORT DATE : 06/04/2013

### Sulfur Compounds by ASTM D-5504

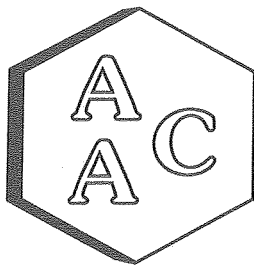
Client ID	U-2-Canister	D-1-Canister	D-2-Canister
AAC ID	130650-63227	130650-63236	130650-63245
Canister Dil. Fac.	1.71	1.94	2.10
Analyte	Result	Result	Result
Hydrogen Sulfide	< 23.8	< 27.1	< 29.3
Carbonyl Sulfide	< 42.0	< 47.7	< 51.7
Sulfur Dioxide	< 44.8	< 50.9	< 55.1
Methyl Mercaptan	< 33.6	< 38.2	< 41.4
Ethyl Mercaptan	< 43.5	< 49.4	< 53.4
Dimethyl Sulfide	< 43.5	< 49.4	< 53.4
Carbon Disulfide	< 26.6	< 30.2	< 32.7
Isopropyl Mercaptan	< 53.3	< 60.5	< 65.5
tert-Butyl Mercaptan	< 63.1	< 71.6	< 77.6
n-Propyl Mercaptan	< 53.3	< 60.5	< 65.5
Methylethylsulfide	< 53.3	< 60.5	< 65.5
sec-Butyl Mercaptan	< 63.1	< 71.6	< 77.6
Thiophene	< 58.8	< 66.8	< 72.4
iso-Butyl Mercaptan	< 63.1	< 71.6	< 77.6
Diethyl Sulfide	< 63.1	< 71.6	< 77.6
n-Butyl Mercaptan	< 63.1	< 71.6	< 77.6
Dimethyl Disulfide	< 32.9	< 37.4	< 40.5
2-Methylthiophene	< 68.7	< 78.0	< 84.4
3-Methylthiophene	< 68.7	< 78.0	< 84.4
Tetrahydrothiophene	< 61.7	< 70.0	< 75.8
Bromothiophene	< 114.0	< 129.5	< 140.2
Thiophenol	< 77.1	< 87.5	< 94.8
Diethyl disulfide	< 42.7	< 48.5	< 52.6
Total Unidentified Sulfur	< 23.8	< 27.1	< 29.3

All unidentified sulfur compound's concentrations expressed in terms of  $\mu\text{S}$   
 Sample Reporting Limit (SRL) is equal to Reporting 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

Date Analyzed : 06/03/2013  
 Analyst : ZG  
 Units : %

Instrument ID : TCD#1  
 Calb Date : 04/13/2012  
 Reporting Limit : 0.1%

### I - Opening Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	CO
CCV	Spike Conc	10.3	10.5	19.6	10.3	9.9	10.3
	Result	11.3	11.0	21.8	10.4	10.0	10.4
	% Rec *	110.3	105.6	110.9	101.8	101.0	100.9

### II - Method Blank - EPA 3C

AAC ID	Analyte	H <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	CO
MB	Concentration	ND	ND	ND	ND	ND	ND

### III-Laboratory Control Spike & Duplicate - EPA 3C

AAC ID	Analyte	H <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	CO
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	10.3	10.5	19.6	10.3	9.9	10.3
	LCS Result	11.2	10.4	21.1	10.6	10.2	10.6
	LCSD Result	11.2	11.1	21.9	10.7	10.3	10.7
	LCS % Rec *	108.7	99.7	107.5	103.5	102.2	102.8
	LCSD % Rec *	108.7	105.7	111.8	104.5	103.5	103.8
	% RPD ***	0.0	5.8	3.9	1.0	1.2	1.0

### IV-Sample & Sample Duplicate - EPA 3C

AAC ID	Analyte	H <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	CO
130656-63280	Sample	0.0	0.4	1.8	23.4	40.2	0.0
	Sample Dup	0.0	0.4	1.4	23.4	39.8	0.0
	Mean	0.0	0.4	1.6	23.4	40.0	0.0
	% RPD ***	0.0	13.7	21.7	0.0	1.0	0.0

### V-Matrix Spike & Duplicate - EPA 3C

AAC ID	Analyte	H <sub>2</sub>	N <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	CO
130656-63280	Sample Conc	0.0	0.8	11.7	20.0	0.0
	Spike Conc	10.3	9.2	10.3	9.9	10.3
	MS Result	11.6	11.0	21.9	32.2	10.5
	MSD Result	10.3	10.3	20.7	30.0	9.9
	MS % Rec **	112.8	110.6	99.9	123.3	101.7
	MSD % Rec **	100.2	102.7	87.6	100.7	95.9
	% RPD ***	11.9	7.4	13.2	20.2	5.9

### VI - Closing Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H <sub>2</sub>	O <sub>2</sub>	N <sub>2</sub>	CO <sub>2</sub>	CH <sub>4</sub>	CO
CCV	Spike Conc	10.3	10.5	19.6	10.3	9.9	10.3
	Result	11.3	10.7	21.2	10.4	10.1	10.5
	% Rec *	110.0	102.2	108.0	101.6	101.6	101.5

\* Must be 85-115%

\*\* Must be 75-125%

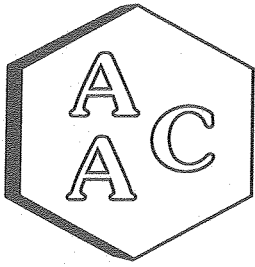
\*\*\* Must be < 25%

ND = Not Detected

<RL = less than Reporting Limit

  
 Marcus Hueppe  
 Laboratory Director





# Atmospheric Analysis & Consulting, Inc.

## Quality Control/Quality Assurance Report ASTM D-5504

Date Analyzed: 06/03/13  
Analyst: DH

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

### Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	16951	503	100.5	NA
Duplicate	17029	505	101.0	0.5
Triplicate	17000	504	100.8	0.3

### Method Blank

Analyte	Result
H2S	ND

### Matrix Spike & Duplicate

Sample ID 130650-63200 x2

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0	250	254	251	101.6	100.5	1.1

### Duplicate Analysis

Sample ID 130650-63200

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

### Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	500	461.3	93.9

\* Must be 95-105%

\*\* Must be 90-110%

\*\*\* Must be < 10%

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

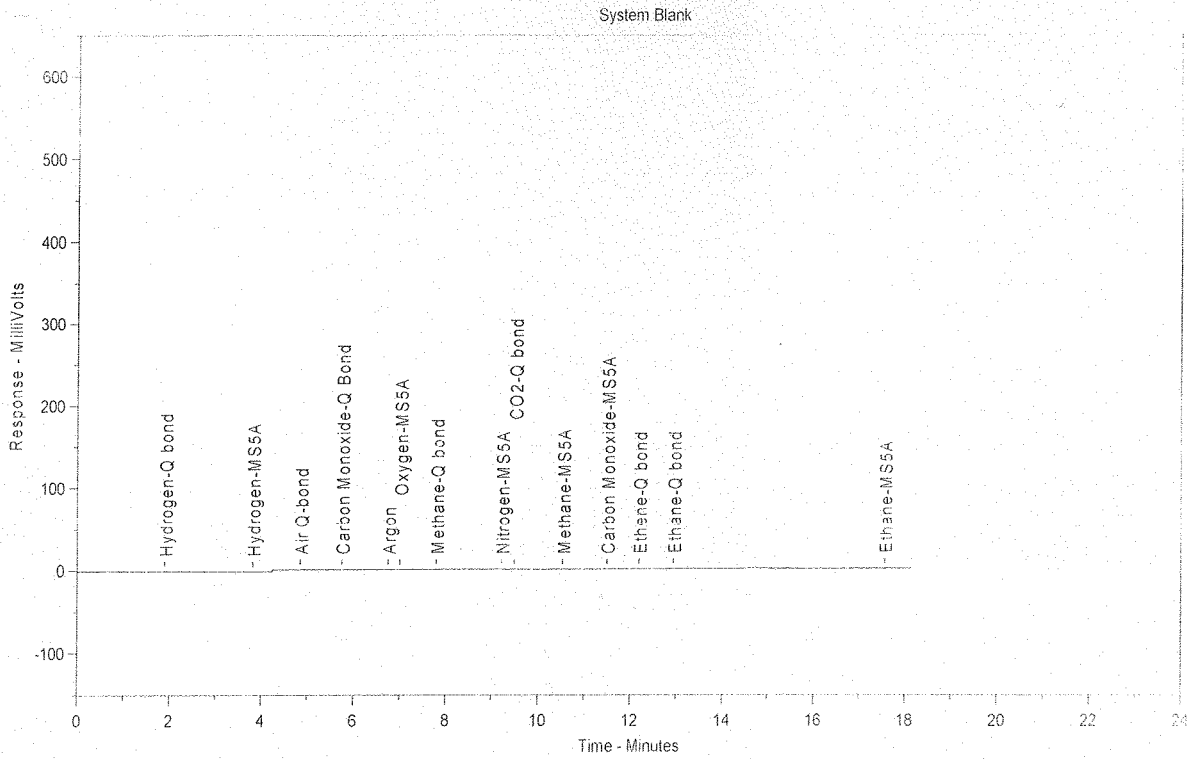
Marcus Hueppe  
Laboratory Director



# Raw Data



Chrom Perfect Chromatogram Report



Sample Name = System Blank

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0001.raw

Date Taken (end) = 6/3/2013 5:55:36 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

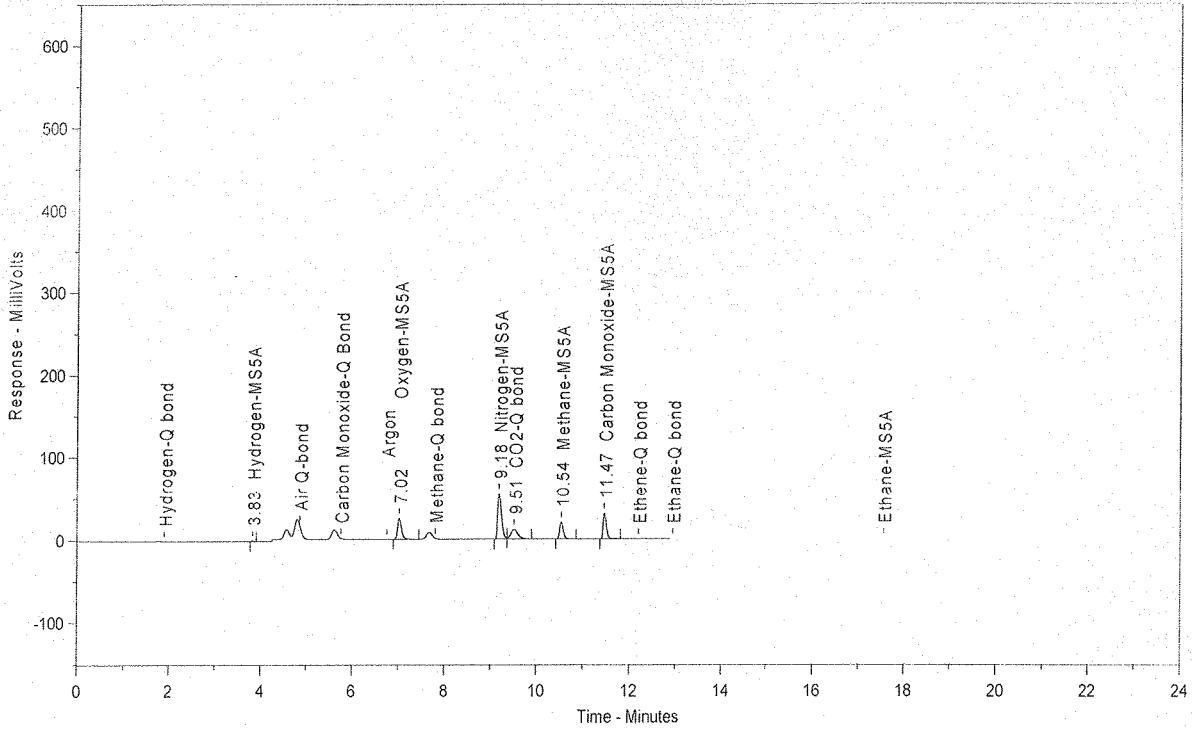
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
Total Area = 0			Total Height = 0			Total Amount = 0		

CS  
06/03/13

Chrom Perfect Chromatogram Report

OCV (SS0685/SS0633)



Sample Name = OCV (SS0685/SS0633)

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0002.raw

Date Taken (end) = 6/3/2013 6:13:51 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.83	Hydrogen-MS5A	11.323	15.091	2093	0.243	BB	0.06
2	7.02	Oxygen-MS5A	11.039	14.713	151263	17.588	BB	0.09
3	9.18	Nitrogen-MS5A	21.761	29.003	317147	36.876	BV	0.09
4	9.51	CO2-Q bond	10.435	13.908	125288	14.568	VB	0.16
5	10.54	Methane-MS5A	10.032	13.370	113920	13.246	BB	0.09
6	11.47	Carbon Monoxide-MS5A	10.441	13.915	150317	17.478	BB	0.07

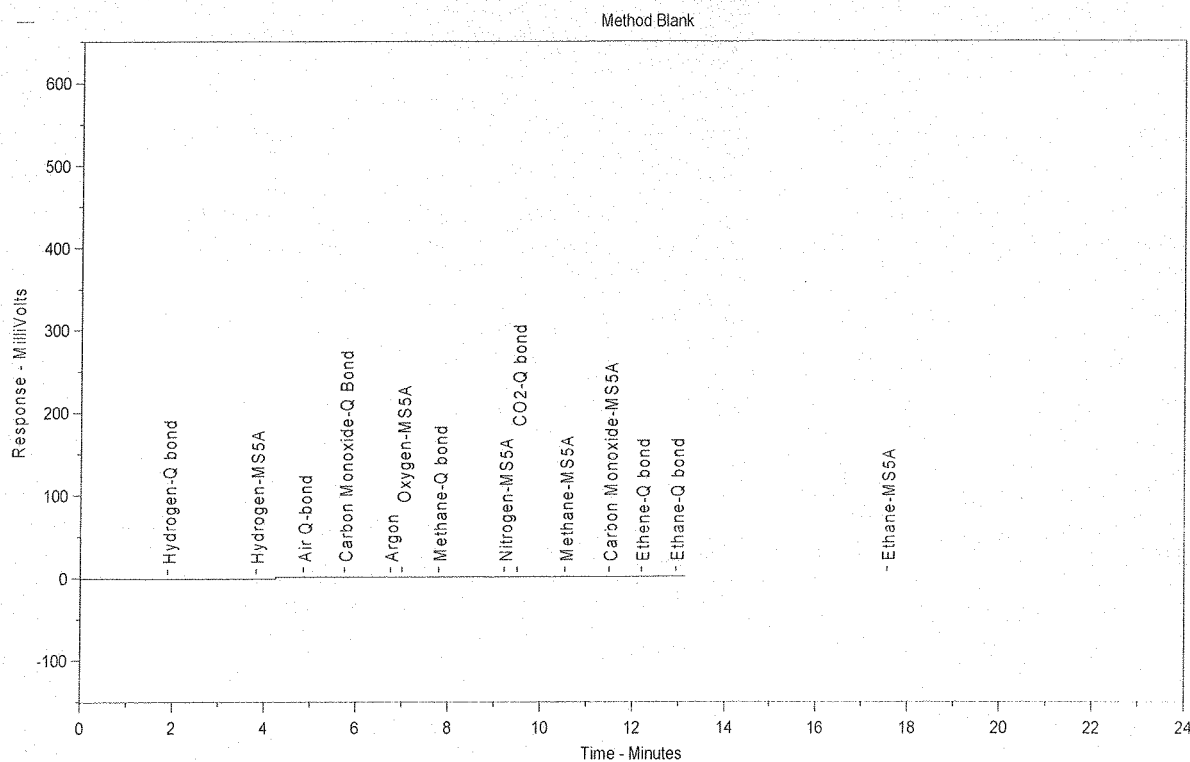
Total Area = 860029.4

Total Height = 143377.3

Total Amount = 75.03012

EC  
06/03/13

Chrom Perfect Chromatogram Report



Sample Name = **Method Blank**

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0003.raw

Date Taken (end) = 6/3/2013 6:33:32 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

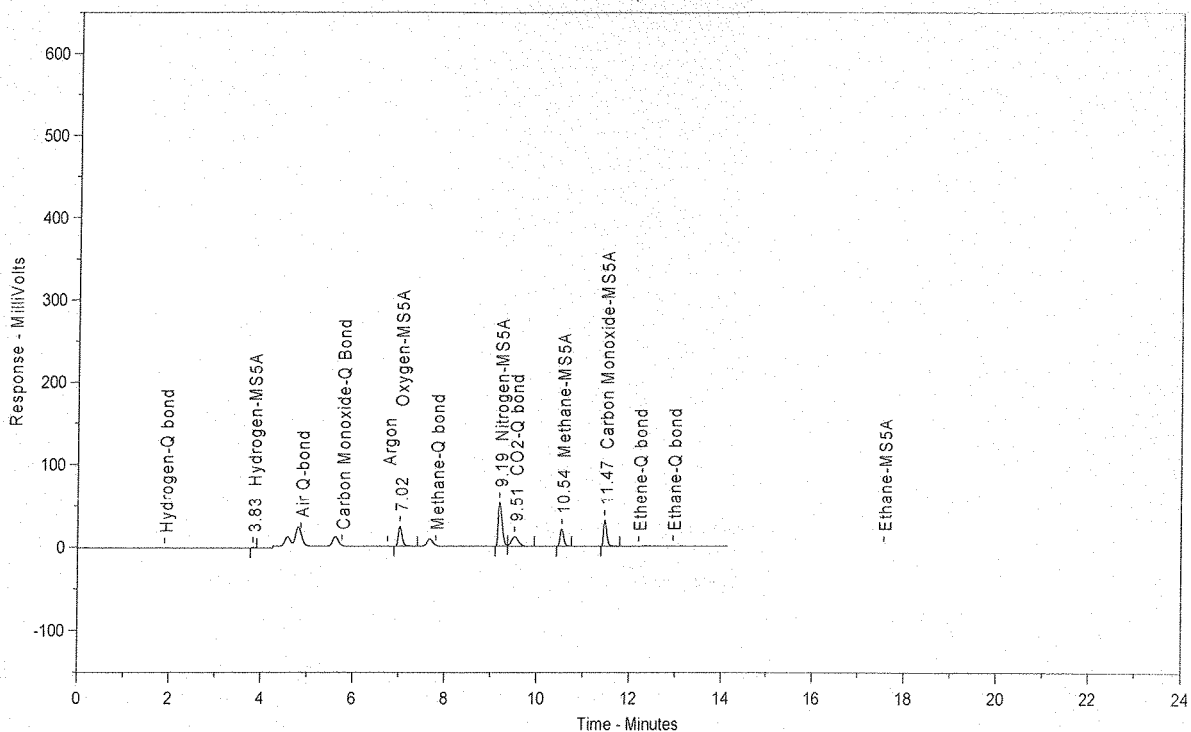
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
Total Area = 0			Total Height = 0			Total Amount = 0		

DT 6/3/13

Chrom Perfect Chromatogram Report

LCS (SS0685/SS0724)



Sample Name = LCS (SS0685/SS0724)

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0004.raw

Date Taken (end) = 6/3/2013 6:52:21 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.83	Hydrogen-MS5A	11.158	15.064	2063	0.243	BB	0.06
2	7.02	Oxygen-MS5A	10.428	14.079	142897	16.849	BB	0.09
3	9.19	Nitrogen-MS5A	21.092	28.474	307389	36.245	BV	0.09
4	9.51	CO2-Q bond	10.606	14.319	127339	15.015	VB	0.17
5	10.54	Methane-MS5A	10.155	13.709	115316	13.597	BB	0.09
6	11.47	Carbon Monoxide-MS5A	10.633	14.355	153083	18.050	BB	0.07

Total Area = 848087.9

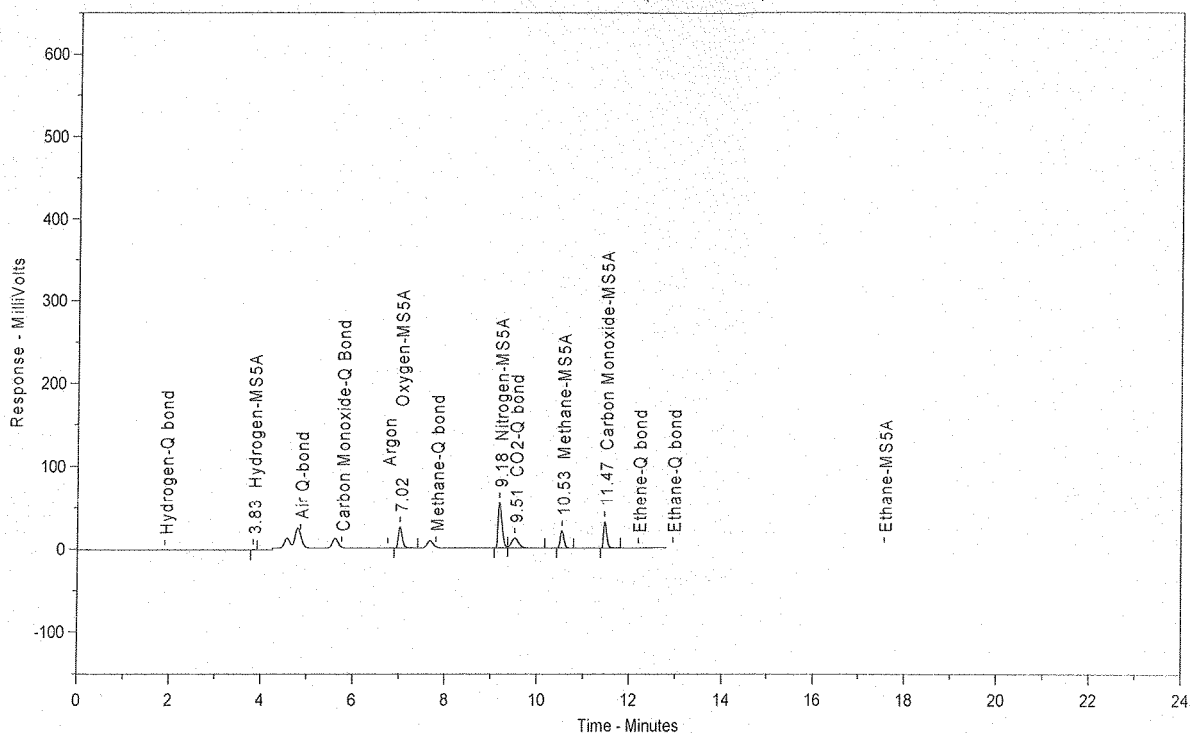
Total Height = 141490.1

Total Amount = 74.0717

DH 6/3/13

Chrom Perfect Chromatogram Report

LCSD (SS0685/SS0724)



Sample Name = LCSD (SS0685/SS0724)

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0005.raw

Date Taken (end) = 6/3/2013 7:09:54 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.83	Hydrogen-MS5A	11.157	14.703	2063	0.236	BB	0.06
2	7.02	Oxygen-MS5A	11.056	14.570	151496	17.349	BB	0.09
3	9.18	Nitrogen-MS5A	21.931	28.902	319624	36.602	BV	0.09
4	9.51	CO2-Q bond	10.716	14.122	128656	14.733	VB	0.17
5	10.53	Methane-MS5A	10.282	13.550	116758	13.371	BB	0.09
6	11.47	Carbon Monoxide-MS5A	10.741	14.155	154641	17.709	BB	0.07

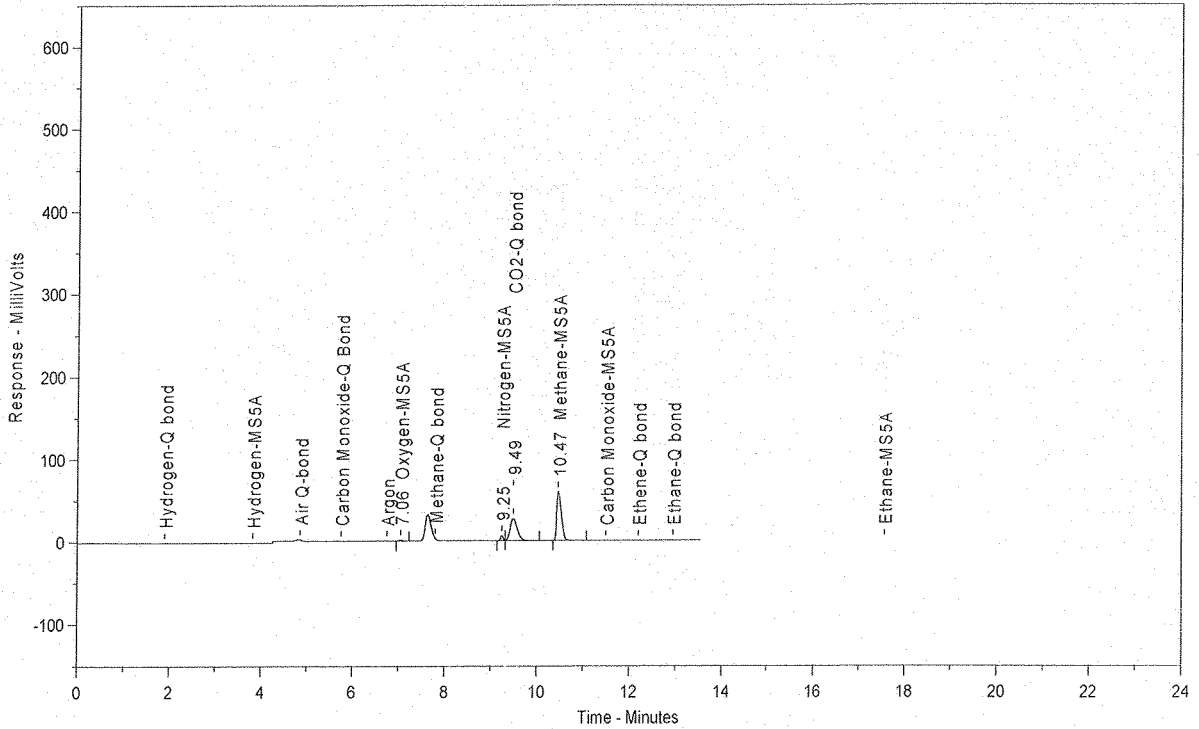
Total Area = 873237.9

Total Height = 144886.5

Total Amount = 75.88183

Chrom Perfect Chromatogram Report

130656-63280



Sample Name = 130656-63280

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0006.raw

Date Taken (end) = 6/3/2013 7:27:31 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2MidCH4.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.06	Oxygen-MS5A	0.429	0.653	5884	0.789	BB	0.08
2	9.25	Nitrogen-MS5A	1.784	2.712	26006	3.489	BV	0.06
3	9.49	CO2-Q bond	23.364	35.515	287808	38.608	VB	0.16
4	10.47	Methane-MS5A	40.208	61.120	425772	57.115	BB	0.11

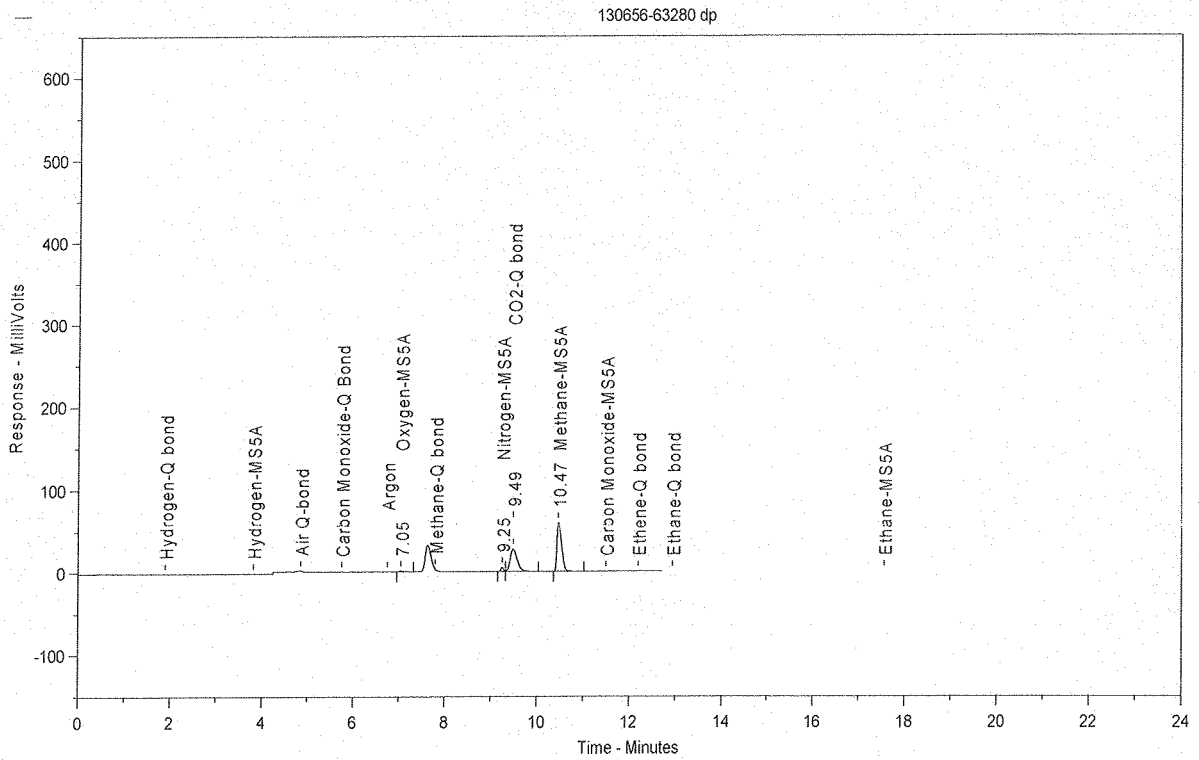
Total Area = 745469.5

Total Height = 93775.55

Total Amount = 65.78521

DA 6/3/13

Chrom Perfect Chromatogram Report



Sample Name = 130656-63280 dp

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0007.raw

Date Taken (end) = 6/3/2013 7:44:02 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2MidCH4.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.05	Oxygen-MS5A	0.374	0.575	5122	0.697	BB	0.08
2	9.25	Nitrogen-MS5A	1.435	2.208	20908	2.844	BV	0.06
3	9.49	CO2-Q bond	23.367	35.968	287847	39.150	VB	0.16
4	10.47	Methane-MS5A	39.791	61.249	421361	57.310	BB	0.11

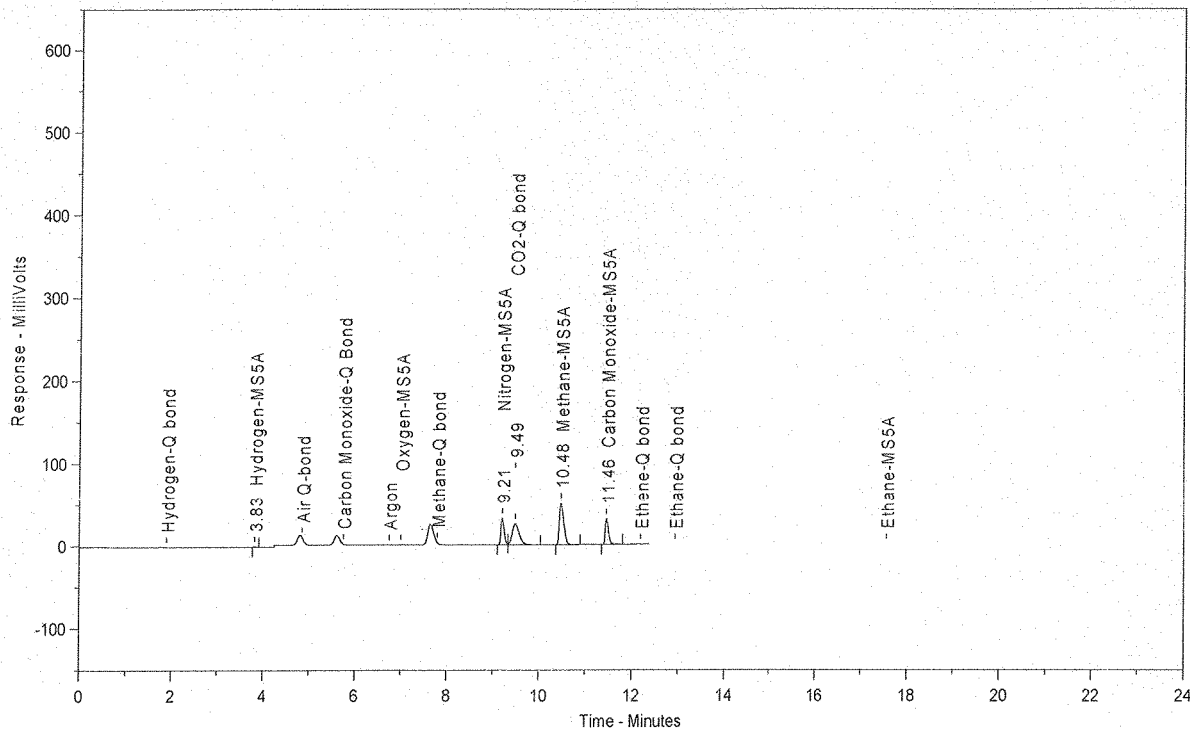
Total Area = 735237.5

Total Height = 92197.02

Total Amount = 64.96642

Chrom Perfect Chromatogram Report

130656-63280 MS (SS0685 x2)



Sample Name = 130656-63280 MS (SS0685 x2)

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313(1).0008.raw

Date Taken (end) = 6/3/2013 8:44:10 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2MidCH4.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.83	Hydrogen-MS5A	11.582	13.272	2141	0.231	BB	0.06
2	9.21	Nitrogen-MS5A	10.984	12.587	160086	17.300	BV	0.08
3	9.49	CO2-Q bond	21.926	25.125	270092	29.188	VB	0.16
4	10.48	Methane-MS5A	32.249	36.955	341493	36.904	BB	0.11
5	11.46	Carbon Monoxide-MS5A	10.525	12.061	151538	16.376	BB	0.07

Total Area = 925350.1

Total Height = 139901.5

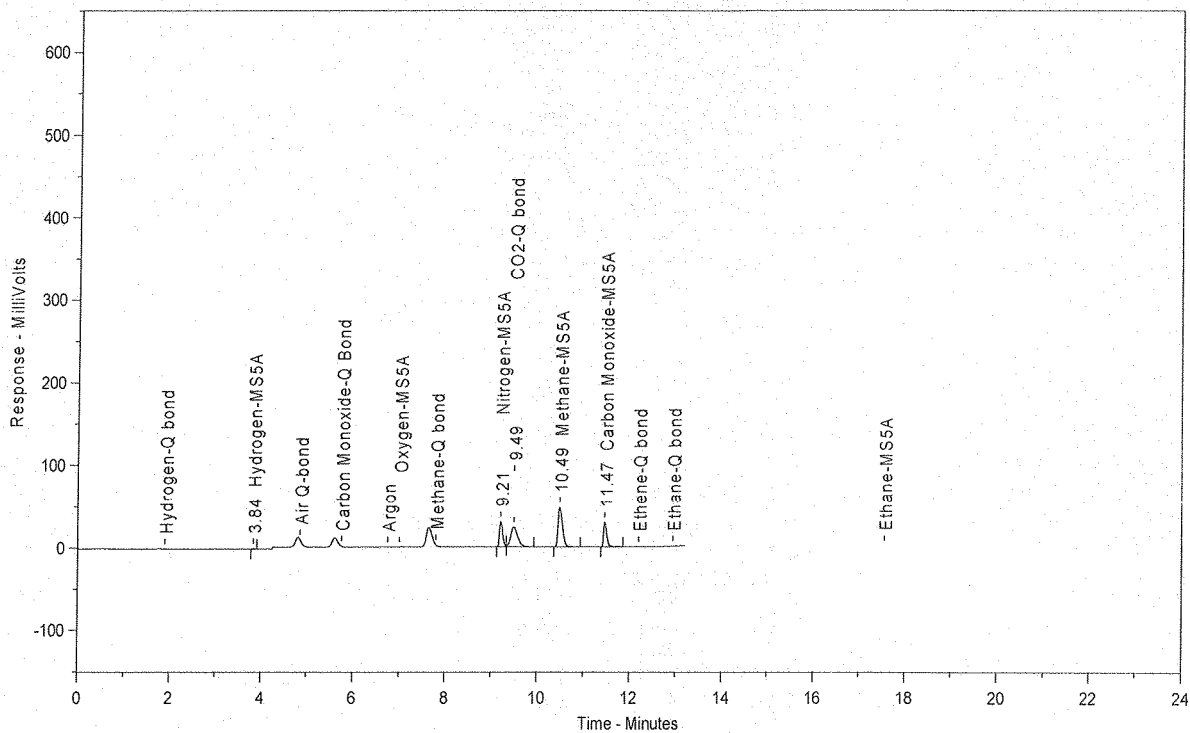
Total Amount = 87.26564

2013/6/3



Chrom Perfect Chromatogram Report

130656-63280 MSD (SS0685 x2)



Sample Name = 130656-63280 MSD (SS0685 x2)

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0009.raw

Date Taken (end) = 6/3/2013 8:21:50 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2MidCH4.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.84	Hydrogen-MS5A	10.285	12.679	1901	0.219	BB	0.06
2	9.21	Nitrogen-MS5A	10.254	12.641	149448	17.250	BV	0.08
3	9.49	CO2-Q bond	20.659	25.467	254488	29.375	VB	0.16
4	10.49	Methane-MS5A	30.005	36.988	317730	36.674	BB	0.10
5	11.47	Carbon Monoxide-MS5A	9.918	12.226	142790	16.482	BB	0.07

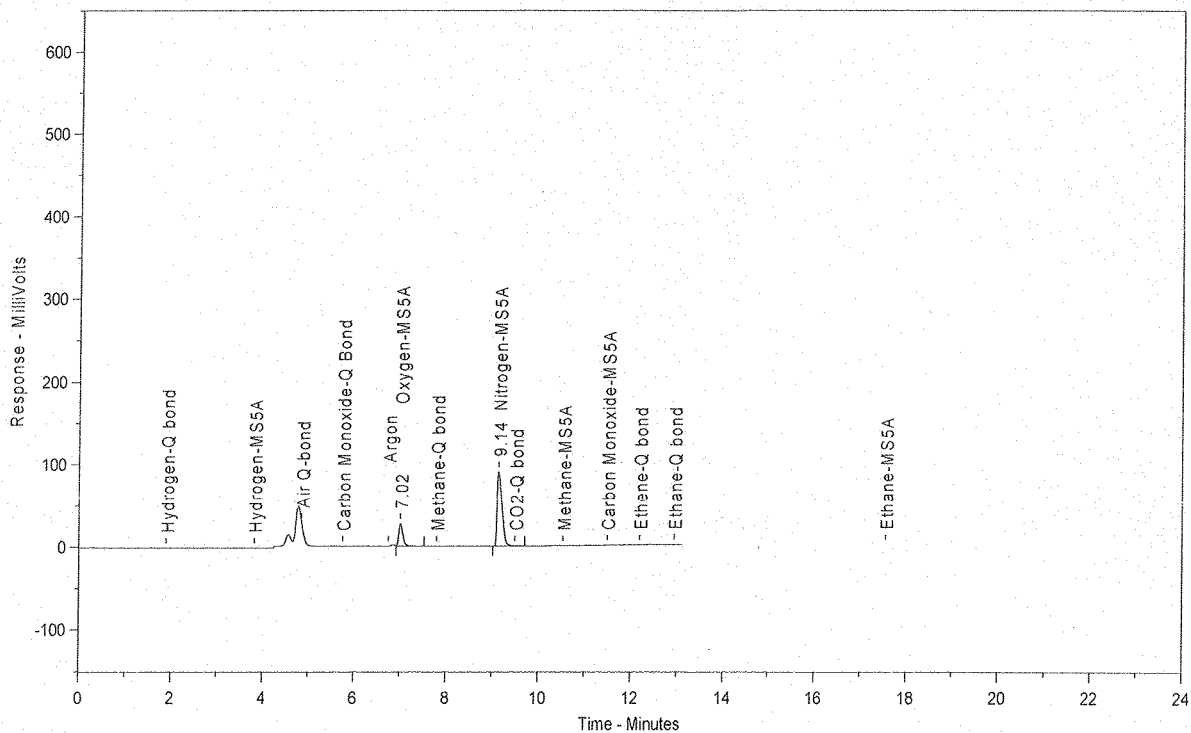
Total Area = 866357

Total Height = 132286.3

Total Amount = 81.12115

Chrom Perfect Chromatogram Report

130650-63200



Sample Name = 130650-63200

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0010.raw

Date Taken (end) = 6/3/2013 9:04:33 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	12.144	20.972	166410	19.969	BB	0.09
2	9.14	Nitrogen-MS5A	45.763	79.028	666946	80.031	BB	0.12

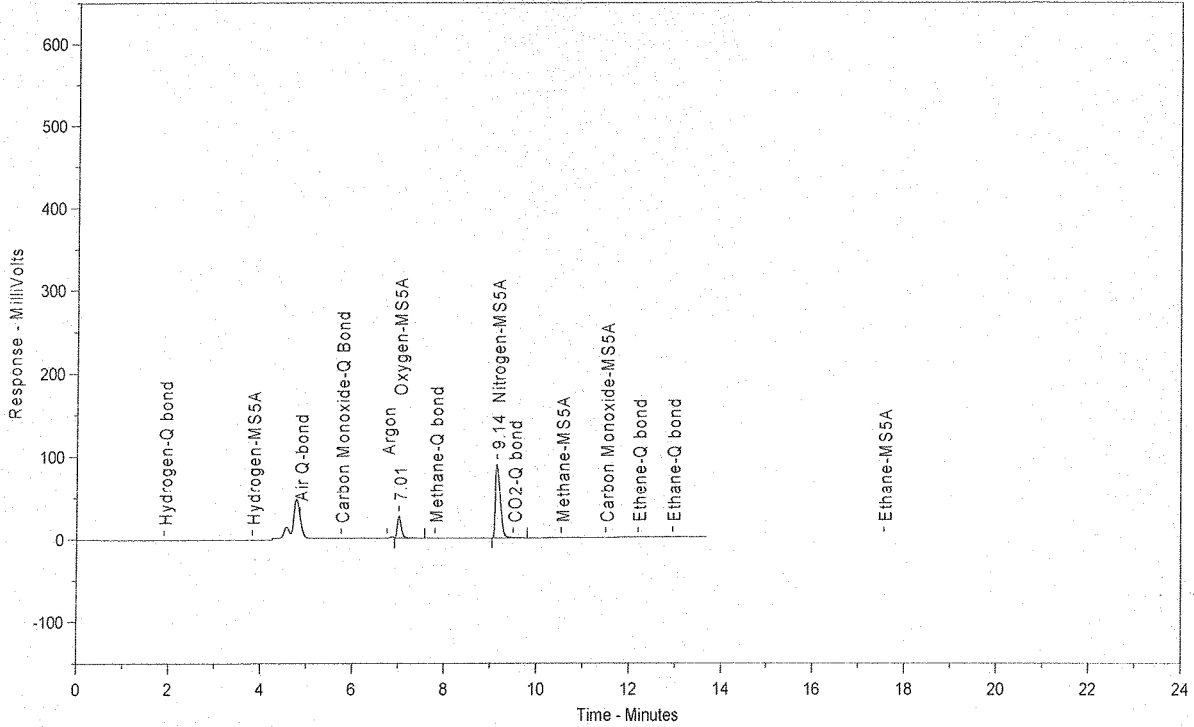
Total Area = 833355.9

Total Height = 117344.3

Total Amount = 57.90676

Chrom Perfect Chromatogram Report

130650-63200 dp



Sample Name = 130650-63200 dp

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0011.raw

Date Taken (end) = 6/3/2013 9:23:18 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.01	Oxygen-MS5A	11.934	21.007	163533	20.002	BB	0.09
2	9.14	Nitrogen-MS5A	44.878	78.993	654053	79.998	BB	0.12

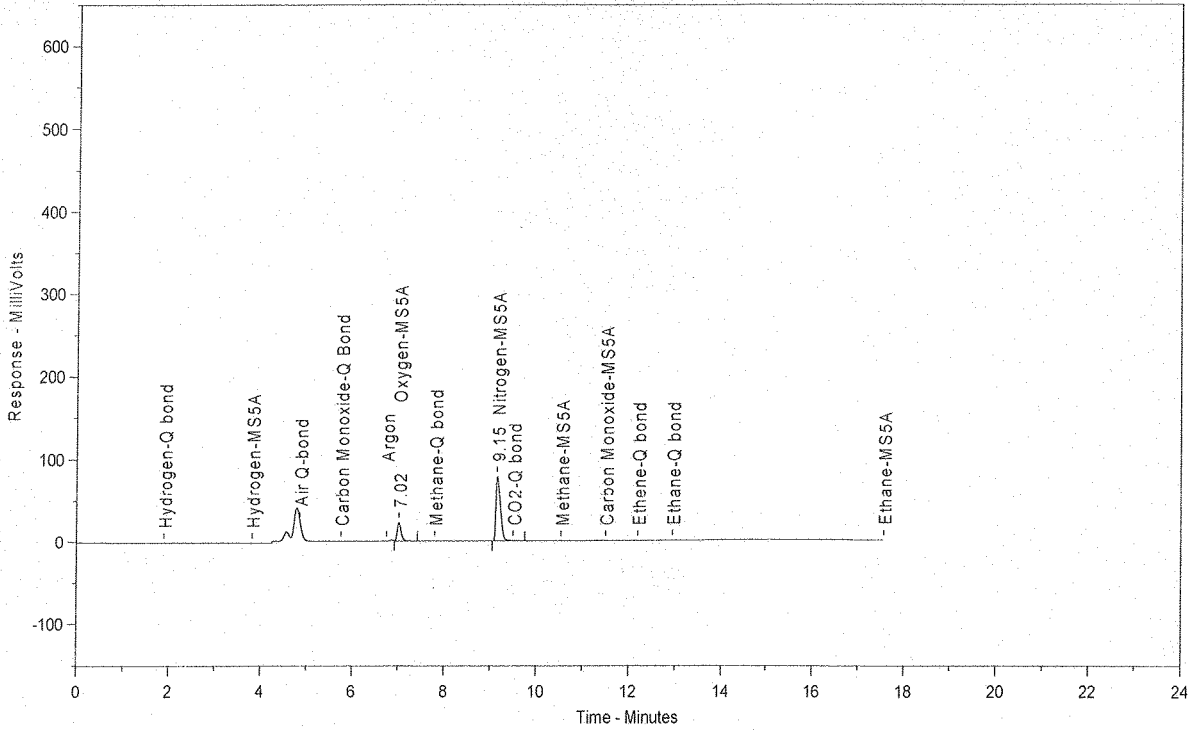
Total Area = 817585.8

Total Height = 115743.6

Total Amount = 56.81214

Chrom Perfect Chromatogram Report

130650-63209



Sample Name = 130650-63209

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0012.raw

Date Taken (end) = 6/3/2013 9:50:49 AM

Method File Name = C:\Cpmethods\Inst #01\2012\1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	9.668	20.817	132473	19.820	BB	0.09
2	9.15	Nitrogen-MS5A	36.772	79.183	535923	80.180	BB	0.11

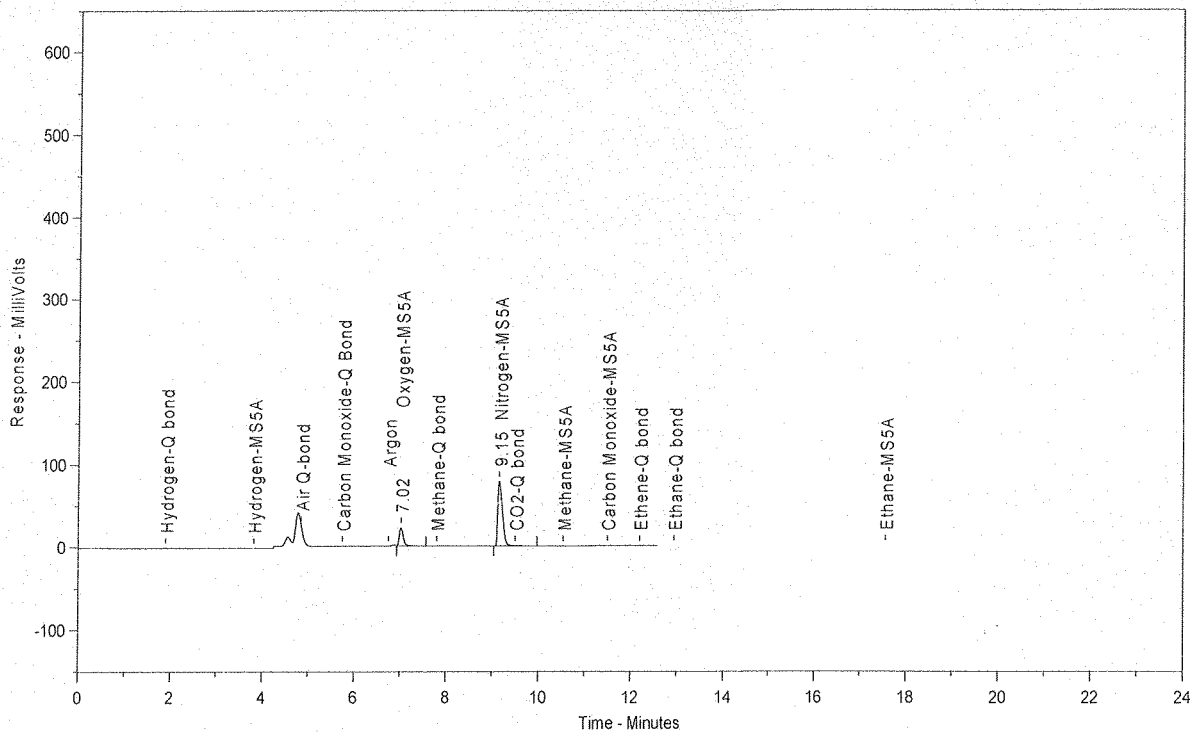
Total Area = 668396.1

Total Height = 100260.7

Total Amount = 46.43998

Chrom Perfect Chromatogram Report

130650-63209 dp



Sample Name = 130650-63209 dp

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0013.raw

Date Taken (end) = 6/3/2013 10:08:13 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	9.838	20.893	134813	19.892	BB	0.09
2	9.15	Nitrogen-MS5A	37.251	79.107	542896	80.108	BB	0.11

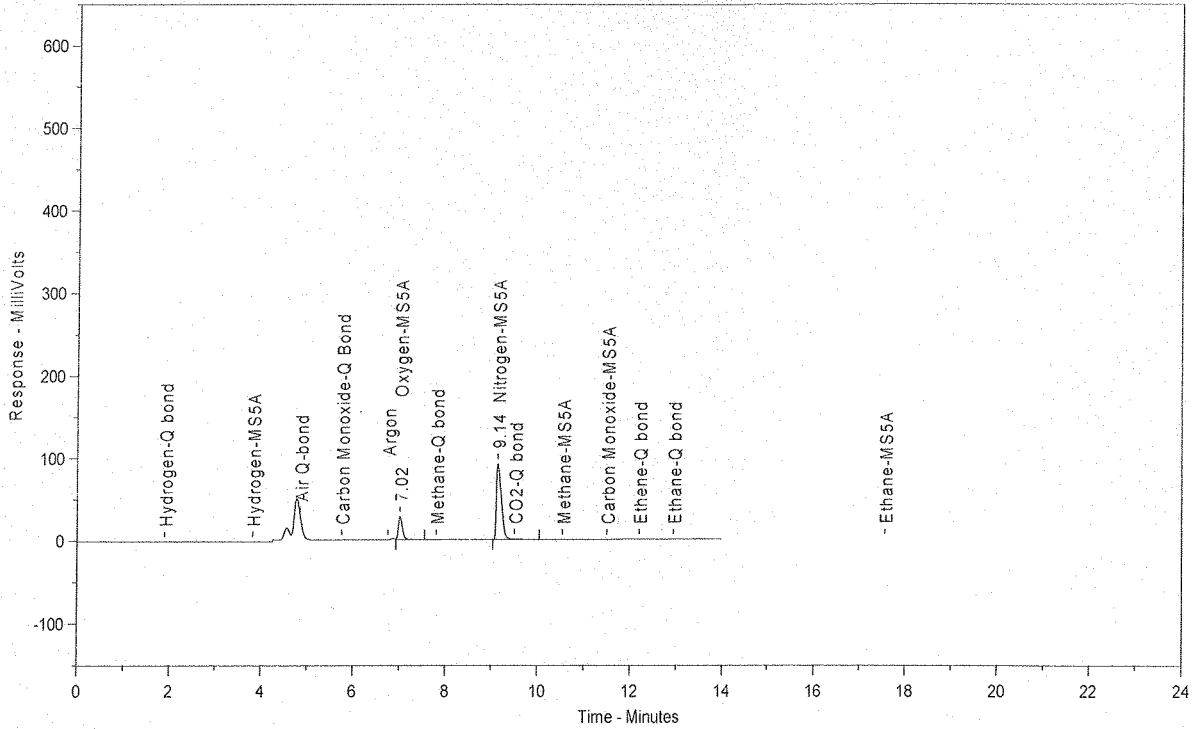
Total Area = 677709.1

Total Height = 100821.5

Total Amount = 47.0892

Chrom Perfect Chromatogram Report

130650-63218



Sample Name = 130650-63218

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0014.raw

Date Taken (end) = 6/3/2013 10:26:51 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	12.506	20.912	171362	19.911	BB	0.09
2	9.14	Nitrogen-MS5A	47.294	79.088	689269	80.089	BB	0.12

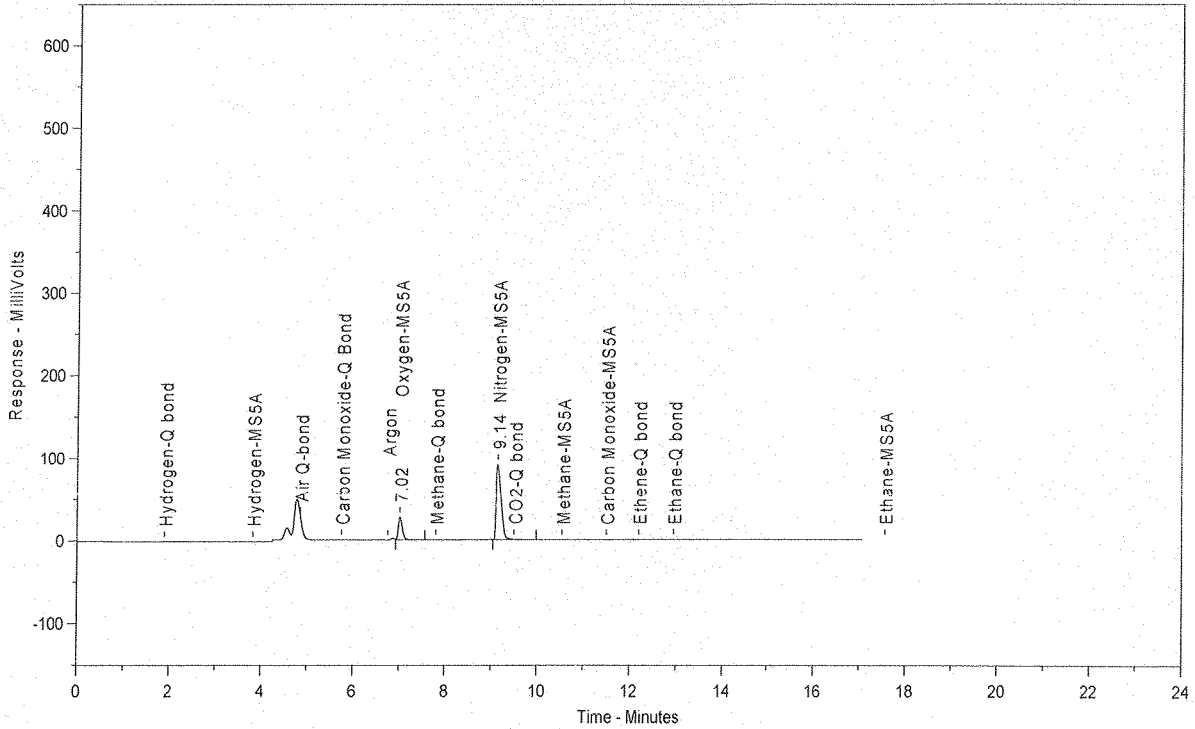
Total Area = 860631.7

Total Height = 119961.3

Total Amount = 59.7999

Chrom Perfect Chromatogram Report

130650-63218 dp



Sample Name = 130650-63218 dp

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0015.raw

Date Taken (end) = 6/3/2013 10:48:30 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	12.342	20.919	169119	19.917	BB	0.09
2	9.14	Nitrogen-MS5A	46.658	79.081	679997	80.083	BB	0.12

Total Area = 849116.4

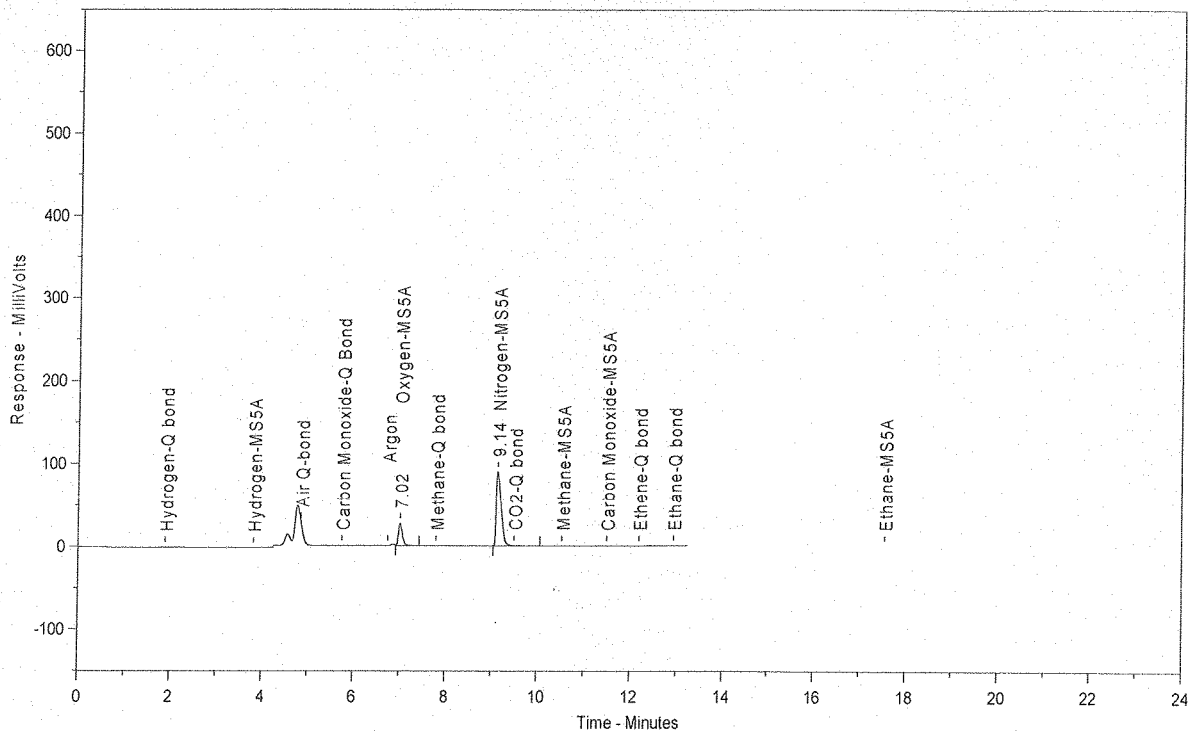
Total Height = 118735.2

Total Amount = 58.99998

39  
6/3/13

Chrom Perfect Chromatogram Report

130650-63227



Sample Name = 130650-63227

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0016.raw

Date Taken (end) = 6/3/2013 11:06:33 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	11.832	20.747	162132	19.752	BB	0.09
2	9.14	Nitrogen-MS5A	45.198	79.253	658712	80.248	BB	0.12

Total Area = 820844.8

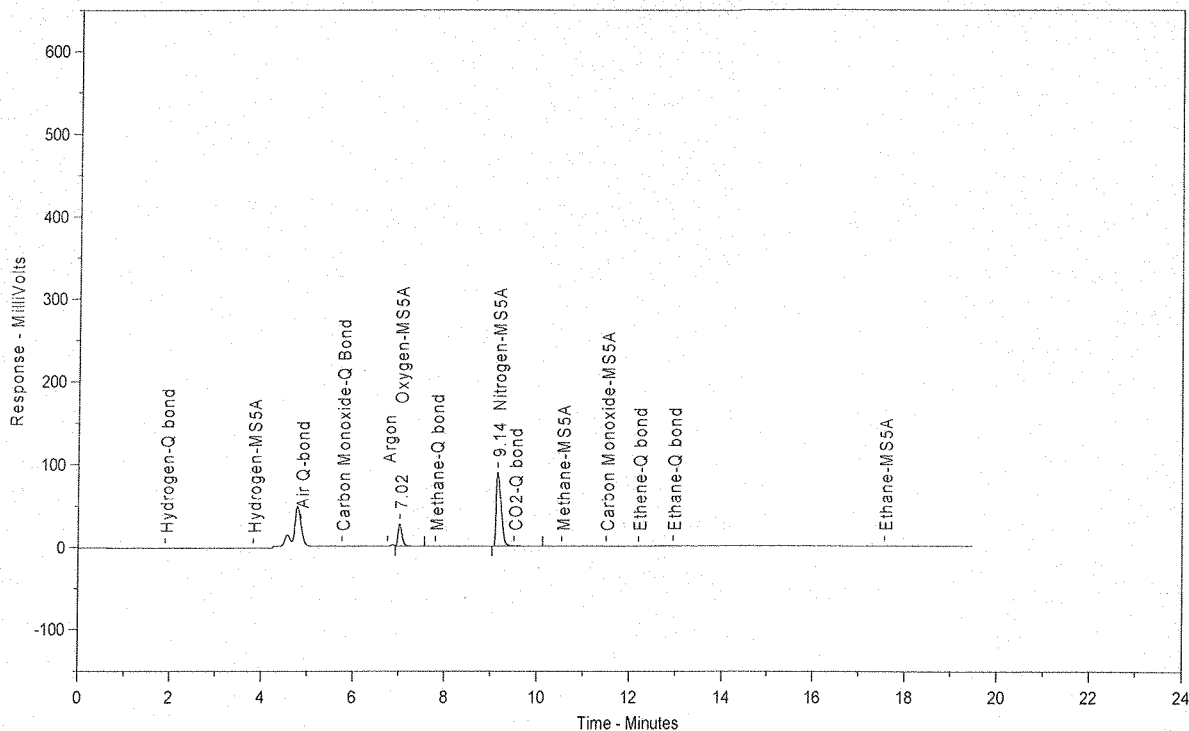
Total Height = 115956

Total Amount = 57.02965



Chrom Perfect Chromatogram Report

130650-63227 dp



Sample Name = 130650-63227 dp

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0017.raw

Date Taken (end) = 6/3/2013 11:30:34 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	11.905	20.854	163127	19.855	BB	0.09
2	9.14	Nitrogen-MS5A	45.180	79.146	658453	80.145	BB	0.12

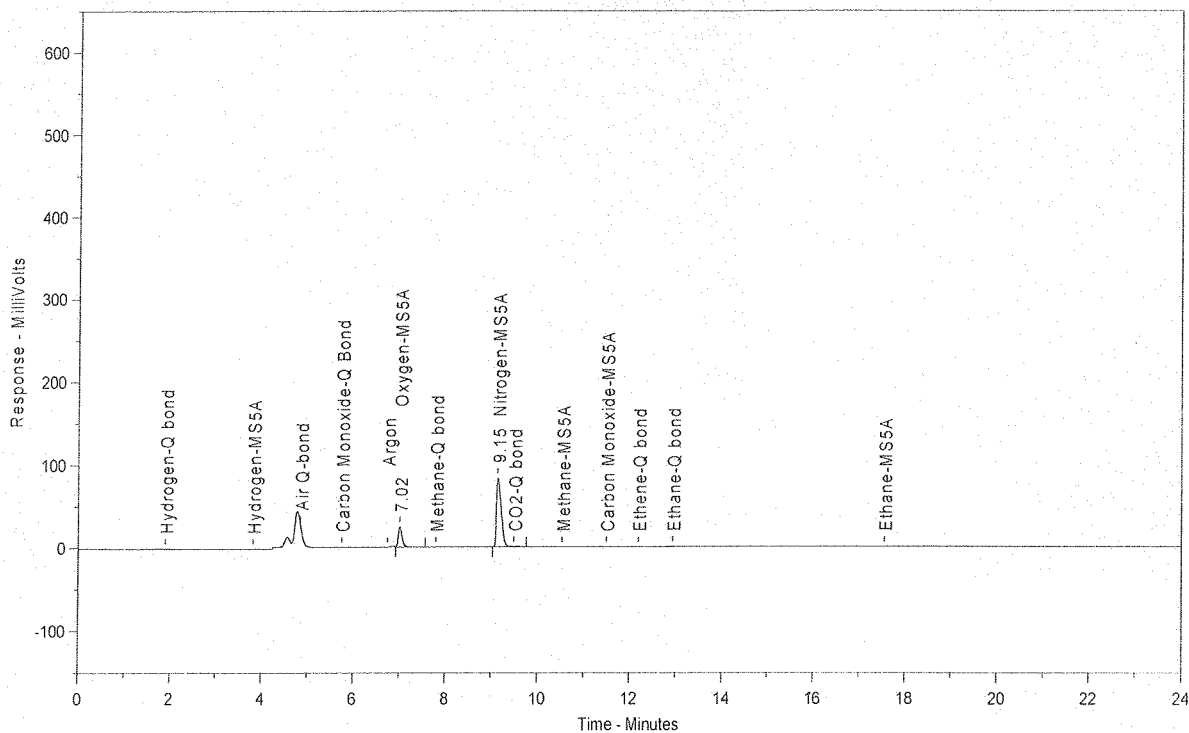
Total Area = 821580.2

Total Height = 115906.1

Total Amount = 57.08445

Chrom Perfect Chromatogram Report

130650-63236



Sample Name = 130650-63236

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0018.raw

Date Taken (end) = 6/3/2013 11:59:31 AM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	10.716	20.914	146834	19.913	BB	0.09
2	9.15	Nitrogen-MS5A	40.520	79.086	590540	80.087	BB	0.11

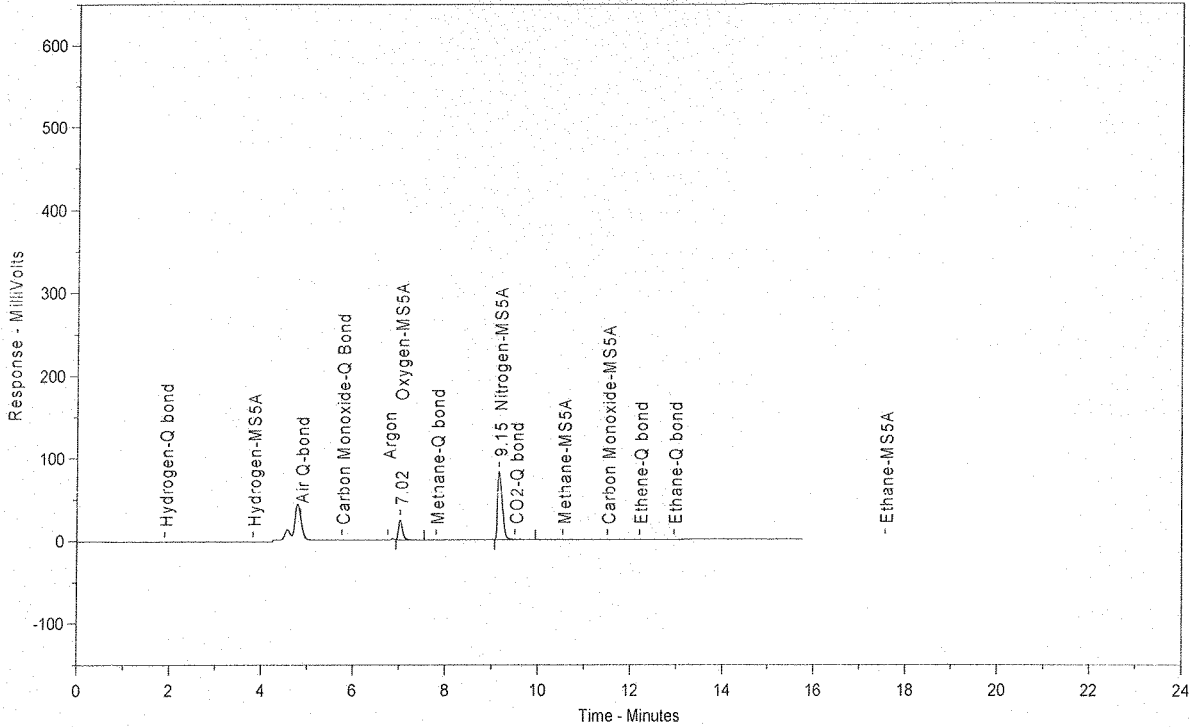
Total Area = 737374.1

Total Height = 107350.8

Total Amount = 51.23556

Chrom Perfect Chromatogram Report

130650-63236 dp



Sample Name = 130650-63236 dp

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0019.raw

Date Taken (end) = 6/3/2013 1:00:23 PM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	10.483	20.868	143643	19.868	BB	0.09
2	9.15	Nitrogen-MS5A	39.751	79.132	579337	80.132	BB	0.11

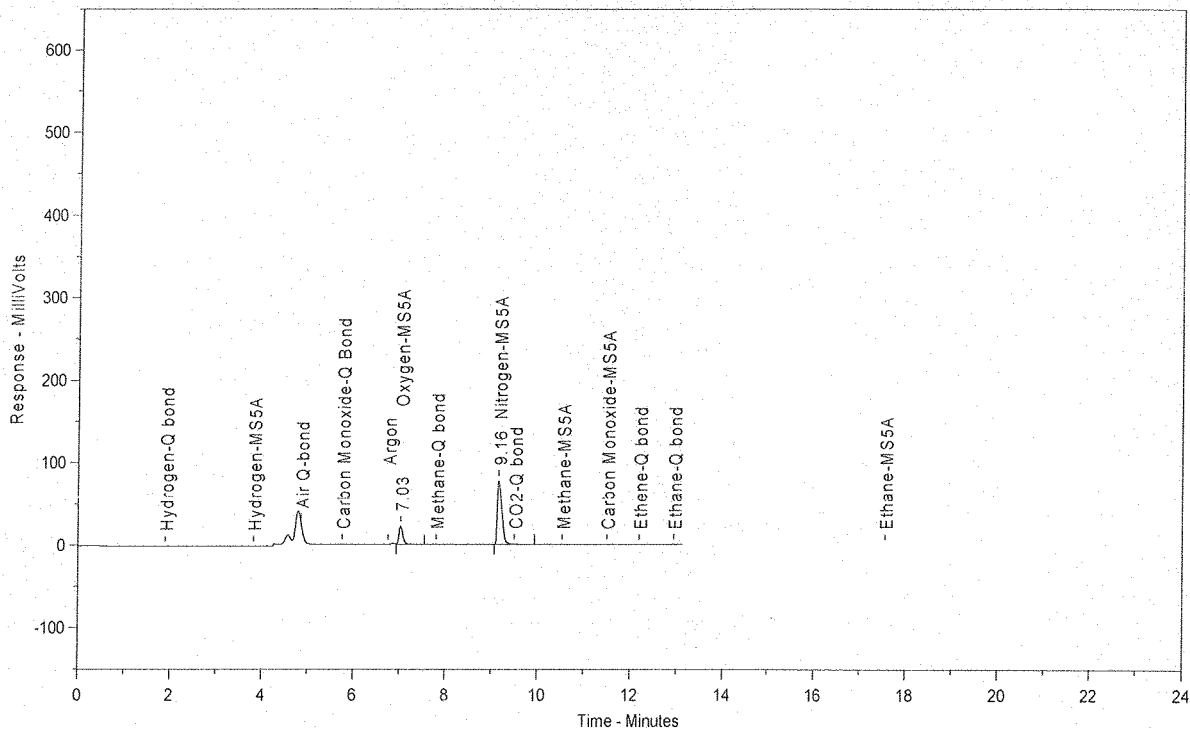
Total Area = 722979.9

Total Height = 105823.4

Total Amount = 50.23397

Chrom Perfect Chromatogram Report

130650-63245



Sample Name = 130650-63245

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0020.raw

Date Taken (end) = 6/3/2013 1:18:15 PM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.03	Oxygen-MS5A	9.633	20.860	132005	19.861	BB	0.09
2	9.16	Nitrogen-MS5A	36.547	79.140	532645	80.139	BB	0.11

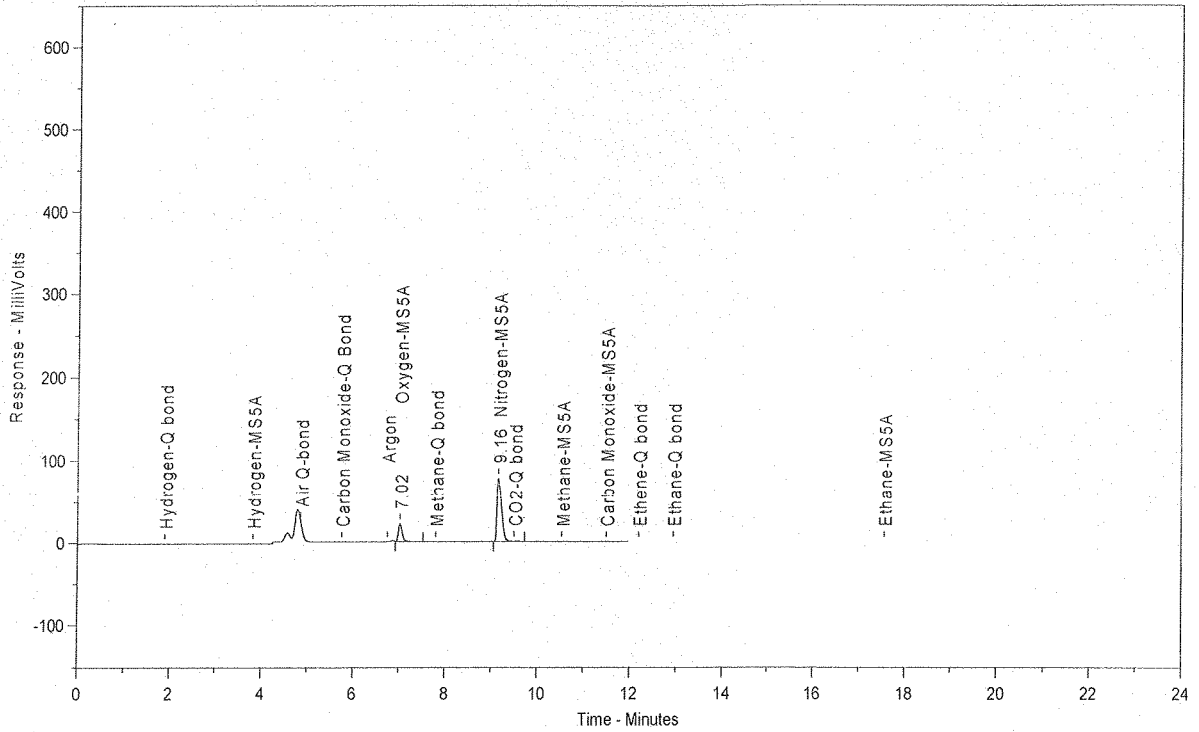
Total Area = 664649.9

Total Height = 99425.09

Total Amount = 46.18089

Chrom Perfect Chromatogram Report

130650-63245 dp



Sample Name = 130650-63245 dp

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0021.raw

Date Taken (end) = 6/3/2013 1:34:47 PM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.02	Oxygen-MS5A	9.529	20.881	130572	19.880	BB	0.09
2	9.16	Nitrogen-MS5A	36.106	79.119	526213	80.120	BB	0.11

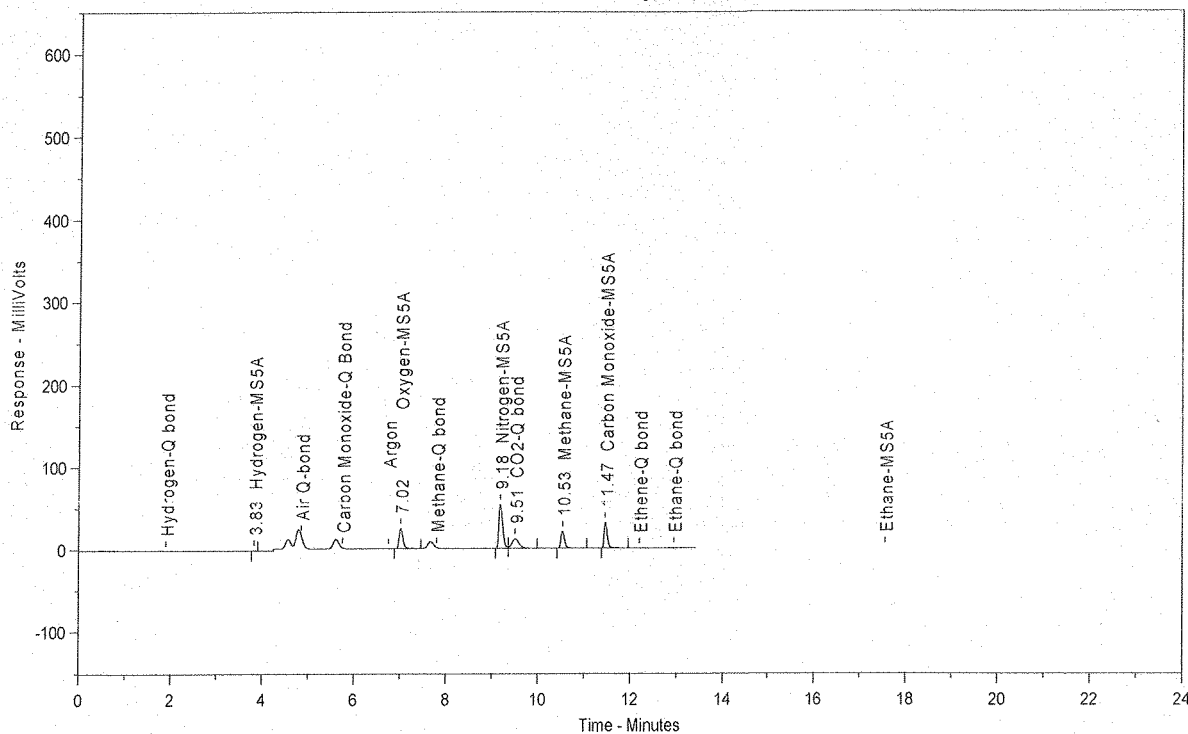
Total Area = 656785.7

Total Height = 98710.16

Total Amount = 45.63503

Chrom Perfect Chromatogram Report

Closing CCV (SS0685/SS0633)



Sample Name = Closing CCV (SS0685/SS0633)

Instrument = TCD #1

Raw File Name = C:\CPDATA\Inst#01\2013\060313.0022.raw

Date Taken (end) = 6/3/2013 3:36:45 PM

Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET

Dilution Factor = 1

Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.83	Hydrogen-MS5A	11.290	15.221	2087	0.246	BB	0.06
2	7.02	Oxygen-MS5A	10.682	14.400	146368	17.256	BB	0.09
3	9.18	Nitrogen-MS5A	21.195	28.573	308893	36.417	BV	0.09
4	9.51	CO2-Q bond	10.419	14.046	125093	14.748	VB	0.16
5	10.53	Methane-MS5A	10.091	13.604	114593	13.510	BB	0.09
6	11.47	Carbon Monoxide-MS5A	10.500	14.155	151168	17.822	BB	0.07

Total Area = 848201.8

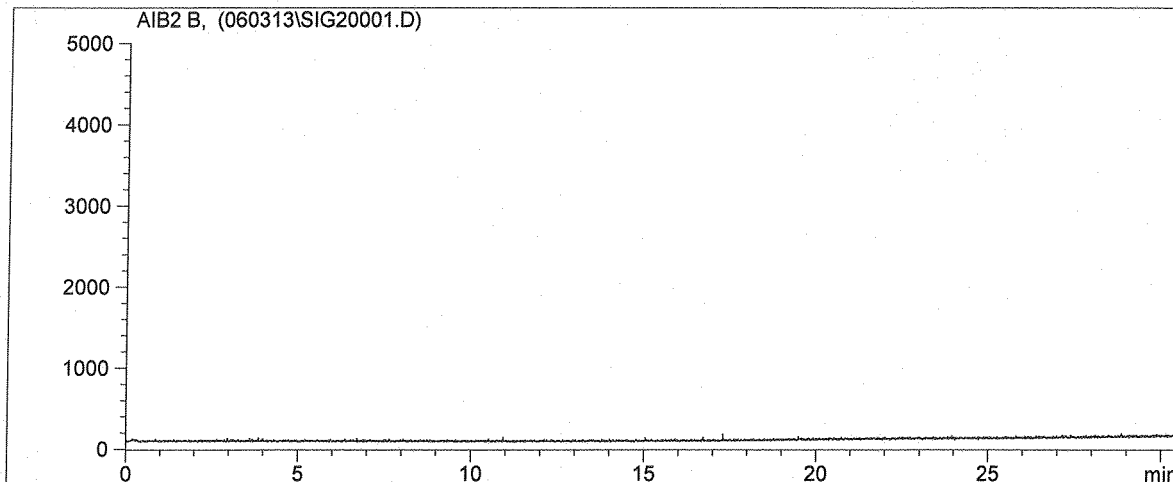
Total Height = 141326.3

Total Amount = 74.17629

Customized Report: D5504

Injection Date : 6/3/2013 6:00:15 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

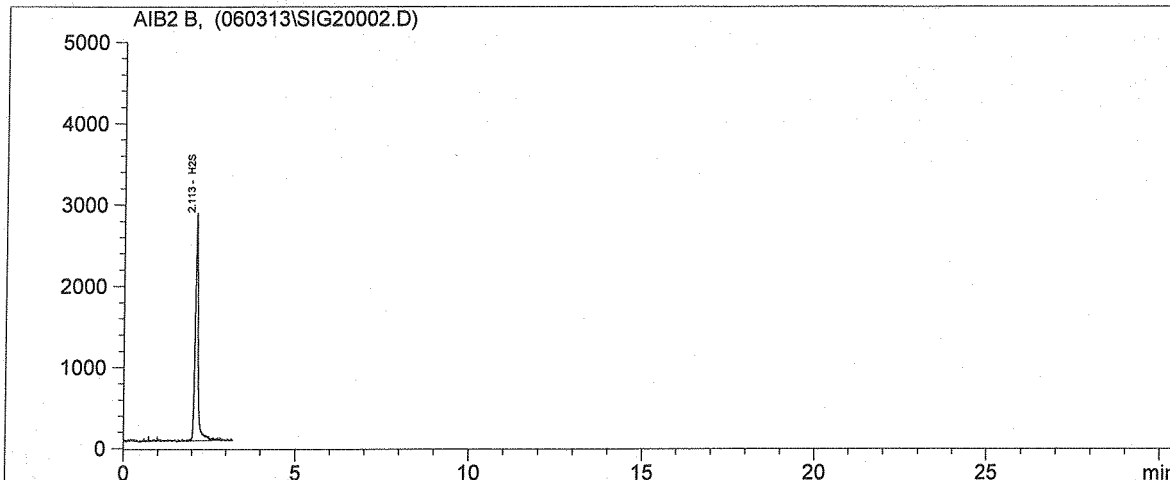
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 6/3/2013 6:47:08 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
2.113	16951	502.748	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: 502.748

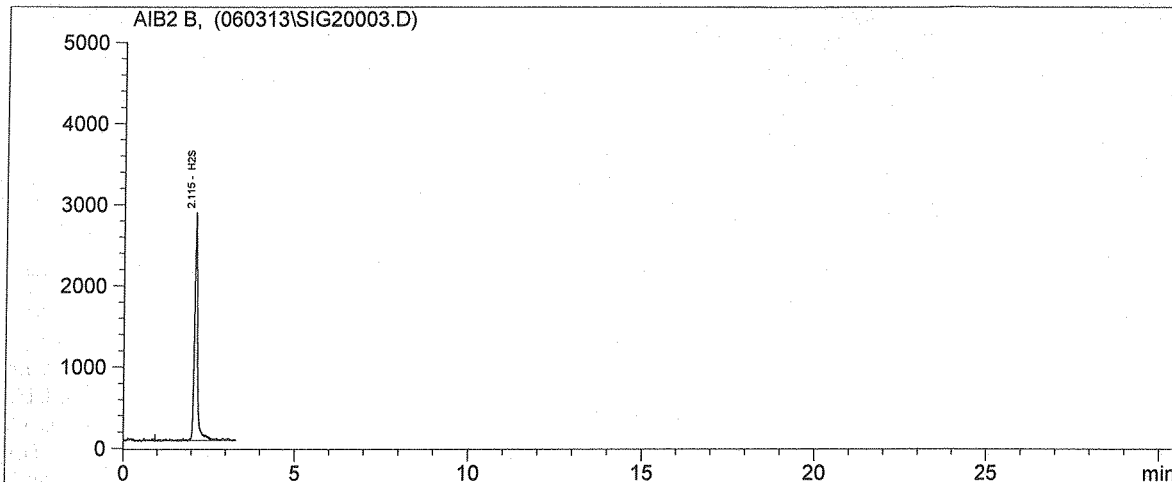
\*\*\* End of Report \*\*\*

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Customized Report: D5504

Injection Date : 6/3/2013 6:51:18 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. It lists various sulfur compounds with their respective retention times and areas, with H2S being the only significant peak at 2.115 min.

Totals: 505.048

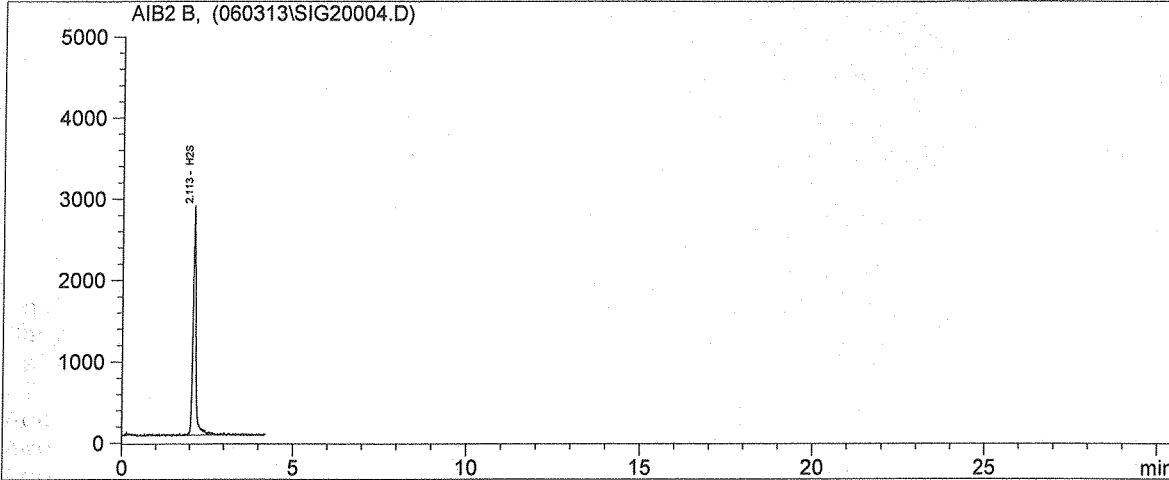
\*\*\* End of Report \*\*\*

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Customized Report: D5504

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Injection Date : 6/3/2013 6:55:10 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
2.113	17000	504.199	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

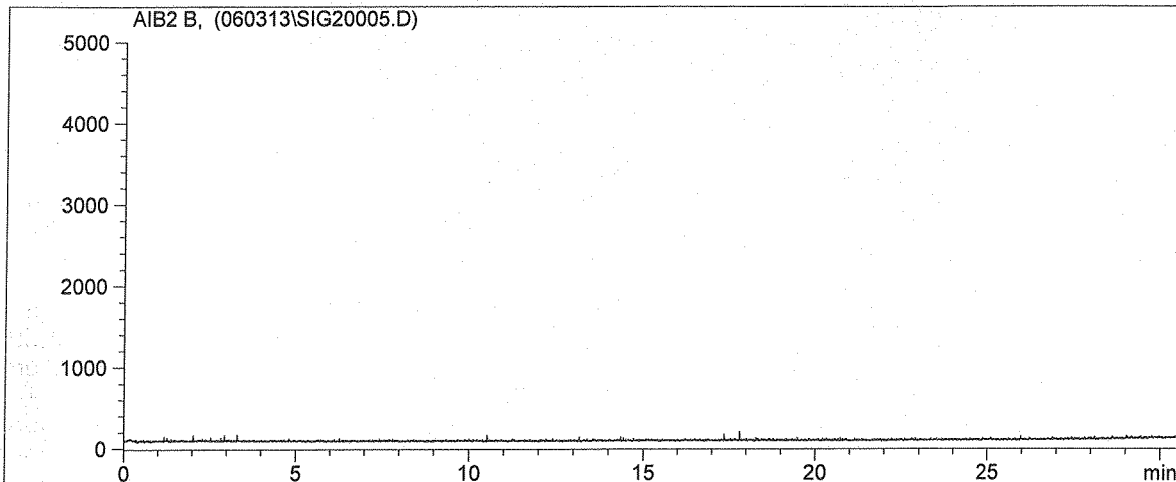
Totals: 504.199

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

DH 6/3/13

Customized Report: D5504

Injection Date : 6/3/2013 6:59:50 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

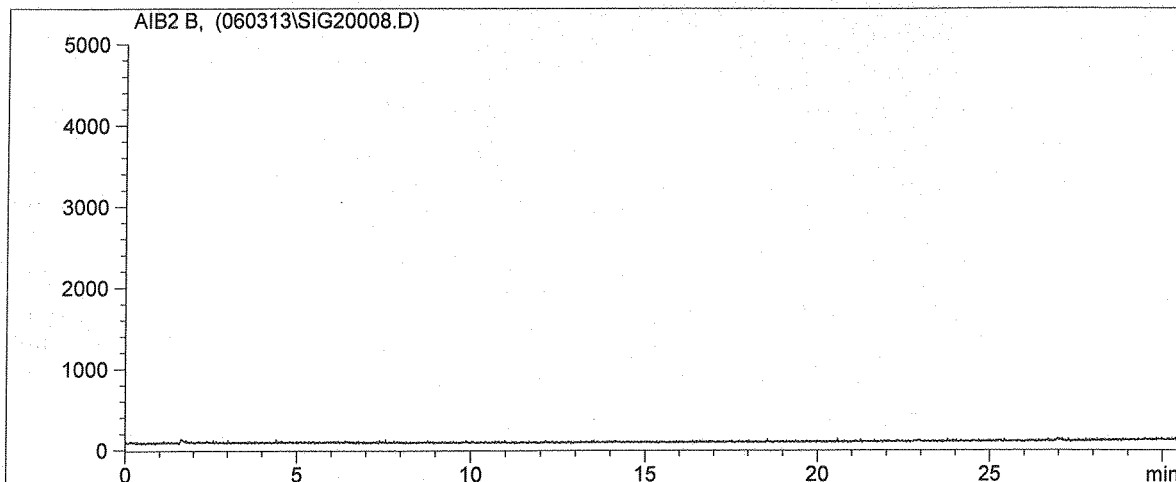
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 6/3/2013 8:22:56 AM      Seq. Line : 8  
Sample Name : 130650-63200      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

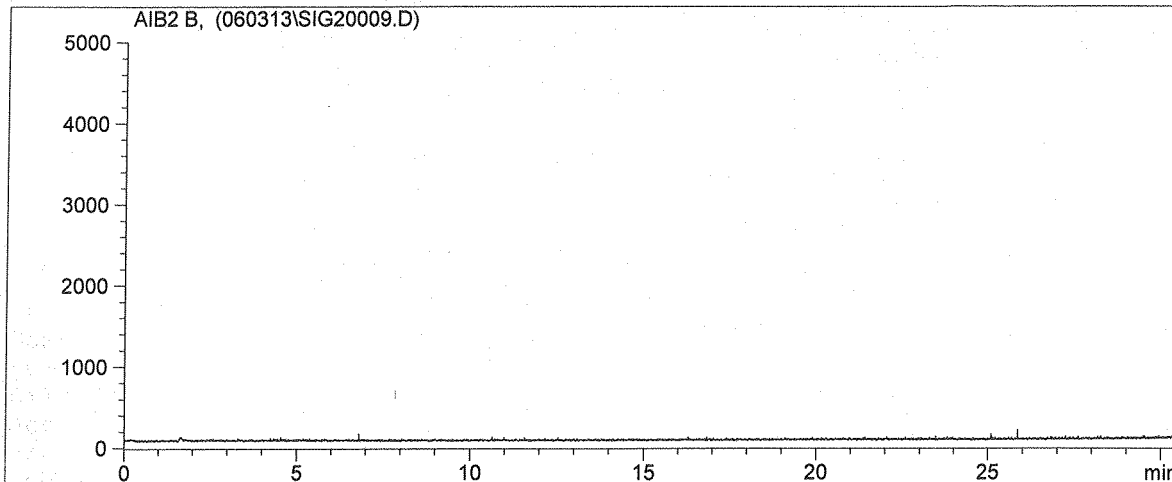
Totals: 0.000

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

Customized Report: D5504

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Injection Date : 6/3/2013 8:59:59 AM           Seq. Line : 9
Sample Name    : 130650-63200 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

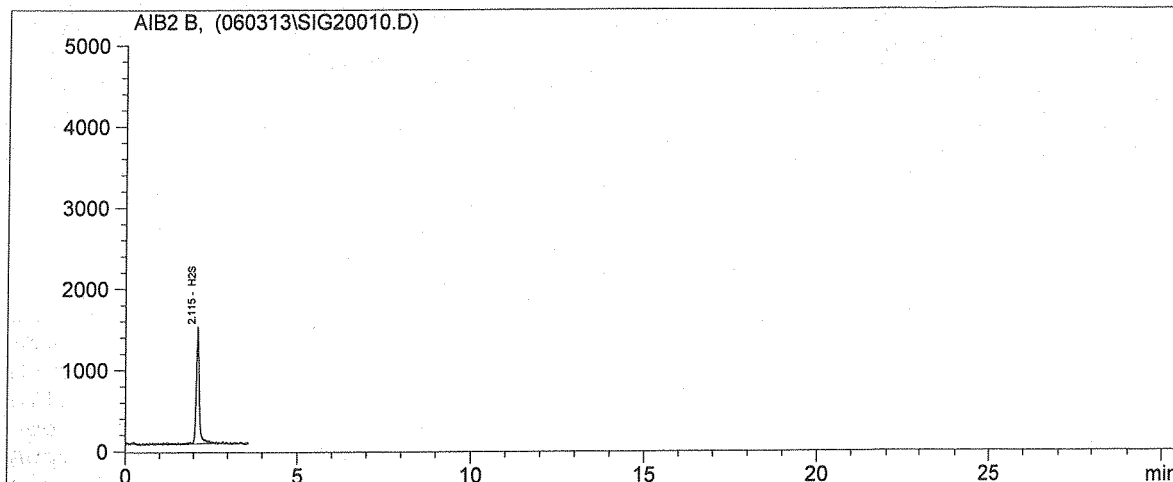
Totals: 0.000

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

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## Customized Report: D5504

Injection Date : 6/3/2013 9:35:07 AM                      Seq. Line : 10  
 Sample Name : MS 63200                      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

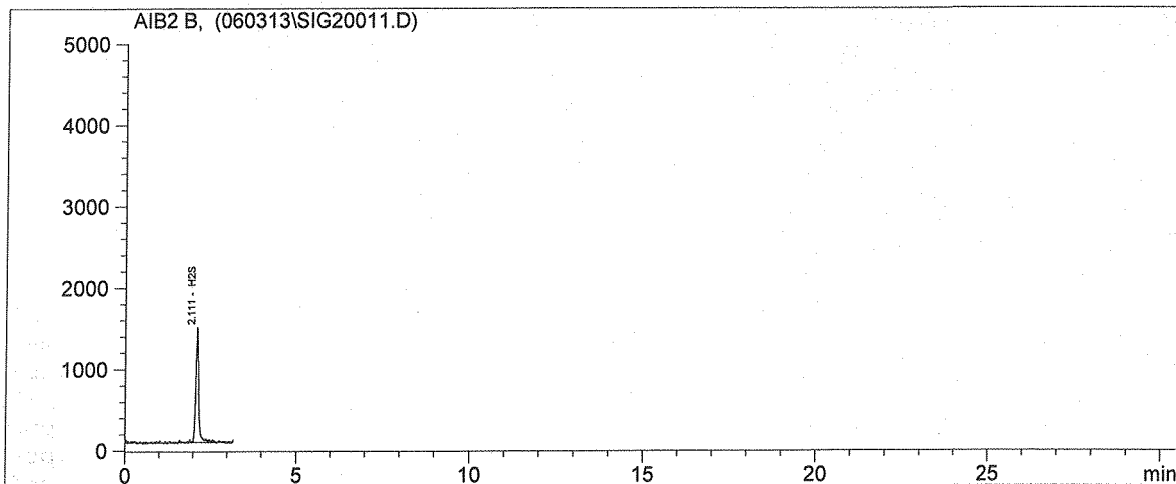
Ret Time [min]	Area	Amount [ppbV]	Name
2.115	8564	253.987	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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: 253.987

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

## Customized Report: D5504

Injection Date : 6/3/2013 9:39:21 AM      Seq. Line : 11  
 Sample Name : MSD 63200      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

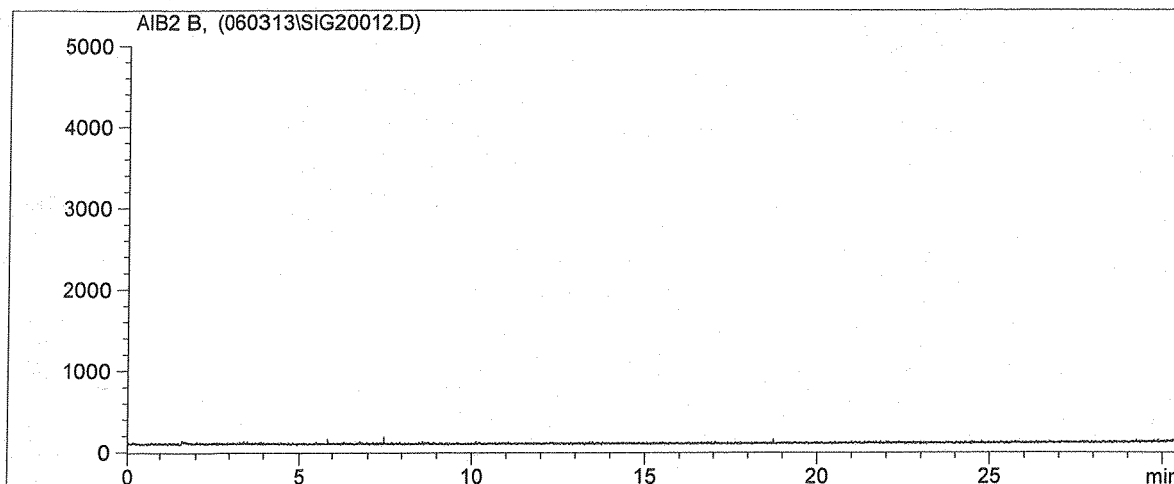
Ret Time [min]	Area	Amount [ppbV]	Name
2.111	8474	251.312	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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: 251.312

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

Customized Report: D5504

Injection Date : 6/3/2013 9:44:28 AM      Seq. Line : 12  
 Sample Name : 130650-63209      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

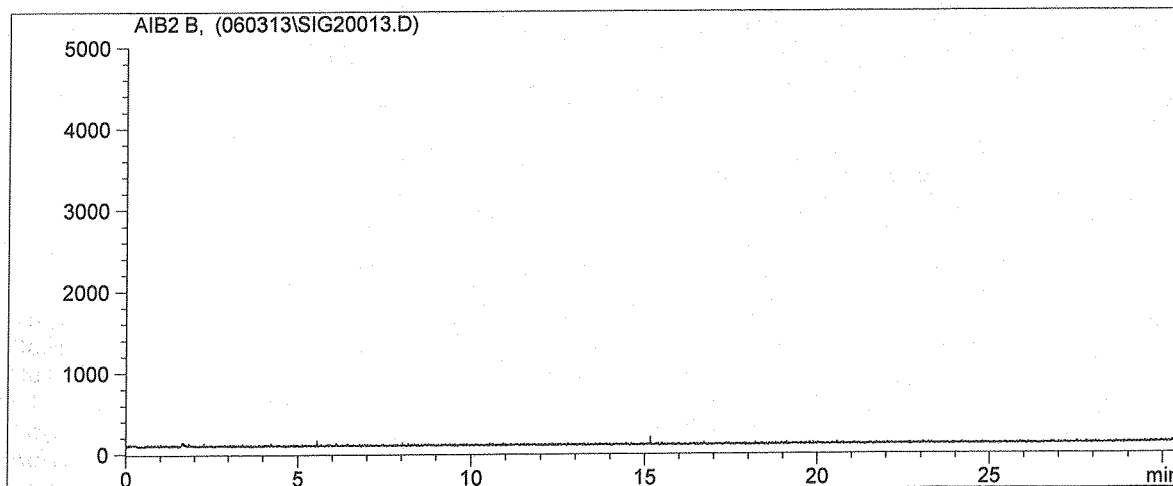
Totals: 0.000

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



## Customized Report: D5504

Injection Date : 6/3/2013 10:19:24 AM      Seq. Line : 13  
 Sample Name : 130650-63209      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

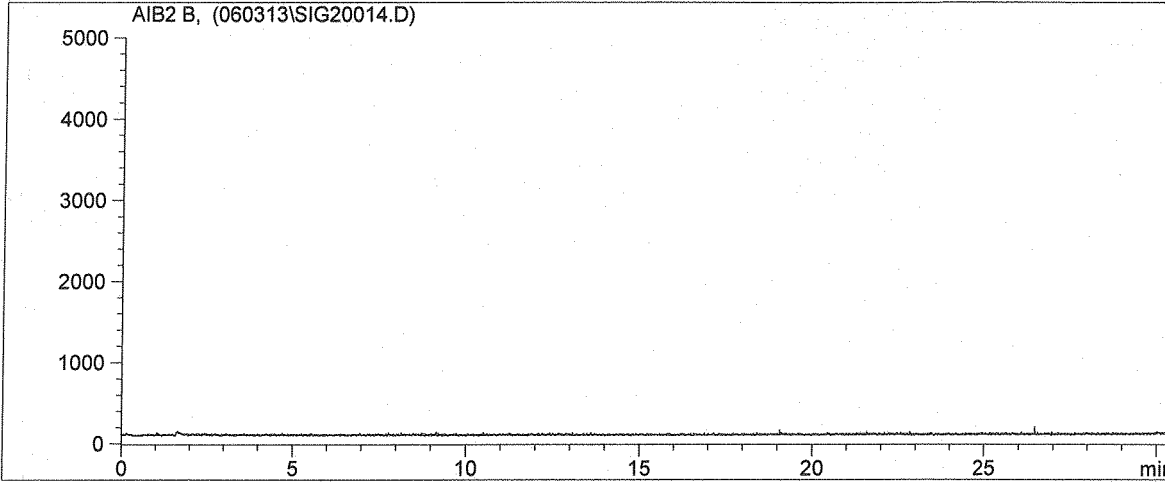
Totals: 0.000

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

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Customized Report: D5504

Injection Date : 6/3/2013 10:58:45 AM                      Seq. Line : 14  
Sample Name : 130650-63218                                      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

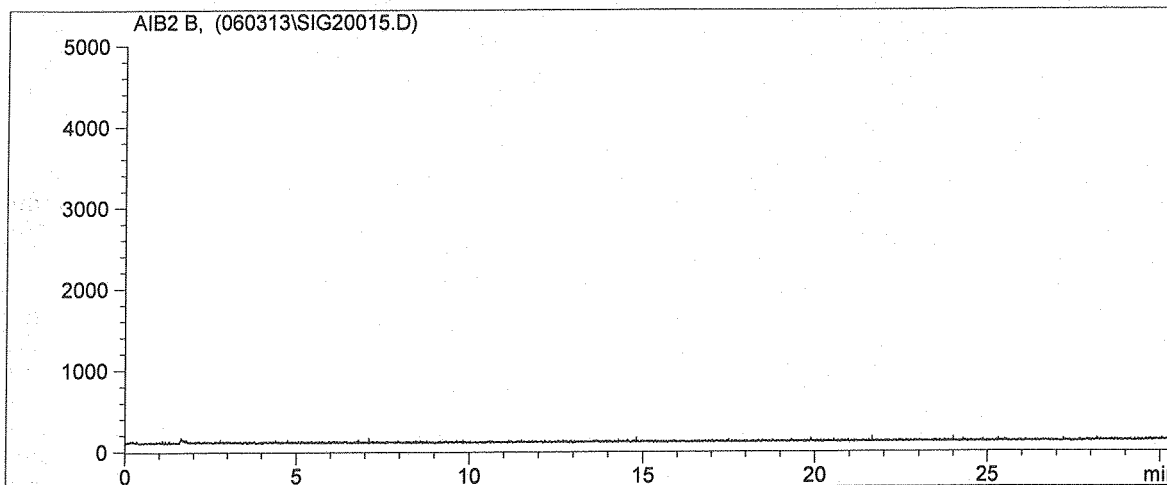
Totals: 0.000

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

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5/13

Customized Report: D5504

Injection Date : 6/3/2013 11:34:54 AM      Seq. Line : 15  
 Sample Name : 130650-63218 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

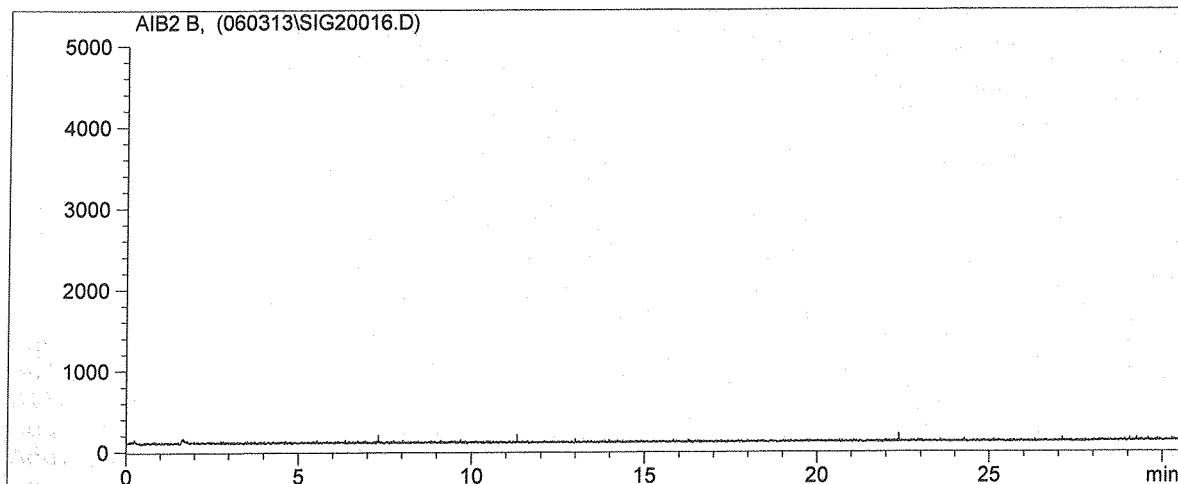
Totals: 0.000

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

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Customized Report: D5504

Injection Date : 6/3/2013 12:10:06 PM      Seq. Line : 16  
 Sample Name : 130650-63227                  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

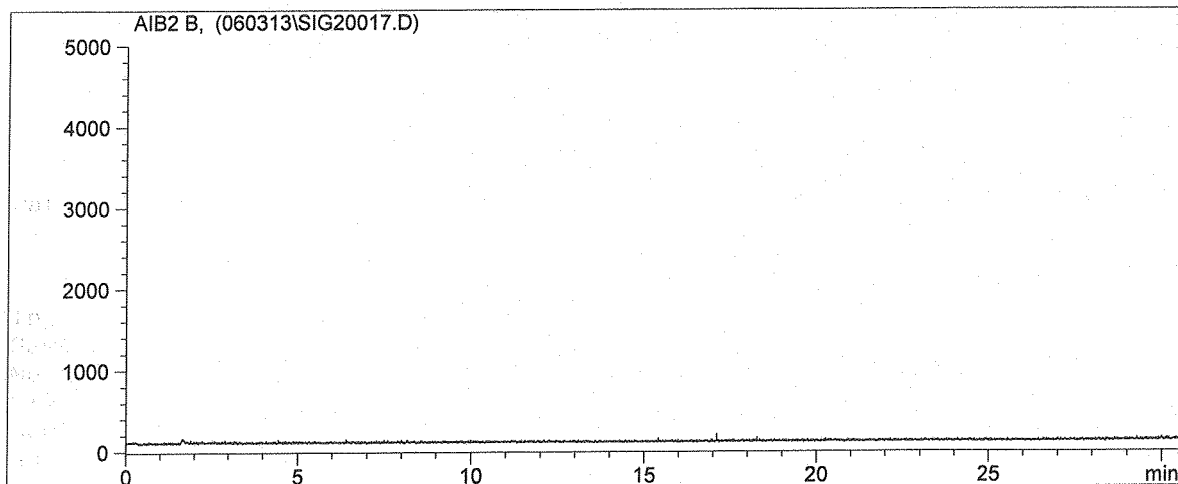
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 6/3/2013 12:44:19 PM      Seq. Line : 17  
 Sample Name : 130650-63227      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

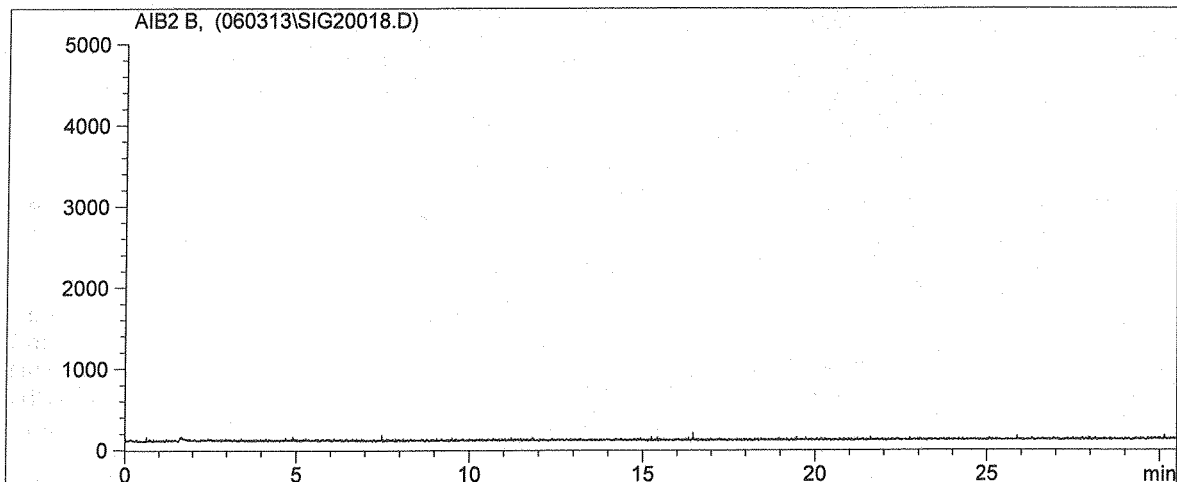
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 6/3/2013 1:21:02 PM      Seq. Line : 18  
Sample Name : 130650-63236      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

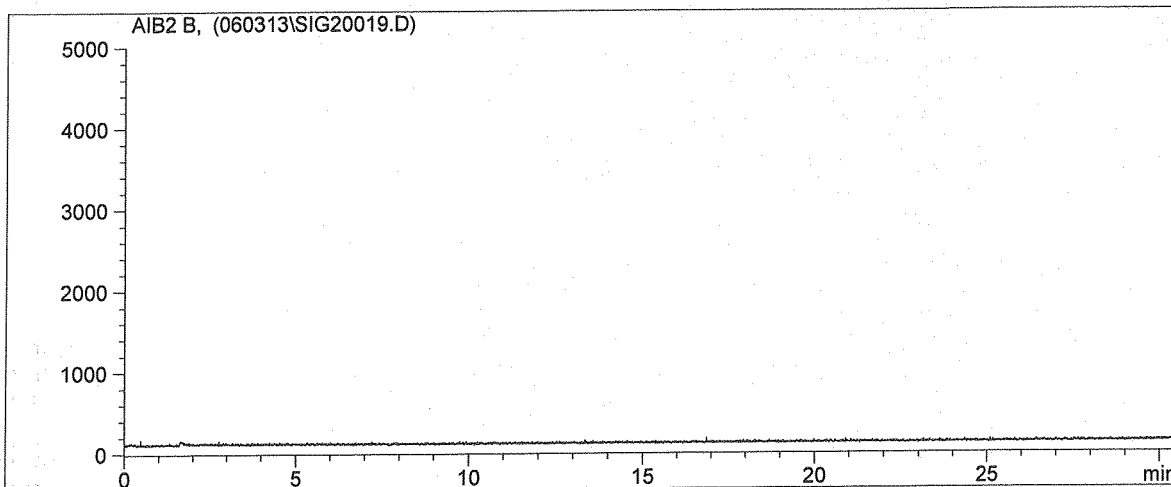
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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 : 6/3/2013 1:57:10 PM      Seq. Line : 19  
 Sample Name : 130650-63236 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

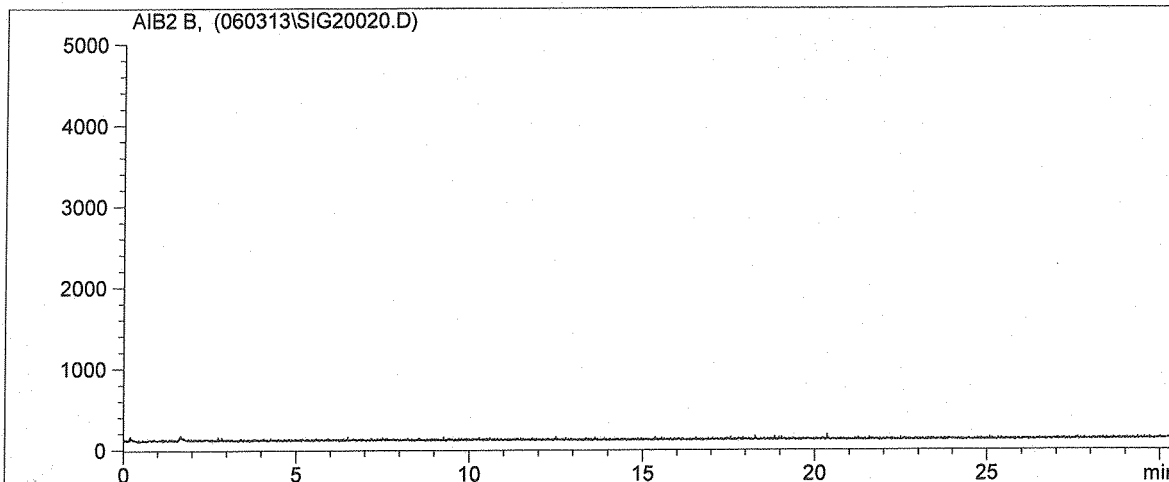
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
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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Customized Report: D5504  
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Injection Date : 6/3/2013 2:31:17 PM      Seq. Line : 20  
Sample Name : 130650-63245              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

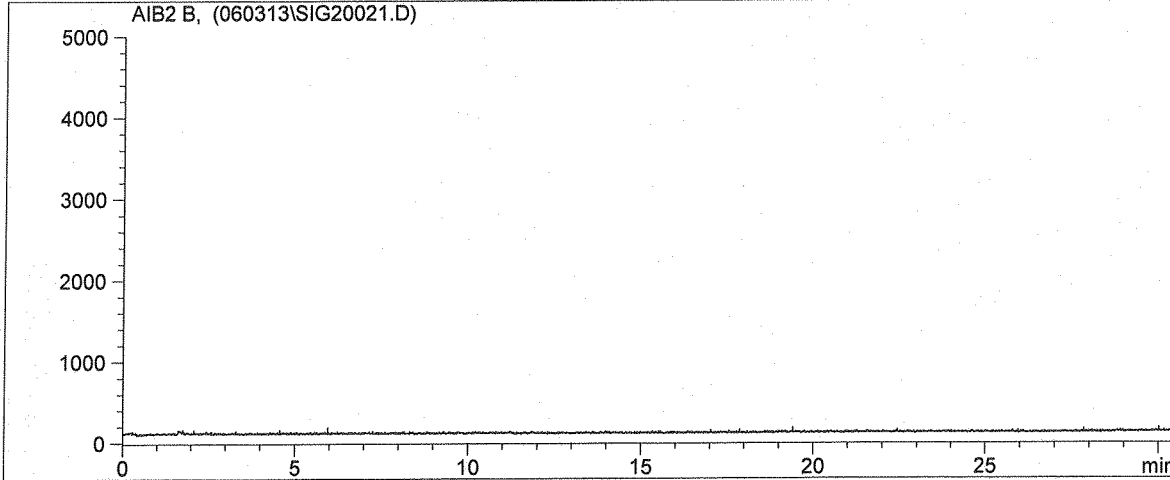
Totals: 0.000

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\*\*\* End of Report \*\*\*  
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Customized Report: D5504

Injection Date : 6/3/2013 3:05:23 PM                           Seq. Line : 21  
Sample Name : 130650-63245                                      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

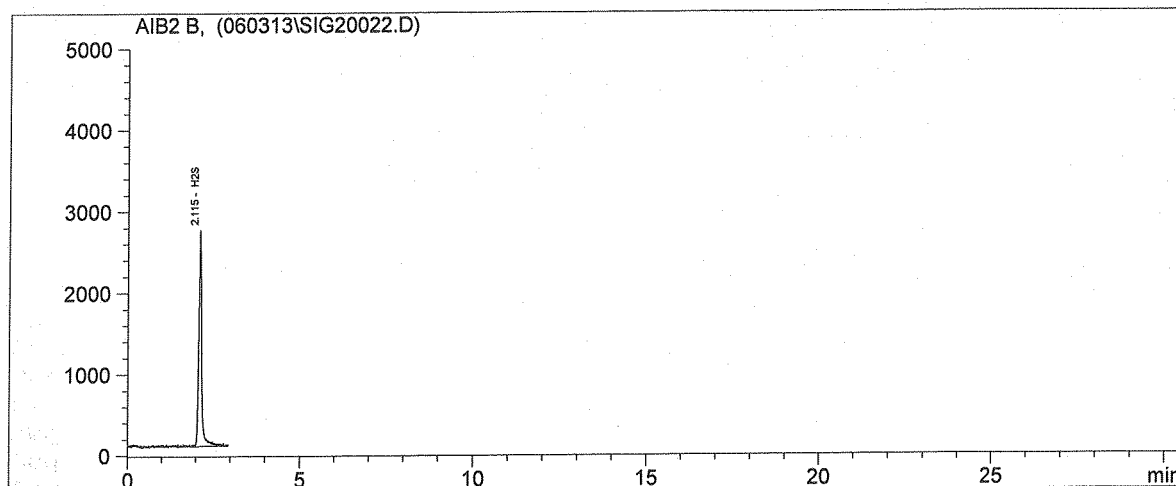
Totals: 0.000

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

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## Customized Report: D5504

Injection Date : 6/3/2013 3:40:36 PM      Seq. Line : 22  
 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
2.115	15835	469.637	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: 469.637

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

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# Calibration Summary

Chrom Perfect Calibration File

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File Name: C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL  
Version: 24

Creator: TT  
Description:

Internal standard calibration  
No injection volume correction  
No sample weight correction  
Area reject threshold: 150  
Reference peak area reject threshold: 150  
Amount units: percent  
No default component

Method of calculating data point averages: Equal weight for all updates  
No calibration update report

All levels are normal data points.

2 Hydrogen-MS5A  
Expected retention time: 3.82 minutes  
Search window: 0.2 minutes  
No internal standard component  
No retention time reference component  
Group number: 0  
High alarm limit: 0  
Low alarm limit: 0  
Component constant: 0

Single peak quantification by area

$$Y = 184.8704 X + 0$$

Linear fit with equal weighting, forced to origin

Coefficient of determination: 0.997054  
Average error: 3.173%  
Average CF: 184.361  
RSD: 4.178%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1.027	190	185.0049	0.073	Manual	6/5/2012 11:31:02 AM
2	1.027	193	187.926	1.653	Manual	6/5/2012 11:31:10 AM
3	2.566	495	192.9073	4.347	Manual	6/5/2012 11:31:39 AM
4	2.566	490	190.9587	3.293	Manual	6/5/2012 11:31:52 AM
5	5.133	911	177.4791	-3.998	Manual	6/5/2012 11:43:31 AM
6	5.133	966	188.194	1.798	Manual	6/5/2012 11:43:34 AM
7	10.265	1735	169.0209	-8.573	Manual	6/5/2012 11:44:10 AM
8	10.265	1809	176.2299	-4.674	Manual	6/5/2012 11:44:14 AM
9	20.53	3802	185.1924	0.174	Manual	6/5/2012 11:44:42 AM
10	20.53	3915	190.6965	3.151	Manual	6/5/2012 11:44:46 AM
11	(0)	(0)	--	--	Manual	4/9/2012 2:51:23 PM
12	(0)	(0)	--	--	Manual	4/9/2012 2:51:23 PM

6 Oxygen-MS5A  
 Expected retention time: 7.01 minutes  
 Search window: 0.2 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0

Single peak quantification by area

$$Y = 13702.82 X + 0$$

Linear fit with equal weighting, forced to origin

Coefficient of determination: 0.999071  
 Average error: 5.371%  
 Average CF: 13063.87  
 RSD: 5.782%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1036	1259	12152.51	-11.314	Manual	6/5/2012 12:09:28 PM
2	0.1036	1206	11640.93	-15.047	Manual	6/5/2012 11:28:32 AM
3	1.036	13286	12824.32	-6.411	Manual	6/5/2012 12:09:39 PM
4	1.036	14062	13573.36	-0.945	Manual	6/5/2012 12:09:48 PM
5	5.18	66116	12763.71	-6.853	Manual	6/5/2012 12:10:31 PM
6	5.18	67996	13126.64	-4.205	Manual	6/5/2012 12:10:38 PM
7	10.36	127480	12305.02	-10.201	Manual	6/5/2012 12:10:57 PM
8	10.36	135683	13096.82	-4.422	Manual	6/5/2012 12:11:04 PM
9	20	281965	14098.25	2.886	Manual	6/5/2012 12:11:35 PM
10	20	274449	13722.45	0.143	Manual	6/5/2012 12:11:40 PM
11	40	543688	13592.2	-0.807	Manual	6/5/2012 12:11:44 PM
12	40	554808	13870.2	1.222	Manual	6/5/2012 11:29:03 AM

8 Nitrogen-MS5A  
Expected retention time: 9.22 minutes  
Search window: 0.4 minutes  
No internal standard component  
No retention time reference component  
Group number: 0  
High alarm limit: 0  
Low alarm limit: 0  
Component constant: 0

Single peak quantification by area

$$Y = 14574.06 X + 0$$

Linear fit with equal weighting, forced to origin

Coefficient of determination: 0.9994987  
Average error: 4.726%  
Average CF: 15042.66  
RSD: 5.285%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1041	1727	16589.82	13.831	Manual	6/5/2012 12:09:04 PM
2	0.1041	1459	14015.37	-3.833	Manual	6/5/2012 12:09:08 PM
3	1.041	16409	15762.73	8.156	Manual	6/5/2012 12:09:44 PM
4	1.041	16555	15902.98	9.118	Manual	6/5/2012 11:28:37 AM
5	5.21	76781	14737.24	1.120	Manual	6/5/2012 12:10:35 PM
6	5.21	78002	14971.59	2.728	Manual	6/5/2012 12:10:42 PM
7	10.41	160140	15383.29	5.553	Manual	6/5/2012 12:11:00 PM
8	10.41	161428	15507.01	6.401	Manual	6/5/2012 11:28:51 AM
9	25	352089	14083.56	-3.366	Manual	6/5/2012 12:11:16 PM
10	25	357559	14302.36	-1.864	Manual	6/5/2012 12:11:20 PM
11	50	733498	14669.96	0.658	Manual	6/5/2012 12:11:24 PM
12	50	729300	14586	0.082	Manual	6/5/2012 12:11:30 PM

9 CO2-Q bond  
 Expected retention time: 9.5 minutes  
 Search window: 0.2 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0

Single peak quantification by area

$$Y = 12006.17 X + 0$$

Linear fit with equal weighting, forced to origin

Coefficient of determination: 0.9968426  
 Average error: 13.133%  
 Average CF: 11408.35  
 RSD: 29.225%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.103	1049	10184.47	-15.173	Manual	6/5/2012 12:02:46 PM
2	1.03	1169	1134.952	-90.547	Manual	6/5/2012 12:02:48 PM
3	1.025	12910	12595.12	4.905	Manual	6/5/2012 12:02:54 PM
4	1.025	12823	12510.24	4.198	Manual	6/5/2012 12:02:55 PM
5	2.563	32364	12627.39	5.174	Manual	6/5/2012 12:03:02 PM
6	2.563	33810	13191.57	9.873	Manual	6/5/2012 12:03:03 PM
7	5.125	66272	12931.12	7.704	Manual	6/5/2012 12:03:11 PM
8	5.125	67517	13174.05	9.727	Manual	6/5/2012 12:03:12 PM
9	10.25	128043	12492	4.046	Manual	6/5/2012 12:03:18 PM
10	10.25	127116	12401.56	3.293	Manual	6/5/2012 12:03:19 PM
11	20.5	242402	11824.49	-1.513	Manual	6/5/2012 11:57:05 AM
12	20.5	242582	11833.27	-1.440	Manual	6/5/2012 11:57:06 AM



10 Methane-MS5A  
Expected retention time: 10.54 minutes  
Search window: 0.2 minutes  
No internal standard component  
No retention time reference component  
Group number: 0  
High alarm limit: 0  
Low alarm limit: 0  
Component constant: 0

Single peak quantification by area

$$Y = 11355.95 X + 0$$

Linear fit with equal weighting, forced to origin

Coefficient of determination: 0.9999504  
Average error: 1.404%  
Average CF: 11485.02  
RSD: 1.852%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.099	1138	11494.95	1.224	Manual	6/5/2012 11:29:59 AM
2	0.099	1169	11808.08	3.981	Manual	6/5/2012 11:42:12 AM
3	0.994	11888	11959.76	5.317	Manual	6/5/2012 11:42:30 AM
4	0.994	11565	11634.81	2.456	Manual	6/5/2012 11:42:43 AM
5	2.484	28339	11408.62	0.464	Manual	6/5/2012 11:43:09 AM
6	2.484	28374	11422.71	0.588	Manual	6/5/2012 11:43:20 AM
7	4.968	56246	11321.66	-0.302	Manual	6/5/2012 11:43:48 AM
8	4.9688	56812	11433.75	0.685	Manual	6/5/2012 11:44:00 AM
9	9.935	111692	11242.27	-1.001	Manual	6/5/2012 11:44:20 AM
10	9.935	112877	11361.55	0.049	Manual	6/5/2012 11:44:29 AM
11	19.87	224961	11321.64	-0.302	Manual	6/5/2012 11:45:14 AM
12	19.87	226726	11410.47	0.480	Manual	6/5/2012 11:45:24 AM

11 Carbon Monoxide-MS5A  
Expected retention time: 11.5 minutes  
Search window: 0.2 minutes  
No internal standard component  
No retention time reference component  
Group number: 0  
High alarm limit: 0  
Low alarm limit: 0  
Component constant: 0

Single peak quantification by area

$$Y = 14397.51 X + 0$$

Linear fit with equal weighting, forced to origin

Coefficient of determination: 0.9999121  
Average error: 3.135%  
Average CF: 14181.2  
RSD: 6.858%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.103	1538	14932.04	3.713	Manual	6/5/2012 11:30:06 AM
2	0.103	1156	11223.3	-22.047	Manual	6/5/2012 11:42:13 AM
3	1.035	15568	15041.55	4.473	Manual	6/5/2012 11:42:37 AM
4	1.035	14999	14491.79	0.655	Manual	6/5/2012 11:31:49 AM
5	2.586	36454	14096.67	-2.089	Manual	6/5/2012 11:43:13 AM
6	2.586	36908	14272.24	-0.870	Manual	6/5/2012 11:43:23 AM
7	5.173	73898	14285.33	-0.779	Manual	6/5/2012 11:43:51 AM
8	5.173	74701	14440.56	0.299	Manual	4/9/2012 3:05:32 PM
9	10.345	146680	14178.83	-1.519	Manual	6/5/2012 11:44:23 AM
10	10.345	148331	14338.42	-0.410	Manual	4/9/2012 3:05:58 PM
11	20.69	297551	14381.39	-0.112	Manual	6/5/2012 11:45:17 AM
12	20.69	299845	14492.27	0.658	Manual	4/9/2012 3:06:38 PM

Analysis Date: 5/14/2013

SCAQMD 307.91 / ASTM D-5504 INITIAL CALIBRATION SUMMARY

Analyst: DH/MH Units: ppbv

CALIBRATION CURVE RAW DATA:

Standard Concentration (ppbv)	Retention time (min)	Response (Area)	RPD from initial result (< 5%)	Std Deviation	Standard Concentration	Mean Response (Area)	Calculated Concentration (From Mean)	Mean % Recovery (+/- 5%)
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
25.0	2.096	836	0.0	0	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	4.6	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	182	2500.0	84170	2496.3	99.9
2500.0	2.088	83551	2.3	182	2500.0	84170	2496.3	99.9
2500.0	2.087	83425	2.5	182	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/  
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)

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

